Set No. _____

Specifications, Proposal,
and Contract Documents for:

TOTEM LAKE PARK – PHASE 1

CIP No. PKC1390200
Job No. 38-19-PW

City of Kirkland
Department of Public Works
123 Fifth Avenue
Kirkland, Washington 98033

CITY OF KIRKLAND
DEPARTMENT OF PUBLIC WORKS

TOTEM LAKE PARK – PHASE 1
CIP NO. PKC1390200
JOB NO. 38-19-PW

Certificate of Engineer:
The Special Provisions and drawings contained herein have been prepared by or under the direction of the undersigned, whose seal as a Professional Engineer licensed to practice in the State of Washington, is affixed below.

STATE OF WASHINGTON
ANDY MITTON
NO. 882 EXP. 6/30/2020
LANDSCAPE ARCHITECT

STATE OF WASHINGTON
JASON M. ANDERSON
0936 EXP. 08/24/2020
LANDSCAPE ARCHITECT

STATE OF WASHINGTON
PAUL B. MCCORMICK
REGISTERED
PROFESSIONAL ENGINEER

MARK ADRIAN MCMICHEAL
STATE OF WASHINGTON
34258
REGISTERED
PROFESSIONAL ENGINEER

MARCIA L. KARR
STATE OF WASHINGTON
30327
REGISTERED
PROFESSIONAL ENGINEER
360-918-6938
Marcia L Karr, PE 2019.12.26
11:51:40-08'00'
EXPIRES 09-12-2020

JESSE L. WILLIAMS
STATE OF WASHINGTON
45577
REGISTERED
PROFESSIONAL ENGINEER

Note the certifications above are only applicable to the Specification Sections listed below:

[Berger] Andy Mitton only applies to division 01, sections 03 30 00, 05 50 00, 06 83 16, 11 68 13, 32 18 16.12, 32 31 00, 32 32 00, 32 33 00, 32 40 00, 32 91 13, 32 92 19, 32 93 00, 32 93 10.
[2426] Jason Anderson only applies to section 32 84 00.
[Jacobs] Jesse Williams only applies to section 01 50 00, 01 57 13, 02 41 00, 26 05 33, division 31, sections 32 11 23, 32 12 16, 32 16 00, 32 17 23 and division 33.
[Innova] Paul B McCormick only applies to division 04, division 05, division 06, division 07, division 08, division 09, division 10.
[Hood River] Marcia L Karr only applies to division 22, division 23.
[NAC] Mark Adrian McMicheal only applies to division 26.

Approved for Construction:

Rod Steitzer, P.E.
Capital Projects Manager

CITY OF KIRKLAND
GENERAL TABLE OF CONTENTS

City of Kirkland

INVITATION TO BID

City of Kirkland

INVITATION TO BID

Notice is hereby given that the City of Kirkland will receive sealed bids in the office of the Purchasing Agent, City Hall, 123 Fifth Avenue, Kirkland, Washington, at 1:00 P.M. local time on January 24, 2020 for the project hereinafter referred to as:

Totem Lake Park – Phase 1
JOB NO. 38-19-PW

At said time all bids will be opened and publicly read aloud. Each bid shall be accompanied by a bid proposal deposit in the form of a cashier's check or a bond issued on a form acceptable to your surety made payable to the City of Kirkland for a sum of not less than five percent (5%) of the total bid amount. No bid shall be considered unless accompanied by such bid proposal deposit. Incomplete proposals and proposals received after the time stated above will not be considered. Faxed or emailed responses are not acceptable.

The work to be performed under these specifications consists of furnishing all labor, tools, materials, and equipment necessary for construction of the **Totem Lake Park – Phase 1 Project.** Specific work includes, demolition of an approximate 6,000 SF wood framed building, site demolition and clearing, earthwork, asphalt paving, concrete paving, curbs and walls, storm drainage utilities, vegetated retaining wall, play area and safety surfacing installation, boardwalk construction on pipe piles, boardwalk resurfacing, site furnishing installation, construct a new 440 SF restroom building, irrigation and landscape installation, and wetland mitigation planting. The estimated cost range for this project is $5,000,000 to $6,000,000.

The City will not sell bid packages. Plans, specifications, and addenda may be viewed and obtained online at *www.bxwa.com*. Click on: "Posted Projects," "Public Works," "City of Kirkland." The Bidders List is maintained by the Builder's Exchange of Washington, Inc. Registration for the bidder's list may be made online, by phoning (425) 258-1303, or at Builder's Exchange of Washington located at 2607 Wetmore Ave, Everett, WA.

The City of Kirkland in accordance with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42 USC 2000d to 2000d-4 and Title 49, Code of Federal Regulations, Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Nondiscrimination in Federally-Assisted Programs of the Department of Transportation issued pursuant to such Act, hereby notifies all bidders that it will affirmatively ensure that in any contract entered into pursuant to this advertisement, disadvantaged business enterprises as defined at 49 CFR Part 26 will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, national origin, or sex in consideration for an award.

Questions regarding this project shall be submitted in writing to Brian Baker, via fax (425) 587-3844. Questions via phone or email will not be accepted. Bidders shall submit questions no later than January 17, 2020.

The City reserves the right to reject any and all bids, and to waive any informalities in the bidding, and to make the award to the lowest, responsive, responsible bidder as best serves the interests of the City.

No bids may be withdrawn within forty-five (45) days after the actual date of the bid opening.

Published: Daily Journal of Commerce – January 8, 2020 and January 15, 2020.

GENERAL INFORMATION, PROPOSAL, & CONTRACT

City of Kirkland

CITY OF KIRKLAND

TABLE OF CONTENTS – PROPOSAL

CITY OF KIRKLAND
INFORMATION FOR BIDDERS

Bidders must bid on all items contained in the proposal.

The omission or deletion of any bid item will be considered non-responsive and shall be cause for rejection of the bid.

Submit your proposal on the Bid Proposal and other forms which are enclosed, or make a copy of the required forms and submit these documents.

The following forms must be executed in full *with* submittal of the bid:

1. BIDDER RESPONSIBILITY CRITERIA CHECKLIST
2. SUBCONTRACTOR RESPONSIBILITY CRITERIA CHECKLIST
3. PROPOSAL

   The lump sum or unit prices must be shown in the spaces provided on the bid schedule.

   Show total bid price in both words and figures on the Proposal.

   The Proposal form must be completed in full, signed and dated.
4. BID BOND

   A surety issued bid bond must be executed by the bidder and its surety company. The amount of the bid bond shall be not less than five percent (5%) of the total amount bid and may be shown in dollars or on a percentage basis. (A cashier's check payable to the City of Kirkland and issued for an amount not less than 5% of the total bid may be submitted in lieu of a bid bond.)
5. NONCOLLUSION AFFIDAVIT - Notarized
6. STATEMENT OF BIDDER'S QUALIFICATIONS

   This form must be filled in and signed. The owner reserves the right to check all statements and to judge the adequacy of the bidder's qualifications.
7. SUBCONTRACTOR IDENTIFICATION LIST

   This form must be completed for HVAC, plumbing, and electrical subcontractors if the estimate exceeds $1,000,000.

The following forms are to be executed *after* the contract is awarded:

1. CONTRACT

   This agreement is to be executed by the successful bidder.
2. PERFORMANCE AND PAYMENT BOND

   To be executed by the successful bidder and its surety company.
3. CONTRACTOR'S DECLARATION OF OPTION FOR MANAGEMENT OF STATUTORY RETAINED PERCENTAGE; RETAINED PERCENTAGE ESCROW AGREEMENT

   To be executed by the successful bidder based on bidder's selection of option.
4. CERTIFICATES OF INSURANCE

   To be executed by the successful bidder and by an acceptable insurance company. The City of Kirkland must be named as an additional insured.
5. STATEMENT(S) OF INTENT TO PAY PREVAILING WAGES

   Affidavit certifying all employees of Contractor and Subcontractor shall be paid no less than the Prevailing Wage Rate(s) as determined by the Industrial Statistician of the Washington State Department of Labor and Industries.

SPECIAL NOTE: Prior to commencing work, the contractor and all subcontractors must have applied and paid for a City of Kirkland business license

CITY OF KIRKLAND
BIDDER RESPONSIBILITY CRITERIA

It is the intent of City to award a contract to the low responsible bidder. Before award, the bidder must meet the following bidder responsibility criteria to be considered a responsible bidder. The bidder may be required by the City to submit documentation demonstrating compliance with the criteria. The bidder must:

☐ 1. Have a current certificate of registration as a contractor in compliance with chapter 18.27 RCW, which must have been in effect at the time of bid submittal;

☐ 2. Have a current Washington Unified Business Identifier (UBI) number;

☐ 3. Have:

a. Industrial Insurance (workers' compensation) coverage for the bidder's employees working in Washington, as required in Title 51 RCW;

b. A Washington Employment Security Department number, as required in Title 50 RCW;

c. A Washington Department of Revenue state excise tax registration number, as required in Title 82 RCW;

☐ 4. Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065(3). **Meet responsibility criteria in RCW 39.04.350**

☐ 5. Until December 31, 2017, not have violated more than one time the off-site, prefabricated, non-standard, project specific items reporting requirements of RCW 39.04.370.

☐ 6. For public works projects subject to the apprenticeship utilization requirements of RCW 39.04.320, not have been found out of compliance by the Washington state apprenticeship and training council for working apprentices out of ratio, without appropriate supervision, or outside their approved work processes as outlined in their standards of apprenticeship under chapter 49.04 RCW for the one-year period immediately preceding the first date of advertising for the project.

CITY OF KIRKLAND
SUBCONTRACTOR RESPONSIBILITY CRITERIA

☐ A. The Contractor shall include the language of this section in each of its first tier subcontracts, and shall require each of its subcontractors to include the same language of this section in each of their subcontracts, adjusting only as necessary the terms used for the contracting parties. Upon request of the Owner, the Contractor shall promptly provide documentation to the Owner demonstrating that the subcontractor meets the subcontractor responsibility criteria below. The requirements of this section apply to all subcontractors regardless of tier.

☐ B. At the time of subcontract execution, the Contractor shall verify that each of its first tier subcontractors meets the following bidder responsibility criteria:

☐ 1. Have a current certificate of registration in compliance with chapter 18.27 RCW, which must have been in effect at the time of subcontract bid submittal;

☐ 2. Have a current Washington Unified Business Identifier (UBI) number;

☐ 3. Have:

a) Industrial Insurance (workers' compensation) coverage for the subcontractor's employees working in Washington, as required in Title 51 RC
b) A Washington Employment Security Department number, as required in Title 50 RCW;
c) A Washington Department of Revenue state excise tax registration number, as required in Title 82 RCW;
d) An electrical contractor license, if required by Chapter 19.28 RCW;
e) An elevator contractor license, if required by Chapter 70.87 RCW.

☐ 4. Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065 (3). **Meet responsibility criteria in RCW 39.04.350**

☐ 5. Until December 31, 2017, not have violated more than one time the off-site, prefabricated, non-standard, project specific items reporting requirements of RCW 39.04.370.

☐ 6. For public works projects subject to the apprenticeship utilization requirements of RCW 39.04.320, not have been found out of compliance by the Washington state apprenticeship and training council for working apprentices out of ratio, without appropriate supervision, or outside their approved work processes as outlined in their standards of apprenticeship under chapter 49.04 RCW for the one-year period immediately preceding the first date of advertising for the project.

CITY OF KIRKLAND
BID PROPOSAL

TOTEM LAKE PARK – PHASE 1
CIP NO. PKC1390200
JOB NO. 38-19-PW

To: Director of Finance
City of Kirkland
123 Fifth Avenue
Kirkland, Washington 98033

The undersigned, hereinafter called the Bidder, declares that the only persons or parties interested in this proposal are those named herein; that this proposal is in all respects fair and without fraud; that it is made without collusion with any official or employee of the City of Kirkland, hereinafter called the Owner; and that the proposal is made without any connection or collusion with any person making another proposal on this contract.

The bidder further declares that it has carefully examined the contract documents for the construction of the project; that it has personally inspected the site; that it has satisfied itself as to the quantities involved, including materials and equipment and conditions of work involved, including the fact that the description of the quantities of work materials, as included herein, is brief and is intended only to indicate the general nature of the work and to identify the said quantities with the detailed requirements of the contract documents; and that this proposal is made according to the provisions and under the terms of the contract documents, which documents are hereby made a part of this proposal.

The bidder further agrees that it has exercised its own judgment regarding the interpretation of subsurface information and has utilized all data which it believes pertinent from the engineer-architect, owner, and other sources in arriving at its conclusions.

The bidder agrees to hold its bid proposal open for 45 days after the actual date of bid opening and to accept the provisions of the Instructions to Bidders regarding disposition of bid bond.

The bidder agrees that if this proposal is accepted, it will, within ten (10) calendar days after notification of acceptance, execute the contract with the Owner in the form of contract included in the contract documents, and will, at the time of execution of the contract, deliver to the Owner the Performance and Payment Bond and all Certificates of Insurance required therein, and will, to the extent of its proposals, furnish all machinery, tools, apparatus, and other means of construction and do the work in the manner, in the time, and according to the methods as specified in the contract documents and required by the engineer or other project manager designated thereunder.

The bidder further agrees, if awarded the contract, to begin work within ten (10) calendar days after the date of the execution of the contract and to complete the construction within the time specified in Section 1-08.5 of the Special Provisions.

In the event the bidder is awarded the contract and shall fail to complete the work within the time limit or extended time limit agreed upon as more particularly set forth in the contract documents, liquidated damages shall be paid to the Owner per the specifications contained in the contract documents.

The bidder further proposes to accept as full payment for the work proposed herein, the amounts computed under the provisions of the contract documents and based upon the lump sum and unit price amounts entered by the bidder for the various bid items included in the Bid Schedule. The bidder further agrees the lump sum and unit prices entered for the various bid items included in the Bid Schedule include all use taxes, overhead, profit, bond premiums, insurance premiums and all other miscellaneous and incidental expenses as well as all costs of materials, labor, tools and equipment required to perform and complete the work.

Within the three-year period immediately preceding the date of the bid solicitation for this Project, bidder has not been determined by a final and binding citation and notice of assessment issued by the department of labor and industries or through a civil judgment entered by a court of limited or general jurisdiction to have willfully violated, as defined in RCW 49.48.082, any provision of chapter 49.46, 49.48, or 49.52 RCW.

The undersigned bids and agrees to complete all construction of the **TOTEM LAKE PARK – PHASE 1; JOB NO. 38-19-PW** for the following:

Total Computed Price *(in figures)*: $_____

Washington State Sales Tax 10.1% *(in figures)*: $_____

Total Bid *(in figures)*: $_____

Total Bid *(in words)*: _____

_____

Receipt of Addenda No(s). _____ is hereby acknowledged.

I certify (or declare) under penalty of perjury under the laws of the State of Washington that the foregoing is true and correct:

CONTRACTOR (Firm Name)	Location or Place Executed: (City, State)
By	Name and title of person signing
(Indicate whether Contractor is Partnership, Corporation, or Sole Proprietorship)	Date
Washington State Contractor's Registration Number	Contractor's Industrial Insurance Account Number

MUST BE SUBMITTED WITH PROPOSAL

_____	_____
Employment Security Identification Number	Uniform Business Identification (UBI) Number

Contractor's Address:

_____	_____
	Telephone Number
_____	_____
	Fax Number
_____	_____
	EMAIL

** Bid proposal to be submitted in a **sealed envelope** marked "**Bid Enclosed**" for **TOTEM LAKE PARK – PHASE 1, JOB NO. 38-19-PW.**

CITY OF KIRKLAND
BID SCHEDULE

TOTEM LAKE PARK – PHASE 1
JOB NO. 38-19-PW

ALL BASE BID WORK

Note: Unit prices for all items, all extensions, and the total amount of the bid must be shown. All entries must be typed or entered in ink.

Schedule A

Item No.	Item Description	Est. Qty.	Unit	Unit Price	Amount
A1	All Base Bid Work	1	LS		

TOTAL COMPUTED PRICE: $_____

UNIT PRICE BID WORK

Note: Unit price bid items, shall be used for adjusting the contract price when differing site conditions are encountered. All entries mush be typed or entered in ink.

Schedule B

Item No.	Item Description	Est. Qty.	Unit	Unit Price	
B1	Contaminated Soils and Creosote Pilings – Excavation, Haul, and Disposal	150	Ton	Subtotal:	
				WA St. Sales Tax (10.1%):	
				Total Unit Price B1:	
B2	Pea Gravel backfill for areas of Contaminated Soil and Creosote Piling Removal	150	Ton	Subtotal:	
				WA St. Sales Tax (10.1%):	
				Total Unit Price B2:	
B3	2 inch Diameter Pipe Piles – Boardwalk Deep Foundation Installation	1239	EA (10' Length)	Subtotal:	
				WA St. Sales Tax (10.1%):	
				Total Unit Price B3:	
B4	4 inch Diameter Pipe Piles – Miscellaneous Park Elements Deep Foundation Installation	170	EA (10' Length)	Subtotal:	
				WA St. Sales Tax (10.1%):	
				Total Unit Price B4:	
B5	6 inch Diameter Pipe Piles – Restroom Building Deep Foundation Installation	57	EA (10' length)	Subtotal:	
				WA St. Sales Tax (10.1%):	
				Total Unit Price B5:	

MUST BE SUBMITTED WITH PROPOSAL

BID DEPOSIT

Herewith find deposit in the form of a cashier's check or certified check in the amount of $_____which amount is not less than five percent (5%) of the total bid.

SIGN HERE_____

BID BOND

KNOW ALL MEN BY THESE PRESENTS:

That we, _____, as Principal, and _____, as Surety, are held and firmly bound unto the City of Kirkland, as Obligee, in the penal sum of _____ _____ dollars, for the payment of which the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, by these presents.

The condition of this obligation is such that if the Obligee shall make any award to the Principal for

_____ _____

Project Name Job Number

according to the terms of the proposal or bid made by the Principal therefor, and the Principal shall duly make and enter into a contract with the Obligee in accordance with the terms of said proposal or bid and award and shall give bond for faithful performance thereof, with Surety or Sureties approved by the Obligee; or if the Principal shall, in case of failure to do so, pay and forfeit to the Obligee the penal amount of the deposit specified in the call for bids, then this obligation shall be null and void; otherwise it shall be and remain in full force and effect and the Surety shall forthwith pay and forfeit to the Obligee, as penalty and liquidated damages, the amount of this bond.

SIGNED, SEALED AND DATED THIS _____ DAY OF _____, 20_____.

PRINCIPAL: SURETY:

_____ _____

_____ _____

Note: If a Bid Bond is provided, it must be accompanied by a power of attorney which appoints the - Surety's true and lawful attorney-in-fact to make, execute, seal and deliver this Bid Bond.

CITY OF KIRKLAND
NONCOLLUSION AFFIDAVIT
TOTEM LAKE PARK – PHASE 1
CIP NO. PKC1390200
JOB NO. 38-19-PW

STATE OF WASHINGTON)
) SS
COUNTY OF KING)

The undersigned, being duly sworn, on oath deposes and says that the person(s), firm, association, partnership or corporation herein named has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with the project for which this proposal is submitted.

_____ _____
Firm Name Authorized Signature

_____
Type Name

_____
Title

Sworn to before me, this _____ day of _____, 20__.

_____
Notary Public in and for the State of Washington
Residing at _____
My Commission Expires _____

NOTICE TO ALL BIDDERS

To report bid rigging activities call: 1-800-424-9071

The U.S. Department of Transportation (USDOT) operates the above toll-free "hotline" Monday through Friday, 8:00 a.m. to 5:00 p.m., ET. Anyone with knowledge of possible bid rigging, bidder collusion, or other fraudulent activities should use the "hotline" to report such activities.

The "hotline" is part of USDOT's continuing effort to identify and investigate highway construction contract fraud and abuse and is operated under the direction of the USDOT Inspector General. All information will be treated confidentially and caller anonymity will be respected.

CITY OF KIRKLAND
STATEMENT OF BIDDER'S QUALIFICATIONS

Contractor Name: _____ Contact: _____

Business Address: _____

Business phone: _____ Fax: _____

Number of years the Contractor has been engaged in the construction business under the present firm name: _____

Describe the general character of work performed by your company: _____

_____

List five projects of a similar nature which Contractor has completed within the last 10 years. Include contract amount and contact information for references:

Project Name	Amount	Owner/Agency	Contact	Phone	Year Completed

List major equipment anticipated to be used on this project; indicate whether Contractor-owned or to be leased from others: _____

_____

_____

_____

Bank reference(s): _____

Washington State Contractor Registration No.: _____

Uniform Business Identification No.: _____

I certify that other contracts now in progress or hereafter obtained will not interfere with timely performance of the City of Kirkland project should I become the successful bidder.

Authorized Signature: _____

Print Name: _____Title: _____

CITY OF KIRKLAND
SUBCONTRACTOR IDENTIFICATION FOR CONTRACTS ESTIMATED TO BE IN EXCESS OF ONE MILLION DOLLARS ($1,000,000.00)

RCW 39.30.060 requires the following:

> "Every invitation to bid on a prime contract that is **expected** to cost one million dollars or more for the construction, alteration, or repair of any public building or public work of the state or a state agency or municipality as defined under RCW 39.04.010 … shall require each prime contract bidder to submit as part of the bid, or within one hour after the published bid submittal time *[see note below]*, the names of the subcontractors with whom the bidder, if awarded the contract, will subcontract for performance of the work of: HVAC (heating, ventilation, and air conditioning); plumbing as described in chapter 18.106 RCW; and electrical as described in chapter 19.28 RCW, or to name itself for the work. The prime contract bidder shall not list more than one subcontractor for each category of work identified, unless subcontractors vary with bid alternates, in which case the prime contract bidder must indicate which subcontractor will be used for which alternate. Failure of the prime contract bidder to submit as part of the bid the names of such subcontractors or to name itself to perform such work or the naming of two or more subcontractors to perform the same work shall render the prime contract bidder's bid non-responsive and, therefore, void."

NOTE: The City of Kirkland has elected <u>not</u> to allow bidders to submit the information required by RCW 39.30.060 after the published bid submittal time. A proposal will be considered irregular and will be rejected if the bidder does not provide the above list as part of its proposal when submitting its bid.

Each bidder shall submit a list of:

1. HVAC, plumbing, and electrical subcontractors; and

2. The specific items of work those subcontractors will perform on the contract; and

3. The specific items of work that will be performed by the bidder on the contract.

CITY OF KIRKLAND
SUBCONTRACTOR IDENTIFICATION LIST

*REQUIRED IF ESTIMATE AMOUNT EXCEEDS $1,000,000 (*Reference RCW 39.30.060 RCW*)

Proposed Subcontractors and items of work to be performed:

Subcontractor Name: _____

Item Numbers: _____

_____

_____

_____

Subcontractor Name: _____

Item Numbers: _____

_____

_____

_____

Subcontractor Name: _____

Item Numbers: _____

_____

_____

_____

Subcontractor Name: _____

Item Numbers: _____

_____

_____

_____

- make additional pages if necessary -

Work to be performed by Prime Contractor:

Item Numbers: _____

_____

_____

_____

_____

CITY OF KIRKLAND
BIDDER'S CHECKLIST

1. Have you reviewed the Bidder Responsibility and Subcontractor Responsibility Criteria?
2. Have you enclosed a bid bond or certified check with your bid? (Must be at least 5% of the total amount bid)
3. Have you entered a bid amount for all items and all schedules?
4. Do the written amounts of the proposal agree with the amounts shown in the figures?
5. Have you acknowledged receipt of addenda?
6. Has the proposal been properly completed and signed?
7. Have you completed the Statement of Bidder's Qualifications?
8. Have you completed the City of Kirkland Non-collusion Affidavit?
9. Have you completed the Subcontractor Identification List? (This is to be completed for HVAC, plumbing, and electrical subcontractors if the estimate amount exceeds $1,000,000.)
10. Bid proposal to be submitted in a sealed envelope marked "Bid Enclosed" for: **TOTEM LAKE PARK – PHASE 1; JOB No. 38-19-PW**

CONTRACT

INFORMATION ONLY

The following forms must be executed and submitted by the successful bidder within ten (10) calendar days following Notice of Award.

City of Kirkland

CITY OF KIRKLAND

TABLE OF CONTENTS – CONTRACT DOCUMENTS

CITY OF KIRKLAND
PUBLIC WORKS AGREEMENT
TOTEM LAKE PARK – PHASE 1
JOB NO. 38-19-PW

This agreement is made and entered into this _____day of_____, 20____, by and between **CONTRACTOR NAME**, hereinafter called the "Contractor" and the City of Kirkland, hereinafter called the "Owner."

W I T N E S S E T H:

Whereas, pursuant to the invitation of the Owner extended through an officially published "Invitation to Bid," the Contractor did, in accordance therewith, file with the Owner a proposal containing an offer which was invited by said notice, and

Whereas, the Owner has heretofore determined that said offer was the lowest responsible bid submitted; now, therefore, it is agreed:

Section 1. That Contractor shall comply in every way with the requirements of those certain specifications entitled: "PROJECT NAME, Job No. 38-19-PW"

The further terms, conditions and covenants of the contract are set forth in the following contract documents which are hereby made a part of this agreement by actual attachment or by this reference thereto as follows:

A. Any Invitation to Bid, as published by the Owner.

B. Any Specifications prepared for this project by the Owner and named above by title.

C. Any detailed Plans listed and described in said Specifications, together with those which may be issued as supplements thereof.

D. The bid proposals submitted by the Contractor as to those items and/or alternatives accepted by the Owner.

E. Any change orders, additions or deletions, if any, issued by the Owner.

Section 2. In consideration of faithful compliance with the terms and conditions of this agreement, whether set forth herein or incorporated by reference, the Owner shall pay to the Contractor, at the times and in the manner provided in said specifications, the total sum of _____ dollars **($_____)** which sum is subject, however, to increase or decrease in such proportion as the quantities named in said proposal are so changed, all as in said specifications and proposal provided.

In witness whereof, said Contractor and said Owner have caused this agreement to be executed on the day and year first written above.

_____
CONTRACTOR (Firm Name)

_____ _____
Signature of authorized officer Name and title of officer (print or type)

_____	_____
WA Contractor's Registration Number	Industrial Insurance Account Number
_____	_____
Uniform Business Identification (UBI) Number	Phone Number

(For corporations, LLC's and other legal entities)

STATE OF WASHINGTON)
) SS
COUNTY OF KING)

On this day before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared _____, to me known to be the _____ of _____, the legal entity that executed the foregoing instrument, and acknowledged the said instrument to be the free and voluntary act and deed of said legal entity, for the uses and purposes therein set forth, and on oath stated that he/she was authorized to sign said instrument.

Given under my hand and official seal this _____ day of _____, 2____.

_____
Print Name: _____
NOTARY PUBLIC in and for the State of
Washington, residing _____
Commission expires: _____

(For individuals and d/b/a's)

STATE OF WASHINGTON)
) SS
COUNTY OF KING)

On this day before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared _____ and _____ to me known to be the individual(s) described herein and who executed the foregoing instrument, and acknowledged that he/she/they signed the same as his/her/their free and voluntary act and deed, for the uses and purposes therein mentioned.

Given under my hand and official seal this _____ day of _____, 2____.

_____
Print Name: _____
NOTARY PUBLIC in and for the State of
Washington, residing _____
Commission expires: _____

CITY OF KIRKLAND

BY: _____
Tracey Dunlap, Deputy City Manager

PERFORMANCE BOND

Surety to have an A.M. Best rating of A-:VII or better.

Bond No. _____

KNOW ALL PERSONS BY THESE PRESENTS, that **CONTRACTOR NAME**, as Principal, and _____, (insert name of surety), as Surety, a corporation duly organized under the laws of the State of _____, (insert Surety's state of incorporation), and authorized to do business as a surety in the State of Washington, are held and firmly bound unto the City of Kirkland (City) in the sum of _____ dollars **($_____)**, lawful money of the United States of America, plus the total amount of extra orders issued by the City to the Principal pursuant to the terms of the Contract referred to in the next succeeding paragraph hereof, for the payment whereof Principal and Surety bind ourselves, and our heirs, executors, administrators, representatives, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has been awarded, and is about to enter into, a written Contract with the City for **TOTEM LAKE PARK – PHASE 1**, **Job #38-19-PW**, which is hereby made a part of this bond as if fully set forth herein;

NOW, THEREFORE, the condition of this bond is such that:

1. If the Principal shall completely and faithfully perform all of its obligations under the Contract, including any warranties required thereunder, and all modifications, amendments, additions, and alterations thereto, including modifications which increase the contract price or time for completion, with or without notice to the surety; and
2. If the Principal shall indemnify and hold the City harmless from any and all losses, liability, damages, claims, judgments, liens, costs, and fees of any type that the City may be subject to because of the failure or default of the Principal in the performance of any of the terms, conditions, or obligations of the Contract, including all modifications, amendments, additions, and alterations thereto, and any warranties required thereunder;

THEN THIS obligation shall be null and void; otherwise to remain in full force and effect. If the City shall declare Principal to be in default of the Contract, and shall so notify Surety, Surety shall, within a reasonable time which shall not exceed 14 days, except for good cause shown, notify the City in writing of the manner in which surety will satisfy its obligations under this Bond.

Nonpayment of the Bond premium will not invalidate this Bond nor shall the City be obligated for the payment thereof. The Surety hereby waives notice of any modification of the Contract or extension of time made by the City.

Signed this _____ day of _____, 2____.

Principal:	_____	Surety:	_____
By:	_____	By:	_____
Title:	_____	Title:	_____
Address:	_____	Address:	_____
City/Zip:	_____	City/Zip:	_____
Telephone:	( ) _____	Telephone:	( ) _____

Note: A power of attorney must be provided which appoints the Surety's true and lawful attorney-in-fact to make, execute, seal and deliver this performance bond.

LABOR, MATERIAL AND TAXES PAYMENT BOND

Surety to have an A.M. Best rating of A-:VII or better.

Bond No. _____

KNOW ALL PERSONS BY THESE PRESENTS, that, CONTRACTOR NAME, as Principal, and _____, (insert name of surety), as Surety, a corporation duly organized under the laws of the State of _____ (insert Surety's state of incorporation), and authorized to do business as a surety in the State of Washington, are held and firmly bound unto the City of Kirkland (City) for the use and benefit of claimants as hereinafter defined, in the sum of _____ Dollars ($_____), lawful money of the United States of America, plus the total amount of any extra orders issued by the City, for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, representatives, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal has been awarded, and is about to enter into, a Contract with City of Kirkland for TOTEM LAKE PARK – PHASE 1, Job #38-19-PW, which contract is by this reference made a part hereof;

WHEREAS, the contract is a public works contract, subject to the provisions of RCW Titles 39 and 60;

NOW, THEREFORE, the conditions of this obligation are such that, if the Principal shall promptly make payment to all claimants as hereinafter defined, for (a) all labor and material used or reasonably required for use in the performance of the contract and (b) all taxes, increases, and penalties incurred on the above-referenced contract under Titles 50, 51, and 82 RCW which may be due, then this obligation shall be void; otherwise, it shall remain in full force and effect, subject, however, to the following conditions: A claimant is defined as and includes (a) a person claiming to have supplied labor or materials for the prosecution of the work provided for in the contract, including any person having direct contractual relationship with the contractor furnishing the bond or direct contractual relationship with any subcontractor, or an assignee of such person, (b) the state with respect to taxes incurred on the above-referenced contract under Titles 50, 51, and 82 RCW which may be due and (c) any other person or entity as allowed or required by law.

3. The Principal and Surety hereby jointly and severally agree with the City that every claimant as herein defined, who has not been paid in full prior to Final Acceptance of the project, or materials were furnished by such claimant, has an action on this bond for such sum or sums as may be justly due claimant, and may have execution thereon. The City shall not be liable for the payment of any costs or expenses of any such suit or action.

(Form continues on next page)

4. No suit or action shall be commenced hereunder by any claimant (except the state with respect to taxes, increases, and penalties incurred on the above-referenced contract under Titles 50, 51, and 82 RCW which may be due) unless the claimant has sent the written notice required under RCW Title 39 to the Principal and to the City's Purchasing Agent by registered or certified mail, or by hand delivery, no later than 30 days after Final Acceptance of the Project.

The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanics' liens which may be filed of record against the improvement, whether or not claim for the amount of such lien be presented under and against this bond.

The Surety hereby waives notice of any modification of the contract or extension of time made by the City.

Signed this _____ day of _____ , 2____

Principal: _____	Surety: _____
By: _____	By: _____
Title: _____	Title: _____
Address: _____	Address: _____
City/Zip: _____	City/Zip: _____
Telephone: ( ) _____	Telephone: ( ) _____

Note: A power of attorney must be provided which appoints the Surety's true and lawful attorney-in-fact to make, execute, seal and deliver this performance bond.

END OF LABOR, MATERIAL AND TAXES PAYMENT BOND FORM

CITY OF KIRKLAND
CONTRACTOR'S DECLARATION OF OPTION FOR MANAGEMENT OF STATUTORY RETAINED PERCENTAGE
TOTEM LAKE PARK – PHASE 1
CIP NO. PKC1390200
JOB NO. 38-19-PW

Monies reserved under provisions of Chapter 60.28 RCW, at the option of the Contractor, shall be:

Select One

[ ] (1) Retained in a fund by the City. No interest will be earned on the retained percentage amount under this election.

[ ] (2) Retainage Bond

[ ] (3) Placed in escrow with a bank or trust company by the City. When the monies reserved are to be placed in escrow, the City will issue a check representing the sum of the monies reserved payable to the bank or trust company and the Contractor jointly. Such check shall be converted into bonds and securities chosen by the Contractor and approved by the City and the bonds and securities held in escrow. (For the convenience of those Contractors choosing option (3) a City approved Form of Escrow Agreement is included on the next page and should be completed and submitted with the executed contract.)

The Contractor in choosing option (3) agrees to assume full responsibility to pay all costs which may accrue from escrow services, brokerage charges or both, and further agrees to assume all risks in connection with the investment of the retained percentages in securities.

[ ] (4) Deposited by the City in an interest-bearing account at the FDIC insured bank currently providing contracted banking services to the City of Kirkland. Interest on such account shall be paid to the contractor. Any fees incurred shall be the responsibility of the contractor.

CONTRACTOR:

Signature: _____

Print or Type Name: _____

Title: _____

Date: _____

RETAINAGE BOND
RETURN THIS FORM IF RETAINAGE BOND OPTION IS SELECTED

Contract Title	_____
Contract Number	_____
Contractor Name	

The Undersigned, _____, existing under and by virtue of the laws of the State of Washington and authorized to do business in the State of Washington as Principal, and _____ organized and existing under the laws of the State of _____ and authorized to transact business in the State of Washington as Surety, are jointly and severally held and bound unto_____, hereinafter called Obligee, and are similarly held and bound unto the beneficiaries of the trust fund created by RCW 60.28, in the penal sum of

_____
($_____), Which is 5% of the principal's price on Contract ID_____.

WHEREAS, on the _____ day of _____, 2____, the said principal herein executed a contract with the Obligee, for the Contract specified above, Contract ID Number_____.

WHEREAS, said contract and RCW 60.28 require the Obligee to withhold from the Principal the sum of ___% from monies earned on estimates during the progress of the construction, herein after referred to as earned retained funds.

NOW WHEREAS, Principal has requested that the Obligee not retain any earned retained funds as allowed under RCW 60.28.

NOW THEREFORE, the condition of the obligation is such that the Principal and Surety are held and bound unto the beneficiaries of the trust fund created by RCW 60.28 in the penal sum of _____ percent (___%) of the final contract cost which shall include any increases due to change orders, increases in quantities of work or the addition of any new item of work. If the Principal shall use the earned retained funds, which will not be retained, for the trust fund purposes of RCW 60.28, then this obligation shall be null and void; otherwise, it shall remain in full force and effect until release is authorized in writing by the Obligee. This bond and any proceeds therefrom shall be made subject to all claims and liens and in the same manner and priority as set forth for retained percentages in RCW 60.28.

PROVIDED HOWEVER, that:

1. The liability of the surety under this bond shall not exceed 5% or 50% of the total amount earned by the Principal if no monies are retained by the Obligee on estimates during the progress of construction.
2. Any suit under this bond must be instituted within the time provided by applicable law.

Witness our hands this _____ day of _____, 2____.

SURETY	**PRINICPAL**
By:_____	By:_____
Name/Title	Name/Title
OF:_____	OF:_____

Surety Name and Local Office of Agent:_____

Surety Address and Phone of Local Office and Agent:_____

CITY OF KIRKLAND
RETAINED PERCENTAGE ESCROW AGREEMENT
TOTEM LAKE PARK – PHASE 1
CIP NO. PKC1390200
JOB NO. 38-19-PW

Escrow No. _____

City of Kirkland
123 Fifth Avenue
Kirkland, Washington 98033

Contractor: _____

Address: _____

Project Description: _____

_____

_____

TO: Escrow Bank or Trust Company:

Name: _____

Address: _____

_____

Attention: _____

The undersigned, _____, herein referred to as the Contractor, has directed the City of Kirkland to deliver to you its warrants, which shall be payable to you and the Contractor jointly. Such warrants are to be held and disposed of by you in accordance with the following instructions and upon the terms and conditions hereinafter set forth.

INSTRUCTIONS

1. Warrants or checks made payable to you and the Contractor jointly upon delivery to you shall be endorsed by you and forwarded for collection. The moneys will then be used by you to purchase, as directed by the Contractor, bonds or other securities chosen by the Contractor and approved by the City of Kirkland. Attached is a list of such bonds, or other securities approved by the City of Kirkland. Other bonds or securities, except stocks, may be selected by the Contractor, subject to the express written approval of the City of Kirkland. Purchase of such bonds or other securities shall be in a form which shall allow you alone to reconvert such bonds or other securities into money if you are required to do so at the direction of the City of Kirkland and Contractor.

2. When and as interest on the securities held by you pursuant to this agreement accrues and is paid, you shall collect such interest and forward it to the Contractor at its address designated below unless otherwise directed by the Contractor.

3. You are not authorized to deliver to the Contractor all or any part of the securities held by you pursuant to this agreement (or any moneys derived from the sale of such securities, or the negotiation of the City of Kirkland's warrants) except in accordance with written instructions from the City of Kirkland. Compliance with such instructions shall relieve you of any further liability related thereto. The estimated completion date on the contract underlying this Escrow Agreement is _____.

4. The Contractor agrees to pay you as compensation for your services hereunder as follows:

   Payment of all fees shall be the sole responsibility of the Contractor and shall not be deducted from any property placed with you pursuant to this agreement until and unless the City of Kirkland directs the release to the Contractor of the securities and moneys held hereunder whereupon you shall be granted a first lien upon such property released and shall be entitled to reimburse yourself from such property for the entire amount of your fees as provided for hereinabove. In the event that you are made a party to any litigation with respect to the property held by you hereunder, or in the event that the conditions of this escrow are not promptly fulfilled or that you are required to render any service not provided for in these instructions, or that there is any assignment of the interests of this escrow or any modification hereof, you shall be entitled to reasonable compensation for such extraordinary services from the Contractor and reimbursement from the Contractor for all costs and expenses, including attorneys fees occasioned by such default, delay, controversy, or litigation.

5. This agreement shall not be binding until executed by the Contractor and the City of Kirkland and accepted by you.

6. This instrument contains the entire agreement between you, the Contractor and the City of Kirkland, with respect to this escrow and you are not a part nor bound by any instrument or agreement other than this; you shall not be required to take notice of any default or any other matter nor be bound by nor required to give notice or demand, nor required to take any action whatever, except as herein expressly provided; you shall not be liable for any loss or damage not caused by your own negligence or willful misconduct.

7. The foregoing provisions shall be binding upon the assigns, successors, personal representatives, and heirs of the parties hereto.

8. The Contractor's Federal Income Tax Identification number is _____.

** Please note: Written release will be issued by the Director of Finance & Administration. For further information, contact the Purchasing Agent at (425) 587-3123.

The undersigned have read and hereby approve the instructions as given above governing the administration of this escrow and do hereby execute this agreement on this _____ day of _____, 2____.

CONTRACTOR:

By: _____
Signature

_____
Print or Type Name

_____
Title

Address: _____
_____

CITY OF KIRKLAND:

By: _____
Signature

_____
Print or Type Name

_____
Title

123 Fifth Avenue
Kirkland, Washington 98033

The above escrow instructions received and accepted this _____ day of _____, 2____.

ESCROW BANK OR TRUST CO:

_____

By: _____
Authorized Signature

_____
Print or Type Name

_____
Title

Securities Authorized by City of Kirkland (select one):

1. Bills, certificates, notes or bonds of the United States;
2. Other obligations of the United States or its agencies;
3. Obligations of any corporation wholly-owned by the government of the United States;
4. Indebtedness of the Federal National Mortgage Association; and
5. Time deposits in commercial banks.

RETURN THIS SIGNED AGREEMENT TO:

City of Kirkland
Attn: Purchasing Agent
123 Fifth Avenue
Kirkland, Washington 98033

CITY OF KIRKLAND
RETAINAGE RELEASE REQUIREMENTS

DOCUMENTS REQUIRED TO BE ON FILE PRIOR TO RELEASE OF RETAINAGE

1. Intent to Pay Prevailing Wage (Contractor must generation including for subcontractors)

   Department of Labor/Industries
   Employment Standards Division
   General Administration Building
   Olympia, Washington 98504
   (360) 956-5335

2. Notice of Completion of Public Works Contract (City generates)

   Department of Revenue
   Excise Tax Division
   Olympia, Washington 98504

3. Affidavit of Wages Paid (Contractor must generate including for subcontractors)

   Department of Labor/Industries

4. Certificate of Release - State Excise Tax by Public Works Contractor (Letter from State to City)

   Department of Revenue
   Department of Labor and Industries
   Employment Security Department

5. Receipt for Payment in full or Release of Lien signed by Lien Claimant and filed with City (Responsibility of Contractor to obtain)

   Claims against retainage or Payment Bond filed with City
   by any such subcontractor, workman, or material supplier.

6. Current insurance certificate through retainage release (Contractor generates)
7. Produce final invoice for retainage if bond is not selected (Contractor generates)

AMENDMENTS TO THE STANDARD SPECIFICATIONS

City of Kirkland

INTRO.AP1

INTRODUCTION

The following Amendments and Special Provisions shall be used in conjunction with the 2018 Standard Specifications for Road, Bridge, and Municipal Construction.

AMENDMENTS TO THE STANDARD SPECIFICATIONS

The following Amendments to the Standard Specifications are made a part of this contract and supersede any conflicting provisions of the Standard Specifications. For informational purposes, the date following each Amendment title indicates the implementation date of the Amendment or the latest date of revision.

Each Amendment contains all current revisions to the applicable section of the Standard Specifications and may include references which do not apply to this particular project.

1-01.AP1

Section 1-01, Definitions and Terms
August 6, 2018

1-01.3 Definitions

The following new term and definition is inserted before the definition for “Shoulder”:

> **Sensitive Area** – Natural features, which may be previously altered by human activity, that are present on or adjacent to the project location and protected, managed, or regulated by local, tribal, state, or federal agencies.

The following new term and definition is inserted after the definition for “Working Drawings”:

> **WSDOT Form** – Forms developed and maintained by WSDOT that are required or available for use on a project. These forms can be downloaded from the forms catalogue at:
>
> http://wsdot.wa.gov/forms/pdfForms.html

1-02.AP1

Section 1-02, Bid Procedures and Conditions
June 3, 2019

1-02.4(1) General

This section is supplemented with the following:

> Prospective Bidders are advised that the Contracting Agency may include a partially completed Washington State Department of Ecology (Ecology) Transfer of Coverage (Ecology Form ECY 020-87a) for the Construction Stormwater General Permit (CSWGP) as part of the Bid Documents. When the Contracting Agency requires the transfer of coverage of the CSWGP to the Contractor, an informational copy of the Transfer of Coverage and the associated CSWGP will be included in the appendices. As a condition of Section 1-03.3, the Contractor is required to complete sections I, III, and VIII of the Transfer of Coverage and return the form to the Contracting Agency.

The Contracting Agency is responsible for compliance with the CSWGP until the end of day that the Contract is executed. Beginning on the day after the Contract is executed, the Contractor shall assume complete legal responsibility for compliance with the CSWGP and full implementation of all conditions of the CSWGP as they apply to the Contract Work.

1-02.5 Proposal Forms

The first sentence of the first paragraph is revised to read:

At the request of a Bidder, the Contracting Agency will provide a physical Proposal Form for any project on which the Bidder is eligible to Bid.

1-02.6 Preparation of Proposal

Item number 1 of the second paragraph is revised to read:

1. A unit price for each item (omitting digits more than two places to the right of the decimal point),

In the third sentence of the fourth paragraph, “WSDOT Form 422-031” is revised to read “WSDOT Form 422-031U”.

The following new paragraph is inserted before the last paragraph:

The Bidder shall submit with their Bid a completed Contractor Certification Wage Law Compliance form (WSDOT Form 272-009). Failure to return this certification as part of the Bid Proposal package will make this Bid Nonresponsive and ineligible for Award. A Contractor Certification of Wage Law Compliance form is included in the Proposal Forms.

1-02.13 Irregular Proposals

Item 1(h) is revised to read:

h. The Bidder fails to submit Underutilized Disadvantaged Business Enterprise Good Faith Effort documentation, if applicable, as required in Section 1-02.6, or if the documentation that is submitted fails to demonstrate that a Good Faith Effort to meet the Condition of Award was made;

Item 1(i) is revised to read the following three items:

i. The Bidder fails to submit a UDBE Bid Item Breakdown form, if applicable, as required in Section 1-02.6, or if the documentation that is submitted fails to meet the requirements of the Special Provisions;

j. The Bidder fails to submit UDBE Trucking Credit Forms, if applicable, as required in Section 1-02.6, or if the documentation that is submitted fails to meet the requirements of the Special Provisions; or

k. The Bid Proposal does not constitute a definite and unqualified offer to meet the material terms of the Bid invitation.

1-03.AP1

Section 1-03, Award and Execution of Contract
January 2, 2018

1-03.3 Execution of Contract

The first paragraph is revised to read:

> Within 20 calendar days after the Award date, the successful Bidder shall return the signed Contracting Agency-prepared Contract, an insurance certification as required by Section 1-07.18, a satisfactory bond as required by law and Section 1-03.4, the Transfer of Coverage form for the Construction Stormwater General Permit with sections I, III, and VIII completed when provided, and shall be registered as a contractor in the state of Washington.

1-03.5 Failure to Execute Contract

The first sentence is revised to read:

> Failure to return the insurance certification and bond with the signed Contract as required in Section 1-03.3, or failure to provide Disadvantaged, Minority or Women's Business Enterprise information if required in the Contract, or failure or refusal to sign the Contract, or failure to register as a contractor in the state of Washington, or failure to return the completed Transfer of Coverage for the Construction Stormwater General Permit to the Contracting Agency when provided shall result in forfeiture of the proposal bond or deposit of this Bidder.

1-05.AP1

Section 1-05, Control of Work
August 6, 2018

1-05.5 Vacant

This section, including title, is revised to read:

> **1-05.5 Tolerances**
>
> Geometrical tolerances shall be measured from the points, lines, and surfaces defined in Contract documents.
>
> A plus (+) tolerance increases the amount or dimension to which it applies, or raises a deviation from level. A minus (-) tolerance decreases the amount or dimension to which it applies, or lowers a deviation from level. Where only one signed tolerance is specified (+ or -), there is no specified tolerance in the opposing direction.
>
> Tolerances shall not be cumulative. The most restrictive tolerance shall control.
>
> Tolerances shall not extend the Work beyond the Right of Way or other legal boundaries identified in the Contract documents. If application of tolerances causes the extension of the Work beyond the Right of Way or legal boundaries, the tolerance shall be reduced for that specific instance.
>
> Tolerances shall not violate other Contract requirements. If application of tolerances causes the Work to violate other Contract requirements, the tolerance shall be reduced for that specific instance. If application of tolerances causes conflicts with other

components or aspects of the Work, the tolerance shall be reduced for that specific instance.

1-05.9 Equipment

The following new paragraph is inserted before the first paragraph:

Prior to mobilizing equipment on site, the Contractor shall thoroughly remove all loose dirt and vegetative debris from drive mechanisms, wheels, tires, tracks, buckets and undercarriage. The Engineer will reject equipment from the site until it returns clean.

This section is supplemented with the following:

Upon completion of the Work, the Contractor shall completely remove all loose dirt and vegetative debris from equipment before removing it from the job site.

1-06.AP1

Section 1-06, Control of Material
January 7, 2019

1-06.1(3) Aggregate Source Approval (ASA) Database

This section is supplemented with the following:

Regardless of status of the source, whether listed or not listed in the ASA database the source owner may be asked to provide testing results for toxicity in accordance with Section 9-03.21(1).

1-06.2(2)D Quality Level Analysis

This section is supplemented with the following new subsection:

1-06.2(2)D5 Quality Level Calculation – HMA Compaction

The procedures for determining the quality level and pay factor for HMA compaction are as follows:

1. Determine the arithmetic mean, X_m, for compaction of the lot:

$$X_m = \frac{\sum x}{n}$$

Where:
x = individual compaction test values for each sublot in the lot.
∑x = summation of individual compaction test values
n = total number test values

2. Compute the sample standard deviation, “S”, for each constituent:

$$S = \left[\frac{n\sum x^2 - \left(\sum x\right)^2}{n(n-1)} \right]^{\frac{1}{2}}$$

Where:

$\sum x^2$ = summation of the squares of individual compaction test values
$(\sum x)^2$ = summation of the individual compaction test values squared

3. Compute the lower quality index (Q_L):

$$Q_L = \frac{X_m - LSL}{S}$$

Where:
LSL = 92.0

4. Determine P_L (the percent within the lower Specification limit which corresponds to a given Q_L) from Table 1. For negative values of Q_L, P_L is equal to 100 minus the table P_L. If the value of Q_L does not correspond exactly to a figure in the table, use the next higher value.

5. Determine the quality level (the total percent within Specification limits):

   Quality Level = P_L

6. Using the quality level from step 5, determine the composite pay factor (CPF) from Table 2.

7. If the CPF determined from step 6 is 1.00 or greater: use that CPF for the compaction lot; however, the maximum HMA compaction CPF using an LSL = 92.0 shall be 1.05.

8. If the CPF from step 6 is not 1.00 or greater: repeat steps 3 through 6 using an LSL = 91.5. The value thus determined shall be the HMA compaction CPF for that lot; however, the maximum HMA compaction CPF using an LSL = 91.5 shall be 1.00.

1-06.2(2)D1 Quality Level Analysis

The following new sentence is inserted after the first sentence:

> The quality level calculations for HMA compaction are completed using the formulas in Section 1-06.2(2)D5.

1-06.2(2)D4 Quality Level Calculation

The first paragraph (excluding the numbered list) is revised to read:

> The procedures for determining the quality level and pay factors for a material, other than HMA compaction, are as follows:

1-06.6 Recycled Materials

The first three sentences of the second paragraph are revised to read:

> The Contractor shall submit a Recycled Material Utilization Plan on WSDOT Form 350-075A within 30 calendar days after the Contract is executed. The plan shall provide the Contractor's anticipated usage of recycled concrete aggregates for meeting the requirements of these Specifications. The quantity of recycled concrete aggregate will

be provided in tons and as a percentage of the Plan quantity for eligible material listed in Section 9-03.21(1)E Table on Maximum Allowable percent (By Weight) of Recycled Material.

The last paragraph is revised to read:

Within 30 calendar days after Physical Completion, the Contractor shall report the quantity of recycled concrete aggregates that were utilized in the construction of the project for each eligible item listed in Section 9-03.21(1)E. The Contractor's report shall be provided on WSDOT Form 350-075A, Recycled Materials Reporting.

1-06.6(1)A General

Item 1(a) in the second paragraph is revised to read:

a. The estimated costs for the Work for each material with 25 percent recycled concrete aggregate. The cost estimate shall include for each material a documented price quote from the supplier with the lowest total cost for the Work.

1-07.AP1

Section 1-07, Legal Relations and Responsibilities to the Public
April 1, 2019

1-07.5 Environmental Regulations

This section is supplemented with the following new subsections:

1-07.5(5) U.S. Army Corps of Engineers

When temporary fills are permitted, the Contractor shall remove fills in their entirety and the affected areas returned to pre-construction elevations.

If a U.S. Army Corps of Engineers permit is noted in Section 1-07.6 of the Special Provisions, the Contractor shall retain a copy of the permit or the verification letter (in the case of a Nationwide Permit) on the worksite for the life of the Contract. The Contractor shall provide copies of the permit or verification letter to all subcontractors involved with the authorized work prior to their commencement of any work in waters of the U.S.

1-07.5(6) U.S. Fish/Wildlife Services and National Marine Fisheries Service

The Contracting Agency will provide fish exclusion and handling services if the Work dictates. However, if the Contractor discovers any fish stranded by the project and a Contracting Agency biologist is not available, they shall immediately release the fish into a flowing stream or open water.

1-07.5(1) General

The first sentence is deleted and replaced with the following:

No Work shall occur within areas under the jurisdiction of resource agencies unless authorized in the Contract.

The third paragraph is deleted.

1-07.5(2) State Department of Fish and Wildlife

This section is revised to read:

In doing the Work, the Contractor shall:

1. Not degrade water in a way that would harm fish, wildlife, or their habitat.

2. Not place materials below or remove them from the ordinary high water line except as may be specified in the Contract.

3. Not allow equipment to enter waters of the State except as specified in the Contract.

4. Revegetate in accordance with the Plans, unless the Special Provisions permit otherwise.

5. Prevent any fish-threatening silt buildup on the bed or bottom of any body of water.

6. Ensure continuous stream flow downstream of the Work area.

7. Dispose of any project debris by removal, burning, or placement above high-water flows.

8. Immediately notify the Engineer and stop all work causing impacts, if at any time, as a result of project activities, fish are observed in distress or a fish kill occurs.

If the Work in (1) through (3) above differs little from what the Contract requires, the Contracting Agency will measure and pay for it at unit Contract prices. But if Contract items do not cover those areas, the Contracting Agency will pay pursuant to Section 1-09.4. Work in (4) through (8) above shall be incidental to Contract pay items.

1-07.5(3) State Department of Ecology

This section is revised to read:

In doing the Work, the Contractor shall:

1. Comply with Washington State Water Quality Standards.

2. Perform Work in such a manner that all materials and substances not specifically identified in the Contract documents to be placed in the water do not enter waters of the State, including wetlands. These include, but are not limited to, petroleum products, hydraulic fluid, fresh concrete, concrete wastewater, process wastewater, slurry materials and waste from shaft drilling, sediments, sediment-laden water, chemicals, paint, solvents, or other toxic or deleterious materials.

3. Use equipment that is free of external petroleum-based products.

4. Remove accumulations of soil and debris from drive mechanisms (wheels, tracks, tires) and undercarriage of equipment prior to using equipment below the ordinary high water line.

5. Clean loose dirt and debris from all materials placed below the ordinary high water line. No materials shall be placed below the ordinary high water line without the Engineer's concurrence.

6. When a violation of the Construction Stormwater General Permit (CSWGP) occurs, immediately notify the Engineer and fill out WSDOT Form 422-011, Contractor ECAP Report, and submit the form to the Engineer within 48 hours of the violation.

7. Once Physical Completion has been given, prepare a Notice of Termination (Ecology Form ECY 020-87) and submit the Notice of Termination electronically to the Engineer in a PDF format a minimum of 7 calendar days prior to submitting the Notice of Termination to Ecology.

8. Transfer the CSWGP coverage to the Contracting Agency when Physical Completion has been given and the Engineer has determined that the project site is not stabilized from erosion.

9. Submit copies of all correspondence with Ecology electronically to the Engineer in a PDF format within four calendar days.

1-07.5(4) Air Quality

This section is revised to read:

The Contractor shall comply with all regional clean air authority and/or State Department of Ecology rules and regulations.

The air quality permit process may include additional State Environment Policy Act (SEPA) requirements. Contractors shall contact the appropriate regional air pollution control authority well in advance of beginning Work.

When the Work includes demolition or renovation of any existing facility or structure that contains Asbestos Containing Material (ACM) and/or Presumed Asbestos-Containing Material (PACM), the Contractor shall comply with the National Emission Standards for Hazardous Air Pollutants (NESHAP).

Any requirements included in Federal and State regulations regarding air quality that applies to the "owner or operator" shall be the responsibility of the Contractor.

1-07.7(1) General

The first sentence of the third paragraph is revised to read:

When the Contractor moves equipment or materials on or over Structures, culverts or pipes, the Contractor may operate equipment with only the load-limit restrictions in Section 1-07.7(2).

The first sentence of the last paragraph is revised to read:

Unit prices shall cover all costs for operating over Structures, culverts and pipes.

1-07.9(1) General

The last sentence of the sixth paragraph is revised to read:

Generally, the Contractor initiates the request by preparing standard form 1444 Request for Authorization of Additional Classification and Rate, available at https://www.dol.gov/whd/recovery/dbsurvey/conformance.htm, and submitting it to the Engineer for further action.

1-07.9(2) Posting Notices

The second sentence of the first paragraph (up until the colon) is revised to read:

The Contractor shall ensure the most current edition of the following are posted:

The revision dates are deleted from all items in the numbered list.

The following new items are inserted after item number 1:

2. **Mandatory Supplement to EEOC P/E-1** published by US Department of Labor. Post for projects with federal-aid funding.

3. **Pay Transparency Nondiscrimination Provision** published by US Department of Labor. Post for projects with federal-aid funding.

Item number 2 through 12 are renumbered to 4 through 14, respectively.

1-07.11(2) Contractual Requirements

In this section, “creed” is revised to read “religion”.

Item numbers 1 through 9 are revised to read 2 through 10, respectively.

After the preceding Amendment is applied, the following new item number 1 is inserted:

1. The Contractor shall maintain a Work site that is free of harassment, humiliation, fear, hostility and intimidation at all times. Behaviors that violate this requirement include but are not limited to:

    a. Persistent conduct that is offensive and unwelcome.

    b. Conduct that is considered to be hazing.

    c. Jokes about race, gender, or sexuality that are offensive.

    d. Unwelcome, unwanted, rude or offensive conduct or advances of a sexual nature which interferes with a person’s ability to perform their job or creates an intimidating, hostile, or offensive work environment.

    e. Language or conduct that is offensive, threatening, intimidating or hostile based on race, gender, or sexual orientation.

    f. Repeating rumors about individuals in the Work Site that are considered to be harassing or harmful to the individual’s reputation.

1-07.11(5) Sanctions

This section is supplemented with the following:

Immediately upon the Engineer's request, the Contractor shall remove from the Work site any employee engaging in behaviors that promote harassment, humiliation, fear or intimidation including but not limited to those described in these specifications.

1-07.11(6) Incorporation of Provisions

The first sentence is revised to read:

The Contractor shall include the provisions of Section 1-07.11(2) Contractual Requirements (1) through (5) and the Section 1-07.11(5) Sanctions in every subcontract including procurement of materials and leases of equipment.

1-07.15(1) Spill Prevention, Control, and Countermeasures Plan

The last sentence of the first paragraph is revised to read:

An SPCC Plan template and guidance information is available at http://www.wsdot.wa.gov/environment/technical/disciplines/hazardous-materials/spill-prevent-report.

1-07.16(2)A Wetland and Sensitive Area Protection

The first sentence of the first paragraph is revised to read:

Existing wetland and other sensitive areas, where shown in the Plans or designated by the Engineer, shall be saved and protected through the life of the Contract.

1-07.18 Public Liability and Property Damage Insurance

Item number 1 is supplemented with the following new sentence:

This policy shall be kept in force from the execution date of the Contract until the Physical Completion Date.

1-08.AP1

Section 1-08, Prosecution and ProgressJanuary 7, 2019

1-08.1 Subcontracting

The first sentence of the seventh paragraph is revised to read:

All Work that is not performed by the Contractor will be considered as subcontracting except: (1) purchase of sand, gravel, crushed stone, crushed slag, batched concrete aggregates, ready-mix concrete, off-site fabricated structural steel, other off-site fabricated items, and any other materials supplied by established and recognized commercial plants; or (2) delivery of these materials to the Work site in vehicles owned or operated by such plants or by recognized independent or commercial hauling companies hired by those commercial plants.

The following new paragraph is inserted after the seventh paragraph:

The Contractor shall not use businesses (material suppliers, vendors, subcontractors, etc.) with federal purchasing exclusions. Businesses with exclusions are identified using the System for Award Management web page at www.SAM.gov.

1-08.5 Time for Completion

Item number 2 of the sixth paragraph is supplemented with the following:

f. A copy of the Notice of Termination sent to the Washington State Department of Ecology (Ecology); the elapse of 30 calendar days from the date of receipt of the Notice of Termination by Ecology; and no rejection of the Notice of Termination by Ecology. This requirement will not apply if the Construction Stormwater General Permit is transferred back to the Contracting Agency in accordance with Section 8-01.3(16).

1-08.7 Maintenance During Suspension

The fifth paragraph is revised to read:

The Contractor shall protect and maintain all other Work in areas not used by traffic. All costs associated with protecting and maintaining such Work shall be the responsibility of the Contractor.

1-09.AP1

Section 1-09, Measurement and Payment
August 6, 2018

1-09.2(1) General Requirements for Weighing Equipment

The last paragraph is supplemented with the following:

When requested by the Engineer, the Contractor's representative shall collect the tickets throughout the day and provide them to the Engineer's designated receiver, not later than the end of shift, for reconciliation. Tickets for loads not verified as delivered will receive no pay.

1-09.2(2) Specific Requirements for Batching Scales

The last sentence of the first paragraph is revised to read:

Batching scales used for concrete or hot mix asphalt shall not be used for batching other materials.

1-09.10 Payment for Surplus Processed Materials

The following sentence is inserted after the first sentence of the second paragraph:

For Hot Mix Asphalt, the Plan quantity and quantity used will be adjusted for the quantity of Asphalt and quantity of RAP or other materials incorporated into the mix.

2-01.AP2

Section 2-01, Clearing, Grubbing, and Roadside Cleanup
April 1, 2019

2-01.2(3) Disposal Method No. 3 – Chipping

Item number 2 of the first paragraph is revised to read:

2. Chips shall be disposed outside of sensitive areas, and in areas that aren't in conflict with permanent Work.

2-02.AP2

Section 2-02, Removal of Structures and Obstructions
April 2, 2018

2-02.3(3) Removal of Pavement, Sidewalks, Curbs, and Gutters

In item number 3 of the first paragraph, the second sentence is revised to read:

> For concrete pavement removal, a second vertical full depth relief saw cut offset 12 to 18 inches from and parallel to the initial saw cut is also required, unless the Engineer allows otherwise.

2-03.AP2

Section 2-03, Roadway Excavation and Embankment
April 1, 2019

2-03.3(14)F Displacement of Unsuitable Foundation Materials

This section, including title, is revised to read:

> **2-03.3(14)F Vacant**

2-09.AP2

Section 2-09, Structure Excavation
April 1, 2019

2-09.2 Materials

In the first paragraph, the references to “Portland Cement” and “Aggregates for Portland Cement Concrete” are revised to read:

Cement	9-01
Fine Aggregate for Concrete	9-03.1(2)

2-09.3(3)B Excavation Using Open Pits – Extra Excavation

The last two paragraphs are deleted and replaced with the following:

> The excavation height (Ht) shall be calculated within a vertical plane as the difference between the lowest elevation in the excavation and the highest elevation of the ground surface immediately adjacent to the excavation. Pavement thickness and other surface treatments existing at the time of the excavation shall be included in the height calculation.
>
> **Submittals and Design Requirements**
> Excavations 4-feet and less in height do not require design and submittals. The Contractor shall provide a safe work environment and shall execute the work in a manner that does not damage adjacent pavements, utilities, or structures. If the Engineer determines the Contractor’s work may potentially affect adjacent traffic, pavements, utilities, or structures, the Engineer may request a Type 1 Working Drawing from the Contractor. The Contractor shall explain in the Type 1 Working Drawing how the Engineer’s concerns will be addressed, why infrastructure will not be damaged by the work, and how worker safety will be preserved.

For excavations that have soil types and slope geometries defined in WAC 296-155 part N and are between 4-feet and 20-feet in height, the Contractor shall submit Type 2 Working Drawings. Required submittal elements include, at a minimum, the following:

1. A plan view showing the limits of the excavation and its relationship to traffic, structures, utilities and other pertinent project elements. If the stability of the excavation requires no-load zones or equipment setback distances, those shall be shown on the plan view.

2. A typical or controlling cross section showing the proposed excavation, original ground line, and locations of traffic, existing structures, utilities, site constraints, surcharge loads, or other conditions that could affect the stability of the slope. If the stability of the excavation requires no-load zones or equipment setback distances, those shall be shown in cross section.

3. A summary clearly describing subsurface conditions, soil type for WAC 296-155 part N, and groundwater conditions, sequencing considerations, and governing assumptions.

Where WAC 296-155 part N requires an engineer's design, the Contractor shall submit Type 2E Working Drawings. Required submittal elements include, at a minimum, the three items above and the following additional items:

4. Supporting calculations for the design of the excavation, the soil and material properties selected for design, and the justification for the selection for those properties, in accordance with the WSDOT *Geotechnical Design Manual* M 46-03.

5. Safety factors, or load and resistance factors used, and justification for their selection, in accordance with the WSDOT *Geotechnical Design Manual* M 46-03, and referenced AASHTO design manuals.

6. A monitoring plan to evaluate the excavation performance throughout its design life.

7. Any supplemental subsurface explorations made by the Contractor to meet the requirements for geotechnical design of excavation slopes, in accordance with the WSDOT *Geotechnical Design Manual* M 46-03.

2-09.3(3)D Shoring and Cofferdams

The first sentence of the sixth paragraph is revised to read:

Structural shoring and cofferdams shall be designed for conditions stated in this Section using methods shown in Division I Section 5 of the AASHTO *Standard Specifications for Highway Bridges* Seventeenth Edition – 2002 for allowable stress design, or the AASHTO *LRFD Bridge Design Specifications* for load and resistance factor design.

3-01.AP3

Section 3-01, Production from Quarry and Pit Sites
April 2, 2018

3-01.1 Description

The first paragraph is revised to read:

> This Work shall consist of manufacturing and producing crushed and screened aggregates including pit run aggregates of the kind, quality, and grading specified for use in the construction of concrete, hot mix asphalt, crushed surfacing, maintenance rock, ballast, gravel base, gravel backfill, gravel borrow, riprap, and bituminous surface treatments of all descriptions.

4-04.AP4

Section 4-04, Ballast and Crushed Surfacing
April 2, 2018

4-04.3(5) Shaping and Compaction

This section is supplemented with the following new paragraph:

> When using 100% Recycled Concrete Aggregate, the Contractor may submit a written request to use a test point evaluation for compaction acceptance testing in lieu of compacting to 95% of the standard density as determined by the requirements of Section 2-03.3(14)D. The test point evaluation shall be performed in accordance with SOP 738.

5-01.AP5

Section 5-01, Cement Concrete Pavement Rehabilitation
January 7, 2019

5-01.2 Materials

The reference for Concrete Patching Material is revised to read:

Concrete Patching Material, Grout, and Mortar	9-20.1

5-01.3(1)A1 Concrete Patching Materials

In this section, each reference to “9-20” is revised to read “9-20.1”.

5-01.3(4) Replace Cement Concrete Panel

This section’s content is deleted and replaced with the following new subsections:

5-01.3(4)A General

Curing, cold weather work, concrete pavement construction in adjacent lines, and protection of pavement shall meet the requirements of Section 5-05.3(13) through Section 5-05.3(15). The Contractor, at no cost to the Contracting Agency, shall repair any damage to existing pavement caused by the Contractor’s operations.

5-01.3(4)B Sawing and Dimensional Requirements

Concrete slabs to be replaced as shown in the Plans or staked by the Engineer shall be at least 6.0 feet long and full width of an existing pavement panel. The portion of the panel to remain in place shall have a minimum dimension of 6 feet in length and full

panel width; otherwise the entire panel shall be removed and replaced. There shall be no new joints closer than 3.0 feet to an existing transverse joint or crack. A vertical full depth saw cut is required along all longitudinal joints and at transverse locations and, unless the Engineer allows otherwise, an additional vertical full depth relief saw cut located 12 to 18 inches from and parallel to the initial longitudinal and transverse saw cut locations is also required. Removal of existing cement concrete pavement shall not cause damage to adjacent slabs that are to remain in place. In areas that will be ground, slab replacements shall be performed prior to pavement grinding.

Side forms shall meet the requirements of Section 5-05.3(7)B whenever a sawed full depth vertical face cannot be maintained.

5-01.3(4)C Dowel Bars and Tie Bars

For the half of a dowel bar or tie bar placed in fresh concrete, comply with the requirements of Section 5-05.

For the half of a dowel bar or tie bar placed in hardened concrete, comply with the Standard Plans and the following.

After drilling, secure dowel bars and tie bars into the existing pavement with either an epoxy bonding agent Type I or IV as specified in Section 9-26.1, or a grout Type 2 for non-shrink applications as specified in Section 9-20.3.

Dowel bars shall be placed at the mid depth of the concrete slab, centered over the transverse joint, and parallel to the centerline and to the roadway surface, within the tolerances in the table below. Dowel bars may be adjusted to avoid contact with existing dowel bars in the transverse joint at bridge approach slabs or existing panels provided the adjusted dowel bars meet the tolerances below.

Tie bars shall be placed at the mid depth of the concrete slab, centered over the joint, perpendicular to centerline, and parallel to the roadway surface, within the tolerances in the table below. The horizontal position of tie bars may be adjusted to avoid contact with existing tie bars in the longitudinal joint where panel replacement takes place, provided the adjusted tie bars meet the tolerances below.

Placement Tolerances		
	Dowel Bars	Tie Bars
Vertical: Center of Bar to Center of Slab Depth	± 1.00 inch max	± 1.00 inch max
Dowel Bar Centered Over the Transverse Joint	± 1.00 inch max	N/A
Tie Bar Centered Over the Longitudinal Joint	N/A	± 1.00 inch max
Parallel to Centerline Over the Length of the Dowel Bar	± 0.50 inch max	N/A
Perpendicular to Longitudinal Joint Over the Length of the Tie Bar	N/A	± 1.00 inch max
Parallel to Roadway Surface Over the Length of the Bar	± 0.50 inch max	± 1.00 inch max

Dowel bars and tie bars shall be placed according to the Standard Plan when multiple panels are placed. Panels shall be cast separately from the bridge approach slab.

Dowel bars to be drilled into existing concrete or at a new transverse contraction joint shall have a parting compound, such as curing compound, grease, or other Engineer accepted equal, applied to them prior to placement.

Clean the drilled holes in accordance with the epoxy or grout manufacturer's instructions. Holes shall be clean and dry at the time of placing the epoxy, or grout and tie bars. Completely fill the void between the tie bar and the outer limits of the drilled hole with epoxy or grout. Use retention rings to prevent leakage of the epoxy or grout and support the tie bar to prevent movement until the epoxy or grout has cured the minimum time recommended by the manufacturer.

5-01.3(4)D Foundation Preparation

The Contractor shall smooth the surfacing below the removed panel and compact it to the satisfaction of the Engineer. Crushed surfacing base course, or hot mix asphalt may be needed to bring the surfacing to grade prior to placing the new concrete.

If the material under the removed panel is uncompactable and the Engineer requires it, the Contractor shall excavate the Subgrade 2 feet, place a soil stabilization construction geotextile meeting the requirements of Section 9-33, and backfill with crushed surfacing base course. This Work may include:

1. Furnishing and hauling crushed surfacing base course to the project site.

2. Excavating uncompactable material.

3. Furnishing and placing a soil stabilization construction geotextile.

4. Backfilling and compacting crushed surfacing base course.

5. Removing, hauling and restocking any unused crushed surfacing base course.

5-01.3(4)E Concrete Finishing

Grade control shall be the responsibility of the Contractor.

All panels shall be struck off level with the adjacent panels and floated to a smooth surface.

Final finish texturing shall meet the requirements of Section 5-05.3(11).

In areas where the Plans do not require grinding, the surface smoothness will be measured with a 10-foot straightedge by the Engineer in accordance with Section 5-05.3(12). If the replacement panel is located in an area that will be ground as part of concrete pavement grinding in accordance with Section 5-01.3(9), the surface smoothness shall be measured, by the Contractor, in conjunction with the smoothness measurement done in accordance with Section 5-01.3(10).

5-01.3(4)F Joints

All transverse and longitudinal joints shall be sawed and sealed in accordance with Section 5-05.3(8). The Contractor may use a hand pushed single blade saw for sawing joints.

5-01.3(4)G Cracked Panels

Replacement panels that crack shall be repaired as specified in Section 5-05.3(22) at no cost to the Contracting Agency. When repairing replacement panels that have cracked, epoxy-coated dowel bars meeting the requirements of Section 9-07.5(1) may be substituted for the corrosion resistant dowel bars specified.

5-01.3(4)H Opening to Traffic

Opening to traffic shall meet the requirements of Section 5-05.3(17).

5-01.3(5) Partial Depth Spall Repair

The second sentence of the third paragraph is revised to read:

All sandblasting residue shall be removed.

5-01.3(7) Sealing Existing Concrete Random Cracks

The second sentence of the second paragraph is revised to read:

Immediately prior to sealing, the cracks shall be clean.

5-01.3(8) Sealing Existing Longitudinal and Transverse Joint

The first sentence of the fifth paragraph is revised to read:

Immediately prior to sealing, the cracks shall be clean.

5-01.3(10) Pavement Smoothness

This section is revised to read:

Pavement surface smoothness for cement concrete pavement grinding on this project will include International Roughness Index (IRI) testing. Ride quality will be evaluated using the Mean Roughness Index (MRI) calculated by averaging the IRI data for the left and right wheel path within the section.

Smoothness Testing Equipment and Operator Certification

Use an inertial profiler and operator that meet the requirements of Section 5-05.3(3)E.

Surface Smoothness

Operate the inertial profiler in accordance with AASHTO R 57. Collect two longitudinal traces, one in each wheel path. Collect the control profile at locations designated in Table 2 prior to any pavement rehabilitation Work on the areas to be tested. Collect an acceptance profile at locations designated in Table 2 after completion of all cement concrete pavement grinding on the project. Profiles shall be collected in a continuous pass including areas excluded from pay adjustments. Provide notice to the Engineer a minimum of seven calendar days prior to testing.

Table 2
Locations Requiring MRI Testing

Travel lanes where cement concrete grinding is shown in the plans	Control profile
Additional locations designated by the Engineer	Control profile

Travel lanes with completed cement concrete pavement grinding	Acceptance profile
Bridges, approach panels and 0.02 miles before and after bridges and approach panels and other excluded areas within lanes requiring testing	Control and acceptance profile
Ramps, Shoulders and Tapers	Do not test

Within 30 calendar days after the Contractor's testing, the Engineer may perform verification testing. If the verification testing shows a difference in MRI greater than the 10 percent, the following resolution process will be followed:

1. The profiles, equipment and procedures will be evaluated to determine the cause of the difference.

2. If the cause of the discrepancy cannot be resolved the pavement shall be retested with both profilers at a mutually agreed time. The two profilers will test the section within 30 minutes of each other. If the retest shows a difference in MRI equal or greater than the percentages shown in Table 2 of AASHTO R 54 the Engineer's test results will be used for pavement smoothness acceptance.

The Contractor shall evaluate profiles for acceptance or corrective action using the current version of ProVAL and provide the results including the profile data in unfiltered electronic Engineering Research Division (ERD) file format to the Engineer within 3 calendar days of completing each days profile testing. If the profile data files are created using an export option in the manufacturer's software where filter settings can be specified, use the filter settings that were used to create data files for certification.

Analyze the entire profile. Exclude areas listed in Table 3.

Table 3 Areas Excluded from MRI Acceptance Requirements	
Location	Exclude
Beginning and end of grinding	Pavement within 0.02 mile
Bridges and approach slabs	The bridge and approach slab and 0.02 mile from the ends of the bridge or approach slab
Defects in the existing roadway identified by the Contractor that adversely affect the MRI such as dips, depressions and wheel path longitudinal joints.[1]	0.01-mile section containing the defect and the 0.01-mile section following the section with the defect.
[1]The presence of defects is subject to verification by the Engineer	

Report the MRI results in inches per mile for each 0.01-mile section and each 0.10-mile section. Do not truncate 0.10-mile sections for areas excluded from MRI acceptance requirements. MRI requirements will not apply to 0.10-mile sections with more than three 0.01 mile-sections excluded. MRI requirements for the individual 0.01-mile sections shall still apply. The Engineer will verify the analysis.

The MRI for each 0.10 mile of ground lane will comply with the following:

Control Profile MRI per 0.10 Mile	Maximum MRI of Acceptance Profile per 0.10 Mile
≤130 inches/mile	78 inches/mile
>130 inches/mile	0.6 x Control Profile MRI

The MRI for each 0.01 mile of the completed cement concrete grinding shall not exceed 160 inches/mile.

All Work is subject to parallel and transverse 10-foot straightedge requirements, corrective work and disincentive adjustments.

Surface smoothness of travel lanes including areas subject to MRI testing shall not vary more than ⅛ inch from the lower edge of a 10-foot straightedge placed on the surface parallel to the centerline.

The smoothness perpendicular to the centerline will be measured with a 10-foot straightedge within the lanes. There shall be not vertical elevation difference of more than a ¼ inch between lanes.

Pavement that does not meet these requirements will be subject to corrective Work. All corrective Work shall be completed at no additional expense, including traffic control, to the Contracting Agency. Pavement shall be repaired by one or more of the following methods:

1. Diamond grinding.

2. By other method accepted by the Engineer.

Repair areas shall be re-profiled to ensure they no longer require corrective Work. With concurrence of the Engineer, a 10-foot straight edge may be used in place of the inertial profiler.

If correction of the roadway as listed above either will not or does not produce satisfactory results as to smoothness or serviceability the Engineer may accept the completed pavement and a credit will be calculated in accordance with Section 5-01.5. Under these circumstances, the decision whether to accept the completed pavement or to require corrective work as described above shall be vested entirely in the Engineer.

5-01.5 Payment

This section is supplemented with the following:

"Grinding Smoothness Compliance Adjustment", by calculation.
Grinding Smoothness Compliance Adjustments will be based on the requirements in Section 5-01.3(10) and the following calculations:

A smoothness compliance adjustment will be calculated in the sum of minus $100 for each and every section of single traffic lane 0.01 mile in length and $1,000 for each and every section of single traffic lane 0.10 mile in length that does not meet the requirements in Section 5-01.3(10) after corrective Work.

5-02.AP5

Section 5-02, Bituminous Surface Treatment
April 1, 2019

5-02.3(5) Application of Aggregates

The first sentence of the eleventh paragraph is revised to read:

> The Contractor shall use a pickup broom in all curbed areas, on all bridges, within city limits, within sensitive areas, and where shown in the Plans both before the application of emulsified asphalt and during the final brooming operation.

5-04.AP5

Section 5-04, Hot Mix Asphalt
April 1, 2019

5-04.1 Description

The last sentence of the first paragraph is revised to read:

> The manufacture of HMA may include additives or processes that reduce the optimum mixing temperature (Warm Mix Asphalt) or serve as a compaction aid in accordance with these Specifications.

5-04.2 Materials

The reference to “Warm Mix Asphalt Additive” is revised to read “HMA Additive”.

5-04.2(1) How to Get an HMA Mix Design on the QPL

The last bullet in the first paragraph is revised to read:

- Do not include HMA additives that reduce the optimum mixing temperature or serve as a compaction aid when developing a mix design or submitting a mix design for QPL evaluation. The use of HMA additives is not part of the process for obtaining approval for listing a mix design on the QPL. Refer to Section 5-04.2(2)B.

In the table, “WSDOT Standard Practice QC-8” is revised to read “WSDOT Standard Practice QC-8 located in the WSDOT Materials Manual M 46-01”.

5-04.2(1)C Mix Design Resubmittal for QPL Approval

Item number 3 of the first paragraph is revised to read:

> 3. Changes in modifiers used in the asphalt binder.

5-04.2(2)B Using Warm Mix Asphalt Processes

This section, including title, is revised to read:

> **5-04.2(2)B Using HMA Additives**
> The Contractor may, at the Contractor’s discretion, elect to use additives that reduce the optimum mixing temperature or serve as a compaction aid for producing HMA. Additives include organic additives, chemical additives and foaming processes. The use of Additives is subject to the following:

- Do not use additives that reduce the mixing temperature in accordance with Section 5-04.3(6) in the production of High RAP/Any RAS mixtures.

- Before using additives, obtain the Engineer's approval using WSDOT Form 350-076 to describe the proposed additive and process.

5-04.3(3)A Mixing Plant

Item number 5 of the first paragraph is revised to read:

5. Provide HMA sampling equipment that complies with FOP for AASHTO T 168:

   - Use a mechanical sampling device accepted by the Engineer, or

   - Platforms or devices to enable sampling from the truck transport without entering the truck transport for sampling HMA.

5-04.3(4) Preparation of Existing Paved Surfaces

The first sentence of the fourth paragraph is revised to read:

Unless otherwise allowed by the Engineer, use cationic emulsified asphalt CSS-1, CSS-1h, or Performance Graded (PG) asphalt for tack coat.

5-04.3(6) Mixing

The first paragraph is revised to read:

The asphalt supplier shall introduce recycling agent and anti-stripping additive, in the amount designated on the QPL for the mix design, into the asphalt binder prior to shipment to the asphalt mixing plant.

The seventh paragraph is revised to read:

Upon discharge from the mixer, ensure that the temperature of the HMA does not exceed the optimum mixing temperature shown on the accepted Mix Design Report by more than 25°F, or as allowed by the Engineer. When an additive is included in the manufacture of HMA, do not heat the additive (at any stage of production including in binder storage tanks) to a temperature higher than the maximum recommended by the manufacturer of the additive.

5-04.3(7) Spreading and Finishing

The last row of the table is revised to read:

⅜ inch	0.25 feet	0.30 feet

5-04.3(8) Aggregate Acceptance Prior to Incorporation in HMA

The following new paragraph is inserted after the first paragraph:

The Contracting Agency's combined aggregate bulk specific gravity (Gsb) blend as shown on the HMA Mix Design will be used for VMA calculations until the Contractor submits a written request for a Gsb test. The new Gsb will be used in the VMA calculations for HMA from the date the Engineer receives the written request for a Gsb retest. The Contractor may request aggregate specific gravity (Gsb) testing be performed by the Contracting Agency twice per project. The Gsb blend of the combined

stockpiles will be used to calculate voids in mineral aggregate (VMA) of any HMA produced after the new Gsb is determined.

5-04.3(9)A1 Test Section – When Required, When to Stop

The following new row is inserted after the second row in Table 9:

VMA	Minimum PF_i of 0.95 based on the criteria in Section 5-04.3(9)B4[2]	None[4]

5-04.3(9)A2 Test Section – Evaluating the HMA Mixture in a Test Section

In Table 9a, the test property "Gradation, Asphalt Binder, and V_a" is revised to read "Gradation, Asphalt Binder, VMA, and V_a"

In Table 9a, the first column of the third row is revised to read:

Aggregates: Sand Equivalent Uncompacted Void Content Fracture

5-04.3(9)B3 Mixture Statistical Evaluation – Acceptance Testing

In Table 11, "V_a" is revised to read "VMA and V_a"

5-04.3(9)B5 Mixture Statistical Evaluation – Composite Pay Factors (CPF)

The following new row is inserted above the last row in Table 12:

Voids in Mineral Aggregate (VMA)	2

5-04.3(9)B7 Mixture Statistical Evaluation – Retests

The second to last sentence is revised to read:

> The sample will be tested for a complete gradation analysis, asphalt binder content, VMA and V_a, and the results of the retest will be used for the acceptance of the HMA mixture in place of the original mixture sublot sample test results.

5-04.3(10)A HMA Compaction – General Compaction Requirements

The last paragraph is revised to read:

> On bridge decks and on roadway approaches within five feet of a bridge/back of pavement seat, rollers shall not be operated in a vibratory mode, defined as a mode in which the drum vibrates vertically. However, unless otherwise noted on the plans, rollers may be operated in an oscillatory mode, defined as a mode in which the drum vibrates in the horizontal direction only.

5-04.3(10)C1 HMA Compaction Statistical Evaluation – Lots and Sublots

The bulleted item in the fourth paragraph is revised to read:

- For a compaction lot in progress with a compaction CPF less than 0.75 using an LSL = 91.5, a new compaction lot will begin at the Contractor's request after the

Engineer is satisfied that material conforming to the Specifications can be produced. See also Section 5-04.3(11)F.

5-04.3(10)C2 HMA Compaction Statistical Evaluation – Acceptance Testing

In the table, "WSDOT FOP for AASHTO T 355" is revised to read "FOP for AASHTO T 355".

5-04.3(10)C3 HMA Statistical Compaction – Price Adjustments

In the first paragraph, "WSDOT FOP for AASHTO T 355" is revised to read "FOP for AASHTO T 355".

The first sentence in the second paragraph is revised to read:

For each HMA compaction lot (that is accepted by Statistical Evaluation) which does not meet the criteria in the preceding paragraph, the compaction lot shall be evaluated in accordance with Section 1-06.2(2)D5 to determine the appropriate Composite Pay Factor (CPF).

The last two paragraphs are revised to read:

Determine the Compaction Price Adjustment (CPA) from the table below, selecting the equation for CPA that corresponds to the value of CPF determined above.

Calculating HMA Compaction Price Adjustment (CPA)	
Value of CPF	**Equation for Calculating CPA**
When CPF > 1.00	CPA = [1.00 x (CPF – 1.00)] x Q x UP
When CPF = 1.00	CPA = $0
When CPF < 1.0	CPA = [0.60 x (CPF – 1.00)] x Q x UP

Where
CPA = Compaction Price Adjustment for the compaction lot ($)
CPF = Composite Pay Factor for the compaction lot (maximum is 1.05)
Q = Quantity in the compaction lot (tons)
UP = Unit price of the HMA in the compaction lot ($/ton)

5-04.3(10)C4 HMA Statistical Compaction – Requests for Retesting

The first sentence is revised to read:

For a compaction sublot that has been tested with a nuclear density gauge that did not meet the minimum of 91.5 percent of the theoretical maximum density in a compaction lot with a CPF below 1.00 and thus subject to a price reduction or rejection, the Contractor may request that a core, taken at the same location as the nuclear density test, be used for determination of the relative density of the compaction sublot.

5-04.3(13) Surface Smoothness

The second to last paragraph is revised to read:

When concrete pavement is to be placed on HMA, the surface tolerance of the HMA shall be such that no surface elevation lies above the Plan grade minus the specified Plan depth of concrete pavement. Prior to placing the concrete pavement, bring any

such irregularities to the required tolerance by grinding or other means allowed by the Engineer.

5-04.5 Payment

The paragraph following the Bid item “Crack Sealing-LF”, per linear foot is revised to read:

The unit Contract price per linear foot for “Crack Sealing-LF” shall be full payment for all costs incurred to perform the Work described in Section 5-04.3(4)A.

5-05.AP5

Section 5-05, Cement Concrete Pavement
April 1, 2019

5-05.1 Description

In the first paragraph, “portland cement concrete” is revised to read “cement concrete”.

5-05.2 Materials

In the first paragraph, the reference to “Portland Cement” is revised to read:

Cement 9-01

In the first paragraph, the section reference for Concrete Patching Material is revised to read “9-20.1”.

The second paragraph is revised to read:

Cementitious materials are considered to be the following: portland cement, blended hydraulic cement, fly ash, ground granulated blast furnace slag and microsilica fume.

5-05.3(1) Concrete Mix Design for Paving

The table title in item number 4 is revised to read **Concrete Batch Weights**.

In item 4a, “Portland Cement” is revised to read “Cement”.

5-05.3(3)E Smoothness Testing Equipment

This section is revised to read:

Inertial profilers shall meet all requirements of AASHTO M 328 and be certified in accordance with AASHTO R 56 within the preceding 12 months.

The inertial profiler operator shall be certified as required by AASHTO R 56 within three years preceding profile measurement.

Equipment or operator certification by other states or a profiler certification facility will be accepted provided the certification meets the requirements of AASHTO R 56. Documentation verifying certification by another state shall be submitted to the Engineer a minimum of 14 calendar days prior to profile measurement. Equipment certification documentation shall include the information required by part 8.5 and 8.6 of AASHTO R 56. Operator documentation shall include a statement from the certifying state that indicates the operator is certified to operate the inertial profiler to be used on the project. The decision whether another state’s certification meets the requirements of AASHTO R 56 shall be vested entirely in the Engineer.

5-05.3(4) Measuring and Batching Materials

Item number 2 is revised to read:

2. **Batching Materials** – On all projects requiring more than 2,500 cubic yards of concrete for paving, the batching plant shall be equipped to proportion aggregates and cement by weight by means of automatic and interlocked proportioning devices of accepted type.

5-05.3(4)A Acceptance of Portland Cement Concrete Pavement

This section's title is revised to read:

Acceptance of Portland Cement or Blended Hydraulic Cement Concrete Pavement

The first sentence is revised to read:

Acceptance of portland cement or blended hydraulic cement concrete pavement shall be as provided under statistical or nonstatistical acceptance.

5-05.3(7) Placing, Spreading, and Compacting Concrete

This section's content is deleted.

5-05.3(10) Tie Bars and Corrosion Resistant Dowel Bars

The first sentence of the last paragraph is revised to read:

The tie bar holes shall be clean before grouting.

5-05.3(12) Surface Smoothness

This section is revised to read:

Pavement surface smoothness for this project will include International Roughness Index (IRI) testing. The Contractor shall perform IRI testing on each through lane, climbing lane, and passing lane, greater than 0.25 mile in length and these lanes will be subject to incentive/disincentive adjustments. Ride quality will be evaluated using the Mean Roughness Index (MRI) calculated by averaging the IRI data for the left and right wheel path within the section.

Ramps, shoulders and tapers will not be included in MRI testing for pavement smoothness and will not be subject to incentive adjustments. All Work is subject to parallel and transverse 10-foot straightedge requirements, corrective work and disincentive adjustments.

Operate the inertial profiler in accordance with AASHTO R 57. Collect two longitudinal traces, one in each wheel path. Collect profile data after completion of all concrete paving on the project in a continuous pass including areas excluded from pay adjustments. Provide notice to the Engineer a minimum of seven calendar days prior to testing.

Within 30 calendar days after the Contractor's testing, the Engineer may perform verification testing. If the verification testing shows a difference in MRI greater than the percentages shown in Table 2 of AASHTO R 54 the following resolution process will be followed:

1. The profiles, equipment and procedures will be evaluated to determine the cause of the difference.

2. If the cause of the discrepancy cannot be resolved the pavement shall be retested with both profilers at a mutually agreed time. The two profilers will test the section within 30 minutes of each other. If the retest shows a difference in MRI equal or greater than the percentages shown in Table 2 of AASHTO R 54 the Engineer's test results will be used to establish pay adjustments.

Surface smoothness of travel lanes not subject to MRI testing will be measured with a 10-foot straightedge no later than 5:00 p.m. of the day following the placing of the concrete. The completed surface of the wearing course shall not vary more than ⅛ inch from the lower edge of a 10-foot straightedge placed on the surface parallel to the centerline.

Smoothness perpendicular to the centerline will be measured with a 10-foot straightedge across all lanes with the same cross slope, including shoulders when composed of cement concrete pavement. The overlapping 10-foot straightedge measurement shall be discontinued at a point 6 inches from the most extreme outside edge of the finished cement concrete pavement. The completed surface of the wearing course shall not vary more than ¼ inch from the lower edge of a 10-foot straightedge placed on the surface perpendicular to the centerline. Any deviations in excess of the above tolerances shall be corrected.

The Contractor shall evaluate profiles for acceptance, incentive payments, disincentive payments, or corrective action using the current version of ProVAL and provide the results including the profile data in unfiltered electronic Engineering Research Division (ERD) file format to the Engineer within 2 calendar days of completing testing each section of pavement. If the profile data files are created using an export option in the manufacturer's software where filter settings can be specified, use the filter settings that were used to create data files for certification. Analyze the entire profile. Exclude any areas specifically identified in the Contract. Exclude from the analysis the first 100 feet after the start of the paving operations and last 100 feet prior to the end of the paving operation, the first 100 feet on either side of bridge Structures and bridge approach slab. Report the MRI results in inches per mile for each 52.8 foot section and horizontal distance measurements in project stationing to the nearest foot. Include pay adjustments in the results. The Engineer will verify the analysis.

Corrective work for pavement smoothness may be taken by the Contractor prior to MRI testing. After completion of the MRI testing the Contractor shall measure the smoothness of each 52.8-foot section with an MRI greater than 125 inches per mile with a 10-foot straightedge within 14 calendar days or as allowed by the Engineer. The Contractor shall identify all locations that require corrective work and provide the straight edge measurements at each location that exceeds the allowable limit to the Engineer. If all measurements in a 52.8-foot section comply with smoothness requirements, the Contractor shall provide the maximum measurement to the Engineer and a statement that corrective work is not required. Unless allowed by the Engineer, corrective work shall be taken by the Contractor for pavement identified by the Contractor or Engineer that does not meet the following requirements:

1. The completed surface shall be of uniform texture, smooth, uniform as to crown and grade, and free from defects of all kinds.

2. The completed surface shall not vary more than ⅛ inch from the lower edge of a 10-foot straightedge placed on the surface parallel to the centerline.

3. The completed surface shall vary not more than ¼ inch in 10 feet from the rate of transverse slope shown in the Plans.

All corrective work shall be completed at no additional expense, including traffic control, to the Contracting Agency. Corrective work shall not begin until the concrete has reached its design strength unless allowed by the Engineer. Pavement shall be repaired by one or more of the following methods:

1. Diamond grinding; repairs shall not reduce pavement thickness by more than ¼ inch less than the thickness shown in the Plans. When required by the Engineer, the Contractor shall verify the thickness of the concrete pavement by coring. Thickness reduction due to corrective work will not be included in thickness measurements for calculating the Thickness Deficiency in Section 5-05.5(1)A.

2. Removal and replacement of the cement concrete pavement.

3. By other method allowed by the Engineer.

For repairs following MRI testing the repaired area shall be checked by the Contractor with a 10-foot straightedge to ensure it no longer requires corrective work. With concurrence of the Engineer an inertial profiler may be used in place of the 10-foot straight edge.

If correction of the roadway as listed above either will not or does not produce satisfactory results as to smoothness or serviceability the Engineer may accept the completed pavement and a credit will be calculated in accordance with Section 5-05.5. The credit will be in addition to the price adjustment for MRI. Under these circumstances, the decision whether to accept the completed pavement or to require corrective work as described above shall be vested entirely in the Engineer.

5-05.3(22) Repair of Defective Pavement Slabs

The last sentence of the fourth paragraph is revised to read:

All sandblasting residue shall be removed.

5-05.4 Measurement

Item number 3 of the second paragraph is revised to read:

3. The depth shall be determined in accordance with Section 5-05.5(1). The depth utilized to calculate the volume shall not exceed the Plan depth plus 0.04 feet.

The third paragraph is revised to read:

The volume of cement concrete pavement in each thickness lot shall equal the measured length × width × thickness measurement.

The last paragraph is revised to read:

The calculation for cement concrete compliance adjustment is the volume of concrete represented by the CPF and the Thickness deficiency adjustment.

5-05.5 Payment

The paragraph following the Bid item “Cement Conc. Pavement”, per cubic yard is supplemented with the following:

All costs associated with performing the magnetic pulse induction thickness testing shall be included in the unit Contract price per cubic yard for “Cement Conc. Pavement”.

The Bid item “Ride Smoothness Compliance Adjustment”, by calculation, and the paragraph following this bid item are revised to read:

“Ride Smoothness Compliance Adjustment”, by calculation.

Smoothness Compliance Adjustments will be based on the requirements in Section 5-05.3(12) and the following calculations:

1. Final MRI acceptance and incentive/disincentive payments for pavement smoothness will be calculated as the average of the ten 52.8-foot sections in each 528 feet in accordance with the price adjustment schedule.

    a. For sections of a lane that are a minimum of 52.8 feet and less than 528 feet, the price adjustment will be calculated using the average of the 52.8 foot MRI values and the price adjustment prorated for the length of the section.

    b. MRI values per 52.8-feet that were measured prior to corrective work will be included in the 528 foot price adjustment for sections with corrective work.

2. In addition to the price adjustment for MRI a smoothness compliance adjustment will be calculated in the sum of minus $1000.00 for each and every section of single traffic lane 52.8 feet in length in that does not meet the 10-foot straight edge requirements in Section 5-05.3(12) after corrective Work.

Price Adjustment Schedule

MRI for each 528 ft. section	Pay Adjustment Schedule
in. / mi.	$ / 0.10 mi.
< 30	2400
30	2400
31	2320
32	2240
33	2160
34	2080
35	2000
36	1920
37	1840

38	1760
39	1680
40	1600
41	1520
42	1440
43	1360
44	1280
45	1200
46	1120
47	1040
48	960
49	880
50	800
51	720
52	640
53	560
54	480
55	400
56	320
57	240
58	160
59	80
60	0
61	0
62	0
63	0
64	0
65	0
66	0
67	0
68	0
69	0
70	0
71	0
72	0
73	0
74	0
75	0
76	-80
77	-160
78	-240
79	-320
80	-400
81	-480
82	-560
83	-640
84	-720
85	-800
86	-880
87	-960

88	-1040
89	-1120
90	-1200
91	-1280
92	-1360
93	-1440
94	-1520
95	-1600
96	-1680
97	-1760
98	-1840
99	-1920
100	-2000
101	-2080
102	-2160
103	-2240
104	-2320
105	-2400
106	-2480
107	-2560
108	-2640
109	-2720
110	-2800
111	-2880
112	-2960
113	-3040
114	-3120
115	-3200
116	-3280
117	-3360
118	-3440
119	-3520
120	-3600
121	-3680
122	-3760
123	-3840
124	-3920
≥125	-4000

The bid item “Portland Cement Concrete Compliance Adjustment”, by calculation, and the paragraph following this bid item are revised to read:

“Cement Concrete Compliance Adjustment”, by calculation.

Payment for “Cement Concrete Compliance Adjustment” will be calculated by multiplying the unit Contract price for the cement concrete pavement, times the volume for adjustment, times the percent of adjustment determined from the calculated CPF and the Deficiency Adjustment listed in Section 5-05.5(1)A.

5-05.5(1) Pavement Thickness

This section is revised to read:

Cement concrete pavement shall be constructed in accordance with the thickness requirements in the Plans and Specifications. Tolerances allowed for Subgrade construction and other provisions, which may affect thickness, shall not be construed to modify such thickness requirements.

Thickness measurements in each lane paved shall comply with the following:

Thickness Testing of Cement Concrete Pavement	
Thickness Lot Size	15 panels maximum
Thickness test location determined by	Engineer will select testing locations in accordance with WSDOT TM 716 method B.
Sample method	AASHTO T 359
Sample preparation performed by	Contractor provides, places, and secures disks in the presence of the Engineer[1]
Measurement method	AASHTO T 359
Thickness measurement performed by	Contractor, in the presence of the Engineer[2]
[1]Reflectors shall be located at within 0.5 feet of the center of the panel. The Contractor shall supply a sufficient number of 300 mm-diameter round reflectors meeting the requirements of AASHTO T 359 to accomplish the required testing. [2]The Contractor shall provide all equipment and materials needed to perform the testing.	

Thickness measurements shall be rounded to the nearest 0.01 foot.

Each thickness test location where the pavement thickness is deficient by more than 0.04 foot, shall be subject to price reduction or corrective action as shown in Table 2.

Table 2 Thickness Deficiency	
0.04' < Thickness Deficiency ≤ 0.06'	10
0.06' < Thickness deficiency ≤ 0.08'	25
Thickness deficiency > 0.08'	Remove and replace the panels or the panels may be accepted with no payment at the discretion of the Engineer.

The price reduction shall be computed by multiplying the percent price reduction in Table 2 by the unit Contract price by the volume of pavement represented by the thickness test lot.

Additional cores may be taken by the Contractor to determine the limits of an area that has a thickness deficiency greater than 0.04 feet. Cores shall be taken at the approximate center of the panel. Only the panels within the limits of the deficiency area as determined by the cores will be subject to a price reduction or corrective action. The cores shall be taken in the presence of the Engineer and delivered to the Engineer for measurement. All costs for the additional cores including filling the core holes with patching material meeting the requirements of Section 9-20 will be the responsibility of the Contractor.

5-05.5(1)A Thickness Deficiency of 0.05 Foot or Less

This section, including title, is revised to read:

5-05.5(1)A Vacant

5-05.5(1)B Thickness Deficiency of More Than 0.05 Foot

This section, including title, is revised to read:

5-05.5(1)B Vacant

6-01.AP6

Section 6-01, General Requirements for Structures
January 7, 2019

This section is supplemented with the following new subsections:

6-01.16 Repair of Defective Work

6-01.16(1) General

When using repair procedures that are described elsewhere in the Contract Documents, the Working Drawing submittal requirements of this Section shall not apply to those repairs unless noted otherwise.

Repair procedures for defective Work shall be submitted as Type 2 Working Drawings. Type 2E Working Drawings shall be submitted when required by the Engineer. As an alternative to submitting Type 2 or 2E Working Drawings, defective Work within the limits of applicability of a pre-approved repair procedure may be repaired using that procedure. Repairs using a pre-approved repair procedure shall be submitted as a Type 1 Working Drawing.

Pre-approved repair procedures shall consist of the following:

- The procedures listed in Section 6-01.16(2)
- For precast concrete, repair procedures in the annual plant approval process documents that have been approved for use by the Contracting Agency.

All Working Drawings for repair procedures shall include:

- A description of the defective Work including location, extent and pictures
- Materials to be used in the repair. Repairs using manufactured products shall include written manufacturer recommendations for intended uses of the product, surface preparation, mixing, aggregate extension (if applicable), ambient and surface temperature limits, placement methods, finishing and curing.
- Construction procedures
- Plan details of the area to be repaired
- Calculations for Type 2E Working Drawings

Material manufacturer's instructions and recommendations shall supersede any conflicting requirements in pre-approved repair procedures.

The Engineer shall be notified prior to performing any repair procedure and shall be given an opportunity to inspect the repair work being performed.

6-01.16(2) Pre-Approved Repair Procedures

6-01.16(2)A Concrete Spalls and Poor Consolidation (Rock Pockets, Honeycombs, Voids, etc.)

This repair shall be limited to the following areas:

- Areas that are not on top Roadway surfaces (with or without an overlay) including but not limited to concrete bridge decks, bridge approach slabs or cement concrete pavement

- Areas that are not underwater

- Areas that are not on precast barrier, except for the bottom 4 inches (but not to exceed 1 inch above blockouts)

- Areas that do not affect structural adequacy as determined by the Engineer.

The repair procedure is as follows:

1. Remove all loose and unsound concrete. Impact breakers shall not exceed 15 pounds in weight when removing concrete adjacent to reinforcement or other embedments and shall not exceed 30 pounds in weight otherwise. Operate impact breakers at angles less than 45 degrees as measured from the surface of the concrete to the tool and moving away from the edge of the defective Work. Concrete shall be completely removed from exposed surfaces of existing steel reinforcing bars. If half or more of the circumference of any steel reinforcing bar is exposed, if the reinforcing bar is loose or if the bond to existing concrete is poor then concrete shall be removed at least ¾ inch behind the reinforcing bar. Do not damage any existing reinforcement. Stop work and allow the Engineer to inspect the repair area after removing all loose and unsound concrete. Submit a modified repair procedure when required by the Engineer.

2. Square the edges of the repair area by cutting an edge perpendicular to the concrete surface around the repair area. The geometry of the repair perimeter shall minimize the edge length and shall be rectangular with perpendicular edges, avoiding reentrant corners. The depth of the cut shall be a minimum of ¾ inch, but shall be reduced if necessary to avoid damaging any reinforcement. For repairs on vertical surfaces, the top edge shall slope up toward the front at a 1-vertical-to-3-horizontal slope.

3. Remove concrete within the repair area to a depth at least matching the cut depth at the edges. Large variations in the depth of removal within short distances shall be avoided. Roughen the concrete surface. The concrete surface should be roughened to at least Concrete Surface Profile (CSP) 5 in accordance with ICRI Guideline

No. 310.2R, unless a different CSP is recommended by the patching material manufacturer.

4. Inspect the concrete repair surface for delaminations, debonding, microcracking and voids using hammer tapping or a chain drag. Remove any additional loose or unsound concrete in accordance with steps 1 through 3.

5. Select a patching material in accordance with Section 9-20.2 that is appropriate for the repair location and thickness. The concrete patching material shall be pumpable or self-consolidating as required for the type of placement that suits the repair. The patching material shall have a minimum compressive strength at least equal to the specified compressive strength of the concrete.

6. Prepare the concrete surface and reinforcing steel in accordance with the patching material manufacturer's recommendations. At a minimum, clean the concrete surfaces (including perimeter edges) and reinforcing steel using oil-free abrasive blasting or high-pressure (minimum 5,000 psi) water blasting. All dirt, dust, loose particles, rust, laitance, oil, film, microcracked/bruised concrete or foreign material of any sort shall be removed. Damage to the epoxy coating on steel reinforcing bars shall be repaired in accordance with Section 6-02.3(24)H.

7. Construct forms if necessary, such as for patching vertical or overhead surfaces or where patching extends to the edge or corner of a placement.

8. When recommended by the patching material manufacturer, saturate the concrete in the repair area and remove any free water at the concrete surface to obtain a saturated surface dry (SSD) substrate. When recommended by the patching material manufacturer, apply a primer, scrub coat or bonding agent to the existing surfaces. Epoxy bonding agents, if used, shall be Type II or Type V in accordance with Section 9-26.1.

9. Place and consolidate the patching material in accordance with the manufacturer's recommendations. Work the material firmly into all surfaces of the repair area with sufficient pressure to achieve proper bond to the concrete.

10. The patching material shall be textured, cured and finished in accordance with the patching material manufacturer's recommendations and/or the requirements for the repaired component. Protect the newly placed patch from vibration in accordance with Section 6-02.3(6)D.

11. When the completed repair does not match the existing concrete color and will be visible to the public, a sand and cement mixture that is color matched to the existing concrete shall be rubbed, brushed, or applied to the surface of the patching material and the concrete.

6-01.10 Utilities Supported by or Attached to Bridges

In the third paragraph, “Federal Standard 595” is revised to read “SAE AMS Standard 595”.

6-01.12 Final Cleanup

The second sentence of the first paragraph is revised to read:

> Structure decks shall be clean.

The second paragraph is deleted.

6-02.AP6

Section 6-02, Concrete Structures
April 1, 2019

6-02.1 Description

The first sentence is revised to read:

> This Work consists of the construction of all Structures (and their parts) made of portland cement or blended hydraulic cement concrete with or without reinforcement, including bridge approach slabs.

6-02.2 Materials

In the first paragraph, the references to “Portland Cement” and “Aggregates for Portland Cement Concrete” are revised to read:

Cement	9-01
Aggregates for Concrete	9-03.1

The reference to metakaolin is deleted.

6-02.3(2) Proportioning Materials

The second paragraph is revised to read:

> Unless otherwise specified, the Contractor shall use Type I or II portland cement or blended hydraulic cement in all concrete as defined in Section 9-01.2(1).

The last sentence of the fifth paragraph is revised to read:

> With the Engineer’s written concurrence, microsilica fume may be used in all classifications of Class 4000, Class 3000, and commercial concrete and is limited to a maximum of 10 percent of the cementitious material.

6-02.3(2)A Contractor Mix Design

The last sentence of the last paragraph is revised to read:

> For all other concrete, air content shall be a minimum of 4.5 percent and a maximum of 7.5 percent for all concrete placed above the finished ground line unless noted otherwise.

6-02.3(2)A1 Contractor Mix Design for Concrete Class 4000D

Item number 5 of the first paragraph is deleted.

Item number 6 of the first paragraph (after the preceding Amendment is applied) is renumbered to 5.

6-02.3(2)B Commercial Concrete

The second paragraph is revised to read:

> Where concrete Class 3000 is specified for items such as, culvert headwalls, plugging culverts, concrete pipe collars, pipe anchors, monument cases, Type PPB, PS, I, FB and RM signal standards, pedestals, cabinet bases, guardrail anchors, fence post footings, sidewalks, concrete curbs, curbs and gutters, and gutters, the Contractor may use commercial concrete. If commercial concrete is used for sidewalks, concrete curbs, curbs and gutters, and gutters, it shall have a minimum cementitious material content of 564 pounds per cubic yard of concrete, shall be air entrained, and the tolerances of Section 6-02.3(5)C shall apply.

6-02.3(4) Ready-Mix Concrete

The first sentence of the first paragraph is revised to read:

> All concrete, except lean concrete, shall be batched in a prequalified manual, semi-automatic, or automatic plant as described in Section 6-02.3(4)A.

6-02.3(4)D Temperature and Time For Placement

The following is inserted after the first sentence of the first paragraph:

> The upper temperature limit for placement for Class 4000D concrete may be increased to a maximum of 80°F if allowed by the Engineer.

6-02.3(5)C Conformance to Mix Design

Item number 1 of the second paragraph is revised to read:

> 1. Cement weight plus 5 percent or minus 1 percent of that specified in the mix design.

6-02.3(6)A1 Hot Weather Protection

The first paragraph is revised to read:

> The Contractor shall provide concrete within the specified temperature limits. Cooling of the coarse aggregate piles by sprinkling with water is permitted provided the moisture content is monitored, the mixing water is adjusted for the free water in the aggregate and the coarse aggregate is removed from at least 1 foot above the bottom of the pile. Sprinkling of fine aggregate piles with water is not allowed. Refrigerating mixing water or replacing all or part of the mixing water with crushed ice is permitted, provided the ice is completely melted by placing time.

The second sentence of the second paragraph is revised to read:

> These surfaces include forms, reinforcing steel, steel beam flanges, and any others that touch the concrete.

6-02.3(7) Vacant

This section, including title, is revised to read:

6-02.3(7) Tolerances

Unless noted otherwise, concrete construction tolerances shall be in accordance with this section. Tolerances in this section do not apply to cement concrete pavement.

Horizontal deviation of roadway crown points, cross-slope break points, and curb, barrier or railing edges from alignment or work line: ±1.0 inch

Deviation from plane: ±0.5 inch in 10 feet

Deviation from plane for roadway surfaces: ±0.25 inch in 10 feet

Deviation from plumb or specified batter: ±0.5 inch in 10 feet, but not to exceed a total of ±1.5 inches

Vertical deviation from profile grade for roadway surfaces: ±1 inch

Vertical deviation of top surfaces (except roadway surfaces): ±0.75 inch

Thickness of bridge decks and other structural slabs not at grade: ±0.25 inch

Length, width and thickness of elements such as columns, beams, crossbeams, diaphragms, corbels, piers, abutments and walls, including dimensions to construction joints in initial placements: +0.5 inch, -0.25 inch

Length, width and thickness of spread footing foundations: +2 inches, -0.5 inch

Horizontal location of the as-placed edge of spread footing foundations: The greater of ±2% of the horizontal dimension of the foundation perpendicular to the edge and ±0.5 inch. However, the tolerance shall not exceed ±2 inches.

Location of opening, insert or embedded item at concrete surface: ±0.5 inch

Cross-sectional dimensions of opening: ±0.5 inch

Bridge deck, bridge approach slab, and bridge traffic barrier expansion joint gaps with a specified temperature range, measured at a stable temperature: ±0.25 inch

Horizontal deviation of centerline of bearing pad, oak block or other bearing assembly: ±0.125 inch

Horizontal deviation of centerline of supported element from centerline of bearing pad, oak block or other bearing assembly ±0.25 inch

Vertical deviation of top of bearing pad, oak block or other bearing assembly: ±0.125 inch

6-02.3(10)C Finishing Equipment

The first paragraph is revised to read:

The finishing machine shall be self-propelled and be capable of forward and reverse movement under positive control. The finishing machine shall be equipped with augers and a rotating cylindrical single or double drum screed. The finishing machine shall have the necessary adjustments to produce the required cross section, line, and grade. The finishing machine shall be capable of raising the screeds, augers, and any other parts of the finishing mechanical operation to clear the screeded surface, and returning to the specified grade under positive control. Unless otherwise allowed by the Engineer, a finishing machine manufacturer technical representative shall be on site to assist the first use of the machine on the Contract.

The first sentence of the second paragraph is revised to read:

For bridge deck widening of 20 feet or less, and for bridge approach slabs, or where jobsite conditions do not allow the use of the conventional configuration finishing machines, or modified conventional machines as described above; the Contractor may submit a Type 2 Working Drawing proposing the use of a hand-operated motorized power screed such as a “Texas” or “Bunyan” screed.

6-02.3(10)D4 Monitoring Bridge Deck Concrete Temperature After Placement

This section, including title, is revised to read:

6-02.3(10)D4 Vacant

6-02.3(10)D5 Bridge Deck Concrete Finishing and Texturing

In the third subparagraph of the first paragraph, the last sentence is revised to read:

The Contractor shall texture the bridge deck surface to within 3-inches minimum and 24-inches maximum of the edge of concrete at expansion joints, within 1-foot minimum and 2-feet maximum of the curb line, and within 3-inches minimum and 9-inches maximum of the perimeter of bridge drain assemblies.

6-02.3(10)F Bridge Approach Slab Orientation and Anchors

The second to last paragraph is revised to read:

The compression seal shall be a 2½ inch wide gland and shall conform to Section 9-04.1(4).

The last paragraph is deleted.

6-02.3(13)A Strip Seal Expansion Joint System

In item number 3 of the third paragraph, “Federal Standard 595” is revised to read “SAE AMS Standard 595”.

6-02.3(13)B Compression Seal Expansion Joint System

The first paragraph is revised to read:

Compression seal glands shall conform to Section 9-04.1(4) and be sized as shown in the Plans.

6-02.3(14)C Pigmented Sealer for Concrete Surfaces

This section is supplemented with the following new paragraph:

Pigmented Sealer Materials shall be a product listed in the current WSDOT Qualified Products List (QPL). If the pigmented sealer material is not listed in the current WSDOT QPL, a sample shall be submitted to the State Materials Laboratory in Tumwater for evaluation and acceptance in accordance with Section 9-08.3.

6-02.3(20) Grout for Anchor Bolts and Bridge Bearings

The second, third and fourth paragraphs are revised to read:

Grout shall be a workable mix with a viscosity that is suitable for the intended application. Grout shall not be placed outside of the manufacturer recommended range of thickness. The Contractor shall receive concurrence from the Engineer before using the grout.

Field grout cubes and cylinders shall be fabricated and tested in accordance with Section 9-20.3 when requested by the Engineer, but not less than once per bridge pier or once per day.

Before placing grout, the substrate on which it is to be placed shall be prepared as recommended by the manufacturer to ensure proper bonding. The grout shall be cured as recommended by the manufacturer. The grout may be loaded when a minimum of 4,000 psi compressive strength is attained.

The fifth paragraph is deleted.

6-02.3(23) Opening to Traffic

This section is supplemented with the following new paragraph:

After curing bridge approach slabs in accordance with Section 6-02.3(11), the bridge approach slabs may be opened to traffic when a minimum compressive strength of 2,500 psi is achieved.

6-02.3(24)C Placing and Fastening

This section is revised to read:

The Contractor shall position reinforcing steel as the Plans require and shall ensure that the steel is set within specified tolerances. Adjustments to reinforcing details outside of specified tolerances to avoid interferences and for other purposes are acceptable when approved by the Engineer.

When spacing between bars is 1 foot or more, they shall be tied at all intersections. When spacing is less than 1 foot, every other intersection shall be tied. If the Plans require bundled bars, they shall be tied together with wires at least every 6 feet. All epoxy-coated bars in the top mat of the bridge deck shall be tied at all intersections, however they may be tied at alternate intersections when spacing is less than 1 foot in each direction and they are supported by continuous supports meeting all other requirements of supports for epoxy-coated bars. Other epoxy-coated bars shall also be tied at all intersections, but shall be tied at alternate intersections when spacing is less than 1 foot in each direction. Wire used for tying epoxy-coated reinforcing steel shall be plastic coated. **Tack welding is not permitted on reinforcing steel**.

Abrupt bends in the steel are permitted only when one steel member bends around another. Vertical stirrups shall pass around main reinforcement or be firmly attached to it.

For slip-formed concrete, the reinforcing steel bars shall be tied at all intersections and cross braced to keep the cage from moving during concrete placement. Cross bracing shall be with additional reinforcing steel. Cross bracing shall be placed both longitudinally and transversely.

After reinforcing steel bars are placed in a traffic or pedestrian barrier and prior to slip-form concrete placement, the Contractor shall check clearances and reinforcing steel bar placement. This check shall be accomplished by using a template or by operating the slip-form machine over the entire length of the traffic or pedestrian barrier. All clearance and reinforcing steel bar placement deficiencies shall be corrected by the Contractor before slip-form concrete placement.

Precast concrete supports (or other accepted devices) shall be used to maintain the concrete coverage required by the Plans. The precast concrete supports shall:

1. Have a bearing surface measuring not greater than 2 inches in either dimension, and

2. Have a compressive strength equal to or greater than that of the concrete in which they are embedded.

In slabs, each precast concrete support shall have either: (1) a grooved top that will hold the reinforcing bar in place, or (2) an embedded wire that protrudes and is tied to the reinforcing steel. If this wire is used around epoxy-coated bars, it shall be coated with plastic.

Precast concrete supports may be accepted based on a Manufacturer's Certificate of Compliance.

In lieu of precast concrete supports, the Contractor may use metal or all-plastic supports to hold uncoated bars. Any surface of a metal support that will not be covered by at least ½ inch of concrete shall be one of the following:

1. Hot-dip galvanized after fabrication in keeping with AASHTO M232 Class D;

2. Coated with plastic firmly bonded to the metal. This plastic shall be at least 3⁄32 inch thick where it touches the form and shall not react chemically with the concrete when tested in the State Materials Laboratory. The plastic shall not shatter or crack at or above -5°F and shall not deform enough to expose the metal at or below 200°F; or

3. Stainless steel that meet the requirements of ASTM A493, Type 302. Stainless steel chair supports are not required to be galvanized or plastic coated.

In lieu of precast concrete supports, epoxy-coated reinforcing bars may be supported by one of the following:

1. Metal supports coated entirely with a dielectric material such as epoxy or plastic,

2. Other epoxy-coated reinforcing bars, or

3. All-plastic supports.

Damaged coatings on metal bar supports shall be repaired prior to placing concrete.

All-plastic supports shall be lightweight, non-porous, and chemically inert in concrete. All-plastic supports shall have rounded seatings, shall not deform under load during normal temperatures, and shall not shatter or crack under impact loading in cold weather. All-plastic supports shall be placed at spacings greater than 1 foot along the bar and shall have at least 25 percent of their gross place area perforated to compensate for the difference in the coefficient of thermal expansion between plastic and concrete. The shape and configuration of all-plastic supports shall permit complete concrete consolidation in and around the support.

A “mat” is two adjacent and perpendicular layers of reinforcing steel. In bridge decks, top and bottom mats shall be supported adequately enough to hold both in their proper positions. If bar supports directly support, or are directly supported on No. 4 bars, they shall be spaced at not more than 3-foot intervals (or not more than 4-foot intervals for bars No. 5 and larger). Wire ties to girder stirrups shall not be considered as supports. To provide a rigid mat, the Contractor shall add other supports and tie wires to the top mat as needed.

Unless noted otherwise, the minimum concrete cover for main reinforcing bars shall be:

3 inches to a concrete surface deposited against earth without intervening forms.

2½ inches to the top surface of a concrete bridge deck or bridge approach slab.

2 inches to a concrete surface when not specified otherwise in this section or in the Contract documents.

1½ inches to a concrete barrier or curb surface.

Except for top cover in bridge decks and bridge approach slabs, minimum concrete cover to ties and stirrups may be reduced by ½ inch but shall not be less than 1 inch. Minimum concrete cover shall also be provided to the outermost part of mechanical splices and headed steel reinforcing bars.

Reinforcing steel bar location, concrete cover and clearance shall not vary more than the following tolerances from what is specified in the Contract documents:

Reinforcing bar location for members 12 inches or less in thickness: ±0.25 inch

Reinforcing bar location for members greater than 12 inches in thickness: ±0.375 inch

Reinforcing bar location for bars placed at equal spacing within a plane: the greater of either ±1 inch or ±1 bar diameter within the plane. The total number of bars shall not be fewer than that specified.

The clearance between reinforcement shall not be less than the greater of the bar diameter or 1 inch for unbundled bars. For bundled bars, the clearance between bundles shall not be less than the greater of 1 inch or a bar diameter derived from the equivalent total area of all bars in the bundle.

Longitudinal location of bends and ends of bars: ±1 inch

Embedded length of bars and length of bar lap splices:

No. 3 through No. 11: -1 inch

No. 14 through No. 18: -2 inches

Concrete cover measured perpendicular to concrete surface (except for the top surface of bridge decks, bridge approach slabs and other roadway surfaces): ±0.25 inch

Concrete cover measured perpendicular to concrete surface for the top surface of bridge decks, bridge approach slabs and other roadway surfaces: +0.25 inch, -0 inch

Before placing any concrete, the Contractor shall:

1. Clean all mortar from reinforcement, and

2. Obtain the Engineer's permission to place concrete after the Engineer has inspected the placement of the reinforcing steel. (Any concrete placed without the Engineer's permission shall be rejected and removed.)

6-02.3(25)H Finishing

The last paragraph is revised to read:

The Contractor may repair defects in prestressed concrete girders in accordance with Section 6-01.16.

6-02.3(25)I Fabrication Tolerances

Item number 12 of the first paragraph is revised to read:

12. Stirrup Projection from Top of Girder:

Wide flange thin deck and slab girders: ± ½ inch

All other girders: ± ¾ inch

6-02.3(27) Concrete for Precast Units

The last sentence of the first paragraph is revised to read:

Type III portland cement or blended hydraulic cement is permitted to be used in precast concrete units.

6-02.3(28)B Casting

In the second paragraph, the reference to Section 6-02.3(25)B is revised to read Section 6-02.3(25)C.

6-02.3(28)D Contractors Control Strength

In the first paragraph, “WSDOT FOP for AASHTO T 23” is revised to read “FOP for AASHTO T 23”.

6-02.3(28)E Finishing

This section is supplemented with the following:

The Contractor may repair defects in precast panels in accordance with Section 6-01.16.

6-03.AP6

Section 6-03, Steel Structures
January 7, 2019

6-03.2 Materials

In the first paragraph, the material reference for Paints is revised to read:

Paints and Related Materials 9-08

6-03.3(25)A3 Ultrasonic Inspection

The first paragraph (up until the colon) is revised to read:

Complete penetration groove welds on plates 5/16 inch and thicker in the following welded assemblies or Structures shall be 100 percent ultrasonically inspected:

6-03.3(33) Bolted Connections

The first paragraph is supplemented with the following:

After final tightening of the fastener components, the threads of the bolts shall at a minimum be flush with the end of the nut.

The following is inserted after the third sentence of the fourth paragraph:

When galvanized bolts are specified, tension-control galvanized bolts are not permitted.

6-05.AP6

Section 6-05, Piling
January 2, 2018

6-05.3(9)A Pile Driving Equipment Approval

The fourth sentence of the second paragraph is revised to read:

For prestressed concrete piles, the allowable driving stress in kips per square inch shall be $0.095 \cdot \sqrt{f'_c}$ plus prestress in tension, and $0.85f'_c$ minus prestress in compression, where f'_c is the concrete compressive strength in kips per square inch.

6-07.AP6

Section 6-07, Painting
January 7, 2019

6-07.1 Description

The first sentence is revised to read:

This work consists of containment, surface preparation, shielding adjacent areas from work, testing and disposing of debris, furnishing and applying paint, and cleaning up after painting is completed.

6-07.2 Materials

The material reference for Paint is revised to read:

Paint and Related Materials 9-08

6-07.3(1)A Work Force Qualifications for Shop Application of Paint

This section is supplemented with the following new sentence:

The work force may be accepted based on the approved facility.

6-07.3(1)B Work Force Qualifications for Field Application of Paint

The first two paragraphs are revised to read:

The Contractor preparing the surface and applying the paint shall be certified under SSPC-QP 1 or NACE International Institute Contractor Accreditation Program (NIICAP) AS 1.

The Contractor removing and otherwise disturbing existing paint containing lead and other hazardous materials shall be certified under SSPC-QP 2, Category A or NIICAP AS 2.

The third paragraph (up until the colon) is revised to read:

In lieu of the above SSPC or NIICAP certifications, the Contractor performing the specified work shall complete both of the following actions:

Item number 2 of the third paragraph is revised to read:

2. The Contractor's quality control inspector(s) for the project shall be NACE-certified CIP Level 3 or SSPC Protective Coating Inspector (PCI) Level 3.

6-07.3(2) Submittals

The first paragraph is supplemented with the following:

Each component of the plan shall identify the specification section it represents.

6-07.3(2)B Contractor's Quality Control Program Submittal Component

The numbered list in the first paragraph is revised to read:

1. Description of the inspection procedures, tools, techniques and the acceptance criteria for all phases of work.

2. Procedure for implementation of corrective action for non-conformance work.

3. The paint system manufacturer's recommended methods of preventing defects.

4. The Contractor's frequency of quality control inspection for each phase of work.

5. Example of each completed form(s) of the daily quality control report used to document the inspection work and tests performed by the Contractor's quality control personnel.

6-07.3(2)C Paint System Manufacturer and Paint System Information Submittal Component

Item number 1 is revised to read:

1. Product data sheets and Safety Data Sheets (SDS) on the paint materials, paint preparation, and paint application, as specified by the paint manufacturer, including:

    a. All application instructions, including the mixing and thinning directions.

    b. Recommended spray nozzles and pressures.

    c. Minimum and maximum drying time between coats.

    d. Restrictions on temperature and humidity.

    e. Repair procedures for shop and field applied coatings.

    f. Maximum dry film thickness for each coat.

    g. Minimum wet film thickness for each coat to achieve the specified minimum dry film thickness.

6-07.3(2)D Hazardous Waste Containment, Collection, Testing, and Disposal Submittal Component

The first paragraph (up until the colon) is revised to read:

The hazardous waste containment, collection, testing, and disposal shall meet all Federal and State requirements, and the submittal component of the painting plan shall include the following:

6-07.3(2)E Cleaning and Surface Preparation Submittal Component

Item 1(b) of the first paragraph is revised to read::

b. Type, manufacturer, and brand of abrasive blast material and all associated additives, including Safety Data Sheets (SDS).

6-07.3(3)B Quality Control and Quality Assurance for Field Application of Paint

The last sentence of the first paragraph (excluding the numbered list) is revised to read:

> The Contractor's quality control operations shall include a minimum monitoring and documenting the following for each working day:

Item number 1 in the fourth paragraph is revised to read:

> 1. Environmental conditions for painting in accordance with ASTM E 337.

Item number 4 in the fourth paragraph is revised to read:

> 4. Pictorial of surface preparation guides in accordance with SSPC-VIS 1, 3, 4, and 5.

Item number 5 in the fourth paragraph is revised to read:

> 5. Surface profile by Keanne-Tator comparator in accordance with ASTM D 4417 and SSPC PA17.

6-07.3(4) Paint System Manufacturer's Technical Representative

This section is revised to read:

> The paint system manufacturer's representative shall be present at the jobsite for the pre-painting conference and for the first day of paint application, and shall be available to the Contractor and Contracting Agency for consultation for the full project duration.

6-07.3(5) Pre-Painting Conference

The second paragraph is revised to read:

> If the Contractor's key personnel change between any work operations, an additional conference shall be held if requested by the Engineer.

6-07.3(6)A Paint Containers

In item number 2 of the first paragraph, "Federal Standard 595" is revised to read "SAE AMS Standard 595".

6-07.3(6)B Paint Storage

Item number 2 of the second paragraph is revised to read:

> 2. The Contractor shall monitor and document daily the paint material storage facility with a high-low recording thermometer device.

6-07.3(7) Paint Sampling and Testing

The first two paragraphs are revised to read:

> The Contractor shall provide the Engineer 1 quart of each paint representing each lot. Samples shall be accompanied with a Safety Data Sheet.
>
> If the quantity of paint required for each component of the paint system for the entire project is 20 gallons or less, then the paint system components will be accepted as specified in Section 9-08.1(7).

6-07.3(8)A Paint Film Thickness Measurement Gages

The first paragraph is revised to read:

> Paint dry film thickness measurements shall be performed with either a Type 1 pull-off gage or a Type 2 electronic gage as specified in SSPC Paint Application Specification No. 2, Procedure for Determining Conformance to Dry Coating Thickness Requirements.

6-07.3(9) Painting New Steel Structures

The last sentence of the second paragraph is revised to read:

> Welded shear connectors are not required to painted.

The last paragraph is revised to read:

> Temporary attachments or supports for scaffolding, containment or forms shall not damage the paint system.

6-07.3(9)A Paint System

The first paragraph is revised to read:

> The paint system applied to new steel surfaces shall consist of the following:
>
> Option 1 (component based paint system):

Primer Coat – Inorganic Zinc Rich	9-08.1(2)C
Intermediate Coat – Moisture Cured Polyurethane	9-08.1(2)G
Intermediate Stripe Coat – Moisture Cured Polyurethane	9-08.1(2)G
Top Coat – Moisture Cured Polyurethane	9-08.1(2)H

> Option 2 (performance based paint system):

Primer Coat – Inorganic Zinc Rich	9-08.1(2)M
Intermediate Coat – Epoxy	9-08.1(2)M
Intermediate Stripe Coat – Epoxy	9-08.1(2)M
Top Coat – Polyurethane	9-08.1(2)M

The following new paragraph is inserted after the first paragraph:

> Paints and related materials shall be products listed in the current WSDOT Qualified Products List (QPL). Component based paint systems shall be listed on the QPL in the applicable sections of Section 9-08. Performance based systems shall be listed on the current Northeast Protective Coatings Committee (NEPCOAT) Qualified Products List "A" as listed on the WSDOT QPL in Section 9-08.1(2)M. If the paint and related materials for the component based system is not listed in the current WSDOT QPL, a sample shall be submitted to the State Materials Laboratory in Tumwater for evaluation and acceptance in accordance with Section 9-08.

6-07.3(9)C Mixing and Thinning Paint

This section is revised to read:

The Contractor shall thoroughly mix paint in accordance with the manufacturer's written recommendations and by mechanical means to ensure a uniform and lump free composition. Paint shall not be mixed by means of air stream bubbling or boxing. Paint shall be mixed in the original containers and mixing shall continue until all pigment or metallic powder is in suspension. Care shall be taken to ensure that the solid material that has settled to the bottom of the container is thoroughly dispersed. After mixing, the Contractor shall inspect the paint for uniformity and to ensure that no unmixed pigment or lumps are present.

Catalysts, curing agents, hardeners, initiators, or dry metallic powders that are packaged separately may be added to the base paint in accordance with the paint manufacturer's written recommendations and only after the paint is thoroughly mixed to achieve a uniform mixture with all particles wetted. The Contractor shall then add the proper volume of curing agent to the correct volume of base and mix thoroughly. The mixture shall be used within the pot life specified by the manufacturer. Unused portions shall be discarded at the end of each work day. Accelerants are not permitted except as allowed by the Engineer.

The Contractor shall not add additional thinner at the application site except as allowed by the Engineer. The amount and type of thinner, if allowed, shall conform to the manufacturer's specifications. If recommended by the manufacturer and allowed by the Engineer, a measuring cup shall be used for the addition of thinner to any paint with graduations in ounces. No un-measured addition of thinner to paint will be allowed. Any paint found to be thinned by unacceptable methods will be rejected.

When recommended by the manufacturer, the Contractor shall constantly agitate paint during application by use of paint pots equipped with mechanical agitators.

The Contractor shall strain all paint after mixing to remove undesirable matter, but without removing the pigment or metallic powder.

Paint shall be stored and mixed in a secure, contained location to eliminate the potential for spills into State waters and onto the ground and highway surfaces.

6-07.3(9)D Coating Thickness

This section is revised to read:

Dry film thickness shall be measured in accordance with SSPC Paint Application Specification No. 2, *Procedure for Determining Conformance to Dry Coating Thickness Requirements*.

The minimum dry film thickness of the primer coat shall not be less than 2.5 mils.

The minimum dry film thickness of each coat (combination of intermediate and intermediate stripe, and top) shall be not less than 3.0 mils.

The dry film thickness of each coat shall not be thicker than the paint manufacturer's recommended maximum thickness.

The minimum wet film thickness of each coat shall be specified by the paint manufacturer to achieve the minimum dry film thickness.

Film thickness, wet and dry, will be measured by gages conforming to Section 6-07.3(8)A.

Wet measurements will be taken immediately after the paint is applied in accordance with ASTM D4414. Dry measurements will be taken after the coating is dry and hard in accordance with SSPC Paint Application Specification No. 2.

Each painter shall be equipped with wet film thickness gages and shall be responsible for performing frequent checks of the paint film thickness throughout application.

Coating thickness measurements may be made by the Engineer after the application of each coat and before the application of the succeeding coat. In addition, the Engineer may inspect for uniform and complete coverage and appearance. One hundred percent of all thickness measurements shall meet or exceed the minimum wet film thickness. In areas where wet film thickness measurements are impractical, dry film thickness measurements may be made. If a question arises about an individual coat's thickness or coverage, it may be verified by the use of a Tooke gage in accordance with ASTM D4138.

If the specified number of coats does not produce a combined dry film thickness of at least the sum of the thicknesses required per coat, if an individual coat does not meet the minimum thickness, or if visual inspection shows incomplete coverage, the coating system will be rejected and the Contractor shall discontinue painting and surface preparation operations and shall submit a Type 2 Working Drawing of the repair proposal. The repair proposal shall include documentation demonstrating the cause of the less-than-minimum thickness, along with physical test results, as necessary, and modifications to Work methods to prevent similar results. The Contractor shall not resume painting or surface preparation operations until receiving the Engineer's acceptance of the completed repair.

6-07.3(9)E Surface Temperature Requirements Prior to Application of Paint

This section, including title, is revised to read:

6-07.3(9)E Environmental Condition Requirements Prior to Application of Paint

Paint shall be applied only during periods when:

1. Air and steel temperatures are in accordance with the paint manufacturer's recommendations but in no case less than 35°F nor greater than 115°F.

2. Steel surface temperature is a minimum of 5°F above the dew point.

3. Steel surface is not wet.

4. Relative humidity is within the manufacturer's recommended range.

5. The anticipated ambient temperature will remain above 35°F or the manufacturer's minimum temperature, whichever is greater, during the paint drying and curing period.

Application will not be allowed if conditions are not favorable for proper application and performance of the paint.

Paint shall not be applied when weather conditions are unfavorable to proper curing. If a paint system manufacturer's recommendations allow for application of a paint under environmental conditions other than those specified, the Contractor shall submit a Type 2 Working Drawing consisting of a letter from the paint manufacturer specifying the environmental conditions under which the paint can be applied. Application of paint under environmental conditions other than those specified in this section will not be allowed without the Engineer's concurrence.

6-07.3(9)F Shop Surface Cleaning and Preparation

The last sentence is revised to read:

The entire steel surface to be painted, including surfaces specified in Section 6-07.3(9)G to receive a mist coat of primer, shall be cleaned to a near white condition in accordance with SSPC-SP 10, *Near-white Metal Blast Cleaning*, and shall be in this condition immediately prior to paint application.

6-07.3(9)G Application of Shop Primer Coat

The first paragraph is supplemented with the following:

Repairs of the shop primer coat shall be prepared in accordance with the painting plan. Shop primer coat repair paint shall be selected from the approved component based or performance based paint system in accordance with Section 6-07.3(10)H.

6-07.3(9)H Containment for Field Coating

This section is revised to read:

The Contractor shall use a containment system in accordance with Section 6-07.3(10)A for surface preparation and prime coating of all uncoated areas remaining, including bolts, nuts, washers, and splice plates.

During painting operations of the intermediate, stripe and top coats the Contractor shall furnish, install, and maintain drip tarps below the areas to be painted to contain all spilled paint, buckets, brushes, and other deleterious material, and prevent such materials from reaching the environment below or adjacent to the structure being painted. Drip tarps shall be absorbent material and hung to minimize puddling. The Contractor shall evaluate the project-specific conditions to determine the specific type and extent of containment needed to control the paint emissions and shall submit a containment plan in accordance with Section 6-07.3(2).

6-07.3(9)I Application of Field Coatings

This section is revised to read:

An on-site supervisor shall be present for each work shift at the bridge site.

Upon completion of erection Work, all uncoated or damaged areas remaining, including bolts, nuts, washers, and splice plates, shall be prepared in accordance with Section 6-07.3(9)F, followed by a field primer coat of a zinc-rich primer and final coats of paint selected from the approved component or performance based paint system in accordance with Section 6-07.3(10)H. . The intermediate, intermediate stripe, and top coats shall be applied in accordance with the manufacturer's written recommendations.

Upon completion of erection Work, welds for steel column jackets may be prepared in accordance with SSPC-SP 15, Commercial Grade Power Tool Cleaning.

The minimum drying time between coats shall be as shown in the product data sheets, but not less than 12 hours. The Contractor shall determine whether the paint has cured sufficiently for proper application of succeeding coats.

The maximum time between intermediate and top coats shall be in accordance with the manufacturer's written recommendations. If the maximum time between coats is exceeded, all newly coated surfaces shall be prepared to SSPC-SP 7, *Brush-off Blast Cleaning*, and shall be repainted with the same paint that was cleaned, at no additional cost to the Contracting Agency.

Each coat shall be applied in a uniform layer, completely covering the preceding coat. The Contractor shall correct runs, sags, skips, or other deficiencies before application of succeeding coats. Such corrective work may require re-cleaning, application of additional paint, or other means as determined by the Engineer, at no additional cost to the Contracting Agency.

Dry film thickness measurements will be made in accordance with Section 6-07.3(9)D.

All paint damage that occurs shall be repaired in accordance with the manufacturer's written recommendations. On bare areas or areas of insufficient primer thickness, the repair shall include field-applied zinc-rich primer and the final coats of paint selected from the approved component or performance based paint system in accordance with Section 6-07.3(10)H. On areas where the primer is at least equal to the minimum required dry film thickness, the repair shall include the application of the final two coats of the paint system. All paint repair operations shall be performed by the Contractor at no additional cost or time to the Contracting Agency.

6-07.3(10)A Containment

The first sentence of the third paragraph is revised to read:

Emissions shall be assessed by Visible Emission Observations (Method A) in SSPC Technology Update No. 7, *Conducting Ambient Air, Soil, and Water Sampling of Surface Preparation and Paint Disturbance Activities*, Section 6.2 and shall be limited to the Level A Acceptance Criteria Option Level 0 Emissions standard.

6-07.3(10)D Surface Preparation Prior to Overcoat Painting

The first paragraph is revised to read:

The Contractor shall remove any visible oil, grease, and road tar in accordance with SSPC-SP 1, *Solvent Cleaning*.

The second paragraph is revised to read:

Following any preparation by SSPC-SP1, all steel surfaces to be painted shall be prepared in accordance with SSPC-SP 7, *Brush-off Blast Cleaning*. Surfaces inaccessible to brush-off blast shall be prepared in accordance with SSPC-SP 3, *Power Tool Cleaning*, as allowed by the Engineer.

The first sentence of the third paragraph is revised to read:

Following brush-off blast cleaning, the Contractor shall perform spot abrasive blast cleaning in accordance with SSPC-SP 6, *Commercial Blast Cleaning*.

The second to last sentence of the third paragraph is revised to read:

For small areas, as allowed by the Engineer, the Contractor may substitute cleaning in accordance with SSPC-SP 15, *Commercial Grade Power Tool Cleaning*.

6-07.3(10)G Treatment of Pack and Rust Gaps

The second paragraph is revised to read:

Pack rust forming a gap between steel surfaces of 1⁄16 to ¼ inch shall be cleaned to a depth of at least one half of the gap width. The gaps shall be cleaned and prepared in accordance with SSPC-SP6. The cleaned gap shall be treated with rust penetrating sealer, prime coated, and then caulked to form a watertight seal along the top edge and the two sides of the steel pieces involved, using the rust penetrating sealer and caulk as accepted by the Engineer. The bottom edge or lowest edge of the steel pieces involved shall not be caulked.

The third paragraph is supplemented with the following:

Caulk shall be a single-component urethane sealant conforming to Section 9-08.7.

The fifth paragraph is revised to read:

At locations where gaps between steel surfaces exceed ¼ inch, the Contractor shall clean and prepare the gap in accordance SSPC-SP6, apply the rust penetrating sealer, apply the prime coat, and then fill the gap with foam backer rod material as accepted by the Engineer. The foam backer rod material shall be of sufficient diameter to fill the crevice or gap. The Contractor shall apply caulk over the foam backer rod material to form a watertight seal.

This section is supplemented with the following new paragraph:

Caulk and backer rod, if needed, shall be placed prior to applying the top coat. The Contractor, with the concurrence of the Engineer, may apply the rust penetrating sealer after application of the prime coat provided the primer is removed in the areas to be sealed. The areas to be sealed shall be re-cleaned and re-prepared in accordance with SSPC-SP6.

6-07.3(10)H Paint System

The first paragraph is revised to read:

The paint system applied to existing steel surfaces shall consist of the following five-coat system:

Option 1 (component based system):

Primer Coat – Zinc-filled Moisture Cured Polyurethane	9-08.1(2)F
Primer Stripe Coat - Moisture Cured Polyurethane	9-08.1(2)F
Intermediate Coat - Moisture Cured Polyurethane	9-08.1(2)G

Intermediate Stripe Coat - Moisture Cured Polyurethane	9-08.1(2)G
Top Coat - Moisture Cured Polyurethane	9-08.1(2)H

Option 2 (performance based system):

Primer Coat – Zinc-rich Epoxy	9-08.1(2)N
Primer Stripe Coat – Epoxy	9-08.1(2)N
Intermediate Coat – Epoxy	9-08.1(2)N
Intermediate Stripe Coat – Epoxy	9-08.1(2)N
Top Coat – Polyurethane	9-08.1(2)N

The following new paragraph is inserted after the first paragraph:

Paints and related materials shall be a product listed in the current WSDOT Qualified Products List (QPL). Component based paint systems shall be listed on the QPL in the applicable sections of Section 9-08. Performance based systems shall be listed on the current Northeast Protective Coatings Committee (NEPCOAT) Qualified Products List "B" as listed on the WSDOT QPL in Section 9-08.1(2)N. If the paint and related material for the component based system is not listed in the current WSDOT QPL, a sample shall be submitted to the State Materials Laboratory in Tumwater for evaluation and acceptance in accordance with Section 9-08.

6-07.3(10)J Mixing and Thinning Paint

This section is revised to read:

Mixing and thinning paint shall be in accordance with Section 6-07.3(9)C.

6-07.3(10)K Coating Thickness

This section is revised to read:

Coating thickness shall be in accordance with Section 6-07.3(9)D except the minimum dry film thickness of each coat (combination of primer and primer stripe, combination of intermediate and intermediate stripe, and top) shall not be less than 3.0 mils.

6-07.3(10)L Environmental Condition Requirements Prior to Application of Paint

This section is revised to read:

Environmental conditions shall be in accordance with Section 6-07.3(9)E.

6-07.3(10)M Steel Surface Condition Requirements Prior to Application of Paint

The third paragraph is revised to read:

Edges of existing paint shall be feathered in accordance with SSPC-PA 1, *Shop, Field, and Maintenance Coating of Metals*, Note 15.20.

6-07.3(10)N Field Coating Application Methods

The third sentence is revised to read:

The Contractor may apply stripe coat paint using spray or brush but shall follow spray application using a brush to ensure complete coverage around structural geometric

irregularities and to push the paint into gaps between existing steel surfaces and around rivets and bolts.

6-07.3(10)O Applying Field Coatings

The second to last paragraph is revised to read:

Each application of primer, primer stripe, intermediate, intermediate stripe, and top coat shall be considered as separately applied coats. The Contractor shall not use a preceding or subsequent coat to remedy a deficiency in another coat. The Contractor shall apply the top coat to at least the minimum specified top coat thickness, to provide a uniform appearance and consistent finish coverage.

6-07.3(10)P Field Coating Repair

The second sentence is revised to read:

Repair areas shall be cleaned of all damaged paint and the system reapplied using all coats typical to the paint system and shall meet the minimum coating thickness.

6-07.3(11)A Painting of Galvanized Surfaces

This section is revised to read:

All galvanized surfaces receiving paint shall be prepared for painting in accordance with the ASTM D 6386. The method of preparation shall be brush-off in accordance with SSPC-SP16 *Brush-Off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals* or as otherwise allowed by the Engineer. The Contractor shall not begin painting until receiving the Engineer's acceptance of the prepared galvanized surface. For galvanized bolts used for replacement of deteriorated existing rivets, the Contractor, with the concurrence of the Engineer and after successful demonstration testing, may prepare galvanized surfaces in accordance with SSPC-SP1 followed by SSPC-SP2, *Hand Tool Cleaning* or SSPC-SP3, *Power Tool Cleaning*. The demonstration testing shall include adhesion testing of the first coat of paint over galvanized bolts, nuts, and washers or a representative galvanized surface. Adhesion testing shall be performed in accordance with ASTM D 4541 for 600 psi minimum adhesion. A minimum of 3 successful tests shall be performed on the galvanized surface prepared and painted using the same methods and materials to be used on the galvanized bolts, nuts and washers in the field.

6-07.3(11)A2 Paint Coat Materials

This section is revised to read:

The Contractor shall paint the dry surface as follows:

1. The first coat over a galvanized surface shall be an epoxy polyamide conforming to Section 9-08.1(2)E . In the case of galvanized bolts used for replacement of deteriorated existing rivets and for small surface areas less than or equal to one square foot, an intermediate moisture cured polyurethane conforming to Section 9-08.1(2)G may be used as a first coat. In both cases the first coat shall be compatible with galvanizing and as recommended by the top coat manufacturer.

2. The second coat shall be a top coat moisture cured aliphatic polyurethane conforming to Section 9-08.1(2)H or a top coat polyurethane conforming to

Section 6-07.3(10)H Option 2 NEPCOAT performance based paint specification compatible with the first coat as recommended by the manufacturer.

Each coat shall be dry before the next coat is applied. All coats applied in the shop shall be dried hard before shipment.

6-07.3(11)B Powder Coating of Galvanized Surfaces

This section is revised to read:

Powder coating of galvanized surfaces shall consist of the following coats:

1. The first coat shall be an epoxy powder primer coat conforming to Section 9-08.2.

2. The second coat shall be a polyester finish coat conforming to Section 9-08.2.

6-07.3(11)B3 Galvanized Surface Cleaning and Preparation

The first three paragraphs are revised to read:

Galvanized surfaces receiving the powder coating shall be cleaned and prepared for coating in accordance with ASTM D 7803, and the project-specific powder coating plan.

Assemblies conforming to the ASTM D 7803 definition for newly galvanized steel shall receive surface smoothing and surface cleaning in accordance with ASTM D 7803, Section 5, and surface preparation in accordance with ASTM D 7803, Section 5.1.3.

Assemblies conforming to the ASTM D 7803 definition for partially weathered galvanized steel shall be checked and prepared in accordance with ASTM D 7803, Section 6, before then receiving surface smoothing and surface cleaning in accordance with ASTM D 7803, Section 5, and surface preparation in accordance with ASTM D 7803, Section 5.1.3.

The fourth paragraph (up until the colon) is revised to read:

Assemblies conforming to the ASTM D 7803 definition for weathered galvanized steel shall be prepared in accordance with ASTM D 7803, Section 7 before then receiving surface smoothing and surface cleaning in accordance with ASTM D 7803, Section 5, and surface preparation in accordance with ASTM D 7803, Section 5.3 except as follows:

6-07.3(11)B5 Testing

Item number 4 in the first paragraph is revised to read:

4. Adhesion testing in accordance with ASTM D 4541 for 600 psi minimum adhesion for the complete two-component system.

The second sentence of the fourth paragraph is revised to read:

Rejected assemblies shall be repaired or recoated by the Contractor, at no additional expense to the Contracting Agency, in accordance with the powder coating

manufacturer's recommendation as detailed in the project-specific powder coating plan, until the assemblies satisfy the acceptance testing requirements.

6-07.3(12) Painting Ferry Terminal Structures

This section is revised to read:

Painting of ferry terminal Structures shall be in accordance with Section 6-07.3 as supplemented below.

This section is supplemented with the following new subsections:

6-07.3(12)A Painting New Steel Ferry Terminal Structures

Painting of new steel Structures shall be in accordance with Section 6-07.3(9) except that all coatings (primer, intermediate, intermediate stripe, and top) shall be applied in the shop with the following exceptions:

1. Steel surfaces to be field welded.

2. Steel surfaces to be greased.

3. The length of piles designated in the Plans not requiring painting.

The minimum drying time between coats shall be as shown in the product data sheets, but not less than 12 hours. The Contractor shall determine whether the paint has cured sufficiently for proper application of succeeding coats.

6-07.3(12)A1 Paint Systems

Paint systems for Structural Steel, which includes vehicle transfer spans and towers, pedestrian overhead loading structures and towers, upland structural steel and other elements as designated in the Special Provisions shall be as specified in Section 6-07.3(9)A.

Paint systems for Piling, Landing Aids and Life Ladders shall be as specified in the Special Provisions.

6-07.3(12)A2 Paint Color

Paint colors shall be as specified in the Special Provisions.

6-07.3(12)A3 Coating Thickness

Coating thicknesses shall be as specified in the Special Provisions.

6-07.3(12)A4 Application of Field Coatings

An on-site supervisor shall be present for each work shift at the project site.

Upon completion of erection Work, all uncoated or damaged areas remaining, including bolts, nuts, washers, splice plates, and field welds shall be prepared in accordance with SSPC-SP 1, Solvent Cleaning, followed by SSPC-SP 11, *Power Tool Cleaning to Bare Metal*. Surface preparation shall be measured according to SSPC-VIS 3. SSPC-SP 11 shall be performed for a minimum distance of 1 inch from the uncoated or damaged area. In addition, intact shop-applied coating surrounding the area shall be abraded or sanded for a distance of 6 inches out from the properly prepared clean/bare metal areas to provide adequate roughness for

application of field coatings. All sanding dust and contamination shall be removed prior to application of field coatings.

Field applied paint for Structural Steel shall conform to Section 6-07.3(10)H, as applicable. Field applied paint for Piling, Landing Aids and Life Ladders shall be as specified in the Special Provisions.

For areas above the tidal zone, the minimum drying time between coats shall be as shown in the product data sheets, but not less than 12 hours. For areas within the tidal zone, the minimum drying time between coats shall be as recommended by the paint system manufacturer. The Contractor shall determine whether the paint has cured sufficiently for proper application of succeeding coats.

The maximum time between intermediate and top coats shall be in accordance with the manufacturer's written recommendations. If the maximum time between coats is exceeded, all newly coated surfaces shall be prepared to SSPC-SP 3, *Power Tool Cleaning*, and shall be repainted with the same paint that was cleaned, at no additional cost to the Contracting Agency.

Each coat shall be applied in a uniform layer, completely covering the preceding coat. The Contractor shall correct runs, sags, skips, or other deficiencies before application of succeeding coats. Such corrective work may require re-cleaning, application of additional paint, or other means as determined by the Engineer, at no additional cost to the Contracting Agency.

Surface preparation for underwater locations shall consist of removing all dirt, oil, grease, loose paint, loose rust, and marine growth from the area that is to be repaired. The sound paint surrounding the damaged area shall be roughened to meet the requirements of the manufacturer. Paint for underwater applications shall be as specified in the Special Provisions and shall be applied in accordance with the manufacturer's recommendations.

6-07.3(12)B Painting Existing Steel Ferry Terminal Structures

Painting of existing steel structures shall be in accordance with Section 6-07.3(10) as supplemented by the following.

6-07.3(12)B1 Containment

Containment for full removal shall be in accordance with Section 6-07.3(10)A. Containment for overcoat systems shall be in accordance with all applicable Permits as required in the Special Provisions.

Prior to cleaning the Contractor shall enclose all exposed electrical and mechanical equipment to seal out dust, water, and paint. Non-metallic surfaces shall not be abrasive blasted or painted. Unless otherwise specified, the following metallic surfaces shall not be painted and shall be protected from abrasive blasting and painting:

1. Galvanized and stainless steel surfaces not previously painted,

2. Non-skid surfaces,

3. Unpainted intentionally greased surfaces,

4. Equipment labels, identification plates, tags, etc.,

5. Fire and emergency containers or boxes,

6. Mechanical hardware such as hoist sheaves, hydraulic cylinders, gear boxes, wire rope, etc.

The Contractor shall submit a Type 2 Working Drawing consisting of materials and equipment used to shield components specified to not be cleaned and painted. The Contractor shall shut off the power prior to working around electrical equipment. The Contractor shall follow the lock-out/tag-out safety provisions of the WAC 296-803 and all other applicable safety standards.

6-07.3(12)B2 Surface Preparation

For applications above high water and within the tidal zone, surface preparation for overcoat painting shall be in accordance with SSPC-SP 1, *Solvent Cleaning*, followed by SSPC-SP 3, *Power Tool Cleaning*. Use of wire brushes is not allowed. After SP 3 cleaning has been completed all surfaces exhibiting coating failure down to the steel substrate, and those exhibiting visible corrosion, shall be prepared down to clean bare steel in accordance with SSPC-SP 15, Commercial Grade *Power Tool Cleaning*. Surface preparation shall be measured according to SSPC-VIS 3. SSPC-SP 15 shall be performed for a minimum distance of 1 inch from the area exhibiting failure or visible corrosion. In addition, intact shop-applied coating surrounding the repair area shall be abraded or sanded for a distance of 6 inches out from the properly prepared clean/bare metal areas to provide adequate roughness for application of repair coatings. All sanding dust and contamination shall be removed prior to application of repair coatings. Surface preparation for full paint removal shall be in accordance with Section 6-07.3(10)E except SSPC-SP 11 will be permitted as detailed in the Contractor's painting plan and as allowed by the Engineer.

Surface preparation for underwater locations shall consist of removing all dirt, oil, grease, loose paint, loose rust, and marine growth from the area that is to be repaired. The sound paint surrounding the damaged area shall be roughened as required by the coating manufacturer.

Removed marine growth may be released to state waters provided the marine growth is not mixed with contaminants (paint, oil, rust, etc.) and it shall not accumulate on the sea bed. All marine growth containing contaminants shall be collected for proper disposal.

Surface preparation for the underside of bridge decks (consisting of either a steel grid system of main bars or tees and a light gauge metal form, in-filled with concrete or a corrugated light gauge metal form, infilled with concrete) shall be in accordance with SSPC-SP 2, *Hand Tool Cleaning* or SSPC-SP 3, *Power Tool Cleaning* with the intent of not causing further damage to the light gauge metal form. Following removal of any pack rust and corroded sections from the underside of the bridge deck, cleaning and flushing to remove salts and prior to applying the primer coat, the Contractor shall seal the entire underside of the deck system with rust-penetrating sealer. Damage to galvanized metal forms and/or grids shall be

repaired in accordance with ASTM A 780, with the preferred method of repair using paints containing zinc dust.

6-07.3(12)B3 Paint Systems
Paints systems for Structural Steel, which includes vehicle transfer spans and towers, pedestrian overhead loading structures and towers, upland structural steel and other elements as designated in the Special Provisions shall be as specified in Section 6-07.3(10)H.

Paint systems for Piling, Landing Aids, Life Ladders, underside of vehicle transfer span bridge decks, non-skid surface treated areas, and anti-graffiti coatings shall be as specified in the Special Provisions.

6-07.3(12)B4 Paint Color
Paint colors shall be as specified in the Special Provisions.

6-07.3(12)B5 Coating Thickness
Coating thicknesses shall be as specified in the Special Provisions.

6-07.3(12)B6 Application of Field Coatings
Application of field coatings shall be in accordance with Section 6-07.3(10)O and Section 6-07.3(12)A2 except for the following:

1. All coatings applied in the field shall be applied using a brush or roller. Spray application methods may be used if allowed by the Engineer.

2. Applied coatings shall not be immersed until the coating has been cured as required by the coating manufacturer.

3. Non-skid surface treatment products shall be applied in accordance with the manufacturer's recommendations.

4. Anti-graffiti coatings shall be applied in one coat following application of the top coat, where specified in the Plans.

6-07.3(14)B Reference Standards
The second standard reference (to SSPC CS 23.00), and its accompanying title, is revised to read:

SSPC CS 23.00	Specification for the Application of Thermal Spray Coatings (Metallizing) of Aluminum, Zinc, and Their Alloys and Composites for the Corrosion Protection of Steel

6-08.AP6

Section 6-08, Bituminous Surfacing on Structure Decks
January 7, 2019

6-08.3(7)A Concrete Deck Preparation
The first sentence of the first paragraph is revised to read:

The Contractor, with the Engineer, shall inspect the exposed concrete deck to establish the extent of bridge deck repair in accordance with Section 6-09.3(6).

6-08.3(8)A Structure Deck Preparation

The second sentence of the last paragraph is revised to read:

> Prior to applying the primer or sheet membrane, all dust and loose material shall be removed from the Structure Deck.

6-09.AP6

Section 6-09, Modified Concrete Overlays
January 7, 2019

6-09.3 Construction Requirements

This section is supplemented with the following new subsection:

> **6-09.3(15) Sealing and Texturing Concrete Overlay**
> After the requirements for checking for bond have been met, all joints and visible cracks shall be filled and sealed with a high molecular weight methacrylate resin (HMWM). Cracks 1⁄16 inch and greater in width shall receive two applications of HMWM. Immediately following the application of HMWM, the wetted surface shall be coated with sand for abrasive finish.
>
> After all cracks have been filled and sealed and the HMWM resin has cured, the concrete overlay surface shall receive a longitudinally sawn texture in accordance with Section 6-02.3(10)D5.
>
> Traffic shall not be permitted on the finished concrete until it has reached a minimum compressive strength of 3,000 psi as verified by rebound number determined in accordance with ASTM C805 and the longitudinally sawn texture is completed.

6-09.3(1)B Rotary Milling Machines

This section is revised to read:

> Rotary milling machines used to remove an upper layer of existing concrete overlay, when present, shall have a maximum operating weight of 50,000 pounds and conform to Section 6-08.3(5)B.

6-09.3(1)C Hydro-Demolition Machines

The first sentence of this section is revised to read:

> Hydro-demolition machines shall consist of filtering and pumping units operating in conjunction with a remote-controlled robotic device, using high-velocity water jets to remove sound concrete to the nominal scarification depth shown in the Plans with a single pass of the machine, and with the simultaneous removal of deteriorated concrete.

6-09.3(1)D Shot Blasting Machines

This section, including title, is revised to read:

> **6-09.3(1)D Vacant**

6-09.3(1)E Air Compressor

This section is revised to read:

Air compressors shall be equipped with oil traps to eliminate oil from being blown onto the bridge deck.

6-09.3(1)J Finishing Machine

This section is revised to read:

The finishing machine shall meet the requirements of Section 6-02.3(10) and the following requirements:

The finishing machine shall be equipped with augers, followed by an oscillating, vibrating screed, vibrating roller tamper, or a vibrating pan, followed by a rotating cylindrical double drum screed. The vibrating screed, roller tamper or pan shall be of sufficient length and width to properly consolidate the mixture. The vibrating frequency of the vibrating screed, roller tamper or pan shall be variable with positive control.

6-09.3(2) Submittals

Item number 1 and 2 are revised to read:

1. A Type 1 Working Drawing consisting of catalog cuts and operating parameters of the hydro-demolition machine selected by the Contractor for use in this project to scarify concrete surfaces.

2. A Type 1 Working Drawing consisting of catalog cuts, operating parameters, axle loads, and axle spacing of the rotary milling machine (if used to remove an upper layer of existing concrete overlay when present).

The first sentence of item number 3 is revised to read:

A Type 2 Working Drawing of the Runoff Water Disposal Plan.

6-09.3(5)A General

The first sentence of the fourth paragraph is revised to read:

All areas of the deck that are inaccessible to the selected scarifying machine shall be scarified to remove the concrete surface matrix to a maximum nominal scarification depth shown in the Plans by a method acceptable to the Engineer.

This section is supplemented with the following:

Concrete process water generated by scarifying concrete surface and removing existing concrete overlay operations shall be contained, collected, and disposed of in accordance with Section 5-01.3(11) and Section 6-09.3(5)C, and the Section 6-09.3(2) Runoff Water Disposal Plan.

6-09.3(5)B Testing of Hydro-Demolition and Shot Blasting Machines

This section's title is revised to read:

Testing of Hydro-Demolition Machines

The second paragraph is revised to read:

In the “sound” area of concrete, the equipment shall be programmed to remove concrete to the nominal scarification depth shown in the Plans with a single pass of the machine.

6-09.3(5)D Shot Blasting

This section, including title, is revised to read:

6-09.3(5)D Vacant

6-09.3(5)E Rotomilling

This section, including title, is revised to read:

6-09.3(5)E Removing Existing Concrete Overlay Layer by Rotomilling

When the Contractor elects to remove the upper layer of existing concrete overlay, when present, by rotomilling prior to final scarifying, the entire concrete surface of the bridge deck shall be milled to remove the surface matrix to the depth specified in the Plans with a tolerance as specified in Section 6-08.3(5)B. The operating parameters of the rotary milling machine shall be monitored in order to prevent the unnecessary removal of concrete below the specified removal depth.

6-09.3(6) Further Deck Preparation

The first paragraph is revised to read::

Once the lane or strip being overlaid has been cleaned of debris from scarifying, the Contractor, with the Engineer, shall perform a visual inspection of the scarified surface. The Contractor shall mark those areas of the existing bridge deck that are authorized by the Engineer for further deck preparation by the Contractor.

Item number 4 of the second paragraph is deleted.

The first sentence of the third paragraph is deleted.

6-09.3(6)A Equipment for Further Deck Preparation

This section is revised to read:

Further deck preparation shall be performed using either power driven hand tools conforming to Section 6-09.3(1)A, or hydro-demolition machines conforming to Section 6-09.3(1)C.

6-09.3(6)B Deck Repair Preparation

The second paragraph is deleted.

The last sentence of the second paragraph (after the preceding Amendment is applied) is revised to read:

In no case shall the depth of a sawn vertical cut exceed ¾ inch or to the top of the top steel reinforcing bars, whichever is less.

The first sentence of the third to last paragraph is revised to read:

Where existing steel reinforcing bars inside deck repair areas show deterioration greater than 20-percent section loss, the Contractor shall furnish and place steel reinforcing bars alongside the deteriorated bars in accordance with the details shown in the Standard Plans.

The last paragraph is deleted.

6-09.3(7) Surface Preparation for Concrete Overlay

The first seven paragraphs are deleted and replaced with the following:

Following the completion of any required further deck preparation the entire lane or strip being overlaid shall be cleaned to be free from oil and grease, rust and other foreign material that may still be present. These materials shall be removed by detergent-cleaning or other method accepted by the Engineer followed by sandblasting.

After detergent cleaning and sandblasting is completed, the entire lane or strip being overlaid shall be cleaned in final preparation for placing concrete.

Hand tool chipping, sandblasting and cleaning in areas adjacent to a lane or strip being cleaned in final preparation for placing concrete shall be discontinued when final preparation is begun. Scarifying and hand tool chipping shall remain suspended until the concrete has been placed and the requirement for curing time has been satisfied. Sandblasting and cleaning shall remain suspended for the first 24 hours of curing time after the completion of concrete placing.

Scarification, and removal of the upper layer of concrete overlay when present, may proceed during the final cleaning and overlay placement phases of the Work on adjacent portions of the Structure so long as the scarification and concrete overlay removal operations are confined to areas which are a minimum of 100 feet away from the defined limits of the final cleaning or overlay placement in progress. If the scarification and concrete overlay removal impedes or interferes in any way with the final cleaning or overlay placement as determined by the Engineer, the scarification and concrete overlay removal Work shall be terminated immediately and the scarification and concrete overlay removal equipment removed sufficiently away from the area being prepared or overlaid to eliminate the conflict. If the grade is such that water and contaminants from the scarification and concrete overlay removal operation will flow into the area being prepared or overlaid, the scarification and concrete overlay removal operation shall be terminated and shall remain suspended for the first 24 hours of curing time after the completion of concrete placement.

6-09.3(11) Placing Concrete Overlay

The first sentence of item number 3 in the fourth paragraph is revised to read:

Concrete shall not be placed when the temperature of the concrete surface is less than 45°F or greater than 75°F, and wind velocity at the construction site is in excess of 10 mph.

6-09.3(12) Finishing Concrete Overlay

The third paragraph is deleted.

The last paragraph is deleted.

6-09.3(13) Curing Concrete Overlay

The first sentence of the first paragraph is revised to read:

> As the finishing operation progresses, the concrete shall be immediately covered with a single layer of clean, new or used, wet burlap.

The last sentence of the second paragraph is deleted.

The following two new paragraphs are inserted after the second paragraph:

> As an alternative to the application of burlap and fog spraying described above, the Contractor may propose a curing system using proprietary curing blankets specifically manufactured for bridge deck curing. The Contractor shall submit a Type 2 Working Drawing consisting of details of the proprietary curing blanket system, including product literature and details of how the system is to be installed and maintained.
>
> The wet curing regimen as described shall remain in place for a minimum of 42-hours.

The last paragraph is deleted.

6-09.3(14) Checking for Bond

The first sentence of the first paragraph is revised to read:

> After the requirements for curing have been met, the entire overlaid surface shall be sounded by the Contractor, in a manner accepted by and in the presence of the Engineer, to ensure total bond of the concrete to the bridge deck.

The last sentence of the first paragraph is deleted.

The second paragraph is deleted.

6-10.AP6

Section 6-10, Concrete Barrier
August 6, 2018

6-10.2 Materials

In the first paragraph, the reference to “Portland Cement” is revised to read:

> Cement 9-01

6-10.3(6) Placing Concrete Barrier

The first two sentences of the first paragraph are revised to read:

> Precast concrete barriers Type 2, Type 4, Type F, precast single slope barrier, and transitions shall rest on a paved foundation shaped to a uniform grade and section. The foundation surface for precast concrete barriers Type 2, Type 4, Type F, precast single slope barrier, and transitions shall meet this test for uniformity: When a 10-foot straightedge is placed on the surface parallel to the centerline for the barrier, the surface shall not vary more than ¼ inch from the lower edge of the straightedge.

6-11.AP6

Section 6-11, Reinforced Concrete Walls
April 2, 2018

6-11.2 Materials

In the first paragraph, the reference to “Aggregates for Portland Cement Concrete” is revised to read:

Aggregates for Concrete 9-03.1

6-12.AP6

Section 6-12, Noise Barrier Walls
August 6, 2018

6-12.2 Materials

In the first paragraph, the reference to “Aggregates for Portland Cement Concrete” is revised to read:

Aggregates for Concrete 9-03.1

The first paragraph is supplemented with the following new material reference:

Noise Barrier Wall Access Door 9-06.17

6-12.3(9) Access Doors and Concrete Landing Pads

The second paragraph is deleted and replaced with the following:

All frame and door surfaces, except stainless steel surfaces, shall be painted in accordance with Section 6-07.3(9). Primer shall be applied to all non-stainless steel surfaces. All primer coated exposed metal surfaces shall be field painted with the remaining Section 6-07.3(9)A paint system coats. The top coat, when dry, shall match the color specified in the Plans or Special Provisions.

This section is supplemented with the following:

Access door deadbolt locks shall be capable of accepting a Best CX series core. The Contractor shall furnish and install a spring-loaded construction core lock with each lock. The Engineer will furnish the permanent Best CX series core for the Contractor to install at the conclusion of the project.

6-13.AP6

Section 6-13, Structural Earth Walls
August 6, 2018

6-13.2 Materials

In the first paragraph, the reference to “Aggregates for Portland Cement Concrete” is revised to read:

Aggregates for Concrete 9-03.1

6-13.3(4) Precast Concrete Facing Panel and Concrete Block Fabrication

Item number 1 of the sixth paragraph is revised to read:

1. Vertical dimensions shall be ± 1⁄16 inch of the Plan dimension, and the rear height shall not exceed the front height.

Item number 3 of the sixth paragraph is revised to read:

3. All other dimensions shall be ± ¼ inch of the Plan dimension.

6-14.AP6

Section 6-14, Geosynthetic Retaining Walls

April 2, 2018

6-14.2 Materials

In the first paragraph, the references to “Portland Cement” and “Aggregates for Portland Cement Concrete” are revised to read:

Cement	9-01
Aggregates for Concrete	9-03.1

6-15.AP6

Section 6-15, Soil Nail Walls

January 7, 2019

6-15.3(7) Shotcrete Facing

The last paragraph is supplemented with the following:

After final tightening of the nut, the threads of the soil nail shall at a minimum be flush with the end of the nut.

6-16.AP6

Section 6-16, Soldier Pile and Soldier Pile Tieback Walls

April 2, 2018

6-16.2 Materials

In the first paragraph, the reference to “Aggregates for Portland Cement Concrete” is revised to read:

Aggregates for Concrete	9-03.1

6-18.AP6

Section 6-18, Shotcrete Facing

April 1, 2019

6-18.2 Materials

The reference to metakaolin is deleted.

6-18.3(3) Testing

In the last sentence of the first paragraph, “AASHTO T 24” is revised to read “ASTM C1604”.

6-18.3(3)B Production Testing

In the last sentence, “AASHTO T 24” is revised to read “ASTM C1604”.

6-18.3(4) Qualifications of Contractor’s Personnel

In the last sentence of the second paragraph, “AASHTO T 24” is revised to read “ASTM C1604”.

6-19.AP6

Section 6-19, Shafts
January 7, 2019

6-19.2 Materials

In the first paragraph, the references to “Portland Cement” and “Aggregates for Portland Cement Concrete” are revised to read:

Cement	9-01
Aggregates for Concrete	9-03.1

6-19.3(1)A Shaft Construction Tolerances

The last paragraph is supplemented with the following:

> The elevation of the top of the reinforcing cage for drilled shafts shall be within +6 inches and -3 inches from the elevation shown in the Plans.

6-19.3(2)D Nondestructive QA Testing Organization and Personnel

Item number 4 in the first paragraph is revised to read:

> 4. Personnel preparing test reports shall be a Professional Engineer, licensed under Title 18 RCW, State of Washington, and shall seal the report in accordance with WAC 196-23-020.

6-19.3(3)C Conduct of Shaft Casing Installation and Removal and Shaft Excavation Operations

The first paragraph is supplemented with the following:

> In no case shall shaft excavation and casing placement extend below the bottom of shaft excavation as shown in the Plans.

6-19.3(6)E Thermal Wire and Thermal Access Point (TAPS)

The third sentence of the third paragraph is revised to read:

> The thermal wire shall extend from the bottom of the reinforcement cage to the top of the shaft, with a minimum of 5-feet of slack wire provided above the top of shaft.

The following new sentence is inserted after the third sentence of the third paragraph:

> All thermal wires in a shaft shall be equal lengths.

6-19.3(9)D Nondestructive QA Testing Results Submittal

The last sentence of the first paragraph is revised to read:

Results shall be a Type 2E Working Drawing presented in a written report.

7-02.AP7

Section 7-02, Culverts
April 2, 2018

7-02.2 Materials

In the first paragraph, the references to “Portland Cement” and “Aggregates for Portland Cement Concrete” are revised to read:

Cement	9-01
Aggregates for Concrete	9-03.1

7-02.3(6)A4 Excavation and Bedding Preparation

The first sentence of the third paragraph is revised to read:

> The bedding course shall be a 6-inch minimum thickness layer of culvert bedding material, defined as granular material either conforming to Section 9-03.12(3) or to AASHTO Grading No. 57 as specified in Section 9-03.1(4)C.

7-05.AP7

Section 7-05, Manholes, Inlets, Catch Basins, and Drywells
August 6, 2018

7-05.3 Construction Requirements

The fourth sentence of the third paragraph is deleted.

7-08.AP7

Section 7-08, General Pipe Installation Requirements
April 2, 2018

7-08.3(3) Backfilling

The fifth sentence of the fourth paragraph is revised to read:

> All compaction shall be in accordance with the Compaction Control Test of Section 2-03.3(14)D except in the case that 100% Recycled Concrete Aggregate is used.

The following new sentences are inserted after the fifth sentence of the fourth paragraph:

> When 100% Recycled Concrete Aggregate is used, the Contractor may submit a written request to use a test point evaluation for compaction acceptance. Test Point evaluation shall be performed in accordance with SOP 738.

8-01.AP8

Section 8-01, Erosion Control and Water Pollution Control
April 1, 2019

8-01.1 Description

This section is revised to read:

This Work consists of furnishing, installing, maintaining, removing and disposing of best management practices (BMPs), as defined in the Washington Administrative Code (WAC) 173-201A, to manage erosion and water quality in accordance with these Specifications and as shown in the Plans or as designated by the Engineer.

The Contracting Agency may have a National Pollution Discharge Elimination System Construction Stormwater General Permit (CSWGP) as identified in the Contract Special Provisions. The Contracting Agency may or may not transfer coverage of the CSWGP to the Contractor when a CSWGP has been obtained. The Contracting Agency may not have a CSWGP for the project but may have another water quality related permit as identified in the Contract Special Provisions or the Contracting Agency may not have water quality related permits but the project is subject to applicable laws for the Work. Section 8-01 covers all of these conditions.

This section is supplemented with the following new subsection:

8-01.1(1) Definitions

1. pH Affected Stormwater

a. Stormwater contacting green concrete (concrete that has set/stiffen but is still curing), recycled concrete, or engineered soils (as defined in the Construction Stormwater General Permit (CSWGP)) as a natural process

b. pH monitoring shall be performed in accordance with the CSWGP, or Water Quality Standards (WQS in accordance with WAC 173-201A (surface) or 173-200C (ground)) when the CSWGP does not apply

c. May be neutralized and discharged to surface waters or infiltrated

2. pH Affected Non-Stormwater

a. Conditionally authorized in accordance with CSWGP Special Condition S.1.C., uncontaminated water contacting green concrete, recycled concrete, or engineered soils (as defined in the CSWGP)

b. Shall not be categorized as cementitious wastewater/concrete wastewater, as defined below

c. Shall be managed and treated in accordance with the CSWGP, or WQS when the CSWGP does not apply

d. pH adjustment and dechlorination may be necessary, as specified in the CSWGP or in accordance with WQS when the CSWGP does not apply

e. May be neutralized, treated, and discharged to surface waters in accordance with the CSWGP, with the exception of water-only shaft drilling slurry. Water-only shaft drilling slurry may be treated, neutralized, and infiltrated but not discharged to surface waters (Refer to Special Conditions S1.C. Authorized Discharges and S1.d Prohibited Discharges of the CSWGP)

3. Cementitious Wastewater/Concrete Wastewater

a. Any water that comes into contact with fine cementitious particles or slurry; any water used in the production, placement and/or clean-up of cementitious products; any water used to cut, grind, wash, or otherwise modify cementitious products

b. When any water, including stormwater, commingles with cementitious wastewater/concrete wastewater, the resulting water is considered cementitious wastewater/concrete wastewater and shall be managed to prevent discharge to waters of the State, including ground water

c. CSWGP Examples include: water used for or resulting from concrete truck/mixer/pumper/tool/chute rinsing or washing, concrete saw cutting and surfacing (sawing, coring, grinding, roughening, hydro-demolition, bridge and road surfacing)

d. Cannot be neutralized and discharged or infiltrated

8-01.2 Materials

The first paragraph is revised to read:

Materials shall meet the requirements of the following sections:

Corrugated Polyethylene Drain Pipe	9-05.1(6)
Quarry Spalls and Permeable Ballast	9-13
Erosion Control and Roadside Planting	9-14
Construction Geotextile	9-33

The second paragraph is deleted.

8-01.3(1) General

This section is revised to read:

Adaptive management shall be employed throughout the duration of the project for the implementation of erosion and water pollution control permit requirements for the current condition of the project site. The adaptive management includes the selection and utilization of BMPs, scheduling of activities, prohibiting unacceptable practices, implementing maintenance procedures, and other managerial practices that when used singularly or in combination, prevent or reduce the release of pollutants to waters of the State. The adaptive management shall use the means and methods identified in this section and means and methods identified in the Washington State Department of Transportation's Temporary Erosion and Sediment Control Manual or the Washington State Department of Ecology's Stormwater Management Manuals for construction stormwater.

The Contractor shall install a high visibility fence along the lines shown in the Plans or as instructed by the Engineer.

Throughout the life of the project, the Contractor shall preserve and protect the delineated preservation area, acting immediately to repair or restore any high visibility fencing damaged or removed.

All discharges to surface waters shall comply with surface water quality standards as defined in Washington Administrative Code (WAC) Chapter 173-201A. All discharges to groundwater shall comply with groundwater quality standards WAC Chapter 173-200. The Contractor shall comply with the CSWGP when the project is covered by the CSWGP.

Work, at a minimum, shall include the implementation of:

1. Sediment control measures prior to ground disturbing activities to ensure all discharges from construction areas receive treatment prior to discharging from the site.

2. Flow control measures to prevent erosive flows from developing.

3. Water management strategies and pollution prevention measures to prevent contamination of waters that will be discharged to surface waters or the ground.

4. Erosion control measures to stabilize erodible earth not being worked.

5. Maintenance of BMPs to ensure continued compliant performance.

6. Immediate corrective action if evidence suggests construction activity is not in compliance. Evidence includes sampling data, olfactory or visual evidence such as the presence of suspended sediment, turbidity, discoloration, or oil sheen in discharges.

To the degree possible, the Contractor shall coordinate this Work with permanent drainage and roadside restoration Work the Contract requires.

Clearing, grubbing, excavation, borrow, or fill within the Right of Way shall never expose more erodible earth than as listed below:

Western Washington (West of the Cascade Mountain Crest)	
May 1 through September 30	17 Acres
October 1 through April 30	5 Acres

Eastern Washington (East of the Cascade Mountain Crest)	
April 1 through October 31	17 Acres
November 1 through March 31	5 Acres

The Engineer may increase or decrease the limits based on project conditions.

Erodible earth is defined as any surface where soils, grindings, or other materials may be capable of being displaced and transported by rain, wind, or surface water runoff.

Erodible earth not being worked, whether at final grade or not, shall be covered within the specified time period (see the table below), using BMPs for erosion control.

Western Washington	**Eastern Washington**

(West of the Cascade Mountain Crest)	
October 1 through April 30	2 days maximum
May 1 to September 30	7 days maximum

(East of the Cascade Mountain Crest)	
October 1 through June 30	5 days maximum
November 1 through March 31	10 days maximum

When applicable, the Contractor shall be responsible for all Work required for compliance with the CSWGP including annual permit fees.

If the Engineer, under Section 1-08.6, orders the Work suspended, the Contractor shall continue to comply with this division during the suspension.

8-01.3(1)A Submittals

This section's content is deleted.

This section is supplemented with the following new subsection:

8-01.3(1)A1 Temporary Erosion and Sediment Control Plan

Temporary Erosion and Sediment Control (TESC) Plans consist of a narrative section and plan sheets that meets the Washington State Department of Ecology's Stormwater Pollution Prevention Plan (SWPPP) requirement in the CSWGP. For projects that do not require a CSWGP but have the potential to discharge to surface waters of the state, an abbreviated TESC plan shall be used, which may consist of a narrative and/or plan sheets and shall demonstrate compliance with applicable codes, ordinances and regulations, including the water quality standards for surface waters; Chapter 173-201A of the Washington Administrative Code (WAC) and water quality standards for groundwaters in accordance with Chapter 173-200 WAC.

The Contractor shall either adopt the TESC Plan in the Contract or develop a new TESC Plan. If the Contractor adopts the TESC Plan in scenarios in which the CSWGP is transferred to the Contractor, the Contractor shall modify the TESC Plan to match the Contractor's schedule, method of construction, and to include all areas that will be used to directly support construction activity such as equipment staging yards, material storage areas, or borrow areas. TESC Plans shall include all high visibility fence shown in the Plans. All TESC Plans shall meet the requirements of the current edition of the WSDOT Temporary Erosion and Sediment Control Manual M 3109 and be adaptively managed throughout construction based on site inspections and required sampling to maintain compliance with the CSWGP, or WQS when no CSWGP applies. The Contractor shall develop a schedule for implementation of the TESC work and incorporate it into the Contractor's progress schedule.

The Contractor shall submit their TESC Plan (either the adopted plan or new plan) as Type 2 Working Drawings. At the request of the Engineer, updated TESC Plans shall be submitted as Type 1 Working Drawings.

8-01.3(1)B Erosion and Sediment Control (ESC) Lead

This section is revised to read:

The Contractor shall identify the ESC Lead at the preconstruction discussions and in the TESC Plan. The ESC Lead shall have, for the life of the Contract, a current Certificate of Training in Construction Site Erosion and Sediment Control from a course approved by the Washington State Department of Ecology. The ESC Lead must be onsite or on call at all times throughout construction. The ESC Lead shall be listed on the Emergency Contact List required under Section 1-05.13(1).

The ESC Lead shall implement the TESC Plan. Implementation shall include, but is not limited to:

1. Installing, adaptively managing, and maintaining temporary erosion and sediment control BMPs to assure continued performance of their intended function. Damaged or inadequate BMPs shall be corrected immediately.

2. Updating the TESC Plan to reflect current field conditions.

3. Discharge sampling and submitting Discharge Monitoring Reports (DMRs) to the Washington State Department of Ecology in accordance with the CSWGP.

4. Develop and maintain the Site Log Book as defined in the CSWGP. When the Site Log Book or portion thereof is electronically developed, the electronic documentation must be accessible onsite. As a part of the Site Log Book, the Contractor shall develop and maintain a tracking table to show that identified TESC compliance issues are fully resolved within 10 calendar days. The table shall include the date an issue was identified, a description of how it was resolved, and the date the issue was fully resolved.

The ESC Lead shall also inspect all areas disturbed by construction activities, all on-site erosion and sediment control BMPs, and all stormwater discharge points at least once every calendar week and within 24-hours of runoff events in which stormwater discharges from the site. Inspections of temporarily stabilized, inactive sites may be reduced to once every calendar month. The Washington State Department of Ecology's Erosion and Sediment Control Site Inspection Form, located at https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Stormwater-general-permits/Construction-stormwater-permit, shall be completed for each inspection and a copy shall be submitted to the Engineer no later than the end of the next working day following the inspection.

8-01.3(1)C Water Management

This section is supplemented with the following new subsections:

8-01.3(1)C5 Water Management for In-Water Work Below Ordinary High Water Mark (OHWM)

Work over surface waters of the state (defined in WAC 173-201A-010) or below the OHWM (defined in RCW 90.58.030) shall comply with water quality standards for surface waters of the State of Washington.

8-01.3(1)C6 Environmentally Acceptable Hydraulic Fluid

All equipment containing hydraulic fluid that extends from a bridge deck over surface waters of the state or below the OHWM, shall be equipped with a biodegradable hydraulic fluid. The fluid shall achieve either a Pw1 Environmental Persistence Classification stated in ASTM D6046 (≥60% biodegradation in 28 days) or equivalent

standard. Alternatively, hydraulic fluid that meets International Organization for Standardization (ISO 15380), the European Union Ecolabel, or equivalent certification will also be accepted.

The Contractor shall submit a Type 1 Working Drawing consisting of a manufacturer catalog cut of the hydraulic fluid used.

The designation of biodegradable hydraulic fluid does not mean fluid spills are acceptable. The Contractor shall respond to spills to land or water in accordance with the Contract, the associated SPCC Plan, and all applicable local, state, and federal regulations.

8-01.3(1)C7 Turbidity Curtain

All Work for the turbidity curtain shall be in accordance with the manufacturer's recommendations for the site conditions. Removal procedures shall be developed and used to minimize silt release and disturbance of silt. The Contractor shall submit a Type 2 Working Drawing, detailing product information, installation and removal procedures, equipment and workforce needs, maintenance plans, and emergency repair/replacement plans.

Turbidity curtain materials, installation, and maintenance shall be sufficient to comply with water quality standards.

The Contractor shall notify the Engineer 10 days in advance of removing the turbidity curtain. All components of the turbidity curtain shall be removed from the project.

8-01.3(1)C1 Disposal of Dewatering Water

This section is revised to read:

When uncontaminated groundwater is encountered in an excavation on a project it may be infiltrated within vegetated areas of the right of way not designated as Sensitive Areas or incorporated into an existing stormwater conveyance system at a rate that will not cause erosion or flooding in any receiving surface water.

Alternatively, the Contractor may pursue independent disposal and treatment alternatives that do not use the stormwater conveyance system provided it is in compliance with the applicable WACs and permits.

8-01.3(1)C2 Process Wastewater

This section is revised to read:

Wastewater generated on-site as a byproduct of a construction process shall not be discharged to surface waters of the State. Some sources of process wastewater may be infiltrated in accordance with the CSWGP. Some sources of process wastewater may be disposed via independent disposal and treatment alternatives in compliance with the applicable WACs and permits.

8-01.3(1)C3 Shaft Drilling Slurry Wastewater

This section is revised to read:

Wastewater generated on-site during shaft drilling activity shall be managed and disposed of in accordance with the requirements below. No shaft drilling slurry

wastewater shall be discharged to surface waters of the State. Neither the sediment nor liquid portions of the shaft drilling slurry wastewater shall be contaminated, as detectable by visible or olfactory indication (e.g., chemical sheen or smell).

1. Water-only shaft drilling slurry or water slurry with accepted flocculants may be infiltrated on-site. Flocculants used shall meet the requirements of Section 9-14.5(1) or shall be chitosan products listed as General Use Level Designation (GULD) on the Washington State Department of Ecology's stormwater treatment technologies webpage for construction treatment. Infiltration is permitted if the following requirements are met:

    a. Wastewater shall have a pH of 6.5 – 8.5 prior to discharge.

    b. The amount of flocculant added to the slurry shall be kept to the minimum needed to adequately settle out solids. The flocculant shall be thoroughly mixed into the slurry.

    c. The slurry removed from the shaft shall be contained in a leak proof cell or tank for a minimum of 3 hours.

    d. The infiltration rate shall be reduced if needed to prevent wastewater from leaving the infiltration location. The infiltration site shall be monitored regularly during infiltration activity. All wastewater discharged to the ground shall fully infiltrate and discharges shall stop before the end of each work day.

    e. Drilling spoils and settled sediments remaining in the containment cell or tank shall be disposed of in accordance with Section 6-19.3(4)F.

    f. Infiltration locations shall be in upland areas at least 150 feet away from surface waters, wells, on-site sewage systems, aquifer sensitive recharge areas, sole source aquifers, well head protection areas, and shall be marked on the plan sheets before the infiltration activity begins.

    g. Prior to infiltration, the Contractor shall submit a Shaft Drilling Slurry Wastewater Management and Infiltration Plan as a Type 2 Working Drawing. This Plan shall be kept on-site, adapted if needed to meet the construction requirements, and updated to reflect what is being done in the field. The Working Drawing shall include, at a minimum, the following information:

        i. Plan sheet showing the proposed infiltration location and all surface waters, wells, on-site sewage systems, aquifer-sensitive recharge areas, sole source aquifers, and well-head protection areas within 150 feet.

        ii. The proposed elevation of soil surface receiving the wastewater for infiltration and the anticipated phreatic surface (i.e., saturated soil).

        iii. The source of the water used to produce the slurry.

        iv. The estimated total volume of wastewater to be infiltrated.

v. The accepted flocculant to be used (if any).

vi. The controls or methods used to prevent surface wastewater runoff from leaving the infiltration location.

vii. The strategy for removing slurry wastewater from the shaft and containing the slurry wastewater once it has been removed from the shaft.

viii. The strategy for monitoring infiltration activity and adapting methods to ensure compliance.

ix. A contingency plan that can be implemented immediately if it becomes evident that the controls in place or methods being used are not adequate.

x. The strategy for cleaning up the infiltration location after the infiltration activity is done. Cleanup shall include stabilizing any loose sediment on the surface within the infiltration area generated as a byproduct of suspended solids in the infiltrated wastewater or soil disturbance associated with BMP placement and removal.

2. Shaft drilling mineral slurry, synthetic slurry, or slurry with polymer additives not allowed for infiltration shall be contained and disposed of by the Contractor at an accepted disposal facility in accordance with Section 2-03.3(7)C. Spoils that have come into contact with mineral slurry shall be disposed of in accordance with Section 6-19.3(4)F.

8-01.3(1)C4 Management of Off-Site Water

This section is revised to read:

Prior to clearing and grubbing, the Contractor shall intercept all sources of off-site surface water and overland flow that will run-on to the project. Off-site surface water run-on shall be diverted through or around the project in a way that does not introduce construction related pollution. It shall be diverted to its preconstruction discharge location in a manner that does not increase preconstruction flow rate and velocity and protects contiguous properties and waterways from erosion. The Contractor shall submit a Type 2 Working Drawing consisting of the method for performing this Work.

8-01.3(1)E Detention/Retention Pond Construction

This section is revised to read:

Permanent or temporary ponds shall be constructed before beginning other grading and excavation Work in the area that drains into that pond. Detention/retention ponds may be constructed concurrently with grading and excavation when allowed by the Engineer. Temporary conveyances shall be installed concurrently with grading in accordance with the TESC Plan so that newly graded areas drain to the pond as they are exposed.

8-01.3(2) Seeding, Fertilizing, and Mulching

This section's title is revised to read:

8-01.3(2) Temporary Seeding and Mulching

8-01.3(2)A Preparation for Application

This section is revised to read:

A cleated roller, crawler tractor, or similar equipment, which forms longitudinal depressions at least 2 inches deep shall be used for compaction and preparation of the surface to be seeded. The entire area shall be uniformly covered with longitudinal depressions formed perpendicular to the natural flow of water on the slope. The soil shall be conditioned with sufficient water so the longitudinal depressions remain in the soil surface until completion of the seeding.

8-01.3(2)A1 Seeding

This section is deleted in its entirety.

8-01.3(2)A2 Temporary Seeding

This section is deleted in its entirety.

8-01.3(2)B Seeding and Fertilizing

This section, including title, is revised to read:

8-01.3(2)B Temporary Seeding

Temporary grass seed shall be a commercially prepared mix, made up of low growing grass species that will grow without irrigation at the project location, and accepted by the Engineer. The application rate shall be two pounds per 1000 square feet.

The Contractor shall notify the Engineer not less than 24 hours in advance of any seeding operation and shall not begin the Work until areas prepared or designated for seeding have been accepted. Following the Engineer's acceptance, seeding of the accepted slopes shall begin immediately.

Temporary seeding may be sown at any time allowed by the Engineer. Temporary seeding shall be sown by one of the following methods:

1. A hydro seeder that utilizes water as the carrying agent, and maintains continuous agitation through paddle blades. It shall have an operating capacity sufficient to agitate, suspend, and mix into a homogeneous slurry the specified amount of seed and water or other material. Distribution and discharge lines shall be large enough to prevent stoppage and shall be equipped with a set of hydraulic discharge spray nozzles that will provide a uniform distribution of the slurry.

2. Blower equipment with an adjustable disseminating device capable of maintaining a constant, measured rate of material discharge that will ensure an even distribution of seed at the rates specified.

3. Power-drawn drills or seeders.

4. Areas in which the above methods are impractical may be seeded by hand methods.

When seeding by hand, the seed shall be incorporated into the top ¼ inch of soil by hand raking or other method that is allowed by the Engineer.

Seed applied using a hydroseeder shall have a tracer added to visibly aid uniform application. This tracer shall not be harmful to plant, aquatic, or animal life. If Short-Term Mulch is used as a tracer, the application rate shall not exceed 250 pounds per acre.

Seed and fertilizer may be applied in one application provided that the fertilizer is placed in the hydroseeder tank no more than 1 hour prior to application.

8-01.3(2)D Mulching

This section, including title, is revised to read:

8-01.3(2)D Temporary Mulching

Temporary mulch shall be straw, wood strand, or HECP mulch and shall be used for the purpose of erosion control by protecting bare soil surface from particle displacement. Mulch shall not be applied below the anticipated water level of ditch slopes, pond bottoms, and stream banks. HECP mulch shall not be used within the Ordinary High Water Mark. Non-HECP mulches applied below the anticipated water level shall be removed or anchored down so that it cannot move or float, at no additional expense to the Contracting Agency.

Straw or wood strand mulch shall be applied at a rate to achieve at least 95 percent visual blockage of the soil surface.

Short Term Mulch shall be hydraulically applied at the rate of 2500 pounds per acre and may be applied in one lift.

Moderate Term Mulch and Long Term Mulch shall be hydraulically applied at the rate of 3500 pounds per acre with no more than 2000 pounds applied in any single lift.

Mulch sprayed on signs or sign Structures shall be removed the same day.

Areas not accessible by mulching equipment shall be mulched by accepted hand methods.

8-01.3(2)F Dates for Application of Final Seed, Fertilizer, and Mulch

This section is deleted in its entirety.

8-01.3(2)G Protection and Care of Seeded Areas

This section is deleted in its entirety.

8-01.3(2)H Inspection

This section is deleted in its entirety.

8-01.3(2)I Mowing

This section is deleted in its entirety.

8-01.3(3) Placing Biodegradable Erosion Control Blanket

This section's title is revised to read:

8-01.3(3) Placing Erosion Control Blanket

The first sentence of the first paragraph is revised to read:

Erosion Control Blankets are used as an erosion prevention device and to enhance the establishment of vegetation.

The second paragraph is revised to read:

When used to enhance the establishment of seeded areas, seeding and fertilizing shall be done prior to blanket installation.

8-01.3(4) Placing Compost Blanket

This section is revised to read:

Compost blankets are used for erosion control. Compost blanket shall be only be placed on ground surfaces that are steeper than 3-foot horizontal and 1-foot vertical though steeper slopes shall be broken by wattles or compost socks placed according to the Standard Plans. Compost shall be placed to a depth of 3 inches over bare soil. An organic tackifier shall be placed over the entire composted area when dry or windy conditions are present or expected. The tackifier shall be applied immediately after the application of compost to prevent compost from leaving the composted area.

Medium compost shall be used for the compost blanket. Compost may serve the purpose of soil amendment as specified in Section 8-02.3(6).

8-01.3(5) Plastic Covering

The first paragraph is revised to read:

Erosion Control – Plastic coverings used to temporarily cover stockpiled materials, slopes or bare soils shall be installed and maintained in a way that prevents water from intruding under the plastic and prevents the plastic cover from being damaged by wind. Plastic coverings shall be placed with at least a 12-inch overlap of all seams and be a minimum of 6 mils thick. Use soil stabilization and energy dissipation BMPs to minimize the erosive energy flows coming off sloped areas of plastic (e.g., toe of slope). When feasible, prevent the clean runoff from plastic from hitting bare soil. Direct flows from plastic to stabilized outlet areas.

8-01.3(7) Stabilized Construction Entrance

The first paragraph is revised to read:

Temporary stabilized construction entrance shall be constructed in accordance with the *Standard Plans*, prior to construction vehicles entering the roadway from locations that generate sediment track out on the roadway. Material used for stabilized construction entrance shall be free of extraneous materials that may cause or contribute to track out.

8-01.3(8) Street Cleaning

This section is revised to read:

Self-propelled pickup street sweepers shall be used to remove and collect dirt and other debris from the Roadway. The street sweeper shall effectively collect these materials and prevent them from being washed or blown off the Roadway or into waters of the

State. Street sweepers shall not generate fugitive dust and shall be designed and operated in compliance with applicable air quality standards. Material collected by the street sweeper shall be disposed of in accordance with Section 2-03.3(7)C.

When allowed by the Engineer, power broom sweepers may be used in non-sensitive areas. The broom sweeper shall sweep dirt and other debris from the roadway into the work area. The swept material shall be prevented from entering or washing into waters of the State.

Street washing with water will require the concurrence of the Engineer.

8-01.3(12) Compost Socks

The first two sentences of the first paragraph are revised to read:

Compost socks are used to disperse flow and sediment. Compost socks shall be installed as soon as construction will allow but before flow conditions create erosive flows or discharges from the site. Compost socks shall be installed prior to any mulching or compost placement.

8-01.3(13) Temporary Curb

The last two sentences of the second paragraph are revised to read:

Temporary curbs shall be a minimum of 4 inches in height. Temporary curb shall be installed so that ponding does not occur in the adjacent roadway.

8-01.3(14) Temporary Pipe Slope Drain

The third and fourth paragraphs are revised to read:

The pipe fittings shall be water tight and the pipe secured to the slope with metal posts, wood stakes, or sand bags.

The water shall be discharged to a stabilized conveyance, sediment trap, stormwater pond, rock splash pad, or vegetated strip, in a manner to prevent erosion and maintain water quality compliance.

The last paragraph is deleted.

8-01.3(15) Maintenance

This section is revised to read:

Erosion and sediment control BMPs shall be maintained or adaptively managed as required by the CSWGP until the Engineer determines they are no longer needed. When deficiencies in functional performance are identified, the deficiencies shall be rectified immediately.

The BMPs shall be inspected on the schedule outlined in Section 8-01.3(1)B for damage and sediment deposits. Damage to or undercutting of BMPs shall be repaired immediately.

In areas where the Contractor’s activities have compromised the erosion control functions of the existing grasses, the Contractor shall overseed at no additional cost to the Contracting Agency.

The quarry spalls of construction entrances shall be refreshed, replaced, or screened to maintain voids between the spalls for collecting mud and dirt.

Unless otherwise specified, when the depth of accumulated sediment and debris reaches approximately ⅓ the height of the BMP the deposits shall be removed. Debris or contaminated sediment shall be disposed of in accordance with Section 2-03.3(7)C. Clean sediments may be stabilized on-site using BMPs as allowed by the Engineer.

8-01.3(16) Removal

This section is revised to read:

The Contractor shall remove all temporary BMPs, all associated hardware and associated accumulated sediment deposition from the project limits prior to Physical Completion unless otherwise allowed by the Engineer. When the temporary BMP materials are made of natural plant fibers unaltered by synthetic materials the Engineer may allow leaving the BMP in place.

The Contractor shall remove BMPs and associated hardware in a way that minimizes soil disturbance. The Contractor shall permanently stabilize all bare and disturbed soil after removal of BMPs. If the installation and use of the erosion control BMPs have compacted or otherwise rendered the soil inhospitable to plant growth, such as construction entrances, the Contractor shall take measures to rehabilitate the soil to facilitate plant growth. This may include, but is not limited to, ripping the soil, incorporating soil amendments, or seeding with the specified seed.

At the request of the Contractor and at the sole discretion of the Engineer the CSWGP may be transferred back to the Contracting Agency. Approval of the Transfer of Coverage request will require the following:

1. All other Work required for Contract Completion has been completed.

2. All Work required for compliance with the CSWGP has been completed to the maximum extent possible. This includes removal of BMPs that are no longer needed and the site has undergone all Stabilization identified for meeting the requirements of Final Stabilization in the CSWGP.

3. An Equitable Adjustment change order for the cost of Work that has not been completed by the Contractor.

4. Submittal of the Washington State Department of Ecology Transfer of Coverage form (Ecology form ECY 020-87a) to the Engineer.

If the Engineer approves the transfer of coverage back to the Contracting Agency, the requirement in Section 1-07.5(3) for the Contractor's submittal of the Notice of Termination form to the Washington State Department of Ecology will not apply.

8-01.4 Measurement

This section's content is deleted and replaced with the following new subsections:

8-01.4(1) Lump Sum Bid for Project (No Unit Items)

When the Bid Proposal contains the item “Erosion Control and Water Pollution Prevention” there will be no measurement of unit or force account items for Work defined in Section 8-01 except as described in Sections 8-01.4(3) and 8-01.4(4). Also, except as described in Section 8-01.4(3), all of Sections 8-01.4(2) and 8-01.5(2) are deleted.

8-01.4(2) Item Bids

When the Proposal does not contain the items “Erosion Control and Water Pollution Prevention”, Section 8-01.4(1) and 8-01.5(1) are deleted and the Bid Proposal will contain some or all of the following items measured as noted.

ESC lead will be measured per day for each day that an inspection is made and a report is filed.

Erosion control blanket and plastic covering will be measured by the square yard along the ground slope line of surface area covered and accepted.

Turbidity curtains will be measured by the linear foot along the ground line of the installed curtain.

Check dams will be measured per linear foot one time only along the ground line of the completed check dam. No additional measurement will be made for check dams that are required to be rehabilitated or replaced due to wear.

Stabilized construction entrances will be measured by the square yard by ground slope measurement for each entrance constructed.

Tire wash facilities will be measured per each for each tire wash installed.

Street cleaning will be measured by the hour for the actual time spent cleaning pavement, refilling with water, dumping and transport to and from cleaning locations within the project limits, as authorized by the Engineer. Time to mobilize the equipment to or from the project limits on which street cleaning is required will not be measured.

Inlet protections will be measured per each for each initial installation at a drainage structure.

Silt fence, gravel filter, compost berms, and wood chip berms will be measured by the linear foot along the ground line of the completed barrier.

Wattles and compost socks will be measured by the linear foot.

Temporary curbs will be measured by the linear foot along the ground line of the completed installation.

Temporary pipe slope drains will be measured by the linear foot along the flow line of the pipe.

Coir logs will be measured by the linear foot along the ground line of the completed installation.

Outlet protections will be measured per each initial installation at an outlet location.

Temporary seeding, temporary mulching, and tackifiers will be measured by the acre by ground slope measurement.

Compost blanket will be measured by the square yard by ground slope surface area covered and accepted.

8-01.4(3) Reinstating Unit Items with Lump Sum Erosion Control and Water Pollution Prevention

The Contract Provisions may establish the project as lump sum, in accordance with Section 8-01.4(1) and also include one or more of the items included above in Section 8-01.4(2). When that occurs, the corresponding measurement provision in Section 8-01.4(2) is not deleted and the Work under that item will be measured as specified.

8-01.4(4) Items not included with Lump Sum Erosion Control and Water Pollution Prevention

Compost blanket will be measured by the square yard by ground slope surface area covered and accepted.

Temporary mulch will be measured by the acre by ground slope surface area covered and accepted.

High visibility fence will be measured by the linear foot along the ground line of the completed fence.

8-01.5 Payment

This section's content is deleted and replaced with the following new subsections:

8-01.5(1) Lump Sum Bid for Project (No Unit Items)

Payment will be made for the following Bid item when it is included in the Proposal:

"Erosion Control and Water Pollution Prevention", lump sum.

The lump sum Contract price for "Erosion Control and Water Pollution Prevention" shall be full pay to perform the Work as described in Section 8-01 except for costs compensated by Bid Proposal items inserted through Contract Provisions as described in Section 8-01.4(2). Progress payments for the lump sum item "Erosion Control and Water Pollution Prevention" will be made as follows:

1. The Contracting Agency will pay 15 percent of the bid amount for the initial set up for the item. Initial set up includes the following:

    a. Acceptance of the TESC Plan provided by the Contracting Agency or submittal of a new TESC Plan,

    b. Submittal of a schedule for the installation of the BMPs, and

    c. Identifying water quality sampling locations.

2. 70 percent of the bid amount will be paid in accordance with Section 1-09.9.

3. Once the project is physically complete and copies of the all reports submitted to the Washington State Department of Ecology have been submitted to the Engineer, and, if applicable, transference of the CSWGP back to the Contracting Agency is complete, the remaining 15 percent of the bid amount shall be paid in accordance with Section 1-09.9.

8-01.5(2) Item Bids

"ESC Lead", per day.

"Turbidity Curtain", per linear foot.

"Erosion Control Blanket", per square yard.

"Plastic Covering", per square yard.

"Check Dam", per linear foot.

"Inlet Protection", per each.

"Gravel Filter Berm", per linear foot.

"Stabilized Construction Entrance", per square yard.

"Street Cleaning", per hour.

"Silt Fence", per linear foot.

"Wood Chip Berm", per linear foot.

"Compost Berm", per linear foot.

"Wattle", per linear foot.

"Compost Sock", per linear foot.

"Coir Log", per linear foot.

"Temporary Curb", per linear foot.

"Temporary Pipe Slope Drain", per linear foot.

"Temporary Seeding", per acre.

"Temporary Mulching", per acre.

"Compost Blanket", per square yard.

"Outlet Protection", per each.

"Tackifier", per acre.

"Erosion/Water Pollution Control", by force account as provided in Section 1-09.6.

Maintenance and removal of erosion and water pollution control devices including removal and disposal of sediment, stabilization and rehabilitation of soil disturbed by these activities, and any additional Work deemed necessary by the Engineer to control erosion and water pollution will be paid by force account in accordance with Section 1-09.6.

To provide a common Proposal for all Bidders, the Contracting Agency has entered an amount in the Proposal to become a part of the Contractor's total Bid.

8-01.5(3) Reinstating Unit Items with Lump Sum Erosion Control and Water Pollution Prevention

The Contract may establish the project as lump sum, in accordance with Section 8-01.4(1) and also reinstate the measurement of one or more of the items described in Section 8-01.4(2), except for Erosion/Water Pollution Control, by force account. When that occurs, the corresponding payment provision in Section 8-01.5(2) is not deleted and the Work under that item will be paid as specified.

8-01.5(4) Items not included with Lump Sum Erosion Control and Water Pollution Prevention

Payment will be made for the following Bid item when it is included in the Proposal:

"High Visibility Fence", per linear foot.

8-02.AP8

Section 8-02, Roadside Restoration
April 1, 2019

This section, including all subsections, is revised to read:

8-02.1 Description

This Work consists of preserving, maintaining, establishing and augmenting vegetation on the roadsides and within mitigation or sundry site areas. It includes vegetation preservation, weed and pest control, furnishing and placing topsoil, compost, and soil amendments, and furnishing and planting seed, sod and plants of all forms and container types. It includes performing plant establishment activities and soil bioengineering. Work shall be performed in accordance with these Specifications and as shown in the Plans or as designated by the Engineer.

Trees, whips, shrubs, ground covers, cuttings, live stakes, live poles, live branches, rhizomes, tubers, rootstock, and seedlings will hereinafter be referred to collectively as "plants" or "plant material". Grass, wildflowers, and other plant materials installed in seed form will hereinafter be referred to collectively as "seed".

8-02.2 Materials

Materials shall meet the requirements of the following sections:

Erosion Control and Roadside Planting	9-14
Water	9-25.2

Botanical identification and nomenclature of plant materials shall be based on descriptions by Hitchcock and Cronquist in “Flora of the Pacific Northwest”. Botanical identification and nomenclature of plant material not found in "Flora" shall be based on Bailey in “Hortus Third” or superseding editions and amendments or as referenced in the Plans.

8-02.3 Construction Requirements

8-02.3(1) Responsibility During Construction

The Contractor shall prepare, install, and ensure adequate and proper care of all roadside seeded, planted, and lawn areas on the project until all plant establishment periods required by the Contract are complete or until Physical Completion of the project, whichever is last.

Adequate and proper care shall include, but is not limited to, keeping all plant material in a healthy, growing condition by watering, pruning, and other actions deemed necessary for plant health. This Work shall include keeping the project area free from insect infestation, weeds or unwanted vegetation, litter, and other debris along with retaining the finished grades and mulch in a neat uniform condition.

Existing desirable vegetation shall be saved and protected unless removal is required by the Contract or allowed by the Engineer.

The Contractor shall have sole responsibility for the maintenance and appearance of the roadside restoration.

8-02.3(2) Work Plans

Three Work Plan submittals exist under this Section:

1. Roadside Work Plan: This plan is required when Work will disturb the roadside beyond 20 feet from the pavement or where trees or native vegetation will be removed, the Contractor shall submit a Type 2 Working Drawing.

2. Weed and Pest Control Plan: This plan is required when the proposal contains the item "Weed and Pest Control," and prior to application of any chemicals or weed control activities, the Contractor shall submit a Type 2 Working Drawing.

3. Plant Establishment Plan: This plan is required when the proposal contains the item "PSIPE__", and prior to completion of Initial Planting, the Contractor shall submit a Type 2 Working Drawing.

8-02.3(2)A Roadside Work Plan

The Roadside Work Plan shall define the expected impacts to the roadside and restoration resulting from Work necessary to meet all Contract requirements. The Contractor shall define how the roadside restoration Work included in the Contract will be phased and coordinated with project Work such as earthwork, staging, access, erosion and water pollution control, irrigation, etc. The Roadside Work Plan shall include the following:

1. Limiting impacts to roadsides:

    a. Limits of Work including locations of staging or parking.

    b. Means and methods for vegetation protection (in accordance with Section 1-07.16(2)).

    c. Locations outside of clearing limits where vegetation shall be removed to provide access routes or other needs to accomplish the Work.

    d. Plans for removal, preservation and stockpile of topsoil or other native materials, if outside of clearing and grubbing limits and within the project limits.

2. Roadside Restoration:

    a. Plan for propagation and procurement of plants, ground preparation for planting, and installation of plants.

    b. Means and methods to limit soil compaction where seeding and planting are to occur, such as steel plates, hog fuel access roads, wood mats for sensitive areas (including removal) and decompaction for unavoidable impacts.

    c. Plan and timing to incorporate or remove erosion control items.

3. Lawn Installation:

    a. Schedule for lawn installation work.

    b. Establishment and maintenance of lawns.

8-02.3(2)B Weed and Pest Control Plan

The Weed and Pest Control Plan shall describe all weed and pest control needs for the project.

The plan shall be prepared and signed by a licensed Commercial Pest Control Operator or Consultant. The plan for control of weeds and pests on the Contract in accordance with Section 8-02.3(3) shall include the following:

1. Names of plan preparer and pesticide operators, including contact information. The Contractor shall furnish the Engineer evidence that all operators are licensed with appropriate endorsements, and that the pesticide used is registered for use by the Washington State Department of Agriculture.

2. Means and methods of weed control, including mechanical and/or chemical.

3. Schedule for weed control including re-entry times for pesticide application by pesticide type.

4. Proposed pesticide use in accordance with Section 8-02.3(3)A: name, application rate, and Safety Data Sheets of all proposed pesticides. Include a copy of the current product label for each pesticide to be used.

5. Plan to ensure worker safety until pesticide re-entry periods are met.

8-02.3(2)C Plant Establishment Plan

The Plant Establishment Plan shall describe activities necessary to ensure continued health and vigor of planted and seeded areas in accordance with the requirements of Sections 8-02.3(12) and 8-02.3(13). Should the plan become unworkable at any time during the first-year plant establishment, the Contractor shall submit a revised plan prior to proceeding with further Work. The Plant Establishment Plan shall include:

1. Proposed scheduling of joint inspection meetings, activities, materials, equipment to be utilized for the first-year plant establishment.

2. Proposed adaptive management activities to ensure successful establishment of seeded, sodded, and planted areas.

3. A contact person.

4. Management of the irrigation system, when applicable.

8-02.3(3) Weed and Pest Control

The Contractor shall control weed and pest species within the project limits using integrated pest management principles consisting of mechanical, biological, and chemical controls that are outlined in the Weed and Pest Control Plan or as designated by the Engineer. Controlling weeds consists of killing and removing weeds by chemical, mechanical, and hand methods.

8-02.3(3)A Chemical Pesticides

Chemical pesticides include, but are not restricted to, any substance or mixture of substances intended for preventing, destroying, repelling or mitigating any pest, including but not limited to, insecticides, herbicides, fungicides, adjuvants, and additives, including plant regulators, defoliants and desiccants. The Contractor shall apply chemical pesticides in accordance with the label recommendations, the Washington State Department of Ecology, local sensitive area ordinances, and Washington State Department of Agriculture laws and regulations. Only those pesticides listed in the table Herbicides Approved for Use on WSDOT Rights of Way and accepted as part of the Weed and Pest Control Plan or by written authorization from the Engineer may be used (www.wsdot.wa.gov/maintenance/roadside/herbicide_use.htm).

The applicator shall be licensed by the State of Washington as a Commercial Applicator or Commercial Operator, with additional endorsements as required by the Special Provisions or the proposed weed control plan. All chemical pesticides shall be delivered to the job site in the original containers, or if pre-mixed off-site, a certification of the components and formulation from the

supplier is required. The licensed applicator or operator shall complete WSDOT Form 540-509, Commercial Pesticide Application Record, each day the pesticide is applied and furnish a copy to the Engineer by the following business day.

The Contractor shall ensure confinement of the chemicals within the designated areas. The use of spray chemical pesticides shall require the use of anti-drift and activating agents and a spray pattern indicator unless otherwise allowed by the Engineer.

The Contractor shall assume all responsibility for rendering any area unsatisfactory for planting by reason of chemical application. Damage to adjacent areas, either on or off the Highway Right of Way, shall be repaired to the satisfaction of the Engineer or the property owner at no additional cost to the Contracting Agency.

8-02.3(3)B Planting and Lawn Area Weed Control

Planting and lawn area weed control consists of controlling weeds and pests in planted and lawn areas shown in the Plans. This Work is included in the bid items for planting and lawn installation.

All planting and lawn areas shall be prepared so that they are weed and debris free at the time of planting and until completion of the project. The planting areas shall include the entire ground surface, regardless of cover, areas around plants, and those areas shown in the Plans.

Within planting or lawn areas, all species that are not shown in the Plans are unwanted and shall be controlled unless specifically allowed by the Engineer to remain.

Grass growing within the mulch ring of a plant, including grass applied in accordance with Sections 8-01.3(2)A1, 8-02.3(9) or 8-02.3(10), shall be considered a weed and shall be controlled on the project in accordance with the weed and pest control plan.

All applications of post-emergent herbicides shall be made while green and growing tissue is present. Residual herbicides shall not be used where rhizomatous species or perennial species are indicated.

Should unwanted vegetation reach the flowering and seed stage in violation of these Specifications, the Contractor shall physically remove and bag the seed heads prior to seed dispersion. All physically removed vegetation and seed heads shall be disposed of off-site at no cost to the Contracting Agency.

8-02.3(3)C Project Area Weed and Pest Control

The Contractor shall control weeds not otherwise covered in accordance with Section 8-02.3(3)B, in all areas within the project limits, including erosion control seeding areas and vegetation preservation areas, as designated by the Engineer.

When the Bid Item “Project Area Weed and Pest Control” is included in the Contract, the Contractor shall also control all weeds specified as noxious by

the Washington State Department of Agriculture, the local Weed District, or the County Noxious Weed Control Board outside of planting areas within the project limits.

8-02.3(4) Topsoil

Topsoil shall not be worked or placed when the ground or topsoil is frozen, or excessively wet.

The Contractor shall protect topsoil stockpiled for project use to prevent erosion and weed growth. Weed growth on topsoil stockpile sites shall be immediately eliminated in accordance with the accepted Weed and Pest Control Plan and Section 8-02.3(3)C.

The subsoil where topsoil is to be placed shall be tilled to a depth of 1 foot or as specified in the Special Provisions or the Plans. Topsoil of the type specified shall be evenly spread over the specified areas to the depth shown in the Plans or as otherwise ordered by the Engineer. Topsoil depths greater than 6 inches shall be placed in lifts no more than 6 inches in depth. The first lift of topsoil shall be incorporated with sub-soil to a depth of 8 inches and subsequent lifts placed and lightly tamped between lifts. After the topsoil has been spread, all large clods, hard lumps, and rocks 2 inches in diameter and larger, and litter shall be raked up, removed, and disposed.

8-02.3(4)A Topsoil Type A

Topsoil Type A shall be as specified in the Special Provisions. The Contractor shall submit a certification by the supplier that the contents of the Topsoil meet the requirements in the Special Provisions.

8-02.3(4)B Topsoil Type B

Topsoil Type B shall be naturally occurring topsoil taken from within the project limits and shall meet the requirements of Section 9-14.1(2). Topsoil Type B shall be taken from areas shown in the Plans to the designated depth and stockpiled at locations that will not interfere with the construction of the project, and outside of sensitive areas, as allowed by the Engineer. A minimum of two weeks prior to excavation of Topsoil Type B, the Contractor shall pre-treat the vegetation on the designated Topsoil Type B areas according to the Weed and Pest Control Plan. Areas beyond the slope stakes shall be disturbed as little as possible in the above operations and under no circumstances shall Topsoil Type B be stockpiled within 10 feet of any existing tree or vegetation area designated to be saved and protected. The Contractor shall protect topsoil stockpile from weed infestation.

The Contractor shall set aside sufficient material to satisfy the needs of the project.

Upon completion of topsoil placement, the Contractor shall dispose of remaining stockpiled Topsoil Type B not required for use on the project at no additional expense to the Contracting Agency in accordance with Section 2-03.3(7)C.

Should a shortage of Topsoil Type B occur, and the Contractor has wasted or otherwise disposed of topsoil material, the Contractor shall furnish Topsoil Type A or C at no additional expense to the Contracting Agency.

8-02.3(4)C Topsoil Type C

Topsoil Type C shall be naturally occurring topsoil obtained from a source provided by the Contractor outside of the Contracting Agency-owned Right of Way. Topsoil Type C shall meet the requirements of Sections 8-02.3(4)B and 9-14.1(3). The Contractor shall not begin removal of Topsoil Type C from the proposed source until the material has been allowed for use by the Engineer.

8-02.3(5) Roadside Seeding, Lawn and Planting Area Preparation

This Work includes preparing worked areas for the installation of all types of permanent erosion control planting. Work shall be conducted so the flow lines in drainage channels are maintained. Material displaced by the Contractor's operations that interferes with drainage shall be removed from the channel and disposed of as allowed by the Engineer.

8-02.3(5)A Seeding Area Preparation

The Contractor shall prepare roadside seeding areas as follows:

1. Remove all excess material, debris, stumps, and rocks greater than 3 inches in diameter from areas to be seeded. Dispose of removed materials offsite.

2. Prepare roadside seeding area to a weed free and bare condition.

3. Bring area to uniform grade and install topsoil, soil amendments, or compost as specified. Any slopes 3(H) to 1(V) or steeper shall not be tilled unless otherwise specified.

4. Compact to provide a reasonably firm but friable seedbed; tractor walk to uniformly cover the surface with longitudinal depressions at least 2 inches deep formed perpendicular to the natural flow of water on the slope. Condition the soil with sufficient water so the longitudinal depressions remain in the soil surface until completion of the seeding.

5. Seed and mulch within 2 days of preparation.

8-02.3(5)B Lawn Area Preparation

The Contractor shall prepare lawn areas as follows:

1. Prepare lawn area to a weed free and bare condition in accordance with Section 8-02.3(3)B.

2. Remove excess material, stumps, wood or rocks over 3 inches in diameter and remove from site.

3. Bring area to uniform grade and install topsoil or soil amendments in accordance with Section 8-02.3(4) and 8-02.3(6).

4. Till to an 8-inch depth, rake to a smooth even grade without low areas that trap water, and compact with a 50-pound roller. The finished grade of the soil shall be 1 inch below the top of all curbs, junction and valve boxes, walks, driveways, and other Structures.

5. Seed or sod the area within two days of preparation.

8-02.3(5)C Planting Area Preparation

The Contractor shall prepare planting areas as follows:

1. Prepare planting area to a weed free and bare condition in accordance with Section 8-02.3(3)B.

2. Decompact soil to a depth of 18 inches where construction activities have taken place or where native soils are compacted.

3. Return soil to uniform grade even with surrounding areas, leaving no holes or mounds over 3 inches in depth or height.

4. Remove excess material, stumps, wood or rocks over 3 inches in diameter and remove from site.

5. Apply compost or other amendments as indicated in the plans and in accordance with Section 8-02.3(6).

6. Cultivate amendments to a depth of 12 inches to provide a reasonably firm but friable planting area. Do not till any slopes 3(H) to 1(V) or steeper.

7. Return soil to a uniform finished grade, 1 inch, or the specified depth of mulch plus 1 inch, below walks, curbs, junction and valve boxes, catch basins, and driveways, unless otherwise specified.

8. Begin planting and mulching the area within two days of final preparation.

8-02.3(6) Soil Amendments

The Contractor shall place soil amendments of the type, quality, and quantities specified where shown in the Plans or as specified in the Special Provisions. Areas receiving soil amendments shall be bare soil or vegetation free prior to application. All soil amendments shall be installed as shown in the Plans within 30 calendar days after delivery to the project site.

8-02.3(6)A Compost

Compost used for soil amendments shall be Fine Compost unless otherwise designated in the Plans. When compost blanket is used for temporary erosion control, the compost blanket may be incorporated into the soil immediately prior to planting when used as compost soil amendment. The area shall be prepared in accordance with Section 8-02.3(5) prior to placing compost.

8-02.3(6)B Fertilizers

The Contractor shall apply fertilizer in the form, mixture, and rate specified in the Special Provisions or as directed by the Engineer. Application procedures shall be in accordance with the manufacturer's recommendations unless otherwise specified in the Special Provisions.

The Contractor shall submit a guaranteed fertilizer analysis label for the selected product a minimum of one week prior to application for acceptance. Following the Engineer's acceptance, fertilizing of the accepted ground or vegetated surfaces shall begin immediately.

In seeding and lawn areas to be fertilized, the fertilizer shall be applied concurrently with the seed. When fertilizer is hydraulically applied, the fertilizer shall be suitable for application with seeding as specified in Section 8-02.3(9)C. If hydroseeding, the fertilizer shall be placed in the hydroseeder tank no more than 1 hour prior to application.

Fertilizers for planting areas shall be applied concurrently with compost and applied prior to incorporation, unless tablet form fertilizer is specified. Where tablet form fertilizer is specified, fertilizer shall be applied concurrently with plant installation.

Fertilizer sprayed on signs or sign structures shall be removed the same day.

Areas not accessible by fertilizing equipment shall be fertilized by allowed hand methods.

Second Application: A second application of fertilizer shall be applied as specified in the Special Provisions at the locations designated in the Plans. The fertilizer shall be applied during the months of March, April, or May of the following year after the initial seeding, planting, or lawn installation. The fertilizer shall be dry granular pellets or pearls and applied in accordance with the manufacturer's recommendations or as specified in the Special Provisions.

8-02.3(7) Layout of Planting, Lawn and Seeding Areas

The Contractor shall lay out and prepare planting and lawn areas and receive the Engineer's acceptance of layout and preparation prior to any installation activities. The Contractor shall stake the location of all trees larger than 1-inch caliper and the perimeter of all planting areas for acceptance by the Engineer prior to any installation activities.

The Contractor shall locate all trees to be planted in mowable grass areas a minimum of 10 feet from the edge of planting areas, other trees, fence lines, and bottom of ditches unless otherwise specified.

Tree locations shown in the Plans shall be considered approximate unless shown with stationing and offset distance. In irrigated areas, trees shall be located so their trunk is a minimum of ⅓ of the spray radius away from the nearest sprinkler head.

Unless otherwise shown, planting areas located adjacent to Roadways shall begin 6 feet from the edge of shoulder on roadway fills and begin 5 feet up on the back slope from the bottom on roadway cut sections. Plants within planting areas shall

be located such that mature branching pattern will not block sight distance, signs, or other traffic-related devices. No trees shall be placed where the mature canopy will grow to within 10 feet of existing power lines. Where roadside ditches are present, planting areas shall begin 5 feet from the centerline of the ditch unless shown otherwise in the Plans.

8-02.3(8) Planting

8-02.3(8)A Dates and Conditions for Planting

No plant material shall be planted until it has been inspected and accepted for planting by the Engineer. Rejected material shall be removed from the project site immediately. All plants for the project or a sufficient quantity to plant 1-acre of the site, whichever is less, shall be received on site prior to the Engineer beginning inspection of the plants.

Under no circumstances will planting be permitted during unsuitable soil or weather conditions as determined by the Engineer. Unsuitable conditions may include frozen soil, freezing weather, saturated soil, standing water, high winds, heavy rains, and high water levels. The ground shall be moist at the time of planting. All planting shall be accomplished during the following periods:

1. Non-Irrigated Plant Material
   Western Washington (West of the Cascade Mountain Crest) – October 1 to March 1.
   Eastern Washington (East of the Cascade Mountain Crest) – October 1 to November 15.

2. Irrigated Plant Material

   In irrigated areas, plant material shall not be installed until the irrigation system is fully operational and accepted by the Engineer. Trees and shrubs may be planted in irrigated areas during the non-irrigated planting window before the irrigation system is functional with the written concurrence of the Engineer only if the irrigation system is guaranteed to be operational prior to the end of the non-irrigated planting window.

8-02.3(8)B Plant Installation

The Contractor shall handle plant material in the following manner:

1. Root systems shall be kept covered and damp at all times. Plant material shall be kept in containers until the time of planting.

2. Roots shall not be bunched, curled, twisted, or unreasonably bent when placed in the planting hole. Bare root plant material shall be dormant at the time of harvesting and planting. The root systems of all bare root plant material shall be dipped in a slurry immediately prior to planting.

3. Plant material supplied in wrapped balls shall not be removed from the wrapping until the time of planting at the planting location. The root system of balled plant material shall be moist at the time of planting. Root balls shall be loosened prior to planting. All burlap,

baskets, string, wire and other such materials shall be removed from the hole when planting balled plants.

4. Plant cutting material shall be dormant at the time of cutting and planting. All cuttings shall be installed immediately if buds begin to swell.

5. Plants shall be placed with the crown at the finished grade. In their final position, plants shall have their top true root (not adventitious root) no more than 1 inch below the soil surface, no matter where that root was located in the original root ball or container. The backfill material, including container and root ball soil, shall be thoroughly watered on the same day that planting occurs regardless of season.

When installing plants, the Contractor shall dig planting holes three times the diameter of the container or root ball size. Any glazed surface of the planting hole shall be roughened prior to planting.

8-02.3(8)C Pruning, Staking, Guying, and Wrapping

Plants shall be pruned at the time of planting, only to remove minor broken or damaged twigs, branches or roots. Pruning shall be performed with a sharp tool and shall be done in such a manner as to retain or to encourage natural growth characteristics of the plants. All other pruning shall be performed only after the plants have been in the ground at least 1 year and when plants are dormant.

Trees shall only be staked when so noted in the Plans. Each tree shall be staked or guyed before completion of the backfilling in accordance with the details shown in the Plans.

Trees shall be wrapped when so noted in the Plans.

8-02.3(9) Seeding, Fertilizing, and Mulching

For all seed, the Contractor shall furnish the following documentation to the Engineer:

1. The state or provincial seed dealer license and endorsements.

2. Copies of Washington State Department of Agriculture (WSDA) test results on each lot of seed. Test results shall be within six months prior to the date of application.

8-02.3(9)A Dates for Application of Seed

Unless otherwise allowed by the Engineer, the Contractor shall apply seed for permanent erosion control during the following periods:

Western Washington[1] (West of the Cascade Mountain Crest)	Eastern Washington (East of the Cascade Mountain Crest)
March 1 through May 15 September 1 through October 1	October 1 through November 15

[1]Seeding may be allowed outside these dates when allowed by the Engineer.

All roadway excavation and embankment ground surfaces that are completed to final grades shall be prepared and seeded during the first available seeding window. When environmental conditions are not conducive to satisfactory results, the Engineer may suspend the seeding Work until such time that the desired results are likely to be obtained. If seeding is suspended, temporary erosion control methods according to Section 8-01 shall be used to protect the bare soil until seeding conditions improve.

8-02.3(9)B Seeding and Fertilizing

The Contractor shall prepare the seeding area in accordance with Section 8-02.3(5)A and apply seed at the rate and mix specified in the Special Provisions. The Contractor shall notify the Engineer within 5 days in advance of any seeding operation and shall not begin the Work until areas prepared or designated for seeding have been accepted. Following the Engineer's acceptance, seeding of the accepted ground surfaces shall begin immediately.

Seeding shall not be done during windy weather or when the ground is frozen, or excessively wet.

When seeding by hand, the seed shall be incorporated into the top ¼ inch of soil by hand raking or other method that is allowed by the Engineer.

Seed applied as a separate operation using a hydroseeder shall have a tracer added to visibly aid uniform application. The tracer shall be HECP Short-Term Mulch applied at a rate of 200 to 250 pounds per acre and the tracer shall carry the measured specified seeding rate.

8-02.3(9)C Seeding with Fertilizers and Mulches

When the Proposal includes any variation of seeding, fertilizing, and without mulching, the seed and fertilizer shall be applied in one application followed by mulching. West of the Cascade Mountains, seed, fertilizer, and mulch may be completely applied in one application. East of the Cascades, seeding, fertilizing, and mulching shall not be applied as a single application unless allowed by the Engineer in writing prior to application. The fertilizing and mulching shall meet the requirements of Sections 8-02.3(6) and 8-02.3(11).

8-02.3(9)D Inspection

Seeded areas will be inspected upon completion of seeding, fertilizing, and mulching. The Work in any area will not be measured for payment until a uniform distribution of the materials is accomplished at the specified rate. Areas that have not received a uniform application of seed, fertilizer, and mulch at the specified rate, as determined by the Engineer, shall be re-seeded, re-fertilized, or re-mulched prior to payment for seeding within a designated area.

8-02.3(9)E Protection and Care of Seeded Areas

The Contractor shall install and establish a stable and weed free stand of grass as specified within all designated permanent seeding areas. A stable stand of grass shall meet the following requirements:

1. A dense and uniform canopy cover, 70% for Western Washington and 50% for Eastern Washington, of specified species covers all seeded areas after 3 months of active growth following germination during the growing season. Canopy cover is defined as the cover of living and vigorous grass blades, leaves, and shoots of specified species. Volunteer species, weeds, woody plants, or other undesirable vegetation shall not factor into the canopy cover. Growth and establishment may require supplemental irrigation to meet cover requirements.

2. Stand health is evident by vigorously growing planted species having a uniform rich-green appearance and with no dead patches or major gaps of growth. A stand of grass that displays rusting, wilting, stunted growth, disease, yellowing or browning of leaves, or bare patches does not meet the stand health requirement.

3. The Contractor shall establish a stable stand of grass free of all weeds, non-specified grasses, and other undesirable vegetation. Weed control shall be in accordance with the Weed and Pest Control Plan and occur on a monthly basis during the establishment period and through the life of the Contract.

4. Remove all trash, rocks, construction debris, and other obstructions that may be detrimental to the continued establishment of future seeding.

In addition to the requirements of Section 1-07.13(1), restoration of eroded areas including clean up, removal, and proper disposal of eroded material, filling and raking of eroded areas with Topsoil Type A or fine compost, and re-application of the specified seed, fertilizer, and mulch shall occur at no additional cost to the Contracting Agency.

8-02.3(10) Lawn Installation

8-02.3(10)A Dates and Conditions for Lawn Installation

In irrigated areas, lawn installation shall not begin until the irrigation system is fully operational.

Unless otherwise allowed by the Engineer, seeded lawn installation shall be performed during the following time periods at the location shown:

Western Washington (West of the Cascade Mountain Crest)	Eastern Washington (East of the Cascade Mountain Crest)
March 1 through May 15 September 1 through October 1	October 1 through November 15
When irrigation system is operational March 1 through October 1	When irrigation system is operational March 1 through November 1

8-02.3(10)B Lawn Seeding and Sodding

The Contractor shall prepare the lawn area in accordance with Section 8-02.3(5) and apply seed at the mix and rate of application as specified in the Special Provisions.

The Contractor shall have the option of sodding in lieu of seeding for lawn installation at no additional expense to the Contracting Agency. Seeding in lieu of sodding will not be allowed.

Seed placed by hand shall be raked into the soil. Following raking, the seeded soil shall be rolled with a smooth 50-pound roller. Sod strips shall be placed within 48 hours of being cut. Placement shall be without voids and have the end joints staggered. Following placement, the sod shall be rolled with a smooth roller to establish contact with the soil.

Barriers shall be erected, with warning signs where necessary, to preclude pedestrian traffic access to the newly placed lawn during the establishment period.

8-02.3(10)C Lawn Establishment

Lawn establishment shall consist of caring for all new lawn areas within the limits of the project.

The lawn establishment period shall begin immediately after the lawn seeding or sodding has been accepted by the Engineer and shall extend to the end of four mowings or 20 working days whichever is longer. The mowings shall be done in accordance with Section 8-02.3(10)D.

During the lawn establishment period, the Contractor shall ensure the continuing healthy growth of the turf. This care shall include keeping the project in a presentable condition including, but not limited to, removal of litter, mowing, trimming, removal of grass clippings, edging, fertilization, insecticide and fungicide applications, weed control, watering, repairing the irrigation system, and repair and reseeding all damaged areas.

Temporary barriers shall be removed only when directed by the Engineer.

All Work performed under lawn establishment shall comply with established turf management practices.

Acceptance of lawn planting as specified will be based on a uniform stand of grass and a uniform grade at the time of final inspection. The Contractor shall recultivate, re-grade, reseed, and refertilize areas that are bare or have a poor stand of grass or not having a uniform grade through any cause before final inspection at no additional cost to the Contracting Agency.

8-02.3(10)D Lawn Mowing

Lawn mowing shall begin immediately after the lawn establishment period has been accepted by the Engineer and shall extend to the end of the Contract or the first-year plant establishment, whichever is last.

The Contractor shall accomplish the following minimum requirements:

1. Mow, trim, and edge as often as conditions dictate, at a minimum, once per week between April and September. Maximum height of lawn shall not exceed 3 inches. The cutting height shall be 2 inches. Cuttings, trimmings, and edgings shall be disposed of off the project site. When the Engineer allows the use of a mulching mower, trimmings may be left in place.

2. Water as often as conditions dictate depending on weather and soil conditions.

3. Provide fertilizer, weed control, water, and other measures as necessary to establish and maintain a healthy stand of grass.

8-02.3(11) Mulch

Mulches associated with seeding and planting shall be of the type specified in the Special Provisions or as indicated in the Plans. The Contractor shall evenly apply mulch at the rates indicated in the Plans. Mulches shall not be placed below the anticipated water level of ditch slopes, pond bank slopes, and stream banks, or in areas of standing or flowing water.

8-02.3(11)A Mulch for Seeding Areas

The Contractor shall furnish and evenly apply Hydraulically Applied Erosion Control Product (HECP) Long Term Mulch at the rates indicated and in accordance with the Manufacturer's specifications unless otherwise specified.

HECP Long Term Mulch shall be hydraulically applied at the rate of 3500 pounds per acre with no more than 2000 pounds applied in any single lift. HECP mulch shall not be used within the Ordinary High Water Mark.

Mulch sprayed on signs or sign Structures shall be removed the same day.

Areas not accessible by mulching equipment shall be mulched by accepted hand methods.

HECP Long Term Mulch may be applied with seed and fertilizer west of the summit of the Cascade Range. East of the summit of the Cascade Range, seed and fertilizer shall be applied in a single application followed by the application of mulch.

8-02.3(11)B Bark or Woodchip Mulch

The Contractor shall apply bark or wood chip mulch of the type and depth specified where shown in the Plans or as specified in the Special Provisions.

The Contractor shall complete final grading and placement/incorporation of soil amendments within the planting area prior to placement of mulch. Areas receiving bark mulch shall be bare soil or vegetation free before application, except where trees and other plants are specifically identified in the Plans or designated by the Engineer to be saved and protected.

Bark or wood chip mulch shall be placed to a uniform non-compacted depth of 3 inches over all planting areas unless otherwise specified. Mulch shall be

feathered to the base of the plant and 1 inch below the top of junction and valve boxes, curbs, and pavement edges.

Any contamination of the mulch due to the Contractor's operations shall be corrected to its former condition at no additional cost to the Contracting Agency. Mulch placed to a thickness greater than specified shall be at no additional cost to the Contracting Agency.

The Contractor shall keep plant material crowns, runners, and branches free of mulch at all times.

8-02.3(11)C Bark or Woodchip Mulch Rings

The Contractor shall apply mulch rings around plants installed within existing vegetation areas or within seeded areas as shown in the Plans. Bark or wood chip mulch rings shall be applied to the surface of vegetation free amended soil in the isolated plant locations where shown in the Plans or as specified in the Special Provisions. Bark or wood chip mulch shall be placed to a uniform non-compacted depth of 3 inches to a radius of 2 feet around all plants within interplanted plant locations.

8-02.3(12) Completion of Initial Planting

Upon completion of the initial planting within a designated area, the Engineer will make an inspection of all planting areas. The Engineer will notify the Contractor, in writing, of any replacements or corrective action necessary to meet the plant installation requirements. The Contractor shall replace all plants and associated materials rejected or missing and correct unsatisfactory conditions.

Completion of the initial planting within a designated area includes the following conditions:

1. 100 percent of each of the plant material categories are installed as shown in the Plans.

2. Planting Area is cleaned up.

3. Repairs are completed, including but not limited to, full operation of the irrigation system.

4. Mulch coverage is complete.

5. All weeds are controlled.

8-02.3(13) Plant Establishment

Plant establishment consists of caring for all plants and planting areas within the project limits. The provisions of Sections 1-07.13(2) and 1-07.13(3) do not apply to this Section.

When the Proposal includes the bid item PSIPE____ (Plant Selection Including Plant Establishment), that bid item includes one year of plant establishment Work. The first year of plant establishment shall begin immediately upon written notification from the Engineer of the completion of initial planting for the project. The first-year plant establishment period shall be a minimum of one calendar year.

The one calendar year shall be extended an amount equal to any periods where the Contractor does not comply with the plant establishment requirements and plan.

During the first-year plant establishment period, the Contractor shall perform all Work necessary to ensure the resumption and continued growth of the transplanted material. This Work shall include, but is not limited to, applying water, removing foreign, dead, or rejected plant material, maintaining all planting areas in a weed-free condition, and replacing all unsatisfactory plant material planted under the Contract. If plants are stolen or damaged by the acts of others, the Contracting Agency will pay invoice cost only for the replacement plants with no mark-up and the Contractor will be responsible for the labor to install the replacement plants. Other weed control within the project limits but outside of planting, lawn, or seeding areas shall be as specified in Section 8-02.3(3)C.

During the first year of plant establishment, the Contractor shall meet monthly or at an agreed upon schedule with the Engineer for the purpose of joint inspection of the planting material. The Contractor shall correct all unsatisfactory conditions identified by the Engineer within a 10-day period immediately following the inspection. If plant replacement is required, the Contractor shall, within the 10-day period, submit a plan and schedule for the plant procurement and replacement to occur during the planting period as designated in Section 8-02.3(8). At the end of the plant establishment period, plants that do not show normal growth shall be replaced and all staking and guying that remain on the project shall be removed unless otherwise allowed by the Engineer.

All automatic irrigation systems shall be operated fully automatic during the plant establishment period and until final acceptance of the Contract. Payment for water used to water in plants, or hand watering of plant material or lawn areas unless otherwise specified, is the responsibility of the Contractor during the first-year plant establishment period.

Subsequent year plant establishment periods shall begin immediately at the completion of the preceding year's plant establishment period. Each subsequent plant establishment period shall be one full calendar year in duration.

During the plant establishment period(s) after the first year plant establishment, the Work necessary for the continued healthy and vigorous growth of all plants material shall be performed as directed by the Engineer.

Payment for water used to water plants during the subsequent year(s) of plant establishment will be paid under the plant establishment item.

8-02.3(14) Plant Replacement

The Contractor shall be responsible for growing or arrange to provide sufficient plants for replacement of all plant material rejected through first-year plant establishment. All replacement plant material shall be inspected and accepted by the Engineer prior to installation. All rejected plant material shall be replaced with acceptable plants meeting the specifications and installed according to the requirements of this Section at dates allowed by the Engineer.

All replacement plants shall be of the same species as the plants they replace and meet the requirements of Section 9-14.8 unless otherwise allowed by the Engineer. Plants may vary in size reflecting one season of growth should the Contractor elect to hold plant material under nursery conditions for an additional year to serve as replacement plants. Replacement plant material larger than specified in the Plans shall meet the applicable section requirements of the ASNS for container class, ball size, spread, and branching characteristics.

8-02.3(15) Bioengineering

Bioengineering consists of using plant materials for the purpose of streambank or earthen slope construction and surface stabilization. This Work may include installing woody plant cuttings in various forms as well as part of streambank or earthen slope construction.

8-02.3(15)A Fascines

Live fascines shall be constructed of live and dead cuttings bundled together with a diameter of 8 to 18 inches. Live cuttings shall be the species shown in the Plans. Dead branches may be cuttings from any woody, non-invasive plant native to the project area. Dead branches may be placed within the live fascine and on the side exposed to the air. Live branches shall be placed in contact with the soil along their entire length. Each live fascine must contain a minimum of eight live branches. Dead branches shall constitute no more than 40 percent of the total fascine content.

The total length of each live fascine shall be a minimum of 5 feet. Branches shall be bundled into log-like forms and bound with biodegradable twine spaced at 1-foot intervals along the entire length of the live fascine. Live fascines shall be installed horizontally in a trench whose depth shall be ½ the diameter of the live fascine. Secure the live fascine with live stakes 3 feet in length and ¾ inch in diameter placed at 18-inch intervals. A minimum of three live stakes shall be used per fascine. The live stakes shall be driven through the live fascine vertically into the slope. The ends of live fascines shall be woven together so that no gap remains between the two sections of the live fascine.

Prior to being covered with soil, the fascine shall be thoroughly watered. Once the fascine is covered with 6 inches of soil, the soil covering the fascine shall be thoroughly watered.

When used to remedy erosion areas, live fascines shall extend a minimum of two feet beyond the visible area of erosion and soil disturbance. The locations for live fascines and live stake rows shall be identified in the field for review and acceptance by the Engineer. The Engineer may require adjustment of fascine locations prior to installation in order to best accomplish the intended functions.

Plant replacement during plant establishment for “PSIPE Live Fascine” will be required for any section void of live shoots for a length of 3 feet or more. Replacement shall consist of installing live stakes, spaced 1 foot apart above the fascine within the area void of live shoots. Live stakes shall be of the same species as the live fascine and shall have a minimum length of 3 feet and a

minimum diameter of ¾ inch. The requirements of Section 8-02.3(8) apply to PSIPE Live Fascine.

8-02.3(15)B Brush Mattress

Live brush mattress shall be constructed of live branch cuttings, live poles, jute rope and topsoil. The live cuttings and live poles shall be from the plant species designated in the Plans. Live branch cuttings shall be placed with the cut ends oriented down slope as shown in the Plans. Cuttings shall overlap from side to side and from top to bottom as each layer is constructed. The live branches in each succeeding upper layer shall overlap the adjacent lower layer by a minimum of 6 inches. A maximum of 20 percent of the branches may be dead branches, but the live branches shall be distributed evenly to provide even rooting and growth over the entire area of the brush mattress.

The Contractor shall anchor the live brush mattress to the slope using stakes and jute rope as shown in the Plans. Initially, the stakes shall be installed to protrude above the live brush mattress. The Contractor shall attach the jute rope to the stakes and tighten the rope by tamping the stakes further into the bank, pulling the live brush mattress tight against the soil surface. The Contractor shall cover the live brush mattress with sufficient stockpiled topsoil to ensure good soil contact with the live plant material.

Plant replacement during plant establishment for "PSIPE Live Brush Mattress" will be required for any section void of live shoots for an area of 25 square feet or more. Replacement shall consist of installing live stakes, spaced 3 feet apart in a triangular pattern within the area void of live shoots. Live stakes shall be of the same species as the live brush mattress and shall have a minimum length of 3 feet and a minimum diameter of ¾ inch. The requirements of Section 8-02.3(8) apply to PSIPE Brush Mattress.

8-02.3(15)C Brush Layer

Brush layers shall be constructed of live branch cuttings, randomly mixed, from the plant species listed under the brush layer heading in the Plans. The number of branches required will vary depending on the average branch diameter and layer thickness.

Brush layers shall be placed in a trench dug at a 45 degree incline into the slope or stream bank. Two-thirds to three-fourths of the length of the live branches shall be buried. Soil shall be firmly tamped in place. Succeeding layers shall be spaced as detailed in the Plans. Brush layer placed in stream banks shall be angled downstream.

Brush layers may include plant establishment when designated as PSIPE Brush Layer. Plant replacement for PSIPE Brush Layer will be required for each section void of live shoots for a continuous distance of 3 feet or more. The requirements of Section 8-02.3(8) apply to PSIPE Brush Layer.

8-02.3(16) Roadside Maintenance Under Construction

When the Contract includes the item, Roadside Maintenance Under Construction, this Work includes roadside mowing and ditch maintenance, and noxious weed control outside of planting areas according to Section 8-02.3(3)C.

8-02.3(16)A Roadside Mowing

The Contractor shall mow designated roadside grass areas to the limits designated by the Engineer. Roadside mowing is limited to slopes not steeper than 3(H) to 1(V).

The Contractor shall mow according to the following requirements:

1. Trim around traffic equipment, structures, planting areas, or other features extending above ground preceding or simultaneously with each mowing.

2. Maintain grass between 4 and 12 inches in height.

3. Operate mowing equipment with suitable guards to prevent throwing rocks or debris onto the traveled way or off of the Contracting Agency property. Power driven equipment shall not cause ruts, deformation, and compaction of the vegetated soil.

4. Removing clippings is required on the traveled way, shoulders, walkways, or Structures.

5. Restore soil rutting to a smooth and even grade at the direction of the Engineer.

8-02.3(16)B Ditch Maintenance

The Contractor shall maintain drainage for the duration of the Contract according to the following requirements:

1. Maintain flow lines in drainage channels and roadside ditches.

2. Cutting or trimming vegetation within drainage channels to maintain positive flow.

3. Remove dirt and debris from inside of culverts or any drainage area where runoff has allowed accumulations and re-seed for erosion control.

4. Restore channels to previous operational condition.

8-02.4 Measurement

Topsoil, bark or woodchip mulch and soil amendments will be measured by the acre or the square yard along the grade and slope of the area covered immediately after placement. Weed control pre-treatment of topsoil areas, excavation, and stockpiling are included in the bid item “Topsoil Type ___.

Bark or woodchip mulch rings will be measured per each.

Compost will be measured by the acre or the square yard along the grade and slope of the area covered immediately after application.

Seeding, fertilizing, and mulching will be measured by the acre or the square yard by ground slope measurement or through the use of design data.

Seeding and fertilizing by hand will be measured by the square yard. No adjustment in area size will be made for the vegetation free zone around each plant.

Seeded lawn, sod installation, and lawn mowing will be measured along the ground slope and computed in square yards of actual lawn completed, established, and accepted.

Plant selection will be measured per each.

PSIPE __ (Plant Selection Including Plant Establishment) will be measured per each.

Live Pole will be measured per each.

Live Stake Row will be measured by the linear foot along the ground slope line.

The pay quantities for plant materials will be determined by count of the number of satisfactory plants in each category accepted by the Engineer.

Fascine and PSIPE live fascine will be measured by the linear foot along the ground slope line.

Brush mattress and PSIPE live brush mattress will be measured by the surface square yard along the ground slope line.

Brush layer and PSIPE brush layer will be measured by the linear foot along the ground slope line.

Water will be measured in accordance with Section 2-07.4. Measurement will be made of only that water hauled in tank trucks or similar equipment.

8-02.5 Payment

Payment will be made for each of the following listed Bid items that are included in the Proposal:

> "Project Area Weed and Pest Control" will be paid in accordance with Section 1-09.6.
> For the purpose of providing a common Proposal for all Bidders, the Contracting Agency entered an amount for "Project Area Weed and Pest Control" in the Proposal to become a part of the total Bid by the Contractor. Payment under this item will be made only when the Work is not already covered by other items.
>
> "Topsoil Type ____", per acre.
> The unit Contract price per acre for "Topsoil Type ____" shall be full payment for all costs for the specified Work.
>
> "Fine Compost ", per acre or per square yard.
> "Medium Compost", per acre or per square yard.
> "Coarse Compost", per acre or per square yard.
> The unit Contract price per acre for "Fine Compost", "Medium Compost" or "Coarse Compost" shall be full pay for furnishing and spreading the compost onto the existing soil.

"Soil Amendment", per acre.
The unit Contract price per acre for "Soil Amendment" shall be full pay for furnishing and incorporating the soil amendment into the existing soil.

"Plant Selection ___", per each.
The unit Contract price for "Plant Selection ___", per each shall be full pay for all Work to perform the work as specified within the planting area prior to planting for weed control, planting area preparation and installation of plants with initial watering.

As the plants that do not include plant establishment are obtained, propagated, and grown, partial payments will be made as follows:

Payment of 15 percent of the unit Contract price per each when the plant materials have been contracted, propagated, and are growing under nursery conditions. The Contractor shall provide the Engineer with certification that the plant material has been procured or contracted for delivery to the project for planting within the time limits of the project. The certification shall state the location, quantity, and size of all material.

Payment will be increased to 100 percent of the unit Contract price per each for contracted plant material at the completion of the initial planting.

All partial payments shall be limited to the actual number of healthy vigorous plants that meet the stage requirements, limited to plan quantity. Previous partial payments made for materials rejected or missing will be deducted from future payments due the Contractor.

"PSIPE ___", per each.
The unit Contract price for "PSIPE ___", per each, shall be full pay for all Work necessary to perform as specified within the planting area for weed control and planting area preparation, planting, cleanup, and water necessary to complete planting operations as specified to the end of first year plant establishment.

As the plants that include plant establishment are obtained, propagated, and grown, partial payments will be made as follows after inspection by the Engineer:

Payment of 5 percent of the unit Contract price, per each, when the plant materials have been contracted, propagated, and are growing under nursery conditions. The Contractor shall provide the Engineer with certification that the plant material has been procured or contracted for delivery to the project for planting within the time limits of the project. The certification shall state the location, quantity, and size of all material.

Payment will be increased to 15 percent of the unit Contract price, per each, upon completion of the initial weed control and planting area preparation Work.

Payment will be increased to 60 percent of the unit Contract price per each for the contracted plant material in a designated unit area when planted.

Payment will be increased to 70 percent of the unit Contract price per each for contracted plant material at the completion of the initial planting.

Payment will be increased to the appropriate percentage upon reaching the following plant establishment milestones:

June 30th	80 percent
September 30th	90 percent
Completion of first-year plant establishment or after all replacement plants have been installed, whichever is later.	100 percent

Plant establishment milestones are achieved when planting areas meet conditions described in Section 8-02.3(13).

"Seeding, Fertilizing and Mulching", per acre.

"Seeding and Fertilizing", per acre or per square yard.

"Seeding and Fertilizing by Hand", per square yard.

"Second Application of Fertilizer", per acre.

"Seeding and Mulching", per acre.

"Seeded Lawn Installation", per square yard.
"Sod Installation", per square yard.
"Lawn Mowing", per square yard.
The unit Contract price per square yard for "Seeded Lawn Installation" or "Sod Installation" shall be full pay for all costs necessary to prepare the area, plant or sod the lawn, erect barriers, control weeds, and establish lawn areas and for furnishing all labor, tools, equipment, and materials necessary to complete the Work as specified and shall be paid in the following sequence for healthy, vigorous lawn:

Completion of Lawn Planting	60 percent of individual areas
Mid Lawn Establishment (after two mowings)	85 percent of individual areas
Completion of Lawn Establishment (after four mowings)	100 percent of individual areas

"Plant Establishment Year ____" will be paid in accordance with Section 1-09.6. For the purpose of providing a common Proposal for all Bidders, the Contracting Agency entered an amount for "Plant Establishment - ___ Year" in the Proposal to become a part of the total Bid by the Contractor.

"Live Pole", per each.

"Live Stake Row", per linear foot.

"Bark or Wood Chip Mulch", per acre.

"Bark or Wood Chip Mulch Rings", per each.
The unit Contract price per acre for "Bark or Wood Chip Mulch" shall be full pay for furnishing and spreading the mulch onto the existing soil.

"Fascine" and "PSIPE Live Fascine", per linear foot.
"Brush Mattress" and "PSIPE Live Brush Mattress", per square yard.
"Brush Layer" and "PSIPE Brush Layer", per linear foot.
When PSIPE is included with Fascine, Brush Mattress, or Brush Layer, the payment schedule for PSIPE ____ will apply.

"Roadside Maintenance under Construction" will be paid in accordance with Section 1-09.6.
For the purpose of providing a common Proposal for all Bidders, the Contracting Agency has entered an amount for "Roadside Maintenance Under Construction" in the Proposal to become a part of the total Bid by the Contractor.

"Water", per M Gal.

8-04.AP8

Section 8-04, Curbs, Gutters, and Spillways
April 2, 2018

8-04.2 Materials
In the first paragraph, the reference to "Portland Cement" is revised to read:

Cement 9-01

8-04.3(1) Cement Concrete Curbs, Gutters, and Spillways
The first paragraph is supplemented with the following:

Roundabout truck apron cement concrete curb and gutter shall be constructed with air entrained concrete Class 4000 conforming to the requirements of Section 6-02.

8-06.AP8

Section 8-06, Cement Concrete Driveway Entrances
April 2, 2018

8-06.2 Materials
In the first paragraph, the reference to "Portland Cement" is revised to read:

Cement 9-01

8-06.3 Construction Requirements
The first paragraph is revised to read:

Cement concrete driveway approaches shall be constructed with air entrained concrete Class 4000 conforming to the requirements of Section 6-02 or Portland Cement or

Blended Hydraulic Cement Concrete Pavement conforming to the requirements of Section 5-05.

8-07.AP8

Section 8-07, Precast Traffic Curb
April 2, 2018

8-07.3(1) Installing Curbs

The first sentence of the first paragraph is revised to read:

> The curb shall be firmly bedded for its entire length and breadth on a mortar bed conforming to Section 9-20.4(3) composed of one part Portland cement or blended hydraulic cement and two parts sand.

The fourth paragraph is revised to read:

> All joints between adjacent pieces of curb except joints for expansion and/or drainage as designated by the Engineer shall be filled with mortar composed of one part Portland cement or blended hydraulic cement and two parts sand.

8-09.AP8

Section 8-09, Raised Pavement Markers
April 1, 2019

8-09.5 Payment

The last paragraph is revised to read:

> The unit Contract price per hundred for “Raised Pavement Marker Type 1”, “Raised Pavement Marker Type 2”, “Raised Pavement Marker Type 3_____ In.”, and “Recessed Pavement Marker” shall be full pay for furnishing and installing the markers in accordance with these Specifications.

8-11.AP8

Section 8-11, Guardrail
April 1, 2019

8-11.3(1)A Erection of Posts

The first sentence of the first paragraph is revised to read:

> Posts shall be set to the true line and grade of the Highway after the grade is in place and compaction is completed.

8-11.3(1)C Terminal and Anchor Installation

The first paragraph is revised to read:

> All excavation and backfilling required for installation of anchors shall be performed in accordance with Section 2-09, except that the costs thereof shall be included in the unit Contract price for the anchor installed.

The first sentence of the second to last paragraph is revised to read:

Assembly and installation of Beam Guardrail Non-flared Terminals for Type 31 guardrail shall be supervised at all times by a manufacturer's representative, or an installer who has been trained and certified by the manufacturer.

The last paragraph is revised to read:

Beam Guardrail Non-flared Terminals for Type 31 guardrail shall meet the crash test and evaluation criteria in the Manual for Assessing Safety Hardware (MASH).

8-11.4 Measurement

The third paragraph is revised to read:

Measurement of beam guardrail _____ terminal will be per each for the completed terminal.

The fourth paragraph is revised to read:

Measurement of beam guardrail Type 31 buried terminal Type 2 will be per linear foot for the completed terminal.

The sixth paragraph is revised to read:

Measurement of beam guardrail anchor Type 10 will be per each for the completed anchor, including the attachment of the anchor to the guardrail.

8-11.5 Payment

The Bid item "Beam Guardrail Anchor Type ___", per each is revised to read "Beam Guardrail Anchor Type 10", per each.

The Bid item "Beam Guardrail Buried Terminal Type 1", per each is deleted from this section.

The Bid item "Beam Guardrail Buried Terminal Type 2", per linear foot and the following paragraph are revised to read:

"Beam Guardrail Type 31 Buried Terminal Type 2", per linear foot.

The unit Contract price per linear foot for "Beam Guardrail Type 31 Buried Terminal Type 2" shall be full payment for all costs to obtain and provide materials and perform the Work as described in Section 8-11.3(1)C.

8-14.AP8

Section 8-14, Cement Concrete Sidewalks
April 2, 2018

8-14.2 Materials

In the first paragraph, the reference to "Portland Cement" is revised to read:

Cement 9-01

In the second paragraph, each reference to "Federal Standard 595" is revised to read "SAE AMS Standard 595".

8-16.AP8

Section 8-16, Concrete Slope Protection
April 2, 2018

8-16.2 Materials

In the first paragraph, the last two material references are revised to read:

Poured Portland Cement or Blended Hydraulic Cement Concrete Slope Protection	9-13.5(2)
Pneumatically Placed Portland Cement or Blended Hydraulic Cement Concrete Slope Protection	9-13.5(3)

8-17.AP8

Section 8-17, Impact Attenuator Systems
January 7, 2019

8-17.3 Construction Requirements

This section is supplemented with the following:

Permanent impact attenuators shall meet the crash test and evaluation criteria of the Manual for Assessing Safety Hardware (MASH), except as otherwise noted in the Plans or Special Provisions.

8-20.AP8

Section 8-20, Illumination, Traffic Signal Systems, Intelligent Transportation Systems, and Electrical
August 6, 2018

8-20.1(1) Regulations and Code

The last paragraph is revised to read:

Persons performing electrical Work shall be certified in accordance with and supervised as required by RCW 19.28.161. Proof of certification shall be worn at all times in accordance with WAC 296-46B-942. Persons failing to meet these certification requirements may not perform any electrical work, and shall stop any active electrical work, until their certification is provided and worn in accordance with this Section.

8-20.2(2) Equipment List and Drawings

This section is renumbered:

8-20.2(1) Equipment List and Drawings

8-20.3(4) Foundations

The second sentence of the first paragraph is revised to read:

Concrete for Type II, III, IV, V, and CCTV signal standards and light standard foundations shall be Class 4000P and does not require air entrainment.

8-20.3(5)A General

The last two sentences of the last paragraph is deleted.

This section is supplemented with the following:

All conduits shall include a pull tape with the equipment grounding conductor. The pull tape shall be attached to the conduit near the end bell or grounded end bushing, or to duct plugs or caps if present, at both ends of the conduit.

8-20.3(8) Wiring

The seventeenth paragraph is supplemented with the following:

Pulling tape shall meet the requirements of Section 9-29.1(10). Pull string may not be used.

8-20.3(14)C Induction Loop Vehicle Detectors

Item number 2 is deleted.

Item numbers 3 through 12 are renumbered to 2 through 11, respectively.

8-21.AP8

Section 8-21, Permanent Signing

January 7 2019

8-21.3(5) Sign Relocation

The second sentence of the first paragraph is revised to read:

Where the existing sign Structure is mounted on concrete pedestals, the Contractor shall remove the pedestal to a minimum of 2 feet below finished grade and backfill the remaining hole with material similar to that surrounding the hole.

8-21.3(9)F Foundations

Item number 3 of the twelfth paragraph is supplemented with the following new sentence:

Class 4000P concrete for roadside sign structures does not require air entrainment.

8-22.AP8

Section 8-22, Pavement Marking

January 7, 2019

8-22.3(2) Preparation of Roadway Surfaces

The second paragraph is revised to read:

Remove all other contaminants from pavement surfaces that may adversely affect the installation of new pavement marking.

8-22.3(3)F Application Thickness

The second to last sentence of the last paragraph is revised to read:

After grinding, clean the groove.

9-00.AP9

Section 9-00, Definitions and Tests
January 7, 2019

9-00.4 Sieves for Testing Purposes

This section is revised to read:

> Test sieves shall be made of either: (1) woven wire cloth conforming to ASTM E11, or (2) square-hole, perforated plates conforming to ASTM E323.

9-00.7 Galvanized Hardware, AASHTO M 232

The first sentence is revised to read:

> An acceptable alternate to hot-dip galvanizing in accordance with AASHTO M 232 will be zinc coatings mechanically deposited in accordance with ASTM B695, providing the minimum thickness of zinc coating is not less than that specified in AASHTO M 232, and the process will not produce hydrogen embrittlement in the base metal.

9-02.AP9

Section 9-02, Bituminous Materials
January 7, 2019

9-02.1 Asphalt Material, General

The second paragraph is revised to read:

> The Asphalt Supplier of Performance Graded (PG) asphalt binder and emulsified asphalt shall have a Quality Control Plan (QCP) in accordance with WSDOT QC 2 "Standard Practice for Asphalt Suppliers That Certify Performance Graded and Emulsified Asphalts". The Asphalt Supplier's QCP shall be submitted and receive the acceptance of the WSDOT State Materials Laboratory. Once accepted, any change to the QCP will require a new QCP to be submitted for acceptance. The Asphalt Supplier of PG asphalt binder and emulsified asphalt shall certify through the Bill of Lading that the PG asphalt binder or emulsified asphalt meets the Specification requirements of the Contract.

9-02.1(4) Performance Graded Asphalt Binder (PGAB)

This section's title is revised to read:

> **Performance Graded (PG) Asphalt Binder**

The first paragraph is revised to read:

> PG asphalt binder meeting the requirements of AASHTO M 332 Table 1 of the grades specified in the Contract shall be used in the production of HMA. For HMA with greater than 20 percent RAP by total weight of HMA, or any amount of RAS, the new asphalt binder, recycling agent and recovered asphalt (RAP and/or RAS) when blended in the proportions of the mix design shall meet the PG asphalt binder requirements of AASHTO M 332 Table 1 for the grade of asphalt binder specified by the Contract.

The second paragraph, including the table, is revised to read:

In addition to AASHTO M 332 Table 1 specification requirements, PG asphalt binders shall meet the following requirements:

		Additional Requirements by Performance Grade (PG) Asphalt Binders					
Property	Test Method	PG58S-22	PG58H-22	PG58V-22	PG64S-28	PG64H-28	PG64V-28
RTFO Residue: Average Percent Recovery @ 3.2 kPa	AASHTO T 350[1]			30% Min.	20% Min.	25% Min.	30% Min.
[1]Specimen conditioned in accordance with AASHTO T 240 – RTFO.							

The third paragraph is revised to read:

The RTFO J_{nrdiff} and the PAV direct tension specifications of AASHTO M 332 are not required.

9-02.1(6) Cationic Emulsified Asphalt

This section is revised to read:

Cationic Emulsified Asphalt meeting the requirements of AASHTO M 208 Table 1 of the grades specified in the Contract shall be used.

9-02.5 Warm Mix Asphalt (WMA) Additive

This section, including title, is revised to read:

9-02.5 HMA Additive

Additives for HMA shall be accepted by the Engineer.

9-03.AP9

Section 9-03, Aggregates
January 7, 2019

9-03.1 Aggregates for Portland Cement Concrete

This section's title is revised to read:

Aggregates for Concrete

9-03.1(1) General Requirements

The first two sentences of the first paragraph are revised to read:

Concrete aggregates shall be manufactured from ledge rock, talus, or sand and gravel in accordance with the provisions of Section 3-01. Reclaimed aggregate may be used if it complies with the specifications for concrete.

The second paragraph (up until the colon) is revised to read:

Aggregates for concrete shall meet the following test requirements:

The second sentence of the second to last paragraph is revised to read:

The Contractor shall submit test results according to ASTM C1567 through the Engineer to the State Materials Laboratory that demonstrate that the proposed fly ash when used with the proposed aggregates and cement will control the potential expansion to 0.20 percent or less before the fly ash and aggregate sources may be used in concrete.

9-03.1(2) Fine Aggregate for Portland Cement Concrete

This section's title is revised to read:

Fine Aggregate for Concrete

9-03.1(4) Coarse Aggregate for Portland Cement Concrete

This section's title is revised to read:

Coarse Aggregate for Concrete

9-03.1(4)C Grading

The first paragraph (up until the colon) is revised to read:

Coarse aggregate for concrete when separated by means of laboratory sieves shall conform to one or more of the following gradings as called for elsewhere in these Specifications, Special Provisions, or in the Plans:

9-03.1(5) Combined Aggregate Gradation for Portland Cement Concrete

This section's title is revised to read:

Combined Aggregate Gradation for Concrete

9-03.1(5)B Grading

In the last paragraph, "WSDOT FOP for WAQTC/AASHTO T 27/T 11" is revised to read "FOP for WAQTC/AASHTO T 27/T 11".

9-03.2 Aggregate for Job-Mixed Portland Cement Mortar

This section's title is revised to read:

Aggregate for Job-Mixed Portland Cement or Blended Hydraulic Cement Mortar

The first sentence of the first paragraph is revised to read:

Fine aggregate for portland cement or blended hydraulic cement mortar shall consist of sand or other inert materials, or combinations thereof, accepted by the Engineer, having hard, strong, durable particles free from adherent coating.

9-03.4(1) General Requirements

The first paragraph (up until the colon) is revised to read:

Aggregate for bituminous surface treatment shall be manufactured from ledge rock, talus, or gravel, in accordance with Section 3-01. Aggregates for Bituminous Surface Treatment shall meet the following test requirements:

9-03.8(1) General Requirements

The first paragraph (up until the colon) is revised to read:

Aggregates for Hot Mix Asphalt shall meet the following test requirements:

9-03.8(2) HMA Test Requirements

The two tables in the second paragraph are replaced with the following three tables:

Mix Criteria	HMA Class							
	⅜ inch		½ inch		¾ inch		1 inch	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Voids in Mineral Aggregate (VMA), %	15.0		14.0		13.0		12.0	
Voids Filled With Asphalt (VFA), %								
ESAL's (millions)	VFA							
< 0.3	70	80	70	80	70	80	67	80
0.3 to < 3	65	78	65	78	65	78	65	78
≥ 3	73	76	65	75	65	75	65	75
Dust/Asphalt Ratio	0.6	1.6	0.6	1.6	0.6	1.6	0.6	1.6

Test Method	**ESAL's (millions)**	Number of Passes
Hamburg Wheel-Track Testing, FOP for AASHTO T 324 Minimum Number of Passes with no Stripping Inflection Point and Maximum Rut Depth of 10mm	< 0.3	10,000
	0.3 to < 3	12,500
	≥ 3	15,000
Indirect Tensile (IDT) Strength (psi) of Bituminous Materials FOP for ASTM D6931		175 Maximum

	ESAL's (millions)	N initial	N design	N maximum
% Gmm	< 0.3	≤ 91.5	96.0	≤ 98.0
	0.3 to < 3	≤ 90.5	96.0	≤ 98.0
	≥ 3	≤ 89.0	96.0	≤ 98.0
Gyratory Compaction (number of gyrations)	< 0.3	6	50	75
	0.3 to < 3	7	75	115
	> 3	8	100	160

9-03.8(7) HMA Tolerances and Adjustments

In the table in item number 1, the fifth row is revised to read:

Asphalt binder	-0.4% to 0.5%		±0.7%

In the table in item number 1, the following new row is inserted before the last row:

Voids in Mineral Aggregate, VMA	-1.0%		

9-03.9(1) Ballast

The second paragraph (up until the colon) is revised to read:

Aggregates for ballast shall meet the following test requirements:

9-03.14(4) Gravel Borrow for Structural Earth Wall

The second sentence of the first paragraph is revised to read:

The material shall be substantially free of shale or other soft, poor durability particles, and shall not contain recycled materials, such as glass, shredded tires, concrete rubble, or asphaltic concrete rubble.

9-03.21(1)B Recycled Concrete Aggregate Approval and Acceptance

The first sentence of the second paragraph is revised to read:

Recycled concrete aggregate may be used as coarse aggregate or blended with coarse aggregate for Commercial Concrete, Class 3000 concrete, or Cement Concrete Pavement.

Item number 4 of the second paragraph is revised to read:

4. For Cement Concrete Pavement mix designs using recycled concrete aggregates, the Contractor shall submit evidence that ASR mitigating measures control expansion in accordance with Section 9-03.1(1).

This section is supplemented with the following new subsection:

9-03.21(1)B1 Recycled Concrete Aggregate Approval and Acceptance

Recycled concrete aggregate may be approved through a three tiered system that consists of the following:

Tier 1	
Approval Requirements	Approval of the Reclamation Facility is not required.
Acceptance Requirements	Certification of toxicity characteristics in accordance with Section 9-03.21(1). Field acceptance testing in accordance with Section 3-04.
Approved to provide the following Aggregate Materials:	
9-03.10 Aggregate for Gravel Base 9-03.12(1)B Gravel Backfill for Foundations Class B 9-03.12(2) Gravel Backfill for Walls 9-03.12(3) Gravel Backfill for Pipe Zone Bedding 9-03.14(1) Gravel Borrow 9-03.14(2) Select Borrow 9-03.14(2) Select Borrow (greater than 3 feet below subgrade and side slope) 9-03.14(3) Common Borrow 9-03.14(3) Common Borrow (greater than 3 feet below subgrade and side slope) 9-03.17 Foundation Material Class A and Class B 9-03.18 Foundation Material Class C 9-03.19 Bank Run Gravel for Trench Backfill	

Tier 2

Approval Requirements	The Reclamation Facility shall have a Quality Control Plan (QCP) in accordance with WSDOT QC 9 "Standard Practice for Approval of Reclamation Facilities of WSDOT Recycled Concrete and Returned Concrete". The Reclamation Facility's QCP shall be submitted and approved by the WSDOT State Materials Laboratory. Once accepted, any changes to the QCP will require a new QCP to be submitted for acceptance. Evaluation of aggregate source properties (LA Wear and Degradation) for the recycled concrete aggregate is not required.
Acceptance Requirements	Certification of toxicity characteristics in accordance with Section 9-03.21(1), required if requested. Field acceptance testing in accordance with Section 3-04 is required. Provide certification in accordance with WSDOT QC 9 for every lot. A lot shall be no larger than 10,000 tons.
Approved to provide the following Aggregate Materials:	
Tier 1 aggregate materials 9-03.1 Coarse Aggregate for Commercial Concrete or Concrete class 3000 9-03.9(1) Ballast 9-03.9(2) Permeable Ballast 9-03.9(3) Crushed Surfacing 9-03.12(1)A Gravel Backfill for Foundations Class A	

1

Tier 3	
Approval Requirements	The Reclamation Facility shall have a Quality Control Plan (QCP) in accordance with WSDOT QC 10 "Standard Practice for Approval of Reclamation Facilities of Recycled Concrete Aggregates from Stockpiles of Unknown Sources". The Reclamation Facility's QCP shall be submitted and approved by the WSDOT State Materials Laboratory. Once accepted, any changes to the QCP will require a new QCP to be submitted for acceptance. Evaluation of aggregate source properties (LA Wear and Degradation) for the recycled concrete aggregate is required.
Acceptance Requirements	Certification of toxicity characteristics in accordance with Section 9-03.21(1) is required. Field acceptance testing in accordance with Section 3-04 is required. Provide certification in accordance with WSDOT QC 10 for every lot. A lot shall be no larger than 10,000 tons
Approved to provide the following Aggregate Materials:	
Tier 1 aggregate materials 9-03.1 Coarse Aggregate for Commercial Concrete or Concrete class 3000 9-03.9(1) Ballast 9-03.9(2) Permeable Ballast 9-03.9(3) Crushed Surfacing 9-03.12(1)A Gravel Backfill for Foundations Class A	

2

For Reclamation Facilities that do not participate in Tier 2 and Tier 3, approval of recycled concrete aggregate will be in accordance with Section 9-03.21(1), and acceptance will be in accordance with Section 3-04.

9-03.21(1)E Table on Maximum Allowable percent (By Weight) of Recycled Material

"Portland Cement" is deleted from the first two rows in the table.

The following new row is inserted after the second row:

Coarse Aggregate for Concrete Pavement	9-03.1(4)	0	100	0	0

The first column of the fourth row (after the preceding Amendment is applied) is revised to read:

Coarse Aggregate for Commercial Concrete and Class 3000 Concrete

9-04.AP9

Section 9-04, Joint and Crack Sealing Materials
January 7, 2019

This section's title is revised to read:

Joint Sealing Materials

9-04.1(2) Premolded Joint Filler for Expansion Joints

In this section, each reference to "AASHTO T 42" is revised to read "ASTM D 545".

9-04.2(1)A1 Hot Poured Sealant for Cement Concrete Pavement

This section is supplemented with the following:

Hot poured sealant for cement concrete pavement is acceptable for installations in joints where cement concrete pavement abuts a bituminous pavement.

9-04.2(1)A2 Hot Poured Sealant for Bituminous Pavement

This section is supplemented with the following:

Hot poured sealant for bituminous pavement is acceptable for installations in joints where cement concrete pavement abuts a bituminous pavement.

9-04.2(1)B Sand Slurry for Bituminous Pavement

Item number 2 of the first paragraph is revised to read:

2. Two percent portland cement or blended hydraulic cement, and

9-04.3 Joint Mortar

The first paragraph is revised to read:

Mortar for hand mortared joints shall conform to Section 9-20.4(3) and consist of one part portland cement or blended hydraulic cement, three parts fine sand, and sufficient water to allow proper workability.

9-04.5 Flexible Plastic Gaskets

In the table, the Test Method value for **Specific Gravity at 77°F** is revised to read “ASTM D71”.

In the table, the Test Method value for **Flash Point COC, F** is revised to read “ASTM D93 REV A”.

In the table, the Test Method value for **Volatile Matter** is revised to read “ASTM D6”.

9-05.AP9

Section 9-05, Drainage Structures and Culverts
January 7, 2019

9-05.3(1)A End Design and Joints

The second sentence of the first paragraph is revised to read:

> The joints and gasket material shall meet the requirements of ASTM C990.

9-05.3(1)C Age at Shipment

The last sentence of the first paragraph is revised to read:

> Unless it is tested and accepted at an earlier age, it shall not be considered ready for shipment sooner than 28 days after manufacture when made with Type II portland cement or blended hydraulic cement, nor sooner than 7 days when made with Type III portland cement.

9-05.7(3) Concrete Storm Sewer Pipe Joints

The second sentence is revised to read:

> The joints and gasket material shall meet the requirements of ASTM C990.

9-05.7(4)A Hydrostatic Pressure on Pipes in Straight Alignment

The first sentence is revised to read:

> Hydrostatic pressure tests on pipes in straight alignment shall be made in accordance with the procedure outlined in Section 10 of ASTM C990, except that they shall be performed on an assembly consisting of not less than three nor more than five pipe sections selected from stock by the Engineer and assembled in accordance with standard installation instructions issued by the manufacturer.

9-05.24(1) Polypropylene Culvert Pipe and Storm Sewer Pipe

This section is revised to read:

> Polypropylene culvert and storm sewer pipe shall conform to the following requirements:
>
> 1. For dual wall pipe sizes up to 60 inches: ASTM F2881 or AASHTO M 330, Type S or Type D.
>
> 2. For double or triple wall pipe sizes up to 60 inches: ASTM F2764.

3. Fittings shall be factory welded, injection molded, or PVC.

9-05.24(2) Polypropylene Sanitary Sewer Pipe

This section is revised to read:

Polypropylene sanitary sewer pipe shall conform to the following requirements:

1. For pipe sizes up to 60 inches: ASTM F2764.

2. Fittings shall be factory welded, injection molded, or PVC.

9-06.AP9

Section 9-06, Structural Steel and Related Materials
January 7, 2019

9-06.5 Bolts

This section's title is revised to read:

Bolts and Rods

9-06.5(4) Anchor Bolts

This section, including title, is revised to read:

9-06.5(4) Anchor Bolts and Anchor Rods

Anchor bolts and anchor rods shall meet the requirements of ASTM F1554 and, unless otherwise specified, shall be Grade 105 and shall conform to Supplemental Requirements S2, S3, and S4.

Nuts for ASTM F1554 Grade 105 black anchor bolts and anchor rods shall conform to ASTM A563, Grade D or DH. Nuts for ASTM F1554 Grade 105 galvanized anchor bolts and anchor rods shall conform to either ASTM A563, Grade DH, or AASHTO M292, Grade 2H, and shall conform to the overtapping, lubrication, and rotational testing requirements in Section 9-06.5(3). Nuts for ASTM F1554 Grade 36 or 55 black or galvanized anchor bolts and anchor rods shall conform to ASTM A563, Grade A or DH. Washers shall conform to ASTM F436.

The bolts and rods shall be tested by the manufacturer in accordance with the requirements of the pertinent Specification and as specified in these Specifications. Anchor bolts, anchor rods, nuts, and washers shall be inspected prior to shipping to the project site. The Contractor shall submit to the Engineer for acceptance a Manufacturer's Certificate of Compliance for the anchor bolts, anchor rods, nuts, and washers, as defined in Section 1-06.3. If the Engineer deems it appropriate, the Contractor shall provide a sample of the anchor bolt, anchor rod, nut, and washer for testing.

All bolts, rods, nuts, and washers shall be marked and identified as required in the pertinent Specification.

9-06.15 Welded Shear Connectors

The third paragraph is revised to read:

Mechanical properties shall be determined in accordance with AASHTO T 244.

9-06.17 Vacant

This section, including title, is revised to read:

9-06.17 Noise Barrier Wall Access Door

Access door frames shall be formed of 14-gauge steel to the size and dimensions shown in the Plans. The access door frame head and jamb members shall be mitered, securely welded, and ground smooth. Each head shall have two anchors and each jamb shall have three anchors. The hinges shall be reinforced with ¼-inch by 12-inch plate, width equal to the full inside width of the frame.

Access doors shall be full flush 1-¾-inch thick seamless doors with a polystyrene core. Door faces shall be constructed with smooth seamless 14-gauge roller-levered, cold-rolled steel sheet conforming to ASTM A 792 Type SS, Grade 33 minimum, Coating Designation AZ55 minimum. The vertical edges shall be neat interlocked hemmed edge seam. The top and bottom of the door shall be enclosed with 14-gauge channels. Mortise and reinforcement for locks and hinges shall be 10-gauge steel. Welded top cap shall be ground and filled for exterior applications. The bottom channel shall have weep holes.

Each access door shall have three hinges. Access door hinges shall be ASTM A 276 Type 316 stainless steel, 4-½-inches square, with stainless steel ball bearing and non-removable pins.

Each access door shall have two pull plates. The pull plates shall be ASTM A 240 Type 316 stainless steel, with a grip handle of one-inch diameter and 8 to 10-inches in length.

The door assembly shall be fabricated and assembled as a complete unit including all hardware specified prior to shipment.

9-06.18 Metal Bridge Railing

The second sentence of the first paragraph is revised to read:

Steel used for metal railings, when galvanized after fabrication in accordance with AASHTO M111, shall have a controlled silicon content of either 0.00 to 0.06 percent or 0.15 to 0.25 percent.

9-07.AP9

Section 9-07, Reinforcing Steel
January 7, 2019

9-07.5(1) Epoxy-Coated Dowel Bars (for Cement Concrete Rehabilitation)

This section (including title) is revised to read:

9-07.5(1) Dowel Bars for Cement Concrete Pavement Rehabilitation

Dowel bars for Cement Concrete Pavement Rehabilitation shall be 1½ inch outside diameter plain round steel bars or tubular bars 18 inches in length and meet the requirements of one of the following dowel bar types:

1. Epoxy-coated dowel bars shall be round plain steel bars of the dimensions shown in the Standard Plans. They shall conform to AASHTO M31, Grade 60 or ASTM A615, Grade 60 and shall be coated in accordance with ASTM

A1078 Type 2 coating, except that the bars may be cut to length after being coated. Cut ends shall be coated in accordance with ASTM A1078 with a patching material that is compatible with the coating, inert in concrete and recommended by the coating manufacturer. The thickness of the epoxy coating shall be 10 mils plus or minus 2 mils. The Contractor shall furnish a written certification that properly identifies the coating material, the number of each batch of coating material used, quantity represented, date of manufacture, name and address of manufacturer, and a statement that the supplied coating material meets the requirements of ASTM A1078 Type 2 coating. Patching material, compatible with the coating material and inert in concrete and recommended by the manufacturer shall be supplied with each shipment for field repairs by the Contractor.

2. ASTM A513 steel tubes made from Grade 60 Carbon Steel Tube with a 1.625 inch outside diameter and a 0.120 inch wall thickness. Both the inside and outside of the tube shall be zinc coated with G40 galvanizing in accordance with ASTM A653. Following zinc coating the tubes shall be coated in accordance with Section 9-07.5(1) item 1. The ends of the tube shall be capped to prevent intrusion of concrete or other materials.

9-07.5(2) Corrosion Resistant Dowel Bars (for Cement Concrete Pavement and Cement Concrete Pavement Rehabilitation)

The first paragraph (up until the colon) is revised to read:

Corrosion resistant dowel bars shall be 1½ inch outside diameter plain round steel bars or tubular bars 18 inches in length and meet the requirements of one of the following:

Item number 4 and 5 of the first paragraph are revised to read:

4. Corrosion-resistant, low-carbon, chromium plain steel bars for concrete reinforcement meeting all the requirements of ASTM A 1035 Alloy Type CS Grade 100 or Alloy Type CS Grade 120.

5. Zinc Clad dowel bars shall be 1½ inch solid bars or 1.625 inch outside diameter by 0.120 inch wall tubular bars meeting the chemical and physical properties of AASHTO M 31, Grade 60, or AASHTO M 255, Grade 60. The bars shall have a minimum of 0.035 inches A710 Zinc alloy clad to the plain steel inner bar or tube. A710 Zinc shall be composed of: zinc: 99.5 percent, by weight, minimum; copper: 0.1-0.25 percent, by weight; and iron: 0.0020 percent, by weight, maximum. Each end of tubular bars shall be plugged using a snug-fitting insert to prohibit any intrusion of concrete or other materials.

The numbered list in the first paragraph is supplemented with the following:

6. Multicoated fusion bonded epoxy bars shall consist of an ASTM A615 bar with alternating layers of ASTM A934 coating and an abrasion resistant overcoat (ARO). The ASTM A934 coating shall form the base and there shall be two layers of each coating material. The minimum thickness of the combined layers of the ASTM A934 coating and ARO coating shall be 20 mils. The ARO shall meet the following requirements:

Test	Method	Specification

Gouge Resistance	NACE TM0215, 30 kg wt., LS-1 bit @ 25°C	< 0.22 mm
Gouge Resistance	NACE TM0215, 50 kg wt., LS-1 bit @ 25°C	< 0.44 mm

7. ASTM A513 steel tubes made from Grade 60 Carbon Steel Tube with a 1.625 inch outside diameter and a 0.120 inch wall thickness. Both the inside and outside of the tube shall be zinc coated with G90 galvanizing in accordance with ASTM A653. Following zinc coating the tubes shall be coated in accordance with Section 9-07.5(1) item 1. The ends of the tube shall be capped to prevent intrusion of concrete or other materials.

The last paragraph is revised to read:

Stainless Steel Clad and Stainless Steel Tube Dowel bar ends shall be sealed with a patching material (primer and finish coat) used for patching epoxy-coated reinforcing steel as required in Section 9-07.3, item 6.

9-07.7 Wire Mesh

This section is supplemented with the following:

Welded wire manufacturers shall participate in the NTPEP Audit Program for Reinforcing Steel (rebar) Manufacturers and shall be listed on the NTPEP audit program website displaying that they are NTPEP compliant.

9-08.AP9

Section 9-08, Paints and Related Materials
January 7, 2019

9-08.1(1) Description

The first sentence is revised to read:

Paint used for highway and bridge structure applications shall be made from materials meeting the requirements of the applicable Federal and State Paint Specifications, Department of Defense (DOD), American Society of Testing of Materials (ASTM), and The Society for Protective Coatings (SSPC) specifications in effect at time of manufacture.

9-08.1(2) Paint Types

This section is supplemented with the following new subsections:

9-08.1(2)M NEPCOAT Qualified Products List A

Qualified products used shall be part of a NEPCOAT system supplied by the same manufacturer.

9-08.1(2)N NEPCOAT Qualified Products List B

Qualified products used shall be part of a NEPCOAT system supplied by the same manufacturer.

9-08.1(2)D Organic Zinc-Rich Primer

This section, including title, is revised to read:

Vacant

9-08.1(2)E Epoxy Polyamide

This section is revised to read:

Epoxy polyamide shall be a two-component system conforming to MIL-DTL-24441 or SSPC Coating Standard No. 42.

9-08.1(2)H Top Coat, Single-Component, Moisture-Cured Polyurethane

This section is revised to read:

Vehicle Type: Moisture-cured aliphatic polyurethane.

Color and Gloss: Meet the SAE AMS Standard 595 Color as specified in the table below.

The Top Coat shall meet the following requirements:

The resin shall be an aliphatic urethane.

Minimum-volume solids 50 percent.

The top coat shall be semi-gloss.

Color	Semi-Gloss
Washington Gray	26357
Mt. Baker Gray	26134
Mt. St. Helens Gray	26306
Cascade Green	24158

9-08.1(2)I Rust-Penetrating Sealer

This section is revised to read:

Rust-penetrating sealer shall be a two-component, chemically-cured, 100 percent solids epoxy.

9-08.1(2)J Black Enamel

This section is revised to read:

The enamel shall conform to Federal Specification MIL PRF 24635E Type II Class 2.

9-08.1(2)K Orange Equipment Enamel

The first paragraph is revised to read:

The enamel shall be an alkyd gloss enamel conforming to Federal Specification MIL-PRF-24635E Type II Class 1. The color, when dry, shall match that of SAE AMS Standard 595, color number 12246.

9-08.1(2)L Exterior Acrylic Latex Paint-White

The first paragraph is revised to read:

This paint shall conform to Federal Specification MIL-PRF-24635E Type II Class 1, 2 or 3.

9-08.1(7) Acceptance

This section is revised to read:

For projects with moisture-cured polyurethane quantities less than 20 gallons, acceptance will be by the Manufacturer's Certificate of Compliance.

For projects with moisture-cured polyurethane quantities greater than 20 gallons, the product shall be listed in the current WSDOT Qualified Products List (QPL). If the lot number is listed on the QPL, it may be accepted without additional testing. If the lot number is not listed on the QPL, a 1 quart sample shall be submitted to the State Materials Laboratory for testing and acceptance.

For all other paint types, acceptance will be based on visual inspection.

9-08.1(8) Standard Colors

In the first paragraph, the reference to "Federal Standard 595" is revised to read "SAE AMS Standard 595".

The second paragraph is revised to read:

Unless otherwise specified, all top or finish coats shall be semi-gloss, with the paint falling within the range of 35 to 70 on the 60-degree gloss meter.

9-08.2 Powder Coating Materials for Coating Galvanized Surfaces

The last paragraph is revised to read:

Repair materials shall be as recommended by the powder coating manufacturer and as specified in the Contractor's powder coating plan as accepted by the Engineer.

9-08.3 Pigmented Sealer Materials for Coating of Concrete Surfaces

This section, including title, is revised to read:

9-08.3 Concrete Surface Treatments

9-08.3(1) Pigmented Sealer Materials

The pigmented sealer shall be a semi-opaque, colored toner containing only methyl methacrylate-ethyl acrylate copolymer resins, toning pigments suspended in solution at all times by a chemical suspension agent, and solvent. Toning pigments shall be laminar silicates, titanium dioxide, and inorganic oxides only. There shall be no settling or color variation. Tinting shall occur at the factory at the time of manufacture and placement in containers, prior to initial shipment. Use of vegetable or marine oils, paraffin materials, stearates, or organic pigments in any part of coating formulation will not be permitted. The color of pigmented sealer shall be as specified by the Contracting Agency. The Contractor shall submit a 1-quart wet sample, a drawdown color sample, and spectrophotometer or colorimeter readings taken in accordance with ASTM D2244, for each batch and corresponding standard color card. The calculated Delta E shall not exceed 1.5 from the Commission Internationale de l'Eclairage (CIELAB) when measured at 10 degrees Standard Observer and Illuminant D 65.

The 1-quart wet sample shall be submitted in the manufacturer's labeled container with product number, batch number, and size of batch. The companion drawdown

color sample shall be labeled with the product number, batch number, and size of batch. The Contractor shall submit the specified samples and readings to the Engineer at least 14 calendar days prior to the scheduled application of the sealer. The Contractor shall not begin applying pigmented sealer until receiving the Engineer's written approval of the pigmented sealer color samples.

9-08.3(2) Exposed Aggregate Concrete Coatings and Sealers

9-08.3(2)A Retardant Coating

Retardant coating shall exhibit the following properties:

1. Retards the set of the surface mortar of the concrete without preventing the concrete to reach the specified 28 day compressive strength.

2. Leaves the aggregate with its original color and luster, and firmly embedded in the concrete matrix.

3. Allows the removal of the surface mortar in accordance with the methods specified in Section 6-02.3(14)E without the use of acidic washing compounds.

4. Allows for uniform removal of the surface mortar.

If the Contractor proposes use of a retardant coating that is not listed in the current WSDOT QPL, the Contractor shall submit a Type 2 Working Drawing consisting of a one quart product sample from a current lot along with supporting product information, Safety Data Sheet, and a Manufacturer's Certificate of Compliance stating that the product conforms to the above performance requirements.

9-08.3(2)B Clear Sealer

The sealer for concrete surfaces with exposed aggregate finish shall be a clear, non-gloss, penetrating sealer of either a silane, siloxane, or silicone based formulation.

9-08.3(3) Permeon Treatment

Permeon treatment shall be a product of known consistent performance in producing the SAE AMS Standard 595 Color No. 30219 target color hue established by WSDOT, either selected from the WSDOT Qualified Products List (QPL), or an equivalent product accepted by the Engineer. For acceptance of products not listed in the current WSDOT QPL, the Contractor shall submit Type 3 Working Drawings consisting of a one quart product sample from a current lot, supporting product information and a Safety Data Sheet.

9-13.AP9

Section 9-13, Riprap, Quarry Spalls, Slope Protection, and Rock for Erosion and Scour Protection and Rock Walls
April 2, 2018

9-13.1(1) General

The last paragraph is revised to read:

Riprap and quarry spalls shall be free from segregation, seams, cracks, and other defects tending to destroy its resistance to weather and shall meet the following test requirements:

9-13.5 Concrete Slope Protection

This section is revised to read:

Concrete slope protection shall consist of reinforced portland cement or blended hydraulic cement concrete poured or pneumatically placed upon the slope with a rustication joint pattern or semi-open concrete masonry units placed upon the slope closely adjoining each other.

9-13.5(2) Poured Portland Cement Concrete Slope Protection

This section's title is revised to read:

Poured Portland Cement or Blended Hydraulic Cement Concrete Slope Protection

9-13.5(3) Pneumatically Placed Portland Cement Concrete Slope Protection

This section's title is revised to read:

Pneumatically Placed Portland Cement or Blended Hydraulic Cement Concrete Slope Protection

The first paragraph is revised to read:

Cement – This material shall be portland cement or blended hydraulic cement as specified in Section 9-01.

9-13.7(1) Rock for Rock Walls and Chinking Material

The first paragraph (up until the colon) is revised to read:

Rock for rock walls and chinking material shall be hard, sound and durable material, free from seams, cracks, and other defects tending to destroy its resistance to weather, and shall meet the following test requirements:

9-14.AP9

Section 9-14, Erosion Control and Roadside Planting
August 6, 2018

9-14.4(2) Hydraulically Applied Erosion Control Products (HECPs)

In Table 1, the last four rows are deleted.

9-14.4(2)A Long-Term Mulch

The first paragraph is supplemented with the following:

Products containing cellulose fiber produced from paper or paper components will not be accepted.

Table 2 is supplemented with the following new rows:

Water Holding Capacity	ASTM D 7367	800 percent minimum

Organic Matter Content	AASHTO T 267	90 percent minimum
Seed Germination Enhancement	ASTM D 7322	Long Term 420 percent minimum

9-14.4(2)B Moderate-Term Mulch

This section is revised to read:

Within 48 hours of application, the Moderate-Term Mulch shall bond with the soil surface to create a continuous, absorbent, flexible, erosion-resistant blanket. Moderate-Term Mulch shall effectively perform the intended erosion control function in accordance with Section 8-01.3(1) for a minimum of 3 months, or until temporary vegetation has been established, whichever comes first.

Moderate-Term Mulch shall not be used in conjunction with permanent seeding.

9-14.4(2)C Short-Term Mulch

This section is revised to read:

Short-Term Mulch shall effectively perform the intended erosion control function in accordance with Section 8-01.3(1) for a minimum of 2 months, or until temporary vegetation has been established, whichever comes first. Short-Term Mulch shall not be used in conjunction with permanent seeding.

9-16.AP9

Section 9-16, Fence and Guardrail
August 6, 2018

9-16.3(1) Rail Element

The last sentence of the first paragraph is revised to read:

All rail elements shall be formed from 12-gage steel except for thrie beam reducer sections, reduced length thrie beam rail elements, thrie beams used for bridge rail retrofits, and Design F end sections, which shall be formed from 10-gage steel.

9-16.3(5) Anchors

The last paragraph is revised to read:

Cement grout shall conform to Section 9-20.3(4) and consist of one part portland cement or blended hydraulic cement and two parts sand.

9-18.AP9

Section 9-18, Precast Traffic Curb
April 2, 2018

9-18.1(1) Aggregates and Proportioning

Item number 1 of the first paragraph is revised to read:

1. Portland cement or blended hydraulic cement shall conform to the requirements of Section 9-01 except that it may be Type I portland cement conforming to AASHTO M 85.

9-20.AP9

Section 9-20, Concrete Patching Material, Grout, and Mortar
April 1, 2019

9-20.1 Patching Material

This section, including title, is revised to read:

9-20.1 Patching Material for Cement Concrete Pavement

Concrete patching material shall be prepackaged mortar extended with aggregate. The amount of aggregate for extension shall conform to the manufacturer's recommendation.

Patching mortar and patching mortar extended with aggregate shall contain cementitious material and conform to Sections 9-20.1(1) and 9-20.1(2). The Manufacturer shall use the services of a laboratory that has an equipment calibration verification system and a technician training and evaluation process in accordance with AASHTO R 18 to perform all tests specified in Section 9-20.1.

9-20.1(1) Patching Mortar

Patching mortar shall conform to the following requirements:

Compressive Strength	ASTM Test Method	Specification
at 3 hours	C 39	Minimum 3,000 psi
at 24 hours	C 39	Minimum 5,000 psi
Length Change		
at 28 days	C 157	0.15 percent maximum
Total Chloride Ion Content	C 1218	1 lb/yd^3 maximum
Bond Strength		
at 24 hours	C 882 (As modified by C 928, Section 9.5)	Minimum 1,000 psi
Scaling Resistance (at 25 cycles of freezing and thawing)	C 672 (As modified by C 928, Section 9.4)	1 lb/ft^2 maximum

9-20.1(2) Patching Mortar Extended with Aggregate

Patching mortar extended with aggregate shall meet the following requirements:

Compressive Strength	ASTM Test Method	Specification
at 3 hours	C 39	Minimum 3,000 psi
at 24 hours	C 39	Minimum 5,000 psi
Length Change		
at 28 days	C 157	0.15 percent maximum
Bond Strength		
at 24 hours	C 882 (As modified by ASTM C928, Section 9.5)	Minimum 1,000 psi
Scaling Resistance (at 25 cycles of freezing and thawing)	C 672	2 Maximum Visual Rating
Freeze thaw	C 666	Maximum expansion 0.10% Minimum durability 90.0%

9-20.1(3) Aggregate

Aggregate used to extend the patching mortar shall conform to Section 9-03.1(4) and be AASHTO Grading No. 8. A Manufacturer's Certificate of Compliance shall be submitted showing the aggregate source and the gradation. Mitigation for Alkali Silica Reaction (ASR) will not be required for the extender aggregate used for concrete patching material.

9-20.1(4) Water

Water shall meet the requirements of Section 9-25.1. The quantity of water shall be within the limits recommended by the repair material manufacturer.

9-20.2 Specifications

This section, including title, is revised to read:

9-20.2 Patching Material for Concrete Structure Repair

Concrete patching material shall be a prepackaged mixture of portland or blended hydraulic cement, aggregate, and admixtures. Fly ash, ground granulated blast furnace slag and microsilica fume may be used. The concrete patching material may be shrinkage compensated. The concrete patching material shall also meet the following requirements:

- Compressive strength of 6000 psi or higher at 28 days in accordance with AASHTO T 22 (ASTM C 39), unless noted otherwise
- Bond strength of 250 psi or higher at 28 days or less in accordance with ASTM C 1583 or ICRI 210.3R
- Shrinkage shall be 0.05 percent (500 microstrain) or lower at 28 days in accordance with AASHTO T 160 (ASTM C 157) as modified by ICRI 320.3R
- Permeability shall be 2,000 coulombs or lower at 28 days in accordance with AASHTO T 277 (ASTM C 1202)
- Freeze-thaw resistance shall have a durability factor of 90 percent or higher after a minimum of 300 cycles in accordance with AASHTO T 161 Procedure A (ASTM C 666)
- Soluble chloride ion limits in Section 6-02.3(2) shall be satisfied

9-20.2(1) Patching Mortar

This section, including title, is deleted in its entirety.

9-20.2(2) Patching Mortar Extended with Aggregate

This section, including title, is deleted in its entirety.

9-20.3(3) Grout Type 3 for Unconfined Bearing Pad Applications

This section's title is revised to read:

Grout Type 3 for Unconfined Applications

This section is revised to read:

Grout Type 3 shall be a prepackaged material that does not include expansive admixtures meeting the following requirements:

- Compressive strength shall be 4000 psi or higher at 28 days in accordance with AASHTO T 22 (ASTM C 39) for grout extended with coarse aggregate or AASHTO T 106 (ASTM C109) otherwise.

- Bond strength shall meet one of the following:

  - 250 psi or higher at 28 days or less in accordance with ASTM C1583.

  - 2000 psi or higher at 28 days or less in accordance with ASTM C882. The following modification to ASTM C882 is acceptable: use Type 3 Grout in lieu of epoxy resin base bonding system and freshly mixed portland-cement mortar in the procedure for testing Type II and V systems.

- Drying shrinkage shall be 0.08 percent (800 microstrain) or lower at 28 days in accordance with AASHTO T 160 (ASTM C157). The following modification to AASHTO T 160 is acceptable: use a standard specimen size of 3 x 3 x 11-¼ inches.

9-20.5 Bridge Deck Repair Material

Item number 3 of the first paragraph is revised to read:

3. Permeability of less than 2,000 coulombs at 28-days or more in accordance with AASHTO T 277.

9-21.AP9

Section 9-21, Raised Pavement Markers (RPM)
January 2, 2018

9-21.2 Raised Pavement Markers Type 2

This section's content is deleted.

9-21.2(1) Physical Properties

This section, including title, is revised to read:

9-21.2(1) Standard Raised Pavement Markers Type 2

The marker housing shall contain reflective faces as shown in the Plans to reflect incident light from either a single or opposite directions and meet the requirements of ASTM D 4280 including Flexural strength requirements.

9-21.2(2) Optical Requirements

This section, including title, is revised to read:

9-21.2(2) Abrasion Resistant Raised Markers Type 2

Abrasion Resistant Raised Markers Type 2 shall comply with Section 9-21.2(1) and meet the requirements of ASTM D 4280 with the following additional requirement: The coefficient of luminous intensity of the markers shall be measured after subjecting the entire lens surface to the test described in ASTM D 4280 Section 9.5 using a sand drop

apparatus. After the exposure described above, retroreflected values shall not be less than 0.5 times a nominal unblemished sample.

9-21.2(3) Strength Requirements

This section is deleted in its entirety.

9-23.AP9

Section 9-23, Concrete Curing Materials and Admixtures

April 1, 2019

9-23.12 Natural Pozzolan

This section is revised to read:

> Natural Pozzolans shall be ground Pumice and shall conform to the requirements of AASHTO M295 Class N, including supplementary optional chemical requirements as set forth in Table 2.

9-23.13 Blended Supplementary Cementitious Material

The second sentence is revised to read:

> Blended SCMs shall be limited to binary or ternary blends of fly ash, ground granulated blast furnace slag and microsilica fume.

The second to last sentence is deleted.

9-26.AP9

Section 9-26, Epoxy Resins

January 7, 2019

9-26.1(1) General

The following new sentence is inserted after the first sentence of the first paragraph:

> For pre-packaged cartridge kits, the epoxy bonding agent shall meet the requirements of ASTM C881 when mixed according to manufacturer instructions, utilizing the manufacturer's mixing nozzle.

9-26.1(2) Packaging and Marking

The first sentence of the first paragraph is revised to read:

> The components of the epoxy system furnished under these Specifications shall be supplied in separate containers or pre-packaged cartridge kits that are non-reactive with the materials contained.

The second paragraph is revised to read:

> Separate containers shall be marked by permanent marking that identify the formulator, "Component A" (contains the Epoxy Resin) and "Component B" (Contains the Curing Agent), type, grade, class, lot or batch number, mixing instructions and the quantity contained in pounds or gallons as defined by these Specifications.

The following new paragraph is inserted after the second paragraph:

Pre-packaged cartridge kits shall be marked by permanent marking that identify the formulator, type, grade, class, lot or batch number, mixing instructions and the quantity contained in ounces or milliliters as defined by these Specifications.

9-28.AP9

Section 9-28, Signing Materials and Fabrication
April 1, 2019

9-28.2 Manufacturer's Identification and Date

The second sentence is revised to read:

In addition, the width and height dimension, in inches, the Contract number, and the number of the sign as it appears in the Plans shall be placed using 3-inch series C black letters on the back of destination, distance, and large special signs.

9-28.10 Vacant

This section, including title, is revised to read:

9-28.10 Digital Printing

Transparent and opaque durable inks used in digital printed sign messages shall be as recommended by the manufacturer. When properly applied, digital printed colors shall have a warranty life of the base retroreflective sign sheeting. Digital applied colors shall present a smooth surface, free from foreign material, and all messages and borders shall be clear and sharp. Digital printed signs shall conform to 70% of the retroreflective minimum values established for its type and color. Digitally printed signs shall meet the daytime color and luminance, and nighttime color requirements of ASTM D 4956. No variations in color or overlapping of colors will be permitted. Digital printed permanent traffic signs shall have an integrated engineered match component clear protective overlay recommended by the sheeting manufacturer applied to the entire face of the sign. On Temporary construction/maintenance signs printed with black ink only, the protective overlay film is optional, as long as the finished sign has a warranty of a minimum of three years from sign sheeting manufacturer.

All digital printed traffic control signs shall be an integrated engineered match component system. The integrated engineered match component system shall consist of retroreflective sheeting, durable ink(s), and clear overlay film all from the same manufacturer applied to aluminum substrate conforming to Section 9-28.8.

The sign fabricator shall use an approved integrated engineered match component system as listed on the Qualified Products List (QPL). Each approved digital printer shall only use the compatible retroreflective sign sheeting manufacturer's engineered match component system products.

Each retroreflective sign sheeting manufacturer/integrated engineered match component system listed on the QPL shall certify a department approved sign fabricator is approved to operate their compatible digital printer. The sign fabricator shall re-certify annually with the retroreflective sign manufacturer to ensure their digital printer is still meeting manufacturer's specifications for traffic control signs. Documentation of each re-certification shall be submitted to the QPL Engineer annually.

9-28.11 Hardware

The last paragraph is revised to read:

> All steel parts shall be galvanized in accordance with AASHTO M111. Steel bolts and related connecting hardware shall be galvanized in accordance with ASTM F 2329.

9-28.14(2) Steel Structures and Posts

The first sentence of the third paragraph is revised to read:

> Anchor rods for sign bridge and cantilever sign structure foundations shall conform to Section 9-06.5(4), including Supplemental Requirement S4 tested at -20°F.

In the second sentence of the fourth paragraph, “AASHTO M232” is revised to read “ASTM F 2329”.

The first sentence of the fifth paragraph is revised to read:

> Except as otherwise noted, steel used for sign structures and posts shall have a controlled silicon content of either 0.00 to 0.06 percent or 0.15 to 0.25 percent.

The last sentence of the last paragraph is revised to read:

> If such modifications are contemplated, the Contractor shall submit a Type 2 Working Drawing of the proposed modifications.

9-29.AP9

Section 9-29, Illumination, Signal, Electrical
April 1, 2019

9-29.1 Conduit, Innerduct, and Outerduct

This section is supplemented with the following new subsections:

9-29.1(10) Pull Tape

Pull tape shall be pre-lubricated polyester pulling tape. The pull tape shall have a minimum width of ½-inch and a minimum tensile strength of 500 pounds. Pull tape may have measurement marks.

9-29.1(11) Foam Conduit Sealant

Foam conduit sealant shall be self-expanding waterproof foam designed to prevent both water and pest intrusion. The foam shall be designed for use in and around electrical equipment, including both insulated and bare conductors.

9-29.2(1) Junction Boxes

The first paragraph is revised to read:

> For the purposes of this Specification concrete is defined as portland cement or blended hydraulic cement concrete and non-concrete is all others.

9-29.2(1)A2 Non-Concrete Junction Boxes

The first paragraph is revised to read:

Material for the non-concrete junction boxes shall be of a quality that will provide for a similar life expectancy as portland cement or blended hydraulic cement concrete in a direct burial application.

9-29.2(2)A Standard Duty Cable Vaults and Pull Boxes

In the table in the last paragraph, the fourth, fifth and sixth rows are revised to read:

Slip Resistant Lid	ASTM A36 steel
Frame	ASTM A36 steel
Slip Resistant Frame	ASTM A36 steel

9-29.3(2)A1 Single Conductor Current Carrying

This second sentence is revised to read:

Insulation shall be XLP (cross-linked polyethylene) or EPR (Ethylene Propylene Rubber), Type USE (Underground Service Entrance) or USE-2, and rated for 600-volts or higher.

9-29.6 Light and Signal Standards

In the first sentence of the third paragraph, “AASHTO M232” is revised to read “ASTM F 2329”.

Item number 2 of the last paragraph is revised to read:

2. The steel light and signal standard fabricator’s shop drawing submittal, including supporting design calculations, submitted as a Type 2E Working Drawing in accordance with Section 8-20.2(1) and the Special Provisions.

9-29.6(1) Steel Light and Signal Standards

In the second paragraph, “AASHTO M232” is revised to read “ASTM F 2329”.

The first sentence of the last paragraph is revised to read:

Steel used for light and signal standards shall have a controlled silicon content of either 0.00 to 0.06 percent or 0.15 to 0.25 percent.

9-29.6(5) Foundation Hardware

In the last paragraph, “AASHTO M232” is revised to read “ASTM F 2329”.

9-29.10(1) Conventional Roadway Luminaires

This section is revised to read:

All conventional roadway luminaires shall meet 3G vibration requirements as described in ANSI C136.31.

All luminaires shall have housings fabricated from aluminum. The housing shall be painted flat gray, SAE AMS Standard 595 color chip No. 26280, unless otherwise specified in the Contract. Painted housings shall withstand a 1,000 hour salt spray test as specified in ASTM B117.

Each housing shall include a four bolt slip-fitter mount capable of accepting a nominal 2" tenon and adjustable within +/- 5 degrees of the axis of the tenon. The clamping bracket(s) and the cap screws shall not bottom out on the housing bosses when adjusted within the +/- 5 degree range. No part of the slipfitter mounting brackets on the luminaires shall develop a permanent set in excess of 0.2 inch when the cap screws used for mounting are tightened to a torque of 32 foot-pounds. Each luminaire shall include leveling reference points for both transverse and longitudinal adjustment.

All luminaires shall include shorting caps when shipped. The caps shall be removed and provided to the Contracting Agency when an alternate control device is required to be installed in the photocell socket. House side shields shall be included when required by the Contract. Order codes shall be modified to the minimum extent necessary to include the option for house side shields.

This section is supplemented with the following new subsections:

9-29.10(1)A High Pressure Sodium (HPS) Conventional Roadway Luminaires

HPS conventional roadway luminaires shall meet the following requirements:

1. General shape shall be "cobrahead" style, with flat glass lens and full cutoff optics.

2. Light pattern distribution shall be IES Type III.

3. The reflector of all luminaires shall be of a snap-in design or secured with screws. The reflector shall be polished aluminum or prismatic borosilicate glass.

4. Flat lenses shall be formed from heat resistant, high-impact, molded borosilicate or tempered glass.

5. The lens shall be mounted in a doorframe assembly, which shall be hinged to the luminaire and secured in the closed position to the luminaire by means of an automatic latch. The lens and doorframe assembly, when closed, shall exert pressure against a gasket seat. The lens shall not allow any light output above 90 degrees nadir. Gaskets shall be composed of material capable of withstanding the temperatures involved and shall be securely held in place.

6. The ballast shall be mounted on a separate exterior door, which shall be hinged to the luminaire and secured in the closed position to the luminaire housing by means of an automatic type of latch (a combination hex/slot stainless steel screw fastener may supplement the automatic-type latch).

7. Each luminaire shall be capable of accepting a 150, 200, 250, 310, or 400 watt lamp complete and associated ballast. Lamps shall mount horizontally.

9-29.10(1)B Light Emitting Diode (LED) Conventional Roadway Luminaires

LED Conventional Roadway Luminaires are divided into classes based on their equivalent High Pressure Sodium (HPS) luminaires. Current classes are 200W, 250W, 310W, and 400W. LED luminaires are required to be pre-approved in order to verify their photometric output. To be considered for pre-approval, LED luminaires must meet the requirements of this section.

LED luminaires shall include a removable access door, with tool-less entry, for access to electronic components and the terminal block. The access door shall be removable, but include positive retention such that it can hang freely without disconnecting from the luminaire housing. LED drivers may be mounted either to the interior of the luminaire housing or to the removable door itself.

LED drivers shall be removable for user replacement. All internal modular components shall be connected by means of mechanical plug and socket type quick disconnects. Wire nuts may not be used for any purpose. All external electrical connections to the luminaire shall be made through the terminal block.

LED luminaires shall include a 7-pin NEMA photocell receptacle. The LED driver(s) shall be dimmable from ten volts to zero volts. LED output shall have a Correlated Color Temperature (CCT) of 4000K nominal (4000-4300K) and a Color Rendering Index (CRI) of 70 or greater. LED output shall be a minimum of 85% at 75,000 hours at 25 degrees Celsius.

LED luminaires shall be available for 120V, 240V, and 480V supply voltages. Voltages refer to the supply voltages to the luminaires present in the field. LED power usage shall not exceed the following maximum values for the applicable wattage class:

Class	Max. Wattage
200W	110W
250W	165W
310W	210W
400W	275W

Only one brand of LED conventional roadway luminaire may be used on a Contract. They do not necessarily have to be the same brand as any high-mast, underdeck, or wall-mount luminaires when those types of luminaires are specified in the Contract. LED luminaires shall include a standard 10 year manufacturer warranty.

The list of pre-approved LED Conventional Roadway Luminaires is available at http://www.wsdot.wa.gov/Design/Traffic/ledluminaires.htm.

9-29.10(2) Decorative Luminaires

This section, including title, is revised to read:

9-29.10(2) Vacant

9-29.12 Electrical Splice Materials

This section is supplemented with the following new subsections:

9-29.12(3) Splice Enclosures

9-29.12(3)A Heat Shrink Splice Enclosure

Heat shrink splice enclosures shall be medium or heavy wall cross-linked polyolefin, meeting the requirements of AMS-DTL-23053/15, with thermoplastic adhesive sealant. Heat shrink splices used for “wye” connections require rubber electrical mastic tape.

9-29.12(3)B Molded Splice Enclosure

Molded splice enclosures shall use epoxy resin in a clear rigid plastic mold. The material used shall be compatible with the insulation material of the insulated conductor or cable. The component materials of the resin insulation shall be packaged ready for convenient mixing without removing from the package.

9-29.12(4) Re-Enterable Splice Enclosure

Re-enterable splice enclosures shall use either dielectric grease or a flexible resin contained in a two-piece plastic mold. The mold shall either snap together or use stainless steel hose clamps.

9-29.12(5) Vinyl Electrical Tape for Splices

Vinyl electrical tape in splicing applications shall meet the requirements of MIL-I-24391C.

9-29.12(1) Illumination Circuit Splices

This section is revised to read:

Underground illumination circuit splices shall be solderless crimped connections capable of securely joining the wires, both mechanically and electrically, as defined in Section 8-20.3(8). Aerial illumination splices shall be solderless crimp connectors or split bolt vice-type connectors.

9-29.12(1)A Heat Shrink Splice Enclosure

This section is deleted in its entirety.

9-29.12(1)B Molded Splice Enclosure

This section is deleted in its entirety.

9-29.12(2) Traffic Signal Splice Material

This section is revised to read:

Induction loop splices and magnetometer splices shall use an uninsulated barrel-type crimped connector capable of being soldered.

9-29.13(10)D Cabinets for Type 170E and 2070 Controllers

The first sentence of item number 4 is revised to read:

A disposable paper filter element with dimensions of 12” × 16” × 1” shall be provided in lieu of a metal filter.

Item number 6 is revised to read:

6. LED light strips shall be provided for cabinet lighting, powered from the Equipment breaker on the Power Distribution Assembly. Each LED light strip shall be approximately 12 inches long, have a minimum output of 320 lumens, and have a color temperature of 4100K (cool white) or higher. There shall be three light strips for each rack within the cabinet. Lighting shall be ceiling mounted – rack mounted lighting is not permitted. Light strips shall be installed in the locations shown in the Standard Plans. Lighting shall not interfere with the proper operation of any other ceiling mounted equipment. All lighting fixtures above a rack shall energize

automatically when either door to that respective rack is opened. Each door switch shall be labeled “Light”.

Item number 7 is revised to read:

7. Rack mounted equipment shall be as shown in the Standard Plans. The cabinet shall use PDA #2LX and Output File #1LX. Where an Auxiliary Output File is required, Output File #2LX shall also be included.

This section is supplemented with the following new item:

9. The PCB connectors for Field Terminal Blocks FT1 through FT6 on Output Files #1LX and #2LX shall be capable of accepting minimum 14 AWG field wiring, have a pitch of 5.08 mm, and use screw flange type locking to secure the plug and socket connection. The sockets on the Field Terminal Panel shall be secured to the panel such that unplugging a connector will not result in the socket moving or separating from the panel.

9-29.13(11) Traffic Data Accumulator and Ramp Meters

Item number 2 is revised to read:

2. Rack mounted equipment shall be as shown in the Standard Plans.

Item number 3 is revised to read:

3. PDA #3LX shall be furnished with three Model 200 Load Switches installed. PDA #3LX shall be modified to include a second Model 430 transfer relay, mounted on the rear of the PDA and wired as shown in the Standard Plans.

9-29.13(12) ITS Cabinet

This section’s title is revised to read:

Type 331L ITS Cabinet

The first paragraph (excluding the numbered list) is revised to read:

Basic ITS cabinets shall be Model 331L Cabinets, unless otherwise specified in the Contract. Type 331L Cabinets shall be constructed in accordance with the TEES, with the following modifications:

Item number 6 of the first paragraph is revised to read:

6. LED light strips shall be provided for cabinet lighting, powered from the Equipment breaker on the Power Distribution Assembly. Each LED light strip shall be approximately 12 inches long, have a minimum output of 320 lumens, and have a color temperature of 4100K (cool white) or higher. There shall be three light strips for each rack within the cabinet. Lighting shall be ceiling mounted – rack mounted lighting is not permitted. Light strips shall be installed in the locations shown in the Standard Plans. Lighting shall not interfere with the proper operation of any other ceiling mounted equipment. All lighting fixtures above a rack shall energize automatically when either door to that respective rack is opened. Each door switch shall be labeled “Light”.

9-29.16(2)E Painting Signal Heads

In the first sentence, “Federal Standard 595” is revised to read “SAE AMS Standard 595”.

9-29.17 Signal Head Mounting Brackets and Fittings

In the first paragraph, item number 2 under **Stainless Steel** is revised to read:

2. Bands or cables for Type N mount.

9-29.20 Pedestrian Signals

In item 2C of the second paragraph, “Federal Standard 595” is revised to read “SAE AMS Standard 595”.

9-29.24 Service Cabinets

The third sentence of item number 6 is revised to read:

> The dead front cover shall have cutouts for the entire breaker array, with blank covers where no circuit breakers are installed.

Item number 8 is revised to read:

8. Lighting contactors shall meet the requirements of Section 9-29.24(2).

The last sentence of item number 10 is revised to read:

> Dead front panels shall prevent access to any exposed, live components, and shall cover all equipment except for circuit breakers (including blank covers), the photocell test/bypass switch, and the GFCI receptacle.

9-29.24(2) Electrical Circuit Breakers and Contactors

This section is revised to read:

> All circuit breakers shall be bolt-on type, with the RMS-symmetrical interrupting capacity described in this Section. Circuit breakers for 120/240/277 volt circuits shall be rated at 240 or 277 volts, as applicable, with an interrupting capacity of not less than 10,000 amperes. Circuit breakers for 480 volt circuits shall be rated at 480 volts, and shall have an interrupting capacity of not less than 14,000 amperes.
>
> Lighting contactors shall be rated for tungsten or ballasted (such as sodium vapor, mercury vapor, metal halide, and fluorescent) lamp loads. Contactors for 120/240/277 volt circuits shall be rated at 240 volts maximum line to line voltage, or 277 volts maximum line to neutral voltage, as applicable. Contactors for 480 volt circuits shall be rated at 480 volt maximum line to line voltage.

9-33.AP9

Section 9-33, Construction Geosynthetic
August 6, 2018

9-33.4(1) Geosynthetic Material Approval

The second sentence of the first paragraph is revised to read:

If the geosynthetics material is not listed in the current WSDOT QPL, a Manufacturer's Certificate of Compliance including Certified Test Reports of each proposed geosynthetic shall be submitted to the State Materials Laboratory in Tumwater for evaluation.

The last paragraph is revised to read:

Geosynthetics used as reinforcement in permanent geosynthetic retaining walls, reinforced slopes, reinforced embankments, and other geosynthetic reinforcement applications require proof of compliance with the National Transportation Product Evaluation Program (NTPEP) in accordance with AASHTO Standard Practice R 69, Standard Practice for Determination of Long-Term Strength for Geosynthetic Reinforcement.

9-34.AP9

Section 9-34, Pavement Marking Material
January 7, 2019

9-34.2(2) Color

The first sentence is revised to read:

Paint draw-downs shall be prepared according to ASTM D823.

Each reference to "Federal Standard 595" is revised to read "SAE AMS Standard 595".

9-34.2(3) Prohibited Materials

This section is revised to read:

Traffic paint shall not contain mercury, lead, chromium, diarylide pigments, toluene, chlorinated solvents, hydrolysable chlorine derivatives, ethylene-based glycol ethers and their acetates, nor any other EPA hazardous waste material over the regulatory levels in accordance with CFR 40 Part 261.24.

9-34.2(5) Low VOC Waterborne Paint

The heading "Standard Waterborne Paint" is supplemented with "Type 1 and 2".

The heading "High-Build Waterborne Paint" is supplemented with "Type 4".

The heading "Cold Weather Waterborne Paint" is supplemented with "Type 5".

In the row beginning with "° @90°F", each minimum value is revised to read "60".

In the row beginning with "Fineness of Grind, (Hegman Scale)", each minimum value is revised to read "3".

The last four rows are replaced with the following:

Vehicle Composition	ASTM D 2621	100% acrylic emulsion	100% cross-linking acrylic[4]	100% acrylic emulsion
Freeze-Thaw Stability, KU	ASTM D 2243 and D 562	@ 5 cycles show no coagulation or change	@ 5 cycles show no coagulation or change	@ 3 cycles show no coagulation or change

		in viscosity greater than ± 10 KU	in viscosity greater than ± 10 KU	in viscosity greater than ± 10 KU
Heat Stability	ASTM D 562[2]	± 10 KU from the initial viscosity	± 10 KU from the initial viscosity	± 10 KU from the initial Viscosity
Low Temperature Film Formation	ASTM D 2805[3]	No Cracks*		No Cracks
Cold Flexibility[5]	ASTM D522	Pass at 0.5 in mandrel*		
Test Deck Durability[6]	ASTM D913	≥70% paint retention in wheel track*		
Mud Cracking	(See note 7)	No Cracks	No Cracks	

After the preceding Amendments are applied, the following new column is inserted after the "Standard Waterborne Paint Type 1 and 2" column:

Semi-Durable Waterborne Paint Type 3			
White		Yellow	
Min.	Max.	Min.	Max.
Within ± 0.3 of qualification sample			
80	95	80	95
60		60	
77		77	
	65		65
43		43	
	1.25		1.25
3		3	
0.98		0.96	
88		50	
100°		100°	
9.5		9.5	
	10		10
100% acrylic emulsion			
@ 5 cycles show no coagulation or change in viscosity greater than ± 10 KU			
± 10 KU from the initial viscosity			
No Cracks			
Pass at 0.25 in mandrel			
≥70% paint retention in wheel track			
No Cracks			

The footnotes are supplemented with the following:

[4]Cross-linking acrylic shall meet the requirements of federal specification TT-P-1952F Section 3.1.1.

[5]Cold Flexibility: The paint shall be applied to an aluminum panel at a wet film thickness of 15 mils and allowed to dry under ambient conditions (50±10% RH and 72±5 ˚F) for 24 hours. A cylindrical mandrel apparatus (in accordance with ASTM D522 method B) shall be put in a 40°F refrigerator when the paint is drawn down. After 24 hours, the aluminum panel with dry paint shall be put in the 40°F refrigerator with the mandrel apparatus for 2 hours. After 2 hours, the panel and test apparatus shall be removed and immediately tested to according to ASTM D522 to evaluate cold flexibility. Paint must

show no evidence of cracking, chipping or flaking when bent 180 degrees over a mandrel bar of specified diameter.

[6]NTPEP test deck, or a test deck conforming to ASTM D713, shall be conducted for a minimum of six months with the following additional requirements: it shall be applied at 15 wet mils to a test deck that is located at 40N latitude or higher with at least 10,000 ADT and which was applied during the months of September through November.

[7]Paint is applied to an approximately 4”x12” aluminum panel using a drawdown bar with a 50 mil gap. The coated panel is allowed to dry under ambient conditions (50±10% RH and 72±5 ˚F) for 24 hours. Visual evaluation of the dry film shall reveal no cracks.

9-34.3 Plastic

In the first sentence of the last paragraph, “Federal Standard 595” is revised to read “SAE AMS Standard 595”.

9-34.3(2) Type B – Pre-Formed Fused Thermoplastic

In the last two paragraphs, each reference to “Federal Standard 595” is revised to read “SAE AMS Standard 595”.

9-34.3(4) Type D – Liquid Cold Applied Methyl Methacrylate

The Test Method value for **Adhesion to PCC or HMA, psi** is revised to read “ASTM D4541[1]”.

9-34.4 Glass Beads for Pavement Marking Materials

In the Test Method column of the table titled Metal Concentration Limits, “EPA 3052 SW-846 6010C” is revised to read “EPA 3052 SW-846 6010D”.

9-34.5(1) Temporary Pavement Marking Tape – Short Duration

This section, including title, is revised to read:

9-34.5(1) Temporary Pavement Marking Tape – Short Duration (Removable)
Temporary pavement marking tape for short duration (usage is for up to two months) shall conform to ASTM D4592 Type I except that black tape, black mask tape and the black portion of the contrast removable tape, shall be non-reflective.

9-34.5(2) Temporary Pavement Marking Tape – Long Duration

This section’s title is revised to read:

Temporary Pavement Marking Tape – Long Duration (Non-Removable)

The first sentence is revised to read:

Temporary pavement marking tape for long duration (usage is for greater than two months and less than one year) shall conform to ASTM D4592 Type II.

ASTM E2176 is deleted from the second sentence.

9-34.7(1) Requirements

The first paragraph is revised to read:

Field performance evaluation is required for low VOC solvent-based paint per Section 9-34.2(4), Type A – liquid hot applied thermoplastic per Section 9-34.3(1), Type B – preformed fused thermoplastic per Section 9-34.3(2), Type C – cold applied preformed tape per Section 9-34.3(3), and Type D – liquid applied methyl methacrylate per Section 9-34.3(4).

The last paragraph is deleted.

9-34.7(1)C Auto No-Track Time

The first paragraph is revised to read:

Auto No-Track Time will only be required for low VOC solvent-based paint in accordance with Section 9-34.2(4).

The second and third sentences of the second paragraph are deleted.

GENERAL CONDITIONS
(00 72 00)

City of Kirkland

PART 1 – GENERAL

GENERAL

A. The work on this project shall be accomplished in accordance with the Standard Specifications for Road, Bridge and Municipal Construction, **2018** edition, as issued by the Washington State Department of Transportation (WSDOT) and the American Public Works Association (APWA), Washington State Chapter (hereafter "Standard Specifications"). The Standard Specifications, as modified or supplemented by the Amendments to the Standard Specifications and these General Conditions, all of which are made a part of the Contract Documents, shall govern all of the Work.

B. These General Conditions supersede any conflicting provisions of the Standard Specifications, and the foregoing Amendments to the Standard Specifications.

C. The accompanying Plans and these Specifications and any Addenda thereto, show and describe the location and type of work to be performed under the **Totem Lake Park – Phase 1 Project**.

D. These General Conditions are made up of both Provisions from various sources. Each Provision supplements, modifies, or replaces the comparable Standard Specification, or is a new Provision. The deletion, amendment, alteration, or addition to any subsection or portion of the Standard Specifications is meant to pertain only to that particular portion of the section, and in no way should it be interpreted that the balance of the section does not apply.

E. The titles of headings of the Sections and subsections herein are intended for convenience or reference and shall not be considered as having any bearing on their interpretation.

F. Also incorporated into the Contract Documents by reference are:

1. Manual on Uniform Traffic Control Devices for Streets and Highways, currently adopted edition, with Washington State modifications, if any

2. Standard Plans for Road, Bridge and Municipal Construction, WSDOT/APWA, current edition.

3. City of Kirkland Public Works Department Pre-Approved Plans and policies.

4. Contractor shall obtain copies of these publications, at Contractor's own expense.

DESCRIPTION OF WORK

G. This contract provides for the improvement of **Totem Lake Park – Phase 1**, all in accordance with the attached Contract Plans, these Contract Provisions, and the Standard Specifications.

1.01 STANDARD SPECIFICATIONS **SECTION 1-01 – DEFINITIONS AND TERMS**

A. Delete from the Standard Specifications **Section 1-01.3 Definitions** heading "Completion Dates" and the three paragraphs that follow it, and replace them with the following:

1. Dates

a) **Bid Opening Date:** The date on which the Contracting Agency publicly opens and reads the Bids.

b) **Award Date:** The date of the formal decision of the Contracting Agency to accept the lowest responsible and responsive Bidder for the Work.

c) **Contract Execution Date:** The date the Contracting Agency officially binds the Agency to the Contract.

d) **Notice to Proceed Date:** The date stated in the Notice to Proceed on which the Contract time begins.

e) **Substantial Completion Date:** The day the Engineer determines the Contracting Agency has full and unrestricted use and benefit of the facilities, both from the operational and safety standpoint, any remaining traffic disruptions will be rare and brief, and only minor incidental work, replacement of temporary substitute facilities, plant establishment periods, or correction or repair remains for the Physical Completion of the total Contract.

f) **Physical Completion Date:** The day all of the Work is physically completed on the project. All documentation required by the Contract and required by law does not necessarily need to be furnished by the Contractor by this date.

g) **Completion Date:** The day all the Work specified in the Contract is completed and all the obligations of the Contractor under the contract are fulfilled by the Contractor. All documentation required by the Contract and required by law must be furnished by the Contractor before establishment of this date.

h) **Final Acceptance Date:** The date on which the Contracting Agency accepts the Work as complete.

B. Supplement Standard Specifications **Section 1-01.3 Definitions** with the following:

All references in the Standard Specifications, Amendments, or WSDOT General Special Provisions, to the terms "State", "Department of Transportation", "Washington State Transportation Commission", "Commission", "Secretary of Transportation", "Secretary", "Headquarters", and "State Treasurer" shall be revised to read "Contracting Agency".

All references to "State Materials Laboratory" shall be revised to read "Contracting Agency designated location".

All references to "final contract voucher certification" shall be interpreted to mean the final payment form established by the Contracting Agency.

The venue of all causes of action arising from the advertisement, award, execution, and performance of the contract shall be in the Superior Court of the County where the Contracting Agency's headquarters are located.

C. Definitions

Additive:
A supplemental unit of work or group of bid items, identified separately in the Bid Proposal, which may, at the discretion of the Contracting Agency, be awarded in addition to the base bid.

Alternate:
One of two or more units of work or groups of bid items, identified separately in the Bid Proposal, from which the Contracting Agency may make a choice between different methods or material of construction for performing the same work.

Business Day:
A business day is any day from Monday through Friday except holidays as listed in Section 1-08.5.

Consultant:
Berger Partnership and their design team.

Contract Bond:
The definition in the Standard Specifications for "Contract Bond" applies to whatever bond form(s) are required by the Contract Documents, which may be a combination of a Payment Bond and a Performance Bond.

Contract Documents:
The Contract Drawings and Specifications/project manual.

Contract Time:
The period of time established by the terms and conditions of the Contract within which the Work must be physically completed.

Notice of Award:
The written notice from the Contracting Agency to the successful Bidder signifying the Contracting Agency's acceptance of the Bid Proposal.

Notice to Proceed:
The written notice from the Contracting Agency or Engineer to the Contractor authorizing and directing the Contractor to proceed with the Work and establishing the date on which the Contract time begins.

Owner:
The City of Kirkland.

Project Engineer:
The City of Kirkland Public Works Engineer/Project Manager and staff.

Traffic:
Both vehicular and non-vehicular traffic, such as pedestrians, bicyclists, wheelchairs, and equestrian traffic.

1.02 STANDARD SPECIFICATIONS **SECTION 1-02 – BID PROCEDURES AND CONDITIONS**

A. Delete this Section from the Standard Specifications **Section 1-02.1 Prequalification of Bidders** and replace it with the following:

1-02.1 Qualifications of Bidder

Before award of a public works contract, a bidder must meet at least the minimum qualifications of RCW 39.04.350(1) to be considered a responsible bidder and qualified to be awarded a public works project.

B. Add the following new section to Standard Specifications **Section 1-02.1(1) Supplemental Qualifications Criteria**:

In addition, the Contracting Agency has established Contracting Agency-specific and/or project-specific supplemental criteria, in accordance with RCW 39.04.350(2), for determining Bidder responsibility, including the basis for evaluation and the deadline for appealing a determination that a Bidder is not responsible. These criteria are contained in the section below.

Bidders shall complete and sign the Statement of Bidder's Qualification contained in the Proposal. Said form must be submitted with the bid proposal.

After bids are opened, Contracting Agency may request that a bidder or all bidders provide supplemental information concerning responsibility in accordance with RCW 39.04.350(2). Such supplemental information shall be provided to Contracting Agency in writing within two (2) business days of the request. Whether bidder supplies this supplemental information within the time and manner specified or not, in addition to consideration of this additional information, Contracting Agency may also base its determination of responsibility on any available information related to the supplemental criteria.

If Contracting Agency determines that a bidder is not responsible, Contracting Agency will provide, in writing, the reasons for such determination at which point the contractor will be deemed disqualified in accordance with WSDOT Standard Specification 1-02.14(10) and the proposal rejected. The bidder may appeal the determination within two (2) business days after receipt of the determination by presenting additional information to Contracting Agency. Contracting Agency will consider the additional information before issuing its final decision. If Contracting Agency's final decision affirms that the bidder is not responsible, Contracting Agency will not execute a contract with any other bidder until two (2) business days after the bidder determined to be not responsible has received Contracting Agency's final determination. The failure or omission of a bidder to receive or examine any form, instrument, addendum or other document shall in no way relieve any bidder from obligations with respect to the bid or to the contract.

Any bidder may, within five (5) business days before the bid submittal deadline, request that Contracting Agency modify the supplemental criteria. Contracting Agency will evaluate the information submitted by the bidder and respond before the submittal deadline. If the evaluation results in a change of the criteria, the Contracting Agency will issue an Addendum to the bidding documents identifying the new criteria.

Supplemental Criteria. Contracting Agency acknowledges that Change Orders (changes, extra work, requests for equitable adjustment and claims (defined as including demands for money or time in excess of the contract amount or contract time)) are ubiquitous on public works construction projects. The expeditious resolution of Change Orders is critical to the on budget and on time successful completion of a public works project. Thus, the City has established the following relevant supplemental bidder responsibility criteria applicable for the project:

1. Criterion. The bidder must demonstrate a record of successful and timely resolution of Change Orders including compliance with public contract Change Order resolution procedures (e.g. timely notice of event giving rise to the Change Order, timely submission of a statement of the cost and/or impact of the Change Order unless the bidder is able to show extenuating circumstances that explain bidder's failure to timely provide such information to the satisfaction of Contracting Agency.

2. Documentation. As evidence that the bidder meets the supplemental responsibility criteria, after bids are opened and within two (2) business days of the public notice of Contracting Agency's tabulation of bids, the lowest responsive bidder must submit the following documentation of public works projects completed within the previous three (3) years and include for each project the following:

   a) The Owner and contact information for the Owner;

   b) A listing of Change Orders and a signed statement from the bidder that the project timelines concerning resolution of Change Orders was complied with, and if not, provide a written explanation of what the bidder believes to be the extenuating circumstances excusing compliance with the Contract Change Order notice and claim provisions.

Contracting Agency may contact owners listed by the bidders to validate the information provided by a bidder.

C. Add the following to Standard Specifications **Section 1-02.1(1) Supplemental Qualifications Criteria**:

3. Prior Experience with Similar Projects. The Contractor shall demonstrate familiarity and experience with projects similar in nature and complexity to the Totem Lake Park – Phase 1 Project. The Contractor shall provide documentation of at least 3 previous projects successfully completed within the last 7 years involving public park construction. At a minimum, for each project provide:

   a. Name, location, and a description of the project;

   b. Contracting Agency (i.e. Owner) for the project;

   c. Total construction contract value and duration;

   d. Contact name and phone number of the Contracting Agency.

4. Availability: The Contractor shall have sufficient means and resources in order to begin work on site on or before December 1, 2019. This includes preparation and submittal of required plans and documentation to the Engineer for review.

D. Delete Standard Specifications **Section 1-02.2 Plans and Specifications** and replace it with the following:

Information as to where Bid Documents can be obtained or reviewed can be found in the Call for Bids (Invitation for Bids) for the work.

After award of the contract, plans and specifications will be issued to the Contractor at no cost as detailed below:

To Prime Contractor	No. of Sets	Basis of Distribution
Reduced plans (11" x 17")	4	Furnished automatically upon award.
Contract Provisions	4	Furnished automatically upon award.
Large plans (e.g., 22" x 34")	1	Furnished only upon request.

Additional plans and Contract Provisions may be obtained by the Contractor from the source stated in the Call for Bids, at the Contractor's own expense.

E. In Standard Specifications **Section 1-02.4(2) Subsurface Information,** revise the second sentence in the first paragraph to read:

The Summary of Geotechnical Conditions and the boring logs are included as an appendix to the General Conditions, shall be considered as part of the Contract.

F. Delete from the Standard Specifications **Section 1-02.5 Proposal Forms** and replace it with the following:

The Proposal Form will identify the project and its location and describe the work. It will also list estimated quantities, units of measurement, the items of work, and the materials to be furnished at the unit bid prices. The bidder shall complete spaces on the proposal form that call for, but are not limited to, unit prices; extensions; summations; the total bid amount; signatures; date; and, where applicable, retail sales taxes and acknowledgment of addenda; the bidder's name, address, telephone number, and signature; the bidder's D/M/WBE commitment, if applicable; a State of Washington Contractor's Registration Number; and a Business

License Number, if applicable. Bids shall be completed by typing or shall be printed in ink by hand, preferably in black ink. The required certifications are included as part of the Proposal Form.

The Contracting Agency reserves the right to arrange the proposal forms with alternates and additives, if such be to the advantage of the Contracting Agency. The bidder shall bid on all alternates and additives set forth in the Proposal Form unless otherwise specified.

G. Supplement the second paragraph of the Standard Specifications **Section 1-02.6 Preparation of Proposal** with the following:

4. If a minimum bid amount has been established for any item, the unit or lump sum price must equal or exceed the minimum amount stated.

5. Any correction to a bid made by interlineation, alteration, or erasure, shall be initialed by the signer of the bid.

H. Delete the last paragraph of the Standard Specifications **Section 1-02.6 Preparation of Proposal** and replace it with the following:

The Bidder shall make no stipulation on the Bid Form, nor qualify the bid in any manner.

A bid by a corporation shall be executed in the corporate name, by the president or a vice president (or other corporate officer accompanied by evidence of authority to sign).

A bid by a partnership shall be executed in the partnership name, and signed by a partner. A copy of the partnership agreement shall be submitted with the Bid Form if any D/M/WBE requirements are to be satisfied through such an agreement.

A bid by a joint venture shall be executed in the joint venture name and signed by a member of the joint venture. A copy of the joint venture agreement shall be submitted with the Bid Form if any D/W/MBE requirements are to be satisfied through such an agreement.

I. Supplement the Standard Specifications **Section 1-02.7 Bid Deposit** with the following:

Bid bonds shall contain the following:

1. Contracting Agency-assigned number for the project;

2. Name of the project;

3. The Contracting Agency named as obligee;

4. The amount of the bid bond stated either as a dollar figure or as a percentage which represents five percent of the maximum bid amount that could be awarded;

5. Signature of the bidder's officer empowered to sign official statements. The signature of the person authorized to submit the bid should agree with the signature on the bond, and the title of the person must accompany the said signature;

6. The signature of the surety's officer empowered to sign the bond and the power of attorney.

If so stated in the Contract Provisions, bidder must use the bond form included in the Contract Provisions.

If so stated in the Contract Provisions, cash will not be accepted for a bid deposit.

J. Insert the following new paragraph in Standard Specifications **Section 1-02.8 Noncollusion Declaration and Lobbying Certification**:

Conflict of Interest

The bidder affirms that it presently has no interest and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of its services hereunder. The Contractor further covenants that in the performance of this contract, no person having any conflicting interest shall be employed. Any interest on the part of the Contractor or its employees must be disclosed forthwith to the City of Kirkland. If this contract is within the scope of a Federal Housing and Community Development Block Grant program, the Contractor further covenants that no person who presently exercises any functions or responsibilities in connection with the block grant program has any personal financial interest, direct or indirect, in this contract.

K. Delete Standard Specifications **Section 1-02.9 Delivery of Proposal** and replace it with the following:

Each proposal shall be submitted in a sealed envelope, with the Project Name and Project Number as stated in the Invitation for Bids clearly marked on the outside of the envelope, or as otherwise required in the Bid Documents, to ensure proper handling and delivery.

If the project has FHWA funding and requires DBE Written Confirmation Documents or Good Faith Effort Documentation, then to be considered

responsive, the Bidder shall submit with their Bid Proposal, written Confirmation Documentation from each DBE firm listed on the Bidder's completed DBE Utilization Certification, form 272-056A EF, as required by Section 1-02.6.

The Contracting Agency will not open or consider any Bid Proposal that is received after the time specified in the Invitation for Bids for receipt of Bid Proposals, or received in a location other than that specified in the Invitation for Bids.

L. Revise item 1 in Standard Specifications Section 1-02.13 Irregular Proposals to read:

1. A proposal will be considered irregular and will be rejected if:

   a. The Bidder is not prequalified <u>when so required</u>;

   b. The authorized proposal form furnished by the Contracting Agency is not used or is altered;

   c. The completed proposal form contains any unauthorized additions, deletions, alternate Bids, or conditions;

   d. The Bidder adds provisions reserving the right to reject or accept the award, or enter into the Contract;

   e. A price per unit cannot be determined from the Bid Proposal;

   f. The Proposal form is not properly executed;

   g. The Bidder fails to submit or properly complete a Subcontractor list, if applicable, as required in Section 1-02.6;

   h. The Bidder fails to submit or properly complete a Disadvantaged Business Enterprise Certification, if applicable, as required in Section 1-02.6;

   i. The Bidder fails to submit written confirmation from each DBE firm listed on the Bidder's completed DBE Utilization Certification that they are in agreement with the bidders DBE participation commitment, if applicable, as required in Section 1-02.6, or if the written confirmation that is submitted fails to meet the requirements of the General Conditions;

   j. The Bidder fails to submit DBE Good Faith Effort documentation, if applicable, as required in Section 1-02.6, or if the documentation

that is submitted fails to demonstrate that a Good Faith Effort to meet the Condition of Award was made;

k. The Bid Proposal does not constitute a definite and unqualified offer to meet the material terms of the Bid invitation; or

l. More than one proposal is submitted for the same project from a Bidder under the same or different names.

M. Delete Standard Specifications **Section 1-02.14 Disqualification of Bidders** and replace it with the following:

A Bidder will be deemed not responsible if the Bidder does not meet the mandatory bidder responsibility criteria in RCW 39.04.350(1), as amended.

As evidence that the Bidder meets the mandatory bidder responsibility criteria, the apparent two lowest Bidders must submit to the Contracting Agency within 24 hours of the bid submittal deadline, documentation (sufficient in the sole judgment of the Contracting Agency) demonstrating compliance with all responsibility criteria. The Contracting Agency reserves the right to request such documentation from other Bidders as well, and to request further documentation as needed to assess bidder responsibility. The Contracting Agency also reserves the right to obtain information from third parties concerning a Bidder's compliance with the mandatory bidder responsibility criteria.

If the Contracting Agency determines the Bidder does not meet the mandatory bidder responsibility criteria in RCW 39.04.350(1) and is therefore not a responsible Bidder, the Contracting Agency shall notify the Bidder in writing, with the reasons for its determination. If the Bidder disagrees with this determination, it may appeal the determination within two (2) business days of the Contracting Agency's determination by presenting its appeal and any additional information to the Contracting Agency. The Contracting Agency will consider the appeal and any additional information before issuing its final determination. If the final determination affirms that the Bidder is not responsible, the Contracting Agency will not execute a contract with any other Bidder until at least two business days after the Bidder determined to be not responsible has received the Contracting Agency's final determination.

N. Revise Standard Specifications **Section 1-02.15 Pre-Award Information** as follows:

Before awarding any Contract, the Contracting Agency may require one or more of these items or actions of the apparent lowest responsible Bidder:

1. A complete statement of the origin, composition, and manufacture of any or all materials to be used;

2. Samples of these materials for quality and fitness tests;

3. A progress schedule (in a form the Contracting Agency requires) showing the order of and time required for the various phases of the Work;

4. A breakdown of costs assigned to any Bid item;

5. Attendance at a conference with the Engineer or representatives of the Engineer;

6. Obtain, and furnish a copy of, a business license to do business in the city or county where the work is located.

7. Any other information or action taken that is deemed necessary to ensure that the Bidder is the lowest responsible Bidder.

1.03 STANDARD SPECIFICATIONS **SECTION 1-03 – AWARD AND EXECUTION OF CONTRACT**

A. Revise the first paragraph in Standard Specifications **Section 1-03.1 Consideration of Bids** to read:

After opening and reading proposals, the Contracting Agency will check them for correctness of extensions of the prices per unit and the total price. If a discrepancy exists between the price per unit and the extended amount of any bid item, the price per unit will control. If a minimum bid amount has been established for any item and the bidder's unit or lump sum price is less than the minimum specified amount, the Contracting Agency will unilaterally revise the unit or lump sum price, to the minimum specified amount and recalculate the extension. The total of extensions, corrected where necessary, including sales taxes where applicable and such additives and/or alternates as selected by the Contracting Agency, will be used by the Contracting Agency for award purposes and to fix the Awarded Contract Price amount and the amount of the contract bond.

B. Revise Standard Specifications **Section 1-03.3 Execution of Contract** to read:

Copies of the Contract Provisions, including the unsigned Form of Contract, will be available for signature by the successful bidder on the first business day following award. The number of copies to be executed by the Contractor will be determined by the Contracting Agency.

Within ten (10) calendar days after the award date, the successful bidder shall return the signed Contracting Agency-prepared contract, an insurance certification as required by Section 1-07.18, and a satisfactory bond as required by law and Section 1-03.4. Before execution of the contract by the Contracting Agency, the successful bidder shall provide any pre-award information the Contracting Agency may require under Section 1-02.15.

Until the Contracting Agency executes a contract, no proposal shall bind the Contracting Agency nor shall any work begin within the project limits or within Contracting Agency-furnished sites. The Contractor shall bear all risks for any work begun outside such areas and for any materials ordered before the contract is executed by the Contracting Agency.

If the bidder experiences circumstances beyond their control that prevents return of the contract documents within 10 calendar days after the award date stated above, the Contracting Agency may grant up to a maximum of 10 additional calendar days for return of the documents, provided the Contracting Agency deems the circumstances warrant it.

C. Revise the first paragraph of Standard Specifications **Section 1-03.4 Contract Bond** to read:

The successful bidder shall provide executed payment and performance bond(s) for the full contract amount. Separate payment and performance bonds are required and each shall be for the full contract amount. The bond(s) shall:

1. Be on Contracting Agency-furnished form(s);

2. Be signed by an approved surety (or sureties) that:

   a. Is registered with the Washington State Insurance Commissioner, and

   b. Appears on the current Authorized Insurance List in the State of Washington published by the Office of the Insurance Commissioner, and

   c. Have an A.M. Best rating of A:VII or better.

3. Guarantee that the Contractor will perform and comply with all obligations, duties, and conditions under the Contract, including but not limited to the duty and obligation to indemnify, defend, and protect the Contracting Agency against all losses and claims related directly or indirectly from any failure:

a. Of the Contractor (or any of the employees, subcontractors, or lower tier subcontractors of the Contractor) to faithfully perform and comply with all contract obligations, conditions, and duties, or

b. Of the Contractor (or the subcontractors or lower tier subcontractors of the Contractor) to pay all laborers, mechanics, subcontractors, lower tier subcontractors, material person, or any other person who provides supplies or provisions for carrying out the work;

4. Be conditioned upon the payment of taxes, increases, and penalties incurred on the project under titles 50, 51, and 82 RCW; and

5. Be accompanied by a power of attorney for the Surety's officer empowered to sign the bond; and

6. Be signed by an officer of the Contractor empowered to sign official statements (sole proprietor or partner). If the Contractor is a corporation, the bond(s) must be signed by the president or vice president, unless accompanied by written proof of the authority of the individual signing the bond(s) to bind the corporation (i.e., corporate resolution, power of attorney, or a letter to such effect signed by the president or vice president).

1.04 STANDARD SPECIFICATIONS **SECTION 1-04 – SCOPE OF THE WORK**

A. Supplement Standard Specifications **Section 1-04.1 Intent of the Contract** with the following:

All materials, tools, labor, and guarantees thereof of required to complete the work shall be furnished and supplied in accordance with the Plans, these General Conditions, the Standard Specifications, and City of Kirkland Pre-Approved (Standard) Plans and policies. The Contractor shall include all costs of doing this work within the contract bid item prices.

B. Revise the second paragraph of Standard Specifications **Section 1-04.2 Coordination of Contract Documents, Plans, Special Provisions, Specifications, and Addenda** to read:

Any inconsistency in the parts of the contract shall be resolved by following this order of precedence (e.g., 1 presiding over 2, 2 over 3, 3 over 4, and so forth):

1. Addenda,

2. Proposal Form,

3. General Conditions,

4. Contract Plans,

5. Technical Specifications,

6. Amendments to the Standard Specifications,

7. 2018 WSDOT Standard Specifications,

8. Contracting Agency's Standard Plans or Details (if any), and

9. WSDOT Standard Plans for Road, Bridge, and Municipal Construction.

C. Supplement Standard Specifications **Section 1-04.6 Variation in Estimated Quantities** with the following:

The quantities for unit price bid items have been entered into the Proposal only to provide a common proposal for bidders. Actual quantities will be determined in the field as the work progresses, and will be paid at the original bid price, regardless of final quantity. These bid items shall not be subject to the provisions of 1-04.6 of the Standard Specifications.

D. Delete the first paragraph of Standard Specifications **Section 1-04.6 Variation in Estimated Quantities** and replace it with the following:

Payment to the Contractor will be made only for the actual quantities of work performed and accepted in conformance with the contract. When the accepted quantity of work, included in change orders accepted by both parties, performed under a unit item varies from the original proposal quantity, payment will be at the unit contract price for all work.

E. Delete Standard Specifications **Section 1-04.11 Final Cleanup** in its entirety and replace with the following:

From time to time or as may be ordered by the Engineer, the Contractor shall cleanup and remove debris, refuse, and discarded materials of any kind resulting from the Work. Failure to do so may result in cleanup done by the Owner and the cost thereof charged to the Contractor and deducted from the Contractor's progress estimate.

The Contractor shall perform final cleanup as provided in this Section. The Engineer will not establish the Physical Completion Date until this is done. All public and private property the Contractor occupied to do the

Work, including but not limited to the Street Right of Way, material sites, borrow and waste sites, and construction staging area shall be left neat and presentable. Immediately after completion of the Work, the Contractor shall cleanup and remove all refuse and unused materials of any kind resulting from the Work. Failure to do the final cleanup may result in the final cleanup being done by the Owner and the cost thereof charged to the Contractor and deducted from the Contractor's final progress estimate.

The Contractor shall:

1. Remove all rubbish, surplus materials, discarded materials, falsework, piling, camp buildings, temporary structures, equipment, and debris;

2. Remove from the Project, all unneeded, oversized rock left from grading, surfacing, or paving unless the Contract specifies otherwise or the Engineer approves otherwise;

3. On all concrete and asphalt pavement work, flush the pavement clean and remove the wash water and debris;

4. Sweep and flush structure decks and remove wash water and debris;

5. Clean out from all open culverts and drains, inlets, catch basins, manholes and water main valve chambers, within the limits of the Project Site, all dirt and debris of any kind that is the result of the Contractor's operations;

6. Level and fine grade all excavated material not used for backfill where the Contract requires;

7. Fine grade all slopes;

8. Upon completion of grading and cleanup operations at any privately-owned site for which a written agreement between the Contractor and property owner is required, the Contractor shall obtain and furnish to the Engineer a written release from all damages, duly executed by the property owner, stating that the restoration of the property has been satisfactorily accomplished.;

All costs associated with cleanup shall be incidental to the Work and shall be included in the various Bid items in the Bid, and shall be at no additional cost to the Owner.

1.05 STANDARD SPECIFICATIONS **SECTION 1-05 – CONTROL OF WORK**

A. Add the following two new sub-sections to Standard Specifications **Section 1-05.4 Conformity with and Deviations from Plans and Stakes**:

1-05.4(1) Roadway and Utility Surveys

The Contractor shall be responsible for setting, maintaining, and resetting all alignment stakes, slope stakes, and grades necessary for the construction of the improvements under this contract. Except for the survey control data furnished by the Owner, calculations, surveying, and measuring required for setting and maintaining the necessary lines and grades shall be the Contractor's responsibility.

The Owner may spot-check the Contractor's surveying. These spot-checks will not change the requirements for normal checking by the Contractor.

To facilitate the establishment of lines and elevations, the Owner will provide the Contractor with primary survey control information consisting of descriptions of two primary control points used for the horizontal and vertical control. Primary control points will be described and shown on the right-of-way Plans. The Contractor shall check all control points for horizontal and vertical locations prior to use and report any discrepancy to the Engineer. Errors resulting from using control points which have not been verified, shall be the Contractors responsibility.

At a minimum the Contractor shall provide following survey staking shall be required:

1. Construction centerline or an offset to construction centerline shall be staked at all angle points and 100-foot intervals on tangents.

2. Offset stakes of JUT Centerline at all angle points and at 50-foot intervals on tangents

    a. Cut/fill shall reference the elevations of the lowest conduit.

    b. Offset shall reference the location of the center of trench and list the width of the trench section.

3. Offset stakes of all structure control/location points shown on the undergrounding Plans.

    a. Each vault, handhold, and junction box shall have a sets of off-set points provided each location point shown in the location tables Cut/Fill shall reference elevations of the finish grade of the top lid of the structure.

    b. Each pole riser and stub up, shall have at least one set of off-set hubs provided with cut/fills to finish ground elevations.

c. Finish grade elevations of all structures shall be determined by the Contractor based on the typical sections and details provided in the Contract Documents.

4. Offset stakes at face or walls.

5. Offset staking of all drainage structures and drainage pipes at 50-foot intervals.

6. Location of all right-of-way and easements adjacent to the work area.

7. Offset of all permanent concrete sidewalks, curb ramps, and driveways.

Each stake shall have the following information: Hub elevation, offset distance to items being staked, cut/fill to proposed elevations, design elevation of items being staked.

The above information shall also be shown on a written Cut Sheet and provided to the City inspector 48-hours prior to installation of the items being staked.

The Contractor shall establish all secondary survey controls, both horizontal and vertical, as necessary to assure proper placement of all project elements based on the primary control points provided by the Engineer. Survey work shall be within the following tolerances:

Stationing	+.01 foot
Alignment	+.01 foot (between successive points)
Superstructure Elevations	+.01 foot (from plan elevations)
Substructure Elevations	+.05 foot (from plan elevations)
Sidewalk and Curb Ramp Elevations	+.01 foot (from plan elevations)

During the progress of the work, the Contractor shall make available to the Engineer all field books including survey information, footing elevations, cross sections and quantities.

The Contractor shall be fully responsible for the close coordination of field locations and measurements with appropriate dimensions of structural members being fabricated.

1-05.4(2) Bridge and Structure Surveys

For all structural work such as bridges and retaining walls, the Contractor shall retain as a part of Contractor's organization an experienced team of surveyors.

The Contractor shall provide all surveys required to complete the structure, except the following primary survey control which will be provided by the Engineer:

1. Centerline or offsets to centerline of the structure.
2. Stations of abutments and pier centerlines.
3. A sufficient number of bench marks for levels to enable the Contractor to set grades at reasonably short distances.
4. Monuments and control points as shown in the Plans.

The Contractor shall establish all secondary survey controls, both horizontal and vertical, as necessary to assure proper placement of all project elements based on the primary control points provided by the Engineer. Survey work shall be within the following tolerances:

Stationing	+.01 foot
Alignment	+.01 foot (between successive points)
Superstructure Elevations	+.01 foot (from plan elevations)
Substructure Elevations	+.05 foot (from plan elevations)

During the progress of the work, the Contractor shall make available to the Engineer all field books including survey information, footing elevations, cross sections and quantities.

The Contractor shall be fully responsible for the close coordination of field locations and measurements with appropriate dimensions of structural members being fabricated.

Measurement

No unit of measurement shall apply to the lump sum price for construction surveying.

Payment

Payment will be incidental to the total project lump sum bid for the following bid item:

"Construction Surveying", per lump sum.

The lump sum Contract price for "Construction Surveying" shall be full pay for all labor, equipment, materials, and supervision utilized to perform the Work specified, including any resurveying, checking, correction of errors, replacement of missing or damaged stakes, and coordination efforts.

B. Supplement Standard Specifications **Section 1-05.7 Removal of Defective and Unauthorized Work** with the following:

If the Contractor fails to remedy defective or unauthorized work within the time specified in a written notice from the Engineer, or fails to perform any part of the work required by the Contract Documents, the Engineer may correct and remedy such work as may be identified in the written notice, with Contracting Agency forces or by such other means as the Contracting Agency may deem necessary.

If the Contractor fails to comply with a written order to remedy what the Engineer determines to be an emergency situation, the Engineer may have the defective and unauthorized work corrected immediately, have the rejected work removed and replaced, or have work the Contractor refuses to perform completed by using Contracting Agency or other forces. An emergency situation is any situation when, in the opinion of the Engineer, a delay in its remedy could be potentially unsafe, or might cause serious risk of loss or damage to the public.

Direct or indirect costs incurred by the Contracting Agency attributable to correcting and remedying defective or unauthorized work, or work the Contractor failed or refused to perform, shall be paid by the Contractor. Payment will be deducted by the Engineer from monies due, or to become due, the Contractor. Such direct and indirect costs shall include in particular, but without limitation, compensation for additional professional services required, and costs for repair and replacement of work of others destroyed or damaged by correction, removal, or replacement of the Contractor's unauthorized work.

No adjustment in contract time or compensation will be allowed because of the delay in the performance of the work attributable to the exercise of the Contracting Agency's rights provided by this Section.

The rights exercised under the provisions of this section shall not diminish the Contracting Agency's right to pursue any other avenue for additional remedy or damages with respect to the Contractor's failure to perform the work as required.

C. Insert the following new paragraph between the second and third paragraphs of Standard Specifications **Section 1-05.9 Equipment**:

Use of equipment with metal tracks will not be permitted on concrete or asphalt surfaces unless otherwise authorized by the Engineer.

D. Supplement Standard Specifications **Section 1-05.10 Guarantees** as follows:

Guarantees and maintenance bonds shall be in accordance with City of Kirkland, State of Washington, Public Works Performance and Payment Bond forms and requirements. The performance bond shall be in the full amount of contract. The Contractor guarantees all items of material, equipment, and workmanship against mechanical, structural, or other defects for which the Contractor is responsible that may develop or become evident within a period of one year from and after acceptance of the work by the Owner. This guarantee shall be understood to require prompt remedy of defects upon written notification to the Contractor. If the Owner determines the defect requires immediate repair, the Owner may, without further notice to the Contractor, make the necessary corrections, the cost of which shall be borne by the Contractor. To support the above guarantee, the Contractor's performance bond shall remain in full force and effect for one year following the acceptance of the project by the Owner.

E. Delete Standard Specifications **Section 1-05.11 Final Inspection** and replace it with the following:

1-05.11 Final Inspections and Operational Testing

1-05.11(1) Substantial Completion Date

When the Contractor considers the work to be substantially complete, the Contractor shall so notify the Engineer and request the Engineer establish the Substantial Completion Date. The Contractor's request shall list the specific items of work that remain to be completed in order to reach physical completion. The Engineer will schedule an inspection of the work with the Contractor to determine the status of completion. The Engineer may also establish the Substantial Completion Date unilaterally.

If, after this inspection, the Engineer concurs with the Contractor that the work is substantially complete and ready for its intended use, the Engineer, by written notice to the Contractor, will set the Substantial Completion Date. If, after this inspection the Engineer does not consider the work substantially complete and ready for its intended use, the Engineer will, by written notice, so notify the Contractor giving the reasons therefor.

Upon receipt of written notice concurring in or denying substantial completion, whichever is applicable, the Contractor shall pursue vigorously, diligently and without unauthorized interruption, the work necessary to reach Substantial and Physical Completion. The Contractor shall provide the

Engineer with a revised schedule indicating when the Contractor expects to reach substantial and physical completion of the work.

The above process shall be repeated until the Engineer establishes the Substantial Completion Date and the Contractor considers the work physically complete and ready for final inspection.

1-05.11(2) Final Inspection and Physical Completion Date

When the Contractor considers the work physically complete and ready for final inspection, the Contractor by written notice, shall request the Engineer to schedule a final inspection. The Engineer will set a date for final inspection. The Engineer and the Contractor will then make a final inspection and the Engineer will notify the Contractor in writing of all particulars in which the final inspection reveals the work incomplete or unacceptable. The Contractor shall immediately take such corrective measures as are necessary to remedy the listed deficiencies. Corrective work shall be pursued vigorously, diligently, and without interruption until physical completion of the listed deficiencies. This process will continue until the Engineer is satisfied the listed deficiencies have been corrected.

If action to correct the listed deficiencies is not initiated within 7 days after receipt of the written notice listing the deficiencies, the Engineer may, upon written notice to the Contractor, take whatever steps are necessary to correct those deficiencies pursuant to Section 1-05.7.

The Contractor will not be allowed an extension of contract time because of a delay in the performance of the work attributable to the exercise of the Engineer's right hereunder.

Upon correction of all deficiencies, the Engineer will notify the Contractor and the Contracting Agency, in writing, of the date upon which the work was considered physically complete. That date shall constitute the Physical Completion Date of the contract, but shall not imply acceptance of the work or that all the obligations of the Contractor under the contract have been fulfilled.

1-05.11(3) Operational Testing

It is the intent of the Contracting Agency to have at the Physical Completion Date a complete and operable system. Therefore when the work involves the installation of machinery or other mechanical equipment; street lighting, electrical distribution or signal systems; irrigation systems; buildings; or other similar work it may be desirable for the Engineer to have the Contractor operate and test the work for a period of time after final inspection but prior to the physical completion date. Whenever items of work are listed in the Contract Provisions for operational testing they shall be fully tested under

operating conditions for the time period specified to ensure their acceptability prior to the Physical Completion Date. During and following the test period, the Contractor shall correct any items of workmanship, materials, or equipment which prove faulty, or that are not in first class operating condition. Equipment, electrical controls, meters, or other devices and equipment to be tested during this period shall be tested under the observation of the Engineer, so that the Engineer may determine their suitability for the purpose for which they were installed. The Physical Completion Date cannot be established until testing and corrections have been completed to the satisfaction of the Engineer.

The costs for power, gas, labor, material, supplies, and everything else needed to successfully complete operational testing, shall be included in the unit contract prices related to the system being tested, unless specifically set forth otherwise in the proposal.

Operational and test periods, when required by the Engineer, shall not affect a manufacturer's guaranties or warranties furnished under the terms of the contract.

F. Standard Specifications **Section 1-05.12 Final Acceptance**.

Add the following new section:

1-05.12(1) One-Year Guarantee Period

The Contractor shall return to the project and repair or replace all defects in workmanship and material discovered within one year after Final Acceptance of the Work. The Contractor shall start work to remedy any such defects within 7 calendar days of receiving Contracting Agency's written notice of a defect, and shall complete such work within the time stated in the Contracting Agency's notice. In case of an emergency, where damage may result from delay or where loss of services may result, such corrections may be made by the Contracting Agency's own forces or another contractor, in which case the cost of corrections shall be paid by the Contractor. In the event the Contractor does not accomplish corrections within the time specified, the work will be otherwise accomplished and the cost of same shall be paid by the Contractor.

When corrections of defects are made, the Contractor shall then be responsible for correcting all defects in workmanship and materials in the corrected work for one year after acceptance of the corrections by Contracting Agency.

This guarantee is supplemental to and does not limit or affect the requirements that the Contractor's work comply with the requirements of the Contract or any other legal rights or remedies of the Contracting Agency.

G. Revise the second paragraph of Standard Specifications **Section 1-05.15 Method of Serving Notices** to read:

All correspondence from the Contractor shall be directed to the Project Engineer. All correspondence from the Contractor constituting any notification, notice of protest, notice of dispute, or other correspondence constituting notification required to be furnished under the Contract, must be in paper format, hand delivered or sent via mail delivery service to the Project Engineer's office. Electronic copies such as e-mails or electronically delivered copies of correspondence will not constitute such notice and will not comply with the requirements of the Contract.

H. Add new Standard Specifications **Section 1-05.16 Water and Power**.

1-05.16 Water and Power

The Contractor shall make necessary arrangements, and shall bear the costs for power and water necessary for the performance of the work, unless the contract includes power and water as a pay item.

F. Add new Standard Specifications Section 1-05.17 Oral Agreements.

1-05.17 Oral Agreements

No oral agreement or conversation with any officer, agent, or employee of the Contracting Agency, either before or after execution of the contract, shall affect or modify any of the terms or obligations contained in any of the documents comprising the contract. Such oral agreement or conversation shall be considered as unofficial information and in no way binding upon the Contracting Agency, unless subsequently put in writing and signed by the Contracting Agency.

G. Add the following new Standard Specifications section:

1-05.18 Record Drawings

The Contractor shall maintain one set of full size plans for Record Drawings, updated with clear and accurate red-lined field revisions on a daily basis, and within 2 business days after receipt of information that a change in Work has occurred. The Contractor shall not conceal any work until the required information is recorded.

This Record Drawing set shall be used for this purpose alone, shall be kept separate from other Plan sheets, and shall be clearly marked as Record Drawings. These Record Drawings shall be kept on site at the Contractor's field office, and shall be available for review by the Contracting Agency at all times. The Contractor shall bring the Record Drawings to each progress meeting for review.

The preparation and upkeep of the Record Drawings is to be the assigned responsibility of a single, experienced, and qualified individual. The quality of the Record Drawings, in terms of accuracy, clarity, and completeness, is to be adequate to allow the Contracting Agency to modify the computer-aided drafting (CAD) Contract Drawings to produce a complete set of Record Drawings for the Contracting Agency without further investigative effort by the Contracting Agency.

The Record Drawing markups shall document all changes in the Work, both concealed and visible. Items that must be shown on the markups include but are not limited to:

- Actual dimensions, arrangement, and materials used when different than shown in the Plans.
- Changes made by Change Order or Field Order.
- Changes made by the Contractor.
- Accurate locations of storm sewer, sanitary sewer, water mains and other water appurtenances, structures, conduits, light standards, vaults, width of roadways, sidewalks, landscaping areas, building footprints, channelization and pavement markings, etc. Include pipe invert elevations, top of castings (manholes, inlets, etc.).

The Contract calls for the Contractor to do the surveying/staking, the applicable tolerance limits include, but are not limited to the following:

	Vertical	Horizontal
As-built sanitary & storm invert and grate elevations	± 0.01 foot	± 0.01 foot
As-built monumentation	± 0.001 foot	± 0.001 foot
As-built waterlines, inverts, valves, hydrants	± 0.10 foot	± 0.10 foot
As-built ponds/swales/water features	± 0.10 foot	± 0.10 foot
As-built buildings (fin. Floor elev.)	± 0.01 foot	± 0.10 foot
As-built gas lines, power, TV, Tel, Com	± 0.10 foot	± 0.10 foot

As-built signs, signals, etc.	N/A	± 0.10 foot

Making Entries on the Record Drawings:

- Use erasable colored pencil (not ink) for all markings on the Record Drawings, conforming to the following color code:
- Additions - Red
- Deletions - Green
- Comments - Blue
- Dimensions - Graphite
- Provide the applicable reference for all entries, such as the change order number, the request for information (RFI) number, or the approved shop drawing number.
- Date all entries.
- Clearly identify all items in the entry with notes similar to those in the Contract Documents (such as pipe symbols, centerline elevations, materials, pipe joint abbreviations, etc.).

The Contractor shall certify on the Record Drawings that said drawings are an accurate depiction of built conditions, and in conformance with the requirements detailed above. The Contractor shall submit final Record Drawings to the Contracting Agency. Contracting Agency acceptance of the Record Drawings is one of the requirements for achieving Physical Completion.

Payment will be made as an incidental part of the base bid lump sum price for Record Drawings.

1-05.19 Daily Construction Report

Add the following new Section:

The Contractor and Subcontractors shall maintain daily, a Daily Construction Report of the Work. The Diary must be kept and maintained by Contractor's designated project superintendent(s). Entries must be made on a daily basis and must accurately represent all of the project activities on each day. Contractor shall provide signed copies of diary sheets from the previous week to Engineer at each Weekly Coordination Meeting.

Every single diary sheet/page must have:

• Project name & number;

• Consecutive numbering of pages, and

• Typed or printed name, signature, and date of the person making the entry.

At a minimum the diary shall, for each day, have a separate entry detailing each of the following:

1. Day and date.
2. Weather conditions, including changes throughout the day.
3. Complete description of work accomplished during the day, with adequate references to the Plans and Contract Provisions so the reader can easily and accurately identify said work on the Plans. Identify location/description of photographs or videos taken that day.
4. Each and every changed condition, dispute or potential dispute, incident, accident, or occurrence of any nature whatsoever which might affect Contractor, Contracting Agency, or any third party in any manner. This shall be provided on a separate page for other information.
5. List all materials received and stored on- or off-site by Contractor that day for future installation, including the manner of storage and protection of the same.
6. List materials installed that day.
7. List all Subcontractors working on-site that day.
8. List the number of Contractor's employees working during each day, by category of employment.
9. List Contractor's equipment on the site that day; showing which were in use, and which idle.
10. Notations to explain inspections, testing, stake-out, and all other services furnished by Contracting Agency or other party during the day.
11. Verify the daily (including non-work days) inspection and maintenance of traffic control devices and condition of the traveled roadway surfaces.
12. Any other information that serves to give an accurate and complete record of the nature, quantity, and quality of Contractor's progress on each day.
13. Add; Officials and visitors onsite

14. Change Orders
15. Occurrence of testing, staking or special inspections

It is expressly agreed between Contractor and Contracting Agency that the Daily Diary maintained by Contractor shall be the "Contractor's Book of Original Entry" for the documentation of any potential claims or disputes that might arise during this Contract. Failure of Contractor to maintain this Diary in the manner described above will constitute a waiver of any such claims or disputes by Contractor.

Engineer or his representative on the job site will also complete a Daily Construction Report.

1.05 STANDARD SPECIFICATIONS **SECTION 1-06 – CONTROL OF MATERIAL**

A. Supplement Standard Specifications **Section 1-06.1 Approval of Materials Prior to Use** as follows:

> Approval of a Material source shall not mean acceptance of the Material. The Material shall meet the requirements of the Contract.

B. Delete Standard Specifications **Section 1-06.1(4) Fabrication Inspection Expense** in its entirety.

1.06 STANDARD SPECIFICATIONS **SECTION 1-07 – LEGAL RELATIONS AND RESPONSIBILITIES TO THE PUBLIC**

A. Supplement Standard Specifications **Section 1-07.1 Laws to be Observed** with the following:

The Contractor shall at all times eliminate noise to the maximum practicable extent. Air compressing plants shall be equipped with silencers, and the exhaust of all gasoline motors or other power equipment shall be provided with mufflers. Special care shall be used to avoid noise or other nuisances, and the Contractor shall strictly observe all federal, state, and local regulations concerning noise.

The Contractor shall make an effort to reduce carbon emissions by turning off engines on construction equipment not in active use, and on trucks that are idling while waiting to load or unload material for five minutes or more.

Compliance with Laws

The Contractor shall comply with the requirements of all other City ordinances, state statutes, laws, and regulations, whether or not stated herein, which are specifically applicable to the public improvements and work to be performed.

B. Supplement Standard Specifications **Section 1-07.1 Laws to be Observed** with the following:

In cases of conflict between different safety regulations, the more stringent regulation shall apply.

The Washington State Department of Labor and Industries shall be the sole and paramount administrative agency responsible for the administration of the provisions of the Washington Industrial Safety and Health Act of 1973 (WISHA).

The Contractor shall maintain at the project site office, or other well known place at the project site, all articles necessary for providing first aid to the injured. The Contractor shall establish, publish, and make known to all employees, procedures for ensuring immediate removal to a hospital, or doctor's care, persons, including employees, who may have been injured on the project site. Employees should not be permitted to work on the project site before the Contractor has established and made known procedures for removal of injured persons to a hospital or a doctor's care.

The Contractor shall have sole responsibility for the safety, efficiency, and adequacy of the Contractor's plant, appliances, and methods, and for any damage or injury resulting from their failure, or improper maintenance, use,

or operation. The Contractor shall be solely and completely responsible for the conditions of the project site, including safety for all persons and property in the performance of the work. This requirement shall apply continuously, and not be limited to normal working hours. The required or implied duty of the Engineer to conduct construction review of the Contractor's performance does not, and shall not, be intended to include review and adequacy of the Contractor's safety measures in, on, or near the project site.

C. Supplement Standard Specifications **Section 1-07.1 Laws to be Observed** with the following:

Contractor's Safety Responsibilities

These construction documents and the joint and several phases of construction hereby contemplated are to be governed at all times by applicable provisions of the federal law(s), including but not limited to the latest amendments of the following:

Williams-Steiger Occupational Safety and Health Act of 1980, Public Law 91-596.

Part 1910 - Occupational Safety and Health Standards, Chapter XVII of Title 29, Code of Federal Regulations.

This project, the Contractor and its subcontractors, shall, at all times, be governed by Chapter XIII of Title 29, Code of Federal Regulations, Part 1518 - Safety and Health Regulations for Construction (35 CFR 75), as amended to date.

To implement the program, and to provide safe and healthful working conditions for all persons, the construction superintendent or his/her designated safety officer shall conduct general project safety meetings at the site at least once each month during the course of construction.

The prime contractor and all subcontractors shall immediately report all accidents, injuries, and health hazards to the Manager, in writing. This shall not obviate any mandatory reporting under the provisions of the Occupational Safety and Health Act of 1970. This program shall become a part of the contract documents and the contract between the Owner and the Contractor, and all subcontractors, as though fully written therein.

Where the location of the work is in proximity to overhead wires and power lines, the Contractor shall coordinate all work with the utility and shall provide for such measures as may be necessary for the protection of the workers.

D. Delete Standard Specifications Section 1-07.2 State Taxes, including its sub-sections, in its entirety, and replace it with the following:

1-07.2 State Sales Tax

The Washington State Department of Revenue has issued special rules on the State sales tax. Sections 1-07.2(1) through 1-07.2(3) are meant to clarify those rules. The Contractor should contact the Washington State Department of Revenue for answers to questions in this area. The Contracting Agency will not adjust its payment if the Contractor bases a bid on a misunderstood tax liability.

The Contractor shall include all Contractor-paid taxes in the unit bid prices or other contract amounts. In some cases, however, state retail sales tax will not be included. Section 1-07.2(2) describes this exception.

The Contracting Agency will pay the retained percentage (or release the Contract Bond if a FHWA-funded Project) only if the Contractor has obtained from the Washington State Department of Revenue a certificate showing that all contract-related taxes have been paid (RCW 60.28.051). The Contracting Agency may deduct from its payments to the Contractor any amount the Contractor may owe the Washington State Department of Revenue, whether the amount owed relates to this contract or not. Any amount so deducted will be paid into the proper State fund.

1-07.2(1) State Sales Tax — Rule 171

WAC 458-20-171, and its related rules, apply to building, repairing, or improving streets, roads, etc., which are owned by a municipal corporation, or political subdivision of the state, or by the United States, and which are used primarily for foot or vehicular traffic. This includes storm or combined sewer systems within and included as a part of the street or road drainage system and power lines when such are part of the roadway lighting system. For work performed in such cases, the Contractor shall include Washington State Retail Sales Taxes in the various unit bid item prices, or other contract amounts, including those that the Contractor pays on the purchase of the materials, equipment, or supplies used or consumed in doing the work.

1-07.2(2) State Sales Tax — Rule 170

WAC 458-20-170, and its related rules, apply to the constructing and repairing of new or existing buildings, or other structures, upon real property. This includes, but is not limited to, the construction of streets, roads, highways, etc., owned by the state of Washington; water mains and their appurtenances; sanitary sewers and sewage disposal systems unless such sewers and disposal systems are within, and a part of, a street or road drainage system; telephone, telegraph, electrical power distribution lines, or other conduits or lines in or above streets or roads, unless such power lines become

a part of a street or road lighting system; and installing or attaching of any article of tangible personal property in or to real property, whether or not such personal property becomes a part of the realty by virtue of installation.

For work performed in such cases, the Contractor shall collect from the Contracting Agency, retail sales tax on the full contract price. The Contracting Agency will automatically add this sales tax to each payment to the Contractor. For this reason, the Contractor shall not include the retail sales tax in the unit bid item prices, or in any other contract amount subject to Rule 170, with the following exception.

Exception: The Contracting Agency will not add in sales tax for a payment the Contractor or a subcontractor makes on the purchase or rental of tools, machinery, equipment, or consumable supplies not integrated into the project. Such sales taxes shall be included in the unit bid item prices or in any other contract amount.

1-07.2(3) Services

The Contractor shall not collect retail sales tax from the Contracting Agency on any contract wholly for professional or other services (as defined in Washington State Department of Revenue Rules 138 and 244).

E. Supplement Standard Specifications **Section 1-07.14 Responsibility for Damage** with the following:

The Contractor further agrees that it is waiving immunity under Industrial Insurance Law Title 51 RCW for any claims brought against the City by its employees. In the event Contractor fails, after receipt of timely notice from the City, to appear, defend, or pay as required by the first paragraph of this section, then in that event and in that event only, the City may in its sole discretion, deduct from the progress payments to the Contractor and pay any amount sufficient to pay any claim, of which the City may have knowledge and regardless of the informalities of notice of such claim, arising out of the performance of this contract, provided the City has theretofore given notice of receipt of such claim to the Contractor and the Contractor has failed to act thereon.

F. In Standard Specifications **Section 1-07.15(1) Spill Prevention, Control, and Countermeasures Plan**, supplement the list under SPCC Plan Element Requirements with the following:

2. City of Kirkland spill response hotline (425) 587-3900 shall be listed as the first point of contact.

G. Supplement Standard Specifications **Section 1-07.17 Utilities and Similar Facilities** with the following:

Locations and dimensions shown in the Plans for existing facilities are in accordance with available information obtained without uncovering, measuring, or other verification.

The Contractor is alerted to the existence of Chapter 19.122 RCW, a law relating to underground utilities. Any cost to the Contractor incurred as a result of this law shall be at the Contractor's expense.

No excavation shall begin until all known facilities in the vicinity of the excavation area have been located and marked.

The Contractor shall give advance notice to all utility companies involved where work is to take place and in all other respects comply with the provisions of Chapter 19.122 RCW. Notice shall include, but not be limited to, the following utility companies:

1. Water, sewer, storm, streets – minimum two working days in advance
2. Power (Electric and Natural Gas) – minimum 48 hours in advance
3. Telephone – minimum 30 days in advance
4. Natural Gas – minimum 48 hours in advance
5. Cable Television – minimum 48 hours in advance
6. Transit – minimum 21 days in advance

The following is a list of some utilities serving the Kirkland area. This is not intended or represented to be a complete list and is provided for the Contractor's convenience.

Utility	**Agency/Company**	**Address**	**Contact**	**Phone**
Water	City of Kirkland	123 Fifth Avenue Kirkland, WA 98033	Tom Chriest	(425) 587-3900
Sewer / Storm Drainage	City of Kirkland	123 Fifth Avenue Kirkland, WA 98033	Scott Helsel – Sewer Jason Osborn - Storm	(425) 587-3900
Water / Sewer (North area of Kirkland)	Northshore Utility District	6380 NE 185th St Kenmore, WA 98028	Tom Alexieff	(425) 398-4420
Street	City of Kirkland	123 Fifth Avenue Kirkland, WA 98033	John Pantzke	(425) 587-3900
Natural Gas / Electric	Puget Sound Energy	P.O. Box 97034 EST-11W	Sharon Seitz	(206) 643-1908

		Bellevue, Washington 98009-9734		
Telephone/ FIOS	Frontier Communications		Jay Schwab	(425) 263-4019
Cable Television	Comcast	1525 - 75th St SW, Suite 200 Everett, WA 98203	Raymond Pilkenton	(425) 263-5332
School District Transportation	Lake Washington School District	15212 NE 95th St Redmond, WA 98052	Jeff Miles	(425) 936-1120
Transit	King County METRO	MS SVQ-TR-0100 1270 6th Ave S Seattle, WA 98134	METRO Construction Information Center	(206) 477-1140 (206) 477-0438
Water (Northeast area of Kirkland)	Woodinville Water District	17238 NE Woodinville Duvall Road, Woodinville, WA 98072	Ken McDowell	(425) 487-4104

Note that most utility companies may be contacted for locations through the "One Call" system, 1-800-424-5555. In the event of a gas emergency, call 911 and then the PSE hotline at 1-888-225-5773 (1-888-CALL-PSE).

The Contractor shall coordinate the work with these utilities and shall notify the Engineer in advance of any conflicts affecting the work schedule. The utility companies shall witness or perform all shutdowns, connections or disconnections.

Wherever in the course of the construction operation it becomes necessary to cause an outage of utilities, it shall be the Contractor's responsibility to notify the affected users not less than twenty-four (24) hours in advance of the creation of such outage. The Contractor shall make reasonable effort to minimize the duration of outages.

The Contractor shall be responsible for any breakage of utilities or services resulting from its operations and shall hold the City and its agents harmless from any claims resulting from disruption of, or damage to, same.

Other Notifications

Service Area Turn Off: All service area turn off notices must be distributed to affected parties two working days in advance of any scheduled shut off. City to provide door hangers and affected service area map. The contractor shall fill in all required information prior to hanging door hanger.

Entry onto Private Property: Each property owner shall be given two working days advance Written Notice prior to entry by the Contractor.

Loop Detection Systems: Where an excavation is to take place through a signal loop detector system, the Contractor shall provide at least five (5) Working Days advance notice to the City Signal Shop at (425) 587-3920 to coordinate temporary signal wire disconnect and installation of temporary signal detection equipment.

Survey Monuments: Contractor shall submit and satisfy all requirements of the "Application for Permit to Remove or Destroy A Survey Monument" with the DNR prior to removal and replacement of existing monuments. A copy of the permit shall be provided to the Engineer. When proposed pavement removal is close to existing survey monumentation, or proposed pavement removal includes existing survey monumentation, the Contractor shall provide a minimum 4 Working Days advance notice to the Engineer to allow survey crews to tie the monument out and reset the monument after pavement installation.

H. Supplement Standard Specifications **Section 1-07.17(2) Utility Construction, Removal or Relocation by Others** with the following:

Under no circumstances will discrepancies in location or incompleteness in description of existing utilities or improvements, whether they are visible from the surface, buried, or otherwise obscured, be considered as a basis for additional compensation to the Contractor.

I. Delete Standard Specifications **Section 1-07.18 Public Liability and Property Damage Insurance** in its entirety, and replace it with the following:

1-07.18(1) General Requirements

A. The Contractor shall obtain the insurance described in this section from insurers approved by the State Insurance Commissioner pursuant to RCW Title 48. The insurance must be provided by an insurer with a rating of A-: VII or higher in the A.M. Best's Key Rating Guide, which is licensed to do business in the state of Washington (or issued as a surplus line by a Washington Surplus lines broker). The Contracting Agency reserves the right to approve or reject the insurance provided, based on the insurer (including financial condition), terms and coverage, the Certificate of Insurance, and/or endorsements.

B. The Contractor shall keep this insurance in force during the term of the contract and for thirty (30) days after the Physical Completion date, unless otherwise indicated (see C. below).

C. If any insurance policy is written on a claims made form, its retroactive date, and that of all subsequent renewals, shall be no later than the effective date of this Contract. The policy shall state that coverage is claims made, and state the retroactive date. Claims-made form coverage shall be maintained by the Contractor for a minimum of 36 months following the Final Completion or earlier termination of this contract, and the Contractor shall annually provide the Contracting Agency with proof of renewal. If renewal of the claims made form of coverage becomes unavailable, or economically prohibitive, the Contractor shall purchase an extended reporting period ("tail") or execute another form of guarantee acceptable to the Contracting Agency to assure financial responsibility for liability for services performed.

D. The insurance policies shall contain a "cross liability" provision.

E. The Contractor's and all subcontractors' insurance coverage shall be primary and non-contributory insurance as respects the Contracting Agency's insurance, self-insurance, or insurance pool coverage.

F. The Contractor shall provide the Contracting Agency and all Additional Insureds with written notice of any policy cancellation, within two business days of their receipt of such notice.

G. Upon request, the Contractor shall forward to the Contracting Agency a full and certified copy of the insurance policy(s).

H. The Contractor shall not begin work under the contract until the required insurance has been obtained and approved by the Contracting Agency.

I. Failure on the part of the Contractor to maintain the insurance as required shall constitute a material breach of contract, upon which the Contracting Agency may, after giving five business days' notice to the Contractor to correct the breach, immediately terminate the contract or, at its discretion, procure or renew such insurance and pay any and all premiums in connection therewith, with any sums so expended to be repaid to the Contracting Agency on demand, or at the sole discretion of the Contracting Agency, offset against funds due the Contractor from the Contracting Agency.

J. All costs for insurance shall be incidental to and included in the unit or lump sum prices of the contract and no additional payment will be made.

1-07.18(2) Additional Insured

All insurance policies, with the exception of Professional Liability and Workers Compensation, shall name the following listed entities as additional insured(s):

- the Contracting Agency and its officers, elected officials, employees, agents, and volunteers
- Consultants hired by the Contracting Agency to administer the Construction

The above-listed entities shall be additional insured(s) for the full available limits of liability maintained by the Contractor, whether primary, excess, contingent or otherwise, irrespective of whether such limits maintained by the Contractor are greater than those required by this Contract, and irrespective of whether the Certificate of Insurance provided by the Contractor pursuant to 1-07.18(3) describes limits lower than those maintained by the Contractor.

1-07.18(3) Subcontractors

Contractor shall ensure that each subcontractor of every tier obtains and maintains at a minimum the insurance coverages listed in 1-07.18(5)A and 1-07.18(5)B. Upon request of the Contracting Agency, the Contractor shall provide evidence of such insurance.

1-07.18(4) Evidence of Insurance

The Contractor shall deliver to the Contracting Agency a Certificate(s) of Insurance and endorsements for each policy of insurance meeting the requirements set forth herein when the Contractor delivers the signed Contract for the work. The certificate and endorsements must conform to the following requirements:

1. An ACORD certificate or a form determined by the Contracting Agency to be equivalent.
2. Copies of all endorsements naming Contracting Agency and all other entities listed in 1-07.18(2) as Additional Insured(s), showing the policy number. The Contractor may submit a copy of any blanket additional insured clause from its policies instead of a separate endorsement. A statement of additional insured status on an ACORD Certificate of Insurance shall not satisfy this requirement.

3. Any other amendatory endorsements to show the coverage required herein.

1-07.18(5) Coverages and Limits

The insurance shall provide the minimum coverages and limits set forth below. Providing coverage in these stated minimum limits shall not be construed to relieve the Contractor from liability in excess of such limits. All deductibles and self-insured retentions must be disclosed and are subject to approval by the Contracting Agency. The cost of any claim payments falling within the deductible shall be the responsibility of the Contractor.

1-07.18(5)A Commercial General Liability

A policy of Commercial General Liability Insurance, including:

Per project aggregate

Premises/Operations Liability

Products/Completed Operations – for a period of one year following final acceptance of the work.

Personal/Advertising Injury

Contractual Liability

Independent Contractors Liability

Stop Gap / Employers' Liability

Explosion, Collapse, or Underground Property Damage (XCU)

Blasting (only required when the Contractor's work under this Contract includes exposures to which this specified coverage responds)

Such policy must provide the following minimum limits:

$1,000,000 Each Occurrence

$2,000,000 General Aggregate

$1,000,000 Products & Completed Operations Aggregate

$1,000,000 Personal & Advertising Injury, each offence

Stop Gap / Employers' Liability

$1,000,000 Each Accident

$1,000,000 Disease - Policy Limit

$1,000,000 Disease - Each Employee

1-07.18(5)B Automobile Liability

Automobile Liability for owned, non-owned, hired, and leased vehicles, with an MCS 90 endorsement and a CA 9948 endorsement attached if "pollutants" are to be transported. Such policy(ies) must provide the following minimum limit:

$1,000,000 combined single limit

1-07.18(5)C Workers' Compensation

The Contractor shall comply with Workers' Compensation coverage as required by the Industrial Insurance laws of the state of Washington.

1-07.18(5)F Excess or Umbrella Liability

The Contractor shall provide Excess or Umbrella Liability coverage at limits of **$3,000,000** per occurrence and annual aggregate. This excess or umbrella liability coverage shall apply, at a minimum, to both the Commercial General and Auto insurance policy coverage.

This requirement may be satisfied instead through the Contractor's primary Commercial General and Automobile Liability coverage, or any combination thereof.

1-07.18(5)H Professional Liability

The Contractor and/or its Subcontractor and/or its design consultant providing construction management, value engineering, or any other design-related non-construction professional services shall provide evidence of Professional Liability insurance covering professional errors and omissions. Such policy must provide the following minimum limits:

$1,000,000 per Claim

If the scope of such design-related professional services includes work related to pollution conditions, the Professional Liability insurance shall include Pollution Liability coverage.

If insurance is on a claims made form, its retroactive date, and that of all subsequent renewals, shall be no later than the effective date of this Contract.

J. Supplement Standard Specifications **Section 1-07.23 Public Convenience and Safety** with the following:

No road or street shall be closed to the public except as permitted in these plans and specifications or with the approval of the Engineer and proper governmental authority. Fire hydrants on or adjacent to the work shall be

kept accessible to fire fighting equipment at all times. Provision shall be made by the Contractor to ensure the proper functioning of all gutters, sewer inlets, drainage ditches and culverts, irrigation ditches and natural water courses, and storm sewer facilities throughout the project. Temporary interruption of service will be allowed only with the permission of the Engineer.

The Kirkland Police Department and Kirkland Fire Department shall be notified at least four (4) hours in advance of any actions by the Contractor that may affect the functions of either the Police Department or Fire Department.

The Contractor shall conduct its work and take preventative measures so that dust or other particulate matter in the project area shall not become objectionable to the adjacent property owners or general public. Should the Owner determine the Contractor is not fulfilling its obligation in this regard; the Owner reserves the right to take such action as may be necessary to remedy the objectionable condition and to charge the Contractor with any cost that may be incurred in such remedial action. All work shall be carried on with due regard for the safety of the public. No driveway, whether public, commercial, or private, may be closed without prior approval of the Owner, project supervisor, or Engineer unless written authority has been given by the affected property owner. The Contractor shall be responsible for notifying the affected property owners 24 hours in advance of scheduled interruptions to access.

K. Revise the second paragraph of Standard Specifications **Section 1-07.23(1) Construction Under Traffic** to read:

To disrupt public traffic as little as possible, the Contractor shall permit traffic to pass through the work with the least possible inconvenience or delay. The Contractor shall maintain existing roads, streets, sidewalks, and paths within the project limits, keeping them open, and in good, clean, safe condition at all times. Deficiencies caused by the Contractor's operations shall be repaired at the Contractor's expense. Deficiencies not caused by the Contractor's operations shall be repaired by the Contractor when directed by the Engineer, at the Contracting Agency's expense. The Contractor shall also maintain roads, streets, sidewalks, and paths adjacent to the project limits when affected by the Contractor's operations. Snow and ice control will be performed by the Contracting Agency on all projects. Cleanup of snow and ice control debris will be at the Contracting Agency's expense. The Contractor shall perform the following:

1. Remove or repair any condition resulting from the work that might impede traffic or create a hazard.

2. Keep existing traffic signal and highway lighting systems in operation as the work proceeds. (The Contracting Agency will continue the route maintenance on such system.)
3. Maintain the striping on the roadway at the Contracting Agency's expense. The Contractor shall be responsible for scheduling when to renew striping, subject to the approval of the Engineer. When the scope of the project does not require work on the roadway, the Contracting Agency will be responsible for maintaining the striping.
4. Maintain existing permanent signing. Repair of signs will be at the Contracting Agency's expense, except those damaged due to the Contractor's operations.
5. Keep drainage structures clean to allow for free flow of water. Cleaning of existing drainage structures will be at the Contracting Agency's expense when approved by the Engineer, except when flow is impaired due to the Contractor's operations.

L. Supplement Standard Specifications **Section 1-07.23(1) Construction Under Traffic** with the following:

Pedestrian Control and Protection

When the work area encroaches upon a sidewalk, walkway or crosswalk area, special consideration must be given to pedestrian safety. Maximum effort must be made to separate pedestrians from the work area. Protective barricades, fencing, and bridges, together with warning and guidance devices and signs, shall be utilized so that the passageway for pedestrians is safe and well defined. Whenever pedestrian walkways are provided across excavations, they shall be provided with suitable handrails. Footbridges shall be safe, strong, free of bounce and sway, have a slip resistant coating, and be free of cracks, holes, and irregularities that could cause tripping. Ramps shall be provided at the entrance and exit of all raised footbridges, again to prevent tripping. Adequate illumination and reflectorization shall be provided during hours of darkness. All walkways shall be maintained with at least 4 feet clear width.

Where walks are closed by construction, an alternate walkway shall be provided, preferably within the planting strip.

Where it is necessary to divert pedestrians into the roadway, barricading or channeling devices shall be provided to separate the pedestrian walkway from the adjacent vehicular traffic lane. At no time shall pedestrians be diverted into a portion of a street used concurrently by moving vehicular traffic.

At locations where adjacent alternate walkways cannot be provided, appropriate signs shall be posted at the limits of construction and in advance of the closure at the nearest crosswalk or intersection to divert pedestrians across the street.

Physical barricades shall be installed to prevent visually impaired people from inadvertently entering a closed area. Pedestrian walkways shall be wheelchair accessible at all times. Pedestrian access shall be maintained to all properties adjacent to the construction site.

M. Delete Standard Specifications **Section 1-07.24 Rights of Way** in its entirety, and replace it with the following:

Street right of way lines, limits of easements, and limits of construction permits are indicated in the Plans. The Contractor's construction activities shall be confined within these limits, unless arrangements for use of private property are made.

Generally, the Contracting Agency will have obtained, prior to bid opening, all rights of way and easements, both permanent and temporary, necessary for carrying out the work. Exceptions to this are noted in the Bid Documents or will be brought to the Contractor's attention by a duly issued Addendum.

Whenever any of the work is accomplished on or through property other than public right of way, the Contractor shall meet and fulfill all covenants and stipulations of any easement agreement obtained by the Contracting Agency from the owner of the private property. Copies of the easement agreements may be included in the Contract Provisions or made available to the Contractor as soon as practical after they have been obtained by the Engineer.

The Contractor shall not proceed with any portion of the work in areas where right of way, easements or rights of entry have not been acquired until the Engineer certifies to the Contractor that the right of way or easement is available or that the right of entry has been received. If the Contractor is delayed due to acts of omission on the part of the Contracting Agency in obtaining easements, rights of entry or right of way, the Contractor will be entitled to an extension of time. The Contractor agrees that such delay shall not be a breach of contract.

Each property owner shall be given two working days' notice prior to entry by the Contractor. This includes entry onto easements and private property where private improvements must be adjusted.

The Contractor shall be responsible for providing, without expense or liability to the Contracting Agency, any additional land and access thereto that the Contractor may desire for temporary construction facilities, storage of materials, or other Contractor needs. However, before using any private property, whether adjoining the work or not, the Contractor shall file with the Engineer a written permission of the private property owner, and, upon vacating the premises, a written release from the property owner of each property disturbed or otherwise interfered with by reasons of construction pursued under this contract. The statement shall be signed by the private property owner, or proper authority acting for the owner of the private property affected, stating that permission has been granted to use the property and all necessary permits have been obtained or, in the case of a release, that the restoration of the property has been satisfactorily accomplished. The statement shall include the parcel number, address, and date of signature. Written releases must be filed with the Engineer before the Completion Date will be established.

N. Supplement Standard Specifications **Section 1-07.24 Rights of Way** with the following:

The Contractor shall file with the Engineer signed property release forms (in the format as detailed below) for all properties disturbed or damaged by the Contractor's operations.

PROPERTY RELEASE

_____
_____
_____
(Contractor's name and address)

DATE: _____

I, _____ owner of _____, hereby release _____, ____*(Contractor's name)* from any property damage or personal injury resulting from construction on or adjacent to my property located at _____ during construction of the _____. My signature below is my acknowledgment and acceptance that my property, as identified above, was returned to a satisfactory condition.

Signed: _____
Name: _____
Address: _____
_____
Phone: _____

1.07 STANDARD SPECIFICATION **SECTION 1-08 PROSECUTION AND PROGRESS**:

A. Add the following new Standard Specifications **Section 1-08.0 Preliminary Matters**:

1-08.0(1) Preconstruction Conference

Prior to the Contractor beginning the work, a preconstruction conference will be held between the Contractor, the Engineer and such other interested parties as may be invited. The purpose of the preconstruction conference will be:

1. To review the initial progress schedule;
2. To establish a working understanding among the various parties associated or affected by the work;
3. To establish and review procedures for progress payment, notifications, approvals, submittals, etc.;
4. To establish normal working hours for the work;
5. To review safety standards and traffic control; and
6. To discuss such other related items as may be pertinent to the work.

The Contractor shall prepare and submit at the preconstruction conference the following:

7. A breakdown of all lump sum items;
8. A preliminary schedule of working drawing submittals;
9. A list of material sources for approval if applicable;
10. A schedule of submittals;
11. Environmental, Traffic, Safety and Other Plans, as applicable; and
12. Requests to sublet for all subcontractors performing work valued at over one-percent of the contract amount.

Add the following new Standard Specifications section:

1-08.0(2) Hours of Work

Except in the event of an emergency, no work shall be done between the hours of 6:00 p.m. and 7:00 a.m., or weekends (except driveway construction), or holidays observed by the City of Kirkland and identified in Section 1-08.5 of the Standard Specifications. If the proper and efficient prosecution of the work requires operations during the night, hours of operation more than 8 hours per day, or work weeks greater than 40 hours in duration, the written

permission of the Owner shall be obtained before starting such items of the work and shall be in full compliance with terms therewith.

Except in the case of emergency or unless otherwise approved by the Contracting Agency, the normal straight time working hours for the contract shall be any consecutive 8-hour period between 7:00 a.m. and 6:00 p.m. of a working day with a maximum 1-hour lunch break and a 5-day work week. The normal straight time 8-hour working period for the contract shall be established at the preconstruction conference or prior to the Contractor commencing the work.

If a Contractor desires to perform work on holidays, Saturdays, Sundays, or before 7:00 a.m. or after 6:00 p.m. on any day, the Contractor shall apply in writing to the Engineer for permission to work such times. Permission to work longer than an 8-hour period between 7:00 a.m. and 6:00 p.m. is not required. Such requests shall be submitted to the Engineer no later than noon on the working day prior to the day for which the Contractor is requesting permission to work.

Permission to work between the hours of 10:00 p.m. and 7:00 a.m. during weekdays and between the hours of 10:00 p.m. and 9:00 a.m. on weekends or holidays may also be subject to noise control requirements. Approval to continue work during these hours may be revoked at any time the Contractor exceeds the Contracting Agency's noise control regulations or complaints are received from the public or adjoining property owners regarding the noise from the Contractor's operations. The Contractor shall have no claim for damages or delays should such permission be revoked for these reasons.

Permission to work Saturdays, Sundays, holidays or other than the agreed upon normal straight time working hours Monday through Friday may be given subject to certain other conditions set forth by the Contracting Agency or Engineer. These conditions may include but are not limited to: requiring the Engineer or such assistants as the Engineer may deem necessary to be present during the work; requiring the Contractor to reimburse the Contracting Agency for the costs in excess of straight-time costs for Contracting Agency employees who worked during such times, on non Federal aid projects; considering the work performed on Saturdays and holidays as working days with regards to the contract time; and considering multiple work shifts as multiple working days with respect to contract time even though the multiple shifts occur in a single 24-hour period. Assistants may include, but are not limited to, survey crews; personnel from the Contracting Agency's material testing lab; inspectors; and other Contracting Agency employees when in the opinion of the Engineer, such work necessitates their presence.

Arterial Streets

No work will be performed on arterial streets during the peak traffic hours of 7:00 a.m. – 9:00 a.m. and 3:30 p.m. – 6:00 p.m., except emergency work to restore services, unless a City-approved traffic control plan allows work during the peak hours. The following streets are classified as arterials:

STREET	***FROM***	***TO***
Central Way/NE 85th St	Market St	132nd Ave NE
Juanita Dr NE /NE Juanita Dr	NE 143rd St (City Limits)	98th Ave NE
Juanita Woodinville Way	100th Ave NE	NE 145th St (City Limits)
Lake St/Lake Washington Blvd/Northup Wy	Central Way	Northup Way (City Limits)
Kirkland Ave/Kirkland Way	Lake St	NE 85th St
Lakeview Dr /NE 68th St/NE 70th St	Lake Washington Blvd	132nd Ave NE
Market St/98th Ave NE/100th Ave NE	Central Way	NE 145th St (City Limits)
NE 116th St	98th Ave NE	Slater Ave NE
NE 120th St/132nd Ave NE	Slater Ave NE	NE 60th St (City Limits)
NE 124th St	100th Ave NE	East City Limits
NE 128th St	116th Ave NE/116th Way NE	120th Ave NE
Simonds Rd NE	92nd Ave NE (City Limits)	100th Ave NE
Slater Ave NE	NE 116th St	NE 124th St
Totem Lake Blvd	NE 132nd St	124th Ave NE
3rd Street/State Street	Central Way	NE 68th Street/Lakeview Dr.
6th St/6th St S/108th Ave NE	Central Way/NE 85th St	South City Limits
90th Ave NE/NE 131st Way/NE 132nd St	NE 134th St	132nd Ave NE
120th Ave NE/116th Ave NE/116th Way NE	NE 112th St	NE 132nd St
124th Ave NE	NE 85th St	NE 124th St
124th Ave NE	NE 132nd St	NE 145th Pl (City Limits)

1-08.0(3) Reimbursement for Overtime Work of Contracting Agency Employees

Where the Contractor elects to work on a Saturday, Sunday, or holiday, or longer than an 8-hour work shift on a regular working day, as defined in the Standard Specifications, such work shall be considered as overtime work. On all such overtime work an inspector will be present, and a survey crew may be required at the discretion of the Engineer. In such case, the Contracting Agency may deduct from amounts due or to become due to the Contractor

for the costs in excess of the straight-time costs for employees of the Contracting Agency required to work overtime hours.

The Contractor by these specifications does hereby authorize the Engineer to deduct such costs from the amount due or to become due to the Contractor.

B. Supplement Standard Specifications **Section 1-08.1 Subcontracting** with the following:

A Subcontractor or an Agent to the Subcontractor will not be permitted to perform any work under the contract until the following documents have been completed and submitted to the Engineer:

1. Request to Sublet Work (form 421-012).
2. Statement of Intent to Pay Prevailing Wages (Form 700-029-000).

The Contractor's records pertaining to the requirements of this Special Provision shall be open to inspection or audit by representatives of the Department during the life of the contract and for a period of not less than three years after the date of acceptance of the contract. The Contractor shall retain these records for that period. The Contractor shall also guarantee that these records of all Subcontractors and Agents shall be open to similar inspection or audit for the same period.

C. Add Standard Specifications **Section 1-08.3 Progress Schedule:**

The order of work will be at the Contractor's option, in keeping with good construction practice and the terms of the contract. All work shall be carried out in accordance with the requirements of the City of Kirkland in compliance with the plans and specifications. However, the Contractor shall so schedule the work within the time constraints noted in the various contract documents, including any permits. The Contractor is cautioned to review said documents and permits and schedule the work appropriately as no additional compensation will be made to the Contractor due to the time constraints imposed by such documents.

1-08.3(1) Scheduling General

The Contractor is responsible for planning, scheduling, managing, and reporting the progress of the work in accordance with all of the methods and submittals described in Section 1-08.3.

1-08.3(2) Scheduling Review and Acceptance

The Contractor's schedule submittals will be reviewed by the Engineer; such review shall not constitute an approval, control or direction over the

Contractor's construction means, methods, sequencing or its ability to complete the Work in a timely manner.

The initial schedule is referred to as the Preliminary Schedule. Upon receipt and acceptance by the Engineer, it is referred to as the Baseline Schedule. Weekly revisions are termed Update Schedules. If major delays require drastic revision to the schedule, it is referred to as the Recovery Schedule.

D. Revise Standard Specifications **Section 1-08.3(2)A Type A Progress Schedule** to read:

The Contractor shall submit three copies of a Type A Progress Schedule no later than at the preconstruction conference, or some other mutually agreed upon submittal time. The schedule may be a critical path method (CPM) schedule, bar chart, or other standard schedule format. Regardless of which format used, the schedule shall identify the critical path. The Engineer will evaluate the Type A Progress Schedule and approve or return the schedule for corrections within 15 calendar days of receiving the submittal. The Contractor shall provide electronic copies of the schedule as requested by the Contracting Agency.

The Contractor shall update the progress schedule, showing all work through the physical completion date, on a weekly basis and submit to the Engineer by 5 P.M. of each Friday.

E. Add **Section 1-08.3(3) Scheduling – Failure to Comply** as follows:

Failure by the Contractor to provide the required Preliminary Schedule information will result in a delay of the Engineer's issuance of a Notice-to-Proceed for the Contractor to begin work. Failure by the Contractor to provide the required weekly Update Schedules may result in either default termination or denial of partial or all progress payments until such time as the required schedule information is submitted, at the sole option of the Engineer.

F. Delete Standard Specifications **Section 1-08.4 Prosecution of Work** in its entirety, and replace it with the following:

Notice to Proceed will be given after the Contract has been executed and the contract bond and evidence of insurance have been approved and filed by the Contracting Agency. The Contractor shall not commence with the work until the Notice to Proceed has been given by the Engineer. The Contractor shall commence construction activities on the project site within ten days of the Notice to Proceed Date, unless otherwise approved in writing. The Contractor shall diligently pursue the work to the physical completion date within the time specified in the Contract. Voluntary

shutdown or slowing of operations by the Contractor shall not relieve the Contractor of the responsibility to complete the work within the time(s) specified in the Contract.

When shown in the Plans, the first order of work shall be the installation of high visibility fencing to delineate all areas for protection or restoration, as described in the Contract. Installation of high visibility fencing adjacent to the roadway shall occur after the placement of all necessary signs and traffic control devices in accordance with 1-10.1(2). Upon construction of the fencing, the Contractor shall request the Engineer to inspect the fence. No other work shall be performed on the site until the Contracting Agency has accepted the installation of high visibility fencing, as described in the Contract.

G. Revise the third and fourth paragraphs of Standard Specifications **Section 1-08.5 Time for Completion** to read:

Contract time shall begin on the first working day following the Notice to Proceed Date.

Each working day shall be charged to the contract as it occurs, until the contract work is physically complete. If substantial completion has been granted and all the authorized working days have been used, charging of working days will cease. Each week the Engineer will provide the Contractor a statement that shows the number of working days: (1) charged to the contract the week before; (2) specified for the physical completion of the contract; and (3) remaining for the physical completion of the contract. The statement will also show the nonworking days and any partial or whole day the Engineer declares as unworkable. Within 10 calendar days after the date of each statement, the Contractor shall file a written protest of any alleged discrepancies in it. To be considered by the Engineer, the protest shall be in sufficient detail to enable the Engineer to ascertain the basis and amount of time disputed. By not filing such detailed protest in that period, the Contractor shall be deemed as having accepted the statement as correct. If the Contractor is approved to work 10 hours a day and 4 days a week (a 4-10 schedule) and the fifth day of the week in which a 4-10 shift is worked would ordinarily be charged as a working day then the fifth day of that week will be charged as a working day whether or not the Contractor works on that day.

H. Revise the sixth paragraph of Standard Specifications **Section 1-08.5 Time for Completion** to read:

The Engineer will give the Contractor written notice of the completion date of the contract after all the Contractor's obligations under the contract have

been performed by the Contractor. The following events must occur before the Completion Date can be established:

1. The physical work on the project must be complete; and
2. The Contractor must furnish all documentation required by the contract and required by law, to allow the Contracting Agency to process final acceptance of the contract. The following documents must be received by the Project Engineer prior to establishing a completion date:
   a. Certified Payrolls (per Section 1-07.9(5))
   b. Material Acceptance Certification Documents
   c. Quarterly Report of Amounts Credited as DBE Participation, as required by the Contract Provisions.
   d. Final Contract Voucher Certification
   e. Copies of the approved "Affidavit of Prevailing Wages Paid" for the Contractor and all Subcontractors
   f. Property owner releases per Section 1-07.24

I. Supplement Standard Specifications **Section 1-08.5 Time for Completion** with the following:

This project shall be substantially complete within 250 working days.

J. Revise the second paragraph of Standard Specifications **Section 1-08.7 Maintenance During Suspension** to read:

At no expense to the Contracting Agency, the Contractor shall provide through the construction area a safe, smooth, and unobstructed roadway, sidewalk, and path for public use during suspension (as required in Section 1-07.23 or the General Conditions). This may include a temporary road or detour.

K. Revise the third paragraph of Standard Specifications **Section 1-08.9 Liquidated Damages** to read:

Accordingly, the Contractor agrees:

1. To pay (according to the following formula) liquidated damages for each working day beyond the number of working days established for Physical Completion, and

2. To authorize the Engineer to deduct these liquidated damages from any money due or coming to the Contractor.

LIQUIDATED DAMAGES FORMULA

For C > $50,000 → LD = 0.15 × C ÷ T, and
For C ≤ $50,000 → LD = 0.30 × C ÷ T.

Where:
LD = liquidated damages per working day (rounded to the nearest dollar)
C = original Contract amount
T = original time for Physical Completion

L. Revise the fourth paragraph of Standard Specifications **Section 1-08.9 Liquidated Damages** to read:

When the Contract Work has progressed to Substantial Completion as defined in the Contract. The Engineer may determine that the work is Substantially Complete. The Engineer will notify the Contractor in writing of the Substantial Completion Date. For overruns in Contract time occurring after the date so established, the formula for liquidated damages shown above will not apply. For overruns in Contract time occurring after the Substantial Completion Date, liquidated damages shall be assessed on the basis of direct engineering and related costs assignable to the project until the actual Physical Completion Date of all the Contract Work. The Contractor shall complete the remaining Work as promptly as possible. Upon request by the Project Engineer, the Contractor shall furnish a written schedule for completing the physical Work on the Contract.

M. Supplement Standard Specifications **Section 1-08.9 Liquidated Damages** as follows:

The Contractor is responsible for all fines and other costs incurred by the Contracting Agency as a result of the Contractor not completing the Work with the conditions specified for the in-water work identified in the Hydraulic Project Approval issued by the Department of Fish and Wildlife.

1.08 STANDARD SPECIFICATIONS **SECTION 1-09 – MEASUREMENT AND PAYMENT**

A. Supplement the last paragraph of Standard Specifications **Section 1-09.2(1) General Requirements for Weighing Equipment** with the following:

Trucks and Tickets

All tickets shall, at a minimum, contain the following information:

7. Ticket serial number
8. Date and hour of weighing
9. Weigher's identification

Duplicate tally tickets shall be prepared to accompany each truckload of materials delivered to the project.

It is the responsibility of the Contractor to see that tickets are given to the Inspector on the project for each truckload of material delivered. Pay quantities will be prepared on the basis of said tally tickets, delivered to the Inspector at time of delivery of materials. Tickets not collected at the time of delivery will not be honored for payment.

B. Supplement Standard Specifications **Section 1-09.9 Payments** with the following:

Lump sum item breakdowns are not required when the bid price for the lump sum item is less than $20,000.

C. Delete the first four paragraphs of Standard Specifications **Section 1-09.9 Payments** and replace with the following:

The basis of payment will be the actual quantities of Work performed according to the Contract and as specified for payment.

The Contractor shall submit a breakdown of the cost of lump sum bid items at the Preconstruction Conference, to enable the Project Engineer to determine the Work performed on a monthly basis. A breakdown is not required for lump sum items that include a basis for incremental payments as part of the respective Specification. Absent a lump sum breakdown, the Project Engineer will make a determination based on information available. The Project Engineer's determination of the cost of work shall be final.

Progress payments for completed work and material on hand will be based upon progress estimates prepared by the Engineer. A progress estimate cutoff date will be established at the preconstruction conference.

The initial progress estimate will be made not later than 30 days after the Contractor commences the work, and successive progress estimates will be made every month thereafter until the Completion Date. Progress estimates made during progress of the work are tentative, and made only for the purpose of determining progress payments. The progress estimates are subject to change at any time prior to the calculation of the final payment.

The value of the progress estimate will be the sum of the following:

1. Unit Price Items in the Bid Form — the approximate quantity of acceptable units of work completed multiplied by the unit price.

2. Lump Sum Items in the Bid Form — based on the approved Contractor's lump sum breakdown for that item, or absent such a breakdown, based on the Engineer's determination.
3. Materials on Hand — 100 percent of invoiced cost of material delivered to Job site or other storage area approved by the Engineer.
4. Change Orders — entitlement for approved extra cost or completed extra work as determined by the Engineer.

Progress payments will be made in accordance with the progress estimate less:

1. Retainage per Section 1-09.9(1), on non FHWA-funded projects;
2. The amount of progress payments previously made; and
3. Funds withheld by the Contracting Agency for disbursement in accordance with the Contract Documents.

Progress payments for work performed shall not be evidence of acceptable performance or an admission by the Contracting Agency that any work has been satisfactorily completed. The determination of payments under the contract will be final in accordance with Section 1-05.1.

Unless otherwise agreed to by both parties, the work period shall coincide with the calendar month. A check will be mailed or made available to the Contractor no later than thirty (30) days following the last day of the work period.

D. Delete Standard Specifications **Section 1-09.13(3) Claims $250,000 or Less** and replace it with the following:

The Contractor and the Contracting Agency mutually agree that those claims that total $250,000 or less, submitted in accordance with Section 1-09.11 and not resolved by nonbinding ADR processes, **provided Contracting Agency agreed to engage such ADR processes,** shall be resolved through litigation unless the parties mutually agree in writing to resolve the claim through binding arbitration.

E. Revise the third paragraph of Standard Specifications **Section 1-09.13(3)A Administration of Arbitration** to read:

The Contracting Agency and the Contractor mutually agree to be bound by the decision of the arbitrator, and judgment upon the award rendered by the arbitrator may be entered in the Superior Court of <u>the county in which the Contracting Agency's headquarters are located</u>. The decision of the arbitrator and the specific basis for the decision shall be in writing. The arbitrator shall use the contract as a basis for decisions.

F. Add a new **Section 1-09.14 Staging Area**:

The City will not provide a staging area for Contractor use. The Contractor shall utilize an off-site staging area other than the project site.

1.09 STANDARD SPECIFICATION **SECTION 1-10 – TEMPORARY TRAFFIC CONTROL**

A. Revise the third paragraph of Standard Specifications **Section 1-10.1(2) Description** to read:

The Contractor shall provide signs and other traffic control devices not otherwise specified as being furnished by the Contracting Agency. The Contractor shall erect and maintain all construction signs, warning signs, detour signs, and other traffic control devices necessary to warn and protect the public at all times from injury or damage as a result of the Contractor's operations which may occur on highways, roads, streets, sidewalks, or paths. No work shall be done on or adjacent to any traveled way until all necessary signs and traffic control devices are in place.

B. Delete the first and second sentences of Standard Specifications **Section 1-10.2(2) Traffic Control Plans** and replace with the following:

The Contractor shall submit a traffic control plan or plans showing a method of handling traffic including pedestrian and bicycle traffic. All construction signs, flaggers, spotters and other traffic control devices shall be shown on the traffic control plan(s) except for emergency situations.

END OF SECTION

TABLE OF CONTENTS—TECHNICAL SPECIFICATIONS
TOTEM LAKE PARK – Phase 1

PART 1 – GENERAL

1.01 SCOPE

A. The accompanying Contract Documents and Specifications show and describe the location and type of work to be performed under this project.

1. The Work under this Contract is to provide all labor and to furnish and/or install all materials and equipment, as may be required to complete the work, installed, tested, fully operational, ready for use, and as described in these Contract Documents.

2. Totem Lake Park Phase 1 is the first portion of a larger project to construct park infrastructure at Totem Lake. The work includes, but is not limited to, demolition of an approximate 6,000 SF wood framed building, site demolition and clearing, earthwork, asphalt paving, concrete paving, curbs and walls, storm drainage utilities, play area and safety surfacing installation, boardwalk construction on pipe piles, site furnishing installation, construct a new approximate 440 SF restroom building, irrigation and landscape installation, and mitigation in critical areas. This is a general description of the Work for bidder information, and it is not intended to be inclusive of all work requirements. All of the work elements are included in the Base Bid item, unit price bid items shown in the Bid Proposal Form, and defined in Section 01 20 00, Price and Payment Procedures.

3. The work includes mitigation for impacts in critical areas including but not limited to, Wetland Enhancement, Buffer Enhancement, and Buffer Restoration. See Permits, Drawings sheets LP001, LP101, LP102, LP103, and Specification Appendix H – Critical Areas Report.

1.02 RELATED WORK DESCRIBED ELSEWHERE

A. The provisions and intent of the Contract, including the Procurement and Contracting Requirements and General Requirements, apply to this work as if specified in this section. Work related to this section is described throughout the Specifications.

1.03 LOCATION

A. The work area for Phase 1 of the Totem Lake Park site is located at 12031 Totem Lake Way, in Kirkland, Washington.

1.04 ACCESS TO SITE

A. The Contractor shall have access to the Project site by city streets.

1.05 WORK BY OWNER ON THIS PROJECT

A. Coordination will be needed for the installation of sculptural art elements along the boardwalk that are part of a separate contract. The connection brackets are identified on the plans that these elements will connect to. Owner will coordinate installation of the freestanding features once boardwalk construction is complete.

1.06 ENGINEERING AND INSPECTION

A. The Project Engineer and Consultant will perform the necessary inspection work except as otherwise specified in the Specifications. Refer to Section 01 45 00, Quality Control, for general requirements.

1.07 COORDINATION

A. Owner Activities: The Contractor shall coordinate its activity with the Project Engineer, to minimize interference with Owner activities.

B. All costs associated with coordination of the work shall be considered incidental to the lump sum and unit prices set forth in Section 00 41 43, Bid Proposal.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

PART 1 – GENERAL

1.01 RELATED WORK DESCRIBED ELSEWHERE

A. The provisions and intent of the Contract, including the Standard Specifications and General Conditions apply to this work as if specified in this section. Work related to this section is described throughout the Specifications.

1.02 USE OF PREMISES

A. Use of Site: Limit use of premises to Work in areas indicated. Do not disturb portions of site beyond areas in which the Work is indicated. Disturbance outside the project limits (as shown in the Contract Drawings) is only to designated access points and storage areas as shown in the Contract Drawings or specified herein.

1. Limits: Confine construction operations to limits as shown in the Contract Drawings. In those locations where existing vegetation is to remain, the Contractor shall work around and protect the material from damage.

2. Easements: There are multiple easements for this project site. Owner has negotiated rights of entry to the following parcels to facilitate construction of the following work items. Refer to plans for full detail:

   a) Café Veloce (parcel 692840-0034) – This is a shared driveway to the park property that requires installation of a temporary driveway prior to installation of the construction access.

   b) Hotel Property (parcel 866327-0010) – Easement to construct a pathway and associated improvements along the edge of the wetland complex.

   c) Apartment Property (parcel 154200-0000) – Easement to construct a pathway and associated improvements along the edge of the wetland complex. The northern terminus of the boardwalk will also be constructed on a portion of this parcel.

   d) King County Conservation District Property (parcel 866327-0060) – Easement to construct the raised boardwalk through the Totem Lake Wetland complex.

3. Owner Occupancy: Allow for Owner access of site, but the public shall be restricted. Allow access for the adjacent homeowners to their site access and property. Their property is accessed at the east end of Totem Lake Way, toward the east edge of the Project site.

4. Driveways and Entrances: Keep driveways and entrances serving premises clear and available to the Owner, the Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials. This includes driveways and entrances to adjacent parcels accessed through easements.

   a) Schedule deliveries to minimize use of driveways and entrances.

   b) Schedule deliveries to minimize impacts to site access for adjacent parcels.

   c) No storage of materials or equipment is allowed that will block access or entrances.

5. Move any stored products, under Contractor's control, that interfere with the operations of the Owner or access to adjacent properties.

B. Protected Areas: The following areas within the project limits are to be protected from any and all negative impacts during construction including materials storage and silt laden runoff:

1. Stormwater outfalls.

2. The entire wetland boundary below Ordinary High Water Mark.

1.03 STAGING AND STOCKPILE AREAS

A. Staging and stockpile areas are limited to the areas shown in the Contract Drawings. Contractor's use of these areas shall be limited to purposes directly related to the construction of the Project. Prior to mobilization, Contractor shall submit a proposal at the Pre-construction Meeting for review by the Owner of these (and other) areas indicating specific use, access, restoration, and anticipated duration of use. No use of these areas is permitted until the Owner provides written approval of Contractor's proposal.

B. Contractor may provide legal staging and storage areas off-site at Contractor's discretion. If this occurs the contractor shall submit a temporary use permit for planning review and seek approval prior to staging in this location. All costs associated to this permit shall be incidental to the base bid. Provide the Owner with locations for approval. Protect downstream areas by covering or otherwise containing stockpiles of loose materials. Provide the Owner with a release from the property owner that states the site was returned in an acceptable condition and all obligations associated with its use have been met.

1.04 RESTORATION CLAUSE

A. Restore all areas disturbed by the construction process. All ingress or egress points that are disturbed will have to be regraded, reseeded, replanted, or repaved to restore them to original or better conditions.

B. Unless otherwise designated, protect all existing site features to remain from potential Contractor damage above and below grade. If unavoidable damage occurs, notify the Owner immediately, and a decision will be rendered as to how the Contractor shall replace or repair the damage, at the Contractor's expense.

C. Surround protected areas with highly visible fencing prior to the start of the Work.

1.05 NEW AND EXISTING WORK

A. Unless otherwise noted, any new Work authorized by the Owner shall be assumed to be performed in conditions corresponding to existing conditions and shall utilize similar material, workmanship, grade, and finish. Existing work shall be cut, drilled, altered, removed, or temporarily removed, and replaced for performance of Work under the Contract. Work replaced shall match similar existing work. Work remaining in place that is damaged during this Contract shall be restored to the condition at time of award of Contract, or replaced with new Work as determined by the Owner. Patch existing Work as required for proper interface.

1.06 EQUIPMENT STANDARDS

A. All equipment furnished and/or installed under this Contract shall meet safety requirements of all applicable codes.

1.07 PARKING

A. Parking for Contractor personnel on the Project site will be limited to an area within the Project boundaries as shown on the Contract Drawings or at other off-site locations arranged by the Contractor. The Contractor can obtain additional off-site parking, material stockpiling, and storage at the Contractor’s own expense with the approval of the Owner. The Contractor shall be responsible for ensuring that no nuisance is created for the Owner or adjacent properties, through use of the streets for Contractor parking and/or worker access.

1.08 TRUCK AND EQUIPMENT ACCESS

A. To avoid traffic conflict with local residents, and to avoid overloading of streets and driveways elsewhere on the Owner's property, limit the access of trucks and equipment to a route as approved by the Owner prior to mobilization.

B. Vehicular traffic is limited to the area within the Project limits, except areas designated for access.

1.09 PERMIT RESTRICTIONS AND REGULATORY REQUIREMENTS

A. The Contractor shall comply with all conditions in approved permits found in Appendix C and subsequently obtained by the Owner and Contractor. See Section 01 41 26, Permits, and Section 01 45 00, Quality Control.

1.10 SEQUENCING

A. See Section 01 32 00, Construction Progress Documentation, for a discussion of proposed construction sequencing.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

PART 1 – GENERAL

1.01 RELATED WORK DESCRIBED ELSEWHERE

A. Individual submittals are required in accordance with the pertinent sections of these Specifications.

1.02 PAYMENT PROCEDURES

A. Monthly pay estimates shall be addressed to Brian Baker – Senior Capital Projects Coordinator or designee, and hand delivered to her at the job site; mailed to 123 Fifth Avenue, Kirkland, WA 98033; or submitted electronically using Adobe PDF file format. PDF files can be e-mailed to bbaker@kirklandwa.gov.

B. Monthly pay estimates shall clearly identify the work performed for the given time period based on a percentage of work completed for lump sum bid items as presented in the approved "Schedule of Values" per Section 01 29 73, Schedule of Values, of the Specifications, and actual quantities installed for unit price items. Pay estimates that fail to meet these requirements shall be subject to the requirements of Section 00 72 00, General Conditions.

1.03 PAYMENT PRICING

A. Pricing for the various lump sum or unit prices in the Bid Proposal (Section 00 41 43), shall include all compensation to be received by the Contractor for furnishing all tools, equipment, supplies, and manufactured articles, and for all labor, operations, and incidentals appurtenant to the items of work being described, as necessary to complete the various items of the work in accordance with the requirements of the Contract Documents.

B. Pricing also includes all costs of compliance with the regulations of public agencies having jurisdiction, including safety and health requirements of the Occupational Safety and Health Administration (OSHA) of the U.S. Department of Labor, and the U.S. Longshore and Harbor Workers' Compensation Act.

C. No separate payment will be made for any item that is not specifically set forth in the Bid Proposal (Section 00 41 43), and all costs therefore shall be included in the prices named in the Bid Form for the various appurtenant items of work. All other work not specifically mentioned in the measurement and payment sections identified below shall be considered incidental to the work performed and merged into the various unit and lump sum bid prices. Payment for work under one item will not be paid for under any other item.

D. The Owner reserves the right to make changes should unforeseen conditions necessitate such changes. Where work is on a unit price basis, the actual quantities occasioned by such changes shall govern the compensation.

1.04 MEASUREMENT AND PAYMENT

A. Lump Sum Base Bid A-1: Payment for the lump sum price offered in the Bid proposal for the Base Bid Item shall include all work as noted. No measurement shall be made for the lump sum bid items. Payment for the lump sum Base Bid Item shall be based on a percentage of work complete in accordance with the approved Schedule of Values conforming to Section 01 29 73 of these Specifications. Payment shall be considered full compensation for furnishing all labor, materials, and equipment to complete the Base Bid Work as shown and specified in the Contract Documents.

B. Measurement and Payment for Unit Price Bid Items: The unit prices offered in the bid proposal form shall be considered full compensation for furnishing all labor, materials, equipment, and incidentals to complete each Unit Price Bid Item.

1. Unit Price Item B-1: Contaminated Soils and Creosote Pilings – Excavation, Haul, and Disposal

   a) Contaminated soils shall be excavated, hauled, and disposed of as requested by the Project Engineer. Contaminated materials shall consist of creosote pilings and soils and determined to be unsuitable for use on this Project by the Project Engineer per Section 02 06 00 Contaminated Soil Handling and Disposal. Assumed quantity of 150 tons shall be used as a basis of bid for the project.

   b) The Project Engineer shall determine the general extent, in terms of the area and depth, where unsuitable Contaminated Soils and Creosote Pilings shall be removed within the Project site.

   c) Unsuitable Contaminated Soils and Creosote Pilings shall be measured in Tons, based on truck tickets.

   d) Additional Contaminated Soils and Creosote Pilings – Excavation, Haul, and Disposal required to complete the construction shall be measured in tons, based on truck tickets.

2. Unit Price Item B-2: Pea Gravel Backfill for areas of Contaminated Soil and Creosote Piling removal.

   a) Pea Gravel Backfill shall be furnished and installed as requested by the Project Engineer. This material shall be used to backfill excavations where contaminated materials have been excavated. Assumed quantity of 150 tons shall be used as a basis of bid for the project.

   b) Pea Gravel Backfill material shall be AASHTO No. 8 material.

c) The Project Engineer shall determine the general extent, in terms of the area and depth, where Pea Gravel Backfill shall be furnished and installed within the Project site.

d) Pea Gravel Backfill for areas of Contaminated Soil and Creosote Piling removal shall be measured in Tons, based on truck tickets.

e) Additional Pea Gravel Backfill for areas of Contaminated Soil and Creosote Piling removal required to complete the construction shall be measured in tons, based on truck tickets.

3. Unit Price Item B-3: 2 inch Diameter Pipe Piles – Boardwalk Deep Foundation Installation

a) Installation of deep foundations for boardwalk construction assumed a quantity of (1,180) 10 foot length 2 inch diameter pipe piles based on information available in the Geotechnical Report. This information is to be used as a basis of bid for the project.

b) Include a 5% contingency in the bid for piles that need to be re-set due to hitting an obstruction or that do not meet refusal criteria.

c) Refusal criteria for the piles is identified in the Geotechnical Report and will be monitored on site. A daily log of pipe segments shall track quantity of material installed.

d) Additional pipe piles required to complete construction of the boardwalk deep foundations beyond the basis of bid shall be measured in number of installed 10 foot segment 2 inch diameter pipe piles. Piles shall be driven to meet requirements as identified on the plans.

4. Unit Price Item B-4: 4 inch Diameter Pipe Piles – Miscellaneous Park Elements Deep Foundation Installation

a) Installation of deep foundations for miscellaneous park elements assumed a quantity of (162) 10 foot length 4 inch diameter pipe piles based on information available in the Geotechnical Report. This information is to be used as a basis of bid for the project.

b) Include a 5% contingency in the bid for piles that need to be re-set due to hitting an obstruction or that do not meet refusal criteria.

c) Refusal criteria for the piles is identified in the Geotechnical Report and will be monitored on site. A daily log of pipe segments shall track quantity of material installed.

d) Additional pipe piles required to complete construction of the miscellaneous park element deep foundations beyond the basis of bid shall be measured in number of installed 10 foot segment 4 inch diameter pipe piles. Piles shall be driven to meet requirements as identified on the plans.

5. Unit Price Item B-5: 6 inch Diameter Pipe Piles – Restroom Building Deep Foundation Installation

a) Installation of deep foundations for the restroom building assumed a quantity of (54) 10 foot length 6 inch diameter pipe piles based on information available in the Geotechnical Report. This information is to be used as a basis of bid for the project.

b) Include a 5% contingency in the bid for piles that need to be re-set due to hitting an obstruction or that do not meet refusal criteria.

c) Refusal criteria for the piles is identified in the Geotechnical Report and will be monitored on site. A daily log of pipe segments shall track quantity of material installed.

d) Additional pipe piles required to complete construction of the restroom building deep foundations beyond the basis of bid shall be measured in number of installed 10 foot segment 6 inch diameter pipe piles. Piles shall be driven to meet requirements as identified on the plans.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

PART 1 – GENERAL

1.01 RELATED WORK DESCRIBED ELSEWHERE

A. The provisions and intent of the Contract, including the Standard Specifications and General Conditions, apply to this work as if specified in this section. Work related to this section is described throughout the Specifications.

1.02 QUALITY ASSURANCE

A. The Contract is based upon products and standards established in the Contract Documents without consideration of proposed substitutions.

B. Products specified define standard of quality, type, function, dimension, appearance, and performance required.

C. The Owner will consider proposals for substitutions of materials, equipment, and methods only when such proposals are accompanied by full and complete technical data as required by the Owner to evaluate the proposed substitution.

D. Do not substitute materials, equipment, or methods unless such substitution has been specifically approved in writing for this work by the Owner.

E. Do not substitute products unless substitution has been accepted and approved in writing by the Owner.

1.03 TIME OF SUBSTITUTION REQUESTS

A. Requests for substitutions must be made during the bidding period. Written requests by prime bidders for substitutions may be considered if received by the Owner at least 14 calendar days prior to the bid submittal deadline. The Owner may, in its sole discretion, defer the consideration of a proposed substitution until after Contract award. Use Substitution Request Form attached to this section.

B. Each substitution request shall, in accordance with the applicable provisions of Section 01 33 00, Submittal Procedures, describe the proposed substitution in its entirety, including the name of the material or equipment, drawings, catalog cuts, performance or test data, and all other information required for an evaluation. The submittal shall also include a statement noting all changes required in adjoining, dependent, or other interrelated work necessitated by the incorporation of the proposed substitution. The bidder shall bear the burden of proof to show that the proposed substitution meets or exceeds the required function and is equal or superior to the specification.

C. The Owner may require that samples be submitted or demonstration made prior to approval. The Owner's decision of approval or disapproval of a proposed substitution shall be final.

D. Approval of substitutions will be made by addenda during the bidding period. When, in the sole opinion of the Owner, the product is equivalent in all respects to the product specified, it will be approved subject to the Contract requirements and the Contractor's assumption of all responsibility therefore.

E. After written approval, this submission shall become a part of the Contract, and may not be deviated from except upon written approval of the Owner.

F. Catalog data for equipment approved by the Owner does not in any case supersede the Contract Documents. The approval by the Owner shall not relieve the Contractor from responsibility for deviations from the Contract Documents or Specifications, unless the Contractor has, in writing, called the Owner's attention to such deviations at the time of the submission, nor shall it relieve the Contractor from responsibility for errors of any sort in the items submitted. The Contractor shall check the work described by the catalog data with the Contract Documents for deviations and errors.

G. It shall be the responsibility of the Contractor to ensure that items to be furnished fit the space available. The Contractor shall make necessary field measurements to ascertain space requirements, including those for connections, and shall order such sizes and shapes of equipment that the final installation shall suit the true intent and meaning of the Contract Documents and Specifications.

H. Where equipment requiring different arrangement of connections from those shown as approved is used, the Contractor shall be responsible for installing the equipment to operate properly, and in harmony with the intent in the Contract Documents and Specifications, and to make all changes in the work required by the different arrangement of connections together with any cost of redesign necessitated thereby, all at the Contractor's expense.

I. Where the phrase "or equal" or "or equal as approved by the Owner" occurs in the Contract Documents, do not assume that material, equipment, or methods will be approved as equal by the Owner unless the item has specifically been approved as a substitution for this Work by the Owner.

J. The decision of the Owner shall be final.

1.04 SUBSTITUTION PROCEDURES

A. Limit each request to one proposed substitution.

B. Submit substitution requests on the required Substitution Request Form, complete with attachments necessary to fully document the proposed substitution. Submit in number of copies required for the Contractor's use and distribution, plus one copy to be retained by Owner and one copy to be retained by the Consultant, as applicable.

C. Document each request with supporting data substantiating compliance of proposed substitution with Contract Documents, including the following:

1. Manufacturer's name and address, product, trade name, model, or catalog number, performance and test data, and reference standards.

2. Itemized point-by-point comparison of proposed substitution with specified product, listing variations in quality, performance and other pertinent characteristics.

3. Reference to article and paragraph numbers in Specifications section.

4. Cost data comparing proposed substitution with specified product and amount of net change to Contract Sum.

5. Changes required in other Work.

6. Availability of maintenance service and source of replacement parts, as applicable.

7. Certified test data to show compliance with performance characteristics specified.

8. Samples, when applicable or requested.

9. Other information as necessary to assist Owner's evaluations.

D. A request for substitution constitutes a representation that the Contractor:

1. Has investigated proposed product and determined that it is equal or superior in all respects to the specified product.

2. Will provide identical or better warranty as required for specified product.

3. Will coordinate installation and make changes to other Work that may be required.

4. Waives claims for additional costs or time extension that may subsequently become apparent.

5. Certifies that proposed product will not affect or delay the Construction Progress Schedule.

6. Will pay for changes to building design, including architectural or engineering design, detailing, and construction costs caused by the requested substitution.

E. Substitutions will not be considered when:

1. Indicated or implied on shop drawings or product data submittals without formal request submitted in accordance with this section.

2. Submittal for substitution request has not been reviewed and approved by the Contractor.

3. Acceptance will require substantial revision of Contract Documents or other items of the Work.

4. Submittal for substitution request does not include point-by-point comparison of proposed substitution with specified product.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

SUBSTITUTION REQUEST FORM

Contractor:_____ Project: Totem Lake Park – Phase 1
Note: Limit this Request to One Proposed Substitution.

To: Engineer Date: _____ Request No.:_____

From: _____ Contractor _____ Subcontractor _____ Supplier _____ Manufacturer

Specified Item: Section: _____ Page:_____ Paragraph:_____

Proposed Substitution:

Manufacturer:_____ Address:_____ Phone No.:_____

Trade Name:_____ Model No.:_____

Installer:_____ Address:_____ Phone No.:_____

History:____ New Product ____ 2 to 5 years old ____ 5 to 10 years old ____ More than 10 years old

Differences between proposed substitution and specified product:

_____

Point-by-point comparison data attached - REQUIRED BY ENGINEER

Similar Installations:

Project:_____ Engineer:_____

Address:_____ Owner:_____

_____ Date Installed:_____

Project:_____ Engineer:_____

Address:_____ Owner:_____

_____ Date Installed:_____

Proposed substitution affects other parts of Work: _____ No _____ Yes; Explain

_____

_____

Proposed substitution changes Contract Time: _____ No _____ Yes; Add/Deduct _____ Days

Supporting Data Attached: __ Product Data __ Drawings __ Tests __ Reports __ Samples __ Other

Reason for Not Providing Specified Item, See General Conditions, 00 72 00 – 3.07B (N/A for substitutions during bidding) ___ Unavailability ___ Unsuitability ___ Regulatory Changes ___ Owner Request

Savings to Owner for accepting substitution (N/A for substitutions during bidding): $_____

Undersigned certifies:

1. Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.

2. Same warranty will be furnished for proposed substitution as for specified product.
3. Same maintenance service and source of replacement parts, as applicable, is available.
4. Proposed substitution will not affect or delay Construction Progress Schedule.
5. Cost data as stated above is complete. Claims for additional costs related to accepted substitution which may subsequently become apparent are to be waived.
6. Proposed substitution does not affect dimensions and functional clearances.
7. Payment will be made for changes to building design, including engineering design, detailing, and construction costs caused by the requested substitution.
8. Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

(Note during bidding must be signed and submitted by Bidder)

Submitted By: _____

Signature: _____

Firm: _____

Address: _____

Telephone No: _____ Email Address: _____

Attachments:_____

DESIGN ENGINEER'S REVIEW AND ACTION

____ Approve Substitution - Make submittals in accordance with Specification Section 01 33 00.

____ Approve Substitution as noted - Make submittals in accordance with Specification Section 01 33 00.

____ Reject Substitution - Use specified products. Engineer shall not have responsibility for performance of substitution approved by Owner and rejected by Engineer.

____ Substitution Request received too late - Use specified products.

Signed by:_____

Comments:_____

OWNER'S REVIEW AND ACTION (Approval of Substitution is not valid without Owner's signature)

____ Substitution approved - Make submittals in accordance with Specification Section 01 33 00.

____ Substitution approved as noted - Make submittals in accordance with Specification Section 01 33 00.

____ Substitution rejected - Use specified products.

Signed by: _____

Comments:_____

PART 1 – GENERAL

1.01 SUMMARY

A. This section defines the process whereby the Schedule of Values for lump sum bid items shall be developed.

B. The Schedule of Values will be the basis for payment of all Lump Sum contract work.

1.02 RELATED WORK DESCRIBED ELSEWHERE

A. The provisions and intent of the Contract, including the Procurement and Contracting Requirements and General Requirements, apply to this work as if specified in this section. Work related to this section is described throughout the specifications.

1.03 PREPARATION OF SCHEDULE OF VALUES

A. To facilitate monthly pay requests, the lump sum price stipulated in the Bid Proposal shall be divided up to reflect the elements of work identified on the Drawings and in the Specifications. The Contractor shall submit for approval a Schedule of Values for the major components of the Work at the Preconstruction Conference in accordance with Section 01 33 00, Submittals. The listing shall include, at a minimum, the proposed value for the major Work components as described in Article 3.01 of this section. The summary of detail provided in the schedule of values shall separately include materials costs (as appropriate by unit), installation costs (labor and equipment components) and other incremental breakouts. The total of all items in the Schedule of Values shall match the Contractor's lump sum Base Bid Item and any Additive Alternate Bid Items awarded.

B. The quantity for progress payment for each item indicated in the schedule of values shall be based a percentage of work complete at the time of submitting an application for payment to the Owner. The percentage of work complete shall be substantiated by the Contractor to the extent necessary and agreed to between the Owner and Contractor, payable in monthly progress payments in increments proportional to the work performed.

1.04 SUBMITTAL

A. Submit preliminary Schedule of Values at the Preconstruction Conference. **DO NOT SUBMIT THE SCHEDULE OF VALUES WITH YOUR BID PACKAGE**.

B. Upon request, support prices with data that will substantiate their correctness.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

3.01 SAMPLE SCHEDULE OF VALUES – BASE BID

A. The sample schedule of values provided below is the minimum level of detail expected. Unit Price Bid items reflected on the bid form but not addressed in the approved schedule of values shall be included in the monthly pay request based on the unit of measure indicated on the bid form.

1. Project Administration shall be broken down to include at a minimum all costs associated with Project Administration, as follows:

   a) Project supervision and meetings

   b) Administration of sub-contractors

   c) Preparation costs for various work plans and other submittals

   d) Temporary facilities operations (that not included in mobilization/demobilization or temporary facilities), including field offices, temporary utilities, sanitation, and communications

   e) Project overhead

2. Mobilization and Demobilization: Shall be based on 10 percent of the Base Bid (maximum). The Work will be paid for as follows:

   a) 40% paid after 5% of the total Contract amount has been completed.

   b) 40% paid after 20% of the total Contract amount has been completed.

   c) 20% paid after all of the Work on the Project has been completed, including cleanup and acceptance of the Project by the Owner.

3. Site Demolition and Clearing shall be broken down to include at a minimum:

   a) Clear and grub site's upland areas including tree removal

   b) Demolition of existing area pathways, paving, walls, curbs, and site utilities.

c) Removal of existing building

d) Removal of existing piles

4. Temporary Facilities shall be broken down to include at a minimum:

a) Install fencing

b) Install temporary in-water sediment curtain

c) Install drain inlet protection

d) Install temporary stabilized construction entrance

5. Earthwork shall be broken down to include at a minimum:

a) Excavation and disposal

b) Excavation and stockpile for reuse

c) Stormdrain and conduit trenching, bedding and backfill

d) Furnish and install erosion control fabrics

e) Furnish and install vegetated retaining walls

f) Furnish and install rockery walls

6. CIP concrete and asphalt shall be broken down to include at a minimum:

a) Install concrete pathway

b) Install crushed surfacing top course

c) Install crushed surfacing base course

d) Install concrete curb and curb walls

e) Install concrete walls and seatwalls

f) Install concrete ADA ramps

g) Install concrete stairway

h) Install asphalt paving

i) Install asphalt berms

7. Boardwalk construction shall be broken down to include at a minimum:
    a) Concrete abutments
    b) Furnish and install pipe piles
    c) Steel structure
    d) Grating
    e) Metal railing assembly
    f) Resurfacing work at existing boardwalk
8. Utilities and drainage shall be broken down to include at a minimum:
    a) Field locate utilities
    b) Adjust sanitary sewer manhole rims
    c) Adjust storm drain catch basin rims
    d) Furnish and install new catch basins
    e) Furnish and install 12-inch PVC storm drain pipe
    f) Furnish and install 6-inch PVC storm drain pipe
    g) Furnish and install bioretention facilities
    h) Furnish and install sewer pipe
    i) Furnish and install conduit
9. Restroom building
    a) Furnish and install concrete foundation
    b) Masonry walls
    c) Wood, plastics and composites
    d) Thermal and moisture protection
    e) Openings & finishes
    f) Fixtures and accessories

g) Plumbing

h) Mechanical and electrical systems

i) Furnish and install pipe piles

j) Structural Steel

10. Play area shall be broken down to include at a minimum:

a) Furnish and install pipe piles

b) Site prep related to proposed grading at play area

c) Furnish and install underdrains

d) Install safety surfacing including playground grass, geotextile and drainage

e) Install play equipment

11. Site furnishings shall be broken down to include at a minimum:

a) Install manufactured site furnishings

b) Install custom site furnishings (picnic table)

c) Install wood fencing and split rail

12. Planting shall be broken down to include at a minimum:

a) Furnish and install topsoil

b) Furnish and install plant material

c) Furnish and install mulch

d) Plant establishment

13. Irrigation shall be broken down to include at a minimum:

a) Furnish and install point of connection assembly and mainline

b) Furnish and install spray irrigation

END OF SECTION

PART 1 – GENERAL

1.01 RELATED WORK DESCRIBED ELSEWHERE

A. The provisions and intent of the Contract, including the Standard Specifications and General Conditions, apply to this work as if specified in this section. Work related to this section is described throughout the Specifications.

1.02 PROGRESS MEETINGS

A. The Owner will schedule and administer weekly progress meetings throughout progress of the Work.

B. The Owner will arrange meetings, prepare standard agenda with copies for participants, preside at meetings, record minutes, and distribute copies within 10 working days to the Contractor, meeting participants, and others affected by decisions made.

C. Attendance is required for the Contractor's job superintendent, major subcontractors and suppliers, the Owner's Project Engineer, Consultant, Construction Manager, and other City representatives as appropriate to the agenda topics for each meeting.

D. Standard Agenda

1. Review minutes of previous meeting.
2. Review of work progress.
3. Field observations, problems, and decisions.
4. Identification of problems that impede planned progress.
5. Progress schedule (3 weeks ahead; 1 week back provided by contractor).
6. Effect of proposed changes on progress schedule and coordination.
7. Corrective measures to regain projected schedules.
8. Planned progress during succeeding work period.
9. Safety issues.
10. Maintenance of quality and work standards.
11. Demonstration that the Project Record Drawings are up-to-date.
12. Pay request (as required).

13. Other business relating to the Work.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

3.01 PARTNERING

A. Construction partnering is a process of improving communication and better understanding the goals and objectives of all parties in a construction project. It is also a process to avoid disputes by working together to resolve issues. Although a formal partnering program is not planned for this project an informal and voluntary partnering process is desired.

B. The Owner will meet with the selected Contractor near the time of the Pre-construction Meeting and the parties jointly determine the partnering program for the project or to forego a partnering program.

END OF SECTION

PART 1 – GENERAL

1.01 RELATED WORK DESCRIBED ELSEWHERE

A. The provisions and intent of the Contract, including the Standard Specifications and General Conditions apply to this work as if specified in this section. Work related to this section is described throughout the Specifications.

1.02 PROJECT CONSTRUCTION SCHEDULE

A. The Project Construction Schedule shall include sufficient time for cleaning, punch list review, and completion of punch list items prior to the designated substantial completion date.

B. The Project Construction Schedule shall be used to justify time extension days requested by the Contractor. For additional days requested, the Project Construction Schedule shall be detailed enough to identify the work item(s) affected and the relationship to the changed or added work.

C. Should any activity not be completed by the stated scheduled date, the Owner will have the right to require the Contractor to expedite completion of the activity by whatever means appropriate and necessary, without additional compensation to the Contractor.

1.03 ON-SITE DOCUMENTS

A. The Contractor shall maintain at the Project site, in good order for ready reference by the Owner, one complete record copy of the Contract Documents, including the Addenda, Change Orders, and all working drawings, Project Construction Schedule, and other approved submittals. The Contractor shall generate and keep on site all documents and reports required by applicable permit conditions.

B. The Contract Record Drawings shall be marked to record all changes made during construction. The location of all existing or new underground piping, valves and utilities, and obstructions as located during the Work, shall be appropriately marked on the ground until the Contractor incorporates the actual field location dimensions and coordinates into the Project's Record Drawings. The Project's Record Drawings shall be updated on a weekly basis and before elements of the Work are covered or hidden from view. After the completion of the Work or portions of the Work and before requesting final inspection, the record copy of the Record Drawings shall be given to the Owner. The Owner reserves the right to withhold progress payments until such time as the Record Drawings are brought current.

1.04 CONSTRUCTION SEQUENCING

A. The Owner has developed a proposed sequence of construction for certain elements of this project to achieve the desired product. The Owner's proposed sequencing and the rationale for that sequencing is provided below. Actual project sequencing will be left to the Contractor's discretion, provided that the rationale for the Contractor's selected sequencing is adequately documented in the Contractor's Work Plan and approved by the Owner.

B. Project Engineer's proposed construction sequence

1. The Project Engineer's proposed construction sequence is as follows:

   a) Submittals: Provide shop drawings and related submittals for long-lead items, (order materials on approval of submittals)

   b) Demolition and Clearing: Remove and protect existing vegetation, structures, and shoreline debris to allow for excavation and grading

   c) Excavation, grading, and material placement in shoreline areas, including temporary protection to protect slopes from erosive forces until permanent facilities are installed

   d) Perform other excavation and backfill to achieve required grades

2. The Contractor must determine whether this sequence or the Contractor's own adaptation of this sequence will allow the Contractor to be the successful bidder, recognizing that the Contractor will determine their own means and methods to perform the work, price the work, and have responsibility for associated risks.

C. The following elements, in particular, will require the Contractor to carefully evaluate their equipment, methods, and order of work against site constraints and possible geotechnical-related considerations.

1. Stability of Temporarily Exposed Slopes and Surfaces. If the Contractor elects to excavate/dredge shoreline areas in advance of installing the required slope protection materials, then the newly exposed surface(s) will be exposed to the potentially erosive effects of waves, currents, and groundwater seepage. It will be the Contractor's responsibility to ensure that any temporarily exposed surfaces and/or slopes remain sufficiently protected against such forces, and the Contractor shall be responsible for fully repairing any related damage that such surfaces may undergo. The Contractor shall also be responsible for meeting permit conditions that address exposed slopes or surfaces.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

PART 1 – GENERAL

1.01 RELATED WORK DESCRIBED ELSEWHERE

A. The provisions and intent of the Contract, including the Standard Specifications and General Conditions, apply to this work as if specified in this section. Work related to this section is described throughout the Specifications.

B. Individual submittals required in accordance with the pertinent sections of these Specifications. Other submittals may be required during the course of the Project and are considered part of the normal work to be completed under the Contract.

1. The list below may be incomplete, and it is the Contractor's responsibility to ensure that the Contractor has met all conditions of the Contract requirements.

SECTION	SUBMITTALS REQUIRED
01 32 00 – Construction Progress Documentation	Construction Schedule; Record Drawings; 3 Week Look Ahead
01 45 00 – Quality Control	Worker Qualifications
01 50 00 – Temporary Facilities and Controls	Work Plan
01 57 13 – Temporary Erosion and Sediment Control and Construction Stormwater	Construction Storm Water Pollution Prevention Plan (CSWPP); Product Data; MSDS for Dust Control products; Site Inspection Logs; Monitoring Reports
01 70 00 – Execution and Closeout Requirements	Operation and Maintenance Manuals; Project As-built Drawings; Warranty
01 71 23 – Field Engineering	Field Surveys; Field Notes; Drawings; Calculations; As-built Drawings
01 73 29 – Cutting and Patching	Cutting and Patching Proposal
02 41 00 – Demolition	
02 06 00 – Contaminated Soil Handling & Disposal	Plan to comply with standards
02 82 33 – Removal and Disposal of Asbestos Coating	Plan to comply with standards
03 30 00 – Cast-in-Place Concrete	Mix design; Product Data; Certificates; Shop Drawings; Records

SECTION	SUBMITTALS REQUIRED
04 29 00 – Engineered Unit Masonry	Product Data, Shop Drawings, Samples, Manufacture's Certificate
05 12 00 – Structural Steel Framing	Shop Drawings, Welder Certificates, Prequalified Welding Procedure
05 12 13 – Architecturally-Exposed Structural Steel Framing	Shop Drawings, Welder Certificates, Prequalified Welding Procedure
05 50 00 – Metal Fabrications	Shop Drawings; Certifications; Qualifications
06 20 00 – Rough Carpentry	Material Order List
06 18 00 – Finished Carpentry	Product Data, Samples
06 82 00 – Pultruded Pedestrian Grating	Product Data, Samples
06 83 16 – Fiberglass Reinforced Paneling	Product Data, Samples
07 19 00 – Water Repellants	Product Data, Manufacturer's Qualifications
07 21 00 – Thermal Insulations	Product Data
07 21 23 – Loose Fill Insulation	Product Data
07 21 29 – Sprayed Insulation	Product Data, Certificates, Qualifications
07 25 00 – Weather Barrier	Product Data, Installation Instructions
07 41 13 – Metal Roof Panels	Shop Drawings, Samples, Warranty
07 62 00 – Sheet Metal Flashing and Trim	Shop Drawings
07 92 00 – Joint Sealants	Product Data, Test Reports
08 06 71 – Door Hardware Schedule	See Section 08 71 00
08 11 13 – Hollow Metal Doors and Frames	Product Data, Shop Drawings
08 31 00 – Access Doors and Panels	Product Data
08 71 00 – Door Hardware	Pre-Install Meeting, Product Data, Maintenance Data, Keying Schedule
08 80 00 - Glazing	Product Data, Warranty

SECTION	SUBMITTALS REQUIRED
09 91 13 – Exterior Painting	Product Data, Sample "Draw Downs", Artwork
10 28 00 – Toilet and Bath Accessories	Product Data
11 68 13 – Play Area Equipment	Manufacturer's Product Data; Manufacturer's Installation Instructions; Color Samples for Each Product
22 05 00 – Common Work Results for Plumbing	Manufacturer's Product Data; Manufacturer's Installation Instructions; Test Reports; Inspection Reports; Project Record Documents; Operation & Maintenance Manual Data; Manufacturer's Warranty Information
22 05 19 – Meters and Gauges for Plumbing Piping	Manufacturer's Product Data; Operation & Maintenance Manual Data;
22 05 23 – General-Duty Valves for Plumbing Piping	Manufacturer's Product Data; Operation & Maintenance Manual Data;
22 05 53 – Identification for Plumbing Piping and Equipment	Manufacturer's Product Data; Valve Chart & Schedule; Project Record Documents
22 07 19 – Plumbing Piping Insulation	Manufacturer's Product Data; Operation & Maintenance Manual Data;
22 11 13 – Facility Water Distribution Piping	Manufacturer's Product Data; Coordination Drawings; Project Record Documents; Purging & Disinfection Reports; Operation & Maintenance Manual Data;
22 11 19 – Domestic Water Piping Specialties	Manufacturer's Product Data; Operation & Maintenance Manual Data;
22 13 16 – Sanitary Waste and Vent Piping	Manufacturer's Product Data; Coordination Drawings; Project Record Documents; Operation & Maintenance Manual Data;

SECTION	SUBMITTALS REQUIRED
22 13 19 – Sanitary Waste Piping Specialties	Manufacturer's Product Data; Operation & Maintenance Manual Data;
22 30 00 – Plumbing Equipment	Manufacturer's Product Data; Project Record Documents; Operation & Maintenance Manual Data; Manufacturer's Warranty Information
22 40 00 – Plumbing Fixtures	Manufacturer's Product Data; Project Record Documents; Operation & Maintenance Manual Data; Manufacturer's Warranty Information; Flush Valve Service Kits
23 05 00 – Common Work Results for HVAC	Manufacturer's Product Data; Manufacturer's Installation Instructions; Test Reports; Inspection Reports; Project Record Documents; Operation & Maintenance Manual Data; Manufacturer's Warranty Information
23 05 53 – Identification for HVAC Piping And Equipment	Manufacturer's Product Data
23 05 93 – Testing, Adjusting, and Balancing For HVAC	TAB Agency Qualifications; TAB Supervisor Qualifications; TAB Plan; Preliminary TAB Report; Final TAB Report; TAB Field Logs
23 07 13 – Duct Insulation & Lining	Manufacturer's Product Data; Operation & Maintenance Manual Data;
23 31 13 – HVAC Ducts and Casings	Manufacturer's Product Data; Shop Drawings; Operation & Maintenance Manual Data; Project Record Documents
23 33 00 – Air Duct Accessories	Manufacturer's Product Data; Operation & Maintenance Manual Data;
23 37 00 – Air Outlets and Inlets	Manufacturer's Product Data; Operation & Maintenance Manual Data; Project Record Documents

SECTION	SUBMITTALS REQUIRED
23 72 23 – Packaged Air-to-Air Energy Recovery Units	Manufacturer's Product Data; Operation & Maintenance Manual Data; Project Record Documents; Spare Filters
23 83 33 – Electric & Radiant Heaters	Manufacturer's Product Data; Operation & Maintenance Manual Data; Project Record Documents; Manufacturer's Warranty Information
26 01 00 – Electrical Requirements	None required
26 05 10 – Electrical Common Work	Manufacturer's Product Data for each type of roof flashing and waterproofing provided
26 05 12 – Electrical Power Services	Manufacturer's Product Data for associated current transformers, Meeting minutes for meeting with the utility
26 05 19 – Low Voltage Conductors & Cables	Manufacturer's Product Data
26 05 26 – Grounding & Bonding	Manufacturer's Product Data
26 05 29 – Hangers & Supports	Manufacturer's Product Data
26 05 31 – Outlet Boxes	Manufacturer's Product Data
26 05 32 – Pull & Junction Boxes	Manufacturer's Product Data
26 05 33 – Raceways & Boxes	Manufacturer's Product Data, Shop drawings
26 05 51 – Device Plates	Manufacturer's Product Data
26 05 53 – Identification For Electrical Systems	None required
26 08 00 – Commissioning For Electrical Systems	Manufacturer's Installation and start-up instructions
26 09 23 – Automatic Lighting Control Devices	Manufacturer's Product Data
26 24 16 – Branch-Circuit Panelboards	Manufacturer's Product Data, Shop drawings
26 27 26 – Wiring Devices	Manufacturer's Product Data
26 27 39 – Equipment & Motor Connections	None Required

SECTION	SUBMITTALS REQUIRED
26 28 13 – Low-Voltage Fuses	Manufacturer's Product Data
26 28 16 – Enclosed Disconnect Switches	Manufacturer's Product Data
26 29 13 – Across-The-Line Motor Controllers	Manufacturer's Product Data
26 51 00 – Interior Lighting	Manufacturer's Product Data
26 56 23 – Exterior Lighting	Manufacturer's Product Data
31 10 00 – Site Clearing	Certificates: Landfill Disposal Site; Shipping and Disposal Documents; Imported Materials Gradations
31 23 16 – Excavation	
31 23 23 – Fill and Backfill	
31 23 23.15 – Trench Backfill	
31 32 19.16 - Geotextile	Product Data
31 37 00 - Riprap	Sources
32 11 23 – Aggregate Base Courses	Material Data
32 12 16 – Asphalt Paving	HMA Mix Design; Aggregate Sieve Analysis and Test Results
32 16 00 – Curbs and Gutters	
32 17 23 – Pavement Markings	Product Data
32 18 16.12 – Synthetic Safety Surfacing	Recent Installation examples, Material Samples, Methods; Test Results
32 31 00 – Rail Fence	Product Data
32 32 00 – Drystack Rockery	Material Sources, Product Data

SECTION	SUBMITTALS REQUIRED
32 33 00 – Site Furnishings	Manufacturer's Product Data; Manufacturer's Installation Instructions; Color Samples for Each Product
32 84 00 –Irrigation	Product Data; Wiring Diagrams and Zoning Charts; Zone Maps; Contractor Pre-Construction Inspection Report
32 91 13 – Soil Preparation	Samples; Material Certification/Data Sheets
32 93 00 – Landscape Planting	Plant Nursery Sources; Material Samples; Material Certification/Data Sheets; Warranty
32 93 10 – Tree and Shrub Protection	Manufacturer's Product Data
33 12 13 – Water Service Connections	Manufacturer's Product Data
33 12 19 – Water Utility Distribution Fire Hydrants	Manufacturer's Product Data
33 40 10 – Bioretention	Manufacturer's Product Data
33 41 01 – Storm Drain Sanitary Sewer and Drainage Piping	Product Data; Catalog Data
33 41 01.02 – Ductile Iron Data Sheet	Product Data; Catalog Data
33 41 01.03 – Polyvinyl Chloride Data Sheet	Product Data; Catalog Data
33 44 13.13 – Catch Basins and Manholes	Product Data; Catalog Data

PART 2 – PRODUCTS

2.01 COMPLIANCE

A. Failure to comply with these requirements shall be deemed as the Contractor's agreement to furnish the exact materials specified or materials selected by the Owner based on these specifications.

2.02 SHOP DRAWINGS

A. The Owner will not accept shop drawings that prohibit the Owner from making copies for its own use.

B. Quality: Shop drawings shall be prepared accurately to a scale sufficiently large to indicate all pertinent features of the products and the method of fabrication, connection, erection, or assembly with respect to the Work.

C. All drawings submitted to the Owner for approval shall be drawn on full-size (ANSI D) copy or half-scale sets on 11 inches by 17 inches, bond paper only. Electronic versions of the drawings will also be submitted in the following formats on CD-ROM:

1. DWG

2. TIF

3. PDF – formatted to print to half-scale set on 11-inch by 17-inch paper

D. Type of Prints Required:

1. The Contractor shall submit two paper copies of all shop drawings or supplemental working drawings, in accordance with 00 72 00, General Conditions.

2. In lieu of the above, the Contractor may submit shop drawings or supplemental working drawings in the form of one sepia transparency of each sheet plus one blue line or black line print of each sheet. Blueprint submittals will not be acceptable.

3. Distribution: In the event the action described in Subparagraph 2.02.D.2. above is selected by the Contractor, the Owner will review the drawings, mark the sepia with appropriate notations, prepare the required number of prints for their use, and return the marked sepia to the Contractor. The Contractor may then order as many additional copies as required for Contractor's work.

E. In lieu of the above, submittals typically provided on paper may be submitted electronically as PDFs.

2.03 MANUFACTURERS' LITERATURE

A. The Contractor shall submit six paper copies of manufacturers' literature for approval.

B. Catalog cuts or brochures shall show the type, size, ratings, style, color, manufacturer, and catalog number of each item and be complete enough to provide for positive and rapid identification in the field. Catalog data shall be submitted in an orderly bound form. General catalogs or partial lists will not be accepted.

C. In lieu of the above, submittals typically provided on paper may be submitted electronically as PDFs. The manufacturer's original electronic issue is preferred.

2.04 SAMPLES

A. The sample submitted shall be the exact or precise article proposed to be furnished.

B. Samples, color chips, finish styles, etc., shall be submitted in sufficient number as to provide the Owner with alternate choices.

2.05 SUBSTITUTIONS

A. Refer to the Section 01 25 00, Substitution Procedures.

B. Catalog data for equipment approved by the Owner does not in any case supersede the Contract Documents. The approval by the Owner shall not relieve the Contractor from responsibility for deviations from the Contract Documents or Specifications, unless the Contractor has, in writing, called to the Owner's attention to such deviations at the time of the submission, nor shall it relieve it from responsibility for errors of any sort in the items submitted. The Contractor shall check the work described by the catalog data with the Contract Documents for deviations and errors.

PART 3 – EXECUTION

3.01 TRANSMITTALS

A. General: The Contractor shall submit all shop drawings, catalog cuts, brochures, and mailable samples accompanied with a Submittal Review Transmittal form provided to the Contractor at the Pre-construction Meeting. Six copies of each submittal shall be transmitted.

B. Preparation: A separate Submittal Review Transmittal form shall be prepared for each product or procedure and shall be further identified by referencing the Specification section and paragraph number, and each submittal shall be numbered consecutively.

C. Mailing: The original shall be sent in every instance and will be the Contractor's record and final correspondence for every submittal.

D. In lieu of the above, submittals typically provided on paper may be submitted electronically as PDFs.

E. The Owner intends to complete the review of all submittals within 21 calendar days of receipt. When incomplete or rejected submittals are returned to the Contractor, the Contractor shall make appropriate revisions and re-submit. Review of re-submittals will be completed within 21 calendar days. The Contract time shall not be extended on the basis that the Contractor experienced delays due to rejection of submittals.

F. All submittals shall be dated, signed, and certified by the Contractor as being correct and in conformance with the Contract Documents. The Owner's review of Contractor submittals shall not relieve the Contractor of the entire responsibility for the correctness of details and dimensions. The Contractor shall assume all responsibility and risk for any errors in Contractor submittals.

G. Whenever materials or equipment are described by using the name of a proprietary item or the name of a particular supplier, the naming of the item is intended to establish the type, function, and quality required. If the name is followed by the words "or equivalent," indicating that a substitution is permitted, materials or equipment of other suppliers may be accepted by the Owner. Sufficient information shall be submitted by the Contractor to allow the Owner to determine that the material or equipment proposed is equivalent to that named, subject to the following requirements:

1. The burden of proof as to the type, function, and quality of any such substitute material or equipment shall be upon the Contractor.

2. The Owner will be the sole judge as to the type, function, and quality of any such substitute material or equipment and the Owner's decision shall be final.

3. The Owner may require the Contractor to furnish, at the Contractor's expense, additional data about the proposed substitution.

4. Acceptance by the Owner of a substitute item proposed by the Contractor shall not relieve the Contractor of the responsibility for full compliance with the Contract Documents and for adequacy of the substitute item.

H. No substitute materials shall be installed by the Contractor until written approval has been obtained from the Owner authorizing the material as an "Approved Equivalent."

I. All equipment, materials, and articles incorporated into the permanent Work:

1. Shall be new, unless Section 00 72 00, General Conditions, or the Standard Specifications permit otherwise

2. Shall meet the requirements of the Contract and be approved by the Owner

3. May be inspected or tested at any time during their preparation and use

4. Shall not be used in the Work if they become unfit after being previously approved

3.02 COORDINATION

A. Shop and detail drawings shall be submitted in related packages. All equipment or material details that are interdependent or are related in any way must be submitted indicating the complete installation. Submittals shall not be altered once approved for Construction. Revisions shall be clearly marked and dated. Major revisions must be submitted for approval.

B. The Contractor shall thoroughly review all shop and detail drawings, prior to submittal, to ensure coordination with other parts of the Work. The Contractor's failure to do this will be the cause for rejection. Submittals shall bear this approval stamp and initials.

C. Components or materials that require shop drawings and that arrive at the job site prior to approval of shop drawings will be considered as not being made for the Project and will be subject to rejection and removal from the premises.

END OF SECTION

PART 1 – GENERAL

1.01 DESCRIPTION

A. This section describes the Contract applicable permits.

1.02 RELATED WORK DESCRIBED ELSEWHERE

A. The provisions and intent of the Contract, including the General Requirements, apply to this work as if specified in this section. Work related to this section is described throughout the Specifications.

1.03 PERMITS

A. Keep fully informed of all local ordinances, as well as State and federal laws that in any manner affect the work herein specified. At all times comply with said ordinances, laws, and regulations, and protect and indemnify the Owner and its officers and agents against any claim or liability arising from or based on the violation of such laws, ordinances, or regulations. Secure and pay for all permits, licenses, and inspection fees necessary for prosecution and completion of the Work, unless otherwise specified.

B. The Contractor shall comply with all conditions attached to applicable City, County, federal, State, and local permits found in Appendix C. These permits include the following:

1. State Environmental Policy Act (SEPA) Determination
2. Washington Department of Fish and Wildlife Hydraulic Project Approval
3. City of Kirkland Critical Areas Permit
4. City of Kirkland Demolition Permit
5. City of Kirkland Land Surface Modification (LSM) Permit
6. City of Kirkland Building Permit (Restroom and Boardwalk)
7. City of Kirkland Electrical Permit
8. City of Kirkland Mechanical Permit
9. City of Kirkland Plumbing Permit
10. City of Kirkland NUD (Water & Sewer)
11. City of Kirkland Right-of-Way permit

12. PSE Electrical Permit

13. Washington Department of Ecology Section 401 Water Quality Certification

14. Washington State Department of Ecology National Pollutant Discharge Elimination System (NPDES) Construction Stormwater General Permit.

15. Board of Health permits (as appropriate to temporary facilities)

1.04 PERMITS OBTAINED AFTER BID SUBMITTAL

A. If, after the bid submittal date, the Owner obtains any permits that require changes to the Work hereunder and thereby cause an increase or decrease in the cost of, or the time required for, the performance of the Work, submit information sufficient for the Owner to determine the extent of the effects on the cost and/or schedule. If the Owner agrees the cost and/or schedule will be affected by such changes, such effects will be handled in accordance with the General Conditions. The Owner will provide Contractor with a copy of any such permits. The Contractor shall comply with all applicable terms and conditions contained in such permits.

1.05 POSTING PERMITS

A. Post permits at the site of the Work.

1.06 INSPECTIONS

A. The Contractor shall call and make any arrangements for all inspections and testing required by the permits and conditions of the permits.

B. Post inspection reports at the work site.

1.07 RESTORATION OF PROPERTY

A. Comply with all property restoration requirements contained in permits and agreements to complete the Work.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

Not used.

END OF SECTION

PART 1 – GENERAL

1.01 QUALITY CONTROL FOR COMPLIANCE

A. All work described in the Contract Documents must be fully tested in accordance with applicable sections of these Specifications.

1.02 RELATED WORK DESCRIBED ELSEWHERE

A. The provisions and intent of the Contract, including the Standard Specifications and General Conditions apply to this work as if specified in this section. Work related to this section is described throughout these Specifications.

1.03 SUBMITTALS

A. The Contractor shall submit the qualifications of the personnel identified in Article 2.01 of this section.

1.04 QUALITY ASSURANCE – CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply with manufacturers' instructions, including each step in sequence.

C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Owner before proceeding.

D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Perform Work by persons qualified to produce required and specified quality.

F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

G. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

H. Familiarity with Pertinent Codes and Standards: In procuring all items used in this work, it is the Contractor's responsibility to verify the detailed requirements of the specifically named codes and standards and to verify that the items procured for use in this work meet or exceed the specified requirements.

I. Rejection of Non-Complying Items: The Owner reserves the right to reject items incorporated into the Work which fail to meet the specified minimum

requirements. The Owner further reserves the right, and without prejudice to other recourse the Owner may take, to accept non-complying items subject to an adjustment in the Awarded Contract Price as approved by the Owner.

1.05 TOLERANCES

A. Monitor fabrication and installation tolerance control of Products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from the Owner before proceeding.

C. Adjust Products to appropriate dimensions; position before securing Products in place.

1.06 REFERENCES AND STANDARDS

A. For Products or workmanship specified by association, trade, or other consensus standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard by date of issue current on date of Contract Documents, except where a specific date is established by code.

C. Obtain copies of standards where required by product specification sections.

D. Neither the contractual relationships, duties, nor responsibilities of the parties in the Contract, nor those of the Owner, shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

E. All pertinent laws, ordinances, rules, regulations and codes shall govern construction activities at the work site.

F. Construction which is not governed by governmental regulations or the Contract Specifications will be governed by the more stringent provisions of the latest published edition or statute adopted edition, at the time of Contract signing, following applicable codes and standards:

1. Uniform Building Code

2. American Welding Society

3. National Electrical Code

4. Uniform Plumbing Code

5. Uniform Fire Code

1.07 PERMITS

A. Refer to Section 01 41 26, Permits, and Appendix C for permit requirements.

1.08 TESTING SERVICES

A. Necessary materials testing shall be performed by an independent testing laboratory during the execution of the Work. Access to the area necessary to perform the testing and/or to secure the material for testing, shall be provided by the Contractor.

B. Testing does not relieve Contractor to perform work to contract requirements.

C. Re-testing required because of non-conformance to specified requirements shall be performed by the same independent firm. Payment for re-testing will be charged to the Contractor by deducting testing charges from the Contract Sum.

D. Material testing for initial material approval will be performed by an independent, certified laboratory and paid for by the Contractor. These tests must be dated within 6 months of the submittal date.

E. Subsequent sampling and testing, required as the Work progresses to ensure continual control of materials and compliance with all requirements of the Contract documents, shall be the responsibility of the Owner, except as required by other sections of these Specifications.

1.09 MANUFACTURERS' FIELD SERVICES

A. When specified in individual specification sections, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up equipment, test, and adjust and balance equipment as applicable, and to initiate instructions when necessary.

B. Submit qualifications of observer to the Owner 30 days in advance of required observations. The observer is subject to approval of the Owner.

C. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

PART 2 – PRODUCTS

2.01 CONTRACTOR PERSONNEL REQUIREMENTS

A. All Contractor personnel shall be trained, experienced and qualified to perform the tasks assigned to them.

B. The Contractor shall submit the qualifications of the proposed field superintendent to the Owner for review and approval. The proposed field superintendent shall have a minimum of 5 years of experience as a field superintendent, in addition to having been the field superintendent on three projects of similar type and size, described below.

Contractor Personnel

Field Superintendent:

The field superintendent must have successfully completed three projects of similar type and size.

Name:_____
Address:_____
Phone:_____
Name of Contractor Employed By:_____

#1 Project Name:_____
Owner:_____Contact Person:_____
Name of Contractor Employed By:_____
Completion Date:_____

#2 Project Name:_____
Owner:_____Contact Person:_____
Name of Contractor Employed By:_____
Completion Date:_____

#3 Project Name:_____
Owner:_____Contact Person:_____
Name of Contractor Employed By:_____
Completion Date:_____

C. The Contractor shall submit the qualifications of the proposed pile driving superintendent to the Owner for review and approval.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.

B. Verify that existing substrate is capable of structural support or attachment of new Work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Verify that utility services are available, of the correct characteristics, and in the correct locations.

3.02 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

END OF SECTION

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. The Work includes the requirements to provide temporary facilities required by both the Contractor and the Owner until Final Completion of the Work. The Work also includes compliance with all controls or ordinances with respect to safety, noise, dust, security, or traffic.

1.02 RELATED WORK DESCRIBED ELSEWHERE

A. The provisions and intent of the Contract, including the Standard Specifications and General Conditions apply to this work as if specified in this section. Work related to this section is described throughout these Specifications.

1.03 SUBMITTALS:

A. The Contractor shall provide a Temporary Facilities and Controls Work Plan that details management of the environmental conditions presented during performance of the Work and provides methods for how the Work will be performed.

B. The Plan shall be submitted to the Owner and accepted prior to beginning Work. The Temporary Facilities and Controls Work Plan shall include, as a minimum:

1. A general description of demolition work to be performed discussing anticipated chemical and/or physical hazards associated with the work

2. Description of anticipated waste streams and procedures for site management, transportation, and off-site disposal/recycling

3. Methods for managing/accumulating/stockpiling soil, ground asphalt, and crushed concrete on site

4. Document control, including the documentation of all waste transportation and disposal, and including submission of a complete and final report to the Owner

5. Methods for site maintenance and security

6. Description of air pollution control procedures and air permit application for on-site crushing operations

7. Methods for management of noise

8. Tree and plant protection

9. Board of Health Permits associated with approvals required for disposing of solid waste in landfills regulated by the King County Board of Health

10. Run-off management plan detailing controls to be used during building washing, dust control, concrete sawing, and any other use of water during the project which may impact the stormwater system

11. Oil Spill Response and Prevention Procedures

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

3.01 UTILITIES

A. The Contractor shall provide adequate facilities for Contractor's operation at Contractor's expense, including:

1. Water

   a) Fresh drinking water for employees shall be provided near sanitary containers by the Contractor. The Contractor shall make arrangements with the Owner or other sources to supply construction water for the duration of this Contract.

   b) All such connections, fittings, etc., shall be furnished, installed by the Contractor, and removed upon completion of the Work, to the satisfaction of the Owner.

2. Construction Electricity

   a) The Contractor shall make all arrangements for the furnishing of electric power for construction purposes. The power meter shall be registered in the name of the Contractor.

3. Toilet Room Facilities

   a) The Contractor shall install and maintain necessary temporary sanitary toilet facilities with hand washing facilities during the term of this contract.

4. Communications

   a) The Contractor shall install and maintain the appropriate equipment to allow for the efficient communication via voice and

the Internet with the Owner and with outside parties at all times during the term of this contract. Remove at completion of work. All accounts shall be registered in the name of the Contractor.

5. Fences and Enclosures

a) Furnish and install temporary construction fencing and tree protection fencing as shown on the Contract Drawings to protect the public and to protect the Work and equipment during construction.

b) The temporary fence shall consist of woven wire mesh not less than six feet in height, complete with metal or wood posts and all required bracing, and with truck and pedestrian gates, required to accomplish the work.

c) Construction fencing and gates shall not block access to the park driveway and private residences who have an easement to use this driveway.

6. Contractor Field Office

a) The Contractor shall install and maintain necessary field office space during the Work. Remove at the completion of Work.

3.02 SITE MAINTENANCE

A. Clean-up

1. The Contractor shall keep the work site, staging areas, and Contractor's facilities clean and free from dirt, dust, rubbish, and debris at all times. Materials and equipment shall be removed from the site when they are no longer necessary. Before Final Completion of the Work, the work site shall be cleared of equipment, unused materials, and dirt, dust, and rubbish to present a clean and neat appearance. Disturbed areas shall be restored per the Owner’s direction.

2. Waste material of any kind shall not be permitted to remain on the site of the Work or on adjacent streets. Immediately upon collection of such materials, they shall be carried off the site and disposed of properly by the Contractor.

3. The Contractor shall keep all buildings occupied by the Contractor clear of all refuse, rubbish, and debris that may accumulate from any source and shall keep them in a neat condition to the satisfaction of the Owner. The Contractor shall control any rodent problems that develop during the course of the Work.

4. In the event that waste material, refuse, debris, or rubbish is not so removed from the work site by the Contractor, the Owner reserves the right to have such material removed and the expense of the removal and disposal charged to the Contractor.

5. Paints, solvents, and other materials shall be handled with care to prevent entry of contaminants into storm drains, surface waters, or soils. These materials shall be collected and properly disposed of by the Contractor.

B. Public Street and On-site Roadway Cleaning

1. The Contractor shall be responsible for preventing dirt and dust escaping from trucks and other vehicles operating on or departing the project site by sweeping, covering dusty loads, washing truck tires, and all other reasonable methods.

2. When trucks and other equipment are operating on paved public streets and site roadways/paved surfaces, the Contractor shall clean said streets, roadways, and other paved surfaces at least daily, and at other times if required by the Owner.

3. In the event that the above requirements are violated and no action is taken by the Contractor after notification of infraction by the Owner, the Owner reserves the right to have the streets, roadways, and other paved surfaces in question cleaned by others and the expense of the operation charged to the Contractor.

3.03 AIR POLLUTION CONTROL

A. The Contractor shall only fuel construction equipment dedicated to the project with Ultra Low Sulfur Diesel (ULSD) having a sulfur content of 15 parts per million weight (ppmw) or less. “Dedicated” means anticipated to be used in the Work for more than 40 hours. For other equipment used in the Work, the use of ULSD is encouraged.

B. The Contractor shall not discharge smoke, dust, and other contaminants into the atmosphere that violate local, State, or federal regulations, or Owner-specific requirements. Internal combustion engines shall not be allowed to idle for prolonged periods of time. The Contractor shall maintain construction vehicles and equipment in good repair. Exhaust emissions that are determined to be excessive by the Owner shall be repaired or the equipment replaced.

C. The Contractor shall minimize nuisance dust by cleaning, sweeping, vacuum sweeping, sprinkling with water, or other means. The use of water, in amounts which result in mud on public streets or runoff to on-site or off-site storm drain catchments, is not acceptable as a substitute for sweeping or other methods. Equipment for this operation shall be on the job site or available at all times.

D. The Contractor shall minimize dust and waste generated during demolition by thoroughly cleaning specified structures prior to demolition. The Contractor may utilize vacuuming, water washing, or a combination of methods to achieve this dust and waste control. Use of compressed air is not permitted for cleaning purposes. All wash water, dust and/or waste residuals shall be collected and properly managed by the Contractor. Under no circumstances shall wash water be directly introduced to the storm drain system. Dust control by water misting during demolition may also be utilized for dust control, either on buildings that have been pre-cleaned or on buildings that are not specified for pre-cleaning. As previously noted, water from misting operations shall not be allowed to discharge into the storm drain system.

E. The Contractor shall furnish and provide all necessary compliance related activities, permits and licenses associated with the use of an on-site crusher. All such applications and intended activities are subject to the Owner's review and approval.

3.04 NOISE CONTROL

A. Construction involving noisy operations, including starting and warming up of equipment shall be in compliance with local noise ordinances.

B. The Contractor shall comply with all local controls and noise level rules, regulations and ordinances which apply to any work performed pursuant to the Contract.

C. Each internal combustion engine, used for any purpose on the job or related to the job, shall be enclosed and be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without said muffler and enclosure.

3.05 USE AND OCCUPANCY

A. The Contractor will be allowed space for the storage of materials, equipment, and employee parking as shown in the Contract Drawings. Employee parking will be confined to the Contractor's work and storage area. No on-street equipment or employee parking is allowed.

B. The Contractor may make arrangements with private property owners as desired to secure additional space for material storage, employee parking, etc. All space must be within local land use and permitting requirements, at the Contractor's expense. The Contractor must provide the Owner a copy of the release from the private property owner that all obligations of the property use arrangement have been met before final payment to the Contractor is issued.

C. The construction site shall be closed to the public at all times. The Contractor shall abide by special request of security personnel, and local police and fire departments.

END OF SECTION

SECTION 01 57 13
TEMPORARY EROSION AND SEDIMENT CONTROL

PART 1 GENERAL

1.01 SUMMARY

A. This section covers Work to implement structural and nonstructural Best Management Practices (BMP) to control soil erosion by wind or water and keep eroded sediments and other construction-generated pollutants from moving off Project Sites. Requirements described in this Specification and shown on Drawings are part of the project Temporary Erosion and Sediment Control Plan (TESC Plan) and are the minimum for all project construction sites and conditions. This Specification covers all Project activities, including material sources, disposal sites, and offsite mitigation areas unless specific Project activities are excluded elsewhere in this Specification or in other Contract Documents controlling the Work.

B. National Pollutant Discharge Elimination System: Comply with federal, state, and local laws, rules and regulations, and the National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Discharge Permit. A State of Washington Department of Ecology Construction Stormwater General Permit is required for this Project. The City will transfer the Construction Stormwater General Permit to the Contractor after Contract award.

C. Washington State Department of Ecology (Ecology): The Project will comply with the guideline set by Ecology, in the Stormwater Management Manual for the Western Washington (SWMMWW).

D. City of Kirkland: The Project shall comply with the City of Kirkland Pre-Approved Plan D-12.

E. Standard Specifications: When referenced in this section, shall mean Washington State Department of Transportation Standard Specifications for Road, Bridge and Municipal Construction, 2018.

1.02 REFERENCES

A. Activities shall conform to the Stormwater Management Manual for Western Washington (SWMMWW) by Ecology, the Construction Stormwater General Permit (NPDES), and Drawings. In the event of a conflict, the more stringent requirement shall apply.

B. A draft Stormwater Pollution Prevention Plan (SWPPP) has been prepared for this Project by Engineer and was made available during bidding of the Work for bidder's review. Contractor may use the Engineer-developed SWPPP as-is, or

with modification, to result in the required Contractor-responsible SWPPP documents for the Work. Regardless of whether or not Contractor uses the Engineer-developed draft SWPPP, as-is, or develops a modified version or a new version, Contractor shall be solely responsible for implementing the SWPPP. Maintain the SWPPP and update as required during the life of the Project.

C. The following is a list of standards that may be referenced in this section:

1. ASTM International (ASTM):
   a. D638, Standard Test Method for Tensile Properties of Plastics.
   b. D2974, Standard Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils.
   c. D3776/D3776M, Standard Test Methods for Mass Per Unit Area (Weight) of Fabric.
   d. D4355, Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus.
   e. D4397, Standard Specification for Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications.
   f. D4491, Standard Test Methods for Water Permeability of Geotextiles by Permittivity.
   g. D4533, Standard Test Method for Trapezoid Tearing Strength of Geotextiles.
   h. D4632/D4632M, Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.
   i. D4751, Standard Test Method for Determining Apparent Opening Size of a Geotextile.
   j. D6241, Standard Test Method for Static Puncture Strength of Geotextiles and Geotextile-Related Products Using a 50-mm Probe.
   k. D6459, Standard Test Method for Determination of Rolled Erosion Control Product (RECP) Performance in Protecting Hillslopes from Rainfall-Induced Erosion.
   l. D6460, Standard Test Method for Determination of Rolled Erosion Control Product (RECP) Performance in Protecting Earthen Channels from Stormwater-Induced Erosion.
   m. D6475, Standard Test Method for Measuring Mass Per Unit Area of Erosion Control Blankets.
   n. D7322, Standard Test Method for Determination of Rolled Erosion Control Product (RECP) Ability to Encourage Seed Germination and Plant Growth Under Bench-Scale Conditions.
   o. D7367, Standard Test Method for Determining Water Holding Capacity of Fiber Mulches for Hydraulic Planting.
2. National Weather Service:
   a. Precipitation-Frequency of the United States by State/Territory, 2012.
   b. Precipitation Frequency Data Server, 2012.
3. North American Weed Management Association (NAWMA).

4. U.S. Department of Agriculture, Natural Resources Conservation Service: *Urban Hydrology for Small Watersheds*; 1986. Technical Release 55.
5. U.S. Environmental Protection Agency:
   a. Developing Your Stormwater Pollution Prevention Plan: A Guide for Construction Sites, 2007. EPA-833-R-06-004.
   b. National Menu of BMPs, 2012.

1.03 SYSTEM DESCRIPTION AND REQUIREMENTS

A. Erosion and Sediment Control:

1. Provide, maintain, and operate temporary facilities to control erosion and sediment releases during construction period. TESC shall comply with the standards of the Construction Stormwater General Permit, including, but not limited to, sediment discharges limited to 25 NTUs TSS.
2. Design erosion and sediment controls to handle peak runoff resulting from 25-year, 24-hour storm event based on SWMMWW from Ecology.
3. Size temporary stormwater conveyances based on procedures presented in U.S. Department of Agriculture, Natural Resources Conservation Service: Urban Hydrology for Small Watersheds, 1986. Technical Release 55.

B. Erosion and Sediment Control (ESC) Lead:

1. Contractor shall identify the ESC Lead at the preconstruction discussions and in the TESC Plan. The ESC Lead shall have current certification as a Certified Erosion and Sedimentation Control Lead (CESCL).
2. The ESC Lead shall implement the TESC Plan, including, but not limited to:
   a. Installing, inspecting, and maintaining all temporary erosion and sediment control Best Management Practices (BMPs) included in the TESC Plan to assure continued performance of their intended function. Damaged or inadequate TESC BMPs shall be corrected immediately.
   b. Updating TESC Plan/SWPPP to reflect current field conditions.
   c. Terminating TESC Plan.
3. ESC Lead shall also perform discharge sampling and monitoring, and inspect all areas disturbed by construction activities, all onsite erosion and sediment control BMPs, all stormwater discharge points, and all temporarily stabilized inactive sites per schedule in the Construction Stormwater General Permit or as directed by Engineer. Complete erosion and sediment control inspection form provided by Ecology or Owner for each inspection and submit a copy to Engineer no later than end of the next working day following inspection.

C. Personnel Training:

1. Prior to commencement of construction, applicable personnel must have an understanding of the Construction Stormwater General Permit's requirements and their specific responsibilities under the permit. At a minimum, personnel must be trained to understand the following as it relates to the scope of their job duties:
   a. The location of all stormwater controls and how to maintain them.
   b. Procedures for complying with the pollution prevention requirements.
   c. Procedures for conducting inspections, recording findings, and taking corrective action.

D. Temporary Erosion and Sediment Control Plan (Stormwater Pollution Prevention Plan):

1. A Draft TESC Plan is furnished as part of Drawings, which helps fulfill part of the plan requirement of the Construction Stormwater General Permit. The ESC measures shown on this plan and described in the Project Specifications are minimum requirements for anticipated Site conditions. During the construction period, upgrade these measures as needed to comply with all applicable local, state, and federal erosion and sediment control regulations.
2. A draft SWPPP is also provided for Contractor's use as-is or as a starting point for developing a modified version for which Contractor is solely responsible. This draft TESC Plan and SWPPP, shall be modified, as necessary, by Contractor to reflect Contractor's construction sequence, means, and methods. Additional or revised erosion and sediment control features, not shown on the draft TESC Plan, may be required depending on Contractor's methods of operation and schedule.
3. For each phase of the scheduled work, indicate on the TESC Plan all the BMPs proposed and installed for erosion and sediment control to minimize clearing, stabilize exposed soil, divert or temporarily store flows, limit runoff from exposed areas, and filter transported sediment. Include all temporary slopes, constructed for staging or other reasons, which may not have been identified in the original Contract plans. Refer to the current local jurisdiction's erosion and sediment control manual.
4. Some TESC Plan required elements typically required by NPDES permits:
   a. Narrative Site Description:
      1) Nature of construction activity planned for the Site.
      2) Estimates of total site area and the areas of the Site expected to be disturbed.
      3) Soil types found onsite and their erosion potential.
      4) The types of fill materials to be used.
      5) Timetable for sequence of major construction events.

b. Site Map:
   1) All areas of development.
   2) Drainage patterns.
   3) Areas of soil disturbance, including pre-development and post-development elevation contours.
   4) Areas used for temporary storage of soils or wastes.
   5) Areas where vegetative practices are to be implemented.
   6) Location of all erosion and sediment control BMP or structures.
   7) Location of all impervious structures and surfaces after Project is completed.
   8) Springs, wetlands, and other surface waters located onsite.
   9) Boundaries of the 100-year floodplain.
   10) Ordinary High Water line.
   11) Location of storm drainage outfalls to receiving waters, if applicable.
   12) Details of sediment and erosion controls.
   13) Details of detention tanks, storm drain piping, inflow and outflow details.
   14) Location and details of water quality treatment facilities.

c. Required BMPs and Procedures for Erosion Prevention, Runoff Control, and Sediment Control:
   1) Construction entrances and parking areas.
   2) Unpaved site roads such as haul roads.
   3) Hauling saturated soils from the Site.
   4) Water washed from concrete trucks.
   5) Correct installation of erosion and sediment control BMPs.
   6) Prompt maintenance and repair of BMPs.
   7) Clearing and grading practices to minimize area of exposed soil throughout life of the Project.
   8) Schedule of phased clearing operations to limit soils to what can be stabilized.
   9) Vegetative practices, including preservation of existing vegetation, seeding, mulching, and buffer strips.
   10) Preventing erosion of exposed areas.
   11) Diverting flows from exposed slopes.
   12) Limiting runoff from exposed areas.
   13) Preventing sediment transport within work sites and keeping it from moving off of project areas.
   14) Perimeter controls for all clearing and grubbing, both planned and installed.
   15) Additional controls for wet season work and temporary work suspensions.
   16) Sensitive areas such as wetlands.
   17) Offsite material source and waste areas.
   18) Dust.

19) Emergency materials stockpiled onsite.
20) Storing flows and filtering sediment.
21) Soil stockpiles.
22) Water quality treatment facilities.
23) Flow control facilities.

5. Contractor's construction SWPPP Plan and implementation schedules must be prepared by a competent individual. Furnish a signed copy of the TESC Plan with individual's name, title, state CESCL certification number, and employing firm if different than Contractor's firm.
6. Do not begin any Site activities that have potential to cause erosion or sediment movement until the SWPPP Plan and implementation schedules are approved by Engineer.
7. Keep a copy of the approved SWPPP with updated changes onsite during all construction activities. During inactive periods longer than 7 calendar days, keep the SWPPP onsite or provide a copy to Engineer to retain.
8. Perform construction stormwater discharge monitoring and reporting to Ecology per General Construction Permit.
9. Continually update the TESC Plan, SWPPP, schedules, and methods as needed for unexpected storm or other events to ensure that sediment-laden water does not leave the construction site. Add approved changes to the TESC Plan no later than 24 hours after implementation.

E. Install high visibility fence along the Site shown on Approved Drawings or as instructed by Engineer. Space posts and attach fence fabric to posts as shown on Drawings. Do not fasten fence to trees. Throughout the life of the Project, preserve and protect delineated area, acting immediately to repair or restore any fencing damaged or removed.

F. Preventing erosion, and controlling runoff, sedimentation, and non-stormwater pollution, requires Contractor to perform temporary Work items including, but not limited to:

1. Providing ditches, berms, culverts, and other measures to control surface water.
2. Building dams, settling basins, energy dissipaters, and other measures to control downstream flows.
3. Controlling underground water found during construction.
4. Covering or otherwise protecting slopes until permanent erosion control measures are working.
5. Provide temporary flow control facilities (portable tanks, etc.) to limit flow rates.
6. Provide temporary water quality facilities (filtration, EC, chemical, etc.) to limit turbidity, pH, and other pollutants to acceptable levels.

G. To the degree possible, coordinate this temporary Work with permanent drainage and erosion control work the Contract requires.

H. When natural elements rut or erode the slope, restore and repair damage with eroded material where possible, and remove and dispose of any remaining material found in ditches and culverts.

I. Install all sediment control devices including, but not limited to, tanks, pumps, water quality treatment devices, perimeter silt fencing, or other sediment trapping BMPs prior to any ground disturbing activity. Do not expose more erodible earth than necessary during clearing, grubbing, excavation, borrow, or fill activities without written approval by Engineer. Engineer may increase or decrease the limits based on Project conditions. Erodible earth is defined as any surface where soils, grindings, or other materials may be capable of being displaced and transported by rain, wind, or surface water runoff. Cover inactive areas of erodible earth, whether at final grade or not, within specified time period (see Construction Stormwater General Permit), using an approved soil covering practice. Phase clearing and grading to maximum extent practical to prevent exposed inactive areas from becoming a source of erosion.

J. Water Management:

1. Manage site water as follows:
   a. Groundwater. When groundwater is encountered in an excavation, treat and discharge as follows:
      1) When turbidity of groundwater is similar to turbidity of site runoff, groundwater may be treated using same detention and treatment facilities being used to treat the site runoff and then discharged at a rate that will not cause erosion.
      2) When groundwater turbidity is greater than turbidity of site runoff, treat ground water separately until turbidity is similar to or better than site runoff, and then it may be combined with site runoff and treated as described above.
   b. Process Water:
      1) Do not discharge high pH process water or wastewater (nonstormwater) that is generated onsite, including water generated during concrete grinding, rubblizing, washout, and hydrodemolition activities, to waters of the State, including wetlands. Offsite disposal of concrete process water is subject to approval of Engineer.
      2) Treat all water generated onsite from construction or washing activities that is more turbid than site runoff separately until turbidity is the same or less than site runoff, and then it may be combined with site runoff and treated as described above.
   c. Offsite Water: Prior to disruption of normal watercourse, intercept offsite stormwater and pipe it either through or around the Project Site. This water shall not be combined with onsite stormwater. Discharge offsite water at its preconstruction outfall point preventing

an increase in erosion below the site. Submit proposed method for performing this Work for Engineer's approval.

K. Dispersion/Infiltration: Dispersion and infiltration are not feasible means of disposal on this Site. All site runoff must be treated and conveyed to the natural discharge location.

L. Bioretention Facility Construction: Perform excavation to subgrade before beginning other grading and excavation Work in the area that drains into that facility or other temporary facility. Install temporary conveyances concurrently with grading in accordance with the TESC Plan so that newly graded areas drain to the facility as they are exposed. If bioretention facility is used as temporary detention, stabilize site and remove sediment prior to installing underdrain gravel or bioretention soil.

M. Provide temporary flow control facilities to limit the rate of runoff from the disturbed portion of the site until the permanent facilities are constructed and operational. Provide temporary storage with a minimum of 40,000 gallons.

N. In addition to implementing erosion control best management practices and flow control facilities. Design, install, operate and maintain a water quality treatment facility or facilities to limit runoff from the site to the following characteristics:

1. pH between 6.5 and 8.5, in accordance with the Construction Stormwater General Permit.
2. Turbidity below 25 NTU unless otherwise stated in the Construction Stormwater General Permit.
3. Limit other pollutants as noted in the Construction Stormwater General Permit.

O. Pollution Control:

1. Use BMPs to prevent or minimize stormwater exposure to pollutants from spills; vehicle and equipment fueling, maintenance, and storage; other cleaning and maintenance activities; and waste handling activities. These pollutants include fuel, hydraulic fluid, and other oils from vehicles and machinery, as well as debris, leftover paints, solvents, and glues from construction operations. Implement the following BMPs when applicable:
   a. Written spill prevention and response procedures.
   b. Employee training on spill prevention and proper disposal procedures.
   c. Spill kits in all vehicles.
   d. Regular maintenance schedule for vehicles and machinery.
   e. Material delivery and storage controls.
   f. Training and signage.
   g. Covered storage areas for waste and supplies.
   h. Pollution control within environmentally-sensitive areas (wetlands).

2. All equipment containing hydraulic fluid that extends over surface waters of the state or below the OHWM, including in the area of this Project mapped as wetlands, shall be equipped with an environmentally acceptable hydraulic fluid. The fluid shall meet specific requirements for biodegradability, aquatic toxicity, and bioaccumulation in accordance with the United States Environmental Protection Agency (EPA) publication EPA800-R-11-002. Acceptable shall be in accordance with Section 1-06.3, Manufacturer's Certification of Compliance, of the WSDOT Standard Specifications.
   a. The designation of environmentally acceptable hydraulic fluid does not mean fluid spill are acceptable. The Contractor shall respond to spill to land or water in accordance with the Contract.

P. If Engineer orders the Work suspended, continue to control erosion, pollution, and runoff during the shutdown.

Q. Nothing in this section shall relieve Contractor from complying with other Contract requirements.

1.04 SUBMITTALS

A. Informational Submittals:

1. Modify the Engineer-prepared draft SWPPP to reflect the Contractor's construction sequence, means and methods.
2. Modify the TESC Plan. Provide a schedule for TESC Plan implementation and incorporate it into Contractor's progress schedule. Obtain Engineer's approval of the TESC Plan and schedule before any Work begins.
3. Modified TESC Plans shall meet all requirements of the Construction Stormwater General Permit, Ecology Manual, and City of Kirkland Pre-Approved Plan D-12.
4. The TESC Plan shall cover all areas that may be affected inside and outside the limits of the Project (including all Owner-provided sources, disposal sites, and haul roads, and all nearby land, streams, and other bodies of water).
5. Allow at least 5 working days for Engineer to review any original or revised TESC Plan. Failure to approve all or part of any such Plan shall not make Owner liable to Contractor for any Work delays.

PART 2 PRODUCTS

2.01 CHECK DAMS

A. Specified by Contractor with approval of Engineer.

2.02 COIR LOG

A. Logs made of 100 percent durable coconut (coir) fiber uniformly compacted within woven netting.

B. Netting: Made of bristle coir twine with minimum strength of 80 pounds tensile strength. Nominal 2-inch by 2-inch openings.

C. Log Segments: Maximum length of 20 feet, with a minimum diameter as shown on Drawings.

D. Log Minimum Density: 7 pounds per cubic foot.

E. Stakes: Untreated softwood species with a notch to secure rope ties.

F. Rope Ties: 1/4-inch diameter commercially available hemp rope.

2.03 COMPOST BLANKET

A. Composed of products resulting from the biological degradation and transformation of plant-derived materials under controlled conditions designed to promote aerobic decomposition and:

1. Stable in oxygen consumption and carbon dioxide generation.
2. Mature and suitable for serving as a soil amendment or an erosion control BMP.
3. Appropriate in Moisture Content: No visible free water or dust produced when handling material.
4. Test compost products in accordance with U.S. Composting Council Testing Methods for the Examination of Compost and Composting (TMECC) 02.02-B, "Sample Sieving for Aggregate Size Classification."

B. Meet the following criteria for Coarse Compost:

1. Gradation:

	Percent Passing	
Sieve Size	**Minimum**	**Maximum**
3"	100	
1"	90	100
3/4"	70	100
1/4"	40	60
Maximum particle length of 6 inches.		

2. pH: Between 6.0 and 8.5 when tested in accordance with U.S. Composting Council TMECC 04.11-A, “1:5 Slurry pH”.
3. Manufactured Inert Material (Plastic, Concrete, Ceramics, Metal, etc.): Less than 1.0 percent by weight per U.S. Composting Council TMECC 03.08-A “Classification of Inerts by Sieve Size”.
4. Minimum Organic Matter: 40 percent by dry weight basis as determined by U.S. Composting Council TMECC 05.07A “Loss-On-Ignition Organic Matter Method (LOI)”.
5. Soluble Salt Content: Less than 4.0 mmhos/cm when tested in accordance with U.S. Composting Council TMECC 04.10 “Electrical Conductivity”.
6. Maturity: Greater than 80 percent in accordance with U.S. Composting Council TMECC 05.05-A, “Germination and Root Elongation.”
7. Stability: 7 mg CO2–C/g OM/day or below in accordance with U.S. Composting Council TMECC 05.08-B “Carbon Dioxide Evolution Rate.”
8. The compost product must originate a minimum of 65 percent by volume from recycled plant waste. A maximum of 35 percent by volume of feedstocks, source-separated food waste, and/or biosolids may be substituted for recycled plant waste. Provide a list of feedstock sources by percentage in final compost product.
9. Engineer may evaluate compost for maturity using U.S. Composting Council TMECC 05.08-E “Solvita® Maturity Index.” Coarse Compost shall score a 5 or above on the Solvita® Compost Maturity Test.

2.04 COMPOST SOCK

A. Provide socks fabricated from of extra heavy weight biodegradable fabric, with a minimum strand thickness of 5 mils.

B. Fill fabric with Coarse Compost.

C. Diameter: 8 inches minimum.

D. Fabric: Clean, evenly woven, and free of encrusted concrete or other contaminating materials. Shall be free from cuts, tears, broken or missing yarns. Shall be free of thin, open, or weak areas. Shall be free of any type of preservative.

E. Wood Stakes: Untreated softwood species, be 2-inch by 2-inch nominal dimension and 36 inches in length.

2.05 EROSION CONTROL BLANKET (MATTING), BIODEGRADABLE

A. Temporary erosion control blanket shall be made of natural plant fibers. Supply independent test results meeting the following:

Properties	ASTM Test Method	Requirements
Protecting Slopes from Rainfall-Induced Erosion	D6459: Test in one soil type. Soil tested shall be sandy loam as defined by the NRCS Soil Texture Triangle.	Maximum C factor of 0.15 using Revised Universal Soil Loss Equation (RUSLE)
Dry Weight per Unit Area	D6475	0.36 lb/sq. yd. minimum
Performance in Protecting Earthen Channels from Stormwater-Induced Erosion	D6460: Test in one soil type. Soil tested shall be loam as defined by the NRCS Soil Texture Triangle.	1.0 lb/sq. ft. minimum
Seed Germination Enhancement	D7322	200 percent minimum
Netting, if present, shall be biodegradable with a minimum life span of 1 year.		

2.06 TEMPORARY RAINWATER STORAGE TANK

A. Storage tanks shall be portable and installed onsite as shown on Drawings or as required to meet permit requirements.

2.07 GEOTEXTILE

A. Geotextiles shall consist only of long chain polymeric fibers or yarns formed into a stable network such that the fibers or yarns retain their position relative to each other during handling, placement, and design service life. At least 95 percent by weight of the material shall be polyolefins or polyesters. The material shall be free from defects or tears. Geotextile shall also be free of any treatment or coating which might adversely alter its hydraulic or physical properties after installation. Geotextile properties shall be as described in Standard Specifications Section 9.33-2 Table 1 through Table 3.

2.08 GRAVEL FILTER, WOOD CHIP, OR COMPOST BERM

A. Rock Material Used for Filter Berms: Clean 3/4-inch rock, with no recycled materials.

B. Wood Chips Used for Wood Chip Berm: As specified in Article Wood Chips and Wood Shavings.

C. Compost Used for Compost Berms: Coarse compost as specified in Article Compost Blanket.

2.09 HIGH VISIBILITY FENCING

A. High Visibility Fence: UV stabilized, orange, high-density polyethylene or polypropylene mesh.

B. Height: 4 feet minimum.

C. Support Posts: Wood or steel with sufficient strength and durability to support the fence through the life of the Project.

2.10 INLET PROTECTION

A. As specified under Article Geotextile.

2.11 MULCH

A. Short-Term: Provide independent test results documenting that the mulch meets the requirements in WSDOT Standard Specification Section 9-14.4(2)C.i.

B. Moderate-Term: Moderate Term Mulch shall meet the requirements in WSDOT Standard Specification Section 9-14.4(2)B.

C. Long-Term: Long-Term Mulch shall meet the requirements in WSDOT Standard Specification Section 9-14.4(2)A.

2.12 INLET AND OUTLET PROTECTION

A. Size riprap or quarry spall to resist movement under design flows. Install at least 8 inches deep. Provide riprap or quarry spall material free of extraneous material.

2.13 PLASTIC COVERING

A. Clear plastic meeting requirements of ASTM D4397 for polyethylene sheeting having a minimum thickness of 6 mils.

2.14 POLYACRYLAMIDE (PAM)

A. Meet ANSI/NSF Standard 60 for drinking water treatment with an AMD content not to exceed 0.05 percent.

B. Anionic, linear, and not cross-linked.

C. Minimum average molecular weight greater than 5 mg/mole and minimum 30 percent charge density.

D. 80 percent active ingredients minimum with moisture content not exceeding 10 percent by weight.

E. Delivered in a dry granular or powder form.

2.15 SEDIMENT CONTROL BARRIERS

A. Specified by Contractor with approval of Engineer. May include Compost Filter Sock or Compost Filter Berm.

2.16 SEEDING

A. See City of Kirkland standard.

2.17 SILT FENCE

A. Geotextile: As specified in Article Geotextile with reinforcement backing.

B. Support Posts: As recommended by manufacturer of geotextile.

C. Fasteners: Heavy-duty wire staples at least 1-inch long, tie wires, or hog rings, as recommended by manufacturer of geotextile.

2.18 STABILIZED CONSTRUCTION ENTRANCE

A. Construct a pad from stone 3 inches to 6 inches in size, placed at least 8 inches deep and not less than 50 feet long.

B. Provide aggregate free of extraneous materials that may cause or contribute to track out.

C. Place separation geotextile under the rock to prevent fine sediment from pumping up into the rock pad. See Article Geotextile for required geotextile properties.

D. Use of constructed or constructed/manufactured steel plates with ribs (such as, shaker/rumble plates or corrugated steel plates) for entrance/exit access is allowable.

2.19 STREET CLEANING

A. Use self-propelled pickup street sweeper(s). Mechanical broom sweepers are not allowed.

2.20 TACKIFIERS

A. Biodegradable Hydraulically Applied Erosion Control Products (HECPs) in a dry condition, free of noxious weeds, seeds, chemical printing ink, germination inhibitors, herbicide residue, chlorine bleach, rock, metal, plastic, and other

materials detrimental to plant life. Up to 5 percent by weight may be photodegradable material.

B. Suitable for spreading with a hydroseeder.

C. Furnish HECPs premixed by the manufacturer. Under no circumstances will field mixing of additives or components be acceptable.

D. Provide test results, dated within 3 years prior to the date of application, from an independent, accredited laboratory, as approved by Engineer, showing that the product meets the HECP requirements in Table 1.

Table 1
HECP Requirements

Properties	Test Method	Requirements
Acute Toxicity	EPA-821-R-02-012 Methods for Measuring Acute Toxicity of Effluents. Test leachate from recommended application rate receiving 2 inches of rainfall per hour using static test for No-Observed-Adverse-Effect-Concentration (NOEC).	Four replicates are required with no statistically significant reduction in survival in 100 percent leachate for a Daphnid at 48 hours and Oncorhynchus mykiss (rainbow trout) at 96 hours.
Solvents	EPA 8260B	Benzene: < 0.03 mg/kg Methylene chloride: < 0.02 mg/kg Naphthalene: < 5 mg/kg Tetrachloreoethylene: < 0.05 mg/kg Toluene: < 7 mg/kg Trichloroethylene: < 0.03 mg/kg Xylenes: < 9 mg/kg

Table 1
HECP Requirements

Properties	Test Method	Requirements
Heavy Metals	EPA 6020A Total Metals	Antimony: < 4 mg/kg Arsenic: < 6 mg/kg Barium: < 80 mg/kg Boron: < 100 mg/kg Cadmium: < 2 mg/kg Chromium: < 2 mg/kg Copper: < 5 mg/kg Lead: < 5 mg/kg Mercury: < 2 mg/kg Nickel: < 2 mg/kg Selenium: < 10 mg/kg Strontium: < 30 mg/kg Zinc: < 5 mg/kg
Water Holding Capacity	ASTM D7367	900 percent minimum
Organic Matter Content	ASTM D2974	90 percent minimum
Moisture Content	ASTM D2974	15 percent
Seed Germination Enhancement	ASTM D7322	Long-Term: 420 percent minimum Moderate-Term: 400 percent minimum Short-Term: 200 percent minimum

2.21 TEMPORARY CURB

A. Temporary curbs may consist of asphalt, concrete, sand bags, compost socks, wattles, or geotextile/plastic encased berms of sand or gravel, or as approved by Engineer.

2.22 TEMPORARY PIPE SLOPE DRAIN

A. Corrugated polyethylene drain pipe, couplings and fittings (up to 10-inch) meeting the requirements of AASHTO M252 Type C (corrugated both inside and outside) or Type S (corrugated outer wall and smooth inner liner).

1. Maximum Pipe Size: 10 inches in diameter.

2.23 WATTLES

A. Cylinders of biodegradable plant material such as weed-free straw, coir, compost, wood chips, excelsior, or wood fiber or shavings encased within biodegradable netting.

B. Diameter: 5 inches minimum.

C. Netting Material: Clean, evenly woven, and free of encrusted concrete or other contaminating materials such as preservatives. Also free from cuts, tears, or weak places with a minimum lifespan of 6 months.

D. Compost Filler: Coarse compost, wood chips, or wood shavings.

E. Wood Stakes: Untreated softwood species, 2-inch by 2-inch nominal dimension and 36 inches in length.

2.24 WOOD CHIPS AND WOOD SHAVINGS

A. Wood Chips:

1. Derived from softwood species not containing resin, tannin, or other compounds in quantities that would be detrimental to plant life, and meeting the following loose volume gradation:
   a. 2-inch Sieve Size: 95 percent to 100 percent passing.
   b. No. 4 Sieve Size: 0 percent to 30 percent passing.

B. Wood Shavings: Provide shavings with 80 percent of the fibers 6 inches or longer between 0.030-inch wide and 0.50-inch wide, and between 0.017-inch thick and 0.13-inch thick.

2.25 TEMPORARY WATER TREATMENT FACILITY

A. Portable, Bidder-designed water treatment facility, provided and operated by the Contractor to treat runoff to allowable discharge characteristics.

PART 3 EXECUTION

3.01 PREPARATION

A. Engineer's acceptance of the TESC Plan is required prior to starting earth disturbing activities.

B. Include proposed stockpile areas and installation of temporary erosion control devices, ditches, or other facilities in Work phasing plans.

C. Areas designated for Contractor's use during Project may be temporarily developed as specified to provide working, staging, and administrative areas. Include control of sediment from these areas in the TESC Plan.

D. Check Dams: Install check dams as soon as construction will allow, or when designated by Engineer. Contractor may substitute a different check dam, in lieu of what is specified in the Contract, with approval of Engineer. Check dam is a temporary or permanent structure, built across a minor channel. Water shall not flow through check dam structure. Construct check dams to create a ponding area upstream of dam to allow pollutants to settle, with water from increased flows channeled over a spillway in check dam. Construct check dam to prevent erosion in area below spillway. Place check dams perpendicular to flow of water and install in accordance with Drawings. Extend outer edges up sides of conveyance to prevent water from going around check dam. Provide check dams of sufficient height to maximize detention, without causing water to leave ditch. Place sandbags so that initial row makes tight contact with ditch line for length of dam. Stagger subsequent rows so center of bag is placed over space between bags on previous lift. Check dams cannot be installed in wetlands.

E. Coir Log: Install coir logs in accordance with Drawings.

F. Compost Blanket: Place compost blanket to a depth of 3 inches over bare soil prior to seeding or other planting. Place an organic tackifier over entire composted area when dry or windy conditions are present or expected before final application of mulch or erosion control blanket. Apply tackifier immediately after compost application to prevent compost from leaving area.

G. Compost Sock: Exercise care when installing compost socks to ensure method of installation minimizes disturbance of waterways and prevents sediment or pollutant discharge into waterbodies. Lace compost socks together, end-to-end, with coir rope to create a continuous length. Bury loose ends of continuous length 3 feet to 5 feet laterally into the bankslope. Install the upper surface of compost sock parallel to slope. Provide finished grades of a natural appearance with smooth transitions. Secure compost sock with wood stakes or live stakes of species as indicated on Drawings. Drive stakes into place centered on top of compost sock and spaced 3 feet on center throughout length of sock.

H. Erosion Control Blanket (Matting), Biodegradable: Temporary Erosion Control Blankets are used as an erosion prevention device and to enhance temporary water treatment facility. Install erosion control blankets according to manufacturer's recommendations.

1. Erosion control blankets with an open area of 60 percent or greater may be installed prior to seeding and fertilizing. Install blankets with less than 60 percent open space immediately following seeding and fertilizing operation.

2. Select erosion control blanket material for an area based on the intended function; slope or ditch stabilization and Site-specific factors including soil, slope gradient, rainfall, and flow exposure. Do not use erosion Control Blankets on slopes or in ditches that exceed manufacturer's recommendations.

I. Temporary Rainwater Storage Tanks and Temporary Water Treatment Facility: Prior to discharge, sample each batch of treated and test for compliance with turbidity and pH limits, which may be established by water quality standards or a Site-specific discharge permit. Sampling and testing for other pollutants may be necessary. Obtain regulatory approval and provide a qualified, trained operator.

J. Gravel Filter, Wood Chip, or Compost Berm: Construct filter berms to retain sediment and direct flows.

1. Gravel Filter Berm: 1-foot minimum height. Maintain at this height for entire time berm is in use.
2. Wood Chip Berm: 2-foot minimum height. Maintain at this height for entire time berm is in use.
3. Construct compost berm of course compost in accordance with the detail on Drawings.

K. High Visibility Fencing: Install high visibility fencing in accordance with Drawings.

L. Inlet Protection: Install inlet protection below or above, or as a prefabricated cover at each inlet grate, as shown on Drawings. Install inlet protection devices prior to beginning clearing, grubbing or earthwork activities. Geotextile fabric used in prefabricated inlet protection devices must meet or exceed the requirements for Moderate Survivability and minimum filtration properties. When depth of accumulated sediment and debris reaches approximately one-half the height of an internal device or one-third the height of external device (or less when so specified by the manufacturers) or as designated by Engineer, remove deposits and stabilize onsite.

1. Below Inlet Grate:
   a. Prefabricated units specifically designed for inlet protection.
   b. Must remain securely attached to drainage structure when fully loaded with sediment and debris or at the maximum level of sediment and debris specified by manufacturer.
2. Above Inlet Grate:
   a. Devices may be silt fence, sandbags, or prefabricated units specifically designed for inlet protection.
   b. Must remain securely in place around drainage structure under all conditions.

3. Inlet Grate Cover:
   a. Prefabricated units specifically designed for inlet protection and:
      1) Be a sewn geotextile fabric unit fitted to individual grate and completely enclosing grate.
      2) Have built-in lifting devices to allow manual access of stormwater system.
      3) Use an orange monofilament geotextile fabric.
   b. Check dams or functionally equivalent devices may be used as inlet protection devices with approval of Engineer.

M. Mulch: Furnish, haul, and evenly apply at rates indicated and spread on seeded areas within 48 hours after seeding unless otherwise specified.

1. Distribute straw mulch material with an approved mulch spreader that uses forced air to blow mulch material on seeded areas.
2. Apply wood strand mulch by hand or by straw blower on seeded areas.
3. Hydraulically apply Short-Term Mulch at the rate of 2,500 pounds per acre. May be applied in one lift.
4. Hydraulically apply Moderate-Term Mulch and Long-Term Mulch at the rate of 3,500 pounds per acre with no more than 2,000 pounds applied in any single lift. Mulch may be applied with seed and fertilizer in moist climates. In dry climates, apply seed and fertilizer in a single application followed by mulch application. Provide mulch suitable for application with a hydroseeder.
5. Cover temporary seed applied outside application windows established in Section 32 92 19, Hydroseeding Lawn Areas, with a mulch containing either Moderate-Term Mulch or Long-Term Mulch, as designated by Engineer.
6. Mulch areas not accessible by mulching equipment by approved hand methods.
7. Mulch cannot be placed in wetlands unless authorized in writing by the Washington State Department of Ecology.

N. Outlet Protection: Provide outlet protection to prevent scour at outlets of ponds, pipes, ditches, or other conveyances.

O. Plastic Covering: Use clear plastic covering to promote seed germination when seeding is performed outside of specified dates. Use black plastic covering for stockpiles or other areas where vegetative growth is unwanted. Place plastic with at least a 12-inch overlap of all seams. Install and maintain plastic cover to prevent water from cutting under the plastic and to prevent cover from blowing open in the wind.

P. Polyacrylamide (PAM): See Tackifiers.

Q. Sediment Control Barriers: Install sediment control barriers in accordance with TESC Plan or manufacturer's recommendations in the areas of clearing, grubbing, earthwork, or drainage prior to starting those activities. Maintain sediment control barriers until soils are stabilized.

R. Seeding: See Section 32 92 19, Hydroseeding Lawn Areas.

S. Silt Fence:

1. Silt fence shall be installed in accordance with Drawings. When backup support is used, use steel wire with a maximum mesh spacing of 2 inches by 4 inches, or plastic mesh as resistant to ultraviolet radiation as the geotextile it supports. Provide wire or plastic mesh with strength equivalent to or greater than as required for unsupported geotextile (for example, 180 pounds grab tensile strength in the machine direction).
2. Attach geotextile to posts and support system using staples, wire, or in accordance with manufacturer's recommendations. Geotextile shall be sewn together at the point of manufacture, or at a location approved by Engineer, to form geotextile lengths as required.
3. Provide wood or steel support posts at sewn seams and overlaps and as shown on Drawings and necessary to support fence.
4. Wood Posts: Minimum dimensions of 1-1/4 inch by 1-1/4 inch by the minimum length shown on Drawings.
5. Steel Posts: Minimum weight of 0.90 pounds per foot.
6. When sediment deposits reach approximately one-third the height of the silt fence, remove and stabilize deposits.

T. Stabilized Construction Entrance: Construct temporary stabilized construction entrance in accordance with Drawings, prior to beginning any clearing, grubbing, earthwork, or excavation. When stabilized entrance no longer prevents track out of sediment or debris, either rehabilitate existing entrance to original condition or construct a new entrance.

U. Street Cleaning: Use self-propelled pickup street sweepers whenever required by Engineer to prevent transport of sediment and other debris off Project Site. Provide street sweepers designed and operated to meet air quality standards. Street washing with water is not allowed. Intentional washing of sediment into storm sewers or drainage ways must not occur. Vacuuming or dry sweeping and material pickup must be used to cleanup released sediments.

V. Tackifiers:

1. Mix and apply tackifier in accordance with manufacturer's recommendations. If applied with a hydroseeder, add Short-Term Mulch as a tracer at a rate of 125 pounds to 250 pounds per acre to visibly aid uniform application.

2. Soil Binding Using Polyacrylamide (PAM): Apply PAM on bare soil completely dissolved and mixed in water or applied as a dry powder. Apply dissolved PAM at a rate of not more than 2/3 pound per 1,000 gallons of water per acre. Apply a minimum of 200 pounds per acre of Short-Term Mulch with the dissolved PAM. Dry powder applications may be at a rate of 5 pounds per acre using a hand-held fertilizer spreader or a tractor-mounted spreader.
    a. Apply PAM only to areas that drain to completed sedimentation control BMPs in accordance with the TESC Plan. PAM may be reapplied on actively worked areas after a 48-hour period.
    b. PAM shall not be applied during rainfall or to saturated soils.

W. Temporary Curb: Provide temporary curbs to divert or redirect water around erodible soils. Temporary curbs shall be installed along pavement edges to prevent runoff from flowing onto erodible slopes. Water shall be directed to areas where erosion can be controlled. Temporary curbs shall be a minimum of 4 inches in height. Ponding shall not be in roadways.

X. Temporary Pipe Slope Drain: Corrugated polyethylene drain pipe constructed in accordance with Drawings. Use water interceptor dikes or temporary curbs to direct water into pipe slope drain. Entrance to drain may consist of a prefabricated funnel device specifically designed for application, rock, sand bags, or as approved by Engineer. Construct pipe with gasketed watertight fittings and secure to slope with metal “T” posts, wood stakes, sand bags, or as approved by Engineer. Discharge water to a stabilized conveyance, sediment trap, stormwater pond, rock splash pad, vegetated strip, or as approved by Engineer. Install pipe so that water does not pond on road surface.

Y. Temporary Sediment Trap: Form trap by constructing a berm or by partial or complete excavation. Direct the discharge flow to a stabilized conveyance outlet or level spreader.

Z. Wattles: Install wattles as soon as construction will allow or when designated by Engineer. Begin trench construction and wattle installation at base of slope and work uphill. Spread excavated material evenly along the uphill slope and compact using hand tamping or other method approved by Engineer. On gradually sloped or clay-type soils, provide trenches 2 inches to 3 inches deep. On loose soils, in high rainfall areas, or on steep slopes, provide trenches 3 inches to 5 inches deep, or half the thickness of the wattle. Exercise care when installing wattles to minimize disturbance of waterways and prevent sediment or pollutant discharge into waterbodies.

AA. Wood Chips and Wood Shavings: Install in accordance with Drawings.

3.02 ADDITIONAL REQUIREMENTS

A. Natural Buffer or Equivalent:

1. Unless natural buffer between the Project Site and receiving waters has previously been eliminated by pre-existing development disturbances, comply with one of the following alternatives if stormwater from construction will discharge to surface water:
   a. Provide a 50-foot, undisturbed natural buffer between construction disturbances and surface water.
   b. Provide an undisturbed natural buffer that is less than 50 feet supplemented by additional erosion and sediment controls, which in combination, achieve a sediment load reduction that is equivalent to a 50-foot buffer.
   c. If it is infeasible to provide an undisturbed natural buffer of any size, implement erosion and sediment controls that achieve a sediment load reduction that is equivalent to a 50-foot buffer.

3.03 MAINTENANCE

A. The ESCP measures described in this specification are minimum requirements for anticipated Site conditions. During the construction period, upgrade these measures as needed to comply with all applicable local, state, and federal erosion and sediment control regulations.

B. Maintain erosion and sediment control BMPs so they properly perform their function until Engineer determines they are no longer needed.

C. Construction activities must avoid or minimize excavation and creation of bare ground during wet weather.

D. The intentional washing of sediment into storm sewers or drainage ways must not occur. Vacuuming or dry sweeping and material pickup must be used to cleanup released sediments.

E. Inspect BMPs in accordance with the schedule in the Construction Stormwater Discharge Permit(s) or as directed by Engineer.

F. Complete an inspection report within 24 hours of an inspection. Each inspection report shall be signed and identify corrective actions. Document that corrective actions are performed within 7 days of identification. Keep a copy of all inspection reports at the Site or at an easily accessible location.

G. Unless otherwise specified, remove deposits before the depth of accumulated sediment and debris reaches approximately height of BMP. Dispose of debris or contaminated sediment at approved locations. Clean sediments may be stabilized onsite using BMPs as approved by Engineer.

H. Sediment Fence: Remove trapped sediment before it reaches one-third of the above ground fence height and before fence removal.

I. Other Sediment Barriers (such as biobags): Remove sediment before it reaches 2 inches depth above ground height and before BMP removal.

J. Catch Basins: Clean before retention capacity has been reduced by 50 percent.

K. Sediment Basins and Sediment Traps: Remove trapped sediments before design capacity has been reduced by 50 percent and at completion of Project.

L. Initiate repair or replacement of damaged erosion and sediment control BMPs immediately, and work completed by end of next work day. Significant replacement or repair must be completed within 7 days, unless infeasible.

M. Within 24 hours, remediate any significant sediment that has left construction site. Investigate cause of the sediment release and implement steps to prevent a recurrence of discharge within same 24 hours. Perform in-stream cleanup of sediment according to applicable regulations.

N. At end of each work day, stabilize or cover soil stockpiles or implement other BMPs to prevent discharges to surface waters or conveyance systems leading to surface waters.

O. Temporarily stabilize soils at end of shift before holidays and weekends, if needed. Ensure soils are stable during rain events at all times of year.

P. Initiate stabilization by no later than end of next work day after construction work in an area has stopped permanently or temporarily.

Q. Within 14 days of initiating stabilization or as specified in permit, either seed or plant stabilized area (see Section 32 92 19, Hydroseeding Lawn Areas) or apply nonvegetative measures and cover all areas of exposed soil. Seed dry areas as soon as Site conditions allow. Ensure that vegetation covers at least 70 percent of stabilized area. In areas where Contractor's activities have compromised erosion control functions of existing grasses, overseed existing grass. Non-vegetative measures may include blown straw and a tackifier, loose straw, or an adequate covering of compost mulch. Complete initial stabilization within 7 days if storm water discharges to surface waters impaired for sediment or nutrients, or high quality waters.

R. Provide permanent erosion control measures on all exposed areas. Do not remove temporary sediment control practices until permanent vegetation or other cover of exposed areas is established. However, do remove all temporary erosion control measures as exposed areas become stabilized, unless doing so conflicts with local requirements. Properly dispose of construction materials and waste, including sediment retained by temporary BMPs.

3.04 EMERGENCY MATERIALS

A. Provide, stockpile, and protect the following emergency erosion and sediment control materials on the Project Site for unknown weather or erosion conditions. Emergency materials are in addition to other erosion control materials required to implement and maintain the TESC Plan. Replenish emergency materials as they are used. Remove all unused emergency materials from the Project Site at completion of the Project.

Item	Quantity
Silt (sediment) fence	200 ft
Plastic sheeting	1,000 sq. ft.
Rope	1,000 ft
Sand bags (empty, to be filled as needed)	50
Biofilter bags (with stakes)	10
Inflatable pipe plugs	One for each size of pipe
Water pump and hose	One
Wattles	200 ft

3.05 REMOVAL

A. When Engineer determines that an erosion control BMP is no longer required, remove BMP and all associated hardware from the Project limits. When materials are biodegradable, Engineer may approve leaving temporary BMP in place.

B. Permanently stabilize all bare and disturbed soil after removal of erosion and sediment control BMPs. Dress sediment deposits remaining after BMPs have been removed to conform to existing grade. Prepare and seed graded area. If installation and use of erosion control BMPs have compacted or otherwise rendered soil inhospitable to plant growth, such as construction entrances, take measures to rehabilitate soil to facilitate plant growth. This may include, but is not limited to, ripping the soil, incorporating soil amendments, or seeding with specified seed.

END OF SECTION

PART 1 – GENERAL

1.01 RELATED WORK DESCRIBED ELSEWHERE

A. The provisions and intent of the Contract, including the Standard Specifications and General Conditions, apply to this work as if specified in this section. Work related to this section is described throughout the Specifications.

1.02 TIMING

A. Prior to requesting final inspection, the Contractor shall assure itself that the project is complete in all aspects.

PART 2 – PRODUCTS

2.01 WARRANTY

A. The Contractor shall promptly (within 48 hours) repair or replace all defective or damaged items delivered under the Contract. The Contractor shall haul away all defective or damaged items prior to Substantial Completion.

B. In the event of equipment failure, during such time, or in such a location that immediate repairs are mandatory, the Contractor shall respond promptly, irrespective of time. If the Contractor is not available, the Owner will effect repairs. The Contractor shall then reimburse the Owner for parts and labor necessary to correct deficiencies, as defined within the warranty clause and time.

2.02 OPERATION AND MAINTENANCE MANUALS

A. The following information (minimum of three copies) shall be furnished for all items of equipment on the Project requiring operational and/or maintenance procedures and for any additional items indicated by the Owner:

1. Lubrication Information: This shall consist of the manufacturer's recommendations regarding the lubricants to be used and the lubrication schedule to be followed.

2. Control Diagrams: Diagrams shall show internal and connection wiring and as-built wiring diagrams (where applicable).

3. Start-up Procedures: These instructions consist of equipment manufacturer's recommendations for installation, adjustment, calibration, and troubleshooting.

4. Operating Procedures: These instructions consist of the equipment manufacturer's recommended step-by-step procedures for starting,

operating, stopping the equipment under specified modes of operation, and for long-term shut-down (moth-balling).

5. Preventative Maintenance Procedures: These instructions consist of the equipment manufacturer's recommended steps and schedules for maintaining the equipment.

6. Overhaul Instructions: These instructions consist of the manufacturer's directions for the disassembly, repair, and reassembly of the equipment and any safety precautions that must be observed while performing the work.

7. Parts List: This list consists of the generic title and identification number of each component part of the equipment. This list shall include weights of individual components of each item of equipment weighing more than 100 pounds.

8. Spare Parts List: This list consists of the manufacturer's recommendations of number of parts that should be stored by the Owner and any special storage precautions that may be required.

9. Exploded View: Exploded or cut views of equipment shall be provided if available as a standard item of the manufacturer's information. When exploded or cut views are not available, plan and section views shall be provided with detailed callouts.

10. Specific Information: Where items of information not included in the above list are required, they will be provided as described in the specifications for the equipment.

11. Complete identification, including model and serial numbers.

12. Submittal information, as specified in Section 01 33 00, Submittal Procedures.

13. Warranty Information: This information consists of the name, address, and telephone number of the manufacturer's representative to be contacted for warranty, parts, or service information.

14. Maintenance information summaries shall be prepared on 8-1/2-inch by 11-inch paper and digital version (PDF format) on CD-ROM and shall contain the following information compiled from manufacturer's recommendations in the order shown.

    a) Description or name of item of equipment

    b) Manufacturer

c) Name, address, and telephone number of local manufacturer's representative

d) Serial number (where applicable)

e) Equipment nameplate data

f) Recommended maintenance procedures:

1) Description of procedures

2) Lubricant(s) or other materials required (where applicable), including type of lubricant, lubricant manufacturer, and specific compound

3) Additional information as required for proper maintenance

g) Maintenance schedule, broken down into:

1) Daily

2) Weekly

3) Monthly

4) Quarterly

5) Semiannually

6) Annually

h) Recommended spare parts (where applicable)

15. Provide video tapes, DVDs, and audiovisual training materials used in the manufacturer's instruction program for the Owner.

16. All such information shall be organized by the Contractor into 3-inch, 3-post, expandable metal binders. The binders shall be sized for material approximately 8-1/2 by 11 inches, and the material in the binders shall not protrude beyond the covers. The binder(s) shall be divided with cover sheets for each major item of equipment. The cover sheets shall be typewritten to indicate the name, type of equipment, and location(s) within the Project where installed. A neatly typewritten index shall be provided. The number of copies of such binders to be submitted shall be equal to the total of the Contractor's requirements plus five paper copies and an electronic copy (in PDF format) to be retained by the Owner.

17. All operation and maintenance information shall be comprehensive and detailed and shall contain information adequately covering all normal operation and maintenance procedures.

18. All information shall be specific for the items of equipment installed on the project. Material not directly applicable shall be removed, omitted, or clearly marked as inapplicable.

19. Lubricants shall be described in detail, including type, recommended manufacturer, and manufacturer's specific compound to be used.

20. If manufacturer's standard brochures and manuals are used to describe operating and maintenance procedures, such brochures and manuals shall be modified to reflect only the model or series of equipment used on this project.

21. Extraneous material shall be crossed out neatly or otherwise annotated or eliminated. It shall be the responsibility of the Contractor to ensure that all operation and maintenance materials are obtained. Material submitted must meet the approval of the Owner before Final Completion is issued.

PART 3 – EXECUTION

3.01 FINAL DOCUMENTS

A. Project Record Drawings

1. See Section 00 72 00, General Conditions, Article 1.05, for Project Record Drawings requirements.

B. Final Survey

1. See Section 01 71 23, Field Engineering, for Final Survey requirements. The Final Survey shall be completed and submitted to the Owner within 30 days of Substantial Completion. The Final Survey must be complete and accepted by the Owner before Final Completion is issued.

C. The following Certificates shall be submitted by the Contractor prior to Final Completion:

1. Certificates of Conformance

a) Notice of Termination (NOT) Construction Stormwater General Permit: (Confirmation of Termination request acceptance by Ecology).

3.02 CLEAN-UP

A. Final clean-up and clean-up during the course of the work is defined in the Standard Specifications and the General Conditions. Those paragraphs are supplemented to provide the following:

1. Definition: Except as otherwise specifically provided, "clean" (for the purpose of this Article) shall be interpreted as the level of cleanliness generally provided by commercial building maintenance subcontractors using commercial-quality building maintenance equipment and materials.

2. General: Prior to completion of the Work, remove from the job site all tools, surplus materials, equipment, scrap, debris, and waste. Conduct final progress cleaning, as described above.

3. Site: Unless otherwise specifically directed by the Owner, hose down all paved areas on the site, all public sidewalks, and catch basins on adjoining streets. Completely remove all resultant debris.

4. Structure:

a) Visually inspect all exterior surfaces and remove all traces of soil, waste material, smudges, and other foreign matter. Remove all traces of splashed materials from adjacent surfaces. If necessary to achieve a uniform degree of exterior cleanliness, hose down the exterior or the structure. In the event of stubborn stains not removable with water, the Owner may require light sandblasting or other cleaning, at no additional cost to the Owner.

B. Timing: Schedule final cleaning as approved by the Owner to enable the Owner to occupy a completely clean project.

END OF SECTION

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. This section describes the general requirements for site surveying and grade control, including pre-construction and post-construction topographic and bathymetric surveys, utilities and Record Drawings, construction progress surveying, record keeping, and submittals. In addition, establish and maintain design lines and grades shown on the Contract Drawings.

1.02 RELATED SECTIONS

A. Section 01 33 00 – Submittal Procedures

B. Section 01 70 00 – Execution and Closeout Requirements

1.03 QUALITY ASSURANCE

A. It is the responsibility of the Contractor to schedule Contractor's survey and to verify that it has met the Contract requirements, prior to proceeding to the next sequence of work. The Owner shall review and approve each survey or survey increment prior to the Contractor proceeding to the next phase of work in that area. The Contractor shall allow up to 3 business days for Owner review. Surveys of the Project shall be surveyed using the same vertical datum and horizontal coordinate system as the Contract Drawings. Surveys may need to be completed in small increments to document work progress and sequential excavation and backfill. Survey requirements include:

1. Pre-Construction Surveying: The Contractor shall establish local horizontal and vertical control on the project site. Local control shall be established using local survey markers. The Contractor shall ensure closure of all survey loops.

2. Post-Construction Surveying: The Contractor shall perform a post-construction bathymetric and topographic survey of the entire project site. This survey shall be incorporated into the As-Built Drawings.

B. All surveys for verification of pay quantities shall be performed and stamped by an independent licensed surveyor acceptable to the Owner.

C. The surveyor shall have insurance that has limits that meet or exceed the requirements of the Standard Specifications.

D. The Owner reserves the right to retain an independent surveyor to periodically check the Contractor's survey. Surveying performed by the Owner will be at no cost to the Contractor.

1.04 SUBMITTALS

A. General submittals required in accordance with this section include:

1. Name, address, telephone number, and statement of qualifications of the Professional Land Surveyor before starting survey work. This surveyor shall be responsible for stamping and signing all work, as noted below.

2. On request, field notes and documentation verifying accuracy of survey work, to include cross section of interim surveys by the Contractor.

3. Project survey data shall be stored as electronic files on a compact disc formatted as a) DWG; b) TIF; c) PDF and printed to a mylar sheet. At a minimum, data for each survey point shall include a sequential reference number, the elevation, and appropriate northing and easting coordinates.

4. Field notes, Drawings, quantity computations, and point data for each survey shall be submitted to the Project Engineer for reference:

   City of Kirkland, Public Works Department, Attention: Brian Baker or designee, 123 5th Avenue, Kirkland, WA 98033.

5. Progress surveys shall be conducted to monitor the accuracy of the work being performed. Progress surveys shall be submitted prior to submittal of progress payment requests.

6. Closure calculation for horizontal and vertical control. Submit prior to commencing pre-construction survey work.

B. As-Built Drawings:

1. Upon completion of all activities, the Contractor shall prepare As-Built drawings for each survey described in this section. The post-construction As-Built drawing shall locate all features as constructed and all real estate/property boundaries and public land survey section corners and lines. The As-Built drawings shall be produced full size (ANSI D), on bond paper, and signed by the surveyor and Contractor. A paper copy of half-size As-Built drawings shall also be created by the Contractor. Contractor to submit As-Built drawings in paper and electronic formats.

2. Contractor electronic files for the As-Built drawings shall be fully editable so as to allow future changes by the Owner. The Contractor shall submit the electronic version of the As-Built drawings with hard copies, as specified.

1.05 SURVEY VERTICAL DATUM

A. Project survey elevations shall reference the NAVD88 vertical datum.

B. The project benchmark and corresponding elevations are localized to a line between the monument at the intersection of 120th Ave NE & Totem Lake Blvd and 124th Ave NE & Totem Lake Blvd.

1.06 SURVEY HORIZONTAL DATUM

A. Project horizontal datum based on Washington State Plane Coordinate System, North Zone, NAD 83/91.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

3.01 GENERAL

A. At the Pre-construction Meeting, the Surveyor shall meet with the Owner to discuss the survey proceedings, methods, and equipment to be employed for the Contractor's surveys, and the survey submittal schedules.

3.02 SURVEY REFERENCE POINTS

A. Locate and establish survey control points and monuments for the layout for the project as required. Control points and monuments shall be established for demolition and clearing limits, erosion and sedimentation control, grading, , concrete paths, curbs, and walls, storm sewer utilities, pathways, and any other items shown in the Contract Drawings, as needed. Promptly notify the Owner in writing of any discrepancies discovered.

B. Provide a control traverse in the horizontal and vertical datum established for the project.

C. Mark and protect survey control points prior to starting site work. Make no change without prior written notice to the Owner.

D. Promptly report to the Owner the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.

E. Prepare and submit an application to the Washington State Department of Natural Resources for a Permit to Remove Survey Monuments for those monuments anticipated to be removed or disturbed during construction.

F. Replace or relocate dislocated survey control points, or establish new control points, based on original survey control, at no added cost to the Owner.

3.03 PROCEDURES

A. Contractor survey procedures (positioning modes, equipment calibration, and data reduction, adjustment, processing, and plotting) shall conform to industry standards.

B. Failure to perform and process such surveys in accordance with recognized standards will result in a rejection and nonpayment for work performed.

C. All systems, methods, and procedures shall be described in the Demolition and Disposal Plan and be subject to the Owner's approval.

3.04 UNDERGROUND UTILITIES

A. The Contractor shall be responsible for locating all underground utilities and notifying all underground utility companies prior to commencing work.

B. The Contractor shall be responsible for providing As-Built Drawings showing accurate locations of utilities installed or relocated as part of the Work.

C. Prior to placing utility backfill, the Contractor shall survey the utility to accurately record the installed depth, alignment, and location of bends, valves, manholes and all other items or conditions to provide an accurate record of all below grade utilities. Contractor shall notify the Owner 72 hours before any utility backfill and surveys. Provide survey data as described in Article 1.04.

3.05 NEW CONSTRUCTION

A. Contractor shall develop and make all detailed surveys necessary for construction of new work, including setting bench marks for location of working points, verification of existing structures and critical topographic features, cut sheets, slope stakes and other surveys as required to ensure the work is installed in accordance with the Contract Documents. Contractor is responsible for notifying the Owner of any discrepancies found as a result of the detailed survey.

3.06 SLOPE PROTECTION

A. Contractor shall develop and make all detailed surveys necessary for construction of rock slope protection, including pre- and post-placement surveys of the keyway and slope to verify that the slope protection materials have been placed in accordance with the lines and grades shown in the Contract Drawings.

END OF SECTION

PART 1 – GENERAL

1.01 SUMMARY

A. This section includes administrative and procedural requirements for cutting and patching.

1.02 RELATED SECTIONS:

A. Section 01 31 00, Project Management and Coordination, for procedures for coordinating cutting and patching with other construction activities.

B. Refer to other sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

1. Requirements of Division 31 and 33 sections apply to cutting, patching, and restoration of areas of the site outside the boundaries of unlimited Contractor access. Cutting, patching, and restoration of such areas must be completed according to the requirements of the Owner's schedule for use of limited access areas, and so as to avoid creating safety hazards or inconvenience for the public using such areas of limited Contractor access.

1.03 SUBMITTALS

A. Cutting and Patching Proposal: When Owner's approval of cutting and patching procedures is required, submit a proposal for Owner's review describing procedures well in advance of the time cutting and patching will be performed. Request approval to proceed. Include the following information, as applicable, in the proposal:

1. Describe the extent of cutting and patching required. Show how it will be performed and indicate why it cannot be avoided.

2. Describe anticipated results in terms of changes to existing construction. Include changes to structural elements and operating components as well as changes in the Work's appearance and other significant visual elements.

3. List products to be used and firms or entities that will perform work.

4. Indicate dates when cutting and patching will be performed.

5. Utilities: List utilities that cutting and patching procedures will disturb or affect. List utilities that will be relocated and those that will be temporarily out of service. Indicate how long service will be disrupted.

6. Where cutting and patching involves adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with the original structure.

7. Approval by the Owner to proceed with cutting and patching does not waive the Owner's right to later require complete removal and replacement of the unsatisfactory work.

1.04 QUALITY ASSURANCE

A. Requirements for Structural Work: Do not cut and patch structural elements in a manner that would change their load-carrying capacity or load-deflection ratio.

1. Obtain approval of the cutting and patching proposal before cutting and patching the following structural elements:

a) Foundation construction

b) Bearing and retaining walls

c) Structural concrete

d) Structural steel

e) Lintels

f) Timber and primary wood framing

g) Structural decking

h) Stair systems

i) Miscellaneous structural metals

j) Equipment supports

k) Piping, ductwork, vessels, and equipment

B. Operational Limitations: Do not cut and patch operating elements or related components in a manner that would result in reducing their capacity to perform as intended. Do not cut and patch operating elements or related components in a manner that would result in increased maintenance or decreased operational life or safety.

1. Obtain approval of the cutting and patching proposal before cutting and patching the following operating elements or safety related systems:

a) Primary operational systems and equipment

b) Air or smoke barriers

c) Water, moisture, or vapor barriers

d) Membranes and flashings

e) Fire protection systems

f) Noise and vibration control elements and systems

g) Control systems

h) Communication systems

i) Conveying systems

j) Electrical wiring systems

C. Visual Requirements: Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in the Owner's opinion, reduce the Work's aesthetic qualities. Do not cut and patch construction in a manner that would result in visual evidence of cutting and patching. Remove and replace any construction cut and patched in a visually unsatisfactory manner, as determined by the Owner.

1.05 WARRANTY

A. Existing Warranties: Replace, patch, and repair material and surfaces cut or damaged by methods and with materials in such a manner as to maintain in effect any warranties required or existing.

PART 2 – PRODUCTS

2.01 MATERIALS – GENERAL

A. Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible if identical materials are unavailable or cannot be used. Use materials whose installed performance will equal or surpass that of existing materials.

PART 3 – EXECUTION

3.01 INSPECTION

A. Examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed before cutting. If unsafe or unsatisfactory conditions are encountered, take corrective action before proceeding.

1. Before proceeding, meet at the project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

3.02 PREPARATION

A. Temporary Support: Provide temporary support of work to be cut.

B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the Work that might be exposed during cutting and patching operations.

C. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

D. Avoid cutting existing pipe, conduit, or ductwork serving the project but schedule to be removed or relocated until provisions have been made to bypass them.

3.03 PERFORMANCE

A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.

1. Cut existing construction to provide for installation of other components or performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition.

B. Cutting: Cut existing construction using methods least likely to damage elements retained or adjoining construction. Where possible, review proposed procedures with the original Installer; comply with the original Installer's recommendations.

1. In general, where cutting, use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.

2. To avoid marring existing finished surfaces, but or drill from the exposed or finished side into concealed surfaces.

3. Cut through concrete and masonry using a cutting machine, such as a carborundum saw or a diamond-core drill.

4. Comply with requirements of applicable Division 31 and 33 sections where cutting and patching requires excavating and backfilling.

5. Where services are required to be removed, relocated, or abandoned, by-pass utility services, such as pipe or conduit, before cutting. Cut-off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug-and-seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after bypassing and cutting.

C. Patching: Patch with durable seams that are as invisible as possible. Comply with specified tolerances.

1. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.

2. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

3. Where removal of walls and partitions extends one finished area into another, patch and repair floor, wall, and ceiling surfaces in the new space. Provide an even surface of uniform color and appearance. Remove existing ceiling system or finish, and floor and wall coverings, and replace with new materials, if necessary, to achieve uniform color and appearance.

a) Where patching occurs in a smooth painted surface, extend final paint coat over entire unbroken surface containing the patch after the area has received primer and second coat.

4. Patch, repair, or rehang existing ceilings as necessary to provide an even-plane surface of uniform appearance.

3.04 CLEANING

A. Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar items. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.

END OF SECTION

SECTION 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 GENERAL

1.01 WASTE MANAGEMENT REQUIREMENTS

A. Owner requires that this project generate the least amount of trash and waste possible, including for the demolition of the existing building and site elements.

B. Employ processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors.

C. Minimize trash/waste disposal in landfills; reuse, salvage, or recycle as much waste as economically feasible.

D. Required Recycling, Salvage, and Reuse: The following may not be disposed of in landfills or by incineration:
   1. Aluminum and plastic beverage containers.
   2. Corrugated cardboard.
   3. Wood pallets.
   4. Clean dimensional wood.
   5. Land clearing debris, including brush, branches, logs, and stumps; see Section 31 10 00 - Site Clearing for use options.
   6. Asphalt paving: May be recycled into paving for project.
   7. Metals, including packaging banding, metal studs, sheet metal, structural steel, piping, reinforcing bars, door frames, and other items made of steel, iron, galvanized steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze.
   8. Paint.
   9. Rigid foam insulation.
   10. Windows, doors, and door hardware.
   11. Plumbing fixtures.
   12. Fluorescent lamps (light bulbs).
   13. Acoustical ceiling tile and panels.

E. Contractor shall submit periodic Waste Disposal Reports; all landfill disposal, recycling, salvage, and reuse must be reported regardless of to whom the cost or savings accrues; use the same units of measure on all reports.

F. Contractor shall develop and follow a Waste Management Plan designed to implement these requirements.

G. The following sources may be useful in developing the Waste Management Plan:

H. Methods of trash/waste disposal that are not acceptable are:
   1. Burning on the project site.
   2. Burying on the project site.

3. Dumping or burying on other property, public or private.
4. Other illegal dumping or burying.

I. Regulatory Requirements: Contractor is responsible for knowing and complying with regulatory requirements, including but not limited to Federal, state and local requirements, pertaining to legal disposal of all construction and demolition waste materials.

1.02 RELATED REQUIREMENTS

A. Section 01 14 00 - Work Restrictions

B. Section 01 31 00 - Project Management and Coordination: Additional requirements for project meetings, reports, submittal procedures, and project documentation.

C. Section 01 32 00 - Construction Progress Documentation: Additional requirements for Waste Disposal Reports

D. Section 01 50 00 - Temporary Facilities and Controls: Additional requirements related to trash/waste collection and removal facilities and services.

E. Section 01 70 00 - Execution and Closeout Requirements: Trash/waste prevention procedures related to demolition, cutting and patching, installation, protection, and cleaning.

F. Section 31 10 00 - Site Clearing: Handling and disposal of land clearing debris.

1.03 DEFINITIONS

A. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.

B. Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, remodeling, repair and demolition operations.

C. Hazardous: Exhibiting the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity or reactivity.

D. Nonhazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity, or reactivity.

E. Nontoxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.

F. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.

G. Recycle: To remove a waste material from the project site to another site for remanufacture into a new product for reuse by others.

H. Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form. Recycling does not include burning, incinerating, or thermally destroying waste.

I. Return: To give back reusable items or unused products to vendors for credit.

J. Reuse: To reuse a construction waste material in some manner on the project site.

K. Salvage: To remove a waste material from the project site to another site for resale or reuse by others.

L. Sediment: Soil and other debris that has been eroded and transported by storm or well production run-off water.

M. Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.

N. Toxic: Poisonous to humans either immediately or after a long period of exposure.

O. Trash: Any product or material unable to be reused, returned, recycled, or salvaged.

P. Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

1.04 SUBMITTALS

A. See Section 01 33 00 – Submittal Procedures.

B. Submit Waste Management Plan within 10 calendar days after receipt of Notice of Award of Bid, or prior to any trash or waste removal, whichever occurs sooner; submit projection of all trash and waste that will require disposal and alternatives to landfilling.

C. Waste Management Plan: Include the following information:
   1. Analysis of the trash and waste projected to be generated during the entire project construction cycle, including types and quantities.
   2. Landfill Options: The name, address, and telephone number of the landfill(s) where trash/waste will be disposed of, the applicable landfill tipping fee(s), and the projected cost of disposing of all project trash/waste in the landfill(s).
   3. Landfill Alternatives: List all waste materials that will be diverted from landfills by reuse, salvage, or recycling.
   4. Meetings: Describe regular meetings to be held to address waste prevention, reduction, recycling, salvage, reuse, and disposal.
   5. Materials Handling Procedures: Describe the means by which materials to be diverted from landfills will be protected from contamination and prepared for acceptance by designated facilities; include separation procedures for recyclables, storage, and packaging.
   6. Transportation: Identify the destination and means of transportation of materials to be recycled; i.e. whether materials will be site-separated and self-hauled to

designated centers, or whether mixed materials will be collected by a waste hauler.

D. Waste Disposal Reports: Submit at specified intervals, with details of quantities of trash and waste, means of disposal or reuse, and costs; show both totals to date and since last report.
   1. Submit updated Report with each Application for Progress Payment; failure to submit Report will delay payment.
   2. Submit Report on a form acceptable to Owner.
   3. Landfill Disposal: Include the following information:
      a. Identification of material.
      b. Amount, in tons or cubic yards, of trash/waste material from the project disposed of in landfills.
      c. State the identity of landfills, total amount of tipping fees paid to landfill, and total disposal cost.
      d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
   4. Recycled and Salvaged Materials: Include the following information for each:
      a. Identification of material, including those retrieved by installer for use on other projects.
      b. Amount, in tons or cubic yards, date removed from the project site, and receiving party.
      c. Transportation cost, amount paid or received for the material, and the net total cost or savings of salvage or recycling each material.
      d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
      e. Certification by receiving party that materials will not be disposed of in landfills or by incineration.
   5. Material Reused on Project: Include the following information for each:
      a. Identification of material and how it was used in the project.
      b. Amount, in tons or cubic yards.
      c. Include weight tickets as evidence of quantity.
   6. Other Disposal Methods: Include information similar to that described above, as appropriate to disposal method.

PART 2 NOT USED

PART 3 EXECUTION

3.01 WASTE MANAGEMENT PROCEDURES

A. See Section 01 50 00 for additional requirements related to trash/waste collection and removal facilities and services.

B. See Section 01 70 00 for trash/waste prevention procedures related to demolition, cutting and patching, installation, protection, and cleaning.

3.02 WASTE MANAGEMENT PLAN IMPLEMENTATION

A. Manager: Designate an on-site person or persons responsible for instructing workers and overseeing and documenting results of the Waste Management Plan.

B. Communication: Distribute copies of the Waste Management Plan to job site foreman, each subcontractor, Owner, and Architect.

C. Instruction: Provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the project.

D. Meetings: Discuss trash/waste management goals and issues at project meetings.
   1. Pre-bid meeting.
   2. Pre-construction meeting.
   3. Regular job-site meetings.

E. Facilities: Provide specific facilities for separation and storage of materials for recycling, salvage, reuse, return, and trash disposal, for use by all contractors and installers.
   1. Provide containers as required.
   2. Provide adequate space for pick-up and delivery and convenience to subcontractors.
   3. Keep recycling and trash/waste bin areas neat and clean and clearly marked in order to avoid contamination of materials.

F. Hazardous Wastes: Separate, store, and dispose of hazardous wastes according to applicable regulations.

G. Recycling: Separate, store, protect, and handle at the site identified recyclable waste products in order to prevent contamination of materials and to maximize recyclability of identified materials. Arrange for timely pickups from the site or deliveries to recycling facility in order to prevent contamination of recyclable materials.

H. Reuse of Materials On-Site: Set aside, sort, and protect separated products in preparation for reuse.

I. Salvage: Set aside, sort, and protect products to be salvaged for reuse off-site.

END OF SECTION

DIVISION 02

EXISTING CONDITIONS

PART 1 - GENERAL

1.01 SUMMARY

A. This Section specifies procedures for screening, handling, stockpiling, sampling, analysis, and disposing of contaminated soils that will be encountered during this Work. Excavated Soil will include Petroleum-Contaminated Soil, soils that have been pre-identified as Contaminated Soil and Suspect Soil.

1.02 QUALITY ASSURANCE

A. Referenced Standards: This Section incorporates by reference the latest revision of the following documents. These references are part of this Section as specified and modified. In case of conflict between the requirements of this Section and those of the listed documents, the requirements of this Section shall prevail.

Reference	Title
29 CFR 1910	Occupational Safety and Health Standards (OSHA)
Chapter 173-50 WAC	Accreditation of Environmental Laboratories
Chapter 173-303 WAC	Dangerous Waste Regulations
Chapter 296-62 WAC	General Occupational Health Standards
Chapter 173-340 WAC	Model Toxics Control Act (MTCA) Cleanup Regulations
Chapter 173-350 WAC	Solid Waste Handling Standards
Ecology Pub. No. 10-09-057	Guidance for Remediation of Petroleum Contaminated Sites
Ecology Pub. 94-115	Natural Background Soil Metals Concentrations in Washington State
49 CFR 171-178	Department of Transportation (DOT)

B. Qualifications:

1. Personnel assigned for the purpose of performing or supervising contaminated soil work shall have received appropriate safety training in compliance with OSHA standard 29 CFR 1910.120 and 29 CFR 1910.134 and Chapter 296-62 WAC.

   a. Minimum of 40 hours of HAZWOPER training.

   b. 24 hours of “on the job” training.

   c. Eight hours annual refresher training and annual medical monitoring by an occupational physician is required.

   d. Minimum of eight hours additional specialized training in managing contaminated soil operations is required for supervisory personnel.

2. Personnel taking and managing samples shall have the necessary training and have a minimum of 1-year experience in environmental sampling.

3. Analytical laboratory: accredited in accordance with Chapter 173-050 WAC.

4. Documentation of experience:

   a. Certifications, permits and/or licenses as required by Federal, State or local authorities and their expiration date.

   b. Waste Transporter: Documentation of licensing and equipment capabilities with trucks equipped with containment and cover systems to transport solid and liquid waste materials on public streets and roads without spillage.

      1) Offsite Disposal, Re-use and/or Treatment Facilities: Documentation of permitting, disposal requirements, and acceptance of waste.

1.03 SUBMITTALS

A. Procedures: Section 01 33 00.

B. Qualifications.

C. Contaminated Soil Handling (CSH) Plan.

D. Certification of the selected disposal site(s) prior to any offsite transport of Excavated Soil.

   1. Permits and acceptance requirements for proposed soil and debris disposal and/or treatment facilities, including expiration dates.

   2. Offsite Waste Disposal, Re-use and/or Treatment Facility Qualification - Contractor shall identify transportation and disposal facilities for County approval. Once Contractor has submitted the information on transporters and the facilities, Contractor cannot deviate from the intended facilities submitted with their proposal without Project Representative's prior approval.

E. Evidence that a state-licensed transporter shall be used.

   1. Permits and certification for nonhazardous waste haulers, including documentation indicating that the selected transporter has appropriate licenses as a commercial transporter of non-hazardous waste including valid U.S. DOT numbers, names and addresses. Permits and certification documentation must include expiration dates. Transporter will be in satisfactory standing with DOT.

   2. Permits and certification for Dangerous Waste haulers, including documentation indicating that the selected transporter has appropriate licenses as a commercial transporter of Dangerous Waste including valid U.S. DOT numbers, names and addresses. Permits and certification documentation must include expiration dates. Transporter will be in satisfactory standing with DOT.

F. Documentation of soil disposal at an offsite permitted facility, Petroleum-Contaminated Soil reuse site and/or treatment facility.

G. Daily inventory of stockpiles.

1.04 DEFINITIONS

A. Contaminated Soil: Soil containing contaminant concentrations in excess of MTCA, Dangerous Waste regulations, Solid Waste Handling regulations, natural background as defined by Ecology Publication No. 94-115 or other regulatory criteria.

B. Excavated Soil: Soil removed for this Work.

C. Petroleum-Contaminated Soil – Excavated Soil which has detections of petroleum hydrocarbon compounds below MTCA cleanup levels but which are considered to contain potentially "harmful substances" by Ecology in Chapter 173-303-WAC. Petroleum-contaminated soil can be disposed offsite at a permitted facility or reused per Ecology guidance for Class 1, Class 2, Class 3 or Class 4 re-use categories (Ecology Publication No 10-09-057, June 2016, Guidance for Remediation of Petroleum Contaminated Sites).

D. Potholing Waste: Soil generated during potholing activities including utility location and extent of contaminated soil areas.

E. Suspect Material: Material in the excavation which is potentially contaminated or impacted based on visual observation and odor, and/or field instrument screening; includes soil or foreign material found with the excavation limits.

1.05 GENERAL REQUIREMENTS

A. During construction, Contaminated Soil will be encountered. Work requires management and disposal of Contaminated Soil generated to complete the Work.

B. Contractor shall conduct work in accordance with the CSH Plan and applicable federal, state, and local statutes, regulations, and standards.

C. During excavation work, have onsite personnel trained in identifying potential soil contamination using visual and olfactory observations, and field instrumentation.

D. Contractor shall notify the Project Representative immediately if Suspect Materials (i.e. soils displaying odors, staining, or foreign materials) are discovered which had not been previously identified or if other discrepancies between data provided and actual field conditions are discovered.

1.06 CONTAMINATED SOIL HANDLING (CSH) PLAN

A. The CSH Plan is a detailed plan prepared by the Contractor outlining the procedures for excavation, screening, identification, stockpiling, sampling, testing, and disposal of all

Excavated Soil for this Work including but not limited to Petroleum-Contaminated Soil, Contaminated Soil, and Suspect Material.

B. At a minimum, the CSH Plan shall include:

1. Schedule of activities.

2. Methods and procedures of excavation and equipment and personnel to be used.

3. Shoring or side-wall slopes proposed.

4. Generation and Management of Excavated Soil including accumulation and staging and storage methods, procedures, and proposed locations and sizes for stockpiling Contaminated Soil and Suspect Material.

5. Haul routes.

6. Methods, procedures, and proposed documentation for the transportation and disposal of Excavated Soil including Petroleum-Contaminated Soil, Contaminated Soil and Suspect Material including the identification of offsite permitted disposal facilities and licensed transporters.

7. Decontamination procedures.

8. Disposal facility, re-use facility and/or treatment facility acceptability determination procedures.

1.07 SITE CONDITIONS

A. Petroleum-Contaminated Soil and Contaminated Soil are present within the limits of the Work.

B. Data from environmental sampling and analysis completed for the project is included in the appendix.

1. Contaminated Soil has been identified in shallow fill soils underlying the former Yuppie Pawn building.

2. Additional Contaminated Soil or Suspect Material may be encountered during execution of this Contract during excavation.

3. Contractor is to confirm characterization for Excavated Soil generated and arrange for disposal or reuse per this Section. Areas of Contaminated Soil or Suspect Material are to be handled per this Section including segregation, stockpiling, testing and disposal. Other potentially hazardous chemicals may be present. Comply with all Federal, State and local regulations for worker protection and health and safety.

C. None of the Excavated Soil, including areas of known Contaminated Soil is expected to be designated as a state of Washington Dangerous Waste. If Contaminated Soil or Suspect Material designates as a Dangerous Waste, it will be removed from the stockpile and placed in containers and removed from the site for offsite disposal in accordance with this Section and Chapter 173-303 WAC.

PART 2 - PRODUCTS

2.01 STOCKPILE BOTTOM LINER AND COVER

A. Stockpile liner and cover material shall be 10mil, reinforced polyethylene, impermeable and resistant to long-term (two years) ultraviolet radiation, weathering, and degradation due to contact with Contaminated Soils. It shall be free from holes, oil, foreign matter, scathes, cracks, bubbles, undispersed raw materials, and blisters. Install in single thickness parallel to the direction of drainage. Maintain cover tightly in place by using sand bags on ropes with a maximum 10-foot grid spacing in all directions. Overlap seams at least 12 inches. The cover will be in place except while soil is actively being placed or removed.

2.02 STRAW BALES

A. Tied with twine, with no excessive quantities of mature seed of noxious weed or other plant species.

2.03 SAND BAGS

A. Close knit, sunlight-resistant nylon or equivalent bags filled with clean sand and tied or fastened closed; suitable for frequent handling and all-season use.

2.04 MATERIALS

A. Trucks: Solid bulk trucks (end dump, tandem) in good condition, clean and without leaks. Trucks shall have back up alarm, automatic tarps in good condition, and lined beds.

B. Drying agent: To meet industry standards and be used if necessary if excavated soils require solidification prior to placing in trucks.

C. Truck Liners: To meet industry standard specifications, as a minimum.

D. Tarping Station: To be used if required. Personnel may not climb on trucks for lining or tarping of rucks.

PART 3 - EXECUTION

3.01 CONTRACTOR'S RESPONSIBILITY

A. Personnel working with Petroleum-Contaminated Soil, Contaminated Soil, and Suspect Material shall have received training and have experience for the Work to be performed.

B. Identify areas and sizes for stockpiling based on the Contractor's rate of production for the excavation and the turnaround time for sampling and testing.

C. Dispose of Excavated Soil. Follow protocols defined in this Section.

1. Excavate and screen soil (visual, odor and field instrumentation).

2. Stockpile Contaminated Soil and Suspect Material separately from remaining soil.

3. Provide assistance to Project Representative for sample collection of Contaminated Soil and Suspect Material in accordance with this Section.

4. Transport and dispose of soil in accordance with the requirements of this Section.

D. Manage stormwater and process water discharges in accordance with Section 01 57 13.

E. Comply with federal, state and local regulations in handling and transporting wastes and in performing the Work.

F. Prior to commencing removal operations, obtain applicable local, state and federal permits and licenses that directly impact Contractor's ability to perform Work.

3.02 CITY'S RESPONSIBILITY

A. If unexpected or suspect soil contamination differing from that identified in Contract documents is discovered, the City will collect and analyze soil samples from Suspect Material stockpile and collect and analyze confirmation soil samples in the respective excavation areas:

1. Project Representative will sample and test stockpiled soil to determine waste designation for disposal facility selection.

2. Project Representative will complete the waste designation of Contaminated Soil and Suspect Material for disposal on the basis of testing results.

3. The City will sign the waste profiles as generator or owner of the stockpiled soil, unless otherwise determined by the City.

B. If soils are found to be Dangerous Wastes, the City will be responsible for additional costs associated with testing and disposal.

C. Sampling, testing and analysis of Suspect Materials including soil identified as such.

3.03 SOIL FIELD SCREENING

A. Excavated Soil shall be screened by the Contractor for contamination in accordance with Ecology Pub. No. 10-09-057, Section 5.3 Field Screening.

3.04 STOCKPILING, SAMPLING, AND ANALYSIS

A. Contaminated Soil and Suspect Material shall be stockpiled separate from other soils to allow for testing, as needed.

B. Stockpiling:

1. General Requirements:
   a. Prevent intermixing of stockpiled materials with underlying soils.
   b. Prevent influx of rainwater.
   c. Prevent erosion of stockpiled materials.
   d. Apply Stormwater Best Management Practices (BMPs) as appropriate for stockpile construction and maintenance.
   e. Maintain daily inventory of stockpile areas and sizes and provide information to Project Representative as requested.

2. Construction:
   a. The stockpile shall be a contained system that may include ready-made structures or facilities to contain soil and liquids.
   b. Construct stockpiles with geomembrane bottom liner over prepared subgrade and bedding material as recommended by manufacturer.
   c. Provide retention berm around entire perimeter of stockpile consisting of hay bales or ecology blocks.
   d. Overlay retention berm with bottom liner and secure liner to outside of berm.
   e. Place stockpiled material on bottom liner within retention berm.
   f. Place geomembrane cover over stockpiled material overlapping retention berm.
   g. Adequately secure cover with sand bags, or equivalent, at not less than 10-foot intervals around entire perimeter of stockpile.

3. Operation and Maintenance:
   a. Maintain a separate stockpile for each day's generation of suspect material.

b. Do not stockpile soils containing free flowing liquids.

c. Prevent intermixing of contaminated and clean soils and water.

d. Prevent damage to stockpile berms during in-loading and out-loading.

e. Prevent formation of rainwater ponding on the surface of the cover.

f. Collect and dispose of water that accumulates within bermed area.

g. Segregate suspect material for disposal according to analytical results from sampling.

h. Decontaminate excavation equipment after working with Contaminated Soil and Suspect Material.

C. Sampling by City:

1. Sampling of Contaminated Soil and Suspect Material stockpiles will be completed by Project Representative. Samples will be removed from site by Project Representative for analysis.

2. Contractor shall provide access and facilitate collection of samples throughout the stockpile areas and excavation areas for purposes of collecting waste characterization samples and soil confirmation samples, respectively.

D. Analysis by City:

1. General Requirements:

a. Samples of stockpiled soil shall be analyzed for the following contaminants:
   1) Total Metals (MTCA 5 metals) by EPA Method 6010/7471
   2) Diesel-range extended total petroleum hydrocarbons (TPH-Dx) by NWTPH.
   3) Polynuclear Aromatic Hydrocarbons (PAHs) by EPA Method 8270
   4) Any additional analyses required by the Contractor-selected disposal facility and/or based on field observations.

b. Samples shall be analyzed on 48-hour turn-around times or other time set by the Project Representative. The analytical results of the soil samples will be used to determine the waste designation of the soil (e.g., Contaminated Soil, Petroleum-Contaminated Soil).

2. Contractor will be provided analytical results and proposed waste designation(s) by the Project

E. Representative for disposal off Site by the Contractor of Excavated Soil.

F. Contractor is responsible for selecting an appropriate permitted facility and obtaining acceptance from that facility.

1. Contractor will provide acceptance paperwork to Project Representative PRIOR to any offsite shipments of soil from the site.

2. The Contractor will prepare all disposal paperwork, including waste profile forms, applicable example manifests and labels. This paperwork will be to the Project Representative a minimum of one (1) week prior to disposal for review and obtaining generator signature. Once the example manifest has been approved, Contractor will provide pre-printed manifests for transportation and disposal of all waste.

3. Based on existing or supplemental laboratory analytical results, the City will propose the Contractor to dispose of Excavated Soils at the appropriate approved disposal facility. The City will provide direction within 24 hours of receipt of analytical results.

3.05 DISPOSITION OF EXCAVATED SOILS

A. Provide labor, equipment, and materials to solidify or process Excavated Soils as necessary to meet minimum requirements for offsite transport and disposal. Contractor will be prepared to solidify soil as needed for load out and transportation of Excavated Soil. No soil will be loaded or shipped with free liquids nor arrive at the disposal facility with free liquids.

B. Offsite Waste Disposal, Re-use and/or Treatment Facility Qualification - Contractor shall identify transportation and disposal facilities and provide information in the bid proposal. This information shall be provided to Project Representative for their approval of the facilities upon receiving the proposals. Once Contractor has submitted the information on transporters and the facilities, Subcontractor cannot deviate from the intended facilities submitted with their proposal, without Project Representative's prior approval.

C. Offsite Disposal of Excavated Soil including Contaminated Soil and Suspect Material:

1. Provide transportation in accordance with Department of Transportation (DOT) Hazardous Material Regulations and Federal, State, and local requirements, including obtaining necessary permits, licenses, and approvals.

2. Dispose at an approved facility (e.g., RCRA Subtitle D landfill) in accordance with applicable laws and regulations `and conditions specified herein.

3. Disposal Records:

   a. Records of waste determinations, including appropriate results of analyses performed, substances and sample location, the time of collection, and other pertinent data in accordance with Chapter 173-303-210 WAC and 40 CFR 262 Subpart D, and other applicable regulations.

   b. Transportation, disposal methods and dates, the quantities of waste, the names and addresses of each transporter and the disposal or reclamation facility, as well as copies of the following documents:
      1) Manifests.
      2) Waste analyses or waste profile sheets.
      3) Certifications of final disposal signed by the responsible disposal facility official.
      4) Records shall be provided in accordance with applicable Federal, State, and local regulations. The records shall become the property of the County.

D. Transportation:

1. Provide lined vehicles and/or other measures necessary to prevent spillage of waste materials, mud, or other debris on local streets or roads.

2. The Contractor will set-up a tarping station at the site where the drivers can safely line, untarp and tarp truck beds without climbing on the truck (safety hazard). Individuals will not be allowed to climb on trucks to cover load. Means and methods of the tarping station will be detailed in the Contaminated Soil Handling Plan.

3. Drivers will remain in their trucks at all times while onsite. The Contractor will provide personnel to tarp/untarp the trucks while on site so that the Driver does not need to leave the vehicle.

4. Inspect and document vehicles and containers for proper operation and covering.

5. Inspect vehicles and containers for proper markings, manifests, and other requirements for waste shipment.

6. Perform and document decontamination procedures prior to leaving Site.

7. Obtain and submit receipts of confirmation from disposal or treatment facilities that wastes were accepted for disposal or treatment, including weight tickets or other confirmation of quantities received.

8. The Transportation Subcontractor will dispatch bulk truck transportation in good condition (clean, no leaks, etc.) to the project site appropriate for transportation of nonhazardous waste. Soil trucks shall have liners, backup alarm, and automatic tarps which will also be in good condition (no tears/holes).

9. The Project Representative reserves the right to inspect and reject any container arriving on-site or leaving the site. The Transportation Subcontractor will incur all costs associated with truck rejection and truck transfer and replacement.

10. The transporter shall adhere by and be in compliance with all regulatory requirements under 49 CFR and any state requirements as applicable.

11. Every load of waste will be sent offsite using appropriate shipping paperwork as required by the disposal or re-use facility (e.g, bill of lading, non-hazardous manifests). Hazardous waste manifests will be signed by the Project Representative. Project Representative MUST be aware of all shipments.

12. Any changes in transporters will be communicated to Project Representative before arrival at the site. Project Representative reserves the right to turn away transporters that have not been previously reviewed and approved for work at the site. Project Representative is not responsible for demurrage or other costs as a result of turning away transporters who have not been reviewed and approved.

13. Each driver will also be required to produce proof of insurance for his truck, and the driver's valid commercial driver's license.

END OF SECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Building demolition.

B. Selective demolition of built site elements.

1.02 RELATED REQUIREMENTS

A. Section 01 74 19 – Construction Waste Management and Disposal

B. Section 02 06 00 – Contaminated Soil Handling & Disposal

C. Section 02 82 33 – Removal and Disposal of Asbestos Coating

1.03 RELATED DOCUMENTS

A. Hazardous Materials Report prepared by Med-Tox Northwest, December 28th, 2018.

B. Phase I and limited phase II Environmental Site Assessment 12031 Totem Lake Way Parcel No 692840-0032 Kirkland WA 98034, December 14th, 2018.

1.04 REFERENCES

A. The following is a list of standards which may be referenced in this Section:

1. Air-Conditioning, Heating, and Refrigeration Institute (AHRI): Guideline K, Containers for Recovered Non-flammable Fluorocarbon Refrigerants.

2. American National Standards Institute (ANSI): A10.6, Safety Requirements for Demolition Operations.

3. Occupational Safety and Health Administration (OSHA), U.S. Code of Federal Regulations (CFR) Title 29 Part 1926—Occupational Safety and Health Regulations for Construction.

4. Washington State Department of Ecology 03-04-038 Focus on Treated Wood Exclusion

5. Washington Administrative Code (WAC)

6. Environmental Protection Agency (EPA), U.S. Code of Federal Regulations (CFR), Title 40:

   a. Part 61—National Emission Standards for Hazardous Air Pollutants.

b. Part 82—Protection of Stratospheric Ozone.

c. Part 273—Standards for Universal Waste Management.

7. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2013.

1.05 DEFINITIONS

A. ACM: Asbestos-containing material.

B. Demolition: Dismantling, razing, destroying, or wrecking of any fixed building or structure or any part thereof. Demolition also includes removal of pipes, manholes tanks, conduit, and other underground facilities, whether as a separate activity or in conjunction with construction of new facilities.

C. Modify: Provide all necessary material and labor to modify an existing item to the condition indicated or specified.

D. Relocate: Remove, protect, clean and reinstall equipment, including electrical, instrumentation, and all ancillary components required to make the equipment fully functional, to the new location identified on the Drawings.

E. Renovation: Altering a facility or one or more facility components in any way.

F. Salvage/Salvageable: Remove and deliver, to the specified location(s), the equipment, building materials, or other items so identified to be saved from destruction, damage, or waste; such property to remain that of Owner. Unless otherwise specified, title to items identified for demolition shall revert to Contractor.

G. Universal Waste Lamp: In accordance with 40 CFR 273, the bulb or tube portion of an electric lighting device, examples of which include, but are not limited to, fluorescent, high-intensity discharge, neon, mercury vapor, high-pressure sodium, and metal halide lamps.

H. Universal Waste Thermostat: A temperature control device that contains metallic mercury in an ampule attached to a bimetal sensing element, and mercury- containing ampules that have been removed from these temperature control devices in compliance with the requirements of 40 CFR 273.

1.06 SUBMITTALS

A. Informational Submittals:

1. Submit proposed Demolition/Renovation Plan, in accordance with requirements specified herein and elsewhere, for approval before such Work is started.

2. Coordinate Demolition/Renovation Plan with Waste Management Plan.

3. Submit copies of any notifications, authorizations and permits required to perform the Work.

4. Submit copies of reports and other documentation required for all wells abandoned during this phase of work.

5. Submit a shipping receipt or bill of lading for all universal waste shipped.

1.07 REGULATORY AND SAFETY REQUIREMENTS

A. When applicable, demolition Work shall be accomplished in strict accordance with 29 CFR 1926-Subpart T.

B. Comply with federal, state, and local hauling and disposal regulations. In addition to the requirements of the General Conditions, Contractor's safety requirements shall conform to ANSI A10.6.

C. Furnish timely notification of this demolition project to applicable federal, state, regional, and local authorities in accordance with 40 CFR 61-Subpart M.

1.08 DEMOLITION/RENOVATION PLAN

A. Demolition/Renovation Plan shall provide for safe conduct of the Work as specified by OSHA and local authorities, and shall include:

1. Detailed description of methods and equipment to be used for each operation;

2. The Contractor's planned extent of demolition, sequence of operations, bracing and shoring, and location and construction of barricades and fences, including coordination with other work in progress;

3. Disconnection schedule of utility services. Accurately record actual locations of capped and active utilities and subsurface construction in Project Record Documents.

B. Include hazardous material reporting (location delivered, material, type, etc.)

C. Include statements affirming Contractor inspection of the existing roof deck, floors, walls, and framing members, and their suitability to perform as a safe working platform or, if inspection reveals a safety hazard to workers, state provisions for securing the safety of the workers throughout the performance of the Work.

1.09 SEQUENCING AND SCHEDULING

A. The Work of this Specification shall not commence until Contractor's Demolition Plan has been approved by Engineer.

B. Include the Work of this Specification in the progress schedule, as specified in Section 01 32 00, Construction Progress Documentation.

1.10 USE OF EXPLOSIVES IS NOT PERMITTED

1.11 ENVIRONMENTAL PROTECTION

A. Comply with conditions of State of Washington.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 EXISTING FACILITIES TO BE DEMOLISED OR RENOVATED

A. Facilities:

1. Buildings scheduled for complete demolition are as shown.

2. See Section 01 74 19 - Construction Waste Management and Disposal

B. Structures:

1. Remove the entire building designated as "Yuppie Pawn Shop."

2. Building foundations, grade beams, and piles shall be removed to a minimum of 3 feet below finished grade.

3. All interior and retaining walls and concrete slabs shall be completely removed.

4. Sidewalks, curbs, gutters and street light bases shall be removed as indicated.

5. Wood decking at existing boardwalk shall be removed, including existing joists as indicated on the plans. Exiting piers and lagging to remain to allow for re-surfacing.

C. Substructure:

1. Extract conflicting existing creosote-treated wood pilings prior to driving new piles.

D. Utilities and Related Equipment:

1. Notify Engineer, Owner, and appropriate utilities to turn off affected services at least 48 hours before starting demolition activities.

2. Remove existing utilities as indicated and terminate in a manner conforming to the nationally recognized code covering the specific utility and approved by Engineer.

3. When utility lines are encountered that are not indicated on the Drawings, notify Engineer and Owner prior to further work in that area.

4. Remove meters and related equipment and deliver to a location as determined by the Engineer.

5. Excavate and remove utility lines serving buildings to be demolished within property limits unless otherwise indicated on the drawings.

E. Groundwater Observation Wells: Remove groundwater observation wells at the end of construction.

F. Paving and Slabs:

1. Remove concrete and asphaltic concrete paving and slabs within the limits of work unless shown otherwise.

2. Provide neat sawcuts at limits of pavement removal as indicated.

3. No stockpiling of demolished concrete is allowed on the site.

G. Patching:

1. Where removals leave holes and damaged surfaces exposed in the finished Work, patch and repair to match adjacent finished surfaces as to texture and finish.

2. Where new Work is to be applied to existing surfaces, perform removals and patching in a manner to produce surfaces suitable for receiving new Work.

H. Cylinders and Canisters: Remove all fire suppression system cylinders and canisters and dispose as specified in Paragraph Ozone Depleting Substances (ODS).

I. Universal Waste Lamps and Thermostats: Manage, contain, package, and label in strict accordance with 40 CFR 273.

3.02 PROTECTION

A. Sweep pavements as often as necessary to control the spread of debris that may result in foreign object damage potential to vehicular traffic.

B. Sweep pavements as often as necessary to control the spread of debris that may result in foreign object damage potential to vehicular traffic.

C. Traffic Control Signs: Where pedestrian and driver safety is endangered in the area of removal Work, use traffic barricades with flashing lights.

1. Do not close or obstruct roadways or sidewalks without permit.

2. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.

D. Existing Work:

1. Survey the site and examine the Drawings and Specifications to determine the extent of the Work before beginning any demolition or renovation.

2. Take necessary precautions to avoid damage to existing items scheduled to remain in place, to be reused, or to remain the property of Owner; any Contractor-damaged items shall be repaired or replaced as directed by Engineer.

3. Work elements occur on adjacent parcels that are private property. Access is granted through easements as noted on the drawings. Coordinate all work with the Owner to ensure no damage occurs to adjacent land owner's property.

4. Provide temporary weather protection during interval between removal of existing exterior surfaces and installation of new to ensure that no water leakage or damage occurs to structure or interior areas of existing building.

5. Ensure that structural elements are not overloaded as a result of or during performance of the Work. Responsibility for additional structural elements or increasing the strength of existing structural elements as may

be required as a result of any Work performed under this Contract shall be that of the Contractor. Repairs, reinforcement, or structural replacement must have Engineer approval.

6. Do not overload pavements to remain.

E. Trees: Protect trees within the Site that might be damaged during demolition and are indicated to be left in place, by a 6-foot-high fence, unless otherwise indicated on the drawings. The fence shall be securely erected a minimum of 5 feet from the trunk of individual trees or follow the outer perimeter of branches or clumps of trees. Any tree designated to remain that is damaged during the Work shall be replaced in kind, as approved by the Engineer.

F. Facilities:

1. Protect electrical and mechanical services and utilities. Where removal of existing utilities and pavement is specified or indicated, provide approved barricades, temporary covering of exposed areas, and temporary services or connections for electrical and mechanical utilities.

2. Floors, roofs, walls, columns, pilasters, and other structural elements that are designed and constructed to stand without lateral support or shoring, and are determined by Contractor to be in stable condition, shall remain standing without additional bracing, shoring, or lateral support until demolished, unless directed otherwise by the Engineer.

3. Protect all facility elements not scheduled for demolition.

4. Provide interior shoring, bracing, or support to prevent movement, settlement, or collapse of structure or element to be demolished and adjacent facilities.

G. Protection of Personnel:

1. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.

2. During demolition, continuously evaluate the condition of the structure being demolished and take immediate action to protect all personnel working in and around the demolition site.

3. Provide temporary barricades and other forms of protection to protect Owner's personnel and the general public from injury due to demolition Work.

4. Provide protective measures as required to provide free and safe passage of Owner's personnel and the general public to occupied portions of the structure.

3.03 BURNING

A. The use of burning at the Site for the disposal of refuse and debris will not be permitted.

3.04 RELOCATIONS

A. Perform the removal and reinstallation of relocated items as indicated with workmen skilled in the trades involved. Clean all items to be relocated prior to reinstallation, to the satisfaction of Engineer. Repair items to be relocated which are damaged or replace damaged items with new undamaged items as approved by Engineer.

3.05 BACKFILL

A. Do not use demolition debris as backfill material.

B. Fill excavations and backfill after demolition activities to existing ground level or foundation level of new construction in accordance with Section 31 23 23, Fill and Backfill.

3.06 TITLE TO MATERIALS

A. All items designated to be removed shall become the property of Contractor.

3.07 DISPOSITION OF MATERIAL

A. Do not remove equipment and materials without approval of Contractor's Demolition/Renovation Plan by Engineer.

B. Salvage equipment and material to the maximum extent possible.

C. Owner will not be responsible for the condition or loss of, or damage to, property scheduled to become Contractor's property after Engineer's authorization to begin demolition. Materials and equipment shall not be viewed by prospective purchasers or sold on the site.

D. Owner will not be responsible for the condition or loss of, or damage to, such property after Engineer's authorization to begin demolition.

E. Store salvaged items as approved by Engineer and remove them from Owner's property before completion of the Contract. Materials and equipment shall not be either viewed by prospective purchasers or sold on the Site.

3.08 UNSALVAGEABLE MATERIAL

A. Concrete, masonry, and other noncombustible material shall be recycled or disposed of offsite in a legal manner.

B. No disposal is permitted on the site. All materials removed shall be disposed of offsite in a legal manner.

C. Combustible material shall be disposed of off the Site. Combustible materal shall not be burned onsite.

D. Universal Waste Lamps and Thermostats: Dispose of in strict accordance with 40 CFR 273.

E. Dispose of piles per Washington State Department of Ecology 03-04-038 Focus on Treated Wood Exclusion

3.09 CLEANUP

A. Debris and rubbish shall be removed from the site. Debris and rubbish shall be removed and transported in a manner that prevents spillage on streets or adjacent areas. Leave site in clean condition, ready for subsequent work. Clean up spillage and wind-blown debris from public and private lands.

B. Local regulations regarding hauling and disposal shall apply.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes requirements for removal, handling, transportation, and disposal of asbestos containing materials from structures scheduled for demolition.

1.02 REFERENCES

A. This Section incorporates by reference the latest revisions of the following documents:

1. International Building Code (IBC)
2. Code of Federal Regulations (CFR)
   a. 29 CFR 1910 Occupational Safety and Health Standards
   b. 29 CFR 1926 OSHA Construction Standards
   c. 40 CFR 61 National Emission Standards for Hazardous Air Pollutants Subpart M–Asbestos
   d. 40 CFR 763 Asbestos
3. Washington Administrative Code (WAC)
   a. WAC 296-24 General Safety and Health Standards
   b. WAC 296-62 General Occupational Health Standards
   c. WAC 296-65 Asbestos Removal and Encapsulation
4. National Institute for Occupational Safety and Health (NIOSH)
5. Washington Department of Labor and Industries
6. Revised Code of Washington (RCW)
   a. RCW 49.17 Washington Industrial Safety and Health Act (WISHA)

1.03 DEFINITIONS

A. Abatement: Procedures to control fiber release from asbestos containing building materials. Includes encapsulation, enclosure, and removal.

B. Adequately Wetted: Sufficiently mixed or coated with water or an aqueous solution to prevent dust emissions.

C. Asbestos Abatement Project: Any demolition, renovation, repair, construction, or maintenance activity of any public or private facility that involves the repair, enclosure, encapsulation, removal, salvage, handling, or disposal of any material with potential for releasing asbestos fibers from asbestos containing material into the air.

D. ACM: Asbestos-containing material. Asbestos or material containing asbestos in excess of one (1) percent by weight.

E. Air Cell: Insulation usually used on pipes and ductw o r k comprised of corrugated cardboard containing asbestos.

F. Airlock: A system for permitting restricted ingress or egress while allowing air movement from an uncontaminated area to a contaminated area during negative air pressure conditions in the work area, typically including two curtained doorways at least 6-feet apart.

G. Amended Water: Water containing a wetting agent or surfactant.

H. Area Monitoring: Sampling of asbestos fiber concentrations within the asbestos removal area which is representative of the airborne concentrations of asbestos fibers which may reach the breathing zone.

I. Asbestos: The term asbestos includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite.

J. ACM Waste: Asbestos containing or contaminated materials or objects requiring disposal.

K. Asbestos Fibers: This expression refers to asbestos fibers having an aspect ratio of three to one and longer than 5 micrometers.

L. Asbestos Removal Contractor: The Washington state certified asbestos abatement firm contracted to perform the asbestos abatement services addressed in these Specifications.

M. Authorized Visitor: City of Kirkland personnel, Resident Engineer, or a representative of any of the regulatory agencies having jurisdiction over the project.

N. Bridging Encapsulant: A liquid material that can be applied to ACM that controls the possible release of asbestos fibers from the material by creating a membrane over the surface.

O. Breathing Zone: An area within a hemisphere, forward of the shoulders, with a radius of 6- to 9-inches and the center at the nose or mouth of an employee.

P. Certified Asbestos Workers: Workers who have received training through an accredited training center in accordance with regulations as set forth in 40 CFR Part 763 and as required by WAC 296-62-077 in accordance with the requirement of WAC 296-65.

Q. Clean Room: An uncontaminated area or room, which is part of the decontamination enclosure system, with provisions for storage of workers' street clothes and protective equipment.

R. Clearance Air Sample: The air monitoring sample taken after all abatement is completed and prior to deregulation of work areas. Provide clearance air samples equal to or better than the pre-abatement air samples or outside ambient air at the (less than 0.01 fiber/cubic centimeter), whichever is less.

S. Containment: An enclosure with restricted access where the air is filtered.

T. Control Device Asbestos Waste: Any ACM Waste that is collected in a pollution control device.

U. Curtained Doorway: A device to allow ingress or egress from one (1) room to another while permitting minimal air movement between the rooms, typically constructed by placing three overlapping sheets of plastic over an existing or temporarily framed doorway, securing each along the top of the doorway, securing the vertical edge of one sheet along one (1) side of the doorway, and securing the vertical edge of the other sheets along the opposite vertical side of the doorway.

V. Decontamination Enclosure System: A decontamination enclosure system for workers, materials and equipment, including a designated area of the work area adjacent and connected to the regulated area including an equipment room, shower room, and clean room formed by connecting a series of rooms with curtained doorways forming airlocks between any two (2) adjacent rooms.

W. Demolition: The wrecking or removing of any load-supporting structural member and any related removing or stripping of friable asbestos materials.

X. Encapsulant: A material which is applied to ACM to minimize or eliminate potential release of asbestos fibers, either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding the components together (penetrating encapsulant).

Y. Equipment Room: A contaminated area or room, which is part of the decontamination enclosure system, with provisions for storage of contaminated clothing and equipment.

Z. Excursion Limit: The maximum personal exposure concentration of asbestos fibers for any 30-minute period (1.0 fiber per cubic centimeter of air (f/cc)).

AA. Friable Asbestos Material: Material that contains more than one (1) percent asbestos by weight and that can be crumbled, pulverized, or reduced to power by hand pressure when dry.

BB. Glovebag: A customized bag for covering friable ACM with gloves to allow work inside the bag.

CC. Hazardous Air Contaminant: As defined in Hazardous and Contaminated Substance Health and Safety Program, elsewhere in the Contract Documents.

DD. HEPA Filtered Equipment: High efficiency particulate air filtered equipment with a filter capable of collecting and retaining asbestos fibers.

EE. Mini Enclosure Method: An abatement method that establishes an isolation zone as a sub-area of the total area. Air exchanges requirements are a minimum of four (4) per hour. Decontamination facilities include two (2) air chamber airlock, double suiting and HEPA vacuuming.

FF. Mini Isolation Method: A method of isolation area preparation where only the portion or portions of the total room area containing ACM are isolated. Decontamination facilities and air exchanges are identical to those under standard isolation.

GG. Modified Glove Bag: An abatement method utilizing a standard glove bag within an isolation area under negative pressure of at least four (4) air exchanges per hour.

HH. Mudded Pipe Insulation Section: A section of pipe insulation covering plumbing fittings, usually 12-inch diameter or less.

II. Negative Air System: A localized and HEPA filtered exhaust system capable of maintaining a constant, low velocity air flow into the Decontamination Enclosure Systems and Work Area from adjacent uncontaminated and unsealed areas.

JJ. Non-Friable Asbestos Material: Material that contains asbestos in which the fibers have been locked in by a bonding agent, coating, binder, or other material so that the asbestos is well bound and will not release fibers in excess of the asbestos control limit during any appropriate use, handling, demolition, storage, transportation, processing, or disposal.

KK. Outside Air: The air outside buildings and structures.

LL. Particulate Asbestos Material: Finely divided particles of asbestos material.

MM. PCM: Phase Contrast Microscopy.

NN. PLM: Polarized Light Microscopy.

OO. Personal Monitoring: Sampling of asbestos fiber concentrations within the breathing zone of an employee.

PP. Removal: All herein specified procedures necessary to strip all ACMs from the designated areas and to dispose of these materials in a permitted facility.

QQ. Renovation: The removing or stripping of friable asbestos materials used on any pipe, duct, boiler, tank, turbine, furnace or structural member. Operations in which load supporting structural members are wrecked or taken out are included.

RR. Sealing Agent: A liquid product similar to a Bridging Encapsulant that is applied to surfaces from which asbestos has been removed to prevent release of any residual asbestos fibers into the environment. Commonly referred to as penetrating encapsulant.

SS. Shower Room: A room between the clean room and the equipment room in the worker decontamination enclosure system, with hot and cold or warm running water and suitably arranged for complete showering during decontamination. The shower room comprises an airlock between contaminated and clean areas.

TT. Standard Isolation: An asbestos removal process, which includes enclosing the entire area prior to and during the removal.

UU. Stripping: Removing friable asbestos materials from any pipe, duct, boiler, tank, turbine, furnace, or structural member from any building, structure, facility, or installation.

VV. Structural Member: Any load-supporting member, such as beams and load-supporting walls, or any non-load-supporting member, such as ceilings and non-load-supporting walls.

WW. Supervisor for Full-Scale Asbestos Abatement: A person who has been trained and certified in accordance with a state-approved EPA Asbestos Training Center. Such persons are required for any asbestos abatement project.

XX. Surfactant: A chemical wetting agent added to water to improve penetration, thus reducing the quantity of water required for a given operation or area.

YY. Suspect ACM: Material encountered during removal work that is suspected of being ACM, based on proximity to other ACM, or other indicators.

ZZ. TEM: Transmission Electron Microscopy.

AAA. Time Weighted Average: The TWA is an eight (8) hour time weighted average airborne concentration of fibers longer than five (5) micrometers per cubic centimeter of air.

BBB. Visible Emissions: Emissions containing particulate asbestos material that are visually detectable without the aid of instruments. These do not include condensed uncombined water vapor.

CCC. Waste Manifest: A record of shipment and disposal of ACM waste.

DDD. Wet Cleaning: The process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning tools which have been dampened with amended water, and by afterwards disposing of these cleaning tools as asbestos- contaminated waste. Use of HEPA filtered vacuums are recommended during wet cleaning.

EEE. Work Area: The area where asbestos-related work or removal operations are performed that is defined and/or isolated to prevent the spread of asbestos dust, fibers, or debris, and entry by unauthorized personnel.

1.04 SUBMITTALS AND TRANSMITTALS

A. Submit the following:

1. Asbestos Work Plan.

B. Transmit the following:

1. Documentation of air monitoring results:

a. Copies of air monitoring sample chains-of-custody

b. Analysis reports

2. Record of abatement activities including disposition of ACM Waste removed from the Site, copies of every completed waste manifest to verify proper disposal, all Contract changes clearly indicated, project photographs, supervisor's daily field reports, and similar final record documentation after completion of the project. Project photographs will show conditions before and after asbestos removal.

3. Copies of waste profiles, transportation, disposal certification, and signed manifests from the landfill after completion. Documentation shall include:

a. Name and address of landfill

b. Name of landfill employee authorized to accept asbestos waste

c. Quantity removed from work site

d. Quantity disposed of at landfill

4. Copies of all applicable permits and notifications required for work, including those for the Puget Sound Clean Air Agency (PSCAA) and Washington Department of Labor and Industries (L&I).

1.05 QUALITY ASSURANCE

A. Qualifications

1. Work shall be completed by a licensed asbestos removal contractor with the following minimum experience:

a. Satisfactory completion of at least three asbestos abatement projects of similar scope

b. Licensed in the state of Washington

2. Contractor personnel performing the work shall have the following experience:

a. One (1) year experience in the task they are to perform

b. Three (3) years or more experience in asbestos abatement

c. Supervisor: Certified asbestos supervisor

B. Certification

1. Personnel working within the control areas shall be certified asbestos workers.

2. The asbestos supervisor shall be certified by the state of Washington.

3. Personnel shall have respirator fit test certification (qualitative/quantitative) for the respirators they intend to use.

C. The Resident Engineer may conduct perimeter and clearance air monitoring for quality assurance/quality control (QA/QC) purposes.

D. The independent qualified testing laboratory for air samples shall be a satisfactory participant in the NIOSH Proficiency Analytical Testing (PAT) program.

1.06 SITE CONDITIONS

A. Existing utilities may be used if active and of adequate capacity. The power and water distribution systems in any existing buildings may be disconnected

or not be suitable for use. Any work the Contractor finds necessary for power distribution and water distribution shall be at the Contractor's expense.

1.07 ASBESTOS WORK PLAN

A. Present the methods to be used for removal and disposal of ACM. Include a detailed plan of the work procedures to be used in the removal of materials containing asbestos in compliance with all applicable Federal, State, and local regulations. As a minimum, include the following components in the plan:

1. Subcontractor qualifications, experience, and license number
2. Work procedures and sequences
3. Required Permits and Notifications
4. Exposure Monitoring Plan, include person responsible for air monitoring program
5. Respiratory Protection Program
6. Personal Protective Equipment
7. Personnel Decontamination Procedures
8. Administrative Controls
9. Emergency Plan
10. Housekeeping Practices
11. Engineering Controls/Equipment
12. Medical Surveillance Program
13. Heat and/or Cold Stress Monitoring and Management
14. Employee Training Certificates and Medical Surveillance
15. Certifications and qualifications of the asbestos supervisor/competent person
16. Signage
17. Laboratory qualification information
18. Plans for disposing of ACMs
19. Decontamination of Equipment and Areas

20. Manufacturers literature on equipment and materials

21. Material safety data sheets for any chemicals

22. Record Keeping

23. Disposal facility information

24. Respirator fit test records

25. Job Hazard Analysis and Hazard Communication

26. Schedule of Activities

PART 2 - PRODUCTS

2.01 MATERIALS

A. Warning signs as required by WISHA Chapter 296-62-07721.

B. For surfactant (Wetting Agent) use Fiberlock Penewet, Foster 32-90 or equivalent approved by the Resident Engineer including 50-percent polyoxythylene ether and 50- percent polyoxyethylene or polyglycol ether and mix with water in accordance with manufacturer's directions.

C. Use encapsulation materials that are non-flammable, non-hazardous (non-solvent or petroleum based) penetrating type.

D. Use non-hazardous solvent mastic remover capable of effectively removing mastic or other adhesive.

E. Danger Signs and Labels: Provide danger signs and labeled barricades at all approaches to asbestos work areas. Locate signs at such a distance that personnel may read the sign and take the necessary protective steps required before entering the area. Provide and affix labels to all asbestos materials, scrap, waste, debris, and other products contaminated with asbestos.

1. Danger Sign: Vertical format conforming to 29 CFR 1910.145(d)(4) and WAC 296-24-14007(4).

2. Warning Labels: Provide labels of sufficient size to be clearly legible, displaying the following warning:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
BREATHING ASBESTOS DUST MAY
CAUSE SERIOUS BODILY HARM

3. Warning Signs: Provide signs of sufficient size to be clearly legible, displaying the following warning:

DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING
ARE REQUIRED IN THIS AREA

F. Provide full body disposable protective clothing, including head, body and foot coverings including material impenetrable by asbestos fibers (Tyvek® or equivalent) for workers and authorized visitors in sizes adequate to accommodate movement without tearing.

G. Provide additional safety and fall protection as necessary to workers and authorized visitors.

H. Provide non-skid footwear to abatement workers. Ensure disposable clothing is adequately sealed to the footwear to prevent body contamination.

I. Provide goggles to personnel engaged in asbestos operations when the use of a full-face respirator is not required.

2.02 EQUIPMENT

A. Select respirators from those approved by the Mine Safety and Health Administration (MSHA), or by the National Institute for Occupational Safety and Health (NIOSH). Provide personnel engaged in the removal and demolition of asbestos from negative pressure enclosures and visitors with Type C supplied air respirators, continuous flow or pressure demand, operated with either an auxiliary positive pressure self-contained apparatus or HEPA filter.

B. Provide miscellaneous equipment, such as scaffolds, in accordance with task requirements.

C. HEPA filtered vacuums:

1. With disposable collection bags for the project

2. Filters that are 99.97 percent efficient for retaining fibers of 0.3 micron or larger

D. Respirator Protection

1. Provide the necessary respiratory protection for the work to be performed. Don respiratory protection equipment and level of protection in accordance with applicable regulations and standards.

2. Half-face respirators may be used for abatement of non-friable ACM and glovebag procedure. The air monitoring results may be used to justify upgrades or downgrades of the respiratory protection. The Site Safety and Health Officer (SSHO) may propose changes to the Resident Engineer for evaluation. Downgrades of respiratory protection will only be allowed after approval by the Resident Engineer. Disposable half-face respirators may not be used.

3. Properly maintain, clean, and store the respirators.

4. Provide respiratory protection for authorized visitors wishing to enter a negative air enclosure, as needed. These include, but are not limited to, inspectors from the regulatory agencies and City of Kirkland monitors.

PART 3 - EXECUTION

3.01 PERFORMANCE REQUIREMENTS

A. Provide necessary labor, equipment, and material to remove, transport and dispose of ACM in accordance with all Federal, State, and local regulations and standards. Work includes obtaining required permits, notifying appropriate agencies, and performing required air monitoring.

B. In accordance with State of Washington Administrative Code (WAC) 296-62-07721(1)(c)(iii), a good faith survey of each structure that is to be renovated or demolished has been conducted. A summary of findings is shown on the Contract Drawings for each building to be demolished, and individual reports are available as reference documents. Review each survey and become familiar with its contents. Maintain copies of each survey at the project site and make available for review upon request by regulatory agencies.

3.02 EXAMINATION AND PROTECTION

A. Suspect ACM: If suspect ACM is discovered during demolition activities, notify Resident Engineer immediately and stop work in the immediate area. Cordon off area to prevent contamination of clean areas. Allow access for the Resident Engineer to collect representative sample(s) of the material and submit for testing using PLM, as well as TEM if necessary. Estimate quantity of additional suspect ACM to Resident Engineer for appropriate documentation.

B. Take necessary precautions to avoid damage to existing structures, their appurtenances, monitoring wells, or utilities that may be affected by work activities outside of the limits of construction. Repair any damage to those features resulting from operations at no expense to Sound Transit. Coordinate with the Resident Engineer and/or property owners to locate underground utilities prior to beginning construction. Do not disturb utilities encountered which were not previously shown or otherwise located without approval from the Resident Engineer.

C. Air Monitoring

1. Collect air samples required by regulations for the abatement activity on the project. These may include pre-abatement, area and perimeter, personal, short- term excursion limit, and clearance samples. The Resident Engineer may elect to conduct air sampling for quality assurance/quality control (QA/QC) purposes.

2. Collect air samples in accordance with established procedures and protocols (i.e. NIOSH Method 7400, as revised). Take air samples at an approximate height of 60-inches from the work floor. Be responsible for regular calibration of the sample pumps.

3. Submit the air samples to an independent qualified testing laboratory

4. Analyze the samples by PCM method. Fiber concentrations detected above the allowable limit may have to be tested by TEM method at the expense of the Asbestos Removal Contractor. Make test results available for review prior to the start of work the next day.

5. Take pre-abatement samples prior to start of asbestos abatement activities. If the fiber count exceeds 0.1 f/cc, provide workers with appropriate personal protective equipment including respiratory protection.

6. Take the perimeter air samples upwind and downwind of the work area where there is no enclosure. Obtain the perimeter samples for a negative air enclosure at the personnel decontamination station, waste loadout, and HEPA/negative air machine exhaust(s). If the fiber count exceeds 0.01 f/cc, the Resident Engineer may request analysis of the sample by TEM procedure; the Resident Engineer may request to clean the perimeter area prior to start of a shift.

7. Take personal and short-term exposure limit (STEL) samples as required by the activities and the regulations. Post the personal air sample test results within 24 hours from collection.

8. Take the clearance air sample at the completion of abatement activities inside an enclosure prior to inspection and encapsulation. Take additional clearance samples if the area fails inspection, requiring additional abatement. For acceptable fiber count, use the pre-abatement result or less than 0.01 f/cc, whichever is less.

9. If there is a conflict between the Contractor sample test results and the Resident Engineer's QA/QC sample test results, re-take the sample. Repeat if necessary, until the test results are in the same range, as determined by the Resident Engineer.

10. Limit the maximum flow rate of collecting air samples to 2.5 liters/minute for personal samples and 10.5 liters/minute for inside and outside work area air samples.

3.03 PREPARATION

A. Notifications: Prepare and submit necessary permits and notifications, amendments, and/or request for alternate means of compliance to the regulatory agencies including, but not limited to, Puget Sound Clean Air Agency (PSCAA) and Washington Department of Labor and Industries (L&I). Provide timely notification of asbestos removal, abatement, hauling and disposition as may be required by such agencies. Have a copy of all said permits and notifications at the Site.

B. Utilities

1. Provide temporary power and lighting in the area where abatement is taking place and ensure safe installation of temporary power sources and equipment in accordance with applicable electrical code requirements. Use ground fault interrupters to service any temporary and existing power sources utilized during project performance. Refer to OSHA requirements for temporary lighting under the construction standard, 29 CFR 1926.56 and WAC 296-62-3120 (Illumination),

2. 1926.400 (Electrical Standards), and 1926.401 (Temporary Lights).

3. Provide necessary water for the work. This includes potable water for consumption and shower, if necessary, and for abatement activities. If a source of water is available on Site, use the source with approval from the Resident Engineer.

4. Properly dispose of wastewater generated during the project, in accordance with requirements of temporary site water discharge as stated elsewhere in the Contract Documents.

5. Be responsible for utility connections and subsequent disconnects. This includes repairs that may be necessary to restore the connection.

3.04 REMOVAL OF ASBESTOS

A. Spray asbestos material with amended water, using spray equipment capable of providing a "mist" application to reduce the release of fibers. Saturate the material sufficiently to wet it thoroughly. Spray the asbestos material repeatedly during work process to maintain wet condition and to minimize asbestos fiber dispersion.

B. Place removed ACM in labeled disposal bags of 6-mils thickness immediately upon removal. Thoroughly clean the external surfaces of bags by wet sponging in the designated area of the work area. Place the waste bags in a second, clean bag at the waste loadout for disposal. Do not drop or drag the waste bags. Ensure that containers are removed from the regulated area by workers who have entered from uncontaminated areas dressed in clean coveralls. Ensure that workers do not enter from contaminated areas into the clean area during any phase of project performance.

C. Bag and secure ACM in a locked container at the end of each workday. Do not leave any debris, unsecured equipment, or tools on the work site past the end of each workday.

D. Conduct work in a manner that prevents spread of ACM. Be responsible for the cost associated with cleanup of ACM spread outside the work areas.

E. Asbestos-containing wallboard systems, which contain less than one (1) percent ACM as a composite of the drywall and associated joint compound, shall be removed in accordance with WRD 23.30. If removal is accomplished by hand, then wet, non- aggressive methods and HEPA filtered vacuums should be used followed by a prompt cleanup. For removal by hand, asbestos awareness and hands-on training as prescribed in WAC 296-62-07722(5) is required for workers. Supervision is required by a competent person as defined in WAC 296-62-07703.

1. Ensure workers and authorized visitors, upon entering the job site, remove street clothes in the clean change room and put on the required PPE.

2. Ensure workers and authorized visitors, each time they leave the work area, remove gross contamination from clothing before leaving the work area. Dispose contaminated protective clothing in receptacles for disposal with other asbestos contaminated material.

3. Do not allow workers to eat, drink, smoke, or chew gum or tobacco in regulated areas.

4. Ensure workers are fully protected with appropriate respirators and protective clothing from the time of first disturbance of ACMs prior to commencing actual asbestos abatement and until final clean-up is completed.

5. Ensure that barriers and plastic linings are effectively sealed and taped. Repair damaged barriers and remedy defects immediately upon discovery.

6. Visually inspect enclosures at the beginning of each work period. Dispersive smoke methods will be used to test effectiveness of barriers. Repair all damage immediately.

7. Clean external surfaces of contaminated containers and equipment thoroughly by wet cleaning before moving such items into the decontamination enclosure system for final cleaning and removal to uncontaminated areas

3.05 CLEANING

A. For friable and non-friable material, remove visible accumulations of asbestos material and debris. Wet-clean all surfaces within the work area.

B. Include sealed drums and equipment used in the work area in the clean-up and removal from work areas, via the waste load-out system, at an appropriate time in the cleaning sequence.

C. Disposal of ACM Waste

1. Bag gross asbestos debris by the end of each workday. Dispose of ACM Waste as the work progresses to prevent exceeding available storage capacity on site. Provide caution signs as specified herein. Remove sealed and labeled containers as asbestos waste and dispose of containers at an authorized disposal site in accordance with the requirements of the Puget Sound Clean Air Agency. Transport in a vehicle compartment completely lined with 6 mils polyethylene sheeting and dispose of at the permitted disposal site. Submit documentation including name and address of landfill, name of landfill employee authorized to accept asbestos waste, quantity removed from work site, and quantity disposed of at the landfill.

2. For hauling and disposal, comply with 40 CFR 61, Subpart M, and state, regional, and local standards. Ensure workers unloading material wear appropriate PPE when handling asbestos materials at the disposal site.

D. Only undamaged and sealed plastic bags will be disposed of in the landfill. If the bags have been broken or damaged, place the damaged bags in a sealed drum and dispose.

END OF SECTION

DIVISION 03

CONCRETE

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Concrete formwork.

B. Floors and slabs on grade.

C. Concrete foundation walls

D. Concrete reinforcement.

E. Miscellaneous concrete elements, including equipment pads and light pole bases.

F. Concrete curing.

1.02 RELATED DOCUMENTS

A. Refer to Structural Drawing Sheet S001 for specifications pertaining to the Restroom Building. The drawings shall take precedence over the specifications for the building.

B. Refer to Structural Drawing Sheet SS001 for specifications pertaining to site related development. The drawings shall take precedence over the specifications for elements identified on Sheets SS101, SS102 and SS103.

1.03 REGULATIONS

A. Conform to requirements of the IBC and Building Code as it pertains to structural cast-in-place concrete, except as supplemented and modified herein. The items of work to be performed shall include but are not necessarily limited to:

1. Walls, steps, foundations or footings, flatwork and associated work.

1.04 REFERENCE STANDARDS

A. Conform to requirements of the following Reference Standards or as modified and supplemented hereinafter:

1. American Concrete Institute (ACI) Specifications for Structural Concrete for Buildings, ACI 301.

2. ACI Recommended Practice for Selecting Proportions for Concrete, ACI 613.

3. ACI Recommended practices for Cold Weather Concreting, ACI 306.

4. ACI Recommended Practice for Hot Weather Concreting, ACI 605.

5. ACI 302.1R - Guide for Concrete Floor and Slab Construction; 2004 (Errata 2007).

6. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 2000 (Reapproved 2009).

7. ACI 308R - Guide to Curing Concrete; 2001 (Reapproved 2008).

8. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2016.

9. ASTM C1602/C1602M - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete; 2012.

10. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2016b.

11. ASTM C150/C150M - Standard Specification for Portland Cement; 2016.

12. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete; 2016.

13. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2015.

14. ASTM E1643 - Standard Practice for Selection, Design, Installation and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs; 2011.

15. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs; 2011.

1.05 RELATED SECTIONS:

A. Section 01 45 00 – Quality Control

B. Section 31 23 16 – Excavation

C. Section 31 23 23.00 – Fill and Backfill

D. Section 31 23 23.15 – Trench Backfill

E. Section 31 23 19.16 – Geotextile

F. Section 31 37 00 – Riprap

G. Section 32 33 00 – Site Furnishings

1.06 QUALITY ASSURANCE

A. Special Inspection: Inspection shall be required immediately prior to any intended pours or placement of concrete.

B. Concrete Work: Concrete work, where indicated, shall be exposed, as finished. Special care must be taken to provide specified, finished surfaces without gravel pockets, and other defacements.

1.07 SUBMITTALS

A. Submit, for approval, all layout drawings for all cast-in-place concrete work. Show joint locations and other pertinent information. Refer to Section 01 33 00 for additional requirements.

B. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.

C. Mix Design: Submit proposed concrete mix design.

D. Samples: Submit samples of underslab vapor retarder to be used.

E. Records: Maintain records of all concrete placements; indicate exact mix proportions, list time, date, location in the project, weather conditions at the time of placement, and the source of the concrete supply. Make records available to Engineer at any time during the course of construction and submit at end of concrete placement phase of project for the purposes of preparing record documents.

F. Certificates: Submit certification of previously tested mix designs.

PART 2 - PRODUCTS

2.01 GENERAL

A. Concrete materials provided under this section shall comply with the Referenced Standards, Specifications, applicable Codes and Drawings, including Structural Engineer’s General Structural Notes. Where these may be in conflict, the more stringent shall govern.

2.02 FORMWORK

A. Form Materials: Contractor's choice of standard products with sufficient strength to withstand hydrostatic head without distortion in excess of permitted tolerances.

1. Form Facing for Exposed Finish Concrete: Metal forms are only allowed, except when forming a radius. All mmaterials shall provide a smooth, stain-free final appearance.

2. Earth Cuts: Do not use earth cuts as forms for vertical surfaces. Natural rock formations that maintain a stable vertical edge may be used as side forms.

3. Form Coating: Release agent that will not adversely affect concrete or interfere with application of coatings.

4. Form Ties: Cone snap type that will leave no metal within 1-1/2 inches of concrete surface.

5. Spray cure will be clear in color.

2.03 REINFORCEMENT MATERIALS

A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi).

1. Type: Deformed billet-steel bars.

2. Finish: Unfinished, unless otherwise indicated.

B. Dowels for concrete paving:

1. Dowel schedule to match rebar schedule and at a minimum spacing of 18" O.C. Dowels shall be steel smooth and free of dirt, grease and oils. Size per the drawings. Encase 50 percent of each dowel in a speed dowel plastic sleeve to allow parallel movement of each dowel. Verify steel dowel to speed dowel tolerance to ensure snug fit.

2. Provide and install Greenstreek speed dowel or approved equal.

C. Reinforcement Accessories:

1. Tie Wire: Annealed, minimum 16 gage, 0.0508 inch.

2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.

2.04 CONCRETE MATERIALS

A. Aggregates: Standard: ASTM C33-86.

B. Cements:

1. Provide cements obtained from same source or of same brand for concrete in same element or portion of the work.

2. Standard Portland Cement: Columbia, Ideal, Kaiser, Lone Star, or approved equal. Standard gray Portland cement, ASTM C150-86; uses type I or type III.

C. Cementious Materials: Fly ash, ASTM C618 type F, except that the maximum allowable loss on ignition shall be 0.75%. Use for all concrete. Ground granulated blast-furnace slag (GGBF) is acceptable.

D. Admixtures:

1. Use only one brand of admixtures.

2. Water-Reducing Admixture: Master Builders Pozzolith 300-N. Chemical admixture conforming to requirements of ASTM C494-86, Type A.

3. Retarder-Densifying Admixture: Master Builders Retarding Pozzolith, or approved equal: Conforming to requirements of ASTM C494-86, Type B.

4. Accelerator: Chemical admixture designed to accelerate set on concrete but not corrode reinforcing steel; ASTM C494-86, Type C.

5. Air Entraining Agent: Conforming to requirements of ASTM C260-86.

E. Other Ingredients: Provide other ingredients as indicated or as required by Code or Reference Standards.

2.05 CONCRETE MIX

A. Concrete mix for exterior flatwork shall have a 28 day compressive strength of 4,000 psi (unless noted otherwise on plans).

B. Concrete mix for structural building components shall have a 28 day compressive strength of 4,000 psi (unless noted otherwise on plans).

C. Concrete mixes shall be Class 5 (3/4) and have minimum characteristics as follows:

Sacks Cement	(5.5) per CY
Fine Aggregate (Type 1)	(291 lbs.) per Sack. - (see "Aggregates", below)
Coarse Aggregate (Type 5)	(387 lbs.) per Sack, - (see "Aggregates", below)

Max. Water	(6.5 bags) per Sack
Slump (inches)	(2 - 3.5) per ASTM C143-78 (or higher if utilizing a high range water reducer).

2.06 AGGREGATES

A. Fine Aggregates: Generally, fine aggregate class 1 shall be per standard soecification for Road, Bridge and Municipal Construction (WSDOT) latest editon, 9-031(2). Mineral Aggregate (Type 1), Aggregates shall consist of sand or other inert materials, or combinations thereof, having hard, strong, durable particles free from an adherent coating. Fine Aggregate shall be washed thoroughly to remove clay, loam, alkali, organic matter, or other deleterious matter. Mineral Aggregate Type 1, particle gradation is as follows:

Sieve Size	% Passing
#4	95 - 100
#8	68 - 86
#16	47 - 65
#30	27 - 42
#50	9 - 20
#100	0 - 7
#200 (wet)	0 - 2

B. Coarse Aggregates: Generally, coarse aggregate #5 per standard specification for Road, Bridge and Municipal Construction (WSDOT) latest editon, 9-031(4). Course Aggregate (Type 5), Coarse Aggregate shall consist of gravel, crushed stone, or other inert material or combination thereof having hard, strong, and durable pieces free from adherent coatings. Coarse Aggregate shall be washed to thoroughly remove clay, silt, bark, sticks, alkali, organic matter, or other deleterious material. Mineral Aggregate (Type 5) particle gradation is as follows:

Sieve Size	% Passing
1-1/2" Square	100
3/4" Square	80 - 100

3/8" Square	10 - 40
#4	0 - 4
#200	0 - 0.5

2.07 BONDING AGENTS AND ADHESIVES:

A. Bonding Agents as required.

B. Primers and Sealers: As recommended by the adhesive and bonding agent manufacturers.

2.08 CONCRETE MIXES:

A. Quality of Concrete: Assumed compressive strengths and locations of same are noted on drawings.

B. The fly ash content shall not exceed 7% by weight of the total cementitious material.

C. Admixtures:

1. Add in accordance with manufacturer's directions.

2. If approved, water-reducing retardant may be used when the temperature of the concrete, as placed, exceeds 65 degrees F.

3. If approved, accelerator may be used when temperature of concrete is less than 40 degrees F.

4. No calcium chloride or other water-soluble chloride ion admixtures will be permitted, unless otherwise approved by Engineer.

5. Use retarder/densifier when placing other concrete in warm weather conditions or when ambient temperature exceeds 65 degrees F.

6. Use air-entraining agent in concrete subjected to freezing temperatures after curing. Total air content shall be in accordance with Table 26-B of the IBC.

D. Mix Design:

1. Determine mixes as noted on the drawings.

2. If the Contractor elects not to use the approved design mix, Contractor shall pay for special batch plant inspection costs.

2.09 MIXING CONCRETE:

A. Standard Concrete - Ready-Mixed Concrete: Mix and transport in accordance with ASTM C94-86.

2.10 RELATED MATERIALS

A. Waterstops: Provide waterstops at all building construction joints and other joints in all foundation walls below grade and where shown on the drawings. Size to suit joints. Provide flat, dumbbell type or center bulb type where shown on drawings.

1. W.R. Grace & Co. ADCOR ES WATERSTOPS.

2. American Volclay Products BENTONITE WATERSTOP.

3. or reviewed and accepted alternate

B. Expansion Joints in Slabs:

1. Joint Filler: Pre-formed, non-extruding asphalt impregnated resilient material; ASTM D1752, Type I, 3/8" wide by depth required to bring top surface within 1/2" of slab surface.

2. Joint Sealer: Self-leveling polyurethane; ASTM C920, Type M, Grade SL, Class 25. Single component, self-leveling, sanded premium-grade polyurethane sealant with an accelerated curing capacity. Can be used in concrete joint 24 hours after the concrete is poured and also in damp concrete applications. Meets Federal Specification TT-S-00230C, Type I, Class A. Meets ASTM C-920, Type S, Grade P, Class 25. - 0, Typ sand to cover sealer.

a. Supplier: Salmon Bay Concrete or approved equal

C. Underslab Vapor Retarder: Sheet material complying with ASTM E1745, Class A; stated by manufacturer as suitable for installation in contact with soil or granular fill under concrete slabs. The use of single ply polyethylene is prohibited.

1. Installation: Comply with ASTM E1643.

2. Accessory Products: Vapor retarder manufacturer's recommended tape, adhesive, mastic, prefabricated boots, etc., for sealing seams and penetrations. Vapor Retarder: refer to Section 07 26 00/Vapor Retarders

D. Expanded or Extruded Polystyrene Insulation (XPS or EPS): refer to Section 07 21 00/Thermal Insulation.

E. Absorptive Cover: Burlap cloth made from jute or kenaf, weighing approximately 9 oz. per sq. yd., complying with AASHTO M 182, Class 2.

F. Non-Shrink Grout:

1. Type: Grout for base plates, bearing plates and grouting under precast or tilt-up wall panels shall be a non-metallic, shrinkage resistant, premixed, non-corrosive, non-staining product containing Portland cement, silica sands, shrinkage compensating agents and fluidity improving compounds.

2. Specifications: Non-shrink grout shall conform to ASTM C 1107.

3. Compressive Strength: Provide minimum 4,000 PSI strength in 7 days as determined by grout cube tests.

4. Products: Acceptable non-shrink grouts are listed below:

a. "Crystex"; L & M Construction Chemicals, Inc.

b. "Masterflow 713 Plus"; BASF Building Systems

c. "Set Grout," BASF Building Systems.

d. "Five Star Grout"; U. S. Grout Corp.

e. "Sonogrout 10K"; BASF Building Systems

f. "NS Grout"; the Euclid Chemical Company

g. "Sure-Grip High Performance Grout"; Dayton Superior Corp.

h. "CG 200 PC", Hilti, Inc.

i. “CG-86 Grout”, W. R. Meadows

j. “US Spec GP Grout”, US Mix Co.

G. Contraction and Construction Joint-Filler Material for Slabs-on-Grade:

1. Provide a 2- component semi-rigid, 100% solids epoxy having a minimum shore A hardness of 80 when tested in accordance with ASTM D 2240 and an elongation below 25% when measured in accordance with ASTM D 638. Subject to compliance with requirements, provide one of the following:

a. "Euco 700", the Euclid Chemical Company

b. "Spec-Joint CJ"; Conspec Marketing and Manufacturing Co.

c. "Masterfill 300 I", BASF Building Systems

d. “MM-80”, Metzger/McGuire Co.

e. “Rezi-Weld Flex”, W. R. Meadows

f. “US Spec SR-50 EJF”, US Mix Co.

H. Bond breaker for Construction Joints in Slabs-on-Grade:

1. A dissipating bond breaking compound containing no silicones, resins, or waxes, and that conforms to ASTM C 309. Subject to compliance with requirements, acceptable manufacturers include the following:

a. “Sure-Lift”, Dayton Superior Corporation, Inc.

b. “Tilt-Eez”, Conspec Marketing and Manufacturing Co., Inc.

c. or reviewed and accepted alternate.

2.11 CAST-IN CONCRETE ANCHORS

A. General: Refer to “Reference Standards,” Specifications, Drawings and General Structural Notes. Where these may be at variance, the more stringent requirements shall govern.

B. Expansion and Undercut Anchors in Concrete:

1. ICC Approval: Only anchors evaluated by the ICC Evaluation Service, Inc. (ICC- ES) with a published, currently valid, Evaluation Report showing it as having passed Acceptance Criteria 193 and approval for use in cracked concrete and resisting wind and seismic loads shall be approved for use.

2. Type: All expansion and undercut anchors in concrete shall be only wedge type expansion, sleeve-type expansion, or undercut type anchors.

3. Interior Use: All anchors, nuts and washers for use in interior conditioned environments free of potential moisture shall be manufactured from carbon steel zinc plated in accordance with Federal Specification QQ-Z-325C, Type II, Class 3.

4. Exterior or Exposed Use: All anchors, nuts and washers for use in exposed or potentially wet environments, or for attachment of exterior cladding materials shall be galvanized or stainless steel. Galvanized anchors, nuts and washers shall conform to ASTM A 153. Stainless steel anchors shall be manufactured from 300 series stainless steel and nuts and washers from 300 series or Type 18-8 stainless steel.

5. Nuts and Washers: Nuts and washers shall be furnished from the manufacturer and used with the anchors.

6. Acceptable Products and Manufacturers – Normal and Lightweight Concrete: "Kwik Bolt TZ", Hilti Fastening Systems (periodic inspection)

    a. "HDA Undercut Anchor" Hilti Fastening Systems (continuous inspection)

    b. "HSL-3 Heavy Duty Sleeve Anchor", Hilti Fastening Systems (continuous inspection)

    c. "Strong-Bolt Wedge Anchor", Simpson Strong-Tie, Co., Inc. (continuous inspection)

    d. "Red Head Trubolt + Wedge Anchor", ITW Red Head (periodic inspection)

    e. "DUC Undercut Anchor", USP Structural Connectors (continuous inspection)

    f. "Power Stud + SD1", Powers Fasteners, Inc. (periodic inspection)

    g. "Power Stud + SD2", Powers Fasteners, Inc. (periodic inspection)

    h. "SRS TZ Carbon Steel Anchor", MKT Metall-Kunststoff-Technik (continuous inspection)

7. Install only anchors identified on the drawings by manufacturer and product. Substitutions using products approved by this Specification may be permitted provided complete design calculations, as required by and in accordance with the proposed product's current and valid ICC Evaluation Service Report (ESR) and ACI 318 Appendix D, are signed and sealed by a professional engineer licensed in the state where the project is located

and furnished to the Engineer for review and approval prior to commencement of work. The contractor shall request design criteria for all conditions where a product substitution is considered. Failure to obtain approval for an anchor substitution may result in the request by the Engineer to remove installed anchors and replace with the product specified on the drawings at the Contractor's expense.

C. Screw and Insert Anchors in Concrete

1. Approvals: Only anchors evaluated by the ICC Evaluation Service, Inc. (ICC-ES) with a published, currently valid, Evaluation Report showing it as having passed Acceptance Criteria 193 and approved for use in cracked concrete and resisting wind and seismic loads shall be approved for use.

2. Interior Use: All screw anchors for use in interior conditioned environments free of potential moisture shall be manufactured from carbon steel zinc plated in accordance with Federal Specification QQ-Z-325C, Type II, Class 3.

3. Exterior or Exposed Use: All screw anchors for use in exposed or potentially wet environments, or for attachment of exterior cladding materials shall be galvanized or stainless steel. Galvanized anchors shall conform to ASTM A 153. Stainless steel anchors shall be manufactured from 300 series stainless steel.

4. Acceptable Products and Manufacturers – All Conditions:

   a. "Titen HD", Simpson Strong-Tie Co., Inc. (continuous inspection)

   b. "Snake+Anchor" Powers Fasteners, Inc. (periodic inspection)

   c. "Wedge-Bolt+", Powers Fasteners, Inc. (greater than 1⁄4 in. diameter) (periodic inspection)

5. Install only anchors identified on the drawings by manufacturer and product.

6. Substitutions using products approved by this Specification may be permitted provided complete design calculations, as required by and in accordance with the proposed product's current and valid ICC Evaluation Service Report (ESR) and ACI 318 Appendix D, are signed and sealed by a professional engineer licensed in the state of Washington and furnished to the Engineer for review and approval prior to commencement of work. The contractor shall request design criteria for all conditions where a product substitution is considered. Failure to obtain approval for an anchor substitution may result in the request by the Engineer to remove installed

anchors and replace with the product specified on the drawings at the Contractor's expense.

PART 3 - EXECUTION

3.01 CONCRETE PLACEMENT

A. Place concrete in accordance with ACI 304R.

B. Place concrete for floor slabs in accordance with ACI 302.1R.

C. Inspection: Before placing concrete, inspect and complete any unfinished formwork, reinforcing steel, and items to be embedded or cast in. Notify other trades to permit installation of their work.

D. General: Comply with ACI 304, "Guide for Measuring, Mixing, Transporting, and Placing Concrete", and as specified.

E. Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened sufficiently to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as specified. Deposit concrete to avoid segregation at its final location.

F. Placing Concrete in Forms: Deposit concrete in forms in horizontal layers no deeper than 24 inches and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.

1. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping. Use equipment and procedures for consolidation of concrete complying with ACI 309.

2. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations no farther than the visible effectiveness of the machine. Place vibrators to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mix to segregate.

G. Cold Weather Placement: Comply with provisions of ACI 306 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing action, or low temperatures.

H. When air temperature has fallen to or is expected to fall below, 40 degrees F (4 degrees C), uniformly heat water and aggregates before mixing, to obtain a

concrete mixture temperature of not less than 50 degrees F (10 degrees C) and not more than 80 degrees F (27 degrees C), at point of placement.

1. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen sub-grade or on sub-grade containing frozen materials.

2. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise accepted in mix designs.

I. Hot Weather Placement: When hot weather conditions exist that would impair quality and strength of concrete, place concrete complying with ACI 305 and as specified.

1. Cool ingredients before mixing to maintain concrete temperature at time of placement to below 90 degrees F (32 deg C). Mixing water may be chilled or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.

2. Cover reinforcing steel with water soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embedding in concrete.

3. Fog spray forms, reinforcing steel, and sub-grade just before placing concrete. Keep sub-grade moisture uniform without puddles or dry areas.

4. Use water reducing retarding admixture when required by high temperatures, low humidity, or other adverse placing conditions, as acceptable to the Engineer.

3.02 CONSTRUCTION JOINTS

A. Form all joints perpendicular to main reinforcement. Continue reinforcing across joints, unless otherwise indicated; provide longitudinal keys at least 1-1/2 inch deep at all joints in walls between walls and slabs or footings. Remove key forming wood inserts and thoroughly clean surface of concrete at all joints before placing next lift.

B. Roughen surface of concrete at joints and remove laitance to obtain bond before placing next lift; if use of keys is impractical due to congestion or inaccessibility or if it is inadvisable to disturb surface before it has hardened, use only wet sandblast method for preparing surface.

C. Dampen hardened concrete of joints between footings and walls, joints in unexposed walls, and all others not specifically mentioned here in after and roughen by air water cutting.

D. Dampen hardened concrete joints in exposed work and roughens by air/water cutting. Thoroughly cover joint surfaces with neat cement mortar of similar proportions to mortar in concrete; apply mortar as thick as practicable on vertical surfaces and a minimum of 1/2 inch thick on horizontal surfaces; place next lift before mortar has reached its initial set.

E. For bonding new concrete to existing concrete use bonding agent. For grouting dowels and reinforcing bars use specified adhesives in accordance with manufacturer's instructions.

F. Provide key forming wood inserts strips in walls; pour concrete to 1/2 inch above lower edge or strip.

G. Waterstops: Provide waterstops in construction joints as indicated on the Architectural and Structural Drawings. Install waterstops to form continuous diaphragm in each joint. Make provisions to support and protect exposed waterstops during progress of work. Fabricate field joints in waterstops in accordance with manufacturer's printed instructions.

H. Isolation Joints in Slabs-on-Ground: Construct isolation joints (without dowels) in slabs-on-ground at points of contact between slabs on ground and vertical surfaces only where specifically detailed on the drawings. Install joint-filler strips at joints where indicated. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface, unless otherwise indicated on the drawings. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together. Provide construction joints with dowels at all locations unless isolation joints are detailed.

I. Contraction joints in slabs-on-grade and unbonded topping slabs: Maximum joint spacing shall be 36 times the slab thickness or 20 feet, whichever is less and at a minimum on column lines unless otherwise noted on the drawings. Use one of the two following methods (sawed or formed) to create the joints. Do not use the formed joint in areas subject to vehicular traffic or in industrial slabs.

3.03 CONTROL JOINTS

A. In slabs on grade, saw-cut control joints to true, straight lines, maximum variance from true line of 1/4 inch in 10 feet and no irregularities across joint in excess of 1/8 inch.

B. Locate Control Joints as indicated on drawings.

3.04 EXPANSION JOINTS

A. Provide pre-molded 3/8” joint filler for expansion joints abutting concrete curbs, catch basins, manholes, inlets, structures, walks and other fixed objects, unless otherwise indicated.

B. Locate expansion joints as noted on drawings.

C. Extend joint fillers full width and depth of joint and not less than 1/2 inch or more than 1 inch below finished surface where joint sealer is indicated. Furnish joint fillers in one-piece lengths for full width being placed, wherever possible. Where more than one length is required, lace or clip joint filler sections together. Protect top edge of joint filler during concrete placement with a metal or plastic temporary strip. Remove protection after concrete has been placed on both sides of joint before sealant is applied.

D. Fillers and Sealants: Install polyurethane sealant in a continuous, smooth joint, wiping excess sealant from adjacent concrete.

E. Provide expansion joints not more than 30 feet apart in footings. Run no reinforcement or other metal trim continuously through joints, unless otherwise indicated.

3.05 NON-SHRINKING GROUT

A. Apply in accordance with manufacturer's direction; protect adjacent finished surfaces from defacement. Provide for sleeves, and where indicated.

3.06 INSTALLATION REINFORCEMENT AND OTHER EMBEDDED ITEMS

A. General: Comply with requirements of ACI 301. Set and build into work anchorage devices and other embedded items required for other work that is attached to, or supported by, cast-in-place concrete. Use setting drawings, diagrams, instructions and directions provided by suppliers of items to be attached thereto unless directed otherwise by these specifications. Install reglets to receive top edge of foundation sheet waterproofing where specified by the Architect/Engineer, and to receive thru-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, relieving angles and other conditions.

B. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.

C. Anchor Rods: Furnish anchor rods and other connectors required for securing structural steel to foundations and other in-place work as shown on the drawings. Furnish 1/8" minimum steel templates for presetting rods and other anchors to accurate locations as shown on the drawings in keeping with the tolerances noted in ACI 117 for embedded anchor rods. Steel template shall be clearly marked with the following information:

1. Grid line intersection where template is to be used.

2. Orientation of the plate relative to the building grid lines.

3. "Top of Template" elevation.

4. Anchor rod projection above top of template.

D. Edge Forms and Screed Strips for Slabs: Set edge forms or bulkheads and intermediate screed strips for slabs to obtain required elevations and contours in finished slab surface. Provide and secure units sufficiently strong to support types of screed strips by use of strike-off templates or accepted compacting type screeds.

E. Do not install sleeves and blockouts in concrete slabs, pier caps, footings or walls except where shown on the structural drawings or approved by the Architect/Engineer.

3.07 CONCRETE CURING AND PROTECTION

A. General:

1. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Maintain concrete with minimal moisture loss at a relatively constant temperature for the period necessary for hydration of the cement and hardening of concrete. Limit moisture loss to a maximum of 0.05 lb. /sq. ft – hr for concrete containing silica fume and 0.2 lb. /sq. ft. - hr for all other concrete before and during finishing operations.. If using an evaporation retarder, apply in accordance with manufacturer's instructions after screeding and bull floating, but before power floating and troweling.

2. Curing shall commence as soon as free water has disappeared from the concrete surface after placing and finishing. The curing period shall be 7 days for all concrete except high early strength concrete which shall be cured for 3 days minimum. Alternatively, curing times may be reduced if either of the following provisions is complied with:

a. If tests are made of cylinders kept adjacent to the structure and cured by the same methods, curing measures may be terminated when the average compressive strength has reached 70% of the specified 28 day compressive strength.

b. If the temperature of the concrete is maintained at a minimum of 50°F for the same length of time required for laboratory cured cylinders of the same concrete to reach 85% of the 28 day compressive strength, then curing may be terminated thereafter.

3. Curing shall be in accordance with ACI 301 procedures. Avoid rapid drying at the end of the curing period.

B. Curing Unformed Surfaces: Cure unformed surfaces, such as slabs, floor topping and other flat surfaces by one or a combination of the methods specified below, as applicable. The Contractor shall choose a curing method that is compatible with the requirements for subsequent material usage on the concrete surface.

1. Ramps and Horizontal Surfaces of Parking Areas: Cure using only methods 1 or 2 as specified below.

2. Floors Directly Exposed to Vehicular or Foot Traffic not in Parking Areas and not otherwise receiving a chemical hardener or penetrating sealer finish: See Section 07 19 00 – Water repellants.

3. All Other Surfaces: Cure using methods 1, 2 or 3 as specified below. Use a water-based dissipating resin type curing compound conforming to ASTM C 309, type 1, class A or B for method 3.

C. Curing Methods:

1. Method 1 - Moisture Curing: Provide moisture curing by one of the following methods:

a. Keep concrete surface continuously wet by covering with water.

b. Continuous water-fog spray.

c. Covering concrete surface with specified absorptive cover, thoroughly saturating cover with water and keeping continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with 4" lap over adjacent absorptive covers.

2. Method 2 - Moisture-Retaining Cover Curing: Provide moisture-retaining cover curing as follows: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3" and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape. Water may be added to concrete surface to prevent drying before the cover is installed, but the surface shall not be flooded with water if a non-absorptive cover is used.

3.08 DEFECTIVE CONCRETE

A. Repair or replacement of defective concrete will be determined by the Project Engineer. The The cost of additional testing shall be borne by the Contractor when defective concrete is identified.

3.09 PROTECTION

A. Do not permit traffic over unprotected concrete floor surface until fully cured.

3.10 CLEANING

A. Leave premises completely clean and free of residue from work of this section.

END OF SECTION

DIVISION 04

MASONRY

SECTION 04 29 00 - ENGINEERED UNIT MASONRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Concrete Block.

B. Mortar and Grout.

C. Reinforcement and Anchorage.

D. Accessories.

1.02 RELATED REQUIREMENTS

A. Section 06 10 00 - Rough Carpentry: Nailing strips built into masonry.

1.03 REFERENCE STANDARDS

A. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures; 2016.

B. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2016.

C. ASTM C90 - Standard Specification for Loadbearing Concrete Masonry Units; 2016.

D. ASTM C979/C979M - Standard Specification for Pigments for Integrally Colored Concrete; 2016.

E. BIA Technical Notes No. 7 - Water Penetration Resistance – Design and Detailing; 2005.

F. BIA Technical Notes No. 28B - Brick Veneer/Steel Stud Walls; 2005.

G. BIA Technical Notes No. 46 - Maintenance of Brick Masonry; 2005.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene one week before starting work of this section.

1.05 SUBMITTALS

A. See Section 01 33 00 – Submittal Procedures.

B. Product Data: Provide data for masonry units, fabricated wire reinforcement, and mortar and grout.

C. Shop Drawings: Indicate bar sizes, spacings, reinforcement quantities, bending and cutting schedules, reinforcement supporting and spacing devices, and accessories.

D. Samples: Submit four samples of decorative block units to illustrate color, texture, and extremes of color range.

E. Manufacturer's Certificate: Certify that masonry units meet or exceed specified requirements.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.

B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

1.07 MOCK-UP

A. Construct a masonry wall as a mock-up panel sized 8 feet long by 9'-4" feet high; include mortar and accessories, structural backup, reinforcement, and grout in mock-up.

B. Mock-up may remain as part of the Work.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Deliver, handle, and store masonry units by means that will prevent mechanical damage and contamination by other materials.

1.09 FIELD CONDITIONS

A. Cold and Hot Weather Requirements: Comply with requirements of TMS 402/602 or applicable building code, whichever is more stringent.

PART 2 PRODUCTS

2.01 CONCRETE MASONRY UNITS

A. Concrete Block: Comply with referenced standards and as follows:
   1. Size: Standard units with nominal face dimensions of 16 by 8 inches and nominal depth of 8 inches.
   2. Special Shapes: Provide non-standard blocks configured for corners, headers, control joint edges, and other detailed conditions.
   3. Load-Bearing Units: ASTM C90, normal weight.
      a. Hollow block, as indicated.
      b. Exposed Faces: Manufacturer's standard color and texture where indicated.
      c. Pattern: Stack Bond.

d. Colors: To be verified based on samples provided:

2.02 MORTAR AND GROUT MATERIALS

A. Mortar and Grout: As specified on Structural Drawings

B. Packaged Dry Material for Mortar for Unit Masonry: Premixed Portland cement, hydrated lime, and sand; complying with ASTM C387/C387M and capable of producing mortar of the specified strength in accordance with ASTM C270 with the addition of water only.
   1. Type: S or M per the structural drawings.

C. Pigments for Colored Mortar: Pure, concentrated mineral pigments specifically intended for mixing into mortar and complying with ASTM C979/C979M.
   1. Color(s): Standard Gray.

D. Water: Clean and potable.

2.03 REINFORCEMENT AND ANCHORAGE

A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi) yield strength.
   1. Deformed billet-steel bars.
   2. Unfinished.

B. Joint Reinforcement: Use ladder type joint reinforcement where vertical reinforcement is involved and truss type elsewhere, unless otherwise indicated.

2.04 ACCESSORIES

A. Joint Filler: Closed cell polyvinyl chloride; oversized 50 percent to joint width; self expanding; in maximum lengths available.

B. Nailing Strips: Softwood lumber, preservative treated; as specified in Section 06 10 00.

C. Cleaning Solution: Non-acidic, not harmful to masonry work or adjacent materials.

2.05 MORTAR AND GROUT MIXES

A. Mortar for Unit Masonry: ASTM C270, using the Proportion Specification.
   1. Exterior, loadbearing masonry: S or M per structural notes.

B. Grout: ASTM C476; per structural notes

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive masonry.

B. Verify that related items provided under other sections are properly sized and located.

3.02 PREPARATION

A. Direct and coordinate placement of metal anchors supplied for installation under other sections.

3.03 COURSING

A. Establish lines, levels, and coursing indicated. Protect from displacement.

B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.

C. Concrete Masonry Units:
   1. Bond: Stacked.
   2. Coursing: One unit and one mortar joint to equal 8 inches.
   3. Mortar Joints: Weather.

3.04 PLACING AND BONDING

A. Lay hollow masonry units with face shell bedding on head and bed joints.

B. Buttering corners of joints or excessive furrowing of mortar joints is not permitted.

C. Remove excess mortar as work progresses.

D. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.

E. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.

F. Refer to manufacturer's instructions for additional information at glazed units.

3.05 REINFORCEMENT AND ANCHORAGE

A. Place per Structural Drawings

B. Reinforced Hollow Unit Masonry: Keep vertical cores to be grouted clear of mortar, including bed area of first course.
   1. Bond Beams: At bond beams or other locations for horizontally reinforced masonry, provide special masonry units or saw to accommodate reinforcement.

3.06 MASONRY FLASHINGS

A. Whether or not specifically indicated, install masonry flashing to divert water to exterior at all locations where downward flow of water will be interrupted.

B. Lap end joints of flashings at least 6 inches, minimum, and seal watertight with flashing sealant/adhesive.

3.07 TOLERANCES

A. Maximum Variation From Unit to Adjacent Unit: 1/16 inch.

B. Maximum Variation from Plane of Wall: 1/4 inch in 10 ft and 1/2 inch in 20 ft or more.

C. Maximum Variation from Plumb: 1/4 inch per story non-cumulative; 1/2 inch in two stories or more.

D. Maximum Variation from Level Coursing: 1/8 inch in 3 ft and 1/4 inch in 10 ft; 1/2 inch in 30 ft.

E. Maximum Variation of Joint Thickness: 1/8 inch in 3 ft.

3.08 CLEANING

A. Remove excess mortar and mortar smears as work progresses.

B. Replace defective mortar. Match adjacent work.

C. Clean soiled surfaces with cleaning solution.

D. Use non-metallic tools in cleaning operations.

3.09 PROTECTION

A. Without damaging completed work, provide protective boards at exposed external corners that are subject to damage by construction activities.

END OF SECTION

DIVISION 05

METALS

SECTION 05 12 00 - STRUCTURAL STEEL FRAMING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Structural steel framing members.

B. Structural steel support members.

C. Base plates, shear stud connectors.

1.02 RELATED REQUIREMENTS

A. Section 05 12 13 - Architecturally-Exposed Structural Steel Framing: Additional requirements for structural steel members designated as architecturally-exposed structural steel (AESS).

B. This project is not required to utilize "Buy American Steel."

1.03 REFERENCE STANDARDS

A. AISC (MAN) - Steel Construction Manual; 2017.

B. AISC 303 - Code of Standard Practice for Steel Buildings and Bridges; 2016.

C. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.

D. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2012.

E. ASTM A325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength; 2014.

F. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2015.

G. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2016a.

H. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength; 2014.

I. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2013.

J. ASTM A563 - Standard Specification for Carbon and Alloy Steel Nuts; 2015.

K. ASTM A563M - Standard Specification for Carbon and Alloy Steel Nuts (Metric); 2007 (Reapproved 2013).

L. ASTM A992/A992M - Standard Specification for Structural Steel Shapes; 2011 (Reapproved 2015).

M. ASTM F3125/F3125M - Standard Specification for High Strength Structural Bolts, Steel and Alloy Steel, Heat Treated, 120 ksi (830 MPa) and 150 ksi (1040 MPa) Minimum Tensile Strength, Inch and Metric Dimensions; 2015a.

N. ASTM F436/F436M - Standard Specification for Hardened Steel Washers Inch and Metric Dimensions; 2016.

O. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; 2012.

P. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2015 (with March 2016 Errata).

1.04 SUBMITTALS

A. See Section 01 33 00 – Submittal Procedures.

B. Shop Drawings:
   1. Indicate profiles, sizes, spacing, locations of structural members, openings, attachments, and fasteners.
   2. Connections not detailed.
   3. Indicate welded connections with AWS A2.4 welding symbols. Indicate net weld lengths.

C. Welders Certificates: Certify welders employed on the Work, verifying AWS qualification within the previous 12 months. All welders shall be WABO Certified for each weld type required for materials being welded.

1.05 QUALITY ASSURANCE

A. Fabricate structural steel members in accordance with AISC (MAN) "Steel Construction Manual."

B. Structural steel members designated as architecturally-exposed structural steel (AESS) to also comply with Section 05 12 13.

PART 2 PRODUCTS

2.01 MATERIALS

A. Steel Angles and Plates: ASTM A36/A36M.

B. Steel W Shapes and Tees: ASTM A992/A992M.

C. Rolled Steel Structural Shapes: ASTM A992/A992M.

D. Cold-Formed HSS Structural Tubing: ASTM A500/A500M, Grade B, Round, Finish galvanized.

E. Pipe: ASTM A53/A53M, Grade B, Finish galvanized.

E. Pipe: ASTM A53/A53M, Grade B, Finish black.

F. Structural Bolts and Nuts: Carbon steel, ASTM A307, Grade A and galvanized in compliance with ASTM A153/A153M, Class C.

G. High-Strength Structural Bolts, Nuts, and Washers: ASTM A325-N, ASTM F3125/F3125M, Type 1, with matching compatible ASTM A563 or ASTM A563M nuts and ASTM F436/F436M washers.

H. Headed Anchor Rods: ASTM A307, Grade C, plain.

I. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.

2.02 FABRICATION

A. Shop fabricate to greatest extent possible. Steel fabrication shop shall be WABO Certified.

B. Fabricate connections for bolt, nut, and washer connectors to the extent possible.

2.03 FINISH

A. Except where visible, shop prime structural steel members. Do not prime surfaces that will be fireproofed, field welded, in contact with concrete, or high strength bolted.

B. Galvanize structural steel pipe and exposed members to comply with ASTM A123/A123M. Provide minimum 1.7 oz/sq ft galvanized coating.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that conditions are appropriate for erection of structural steel and that the work may properly proceed.

3.02 ERECTION

A. Erect structural steel in compliance with AISC 303.

B. Do not field cut or alter structural members without approval of Architect.

3.03 TOLERANCES

A. Maximum Offset From True Alignment: 1/4 inch.

END OF SECTION

SECTION 05 12 13 - ARCHITECTURALLY-EXPOSED STRUCTURAL STEEL FRAMING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Additional requirements for structural steel members designated as architecturally-exposed structural steel (AESS).

1.02 RELATED REQUIREMENTS

A. Section 05 12 00 - Structural Steel Framing: General requirements for structural steel members, including AESS framing specified in this section.

1.03 REFERENCE STANDARDS

A. AISC 303 - Code of Standard Practice for Steel Buildings and Bridges; 2016.

B. AISC 360 - Specification for Structural Steel Buildings; 2016.

C. ASTM A6/A6M - Standard Specification for General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Sheet Piling; 2017.

D. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2015.

E. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2013.

F. ASTM A1085/A1085M - Standard Specification for Cold-Formed Welded Carbon Steel Hollow Structural Sections (HSS); 2015.

G. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; 2012.

1.04 SUBMITTALS

A. See Section 01 33 00 – Submittal Procedures.

B. Shop Drawings: Detailing for fabrication of AESS components.
   1. Provide erection documents clearly indicating which members are AESS members and the AESS category of each part.
   2. Include details that clearly identify AESS requirements found in this specification. Provide connections for AESS consistent with concepts shown on drawings.

3. Indicate welds by AWS A2.4 symbols, distinguishing between shop and field welds, and show size, length and type of each weld. Identify grinding, finish and profile of welds as defined by the designated AESS category.
4. Indicate which surfaces or edges are exposed and what class of surface preparation is being used.
5. Indicate special tolerances and erection requirements as noted on drawings or defined by the designated AESS category.

1.05 QUALITY ASSURANCE

A. Fabricator Qualifications: In addition to those qualifications listed in Section 05 12 00, (including all steel fabricators shall be WABO Certified) engage an AISC Certified Fabricator, experienced in fabricating AESS similar to that indicated for this project with a record of successful in-service performance, as well as sufficient production capacity to fabricate AESS without delaying the work.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Handle finished pieces in accordance with Section 10 of AISC 303, using nylon-type slings, or chains with softeners, or wire ropes with softeners such that they are not damaged.

B. Store materials to permit easy access for inspection and identification. Keep steel members off ground by using pallets, platforms, or other supports. Protect steel members and packaged materials from erosion and deterioration. Use special care in handling to prevent twisting or warping of AESS members.

PART 2 - PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Comply with Section 05 12 00, except as amended in this section for aesthetic purposes.

2.02 FABRICATION

A. Fabricate and assemble AESS in shop to greatest extent possible. Locate field joints in AESS assemblies at concealed locations or as approved by Architect. Detail AESS assemblies to minimize field handling and expedite erection.

B. Permissible tolerances for member depth, width, out of square, and camber and sweep to be as specified in ASTM A6/A6M, ASTM A500/A500M, and ASTM A1085/A1085M.

C. Use special care in handling and shipping of AESS both before and after shop painting to minimize damage to any shop finish. Use nylon-type slings or softeners when using chains or wire rope slings.

D. Welded Connections:
   1. Assemble and weld built-up sections by methods that will maintain alignment of members without warp exceeding tolerances of this section.

E. Fabricate AESS in accordance with categories defined in AISC 303, as follows:

2.03 GALVANIZING

A. Hot-Dip Galvanized Finish: Apply zinc coating by hot-dip process to AESS indicated for galvanizing according to ASTM A123/A123M. Fabricate such that all connections of assemblies are made in the field with bolted connections where possible.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Erector to check all AESS members upon delivery for twist, kinks, gouges or other imperfections which may result in rejection of appearance of member. Coordinate remedial action with fabricator prior to erecting steel.

3.02 PREPARATION

A. Handle, lift and align pieces using nylon straps or chains with softeners required to maintain appearance of AESS through process of erection.

END OF SECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Stainless steel structural support wire rope assemblies.

1. Structural Ties.
2. Suspension Cables.
3. Tension Elements.

B. Stainless steel structural support rod assemblies.

1. Suspension Rods.
2. Tension Elements.
3. Structural Ties.
4. Support rods.

C. Stainless steel protective barrier netting wire rope assemblies.

1.02 RELATED SECTIONS

A. Section 05 50 00 - Metal Fabrications: Metal posts and framework to receive anchors and cables.

1.03 REFERENCES

A. American Iron and Steel Institute (AISI) - Manual of Steel Construction; Design, Fabrication and Erection of Structural Steel Buildings.

B. American Iron and Steel Institute (AISI) - Steel Product Manual; Stainless and Heat Resisting Steel.

C. American Iron and Steel Institute (AISI): The Design of Fabrication of Cold Formed Steel Structures.

D. ASTM A 276 - Stainless and Heat-Resisting Steel Bars and Shapes.

E. ASTM A 380 - Practice for Cleaning and Descaling Stainless Steel Parts, Equipment and Systems.

F. ASTM A 492 - Specification for Stainless Steel Rope Wire.

G. ASTM A 555 - Stainless Steel Wire.

H. ASTM A 582 - Specification for Free-Machining Stainless and Heat-Resisting Steel Bars.

I. ASTM B 912 - Specification for Passivation of Stainless Steels Using Electropolishing.

J. ASTM F 1145 - Specification for Turnbuckles, Swaged, Welded, Forged.

K. MIL-C-5688 - Pre-Stretching and Proof-Testing of Wire Rope Assemblies.

1.04 DESIGN / PERFORMANCE REQUIREMENTS

A. Structural Requirements: Provide stainless steel wire rope assemblies capable of withstanding the effects of gravity loads and the following loads and stresses within limits and under conditions indicated on the Drawings:

1. Components: to withstand dead load, applicable snow load, vertical and horizontal seismic loads, and design loads due to pressure and suction of wind calculated in accordance with applicable building code.

2. Cooperate with regulatory agency or authority and provide data as requested authority having jurisdiction.

3. Primary and secondary support framing shall comply with current issues of AISC, AISI, and ASTM specifications, as applicable.

4. Design supports and hardware to withstand loads encountered without excessive deflection or distortion when cables are tensioned to required loading and to conform to building codes.

B. Wire rope assemblies shall be designed, fabricated, and installed to accommodate expansion and contraction of metal components without causing undue stress, buckling, opening of joints, and distortion. Design for the following minimum temperature ranges.

1. Ambient Temperature Range: 120 degrees F (67 degrees C).

2. Material Surface Temperature Range: 180 degrees F (100 degrees C).

C. Design supports and hardware to withstand loads encountered without excessive deflection or distortion when cables are tensioned to required amounts required to conform to applicable building codes.

D. Components shall be free from defects impairing strength, durability and appearance. Exposed surfaces throughout system shall have same inherent texture and color for similar locations.

E. Design system to prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

F. Exposed fasteners shall be of same materials, color and finish as material to which applied. Exposed surfaces throughout project shall have same inherent texture and color for similar locations.

1.05 SUBMITTALS

A. Submit under provisions of Section 01 33 00.

B. Provide manufacturer's standard catalog data for specified products demonstrating compliance with referenced standards. Provide list of fittings being provided with descriptions, load capabilities, and either photographs or drawings for each type.

C. Shop Drawings: Submit Shop Drawings for fabrication and installation. Include the following:

1. Plans, elevations, and detail sections.

2. Indicate materials, methods, finishes, fittings, fasteners, anchorages, and accessory items.

3. Provide setting diagrams and templates for anchorages, sleeves, and bolts to be installed by others.

4. Where materials or fabrications are indicated to comply with design loadings, include material and safety factor properties, and other information needed for structural analysis.

D. Verification Samples: Two samples representing actual products and finishes as follows:

1. Wire rope with fitting, minimum size 12 inches (300 mm) long.

2. Rods, minimum size 12 inches (300 mm) long.

3. Typical fittings.

E. Installation Instructions: Manufacturer's printed installation instructions.

F. Operation and Maintenance Data: Include methods for maintaining installed products and precautions against cleaning materials and methods detrimental to finishes and performance.

G. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturer of stainless steel wire rope, fittings, and other stainless steel components with 10 years minimum successful experience.

B. Installer Qualifications: Experienced in performing work of this section that has specialized in installation of work similar to that required for this project.

C. Mock-Up: Provide a mock-up for evaluation of preparation techniques and installation workmanship.

1. Locate in area designated by Landscape Architect.

2. Size: Minimum of 10 SF and including typical anchors and connections.

3. Do not proceed with remaining work until workmanship is approved by Architect.

4. Test spacing of wire rope in mock up to ensure a four inch sphere cannot pass through the guardrail.

5. Do not proceed with remaining work until workmanship is approved by Architect.

6. Rework mock-up as required to produce acceptable work.

7. Incorporation: Incorporate approved mock-up into final construction.

D. Preinstallation Meetings: Conduct meetings including Contractor, Landscape Architect, fabricator, installer and other subcontractors whose work involves wire rope assemblies to verify project requirements, foundations, supports, framing and support conditions, mounting surfaces and manufacturer's installation requirements.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. All individual parts and packages of identical parts are to be clearly marked for identification. The packing list shall include the description, quantity and piece mark of the parts, components and elements.

C. Handle and store products according to manufacturer's recommendations. Leave products wrapped or otherwise protected and under clean and dry storage conditions until required for installation.

D. Exercise care not to scratch, mark, dent, or bend metal components during delivery, storage, and installation.

1.08 PROJECT CONDITIONS

A. Verify actual openings by field measurements before fabrication; show recorded measurements on shop drawings.

B. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Acceptable Manufacturer: Jakob, Inc., which is located at: 955 NW 17 Ave. Unit B ; Delray Beach, FL 33445; Toll Free Tel: 866-215-1421; Tel: 561-330-6502; Fax: 561-330-6508; Email: info@jakob-usa.com; Web: www.jakob-usa.com

B. Requests for substitutions will be considered in accordance with provisions of Section 01 25 00.

C. Provide all cable, materials, fittings and components from a single manufacturer.

2.02 ASSEMBLIES

A. Provide Jakob, Inc. INOX Line stainless steel wire rope assembly components as specified and as indicated on the Drawings. Manufacturer shall engineer and fabricate components and assemblies for installation. Design requirements for individual components and wire rope shall be as indicated on the Drawings.

B. Stainless steel structural support wire rope assemblies including.

1. Structural Ties.

2. Suspension Cables.

3. Tension Elements.

C. Stainless steel structural support rod assemblies including.

1. Suspension Rods.

2. Tension Elements.

3. Structural Ties.

4. Support rods.

D. Stainless steel protective barrier netting wire rope assemblies.

2.03 SPACERS/BRACKETS

A. Provide spacers, brackets and fittings required for attachment and connection to the structure and for support of stainless steel wire rope, wire netting, and metal rod as indicated on the Drawings.

B. Spacer Load: Design Lateral Force: Per manufacturer's recommendations as necessary to achieve the system requirements indicated on the Drawings and meet Applicable Codes.

C. Mounting Types: Fabricate from AISI Type 316 and 316L stainless steel complying with ASTM F 1145; INOX Line anchors as manufactured by Jakob, Inc. Provide sizes and types as required to meet project design conditions specified and indicated on Drawings including:

1. Shop applied swaged rope ends: Threaded external and internal swivel ends, turnbuckles, tensioning screws, end stops, clevis ends, eye ends, loop ends, and end cones.

D. Stainless Steel Bars and Shapes: Type 316 stainless steel conforming to ASTM A 276. Provide sizes and shapes as required to meet project design conditions specified and indicated on Drawings.

2.04 WIRE ROPE

A. Material: ASTM A 492 and ASTM A 555, Type 316 stainless steel. Fabricate wire rope with integral colored filament designating specific manufacturer.

B. 6x7 wire rope as manufactured by Jakob, Inc.

1. Diameter: 3/8 inches (10 mm).

2. Breaking load including safety factor: Per manufacturer's recommendations as necessary to achieve the system requirements indicated on the Drawings and meet Applicable Codes.

C. Length: Provide wire rope tendons in lengths indicated on Drawings and approved shop drawings.

1. Provide optimum adjustment in both directions by calculating final tendon lengths with allowance for tensioning fittings with 2/3 open and with 1/3 of thread length engaged.

2. Measure tendon length from center of pin to center of pin, or center of eye to center of eye.

2.05 WIRE NETTING (MESH)

A. Material: Webnet as manufactured by Jakob, Inc. Parallel stainless steel wire ropes connected by reciprocally curved offset sleeves or clamps such that ropes are neither knotted nor crossed. Wire rope shall be fabricated from cold-drawn, AISI Type 316 stainless steel wire complying with ASTM A 492 and ASTM A 555.

B. Type 1: Webnet as manufactured by Jakob, Inc.

1. Diameter: 5/64 inches (2 mm).

2. Breaking load including safety factor: Per manufacturer's recommendations as necessary to achieve the system requirements indicated on the Drawings and meet Applicable Codes.

C. Perimeter configurations:

1. As indicated on the drawings

a. Suitable for:

1) Vertical installation.

2) Horizontal installation.

2.06 STAINLESS STEEL RODS

A. Rod spindles: Solid stainless steel rods, AISI Type 316 complying with ASTM A 276.

B. Size:

1. Select size suitable for use with the wire rope and wire netting (mesh) sizes indicated on the Specifications and Drawings.

C. Rod termination:

1. External threads for on-site attachment.

2. Swaged with end connector fittings.

2.07 FITTINGS AND CONNECTORS

A. Provide fittings and connectors required for wire rope assemblies and for attachment and connection of stainless steel wire rope, wire netting and metal rods to support framework and substrates.

B. Provide tamper resistant fittings that cannot be easily removed or easily loosen over time.

C. Fitting minimum breaking strength:

1. Per manufacturer's recommendations as necessary to achieve the system requirements indicated on the Drawings and meet Applicable Codes.

2. As selected by manufacturer to suit application and design requirements specified.

D. Types: Fabricate from AISI Type 316 and 316L stainless steel complying with ASTM F 1145; INOX Line Fittings as manufactured by Jakob, Inc. Provide sizes and types as required to meet project design conditions specified and indicated on Drawings and reviewed shop drawings including:

1. Shop applied swaged rope ends: Threaded external and internal swivel ends, turnbuckles, tensioning screws, end stops, clevis ends, eye ends, loop ends, and end cones.

2. Screwed rope ends for on-site assembly: Threaded external and internal swivel ends, turnbuckles, tensioning screws, end stops, clevis ends, eye ends, loop ends, and end cones.

3. Clamps: Ring clamps, cross clamps, wire rope clamping cones, and connecting wire rope clamps.

4. Post fittings: Straight, angled, and spherical

5. Anchoring systems: Studs, clevis, eye end, eye bolt, slotted, spacer baskets, radial clevis holder, cross clamp with support disk, slotted rope deflector, ball cage.

E. Accessories: Provide threaded couplings, tensioning screws, cover disks, eye bolts, eye nuts, carabineers, shackles, clips, welded rings, screws, washers, lock nuts, hexagonal nuts, dome nuts, wall anchors, screws, and wire end caps as required to complete the installation.

2.08 FINISH

A. After fabrication, clean and de-scale stainless steel wire rope, fittings, and other components in accordance with ASTM A 380.

B. Finish components with AISI No. 4 brushed satin finish in accordance with ASTM B 912.

2.09 FABRICATION

A. Tolerances: Verify dimensions on site prior to shop fabrication.

B. Fabricate stainless steel in accordance with AISI Steel Product Manual and the manufacturers requirements.

C. Shop fabricate to designs indicated on Drawings and to meet performance requirements specified.

D. Shop fabricate fittings, interfacing parts and assemblies so that field cutting adjustments are not necessary.

E. Coordinate requirements, dimensions and spacing of wire rope assemblies to ensure required factory drilled holes in supporting framework are correctly located.

F. Make exposed joints butt, flush, and hairline.

G. Fabricate connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Before beginning installation, verify that conditions installed under other sections are acceptable for installation of cable trellis systems in accordance with manufacturer's installation instructions.

B. Supply items required to be cast into concrete or embedded in masonry with setting templates, to appropriate Sections.

C. Verify supporting system for stainless steel wire rope assemblies is prepared for attachment of anchors, fittings, wire rope, and wire netting and transfer of calculated loads.

D. If conditions are the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Verify alignment, support dimensions, and tolerances are correct.

B. Inventory components to ensure all required items are available for installation. Inspect components for damage. Remove damaged components from site and replace.

C. Provide for erection and wind loads. Provide temporary bracing to maintain structure plumb and in alignment until completion of erection and installation of permanent bracing.

3.03 INSTALLATION

A. Install wire rope assemblies in accordance with manufacturer's instructions and the approved shop drawings.

B. Provide anchorage devices and fittings to secure to in-place construction; including but not limited to threaded fittings, toggle bolts and through-bolts.

C. Install components plumb, level, square, and rigid without kinks or sags.

D. Anchor to mounting surfaces as indicated on the Drawings.

E. Separate dissimilar materials with bushings, grommets or washers to prevent electrolytic corrosion.

F. Use only manufacturer's supplied cable hardware.

G. Ensure cables are clean, parallel to each other, and without kinks or sags.

H. Tension cable with hand or hydraulic equipment so that no slack is visible.

I. After final adjustment provide tamper resistant locktight materials on all fittings.

3.04 ADJUSTING AND CLEANING

A. Adjust wire rope tension and connecting hardware.

B. Remove temporary coverings and protection of adjacent work areas. Clean installed products in accordance with manufacturer's instructions before owner's acceptance.

C. Do not use abrasive cleaners.

D. Remove from project site and legally dispose of construction debris associated with this work.

3.05 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

C. Protect installed products and finished surfaces from damage during construction.

D. Replace defective or damaged components as directed by Architect.

END OF SECTION

PART 1 - GENERAL

1.01 DESCRIPTION

A. Furnish materials, labor, transportation, services, and equipment necessary to install all Metal Fabrications for the Project as indicated on the Drawings complete as shown and as specified herein. Items covered by this section include, but are not limited to:

B. Boardwalk Railing

1. Posts and Frame Materials

2. Precut Metal Panels

C. Overlook Guardrail

D. Paving Transition Steel L

E. Handrail

F. Picnic Table

1.02 RELATED SECTIONS

A. Section 01 45 00 – Quality Control

B. Section 03 20 00 - Concrete Reinforcement

C. Section 03 30 00 - Cast-In-Place Concrete

D. Section 05 15 00 – Wire Rope Assemblies

1.03 QUALITY ASSURANCE

A. Qualifications of Fabricators: Experienced in fabrication of miscellaneous metals.

B. Qualifications of Welders: Welding shall be done only by certified welding operators currently qualified according to AWS D1.1.

C. Qualifications of Welders: Shall be certified by Washington Association of Building Officials (WABO) for structural welding.

D. Qualifications of Workmen: Provide at least one person who shall be present at all times during execution of this portion of the Work, and who shall be thoroughly familiar with the type of materials being installed, the referenced standards, the

requirements of this Work, and who shall direct all work performed under this Section. Welds indicated may be made in shop or field with approval.

E. Comply with the applicable reference specifications as specified in the GENERAL PROVISIONS and in accordance with applicable laws, codes and regulations required by the City of Bellevue. At a minimum comply with the current provisions of the following Codes and Standards:

1. International Building Code (IBC)

2. ASTM - American Society for Testing and Materials:

3. ASTM A6 / A6M – 12a - Standard Specification for General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Sheet Piling

4. ASTM A36 - Structural Steel.

5. ASTM A 120 - Steel Pipe and Tubing.

6. ASTM A153 / A153M - 09 Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware

7. ASTM A325-04b – Structural Bolts, Steel

8. ASTM A490-04a – Structural Bolts, Alloy Steel

9. AWS - American Welding Society

10. AWS D1.1 - Structural Welding Code (latest edition)

11. CRSI - Concrete Reinforcing Steel Institute: "Manual of Standard Practice," latest edition.

12. AISC - American Institute of Steel Construction, Inc.: "Specifications of Architecturally Exposed Structural Steel," latest edition.

13. Green Seal Environmental Standards (GS)

14. GS-11, Paints and Coatings.

15. The Master Painters Institute (MPI)

16. Architectural Painting Specification Manual.

1.04 SUBMITTALS:

A. Product Data

1. Submit manufacturer's published literature for specified products and accessories as applicable including manufacturer's specifications, performance calculations, and physical characteristics.

2. Submit color samples representing manufacturer’s standard color line.

B. Shop Drawings

1. Submit shop drawings for all custom fabricated items under this section for Review. Indicate profiles, sizes, connection attachments, reinforcing, anchorage, materials, finishes, size and type of fasteners and accessories. Indicate welded connections using standard AWS welding symbols.

2. Verification: Verify all measurements at the job. Show dimensions, sizes, thicknesses, gauges, finishes, joining, attachments, and relationship of work to adjoining construction. Where items must fit and coordinate with finished surfaces and/or constructed spaces, take measurements at site and not from drawings.

C. Samples

1. Contractor to provide fabricated, onsite sample of metal item(s), complete with approved finish, for approval by the Engineer before fabrication of total quantities.

2. Any fabrication of project item(s) by Contractor before Owner review and approval is subject to rejection.

3. Approved sample(s) shall be used as the standard of workmanship and shall remain on site until work has been completed and accepted in writing by the Engineer.

4. The Engineer must approve all samples prior to delivery to site.

5. Attach name, address of manufacturer and/or supplier to each sample.

1.05 DELIVERY, STORAGE AND HANDLING

A. Ship, store, and handle all items so as to protect metal components from damage on site.

B. Store in a safe location, out of pedestrian and vehicular traffic and protected from weather.

C. Repair or replace any damaged components before installation.

D. Where items must be incorporated or built into adjacent work, deliver to trade responsible for such work in sufficient time that progress of work is not delayed. Be responsible for proper location of such items.

PART 2 - PRODUCTS

2.01 MATERIALS

A. STEEL PIPE: shall be Schedule 40 Steel pipe

B. BOLTS AND ANCHOR BOLTS: per ASTM A307.

C. GUARD RAIL PANELS:

1. Complex nest pattern. Height, extent, and fastener hole pattern per Drawings. Contractor shall field verify length based on as-built locations of posts in order to achieve extent shown in Drawings. Panel color to be selected from Manufacturer standard line of colors. Contact: REVAMP Panels - Shawn McCartney: 509-919-0460

2. Or approved equal

D. GUARD RAIL MISC MATERIALS: As indicated on the Drawings.

2.02 GROUT

A. Non-shrinking Master Builder'S "Embedco", Conrad Sovig's "Metel-Mxs, Sonneborn's "Ferrolith G Redi-Mixed Grout", or approved equal.

2.03 OTHER MATERIALS

A. All other materials, not specifically described but required for a complete and proper installation of miscellaneous metals, shall be new, first quality of their respective kinds and subject to the approval of the Architect/Engineer.

PART 3 - EXECUTION

3.01 EXISTING CONDITIONS

A. Prior to commencing any work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.

B. Notify the Engineer if conditions are unacceptable to begin work.

C. Do not proceed with the work until all unsatisfactory conditions have been corrected.

3.02 COORDINATION

A. General:

1. Carefully coordinate with all other trades to insure proper and adequate interface of the work of other trades with the Work of this Section.

B. Templates and Built-ins:

1. Furnish all anchors, fastenings, sleeves, setting templates and layouts affecting or installed in the work of other trades in sufficient time that progress of work is not delayed.

C. Delivery:

1. Insure timely delivery of all metal fabrications where items must be incorporated or built into adjacent work.

2. Be responsible for to field verify the proper location all metal fabrications prior to final installation in sufficient time that progress of work is not delayed.

3.03 INSTALLATION

A. Workmanship:

1. Employ only workmen specifically skilled in such work.

2. Install metal fabrications in strict accordance with the Drawings, the approved Shop Drawings, and all applicable codes, regulations and standards.

3. Obtain Engineers review prior to site cutting or making adjustments which are not part of the scheduled work.

4. Set all work plumb, true, rigid, and neatly trimmed out.

5. Miter corners and angles of exposed molding and frames unless otherwise noted.

6. Fit exposed connections accurately together to form tight hairline joints.

7. Align all metal fabrications as shown on the Drawings, and where vertical or horizontal members are shown. Align them straight, plumb and level within tolerance.

8. Make provisions for erection stresses by temporary bracing. Keep work in alignment.

9. Replace all work damaged in course of installation. Perform field welding in accordance with AWS D1.1.

10. After installation, grind smooth and touch-up field welds.

3.04 FABRICATION

A. The Contractor shall shop assemble all work in the largest practicable dimensions, making members true to length so assembling may be done without fillers.

B. Provide all surfaces free of file marks, dents, hammer marks, wire edges or any unsightly surface defects.

C. Roll all steel pipe coping to conform with top radius curve of each bowl and/or ledge as shown on drawings. Refer to drawings for relational tolerance to concrete surface and other steel.

D. For all attachments and reinforcements do all cutting, shearing, drilling, punching, threading, tapping, etc., required for site metalwork or for attachment of adjacent work. If applicable, drill or punch holes; do not use cutting torch.

E. Make all permanent connections in ferrous metal surfaces using welds where at all possible; do not use bolts or screws.

F. Field welds performed on painted or coated surfaces shall be properly prepared to receive protective coatings to match the adjacent finishes.

3.05 WELDING

A. Preparation: Remove all rust, paint, scale and other foreign matter. Wire brush all flame-cut edges. Clamp members as required and alternate welds, all as necessary to prevent warping or misalignment.

B. Exposed Welds: Uniformly grind smooth (no tolerance) all welds normally exposed to view and feel in the finished work.

C. Faulty and Defective Welding: Chip out and replace all welding showing cracks, slag inclusion, lack of fusion, bad undercut or other defects ascertained by visual or other means of inspection. Replace and re-weld at no cost to Owner.

D. Field Welding:

1. Procedure: Comply with AWS code of manual shielded metal-arc welding, appearance and quality of welds made, and methods used in correcting welding work.

2. Protection: Protect all adjacent surfaces from damage due to weld sparks, spatter, or tramp metal.

3.06 SURFACE TREATMENT & PROTECTIVE COATINGS

A. Cleaning:

1. Thoroughly clean all mill scale, rust, dirt, grease and other foreign matter from ferrous metal prior to any galvanizing, or painting except where weathering/corten steel is used.

2. Conditions which are too severe to be removed by hand cleaning, shall be cleaned using appropriate methods for solvent cleaning, power tool cleaning and brush-off blast cleaning.

B. Exterior Ferrous Metal:

1. Grind smooth all welds, burrs, and rough surfaces. Clean all coping from grease.

3.07 CLEAN-UP

A. Keep all areas of work clean, neat and orderly at all times. Keep paved areas clean during installation.

B. Clean up and remove all debris from the entire work area prior to final acceptance.

END OF SECTION

DIVISION 06

WOOD, PLASTICS, AND COMPOSITES

SECTION 06 10 00 - ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Materials intended for the Restroom Building
   1. Non-structural dimension lumber framing.
   2. Sheathing.
   3. Roofing nailers.
   4. Preservative treated wood materials.
   5. Communications and electrical room mounting boards.
   6. Concealed wood blocking, nailers, and supports.

1.02 REFERENCE STANDARDS

A. AWC (WFCM) - Wood Frame Construction Manual for One- and Two-Family Dwellings; 2015.

B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2016a.

C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2016.

D. AWPA U1 - Use Category System: User Specification for Treated Wood; 2017.

E. PS 1 - Structural Plywood; 2009.

F. PS 2 - Performance Standard for Wood-Based Structural-Use Panels; 2010.

G. PS 20 - American Softwood Lumber Standard; 2015.

1.03 SUBMITTALS

A. See Section 01 33 00 – Submittal Procedures.

1.04 DELIVERY, STORAGE, AND HANDLING

A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
   1. Species: Douglas Fir-Larch, unless otherwise indicated.
   2. If no species is specified, provide any species graded by the agency specified; if no grading agency is specified, provide lumber graded by any grading agency meeting the specified requirements.
   3. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.

B. Lumber fabricated from old growth timber is not permitted.

C. Provide wood harvested within a 500 mile radius of the project site.

2.02 DIMENSION LUMBER

A. Sizes: Nominal sizes as indicated on drawings, S4S.

B. Moisture Content: S-dry or MC19.

C. Stud Framing (2 by 2 through 2 by 6):
   1. Species: Douglas Fir-Larch.
   2. Grade: No. 2.

D. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
   1. Lumber: S4S, No. 2 or Standard Grade.
   2. Boards: Standard or No. 3.

2.03 EXPOSED DIMENSION LUMBER

A. Submit manufacturer's certificate that products meet or exceed specified requirements, in lieu of grade stamping.

B. Sizes: Nominal sizes as indicated on drawings.

C. Surfacing: S4S.

D. Moisture Content: S-dry or MC19.

E. Stud Framing (2 by 2 through 2 by 6):
   1. Species: Douglas Fir.
   2. Grade: Select.

F. Structural Framing (2 by 6 through 4 by 16):

1. Species: Douglas Fir.
2. Grade: Select Structural Dense.

2.04 EXPOSED BOARDS

A. Submit manufacturer's certificate that products meet or exceed specified requirements, in lieu of grade stamping.

B. Moisture Content: Kiln-dry (15 percent maximum).

C. Surfacing: S4S.

D. Species: Douglas Fir.

E. Grade: No. 1, 1 Common, or Select.

2.05 CONSTRUCTION PANELS

A. Roof Sheathing: Sturd-I-Floor Structural Plywood Sheathing
1. Bond Classification: Exterior.
2. Span Rating: 48.
3. Edges: Tongue and groove.
4. Performance Category: 3/4 PERF CAT.

B. Shear Wall Sheathing, Refer to Structural Drawings: Any PS 2 type.
1. Bond Classification: Exterior.
2. Grade: Structural I Sheathing.
3. Span Rating: 24.
4. Edge Profile: Square edge.

C. Wall Sheathing, For interior finish: Plywood, PS 1, Grade C-C, Exterior Exposure.

D. Communications and Electrical Room Mounting Boards: PS 1 A-D plywood; 3/4 inch thick; flame spread index of 25 or less, smoke developed index of 450 or less, when tested in accordance with ASTM E84.

2.06 ACCESSORIES

A. Fasteners and Anchors:
1. Metal and Finish: Hot-dipped galvanized steel complying with ASTM A153/A153M for high humidity and preservative-treated wood locations.

B. Sill Gasket on Top of Masonry Wall: 1/4 inch thick, plate width, closed cell plastic foam from continuous rolls.

2.07 FACTORY WOOD TREATMENT

A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
   1. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.

B. Preservative Treatment:
   1. Preservative Pressure Treatment of Lumber Above Grade: AWPA U1, Use Category UC3B, Commodity Specification A using waterborne preservative.
      a. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
      b. Treat lumber in contact with roofing, flashing, or waterproofing.
      c. Treat lumber in contact with masonry or concrete.

PART 3 EXECUTION

3.01 PREPARATION

A. Install sill gasket under sill plate of framed walls bearing on foundations and masonry; puncture gasket cleanly to fit tightly around protruding anchor bolts.

3.02 INSTALLATION - GENERAL

A. Select material sizes to minimize waste.

B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.

C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.03 FRAMING INSTALLATION

A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.

B. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.

C. Install structural members full length without splices unless otherwise specifically detailed.

D. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AWC (WFCM) Wood Frame Construction Manual.

E. Construct double joist headers at floor and ceiling openings and under wall stud partitions that are parallel to floor joists; use metal joist hangers unless otherwise detailed.

F. Frame wall openings with two or more studs at each jamb; support headers on cripple studs.

3.04 BLOCKING, NAILERS, AND SUPPORTS

A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.

B. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.

C. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.

3.05 ROOF-RELATED CARPENTRY

A. Coordinate installation of roofing carpentry with deck construction, framing of roof openings, and roofing assembly installation.

3.06 INSTALLATION OF CONSTRUCTION PANELS

A. Wall Sheathing: Secure with long dimension perpendicular to wall studs, with ends over firm bearing and staggered, using nails, screws, or staples.

B. Communications and Electrical Room Mounting Boards: Secure with screws to studs with edges over firm bearing; space fasteners at maximum 24 inches on center on all edges and into studs in field of board.
   1. At fire-rated walls, install board over wall board indicated as part of the fire-rated assembly.
   2. Where boards are indicated as full floor-to-ceiling height, install with long edge of board parallel to studs.
   3. Install adjacent boards without gaps.

3.07 TOLERANCES

A. Framing Members: 1/4 inch from true position, maximum.

B. Variation from Plane (Other than Floors): 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

3.08 CLEANING

A. Waste Disposal: Comply with the requirements of Section 01 74 19 - Construction Waste Management and Disposal.
   1. Comply with applicable regulations.
   2. Do not burn scrap on project site.
   3. Do not burn scraps that have been pressure treated.
   4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or "waste-to-energy" facilities. Refer to Hazardous Wastes requirements.

B. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.

C. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION

SECTION 06 20 00 - FINISH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Finish carpentry items - ceiling of Restroom Building

B. Wood casings and moldings.

1.02 RELATED REQUIREMENTS

A. Section 06 10 00 - Rough Carpentry: Support framing, grounds, and concealed blocking.

1.03 REFERENCE STANDARDS

A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2014, with Errata (2016).

B. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards, U.S. Version 3.1; 2016, with Errata (2017).

C. PS 1 - Structural Plywood; 2009.

1.04 SUBMITTALS

A. See Section 01 33 00 – Submittal Procedures

B. Product Data:

1. Provide manufacturer's product data, storage and handling instructions for factory-fabricated units.
2. Provide instructions for attachment hardware and fasteners.

C. Samples: Submit two samples of wood trim 36 inch long.

D. Samples: Submit two samples of finished ipe wood ceiling soffit 36 inches long.

PART 2 PRODUCTS

2.01 FINISH CARPENTRY ITEMS

A. Quality Standard: Custom Grade, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.

B. Woodwork Items:

1. Window Casings, Wall Caps, and Moldings: Ipe, sanded and oiled.
2. Soffits, Underside of Interior and Exterior Ceiling Surface: Ipe, 1"x 6" pregrooved, sanded and oiled.

2.02 SHEET MATERIALS

A. Softwood Plywood: Any face species, medium density fiberboard core; PS 1 Grade A-B, glue type as recommended for application.

2.03 FASTENINGS

A. Fasteners for Window Casings, Wall Caps, and Moldings: Hot-dipped galvanized steel complying with ASTM A153/A153M for high humidity locations.

B. Concealed Fasteners for Ceiling Soffit Applications: Stainless steel; length required to penetrate wood substrate 1-1/2 inch minimum.

2.04 ACCESSORIES

A. Adhesive: Type recommended by fabricator to suit application.

B. Aluminum Sheet: ASTM B209 (ASTM B209M), 6060 alloy, T6 temper, 0.04"thick, Mill finish.

C. Primer: Alkyd primer sealer.

2.05 FABRICATION

A. Shop assemble work for delivery to site, permitting passage through building openings.

B. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify adequacy of backing and support framing.

3.02 INSTALLATION

A. Install custom fabrications in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade indicated.

B. Set and secure materials and components in place, plumb and level.

C. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim to conceal larger gaps.

3.03 PREPARATION FOR SITE FINISHING

A. Set exposed fasteners. Sand work smooth.

B. Before installation, prime paint surfaces of items or assemblies to be in contact with cementitious materials.

3.04 TOLERANCES

A. Maximum Variation from True Position: 1/16 inch.

B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch.

END OF SECTION

SECTION 06 83 16 - FIBERGLASS REINFORCED PANELING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fiberglass reinforced plastic (FRP) wall panels - factory laminated.

1.02 REFERENCE STANDARDS

A. 9 CFR 416.2 - Regulatory Requirements Under the Federal Meat Inspection Act and the Poultry Products Inspection Act, Part 416-Sanitation; current edition.

B. ASTM D256 - Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics; 2010 (Reapproved 2018).

C. ASTM D2583 - Standard Test Method for Indentation Hardness of Rigid Plastics by Means of Barcol Impressor; 2013a.

D. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2016.

E. ASTM D5319 - Standard Specification for Glass-Fiber Reinforced Polyester Wall and Ceiling Panels; 2017.

F. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2018b.

G. FM 4880 - Approval Standard for Class 1 Fire Rating of Building Panels or Interior Finish Materials; 2015.

H. ISO 2812-1 - Paints and varnishes -- Determination of resistance to liquids -- Part 1: Immersion in liquids other than water; 2017.

I. UL 2818 – GREENGUARD Certification Program For Chemical Emissions For Building Materials, Finishes And Furnishings.

1.03 SUBMITTALS

A. See Section 01 33 00 – Submittal Procedures.

B. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.

C. Samples: Submit two samples 12 by 12 inch in size illustrating material and surface design of panels.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Store panels flat, indoors, on a clean, dry surface. Remove packaging and allow panels to acclimate to room temperature for 48 hours prior to installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Fiberglass Reinforced Plastic Panels:
   1. Crane Composites, Inc; Kemply Laminated Panel: www.cranecomposites.com/#sle.
   2. Marlite, Inc: www.marlite.com/#sle.

2.02 PANEL SYSTEMS

A. Wall Panels at interior face of insulated walls:
   1. Panel Size: 4 by 8 feet.
   2. Panel Substrate: Fluted Polypropylene
   3. Panel Thickness: 0.32 inch.
   4. Surface Design: Smooth.
   5. Color: Gray.
   6. Attachment Method: Mechanical fasteners concealed by trim, with sealant in joints.

2.03 MATERIALS

A. Panels: Pre-Engineered Fiberglass reinforced plastic (FRP), complying with ASTM D5319.
   1. Surface Burning Characteristics: Maximum flame spread index of 25 and smoke developed index of 450; when system tested in accordance with ASTM E84.
   2. Class 1 fire rated when tested in accordance with FM 4880.
   3. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
   4. Scratch Resistance: Barcol hardness score greater than 35, when tested in accordance with ASTM D2583.
   5. Impact Strength: Greater than 6 ft lb force per inch, when tested in accordance with ASTM D256.
   6. Sanitation and Cleanability: Comply with 9 CFR 416.2.
   7. Chemical Cleanability: Excellent chemical resistance to common cleaners and detergents when tested in accordance with ISO 2812-1.

B. Sealant: Type recommended by panel manufacturer; color matching panel.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions and substrate flatness before starting work.

B. Verify that substrate conditions are ready to receive the work of this section.

3.02 INSTALLATION - WALLS

A. Install panels in accordance with manufacturer's instructions.

B. Cut and drill panels with carbide tipped saw blades, drill bits, or snips.

C. Pre-drill fastener holes in panels, 1/8 inch greater in diameter than fastener, spaced as indicated by panel manufacturer.

D. Apply adhesive to the back side of the panel using trowel as recommended by adhesive manufacturer.

E. Apply panels to wall with seams plumb and pattern aligned with adjoining panels.

F. Install panels with manufacturer's recommended gap for panel field and corner joints.

G. Seal gaps at floor, ceiling, and between panels with applicable sealant to prevent moisture intrusion.

H. Remove excess sealant after paneling is installed and prior to curing.

END OF SECTION

DIVISION **07**

THERMAL AND MOISTURE PROTECTION

SECTION 07 19 00 - WATER REPELLENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Water repellents applied to interior concrete slab surfaces of the Restroom Building.

B. Water repellents applied to exterior and interior masonry surfaces, not indicated to be painted.

1.02 RELATED REQUIREMENTS

A. Section 09 91 13 - Exterior Painting

1.03 REFERENCE STANDARDS

A. ASTM C140/C140M - Standard Test Methods of Sampling and Testing Concrete Masonry Units and Related Units; 2016.

B. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual; Current Edition, www.paintinfo.com.

1.04 SUBMITTALS

A. See Section 01 33 00 – Submittal Procedures.

B. Product Data: Provide product description and chemical composition.

C. Manufacturer's Qualification Statement.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years documented experience.

1.06 FIELD CONDITIONS

A. Do not apply water repellent when ambient temperature is lower than 45 degrees F or higher than 90 degrees F.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Silane, Siloxane, Silane-Siloxane Blend, and Siliconate Water Repellents:
   1. Tnemec Company, Inc; Product Series 635, Dur A Pell 10: www.tnemec.com.
   2. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 MATERIALS

A. Water Repellent: Non-glossy, colorless, penetrating, water-vapor-permeable, non-yellowing sealer, that dries invisibly leaving appearance of substrate unchanged.

B. TYPE I - Clear Penetrating Sealer at concrete slabs:
   1. Manufacturer: CHEMPROBE CORPORATION, 2805 Industrial Lane, Garland, TX 75041, (214) 271-5551
      a. Local Representative: TNW, 7929 - 2nd Avenue South, Seattle, WA 98108
   2. Trade Name: Series 636 Dura Pell 20
   3. Type: Polysiloxane/silane formulation; non-film forming, clear, water-based; penetrating sealer.
   4. Color: Clear, filmless
   5. Guarantee: Manufacturer's standard five (5) years

C. Miscellaneous Materials: Provide application equipment, protective masking, cleaning materials and other incidentals required for a complete application.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work. New concrete must cure 28 days prior to application.

B. Verify surfaces to be coated are dry, clean, and free of efflorescence, oil, or other matter detrimental to application of water repellent.

3.02 PREPARATION

A. Protection of Adjacent Work:
   1. Protect adjacent landscaping, property, and vehicles from drips and overspray.
   2. Protect adjacent surfaces not intended to receive water repellent.

B. Prepare surfaces to be coated as recommended by water repellent manufacturer for best results.

C. Allow surfaces to dry completely to degree recommended by water repellent manufacturer before starting coating work.

3.03 APPLICATION

A. Apply water repellent in accordance with manufacturer's instructions, using procedures and application methods recommended as producing the best results.

B. Remove water repellent from unintended surfaces immediately by a method instructed by water repellent manufacturer.

END OF SECTION

SECTION 07 21 00 - THERMAL INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Board insulation at perimeter foundation wall of Restroom Building.

B. Batt insulation in exterior wall and roof construction of Restroom Building.

C. Batt insulation for filling perimeter window and door shim spaces and crevices in exterior wall and roof.

1.02 RELATED REQUIREMENTS

A. Section 03 30 00 - Cast-in-Place Concrete

B. Section 06 10 00 - Rough Carpentry: Supporting construction for batt insulation.

C. Section 07 21 23 - Loose-Fill Insulation: Granular and bead insulation.

D. Section 07 25 00 - Weather Barriers: Separate air barrier and vapor retarder materials.

1.03 REFERENCE STANDARDS

A. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation; 2016.

B. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2012.

C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2016.

D. ASTM E136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace At 750 Degrees C; 2016.

1.04 SUBMITTALS

A. See Section 01 33 00 – Submittal Procedures.

B. Product Data: Provide data on product characteristics, performance criteria, and product limitations.

1.05 FIELD CONDITIONS

A. Do not install insulation adhesives when temperature or weather conditions are detrimental to successful installation.

PART 2 PRODUCTS

2.01 APPLICATIONS

A. Insulation at Perimeter of Foundation: Extruded polystyrene (XPS) board.

B. Insulation in Wood Framed Walls: Batt insulation with separate vapor retarder.

2.02 FOAM BOARD INSULATION MATERIALS

A. Extruded Polystyrene (XPS) Board Insulation: Complies with ASTM C578 with either natural skin or cut cell surfaces.
   1. Flame Spread Index (FSI): Class A - 0 to 25, when tested in accordance with ASTM E84.
   2. Smoke Developed Index (SDI): 450 or less, when tested in accordance with ASTM E84.
   3. Type and Thermal Resistance, R-value: Type IV, 5.0 (0.88) per 1 inch thickness at 75 degrees F mean temperature.

2.03 BATT INSULATION MATERIALS

A. Glass Fiber Batt Insulation: Flexible preformed batt or blanket, complying with ASTM C665; friction fit.
   1. Combustibility: Non-combustible, when tested in accordance with ASTM E136, except for facing, if any.
   2. Formaldehyde Content: Zero.
   3. Thermal Resistance: Minimum R-value of R-10 at framed walls.

2.04 ACCESSORIES

A. Sheet Vapor Retarder: Specified in Section 07 25 00.

PART 3 EXECUTION

3.01 BOARD INSTALLATION AT FOUNDATION PERIMETER

A. Install boards horizontally on foundation perimeter.

B. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.

3.02 BATT INSTALLATION

A. Install insulation in accordance with manufacturer's instructions.

B. Install in exterior wall and roof spaces without gaps or voids. Do not compress insulation.

C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids with batt.

D. Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation.

END OF SECTION

SECTION 07 21 23 - LOOSE-FILL INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Granular insulation in cells of concrete masonry unit walls.

1.02 RELATED REQUIREMENTS

A. Section 04 29 00 – Engineered Unit Masonry: Masonry wall system to receive loose-fill insulation.

1.03 REFERENCE STANDARDS

A. ASTM C516 - Standard Specification for Vermiculite Loose Fill Thermal Insulation; 2008 (Reapproved 2013).

B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2016.

1.04 SYSTEM DESCRIPTION

A. Provide thermal barrier at portion of building as indicated on drawings.

PART 2 PRODUCTS

2.01 MATERIALS

A. Vermiculite Loose-Fill Insulation: ASTM C516, vermiculite type, water repellent, fire resistant; flame spread/smoke developed index of 0/0, when tested in accordance with ASTM E84.

2.02 APPLICATIONS

A. Provide loose-fill insulation in the following application(s) as indicated on drawings:

1. Fill un-grouted voids in exterior masonry walls.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that substrate and adjacent materials are dry and ready to receive insulation.

B. Verify wall spaces are free of mortar blockage allowing for free flow of insulation.

3.02 PREPARATION

A. Verify holes and openings have been sealed to prevent escape of insulation.

3.03 INSTALLATION

A. Install loose-fill insulation in accordance with manufacturer's instructions.

B. Deposit loose-fill insulation after masonry wall has sufficiently dried to manufacturer's suggested optimum moisture content prior to covering cores with bond beams or lintels.

C. Deposit loose-fill insulation as wall is erected and completely fill spaces.

3.04 PROTECTION

A. Place temporary signs warning workers in areas that contain loose-fill insulated walls to use caution and to prevent loss of insulation when cutting into walls.

END OF SECTION

SECTION 07 21 29 - SPRAYED INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Cellulosic insulation within the ceiling structure.

1.02 REFERENCE STANDARDS

A. ASHRAE Std 90.1 I-P - Energy Standard for Buildings Except Low-Rise Residential Buildings; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

B. ASTM C177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus; 2013.

C. ASTM C739 - Standard Specification for Cellulosic Fiber Loose-Fill Thermal Insulation; 2017.

D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2018b.

E. ASTM E136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace At 750 Degrees C; 2016a.

F. ITS (DIR) - Directory of Listed Products; current edition.

G. UL (DIR) - Online Certifications Directory; Current Edition.

1.03 SUBMITTALS

A. See Section 01 33 00 – Submittal Procedure

B. Product Data: Provide data on materials, describing insulation properties.

C. Certificates: Certify that products of this section meet or exceed specified requirements.

D. Manufacturer's Qualification Statement.

E. Installer's Qualification Statement.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.

B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience and approved by manufacturer.

1.05 FIELD CONDITIONS

A. Maintain acceptable ambient and substrate surface temperatures prior to, during, and after installation of primer and insulation materials and overcoat.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Cellulosic Fiber Sprayed Insulation:
   1. GreenFiber: www.greenfiber.com/#sle.
   2. International Cellulose Corp: www.spray-on.com/#sle.
   3. ThermoCon, Inc: www.thermocon.com/#sle.

2.02 MATERIALS

A. Cellulosic Fiber Insulation: ASTM C739; treated cellulosic fiber.
   1. Thermal Resistance (R-value): 3.9, at 1 inch thick when tested in accordance with ASTM C177 at 75 degrees F temperature
   2. Moisture Absorption: Maximum 15 percent by weight.
   3. Flame Spread / Smoke Developed Index: 0-25 / 0-450, Class A, when tested in accordance with ASTM E84.
   4. Combustibility: Passing ASTM E136.

2.03 ACCESSORIES

A. Primer: As required by insulation manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are clean, dry, and free of matter that may inhibit adhesion.

B. Verify other work on and within spaces to be insulated is complete prior to application.

3.02 PREPARATION

A. Mask and protect adjacent surfaces from overspray or damage.

B. Apply primer in accordance with manufacturer's instructions.

3.03 INSTALLATION

A. Install sprayed insulation in accordance with manufacturer's instructions.

B. Install sprayed insulation to a uniform monolithic density without voids.

C. Install to completely fill ceiling cavity for complete air and vapor barrier.

3.04 PROTECTION

A. Do not permit subsequent construction work to disturb applied sprayed insulation.

END OF SECTION

SECTION 07 25 00 - WEATHER BARRIERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Vapor Retarders: Materials to make exterior walls and joints around frames of openings

1.02 in exterior walls water vapor resistant and air tight.

1.02 RELATED REQUIREMENTS

A. Section 03 30 00 - Cast-in-Place Concrete: Vapor retarder under concrete slabs on grade.

B. Section 07 62 00 - Sheet Metal Flashing and Trim: Metal flashings installed in conjunction with weather barriers.

C. Section 07 92 00 - Joint Sealants: Sealing building expansion joints.

1.03 DEFINITIONS

A. Weather Barrier: Assemblies that form either water-resistive barriers, air barriers, or vapor retarders.

B. Vapor Retarder: Air tight barrier made of material that is relatively water vapor impermeable, to the degree specified, with sealed seams and with sealed joints to adjacent surfaces.
   1. Water Vapor Permeance: For purposes of conversion, 57.2 ng/(Pa s sq m) = 1 perm.

C. Water-Resistive Barrier: Water-shedding barrier made of material that is moisture resistant, to the degree specified, intended to be installed to shed water without sealed seams.

1.04 REFERENCE STANDARDS

A. ASTM D1970/D1970M - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection; 2017.

B. ASTM D4397 - Standard Specification for Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications; 2016.

1.05 SUBMITTALS

A. See Section 01 33 00 – Submittal Procedures.

B. Product Data: Provide data on material characteristics.

C. Manufacturer's Installation Instructions: Indicate preparation.

1.06 FIELD CONDITIONS

A. Maintain temperature and humidity recommended by the materials manufacturers before, during and after installation.

PART 2 PRODUCTS

2.01 WEATHER BARRIER ASSEMBLIES

A. Interior Vapor Retarder:

1. On inside face of studs of exterior walls, under cladding, use mechanically fastened vapor retarder sheet.

2.02 VAPOR RETARDER MATERIALS (AIR BARRIER AND WATER-RESISTIVE)

A. Vapor Retarder Sheet: ASTM D4397 polyethylene film, clear.
1. Thickness: 10 mil, 0.010 inch.
2. Water Vapor Permeance: As required by referenced standard for thickness specified.
3. Seam and Perimeter Tape: Polyethylene self adhering type, mesh reinforced, 2 inches wide, compatible with sheet material.

2.03 ACCESSORIES

A. Flexible Flashing: Self-adhesive sheet flashing complying with ASTM D1970/D1970M, except slip resistance requirement is waived if not installed on a roof.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces and conditions are ready to accept the work of this section.

3.02 PREPARATION

A. Remove projections, protruding fasteners, and loose or foreign matter that might interfere with proper installation.

3.03 INSTALLATION

A. Install materials in accordance with manufacturer's instructions.

B. Vapor Retarders: Install continuous air tight barrier over surfaces indicated, with sealed seams and with sealed joints to adjacent surfaces.

C. Mechanically Fastened Sheets - Vapor Retarder On Interior:
   1. When insulation is to be installed in assembly, install vapor retarder over insulation.
   2. Seal seams, laps, perimeter edges, penetrations, tears, and cuts with self-adhesive tape, making air tight seal.
   3. Locate laps at a framing member; at laps fasten one sheet to framing member then tape overlapping sheet to first sheet.
   4. Seal entire perimeter to structure, window and door frames, and other penetrations.
   5. Where conduit, pipes, wires, ducts, outlet boxes, and other items are installed in insulation cavity, pass vapor retarder sheet behind item but over insulation and maintain air tight seal.

3.04 PROTECTION

A. Do not leave materials exposed to weather longer than recommended by manufacturer.

END OF SECTION

SECTION 07 41 13 - METAL ROOF PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Architectural roofing system of preformed standing seam steel panels with continuous interlocking seams.

B. Attachment system.

C. Finishes

D. Accessories.

1.02 RELATED REQUIREMENTS

A. Section 06 10 00 - Rough Carpentry: Roof sheathing.

B. Section 07 92 00 - Joint Sealants: Sealing joints between metal roof panel system and adjacent construction.

1.03 REFERENCE STANDARDS

A. ASTM D226/D226M - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing; 2009.

B. ASTM D1970/D1970M - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection; 2017.

1.04 SUBMITTALS

A. See Section 01 33 00 – Submittal Procedures.

B. Shop Drawings: Include layouts of roof panels, details of edge and penetration conditions, spacing and type of connections, flashings, underlayments, and special conditions.
   1. Show work to be field-fabricated or field-assembled.

C. Selection Samples: For each roofing system specified, submit color chips representing manufacturer's full range of available colors and patterns.

D. Warranty: Submit specified manufacturer's warranty and ensure that forms have been completed in Owner's name and are registered with manufacturer.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.

B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Provide strippable plastic protection on prefinished roofing panels for removal after installation.

B. Store roofing panels on project site as recommended by manufacturer to minimize damage to panels prior to installation.

1.07 WARRANTY

A. See Section 01 70 00 – Execution and Closeout Requirements, for additional warranty requirements.

B. Finish Warranty: Provide manufacturer's special warranty covering failure of factory-applied exterior finish on metal roof panels and agreeing to repair or replace panels that show evidence of finish degradation, including significant fading, chalking, cracking, or peeling within specified warranty period of five years from Date of Substantial Completion.

C. Waterproofing Warranty: Provide manufacturer's warranty for weathertightness of roofing system, including agreement to repair or replace roofing that fails to keep out water within specified warranty period of five years from Date of Substantial Completion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Basis of Design: Span-Lok hp, manufactured by AEP Span, A Division of ASC Profiles, Inc..

2.02 ARCHITECTURAL METAL ROOF PANELS

A. Architectural Metal Roofing: Provide complete engineered system complying with specified requirements and capable of remaining weathertight while withstanding anticipated movement of substrate and thermally induced movement of roofing system.

B. Metal Panels: Factory-formed panels with factory-applied finish.
   1. Steel Panels:

a. Yield strength 50,000 psi; with aluminum-zinc alloy coating conforming to ASTM A792, Class AZ50.
b. Primed and finished with manufacturer's DuraTech® 5000 finish system.
c. Steel Thickness: Minimum 24 gage (0.024 inch).

2. Profile: Standing seam, with minimum 2.0 inch seam height; concealed fastener system lapped seam in standing seam profile.
3. Texture: Smooth.
4. Color: Zincalume Plus
5. Length: Full length of roof slope, without lapped horizontal joints.
6. Seam Sealant: Factory apply high-grade butyl mastic sealant within the confines of panel's female leg, designed to seal against adjacent male panel leg.

2.03 ATTACHMENT SYSTEM

A. Concealed System: Provide manufacturer's standard stainless steel or nylon-coated aluminum concealed anchor clips designed for specific roofing system and engineered to meet performance requirements, including anticipated thermal movement.

B. Provide additional clips for owner maintenance after construction is complete.

2.04 FABRICATION

A. Panels: Provide factory or field fabricated panels with applied finish and accessory items, using manufacturer's standard processes as required to achieve specified appearance and performance requirements.

B. Joints: Provide captive gaskets, sealants, or separator strips at panel joints to ensure weathertight seals, eliminate metal-to-metal contact, and minimize noise from panel movements.

2.05 ACCESSORIES

A. Miscellaneous Sheet Metal Items: Provide flashings, gutters, downspouts, closure strips, and similar sheet metal items of the same material, thickness, and finish as used for the roofing panels. Items completely concealed after installation may optionally be made of stainless steel.
1. Downspouts: Open face, rectangular profile.

B. Rib and Ridge Closures: Provide prefabricated, close-fitting components of steel with corrosion resistant finish or combination steel and closed-cell foam.

C. Sealants:
1. Exposed Sealant: Elastomeric; silicone, polyurethane, or silyl-terminated polyether/polyurethane.
2. Concealed Sealant: Non-curing butyl sealant or tape sealant.
3. Seam Sealant: Factory-applied, non-skinning, non-drying type.

D. Underlayment for Wood Substrate: ASTM D226/D226M roofing felt, perforated type; covered by water-resistant rosin-sized building paper.

E. Underlayment: Self-adhering rubber-modified asphalt sheet complying with ASTM D1970/D1970M; 22 mil total thickness; with strippable release film and woven polypropylene sheet top surface.

1. Self Sealability: Passing nail sealability test specified in ASTM D1970/D1970M.

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not begin installation of preformed metal roof panels until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Broom clean wood sheathing prior to installation of roofing system.

B. Coordinate roofing work with provisions for roof drainage, flashing, trim, penetrations, and other adjoining work to assure that the completed roof will be free of leaks.

C. Remove protective film from surface of roof panels immediately prior to installation. Strip film carefully, to avoid damage to prefinished surfaces.

D. Separate dissimilar metals by applying a bituminous coating, self-adhering rubberized asphalt sheet, or other permanent method approved by roof panel manufacturer.

E. Where metal will be in contact with wood or other absorbent material subject to wetting, seal joints with sealing compound and apply one coat of heavy-bodied bituminous paint.

3.03 INSTALLATION

A. Overall: Install roofing system in accordance with approved shop drawings and panel manufacturer's instructions and recommendations, as applicable to specific project conditions. Anchor all components of roofing system securely in place while allowing for thermal and structural movement.
   1. Install roofing system with concealed clips and fasteners.
   2. Minimize field cutting of panels. Where field cutting is absolutely required, use methods that will not distort panel profiles. Use of torches for field cutting is absolutely prohibited.

B. Accessories: Install all components required for a complete roofing assembly, including flashings, gutters, downspouts, trim, closure strips, and similar roof accessory items.

C. Install roofing felt and building paper slip sheet on roof deck before installing preformed metal roof panels. Secure by methods acceptable to roof panel manufacturer, minimizing use of metal fasteners. Apply from eaves to ridge in shingle fashion, overlapping horizontal joints a minimum of 2 inches and side and end laps a minimum of 3 inches. Offset seams in building paper and seams in roofing felt.

D. Roof Panels: Install panels in strict accordance with manufacturer's instructions, minimizing transverse joints except at junction with penetrations.

3.04 CLEANING

A. Clean exposed sheet metal work at completion of installation. Remove grease and oil films, excess joint sealer, handling marks, and debris from installation, leaving the work clean and unmarked, free from dents, creases, waves, scratch marks, or other damage to the finish.

3.05 PROTECTION

A. Do not permit storage of materials or roof traffic on installed roof panels. Provide temporary walkways or planks as necessary to avoid damage to completed work. Protect roofing until completion of project.

B. Touch-up, repair, or replace damaged roof panels or accessories before Date of Substantial Completion.

END OF SECTION

SECTION 07 62 00 - SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fabricated sheet metal items, including flashings, counterflashings, gutters, downspouts.

B. Sealants for joints within sheet metal fabrications.

1.02 RELATED REQUIREMENTS

A. Section 07 41 13 - Metal Roof Panels.

1.03 REFERENCE STANDARDS

A. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2014a.

B. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007 (Reapproved 2012).

C. CDA A4050 - Copper in Architecture - Handbook; current edition.

D. SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.

1.04 SUBMITTALS

A. See Section 01 33 00 – Submittal Procedures.

B. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

1.05 QUALITY ASSURANCE

A. Perform work in accordance with SMACNA (ASMM) and CDA A4050 requirements and standard details, except as otherwise indicated.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.

B. Prevent contact with materials that could cause discoloration or staining.

PART 2 PRODUCTS

2.01 SHEET MATERIALS

A. Pre-Finished Steel with aluminum-zinc alloy coating conforming to ASTM A792, Class AZ50; minimum 24 gage, (0.0239) inch thick base metal, shop pre-coated to match Metal Roof

2.02 FABRICATION

A. Form sections true to shape, accurate in size, square, and free from distortion or defects.

B. Form pieces in longest possible lengths.

C. Hem exposed edges on underside 1/2 inch; miter and seam corners.

D. Form material with flat lock seams, except where otherwise indicated; at moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.

E. Fabricate corners from one piece with minimum 18 inch long legs; seam for rigidity, seal with sealant.

F. Fabricate flashings to allow toe to extend 2 inches over roofing gravel. Return and brake edges.

2.03 GUTTER AND DOWNSPOUT FABRICATION

A. Gutters: SMACNA (ASMM), Rectangular profile.

B. Downspouts: Round profile.

C. Gutters and Downspouts: Custom size indicated.

D. Accessories: Profiled to suit gutters and downspouts.
   1. Anchorage Devices: In accordance with SMACNA (ASMM) requirements.
   2. Downspout Supports: per drawings.

E. Downspout Boots: Cast iron.

F. Seal metal joints.

2.04 ACCESSORIES

A. Fasteners: Same material and finish as flashing metal, with soft neoprene washers.

B. Primer: Zinc chromate type.

C. Concealed Sealants: Non-curing butyl sealant.

D. Exposed Sealants: ASTM C920; elastomeric sealant, with minimum movement capability as recommended by manufacturer for substrates to be sealed; color to match adjacent material.

E. Plastic Cement: ASTM D4586/D4586M, Type I.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify roofing termination and base flashings are in place, sealed, and secure.

3.02 PREPARATION

A. Install starter and edge strips, and cleats before starting installation.

INSTALLATION

A. Secure flashings in place using concealed fasteners.

B. Apply plastic cement compound between metal flashings and felt flashings.

C. Fit flashings tight in place; make corners square, surfaces true and straight in planes, and lines accurate to profiles.

D. Secure gutters and downspouts in place with concealed fasteners.

E. Connect downspouts to downspout boots, and grout connection watertight.

END OF SECTION

SECTION 07 92 00 - JOINT SEALANTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Nonsag gunnable joint sealants.

B. Self-leveling pourable joint sealants.

C. Joint backings and accessories.

1.02 RELATED REQUIREMENTS

A. Section 03 30 00 - Cast-in-Place Concrete

B. Section 07 25 00 - Weather Barriers: Sealants required in conjunction with air barriers and vapor retarders.

C. Section 08 80 00 - Glazing: Glazing sealants and accessories.

1.03 REFERENCE STANDARDS

A. ASTM C661 - Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer; 2015.

B. ASTM C794 - Standard Test Method for Adhesion-In-Peel of Elastomeric Joint Sealants; 2015a.

C. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2014a.

D. ASTM C1087 - Standard Test Method for Determining Compatibility of Liquid-Applied Sealants with Accessories Used in Structural Glazing Systems; 2016.

E. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2016.

F. ASTM C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants; 2002 (Reapproved 2013).

G. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; current edition.

1.04 SUBMITTALS

A. See Section 01 33 00 – Submittal Procedures.

B. Product Data for Sealants: Submit manufacturer's technical data sheets for each product to be used, that includes the following.

1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
2. List of backing materials approved for use with the specific product.
3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
4. Substrates the product should not be used on.

C. Preconstruction Laboratory Test Reports: Submit at least four weeks prior to start of installation.

1.05 QUALITY ASSURANCE

A. Preconstruction Laboratory Testing: Arrange for sealant manufacturer(s) to test each combination of sealant, substrate, backing, and accessories.
1. Adhesion Testing: In accordance with ASTM C794.
2. Compatibility Testing: In accordance with ASTM C1087.
3. Allow sufficient time for testing to avoid delaying the work.
4. Deliver to manufacturer sufficient samples for testing.
5. Report manufacturer's recommended corrective measures, if any, including primers or techniques not indicated in product data submittals.
6. Testing is not required if sealant manufacturer provides data showing previous testing, not older than 24 months, that shows satisfactory adhesion, lack of staining, and compatibility.

PART 2 PRODUCTS

2.01 JOINT SEALANT APPLICATIONS

A. Scope:
1. Exterior Joints: Seal open joints, whether or not the joint is indicated on drawings, unless specifically indicated not to be sealed. Exterior joints to be sealed include, but are not limited to, the following items.
   a. Wall expansion and control joints.
   b. Joints between door, glazing, and other frames and adjacent construction.
   c. Joints between different exposed materials.
   d. Openings below ledge angles in masonry.
   e. Other joints indicated below.
2. Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
   a. Joints between door, window, and other frames and adjacent construction.
   b. Control Joints in concrete slab on grade
   c. Other joints indicated below.
3. Do not seal the following types of joints.
   a. Intentional weepholes in masonry.

b. Joints indicated to be treated with manufactured expansion joint cover or some other type of sealing device.
c. Joints where sealant is specified to be provided by manufacturer of product to be sealed.
d. Joints where installation of sealant is specified in another section.
e. Joints between suspended panel ceilings/grid and walls.

B. Exterior Joints: Use non-sag polyurethane sealant, unless otherwise indicated.

C. Interior Joints: Use non-sag polyurethane sealant, unless otherwise indicated.
1. Wall and Ceiling Joints in Non-Wet Areas: Acrylic emulsion latex sealant.
2. Wall and Floor Joints Where Tamper-Resistance is Required: Non-sag tamper-resistant polyurethane sealant.
3. Joints between Fixtures in Wet Areas and Floors, Walls, and Ceilings: Mildew-resistant silicone sealant; white.

D. Interior Wet Areas: Restrooms areas; fixtures in wet areas include plumbing fixtures, food service equipment, countertops, and other similar items.

E. Areas Where Tamper-Resistance is Required: Areas below 8’-6” height.

2.02 JOINT SEALANTS - GENERAL

A. Sealants and Primers: Provide products having lower volatile organic compound (VOC) content than indicated in SCAQMD 1168.

2.03 NONSAG JOINT SEALANTS

A. Mildew-Resistant Silicone Sealant: ASTM C920, Grade NS, Uses M and A; single component, mildew resistant; not expected to withstand continuous water immersion or traffic.
1. Color: To match adjacent material.

B. Tamper-Resistant Polyurethane Sealant: ASTM C920, Grade NS, Uses M, G, and A; single or multi-component; not expected to withstand continuous water immersion or traffic.
1. Movement Capability: Plus and minus 12-1/2 percent, minimum.
2. Hardness Range: 50 to 60, Shore A, when tested in accordance with ASTM C661.
3. Color: Match adjacent finished surfaces.

2.04 ACCESSORIES

A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.
1. Type for Joints Not Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type O - Open Cell Polyurethane.

2. Open Cell: 40 to 50 percent larger in diameter than joint width.

B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.

C. Primers: Type recommended by sealant manufacturer to suit application; non-staining.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that joints are ready to receive work.

B. Verify that backing materials are compatible with sealants.

C. Verify that backer rods are of the correct size.

3.02 PREPARATION

A. Remove loose materials and foreign matter that could impair adhesion of sealant.

B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.

C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.

D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.

3.03 INSTALLATION

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Perform installation in accordance with ASTM C1193.

C. Install bond breaker backing tape where backer rod cannot be used.

D. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.

E. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.

F. Nonsag Sealants: Tool surface slightly recessed, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

END OF SECTION

DIVISION **08**

OPENINGS

SECTION 08 06 71 - DOOR HARDWARE SCHEDULE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Preliminary schedule of door hardware sets for swinging as indicated on drawings.

1.02 RELATED REQUIREMENTS

A. Section 08 71 00 - Door Hardware: Requirements to comply with in coordination with this section.

1.03 REFERENCE STANDARDS

A. BHMA A156.3 - American National Standard for Exit Devices; 2014.

B. BHMA A156.18 - American National Standard for Materials and Finishes; 2012.

C. DHI (H&S) - Sequence and Format for the Hardware Schedule; 1996.

1.04 SUBMITTALS

A. See Section 01 33 00 – Submittal Procedures.

B. Comply with submittal requirements as indicated in Section 08 71 00.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Only manufacturers listed in Door Hardware Schedule or Section 08 71 00 are considered acceptable, unless noted otherwise.

B. Obtain each type of door hardware as indicated from a single manufacturer and single supplier.

C. Manufacturer's Abbreviations: Coordinate with manufacturers listed in Section 08 71 00.
1. BAS - Best Access Systems. 2.01

DESCRIPTION

A. Door hardware sets provided represent the design intent, they are only a guideline and should not be considered a detailed or complete hardware schedule.

1. Provide door hardware item(s) as required for similar purposes, even when item is not listed for a door in Door Hardware Schedule.
2. Necessary items that are not included in a Hardware Set should be added and have the appropriate additional hardware as required for proper application and functionality.
3. Door hardware supplier is responsible for providing proper size and hand of door for products required in accordance with Door Hardware Schedule and as indicated on drawings.
4. Quantities listed are for each Pair (PR) of doors, or for each Single (SGL) door, as indicated in hardware sets.

2.02 LOCK FUNCTION CODES

A. Function Codes for Mortise Locks: Complying with BHMA A156.13.
   1. Code F07; Storeroom/Exit Lock: Deadlocking latch bolt by inside knob or key outside. Outside knob rigid.
   2. Code F13; Dormitory Lock: Latch bolt by knobs except when outside knob is locked by projecting deadbolt. Key outside retracts deadbolt and unlocks outside knob. Rotating inside knob retracts both bolts.

2.04 FINISHES

A. Finishes: Complying with BHMA A156.18.
   1. Code 626: Satin chromium plated over nickel, with brass or bronze base material (former US equivalent US26D).

PART 3 EXECUTION

3.01 DOOR HARDWARE SCHEDULE

A. Organize listing of door hardware components within each hardware set in compliance with 10-Part scheduling sequence indicated in DHI (H&S), unless otherwise indicated.

B. Ensure locks can utilize NL of NLA key from Best; no alternatives.

3.02 **HARDWARE SET # 01: "RESTROOM"**

A. For use on Door Number(s): 01, 02, 03.

B. Provide for each Single (SGL) door(s).

UNITS	LOCK	ITEM	DESCRIPTION	FINISH	MFR
4 Each		HINGE	5BB1 4.5 X 4.5	626	BAS
1 Each	F13	DORMITORY LOCK	45H T 15 H	626	BAS
1 Each		CONCEALED CLOSER	2010	626	LCN

3 Each	SILENCER	SR64	GRY	IVE

C. OPERATIONAL DESCRIPTION: PRIVACY LOCK WITH LEVER ON INSIDE AND KEY ON OUTSIDE. PROVIDE LOCK INDICATOR TO OUTSIDE TO INDICATE OCCUPIED OR VACANT.

3.03 **HARDWARE SET # 02: "JANITOR / UTILITY / STORAGE"**

A. For use on Door Number(s): 04.

B. Provide for each Pair (SGL) door(s).

UNITS	LOCK	ITEM	DESCRIPTION	FINISH	MFR
4 Each		HINGE	5BB1 4.5 X 4.5	626	BAS
1 Each	F07	STOREROOM LOCK	45H D 15 H	626	BAS
1 Each		OH STOP	410S	626	IVE
1 Each		CONCELED CLOSER	2010	626	LCN
3 Each		SILENCER	SR64	GRY	IVE

C. OPERATIONAL DESCRIPTION: LOCKED DOOR WITH KEY ACCESS. CAN NOT BE LEFT UNLOCKED. INSIDE ALWAYS FREE. HOLD OPEN.

END OF SECTION

SECTION 08 11 13 - HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Thermally insulated hollow metal doors with frames.

1.02 RELATED REQUIREMENTS

A. Section 08 71 00 - Door Hardware.

1.03 REFERENCE STANDARDS

A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.

B. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors; 2011.

C. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100); 2014.

D. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 2011.

E. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.

F. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable; 2016.

G. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2015.

H. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2009.

I. NAAMM HMMA 840 - Guide Specifications for Installation and Storage of Hollow Metal Doors and Frames; 2007.

J. NAAMM HMMA 861 - Guide Specifications for Commercial Hollow Metal Doors and Frames; 2006.

K. SDI 117 - Manufacturing Tolerances for Standard Steel Doors and Frames; 2013.

1.04 SUBMITTALS

A. See Section 01 33 00 – Submittal Procedures.

B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes; and one copy of referenced standards/guidelines.

C. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and any indicated finish requirements.

1.05 QUALITY ASSURANCE

A. Maintain at project site copies of reference standards relating to installation of products specified.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Comply with NAAMM HMMA 840 or ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.

B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion and adverse effects on factory applied painted finish.

PART 2 PRODUCTS

2.01 DESIGN CRITERIA

A. Requirements for Hollow Metal Doors and Frames:
   1. Steel used for fabrication of doors and frames shall comply with one or more of the following requirements; Galvannealed steel conforming to ASTM A653/A653M, cold-rolled steel conforming to ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel conforming to ASTM A1011/A1011M, Commercial Steel (CS) Type B for each.
   2. Accessibility: Comply with ICC A117.1 and ADA Standards.

B. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

2.02 HOLLOW METAL DOORS

A. Exterior Doors: Thermally insulated. Storage/Utility Room
   1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
      a. Level 4 - Maximum-duty.

b. Physical Performance Level A, 1,000,000 cycles; in accordance with ANSI/SDI A250.4.
c. Model 1 - Full Flush.
d. Door Face Metal Thickness: 14 gage, 0.067 inch, minimum.
e. Zinc Coating: A60/ZF180 galvannealed coating; ASTM A653/A653M.

2. Door Thermal Resistance: R-Value of 8.7, minimum, for installed thickness of polyurethane.
3. Door Thickness: 1-3/4 inch, nominal.
4. Door Face Sheets: Flush.
5. Weatherstripping: Integral, recessed into door edge or frame.
6. Door Sweep: Pemko 216_FG Door Shoe; 216DFG
6. Door Finish: Factory primed and field finished.

B. Exterior and Interior Doors, Non-Fire Rated:
1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
a. Level 4 - Maximum-duty.
b. Physical Performance Level A, 1,000,000 cycles; in accordance with ANSI/SDI A250.4.
c. Model 1 - Full Flush.
d. Door Face Metal Thickness: 14 gage, 0.067 inch, minimum.
e. Zinc Coating: A60/ZF180 galvannealed coating; ASTM A653/A653M.
2. Door Thickness: 1-3/4 inch, nominal.
3. Door Face Sheets: Flush.
4. Door Finish: Factory primed and field finished.

2.03 HOLLOW METAL FRAMES

A. Comply with standards and/or custom guidelines as indicated for corresponding door in accordance with applicable door frame requirements.

B. Exterior Door Frames: Full profile/continuously welded type.
1. Galvanizing: Components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A653/A653M, with coating thickness in accordance with requirements indicated.
2. Frame Metal Thickness: 12 gage, 0.093 inch, minimum.
3. Frame Finish: Factory primed and field finished.
4. Weatherstripping: Separate, see Section 08 71 00.

C. Interior Door Frames, Non-Fire Rated: Full profile/continuously welded type.
1. Terminated Stops: Provide at interior doors; closed end stop terminated 6 inch, maximum, above floor at 45 degree angle.
2. Frame Metal Thickness: 12 gage, 0.093 inch, minimum.
3. Frame Finish: Factory finished.

D. Frames in Masonry Walls: Size to suit masonry coursing with head member 4 inch high to fill opening without cutting masonry units.

E. Frames Wider than 48 inches: Reinforce with steel channel fitted tightly into frame head, flush with top.

2.04 FINISHES

A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.

2.05 ACCESSORIES

A. Louvers: Roll formed steel with overlapping frame; finish same as door components; factory-installed.
   1. Style: Sightproof inverted V blade.
   2. Provide with insect screen at interior face of doors.
   3. See drawings for size and free area
   4. Fasteners: Concealed fasteners.

B. Hardware: Coordinate installation of concealed closers in frame.

C. Grout for Frames: Portland cement grout with maximum 4 inch slump for hand troweling; thinner pumpable grout is prohibited.

D. Silencers: Resilient rubber, fitted into drilled hole; provide three on strike side of single door, three on center mullion of pairs, and two on head of pairs without center mullions.

E. Temporary Frame Spreaders: Provide for factory- or shop-assembled frames.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that opening sizes and tolerances are acceptable.

C. Verify that finished walls are in plane to ensure proper door alignment.

3.02 PREPARATION

A. Coat inside of frames to be installed in masonry or to be grouted, with bituminous coating, prior to installation.

3.03 INSTALLATION

A. Install doors and frames in accordance with manufacturer's instructions and related requirements of specified door and frame standards or custom guidelines indicated.

B. Coordinate frame anchor placement with wall construction.

C. Grout frames in masonry construction, using hand trowel methods; brace frames so that pressure of grout before setting will not deform frames.

D. Install door hardware as specified in Section 08 71 00.

E. Touch up damaged factory finishes.

3.04 TOLERANCES

A. Clearances Between Door and Frame: Comply with related requirements of specified frame standards or custom guidelines indicated in accordance with SDI 117 or NAAMM HMMA 861.

B. Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner.

3.05 ADJUSTING

A. Adjust for smooth and balanced door movement.

3.06 SCHEDULE

A. Refer to Door and Frame Schedule on the drawings.

END OF SECTION

SECTION 08 31 00 - ACCESS DOORS AND PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Wall access door and frame units.

1.02 RELATED REQUIREMENTS

A. Section 04 29 00 - Engineered Unit Masonry.

1.03 SUBMITTALS

A. See Section 01 33 00 – Submittal Procedures.

B. Product Data: Provide sizes, types, finishes, hardware, scheduled locations, and details of adjoining work.

PART 2 PRODUCTS

2.01 ACCESS DOORS AND PANELS ASSEMBLIES

A. Wall-Mounted Units:
   1. Location: As required by code.
   2. Material: Steel, hot-dipped zinc, or zinc-aluminum-alloy coated.
   3. Size: 24 inch by 24 inch.
   4. Masonry Mounting Criteria: Provide surface-mounted frame with door surface flush with frame surface.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that rough openings are correctly sized and located.

3.02 INSTALLATION

A. Install units in accordance with manufacturer's instructions.

B. Install frames plumb and level in openings, and secure units rigidly in place.

C. Position units to provide convenient access to concealed equipment when necessary.

END OF SECTION

SECTION 08 71 00 - DOOR HARDWARE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Hardware for wood, hollow metal, and coiling doors.

B. Lock cylinders for doors that hardware is specified in other sections.

C. Thresholds.

D. Weatherstripping and gasketing.

1.02 RELATED REQUIREMENTS

A. Section 07 92 00 – Joint Sealants: Sealants for setting exterior door thresholds.

B. Section 08 06 71 – Door Hardware Schedule: Schedule of door hardware sets.

C. Section 08 11 13 - Hollow Metal Doors and Frames.

1.03 REFERENCE STANDARDS

A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.

B. BHMA A156.1 - American National Standard for Butts and Hinges; 2013.

C. BHMA A156.4 - American National Standard for Door Controls - Closers; 2013.

D. BHMA A156.8 - American National Standard for Door Controls - Overhead Stops and Holders; 2010.

E. BHMA A156.13 - American National Standard for Mortise Locks & Latches Series 1000; 2012.

F. BHMA A156.18 - American National Standard for Materials and Finishes; 2012.

G. BHMA A156.21 - American National Standard for Thresholds; 2014.

H. BHMA A156.22 - American National Standard for Door Gasketing and Edge Seal Systems, Builders Hardware Manufacturers Association; 2012.

I. BHMA A156.115 - American National Standard for Hardware Preparation in Steel Doors and Steel Frames; 2014.

J. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2009.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the manufacture, fabrication, and installation of products that door hardware is installed on.

B. Preinstallation Meeting: Convene a preinstallation meeting one week prior to commencing work of this section; attendance is required by affected installers and the following:
   1. Architect.
   2. Installer's Architectural Hardware Consultant (AHC).
   3. Hardware Installer.
   4. Owner's Security Consultant.

C. Keying Requirements Meeting:
   1. Schedule meeting at project site prior to Contractor occupancy.
   2. Attendance Required:
      a. Contractor.
      b. Owner.
      c. Installer's Architectural Hardware Consultant (AHC).
   3. Agenda:
      a. Establish keying requirements.
      b. Verify locksets and locking hardware are functionally correct for project requirements.
   4. Incorporate "Keying Requirements Meeting" decisions into keying submittal upon review of door hardware keying system including, but not limited to, the following:
   5. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.
   6. Deliver established keying requirements to manufacturers.

1.05 SUBMITTALS

A. See Section 01 33 00 – Submittal Procedures.

B. Product Data: Manufacturer's catalog literature for each type of hardware, marked to clearly show products to be furnished for this project, and includes construction details, material descriptions, finishes, and dimensions and profiles of individual components.

C. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.

D. Keying Schedule:
   1. Submit three (3) copies of Keying Schedule in compliance with requirements established during Keying Requirements Meeting unless otherwise indicated.

1.06 WARRANTY

A. See Section 01 70 00 – Execution and Closeout Requirements, for additional warranty requirements.

B. Warranty against defects in material and workmanship for period indicated, from Date of Substantial Completion.
   1. Locksets and Cylinders: Three years, minimum.
   2. Other Hardware: Two years, minimum.

PART 2 PRODUCTS

2.01 DESIGN AND PERFORMANCE CRITERIA

A. Provide specified door hardware as required to make doors fully functional, compliant with applicable codes, and secure to extent indicated.

B. Provide individual items of single type, of same model, and by same manufacturer.

C. Provide door hardware products that comply with the following requirements:
   1. Applicable provisions of federal, state, and local codes.
   2. Accessibility: ADA Standards and ICC A117.1.
   3. Hardware Preparation for Steel Doors and Steel Frames: BHMA A156.115.

2.02 HINGES

A. Hinges: Complying with BHMA A156.1, Grade 1.
   1. Provide hinges on every swinging door.
   2. Provide following quantity of butt hinges for each door:
      a. Doors From 60 inches High up to 90 inches High: four hinges.

2.03 LOCK CYLINDERS

A. Manufacturers:
   1. Best, dormakaba Group; Match to owners existing system: Best NLA/NL key core; www.bestaccess.com/#sle.

B. Lock Cylinders: Provide key access on outside of each lock, unless otherwise indicated.
   1. Provide cylinders from same manufacturer as locking device.
   2. Provide cams and/or tailpieces as required for locking devices.
   3. Within specific Door Sections, when provisions for lock cylinder are being referenced to this Section, provide specified lock cylinder and keyed to building keying system, unless otherwise indicated.

2.04 MORTISE LOCKS

A. Manufacturers:
   1. Best, dormakaba Group; 40H Series: www.bestaccess.com/#sle

B. Mortise Locks: Complying with BHMA A156.13, Grade 1, Security, 1000 Series.
   1. Latchbolt Throw: 3/4 inch, minimum.
   2. Deadbolt Throw: 1 inch, minimum.
   3. Backset: 2-3/4 inch unless otherwise indicated.
   4. Lever Style: 15 - contour/angle return; ADA compliant
   5. Strikes: Provide manufacturer's standard latchbolt/deadbolt strike (S6) for each latchset or lockset with strike box and curved lip extending to protect frame in compliance with indicated requirements.
      a. Finish: To match lock or latch.

2.05 CLOSERS

A. Closers: Complying with BHMA A156.4, Grade 1.
   1. Type: Concealed, overhead mounted.
   2. Provide door closer on each exterior door.
   3. At outswinging exterior doors, mount closer on interior side of door.

2.06 KICK PLATES

A. Kick Plates: Provide along bottom edge of push side of every door with closer, unless otherwise indicated.
   1. Size: 12 inch high by 2 inch less door width (LDW) on push side of door.

2.07 WALL STOPS

A. Wall Stops: Complying with BHMA A156.16, Grade 1 and Resilient Material Retention Test as described in this standard.
   1. Type: Bumper, concave, wall stop.
   2. Material: Aluminum housing with rubber insert.

2.08 THRESHOLDS

A. Thresholds: Complying with BHMA A156.21.
   1. Provide threshold at each exterior door, unless otherwise indicated.
   2. Type: Flat surface.
   3. Material: Steel.
   4. Threshold Surface: Fluted horizontal grooves across full width.
   5. Field cut threshold to profile of frame and width of door sill for tight fit.
   6. Provide non-corroding fasteners at exterior locations.

2.09 WEATHERSTRIPPING AND GASKETING

A. Weatherstripping and Gasketing: Complying with BHMA A156.22.
   1. Head and Jamb Type: Adjustable.
   2. Door Sweep Type: Door shoe with drip cap.
   3. Material: Aluminum, with brush weatherstripping.
   4. Provide weatherstripping on each exterior door at head, jambs, and meeting stiles of door pairs, unless otherwise indicated; .
   5. Provide door bottom sweep on each exterior door, unless otherwise indicated.

2.10 SIGNAGE

A. Signage (Room Name Plates): Provide on doors for individuals to easily identify room names and/or numbers.
   1. Text Required: "RESTROOM" with symbols and braille text.
   2. Text Required: "UTILITY" with symbols and braille text.
   3. Material: In metal with paint used to create necessary text, adhered to door.
   4. Prepare Shop Drawings of each sign for Architects approval prior to manufacturing.

2.11 SILENCERS

A. Silencers: Provide at equal locations on door frame to mute sound of door's impact upon closing.
   1. Single Door: Provide three on strike jamb of frame.
   2. Material: Rubber, gray color.

2.12 FINISHES

A. Finishes: Provide door hardware of same finish, unless otherwise indicated.
   1. Primary Finish: 626; satin chromium plated over nickel, with brass or bronze base material (former US equivalent US26D); BHMA A156.18.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install hardware in accordance with manufacturer's instructions and applicable codes.

B. Use templates provided by hardware item manufacturer.

C. Set exterior door thresholds with full-width bead of elastomeric sealant at each point of contact with floor providing a continuous weather seal; anchor thresholds with stainless steel countersunk screws.

3.02 ADJUSTING

A. Adjust work under provisions of Section 01 70 00 - Execution and Closeout Requirements.

B. Adjust hardware for smooth operation.

C. Adjust gasketing for complete, continuous seal; replace if unable to make complete seal.

3.03 CLEANING

A. Clean finished hardware in accordance with manufacturer's written instructions after final adjustments have been made.

B. Clean adjacent surfaces soiled by hardware installation.

3.04 PROTECTION

A. Do not permit adjacent work to damage hardware or finish.

END OF SECTION

SECTION 08 80 00 - GLAZING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Plastic (Polycarbonate) sheet glazing units. Assume this product is a special order to meet the requirements and account for the appropriate lead times from the manufacturer.

B. Glazing compounds and accessories.

1.02 RELATED REQUIREMENTS

A. Section 06 10 00 - Rough Carpentry

B. Section 07 92 00 - Joint Sealants: Sealants for other than glazing purposes.

1.03 SUBMITTALS

A. See Section 01 33 00 – Submittal Procedures.

B. Product Data on Plastic Sheet Glazing Unit (Polycarbonate) Glazing Types: Provide structural, physical and environmental characteristics, size limitations, special handling and installation requirements.

C. Product Data on Glazing Compounds and Accessories: Provide chemical, functional, and environmental characteristics, limitations, special application requirements, and identify available colors.

D. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.

1.05 MOCK-UPS

A. Provide on-site glazing mock-up with the specified glazing components and framing/blocking per the drawings .

B. Mock-ups may remain as part of the Work.

1.06 FIELD CONDITIONS

A. Do not install glazing when ambient temperature is less than 40 degrees F.

1.07 WARRANTY

A. See Section 01 70 00 – Execution and Closeout Requirements, for additional warranty requirements.

B. Polycarbonate Sheet Glazing: Provide a ten (10) year manufacturer warranty to include coverage for breakage, coating failure, abrasion resistance, including providing products to replace failed units.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Plastic Sheet Glazing Manufacturers; Basis of Design:
   1. Palram; SUNLITE Multiwall Polycarbonate Sheet: www.palram.com/us/.

.02 PERFORMANCE REQUIREMENTS - EXTERIOR GLAZING ASSEMBLIES

A. Vapor Retarder and Air Barrier Seals: Provide completed assemblies that maintain continuity of building enclosure vapor retarder and air barrier.
   1. In conjunction with vapor retarder and joint sealer materials described in other sections.

B. Thermal and Optical Performance: Provide exterior glazing products with performance properties as indicated. Performance properties are in accordance with manufacturer's published data:
   1. U-Value: 0.37 Btu/hr/square foot/F *(2.1 W/square meter/K)*
   2. Light Transmittance: 35%

2.03 PLASTIC SHEET GLAZING UNITS

A. Multiwall Polycarbonate Sheet: Ultraviolet (UV) protected.
   1. Applications: Locations as indicated on drawings.
   2. Type: Cellular (multiwall structure) sheet.
   3. Tint: Bronze.
   4. Multiwall Thickness: 5/8 inch (16 mm) overall
   5. Width: 23-5/8 inch.
   6. Light Transmittance (LT): 35 percent, nominal.
   7. Solar Heat Gain Coefficient (SHGC): 0.58, nominal.
   8. Manufacturers:
      a. Palram; SUNLITE: https://www.palram.com/us/.
      b. Substitutions: Refer to Section 01 60 00 - Product Requirements.

2.04 ACCESSORIES

A. Setting Blocks: Silicone, with 80 to 90 Shore A durometer hardness; ASTM C864 Option II. Length of 0.1 inch for each square foot of glazing or minimum 4 inch by width of glazing rabbet space minus 1/16 inch by height to suit glazing method and pane weight and area.

B. Glazing Tape, Aluminum Sealing Type per manufacture.
   1. Install impermeable tape at top of sheet
   2. Install ventilated tape at bottom of the sheet

C. Glazing Fasteners: Polygal Mega-Lock Aluminum Glazing System 6-16
   1. Provide complete system with base, cap, cap cover, and gasket.

D. Glazing Clips: Manufacturer's standard type.
   1. R-Profile Polycarbonate corners

PART 3 EXECUTION

3.01 VERIFICATION OF CONDITIONS

A. Verify that openings for glazing are correctly sized and within tolerances, including those for size, squareness, and offsets at corners.

B. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and support framing is ready to receive glazing system.

3.02 INSTALLATION, GENERAL

A. Install glazing in compliance with written instructions of glass, gaskets, and other glazing material manufacturers, unless more stringent requirements are indicated, including those in glazing referenced standards.

B. Do not exceed edge pressures around perimeter of glass lites as stipulated by glass manufacturer.

C. Set glass lites of system with uniform pattern, draw, bow, and similar characteristics.

D. Set glass lites in proper orientation so that coatings face exterior or interior as indicated.

3.03 INSTALLATION - DRY GLAZING METHOD (TAPE AND GASKET SPLINE GLAZING)

A. Application - Exterior Glazed: Set glazing infills from the exterior of the building.

B. Cut glazing tape to length; install on glazing pane. Seal corners by butting tape and sealing junctions with butyl sealant.

C. Place setting blocks at 1/4 points with edge block no more than 6 inch from corners.

D. Rest glazing on setting blocks and push against fixed stop with sufficient pressure to attain full contact.

E. Install removable stops without displacing glazing spline. Exert pressure for full continuous contact.

F. Carefully trim protruding tape with knife.

3.04 CLEANING

A. Remove excess glazing materials from finish surfaces immediately after application using solvents or cleaners recommended by manufacturers.

B. Remove non-permanent labels immediately after glazing installation is complete.

C. Clean glazing and adjacent surfaces after sealants are fully cured.

D. Clean glazing on both exposed surfaces not more than 4 days prior to Date of Substantial Completion in accordance with glass manufacturer's written recommendations.

END OF SECTION

DIVISION **09**

FINISHES

SECTION 09 91 13 - EXTERIOR PAINTING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface preparation for all surfaces of the Restroom Building, interior and exterior.

B. Field application of paints and stains.

C. Scope: Finish exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:
   1. Both sides and edges of plywood backboards for electrical and telecom equipment before installing equipment.
   2. CMU exterior walls.
   3. Graffiti Protection.
   4. Mechanical and Electrical:
      a. On the roof and outdoors, paint equipment that is exposed to weather or to view, including factory-finished materials.

D. Do Not Paint or Finish the Following Items:
   1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
   2. Items indicated to receive other finishes, including wood ceiling and trim to be sanded and oiled.
   3. Items indicated to remain unfinished.
   4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
   5. Floors, unless specifically indicated.
   6. Glass.
   8. Concealed pipes, ducts, and conduits.

1.02 RELATED REQUIREMENTS

A. Section 07 19 00 Water Repellents: Concrete Masonry Unit finish

1.03 REFERENCE STANDARDS

A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.

B. ASTM D4258 - Standard Practice for Surface Cleaning Concrete for Coating; 2005 (Reapproved 2012).

C. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual; Current Edition, www.paintinfo.com.

D. SSPC-SP 1 - Solvent Cleaning; 2015.

E. SSPC-SP 6 - Commercial Blast Cleaning; 2007.

1.04 SUBMITTALS

A. See Section 01 33 00 – Submittal Procedures.

B. Product Data: Provide complete list of products to be used, with the following information for each:
   1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
   2. MPI product number (e.g. MPI #47).
   3. Cross-reference to specified paint system(s) product is to be used in; include description of each system.

C. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches in size, illustrating range of colors available for each finishing product specified.
   1. Where sheen is specified, submit samples in only that sheen.

D. Final Artwork: Submit final artwork for west elevation for approval by the owner and architect.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.07 FIELD CONDITIONS

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

C. Do not apply exterior paint and finishes during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.

D. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Provide paints and finishes used in any individual system from the same manufacturer; no exceptions.

B. Paints:
   1. Sherwin-Williams Company: www.sherwin-williams.com/#sle.

2.02 PAINTS AND FINISHES - GENERAL

A. Paints and Finishes: Ready mixed, unless required to be a field-catalyzed paint.
   1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
   2. Supply each paint material in quantity required to complete entire project's work from a single production run.
   3. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.

B. Volatile Organic Compound (VOC) Content:
   1. Provide paints and finishes that comply with the most stringent requirements specified in the following:
      a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
      b. Architectural coatings VOC limits of Washington.
   2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.

2.03 PAINT SYSTEMS - EXTERIOR

A. Concrete/Masonry, Opaque, Alkyd, 3 Coat:
   1. One coat of block filler;
   2. Flat: Two coats of alkyd enamel;

B. Medium Duty Door/Frame: For surfaces subject to frequent contact by occupants, including metals:
   1. Medium duty applications include doors and door frames.
   2. Two top coats and one coat primer.
   3. Top Coat(s): Interior Light Industrial Coating; Tenemic Series 73 EnduraShield, two component polyurethane.
   4. Top Coat Sheen:
      a. Semi-Gloss: MPI gloss level 5; use this sheen at all locations.
   5. Primer: As recommended by top coat manufacturer for specific substrate.

C. Wood Trim and Ceiling: For Ipe wood to match Site Furnishings called to be sanded and oiled:
   1. Linseed Oil

2.04 ACCESSORY MATERIALS

A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.

B. Sacrificial Anti-Graffiti Coating: Clear, wax emulsion for coating porous or painted surfaces; capable of being removed from substrate with only hot water.
   1. Products:
      a. DryWired; Anti-Graffiti: www.drywired.com

C. Patching Material: Latex filler.

D. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially effect proper application.

C. Test shop-applied primer for compatibility with subsequent cover materials.

D. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
   1. Masonry, Concrete, and Concrete Masonry Units: 12 percent.

3.02 PREPARATION

A. Clean surfaces thoroughly and correct defects prior to application.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces for finishing.

D. Seal surfaces that might cause bleed through or staining of topcoat.

E. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

F. Concrete:
   1. Remove release agents, curing compounds, efflorescence, and chalk. Do not coat surfaces if moisture content or alkalinity of surfaces to be coated exceeds that permitted in manufacturer's written instructions.
   2. Clean concrete according to ASTM D4258. Allow to dry.

G. Masonry:
   1. Remove efflorescence and chalk. Do not coat surfaces if moisture content or alkalinity of surfaces or if alkalinity of mortar joints exceed that permitted in manufacturer's written instructions. Allow to dry.
   2. Prepare surface as recommended by top coat manufacturer.

H. Galvanized Surfaces:
   1. Remove surface contamination and oils and wash with solvent according to SSPC-SP 1.

I. Ferrous Metal:
   1. Solvent clean according to SSPC-SP 1.
   2. Shop-Primed Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re-prime entire shop-primed item.
   3. Remove rust, loose mill scale, and other foreign substances using using methods recommended in writing by paint manufacturer and blast cleaning according to SSPC-SP 6 "Commercial Blast Cleaning". Protect from corrosion until coated.

3.03 APPLICATION

A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately

B. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".

C. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

D. Apply each coat to uniform appearance.

E. Sand wood surfaces lightly between coats to achieve required finish.

F. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

G. Wood to Receive Transparent Finishes: Tint fillers to match wood. Work fillers into the grain before set. Wipe excess from surface.

H. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 CLEANING

A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.05 PROTECTION

A. Protect finishes until completion of project.

B. Touch-up damaged finishes after Substantial Completion.

3.06 COLOR SCHEDULE

A. CMU Walls, and Masonry Louvers: SW 6424 Tansy Green.

B. Doors & Frames: SW 7016 Mindful Gray

C. Graphics: SW 7020 Black Fox

END OF SECTION

DIVISION 10

SPECIALTIES

SECTION 10 28 00 - TOILET AND BATH ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Commercial toilet accessories.

B. Commercial shower and bath accessories.

C. Under-lavatory pipe supply covers.

D. Electric hand/hair dryers.

E. Diaper changing stations.

F. Utility room accessories.

1.02 REFERENCE STANDARDS

A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.

B. ASTM C1036 - Standard Specification for Flat Glass; 2016.

C. ASTM C1503 - Standard Specification for Silvered Flat Glass Mirror; 2008 (Reapproved 2013).

D. ASTM F2285 - Standard Consumer Safety Performance Specification for Diaper Changing Tables for Commercial Use; 2004 (Reapproved 2016).

1.03 SUBMITTALS

A. See Section 01 33 00 – Submittal Procedures.

B. Product Data: Submit data on accessories describing size, finish, details of function, and attachment methods.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Commercial Toilet and Bath Accessories:
   1. Bradley Corporation: www.bradleycorp.com.
   2. Substitutions: Section 01 25 00 – Substitution Procedures.

B. Diaper Changing Stations:
   1. Koala Kare Products: www.koalabear.com.

2.02 MATERIALS

A. Accessories - General: Shop assembled, free of dents and scratches and packaged complete with anchors and fittings, steel anchor plates, adapters, and anchor components for installation.
   1. Grind welded joints smooth.

B. Mirror Glass: Annealed float glass, ASTM C1036 Type I, Class 1, Quality Q2, with silvering, protective and physical characteristics complying with ASTM C1503.

2.03 FINISHES

A. Stainless Steel: Satin finish, unless otherwise noted.

2.04 Commercial Toilet Accessories

A. Toilet Paper Dispenser: Double roll, surface mounted bracket type, stainless steel, spindleless type for tension spring delivery designed to prevent theft of tissue roll.

B. Soap Dispenser: Soap lather dispenser, wall-mounted, surface, with stainless steel cover and horizontal stainless steel tank and working parts; push type soap valve, check valve, and window gage refill indicator, tumbler lock.
   1. Minimum Capacity: 48 ounces.

C. Mirrors: Stainless steel framed, 1/4 inch thick annealed float glass; ASTM C1036.
   1. Annealed Float Glass: Silvering, protective and physical characteristics in compliance with ASTM C1503.
   2. Backing: Full-mirror sized, minimum 0.03 inch galvanized steel sheet and nonabsorptive filler material.

D. Grab Bars: Stainless steel, smooth surface.
   1. Heavy Duty Grab Bars: Floor supports are acceptable if necessary to achieve load rating.
      a. Push/Pull Point Load: Minimum 1000 pound-force, minimum.
      b. Dimensions: 1-1/2 inch outside diameter, minimum 0.125 inch wall thickness, exposed flange mounting, 1-1/2 inch clearance between wall and inside of grab bar.
      c. Length and Configuration: As indicated on drawings.

E. Sanitary Napkin Disposal Unit: Stainless steel, surface-mounted, self-closing door, locking bottom panel with full-length stainless steel piano-type hinge, removable receptacle.

2.05 UNDER-LAVATORY PIPE AND SUPPLY COVERS

A. Under-Lavatory Pipe and Supply Covers:
   1. Insulate exposed drainage piping including hot, cold, and tempered water supplies under lavatories or sinks to comply with ADA Standards.
   2. Exterior Surfaces: Smooth non-absorbent, non-abrasive surfaces.
   3. Color: White.
   4. Fasteners: Reusable, snap-locking fasteners with no sharp or abrasive external surfaces.

2.07 Electric Hand/Hair Dryers

A. Electric Hand and Hair Dryers: Traditional fan-in-case type, with downward fixed nozzle.
   1. Operation: Automatic, sensor-operated on and off.
   2. Mounting: Surface mounted.
   3. Cover: Stainless steel with brushed finish.
      a. Tamper-resistant screw attachment of cover to mounting plate.
   4. Air Velocity: 18,000 linear feet per minute, minimum, at full power.
   5. Heater: 500 W, minimum, at full power.
   6. Runtime as Hair Dryer: 80 seconds, nominal.

2.08 Diaper Changing Stations

A. Diaper Changing Station: Wall-mounted folding diaper changing station for use in commercial toilet facilities, meeting or exceeding ASTM F2285.
   1. Material: Stainless steel.
   2. Mounting: Surface.
   3. Color: Gray.
   4. Products:
      a. Koala Kare: Horizontal Stainless Steel Wall Mounted KB110-SSWM.

2.09 Utility Room Accessories

A. Mop and Broom Holder: 0.05 inch thick stainless steel, Type 304, hat-shaped channel.
   1. Holders: Three spring-loaded rubber cam holders.
   2. Length: 36 inches.

B. Hose Reel: Wall-Mount swivel type
   1. Pawder-coated steel
   2. 180 degree swivel radius
   3. Capacity: 100 feet of 5/8" hose, or 75 feet of 3/4" hose
   4. Products:
      a. Lee Valley Tools: Wall-Mount Swivel Hose Reel

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify exact location of accessories for installation.

C. For electrically-operated accessories, verify that electrical power connections are ready and in the correct locations.

3.02 INSTALLATION

A. Install accessories in accordance with manufacturers' instructions in locations indicated on drawings.

B. Install plumb and level, securely and rigidly anchored to substrate.

C. Mounting Heights: As required by accessibility regulations, unless otherwise indicated.

3.03 PROTECTION

A. Protect installed accessories from damage due to subsequent construction operations.

END OF SECTION

DIVISION 11

EQUIPMENT

DIVISION 11—EQUIPMENT
Section 11 68 13—Play Area Equipment

PART 1 - GENERAL

1.01 DESCRIPTION

A. Furnish all labor, materials and equipment required to install the play equipment and structures as indicated on the drawings or as approved and specified herein. The work shall include any incidentals required to provide a finished job.

1.02 RELATED SECTIONS

A. Section 03 30 00 - Cast-In-Place Concrete

B. Section 32 18 16.12 - Synthetic Safety Surfacing

1.03 REFERENCE SAFETY GUIDELINES AND STANDARDS

A. All materials and equipment shall conform to the current issue of the "*Handbook for Public Playground Safety*" published by the Consumer Product Safety Commission (C.P.S.C.) and ASTM F1487-07.

B. The manufacturer and installation contractor shall be responsible for correcting any product violations of the C.P.S.C. Guidelines and ASTM F1487-07, to the satisfaction of the Architect/Engineer, should they be found after installation.

C. ADA Accessibility Guidelines (ADAAG) Section 15.6 Play Areas.

D. The Contractor must also be a Manufacturer Certified Installer and shall hold current National Playground Safety Institute Certification for Playground Safety Inspectors.

E. All Play Equipment shall be IPEMA certified.

1.04 QUALITY ASSURANCE

A. The Contractor shall have at least 3 recent (within the last 3 years) installations of Play Equipment and shall, within 48 hours of the Architect/Engineer's request, produce written proof of such.

1.05 SUBMITTALS

A. The Contractor/Manufacturer's Representative shall submit for approval prior to delivery scaled drawings of each specified component including dimensioned plans, color charts, erection drawings, installation details, parts list, and technical data for correct assembly of all components, clamp details, and anchoring details.

1.06 SUBSTITUTIONS

The Contractor/manufacturer shall submit requests for substitutions per Division 01 requirements.

1.07 WARRANTIES

A. Contractor shall warranty installation workmanship of all play equipment for a period of two (2) years starting on the date of Physical Completion of the Project. The Contractor shall provide information on the equipment manufacturer's guarantee.

B. Warranties shall include:

1. Lifetime warranties on steel and aluminum posts, all stainless steel hardware, clamps, deck hangers, post caps, and cast aluminum parts.

2. 15 year warranties on all perforated steel decks and stairs, steel rails, loops, rungs, sheet steel, rotationally-molded and sheet plastic components, recycled plastic lumber, roofs and crawl tubes.

3. 5 year Limited Warranty on Glass Fiber Reinforced Concrete (GFRC) material, against structural failure due to natural deterioration or manufacturing defects.

4. 3 year Limited Warranty on Flexible net climbers and ropes against natural deterioration or manufacturing defects.

PART 2 - PRODUCTS

2.01 GENERAL

A. Equivalent Products - Requests for substitution of specific play equipment products shall conform strictly to Section 01 25 00 - Substitution & Product Option.

B. Site Specificity of Design - Equipment selection is based on specific program requirements, physical constraints within the site, and public input. Requests for Product Substitution may be subject to certain subjective criteria including (in no particular order);

1. Play value

2. Footprint

3. Color Availability

4. Geometry

5. Apparent Mass and/or Visual Density

6. Adherence to ADA requirements (ADAAG)

2.02 PLAY EQUIPMENT

A. All play equipment is purchased and installed by Contractor.

B. Play equipment - manufactured by Playworld:

a. Reference project 18-3649D for an itemized list of product information.
b. Contact: Northwest Playground Equipment Inc. – Eric Arneson: 425-313-9161.
c. Or, approved equals.

C. Colors shall be as identified from design 18-3649D. Provide manufacturer's standard color options for review upon product submittal.

2.03 FINISHES

A. Polyester (Powder) Coating - The polyester coating shall be uniformly applied by the electrostatic method to a thickness of three to five mils. Promptly after application of the powder, the coating shall be oven-cured at 400 degrees Fahrenheit. The color(s) of the polyester coating shall be as selected by the Architect/Engineer from the manufacturer's standard and/or custom color selection charts.

B. Vinyl - The vinyl coating shall be oven-cured poly-vinyl chloride plastisol with a minimum thickness of 1/8". The coating shall contain ultraviolet inhibitors and mold resistors. The color(s) of the vinyl coating shall be as selected by the Architect/Engineer from the manufacturer's standard and/or custom color selection chart.

C. Galvanized Finish - All components calling for a galvanized finish shall be hot-dipped galvanized to the manufacturer's standard after fabrication. All galvanized surfaces shall be free of burs, splinters, and sharp edges.

2.04 ADDITIONAL HARDWARE

A. Additional hardware shall be provided in sufficient quantity to complete assembly of the play equipment. All hardware shall be non-ferrous or if ferrous material is used shall be galvanized, electrostatic zinc plated or polyester powder coated in accordance with the approved manufacturer's standard. Provide the Architect/Engineer with any and all maintenance and repair supplies installation

manuals, tool kits and materials shipped with each product for the Owner's inventory.

PART 3 - EXECUTION

3.01 EXAMINATION OF WORK AREA

A. Examine the areas and conditions under which work of this Section will be performed. Verify safety zones of all equipment before setting posts in concrete footings. Do not proceed until conditions detrimental to proper and timely completion of the work have been satisfactorily corrected and thus meet the manufacturer's instructions and the requirements as described above. Beginning work constitutes acceptance of conditions as satisfactory.

3.02 INSTALLATION OF COMPOUND STRUCTURES AND INDEPENDENT ACTIVITIES

A. Conform strictly to manufacturer's instructions using all appropriate materials, tools, and accessories as required. Use only experienced personnel trained in play equipment construction. The installer shall layout all equipment prior to construction to insure compliance with safety zone clearances.

B. Provide all concrete footings as required to properly place the equipment components. It is the Contractor's responsibility to adjust drainage pipe or other new utility locations to accommodate the equipment footings.

3.03 PROTECTION

A. During construction of the play equipment structures, provide PVC web fence material in sufficient quantities and wrap the structures to prevent public access onto the equipment. Maintain the fencing wrap after completion of the play equipment and safety surfacing installation through Physical Completion of the project.

3.04 INSPECTION

A. Following the Architect/Engineer's inspection of the completed play equipment installation, perform repairs as necessary to meet or exceed the Architect/Engineer's requirements for fit and finish and the specifications and guidelines as referenced in 1.03 Safety Guidelines and Standards, above.

B. Warranty

1. The Contractor shall warranty that all work performed under this section shall be free from any defects in materials and workmanship. Upon notice

in writing, within two (2) years of Physical Completion, from the Architect/Engineer to the Contractor shall, at no cost to the Owner, make all necessary repairs or replacements of the defective work in question. During this period of warranty, the Owner shall perform normal maintenance and cleaning of the play area equipment.

END OF SECTION

DIVISION 22

PLUMBING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Common work results for Division 22 (plumbing).

1.02 SUMMARY

A. Section includes general requirements that apply to the entirety of Division 22 – Plumbing, both interior and exterior to the building, as indicated on the plans and specified herein.

B. All specification sections with Division 22 – Plumbing are complementary. All specification sections within Division 22 shall be considered to reference each other.

C. Provide all plumbing work as indicated in the drawings and specified herein.

1.03 REFERENCE STANDARDS

A. General: References used throughout Division 22 are generally accepted industry standards. The edition of the criteria cited shall be that in force at the time of bid. The Contractor shall provide all work in accordance with codes and standards in force in the Authority Having Jurisdiction for the project, to include all local amendments.

B. AISC Steel Handbook.

C. ASHRAE Applications Manual

D. ASME 31.9 - Building Services Piping.

E. ASTM D1557 - Method of Test for Moisture Density Relations of Soils.

F. IBC - International Building Code.

G. MSS SP-58 - Pipe Hangers and Supports - Materials, Design, and Manufacture.

H. MSS SP-69 - Pipe Hangers and Supports - Selection and Application.

I. NFPA 70 - National Electrical Code.

J. RCW 18.106 - Plumbers.

K. SMACNA Duct Construction Standards, Metal and Flexible.

L. SMACNA Seismic Restraint Manual Guidelines for Mechanical Systems.

M. UPC - Uniform Plumbing Code.

N. WAC 51-11C - Washington State Energy Code, Commercial Provisions.

O. WAC 51-11R - Washington State Energy Code, Residential Provisions.

1.04 SUBMITTALS

A. See Division 1 for submittal procedures.

B. Product Data: Provide product data for all components and equipment provided under this Division.

1. Product sheets with more than one item or option shown shall have the product(s) and options to be used on the project clearly identified.

2. Any equipment or materials installed or furnished without prior approval of the Owner's Representative shall be rejected and such materials will be required to be removed and replaced with approved materials at the expense of the Contractor.

C. Manufacturer's Installation Instructions: Indicate installation instructions and recommendations.

D. Field Quality Control Submittals: Indicate test reports and inspection reports.

E. Project Record Documents:

1. Record actual routing of installed piping, including elevation (or depth for buried piping).

2. Record actual equipment and components installed, as well as locations.

3. RFI's, change orders, and the like shall be noted on the Record Documents where these affect the layout or other aspect of project shown on the documents. References to these shall include the RFI/change order number as well as written description(s), sketch(es), etc., indicating the change or clarification.

4. Record actual location of installed valves and control components.

a. Include riser diagram(s) and schedule of valve tags and locations.

5. Final record documents:

a. Upon completion of the project the as-built information shall be neatly transferred to a clean set Plans. This set of Plans shall be submitted for final approval and acceptance.

F. Operation and Maintenance (O&M) Data:

1. Include manufacturer's descriptive literature, operating instructions of equipment and controls, maintenance and repair data, and parts listings.

2. Include manufacturer's warranty information, including any extended warranties, or certifications of warranties required for specific products, systems, or installations.

3. Include certification of inspection(s) from the Authority Having Jurisdiction for the applicable work scope(s).

4. Include certification of training.

5. Include certification of Contractor's one-year warranty of materials and workmanship, including effective date(s) of warranty period.

6. Include SDS sheets for all chemicals, adhesives, etc., utilized in the construction process as well as those utilized by or in the constructed system(s).

G. Seismic support calculations and any related required certification(s).

1.05 QUALITY ASSURANCE

A. Manufacturer: A company specializing in manufacturing products specified in Division 22 with a minimum of three years documented experience.

B. Contractor: The contractor shall be a Washington State Licensed Plumber.

C. Backflow Testing: All testing of backflow prevention equipment shall be done by a Washington State Certified Backflow Assembly Tester (BAT) certified to work in buildings.

D. Electrical Work:

1. Contractor: Electrical work required under this Division shall be performed by a Washington State Licensed Electrician.

2. Electrical work required under this Division shall require an Electrical Permit.

a. The Owner shall procure the main electrical permit for the project. Any additional permits required shall be procured by the Contractor.

3. Electrical Equipment

a. Any piece of equipment used in this project and hereinafter specified which, by its nature, requires electrical hookup, such as fans, pumps, hot water tanks, boosters, air handling equipment, etc., shall be provided with an approved label from either Underwriters Laboratories (UL), the American Gas Association (AGA) or the Canadian Standards Association (CSA).

b. Approval of agency must be for the total package (approval of individual components not acceptable) and all labels must be located outside of equipment and shall be visible to inspector.

c. It shall be the responsibility of the Contractor to meet the Agency Approval requirements of this section. Any allowance for agency costs to provide appropriate label for a piece of equipment must be included in this Bid and Contract.

E. Performance Certification: All equipment performance (water flow, heating capacity, etc.) shall be certified by a recognized national agency such as the Air Conditioning and Refrigeration Institute (ARI), Air Movement and Control Association (AMCA) and the American Society of Mechanical Engineers (ASME).

1.06 DELIVERY, STORAGE AND HANDLING

A. Refer to Division 1 for product storage and handling requirements.

B. Lift only with lugs provided. Handle carefully to avoid damage to components, enclosure and finish.

C. Protect products from weather and moisture. Provide coverings of plastic or canvas. Cover openings into pipe and duct. Isolate components from contact with the soil. Provide a means of heating for those components that may become damaged by high or low temperatures.

D. For extended outdoor storage, remove motors and other electrical equipment from enclosures not designed for outdoor use and store separately.

1.07 DEFINITIONS

A. The term "provide" means the furnishing and installing of equipment (including connections and appurtenances) complete and ready for use.

B. The terms "Electrical Contractor (EC)", "Mechanical Contractor (MC)", or "Plumbing Contractor (PC)" as used in these Specifications or on the Contract Drawings, refer to those subcontractors working under the direction of the General Contractor (GC).

1.08 MISCELLANEOUS REQUIREMENTS

A. Intent of Drawings

1. The drawings are intended to depict the general scope of arrangement. The drawings are diagrammatic and do not show the exact details and locations, nor all offsets in ductwork and piping. Provide additional fittings, offsets and extensions in piping, ductwork and related mechanical insulation to provide full systems functionality and to assure access for equipment maintenance and as detailed elsewhere in the contract. Relocate or shift piping and ductwork where conflict exists with other mechanical systems, Structure, Architecture or Electrical. Report conflicts before proceeding with work. Provide reasonable planning and layout in advance of installation in order to avoid conflicts and delays. The Contractor will be directed to adjust systems due to conflicts that could have been reasonably foreseen at the Contractor's own expense.

2. Examine the Architectural, Civil, Structural, Mechanical, and Electrical Drawings before work is started, consult with each of the other Contractors regarding locations and spaces required for the work and lay out work to avoid interference. Failure to provide reasonable coordination shall result in the Contractor, at his own expense, moving his work to provide the necessary space for the other Contractors.

B. Permits and Fees:

1. The Owner has procured initial construction permits (including mechanical) for this project. Any additional permits required shall be procured by the Contractor.

C. Scheduling: Comply with requirements of Division 1.

D. As-Specified Equipment: These specifications and drawings; generally list only one make and model number for each item of equipment or material required for the project. This is not intended to be restrictive but is intended to indicate the standard of quality, design and features required. In addition the listed product is the basis of the design regarding physical size, capacity, electrical power requirements and performance. The product so identified is designated "as specified."

E. Prior Approvals:

1. Specifications have been written around equipment and materials selected for this project based on quality, size, capacity, and performance required to meet building design criteria. All equipment and materials used in this project that have been specified around a specific product or products shall have prior approval for product substitutions.

2. Request for Approval must be submitted in accordance with Division 1 requirements.

3. Supplier and/or Plumbing Contractor shall be responsible to ensure that substituted material or equipment is of same size, quality, capacity, weight and electrical characteristics as that specified or shown on the drawings. Any changes and cost increases required during construction due to substituted equipment; shall be paid by the Contractor/Supplier. Prior approval to bid does not mean final approval of material or equipment. Final approval will be given after final submitted data has been presented, complete with full information regarding weights, capacities, size, electrical requirements and quality.

F. Contractor's Cost Breakdown: Submit a cost breakdown (schedule of values) of the major portions of the work. Provide this submittal along with the equipment submittals. Organize the costs generally by specification section. If one Section (Copper Pipe, for example) applies to both plumbing and hydronics, apportion the appropriate amount to each area of work.

1.09 CLOSEOUT REQUIREMENTS

A. Refer to Division 1 for execution and closeout requirements.

B. Refer to Division 1 for closeout submital procedures.

C. Refer to Division 1 for demonstration and training requirements.

1.10 REQUESTS FOR INFORMATION

A. A Request For Information (RFI) is a formal way to ask questions, document answers and generally expedite project progress. Information requests may be submitted on any form the Contractor finds convenient, but should include the project name, a complete description of the item requested, reference drawing numbers (with location on the drawing indicated) or specification section references of where to find the item in question, and a suggested solution.

B. The Contractor shall number each of the RFI's. This numbering system; shall be sequential, and shall generally be that established by the General Contractor, unless approved otherwise.

C. Information requests submitted with a suggested solution will be processed more rapidly than those without.

PART 2 PRODUCTS

2.01 GENERAL

A. See technical specifications for detailed product specifications.

2.02 DAMAGED OR REJECTED MATERIALS

A. Damaged or rejected materials shall be removed from the site immediately upon discovery.

2.03 MOTORS

A. Motors shall comply with the current edition of the Washington State Energy Code. Service factor for poly-phase motors shall be 1.15. Service factor for single phase motors shall be 1.35.

PART 3 EXECUTION

3.01 EXECUTION

A. Provide all work in accordance with ASME B31.9, Building Services Piping, the UPC, State and local Health Codes, and the requirements of the Authority Having Jurisdiction.

B. The Contractor shall comply with all applicable codes and requirements including but not limited to:

1. ASME B31.9, Building Services Piping.

2. The Uniform Plumbing Code (UPC), including local amendments.

3. Washington State Department of Health requirements.

4. Washington State RCW 18.106.

5. International Building Code requirements as they pertain to plumbing for potable water systems, except as supplemented or modified herein.

6. Requirements of the local Authority Having Jurisdiction (AHJ).

a. Authority Having Jurisdiction: city of Kirkland.

3.02 LAYING OUT WORK

A. Locate all general reference points as established by the General Contractor and take such action as is necessary to prevent their destruction; lay out work and be responsible for all lines, elevations, grading for utilities and other work required under the Contract. Exercise proper precaution to verify figures shown on drawings before laying out work and be responsible for any error resulting from failure to exercise such precaution. Coordinate the utility installation with the final site grading and elevations. Locate existing utility lines that will be affected by the building location before any footing

work begins. Report conflicts with the Plans before proceeding with the work. Failure to follow reasonable precautions with regards to this instruction will require Contractor to alter the work at the Contractor's expense.

3.03 ELECTRICAL WORK

A. All electrical work performed under this Section of the Specifications shall conform to all applicable portions of the Electrical Section of the Specifications, and shall conform to the NEC (NFPA 70) and all applicable codes.

B. All electrical work performed under this Section of the Specifications shall require a permit. Contractor shall obtain & pay for all required permits & fees other than those initially paid for by the Owner.

C. All electrical work performed under this Section of the Specifications shall be performed by a electrician licensed in the jurisdiction where the work is performed.

3.04 WORKMANSHIP

A. Furnish and install all equipment in a neat and finished appearance. If any portion of the work has not been installed in a workmanlike manner, or has been left in a rough, unfinished manner, the Contractor shall remove the equipment, reinstall and patch and paint surrounding surfaces without any increase in cost.

3.05 EXCAVATION - GENERAL

A. Provide all necessary excavation, shoring and backfilling required for the proper installation mechanical systems. Slope sides of excavation to comply with local codes and ordinances having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated. Sewer trenches shall be excavated to the grade with the bottom rounded to the outside of sewer pipes. Bell holes shall be hand excavated to ensure the pipes resting for their entire length upon the bottom of the trench.

B. Excess excavation shall be backfilled with gravel or sand and mechanically compacted to give full support to the pipe. In case of sewer lines in rock excavation, the excavation shall be made at least 4" deeper than required and backfilled with sand to outside invert grades to provide cushion. No underground lines; shall be covered until the installation has been approved by both project personnel and the Local Inspector Having Jurisdiction. Maintain sides and slopes of excavations in safe condition until completion of backfilling. All backfill shall be thoroughly compacted.

C. No cinders shall be used for backfilling where steel, iron or copper pipe is used. Secure approval to excavate for all trenches near or under footings and for backfilling of such trenches.

D. All soil foundation areas which will in any manner support any load bearing building components shall be compacted, by the use of mechanical tampers, to at least 95 % of the maximum density of the soil foundations as determined by the compaction control test in accordance with the "Method of Test for Moisture Density Relations of Soils, ASTM D1557." The moisture control at the time of compaction shall be uniform throughout the area and shall not vary more than 5 % above or below the optimum moisture content as determined by the above described "Compaction Control Test." Place fill in 8" loose layers, each layer compacted.

3.06 EXCAVATION DEWATERING

A. Prevent surface water and subsurface or ground water from flowing into excavations and from flooding project site and surrounding area.

B. Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.

C. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rainwater and water removed from excavations to collection or run off areas. Do not use trench excavations as temporary drainage ditches.

3.07 EXCESS EXCAVATION MATERIAL

A. Legally dispose of dirt and debris from excavation at an off-site location.

3.08 PIPE INSTALLATION

A. Lay pipe in straight lines with uniform slope, leaving no pockets. Care shall be taken to keep all foreign materials out of the pipes during installation. Where ground water is present, provide suction pumps to keep trenches free of water, and cap end of piping exposed to ground water when work is interrupted.

B. All underground piping used for the distribution of domestic water or waste drainage systems, which are located outside the building perimeter, shall be buried a minimum of 36" from finish grade to top of pipe.

C. All piping and ductwork run above the floor shall not be located over electrical panels or switchboards except where located above the structural ceiling. This piping shall include, but not be limited to, sanitary waste and vent, storm drain and rainleaders, domestic water, and condensate drain.

D. Isolation valves shall be provided on inlets and outlets of all major pieces of equipment to facilitate serving and removal of such equipment without the necessity of draining the associated system.

E. Provide detectable metallic underground tape for all buried piping. Install between 6”-12” above piping. Color scheme and text shall be appropriate to the associated system, and can be the manufacturer’s standard color and description.

3.09 OPENINGS IN PIPES

A. Keep closed during the work.

3.10 PIPE SLEEVES AND SEALANTS

A. General: Provide pipe sleeves or sealants for piping passing through foundations, walls, floors, partitions, and roof to allow piping to pass freely through.

B. Floor Slabs On Grade: Standard weight (Schedule 40) galvanized steel pipe. Extend the sleeve 1” above the floor. Provide “Link Seal” or equivalent for moisture resistance. Fill the space above the “Link Seal” with foam or other product to prevent debris build-up in the annular space.

C. Building Walls Above Grade

1. Non-Masonry Construction

a. Non-Fire Rated Assembly: No sleeve is required. If the interior wall contains insulation, insure that the pipe is sealed to the wall on either side. Also insure that the pipe cannot move with respect to the wall so that the sealing system will not become damaged.

2. Masonry Construction

a. Non-Fire Rated Assembly: Core drill and seal with an expanding foam. A galvanized Schedule 40 pipe sleeve is acceptable in lieu of a core drill opening.

D. Floors Above Grade

1. Non-Masonry Construction

a. Non-Fire Rated Assembly: Make a hole in the floor just larger than the pipe and install the pipe. Provide a galvanized sheetmetal flashing around the pipe; install the riser clamp over the sheetmetal flashing. Insure that the galvanized sheetmetal flashing is galvanically isolated from non-ferrous piping. Also insure that standing water will not collect on top of the galvanized flashing

material. The flanged sleeve specified above is also acceptable, provided the annular space is filled with expanding foam.

2. Masonry Construction

a. Non-Fire Rated Assembly: Same as for the non-fire rated non-masonry floor above. Cast in place sleeves and the specified flanged sleeve are also acceptable, provided the annular space is filled with expanding foam.

3.11 WALL AND FLOOR PLATES AND ESCUTCHEONS

A. Where pipes pass through finished walls, floors or ceilings, provide chromium plates, with suitable set screws or other approved holding devices. Where extended sleeves are necessary, the plates shall be of sufficient depth to cover the sleeves.

3.12 INSERTS

A. Inserts in concrete for the suspension of piping and equipment; shall be provided by this Contractor unless otherwise noted on the Plans. Provide as necessary for support of systems installed.

B. Inserts in "poured in place" concrete shall be Grinnell, Kinsdorf, Elcen, or approved equal.

3.13 PIPE HANGERS AND SUPPORTS

A. General: It shall be the responsibility of the Contractor to provide an adequate pipe suspension system in accordance with recognized engineering practices, using, where possible, standard, commercially accepted pipe hangers and accessories. Use a safety factor of five unless otherwise approved in writing.

B. All pipe hangers and supports shall conform to the latest requirements of the ANSI Code for Pressure Piping, B31.9, and Manufacturers Standardization Society Documents MSS SP-58 and MSS-SP-69. Seismic restraints shall be in accordance with the Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA) Seismic Restraint Manual Guidelines for Mechanical Systems. Use Seismic Hazard Level-A unless otherwise indicated.

C. Where thermal movement in the pipe will occur, the pipe hanger assembly must be capable of support in all operating conditions. Accurate weight balance calculations shall be made to determine the supporting force at each hanger location in order to prevent excessive stress in either pipe or equipment connection.

D. Concrete Inserts: Where piping is supported from the concrete structure, inserts shall be provided for rod sizes up to 3/4". Where support rod sizes exceed 3/4" diameter or

where pipe load exceeds the recommended load for the inserts, use two inserts with a trapeze type connecting member below the concrete.

E. Riser Clamps (Vertical Piping): Pipe shall be supported at each floor with a riser clamp or at sufficient intervals to carry the weight and its contents. See the specification for hanger spacing in this section. Stacks shall be supported at their base by a concrete pier or by a suitable hanger located on the horizontal run, close to the riser. Riser clamp extensions shall rest on the building structure where possible; auxiliary steel supports shall be provided where it is impractical to rest directly on the building structure.

F. Hangers shall be subject to tensile loading only. Where lateral or axial movement is anticipated, provide a suitable linkage in hanger rod to permit swing.

G. Materials:

1. Threaded rod: electro-plated steel or hot-dip galvanized steel.

2. Strut and fittings: hot-dip galvanized steel.

3. Auxiliary support materials: hot-dip galvanized steel.

4. All support materials shall be hot dip galvanized if located outdoors, in wet/damp areas, or in corrosive environments.

H. Hanger Spacing: Special instructions for pipe support intervals shall be as detailed on the drawings. General pipe support interval instructions shall be as specified below. For any missing pipe systems, support intervals shall be per the Manufacturer's Standardization Society of the Valve and Fitting Industry (MSS) Standard SP-69, "Pipe Hangers and Supports - Selection and Application" and the current mechanical code in force in the jurisdiction of the work. Where concentrated loads of valves, fittings, etc., occur, closer spacing will be necessary and shall be based on the weight supported and the recommended loads for the hanger components.

1. Cast iron pipe with compression gasket joints

a. Horizontal: Every other joint unless over 4', then support each joint.

1) Where 10' pipe sections are used, 10' horizontal spacing, support within 18" of each joint and at each horizontal branch connection. Brace at every 40' (maximum).

b. Vertical: Base and each floor, 15' maximum.

2. Cast iron (hubless) with shielded coupling joints

a. Horizontal: Every other joint unless over 4', then support each joint.

1) Where 10' pipe sections are used, 10' horizontal spacing, support within 18" of each joint and at each horizontal branch connection. Brace at every 40' (maximum).

2) Hangers shall not be placed on the coupling.

b. Vertical: Base and each floor, 15' maximum.

3. Copper tube & pipe with soldered or brazed joints

a. 1-1/2" and smaller:

1) Horizontal: 6'

2) Vertical: Each floor, 10' maximum.

b. 2" and larger:

1) Horizontal: 10'

2) Vertical: Each floor, 10' maximum.

4. Schedule 40 PVC & ABS DWV piping with solvent cemented joints

a. Horizontal: 4'

1) Allow for expansion every 30'.

b. Vertical: Base and each floor.

1) Provide mid-story guides.

2) Allow for expansion every 30'.

5. Schedule 80 PVC piping, 60-100 deg F operating temperature

a. 1" and smaller:

1) Horizontal: 4-1/2'

2) Vertical:

b. 1-1/4" - 3":

1) Horizontal: 5-1/2'

2) Vertical:

c. 4" - 8":

1) Horizontal: 7-1/2'

2) Vertical:

d. 10" and larger:

1) Horizontal: 10'

2) Vertical:

6. Copper piping with mechanical joints

a. 1" and smaller:

1) Horizontal: 6'

2) Vertical: 10'

b. 1-1/4" to 2-1/2":

1) Horizontal: 10'

2) Vertical: 10'

7. PEX-a piping, rigid:

a. Horizontal: 5'

b. Vertical: 10'

8. PEX-a piping, flexible:

a. Horizontal: 5'

b. Vertical: 5'

I. Hangers (Horizontal Piping):

1. General: All hangers shall be provided with means of vertical adjustment. Hanger components shall be in accordance with the Manufacturer's Standardization Society of the Valve and Fitting Industry (MSS) Standard SP-58, "Pipe Hangers and Supports - Materials, Design and Manufacture".

2. Pipe hangers and supports that are in direct contact with piping shall be of materials that are compatible with the piping and do not support galvanic action.

3. Pipe hangers and supports that are in direct contact with plastic or other malleable piping shall be constructed of materials that do not damage the surface of the piping.

4. Shields shall be placed by Mechanical Contractor on the outside of the insulation and shall be sized to prevent crushing of the high density insert at each hanger location. Do not damage the vapor barrier.

5. Roller Hangers: Provide roller hangers for all applications where thermal movement causes hanger rods to deviate more than 4” from vertical or longitudinal movement exceeds 1/2". Provide roller hangers used in conjunction with protection saddles to suit the insulation thickness.

6. Vibration Control: Provide a vibration control hanger for all piping within a mechanical room and at the first three hanger locations from any motor operated equipment. Hanger shall consist of steel frame and spring with neoprene washers.

7. Anchors, Guides, And Sliding Supports: Shall be provided as necessary to prevent excessive stress in either piping or equipment.

8. Auxiliary Steel: All auxiliary steel necessary for the installation of the pipe hangers and supports shall be designed in accordance with the AISC Steel Handbook, and furnished by the Contractor.

    a. All auxiliary steel shall receive one shop coat of primer paint.

9. Submittals: Submittals on pipe supports will not be required if the Contractor employs items as specified in MSS SP-58, or standard “strut” based products. Submit specifics on all other support types and methodologies.

3.14 CUTTING AND PATCHING

A. General:

1. Prior to cutting, saw cutting, or core drilling any concrete, Contractor shall locate any reinforcing steel (rebar) and the like located in the concrete where the cutting is to be performed. Obtain specific approval prior to cutting any concrete reinforcement. Approval must be obtained for each specific instance of cutting reinforcement.

2. Unless directed otherwise by Structural Documents, maintain the following minimum clearances from any concrete reinforcement:

    a. Reinforcing steel: 2”

B. New Work: Furnish dimensions and locations of openings to other Contractors doing the work. Provide ample time to avoid delays and unnecessary labor. The expense for cutting and patching made necessary to admit work, repair defective material or workmanship, or by neglect to anticipate proper requirements shall be borne by this Contractor.

C. Existing Structure:

1. All necessary cutting and patching of existing structures necessary for the installation of mechanical work shall be as part of this Contract. Unless cutting and patching locations are specifically shown on the drawings, obtain approval prior to proceeding.

2. All surfaces must be patched upon completion of work. Final finish of all patched surfaces (walls, ceilings, floors etc.) shall be done patched to match the adjacent surface.

3.15 ACCESSIBILITY

A. Locate valves, traps, damper operators, access doors, etc., with easy accessibility, either accessible in mechanical spaces or through access panels specified hereinafter. The Contractor shall insure that all maintainable items are easily accessible. New work items not reasonably accessible shall be modified, relocated or otherwise changed for adequate accessibility.

3.16 COORDINATION WITH CONTROLS INSTALLATION

A. Review the controls section of Division 23 and the drawings. Provide installation of any components normally done by mechanical trades (installation of pipe wells, fittings, etc.) that are provided in the Control Specification Section specific to systems in Division 22.

3.17 MAINTENANCE AND OPERATION ACCESS

A. Provide suitable access to all mechanical equipment requiring servicing, maintenance, replacement, or repair.

1. In concealed spaces where access has not been provided by means of doors, hatchways, walkways or other means, provide wall or ceiling access doors of a type suitable to the service intended, sized to provide easy access to all equipment. Location of such doors shall be coordinated with the work of the other trades to avoid conflicts.

2. Access door locations; shall be approved by the Architect prior to installation.

B. Access Panels

1. Provide access panels for all concealed equipment, valves, and the like that requires adjustment or service access, as well as for all wall cleanouts. Panel locations shall be carefully selected on the job so as not to be located behind cabinets, lights, etc.

    a. Coordinate with the work of other Contractors before installing panels.

    b. Panels shall be prime coated and painted to match surrounding surface.

    c. In finished areas, including ceilings, all access panels shall have the same type of finished surface as that of the surrounding area.

    d. Panels shall be size appropriate for the service intended.

    e. Install before surrounding surfaces have been painted.

    f. Access panel doors shall have cylinder lock latch, all keyed alike.

    g. Provide access doors in ceiling or wall adjacent to all fire damper locations.

    h. Verify with Architect the location and finish of all access panels.

    i. Panels shall be J.R. Smith, or equal.

3.18 VIBRATION ISOLATORS

A. General: Provide vibration isolation per the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Applications Manual, Chapter "Noise and Vibration Control". Vibration isolation shall be provided for both isolation from the building structure (devices such as spring hangers, rubber in shear isolators, etc.) and isolation from the mechanical system (devices such as pipe and duct flexible connections). This ASHRAE reference details specifically the method, type of device, and device selection required. Refer to Table 47, "Selection Guide for Vibration Isolation".

B. Equipment that has internal isolation for all internal rotating equipment need not be provided with external vibration isolation.

C. Generally, pumps less than five horsepower will not require vibration isolation from structure.

D. Piping shall be isolated from the structure in accordance with the ASHRAE Applications Manual requirements cited above.

E. Vibration isolation may be combined with the seismic support system, if certified by the isolation equipment manufacturer.

F. Provide vibration isolation in accordance with these Specifications. Specific vibration isolation requirements may be shown on the drawings or specified in other sections. Such specific requirements supercede the general requirements in this paragraph.

3.19 SEISMIC SUPPORT

A. Piping: Support piping per the Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA) Seismic Restraint Manual Guidelines for Mechanical Systems. Use Seismic Hazard Level-A unless otherwise indicated.

B. Equipment: Provide lateral bracing in accordance with the requirements of the Authority Having Jurisdiction. Seismic restraints shall be either factory fabricated for that purpose and selected based on local seismic design criteria, or engineered to local seismic design criteria. Provide all engineering calculation and certification required by the Authority Having Jurisdiction.

3.20 FIRE INTEGRITY

A. Maintain the fire rating of all assemblies (wall, ceiling, floor, etc) penetrated by mechanical systems. Provide approved firestopping materials as previously specified, and install in accordance with the conditions of the material UL listing.

3.21 PRESSURE TESTS AND IN-SERVICE TEST

A. All work under this Contract shall be thoroughly and systematically tested, both during construction and after completion. Pipe testing shall be either as specified in the appropriate specification section, or as specified in the applicable plumbing or mechanical code. Tests shall be maintained until approved.

B. Notifications shall be sent to the following parties 48 hours in advance of all tests:

1. Architect.

2. Owner.

3. Authority Having Jurisdiction over the specific work to be inspected.

    a. Notifications to AHJ shall be provided in accordance with requirements of each specific AHJ, including amount of advance notice allowed.

C. No systems, whether prescribed for testing or not, shall be covered or concealed below ground, in walls, in ceiling spaces, or generally from ease of viewing without first notifying all of the above-listed parties for inspection. Failure to provide such notification of concealed systems shall be cause to require this Contractor to uncover and re-cover such systems at no additional cost.

D. A log of all tests shall be kept. The log shall note date, time of day test started, system or portion of system tested, length of test and test results.

E. The Contractor shall test the completed installation as in regular service. The systems provided under this Contract shall be operated in normal service for a period of at least a week prior to requesting substantial completion inspection, and any resulting defects repaired.

F. The Contractor; shall guarantee the entire system and all parts thereof for a period of one-year from the date of final acceptance, and shall repair or replace any part which may show signs of failure in that time if such failure is due to imperfections in material or to improper workmanship.

3.22 STARTUP, BALANCING AND COMMISSIONING

A. Equipment startup; shall be performed by qualified personnel. The technical specification sections will detail other special requirements, if any. Provide a statement of the startup technician's qualifications if requested by the Architect or elsewhere specified.

B. Balancing, if required under this contract, will be specified in the "Tests and Adjustments" Specification Section in Division 23, or will be detailed on the drawings. Provide any necessary impeller trimming or other modifications to mechanical equipment required for specified performance. The Contractor will not be required to provide new impeller(s) without cost reimbursement unless specifically specified elsewhere in Division 22 or Division 23.

C. Provide startup, functional testing, and documentation to comply with basic commissioning requirements of Washington State Energy Code section C408.

3.23 CLEANING UP

A. Comply with requirements of General Specifications (Division 1, General Conditions, Etc.).

B. Pipes shall be maintained as clean as possible during construction, and shall be blown clean before the building field painting operations are started. Piping shall shall be thoroughly cleaned before systems are operational. Strainers shall be cleaned prior to turning the system(s) over to the owner.

C. All equipment and material installed by this Contractor shall be properly protected from damage during the course of construction. Fixtures around which plaster is installed or paint is applied shall be covered with heavy wrapping paper thoroughly secured. Fixtures and equipment shall be thoroughly cleaned before final inspection. Remove all labels from plumbing fixtures.

3.24 SPECIAL PROTECTION

A. Exercise maximum precaution to provide positive protection for the building and equipment from damage of any kind, and in particular, prevent water and dust seepage into new equipment.

B. Any damage to the building, systems, or property, caused by the Contractor shall result in the Contractor repairing or replacing the damaged item(s) at no additional cost to the Owner. This provision shall include any preventable damage caused by lack of due diligence in planning and investigation, and shall not be applied to field conditions which could not reasonably be ascertained prior to the activity causing damage.

3.25 CAULKING

A. Caulk all openings and flash around all piping, equipment, and ducts passing through roof, floor, and walls.

B. All caulking shall be waterproof, low-VOC, and zero mold growth type.

3.26 FINAL INSPECTION

A. This Contractor shall thoroughly review and inspect the project to determine when final inspection is required, and shall provide notification. It shall be understood that the work shall be essentially complete, and the open items list provided at that time. The warranty period will not start until the punchlist and back-check are complete. Additional inspections required because of lack of diligence by the Contractor will be conducted on a schedule convenient to the inspectors.

3.27 INSTRUCTION PERIODS

A. Scope: Following installation of plumbing work, have representatives of installation tradesmen conduct demonstrations and instruction periods to point out locations of servicing points and required points of maintenance to Owner’s staff.

B. General Description Of Instruction Period: Each period shall include preliminary discussion and presentation of information from maintenance manuals with appropriate references to drawings; followed by tours of building areas explaining maintenance requirements, access methods, servicing and maintenance procedures, and equipment cleaning procedures, temperature control settings and available adjustments.

C. Scheduling Of Instruction Period: Notice of Contractor's readiness to conduct such instruction and demonstration shall be given at least two-weeks prior to the instruction period, and agreement finalized as to the date at which the instruction period is to be performed. Notify two-weeks prior to date when ready to conduct instruction and demonstrations; receive approvals of proposed date prior to making final arrangements.

3.28 ON SITE OBSERVATIONS AND SAFETY MEASURES

A. The Contractor is solely responsible to provide design and construction review services relating to the Contractor's safety precautions or to means, methods, techniques, sequences or procedures required for the Contractor to perform his work. The duty of any other individual or organization to conduct construction observations of the Contractor's performance is not intended to include review of the adequacy of the Contractor's safety measures in, on, or near the construction site. The contractor shall be responsible for providing all safety measures and shall consult with the State and/or Federal Safety Agency or Inspector for interpretation whenever in doubt as to compliance with State and/or Federal regulations. Furthermore, the Contractor distinctly assumes all risk or damages or injury to any persons or property wherever located resulting from any action or operation under this Contract or in connection with the work.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Pressure gauges and pressure gauge taps.

B. Thermometers and thermometer wells.

1.02 REFERENCE STANDARDS

A. ASME B40.100 - Pressure Gauges and Gauge Attachments; 2013.

B. ASTM E1 - Standard Specification for ASTM Liquid-in-Glass Thermometers; 2014.

C. ASTM E77 - Standard Test Method for Inspection and Verification of Thermometers; 2014, with Editorial Revision (2017).

D. UL 393 - Indicating Pressure Gauges for Fire-Protection Service; Current Edition, Including All Revisions.

1.03 SUBMITTALS

A. Refer to Division 1 for submittal procedures.

B. Product Data: Provide list that indicates use, operating range, total range and location for manufactured components.

C. Project Record Documents: Record actual locations of components and instrumentation.

D. Operation and Maintenance Data: Manufacturer's maintenance and operational information.

1.04 FIELD CONDITIONS

A. Do not install instrumentation when areas are under construction, except for required rough-in, taps, supports and test plugs.

PART 2 PRODUCTS

2.01 PRESSURE GAUGES

A. Pressure Gauges: ASME B40.100, UL 393 drawn steel case, phosphor bronze bourdon tube, rotary brass movement, brass socket, with front recalibration adjustment, black scale on white background.

1. Case: Steel with brass bourdon tube.

2. Size: 4-1/2 inch diameter.

3. Mid-Scale Accuracy: One percent.

4. Scale: Psi and kPa.

2.02 PRESSURE GAUGE TAPPINGS

A. Gauge Cock: Tee or lever handle, brass for maximum 150 psi.

B. Needle Valve: Brass, 1/4 inch NPT for minimum 150 psi.

C. Pulsation Damper: Pressure snubber, brass with 1/4 inch connections.

D. Syphon: Steel, Schedule 40, 1/4 inch angle or straight pattern.

2.03 STEM TYPE THERMOMETERS

A. Thermometers - Adjustable Angle: Red- or blue-appearing non-toxic liquid in glass; ASTM E1; lens front tube, cast aluminum case with enamel finish, cast aluminum adjustable joint with positive locking device; adjustable 360 degrees in horizontal plane, 180 degrees in vertical plane.

1. Size: 7 inch scale.

2. Window: Clear Lexan.

3. Accuracy: 2 percent, per ASTM E77.

4. Calibration: Degrees F.

2.04 DIAL THERMOMETERS

A. Thermometers - Adjustable Angle: Dial type bimetallic actuated; ASTM E1; stainless steel case, adjustable angle with front recalibration, silicone fluid damping, white with black markings and black pointer, hermetically sealed lens, stainless steel stem.

1. Size: 3 inch diameter dial.

2. Accuracy: 1 percent.

3. Calibration: Degrees F.

2.05 THERMOMETER SUPPORTS

A. Socket: Brass separable sockets for thermometer stems with or without extensions as required, and with cap and chain.

B. Flange: 3 inch outside diameter reversible flange, designed to fasten to sheet metal air ducts, with brass perforated stem.

2.06 TEST PLUGS

A. Test Plug: 1/4 inch or 1/2 inch brass fitting and cap for receiving 1/8 inch outside diameter pressure or temperature probe with Nordel core for temperatures up to 350 degrees F.

B. Test Kit: Carrying case, internally padded and fitted containing one 2-1/2 inch diameter pressure gauges, one gauge adapters with 1/8 inch probes, two 1 inch dial thermometers.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install two pressure gages per pump, one at suction and one at discharge. Suction side gage shall be compound type.

C. Install pressure gages with pulsation dampers. Provide gage cock to isolate each gage. Extend nipples and siphons to allow clearance from insulation.

D. Install thermometers in piping systems in sockets in short couplings. Enlarge pipes smaller than 2-1/2 inch for installation of thermometer sockets. Ensure sockets allow clearance from insulation.

E. Coil and conceal excess capillary on remote element instruments.

F. Provide instruments with scale ranges selected according to service with largest appropriate scale.

G. Install gauges and thermometers in locations where they are easily read from normal operating level. Install vertical to 45 degrees off vertical.

H. Adjust gauges and thermometers to final angle, clean windows and lenses, and calibrate to zero.

I. Locate test plugs where indicated.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Applications.

B. General requirements.

C. Ball valves.

D. Butterfly valves.

E. Check valves.

1.02 ABBREVIATIONS AND ACRONYMS

A. CWP: Cold working pressure.

B. EPDM: Ethylene propylene copolymer rubber.

C. NBR: Acrylonitrile-butadiene, Buna-N, or nitrile rubber.

D. NRS: Non-rising stem.

E. OS&Y: Outside screw and yoke.

F. PTFE: Polytetrafluoroethylene.

G. RS: Rising stem.

H. SWP: Steam working pressure.

I. TFE: Tetrafluoroethylene.

1.03 REFERENCE STANDARDS

A. ASME B1.20.1 - Pipe Threads, General Purpose (Inch); 2013 (Reaffirmed 2018).

B. ASME B16.1 - Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250; 2015.

C. ASME B16.5 - Pipe Flanges and Flanged Fittings NPS 1/2 Through NPS 24 Metric/Inch Standard; 2017.

D. ASME B16.10 - Face-to-Face and End-to-End Dimensions of Valves; 2017.

E. ASME B16.10 - Face-to-Face and End-to-End Dimensions of Valves; 2009.

F. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings; 2018.

G. ASME B16.34 - Valves - Flanged, Threaded and Welding End; 2017.

H. ASME B16.34 - Valves-Flanged, Threaded, and Welding End; 2013.

I. ASME B31.9 - Building Services Piping; 2017.

J. ASTM B62 - Standard Specification for Composition Bronze or Ounce Metal Castings; 2017.

K. AWWA C606 - Grooved and Shouldered Joints; 2015.

L. MSS SP-80 - Bronze Gate, Globe, Angle and Check Valves; 2013.

M. MSS SP-110 - Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends; 2010.

N. NSF 61 - Drinking Water System Components - Health Effects; 2017.

O. NSF 372 - Drinking Water System Components - Lead Content; 2016.

1.04 SUBMITTALS

A. Refer to Division 1 for submittal procedures.

B. Product Data: Provide data on valves including manufacturers catalog information. Submit performance ratings, rough-in details, weights, support requirements, and piping connections.

C. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

D. Operation and Maintenance Data: Include manufacturer's descriptive literature, operating instructions, maintenance and repair data, and parts listings.

1.05 QUALITY ASSURANCE

A. Manufacturer:

1. Obtain valves for each valve type from single manufacturer.

2. Company must specialize in manufacturing products specified in this section, with not less than three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Prepare valves for shipping as follows:

1. Minimize exposure of operable surfaces by setting plug and ball valves to open position.

2. Protect valve parts exposed to piped medium against rust and corrosion.

3. Protect valve piping connections such as grooves, weld ends, threads, and flange faces.

4. Adjust globe, gate, and angle valves to the closed position to avoid clattering.

5. Secure check valves in either the closed position or open position.

6. Adjust butterfly valves to closed or partially closed position.

B. Use the following precautions during storage:

1. Maintain valve end protection and protect flanges and specialties from dirt.

a. Provide temporary inlet and outlet caps.

b. Maintain caps in place until installation.

2. Store valves in shipping containers and maintain in place until installation.

a. Store valves indoors in dry environment.

b. Store valves off the ground in watertight enclosures when indoor storage is not an option.

1.07 EXERCISE THE FOLLOWING PRECAUTIONS FOR HANDLING:

A. Handle large valves with sling, modified to avoid damage to exposed parts.

B. Avoid the use of operating handles or stems as rigging or lifting points.

PART 2 PRODUCTS

2.01 APPLICATIONS

A. Provide the following valves for the applications if not indicated on drawings:

1. Shutoff: Ball or butterfly.

2. Swing Check (Pump Outlet):

a. 2 inch and Smaller: Bronze swing check valves with bronze disc.

B. Substitutions of valves with higher CWP classes or SWP ratings for same valve types are permitted when specified CWP ratings or SWP classes are not available.

C. Domestic, Hot and Cold Water Valves:

1. 2 NPS and Smaller:

a. Bronze: Provide with solder-joint, threaded, or press-fit ends.

b. Ball: One piece, full port, brass or bronze with bronze trim.

c. Bronze Swing Check: Class 125, bronze disc.

d. Bronze Globe: Class 125, bronze disc.

2.02 GENERAL REQUIREMENTS

A. Valve Pressure and Temperature Ratings: No less than rating indicated; as required for system pressures and temperatures.

B. Valve Sizes: Match upstream piping unless otherwise indicated.

C. Valve Actuator Types:

1. Hand Lever: Quarter-turn valves 6 NPS and smaller.

D. Valves in Insulated Piping: With 2 NPS stem extensions and the following features:

1. Ball Valves: Extended operating handle of non-thermal-conductive material, and protective sleeve that allows operation of valve without breaking the vapor seal or disturbing insulation.

2. Butterfly Valves: Extended neck.

3. Memory Stops: Fully adjustable after insulation is installed.

E. Valve-End Connections:

1. Threaded End Valves: ASME B1.20.1.

2. Flanges on Iron Valves: ASME B16.1 for flanges on iron valves.

3. Pipe Flanges and Flanged Fittings 1/2 NPS through 24 NPS: ASME B16.5.

4. Solder Joint Connections: ASME B16.18.

5. Grooved End Connections: AWWA C606.

F. General ASME Compliance:

1. Ferrous Valve Dimensions and Design Criteria: ASME B16.10 and ASME B16.34.

2. Solder-joint Connections: ASME B16.18.

3. Building Services Piping Valves: ASME B31.9.

G. Valve Materials for Potable Water: NSF 61 and NSF 372.

H. Bronze Valves:

1. Fabricate from dezincification resistant material.

2. Copper alloys containing more than 15 percent zinc are not permitted.

I. Source Limitations: Obtain each valve type from a single manufacturer.

2.03 BRASS BALL VALVES

A. Two Piece, Full Port with Brass or Bronze Trim:

1. Comply with MSS SP-110.

2. SWP Rating: 150 psig.

3. CWP Rating: 600 psig.

4. Body: Forged brass.

5. Ends: Threaded.

6. Seats: PTFE.

7. Stem: Brass.

8. Ball: Chrome-plated brass.

B. Three Piece, Full Port with Brass or Bronze Trim:

1. Comply with MSS SP-110.

2. SWP Rating: 150 psig.
3. CWP Rating: 600 psig.
4. Body: Forged brass.
5. Ends: Threaded.
6. Seats: PTFE or TFE.
7. Stem: Stainless steel.
8. Ball: Stainless steel, vented.

2.04 BRONZE BALL VALVES

A. Two Piece, Full Port with Brass or Bronze Trim:

1. Comply with MSS SP-110.
2. SWP Rating: 150 psig.
3. CWP Rating: 600 psig.
4. Body: Bronze.
5. Ends: Threaded.
6. Seats: PTFE or TFE.
7. Stem: Bronze.
8. Ball: Chrome plated brass.

B. Three Piece, Full Port with Bronze or Brass Trim:

1. Comply with MSS SP-110.
2. SWP Rating: 150 psig.
3. CWP Rating: 600 psig.
4. Body: Bronze.
5. Ends: Threaded.
6. Seats: PTFE or ____

7. Stem: Bronze.

8. Ball: Chrome plated brass.

2.05 BRONZE SWING CHECK VALVES

A. Class 125: CWP Rating: 200 psig (1380 kPa).

1. Comply with MSS SP-80, Type 3.

2. Design: Horizontal flow.

3. Body: Bronze, ASTM B62.

4. Ends: Threaded as indicated.

5. Disc: Bronze.

PART 3 EXECUTION

3.01 EXAMINATION

A. Discard all packing materials and verify that valve interior, including threads and flanges are completely clean without signs of damage or degradation that could result in leakage.

B. Verify valve parts to be fully operational in all positions from closed to fully open.

C. Confirm gasket material to be suitable for the service, to be of correct size, and without defects that could compromise effectiveness.

D. Should valve is determined to be defective, replace with new valve.

3.02 INSTALLATION

A. Provide unions or flanges with valves to facilitate equipment removal and maintenance while maintaining system operation and full accessibility for servicing.

B. Provide separate valve support as required and locate valve with stem at or above center of piping, maintaining unimpeded stem movement.

C. Where valve support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welds.

D. Install check valves where necessary to maintain direction of flow as follows:

1. Lift Check: Install with stem plumb and vertical.

2. Swing Check: Install horizontal maintaining hinge pin level.

END OF SECTION

DIVISION 22—PLUMBING
Section 22 05 53—Identification For Plumbing Piping And Equipment

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Nameplates.

B. Tags.

C. Pipe markers.

1.02 REFERENCE STANDARDS

A. ASME A13.1 - Scheme for the Identification of Piping Systems; 2015.

B. ASTM D709 - Standard Specification for Laminated Thermosetting Materials; 2017.

1.03 SUBMITTALS

A. Refer to Division 1 for submittal procedures.

B. List: Submit list of wording, symbols, letter size, and color coding for mechanical identification.

C. Chart and Schedule: Submit valve chart and schedule, including valve tag number, location, function, and valve manufacturer's name and model number.

D. Product Data: Provide manufacturers catalog literature for each product required.

E. Project Record Documents: Record actual locations of tagged valves.

PART 2 PRODUCTS

2.01 IDENTIFICATION APPLICATIONS

A. Instrumentation: Tags.

B. Piping: Pipe markers.

C. Pumps: Nameplates.

D. Small-sized Equipment: Tags.

E. Tanks: Nameplates.

F. Valves: Tags.

2.02 NAMEPLATES

A. Description: Laminated three-layer plastic with engraved letters.

1. Letter Color: White.

2. Letter Height: 1/4 inch.

3. Background Color: Black.

4. Plastic: Comply with ASTM D709.

2.03 TAGS

A. Plastic Tags: Laminated three-layer plastic with engraved black letters on light contrasting background color. Tag size minimum 1-1/2 inch diameter.

B. Valve Tag Chart: Typewritten letter size list in anodized aluminum frame.

2.04 PIPE MARKERS

A. Comply with ASME A13.1.

B. Plastic Tape Pipe Markers: Flexible, vinyl film tape with pressure sensitive adhesive backing and printed markings.

C. Underground Plastic Pipe Markers: Bright colored continuously printed plastic ribbon tape, minimum 6 inches wide by 4 mil thick, manufactured for direct burial service.

1. Pipe marking/warning ribbon tape used at plastic piping locations shall be detectable type.

D. Color code as follows:

1. Potable and Other Water: Green with white letters.

2. Drain, Waste, Vent: Yellow with black letters.

PART 3 EXECUTION

3.01 PREPARATION

A. Degrease and clean surfaces to receive adhesive for identification materials.

3.02 INSTALLATION

A. Install plastic nameplates with corrosive-resistant mechanical fasteners, or adhesive. Apply with sufficient adhesive to ensure permanent adhesion and seal with clear lacquer.

B. Install tags with corrosion resistant chain.

C. Install plastic tape pipe markers complete around pipe in accordance with manufacturer's instructions.

D. Install underground plastic pipe markers 6 to 8 inches below finished grade, directly above buried pipe.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Piping insulation.

B. Jackets and accessories.

1.02 RELATED REQUIREMENTS

A. Section 22 10 05 - Plumbing Piping: Placement of hangers and hanger inserts.

1.03 REFERENCE STANDARDS

A. ASTM C177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus; 2019.

B. ASTM C195 - Standard Specification for Mineral Fiber Thermal Insulating Cement; 2007 (Reapproved 2013).

C. ASTM C449 - Standard Specification for Mineral Fiber Hydraulic-Setting Thermal Insulating and Finishing Cement; 2007 (Reapproved 2013).

D. ASTM C534/C534M - Standard Specification for Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form; 2016.

E. ASTM C547 - Standard Specification for Mineral Fiber Pipe Insulation; 2017.

F. ASTM C795 - Standard Specification for Thermal Insulation for Use in Contact with Austenitic Stainless Steel; 2008 (Reapproved 2018).

G. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2018b.

H. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials; 2016.

I. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials; Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. Refer to Division 1 for submittal procedures.

B. Product Data: Provide product description, thermal characteristics, list of materials and thickness for each service, and locations.

C. Operation & Maintenance Data: Provide product information and manufacturer's operation & maintenance information for all products used.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with not less than three years of documented experience.

B. Applicator Qualifications: Company specializing in performing the type of work specified in this section with minimum two years of experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Accept materials on site, labeled with manufacturer's identification, product density, and thickness.

1.07 FIELD CONDITIONS

A. Maintain ambient conditions required by manufacturers of each product.

B. Maintain temperature before, during, and after installation for minimum of 24 hours.

PART 2 PRODUCTS

2.01 REGULATORY REQUIREMENTS

A. Surface Burning Characteristics: Flame spread index/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84 or UL 723.

2.02 GLASS FIBER

A. Insulation: ASTM C547 and ASTM C795; rigid molded, noncombustible.

1. K Value: ASTM C177, 0.24 at 75 degrees F.

2. Maximum Service Temperature: 850 degrees F.

3. Maximum Moisture Absorption: 0.2 percent by volume.

B. Insulation: ASTM C547 and ASTM C795; semi-rigid, noncombustible, end grain adhered to jacket.

1. K Value: ASTM C177, 0.24 at 75 degrees F.

2. Maximum Service Temperature: 650 degrees F.

3. Maximum Moisture Absorption: 0.2 percent by volume.

C. Vapor Barrier Jacket: White Kraft paper with glass fiber yarn, bonded to aluminized film; moisture vapor transmission when tested in accordance with ASTM E96/E96M of 0.02 perm-inches.

D. Tie Wire: 0.048 inch stainless steel with twisted ends on maximum 12 inch centers.

E. Vapor Barrier Lap Adhesive: Compatible with insulation.

F. Insulating Cement/Mastic: ASTM C195; hydraulic setting on mineral wool.

G. Fibrous Glass Fabric:

1. Cloth: Untreated; 9 oz/sq yd weight.

2. Blanket: 1.0 lb/cu ft density.

H. Indoor Vapor Barrier Finish:

1. Cloth: Untreated; 9 oz/sq yd weight.

2. Vinyl emulsion type acrylic, compatible with insulation, black color.

I. Outdoor Vapor Barrier Mastic: Vinyl emulsion type acrylic or mastic, compatible with insulation, black color.

J. Outdoor Breather Mastic: Vinyl emulsion type acrylic or mastic, compatible with insulation, black color.

K. Insulating Cement: ASTM C449.

2.03 FLEXIBLE ELASTOMERIC CELLULAR INSULATION

A. Insulation: Preformed flexible elastomeric cellular rubber insulation complying with ASTM C534/C534M Grade 1; use molded tubular material wherever possible.

1. Minimum Service Temperature: Minus 40 degrees F.

2. Maximum Service Temperature: 220 degrees F.

3. Connection: Waterproof vapor barrier adhesive.

2.04 JACKETS

A. PVC Plastic.

1. Jacket: One piece molded type fitting covers and sheet material, off-white color.

a. Minimum Service Temperature: 0 degrees F.

b. Maximum Service Temperature: 150 degrees F.

c. Moisture Vapor Permeability: 0.002 perm inch, maximum, when tested in accordance with ASTM E96/E96M.

d. Thickness: 10 mil.

e. Connections: Brush on welding adhesive.

2. Covering Adhesive Mastic: Compatible with insulation.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that piping has been tested before applying insulation materials.

B. Verify that surfaces are clean and dry, with foreign material removed.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install in accordance with North American Insulation Manufacturers Association (NAIMA) National Insulation Standards.

C. Exposed Piping: Locate insulation and cover seams in least visible locations.

D. Insulated pipes conveying fluids below ambient temperature: Insulate entire system including fittings, valves, unions, flanges, strainers, flexible connections, and expansion joints.

E. Glass fiber insulated pipes conveying fluids below ambient temperature:

1. Provide vapor barrier jackets, factory-applied or field-applied. Secure with self-sealing longitudinal laps and butt strips with pressure sensitive adhesive. Secure with outward clinch expanding staples and vapor barrier mastic.

2. Insulate fittings, joints, and valves with molded insulation of like material and thickness as adjacent pipe. Finish with glass cloth and vapor barrier adhesive or PVC fitting covers.

F. For hot piping conveying fluids 140 degrees F or less, do not insulate flanges and unions at equipment, but bevel and seal ends of insulation.

G. Glass fiber insulated pipes conveying fluids above ambient temperature:

1. Provide standard jackets, with or without vapor barrier, factory-applied or field-applied. Secure with self-sealing longitudinal laps and butt strips with pressure sensitive adhesive. Secure with outward clinch expanding staples.

2. Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe. Finish with glass cloth and adhesive or PVC fitting covers.

H. Inserts and Shields:

1. Application: Piping 1-1/2 inches diameter or larger.

2. Shields: Galvanized steel between pipe hangers or pipe hanger rolls and inserts.

3. Insert Location: Between support shield and piping and under the finish jacket.

4. Insert Configuration: Minimum 6 inches long, of same thickness and contour as adjoining insulation; may be factory fabricated.

5. Insert Material: Hydrous calcium silicate insulation or other heavy density insulating material suitable for the planned temperature range.

I. Continue insulation through walls, sleeves, pipe hangers, and other pipe penetrations. Finish at supports, protrusions, and interruptions. At fire separations, refer to Section 07 84 00.

J. Pipe Exposed in Mechanical Equipment Rooms or Finished Spaces (less than 10 feet above finished floor): Finish with PVC jacket and fitting covers.

K. Buried Piping: Provide factory fabricated assembly with inner all-purpose service jacket with self-sealing lap, and asphalt impregnated open mesh glass fabric, with one mil thick aluminum foil sandwiched between three layers of bituminous compound; outer surface faced with a polyester film.

L. Heat Traced Piping: Insulate fittings, joints, and valves with insulation of like material, thickness, and finish as adjoining pipe. Size large enough to enclose pipe and heat tracer. Cover with PVC jacket with seams located on bottom side of horizontal piping.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Copper pipe and fittings.

B. PE pipe and fittings.

1.02 REFERENCE STANDARDS

A. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings; 2018.

B. ASTM D2774 - Standard Practice for Underground Installation of Thermoplastic Pressure Piping; 2012.

C. ASTM F645 - Standard Guide for Selection, Design, and Installation of Thermoplastic Water- Pressure Piping Systems; 2015.

D. NSF 61 - Drinking Water System Components - Health Effects; 2017.

E. NSF 372 - Drinking Water System Components - Lead Content; 2016.

1.03 SUBMITTALS

A. Refer to Division 1 for submittal procedures.

B. Product Data: Provide data on pipe materials, pipe fittings, valves, and accessories. Provide manufacturers catalog information. Indicate valve data and ratings.

C. Coordination Drawings (Site Piping): For piping and specialties including relation to other services in same area, drawn to scale. Show piping and specialty sizes and valves, meter and specialty locations, and elevations.

D. Project Record Documents:

1. Record actual installed locations of piping, valves, & equipment.

2. Identify and describe unexpected variations to subsoil conditions or discovery of undocumented utilities.

E. Operation & Maintenance Data: Provide product information and manufacturer's operation & maintenance information for all products used.

F. Purging and Disinfecting Reports

1.04 QUALITY ASSURANCE

A. Perform work in accordance with applicable codes.

B. Manufacturers: A company specializing in manufacturing products specified in this section with a minimum of three years documented experience.

C. Installers: The installer shall have a minimum of five continuous years' experience installing systems specified in this section and at least ten projects of similar size and scope.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

1.06 FIELD CONDITIONS

A. Do not install underground piping when bedding is wet or frozen.

B. Perform site survey, research public utility records, and verify existing utility locations. Contact utility-locating service for area where Project is located. Pothole and locate existing utilities prior to connection to existing utility. Locations shown on the plans have not been verified, and Contractor shall anticipate the actual location may differ from that shown. Service line serving the picnic area has not been field located.

C. Verify that water-service piping may be installed to comply with original design and referenced standards.

1.07 COORDINATION

A. Coordinate connection to water service with utility provider.

PART 2 PRODUCTS

2.01 COPPER PIPE AND FITTINGS

A. Pipe: ASTM B88, Type-L.

B. Fittings and flanges:

1. Cast Bronze Fittings: ASME B16.15.

2. Cast Copper Alloy Solder Joint Pressure Fittings: ASME B16.18.

3. Wrought Copper and Copper Alloy Solder Joint Pressure Fittings: ASME B16.22.

4. Cast Copper Alloy Fittings for Flared Copper Tubes: ASME B16.26.

C. Alternate Fittings and Flanges:

1. Press fitting, Viega Rigid, conforming to the material and sizing requirements of ASME B16.18 or ASME B16.22. O-ring for copper press fittings shall be EPDM.

D. Solder: ASTM B32, lead free.

E. Expansion Joints

1. Lateral Motion: Braided stainless steel, flanged, 270 PSI working pressure at 70 degrees F, similar to Keflex KE-VIBES 4" KDCS-FLG.

2. Axial Motion: Multiple bellows, flanged end, 150 PSI working pressure, stainless bellows, 2" travel, similar to Keflex Multi-flex expansion joint, Model M-15-00-P15-020, single unit.

3. Flexible couplings may be used where required to accommodate thermal expansion and vibration movement. Provide a minimum of (3) flexible couplings in close proximity as recommended by manufacturer to attenuate equipment vibration at all rotating equipment, including pumps.

2.02 POLYETHYLENE (PE) PIPING

A. SDR 9 conforming to AWWA, C901. Service lines shall be copper-tube size with a minimum pressure rating of 200 psi and standard dimension ratio not to exceed 9. Pipe shall be either black with blue striping or blue in color. Stainless steel stiffening inserts are required at all connection points.

PART 3 EXECUTION

3.01 GENERAL PIPING INSTALLATION

A. General: Install per the Uniform Plumbing Code (UPC). Any UPC installation instructions located in Appendix “I” (“Installation Standards”) for a specific piping material specified in this section applies to the work of this section.

B. Preparation:

1. Clean off scale and dirt inside and outside before assembly. Cut pipes and tubes square and ream to remove all burrs.

2. Cut pipe accurately to field measurements so work can be placed without springing or forcing.

C. Installation:

1. Install so piping is free to expand, provide for all expansion with offsets or loops where necessary. Branch connections shall have three elbow spring pieces to allow for expansion.

2. All changes in direction shall be made with fittings. All radius; shall be long radius.

3. Arrange piping so as not to interfere with access or removal of other equipment or devices, block access to doors, windows, manholes or other access openings.

4. Arrange piping to facilitate the removal of tube bundles, coils, etc. Provide unions ahead of screwed valves, traps or strainers on each side of each piece of equipment and wherever needed to dismantle piping.

5. All piping shall be properly pitched and graded to drain moisture and/or vent air.

6. Each low point shall have an accessible blind flange or screwed plug or cap.

7. Route pipe to avoid liquid or air pockets throughout the work. Provide at high points of closed systems, collecting chambers and automatic air vents.

8. Make reductions in pipe size using eccentric reducing fittings installed to provide drainage and venting.

9. Nipples shall be of the same material as pipe. Close nipples shall not be used.

10. Install pipe in neat and workmanlike manner, in accordance with best trade practice. Install to conserve headroom and interfere as little as possible with use of space. Run exposed piping parallel to walls unless otherwise shown. Where possible, group runs and rises.

11. Install concealed pipes in walls with clearance around piping to prevent contact with structure.

12. Pipes passing through concrete or masonry construction shall be fitted with sleeves. The inside diameter of pipe sleeves shall be at least 1/2" larger than the outside diameter of the pipe or pipe covering. See Section 22 05 00, Common Work Results for Plumbing, for sleeve fabrication and installation instructions.

13. At all connections between ferrous and non-ferrous pipe:

    a. Small Bore Pipe: Provide dielectric waterway fittings that maintain external electrical continuity while maintaining internal isolation.

b. Large Bore Pipe: Provide dielectric flanges.

14. Rated Penetration Seals: Per Chapter 15, "Firestop Protection", of the Uniform Plumbing Code.

15. For site piping, ensure that minimum vertical clearances, as required by local Water Utility, are provided where crossing other utilities.

16. Transition couplings and special fittings with pressure ratings at least equal to piping pressure rating may be used, unless otherwise indicated.

17. Do not use unions for underground piping.

D. Installation, Building Service Connection

1. Install piping, connecting to existing building service line. Ensure that minimum vertical clearances, as required by utility provider, are provided where crossing other utilities.

2. Install piping as indicated, unless deviations to layout are approved on Coordination Drawings.

3. Piping Connections: Conforming to utility provider requirements.

3.02 APPLICATIONS

A. Within Building Footprint:

1. Above-grade, exposed areas, domestic water CW, HW, TW, and HWC: Copper

2. Above grade, concealed areas, domestic water CW, HW, TW, and HWC: Copper

3. Below grade, domestic water CW: Copper

B. Outside Building Footprint:

1. Below grade, domestic water CW: Copper or PE

3.03 EARTHWORK

A. Preparation

1. Identify required lines, levels, contours, and datum locations.

2. Locate, identify, and protect utilities that remain and protect from damage.

3. Protect bench marks, survey control points, and existing structures from excavating equipment and vehicular traffic.

4. Grade top perimeter of trenching area to prevent surface water from draining into trench. Provide temporary means and methods, as required, to maintain surface water diversion until no longer needed, or as directed by the Architect.

B. Trenching

1. Notify Architect of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.

2. Slope banks of excavations deeper than 4 feet to angle of repose or less until shored.

3. Do not interfere with 45 degree bearing splay of foundations.

4. Cut trenches wide enough to allow inspection of installed utilities.

5. Hand trim excavations. Remove loose matter.

6. Remove large stones and other hard matter that could damage piping or impede consistent backfilling or compaction.

7. Remove excavated material that is unsuitable for re-use from site.

8. Remove excess excavated material from site.

9. Provide temporary means and methods, as required, to remove all water from trenching until directed by the Architect. Remove and replace soils deemed unsuitable by classification and which are excessively moist due to lack of dewatering or surface water control.

10. Determine the prevailing groundwater level prior to trenching. If the proposed trench extends less than 1 foot into the prevailing groundwater, control groundwater intrusion with perimeter drains routed to sump pumps, or as directed by the Architect.

C. Preparation for Utility Placement

1. Cut out soft areas of subgrade not capable of compaction in place. Backfill with general fill.

2. Compact subgrade to density equal to or greater than requirements for subsequent fill material.

3. Until ready to backfill, maintain excavations and prevent loose soil from falling into excavation.

D. Backfilling

1. Backfill to contours and elevations indicated using unfrozen materials.

2. Fill up to subgrade elevations unless otherwise indicated.

3. Employ a placement method that does not disturb or damage other work.

4. Systematically fill to allow maximum time for natural settlement. Do not fill over porous, wet, frozen or spongy subgrade surfaces.

5. Maintain optimum moisture content of fill materials to attain required compaction density.

6. Granular Fill: Place and compact materials in equal continuous layers not exceeding 6 inches compacted depth.

7. Soil Fill: Place and compact material in equal continuous layers not exceeding 8 inches compacted depth.

8. Slope grade away from building minimum 2 inches in 10 feet, unless noted otherwise. Make gradual grade changes. Blend slope into level areas.

9. Correct areas that are over-excavated.

   a. Other areas: Use general fill, flush to required elevation, compacted to minimum 97 percent of maximum dry density.

10. Compaction Density Unless Otherwise Specified or Indicated:

11. Reshape and re-compact fills subjected to vehicular traffic.

E. Bedding and Fill at Specific Locations

1. Piping:

   a. Bedding: Use pipe zone bedding or sand.

   b. Cover with general fill.

   c. Fill up to subgrade elevation.

   d. Compact in maximum 6 inch lifts to 95 percent of maximum dry density.

3.04 COPPER PIPING INSTALLATION

A. Copper Tube

1. Solder joints shall be made in accordance with the methods of ASTM B828. All cut tube ends shall be reamed to the full inside diameter of the tube end. All joint surfaces shall be cleaned. A flux conforming to ASTM B812 shall be applied. The joint shall be soldered with a solder conforming to ASTM B32. The joining of water supply piping shall be made with lead free solders and fluxes. "Lead free" shall mean a chemical composition equal to or less than 0.2 % lead.

2. Braze all below ground copper tube joints. All joint surfaces shall be cleaned. An approved flux shall be applied where required. The joint shall be brazed with a filler metal conforming to AWS A5.8.

B. Press Connections: Copper press fittings shall be made in accordance with the manufacturer's installation instructions. The tubing shall be fully inserted into the fitting and the tubing marked at the shoulder of the fitting. The fitting alignment shall be checked against the mark on the tubing to assure the tubing is fully engaged (inserted) in the fitting. The joints shall be pressed using the tool approved by the manufacturer.

3.05 PE PIPING INSTALLATION

A. General

1. Install PE pipe according to ASTM D 2774 and ASTM F 645.

2. Bury piping with depth of cover over top at least 36 inches.

3. Extend water-service piping from connection point to existing water service line connect to building-water-piping systems at outside face of building wall in locations and pipe sizes indicated.

   a. Terminate water-service piping at 5 feet from building wall until building-water-piping systems are installed. Terminate piping with caps, plugs, or flanges as required for piping material. Make connections to building-water-piping systems when those systems are installed.

B. Joint Construction

1. Make pipe joints according to the following:

   a. PE Piping Insert-Fitting Joints: Use plastic insert fittings and fasteners according to fitting manufacturer's written instructions.

b. Dissimilar Materials Piping Joints: Use adapters compatible with both piping materials, with OD, and with system working pressure.

C. Connections

1. Piping installation requirements: Conform to utility provider requirements.

2. Connect water-distribution piping at downstream end of meters.

3. Connect water-distribution piping to interior domestic water piping.

D. Field Quality Control

1. Piping Tests: Conform to utility provider requirements.

2. Hydrostatic Tests: Conform to utility provider requirements.

3. Prepare reports of testing activities.

4. Conform to utility provider requirements for service connections.

E. Identification

1. Install continuous underground detectable warning tape during backfilling of trench for underground water-distribution piping. Locate 6 to 8 inches below finished grade, directly over piping.

3.06 FIELD QUALITY CONTROL

A. Inspect water distribution piping:

1. Do not enclose, cover, or put into operation water distribution piping system until it has been inspected and approved by the appropriate authority having jurisdiction.

2. During progress of the installation, notify the plumbing official having jurisdiction at least two (2) working days prior to the time inspection must be made. Perform tests specified below in the presence of the Plumbing Inspector.

a. Ground work Inspection: Arrange for inspection of all plumbing systems located beneath any poured concrete slabs or foundations.

b. Roughing-In Inspection: Arrange for inspection of piping system before concealed or closed-in after system roughing-in and prior to setting fixtures.

c. Final Inspection: Arrange for final inspection by plumbing official to observe tests specified below and to ensure compliance with requirements of plumbing code.

3. Re-inspections: When a Plumbing Inspector finds that piping system will not pass test or inspection, make required corrections and arrange for re-inspection by the Plumbing Inspector.

4. Reports: Prepare and submit inspection reports signed by the Plumbing Inspector.

B. Testing water distribution system:

1. Test for leaks and defects in new water distribution piping systems and parts of existing systems that have been altered, extended, or repaired. If testing is performed in segments, submit separate report for each test, complete with diagram of portion of system tested.

2. Leave uncovered and unconcealed in new, altered, extended, or replaced water distribution piping until it has been tested and approved. Expose work that has been covered or concealed before it has been tested and approved for testing.

3. Cap and subject the piping system to a static water pressure of 50 psi above the operating pressure without exceeding pressure rating of piping system materials. Isolate test-source and allow it to stand for 4 hours. Leaks and loss in test pressure constitute defects that must be repaired.

4. Repair leaks and defects with new materials and retest system or portion thereof until satisfactory results are obtained.

3.07 CLEANING:

A. Clean and disinfect water distribution piping:

1. Purge new potable water distribution piping systems and parts of existing potable water systems that have been altered, extended, or repaired prior to use.

2. Use purging and disinfecting procedure prescribed by authority having jurisdiction or, if a method is not prescribed by that authority, the procedure described in either AWWA C651 or AQQA C652 or as described below:

a. Flush piping system with clean, potable water until dirty water does not appear at outlets.

b. Fill system or part thereof with water/chlorine solution containing at least 50 parts per million of chlorine. Isolate (valve off) and allow it to stand for 24 hours.

c. Drain system or part thereof of previous solution and refill with water/chlorine solution containing at least 200 parts per million of chlorine. Isolate and allow it to stand for 3 hours.

d. Flush system with clean, potable water until chlorine does not remain in water coming from system following allowed standing time.

e. Submit water samples in sterile bottles to authority having jurisdiction. Repeat procedure if biological examination made by authority shows evidence of contamination.

B. Prepare and submit reports for purging and disinfecting activities.

C. Clean interior of piping system. Remove dirt and debris as work progresses.

3.08 COMMISSIONING

A. Fill water systems.

B. Before operating systems, perform these steps:

1. Close drain valves, hydrants, and hose bibs.

2. Open shutoff valves to full open position.

3. Remove plugs used during testing of piping systems and plugs used for temporary sealing of piping during installation.

4. Check plumbing equipment and verify proper settings, adjustments, and operation.

5. Do not operate water heaters before filling with water.

6. Check plumbing specialties and verify proper settings, adjustments, and operation.

7. Energize pumps and verify proper operation.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Strainers

B. Trap Primers

C. Dielectric Connections

D. Automatic Air Vents

E. Water Hammer Arrestors

F. Pressure Reducing Valves

G. Backflow Preventers

H. Thermostatic Mixing Valve Assemblies

I. Wall Hydrants

1.02 REFERENCE STANDARDS

A. International Association of Plumbing and Mechanical Officials (IAPMO)

1. Uniform Plumbing Code (UPC)

1.03 SUBMITTALS

A. See Division 1 for submittal procedures.

B. Product data.

C. Installation instructions.

1.04 DELIVERY, STORAGE AND HANDLING

A. Refer to Division 1 for product storage and handling requirements.

1.05 CLOSEOUT REQUIREMENTS

A. Refer to Division 1 for closeout submital procedures.

B. Refer to Division 1 for demonstration and training requirements.

PART 2 PRODUCTS

2.01 STRAINERS

A. Provide on high pressure side of pressure reducing valves, on suction side of pumps, on inlet side of indicating and control instruments and equipment subject to sediment damage and where shown on drawings. Strainer element shall be removable without disconnection of piping.

B. Water: Strainers shall be wye-type with easily removable cover and brass strainer basket.

C. Body: Smaller than 80mm (3”), brass or bronze; 80mm (3”) and larger, cast iron or semi-steel.

D. Accessories:

1. Provide blowdown valves for strainers. Blowdown valves shall be ball valves with 3/4" hose connection and thread-on hose cap.

2.02 TRAP PRIMERS

A. J.R. Smith, PPP Inc., or equal.

2.03 DIELECTRIC CONNECTIONS

A. Union Type

B. Flange Type

2.04 AUTOMATIC AIR VENTS:

A. Float type with isolating valves, brass or semi-steel body, copper float, stainless steel valve and valve seat. Suitable for system operating temperature and pressure, but not less than 80 PSIG.

2.05 WATER HAMMER ARRESTORS

A. Stainless steel shell and bellows, nitrogen pressurized compression chamber, Jay R. Smith Hydrotrol or approved equal.

2.06 PRESSURE REDUCING VALVES

A. Single-seated, for dead end service for 30lb to 125lb range on low-pressure side. Composition diaphragm and stainless steel springs, bronze body with threaded

connections for sizes 1/2" to 2", cast iron or semi-steel body with brass or bronze trimmings and flanged connections for sizes 2½" to 4".

B. Operation: Diaphragm and spring to act directly on valve stem. Delivered pressure shall vary not more than 1lb for each 10lb variation on inlet pressure.

C. Setting: Entering water pressure, discharge pressure, capacity, size, and related measurements shall be as shown on the drawings.

D. Connections at Valves And Strainers: Install shut off valve on each side of reducing valve and full sized bypass with shut off valve. Install strainer on inlet side of, and same size as pressure reducing valve. Install pressure gauge on low pressure side of line.

2.07 BACKFLOW PREVENTERS

A. Install backflow preventers per the requirements of the Uniform Plumbing Code; Article 603 "Cross Connection Control". All backflow preventers shall be listed by the State of Washington, Department of Health, as an approved cross-connection control device.

B. Reduced Pressure Backflow Preventer: ASSE 1013.

2.08 THERMOSTATIC MIXING VALVE ASSEMBLIES

A. Point Of Use Mixing Valves

1. Point-of-use thermostatic tempering valve with lead-free brass, bronze, and stainless steel construction. Valve shall be pressure tested to 125 PSI. Valve shall have tamper resistant temperature control handle & protective cap.

2.09 WALL HYDRANTS

A. Freezeproof

1. Box type with integral vacuum breaker.

PART 3 EXECUTION

3.01 STRAINERS

A. Provide blowdown valves with 3/4" hose connections at all strainer locations.

3.02 DIELECTRIC CONNECTIONS

A. Provide dielectric connections at all connections between ferrous and non-ferrous pipe:

1. Small Bore Pipe: Provide dielectric waterway fittings that maintain external electrical continuity while maintaining internal isolation.

2. Large Bore Pipe: Provide dielectric flanges.

3.03 AUTOMATIC AIR VENTS

A. Locate automatic air vents at high points in piping system.

B. Where air vents are located in inaccessible locations, covered locations, or in locations where leakage could potentially damage the building in any way, provide drain piping from the air vent to the nearest approved indirect drain receptor.

1. Drain piping shall not be run to drain locations in public areas.

3.04 WATER HAMMER ARRESTORS

A. Provide water hammer arrestors for all restroom groups. Size and provide in accordance with the Manufacturer's Instructions.

3.05 BACKFLOW PREVENTERS

A. Provide isolation valves and strainers for all backflow preventer assemblies.

3.06 THERMOSTATIC MIXING VALVE ASSEMBLIES

A. General

1. Install temperature-actuated water mixing valves with check stops or shutoff valves on inlets and with shutoff valve on outlet.

B. Labelling

1. Provide explanatory text on signs. Identify units. Distinguish among units, inform operator of operating requirements, indicate safety and emergency precautions, and warn of hazards and improper operations.

C. Setup, Testing & Adjusting

1. Startup of mixing valve assemblies shall be performed by factory-trained technicians. Perform startup of valve system in accordance with manufacturer's instructions.

2. Set field-adjustable temperature set points of temperature-actuated water mixing valves. Adjust set point within allowable temperature range.

3. Remove and replace malfunctioning thermostatic mixing valves and retest.

3.07 TRAP PRIMERS

A. Provide trap primers and connections for all floor drains and low-usage traps.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Cast iron piping.

1.02 REFERENCE STANDARDS

A. General: References used throughout Division 22 are generally accepted industry standards. The edition of the criteria cited shall be that in force at the time of bid. The Contractor shall provide all work in accordance with codes and standards in force in the Authority Having Jurisdiction for the project, to include all local amendments.

B. ASTM A74 - Standard Specification for Cast Iron Soil Pipe and Fittings.

C. ASTM A888 - Standard Specification for Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications.

D. ASTM C1277 - Standard Specification for Shielded Couplings Joining Hubless Cast Iron Soil Pipe and Fittings.

E. ASTM C564 - Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings

F. CISPI 301 – Standard Specification for Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications.

G. CISPI 310 – Specification for Coupling for Use in Connection with Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications.

H. CSA CAN/CSA B602M - Mechanical Couplings for Drain, Waste and Vent Pipe and Sewer Pipe.

I. IAPMO IS 1 – Non-Metallic Building Sewers

J. IAPMO IS 5 – ABS Building Drain, Waste and Vent Pipe and Fittings

K. IAPMO IS 9 – PVC Building Drain, Waste and Vent Pipe and Fittings

L. IAPMO IS 11 – ABS Sewer Pipe and Fittings

M. UPC - Uniform Plumbing Code

1.03 SUBMITTALS

A. See Division 1 for submittal procedures.

B. Product Data: Pipe, fittings and accessories.

C. Operation & Maintenance Data: Provide product information and manufacturer's operation & maintenance information for all products used.

D. Project Record Documents: Record actual locations of equipment and cleanouts. Record actual locations, including invert elevations, of buried sanitary waste piping.

1.04 QUALITY ASSURANCE

A. Perform work in accordance with applicable codes.

B. Manufacturers: A company specializing in manufacturing products specified in this section with a minimum of three years documented experience.

C. Installers: The installer shall have a minimum of five continuous years' experience installing systems specified in this section and at least ten projects of similar size and scope.

1.05 DELIVERY, STORAGE AND HANDLING

A. Refer to Division 1 for product storage and handling requirements.

1.06 CLOSEOUT REQUIREMENTS

A. Refer to Division 1 for execution and closeout requirements.

B. Refer to Division 1 for closeout submital procedures.

C. Refer to Division 1 for demonstration and training requirements.

PART 2 PRODUCTS

2.01 CAST IRON PIPE AND FITTINGS

A. Soil, Drain, Waste & Vent Piping: Hubless cast iron (ASTM A888/CISPI 301) or bell and spigot cast iron (ASTM A74).

B. Bell & Spigot Fittings: ASTM A74 with ASTM C564 compression gaskets.

C. Hubless Fittings: ASTM A888/CISPI 310

1. Couplings: CISPI 310 or ASTM C1277

2. Elastomeric Sealing Sleeve: ASTM C564 or CSA CAN/CSA B602M, with center stop.

PART 3 EXECUTION

3.01 DRAINAGE, WASTE, VENT & SEWER

A. General: Except as modified herein all DWV piping installation shall be in accordance with the plumbing code in place at the Authority Having Jurisdiction, including all reference standards and installation instructions.

B. A horizontal soil and waste pipe shall be given a grade of 1/4" per foot where possible, but in no case less than 1/8" per foot. All main vertical soil and waste stacks shall be installed with provision for expansion and shall be extended full-size to and above roof lines as vents, except where otherwise specifically indicated. All vent lines shall be run through roof and shall terminate not less than 12' 0" from any opening to building, in roof, or 1' 0" above such openings.

C. Where practical, two or more vent pipes shall be connected together and extended as one pipe through roof. Vent pipes in roof spaces shall be run as close as possible to underside of roof, with horizontal piping pitched down to stacks without forming traps in pipes, using fittings as required.

D. Vertical vent pipes may be connected into one main riser above vented fixture. Where an end or circuit vent pipe from fixture or line of fixtures is connected to a vent line serving other fixtures, connections shall be located to prevent use of any vent line as a waste.

E. Provide cleanouts at all locations required to permit cleaning of all sewer piping. Cleanouts shall be full-sized of pipe, but not larger than 4". This shall include cleanouts at base of all vertical lines, ends of all horizontal main runs, and elsewhere as shown on Drawings. Cleanout openings shall be closed with brass screw plugs. Where cleanouts occur in floor, furnish and install a brass ferrule, complete with screwed brass cover, flush with floor.

F. All pipes passing through roof shall be flashed with 4lb sheet lead, which shall extend at least 10" in all directions from pipe and run at least 12" above roof around pipe. Each pipe shall be counter flashed with 4lb lead sleeve, turned down inside of pipe and overlapping lower flashing at least 2". Adjustable neoprene or santoprene vent flashings, manufactured and certified for that specific purpose, are also acceptable if installed in accordance with manufacturer's recommendations.

G. Tests: Sanitary and waste lines shall be tested with water at a pressure of not less than 5lb PSI. Duration of test shall be not less than 24-hours, and shall be witnessed by Architect. If any piping is found to leak, all defects shall be remedied and test repeated.

H. Provide cleanouts as specified in Section 22 13 19, Sanitary Waste Piping Specialties.

3.02 APPLICATIONS

A. Within Building Footprint:

1. Below grade, sanitary sewer, general use: Cast iron

2. Below grade, vent, general use: Cast iron

3. Above grade, sanitary sewer, general use: Cast iron

4. Above grade, vent, general use: Cast iron

B. Outside Building Footprint:

1. Below grade, sanitary sewer, general use: Cast iron

2. Below grade, vent, general use: Cast iron

3. Above grade, vent, general use: Cast iron

3.03 CAST IRON PIPE INSTALLATION

A. Hub & Spigot Compression Gasket: Conform to manufacturer's instructions. Gaskets shall be compressed with the pipe is fully inserted.

B. Mechanical Joints for Hubless Cast Iron: Install in accordance with manufacturer's instructions and CISPI standards (except for acid-resistant piping).

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Flexible pipe joints

B. Drains

C. Cleanouts

1.02 REFERENCE STANDARDS

A. American Society of Sanitary Engineers (ASSE)

1. ASSE 1051 – Individual and Branch Type Air Admittance Valves for Sanitary Drainage Systems

B. American Society of Testing and Materials (ASTM)

1. ASTM D4101 – Standard Specification for Polypropylene Injection and Extrusion Materials

C. International Association of Plumbing and Mechanical Officials

1. UPC – Uniform Plumbing Code

D. National Sanitation Foundation International (NSF)

1. NSF 14 - Plastics Piping System Components and Related Materials

1.03 SUBMITTALS

A. See Division 1 for submittal procedures.

B. Product Data: Valves, pipe joints, drains and all other specialty components specified herein.

C. Installation instructions.

1.04 DELIVERY, STORAGE AND HANDLING

A. Refer to Division 1 for product storage and handling requirements.

1.05 CLOSEOUT REQUIREMENTS

A. Refer to Division 1 for execution and closeout requirements.

B. Refer to Division 1 for closeout submital procedures.

C. Refer to Division 1 for demonstration and training requirements.

PART 2 PRODUCTS

2.01 FLEXIBLE PIPE JOINTS

A. Expansion Joints: Waste/Vent/Storm Drain Stacks: JR Smith Model 1710 or approved equal.

B. Flexible Pipe Joints: Waste/Vent/Storm Drain: Metraflex Model 201 or approved equal.

2.02 FLOOR DRAINS, FUNNEL DRAINS, AND FLOOR SINKS

A. Drains shall be Josam, Jay R. Smith, Sioux Chief, Wade, Zurn, or approved equal.

B. Floor Drains: duco cast iron body with flashing collar, square polished nickel bronze adjustable strainer head and grate, trap primer connection and vandal proof screws. Size as per Plans.

C. Floor And Funnel Drains: Duco cast iron two piece body with flashing collar, seepage openings, round polished nickel bronze adjustable strainer head and grate complete with 4" diameter polished nickel bronze funnel, trap primer connection and vandal proof screws.

2.03 CLEANOUTS

A. Cleanouts shall be Josam, Jay R. Smith, Sioux Chief, Wade, Zurn, or approved equal.

B. Floor: Duco cast iron body with round adjustable scoriated secured nickel bronze top, gasket seal-ABS countersunk closure plug, complete with flashing flange and clamp.

C. Wall: Duco cast iron caulk ferrule with cast iron countersunk closure plug. Provide with stainless steel cover and screw.

PART 3 EXECUTION

3.01 GENERAL

A. Install specialties in accordance with the International Plumbing Code and the Manufacturer’s installation instructions.

3.02 DRAINS

A. Provide the drainage equipment and all piping, for a complete drainage system as shown and detailed on Plans.

B. Provide water pipe connections to trap primers and run the primer lines to the drains. Verify location of trap primers with Architect before installing.

C. See Section 22 11 19, Domestic Water Piping Specialties, for trap primers.

3.03 CLEANOUTS

A. Provide cleanouts as indicated on the plans, and as required by the Uniform Plumbing Code.

B. Provide cleanouts at the locations specified below, regardless of whether or not indicated on the drawings:

1. Drains Within Buildings: Not more than 100’ apart.

2. Drains Outside Of Buildings: Not more than 100’ apart.

3. Changes of Direction Inside Buildings: At each fitting of greater than 45 degrees. Where more than one change of direction occurs in a run of piping, only one cleanout shall be required for each 40’ of developed length of the drainage piping.

4. Building Sewer Junction: Provide a cleanout at the junction between the building drain and building exterior sewer. Provide a 2-way cleanout at this junction.

C. Install in accordance with Manufacturer’s instructions.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Water Heaters:

1. Commercial electric (tank type).

B. Diaphragm-type compression tanks.

C. In-line circulator pumps.

1.02 REFERENCE STANDARDS

A. ASME BPVC-VIII-1 - Boiler and Pressure Vessel Code, Section VIII, Division 1 - Rules for Construction of Pressure Vessels; 2019.

B. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum); 2018.

C. NEMA MG 1 - Motors and Generators; 2017.

D. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

E. UL 174 - Standard for Household Electric Storage Tank Water Heaters; Current Edition, Including All Revisions.

F. UL 778 - Standard for Motor-Operated Water Pumps; Current Edition, Including All Revisions.

G. UL 1453 - Standard for Electric Booster and Commercial Storage Tank Water Heaters; Current Edition, Including All Revisions.

1.03 SUBMITTALS

A. Refer to Division 1 for submittal procedures.

B. Product Data:

1. Provide dimension drawings of water heaters indicating components and connections to other equipment and piping.

2. Indicate pump type, capacity, power requirements.

3. Provide certified pump curves showing pump performance characteristics with pump and system operating point plotted. Include NPSH curve when applicable.

4. Provide electrical characteristics and connection requirements.

C. Project Record Documents: Record actual locations of components.

D. Operation and Maintenance Data: Include operation, maintenance, and inspection data, replacement part numbers and availability, and service depot location and telephone number.

E. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.

B. Certifications:

1. Water Heaters: NSF approved.

2. Electric Water Heaters: UL listed and labeled to UL 174.

3. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc., as suitable for the purpose specified and indicated.

C. Identification: Provide pumps with manufacturer's name, model number, and rating/capacity identified by permanently attached label.

D. Performance: Ensure pumps operate at specified system fluid temperatures without vapor binding and cavitation, are non-overloading in parallel or individual operation, operate within 25 percent of midpoint of published maximum efficiency curve.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Provide temporary inlet and outlet caps. Maintain caps in place until installation.

1.06 WARRANTY

A. Refer to Division 1 for additional warranty requirements.

B. Provide five year manufacturer warranty for domestic water heaters.

PART 2 PRODUCTS

2.01 WATER HEATERS

A. Commercial Electric (Tank Type)

1. Type: Tank-type commercial electric water heater, single element, vertical orientation, configured for wall mount installation.

2. Construction: Non-ASME construction, steel shell with foam insulation and metal outer jacket, glass lined, factory dielectric fittings, bottom-mounted pipe connections, protective magnesium anode rod, factory-installed temperature & pressure relief valve, screw-in type single immersed heating element.

3. Electrical: Field convertible between voltage options, single element operation.

4. Controls: Fully automatic thermostat controls with fast-acting surface mount thermostat and high-limit cutoff with manual reset.

5. Accessories:

    a. Provide with wall mounting bracket and drain pan with mounting bracket.

2.02 DIAPHRAGM-TYPE COMPRESSION TANKS

A. Welded steel, rated for working pressure of 150 psig, with flexible EPDM diaphragm sealed into tank, with antimicrobial tank liner. Factory pre-charged to 40 psig.

2.03 IN-LINE CIRCULATOR PUMPS

A. Casing: Bronze, rated for 125 psig working pressure, with stainless steel rotor assembly.

B. Impeller: Bronze.

C. Shaft: Alloy steel with integral thrust collar and two oil lubricated bronze sleeve bearings.

D. Seal: Carbon rotating against a stationary ceramic seat.

E. Drive: Flexible coupling.

F. Accessories:

    1. Provide with aquastat and timer for pump control.

2.04 ELECTRICAL WORK

A. Provide electrical motor driven equipment specified complete with motors, motor starters, controls, and wiring.

B. Furnish motor starters complete with thermal overload protection and other appurtenances necessary for the motor control specified.

C. Supply manual or automatic control and protective or signal devices required for the operation specified, and any control wiring required for controls and devices not shown.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install plumbing equipment in accordance with manufacturer's instructions, as required by code, and complying with conditions of certification, if any.

B. Coordinate with plumbing piping and related electrical work to achieve operating system.

C. Pumps:

1. Provide line sized isolating valve and strainer on suction and line sized soft seated check valve and balancing valve on discharge.

2. Ensure pumps operate at specified system fluid temperatures without vapor binding and cavitation, are non-overloading in parallel or individual operation, and operate within 25 percent of midpoint of published maximum efficiency curve.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Water closets.

B. Lavatories.

C. Service sinks.

D. Under-lavatory pipe supply covers.

E. Drinking fountains.

1.02 REFERENCE STANDARDS

A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.

B. ASME A112.18.9 - Protectors/Insulators for Exposed Waste and Supplies on Accessible Fixtures; 2011 (Reaffirmed 2017).

C. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.

D. NSF 61 - Drinking Water System Components - Health Effects; 2017.

E. NSF 372 - Drinking Water System Components - Lead Content; 2016.

1.03 SUBMITTALS

A. Refer to Division 1 for submittal procedures.

B. Product Data: Provide catalog illustrations of fixtures, sizes, rough-in dimensions, utility sizes, trim, and finishes.

C. Maintenance Data: Include fixture trim exploded view and replacement parts lists.

D. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.

1. Refer to Division 1 for execution and closeout requirements.

2. Flush Valve Service Kits: Two for each type and size.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Accept fixtures on site in factory packaging. Inspect for damage.

B. Protect installed fixtures from damage by securing areas and by leaving factory packaging in place to protect fixtures and prevent use.

1.06 WARRANTY

A. Refer to Division 1 for additional warranty requirements.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Potable Water Systems: Provide plumbing fittings and faucets that comply with NSF 61 and NSF 372 for maximum lead content; label pipe and fittings.

2.02 FLUSH VALVE WATER CLOSETS

A. Wall Hung Water Closets (P-1)

1. Fixture shall be wall hung blowout-jet type water closet. Fixture shall be constructed of 14 gauge 304 stainless steel. Exposed surfaces shall have a satin finish with seamless welded construction. Fixture shall have an elongated bowl shape, with self-draining flushing rim. Fixture shall be ASME A112.19.3 and CSA B45.4 compliant. Trap shall have a minimum 3-1/2" seal, and shall pass a 2-1/8" diameter ball, and be fully enclosed. Toilet waste outlet shall be a gasketed waste. Fixture shall be designed for 1.28 gpf operation.

2. Provide with hinged seat with open front.

3. Provide with wall carrier.

4. Flush valve

a. Exposed type sensor-operated flush valve.

b. Flush valve shall be designed for 1.28 gpf operation.

c. Flush valve shall be battery operated.

d. Cover, valve body, control stop, and sweat solder kit shall be constructed of semi-red brass.

e. Valve shall have chrome plated finish.

f. Diaphragm shall be synthetic rubber.

g. Valve shall be ASSE 1037 compliant.

h. Valve shall be ADA compliant.

2.03 LAVATORIES

A. Wall Hung Lavatories (P-2)

1. Fixture shall be wall mount type. Fixture shall be fabricated from 14 gauge 304 stainless steel. Exposed surfaces shall be seamless welded and polished to satin finish.

2. Provide with wall carrier.

3. Provide with grid strainer and tailpiece.

4. Provide with trap enclosure.

5. Fixture shall be ADA compliant.

6. Faucet

a. Provide with sensor-operated faucet with fixed outlet temperature and 0.50 gpm aerator.

b. Faucet shall be single-hole, single supply type for tempered water supply.

c. Faucet shall be battery operated.

d. Faucet shall be field-adjustable with multiple selectable modes and operational ranges.

e. Faucet body shall have total lead content equal to or less than 0.25% by weighted average.

f. Faucet shall be ASME A112.18.1 and ADA ANSI/ICC A117.1 compliant.

2.04 UNDER-LAVATORY PIPE SUPPLY COVERS

A. General:

1. Insulate exposed drainage piping including hot, cold and tempered water supplies under lavatories or sinks per ADA Standards.

2. Adhesives, sewing threads and two ply laminated materials are prohibited.

3. Exterior Surfaces: Smooth nonabsorbent with no finger recessed indentations for easy cleaning.

4. Construction: 1/8 inch PVC with antimicrobial, antifungal and UV resistant properties.

   a. Comply with ASME A112.18.9 for covers on accessible lavatory piping.

   b. Comply with ICC A117.1.

5. Color: High gloss white.

6. Fasteners: Reusable, snap-locking fasteners with no sharp or abrasive external surfaces. No cable ties allowed.

2.05 DRINKING FOUNTAINS

A. Wall Mount Drinking Fountains (P-3)

1. Drinking fountain shall be wall mount, high-low type. Fixture shall be constructed of 14-gauge stainless steel with satin finish. Fixture shall have push-button operators with front-accessible cartridges. Waterways shall be 100% lead-free. Bubblers shall be chrome-plated brass, with vandal-resistant design. Waste strainers shall be chrome-plated brass. Fixture shall have integral 1-1/4" traps.

2. Fixture shall be freeze-resistant configuration.

3. Provide with wall mounting bracket(s).

4. Provide with fountain manufacturer's satin-stainless steel wall finish plates.

5. Provide with bottle filler attachment.

   a. Provide with upper front panel for bottle filler attachment.

   b. Provide with bottle filler splash tray.

B. Wall Mount Pet Drinking Fountain (P-3A)

1. Pet fountain shall be wall mount type. Pedestal and arm shall be powder coated steel pipe construction. Receptor shall be 18 gauge stainless steel with slow-

draining pebble guard covered chrome plated brass drain plug. Spout shall be brushed aluminum, locked to receptor with vandal resistant steel guard. Valve shall be chrome plated brass pushbutton assembly recessed in steel plate with adjustable flow regulation.

a. Mounting shall include base and wall mount attachment points.

b. Supply pipe connections shall be 1/2" reinforced vinyl tubing with 1/2" IPS connections and stainless steel fittings.

c. Provide with powdercoat finish. Color shall be as selected by architect from manufacturer's optional color range.

2.06 SERVICE SINKS

A. Service Sinks (P-4)

1. Fixture shall be rectangular floor mount utility sink. Fixture shall be constructed from terazzo material with compressive strength of no less than 3000 psi. All exposed surfaces shall be ground smooth and sealed. Sink shall have coved corners and the bottom shall be pitched for positive drainage to the drain outlet.

   a. Service sink shall be 36"x24", with 12" height.

2. Strainer: Beehive dome strainer.

3. Faucet: Chrome finish wall mount faucet with integral vacuum breaker, pail hook, & hose attachment threads.

4. Accessories:

   a. Rubber drain gasket.

   b. Mop hanger.

   c. Stainless steel wall guard panels, for 2 sides.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that walls and floor finishes are prepared and ready for installation of fixtures.

3.02 PREPARATION

A. Rough-in fixture piping connections in accordance with minimum sizes indicated in fixture rough-in schedule for particular fixtures.

3.03 INSTALLATION

A. Install each fixture with trap, easily removable for servicing and cleaning.

B. Provide chrome plated rigid or flexible supplies to fixtures with loose key stops, reducers, and escutcheons.

C. Install components level and plumb.

D. Install and secure fixtures in place with wall carriers and bolts.

1. Wall carriers shall be JR Smith or Zurn.

E. Caulk wall mounted fixtures where the fixture is in contact with the wall.

F. Supply connections shall be hard piped with copper piping only. Slip joint fittings shall not be acceptable.

G. Waste, drain, and soil connections to be of full size of trap or fixture outlet. All fixtures shall be firmly fastened in place by the use of anchored bolts and backing. Wherever the weight of the fixture requires, this Contractor shall make special provisions for the attachment of fixtures as directed and approved. Traps shall comply with UPC Section 1003.1 with a minimum 17-gauge. Thickness and with manufacturer's name and gauge stamped legibly in the metal of the trap.

3.04 ADJUSTING

A. Adjust stops or valves for intended water flow rate to fixtures without splashing, noise, or overflow.

3.05 CLEANING

A. Clean plumbing fixtures and equipment.

3.06 PROTECTION

A. Protect installed products from damage due to subsequent construction operations.

B. Repair or replace damaged products before Date of Substantial Completion.

END OF SECTION

DIVISION **23**

HEATING, VENTILATING, & AIR CONDITIONING (HVAC)

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General requirements for Division 23 (HVAC).

1.02 SUMMARY

A. Section includes all general requirements that apply to the entirety of Division 23 – HVAC, both interior and exterior to the building, as indicated on the plans and specified herein.

B. All specification sections with Division 23 – HVAC are complementary. All specification sections within Division 23 shall be considered to reference each other.

C. Provide all HVAC work as indicated in the drawings and specified herein.

1.03 REFERENCE STANDARDS

A. General: References used throughout Division 23 are generally accepted industry standards. The edition of the criteria cited shall be that in force at the time of bid. The Contractor shall provide all work in accordance with codes and standards in force in the Authority Having Jurisdiction for the project, to include all local amendments.

1.04 SUBMITTALS

A. See Division 1 for submittal procedures.

B. Product Data: Provide product data for all components and equipment provided under this Division.

1. Product sheets with more than one item or option shown shall have the product(s) and options to be used on the project clearly identified.

2. Any equipment or materials installed or furnished without prior approval of the Owner's Representative shall be rejected and such materials will be required to be removed and replaced with approved materials at the expense of the Contractor.

C. Manufacturer's Installation Instructions: Indicate installation instructions and recommendations.

D. Field Quality Control Submittals: Indicate test reports and inspection reports.

E. Project Record Documents:

1. Record actual routing of installed piping and ductwork, including elevation (or depth for buried items).

2. Record actual equipment and components installed, as well as locations.

3. RFI's, change orders, and the like shall be noted on the Record Documents where these affect the layout or other aspect of project shown on the documents. References to these shall include the RFI/change order number as well as written description(s), sketch(es), etc., indicating the change or clarification.

4. Record actual location of installed valves, sensors, dampers, and other control components.

    a. Include riser diagram(s) and schedule of valve tags and locations.

5. Record actual location and type of vibration isolation devices.

6. Final record documents:

    a. Upon completion of the project the as-built information shall be neatly transferred to a clean set Plans. This set of Plans shall be submitted for final approval and acceptance.

F. Operation and Maintenance (O&M) Data:

1. Include manufacturer's descriptive literature, operating instructions of equipment and controls, maintenance and repair data, and parts listings.

2. Include manufacturer's warranty information, including any extended warranties, or certifications of warranties required for specific products, systems, or installations.

3. Include certification of inspection(s) from the Authority Having Jurisdiction for the applicable work scope(s).

4. Include certification of training.

5. Include certification of Contractor's one-year warranty of materials and workmanship, including effective date(s) of warranty period.

G. Seismic support calculations and any related required certification(s).

H. Design-build Scope(s):

1. Provide shop drawings, design calculations, and other design information for design-build or contractor-design scopes required by these documents. This information shall be provided for review and approval prior to beginning work.

1.05 QUALITY ASSURANCE

A. Manufacturer: A company specializing in manufacturing products specified in Division 23 with a minimum of three years documented experience.

B. Contractor: Mechanical work required under this Division shall be performed by a Washington State Licensed Mechanical Contractor.

C. Electrical work required under this Division shall require an Electrical Permit.

1. The Owner shall procure the main electrical permit for the project. Any additional permits required shall be procured by the Contractor.

D. Electrical Equipment

1. Any piece of equipment used in this project and hereinafter specified which, by its nature, requires electrical hookup, such as fans, pumps, hot water tanks, boosters, air handling equipment, etc., shall be provided with an approved label from either Underwriters Laboratories (UL), the American Gas Association (AGA) or the Canadian Standards Association (CSA).

2. Approval of agency must be for the total package (approval of individual components not acceptable) and all labels must be located outside of equipment and shall be visible to inspector.

E. Performance Certification: All equipment performance (airflow, heating capacity, cooling capacity, etc.) shall be certified by a recognized national agency such as the Air Conditioning and Refrigeration Institute (ARI), Air Movement and Control Association (AMCA) and the American Society of Mechanical Engineers (ASME).

1.06 DELIVERY, STORAGE AND HANDLING

A. Refer to Division 1 for product storage and handling requirements.

B. Lift only with lugs provided. Handle carefully to avoid damage to components, enclosure and finish.

C. Protect products from weather and moisture. Provide coverings of plastic or canvas. Cover openings into pipe and duct. Isolate components from contact with the soil. Provide a means of heating for those components that may become damaged by high or low temperatures.

D. For extended outdoor storage, remove motors and other electrical equipment from enclosures not designed for outdoor use and store separately.

1.07 DEFINITIONS

A. The term "approved equal" means final approval by the Architect of a material or piece of equipment substituted for that which is shown in the Specifications or Plans.

B. The term "provide" means the furnishing and installing of equipment (including connections and appurtenances) complete and ready for use.

C. The term "Mechanical Contractor (MC)" and "Electrical Contractor (EC)" as used in these Specifications or on the Contract Drawings, refer to those subcontractors working under the direction of the General Contractor (GC).

1.08 MISCELLANEOUS REQUIREMENTS

A. Intent of Drawings

1. The drawings are intended to depict the general scope of arrangement. The drawings are diagrammatic and do not show the exact details and locations, nor all offsets in ductwork and piping. Provide additional fittings, offsets and extensions in piping, ductwork and related mechanical insulation to provide full systems functionality and to assure access for equipment maintenance and as detailed elsewhere in the contract. Relocate or shift piping and ductwork where conflict exists with other mechanical systems, Structure, Architecture or Electrical. Report conflicts before proceeding with work. Provide reasonable planning and layout in advance of installation in order to avoid conflicts and delays.

2. Examine the Architectural, Civil, Structural and Electrical Drawings before work is started, coordinate locations and spaces required for the work and lay out work to avoid interference.

B. Permits and Fees:

1. The Owner has procured initial construction permits (including mechanical) for this project. Any additional permits required shall be procured by the Contractor.

C. Scheduling: Comply with requirements of Division 1.

D. As-Specified Equipment: These specifications and drawings generally list only one make and model number for each item of equipment or material required for the project. This is not intended to be restrictive but is intended to indicate the standard of quality, design and features required. In addition the listed product is the basis of the design regarding physical size, capacity, electrical power requirements and performance. The product so identified is designated "as specified."

E. Prior Approvals:

1. Specifications have been written around equipment and materials selected for this project based on quality, size, capacity, and performance required to meet building design criteria. All equipment and materials used in this project that have been specified around a specific product or products shall have prior approval for product substitutions.

2. Request for Approval must be submitted in accordance to Division 1 requirements, including allowable review time and type of form. If no form is specified, use the form published by the Construction Specifications Institute. Submittal information shall be accompanied with full data information regarding items to be substituted.

3. Supplier and/or Mechanical Contractor shall be responsible to ensure that substituted material or equipment is of same size, quality, capacity, weight and electrical characteristics as that specified or shown on the drawings. Any changes and cost increases required during construction due to substituted equipment shall be paid by the Contractor/Supplier. Prior approval to bid does not mean final approval of material or equipment. Final approval will be given after final submitted data has been presented, complete with full information regarding weights, capacities, size, electrical requirements and quality.

F. Contractor's Cost Breakdown: Submit a cost breakdown (schedule of values) of the major portions of the work. Provide this submittal along with the equipment submittals. Organize the costs generally by specification section.

1.09 CLOSEOUT REQUIREMENTS

A. Refer to Division 1 for execution and closeout requirements.

B. Refer to Division 1 for closeout submital procedures.

C. Refer to Division 1 for demonstration and training requirements.

1.10 REQUESTS FOR INFORMATION

A. Refer to Division 1 for general requirements for RFI procedures and forms.

B. Information requests may be submitted on any form the Contractor finds convenient, but should include the project name, a complete description of the item requested, reference drawing numbers (with location on the drawing indicated) or specification section references of where to find the item in question, and a suggested solution.

C. The Contractor shall number each of the RFI's. This numbering system shall be sequential, and shall generally be that established by the General Contractor, unless approved otherwise.

D. Information requests submitted with a suggested solution will be processed more rapidly than those without.

PART 2 PRODUCTS

2.01 DAMAGED OR REJECTED MATERIALS

A. Damaged or rejected materials shall be removed from the site immediately upon discovery.

2.02 MOTORS

A. Motors shall comply with the current edition of the Washington State Energy Code. Service factor for poly-phase motors shall be 1.15. Service factor for single phase motors shall be 1.35.

B. In addition to the requirements in Paragraph "A" above, motors for variable frequency drives shall be of premium efficiency and are suitable for VFD operation ("Inverter Ready") in accordance with NEMA MG-1, Part 31.4.4.2. Additionally, motors shall be acceptable to the manufacturer of the drive for inverter use. "Inverter Duty" motors are not necessarily required.

PART 3 EXECUTION

3.01 LAYING OUT WORK

A. Locate all general reference points and take such action as is necessary to prevent their destruction lay out work and be responsible for all lines, elevations, grading for utilities and other work required under the Contract. Exercise proper precaution to verify figures shown on drawings before laying out work and be responsible for any error resulting from failure to exercise such precaution. Coordinate the utility installation with the final site grading and elevations. Locate existing utility lines that will be affected by the building location before any footing work begins. Report conflicts with the Plans before proceeding with the work. Failure to follow reasonable precautions with regards to this instruction will require Contractor to alter the work at the Contractor's expense.

3.02 ELECTRICAL WORK

A. All electrical work performed under this Section of the Specifications shall conform to all applicable portions of the Electrical Section of the Specifications, and shall conform to the NEC and other all applicable codes.

B. All electrical work performed under this Section of the Specifications shall require a permit. Contractor shall obtain & pay for all required permits & fees other than those initially paid for by the Owner.

C. All electrical work performed under this Section of the Specifications shall be performed by a electrician licensed in the jurisdiction where the work is performed.

3.03 WORKMANSHIP

A. Furnish and install all equipment in a neat and finished appearance. If any portion of the work has not been installed in a workmanlike manner, or has been left in a rough, unfinished manner, the Contractor shall remove the equipment, reinstall and patch and paint surrounding surfaces without any increase in cost.

3.04 OPENINGS IN PIPES AND DUCTS

A. Keep closed during the work.

3.05 INSERTS

A. Inserts in concrete for the suspension of piping and equipment shall be provided by this Contractor unless otherwise noted on the Plans.

B. Inserts in "poured in place" concrete shall be Grinnell, Kinsdorf, Elcen, or approved equal. Provide as necessary for support of systems installed.

3.06 CUTTING AND PATCHING

A. General:

1. Prior to cutting, saw cutting, or core drilling any concrete, Contractor shall locate any reinforcing steel (rebar) and the like located in the concrete where the cutting is to be performed. Obtain specific approval from the Architect prior to cutting any concrete reinforcement. Approval must be obtained for each specific instance of cutting reinforcement.

2. Unless directed otherwise by Structural Documents, maintain the following minimum clearances from any concrete reinforcement:

a. Reinforcing steel: 2”

B. New Work: Provide openings in walls, floors, foundations, etc. for pipe, duct and associated items required for installation under Division 23 are provided.Furnish dimensions and locations of openings to other Contractors doing the work. Provide ample coordination time to avoid delays and unnecessary labor. The expense for cutting and patching made necessary to admit work, repair defective material or workmanship, or by neglect to anticipate proper requirements shall be borne by this Contractor.

C. Existing Structure:

1. All necessary cutting and patching of existing structures necessary for the installation of mechanical work shall be as part of this Contract. Unless cutting and patching locations are specifically shown on the drawings, obtain approval prior to proceeding.

2. All surfaces must be patched upon completion of work. Final finish of all patched surfaces (walls, ceilings, floors etc.) shall be done per finish schedules shown on the Architectural Drawings or patched to match the adjacent surface.

3.07 ACCESSIBILITY

A. Locate valves, traps, damper operators, access doors, etc., with easy accessibility, either accessible in mechanical spaces or through access panels specified hereinafter. The Contractor shall insure that all maintainable items are easily accessible. New work items not reasonably accessible shall be modified, relocated or otherwise changed for adequate accessibility.

3.08 MAINTENANCE AND OPERATION ACCESS

A. Provide suitable access to all mechanical equipment requiring servicing, maintenance, replacement, or repair.

B. Access Panels

1. Provide access panels for all concealed equipment and the like that requires adjustment or service access. Panel locations shall be carefully selected on the job so as not to be located behind cabinets, lights, etc.

    a. Coordinate with the work of other Contractors before installing panels.

    b. Panels shall be prime coated and painted to match surrounding surface.

    c. In finished areas, including ceilings, all access panels shall have the same type of finished surface as that of the surrounding area.

    d. Panels shall be size appropriate for the service intended.

    e. Provide UL labeled fire rated access doors for one or two-hour rated walls and ceilings.

    f. Install before surrounding surfaces have been painted.

    g. Access panel doors shall have cylinder lock latch, all keyed alike.

    h. Provide access doors in ceiling or wall adjacent to all fire damper locations.

i. Verify with Architect the location and finish of all access panels.

j. Panels shall be J.R. Smith, or equal.

C. In addition to building access openings, provide access panels on ducts where required to service damper operators and other equipment requiring adjustment or maintenance.

1. Duct access openings shall be constructed in accordance with SMACNA Duct Construction Standards, Metal and Flexible.

2. All access doors to mechanically furnished panels, control boxes and filter compartments shall be provided with fully hinged, easily opened access doors.

3.09 VIBRATION ISOLATORS

A. General: Provide vibration isolation per the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Applications Manual, Chapter "Sound and Vibration Control". Vibration isolation shall be provided for both isolation from the building structure (devices such as spring hangers, rubber in shear isolators, etc.) and isolation from the mechanical system (devices such as pipe and duct flexible connections). This ASHRAE reference details specifically the method, type of device, and device selection required. Refer to Table 47, "Selection Guide for Vibration Isolation".

B. Equipment that has internal isolation for all internal rotating equipment need not be provided with external vibration isolation.

C. Generally, pumps less than five horsepower will not require vibration isolation from structure.

D. Piping shall be isolated from the structure in accordance with the ASHRAE Applications Manual requirements cited above.

E. Vibration isolation may be combined with the seismic support system, if certified by the isolation equipment manufacturer.

F. Provide vibration isolation in accordance with these Specifications. Specific vibration isolation requirements may be shown on the drawings or specified in other sections. Such specific requirements supercede the general requirements in this paragraph.

3.10 SEISMIC SUPPORT

A. Piping and Ductwork: Support piping and ductwork per the Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA) Seismic Restraint Manual Guidelines for Mechanical Systems. Use Seismic Hazard Level-A unless otherwise indicated.

B. Equipment: Provide lateral bracing in accordance with the requirements of the Authority Having Jurisdiction. Seismic restraints shall be either factory fabricated for that purpose and selected based on local seismic design criteria, or engineered to local seismic design criteria. Provide all engineering calculation and certification required by the Authority Having Jurisdiction.

3.11 EQUIPMENT LUBRICATION

A. All exhaust fans air handling units, and heat pumps shall have all lubrication fittings on the equipment exterior.

3.12 PRESSURE TESTS AND IN-SERVICE TEST

A. All work under this Contract shall be thoroughly and systematically tested, both during construction and after completion. Pipe testing shall be either as specified in the appropriate specification section, or as specified in the applicable mechanical code. Ductwork shall be tested as part of the air balancing process. Notify the Architect 48-hours in advance of all tests. Tests shall be maintained until approved.

B. No systems, whether prescribed for testing or not, shall be covered or concealed below ground, in walls, in ceiling spaces, or generally from ease of viewing without first notifying Architect. Failure to notify Architect for inspection of concealed systems shall be cause to require this Contractor to uncover such systems at no additional cost.

C. A log of all tests shall be kept. The log shall note date, time of day test started, system or portion of system tested, length of test and test results.

D. The Contractor shall test the completed installation as in regular service. The systems provided under this Contract shall be operated in normal service for a period of at least a week, and any resulting defects repaired.

E. The Contractor shall guarantee the entire system and all parts thereof for a period of one-year from the date of final acceptance, and shall repair or replace any part which may show signs of failure in that time if such failure is due to imperfections in material or to improper workmanship.

3.13 STARTUP, BALANCING AND COMMISSIONING

A. Equipment startup shall be performed by qualified personnel. The technical specification sections will detail other special requirements, if any. Provide a statement of the startup technician's qualifications if requested by the Architect or elsewhere specified.

B. Balancing: See Section 23 05 93 - Testing, Adjusting, and Balancing for HVAC. Provide all necessary drive changes (sheaves), impeller trimming or other modifications to mechanical equipment required for specified performance. The Contractor will not

be required to provide new impeller(s) without cost reimbursement unless specifically specified elsewhere in Division 23.

C. Provide startup, functional testing, and documentation to comply with basic commissioning requirements of Washington State Energy Code section C408.

3.14 CLEANING UP

A. Comply with requirements of General Specifications (Division 1, General Conditions, Etc.).

B. Ducts shall be maintained as clean as possible during erection, and shall be blown clean before the building field painting operations are started. Ducts and apparatus casings shall be thoroughly cleaned before fans and filters are operated. After equipment has been used for any purposes, such as adjusting, testing, or temporary ventilation, filters shall be cleaned or renewed and exhaust/return ducts shall be cleaned. Use temporary filters with 80% to 85% filter efficiency during construction.

C. All equipment and material installed shall be properly protected from damage during the course of construction.

D. In attic or other spaces where piping such as domestic water, condensate drains, heating lines, refrigeration lines, etc., have been installed at floor level and interfere with foot traffic, the Mechanical Contractor shall provide covers to protect these pipes. Wood or other such material is acceptable. Where duct plenums or duct runs interfere with normal traffic pattern of maintenance personnel, shall provide a wooden "bridge" over the ducts to prevent damage.

3.15 SPECIAL PROTECTION

A. Exercise maximum precaution to provide positive protection for the building and equipment from damage of any kind, and in particular, prevent water and dust seepage into new equipment.

B. Repair all damage to the building, systems, or property, caused by the Contractor at no additional cost to the Owner. This provision shall include any preventable damage caused by lack of due diligence in planning and investigation, and shall not be applied to field conditions which could not reasonably be ascertained prior to the activity causing damage.

3.16 CAULKING

A. Caulk all openings and flash around all piping, equipment, and ducts passing through roof, floor, and walls.

B. All caulking shall be waterproof, low-VOC, and zero mold growth type.

3.17 FINAL INSPECTION

A. This Contractor shall thoroughly review and inspect the project to determine when final inspection is required, and shall provide notification. It shall be understood that the work shall be essentially complete, and the open items list provided at that time. The warranty period will not start until the punchlist and back-check are complete. Additional inspections required because of lack of diligence by the Contractor will be conducted on a schedule convenient to the inspectors.

3.18 INSTRUCTION PERIODS

A. Scope: Following installation of mechanical work, have representatives of installation tradesmen conduct demonstrations and instruction periods to point out locations of servicing points and required points of maintenance to Owner's staff.

B. General Description Of Instruction Period: Each period shall include preliminary discussion and presentation of information from maintenance manuals with appropriate references to drawings followed by tours of building areas explaining maintenance requirements, access methods, servicing and maintenance procedures, and equipment cleaning procedures, temperature control settings and available adjustments.

C. Scheduling Of Instruction Period: Notice of Contractor's readiness to conduct such instruction and demonstration shall be given at least two-weeks prior to the instruction period, and agreement finalized as to the date at which the instruction period is to be performed. Notify two-weeks prior to date when ready to conduct instruction and demonstrations receive approvals of proposed date prior to making final arrangements.

D. Comply with training and training reporting requirements enumerated in Chapter 14 of the Washington State Energy Code, WAC 51-11.

3.19 ON SITE OBSERVATIONS AND SAFETY MEASURES

A. The Contractor is solely responsible to provide design and construction review services relating to the Contractor's safety precautions or to means, methods, techniques, sequences or procedures required for the Contractor to perform his work. The duty of any other individual or organization to conduct construction observations of the Contractor's performance is not intended to include review of the adequacy of the Contractor's safety measures in, on, or near the construction site. The contractor shall be responsible for providing all safety measures and shall consult with the State and/or Federal Safety Agency or Inspector for interpretation whenever in doubt as to compliance with State and/or Federal regulations. Furthermore, the Contractor distinctly assumes all risk or damages or injury to any persons or property wherever located resulting from any action or operation under this Contract or in connection with the work.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Nameplates.

B. Tags.

1.02 REFERENCE STANDARDS

A. ASME A13.1 - Scheme for the Identification of Piping Systems; 2015.

B. ASTM D709 - Standard Specification for Laminated Thermosetting Materials; 2017.

1.03 SUBMITTALS

A. Refer to Division 1 for submittal procedures.

B. List: Submit list of wording, symbols, letter size, and color coding for mechanical identification.

C. Product Data: Provide manufacturers catalog literature for each product required.

PART 2 PRODUCTS

2.01 IDENTIFICATION APPLICATIONS

A. Small-sized Equipment: Tags or nameplates.

2.02 NAMEPLATES

A. Letter Color: White.

B. Letter Height: 1/4 inch.

C. Background Color: Black.

D. Plastic: Comply with ASTM D709.

2.03 TAGS

A. Manufacturers:

1. Advanced Graphic Engraving: www.advancedgraphicengraving.com/.

2. Brady Corporation: www.bradycorp.com/.

3. Brimar Industries, Inc: www.pipemarker.com/.

4. Kolbi Pipe Marker Co: www.kolbipipemarkers.com/.

5. Seton Identification Products, a Tricor Company: www.seton.com/.

B. Plastic Tags: Laminated three-layer plastic with engraved black letters on light contrasting background color. Tag size minimum 1-1/2 inch diameter.

PART 3 EXECUTION

3.01 PREPARATION

A. Degrease and clean surfaces to receive adhesive for identification materials.

3.02 INSTALLATION

A. Install nameplates with corrosive-resistant mechanical fasteners, or adhesive. Apply with sufficient adhesive to ensure permanent adhesion and seal with clear lacquer.

B. Install tags with corrosion resistant chain.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Testing, adjustment, and balancing of air systems.

B. Testing, adjustment, and balancing of plumbing systems.

C. Measurement of final operating condition of HVAC systems.

1.02 REFERENCE STANDARDS

A. AABC (NSTSB) - AABC National Standards for Total System Balance, 7th Edition; 2016.

B. ASHRAE Std 111 - Measurement, Testing, Adjusting, and Balancing of Building HVAC Systems; 2008 (Reaffirmed 2017).

C. NEBB (TAB) - Procedural Standards for Testing Adjusting and Balancing of Environmental Systems; 2015, with Errata (2017).

1.03 SUBMITTALS

A. Refer to Division 1 for submittal procedures.

B. TAB Plan: Submit a written plan indicating the testing, adjusting, and balancing standard to be followed and the specific approach for each system and component.

1. Submit to Architect.

2. Submit six weeks prior to starting the testing, adjusting, and balancing work.

3. Include at least the following in the plan:

a. List of all air flow, water flow, sound level, system capacity and efficiency measurements to be performed and a description of specific test procedures, parameters, formulas to be used.

b. Copy of field checkout sheets and logs to be used, listing each piece of equipment to be tested, adjusted and balanced with the data cells to be gathered for each.

c. Discussion of what notations and markings will be made on the duct and piping drawings during the process.

d. Final test report forms to be used.

e. Details of how TOTAL flow will be determined; for example:

1) Air: Sum of terminal flows via control system calibrated readings or via hood readings of all terminals, supply (SA) and return air (RA) pitot traverse, SA or RA flow stations.

2) Water: Pump curves, circuit setter, flow station, ultrasonic, etc.

f. Specific procedures that will ensure that both air and water side are operating at the lowest possible pressures and methods to verify this.

g. Confirmation of understanding of the outside air ventilation criteria under all conditions.

h. Method of verifying and setting minimum outside air flow rate will be verified and set and for what level (total building, zone, etc.).

i. Method of checking building static and exhaust fan and/or relief damper capacity.

j. False loading of systems to complete TAB work, if specified.

k. Exhaust fan balancing and capacity verifications, including any required room pressure differentials.

l. Procedures for field technician logs of discrepancies, deficient or uncompleted work by others, contract interpretation requests and lists of completed tests (scope and frequency).

m. Procedures for formal deficiency reports, including scope, frequency and distribution.

C. Field Logs: Submit at least once a week to the Owner's Representative.

D. Progress Reports.

E. Final Report: Indicate deficiencies in systems that would prevent proper testing, adjusting, and balancing of systems and equipment to achieve specified performance.

1. Revise TAB plan to reflect actual procedures and submit as part of final report.

2. Submit draft copies of report for review prior to final acceptance of Project. Provide final copies for Architect and for inclusion in operating and maintenance manuals.

3. Include actual instrument list, with manufacturer name, serial number, and date of calibration.

4. Form of Test Reports: Where the TAB standard being followed recommends a report format use that; otherwise, follow ASHRAE Std 111.

5. Units of Measure: Report data in both I-P (inch-pound) and SI (metric) units.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS

A. Perform total system balance in accordance with one of the following:

1. AABC (NSTSB), AABC National Standards for Total System Balance.

2. ASHRAE Std 111, Practices for Measurement, Testing, Adjusting and Balancing of Building Heating, Ventilation, Air-Conditioning, and Refrigeration Systems.

3. NEBB Procedural Standards for Testing Adjusting Balancing of Environmental Systems.

B. Begin work after completion of systems to be tested, adjusted, or balanced and complete work prior to Substantial Completion of the project.

C. TAB Agency Qualifications:

1. Company specializing in the testing, adjusting, and balancing of systems specified in this section.

2. Having minimum of three years documented experience.

3. Certified by one of the following:

a. AABC, Associated Air Balance Council: www.aabc.com/#sle; upon completion submit AABC National Performance Guaranty.

b. NEBB, National Environmental Balancing Bureau: www.nebb.org/#sle.

D. TAB Supervisor and Technician Qualifications: Certified by same organization as TAB agency.

3.02 EXAMINATION

A. Verify that systems are complete and operable before commencing work. Ensure the following conditions:

1. Systems are started and operating in a safe and normal condition.
2. Temperature control systems are installed complete and operable.
3. Proper thermal overload protection is in place for electrical equipment.
4. Final filters are clean and in place. If required, install temporary media in addition to final filters.
5. Duct systems are clean of debris.
6. Fans are rotating correctly.
7. Fire and volume dampers are in place and open.
8. Access doors are closed and duct end caps are in place.
9. Air outlets are installed and connected.
10. Duct system leakage is minimized.
11. Pumps are rotating correctly.
12. Proper strainer baskets are clean and in place.
13. Service and balance valves are open.

B. Submit field reports. Report defects and deficiencies that will or could prevent proper system balance.

C. Beginning of work means acceptance of existing conditions.

3.03 PREPARATION

A. Hold a pre-balancing meeting at least one week prior to starting TAB work.

1. Require attendance by all installers whose work will be tested, adjusted, or balanced.

3.04 ADJUSTMENT TOLERANCES

A. Air Handling Systems: Adjust to within plus or minus 5 percent of design for supply systems and plus or minus 10 percent of design for return and exhaust systems.

B. Air Outlets and Inlets: Adjust total to within plus 10 percent and minus 5 percent of design to space. Adjust outlets and inlets in space to within plus or minus 10 percent of design.

C. Plumbing Systems: Adjust to within plus or minus 10 percent of design.

3.05 RECORDING AND ADJUSTING

A. Field Logs: Maintain written logs including:

1. Running log of events and issues.

2. Discrepancies, deficient or uncompleted work by others.

3. Contract interpretation requests.

4. Lists of completed tests.

B. Ensure recorded data represents actual measured or observed conditions.

C. Permanently mark settings of valves, dampers, and other adjustment devices allowing settings to be restored. Set and lock memory stops.

D. Mark on drawings the locations where traverse and other critical measurements were taken and cross reference the location in the final report.

E. After adjustment, take measurements to verify balance has not been disrupted or that such disruption has been rectified.

F. Leave systems in proper working order, replacing belt guards, closing access doors, closing doors to electrical switch boxes, and restoring thermostats to specified settings.

3.06 AIR SYSTEM PROCEDURE

A. Adjust air handling and distribution systems to provide required or design supply, return, and exhaust air quantities at site altitude.

B. Make air quantity measurements in ducts by Pitot tube traverse of entire cross sectional area of duct.

C. Measure air quantities at air inlets and outlets.

D. Adjust distribution system to obtain uniform space temperatures free from objectionable drafts and noise.

E. Use volume control devices to regulate air quantities only to extend that adjustments do not create objectionable air motion or sound levels. Effect volume control by duct internal devices such as dampers and splitters.

F. Vary total system air quantities by adjustment of fan speeds. Provide drive changes required. Vary branch air quantities by damper regulation.

G. Provide system schematic with required and actual air quantities recorded at each outlet or inlet.

H. Measure static air pressure conditions on air supply units, including filter and coil pressure drops, and total pressure across the fan. Make allowances for 50 percent loading of filters.

3.07 WATER SYSTEM PROCEDURE

A. Adjust water systems to provide required or design quantities.

B. Use calibrated Venturi tubes, orifices, or other metered fittings and pressure gages to determine flow rates for system balance. Where flow metering devices are not installed, base flow balance on temperature difference across various heat transfer elements in the system.

C. Adjust systems to provide specified pressure drops and flows through heat transfer elements prior to thermal testing. Perform balancing by measurement of temperature differential in conjunction with air balancing.

D. Effect system balance with automatic control valves fully open to heat transfer elements.

E. Effect adjustment of water distribution systems by means of balancing cocks, valves, and fittings. Do not use service or shut-off valves for balancing unless indexed for balance point.

F. Where available pump capacity is less than total flow requirements or individual system parts, full flow in one part may be simulated by temporary restriction of flow to other parts.

3.08 SCOPE

A. Test, adjust, and balance the following:

1. Plumbing Pumps.

2. Fans.

3. Air Inlets and Outlets.

4. Energy Recovery Ventilator Units.

3.09 MINIMUM DATA TO BE REPORTED

A. Electric Motors:

1. Manufacturer.

2. Model/Frame.

3. HP/BHP.

4. Phase, voltage, amperage; nameplate, actual, no load.

5. RPM.

6. Service factor.

7. Sheave Make/Size/Bore.

B. V-Belt Drives:

1. Identification/location.

2. Required driven RPM.

3. Driven sheave, diameter and RPM.

4. Belt, size and quantity.

5. Motor sheave diameter and RPM.

6. Center to center distance, maximum, minimum, and actual.

C. Pumps:

1. Identification/number.

2. Manufacturer.

3. Size/model.

4. Impeller.

5. Service.
6. Design flow rate, pressure drop, BHP.
7. Actual flow rate, pressure drop, BHP.
8. Discharge pressure.
9. Suction pressure.
10. Total operating head pressure.
11. Shut off, discharge and suction pressures.
12. Shut off, total head pressure.

D. Exhaust Fans:

1. Location.
2. Manufacturer.
3. Model number.
4. Serial number.
5. Air flow, specified and actual.
6. Total static pressure (total external), specified and actual.
7. Inlet pressure.
8. Discharge pressure.
9. Sheave Make/Size/Bore.
10. Number of Belts/Make/Size.
11. Fan RPM.

E. Air Distribution Tests:

1. Air terminal number.
2. Room number/location.
3. Terminal type.

4. Terminal size.

5. Area factor.

6. Design velocity.

7. Design air flow.

8. Test (final) velocity.

9. Test (final) air flow.

10. Percent of design air flow.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Duct insulation.

B. Duct liner.

C. Insulation jackets.

1.02 REFERENCE STANDARDS

A. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus; 2017.

B. ASTM C534/C534M - Standard Specification for Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form; 2016.

C. ASTM C553 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications; 2013.

D. ASTM C916 - Standard Specification for Adhesives for Duct Thermal Insulation; 2014.

E. ASTM C1071 - Standard Specification for Fibrous Glass Duct Lining Insulation (Thermal and Sound Absorbing Material); 2019.

F. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2018b.

G. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials; 2016.

H. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible; 2005 (Revised 2009).

I. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials; Current Edition, Including All Revisions.

1.03 SUBMITTALS

A. Refer to Division 1 for submittal procedures.

B. Product Data: Provide product description, thermal characteristics, list of materials and thickness for each service, and locations.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products of the type specified in this section with not less than three years of documented experience.

B. Applicator Qualifications: Company specializing in performing the type of work specified in this section, with minimum 2 years of experience and approved by manufacturer.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Accept materials on site in original factory packaging, labelled with manufacturer's identification, including product density and thickness.

B. Protect insulation from weather and construction traffic, dirt, water, chemical, and mechanical damage, by storing in original wrapping.

1.06 FIELD CONDITIONS

A. Maintain ambient temperatures and conditions required by manufacturers of adhesives, mastics, and insulation cements.

B. Maintain temperature during and after installation for minimum period of 24 hours.

PART 2 PRODUCTS

2.01 REGULATORY REQUIREMENTS

A. Surface Burning Characteristics: Flame spread index/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84 or UL 723.

2.02 GLASS FIBER, FLEXIBLE

A. Insulation: ASTM C553; flexible, noncombustible blanket.

1. 'K' value: 0.36 at 75 degrees F, when tested in accordance with ASTM C518.

2. Maximum Service Temperature: 250 degrees F.

3. Maximum Water Vapor Absorption: 5.0 percent by weight.

B. Vapor Barrier Jacket:

1. Kraft paper with glass fiber yarn and bonded to aluminized film.

2. Moisture Vapor Permeability: 0.02 perm inch, when tested in accordance with ASTM E96/E96M.

3. Secure with pressure sensitive tape.

C. Vapor Barrier Tape:

1. Kraft paper reinforced with glass fiber yarn and bonded to aluminized film, with pressure sensitive rubber based adhesive.

D. Tie Wire: Annealed steel, 16 gage, 0.0508 inch diameter.

2.03 DUCT LINER

A. Elastomeric Foam Insulation: Preformed flexible elastomeric cellular rubber insulation complying with ASTM C534/C534M Grade 1, in sheet form.

1. Minimum Service Temperature: Minus 40 degrees F.

2. Maximum Service Temperature: 180 degrees F.

3. Erosion Resistance: Does not show evidence of breaking away, flaking off, or delamination at velocities of 10,000 fpm per ASTM C1071.

4. Connection: Waterproof vapor barrier adhesive.

B. Elastomeric Foam Adhesive: Air dried, contact adhesive, compatible with insulation. Comply with ASTM C916.

C. Liner Fasteners: Galvanized steel, self-adhesive pad with integral head.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that ducts have been tested before applying insulation materials.

B. Verify that surfaces are clean, foreign material removed, and dry.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. External Duct Insulation Application:

1. Secure insulation with vapor barrier with wires and seal jacket joints with vapor barrier adhesive or tape to match jacket.

2. Secure insulation without vapor barrier with staples, tape, or wires.

3. Install without sag on underside of duct. Use adhesive or mechanical fasteners where necessary to prevent sagging. Lift duct off trapeze hangers and insert spacers.

4. Seal vapor barrier penetrations by mechanical fasteners with vapor barrier adhesive.

5. Stop and point insulation around access doors and damper operators to allow operation without disturbing wrapping.

C. Duct Liner Application:

1. Adhere insulation with adhesive for 90 percent coverage.

2. Secure insulation with mechanical liner fasteners. Refer to SMACNA (DCS) for spacing.

3. Seal and smooth joints. Seal and coat transverse joints.

4. Seal liner surface penetrations with adhesive.

5. Duct dimensions indicated are net inside dimensions required for air flow. Increase duct size to allow for insulation thickness.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General Ductwork Requirements.

B. Galvanized steel ductwork.

C. Ductwork accessories.

1.02 REFERENCE STANDARDS

A. ASTM International (ASTM):

1. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2018b.

2. ASTM A36/A36M - Standard Specification for Carbon Structural Steel.

B. International Code Council (ICC)

1. IMC – International Mechanical Code

C. National Fire Protection Association (NFPA):

1. NFPA 90A - Standard for the Installation of Air Conditioning and Ventilating Systems.

2. NFPA 90B - Standard for the Installation of Warm Air Heating and Air Conditioning Systems.

3. NFPA 96 - Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations.

D. Sheet Metal and Air Conditioning Contractors National Association (SMACNA):

1. SMACNA - Fibrous Glass Duct Construction Standards.

2. SMACNA - HVAC Air Duct Leakage Test Manual.

3. SMACNA - HVAC Duct Construction Standard - Metal and Flexible.

4. SMACNA - Seismic Restraint Manual Guidelines for Mechanical Systems.

5. SMACNA - HVAC Systems Duct Design

6. SMACNA - Fire Damper Guide

E. Underwriters Laboratories Inc. (UL):

1.03 PERFORMANCE REQUIREMENTS

A. Variation of duct configuration or sizes other than those of equivalent or lower loss coefficient is not permitted except by written permission. Size round ducts installed in place of rectangular ducts in accordance with SMACNA table of equivalent rectangular and round ducts (HVAC Systems Duct Design).

1.04 SUBMITTALS

A. See Division 1 for submittal procedures.

B. Shop Drawings.

1. Duct fabrication drawings, shall be drawn to scale not smaller than 1/8" - 1'-0", on drawing sheets same size as Contract Documents, indicating:

a. Fabrication, assembly, and installation details, including plans, elevations, sections, details of components, and attachments to other work.

b. Duct layout, indicating pressure classifications and sizes in plan view. For exhaust duct systems, indicate classification of materials handled as defined in this section.

c. Fittings.

d. Reinforcing details and spacing.

e. Seam and joint construction details.

f. Penetrations through fire rated and other walls.

g. Terminal unit, coil, and humidifier installations.

h. Hangers and supports, including methods for building attachment, vibration isolation, and duct attachment.

C. Product Data: Submit data for specialty duct connectors other than found in the SMACNA duct construction manual, and duct access panels.

D. Product and fabrication data for specialty ductwork such as double-wall or round acoustically lined duct.

1.05 QUALITY ASSURANCE

A. Perform Work in accordance with SMACNA - HVAC Duct Construction Standards - Metal and flexible.

B. Construct ductwork to NFPA 90A standards, SMACNA duct construction standards and the codes in force in the Authority Having Jurisdiction..

1.06 DELIVERY, STORAGE AND HANDLING

A. Refer to Division 1 for product storage and handling requirements.

1.07 CLOSEOUT REQUIREMENTS

A. Refer to Division 1 for execution and closeout requirements.

B. Refer to Division 1 for closeout submital procedures.

C. Refer to Division 1 for demonstration and training requirements.

1.08 ENVIRONMENTAL REQUIREMENTS

A. See Division 1 for product Requirements.

B. Do not install duct sealant when temperatures are less than those recommended by sealant manufacturers.

C. Maintain temperatures during and after installation of duct sealant.

1.09 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

PART 2 PRODUCTS

2.01 GENERAL

A. Rectangular Ductwork

1. Construction Standards - SMACNA References:

a. Fire Damper Guide for HVAC Systems

b. HVAC Duct Construction Standards, Metal and Flexible.

2. Fabricate in accordance with SMACNA references, NFPA 90A, and the International Mechanical Code.

B. Round Ductwork

1. Spiral duct may be provided where metallic ductwork is exposed.

2.02 GALVANIZED STEEL DUCTWORK

A. Rectangular Ductwork

1. Duct Material:

a. Galvanized Steel for Ducts: Hot-dipped galvanized steel sheet, 1 FS Type B, with G60/Z180 coating.

b. Angles, bars and rods for support and reinforcement, structural quality carbon steel, ASTM A36.

B. Round Ductwork

1. Materials shall be per SMACNA Duct Construction Standards, Metal and Flexible, Galvanized Sheet Metal.

2.03 DUCTWORK ACCESSORIES

A. Turning Vanes: Provide single vane type for vane lengths under 36”, double vane type on vanes 36” in length and longer.

B. Duct Lining:

1. Refer to Section 23 07 13 - Duct Insulation.

2. Enlarge the sheetmetal portion to account for the lining. The duct dimension provided on the drawings is the interior dimension unless specifically noted otherwise on the drawings.

C. Caulking and Sealing Compounds:

1. Joint sealers and sealants shall be non-hardening, water resistant, mildew and mold resistant.

2. Type: Heavy mastic or liquid used alone or with tape, suitable for joint configuration and compatible with substrates, and recommended by manufacturer for pressure class of ducts.

3. VOC Content: Not more than 250 g/L, excluding water.

4. Surface Burning Characteristics: Flame spread index of zero and smoke developed index of zero, when tested in accordance with 1.

5. For Use With Flexible Ducts: UL labeled.

6. Manufacturers:

   a. Carlisle HVAC Products; Hardcast Iron-Grip 601 Water Based Duct Sealant: www.carlislehvac.com/sle.

D. Support Materials:

1. Prefabricated clamps, supports and accessories: ITT, Grinnel or equal.

2. Structural Steel: ASTM A36 or 316 stainless steel.

E. Duct Access Doors, Panels, and Sections

1. Provide access doors, sized and located for maintenance work, upstream of the associated component where possible. Doors shall have a full piano type hinge, reinforced edges and a rubber gasket seal around the edges.

2. Access doors shall be provided in ductwork where indicated and at all airflow measuring primaries, automatic dampers, fire dampers, coils, thermostats, and other apparatus requiring service and inspection in the duct system, and unless otherwise shown, shall conform to SMACNA Standards. Access doors shall be provided upstream and downstream of airflow measuring primaries and heating and cooling coils. Doors shall be minimum 15” x 18”, unless otherwise shown. Where duct size will not accommodate this size door, the doors shall be made as large as practicable. Doors 24” x 24” or larger shall be provided with fasteners operable from both sides. Doors in insulated ducts shall be the insulated type.

3. Openings shall be as large as feasible in small ducts, 12" x 12" minimum where possible. Access sections in insulated ducts shall be double wall, insulated. Transparent shatter proof covers are preferred for uninsulated ducts.

2.04 MISCELLANEOUS COMPONENTS

A. Refer to Section 23 33 00 - Air Duct Accessories, for common components such as volume control dampers, duct test holes, and the like.

PART 3 EXECUTION

3.01 APPLICATIONS

A. General use HVAC: Galvanized steel ductwork

3.02 METALLIC DUCTWORK

A. Fabrication (Rectangular Ductwork):

1. Construction shall be in accordance with the applicable SMACNA Construction Standards.

2. The internal end of all slip joints shall be installed in the direction of airflow.

3. Where the perimeter of duct does not exceed the width of the sheet, ducts shall be constructed with one longitudinal seam only.

4. "Pittsburgh" type flat double lock longitudinal seams shall be used on all ducts in which the longest transverse dimension does not exceed 36".

5. "Standing" seams of lock type, 1" high shall be used on all ducts with longest transverse dimension exceeding 36". All standing seams shall be punched.

6. “Ductmate” style manufactured seam systems are acceptable.

7. Elbows:

   a. Wherever possible, elbows shall have a centerline radius equal to 1½ times the duct dimension in the plane of the turn.

   b. Where space does not permit the above radius, or where square elbows are indicated on the Drawings, they must be equipped with special manufactured, factory built turning vanes.

   c. Local shop fabricated turning vanes will not be acceptable

8. Where transition pieces in the ducts occur, the slopes in the sides must be approximately one to five. Abrupt changes or offsets of any kind will not be permitted.

9. No attempt is made to show on the drawings all offsets, which may be required. All offsets in ducts necessary for the installation, whether shown or not, shall be provided.

10. Provide turning vanes for all mitered duct elbows unless specifically noted otherwise on the Drawings.

B. Hangers and Supports:

1. All ducts must be provided with hangers in sufficient number and at close enough centers to prevent any bending or sagging. Hanger spacing shall not exceed 8’.

2. Ducts shall be supported either by rods or by applicable methods as shown in the SMACNA Duct Manual.

3. Ducts shall be seismically braced in accordance with the SMACNA Seismic Restraint Manual Guidelines for Mechanical Systems, Latest Edition.

C. Dampers: Provide dampers of the types, and at the locations shown on the Drawings, or where necessary to provide proper balancing. Dampers shall have a positioning quadrant, lever and locking assembly.

D. Control Damper Installation:

1. Install control dampers provided by the Controls Contractor.

2. Provide necessary blank-off plates required to install dampers that are smaller than duct size. Provide necessary transition required to install dampers larger than duct size.

3. Assemble multiple section dampers with required interconnecting linkage and extend required number of shafts through duct for external mounting of damper motors.

4. Provide necessary sheet metal baffle plates to eliminate stratification and provide air volumes specified. Locate baffles by experimentation, and affix and seal permanently in place, only after stratification problem has been eliminated.

E. Protection And Cleaning: Adequately protect equipment and materials against physical damage. Place equipment in first class operating condition, or return to source of supply for repair or replacement, as determined by the Architect. Protect equipment and ducts during construction against entry of foreign matter to the inside and clean both inside and outside before operation and painting. When new ducts are connected to existing ductwork, clean both new and existing ductwork by mopping and vacuum cleaning inside and outside before operation.

F. Round ductwork fabrication: Fabricate and install per SMACNA Duct Construction Standards, Metal & Flexible, NFPA 90A, and the International Mechanical Code. Also comply with general criteria specified above for rectangular duct (installation of control dampers, protection and cleaning, etc.).

3.03 ACCESSORIES

A. Install volume or splitter dampers as required at all branches in the ductwork.

B. Provide remote operators for inaccessible dampers.

C. Install access panels and doors air tight. Select and set hardware, latches, locks and gasket seals to suit operating pressure.

D. Install flexible connections at fan or equipment outlets. Align duct and equipment flange to maintain a 1" minimum clear gap between the adjoining metal parts.

E. Provide sheet metal sleeve around penetrations through walls or floors. Pack opening around duct with fiberglass and caulk with resilient caulking.

F. Provide access doors for all fire dampers, dampers, heaters, coils and any other component, which will require maintenance.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Back-draft dampers.

1. Metallic, horizontal airflow
2. Non-metallic, horizontal airflow
3. Metallic, vertical airflow up.

B. Volume control dampers.

1. Volume control dampers.
2. Splitter dampers.

C. Flexible duct connections.

D. Motorized dampers.

1.02 REFERENCE STANDARDS

A. Sheet Metal and Air Conditioning Contractors National Association (SMACNA):

1. SMACNA - HVAC Duct Construction Standard - Metal and Flexible.

1.03 SUBMITTALS

A. See Division 1 for submittal procedures.

B. Product Data: Manufacturer's catalog specification, dimensional and performance data for all items specified herein. Include where applicable electrical characteristics and connection requirements.

1.04 QUALITY ASSURANCE

A. Damper pressure drop ratings based on tests and procedures performed in accordance with AMCA 500.

1.05 DELIVERY, STORAGE, AND HANDLING

A. See Division 1 for product storage and handling requirements.

B. Protect dampers from damage to operating linkages and blades.

C. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly indicating manufacturer and material.

D. Storage: Store materials in a dry area indoor, protected from damage.

E. Handling: Handle and lift dampers in accordance with manufacturer's instructions. Protect materials and finishes during handling and installation to prevent damage.

1.06 CLOSEOUT REQUIREMENTS

A. Refer to Division 1 for execution and closeout requirements.

B. Refer to Division 1 for closeout submital procedures.

C. Refer to Division 1 for demonstration and training requirements.

PART 2 PRODUCTS

2.01 DAMPERS AND SPLITTERS

A. Airflow control devices shall be furnished with accessible operating mechanisms. Where operators occur in finished portions of the building, operators shall be chromium plated and all exposed edges rounded. Manual volume control dampers; shall be operated by locking type quadrant operators. Dampers shall be two gauges heavier than the duct in which installed. Unless otherwise indicated, multi-leaf dampers shall be opposed blade type with maximum blade width of 12”. Access doors or panels shall be provided for all concealed damper operators and locking setscrews. Unless otherwise indicated, the locking type quadrant operators for dampers, when installed on ducts to be thermally insulated, shall be provided with stand-off mounting brackets, bases, or adapters to provide clearance between the duct surface and the operator not less than the thickness of the insulation. Stand-off mounting items shall be integral with the operator or standard accessory of the damper manufacturer. Airflow control devices shall be provided where indicated. Provide access for operators concealed above gypsum wallboard ceilings.

B. In addition to the general requirements above, splitters shall be operated by quadrant operators or 3/16” rod brought through the side of the duct with locking setscrew and bushing. Two rods are required on splitters over 8”. Splitters shall be two gauges heavier than the duct in which installed.

2.02 FLEXIBLE CONNECTIONS

A. 30 ounce per square yard neoprene coated glass fabric. Flexible connections shall be impervious to moisture, mildew, and chemical reaction.

B. Provide Ventglas or approved equal.

2.03 MOTORIZED DAMPERS

A. All motorized dampers shall be installed under this Specification unless specified as a standard integral component of a particular piece of equipment, e.g., packaged kitchen heat recovery unit.

B. Dampers shall be full size of duct, be sealed between damper frame and duct, and shall operate without binding on duct walls. Provide access panels for motorized dampers.

2.04 BACKDRAFT DAMPERS (BDD)

A. Provide the backdraft dampers of the sizes shown on Plans and of the types hereinafter specified.

B. Metallic Dampers Horizontal Airflow: Ruskin Model BD2/A1, with extruded aluminum frame and extruded aluminum blades with vinyl edge seals. Operational pressures are .03" W.G. to blades start to open and .10" W.G. blades fully open.

C. Non-Metallic Dampers Horizontal Airflow: Ruskin Model NMS2 or Wonder Metals Model FBD with neoprene-coated glass fabric blades in a steel frame with either galvanized expanded metal or wire mesh backing.

PART 3 EXECUTION

3.01 GENERAL

A. Install in accordance with SMACNA Duct Construction Standards, Metal and Flexible, and the codes in place in the Authority Having Jurisdiction.

3.02 VOLUME DAMPERS

A. Provide volume dampers in the supply branch duct serving each air terminal.

B. Install dampers as defined in Latest Edition SMACNA HVAC Duct Construction Standards. Dampers to be constructed and installed consistent with pressure class. Stiffen all blades with the longest dimension exceeding 18". Duct penetrations for damper installation will require sealing as necessary to eliminate noise for each pressure class.

C. Dampers shall be installed with blades in the full open position, secured in place with locking quadrant type handle. Dampers shall be installed as far from air terminal as possible to eliminate air turbulence and noise.

3.03 MOTORIZED DAMPERS

A. Interlock motorized dampers with fans/equipment serving the same duct system.

3.04 FLEXIBLE CONNECTIONS

A. Provide flex connections wherever ducts make connection with any air-handling device such as supply fans, exhaust fans, etc.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Registers/grilles.

B. Louvers.

1.02 REFERENCE STANDARDS

A. AMCA 500-L - Laboratory Methods of Testing Louvers for Rating; 2015.

B. ASHRAE Std 70 - Method of Testing the Performance of Air Outlets and Inlets; 2006 (Reaffirmed 2011).

1.03 SUBMITTALS

A. Refer to Division 1 for submittal procedures.

B. Product Data: Provide data for equipment required for this project. Review outlets and inlets as to size, finish, and type of mounting prior to submission. Submit schedule of outlets and inlets showing type, size, location, application, and noise level.

C. Project Record Documents: Record actual locations of air outlets and inlets.

1.04 QUALITY ASSURANCE

A. Test and rate air outlet and inlet performance in accordance with ASHRAE Std 70.

B. Test and rate louver performance in accordance with AMCA 500-L.

C. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.

PART 2 PRODUCTS

2.01 WALL EXHAUST AND RETURN REGISTERS/GRILLES

A. Type: Streamlined blades, 3/4 inch minimum depth, 3/4 inch maximum spacing, with spring or other device to set blades, horizontal face.

B. Frame: 1-1/4 inch margin with countersunk screw mounting.

C. Fabrication: Aluminum extrusions, with factory baked enamel finish.

D. Color: silver.

2.02 LOUVERS

A. Type: 4 inch deep with blades on 45 degree slope with center baffle and return bend, heavy channel frame, 1/2 inch square mesh screen over exhaust and 1/2 inch square mesh screen over intake.

B. Fabrication: 12 gage, 0.1046 inch thick extruded aluminum, welded assembly, with factory prime coat finish.

C. Color: To be selected by Architect from manufacturer's standard range.

D. Mounting: Furnish with masonry strap anchors for installation.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Check location of outlets and inlets and make necessary adjustments in position to comply with architectural features, symmetry, and lighting arrangement.

C. Provide balancing dampers on duct take-off to diffusers, and grilles and registers, despite whether dampers are specified as part of the diffuser, or grille and register assembly.

D. Paint ductwork visible behind air outlets and inlets matte black.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Energy recovery units.

1.02 SUBMITTALS

A. Refer to Division 1 for submittal procedures.

B. Product Data: Manufacturer's installation instruction, product data, and engineering calculations.

C. Closeout Submittals: Submit manufacturer's operation and maintenance instructions.

D. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.

1. Spare Parts: One of each kind of filter.

1.03 QUALITY ASSURANCE

A. Manufacturer Qualifications:

1. Firm regularly engaged in manufacturing energy recovery units.

2. Products in satisfactory use in similar service for not less than five years.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Store in manufacturer's unopened packaging.

B. Store products to be installed indoors in dry, heated area.

1.05 WARRANTY

A. Refer to Division 1 for additional warranty requirements.

B. The ERV units shall have a manufacturer’s parts and defects warranty for a period one (1) year from date of installation. If, during this period, any part should fail to function properly due to defects in workmanship or material, it shall be replaced or repaired at the discretion of the manufacturer. This warranty does not include labor.

C. The ERV Energy Transfer Core shall have an additional nine (9) year warranty against defects in material or workmanship. The total warranty period shall be ten (10) years from date of installation.

PART 2 PRODUCTS

2.01 SMALL PACKAGED ENERGY RECOVERY VENTILATOR (ERV) UNITS

A. General

1. The ERV unit shall be factory assembled, wired and run tested. Contained within the unit shall be all factory wiring, control circuit board and blowers with motors, filters, and insulated foam air guides. Each unit will have an automatic by-pass damper system for economic operation under certain conditions. The unit shall have factory installed control board with functions for local, remote, and optional control modes.

B. Cabinet

1. The cabinet shall be fabricated of galvanized steel, and covered with polyurethane foam insulation as necessary with steel mounting points securely attached.

C.

1. The unit shall be furnished with two direct drive centrifugal blowers running simultaneously supplying and extracting air at the same rate for balanced ventilation air flow.

2. The blower motors shall be a directly connected to the blower wheels and have permanently lubricated bearings.

3. The blowers and motors shall be mounted for quiet operation.

D. Heat Exchanger

1. The heat exchanger element shall be constructed of specially treated cellulous fiber membrane separated by corrugated layers to allow total heat (sensible and latent) energy recovery from the exhaust air to the supply air or from the supply air to the exhaust air as determined by design conditions.

2. The heat exchanger element shall have protective filters installed at both the supply and exhaust sides with an access cover to allow easy maintenance.

E. Bypass Damper

1. The ERV shall have an automatic supply side by-pass damper to allow inbound ventilation air to by-pass the heat recovery core when outside weather conditions warrant.

2. The mechanism for opening and closing the bypass damper shall be a 208V-230V synchronous electric motor through an actuator. The motor will drive a steel cable connected to an mechanical damper flap to allow fresh air to bypass the heat recovery core.

3. Supply and return air thermistor shall control the damper.

F. Filters

1. The ERV shall be equipped with factory installed air filters located at each intake face (both supply and exhaust sides) of the heat recovery core to clean the air and prevent clogging.

G. Controls

1. Independent control by contact closure from other sensor driven controllers, switch, or timers.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that structure is ready for installation of unit, that openings in deck for ductwork, if required, are correctly sized and located, and that mechanical and electrical utilities supplying unit are of correct capacities and are accessible.

3.02 INSTALLATION

A. Provide openings for suitable ductwork connection.

B. Ductwork:

1. The installer shall supply, install, test and commission all interconnecting ductwork for the ERV units.

2. Ductwork sizing, layout, fittings, etc shall be in strict accordance with the design requirements.

3. The two outdoor ducts must be covered with heat insulating material in order to prevent condensation from forming.

4. The two outdoor ducts must be tilted at a gradient (1/30 or more) down toward the outdoor area from ERV unit.

3.03 SYSTEM STARTUP

A. Provide services of manufacturer's authorized representative to provide start up of unit.

3.04 CLEANING

A. Clean filters, air plenums, interior and exposed-to-view surfaces prior to Substantial Completion.

END OF SECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Cove heaters.

B. Wall-mounted fan heaters.

1.02 REFERENCE STANDARDS

A. General: References used throughout Division 23 are generally accepted industry standards. The edition of the criteria cited shall be that in force at the time of bid. The Contractor shall provide all work in accordance with codes and standards in force in the Authority Having Jurisdiction for the project, to include all local amendments.

B. National Fire Protection Agency (NFPA)

1. NFPA 70 - National Electrical Code (NEC)

C. Underwriters Laboratories (UL)

1. Fire Resistance Directory

2. Building Materials Directory

1.03 SUBMITTALS

A. See Division 1 for submittal procedures.

B. Product Data, to include capacity and utility requirements.

C. Installation instructions.

1.04 DELIVERY, STORAGE AND HANDLING

A. Refer to Division 1 for product storage and handling requirements

1.05 CLOSEOUT REQUIREMENTS

A. Refer to Division 1 for execution and closeout requirements.

B. Refer to Division 1 for closeout submital procedures.

C. Refer to Division 1 for demonstration and training requirements.

PART 2- PRODUCTS

2.01 GENERAL

A. All heaters shall be fabricated in accordance with the National Electrical Code, and shall bear an Underwriter's Laboratories (UL) label.

2.02 COVE HEATERS

A. Front Panel: The front panel shall be the radiating surface, and shall be fabricated of extruded aluminum. The panel shall be coated with vitreous enamel to achieve a high radiating efficiency. The backside of the front panel shall have a formed section to hold the heating element.

B. Back Shield: The back shield shall be formed of heavy gauge galvanized steel and have openings to permit the convention flow of air.

C. Element: The heating element wire shall consist of high resistance nickel chrome alloy wire, embedded in high purity magnesium oxide and encased in an aluminum sheath to assure long and trouble free life. No AC hum shall be audible.

2.03 WALL MOUNTED UNIT HEATER

A. General: Electric heat, fan driven, thermostatic control, UL listed.

B. Enclosure:

1. Wall Box: Not less than 1.3mm (l8-gauge) steel, recessed type.

2. Ribbed 1.6mm (l6-gauge) steel front cover.

3. Closely spaced downflow discharge louvers.

4. Concealed screws for locking trim frame to front cover.

5. Finished in neutral gray baked enamel with satin finish anodized aluminum trim frame.

C. Heating Elements: Steel sheath enclosed finned tube type.

D. Integral Controls:

1. Two-pole terminal block.

2. Built-in fan delay switch.

3. Automatic reset line voltage internal thermal overheats protection.

4. Built-in thermostat comfort control with adjustment range between -1 to 32 degree C (30 to 90 degrees F), and manually set "No Heat" position; tamper resistant adjustment by inserting screwdriver through front cover louvers.

PART 3 - EXECUTION

3.01 GENERAL

A. Units will be installed per manufacturer's published installation instructions.

B. Electrical installation work shall be in accordance with the National Electrical Code and Division 26 of the Specification.

END OF SECTION

DIVISION **26**

ELECTRICAL

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specifications, apply to all work specified in Division 26.

B. This Section applies to work specified in all Sections of Division 26 of the Specifications.

1.2 SUMMARY

A. Provide the following for and incidental to, the work indicated on the Drawings and specified herein:

1. Supervision
2. Materials
3. Tools and equipment
4. Labor
5. Transportation
6. Waste disposal
7. Cleaning

1.3 WORKMANSHIP

A. The work shall:

1. Complete in all details.
2. Be performed by properly qualified technicians.
3. Comply with the National Electrical Installation Standards (NEIS), published by the National Electrical Contractors Association (NECA).
4. Be performed in accordance with manufacturer's instructions and recommendations.
5. Comply with the Owner's arc flash protection procedures and lock-out, tag-out procedures.

1.4 DEFINITIONS

A. As used on the electrical Drawings and in Division 26 of the Specifications, the following definitions shall apply.

B. Definitions regarding scope of work:

1. "Furnish" shall mean "to supply and deliver equipment to the Project site."

2. "Install" shall mean "to place in the designated location, anchor in place, make physical and electrical connections, perform specified testing and demonstration, and leave in operating condition."
3. "Provide" shall mean "furnish" and "install," as defined above.
4. "Verify" shall mean "accurately assess the conditions affecting the work and adjust the work to accommodate the conditions."

C. Definitions regarding document presentation:

1. "Indicated" shall mean "called out by means of graphical representation, notes, schedules or text on the Drawings or in the Specifications."
2. "Noted" shall mean "indicated," as defined above.
3. "Shown" shall mean "indicated," as defined above.
4. "Specified" shall mean "indicated," as defined above.

D. Definitions regarding visibility of work:

1. "Concealed" shall mean "hidden from sight as in trenches below grade, in chases, in walls, in furred spaces or above ceilings."
2. "Exposed" shall mean "not concealed," as defined above.

E. Definitions regarding location:

1. "Interior" shall mean "bounded on all sides by a building envelope, including roofs, floors, walls, doors, windows and/or louvers in such a manner as to form a protected space, impervious to rain."
2. "Exterior" shall mean "not interior," as defined above.

F. Definitions regarding responsible entities:

1. "Contractor" shall mean "the entity that has entered into the Contract with the Owner to perform the Work on the Project in accordance with the Contract Documents."
2. "Electrical Installer" shall mean "the firm, licensed by the applicable jurisdiction to perform electrical installation that is immediately responsible for installation and supervision of electrical work on the Project in accordance with the Contract Documents."
3. "Owner's Representative" shall mean "the person or entity designated by the Owner to represent the Owner's interests with respect to the Project, and acting within the limits of the delegated authority."
4. "System Installer" shall mean "the entity, qualified by special skill and experience and employing specially trained technicians, that is engaged by the Contractor to install a particular electrical, communications or electronic safety system on the Project in accordance with the Contract Documents."
5. "System Vendor" shall mean "a factory branch office or authorized dealer/distributor for equipment provided as part of a particular electrical,

communications or electronic safety system that maintains a local shop, equipped with spare parts and trained technicians skilled in installation, maintenance, trouble-shooting and repair of system components."

G. Other definitions:

1. "Vibrating Equipment" shall mean "electric motors, engine-generators, dry-type transformers, and equipment incorporating one or more such items."

1.5 INTERPRETATION OF DRAWINGS AND SPECIFICATIONS

A. Diagrammatic Drawings

1. The size and location of equipment are drawn to scale wherever possible
2. Some symbols are distorted dimensionally to attain clarity in representation.
3. Locations shall be verified to avoid interference, preserve head room, maintain access for operation and maintenance and keep openings and passageways clear.

   a. Changes in location required to accomplish these purposes shall be made without additional compensation.

4. Diagrams are schematic only and do not necessarily show the physical arrangement of the equipment.
5. Diagrams shall not be used to obtain quantities or lineal runs of raceway or conductors
6. Drawings do not necessarily show the intended routing or total number of raceways, cables, or components required.
7. Provide quantity of raceways, cables, and components necessary for a complete installation of the wiring required for the equipment included in the Project.

B. Electrical Working Drawings

1. The electrical Drawings shall serve as the working Drawings for the electrical work
2. Review the Architectural Drawings and adjust the electrical work to conform to conditions indicated thereon.
3. Review the Drawings for the work of other trades and adjust the electrical work to conform to conditions indicated thereon.
4.
5. Working measurements shall be taken from the building, and checked with those shown on the Drawings.
6. Report discrepancies to the Architect before proceeding with the Work.

C. Symmetry

1. Equipment and outlets shall be located symmetrically with respect to Architectural elements.
2. Coordinate locations for equipment furnished by the Owner and equipment provided by other trades.

D. Complimentary Documents

1. The Drawings and Specifications are complimentary
2. What is required by either document shall be as binding as if required by both.
3. In the case of inconsistency between or within the Drawings and Specifications, provide the better quality or greater quantity of work, in accordance with the Architect's interpretation, without additional compensation.

1.6 CODES

A. All work shall comply with the current requirements of:

1. The National Electrical Code (NEC)
2. The International Building Code (IBC)
3. Applicable local, state and national codes.

B. The Electrical Installer shall be fully informed of all such requirements.

C. If any conflict occurs between applicable codes as versus the Drawings and Specifications, the codes and ordinances shall govern. Comply with any requirements of the Drawings and Specifications that are in excess of the codes and ordinances.

1.7 PERMITS

A. Obtain all permits required to install the work.

1.8 FEES

A. Pay to each utility company the fees necessary to enable the activation and operation of all systems and equipment specified in Division 26.

B. Plan review fees will be paid by the Owner.

1.9 SUBSTITUTIONS AND PRODUCT OPTIONS

A. As a basis of quality, equipment and materials are specified by one or more manufacturers' names, brands or catalog numbers.

B. Equivalent equipment and materials may be considered.

C. Pre-Bid Substitutions:

1. Refer to specification section 01 25 00 for Pre-Bid substitution requirements
2. Requests to use alternate luminaires shall include electronic .ies files.

D. Post-Bid Substitutions

1. Requests for substitution after award of the contract will be received and considered if:

   a. Extensive revisions to the contract documents are not required.
   b. If the proposed changes are in keeping with the general intent of the contract documents.
   c. If the requests are timely, fully documented and properly submitted.
   d. If one or more of the following conditions is satisfied, all as judged by the Architect/Engineer. Otherwise the requests will be returned without action except to record non-compliance with these requirements.

      1) The specified product or method cannot be provided within the Contract time.
      2) The specified product or method cannot receive necessary approval by the Authority Having Jurisdiction (AHJ) and the proposed substitution is approved by the AHJ.
      3) The proposed substitution offers substantial advantage to the Owner, in terms of cost, time, energy conservation, or other considerations of merit, after deducting offsetting responsibilities the Owner may be required to bear. These additional responsibilities may include such considerations as additional compensation to the Architect/Architect's Consultant for redesign and evaluation services, the increased cost of other work by the Owner or separate contractors, and similar considerations.
      4) The specified product or method cannot be provided in a manner which is compatible with other materials provided for the project and where the substitution will overcome the incompatibility.
      5) The specified product or method cannot be properly coordinated with other materials provided for the project and where the proposed substitution can be properly coordinated.
      6) The specified product or method cannot receive a warranty as required by the contract documents and where the proposed substitution can provide the required warranty.

2. Requests will not be considered if the product or method cannot be provided as a result of the Contractor's failure to pursue the work promptly or to coordinate the various activities properly.
3. Requests to use alternate luminaires shall include electronic files.

E. Reimburse the cost of any redesign caused by a product substitution, whether accepted or not.

1.10 SHOP DRAWINGS AND PRODUCT DATA

A. General

1. Submit sufficient information to prove compliance with the Contract Documents and, for substitute equipment and materials, to prove equivalence to the specified products.
2. Before ordering materials or equipment, submit shop drawings and/or product data, as indicated in the Specifications, for proposed material and equipment Maintain copy of reviewed submittals at the Project site.

    a. Submittals shall be available for use by the Architect and the Architect's Consultant throughout the duration of the Project.

3. All submittal data shall identify the equipment as Underwriter's Laboratory labeled or listed.

    a. Submittals which do not include this information will be considered incomplete, and will be returned "REJECTED."

4. Electronic files shall be submitted individually in a sequence that does not adversely impact the project schedule.

B. Format

1. All submittals shall be submitted in unlocked, electronic portable document fire (.pdf) format created from original documents.
2. The specific products intended for the Project shall be clearly identified.
3. Information submitted in improper format shall be subject to return without review.
4. A separate electronic file shall be submitted for each section of the Specifications.
5. The first page of each submittal shall contain:

    a. Specification Section name and number
    b. Equipment list
    c. Model and/or catalog numbers
    d. Space for review stamp and comments

C. Contractor Review and Documentation

1. Prior to submitting documents for the Architect's/Architect's Consultant's review, shop drawings and product data shall be reviewed, approved and stamped by:

   a. The Contractor.
   b. The Electrical Installer.

2. Shop drawings and product data without the Contractor's and Installer's note of approval will be subject to return without review by the Architect or the Architect's Consultant.
3. On the Electrical Installer's letterhead, record deviations from requirements of the Contract Documents, including minor variations and limitations.

   a. Include copy of recorded deviations in the submittal electronic file.
   b. Absence of recorded deviations constitutes representation that the submitted items, having been reviewed and approved by the Contractor and the Electrical Installer, fully comply with all requirements of the Contract Documents.

D. Product Data:

1. Submit catalog sheets for standard catalog items.
2. Product data shall show:

   a. Manufacturer
   b. Catalog number
   c. Ratings
   d. Finish
   e. Dimensions
   f. Type of materials used.
   g. Evidence of compliance with required listing and labeling.

E. Shop Drawings:

1. Outline drawings and component information shall be submitted for assemblies, systems and other non-standard or non-cataloged items.
2. Shop drawings shall show:

   a. Manufacturer
   b. Ratings
   c. Finish
   d. Dimensions
   e. Arrangement of components
   f. Type of materials used.
   g. Evidence of compliance with required listing and labeling

h. The following when applicable::

1) Raceway entry locations
2) Access requirements
3) Calculations
4) Adjustment settings
5) Floor plans
6) Details
7) Riser diagrams
8) Wiring diagrams
9) Operational matrices

F. Samples:

1. Submitted for direct examination:

a. Of certain items when requested by the Architect/Architect's Consultant.
b. Specific items when so required by other Sections of Division 26 of the Specifications.

G. Architect's Review and Documentation

1. The submittal review by the Architect and/or the Architect's Consultant shall not relieve the Contractor's responsibility to furnish materials and perform work as required by the Contract Documents.
2. If the submittal includes any deviations from the Contract Documents, such deviations shall be presumed as not having been reviewed, except where specific emphatic attention is called to the deviation.
3. Allow a minimum of 14-calendar days for review of each electronic file.

H. After reviewing and marking the original file, the Architect and/or the Architect's Consultant will return an electronic copy of the annotated .pdf file.

1.11 COORDINATION AND COOPERATION

A. Coordination

1. Coordinate the electrical work with all other trades performing work on the Project.
2. Electrical workman shall be present during placing of concrete and masonry.
3. Refer to the entire set of Contract Drawings, Specifications and Addenda for details necessary to properly coordinate the electrical work with work of other trades.

B. Cooperation

1. Cooperate with:

   a. The work of other trades on the Project to avoid delays and disputes.
   b. The Architect and the Architect's Consultants to enable review of the work.
   c. The Authority Having Jurisdiction to allow inspection of the work.

2. Remedial work made necessary by failure to coordinate work with other trades shall be performed with no additional compensation.

1.12 WORK SCHEDULE

A. Accommodate the Project schedule and the requirements of the Owner.

B. Perform overtime work necessary to meet the Project schedule and the Owner's requirements.

1.13 REVIEW OF WORK

A. Work shall be subject to review by the Architect and the Architect's Consultant at any and all times.

B. Work shall be subject to inspection by code enforcing authorities at any and all times.

C. Give the Architect, the Architect's Consultant and code enforcing authorities all assistance necessary to review the work.

1.14 SUBMITTALS

A. Schedule of Values: Itemization of the value of the Division 26 work.

B. Training Sign-In: Attendee sign-in sheet for the training sessions.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Materials and equipment:

1. New and in an unused condition when delivered to the site.
2. Current model with continuing support of the manufacturer.

B. Labeling:

1. Materials and equipment shall bear the Underwriter's Laboratory (UL) label or the label of another product testing laboratory approved by the AHJ.
2. The label shall indicate items are suitable for:

a. The intended use
b. The conditions in which they are installed
c. Ambient temperatures.

PART 3 - EXECUTION

3.1 SITE CONDITIONS

A. Ascertain conditions affecting the work by examining the site of the work prior to submitting a bid.

B. No allowances will be made due to lack of knowledge of such conditions.

C. Regarding conditions affecting the work, no statement by the Architect, the Architect's Consultant, the Owner or their representatives will be binding.

3.2 INSPECTIONS

A. During Construction

1. Arrange for all inspections required by each AHJ.
2. Provide access to equipment as required by each AHJ.
3. Do not conceal work without the approval of the appropriate AHJ.

B. Prior to Project Closeout

1. Arrange for final inspections required by each AHJ.
2. Make corrections to the work as required by each AHJ.

3.3 PROTECTION AND CLEANING

A. Protection

1. Fully protect materials and equipment against damage due to weather, construction activities and other causes.
2. Fully protect finished surfaces.
3. Keep electrical conductors, buses and connections, electronic components and moving parts kept clean and dry.
4. Protect electrical equipment and materials from accidental painting.
5. Damaged materials, equipment and finishes shall be replaced or repaired to new condition.

B. Cleaning

1. During the Project:

a. Maintain clean project site.

b. Remove all scrap, unused material, packing cartons and other debris created as a result of the work.

2. At conclusion of the Project:

a. Clean all new and existing luminaires, devices and equipment within the Project area

3.4 MANAGEMENT OF CONSTRUCTION WASTE

A. Comply with waste management and disposal procedures Contained in Division 1 of the Specifications.

B. Recyclable material:

1. Separate recyclable materials from construction waste.
2. Segregate recyclable materials by type.

3.5 TESTING, ADJUSTMENT AND DEMONSTRATION

A. General

1. Supply tools, instruments, gauges, testing equipment, protective devices and safety equipment for adjustment, testing and demonstration.

B. Testing

1. Notify the Architect's Consultant, the Commissioning Authority, and the Owner's Representative at least two (2) weeks in advance of the date of each test, to allow witnessing of the tests.
2. Perform tests necessary to:

a. Ensure against concealment of defective materials and workmanship
b. Determine all wiring is free from short circuits
c. Determine all conductors have correct continuity
d. Allow the Authority Having Jurisdiction to approve the work

3. Correct all deficiencies discovered as a result of testing.
4. Retest corrected work.
5. Record test results and corrective actions taken.

C. Adjustment

1. Set adjustable control devices in accordance with:

a. The manufacturer's recommendations

b. As directed by the Owner's Representative and/or the Architect's Consultants.
c. Other Sections of the Specifications

2. Record all settings.
3. Records shall be included in the Operating and Maintenance Manuals

D.

E. Demonstration

1. After satisfactory conclusion of testing and adjustment demonstrate:

a. Operation of each control switch
b. Operation of each control panel
c. Operation of each specific system as specified on other Sections of Division 26.

2. Demonstrations shall be performed in the presence of the Owner's Representative.

3.6 ON-SITE TRAINING

A. Preparation:

1. Place all systems installed under Division 26 in initial operation.
2. Retain representatives of the equipment manufacturers for certain electrical systems to conduct specific training in the maintenance and operation of each system as specified in the corresponding Sections of the Specifications.
On-site training shall be coordinated with the Commissioning 26 08 00.
3. Notify the Architect's Consultant, the Commissioning Authority, and the Owner's Representative at least two (2) weeks in advance of the date of each on-site training session to allow attendance by the Owner's Personnel.
4. On-site training shall follow written training plans, prepared in advance. The training plans shall outline the topics to be covered, the publications to be used, and the training schedule.
5. The training shall be conducted after the Operating and Maintenance Manuals for the project are completed and available for use during the training session.
6. Maintain training sign-in sheets, upon which participants in each training session, including the instructors, shall record their names. The training sign-in sheets shall be dated.

B. General Training:

1. The Electrical Installer shall conduct a minimum of two (2) hours of general training for the Owner's Personnel.
2. Training shall include:

    a. Operating instructions.
    b. Maintenance instructions.
    c. Troubleshooting approaches.

C. Specific Training:

1. Conduct specialized training for specific portions of the work as specified in other Sections of Division 26 of the specifications.
2. The training shall be conducted by personnel who are thoroughly familiar with the equipment, and with the Project. The training shall include instruction and field demonstration. As a minimum, the training shall cover, but not be limited to, the following topics:

    a. General overview of the electrical systems, including expansion capability.
    b. Location, adjustment procedures and settings for adjustable devices.
    c. Location and operation of control devices.
    d. Location of batteries, moving parts and other items that require periodic maintenance.
    e. Recommended maintenance procedures and intervals.

D. In addition to specific training for certain systems that is conducted by representatives of the equipment manufacturers

E. At the conclusion of each training session:

1. Obtain written sign-off from the Commissioning Authority and the Owner's Representative.
2. Insert a copy of each sign-off form and each training sign-in sheet into the Operating and Maintenance Manuals.
3. Submit a copy of each training sign-in sheet to the Architect.

3.7 RECORD DOCUMENTS

A. Requirements contained in this Section are in addition to requirements contained in Division 1 of the Specifications.

B. General

1. Maintain one (1) complete set of the Drawings and Specifications throughout the Project as a Record Document set.
2. Do not use Record Document set for any purpose other than recording changes.

3. Enter notations on the set in a neat and legible manner.
4. Update Record Documents daily to record every change from the original Documents made by:

    a. Addendum
    b. Document Clarification
    c. Change Order
    d. Construction Change Directive
    e. Field Authorization
    f. Architect's direction
    g. Owner's direction.

5. Record Document set shall be available at the Project site for review at any time.
6. Status of Record Documents will be considered when evaluating partial payments to the Contractor.
7. Submit Record Document set to the Architect's Consultant for review.
8. Deliver the completed Record Documents to the Owner in the manner prescribed in the general provisions of the Contract.

C. Plans and Details

1. As a minimum, record the following information:

    a. Where boxes, monuments, stub-outs and other provisions are made for future connections, the actual location and elevation, with dimensions referenced to building lines or approved bench marks, shall be indicated.
    b. Actual routing of underground electrical work on site. Actual location and type of grounding electrodes.
    c. Actual routing of feeders and major systems raceways.
    d. Origin of branch circuit "home runs".
    e. Actual overcurrent device selection.
    f. Actual location and physical size of electrical equipment.
    g. Actual location of electrical control devices and outlets installed at locations differing from the locations indicated on the original Documents.
    h. Actual circuit numbers, where differing from the circuit numbers indicated on the original Documents. Where deviations are indicated, identify both what was added and what was deleted.
    i. Actual types, ratings, sizes, quantities and other pertinent data related to the electrical work, where such data differs from that indicated on the original Documents.
    j. Revisions to details shown on the Drawings.

D. Schedules

1. As a minimum, record the following:

   a. Changes to panelboard schedules
   b. Changes to equipment schedules
   c. Changes to luminaire schedules

E. Specifications

3.8 OPERATING & MAINTENANCE MANUALS

A. General

1. Provide three (3) manuals describing electrical equipment specified in Division 26.

B. Data to be included:

1. Copies of data submitted under "Shop Drawings and Product Data"
2. Final manufacturer's drawings
3. Protective device study
4. Test reports
5. Operation instructions
6. Maintenance instructions
7. Certificates
8. Inspection reports
9. Warranties, where the manufacturer's warranty exceeds one year

C. Format:

1. Clean, high-quality pages 216 mm by 280 mm (8½ in by 11 in) size.
2. Loose-leaf
3. Heavy-duty three-ring binders

   a. Maximum 3-inch thick
   b. Maximum 75% full
   c. Multiple volumes as necessary
   d. Edge label:

      1) Project Name
      2) Volume number

   e. Front label:

      1) Project Name
      2) Volume number
      3) Completion date
      4) Architect's name

5) Electrical Installer's name

4. Sections

a. Section title pages plastic tab indicating related Specification Section number and Specification Section title.
b. Arranged in numerical order to match Specifications.
c. Respective information pages located directly behind the section pages.

5. Provide one (1) complete manual in Adobe portable document file (.pdf) format on permanent media.
6. Provide electronic files and associated electronic libraries of the protective device study on permanent media

D. Review:

1. Submit preliminary copy to Architect's Consultant for review Make corrections requested by Architect's Consultant.
2. Submit final copies for review two (2) weeks prior on-site training.

E. Delivery:

1. Deliver completed Manuals to the Owner one (1) week prior to first on-site training session.

3.9 PROJECT CLOSEOUT

A. Inspections

1. For each permit, deliver written final approval of the AHJ to the Owner.

B. Notification

1. Notify the Architect in writing when the electrical work is complete.

C. Review

1. Accompany the Architect's Consultant during the review of the work.
2. Remove the following as directed by the Architect's Consultant:

a. Box cover plates
b. Switchboard covers
c. Panelboard covers
d. Cabinet covers
e. Access panels

D. Corrective Action

1. The Architect's Consultant will prepare itemized list of incorrect and incomplete items of work.
2. Correct items included in the list.
3. Notify the Architect in writing when corrections are complete.
4. Submit annotated copy of the correction list denoting disposition of each item.

E. Additional Review

1. Accompany the Architect's Consultant during the additional review of the work.
2. Demonstrate that all corrections are correctly completed.
3. Additional trips to the Project site necessary due to failure to complete all corrective work will be charged to the Contractor at normal published rate of the Architect's Consultant plus travel expenses.

F. Spare Materials

1. Prepare pare list of spare materials and required quantities specified in Division 26.
2. Deliver list and spare materials to the Owner's Representative.
3. Obtain signed receipt for delivered materials

3.10 GUARANTEE

A. Guarantee the satisfactory operation of all material, equipment and labor provided under Division 26 of the Specifications.

B. Repair or replace, to the satisfaction of the Owner and Architect, material, and equipment found to be defective within one (1) year of the date of substantial completion.

1. Excluded from guarantee:

a. Incandescent lamps

C. The guarantee period shall extend beyond one (1) year for specific equipment as indicated in other sections of the Specifications.

D. Remedial Work

1. Work to correct defective material and labor shall be made to the satisfaction of the Architect.
2. Relocation, cutting, patching, refinishing and other work made necessary to repair defective materials, to remedy defective workmanship or because of

failure to properly anticipate the requirements of the electrical work, shall be performed with no additional compensation.

3. Cutting and patching shall conform to the requirements in Division 1.
4. If necessary to accommodate the Owner's use of the project, remedial work may need to be accomplished on weekends and/or nights.

3.11 SCHEDULE OF VALUES

A. Prior to first payment request, submit an itemization of the value of the Division 26 work.

B. Schedule of Values shall be itemized as follows:

1. 26 01 00: Mobilization
2. 26 01 00: De-mobilization
3. 26 01 00: Miscellaneous Overhead Expenses
4. 26 01 00: Record Documents
5. 26 01 00: Permits
6. 26 01 00: Punchlist and Project Close-out, 1.5% minimum
7. 26 05 10: Building Material
8. 26 05 10: Miscellaneous Building Labor
9. 26 05 12: Primary Service Materials
10. 26 05 12: Primary Service Labor
11. 26 05 12: Secondary Service Materials
12. 26 05 12: Secondary Service Labor
13. 26 05 19: Feeder Material
14. 26 05 19: Feeder Labor
15. 26 05 19: Branch Circuit Material
16. 26 05 19: Branch Circuit Labor
17. 26 05 26: Ground Bonding Materials
18. 26 05 26: Ground Bonding Labor
19. 26 05 29: Hangers and Supports Materials
20. 26 05 29: Hangers and Supports Labor
21. 26 05 31: Outlet Boxes Material
22. 26 05 31: Outlet Boxes Material
23. 26 05 31: Outlet Boxes Labor
24. 26 05 32: Pull & Junction boxes Material
25. 26 05 32: Pull & Junction boxes Labor
26. 26 05 33: Raceway Material
27. 26 05 33: Raceway Labor
28. 26 05 51: Device Plates Material
29. 26 05 51: Device Plates Labor
30. 26 05 53: Identification of Electrical Systems Material
31. 26 05 53: Identification of Electrical Systems Labor
32. 26 08 00: Commissioning
33. 26 09 23: Automatic Lighting Control Devices Material

34. 26 09 23: Automatic Lighting Control Devices Labor
35. 26 24 16: Panelboard Material
36. 26 24 16: Panelboard Labor
37. 26 27 26: Wiring Devices/Multi-Outlet Assembly Materials
38. 26 27 26: Wiring Device/Multi-Outlet Assembly Labor
39. 26 27 39: Equipment Connection Material
40. 26 27 39: Equipment Connection Labor
41. 26 28 13: Low Voltage Fuses Materials
42. 26 28 13: Low Voltage Fuses Labor
43. 26 28 16: Enclosed Disconnect Switches Materials
44. 26 28 16: Enclosed Disconnect Switches Labor
45. 26 29 13: Across The Line Motor Controllers Materials
46. 26 29 13: Across The Line Motor Controllers Labor
47. 26 29 33: Miscellaneous Control Material
48. 26 29 33: Miscellaneous Control Labor
49. 26 51 00: Interior Lighting Material
50. 26 51 00: Interior Lighting Labor
51. 26 56 23: Site Lighting Material
52. 26 56 23: Site Lighting Labor

END OF SECTION

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specifications, apply to work specified in this section.

B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY

A. Perform excavation, including trenching, and backfill as required to install the underground electrical work for the Project.

B. Provide miscellaneous general construction materials for application in direct conjunction with the electrical Work on the Project. Such materials shall include sleeves, roof flashing, waterproofing, grout, concrete, reinforcing, firestopping, sealants, access doors, plywood terminal boards and incidental field painting.

1.3 SUBMITTALS

A. Product Data: For each type of roof flashing and waterproofing provided on the Project for electrical work.

1.4 INSTALLATION DETAILS: FOR EACH TYPE OF FIRESTOPPING ASSEMBLY PROVIDED ON THE PROJECT TO PROTECT FIRE-RATED THROUGH-PENETRATIONS FOR ELECTRICAL WORK.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Patching Materials: Match the materials in the adjacent construction. Asphaltic paving used to repair existing paving shall match the design mix and paving thickness of the adjacent material. The base course of new asphalt shall match the material and thickness of the existing.

B. Warning Tape: 125 µm (5 mil) plastic tape, at least 100 mm (4 in) wide, with block lettering of a contrasting color at least 51 mm (2 in) high indicating the type of service at intervals not to exceed 1.5 m (60 in) along its length. The tape shall include a 25 µm (1 mil) minimum metallic foil core or backing to facilitate locating.

C. Sleeves: Galvanized steel. Where sleeves are provided for electrical through-penetrations through fire-rated partitions, the sleeves shall be of a type suitable for use with the wiring method employed and shall be identified as such on the manufacturer's UL-approved installation detail for the firestopping material used. Sleeves through fire-rated partitions for communications cable and other low-voltage cables that are not installed in raceways shall include a built-in fire sealing system that automatically adjusts to the amount of cables installed, equivalent to "EZ-Path" fire-rated pathways, as manufactured by Specified Technologies Inc.

D. Roof Flashing Assemblies (Metal Roofs): Per Section 07 41 13 of the Specifications. If Section 07 41 13 does not exist, use "Master Flash" universal EDPM rubber flashing assembly with heavy-duty aluminum alloy base, as manufactured by Oatey Co. Flashing assemblies shall be specifically adapted for the roof pitch at the penetration location; advise roof pitch when ordering.

E. Epoxy Grout: High-bond, moisture-insensitive epoxy grout mixture, consisting of factory pre-packaged activator catalyst, epoxy resin, and graded aggregates in correct proportion, as manufactured by L&M Construction Chemicals or W. R. Meadows. Compressive strength shall be 65,000 kPa (9,700 psi) per ASTM D695, tensile strength shall be 24,000 kPa (3,500 psi) per ASTM D638, flexural strength shall be 27,500 kPa (4,000 psi) per ASTM D790, and bond strength shall be 27,500 kPa (4,000 psi) per ASTM C882.

F. Cast-in-Place Concrete: Structural concrete shall comply with Section 03 30 00. If Section 03 30 00 does not exist, provide concrete for ductbanks shall conform to Section 26 05 43. Incidental concrete shall be ready-mix, 300 kg/m³ (5½ sack to cubic yard) ratio of Portland cement to concrete, having a 28 day compressive strength of 28,000 kPa (4,000 psi) minimum. Aggregate and admixtures shall be in accordance with Section 03 30 00 of the Specifications, with aggregate no larger than 9.5 mm (3⁄8 in).

G. Reinforcing Steel: Per Section 03 30 00 of the Specifications. If Section 03 30 00 does not exist, provide reinforcing bars shall conform to ASTM A615, Grade 60, deformed. Steel tie wire shall conform to ASTM A82, plain cold-drawn steel. Where welded-wire reinforcement is indicated, conform to ASTM A497, deformed steel welded-wire, flat sheet. Reinforcement supports shall be wire bar type bolsters, chairs, spacers, and other devices for supporting and fastening reinforcing bars and welded wire fabric in place.

H. Firestopping Materials: Provide UL tested and approved in accordance with ASTM E814 (UL 1479), rated to provide equivalent fire-resistance rating as the construction to be penetrated. Firestopping materials shall emit no toxic or combustible fumes, and shall allow for normal movement of the building structure and the penetrating elements without adversely affecting the adhesion or integrity of the firestopping system.

I. Joint Sealants: Per Section 07 92 00 of the Specifications. If Section 07 92 00 does not exist, provide exterior joint sealants shall be Type M, Class 25, Grade NS per ASTM C920, with a "Shore A" hardness of 20-40.

J. Access Doors: Provide access doors shall consist of a steel mounting frame and a hinged steel door, equipped with a quarter-turn positive latching mechanism. The hinge shall have a removable hinge pin to allow removal of door and a concealed spring. The door shall open a minimum of 175°. Access doors for installation in ceramic tile shall be stainless steel. Access doors shall be manufactured by Acudor, Elmdor or approved equivalent.

K. Plywood Backboards: Backboards shall be exterior grade Douglas fir plywood, treated with fire-retardant material, 19 mm (¾ in) thick and finished on one side. Backboards shall be painted to match the wall on which they are installed.

2.2 ACCEPTABLE MANUFACTURERS

A. Acceptable manufacturers shall be as listed above.

B. Substitutions may be considered only when submitted in conformance with Section 26 01 00.

PART 3 - EXECUTION

3.1 EXCAVATION AND BACKFILLING

A. Prior to beginning excavation, existing underground utilities within 3 m (120 in) of the excavation shall be located and marked on the existing grade. Arrange for Utility Companies to locate and mark their respective underground utilities. Locate and mark all privately owned underground utilities. After backfilling is complete, all markings shall be removed.

B. Provide complete excavation and backfill required to install the electrical work

C. Excavation shall conform to the requirements of Section 31 23 16.

D. Exercise extreme care while excavating in the area of existing utilities. Check carefully for location of all possible utilities, whether shown on the Drawings or not, and establish the location of all cutoff valves and switches for ready shutoff in case of an emergency. Repair any utility damaged during excavation.

E. Exercise care not to damage existing vegetation indicated to remain in place. Refer to Section 31 10 00 for requirements concerning protection of existing vegetation.

F. Dig trenches to the uniform width required for the particular item to be installed and sufficiently wide to provide ample working room. Excavate 150 mm (6 in)

below the required elevation, and backfill with 152 mm (6 in) layer of sand prior to installing raceway.

G. Grade bottoms of trenches to provide solid bearing for the entire body of the raceway.

H. Prevent surface water and subsurface ground water from flowing into excavations. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey surface water to collecting or run-off areas. Do not use trench excavations as temporary drainage ditches or allow water to accumulate in excavations. Provide and maintain a dewatering system as necessary to convey water away from excavations.

I. In locations where raceways pass under column or wall footings, backfill trenches with lean concrete wherever the trench excavation passes within 457 mm (18 in) of such footings, including the portion of the trench that carries the raceway below the bottom of such footings. Place concrete up to the level of the bottom of the adjacent footings.

J. Do not backfill trenches until underground raceways have been reviewed by the Electrical Inspector and backfilling has been authorized by the Architect/Architect's Consultant. Use care in backfilling to avoid damage to or displacement of the raceway systems.

K. Backfill and compaction shall comply with Section 31 20 00.

L. Backfill material shall not contain rocks in excess of 100 mm (4 in) diameter. No cinders shall be used as backfill material. Do not place backfill material on surfaces that are muddy or frozen, including surfaces that contain frost or ice.

M. Remove excess earth from the site and dispose of it at no additional expense to the Owner. Prevent spillage during hauling operations.

N. Protect adjoining properties and improvements that remain. Repair or replace streets, walks, paved areas, lawns, curbs, fences, and other improvements removed or damaged as a result of excavation to the satisfaction of the Architect. Compact new asphalt base courses to 95%. Provide asphaltic primer between the edges of existing paving and new paving.

O. Where subsidence occurs at excavations for electrical work during the Project warranty period, remove surface treatment (e.g., pavement, lawn or other finish), add backfill material, compact to specified conditions, and restore surface treatment to match the appearance, quality and condition of the adjacent surfaces.

3.2 INSTALLATION OF DETECTIBLE WARNING TAPE

A. Provide Detectable warning tape extending the entire length of each underground service raceway, where such services are located outside the building perimeter. During backfill, place the warning tape centered above the buried lines, at the depth indicated on the Drawings, or, where not indicated, place the warning tape approximately 300 mm (12 in) below finished grade.

3.3 EQUIPMENT CONNECTIONS

A. Prior to installing outlet boxes and raceway for equipment requiring electrical connections, obtain shop drawings for each piece of equipment.

B. Provide outlet boxes and raceway connections for electrically-operated and electrically-controlled equipment in accordance with the equipment manufacturer's recommendations and the equipment shop drawings.

3.4 CUTTING, DRILLING AND PATCHING

A. Perform cutting, drilling and patching required to perform the work specified in Division 26. Cutting, drilling and patching shall conform to the requirements of Section 01 73 29 and the conditions specified herein.

B. Construction of a structural nature shall not be disturbed without the approval of the Architect. In general, cutting or drilling through floors, walls and partitions shall be avoided. Only where absolutely necessary will such cutting or drilling be permitted.

C. When cutting or drilling is necessary, perform the cutting or drilling in a careful manner with due consideration to maintaining the integrity of the building's structural elements. Remove material in small sections, using methods that will not crack or structurally disturb the adjacent construction. Avoid the use of power-driven impact tools. Cut concrete and masonry using a masonry saw, following junctures in the construction where possible. Holes through concrete or masonry shall be made with a core drill. Holes through wood shall be made with wood drills. Holes in wall studs and structural members shall not be made through edges of members.

D. Penetrations in structural members and floor slabs shall be reinforced in accordance with the Structural Drawings and the applicable provisions of the Specifications.

E. Disturbed construction and finishes shall be restored to the original condition. Skilled workers of the appropriate building trade shall use materials of matching kind and quality to restore disturbed construction and finishes.

F. Obtain approval from the Architect for the proposed extent of cutting, drilling and patching. Where cutting or drilling involves major structural elements, obtain permission from Architect in advance for each individual opening.

G. Openings in the structure shall comply with the requirements indicated on the Structural drawings. Provide reinforcing around openings as indicated on the Structural drawings.

3.5 INSTALLATION OF SLEEVES & SEALING

A. Where cables or corrugated plastic ducts pass through walls, ceilings or floors, provide sleeves of sufficient size to facilitate installation of the same. Sleeves shall also be provided for future use as indicated on the Drawings. Where existing cables or corrugated plastic ducts pass through gypsum-board walls, provide split sheet metal sleeves. At floor penetrations, sleeves shall extend 50 mm (2 in) above the floor.

B. Protect penetrations through, and openings in, fire-rated wall, ceiling and floor assemblies, where such openings contain electrical work within the Project area, regardless of whether such work was installed on this Project, and where the openings were made outside the Project area to admit electrical work installed under the Project. Openings accommodating such items as raceway, cable tray, outlet boxes, and equipment backboxes, shall be protected. Openings left by removal of electrical work under this Project shall also be protected.

C. Penetrations and openings shall be protected to retain the integrity of the time-rated construction by maintaining an effective barrier against the spread of flame, smoke and gases. Where the penetrating elements are cables corrugated plastic ducts or other combustible items, firestopping materials shall be intumescent type. Firestopping shall consist of UL listed fire-rated assemblies and shall be installed in accordance with UL approved installation details.

D. Acoustically seal penetrations through, and openings in, wall, ceiling and floor assemblies, where such openings contain electrical work within the Project area. Openings accommodating such items as raceway, outlet boxes, and equipment backboxes, shall be sealed. Penetrations shall be sealed on both sides of the wall, ceiling or floor.

E. Seal penetrations through, and openings in, wall, ceiling and floor assemblies that constitute the perimeter of return-air plenums. Openings accommodating such items as raceway, outlet boxes, and equipment backboxes, shall be sealed. Penetrations shall be sealed on both sides of the wall, ceiling or floor.

3.6 FLASHING ROOF PENETRATIONS

A. Electrical raceways penetrating the roof shall be flashed using flashing assemblies compatible with the roof system. Install flashing assemblies in accordance with

the manufacturer's instructions. Coordinate installation with the roofing work, and perform work in sequence to prevent water infiltration.

B. The neck of the flashing assembly shall be sealed around the raceway with sealing compound as recommended by the manufacturer of the flashing assembly. A protective counter-flashing shall be provided, which shall be secured to the raceway above the flashing assembly using set screws. The upper annular space between the raceway and the counter-flashing shall also be sealed with the appropriate sealing compound.

C. Flashing of roof penetrations shall conform to the requirements of Section 07 62 00.

3.7 SEALING EXTERIOR WALL PENETRATIONS

A. Electrical raceways penetrating the exterior walls shall be sealed to prevent water infiltration.

B. Where raceways penetrate exterior walls above grade, the opening shall be flashed and counter-flashed as directed by the Architect. Apply the appropriate sealing compound at all joints.

C. Where raceways penetrate existing exterior walls below grade, a separate opening shall be core drilled for each raceway. The diameter of each opening shall be 76 mm (3 in) to 102 mm (4 in) larger than the outside diameter of the raceway to be installed. Allow proper annular space around the raceway for installation of grout, in accordance with the recommendations of the grout manufacturer. Determine the required diameter of each wall opening before core drilling walls.

D. Where raceways penetrate new exterior walls below grade, sleeves shall be provided in the exterior wall, sized to accommodate the raceways. Allow proper annular space around raceways for installation of grout, in accordance with the recommendations of the grout manufacturer. Determine the required size of each wall opening in time to place sleeves prior to placement of wall materials.

E. Openings around raceways penetrating below-grade exterior walls shall be sealed with epoxy grout as required to assure a water-tight seal. After sealing the openings, the raceways shall be encased in a minimum of 76 mm (3 in) of concrete. Prior to backfilling, the entire assembly, including the exterior side of the wall and the concrete encased raceways shall be waterproofed for at least 0.92 m (36 in) in every direction around the raceway penetration.

3.8 WATERPROOFING

A. Provide waterproofing at electrical raceway penetrations through exterior walls below grade and on the exterior side of electrical manhole walls.

B. Waterproofing shall be applied in accordance with the manufacturer's installation instructions and standard guideline details, except as otherwise indicated.

C. Prior to application of waterproofing membrane, apply a surface conditioner evenly as fine spray over the entire surface to be waterproofed.

D. Waterproofing membrane material shall be melted until the material can be drawn free-flowing and lump-free. Begin by applying waterproofing membrane material to a thickness of 3 mm (⅛ in) thick over joints and cracks. Immediately after application of the waterproofing membrane, apply a 152 mm (6 in) wide strip of reinforcing sheet over each joint or crack, and imbed it into the warm membrane material, avoiding the creation of air pockets. Then apply another 3mm (⅛ in) thick coat of waterproofing membrane over the reinforcing sheet to totally encapsulate it within the membrane.

E. After installation of reinforcing at joints and cracks, apply waterproofing membrane evenly to an average thickness of 4.5mm (3⁄16 in), but not less than 3mm (⅛ in) thick, over the entire surface, including joints and cracks.

F. As soon as possible after application of the waterproofing membrane, cover the waterproofed surfaces with protection board.

3.9 INSTALLATION OF ACCESS DOORS

A. Provide access doors wherever outlet boxes, junction boxes, pull boxes, duct smoke detectors and similar devices are installed in an otherwise inaccessible location.

B. Access doors shall be compatible with the surface in which they are installed. Access doors shall carry a fire rating equal to the construction in which they are installed. Minimum size shall be 610 mm (24 in) square, unless otherwise indicated. If the structure or suspension system will not accommodate an opening of the required size, the access door shall be sized as directed by the Architect.

C. Access doors shall be installed flush with the surface in which they are installed, unless otherwise indicated. Where access doors are installed in walls or vertical partitions, align sides vertically. Where installed in ceilings, the sides of access doors shall be aligned parallel to the ceiling suspension system or the side walls.

D. Secure frames to the adjacent construction, by means of anchors attached to the access door frame or by use of bolts or screws through the frame members. Anchorage shall resist displacement during normal use of the access door, and shall meet the requirements of the applicable fire rating.

3.10 INCIDENTAL CONCRETE PLACEMENT

A. Provide miscellaneous concrete for encasement of raceways, for electrical equipment pads and for bases of site lighting fixtures. Concrete shall be reinforced as indicated.

B. Placement of reinforcing shall comply with the Concrete Reinforcing Steel Institute's recommended practice.

C. Placement of concrete shall comply with ACI 304 Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete.

3.11 INSTALLATION OF PLYWOOD BACKBOARDS:

A. Walls in communications equipment rooms and closets shall be lined with plywood, with finished side facing out. Plywood shall be 2.44 m (96 in) high, and shall be placed so that the bottom of the plywood is 102 mm (4 in) above the floor of the room. Plywood shall be mounted vertically with countersunk fasteners.

3.12 INCIDENTAL FIELD PAINTING

A. Where the following electrical items occur upon finished surfaces, they shall be painted to match finish of surface unless otherwise directed by the Architect or the Architect's Consultant:

1. Exposed raceways, except pre-finished surface metal raceway systems
2. Exposed boxes, except pre-finished boxes associated with surface metal raceway systems
3. Wall-mounted multi-outlet assemblies
4. Panelboard trims and covers, except panelboards in mechanical, electrical, telecommunications and machine rooms
5. Cabinet and enclosure trims and covers, except cabinets and enclosures in mechanical, electrical, telecommunications and machine rooms

B. Where electrical items are indicated to be painted, the electrical work shall be installed in a timely manner to permit all items to be painted at one time. Where additional electrical work must be installed after the painting is complete, the items so installed shall be painted to match the other items in the same space.

C. Prime paint all surfaces and edges of plywood backboards and finish paint the front with light gray enamel.

D. Where finish on electrical equipment enclosures is marred, touch up the finish to match the surrounding finish.

E. Painting shall be done at no additional expense by a qualified licensed Painter.

END OF SECTION

SECTION 26 05 12 – ELECTRICAL POWER SERVICES

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 26 specification sections, apply to work specified in this section.

B. Related Sections.

1. Section 26 01 00 – Electrical Requirements: Product substitution procedures
2. Section 26 05 10 – Electrical Common Work: Excavation and backfill requirements
3. Section 26 05 19 – Low-Voltage Conductors & Cables: Conductor requirements
4. Section 26 05 33 – Raceways: Raceway requirements

1.2 SUMMARY

A. Provide underground electrical power service as indicated.

B. Service voltage shall be 120/240 single-phase, three-wire.

1.3 SUBMITTALS

A. Product Data: For each type of meter provided on the Project, and for associated current transformers and enclosure.

B. Meeting Minutes: For meeting with the Utility Company.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Raceway: As specified in Section 26 05 33.

B. Conductors: As specified in Section 26 05 19.

1. Compression Connectors: As specified in Section 26 05 19 and as required by the Utility Company.

C. Lugs for Secondary Service Conductors: As required by the Utility Company.

D. Current Transformer Enclosure: As required by the Utility Company.

E. Meter Base: As required by the Utility Company.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prior to beginning work on the electrical service, arrange for and attend a meeting with the Utility Company's representative to discuss all aspects of the electrical service. Prepare minutes of the meeting, noting all discussion items. Deliver a copy of the minutes to the Architect before beginning work on the electrical service.

3.2 INSTALLATION

A. All electrical service work shall conform to the requirements of the Utility Company.

B. Install equipment in accordance with manufacturer's recommendations.

C. Provide:

1. Trench and backfill for primary service
2. Trench and backfill for secondary service
3. Secondary service raceways
4. Secondary service conductors
5. Transformer pad
6. Meter base and meter raceway

D. The Utility Company will provide:

1. Pad-mounted power transformer
2. Primary conductor terminations at power transformer
3. Current transformers
4. Meter and meter wiring
5. Power transformer grounding
6. Padlocks

E. Excavation and backfill shall conform to the requirements in Section 26 05 10.

F. Raceway installation shall conform to the requirements in Section 26 05 33

G. Locate raceway entries to permit installation of conductors while maintaining the minimum bend radius prescribed for the conductors.

H. Neatly arrange and support conductors, using nylon ties or wraps, in accordance with the equipment manufacturer's recommendations. Conform to bracing requirements for the indicated ampere short circuit fault duty.

I. Utilize hydraulic actuated dies to compress the cable connecting lugs. Dies shall compress the full circumference of the cable.

J. Tighten wire connections and mechanical fasteners. Check tightness using a calibrated torque wrench per manufacturer's recommendations.

END OF SECTION 26 05 12

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specifications, apply to work specified in this section.

B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY

A. Provide a complete system of wires and cables for all power, communications, alarm, and signaling systems.

B. Aluminum conductors may only be used where specifically indicated. Grounding and bonding conductors installed with aluminum phase and neutral conductors shall be copper.

1.3 SUBMITTALS

A. Product Data: For each type of wire and cable provided on the Project for systems operating between 100 VAC and 600 VAC.

1.4 INFORMATION FOR OPERATING & MAINTENANCE MANUALS

A. Submittals: Information submitted for review, updated to record any changes.

PART 2 - PRODUCTS

2.1 CONDUCTORS & CABLES

A. Temperature Rating:

1. 75^0-C unless indicated otherwise on the Drawings

B. Insulated Copper Wire:

1. Soft-drawn copper
2. 100% conductivity
3. Insulation:

a. 600-VAC
b. XHHW-2:

1) Installed fully or partially below grade

2) Installed below concrete slabs on grade in damp/wet locations:
3) Installed in damp and wet locations

c. THHN, THWN-2 or XHHW-2:

1) Installed entirely above grade
2) Installed in dry locations

4. #6 AWG and smaller color coded
5. Marked with wire gauge and insulation type on 610-mm (24-inch) intervals
6. Conductor sizes:

1) #12 AWG minimum size for power circuits
2) #10 AWG and smaller shall be solid
3) #8 AWG and larger shall be stranded
4) #6 AWG and smaller shall have color-coded insulation .
5) #10 AWG and smaller shall be solid
6) #8 AWG and larger shall be stranded
7) #6 AWG and smaller shall have color-coded insulation.

C. Metal Clad (MC) Cable:

1. Jacket:

a. Interlocking, circular, flexible
b. Aluminum or steel

2. Conductors:

a. Soft-drawn copper
b. 100% conductivity
c. Insulation:

1) 600-VAC
2) THHN or XHHW in dry locations
3) XHHW in damp, wet and below grade locations
4) XHHW-2 in exposed, exterior locations
5) Color coded
6) Covered with common Mylar tape marked with wire gauge and insulation type on 610-mm (24-inch) intervals

d. Conductor sizes

1) #12 AWG minimum
2) #10 AWG and smaller shall be solid

3) #8 AWG and larger shall be stranded
4) #6 AWG and smaller shall have color-coded insulation.

e. Neutral conductor for each phase conductor of line-to-neutral circuits

D. Armor Clad (AC) Cable:

1. Jacket:

a. Interlocking, circular, flexible
b. Aluminum or steel
c. Integral grounding path

2. Conductors:

a. Soft-drawn copper
b. 100% conductivity
c. Insulation:

1) 600-VAC
2) THHN or XHHW in dry locations
3) XHHW in damp, wet and below grade locations
4) XHHW-2 in exposed, exterior locations
5) Color coded
6) Covered with common Mylar tape marked with wire gauge and insulation type on 610-mm (24-inch) intervals

d. Conductor sizes

1) #12 AWG minimum
2) #10 AWG and smaller shall be solid
3) #8 AWG and larger shall be stranded
4) #6 AWG and smaller shall have color-coded insulation.

e. Neutral conductor for each phase conductor of line-to-neutral circuits
f. Redundant equipment grounding conductor

E. Variable Frequency Drive (VFD) Motor Cable

1. Flexible cable with PVC jacket
2. Oil-resistant
3. Stranded, copper phase and grounding conductors
4. 1000-VAC, XLPE insulation on each conductor
5. 100% copper foil shield over ground conductor
6. Tinned copper drain conductor

7. 85% braided, tinned copper shield over all conductors
8. Jacket marked with wire gauge, cable type and conductor quantity on 610-mm (24-inch) intervals

F. Color Coding:

1. 208Y/120-VAC Systems:

   a. Phase A: Black
   b. Phase B: Red
   c. Phase C: Blue
   d. Neutral: White
   e. Ground: Green

2. Neutral conductors shall have colored stripe when two (2) or more circuits installed in a common raceway
3. Colored insulation for #6 AWG and smaller
4. Colored insulating tape for #4 AWG and larger

   a. Helically wound
   b. 76-mm (3-inch) long
   c. At each terminal
   d. In each junction and pull box

2.2 CONNECTING DEVICES

A. Mechanical Connectors:

1. Metal thread-on core
2. Designed for splicing #10 AWG and smaller solid copper conductors

B. Bolted Connectors:

1. Copper
2. Designed for splicing stranded conductors

C. Compression Connectors:

1. For Copper Conductors:

   a. Wrought copper
   b. Seamless

2. VFD Cable Connectors:

   a. Machined metal

b. Threaded lock nuts

2.3 ACCESSORIES

A. Vertical Cable Supports:

1. Screw body
2. Wedging-type plug segments
3. Designed to support cables and relieve strain without damaging

B. Wire Pulling Lubricants:

1. Non-toxic
2. Polymer based
3. Compatible with conductor insulation.
4. Shall maintain the dielectric strength of the conductor insulation

2.4 ACCEPTABLE MANUFACTURERS

A. Insulated Copper Wire:

1. Rome
2. Southwire
3. General Cable
4. American Insulated Wire
5. Superior/Essex
6. Cerrowire

B. MC Cable:

a. AFC Cable Systems
b. Alflex

C. AC Cable:

a. AFC Cable Systems
b. Alflex

D. NM Cable: Southwire, General Cable, American Insulated Wire, Superior/Essex or Cerrowire

E. VFD Motor Supply Cable:

1. Belden
2. Service Drive

F. Molded Connectors:

1. 3M
2. Buchanan
3. Ideal

G. Bolted Connectors:

1. Burndy
2. O.Z./Gedney
3. Thomas & Betts

H. Compression Connectors:

1. Burndy
2. O.Z./Gedney
3. Thomas & Betts

I. Wire Pulling Lubricant:

1. Thomas & Betts
2. Ideal

J. Tape: 3M

K. Substitutions may be considered only when submitted in conformance with Section 26 01 00.

PART 3 - EXECUTION

3.1 DELIVERY

A. In original containers bearing the UL label

B. Stored in dry location

3.2 OVERCURRENT PROTECTION

A. The minimum conductor sizes shall match overcurrent protection as follows:

B. Conductors connected to overcurrent devices shall not be less than the following:

1. 15-amperes: #12-AWG
2. 20-amperes: #12-AWG
3. 30-amperes: #10-AWG
4. 40-amperes: #8-AWG
5. 50-amperes: #8-AWG
6. 60-amperes: #6-AWG
7. 70-amperes: #4-AWG

8. 80-amperes: #4-AWG
9. 90-amperes: #3-AWG
10. 100-amperes: #3-AWG

3.3 CONDUCTOR INSTALLATION

A. Individual conductors:

1. Installed in raceways
2. All conductors installed simultaneously
3. Phase, neutral and ground conductors for each circuit installed in common raceway
4. Avoid kinking conductors
5. Avoid abrasions in insulation
6. Use only UL listed lubricants
7. Neatly train and lace conductors within equipment cabinets and boxes

B. Service Conductors:

1. No splices
2. Equal lengths for parallel conductors

C. Feeder Conductors:

1. No splices
2. Equal lengths for parallel conductors
3. Provide equipment grounding conductors

D. Branch Circuits Conductors:

1. Provide equipment grounding conductors
2. Separate neutral for each branch circuit

E. Signal and Communications Cables and Conductors:

1. No splices

F. Multiple Circuits in Common Raceway:

1. Neutral conductors shall be considered “current-carrying”
2. Increase conductor size when more than three (3) current-carrying conductors are installed in a common raceway

G. Vertical Conductors:

1. Support conductors per NEC 300.19
2. Provide cable support at:

a. Top of raceway
b. Additional intervals as required by the NEC

3. Remove lubricant before installing support wedges

H. Bolted Connectors shall be wrapped with electrical tape of a thickness to match conductor insulation

3.4 CONDUCTOR TERMINATION

A. Clean contact surfaces before termination

B. Copper:

1. Use mechanical connectors
2. Torque connector screws per manufacturer's recommendations

3.5 CONDUCTOR SPLICING

A. Permitted for branch circuits only

B. Copper Conductors:

1. Use molded connectors or bolted connectors

3.6 CONDUCTOR PERFORMANCE

A. 300-m (1000-ft) and shorter:

1. Minimum resistance between conductors: 100-megaohms
2. Minimum resistance between each conductor and ground: 100-megaohms

B. Replace conductors with resistance lower than specified.

3.7 CABLE INSTALLATION

A. MC Cable:

1. Uses Allowed:

a. Interior, dry locations only:

1) Connections to luminaires; 1.8-m (6-feet) maximum length
2) Normal lighting branch circuits
3) Normal power branch circuits

b. Circuits requiring #8 AWG conductors or smaller

2. Uses Not Allowed:

   a. Service entrance
   b. Feeders

3. Support:

   a. Within 300-mm (12-inches) of termination
   b. At intervals not exceeding 1.4-m (54-inches)

4. Routing:

   a. Parallel to building lines
   b. Not exposed to physical damage
   c. Minimum bending radius per manufacturer's recommendations
   d. Through floors using RNC sleeves and firestopping

B. AC Cable:

1. Uses Allowed:

   a. Interior, dry locations only:

      1) Connections to luminaires; 1.8-m (6-feet) maximum length
      2) Normal lighting branch circuits
      3) Normal power branch circuits

   b. Circuits requiring #8 AWG conductors or smaller

2. Uses Not Allowed:

   a. Service entrance
   b. Feeders

3. Support:

   a. Within 300-mm (12-inches) of termination
   b. At intervals not exceeding 1.4-m (54-inches)

4. Routing:

   a. Parallel to building lines
   b. Not exposed to physical damage
   c. Minimum bending radius per manufacturer's recommendations
   d. Not through walls or floors requireing firestopping

C. VFD Motor Cable:

1. Between each VFD and respective motor
2. Wire gauge shall match branch circuit wire guage
3. Install cable in raceway with stranded equipment grounding conductor
4.
5. On both cable ends connectthe cable shield and the equipment grounding conductor to the grounding terminals at the motor and at the controller

D. All splices shall be made in properly sized junction boxes or pull boxes.

E. Voltage drop shall be limited to 2% for feeders starting at the utility service point and 3% for branch circuits or 5% total for feeder and branch circuit from the furthest utilization point to the utility service point. The bid documents have been designed with voltage drop considerations. Actual routing can dramatically change the installed conductor lengths. Where necessary, the Contractor shall upsize the conductors to compensate for voltage drop to maintain maximum % drops listed above. The following tables are to be used as a reference guide for the maximum installed length to maintain a given voltage drop tolerance.

Voltage Drop Table

Volts	208	volts
Poles	3	
PF	0.9	
Temp	75	deg C
Max VD	2	%

OCP Amps	Load Amps	Parallel Sets	CU Size	Max Distance CU - Non-Magnetic	Max Distance for VD CU - Magnetic	Parallel Sets	AL Size	Max Distance for VD AL - Non-Magnetic	Max Distance for VD AL - Magnetic
15	12	1	#12	109.8	109.4			-	-
20	16	1	#12	82.3	82.0			-	-
25	20	1	#10	109.0	108.4			-	-
30	24	1	#10	90.8	90.4			-	-
35	28	1	#8	118.4	88.8			-	-
40	32	1	#8	103.6	77.7			-	-
45	36	1	#6	144.0	142.3			-	-
50	40	1	#6	129.6	128.1			-	-
60	48	1	#4	166.8	164.0			-	-
70	56	1	#4	143.0	140.5			-	-
80	64	1	#3	152.9	149.7			-	-
90	72	1	#2	175.0	162.8			-	-
100	80	1	#1	193.6	177.8	1	#1/0 AL	150.7	147.2
110	88	1	#1	176.0	161.6	1	#2/0 AL	167.7	162.9
125	100	1	#1/0	188.8	182.0	1	#2/0 AL	147.6	143.4
150	120	1	#1/0	157.4	151.7	1	#3/0 AL	147.9	143.3
175	140	1	#2/0	157.8	151.1	1	#4/0 AL	159.0	152.9

200	160	1	#3/0	171.3	160.1	1	#250KCM AL	159.1	150.0
225	180	1	#4/0	181.1	169.1	1	#300KCM AL	163.2	153.3
250	200	1	#250KCM	185.7	168.5	1	#350KCM AL	166.0	153.0
300	240	1	#350KCM	193.8	175.9	1	#500KCM AL	179.7	162.9
350	280	2	#2/0	157.8	151.1	2	#4/0 AL	159.0	152.9
400	320	2	#3/0	171.3	160.1	2	#250KCM AL	159.1	150.0
450	360	2	#4/0	181.1	169.1	2	#300KCM AL	163.2	153.3
500	400	2	#250KCM	185.7	168.5	2	#350KCM AL	166.0	153.0
600	480	2	#350KCM	193.8	175.9	2	#500KCM AL	179.7	162.9
700	560	2	#500KCM	207.7	182.4	2	#700KCM AL	196.5	172.2
800	640	3	#300KCM	195.9	179.5	3	#400KCM AL	170.5	158.9
1000	800	3	#400KCM	191.1	170.4	3	#600KCM AL	182.3	163.4
1200	960	4	#350KCM	193.8	175.9	4	#500KCM AL	179.7	162.9
1600	1280	5	#400KCM	199.0	177.5	5	#600KCM AL	189.9	170.2
2000	1600	6	#400KCM	191.1	170.4	6	#600KCM AL	182.3	163.4
2500	2000	8	#400KCM	203.8	181.8	7	#700KCM AL	192.6	168.8
3000	2400	8	#500KCM	193.8	170.3	8	#700KCM	183.4	160.7

							AL		
4000	3200	12	#400KCM	191.1	170.4	11	#700KCM AL	189.1	165.7

Voltage Drop Table		
Volts	480	volts
Poles	3	
PF	0.9	
Temp	75	deg C
Max VD	2	%

OCP Amps	Load Amps	Parallel Sets	CU Size	Max Distance CU - Non-Magnetic	Max Distance for VD CU - Magnetic	Parallel Sets	AL Size	Max Distance for VD AL - Non-Magnetic	Max Distance for VD AL - Magnetic
15	12	1	#12	253.3	252.4			-	-
20	16	1	#12	190.0	189.3			-	-
25	20	1	#10	251.5	250.2			-	-
30	24	1	#10	209.6	208.5			-	-
35	28	1	#8	273.2	205.0			-	-
40	32	1	#8	239.0	179.4			-	-
45	36	1	#6	332.4	328.3			-	-
50	40	1	#6	299.1	295.5			-	-
60	48	1	#4	385.0	378.4			-	-
70	56	1	#4	330.0	324.3			-	-
80	64	1	#3	352.8	345.4			-	-
90	72	1	#2	403.9	375.8			-	-
100	80	1	#1	446.8	410.3	1	#1/0 AL	347.8	339.7
110	88	1	#1	406.2	373.0	1	#2/0 AL	387.0	375.9
125	100	1	#1/0	435.8	420.0	1	#2/0 AL	340.6	330.8

150	120	1	#1/0	363.2	350.0	1	#3/0 AL	341.4	330.7
175	140	1	#2/0	364.1	348.7	1	#4/0 AL	367.0	352.8
200	160	1	#3/0	395.4	369.4	1	#250KCM AL	367.1	346.2
225	180	1	#4/0	418.0	390.1	1	#300KCM AL	376.6	353.8
250	200	1	#250KCM	428.5	388.9	1	#350KCM AL	383.1	353.1
300	240	1	#350KCM	447.2	405.9	1	#500KCM AL	414.6	376.0
350	280	2	#2/0	364.1	348.7	2	#4/0 AL	367.0	352.8
400	320	2	#3/0	395.4	369.4	2	#250KCM AL	367.1	346.2
450	360	2	#4/0	418.0	390.1	2	#300KCM AL	376.6	353.8
500	400	2	#250KCM	428.5	388.9	2	#350KCM AL	383.1	353.1
600	480	2	#350KCM	447.2	405.9	2	#500KCM AL	414.6	376.0
700	560	2	#500KCM	479.3	421.0	2	#700KCM AL	453.5	397.4
800	640	3	#300KCM	452.1	414.2	3	#400KCM AL	393.4	366.7
1000	800	3	#400KCM	441.0	393.2	3	#600KCM AL	420.7	377.1
1200	960	4	#350KCM	447.2	405.9	4	#500KCM AL	414.6	376.0
1600	1280	5	#400KCM	459.3	409.6	5	#600KCM AL	438.3	392.8
2000	1600	6	#400KCM	441.0	393.2	6	#600KCM AL	420.7	377.1
2500	2000	8	#400KCM	470.4	419.4	7	#700KCM	444.4	389.4

							AL		
3000	2400	8	#500KCM	447.3	392.9	8	#700KCM AL	423.2	370.9
4000	3200	12	#400KCM	441.0	393.2	11	#700KCM AL	436.4	382.5

Voltage Drop Table

Volts	120	volts
Poles	1	
PF	0.9	
Temp	75	deg C
Max VD	3	%

OCP Amps	Load Amps	Parallel Sets	CU Size	Max Distance CU - Non-Magnetic	Max Distance for VD CU - Magnet-ic	Parallel Sets	AL Size	Max Dist for VD AL - Non-Magnetic	Max Dist for VD AL - Mag-netic
15	12	1	#12	82.3	82.0			-	-
20	16	1	#12	61.7	61.5			-	-
25	20	1	#10	81.7	81.3			-	-
30	24	1	#10	68.1	67.7			-	-
35	28	1	#8	88.7	66.6			-	-
40	32	1	#8	77.6	58.2			-	-
45	36	1	#6	107.9	106.6			-	-
50	40	1	#6	97.1	96.0			-	-
60	48	1	#4	125.0	122.9			-	-
70	56	1	#4	107.2	105.3			-	-
80	64	1	#3	114.6	112.2			-	-
90	72	1	#2	131.2	122.0			-	-
100	80	1	#1	145.1	133.3	1	#1/0 AL	113.0	110.3

110	88	1	#1	131.9	121.1	1	#2/0 AL	125.7	122.1
125	100	1	#1/0	141.5	136.4	1	#2/0 AL	110.6	107.4
150	120	1	#1/0	117.9	113.7	1	#3/0 AL	110.9	107.4
175	140	1	#2/0	118.2	113.2	1	#4/0 AL	119.2	114.6
200	160	1	#3/0	128.4	120.0	1	#250KCM AL	119.2	112.4

F.

Voltage Drop Table									
Volts	208	volts							
Poles	1								
PF	0.9								
Temp	75	deg C							
Max VD	3	%							
OCP Amps	Load Amps	Parallel Sets	CU Size	Max Distance CU - Non-Magnetic	Max Distance for VD CU - Magnetic	Parallel Sets	AL Size	Max Distance for VD AL - Non-Magnetic	Max Distance for VD AL - Magnetic
15	12	1	#12	142.6	142.1			-	-
20	16	1	#12	106.9	106.6			-	-
25	20	1	#10	141.6	140.9			-	-
30	24	1	#10	118.0	117.4			-	-
35	28	1	#8	153.8	115.4			-	-
40	32	1	#8	134.5	101.0			-	-
45	36	1	#6	187.1	184.8			-	-
50	40	1	#6	168.4	166.3			-	-
60	48	1	#4	216.7	213.0			-	-
70	56	1	#4	185.8	182.6			-	-
80	64	1	#3	198.6	194.4			-	-

90	72	1	#2	227.3	211.5			-	-
100	80	1	#1	251.5	231.0	1	#1/0 AL	195.8	191.2
110	88	1	#1	228.7	210.0	1	#2/0 AL	217.9	211.6
125	100	1	#1/0	245.3	236.4	1	#2/0 AL	191.7	186.2
150	120	1	#1/0	204.4	197.0	1	#3/0 AL	192.2	186.2
175	140	1	#2/0	204.9	196.3	1	#4/0 AL	206.6	198.6
200	160	1	#3/0	222.6	208.0	1	#250KCM AL	206.6	194.9

G.

Voltage Drop Table									
Volts	277	volts							
Poles	1								
PF	0.9								
Temp	75	deg C							
Max VD	3	%							
OCP Amps	Load Amps	Parallel Sets	CU Size	Max Distance CU - Non-Magnetic	Max Distance for VD CU - Magnetic	Parallel Sets	AL Size	Max Distance for VD AL - Non-Magnetic	Max Distance for VD AL - Magnetic
15	12	1	#12	189.9	189.2			-	-
20	16	1	#12	142.4	141.9			-	-
25	20	1	#10	188.6	187.6			-	-
30	24	1	#10	157.1	156.3			-	-
35	28	1	#8	204.8	153.7			-	-
40	32	1	#8	179.2	134.5			-	-
45	36	1	#6	249.2	246.1			-	-
50	40	1	#6	224.2	221.5			-	-
60	48	1	#4	288.6	283.7			-	-

70	56	1	#4	247.4	243.1			-	-
80	64	1	#3	264.5	258.9			-	-
90	72	1	#2	302.7	281.7			-	-
100	80	1	#1	335.0	307.6	1	#1/0 AL	260.8	254.6
110	88	1	#1	304.5	279.6	1	#2/0 AL	290.1	281.8
125	100	1	#1/0	326.7	314.8	1	#2/0 AL	255.3	248.0
150	120	1	#1/0	272.3	262.4	1	#3/0 AL	255.9	247.9
175	140	1	#2/0	272.9	261.4	1	#4/0 AL	275.1	264.4
200	160	1	#3/0	296.4	277.0	1	#250KCM AL	275.2	259.5

END OF SECTION

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specification sections, apply to work specified in this section.

B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY

A. Provide a grounding electrode system for the electrical service and all separately derived electrical systems as required by the NEC and as specified herein.

B. Provide grounding for electrical equipment as required by the NEC and as specified herein.

C. Provide bonding for electrical equipment as required by the NEC and as specified herein.

D. Provide grounding and bonding for the communications structured cabling system as required by the NEC, as called for in ANSI/TIA/EIA 569 and 607, and as specified herein.

E. Provide grounding and bonding for other communications systems as required by the NEC, and as specified herein.

F. Provide grounding and bonding for electronic safety systems as required by the NEC, and as specified herein.

G. Grounding electrode system connectors shall comply with IEEE 837-2002.

1.3 SUBMITTALS

A. Product Data: For ground rods, ground bars and each grounding connection device provided on the Project.

1.4 INFORMATION FOR OPERATING & MAINTENANCE MANUALS

A. Submittals: Information submitted for review, updated to record any changes.

B. Test Reports: Record of measured resistance values of the made grounding electrodes. Submit to the Architect.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Insulated Grounding Conductors: Grounding and bonding conductors shall be copper, as specified in Section 260519, regardless of whether the phase conductors are copper or aluminum.

B. Bare Grounding Conductors: Bare, uncoated soft-drawn copper conductor, 100% conductivity. Minimum size shall be #6 AWG unless indicated otherwise. #6 AWG shall be solid; larger sizes shall be stranded.

C. Ground Rods: Equivalent to Copperweld 19 mm (¾ in) diameter by 3.0 m (120 in) long copper-plated steel rods.

D. Ground Clamps: Equivalent to Burndy Type GAR-BU.

E. Compression Connectors: Irreversible compression-type, suitable for direct burial. Burndy Hyground or Thomas & Betts Color-Keyed.

F. Exothermic Welds: Erico Cadweld, heavy-duty grounding connections.

G. MDF Ground Bars: 6 mm (¼ in) thick by 100 mm (4 in) high by 508 mm (20 in) long solid copper bar with 102 mm (4 in) insulated stand-off supports. Bar shall be factory pre-drilled to accept standard 2-hole lugs. Chatsworth #40153-020.

2.2 ACCEPTABLE MANUFACTURERS

A. Manufacturers shall be as listed above, and as follows:

1. Bare Grounding Conductors: Phelps-Dodge, Southwire, Harger
2. Ground Rods: Erico, Harger, Thomas & Betts
3. Grounding and Bonding Connectors: Burndy, Harger, Thomas & Betts
4. Exothermic Welds: Erico, Harger, Thomas & Betts
5. Ground Bars: Chatsworth, Harger, Thomas & Betts
6. Ground Mats: Erico, Harger

B. Substitutions may be considered only when submitted in conformance with Section 26 01 00.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Identify each metallic water service to the building that has at least 3 m (10 ft) of metal pipe in contact with the earth. For each such metallic water service, a section of metal pipe inside the building on the street side of the main shutoff

valve and within 1.52 m (5 ft) of the point where the water service enters the building, shall serve as a required grounding electrode.

B. Identify sections of the building foundation that will contain at least 6.1 m (20 ft) of steel reinforcing bar not less than 13 mm (½ in) in diameter enclosed by at least 51 mm (2 in) of concrete near the bottom of the concrete foundation. The reinforcing bar near the bottom of such a section of foundation that is nearest to the equipment to be grounded shall serve as a required grounding electrode.

C. Pad-mounted equipment grounding shall be accomplished by installation of a #4/0 AWG bare copper grounding grid as follows:

1. Drive (1) ground rod such that when the installation is complete this ground rod is accessible under the equipment. In the case of a pad-mount transformer, this ground rod shall extend 76 mm (3 in) above the ground in the low-voltage compartment.
2. Drive (1) ground rod near each of the four corners of the equipment pad, 152 mm (6 in) outside the concrete pad edge to a depth such that the top of each ground rod is approximately 152 mm (6 in) below finished grade.
3. Provide a #4/0 AWG bare, stranded copper conductor connecting the corner ground rods together in a rectangular pattern approximately 152 mm (6 in) outside the concrete pad edge. Provide another #4/0 AWG bare stranded ground conductor connecting this ground girdle to the ground rod under the low voltage compartment. Connect the conductor to the ground rods using compression connectors or exothermically welded connections made at the elevation between natural earth and gravel sub-base. The depth of the ground girdle conductor shall be 305 mm (12 in) minimum.
4. If the resistance to earth exceeds 25-ohms, the grounding grid shall be supplemented by driving two (2) additional ground rods, each 6.1 m (20 ft) away from a different corner of the grounding grid, such that the added ground rods are also at least 6.1 m (20 ft) away from one another and from any of the other ground rods in the grounding grid. The additional ground rods shall be connected to the grounding grid in the same manner as described above. Then the resistance to earth shall be measured again. If the resistance to earth is still in excess of the stipulated value, notify the Architect's Consultant for evaluation of the need to take additional steps to lower the resistance before connecting the grounding grid to the equipment.

D. A grounding electrode connection shall be made by means of grounding electrode conductors from the ground bus in the main electrical service equipment to all required grounding electrodes as defined above and to any other available grounding electrodes as required by NEC 250.52 and 250.53.

E. The following equipment shall be grounded:

1. Secondary neutral of pad-mounted transformers at the transformers
2. Neutral conductor of interior wiring system at the service entrance equipment
3. Secondary neutral of dry-type transformers at the transformers
4. Neutral of other separately-derived electrical systems

F. Grounding connections within the building shall be made by means of a grounding electrode conductor connected to the required grounding electrode that is nearest the equipment to be grounded. Where there is a required grounding electrode nearer than any of those used for grounding the main electrical service, provide an additional grounding electrode connection to the nearer grounding electrode.

G. All grounding electrodes used for grounding of equipment within the building shall be bonded together by means of bonding jumpers to form a grounding electrode system.

H. For below-grade grounding connections, except where exothermic fusion welds have been specifically accepted, and for all above-grade grounding connections in the grounding electrode system, use compression connectors. Compression connectors shall be installed using a hydraulically-actuated crimping tool and dies as recommended by the equipment manufacturer. Installed connectors shall have correct die designation embossed at a visible location on each connector.

I. Exothermic fusion welds shall be avoided, except where specifically accepted by the Architect's Consultant. Where used, exothermic welds shall comply with the following requirements:

1. Prepare contact surfaces that will be welded by cleaning the surface with a file and/or carbide burr.
2. Use only molds of the proper size and type (e.g., wire-to-wire, wire-to-rebar, wire-to-rod, etc.) for each weld. Molds used shall be in good condition and shall not have been used for more than 50 previous welds. Molds with chips, voids, or other defects are unacceptable and shall not be used.
3. Heat mold before making first weld to remove moisture.
4. Exothermic welds shall be clean and free from slag.
5. Welds shall not reduce the diameter of any ground rod or conductor.
6. Completed welds shall be subject to inspection and hammer blows to determine mechanical integrity. Welds that cannot withstand blows from a 1 to 2 kg (2 to 4 pound) hammer shall be redone, with no additional compensation.
7. If galvanizing or paint was removed to prepare contact surfaces, restore finish after completion and inspection of welds. Galvanized surfaces shall be restored by spray application of zinc coating, equal to Osborn #76-245.

Painted surfaces shall be restored by one prime coat followed by two coats of fresh paint.

J. Ground buses in all electrical equipment that is part of the interior wiring system shall be connected together by means of equipment grounding conductors. Provide an equipment grounding conductor in each feeder raceway. Equipment grounding conductors shall be connected to the equipment ground bus in the equipment they serve. Minimum size shall be #12 AWG.

K. In addition to the number of branch circuit conductors shown on the Drawings, provide an equipment grounding conductor in each branch circuit raceway. Equipment grounding conductors shall be connected to the non-current carrying parts of the equipment or device they serve. Minimum size shall be #12 AWG.

L. In addition to the integral bonding tape, provide an equipment grounding conductor inside full length of all flexible metal raceway and liquid-tight flexible metal raceway.

M. The following items shall be bonded to the grounding system:

1. Above-grade metallic piping
2. Exposed structural metal and structural metal in accessible ceiling spaces
3. Structural metal behind panels that allow access
4. Electrical equipment enclosures
5. Above-grade metallic raceways
6. Non-current-carrying conductive parts of fixed electrical equipment
7. Grounding terminals of all receptacles
8. Motor frames

N. Provide bonding of metallic piping systems in accordance with the NEC. Maintain continuity of the ground across isolating (dielectric) fittings in metallic piping systems. At each such fitting, provide a brass, saddle type, two-bolt grounding clamp on the pipe on each side of the isolating fitting. Provide a green insulated #6 AWG TW solid copper conductor connecting the two grounding clamps together.

O. Exposed structural metal and structural metal behind panels that allow access to it shall be bonded to the service equipment enclosure, to the grounding electrode conductor where of sufficient size, or to the one or more grounding electrodes used. Bonding jumpers shall be the same size as the main grounding electrode conductors at the building service and shall be protected where exposed to physical damage. The points of attachment of the bonding jumpers shall be accessible.

P. Provide a bonding jumper between each wiring device strap and its associated outlet box.

Q. Compression connectors shall be used for all above-grade grounding connections for the telecommunications bonding backbone system. Compression connectors shall be installed using a hydraulically-actuated crimping tool and dies as recommended by the equipment manufacturer. Installed connectors shall have correct die designation embossed at a visible location on each connector.

3.2 TESTING

A. Notify the Architect's Consultant and the Owner's Representative, at least two (2) weeks in advance of the date of each test, to allow witnessing of the tests.

B. Supply tools, instruments, gauges, testing equipment, protective devices, and safety equipment for testing.

C. During testing, carefully record all test results, including which grounding electrode is under test, the distance to the probes, the measured voltage, the calculated electrode-to-ground resistance, and corrective actions taken. The test report shall include dimensioned diagrams of the testing electrode layouts and graphs of voltage versus probe distance, as well as the manufacturer's name and model number of the testing instrument, the date of the test, and the soil moisture conditions. The test report shall be submitted to the Architect's Consultant and included in the Operating and Maintenance Manuals.

D. After the completion of each grounding electrode system installation and prior to connecting the grounding electrode system to the equipment or to any other grounding electrodes, perform a resistance test on each grounding electrode system.

E. Measure and record the resistance to earth of the grounding electrode system. The test shall be performed using the 3-point, fall-of-potential method, employing a ground testing instrument designed to eliminate the effects of stray ground currents. The ground resistance shall be measured in normally dry conditions at least 48 hours after rainfall.

F. If the grounding electrode system is discovered, as a result of the above testing, to have a resistance to earth in excess of the value stipulated herein, it shall be supplemented with additional made grounding electrodes, as described in the "Installation" sub-section herein above, and the ground resistance of the affected grounding electrode system shall be completely retested, with no additional compensation.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specification sections, apply to work specified in this section.

B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY

A. Support boxes, raceways, luminaires and equipment in accordance with NEC requirements and as described herein.

B. Support equipment installed under Divisions 26, 27 and 28 of the Specifications as described herein.

C. Supports and hangers shall comply with:

1. The ASCE seismic requirements referenced on the Structural Drawings and associated specification
2. Opening, framing and bracing requirements indicated on the Structural Drawing and associated specifications
3. The recommendations of the supported equipment manufacturer

D. Support devices shall provide a minimum safety factor of 200% including safety factors calculated by the support device manufacturer.

E. Support communications cable and electronic safety system cable that is not installed in raceway as described herein.

F. Support luminaires in accordance with IBC requirements and as described herein.

G. Provide backing for attaching surface-mounted equipment to walls and ceilings.

H. Do not support electrical equipment from lay-in ceiling support wires.

1.3 SUBMITTALS

A. Product Data: None required.

PART 2 - PRODUCTS

2.1 HANGER AND SUPPORT MATERIALS

A. Raceway Supports

1. Surface-MountedStraps

a. One or two straps equivalent to Kindorf HS-100 series or Kindorf C-144 series

2. Channel-MountedStraps

a. Equivalent to Kindorf C-105 or Kindorf C-106 single-bolt pipe straps

3. Lay-inHangers
4. Equivalent to Kindorf C-149

B. Box Supports

1. Adjustable
2. Galvanized steel

C. Equivalent to Erico "Caddy" #TSGB or SP Products Big-Luminaire Supports

1. Ceiling grid attachment accessories compatible with the ceiling system
2. Support wires conforming to ASTM C636

D. Cable Supports:

1. Galvanized steel "D" rings or galvanized steel "J" hooks
2. Velcro wraps to secure cables to supports
3. Width of cable supports shall be 19 mm (¾ in) minimum
4. Provide size appropriate for quantity and type of communications cable supported

a. 19-mm (3/4-inch) minimum width of support surface

5. Multi-tier supports to separate different cable systems on a common route

E. Attachment Accessories

1. Threaded Rods

a. Galvanized steel, minimum 9.5 mm (⅜ in) diameter, with continuous UNC threads. Load rating shall not be less than 2,200 N (500 pounds).

2. Steel Strut Channels

   a. Equivalent to Kindorf B-909 galvanized steel channels with bolt holes on one side.

3. Trapeze Supports

   a. Steel strut channels
   b. Electrical attachment accessories and fasteners
   c. Minimum of two (2) threaded rods

4. Surface-Mounted Wall Supports

   a. Steel strut channels with electrical attachment accessories and fasteners

5. Bar Hangers

   a. Adjustable, galvanized steel
   b. Equivalent to Raco #920 or #922.

6. Backing

   a. Concealed
   b. Match adjacent material and size
   c. Compatible with, the building components in which they are installed

2.2 FASTENERS

A. Bolts and nuts

   1. Hexagon
   2. Galvanized steel.

B. Washers

   1. Locking
   2. Galvanized steel
   3. Spring-type

C. Lag bolts

   1. Hexagon
   2. Galvanized steel.

D. After-set Anchors

1. Galvanized steel
2. Expansion type
3. Epoxy adheasive

E. Cast-in-place Anchors

F. Galvanized steel

1. "L" or "J" shaped anchor bolts
2. With washers and nuts

G. Beam clamps

1. Galvanized steel
2. U-bolt
3. With nuts and washers

2.3 MANUFACTURERS

A. Acceptable manufacturers shall be as listed above, and as follows:

1. Hanger and support materials

a. B-Line
b. Erico
c. Kindorf
d. Raco
e. Thomas & Betts
f. Unistrut

2. Fasteners

a. Hilti

3. Cable Wraps: Leviton

B. Substitutions may be considered only when submitted in conformance with Section 26 01 00.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Raceways

1. Support from the building structure with devices specified herein.
2. Support at intervals not exceeding those required by the NEC

3. Support individual, suspended raceways with individual pipe straps or pipe hangers.
4. Support individual, surface-mounted raceways with individual raceway supports.
5. Support multiple rows of suspended raceways with trapeze supports.
6. Support multiple runs of surface-mounted raceways with surface-mounted wall supports.
7. Provide lateral bracing as required by the IBC

B. Boxes

1. Attach to the building structure with devices specified herein
2. Support recessed boxes in framed walls and ceilings with support devices connected to two adjacent building structural members.
3. Support recessed outlet boxes in suspended ceilings with bar hangers rigidly attached to two adjacent ceiling support channels.

C. Busways:

1. Support from the building structure with devices specified herein.
2. Support in accordance with the manufacturer's installation recommendations
3. Support at intervals not exceeding those recommended by the manufacturer
4. Maximum support spacing for horizontal busway shall not exceed 1.52 m (60 in) on center.
5. Provide lateral sway bracing for horizontal busway.

D. Luminaires:

1. Support in accordance with the International Building Code (IBC)
2. Attach to outlet boxes designed to support 23-kg (50-pounds)
3. Provide support from building structure and independent of outlet box for suspended luminaires, weighing more than 23-kg (50-pounds)
4. Surface-mounted and wall-mounted:

    a. Attached to building with devices as specified herein
    b. Provide concealed backing for anchoring

5. In lay-in ceilings:

    a. Attach to ceiling grids with UL-listed standard ceiling grid accessories
    b. Provide wire supports in addition to attaching to ceiling grid

6. Suspended:

a. Provide lateral bracing as specified in the structural drawings and specifications

E. Equipment Enclosures:

1. Attach enclosures for equipment such as switchboards, panelboards, communication cabinets and control panels to building structure with devices specified herein
2. Wall-mounted::

a. In finished spaces, provide concealed backing for attachment
b. In mechanical and equipment rooms, provide painted plywood backboards, supported by building structure, for attachment

3. Freestanding Equipment:

a. Attach to floor with a minimum of four (4) anchors
b. Equipment whose vertical dimension exceeds one of its other two dimensions shall be attached to the floor and shall be attached to the building structure near the top of the vertical dimension.

F. Connections:

1. Threaded rods shall be connected to support devices with double washers and double nuts.
2. Channels shall be bolted together with double washers and double nuts

G. Backing:

1. Concealed backing behind both new and future wall-mounted equipment in finished spaces
2. 3/4-inch plywood backboards in mechanical and electrical rooms
3. .

H. Bracing:

1. Sway Bracing:

a. Provide sway bracing for suspended supports and equipment
b. A minimum of two braces in the same horizontal plane, 90° apart.
c. Braces shall be galvanized steel channels of the appropriate size.

2. Lateral Bracing:

a. Brace freestanding equipment whose vertical dimension exceeds one of its horizontal dimensions
b. Provide brace near top of equipment

I. Attachments:

1. To wood using:

   a. Wood screws
   b. Lag bolts

2. To metal using:

   a. Sheet-metal screws
   b. Bolts with lock-washers and nuts
   c. Beam clamps

3. To masonry using:

   a. Expansion anchors
   b. Epoxy anchors

4. To concrete:

   a. Cast-in-place anchor bolts
   b. Epoxy anchors

END OF SECTION

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specifications, apply to work specified in this section.

B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY

A. Provide outlet boxes for luminaires.

B. Provide outlet boxes for electrical, communications and electronic safety system devices.

C. Provide outlet boxes for small equipment connections and motor connections.

D. Provide empty outlet boxes as indicated.

1.3 SUBMITTALS

A. Product Data: None required.

PART 2 - PRODUCTS

2.1 PROHIBITED MATERIALS

A. Sectional outlet boxes shall not be utilized.

B. Non-metallic outlet boxes shall not be utilized.

2.2 MATERIALS

A. Standard Knockout-Type Steel Boxes: Boxes shall be galvanized pressed or welded steel, not less than 100 mm (4 in) square, with a minimum wall thickness of 1.59 mm (1⁄16 in), equipped with factory-stamped circular raceway knockouts. Minimum box depth shall be 54 mm (2⅛ in) deep, except recessed outlet boxes where the wall cavity dimensions require shallower boxes. Boxes for fire alarm signal devices shall be 127 mm (5 in) square by 73mm (2⅞ in) deep, except where the wall cavity dimensions will not accommodate boxes of this depth. Depths of shallow boxes shall match the wall cavity in which the boxes are installed. Provide galvanized steel device extension rings, raised device covers or blank covers as indicated. Where square-cornered tile device extension rings are

indicated, they shall be a minimum of 38 mm (1½ in) deep. Device extension rings and raised device covers shall match the devices to be installed.

B. Use Randl #5BSB-16 or Bline #BB8-16 stud bar spacer that will accommodate a 5-square box for locations that have a 16" stud centers to align all boxes that are located adjacent to each other. Use equivalent device for other stud spacing. Located power box in the middle position.

C. Concrete or Masonry Knockout-Type Steel Boxes: Boxes shall be galvanized pressed or welded steel, equipped with factory-stamped circular raceway knockouts and suitable device openings. Boxes shall be suitable for installation in a concrete or masonry wall without device extension rings. Minimum box depth shall be 89 mm (3½ in) deep. Device openings shall match the devices to be installed.

D. Ordinary Cast Metal Boxes: Cast aluminum or malleable iron, with a minimum wall thickness of 2.38 mm (3⁄32 in), equipped with integral threaded raceway hubs and mounting flanges. Minimum box depth shall be 38 mm (2 1/8 in) deep. Cast metal boxes shall be intrinsically corrosion-resistant or shall be permanently protected inside and outside against corrosion by galvanizing or other equivalent means. Device openings shall match the devices to be installed.

2.3 MANUFACTURERS

A. Acceptable manufacturers shall be as follows:

1. 127 mm (5 in) Square Knockout Steel Boxes: Randl Industries or Steel City
2. Other Knockout Steel Boxes: Appleton, Bowers, Raco, or Thomas & Betts
3. Smooth Steel Boxes: Thomas & Betts, Walker or surface raceway manufacturer
4. Ordinary Cast Metal Boxes: Appleton, OZ/Gedney or Thomas & Betts
5. Hazardous Location Cast Metal Boxes: Appleton, Crouse Hinds or OZ/Gedney

B. Substitutions may be considered only when submitted in conformance with Section 26 01 00.

PART 3 - EXECUTION

3.1 REQUIRED LOCATIONS

A. Provide a suitable outlet box for each luminaire, and for each switch, control, receptacle, jack, detector, sensor, signal, annunciator, and other miscellaneous device of similar nature, where such devices are wall-mounted, ceiling-mounted or suspended.

B. Provide a suitable outlet box for each small equipment connection and motor connection, where there is not an adjacent safety switch.

C. Provide empty outlet boxes as indicated.

D. Outlet boxes may be used as pull and junction boxes in accordance with the requirements of Section 26 05 32.

3.2 BOX SELECTION

A. General: Boxes shall have the appropriate NEMA rating for the environment and ambient temperature in which they are installed.

B. Hazardous locations: Cast metal boxes specifically rated together with the device installed as suitable for the type of hazardous location in which they are installed. This selection shall take precedence over all following categories.

C. Concealed above accessible ceilings or behind access panels (where used as pull or junction boxes only): Standard knockout-type steel boxes with blank covers.

D. Recessed in suspended ceilings: Standard knockout-type steel boxes with device extension rings.

E. Recessed in framed walls or ceilings: Standard knockout-type steel boxes with device extension rings

F. Recessed in hollow masonry walls: Standard knockout-type steel boxes with square-cornered tile device extension rings, concrete or masonry knockout-type steel boxes.

G. Recessed in solidly-grouted masonry walls: Concrete or masonry knockout-type steel boxes, with all holes and gaps sealed with duct tape applied to the outside of the box.

H. Recessed in concrete walls: Concrete or masonry knockout-type steel boxes, with all holes and gaps sealed with duct tape applied to the outside of the box.

I. Exposed in mechanical, electrical, telecommunications and machine rooms: Standard knockout-type steel boxes with raised device covers.

J. Exposed elsewhere in interior dry locations 2.74 m (108 in) or more above the finished floor:

a. Standard knockout-type steel boxes with raised device covers.

K. Exposed elsewhere in interior dry locations below 2.74 m (108 in) above the finished floor:

a. Not permitted.

L. Exposed in interior damp locations: Ordinary cast metal boxes.

M. Exposed in interior wet locations: Ordinary cast metal boxes.

N. Exposed in exterior damp locations: Ordinary cast metal boxes.

O. Exposed in exterior wet locations: Ordinary cast metal boxes.

3.3 INSTALLATION

A. Install boxes as indicated, in compliance with NEC requirements, in accordance with manufacturer's recommendations and with recognized industry practices to insure that the boxes serve the intended purpose.

B. In finished interior locations, outlet boxes shall be recessed, flush with the wall or ceiling surface, unless otherwise indicated.

1. Exception: Exposed boxes are permitted in utility room.

C. Carefully layout and coordinate box locations with the work of other trades to assure that boxes are not blocked, hidden, or rendered inaccessible due to the work of other trades passing over, under, across, or in close proximity.

D. Review the Architectural drawings for conditions affecting the exact height and location of outlets, and adjust outlet locations as necessary.

E. Adjust the location of outlet boxes for receptacles and switches within 2 m (78 in) of the location shown on the Drawings without extra compensation if so directed by the Architect or the Architect's Consultant prior to installation.

F. Outlet boxes for switches shall be located on the strike side of door unless indicated otherwise.

G. Where two or more outlet boxes occur on the same wall, they shall be mounted at exactly the same height unless otherwise indicated.

H. Where outlet boxes are shown side by side but at different heights, they shall be centered one above the other unless otherwise indicated.

I. Where two or more of the same type devices occur adjacent to each other, provide a gang type box with a gang type cover. If the voltage between adjacent devices exceeds 300 VAC, barrier partitions shall be permanently installed in the outlet box between the adjacent device positions and separate raceway entries shall be provided. Provide barrier partitions wherever adjacent devices are to be connected to circuits at different voltages or to 277 VAC circuits on different phases.

J. Where devices of different types occur adjacent to each other, install outlet boxes approximately 152 mm (6 in) on center so that single-gang plates are spaced approximately 25 mm (1 in) apart and two-gang plates are not touching other plates. Use B-line BB8-16 bar spacer or equivalent. Verify configuration with Architect's Consultant.

K. Outlets which are shown immediately opposite one another on two sides of a wall shall have outlet boxes located to prevent contact between the two. Nipples between outlet boxes are prohibited. Provide sound isolation putty pads equivalent to TotalSeal brand 3/16" pads with a maximum STC rating of 61. Encase entire backbox for an air-tight seal.

L. Where outlet boxes are installed in a fire wall, provide 3M or equivalent fire-rated putty pads to maintain fire rating of assembly.

M. Outlet boxes shown opposite one another on two sides of a fire-rated wall shall have 610 mm (24 in) minimum horizontal separation.

N. No outlet box or group of outlet boxes in a single stud space of a fire-rated wall shall have a total opening area larger than 103.23 cm^2 (16 in^2).

O. Where outlet boxes having a total opening area exceeding 103.23 cm^2 (16 in^2) are installed in fire rated walls or ceilings, the boxes and openings shall be protected to maintain the fire rating of the wall or ceiling in accordance with the IBC and in a manner acceptable to the Authority Having Jurisdiction (AHJ).

P. Boxes shall be sized in accordance with the NEC to accommodate the devices installed and the quantity and size of conductors entering and leaving each box. The required size shall be provided by a single box, including device extension rings where applicable. Boxes shall not be ganged or stacked. In certain locations, depth may be limited by building conditions.

Q. Recessed boxes and device rings shall be installed such that outlet opening is plumb and the front edge of the outlet opening is flush with the finished surface or set back slightly. Set back shall not exceed 3 mm (⅛ in).

R. Flush ceiling and wall outlet boxes shall have a ⅜ in-18 NPS threaded fixture stud where the luminaire or other device depends on such for support.

S. All unused openings in boxes shall be left closed. Provide knockout closures to cap all unused knockout holes where blanks have been removed. Provide threaded caps for unused hubs on cast boxes.

T. Above-grade boxes shall be rigidly attached to the building element on which they are mounted in accordance with Section 26 05 29 or shall be solidly embedded in concrete or masonry. Boxes shall be supported independently of the raceway system. No outlet box shall be attached to the ceiling support wires,

ductwork or piping. Outlet boxes shall be attached to channels or bar hangers at locations as necessary to provide the indicated spacing.

U. Grout or seal around recessed outlet boxes which occur in exterior building surfaces or in concrete block walls to seal the space between the box and the wall or ceiling materials.

V. Provide identification as specified in Section 26 05 53.

W. Provide device plates in accordance with the requirements of Section 26 05 51, except where the device installed covers the entire outlet box opening.

X. Provide a neutral conductor in each outlet box used for a switch or other control device. Neutral conductors shall originate in the same panel as the circuit installed in the box. Unused neutral conductors shall be capped.

3.4 MOUNTING HEIGHTS

A. Outlet boxes shall be mounted at the heights indicated on the Drawings.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specifications, apply to work specified in this section.

B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY

A. Provide pull boxes and junction boxes as indicated and as required for proper installation of the raceway and wiring systems.

1.3 SUBMITTALS

A. Product Data: For concrete boxes and for boxes installed in exterior and wet locations.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Small Boxes: Boxes smaller than 820 cm^3 (50 in^3) shall be outlet boxes as specified in Section 26 05 31.

B. NEMA Type 1 Formed Boxes: Formed galvanized or phosphatized sheet steel with welded seams. Boxes shall have galvanized or phosphatized sheet steel covers. Covers shall be held in place with screws unless hinged doors are indicated on the Drawings. Screw covers shall be held in place with a minimum of four (4) corrosion-resistant screws. Hinged doors shall have heavy duty hinges and latching and locking devices. Boxes and covers shall be finished inside and outside with a polyester powder finish. Knockouts shall be factory stamped or formed in the field with a cutting tool to provide clean symmetrically-cut holes. Covers on flush boxes shall overlap the adjacent surface by 19 mm (¾ in) on all sides.

C. NEMA Type 3R Formed Boxes: Formed galvanized sheet steel with welded seams. Boxes shall have galvanized sheet steel hinged door covers, equipped with heavy-duty hinges. Boxes shall be equipped with drip-shield top and seam-free sides, front and back, to exclude entry of falling rain, sleet or snow and dripping water. Doors shall be equipped with hasps for padlocking and shall be secured by a minimum of two (2) corrosion-resistant screws or clasps. Boxes shall be equipped with embossed mounting holes on the back side or external mounting

feet. Boxes and covers shall be finished inside and outside with a polyester powder finish. Knockouts shall be factory stamped in the bottom of the enclosure or formed in the field with a cutting tool to provide clean symmetrically-cut holes.

D. NEMA Type 4X Formed Boxes: Formed sheet stainless steel with continuously welded seams, ground smooth. Boxes shall have sheet stainless steel hinged door covers, equipped with heavy-duty hinges with continuous stainless steel hinge pins. Boxes shall be equipped with door gaskets and rolled lips around the door and the enclosure opening, to exclude entry of liquids and contaminants, including hose-directed water. Doors shall be equipped with hasps for padlocking and shall be secured by stainless steel door clamps on three sides. Boxes shall be equipped with external mounting feet. Knockouts shall be formed in the field with a cutting tool to provide clean symmetrically-cut holes.

E. NEMA Type 1 Wireways: Formed galvanized or phosphatized sheet steel with welded seams. Wireways shall have galvanized or phosphatized sheet steel covers. Covers shall be held in place with screws unless hinged doors are indicated on the Drawings. Screw covers shall be held in place with corrosion-resistant screws. Hinged doors shall have heavy duty hinges and captive corrosion-resistant screws. Wireways and covers shall be finished inside and outside with a polyester powder finish. Knockouts shall be factory stamped or formed in the field with a cutting tool to provide clean symmetrically-cut holes. Provide all required connectors, elbows and end fittings.

F. NEMA Type 3R Wireways: Formed galvanized sheet steel with welded seams. Wireways shall have galvanized sheet steel hinged door covers, equipped with heavy-duty hinges. Wireways shall be equipped with drip-shield top and seam-free sides, front and back, to exclude entry of falling rain, sleet or snow and dripping water. Doors shall be secured by captive corrosion-resistant screws. Wireways shall be equipped with embossed mounting holes on the back side or external mounting feet. Wireways and covers shall be finished inside and outside with a polyester powder finish. Knockouts shall be formed in the field with a cutting tool to provide clean symmetrically-cut holes. Provide all required connectors, elbows and end fittings.

G. Ordinary Cast Metal Boxes: Cast aluminum or malleable iron, with a minimum wall thickness of 3.17 mm (⅛ in), equipped with integral threaded raceway hubs and mounting flanges. Cast metal boxes shall be intrinsically corrosion-resistant or shall be permanently protected inside and outside against corrosion by galvanizing or other equivalent means. Cast metal pull and junction boxes shall have gasketed covers held in place with a minimum of four (4) corrosion-resistant screws. Covers shall be constructed of the same material as the boxes.

H. Concrete Boxes: Boxes shall be pre-cast, reinforced concrete with cast-in knockouts for raceways. Covers shall be hinged, galvanized steel with

tamperproof latches and retractable handles. Boxes and covers shall suitable for vehicular traffic equivalent to AASHTO H-20 loading.

2.2 MANUFACTURERS

A. Acceptable manufacturers shall be as follows:

1. Formed Steel Boxes: Circle AW, Hoffman, Keystone or panelboard manufacturer per Section 262416
2. Wireways: Circle AW, Hoffman, Keystone or panelboard manufacturer per Section 262416
3. Cast Metal Boxes: Appleton, Crouse Hinds, OZ/Gedney
4. Non-metallic PVC Boxes: Cantex, Carlon, PW Pipe
5. Composite Boxes: Quazite, Newbasis
6. Concrete Boxes: Utility Vault Company, Wilbert Vault Company

B. Substitutions may be considered only when submitted in conformance with Section 26 01 00.

PART 3 - EXECUTION

3.1 REQUIRED LOCATIONS

A. Provide pull and junction boxes where indicated on the Drawings and wherever necessary for proper installation of the various electrical, communications, and electronic safety systems.

B. Provide pull boxes in raceways to limit the cumulative bends between pulling points as specified in Section 26 05 33.

3.2 SELECTION

A. General: Boxes shall have the appropriate NEMA rating for the environment and ambient temperature in which they are installed.

B. Concealed above Accessible Ceilings or behind Access Panels: NEMA Type 1 formed boxes, NEMA Type 1 wireways, ordinary cast metal boxes.

C. Recessed in Suspended Ceilings: Not permitted.

D. Recessed in Framed Walls or Ceilings: NEMA Type 1 formed boxes with flush covers.

E. Recessed in Hollow Masonry Walls: NEMA Type 1 formed boxes with flush covers.

F. Recessed in Solidly-grouted Masonry Walls: Not permitted.

G. Recessed in Concrete Walls: Not permitted.

H. Recessed in Concrete Slabs Not in Contact with Grade: Not permitted.

I. Recessed in Interior Concrete Slabs in Contact with Grade: Vehicle-rated cast metal boxes.

J. Recessed below Grade in Exterior Concrete or Asphalt Paving: Concrete boxes.

K. Recessed below Grade in Exterior Locations Intended for Vehicular Traffic: Concrete boxes.

L. Recessed below Grade in Exterior Locations without Paving or Vehicular Traffic: Composite boxes, or non-metallic PVC boxes.

M. Exposed in Utility Room: NEMA Type 1 formed boxes, NEMA Type 1 wireways, or ordinary cast metal boxes.

N. Exposed Elsewhere in Interior Dry Locations 2.75 m (108 in) or more above the Finished Floor: NEMA Type 1 formed boxes, NEMA Type 1 wireways, or ordinary cast metal boxes.

O. Exposed Elsewhere in Interior Dry Locations Less than 2.75 m (108 in) above the Finished Floor: NEMA Type 1 formed boxes, NEMA Type 1 wireways, or ordinary cast metal boxes.

P. Exposed in Interior Damp Locations: NEMA Type 4X formed boxes, or ordinary cast metal boxes.

Q. Exposed in Exterior Damp Locations: NEMA Type 3R formed boxes, NEMA Type 3R wireways, or ordinary cast metal boxes.

R. Exposed in Exterior Wet Locations: NEMA Type 3R formed boxes, NEMA Type 3R wireways, or ordinary cast metal boxes.

3.3 INSTALLATION

A. Install pull and junction boxes as indicated, in compliance with NEC requirements, in accordance with manufacturer's recommendations and with recognized industry practices to insure that the boxes serve the intended purpose.

B. In finished interior locations, pull boxes and junction boxes shall be concealed in accessible locations above suspended ceilings wherever possible. Where boxes cannot be concealed, install recessed boxes flush with the wall or ceiling surface, in locations approved by the Architect.

1. Exception: Exposed boxes are permitted in utility room

C. Carefully layout and coordinate box locations with the work of other trades to assure that boxes are not blocked, hidden, or rendered inaccessible due to the work of other trades passing over, under, across, or in close proximity.

D. Boxes shall be sized in accordance with the NEC to accommodate the quantity and size of raceways and conductors entering and leaving each box. The required size shall be provided by a single box. For boxes smaller than 820 cm^3 (50 in^3) where the box is not recessed, the required size may be obtained by adding a single box extension, provided that no raceways connect to the box extension. Otherwise, boxes shall not be ganged or stacked. In certain locations, depth may be limited by building conditions.

E. Recessed boxes shall be installed such that box opening is plumb and the front edge of the box opening is flush with the finished surface or set back slightly. Set back shall not exceed 3.17 mm (⅛ in).

F. All unused openings boxes shall be left closed. Provide knockout closures to cap all unused knockout holes where blanks have been removed. Provide threaded caps for unused hubs on cast boxes. Unused raceway openings in composite and concrete box shall be left closed.

G. Above-grade boxes shall be rigidly attached to the building element on which they are mounted in accordance with Section 26 05 29 or shall be solidly embedded in concrete or masonry. Boxes shall be supported independently of the raceway system. No pull or junction box shall be attached to the ceiling system, ceiling support wires, ductwork or piping.

H. Below-grade boxes shall be set plumb and level and shall have covers flush with the finished grade or surface in which they are installed.

I. Composite pull and junction boxes shall have a cast-in-place concrete ring around the box. Conform to the manufacturer's recommendations.

J. Provide identification as specified in Section 26 05 53.

END OF SECTION

SECTION 26 05 33
RACEWAY AND BOXES

PART 1 GENERAL

1.01 SUMMARY

A. This section describes work associated with installation of exterior underground communications conduit.

1.02 REFERENCES

A. The following is a list of standards which may be referenced in this section:

1. American Association of State Highway and Transportation Officials (AASHTO): HB, Standard Specifications for Highway Bridges.
2. ASTM International (ASTM):
   a. A123/123M, Standard Specification for Zinc (Hot-Dipped Galvanized) Coatings on Iron and Steel Products.
   b. A167, Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
   c. A240/A240M, Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
   d. C857, Standard Practice for Minimum Structural Design Loading for Underground Precast Concrete Utility Structures.
   e. D149, Standard Test Method for Dielectric Breakdown Voltage and Dielectric Strength of Solid Electrical Insulating Materials at Commercial Power Frequencies.
3. National Electrical Contractor's Association, Inc. (NECA): Installation standards.
4. National Electrical Manufacturers Association (NEMA):
   a. C80.1, Electrical Rigid Steel Conduit (ERSC).
   b. C80.3, Steel Electrical Metallic Tubing (EMT).
   c. C80.5, Electrical Rigid Aluminum Conduit (ERAC).
   d. TC 2, Electrical Polyvinyl Chloride (PVC) Conduit.
   e. TC 3, Polyvinyl Chloride (PVC) Fittings for Use with Rigid PVC Conduit and Tubing.
   f. TC 6, Polyvinyl Chloride (PVC) Plastic Utilities Duct for Underground Installation.
5. National Fire Protection Association (NFPA): 70, National Electrical Code (NEC).
6. Telecommunications Industry Association (TIA): 569B, Commercial Building Standard for Telecommunications Pathways and Spaces.

7. UL:
    a. 6, Standard for Safety for Electrical Rigid Metal Conduit – Steel.
    b. 6A, Standard for Safety for Electrical Rigid Metal Conduit – Aluminum, Red Brass and Stainless.
    c. 514B, Standard for Safety for Conduit, Tubing, and Cable Fittings.
    d. 651, Standard for Safety for Schedule 40 and 80 Rigid PVC Conduit and Fittings.
    e. 651A, Standard for Safety for Type EB and A Rigid PVC Conduit and HDPE Conduit.
    f. 797, Standard for Safety for Electrical Metallic Tubing – Steel.
    g. 870, Standard for Safety for Wireways, Auxiliary Gutters, and Associated Fittings.

1.03 SUBMITTALS

A. Action Submittals:

1. Manufacturer's Literature:
    a. Rigid galvanized steel conduit.
    b. Electric metallic tubing.
    c. Rigid aluminum conduit.
    d. PVC Schedule 40 conduit.
    e. PVC Schedule 80 conduit.
    f. Conduit fittings.
    g. Junction and pull boxes used at or below grade.
    h. Large junction and pull boxes.
    i. Terminal junction boxes.
2. Precast Vaults and Handholes:
    a. Dimensional drawings and descriptive literature.
    b. Accessory information.

1.04 QUALITY ASSURANCE

A. Authority Having Jurisdiction (AHJ):

1. Provide the Work in accordance with NFPA 70, National Electrical Code (NEC). Where required by the AHJ, material and equipment shall be labeled or listed by a nationally recognized testing laboratory or other organization acceptable to the AHJ in order to provide a basis for approval under NEC.
2. Materials and equipment manufactured within scope of standards published by UL shall conform to those standards and shall have an applied UL listing mark.

PART 2 PRODUCTS

2.01 CONDUIT AND TUBING

A. Rigid Galvanized Steel Conduit (RGS):

1. Meet requirements of NEMA C80.1 and UL 6.
2. Material: Hot-dip galvanized with chromated protective layer.

B. Electric Metallic Tubing (EMT):

1. Meet requirements of NEMA C80.3 and UL 797.
2. Material: Hot-dip galvanized with chromated and lacquered protective layer.

C. Rigid Aluminum Conduit:

1. Meet requirements of NEMA C80.5 and UL 6A.
2. Material: Type 6063, copper-free aluminum alloy.

D. PVC Schedule 40 Conduit:

1. Meet requirements of NEMA TC 2 and UL 651.
2. UL listed for concrete encasement, underground direct burial, concealed or direct sunlight exposure, and 90 degrees C insulated conductors.

E. PVC Schedule 80 Conduit:

1. Meet requirements of NEMA TC 2 and UL 651.
2. UL listed for concrete encasement, underground direct burial, concealed or direct sunlight exposure, and 90 degrees C insulated conductors.

F. High Density Polyethylene Conduit (HDPE):

1. Meet requirements of NEMA TC-7 and UL 651B.
2. Smooth wall.
3. UV stabilized.

2.02 FITTINGS

A. Rigid Galvanized Steel Conduit:

1. General:
   a. Meet requirements of UL 514B.
   b. Type: Threaded, galvanized. Set screw and threadless compression fittings not permitted.

2. Bushing:
    a. Material: Malleable iron with integral insulated throat, rated for 150 degrees C.
    b. Manufacturers and Products:
        1) Appleton; Series BU-I.
        2) O-Z/Gedney; Type HB.
3. Grounding Bushing:
    a. Material: Malleable iron with integral insulated throat rated for 150 degrees C, with solderless lugs.
    b. Manufacturers and Products:
        1) Appleton; Series GIB.
        2) O-Z/Gedney; Type HBLG.
4. Conduit Hub:
    a. Material: Malleable iron with insulated throat with bonding screw.
    b. UL listed for use in wet locations.
    c. Manufacturers and Products:
        1) Appleton; Series HUB-B.
        2) O-Z/Gedney; Series CH.
        3) Meyers; ST Series.
5. Conduit Bodies:
    a. Sized as required by NFPA 70.
    b. Manufacturers and Products (For Normal Conditions):
        1) Appleton; Form 35 threaded unilets.
        2) Crouse-Hinds; Form 7 or Form 8 threaded condulets.
        3) Killark; Series O electrolets.
        4) Thomas & Betts; Form 7 or Form 8.
6. Couplings: As supplied by conduit manufacturer.
7. Unions:
    a. Concrete tight, hot-dip galvanized malleable iron.
    b. Manufacturers and Products:
        1) Appleton; Series SCC bolt-on coupling or Series EC three-piece union.
        2) O-Z/Gedney; Type SSP split coupling or Type 4 Series, three-piece coupling.
8. Drain/Breather Fitting:
    a. Manufacturers and Products:
        1) Appleton; Type ECDB.
        2) Crouse-Hinds; ECD.
9. Expansion Fitting:
    a. Manufacturers and Products:
        1) Deflection/Expansion Movement:
            a) Appleton; Type DF.
            b) Crouse-Hinds; Type XD.

2) Expansion Movement Only:
   a) Appleton; Type XJ.
   b) Crouse-Hinds; Type XJ.
   c) Thomas & Betts; XJG-TP.

10. Cable Sealing Fitting:
    a. To form watertight nonslip cord or cable connection to conduit.
    b. For Conductors with OD of 1/2 inch or Less: Neoprene bushing at connector entry.
    c. Manufacturers and Products:
       1) Appleton; CG-S.
       2) Crouse-Hinds; CGBS.

B. Electric Metallic Tubing:

1. Meet requirements of UL 514B.
2. Type: Steel body and locknuts with steel or malleable iron compression nuts. Set screw and drive-on fittings not permitted.
3. Electro zinc-plated inside and out.
4. Raintight.
5. Coupling Manufacturers and Products:
   a. Appleton; Type 95T.
   b. Crouse-Hinds.
   c. Thomas & Betts.
6. Connector Manufacturers and Products:
   a. Appleton; Type ETP.
   b. Crouse-Hinds.
   c. Thomas & Betts.

C. Rigid Aluminum Conduit:

1. General:
   a. Meet requirements of UL 514B.
   b. Type: Threaded, copper-free. Set screw fittings not permitted.
2. Insulated Bushing:
   a. Material: Cast aluminum, with integral insulated throat, rated for 150 degrees C.
   b. Manufacturer and Product: O-Z/Gedney; Type AB.
3. Grounding Bushing:
   a. Material: Cast aluminum with integral insulated throat, rated for 150 degrees, with solderless lugs.
   b. Manufacturer and Product: O-Z/Gedney; Type ABLG.
4. Conduit Hub:
   a. Material: Cast aluminum, with insulated throat.
   b. UL listed for use in wet locations.

c. Manufacturers and Products:
   1) O-Z/Gedney; Type CHA.
   2) Thomas & Betts; Series 370AL.
   3) Meyers; Series SA.

5. Conduit Bodies:
   a. Manufacturers and Products (For Normal Conditions):
      1) Appleton; Form 85 threaded unilets.
      2) Crouse-Hinds; Mark 9 or Form 7-SA threaded condulets.
      3) Killark; Series O electrolets.
6. Couplings: As supplied by conduit manufacturer.
7. Drain/Breather Fitting:
   a. Manufacturers and Products:
      1) Appleton; Type ECDB.
      2) Crouse-Hinds; ECD.
8. Expansion Fitting:
   a. Manufacturers and Products:
      1) Deflection/Expansion Movement: Steel City; Type DF-A.
      2) Expansion Movement Only: Steel City; Type AF-A.
9. Cable Sealing Fittings:
   a. To form watertight nonslip cord or cable connection to conduit.
   b. Bushing: Neoprene at connector entry.
   c. Manufacturer and Product: Appleton; CG-S.

D. PVC Conduit:

1. Meet requirements of NEMA TC 3.
2. Type: PVC, slip-on.

E. Watertight Entrance Seal Device:

1. New Construction:
   a. Material: Oversized sleeve, malleable iron body with sealing ring, pressure ring, grommet seal, and pressure clamp.
   b. Manufacturer and Product: O-Z/Gedney; Type FSK or Type WSK, as required.
2. Cored-Hole Application:
   a. Material: Assembled dual pressure disks, neoprene sealing ring, and membrane clamp.
   b. Manufacturer and Product: O-Z/Gedney; Series CSM.

2.03 PRECAST VAULTS AND HANDHOLES

A. Products are specified on Drawings. When listed, refer to this Specification for particular attributes.

B. Drainage:

1. Slope conduits and floors toward drain points, leaving no pockets or other nondraining areas.
2. Provide drainage outlet or sump at low point of floor constructed with a heavy, cast iron, slotted or perforated hinged cover, and a minimum 4-inch outlet and outlet pipe. Bond metal parts to ground rod.

C. Hardware: Steel, hot-dip galvanized.

D. Furnish knockout for ground rod in each handhole and vault.

E. Manufacturers: Per WSDOT QPL.

2.04 ACCESSORIES

A. Duct Bank Spacers:

1. Modular Type:
   a. Nonmetallic, interlocking, for multiple conduit sizes.
   b. Suitable for all types of conduit.
   c. Manufacturers:
      1) Underground Device, Inc.
      2) Carlon.

B. Identification Devices:

1. Warning Tape:
   a. Material: Polyethylene, 4-mil gauge with detectable strip.
   b. Color: Orange.
   c. Width: Minimum 6 inches.
   d. Designation: Warning on tape that fiber optic circuit is located below tape.
   e. Identifying Letters: Minimum 1-inch high permanent black lettering imprinted continuously over entire length.
   f. Manufacturers and Products:
      1) Panduit; Type HTDU.
      2) Reef Industries; Terra Tape.

C. Corrosion Protection Tape:

1. Material: PVC with high-tack adhesive.
2. Width: 2 inches minimum.
3. Thickness: 20 mil.
4. Manufacturer and Product: 3M; Scotch 50.

PART 3 EXECUTION

3.01 GENERAL

A. Comply with NECA Installation Standards.

B. Crushed or deformed conduit or raceways not permitted.

C. Maintain conduit and raceway entirely free of obstructions and moisture.

D. Immediately after installation, plug or cap conduit and raceway ends with watertight and dust-tight seals until time for pulling in conductors.

E. Aluminum Conduit: Do not install in direct contact with concrete. Install in PVC sleeve or cored hole through concrete walls and slabs.

F. Install watertight fittings.

G. Metal conduit shall be reamed, burrs removed, and cleaned.

H. Do not install conduit or raceways in or below structural cast-in-place concrete, equipment pads, foundations, or beams without Engineer approval.

I. Horizontal conduit or raceways installed under floor slabs shall lie completely under slab, with no part embedded within slab.

J. Install concealed and buried conduit and raceways so that they emerge at right angles to surface and have no curved portion exposed.

K. Install conduits for fiber optic cables in strict conformance with the requirements of TIA 569B.

3.02 PENETRATIONS

A. Make at right angles, unless otherwise shown.

B. Notching or penetration of structural members, including footings and beams, not permitted.

C. Apply a single layer with 25 percent overlap of corrosion protection tape to metallic conduit protruding through concrete floor slabs to a point 4 inches above and 4 inches below concrete surface.

D. Concrete Walls, Floors, or Ceilings (Aboveground): If not shown on Drawings, provide nonshrink grout dry-pack, or use watertight seal device.

E. Entering Structures:

1. Vaults and Handholes:
   a. Metallic Raceways: Provide insulated grounding bushings.
   b. Nonmetallic Raceways: Provide bell ends flush with wall.
   c. Install such that raceways enter as near as possible to one end of wall, unless otherwise shown.

3.03 BENDS

A. PVC Conduit:

1. Bends 30 Degrees and Larger: Provide factory-made elbows.
2. Use manufacturer's recommended method for forming smaller bends.

B. HDPE Conduit: Minimum bend radius shall meet manufacturer's or NEC requirement, whichever is larger.

3.04 PVC CONDUIT

A. Solvent Welding:

1. Apply manufacturer recommended solvent and primer to joints.
2. Install so that joint is watertight.

B. Adapters:

1. PVC to Metallic Fittings: PVC terminal type.
2. PVC to Rigid Metal Conduit or IMC: PVC female adapter.

C. Belled-End Conduit: Bevel unbelled end of joint prior to joining.

3.05 UNDERGROUND CONDUIT AND RACEWAYS

A. Grade: Maintain minimum grade of 4 inches in 100 feet, either from one manhole, handhole, or pull box to the next, or from a high point between them, depending on surface contour.

B. Cover: Maintain minimum 2-foot cover above conduit unless otherwise shown.

C. Make routing changes as necessary to avoid obstructions or conflicts.

D. Support conduit so as to prevent bending or displacement during backfilling or concrete placement.

E. Installation with Other Piping Systems:

1. Crossings: Maintain minimum 12-inch vertical separation.
2. Parallel Runs: Maintain minimum 12-inch separation.
3. Installation over valves or couplings not permitted.

F. Backfill: As specified in Section 31 23 23.15, Trench Backfill.

3.06 VAULTS AND HANDHOLES

A. Excavate, shore, brace, backfill, and final grade in accordance with Section 31 23 16, Excavation, and Section 31 23 23.15, Trench Backfill.

B. Do not install until conduit crossings are identified and coordinated and final conduit grading has been determined.

C. Install such that conduit enters at nearly right angle and as near as possible to end of wall, unless otherwise shown.

D. Grounding: As specified in Section 26 05 26, Grounding and Bonding for Electrical Systems.

E. Identification: Field stamp covers with handhole number as shown. Stamped numbers to be 1-inch minimum height.

3.07 EMPTY CONDUIT AND RACEWAYS

A. Provide permanent, removable cap over each end.

B. Provide PVC plug with pull tab for underground raceways with end bells.

C. Provide nylon pull cord with footage markings.

D. Identify “CITY FIBER OPTIC” with waterproof tags attached to pull cord at each end, and at intermediate pull point.

3.08 PROTECTION OF INSTALLED WORK

A. Protect products from effects of moisture, corrosion, and physical damage during construction.

B. Provide and maintain manufactured watertight and dust-tight seals over conduit openings during construction.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specifications, apply to work specified in this section.

B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY

A. Provide a device plate for each wiring device outlet box and each empty outlet box.

1.3 SUBMITTALS

A. Product Data: For each type of duct provided on the Project.

PART 2 - PRODUCTS

2.1 PROHIBITED MATERIALS

A. Sectional plates shall not be used.

2.2 MATERIALS

A. Standard Stainless Steel Faceplates: Type 302 stainless steel with satin finish, equivalent to P&S Sierra “SS” series.

B. Weatherproof Bubble Switch Gaskets: Clear bubble gasket, designed to mount on a vertical single gang outlet, to meet or exceed UL requirements for wet locations. Gasket shall cover the switch toggle, and shall be equivalent to Hubbell #HBL-1795.

C. Weatherproof Flip-lid Switch Covers: Cast zinc with gasket, designed to mount on a vertical single gang outlet, to meet or exceed UL requirements for wet locations. Plate shall have a spring-loaded hinged cover, with hinges at the top, and shall be equivalent to P&S #CA1-G.

D. Weatherproof Flip-lid Receptacle Covers: Cast aluminum with gasket, designed to mount on a horizontal single gang outlet, to meet or exceed UL requirements for interior wet locations. Plate shall have a spring-loaded hinged cover, with hinges at the top, and shall be equivalent to P&S #4511.

E. Weatherproof While-in-use Receptacle Covers: Heavy Duty die cast aluminum with gasket and cord outlets, designed to mount on a horizontal single gang outlet, to meet or exceed UL requirements for wet locations while in use. Plate shall include a lockable hasp that will accept an 8 mm (0.315 in) diameter padlock shank, and shall be equivalent to Intermatic #WP1010HMC for single duplex horizontal applications and #WP1010MC for single duplex vertical applications and WP1030MC for quadplex vertical applications.

2.3 MANUFACTURERS

A. Manufacturers shall be as listed above, and as follows:

1. Device Plates: P&S, Arrow Hart, Hubbell, Leviton

B. Substitutions may be considered only when submitted in conformance with Section 26 01 00.

PART 3 - EXECUTION

3.1 REQUIRED LOCATIONS

A. Provide a suitable device plate for each switch, control, receptacle, and other miscellaneous device of similar nature, where such devices do not include an integral device plate or canopy to cover the outlet box opening.

B. Provide a blank faceplate for each empty outlet box, including boxes intended for future use.

C. Provide a blank faceplate for each outlet box used as a pull or junction box.

3.2 PLATE SELECTION

A. General:

1. Device plates shall be suitable for the environment in which they are installed.
2. Exposed Outlet Boxes in Mechanical, Electrical, Telecommunications and Machine Rooms: Pressed galvanized steel raised device plates of the same manufacture as the box, unless otherwise indicated.

B. Other Interior Dry Locations: standard stainless steel faceplates.

C. Switches in Interior Damp or Wet Locations: Standard stainless steel faceplates with weatherproof bubble switch gaskets.

D. Receptacles in Interior Damp or Wet Locations: weatherproof flip-lid receptacle covers.

E. Switches in Exterior Damp or Wet Locations: weatherproof flip-lid switch covers.

F. Receptacles in Exterior Damp or Wet Locations: weatherproof while-in-use receptacle covers.

3.3 INSTALLATION:

A. Install device plates plumb, such that they fit tight to building surfaces with no gaps.

B. Where plate edges align with masonry grout lines, provide sealant behind plate to make a flush appearance with no sharp edges being exposed.

C. Provide new device plates on existing outlets indicated as being existing to remain.

D. Plates shall fully cover openings.

E. Provide identification as specified in Section 26 05 53.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specification sections, apply to work specified in this section.

B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY

A. Provide identification for electrical equipment and devices specified in Division 26.

B. Provide arc flash hazard safety warning signs on all new Switchboards, **a**nd Distribution Panelboards and Motor Control Centers, Dry-type Transformers, and other equipment that could contain live parts requiring maintenance while energized.

C. Provide available fault current nameplates on all service entrance equipment.

1.3 SUBMITTALS

A. Product Data: None required.

PART 2 - PRODUCTS

2.1 PROHIBITED MATERIALS

A. Dymo or equivalent labels shall not be utilized.

2.2 MATERIALS

A. Nameplates: Nameplates as used in this document shall refer to:

1. Laser Etched Device Plate

B. Switchboards, Distribution Panelboards, Panelboards, Transformers, Control Panels shall use a:

1. Engraved Plastic Label

C. Device Plates shall have a:

1. Engraved Device Plate

D. Pullbox and other similar boxes shall have a:

1. Printed Label

E. Nameplates shall have contrasting colors to provide 6.4 mm (¼ in) high text. Title line for panelboard, switchboard, transformer, MCC name and similar shall be 13 mm (½ in) high text.

1. Nameplates shall have the following colors:

a. Black with White Text

F. Engraved Labels: Engraved labels shall consist of text directly engraved or laser-etched into the plates or substrait.

1. Text engraved into device plates shall be 4.8 mm ($^{3}/_{16}$ in) high.

G. Printed Labels: Printed labels shall be matte white polypropylene with adhesive back designed for exterior applications. Label text shall be 4.8 mm ($^{3}/_{16}$ in) high, black and shall be applied to the label by a thermal transfer printer.

H. Directory Cards: Directory cards shall consist of heavy cardstock, metallic mounting frames and plastic covers. Mounting frames shall be attached to the back side of panelboard doors. Directories shall contain typewritten text indicating the circuit breaker number, type of load served and room number in which each load is located. Each circuit breaker identification shall be unique. Unused circuit breakers shall be designated with "SPARE" written in pencil. Spaces for future circuit breakers shall be left blank. Circuit designations on directory cards shall match the installed conditions with respect to loads and physical arrangement within panelboards.

I. Available Fault Current Nameplates: Nameplates shall contain the available three-phase symmetrical fault current value and the available three-phase, instantaneous, asymmetrical fault current value at the equipment on which they are installed and the date the values were calculated.

J. Arc Flash Hazard Safety Signs: Product safety signs in accordance with ANSI Standard Z535.4 requirements. At the left of each sign shall be an electrical hazard (lightning) graphic surrounded by a yellow triangle. At the top of the right side of the sign, in an orange signal word block, the signal word "Warning" shall appear together with an exclamation mark surrounded by a triangle. Underneath the signal word block, the message "Arc Flash Hazard" shall be printed on the first line, followed by "Appropriate PPE Required" on the second line. The sign shall also indicate the flash protection boundary in inches and the incident energy at 457 mm (18 in) in cal/cm², in accordance with the requirements of NFPA 70E.

Safety signs shall be 51 mm by 102 mm (2 in by 4 in), and shall be laminated between a polyester base with an adhesive backing and a clear polyester overlay.

PART 3 - EXECUTION

3.1 PREPARATION

A. All identification shall use the room numbers assigned by the Owner. Obtain a list of room numbers from the Owner's Representative prior to preparing identification.

B. All identification shall use equipment designations that match those on the equipment. Verify equipment designations with the Owner's Representative prior to preparing identification.

C. Verify text for nameplates, engraved labels, printed labels, and directory cards with the Architect's Consultant.

D. All programmable systems shall use alpha-numeric identifiers assigned by the Owner.

3.2 INSTALLATION

A. General:

1. Provide identification for electrical equipment and devices as specified herein.
2. Provide a fault current nameplate on each piece of service entrance equipment.

B. Panelboards:

1. Provide a nameplate for each panelboard. Install nameplates on the outside of the equipment enclosures above the incoming line sections. Nameplate text shall include the equipment name as designated on the Drawings, the voltage, the phase, the wire configuration, the short-circuit current rating of the equipment, the calculated available fault current, the date the calculations were done, and the power source. Calculated value and date of calculation to come from protective device study. Example is as follows:

1AHN1
480Y/277V 3-PH, 4-W 60HZ
22,000 AIC RMS SYM RATED
AVAILABLE FAULT CURRENT 17,600A
CALCULATED 08/01/14

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2. On panelboard located in Utility room, install nameplates on the outside of panelboard enclosures above doors. On all other panelboards, install nameplates on the dead fronts, above the circuit breakers so that nameplates are not visible when the panelboard doors are closed.
3. Provide a directory card in each panelboard. Place directory card in holder behind plastic cover.
4. Revise directory cards in existing panelboards to reflect revised circuit configuration. If more than 20% of the existing circuits in an existing panelboard are revised, provide a new directory card indicating existing and revised circuits.
5. Provide an arc flash hazard safety sign attached to the exterior of each panelboard. Signs shall be located so as to be clearly visible to qualified persons before examination, adjustment, servicing or maintenance of the equipment. On panelboards located in mechanical and electrical rooms, attach the signs on the outside of panelboard enclosures. On all other panelboards, attach the signs on the dead fronts or the back side of the panel doors, so that signs are not visible when panelboard doors are closed.

C. Motor Starters:

1. Provide a nameplate on the outside, front of each starter enclosure. Nameplate text shall include the name of load served as designated on the Drawings.

D. Disconnect Switches:

1. Provide a nameplate on the outside front of each disconnect switch enclosure. Nameplate text shall include the name of the load controlled as designated on the Drawings, and also the designation of the equipment that serves as the power source for the circuit that supplies the disconnect.

E. Contactors:

1. Provide a nameplate on the outside front of each contactor enclosure. Nameplate text shall include the contactor name as designated on the Drawings and the name of the load controlled.

F. Wiring Devices:

1. Provide an engraved label for each switch that controls luminaires not within sight of the switch or that controls receptacles Engraved label text shall include the type and location of the load controlled.

2. Provide a nameplate for each receptacle that is GFCI-protected by a device on its line side. Nameplate text shall identify the type and location of the line-side device providing the protection.
3. Provide a nameplate for each receptacle, other than 15- and 20-ampere, 120 VAC general-purpose receptacles. Nameplate text shall include the panelboard name and the circuit number.
4. Provide a nameplate for each 120 VAC receptacle. Nameplate label text shall include the panelboard name and the circuit number.
5. Provide a nameplate for each receptacle connected to the emergency power system. Nameplate text shall include the panelboard name and the circuit number.
6. Provide a nameplate on all device plates. Nameplate text shall include the panelboard name and the circuit number.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specification sections, apply to work specified in this section.

B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY

A. Assist in commissioning activities for electrical systems, following the commissioning procedures described herein. The procedures required by this section are in addition to factory testing and field testing required in other sections of the specifications. Supply labor, test equipment and miscellaneous materials as necessary for completion of commissioning activities.

B. Electrical system commissioning procedures shall be used to demonstrate that installed equipment performs all individual and system functions required. Perform operational tests, troubleshooting and corrective measures prior to commissioning.

C. Certain aspects of required electrical system commissioning activities, as described herein, are developed in greater detail in applicable sections of the specifications. Refer to each of the specifications sections listed above for additional specifics. Where the requirements in this section are more stringent or less stringent, the requirements found in both places shall be considered complimentary, and shall be followed.

1.3 SCOPE

A. The following electrical systems are subject to commissioning on this project. Perform commissioning activities for each system and its individual components:

1. Receptacles, including GFCI devices
2. Grounding system, including resistance of made grounding electrodes
3. Equipment and motor connections
4. Panelboards and enclosed circuit breakers, including GFCI and AFCI devices
5. Lighting, including support devices and manual controls
6. Motor controls
7. Automatic lighting control, including occupancy sensors

B. The commissioning work requires the assistance of system vendors and installers. Coordination with other trades is also required.

C. Test and certify in writing that the entire electrical installation complies with contract documents, code, and proper system operation. Perform acceptance tests in accordance with manufacturer's recommendations.

D. Supply skilled technicians to start-up and test components and systems. Factory trained representatives of equipment suppliers shall conduct the start-up of their equipment. Proof of qualifications is required. Ensure that skilled technicians are available and present during the agreed upon schedules and for sufficient duration to complete the necessary tests, adjustments and problem-solving.

E. Have a knowledgeable technician present at all testing and commissioning activities.

F. Prepare Operating and Maintenance Manuals in accordance with the requirements in the applicable sections of the specification, including Section 260100. Clarify and update the original sequences of operation to reflect as-built conditions.

G. Prepare Record Drawings in accordance with the requirements in Section 26 01 00. Include field-generated coordination drawings.

H. Coordinate with equipment manufacturers to determine specific requirements to maintain the validity of the warranty. Insure that the Owner's Representative is informed of all responsibilities required of the Owner to keep the warranty in force

I. Include costs for commissioning in the electrical schedule of values. Include time for commissioning in the project schedule.

1.4 QUALITY ASSURANCE

A. Use qualified and skilled technicians in the performance of the work. Factory-trained representatives are required to start-up their equipment.

B. Prepare job-specific Operating and Maintenance Manuals. Cross out any information that does not apply. Use high quality copies. Fax reproductions are not acceptable. Organize the manuals properly in accordance with the requirements of Section 260100.

1.5 SUBMITTALS

A. For each electrical system that is to be commissioned, submit the following information:

1. Installation and Start-up Instructions: Manufacturer's installation and start-up instructions.

PART 2 - PRODUCTS

2.1 TEST EQUIPMENT

A. Supply test equipment required to perform functional performance testing. Test equipment shall have been calibrated within the 12 month period prior to its use on the Project. Upon request, submit written certification of calibration for any test equipment used as part of the requirements of this section.

2.2 MATERIALS

A. Provide miscellaneous materials, equipment, and tools required to perform the commissioning procedures. Such materials shall comply with the appropriate specifications section, as applicable.

B. Materials not specifically mentioned, but required for commissioning procedures, shall be of the same quality used for the intended purpose in general commercial practice. Materials shall be free from defects which would adversely affect the performance or maintainability of individual components or the overall assembly. All components shall be of a type that has been successfully used in like systems.

PART 3 - EXECUTION

3.1 PREPARATION

A. Complete the respective start-up and checkout procedures for each system, and insure the complete readiness of equipment and systems, prior to the start of the functional performance testing.

B. Schedule the actual date and times for the functional performance testing. Include time for commissioning in the master construction schedule.

3.2 ACTIVITIES

A. Perform the commissioning activities described herein and in the sections of the specifications related to the systems designated for commissioning.

B. Assist in clarifying the operation and control of commissioned equipment in areas where the specifications, control drawings, or equipment documentation is insufficient for writing detailed testing procedures.

C. Where written documentation for commissioning activities is requested to be prepared on a specific form, use the requested form when preparing the documentation.

D. Develop a full start-up and initial checkout plan using manufacturer's start-up procedures and the pre-functional checklists.

E. During the start-up and initial checkout process, execute and document the electrical-related portions of the pre-functional checklists for all commissioned equipment.

F. Perform and clearly document all completed start-up and system operational checkout procedures.

G. Address current punchlist items applicable to each system before functional performance testing begins on that system.

H. Execute seasonal or deferred functional performance testing in accordance with specified requirements for such testing.

I. Correct any deficiencies discovered as a result of the above testing, and completely retest the work affected by such corrections, with no additional compensation.

J. Make necessary adjustments to Operating and Maintenance Manuals and Record Documents for applicable issues identified during testing.

3.3 START-UP

A. Follow the start-up and initial checkout procedures listed in this section. Complete and start systems and sub-systems so they are fully functional and meet the design objectives of the Contract Documents. The commissioning procedures and functional testing do not relieve or lessen the responsibility for complying with design objectives or shift any responsibility to the Owner.

B. Functional testing is intended to begin upon completion of a system. Functional testing may proceed prior to the completion of systems, or sub-systems at the discretion of the Commissioning Agent. Beginning system testing before full completion does not relieve the Contractor from fully completing the system, including all prefunctional checklists as soon as possible.

3.4 ON-SITE TRAINING

A. Assume responsibility for the following training duties:

1. Submit a training plan two (2) weeks before the planned training
2. Maintain a training sign-in sheet for each training session.
3. Conduct comprehensive training for designated Owner personnel in the operation and maintenance of each major piece of commissioned electrical equipment or system.

4. Conduct training on each piece of equipment and each system as required by the specification section applicable to the particular system and associated equipment.
5. During any demonstration, should the system fail to perform in accordance with the requirements of the Operating and Maintenance Manuals or the proper sequence of operation, the system shall be repaired or adjusted as necessary and the demonstration repeated.

B. Training shall start with classroom sessions, if necessary, followed by hands-on training on each piece of equipment, which shall illustrate the various modes of operation, including start-up, shut-down, alarm, and power failure.

C. The appropriate manufacturer's representative or factory-trained technician shall give instruction on each major piece of equipment. The person conducting the training shall have practical building operating expertise as well as in-depth knowledge of all modes of operation of the specific piece of equipment are required. More than one party may be required to execute the training.

D. The training sessions shall follow the outline in the Table of Contents of the Operating and Maintenance Manuals, and whenever possible shall illustrate the use of the Operating and Maintenance Manuals for reference.

3.5 POST-CONSTRUCTION REVIEW

A. Approximately 8 to 10 months after substantial completion of the final construction phase of the Project, participate in a post-construction review of the commissioned systems. Verify that the systems are still functioning properly in accordance with the operational needs of the facility.

B. Should any system be found to be functioning improperly, the system shall be repaired or re-adjusted as necessary in accordance with warranty.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specification sections, apply to work specified in this section.

B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY

A. Provide complete automatic lighting controls for exterior and interior lighting as indicated.

B. Color of devices and device plates shall match device plate color specified in Section 26 05 51.

C. Adjust and test the lighting controls, and demonstrate operation to the Owner's Representative.

D. Instruct the Owner's staff in operating the controls and recommended maintenance procedures.

1.3 GENERAL DESCRIPTION

A. Exterior lighting controls shall consist of photocells, time switches and hand-off-automatic switches.

B. Interior lighting occupancy-based controls shall consist of dual-technology occupancy sensors, power pack relays and slave relays.

C. Include low-voltage cabling and all other miscellaneous equipment and devices required for a complete operable lighting controls system.

1.4 SYSTEM OPERATION

A. Automatic controls for exterior lighting shall provide automatic on/off control as indicated.

B. Control exterior lighting by zone, with each zone switched by a separate contactor.

1. Each zone shall be equipped with means to manually override the automatic lighting controls for testing purposes.

2. Exterior lighting shall switch on automatically no earlier than dusk and switch off no later than dawn. Additional controls shall be provided as indicated to further limit the hours of operation.

C. Time-based controls for interior lighting shall provide automatic on/off control as indicated.

1. Control interior lighting by zone, with each zone incorporating a separate override switch.
2. Time-based control zones shall include spaces in the building where no occupancy-based controls are provided, other than areas where lighting must remain in operation 24-hours per day, areas in which medical or dental tasks are performed, laboratories, mechanical equipment rooms and other industrial process facilities. Each time-based control zone shall encompass a floor area no greater than 465 m² (5000 ft²).
3. Each time-based control zone shall be equipped with means to manually override the automatic lighting controls, which shall enable the lighting in that zone to remain in operation for an adjustable time period set for no longer than 2 hours. The manual override switch shall be located within sight of the controlled lighting.
4. Interior lighting in each time-based control zone shall be enabled during normal business hours by automatic controls which switch on and off automatically at pre-programmed times each day. The controls shall incorporate separate schedules for each day of the week, with automatic pre-programmed schedule changes for holidays and special events.

D. Occupancy-based controls for interior lighting shall provide automatic shut-off control as indicated.

1. Control interior lighting by room, with automatic controls functioning to turn off the general room lighting after a time delay when no occupant is present in the room.
2. Occupancy sensors shall provide complete and proper volumetric coverage of each room within the coverage limits of the devices provided, in accordance with the manufacturer's published coverage limits. Unless otherwise indicated, the coverage pattern shall provide detection of desk activity (hand motion) for over 90% of the room area minimum, as required to accommodate all occupancy habits of single or multiple occupants at any location within each room.
3. Occupancy-based controls, except wall switch occupancy sensors, shall include means for The occupancy sensors shall be aimed and adjusted such that the presence of one occupant anywhere in a room is sufficient to keep the controls from automatically shutting off the lighting, without requiring excessive activity or special movement on the part of the occupant. Normal air movement while the room is unoccupied shall not in itself cause the occupancy sensors to remain activated.

4. Wall switch occupancy sensors, shall include means for manual adjustment. Sensors shall have adjustable sensitivity and time-delay settings, which shall be adjusted in each room to suit the actual room conditions. The occupancy sensors shall be adjusted such that the presence of one occupant within sight of the sensor is sufficient to keep the controls from automatically shutting off the lighting, with sufficient time-delay to allow an occupant to conduct any normal functions that may be out of sight from the sensor. Normal air movement while the room is unoccupied shall not in itself cause the occupancy sensors to remain activated.

E. Automatic lighting controls which are programmed or which are time-based shall incorporate back-up capabilities which shall prevent loss of programming and time settings for at least 10 hours upon interruption of power.

1.5 SUBMITTALS

A. Product Data: For each type of automatic lighting control device and equipment provided on the Project.

B. Test Reports: Record of all field test data

C. Training Documentation: Sign-off form and attendee sign-in sheet for the training session.

1.6 INFORMATION FOR OPERATING & MAINTENANCE MANUALS

A. Submittals: Information submitted for review, up-dated to record any changes.

B. Operating Instructions: Supply a detailed narrative description of the operation of the lighting controls. Indicate application conditions, limitations of use, coverage patterns and adjustments. Include manufacturer's installation instructions.

C. Maintenance Instructions: List replacement parts, including source. Indicate recommended maintenance and testing procedures and intervals. List all individual system components that require periodic maintenance. Include a service directory with names and telephone numbers to obtain service.

D. Warrantee: Manufacturer's warranty certificate.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Astronomic Time Switches: Time switch shall be solid-state, double-pole, single-throw, with astronomic feature and reserve power. Normally-open contacts shall be rated 20 amperes at 120-VAC, On/Off functions shall be individually programmable for each day of the week. Time switch shall include an over-ride

switch to manually close contacts for a pre-set duration. Settings shall be maintained in non-volatile memory, with a field-replaceable battery to retain programming during extended electrical power outages. Housing shall be a lockable NEMA Type 1 steel enclosure. Time switch shall be equivalent to Intermatic #ET70215C.

B. 7-day Time Switches: Time switch shall be solid-state, four-pole, single-throw, with astronomic feature and reserve power. Normally-open contacts shall be rated 20 amperes at 120 VAC, On/off functions shall be individually programmable for each day of the week on independent daily schedules for a full year. The time switch shall provide automatic leap year and daylight saving time adjustment. The time switch shall also provide holiday or special day control requirements by providing up to 99 holiday schedules. Each of the holiday schedules shall be programmable for a single day or any duration as required. Each holiday schedule shall provide automatic no load activity and shall be independently programmable for a unique load schedule if required. Time switch shall include an over-ride switch to manually close contacts for a pre-set duration. The time switch shall provide local or remote selection of load override. Remote override shall be initiated by a momentary switch closure connected to the time switch override connections at distances up to 305 m (1000 ft). Four (4) override terminals shall be provided to allow independent override selection in addition to independent to-the-minute override durations. Settings shall be maintained in non-volatile memory, with a field-replaceable battery to retain programming during extended electrical power outages. Housing shall be a lockable NEMA Type 1 steel enclosure. Time switch shall be equivalent to Intermatic #ET70415C.

C. Exterior Photocells: Photocell shall be rated for a load of 15 Amps tungsten or 8.3 Amps ballast at 120 VAC. Unit shall include a stainless steel wall mounting plate and a light shield. Photocell shall be equivalent to Intermatic #K4321.

D. Wall Switch Occupancy Sensors: Decora style wiring device shall include “off” and “auto” controls, a passive infrared occupancy sensor and an indicator light that illuminates when the sensor detects occupancy. The sensor shall have a high-density 180° coverage pattern that detects walking motion within 7.3 m (24 ft) in front of the device and 3.1 m (10 ft) to either side when mounted 1.2 m (4 ft) above the floor. The device shall be arranged for manual control to switch lights on, and automatic control to switch lights off. Sensors shall have adjustable sensitivity (minimum to maximum) and time delay (30 seconds to 30 minutes) settings. Sensors shall initially be set at maximum sensitivity and 15 minutes delay. The device shall be rated for control of up to 800 Watts of ballast load at 120 VAC or 1200 Watts of ballast load at 277 VAC, and shall be compatible with compact fluorescent ballasts and electronic linear fluorescent ballasts. The device shall allow no leakage to load when in the “off” mode, and shall have no minimum load requirement. Wall switch occupancy sensors shall be equivalent to WattStopper #WA-200, Mytech #IWSZPM, or Sensor-Switch #WSD-SA.

E. Ceiling-Mounted Dual-Technology Occupancy Sensors: Combination ultrasonic and passive infrared type, with a 360° coverage pattern that detects walking motion within a 4.9 m (16 ft) radius and desktop activity (hand motion) within a 3.7 m (12 ft) radius when mounted 2.4 m (8 ft) above the floor. Sensors shall utilize dual-sensing verification and advanced signal processing. A microprocessor database shall store data concerning room usage during the previous week that shall be used for automatic digital self-adjustment of sensitivity (from minimum to maximum) and time-delay settings (from 4 to 30 minutes) to discriminate between human and non-human movement and eliminate false triggers without need for manual readjustment. Sensors shall also have adjustable sensitivity and time-delay settings, set to adapt automatically from initial settings of at least 75% of maximum sensitivity and no more than 4 minutes delay. Sensors with infrared and ultrasonic pick-up shall be equipped with selectable technology logic, initially set to require actuation of both technologies to activate the sensor and either technology to keep it activated. Sensors with infrared and microphonic pick-up shall be equipped with filtering to discriminate sharp sounds characteristic of occupant activity from repetitive or constant background noise, and shall require actuation of the infrared technology to activate the sensor and either technology to keep it activated, with the microphone input being shut-off 10 seconds after the sensor deactivates. Sensors shall be arranged for ceiling mounting. Sensors shall include factory-assembled plenum-rated control cable. Sensors shall be equipped with isolated auxiliary dry contacts for use by the building energy management system. Ceiling-mounted dual-technology occupancy sensors shall be equivalent to WattStopper #DT-300, Mytech #OMNI-DT2000 or Sensor-Switch #CM-PDT-10.

F. Power Pack Relays: Power supply and relay package, suitable for application at either 120 VAC or 277 VAC, which shall consist of a 24 VDC power supply and a relay with contacts rated 20 Amperes at either 120 VAC or 277 VAC. Each power pack relay shall be equipped with the ability to power and accept input from up to three (3) associated occupancy sensors. Power pack relays shall be suitable for plenum use. Provide one (1) power pack relay for each lighting zone that has occupancy sensor control, except where other controllers with additional capabilities are required that can serve as both power supply and control means for the occupancy sensors. Power pack relays shall be equivalent to WattStopper #B120E-P or #B277E-P, Mytech #MP-120 or #MP-277, or Sensor-Switch #PP-20.

G. Slave Relays: Slave relay with contacts rated 20 Amperes at either 120 VAC or 277 VAC. Provide one (1) slave relay for each additional lighting circuit and/or each separately switched part of a circuit within the lighting zone controlled by an occupancy sensor, where the primary controller cannot handle the indicated number of circuits. Connect slave relays to operate in unison with the primary controller. Slave relays shall be equivalent to WattStopper #S120/277E-P, Mytech #MP-SA or Sensor-Switch #SP-20.

H. Power Pack Integrated Controllers: Power supply, relay and dimming control package consisting of a control transformer with dual-voltage input, two (2) relays with contacts rated 20 Amperes at either 120 VAC or 277 VAC, and 0-10 VDC dimming controls, compatible with standard 0-10 VDC dimming ballasts. Each power pack integrated controller shall have two (2) control channels, each equipped with a 3-wire input for low-voltage momentary-contact switches and a 3-wire input for low-voltage 0-10-VDC dimmer switches. Each power pack integrated controller shall be equipped with the ability to power and accept input from associated occupancy sensors and photocells. Each power pack integrated controller shall also be equipped with hold-on and hold-off input capability. Provide one (1) power pack integrated controller for each room that has both occupancy sensor control and momentary-contact switch or dimmer switch manual control. Power pack integrated controllers shall be equivalent to WattStopper #LC-100.

I. Cabinets: Cabinet shall be NEMA Type 1 with hinged door and key lock. Dimensions shall accommodate the enclosed equipment.

J. Wire Guards: Where sensors are located in Restrooms, provide wire guards that fit over the devices to be protected.

2.2 WIRE AND CABLE

A. General: Wire size shall be minimum #12 AWG, except low-voltage control cable. Power and grounding conductors shall be minimum #12 AWG. Cable shall be rated CL2 or CL2P. Cable installed in environmental air spaces shall be plenum rated.

B. Control-Voltage Control Cable: #18 AWG, multi-conductor cable with over-all jacket, except as otherwise indicated. Quantity of conductors as required for connected devices.

2.3 MANUFACTURERS

A. Acceptable manufacturers shall be as listed above, and as follows.

1. Sensors: Wattstopper, Mytech, Unenco and Sensor-Switch.
2. Cable: Belden, Canare, West Penn.

B. Substitutions may be considered only when submitted in conformance with Section 26 01 00.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prior to beginning rough-in for the automatic lighting controls, review the automatic lighting control shop drawings, the manufacturer's installation instructions, applicable regulations and any site conditions pertinent to installation of the automatic lighting controls. Verify placement of sensors and installation criteria.

3.2 INSTALLATION

A. Install equipment in accordance with the manufacturer's instructions in the locations indicated on the Drawings. Equipment shall be installed inside wall mounted cabinets.

B. Coordinate the control requirements of contactors, controllers, relays and sensors to insure proper operation. Provide all necessary accessories.

C. Provide a neutral conductor to each line-voltage lighting control device.

D. Locate exterior photocells where they are protected from direct sunlight and where they can be aimed northward at the sky.

E. Locate and aim occupancy sensors as required for complete and proper volumetric coverage within the range of coverage of controlled areas per the manufacturer's recommendations. Rooms shall have 90% minimum coverage to completely cover the controlled area. Coverage shall accommodate all occupancy habits of single or multiple occupants at any location within the room. The locations and quantities of sensors shown on the Drawings are diagrammatic and indicate only the minimum quantity and placement of sensors that are to be provided. Provide additional sensors if required to properly and completely cover the respective room. Locations shall be carefully selected to insure that coverage patterns are unobstructed.

F. Proper judgment must be exercised in executing the installation so as to ensure the best possible installation in the available space and to overcome local difficulties due to space limitations or interference of structural components.

G. Mount exterior photocells on flush-mounted outlet boxes.

H. Mount occupancy sensors in finished spaces on flush-mounted outlet boxes. In unfinished spaces or where ceiling-type sensors are installed where there is exposed structure, mount the sensors in surface mounted outlet boxes.

I. Wiring shall be arranged as shown on the shop drawings. Wiring and cable shall be installed in raceways or cable trays, except low-voltage cables run above

accessible ceilings consisting of removable tiles. Raceways shall be grounded to the power system ground.

J. Cables shall extend from the occupancy sensor devices to the relay locations and between devices in uninterrupted continuous runs, without intermediate splices. Cables shall be free from shorts or grounds.

K. Cables shall be routed so as to maintain a separation of at least 610 mm (24 in) from all heat sources and from ballasts, transformers, dimmers and other sources of electromagnetic interference. Avoid exposed cables in occupied areas or in areas where they might be damaged as a result of normal use of the area. Where two (2) or more cables run in parallel, they shall be bundled with cable ties.

L. Cables run exposed in ceiling cavities shall be supported by means of suitable cable support devices from the building structure. They shall not lie upon the ceiling, nor shall they be supported from the ceiling frame, ceiling suspension wires, conduits, pipes, ductwork or lights. Supports shall be spaced no further apart than 5 ft on center.

M. Care shall be exercised during cable installation not to damage cable insulation. Damaged cables shall be removed and replaced. Type and spacing of supports shall ensure that cable will not kink or sag.

N. In each cable that terminates at an outlet or device, provide 305 mm (12 in) of slack cable, neatly coiled, to facilitate future modifications. Terminations shall be made in a neat and workmanlike manner.

O. Provide identification for cabinets, switches, and relays per Section 26 05 53.

3.3 ADJUSTMENT, TESTING & DEMONSTRATION

A. Notify the Owner's Representative at least two (2) weeks in advance of the date of each test, to allow witnessing of the tests.

B. Supply tools, instruments, gauges, testing equipment, protective devices and safety equipment for adjustment, testing and demonstration.

C. During adjustment and testing, carefully record all settings and all test results, including expected test results, actual test results, and corrective actions taken. Records shall be submitted to the Architect's Consultant and included in the Operating & Maintenance Manuals.

D. Initial Set-up: Verify that wiring is correctly connected to each device. Adjust controls to function as specified under the description of system operation. Make initial settings of user-selectable options to set up lighting control configurations. Settings shall comply with direction received from the Architect's Consultant.

Verify sensor placement, aiming, calibration and settings to ensure trouble-free operation.

E. Prior to system testing, prepare a list of the devices to be tested, together with the associated location of each device. Include space to indicate test response for each device.

F. Field Testing: Test all system features for proper function. Tests to be performed shall include, but not be limited to, the following:

1. Verify the sequence of operation for each device.
2. Verify the setting and accuracy of each timing function in each device.
3. Verify that each manual override control functions properly.
4. Verify that occupancy sensors do not remain actuated due to normal conditions (e.g., air movement).
5. Verify that occupancy sensors are actuated by hand motion within the entire area of coverage.
6. Verify that occupancy sensors actuate when a person enters the area of coverage.
7. Measure the illumination level in daylight zones equipped with daylight harvesting controls.

G. Correct any deficiencies discovered as a result of the above testing, and completely retest the work affected by such corrections, with no additional compensation.

H. After the system has been completed, tested and is operating properly, demonstrate by actual usage, the proper operation of each system device and function in the presence of the Owner's Representative. Demonstration shall include repetition of selected field tests, as well as additional adjustment or testing required to demonstrate that the system performs in accordance with the operational description as specified herein and the Owner's operational requirements.

3.4 ON-SITE TRAINING

A. On-site training shall follow a written training plan, prepared in advance. The training plan shall outline the topics to be covered, the publications to be used, and the training schedule.

B. Conduct one (1) hour minimum of training for the Owner's maintenance personnel in the operation and maintenance of the lighting controls. Training time shall be extended as necessary to satisfy the Owner's Representative that all pertinent topics have been adequately covered.

C. The training shall be conducted after the Operating and Maintenance Manuals for the project are completed and available for use during the training session.

D. Maintain a training sign-in sheet, upon which participants in the training session, including the instructors, shall record their names. The training sign-in sheet shall be dated.

E. The training shall be conducted by technicians who are thoroughly familiar with the equipment and its features, and also with the Project. The training shall include instruction, field demonstration, and over-the-shoulder hands-on exercises. As a minimum, the training shall cover, but not be limited to, the following topics:

1. General overview of lighting controls, including purpose and principle of operation.
2. Location of lighting control components.
3. Interpretation of equipment output devices, such as indicators and status contacts.
4. Control adjustments and settings.
5. Operation of system controls, including over-ride switches.
6. Recommended maintenance procedures and intervals.

F. At the conclusion of the training session, obtain written sign-off from the Owner's Representative. Insert a copy of the sign-off form and the training sign-in sheet into the Operating and Maintenance Manuals. Submit another copy of the training sign-in sheet to the Architect.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specification sections, apply to work specified in this section.

B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY

A. Provide lighting and power branch-circuit panelboards as indicated on the Drawings.

B. Overcurrent devices shall be a molded-case circuit breakers.

1.3 SUBMITTALS

A. Product Data:

1. For each type of panelboard provided on the Project
2. For each type of overcurrent device provided on the Project.
3. Compression lugs

B. Shop Drawings:

1. For each panelboard provided on the Project
2. Include:

a. Arrangement of overcurrent devices
b. Overcurrent device ratings
c. Interrupting capacity
d. Bus ratings
e. Enclosure dimensions
f. Auxiliary section and skirt details
g. Raceway entries
h. Access requirements

PART 2 - PRODUCTS

2.1 MATERIALS

A. General Requirements:

1. Capacity and arrangements as indicated on the panelboard schedules

2. Metal-enclosed, wall-mounted structures
3. Busing and overcurrent devices
4. Manufacturer's nameplate
5. UL Label
6. Service entrance label when used of service entrance equipment

B. Short-circuit Ratings:

1. Minimum symmetrical, integrated interrupting ratings as indicated end of section

   a. Panelboards and overcurrent devices shall be fully rated for the indicated fault current without series rating
   b. Panelboards and overcurrent devices shall be UL tested and listed as necessary to obtain the interrupting rating indicated on the Drawings.

C. Cabinets:

1. Flush or surface mounted as indicated
2. Removable covers for access to wiring terminations
3. Nominal dimensions:

   a. 510-mm (20-inch) wide
   b. 146-mm (5.75-im) deep

4. Doors:

   a. Integral to covers
   b. Removable, hinged, for access to overcurrent device handles
   c. All doors keyed alike
   d. Door-in-door construction

5. Wiring gutters:

   a. Sufficient size to accommodate conductor connector and bending radius

      1) 102 mm (4 in) minimum on both sides

   b. Sized per Code for feeder conductors at top and bottom

6. Adjacent panelboards not installed in electrical, communications or mechanical spaces:

   a. Same height doors
   b. Same height cabinets

c. Surface-mounted panelboards:
d. With open wiring below busing and overcurrent devices:

1) One-piece cabinets shall extend from the floor to the top of the panelboard
2) Separate, screw-attached covers for access to cabinet below busing and overcurrent devices

e. Without open wiring below busing and overcurrent devices:

1) Three-sided, removable skirts shall extend from the bottom of panelboard to the floor
2) Barrier between panelboard cabinet and skirt

7. Painting:

a. Factory applied
b. Gray lacquer or powder coat over rust preventative primer.
c. Sides, bottom, and top of surface-mounted to match fronts of panelboards not installed in electrical, communications or mechanical equipment rooms

8. Auxiliary Sections:

a. Separate hinged, locking door below the circuit breaker section
b. Integral with the panelboard enclosure
c. Barrier between section containing overcurrent devices and auxiliary equpment

D. Busing:

1. Voltage, amperage and phase arrangement as shown on the Drawings and schedules
2. Tin plated aluminum, sized on the basis of not more than 116 A/mm² (750 amperes/ in²) current density
3. Mounted on high impact, non-tracking, insulating supports
4. Line and load connections accessible from front
5. Bolted connections made with Belleville washers
6. Neutral bus
7. Equipment ground bus in each section

E. Lugs:

1. Match conductor sizes indicated on Drawings.
2. Rated for 75°C (167°F) operation.
3. Compression lugs with insulating covers.

F. Overcurrent Devices:

1. Circuit breakers:

a. Ambient-compensated
b. Thermal-magnetic
c. Bolt-on
d. Molded-case
e. Inverse time delay protection:

1) Overload
2) Instantaneous short circuit.

f. One, two or three poles as indicated on the panelboard schedules
g. Multi-pole circuit breakers:

1) Integral trip mechanisms
2) Handle ties are not acceptable
3) Terminals rated for 75°C (167°F) operation

h. Short-circuit current rating as indicated for panelboard
i. Provide the following special application circuit breakers as indicated on the Drawings:

1) Arc fault
2) Ground fault

a) 5-mA for receptacles
b) 30-mA for heating cables

2. Labels:

a. HACR for air-conditioning and refrigeration equipment

3. Protection:

a. Mechanical handle locking devices for circuits serving:

1) Time switches
2) Control devices
3) Fire/smoke dampers.

G. Grounding:

1. Ground lug for feeder ground conductor.
2. Equipment ground bus.

2.2 MANUFACTURERS

A. Basis of design is Square D NQ & NF panelboards

1. Acceptable Manufacturers:

a. Siemens
b. Eaton
c. General Electric

It shall be the initiator's responsibility to ensure that the proposed substitution is equal in every respect to the originally specified product, including but not limited to finish, size, weight, clearances, durability, maintenance, ease of operation and performance criteria.

B. Compression lugs:

1. Basis for equivalency:

a. Burndy Hyplugs or Thomas & Betts Bi-Metal Pin Connectors

2. Acceptable manufacturers:

a. Burndy
b. Thomas & Betts
c. Hager

PART 3 - EXECUTION

3.1 PREPARATION

A. Prior to submitting shop drawings:

1. Review the space available for installation
2. Determine whether the equipment will be top-fed or bottom-fed

B. Prior to manufacturing equipment:

1. Review applicable recommendations of the protective device coordination study
2. Make adjustments to equipment to comply with the approved recommendations of the protective device study

3.2 INSTALLATION

A. Install panelboards in accordance with the manufacturer's instructions and, recommendations and precautions

B. Mounting:

1. At the locations indicated on the Drawings
2. Top 1930-mm (76-inches) above finished floor
3. Surface or flush as indicated on the Drawings
4. Rigidly attached to building surface
5. Provide code-required clearances
6. Repair damage to cabinet paint to match factory-applied paint coating
7. Provide panelboard identification in accordance with Section 26 05 53

C. Wiring:

1. Neatly arrange and support conductors in cabinets using nylon tie wraps
2. Tighten conductor lugs to manufacturer's recommended force using a calibrated torque wrench
3. Provide bonding connections within cabinets
4. Provide five (5) 21-mm (3/4-inch trade size) raceways from each flush-mounted panel up to an accessible point above the ceiling
5. Provide branch circuit identification win accordance with Section 26 05 53
6. Utilize hydraulically actuated dies, compressing full diameter of cable, to attached compression connectors

D. Compression lug installation:

1. Utilize hydraulic dies are recommended by the manufacturer
2. Compress entire circumference of conductors

E. Provide identification as specified in Section 26 05 53

END OF SECTION

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specification sections, apply to work specified in this section.

B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY

A. Provide wiring devices at all device outlet locations indicated on the Drawings.

B. Occupancy sensors with auxiliary contacts.

C. Color finish of devices and wall plates shall match devices and plates specified in Section 26 05 51.

1.3 SUBMITTALS

A. Product Data: For each type of wiring device provided on the Project.

B. Meeting Minutes: For pre-installation meeting.

C. Installation and Start-up Instructions: Manufacturer's installation and start-up instructions. Submit to the Architect.

D. Test Reports: Record of all field test data. Submit to the Architect.

E. Training Documentation: Sign-off form and attendee sign-in sheet for the training session. Submit to the Architect.

1.4 INFORMATION FOR OPERATING & MAINTENANCE MANUALS

A. Submittals: Information submitted for review, updated to record any changes.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Wiring Device Switches: Toggle–operated switches shall have high-strength thermoplastic or polycarbonate toggles. Except as otherwise indicated, switches shall be rated 20 Amperes, 120/277 VAC. 20 Ampere 120/277 VAC switches shall be specification grade, complying with Federal Specification WS-896, and shall be mounted on a single-gang strap.

1. Standard toggle-operated switches shall be as follows:

a.	Single-pole Switch	P&S #CSB20AC1
b.	Double-pole Switch	P&S #CSB20AC2
c.	Three-way Switch	P&S #CSB20AC3
d.	Four-way Switch	P&S #CSB20AC4
e.	Momentary Contact Switch	P&S #1251

2. Pilot-light toggle-operated switches shall have red pilot light, lit when switch is in "on" position, and shall be as follows:

a.	Single-pole Switch (120 VAC)	P&S #PS20AC1RPL
b.	Single-pole Switch (277 VAC)	P&S # PS20AC1RPL7

3. Stab-type key-operated switches shall be locking type, actuated by inserting the corresponding flat blade key (Hubbell #HBL1209) and toggling to the opposite position, and shall be as follows:

a.	Single-pole Switch	Hubbell #HBL1221L
b.	Double-pole Switch	Hubbell #HBL1222L
c.	Three-way Switch	Hubbell #HBL1223L
d.	Four-way Switch	Hubbell #HBL1224L
e.	Momentary Contact Switch	Hubbell #HBL1557L

4. Barrel-type key-operated switches shall be locking type, actuated by inserting the corresponding barrel-type key (Hubbell #HBL1209RKL) and rotating to the opposite position, and shall be as follows:

a.	Single-pole Switch	Hubbell #HBL1221RKL
b.	Double-pole Switch	Hubbell #HBL1222RKL
c.	Three-way Switch	Hubbell #HBL1223RKL
d.	Four-way Switch	Hubbell #HBL1224RKL

5. Panel-type key-operated switches shall be locking type, actuated by inserting the corresponding panel-type key (P&S #4609) and rotating to the opposite position, and shall be as follows:

a.	Single-pole Switch	P&S #PS20AC1KL
b.	Double-pole Switch	P&S #PS20AC2KL
c.	Three-way Switch	P&S #PS20AC3KL
d.	Four-way Switch	P&S #PS20AC4KL

6. High-capacity toggle-operated switches shall be suitable for controlling motors rated up to 1.50 kW (2 horsepower), and shall be as follows:

a.	Double-pole 30 Amp Switch	P&S #7802
b.	Three-pole 30 Amp Switch	P&S #7803

c. Double-pole 40 Amp Switch P&S #7842
d. Three-pole 40 Amp Switch P&S #7843

B. Fan Speed Control Switches: 2-speed switches for fan control shall be the same as three-way switches specified above, except the top position shall be labeled "HIGH SPEED" and the bottom position shall be labeled "LOW SPEED". Use in conjunction with spring-wound timer switches, which shall provide on-off control.

C. Occupancy sensor characteristics:

1. Passive Infrared (PIR)
2. Dual Technology (Ultrasonic and PIR)
3. Auxiliary contacts

D. Provide appropriate occupancy sensor detection technology for each space based on:

1. Space or room configuration, size, and intended use
2. Manufacturer's recommendations
3. Occupancy sensor operation:

a. Occupancy mode:

1) Automatic on, automatic off
2) Required in spaces without local manual controls

b. Occupancy sensor(s) to maintain luminaires "on" until unoccupied timeout

1) Timeout to be set for15 minutes.

E. Wiring Device Receptacles: Receptacles shall have grounding slots and shall have high-impact, thermoplastic faces. Except as otherwise indicated, receptacles shall be rated 20 Amperes at 125 VAC. 20 Ampere 125 VAC receptacles shall be specification grade construction series, complying with Federal Specification WC-596, and shall be mounted on a single-gang strap. GFCI-type receptacles shall include protective circuits complying with the 2003 edition of UL-943, which shall disconnect power to the receptacle face if the ground-fault interrupter is disabled due to component failure, and prevent reset if line and load terminals have been reverse wired.

1. Standard 125 VAC NEMA 5-20R duplex receptacles shall be as follows:

a. Duplex P&S #CRB5362
b. Isolated-Ground Duplex P&S #IG5362
c. Tamper-Resistant Duplex P&S #TR5362

d.	GFCI Duplex (5 mA)	P&S #2095
e.	Tamper-Resistant GFCI Duplex	P&S #2095TR
f.	Weather-Resistant GFCI Duplex	P&S #2095TRWR

F. Receptacles with weatherproof flip-lid or weatherproof while-in-use covers shall be weather-resistant ground fault interrupter (GFCI) type.

G. Additional Wiring Devices: As indicated on the Drawings.

H. Color of Wiring Devices:

1. Unless indicated otherwise, wiring device finish color shall be:

a. Gray.

2.2 ACCEPTABLE MANUFACTURERS

A. Acceptable manufacturers shall be as listed above, and as follows:

1. General Switches: Cooper, Hubbell, Leviton, Pass & Seymour.
2. Receptacles: Cooper, Hubbell, Leviton, Pass & Seymour.
3. Occupancy sensors: nLight/Sensor Switch, Cooper/Greengate, Hubbell, Wattstopper.

B. Substitutions may be considered only when submitted in conformance with Section 26 01 00.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prior to beginning rough-in or ordering equipment for the wiring devices, arrange a pre-installation meeting on the site between all parties involved in the wiring devices installation, including the Wiring Devices Installer, the Electrical Systems Installer and the Owner's Representative. All parties shall review the wiring devices shop drawings, the manufacturer's installation instructions, system interface requirements, applicable regulations and any site conditions pertinent to installation of the wiring devices.

B. Prepare minutes of the pre-installation meeting and distribute them to all parties in attendance at the meeting, and to the Owner's Representative and the Architect.

3.2 REQUIRED LOCATIONS

A. Provide wiring devices of the type indicated in the locations indicated on the Drawings.

3.3 DEVICE SELECTION

A. General: Wiring devices shall be suitable for the environment in which they are installed. Wiring devices shall carry the same ampere rating as the overcurrent protective devices for the branch circuits to which they are connected.

B. GFCI Receptacles: Receptacle test switches shall be readily accessible. Where receptacles are located behind equipment, provide an accessible, remote test station with integral GFCI protection and standard receptacle behind equipment.

C. Bathrooms: Provide 20-amp 125 VAC receptacles.

D. Locations within 1.8m (72 in) of a Lavatory or Sink: Provide 20-amp 125 VAC receptacles. Receptacles shall be GFCI type. Other devices shall be as indicated.

E. Other Interior Dry Locations: As indicated.

F. Exterior Damp or Wet Locations: Provide 20-amp 125 VAC receptacles. Receptacles shall be weather-resistant GFCI type. Other devices shall be as indicated.

3.4 INSTALLATION

A. Mount wiring devices securely to outlet boxes, seating the devices so that the device faces are flush with or protrude slightly beyond the device faceplates. Receptacles shall be solidly mounted so that the action of inserting plugs into the receptacles does not cause them to recede. Provide washers and/or device ring extensions as required to properly seat the devices.

B. Wiring devices shall be bonded to the grounding system as specified in Section 26 05 26.

C. Orient switches vertically so that when all toggles are in the down position, the controlled lighting or equipment is shut off, except as otherwise indicated.

D. Orient receptacles vertically so that ground pin is at bottom except as otherwise indicated.

E. Orient receptacles in interior damp or wet locations horizontally, to accommodate the weatherproof flip-lid covers specified in Section 26 05 51.

F. Orient exterior receptacles horizontally, to accommodate the weatherproof while-in-use covers specified in Section 26 05 51. Mount such devices approximately 610 mm (24 in) above finished grade, with the exact mounting height coordinated with the exterior building finish to provide a neat uniform appearance.

G. Provide a neutral conductor to each outlet box containing a switch or an occupancy/vacancy switch.

H. Provide device plates as specified in Section 26 05 51.

I. Receptacles connected on the load side of remote ground-fault circuit interrupters shall be labeled with a sticker that reads "GFCI Protected" and identified to indicate the location of the interrupter device. Identification shall comply with Section 26 05 53.

3.5 ADJUSTMENT, TESTING & DEMONSTRATION

A. Notify the Owner's Representative at least two (2) weeks in advance of the date of each test, to allow witnessing of the tests.

3.6 ON-SITE TESTING

A. Supply tools, instruments, gauges, testing equipment, protective devices and safety equipment for testing.

B. During testing, carefully record all test results, including which device is under test, the polarity test determination, the GFCI test result if applicable, and corrective actions taken. The test report shall include the manufacturer's name and model number of the testing instrument, and the date of the test. The test report shall be submitted to the Architect's Consultant and included in the Operating and Maintenance Manuals.

C. Test receptacles connections for proper polarity and connections. Test for proper operation of GFCI devices in receptacles or protecting receptacles.

D. Correct any deficiencies discovered as a result of the above testing, and completely retest the work affected by such corrections, with no additional compensation.

END OF SECTION **Error! No text of specified style in document.**

SECTION 26 27 39 – EQUIPMENT & MOTOR CONNECTIONS

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specification sections, apply to work specified in this section.

B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY

A. Provide power circuits and overcurrent protection for equipment and motors furnished by the Owner and for equipment and motors specified in Division 1 through Division 26 of the Specifications.

B. Provide power connections to equipment and motors furnished by the Owner and to equipment and motors specified in Division 1 through Division 26 of the Specifications.

C. Install starters and electrical control devices furnished with, but not integral to, equipment and motors furnished by the Owner. Install starters, speed control switches, disconnect switches, and electrical control devices furnished with equipment and motors specified in Division 1 through Division 11, and Divisions 22 and 23 of the Specifications.

D. Provide power and control connections to starters and electrical control devices furnished by the Owner.

E. Provide power and control connections to starters and electrical control devices furnished with equipment and motors specified in Division 1 through Division 11, and Divisions 22 and 23 of the Specifications.

1.3 WORK SPECIFIED ELSEWHERE:

A. Interconnecting wiring between elements of a single equipment item when such wiring is included in other portions of the Specification as part of the equipment installation.

1.4 SUBMITTALS

A. Product Data: None required.

B. Commissioning Notification: Written notification of the proposed date for performing commissioning activities. Submit to the Commissioning Authority, with a copy to the Architect.

C. Test Reports: Record of equipment and motor connection test results. Submit to the Commissioning Authority, with a copy to the Architect.

1.5 INFORMATION FOR OPERATING & MAINTENANCE MANUALS

A. Submittals: None required.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Materials shall be as specified in applicable sections of the Specifications.

PART 3 - EXECUTION

3.1 PREPARATION

A. Review shop drawings and submittals of all equipment prior to installing raceway and boxes for equipment connections. Coordinate outlet and disconnect locations with shop drawings, submittals and manufacturer's recommendations. Where no shop drawings are available for Owner-furnished equipment, other than equipment that requires only a 20 Amp 120 VAC receptacle connection, bring the lack of information to the attention of the Owner's Representative for resolution.

B. Insure that overcurrent devices and ratings match the maximum overcurrent protection (MOCP) listed for the equipment. Insure that branch circuit conductor ratings match the minimum circuit ampacity (MCA) listed for the equipment.

3.2 GENERAL

A. Equipment and motor connections shall be made in accordance with the equipment manufacturer's recommendations.

B. Provide disconnect switches in accordance with Section 26 28 16 for each motor and for each piece of electrically-operated equipment which does not contain an integral disconnect switch. Disconnect switches are not required for equipment with factory-installed cords and plugs.

C. Flexible metal conduit shall be used for connections to equipment and motors installed in dry locations. Liquidtight flexible metal conduit shall be utilized for connections to equipment and motors installed outdoors and to equipment installed in damp or wet locations.

D. Flexible conduit connections shall contain one 90° bend and shall not exceed 900 mm (36 in) in length.

E. Galvanized steel rigid metallic conduit (RMC) with explosion-proof seals shall be used for connections to equipment and motors installed in Class 1 and Class 2 hazardous locations as defined by the NEC.

F. Grounding and bonding shall comply to Section 26 05 26.

G. Terminate raceways at factory-installed junction boxes or terminal cabinets.

H. Terminate conductors on factory-installed wiring terminals.

I. Provide all required relays, wiring, and miscellaneous equipment for fire alarm fan shutdown and other indicated control and monitoring functions.

3.3 CORD-AND-PLUG CONNECTED EQUIPMENT

A. Provide grounding-type receptacles to match the plugs of equipment furnished with factory-installed cord and plugs.

B. Provide a new cord and a new plug on cord and plug-connected equipment which does not have a code-compliant equipment grounding conductor or grounding-type plug.

C. Coordinate the configuration and location of receptacles with the equipment and cord lengths provided prior to installing outlet boxes. Insure that code-required clearances are maintained.

3.4 MOTOR CONNECTIONS

A. Make line voltage connections to each motor. Make line voltage connections to “line” and “load” sides of motor starters.

B. Check motors for proper lubrication and overload protection before energizing.

C. Check motor starters for properly sized overload protections before energizing.

D. Check the rotational direction of motors and make phase corrections required for proper rotation.

E. Coils of interconnecting relays shall match control circuit voltage. Contacts of interconnecting relays shall match the amperage and voltage of the controlled devices.

3.5 TESTING

A. Notify the Commissioning Authority the Owner's Representative at least two (2) weeks in advance of the date of each test, to allow witnessing of the tests.

B. Supply tools, instruments, gauges, testing equipment, protective devices and safety equipment for testing.

C. During testing, carefully record all test results, including which device is under test, the rotational direction, the control sequence determination, and corrective actions taken. The test report shall include the date of the test. The test report shall be submitted to the Architect's Consultant and included in the Operating and Maintenance Manuals.

D. Test the rotational direction of motors after final connections have been made. Verify that control sequences produce the proper operations.

E. Correct any deficiencies discovered as a result of the above testing, and completely retest the work affected by such corrections, with no additional compensation.

END OF SECTION 26 27 39

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specification sections, apply to work specified in this section.

B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY:

A. Provide fuses for all fusible equipment rated 600 VAC or less, and provide spare fuses as indicated.

1.3 SUBMITTALS

A. Product Data: For each type of fuse rated 600 VAC or less provided on the Project.

1.4 INFORMATION FOR OPERATING & MAINTENANCE MANUALS

A. Submittals: Information submitted for review, up-dated to record any changes.

B. Maintenance Instructions: Fuse replacement recommendations. Explain fuse selection criteria. List replacement parts, including source.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Fuses shall be rated for the voltage where they are applied. In order to maintain coordination and selectivity between upstream and downstream fuses within the electrical distribution system, fuses shall be of the same manufacture.

B. Class L Fuses: 601 to 6000 Ampere time-delay fuses with interrupting capacity rating of 200,000 Amperes (RMS symmetrical) minimum. Class L fuses shall allow selective coordination when applied in a ratio of 2:1 between upstream and downstream fuse ratings, including Class J, Class RK1 and other Class L fuses. Class L fuses shall be equivalent to Bussman KRP-C-SP series or Littelfuse KLPC series.

C. Class J Fuses: 1 to 600 Ampere dual-element time-delay fuses with interrupting capacity rating of 200,000 Amperes (RMS symmetrical) minimum. Class J fuses shall allow selective coordination when applied in a ratio of 2:1 between upstream and downstream fuse ratings, including Class L, Class RK1 and other Class J

fuses. Include indicating feature which clearly indicates when the fuse has opened (blown). Class J fuses shall be equivalent to Bussman LPJ-SPI series or Littelfuse JTD-ID series.

D. Class RK1 Fuses: 0.1 to 600 Ampere dual-element time-delay rejection-type fuses with interrupting capacity rating of 200,000 Amperes (RMS symmetrical) minimum. Class RK1 fuses shall allow selective coordination when applied in a ratio of 2:1 between upstream and downstream fuse ratings, including Class L, Class J and other Class RK1 fuses. Include indicating feature which clearly indicates when the fuse has opened (blown), where available. 250 VAC Class RK1 fuses shall be equivalent to Bussman LPN-RK-SPI series or Littelfuse LLNRK series. 600 VAC Class RK1 fuses shall be equivalent to Bussman LPS-RK-SPI series or Littelfuse LLSRK-ID series.

E. Class RK5 Fuses: 0.1 to 600 Ampere dual-element time-delay rejection-type fuses with interrupting capacity rating of 200,000 Amperes (RMS symmetrical) minimum. Fuses shall have 10 seconds time delay at 500% rated current. Include indicating feature which clearly indicates when the fuse has opened (blown), where available. 250 VAC Class RK5 fuses shall be equivalent to Bussman FRN-R-SPI series or Littelfuse FLNR/FLNR-ID series. 600 VAC Class RK5 fuses shall be equivalent to Bussman FRS-R-SPI series or Littelfuse FLSR-ID series.

F. Class CC Fuses: 0.5 to 30 Ampere time-delay rejection-type cartridge fuses with interrupting capacity rating of 200,000 Amperes (RMS symmetrical) minimum. Class CC fuses shall have 10 seconds time delay at 200% rated current, and shall allow selective coordination when applied in a ratio of 2:1 with upstream Class J and Class RK1 fuses. Class CC fuses shall be equivalent to Bussman LP-CC series or Littelfuse CCMR series.

G. Finger-safe Cube Fuses: 1 to 60 Ampere time-delay fuses with interrupting capacity rating of 200,000 Amperes (RMS symmetrical) minimum. Finger-safe cube fuses shall comply with Class J electrical performance requirements, and shall allow selective coordination when applied in a ratio of 2:1 with upstream Class J and Class RK1 fuses. Finger-safe cube fuses shall have 2-prong plug-in design that meets requirements of IEC 60529 for IP-20 finger-safe rating. Include indicating feature which clearly indicates when the fuse has opened (blown). Finger-safe cube fuses shall be equivalent to Bussman TCF series.

H. Supplementary Midget Fuses: 0.1 to 30 Ampere fast-acting cartridge fuses with interrupting capacity rating of 100,000 Amperes (RMS symmetrical) minimum. Supplementary midget fuses shall comply with electrical performance requirements of UL Guide JDYX. Supplementary midget fuses shall be equivalent to Bussman KTK series or Littelfuse KLK series.

I. Supplementary Glass-tube Fuses: 3/16 to 15 Ampere fast-acting in-line glass-tube fuses with interrupting capacity rating of 10,000 Amperes (RMS

symmetrical) minimum. Supplementary glass-tube fuses shall comply with electrical performance requirements of UL Guide JDYX. Supplementary glass-tube fuses shall be equivalent to Bussman GLR series or Littelfuse LGR series.

J. Screw-in Plug Fuses: 1/4 to 30 Ampere time-delay socket-type screw-in plug fuses with interrupting capacity rating of 10,000 Amperes (RMS symmetrical) minimum. Screw-in plug fuses shall comply with electrical performance requirements of UL Guide JFHR (1/4 Ampere to 6¼ Ampere) or UL Guide JEFV (7 to 30 Ampere). Screw-in plug fuses shall be equivalent to Bussman S series or Littelfuse SOO series.

K. Other Fuses: Fuses for internal circuits within specific pieces of equipment shall comply with recommendations of the equipment manufacturer.

2.2 SPARE PARTS

A. Furnish 10%, but not less than (3) spare fuses of each different type and size used on the Project.

2.3 ACCEPTABLE MANUFACTURERS

A. Acceptable manufacturers shall be: Bussmann, Littlefuse, or Mersen-Ferraz/Shawmut.

B. Substitutions may be considered only when submitted in conformance with Section 26 01 00.

PART 3 - EXECUTION

3.1 REQUIRED LOCATIONS

A. Provide fuses in all fusible equipment.

3.2 FUSE SELECTION

A. General: Each fuse shall be of a suitable size and type to protect for the connected load. Ampere ratings shall be as indicated on the drawings, or selected in accordance with the maximum over-current protection rating of the load. Where selective coordination is indicated, maintain a ratio between the ratings of line-side and load-side fuses that is sufficient to achieve time-current selectivity. Where the withstand rating of protected equipment depends on the type of line-side fuse, provide fuses that satisfy the requirements for obtaining the indicated withstand rating.

B. Switchboard and distribution panelboard mains, feeders and general-purpose branch circuits: Select Class L fuses for circuits rated over 600 Amperes and Class J fuses for circuits rated 600 Amperes or less.

C. Switchboard and distribution panelboard transformer primary feeders: Select Class L fuses for circuits rated over 600 Amperes and Class J fuses for circuits rated 600 Amperes or less, except where transformer primary fuses are indicated to have a rating less than 150% of the full-load current of the transformer primary, in which case select Class RK5 fuses for circuits rated 600 Amperes or less.

D. Switchboard and distribution panelboard motor branch circuits: Select Class L fuses for circuits rated over 600 Amperes and Class J fuses for circuits rated 600 Amperes or less.

E. Coordination panelboard branch circuits: Select finger-safe cube fuses or Class CC fuses.

F. Motor type loads: Select dual element time delay Class RK5 fuses. Fuses shall be sized between 125-150% of nameplate full load amps (FLA) and as recommended by the fuse manufacturer for the load profile associated with the motor (i.e. heavy starting or light duty). Contractor to verify actual nameplate data and size fuses accordingly. Fuses listed on drawing schedules are approximate sizes.

G. Fusible toggle-type disconnect switches: Select screw-in plug fuses.

H. Control power transformers: Select Class CC fuses for transformer primary and supplementary midget fuses for transformer secondary.

I. Exterior luminaires: Select supplementary midget fuses.

J. Interior lighting ballasts: Select supplementary glass-tube fuses.

K. Other locations: Select fuses in accordance with recommendations of equipment manufacturer.

3.3 INSTALLATION

A. Keep fuses in manufacturer's original packaging, stored in a clean, dry, protected environment until ready for installation.

B. Provide fuse clips and adaptors as required to match fuse type to fuseholder.

C. Do not install fuses in equipment prior to the equipment being installed at its final location. Fuses shall not be installed in equipment prior to shipment.

D. Install fuses in fuseholders with fuse rating visible.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specification sections, apply to work specified in this section.

B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY

A. Provide equipment circuit disconnect switches at:

1. Locations indicated on the Drawings
2. At locations required by the NEC
3. As specified herein

B. Disconnect switches are not required for cord and plug-connected equipment.

C. Where both disconnect switches and across-the-line motor controllers are required, provide combination controllers and disconnect switches as specified in Section 26 29 13.

1.3 SUBMITTALS

A. Product Data: For each type and size of disconnect switch provided on the Project.

PART 2 - PRODUCTS

MATERIALS

A. Safety Switches:

1. NEMA Heavy-duty rated
2. Fusible unless specifically noted otherwise on the Drawings

    a. Class R rejection fuse holders
    b. Fuses as specified in Section 26 28 13

3. 30-ampere minimum current rating
4. Voltage rating equal to or greater than nominal circuit voltage
5. Quantity of poles to match circuit
6. Neutral bus for circuits containing neutral conductors
7. Equipment ground bus

8. One (1) set of form-C auxiliary contacts for switches serving loads controlled by variable frequency drives
9. Externally operable
10. Quick-make, quick-break electrical contacts
11. Handles which shall clearly indicate the “on” and “off” positions
12. Provisions for padlocking in the “off” position.
13. Mounted in code gauge steel enclosures
14. Enclosures:

    a. NEMA 1 for indoors
    b. NEMA 3R for wet and damp location

15. Interlocks to prevent:

    a. Opening cover with switch in the “on” position
    b. Placing switch in the “on” position with cover open

B. Manual Starters:

1. Manual, toggle-type
2. 120-VAC
3. 1/2-horsepower

Built-in overload protection

2.2 MANUFACTURERS

A. Manufacturers:

1. Eaton
2. General Electric
3. Siemens
4. Square D
5. Bussmann

B. Manual motor starters equivalent to General Electric CR101

C. Substitutions may be considered only when submitted in conformance with Section 26 01 00.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prior to releasing equipment for manufacturing take into account pertinent recommendations of the protective device coordination study, in accordance with Section 26 05 73.

B. Pre-installation Meeting

1. Prior to beginning installation of enclosed disconnect switches, arrange a pre-installation meeting on the site between:

   a. The Mechanical Systems Installer
   b. The Architectural Equipment Installer
   c. The Electrical Systems Installer.

2. Confirm which equipment requires external disconnect switches.
3. Prepare minutes of the meeting and distribute to:

   a. All parties in attendance
   b. Owner's Representative
   c. Architect

3.2 SWITCH SELECTION

A. Safety Switches:

1. Provide safety switch for each two-pole and three-pole motor circuit
2. Provide safety switch for each two-pole and three-pole equipment circuit

B. Manual Starters:

1. Provide manual starter for each 120-VAC motor circuit
2. Provide manual starter for each 120-VAC equipment circuit

C. Elevator Disconnect Switches:

1. Provide elevator disconnect switch for each elevator machine feeder

3.3 FUSE SELECTION

A. If recommended overcurrent values are indicated on equipment nameplate, provide fuse rating to match nameplate

B. If no recommended overcurrent values are indicated on equipment nameplate, provide fuse rating as indicated on Drawings.

3.4 INSTALLATION

A. Conform to the manufacturer's instructions, recommendations and precautions.

B. Install safety switches at the motor controller locations

1. Switches shall disconnect both motor and controller

C. If a motor is not adjacent to its controller, provide a second, non-fusible safety switch at the motor location.

D. Provide adequate working space is available around equipment, in conformance to code requirements and the manufacturer's recommendations

E. Rigidly attach safety switches and manual starters to the building element on which they are mounted in accordance with Section 26 05 29.

F. Provide identification as specified in Section 26 05 53.

3.5 INTERLOCKING

A. Provide interlock circuit between equipment safety switch and associated variable frequency drives.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specification sections, apply to work specified in this section.

B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY

A. Provide across-the-line motor controllers for motors connected to circuits originating at 2-pole and 3-pole overcurrent protective devices.

1. Controllers are not required for motors connected to controllers in motor control centers.

B. Controllers shall be combination type unless otherwise individual controllers are indicated on the Drawings.

C. Provide motor overload protection to match motor current.

D. Install motor controllers furnished with equipment specified in other Sections of the Specifications and the associated Drawings.

E. Make line and load power connections to across-the-line starters

F. Make control circuit connections to across-the-line starters where indicated on the Drawings

1.3 SUBMITTALS

A. Product Data Required:

1. Each controller type
2. Each controller size

B. Shop Drawings Required:

1. Wiring diagrams for each controller type

C. Meeting Minutes

1. Pre-installation meeting.

1.4 SPECIFIC INFORMATION FOR OPERATING AND MAINTENANCE MANUALS

A. Wiring diagrams to match installed conditions

PART 2 - PRODUCTS

2.1 ACROSS-THE-LINE MOTOR CONTROLLERS

A. Enclosures

1. Steel with factory finish
2. Hinged door
3. NEMA 1 for indoors
4. NEMA 3R for wet and damp location
5. Control switches and indicating lights on the enclosure cover visible with door closed
6. Interlocks to prevent:

a. Opening cover with switch in the “on” position
b. Placing switch in the “on” position with cover open

B. Controllers

1. Magnetic contactors
2. Horsepower rated to accommodate nominal motor rating
3. Replaceable, solid-state, adjustable overload protection
4. NEMA 0 minimum size
5. NEMA 2 and smaller

a. Full-voltage, non-reversing
b. Across-the-line

6. NEMA 3 size and larger:

a. Reduced voltage
b. Auto-transformer
c. Closed transition with adjustable time delay

7. Short-circuit rating greater than available short-circuit at point of connection
8. 10-second or 20-second selectable trip delay
9. Ground fault protection

2.2 DISCONNECTS

A. Fusible switches

1. As specified in Section 26 28 16
2. Class R fuses

Motor circuit protectors

3. Molded case
4. Trip-free, trip-indicating
5. Magnetic-only instantaneous trip

2.3 ACCESSORIES

A. Hand-Off-Automatic switch on outside of enclosure door

B. Red and green indicating lights

C. Solid-state overload relay with manual reset

D. Control circuit transformer with fused secondary

1. Transformer secondary voltage to match control circuit
2. Fuses as specified in Section 26 28 13

E. Auxiliary Contacts:

1. Two (2) sets of normally-open spare contacts
2. Two (2) sets of normally-closed spare contacts
3. Addition contacts required for interlocking as indicated on the Drawings

F. Phase failure relays:

1. Shut down motors on the reduction in voltage of one or more phases
2. Adjustable from 70% to 95% drop-out

2.4 CONFIGURATION

A. Individual controllers

1. Without disconnect switches only where specifically indicated on the Drawings

B. Combination controllers

1. With fusible disconnect switches unless individual controllers are specifically indicated
2. Common enclosure for controller and disconnect

2.5 SPARE PARTS

A. Furnish to the Owner:

1. One (1) spare starter coil for each starter size
2. Two (2) spare indicator lamps

2.6 MANUFACTURERS

A. Controllers equivalent to Square D

1. Class 8536 for individual controllers
2. Class 8538 for combination controllers with fusible disconnect switches

B. Overload projection equivalent to Square D Class 9065

C. Acceptable Manufacturers:

1. Eaton
2. General Electric
3. Siemens

D. Substitutions may be considered only when submitted in conformance with Section 26 01 00.

PART 3 - EXECUTION

3.1 PREPARATION

A. Pre-installation Meeting

1. Prior to beginning installation of across-the-line motor controllers, arrange a pre-installation meeting on the site between:

a. The Mechanical Systems Installer
b. The Architectural Equipment Installer
c. The Electrical Systems Installer.

2. Confirm which equipment requires external controllers
3. Confirm which equipment will be furnished with controllers that must be separately installed
4. Prepare minutes of the meeting and distribute to:

a. All parties in attendance
b. Owner's Representative
c. Architect

3.2 INSTALLATION

A. Installation shall conform to the manufacturer's instructions, recommendations and precautions.

B. If paint is damaged during shipping or installation, the damaged portion shall be sanded smooth and entire motor controller enclosure shall be repainted in accordance with Section 26 05 10.

C. Provide a nameplate as described in Section 26 05 53 for each motor controller

D. Location

1. Installcontrollers at locations indicated on the Drawings
2. If location is not indicated on the Drawings, mount adjacent to the equipment to be controlled
3. Maintain code-required clearances
4. Where possible, mount controllers no more than 1372 mm (54 in) above the floor
5. Rigidly attached to the building element on which they are mounted in accordance with Section 26 05 29.

E. Grounding

1. Provide bonding connections in accordance with Section 260526
2. Ground the unfused leg of each control power transformer

3.3 MOTOR CONTROL

A. Each motor controller shall be remotely controlled as indicated in the Specifications and on the Drawings.

B. Control wiring indicated on the Electrical Drawings

1. Provide control circuits capable of starting and stopping motors
2. Where indicated, provide interlocking control circuits between multiple controllers to enable simultaneous operation
3. Provide interposing relays where necessary to interface control device with motor controller
4. Where indicated, provide control circuits between fire alarm devices and motor controllers to enable the fire alarm system to automatically shut down motors
5. Conductors as specified in Section 26 05 19
6. Raceways as specified in Section 26 05 33

C. Control wiring not indicated on the Electrical Drawings

1. Refer to the appropriate Specification section for control circuit requirements
2. Provide interface terminals for remote control circuits

3.4 FUSES

A. If recommended overcurrent values are indicated on equipment nameplate, provide fuse rating to match nameplate

B. If no recommended overcurrent values are indicated on equipment nameplate, provide fuse rating as indicated on Drawings

C. Install such that fuse sizes are visible

3.5 ADJUSTMENT, TESTING & DEMONSTRATION

A. Supply tools, instruments, gauges, testing equipment, protective devices and safety equipment for adjustment, testing and demonstration.

B. Initial Set-up:

1. Verify wiring is correctly connected
2. Make initial settings of user-selectable options to conform to power system study and motor control sequences
3. Verify that fuses and overload heating elements have been properly selected for protection of the motors controlled

C. Field Testing:

1. Test each motor controller for proper operation of all control devices
2. Measure phase rotation for each motor controlled by an individual starter and correct rotation if necessary
3. Assist Equipment Suppliers with the start-up and testing of the equipment
4. Correct all deficiencies discovered as a result of field testing

D. Adjustment:

1. For initial operation set overload protection to match motor nameplate
2. After balancing is complete, measure motor current and readjust motor overload protection to match running current

E. Demonstration:

1. After each starter has been installed, tested and is operating properly, demonstrate by actual usage, the proper operation of each controller.

END OF SECTION **Error! No text of specified style in document.**

SECTION 26 51 00 – INTERIOR LIGHTING

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of this Contract, including General and Supplementary Conditions and Division 1 specifications, apply to work specified in this section.

B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY

A. Provide luminaires, including emergency lighting and exit signs, at all interior locations indicated on the Drawings.

B. Adjust and aim luminaires and verify proper operation.

1.3 DESCRIPTION

A. Luminaires shall be complete with trim, mounting hardware, ballasts and lamps, and shall be suitable for the location in which they are installed.

B. Provide all materials required to entirely complete each luminaire ready for use, in accordance with the conditions and requirements of the building construction.

1.4 WARRANTY

A. In addition to the warranty specified in the General Conditions, each manufacturer of electronic lighting ballasts, or exit signs with battery-backup, shall warranty the electronic ballasts and rechargeable battery components to be free from defects in materials and workmanship. This additional warranty shall extend for a period of at least five (5) years from the date of manufacture or purchase. For items covered by such warranty, the effective date shall in no case be more than two (2) years prior to the final date of Substantial Completion for the Project. The warranty shall cover the full cost of all repairing the components or furnishing replacements in kind. The warranty shall not be pro-rated and there shall be no deductible amount. Include warranty certificate in the Operating and Maintenance Manuals.

1.5 SUBMITTALS

A. Product Data: For each type of luminaire, ballast and lamp provided for interior lighting on the Project. Include physical description, materials and finishes,

dimensions, weights, accessories, photometry data and efficiency data, as applicable.

B. Shop Drawings: Wiring diagrams for "master/slave" tandem wired luminaires. Outline drawings and fabrication details for each custom-fabricated luminaire type provided on the Project, indicating dimensions, weights, methods of field assembly, components, features, and accessories.

C. Meeting Minutes: For pre-installation meeting.

D. Installation and Start-up Instructions: Manufacturer's installation and start-up instructions. Submit to the Architect.

E. Test Reports: Record of all field test data. Submit to the Architect.

F. Training Documentation: Sign-off form and attendee sign-in sheet for the training session. Submit to the Architect.

G. Calculations: Point-by-point calculations for site lighting including all exterior luminaires where product does not match specified item.

1.6 INFORMATION FOR OPERATING & MAINTENANCE MANUALS

A. Submittals: Information submitted for review, up-dated to record any changes.

B. Maintenance Instructions: List replacement parts, including source. Indicate recommended and required maintenance and testing procedures and intervals. List all individual lighting components that require periodic maintenance. Identify features, accessory attachments, safety precautions, and procedures for cleaning, lamp replacement and adjustment. Include manufacturer's installation instructions. Detail trouble-shooting procedures, including step-by-step instructions for typical trouble symptoms. Detail waste disposal procedures, including recycling options, for compliance with government regulations covering the disposal of batteries, and lamps containing mercury.

C. Warranty: Electronic ballast and rechargeable battery component manufacturers' warranty certificates.

PART 2 - PRODUCTS

2.1 LUMINAIRES

A. See schedule on Drawings for listing of required luminaires. Luminaires shall be complete with trim and mounting hardware.

B. All luminaires shall bear the UL label associated with the type, location, ambient temperature and usage of the individual luminaire.

C. Ballasts shall be completely enclosed in wiring channels arranged to permit easy access. Ballast replacement shall not require removing the luminaire from its mounting.

D. Lamps shall be replaceable without disassembling the luminaire or removing other lamps. Lamp replacement shall not require the use of special tools.

E. Luminaires shall have finishes applied after fabrication; luminaires manufactured with pre-painted metal are not acceptable.

F. Luminaires equipped with doors shall be free of light leakage around the doors under normal operating conditions. Doors shall be designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in the normal operating position. Doors shall utilize spring-loaded latches on troffers and on other luminaires that are available with such an option.

G. Plastic lenses shall be UV-stabilized virgin acrylic unless otherwise indicated. Flat plastic lenses shall be KSH-12 or equal and a minimum of 3.18 mm (0.125 in) thick. Prisms shall be square cut at 45°; round cut is not acceptable.

H. Alzak finished louvers and reflectors shall be low iridescent type when tri-phosphor lamps are provided.

I. Open luminaires, louvered luminaires, and other luminaires with exposed reflective surfaces that are part of the luminaries' means of light control, shall be shipped with dust covers. Covers shall be removed after final construction zone vacuuming has been completed.

J. Luminaires installed recessed in the building thermal envelope shall be sealed to limit air leakage between conditioned and unconditioned spaces. Recessed luminaires shall be IC-rated and sealed with a gasket or caulk between the housing and the building finish.

K. Exit signs shall be internally-illuminated. Illumination of lettering on each sign shall be diffuse, with a minimum luminance of 8.6 candela/m² (2.5 foot-lambert).

L. Wire Guards: Where luminaires are indicated to be protected by wire guards, provide removable wire guards that are standard products of the luminaire manufacturer and that fit the luminaires to be protected. Wire guards for exit signs and other wall-mounted luminaires shall secure to the wall, and shall not be attached to the luminaire itself. Provide wire guards for all luminaires in gymnasium and auxillary gymnasiums and similar spaces regardless if denoted on plans or not.

2.2 BALLASTS

A. Light-Emitting Diode (LED) Drivers:

1. Matched to lamp assembly and luminaire, with provisions to dissipate heat. Include surge suppression device.
2. Minimum power factor of 90%.

2.3 LAMPS

A. All luminaires shall be complete with lamps. Where applicable, lamps shall be of one of the types specified herein. All other lamps shall be as required by equipment in which they are installed or as indicated on the Drawings.

B. Light-Emitting Diode (LED):

White LED Lamp Assemblies: LED lamp assemblies used in general lighting applications shall utilize phosphor technology LED lamps. Color temperature shall be as noted on plans. LED lamp assembly shall be rated 50,000 hour life minimum, as determined per IESNA Certification Standard LM-80. LED lamp assembly shall be driven at nominal 300 mA, and performance shall be tested together with LED driver as a complete system, including the luminaire in which it is to be installed, per IESNA Certification Standard LM-79.

1. Colored LED Lamp Assemblies: LED lamp assemblies used in exits signs and night lights shall be the indicated color. LED lamp assembly shall be rated for 100,000 hour life minimum.

2.4 ACCEPTABLE MANUFACTURERS

A. Manufacturers of luminaires and poles shall be as indicated on the luminaire schedule.

B. Manufacturers of ballasts and lamps shall be as follows:

1. LED drivers – Same manufacturer as LED lamp assembly or luminaire.
2. White LED lamps – Cree, Nichia, Philips or Samsung.
3. Ballast disconnect plugs – Ideal “Power-Plug” Series.

C. Substitutions may be considered only when submitted in conformance with Section 26 01 00.

2.5 SPARE MATERIALS

A. Furnish spare materials in the following quantities:

1. Lenses: 10% of each different type.

B. Percent quantities shall be calculated by rounding up to the next whole number.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prior to beginning rough-in or ordering equipment for the interior lighting, arrange a pre-installation meeting on the site between all parties involved in the interior lighting installation, including the Interior Lighting Installer, the Electrical Systems Installer, the Commissioning Agent and the Owner's Representative. All parties shall review the interior lighting shop drawings, the manufacturer's installation instructions, system interface requirements, applicable regulations and any site conditions pertinent to installation of the interior lighting.

B. Prepare minutes of the pre-installation meeting and distribute them to all parties in attendance at the meeting, and to the Owner's Representative ant the Architect.

3.2 CALCULATIONS

A. Lighting calculations shall be prepared using a computer program employing IESNA recognized algorithms. Exterior calculations shall be based on a 1.5 m by 1524 mm (60 in by 60) in grid. Interior calculations shall be based on a 610 mm by 610 mm (24 in by 24 in) grid. Interior calculations shall be prepared using reflectance values and maintenance factors provided by the Architect's Consultant. Calculations shall be based on the exact geometry of the lighted space. Calculated points shall be superimposed on scaled plans. Discrete values and contours shall be indicated.

3.3 INSTALLATION

A. Install luminaires in accordance with the manufacturer's recommendations and installation details.

B. Provide backboxes matched to luminaires. Where luminaires are suspended from ceiling grids, provide special interface outlet boxes designed to mount on grid members and facilitate power cable interface at the suspension point canopy, such that the power cable neither lies exposed above the ceiling nor runs in raceway. In other locations, where luminaire manufacturer's installation instructions indicate use of standard outlet boxes, boxes shall be in accordance with Section 26 05 31. Back boxes shall be plumb and perfectly aligned.

C. Mount interior luminaires at locations indicated on the drawings. Support luminaires in accordance with Section 26 05 29, in the following manner:

1. Mount suspended stem supported luminaires on swivel hangers which are a standard catalog item of the same manufacture as the luminaire. Support from fixture stud, or as otherwise recommended by the manufacturer. For

linear luminaires, provide one more hanger than the number of luminaires in the row. Coordinate degree of swivel with the ceiling slope. Other suspension methods may be considered in mechanical type rooms where approved by Architect's Consultant.

2. Mount suspended aircraft cable supported luminaires on canopies which are a standard catalog item of the same manufacture as the luminaire. Support from ceiling grid where applicable, or as otherwise recommended by the manufacturer. For linear luminaires, provide one more hanger than the number of luminaires in the row.
3. Mount suspended chain supported luminaires on hangers which are a catalog item of the same manufacture as the luminaire. Support from building structure as recommended by the manufacturer. For linear luminaires, provide one more hanger than the number of luminaires in the row.
4. Mount surface and wall luminaires square with the room. Support from fixture stud or as otherwise recommended by the manufacturer. Attach surface luminaires at two (2) support points, minimum. Provide 38mm (1½ in) metal spacers for luminaires which occur on combustible ceilings. Submit spacer for approval.
5. Install recessed luminaries in suspended acoustical ceiling systems in accordance with the provisions of ASTM C636. Verify all ceiling types and ceiling thicknesses to ensure that recessed luminaires can be properly installed. Provide plaster frame mounting kits where recessed luminaires are to be installed in hard ceilings.

D. Mount new luminaires which are located in the immediate vicinity of existing luminaires by the same methods as the existing luminaires. Match mounting heights.

E. Verify all measurements. Luminaires must fit in place in a regular, trim and workmanlike manner, to the satisfaction of the Architect's Consultant. Verify the type of ceiling system in every room or space to ensure that the luminaires are compatible before releasing orders for luminaires. Incorrectly ordered luminaires shall be replaced, with no additional compensation.

F. Verify luminaire locations with the Architectural reflected ceiling plans and interior wall elevations, when such plans and elevations are included in the Contract Documents.

G. All recessed luminaires installed in accessible ceilings shall be connected by means of a flexible raceway or fixture whip which is attached to a 100 mm (4 in) square junction box. Box may serve more than one luminaire.

H. Provide bonding connections in accordance with Section 26 05 26 and manufacturer's installation instructions.

I. After installation, all visible labels shall be removed from luminaires.

J. Immediately prior to occupancy, clean reflectors, aperture plates, lenses, louvers, luminaire housings and decorative elements. To prevent static buildup on lenses and reflectors, clean with a manufacturer's recommended water-diluted solution of glass cleaner and allow to air-dry after installation.

K. Broken or defective parts shall be replaced, with no additional compensation.

3.4 ADJUSTMENT & TESTING

A. Notify the Architect's Consultant and the Owner's Representative at least two (2) weeks in advance of the date of each test, to allow witnessing of the tests.

B. Supply tools, instruments, gauges, testing equipment, protective devices and safety equipment for adjustment and testing, and demonstration.

C. During adjustment and testing, carefully record all settings and all test results, including expected test results, actual test results, and corrective actions taken. Records shall be submitted to the Architect's Consultant and included in the Operating & Maintenance Manuals.

D. Upon completion of the installation, aim all adjustable luminaires as directed by the Architect's Consultant. After adjustments are complete, measure the illumination levels at selected points to demonstrate proper distribution and coverage Verify with the Architect's Consultant the points where illumination levels are to be measured.

E. Correct any deficiencies discovered as a result of the above testing, and completely retest the work affected by such corrections, with no additional compensation.

3.5 ON-SITE TRAINING

A. On-site training shall be coordinated with the Commissioning Authority in accordance with Section 26 08 00. At least two (2) months prior to the anticipated training session, submit a draft of the training plan and the proposed participants to the Commissioning Authority for review and comment. Two (2) weeks prior to the scheduled training, submit to the Commissioning Authority a revised written training plan incorporating the Commissioning Authority's comments.

B. On-site training shall follow a written training plan, prepared in advance. The training plan shall outline the topics to be covered, the publications to be used, and the training schedule.

C. Conduct one (1) hour minimum of training for the Owner's maintenance personnel in the operation and maintenance of the lighting equipment. Training

time shall be extended as necessary to satisfy the Owner's Representative that all pertinent topics have been adequately covered.

D. The training shall be conducted after the Operating and Maintenance Manuals for the project are completed and available for use during the training session.

E. Maintain a training sign-in sheet, upon which participants in the training session, including the instructors, shall record their names. The training sign-in sheet shall be dated.

F. The training shall be conducted by technicians who are thoroughly familiar with the equipment and its features, and also with the Project. The training shall include instruction and field demonstration, and over-the-shoulder hands-on exercises. As a minimum, the training shall cover, but not be limited to, the following topics:

1. General overview of lighting equipment, including lamp and ballast types.
2. Luminaire cleaning procedures.
3. Relamping and ballast replacement procedures and intervals.
4. Lamp disposal regulations.

G. At the conclusion of the training session, obtain written sign-off from the Commissioning Authority and the Owner's Representative. Insert a copy of the sign-off form and the training sign-in sheet into the Operating and Maintenance Manuals. Submit another copy of the sign-off form and training sign-in sheet to the Architect.

3.6 COMMISSIONING

A. The equipment and systems referenced in this section are to be commissioned per Section 26 08 00 – Commissioning of Electrical Systems. The contractor has specific responsibilities for scheduling, coordination, startup, test development, testing and documentation. Coordinate all commissioning activities with the Commissioning Authority.

END OF SECTION 26 51 00

PART 1 - GENERAL

1.1 RELATED REQUIREMENTS

A. Drawings and general provisions of this Contract, including General and Supplementary Conditions and Division 1 specifications, apply to work specified in this section.

B. Requirements in each of the Division 26 specification sections apply to every other Division 26 section whether specifically referenced or not.

1.2 SUMMARY

A. Provide luminaries at all exterior locations indicated on the Drawings. Provide lighting poles where indicated.

B. Adjust and aim luminaires and verify proper operation.

1.3 DESCRIPTION

A. Luminaires shall be complete with trim, mounting hardware, ballasts and lamps, and shall be suitable for the location in which they are installed.

B. Provide all materials required to entirely complete each luminaire ready for use, in accordance with the conditions and requirements of the building construction.

1.4 SUBMITTALS

A. Product Data: For each type of luminaire, light pole, ballast and lamp provided for exterior lighting on the Project. Include physical description, materials and finishes, dimensions, weights, accessories, photometry data and efficiency data, as applicable.

B. Shop Drawings: Outline drawings and fabrication details for each custom-fabricated luminaire type provided on the Project, indicating dimensions, weights, methods of field assembly, components, features, and accessories.

C. Installation and Start-up Instructions: Manufacturer's installation and start-up instructions. Submit to the Commissioning Authority with a copy to the Architect.

D. Commissioning Notification: Written notification of the proposed date for performing commissioning activities. Submit to the Commissioning Authority with a copy to the Architect.

E. Test Reports: Record of all field test data. Submit to the Commissioning Authority with a copy to the Architect.

F. Meeting Minutes: For pre-installation meeting.

G. Training Documentation: Sign-off form and attendee sign-in sheet for the training session. Submit to the Commissioning Authority with a copy to the Architect.

H. Calculations: Point-by-point calculations for site lighting including all exterior luminaires.

1.5 INFORMATION FOR OPERATING & MAINTENANCE MANUALS

A. Submittals: Information submitted for review, up-dated to record any changes.

B. Maintenance Instructions: List replacement parts, including source. Indicate recommended and required maintenance and testing procedures and intervals. List all individual lighting components that require periodic maintenance. Identify features, accessory attachments, safety precautions, and procedures for cleaning, lamp replacement and adjustment. Include manufacturer's installation instructions. Detail trouble-shooting procedures, including step-by-step instructions for typical trouble symptoms. Detail waste disposal procedures, including recycling options, for compliance with government regulations covering the disposal of lamps containing mercury. Cross out information that does not apply to the Project.

PART 2 - PRODUCTS

2.1 LUMINAIRES

A. See schedule on Drawings for listing of required luminaires. Luminaires shall be complete with trim and mounting hardware.

B. All exterior luminaires shall bear the UL label associated with the type, location, ambient temperature and usage of the individual luminaire. Exterior luminaires shall be enclosed and gasketed vapor-tight to provide a seal against ingress of moisture and foreign material.

C. Ballasts shall be completely enclosed in wiring channels arranged to permit easy access. Ballast replacement shall not require removing the luminaire from its mounting.

D. Lamps shall be replaceable without disassembling the luminaire or removing other lamps. Lamp replacement shall not require the use of special tools.

E. Luminaires shall have finishes applied after fabrication; luminaires manufactured with pre-painted metal are not acceptable. Custom colors shall be applied to luminaires and poles as indicated on the luminaire schedule. Custom colors shall match color samples supplied by the Architect.

F. Luminaires equipped with doors shall be free of light leakage around the doors under normal operating conditions. Doors shall be designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in the normal operating position.

G. All plastic lenses shall be UV-stabilized virgin acrylic unless otherwise indicated.

2.2 BALLASTS

A. Light-Emitting Diode (LED) Drivers:

1. Matched to lamp assembly and luminaire, with provisions to dissipate heat. Include surge suppression device.
2. Minimum power factor of 90%.

2.3 LAMPS

A. All luminaires shall be complete with lamps. Where applicable, lamps shall be of one of the types specified herein. All other lamps shall be as required by equipment in which they are installed or as indicated on the Drawings.

B. Light-Emitting Diode (LED):

1. White LED Lamp Assemblies: LED lamp assemblies used in general lighting applications shall utilize phosphor technology LED lamps. Color temperature shall be 4000° K. LED lamp assembly shall be rated 50,000 hour life minimum, as determined per IESNA Certification Standard LM-80. LED lamp assembly shall be driven at nominal 300 mA, and performance shall be tested together with LED driver as a complete system, including the luminaire in which it is to be installed, per IESNA Certification Standard LM-79.
2. Colored LED Lamp Assemblies: LED lamp assemblies used in exits signs shall be the indicated color. LED lamp assembly shall be rated for 100,000 hour life minimum.

2.4 LIGHT POLES

A. Poles shall be equipped with internal cable supports and a handhole with cover located near the base. Poles shall also include anchor bolts, base covers and all luminaire mounting hardware.

B. Pole finish shall be factory applied.

C. Poles shall be designed to withstand continuous wind velocities up to 161 km/hr (100 miles/hr) and gusts up 130% of rated velocity while supporting the quantity and types of luminaires indicated on the luminaire schedule.

2.5 ACCEPTABLE MANUFACTURERS

A. Manufacturers of luminaires and poles shall be as indicated on the luminaire schedule.

B. Manufacturers of ballasts and lamps shall be as follows:

1. LED drivers – Same manufacturer as LED lamp assembly or luminaire.
2. White LED lamps – Cree, Nichia, Philips or Samsung.

C. Substitutions may be considered only when submitted in conformance with Section 26 01 00.

2.6 SPARE MATERIALS

A. Furnish spare materials in the following quantities:

1. Lenses: 10% of each different type.

B. Percent quantities shall be calculated by rounding up to the next whole number.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prior to beginning rough-in or ordering equipment for the exterior lighting, arrange a pre-installation meeting on the site between all parties involved in the exterior lighting, including the Exterior Lighting Installer, the Electrical Systems Installer, the Commissioning Agent and the Owner's Representative. All parties shall review the exterior lighting shop drawings, the manufacturer's installation instructions, system interface requirements, applicable regulations, and any site conditions pertinent to installation of the exterior lighting.

B. Prepare minutes of the pre-installation meeting and distribute them to all parties in attendance at the meeting and to the Owner's Representative and the Architect.

3.2 CALCULATIONS

A. Lighting calculations shall be prepared using a computer program employing IESNA recognized algorithms. Exterior calculations shall be based on a 1524 mm by 1270 mm (60 in by 50 in) grid. Interior calculations shall be based on a 610 mm by 610 mm (24 in by 24 in) grid. Interior calculations shall be prepared using reflectance values and maintenance factors provided by the Architect's Consultant. Calculations shall be based on the exact geometry of the lighted space. Calculated points shall be superimposed on scaled plans. Discrete values and contours shall be indicated.

3.3 INSTALLATION

A. Install luminaires in accordance with the manufacturer's recommendations and installation details.

B. Provide backboxes matched to luminaires. Where luminaire manufacturer's installation instructions indicate use of standard outlet boxes, boxes shall be in accordance with Section 26 05 31. Back boxes shall be plumb and perfectly aligned.

C. Mount exterior luminaires at locations indicated on the drawings. Support luminaires in accordance with Section 26 05 29, in the following manner:

1. Mount pole-top luminaires on light poles matched to the luminaire. Mounting provisions shall provide structural integrity to withstand the specified wind loading, while maintaining an integrated appearance, coordinated with both the luminaire and the pole.
2. Mount surface and wall luminaires square with the building lines. Support from fixture stud or as otherwise recommended by the manufacturer. Attach surface luminaires at two (2) support points, minimum.
3. Install recessed luminaries in exterior soffits in accordance such that luminaire weight is supported by structural members. Verify soffit material and thickness to ensure that recessed luminaires can be properly installed.

D. Mount new luminaires which are located in the immediate vicinity of existing luminaires by the same methods as the existing luminaires. Match mounting heights.

E. Verify luminaire locations with the Architectural site plan and exterior wall elevations, when such plans and elevations are included in the Contract Documents.

F. Mount lighting poles on reinforced concrete bases as indicated on the Drawings. Position anchor bolts so that luminaires will be aligned with the appropriate surface features, as indicated. Level each anchor bolt plate so that the associated lighting pole will be vertical and plumb. Provide grout between the concrete base and anchor bolt plate.

G. Provide bonding connections between the pole and the reinforcing steel in the concrete base in accordance with Section 26 05 26 and manufacturer's installation instructions.

H. Provide ground rod at each exterior lighting pole. Top of ground rod shall be a minimum of 305 mm(12 in) below grade. Bond pole to ground rod with a minimum #6 AWG conductor. Do not bond lighting circuit conductors to ground rod.

I. Broken or defective parts shall be replaced, with no additional compensation.

3.4 ADJUSTMENT, TESTING & DEMONSTRATION

A. Notify the Architect's Consultant, the Commissioning Authority, and the Owner's Representative at least two (2) weeks in advance of the date of each test, to allow witnessing of the tests.

B. Supply tools, instruments, gauges, testing equipment, ladders, lifts, protective devices and safety equipment for adjustment, testing, and demonstration.

C. During adjustment and testing, carefully record all settings and all test results, including expected test results, actual test results, and corrective actions taken. Records shall be submitted to the Architect's Consultant and included in the Operating & Maintenance Manuals.

D. Upon completion of the installation, perform the following adjustments:

1. Aim all adjustable luminaires as directed by the Architect's Consultant.
2. Clean reflectors, aperture plates, lenses, luminaire housings and decorative elements. To avoid static buildup on lenses and reflectors, clean with a manufacturer's recommended water-diluted solution of glass cleaner and allow to air-dry.

E. After adjustments are complete, measure the illumination levels at selected points to demonstrate proper distribution and coverage. Verify with the Architect's Consultant the points where illumination levels are to be measured. Measurements shall be taken at night.

F. Correct any deficiencies discovered as a result of the above testing, and completely retest the work affected by such corrections, with no additional compensation.

3.5 ON-SITE TRAINING

A. On-site training shall be coordinated with the Commissioning Authority in accordance with Section 26 08 00. At least two (2) months prior to the anticipated training session, submit a draft of the training plan and the proposed participants to the Commissioning Authority for review and comment. Two (2) weeks prior to the scheduled training, submit to the Commissioning Authority a revised written training plan incorporating the Commissioning Authority's comments.

B. On-site training shall follow a written training plan, prepared in advance. The training plan shall outline the topics to be covered, the publications to be used, and the training schedule.

C. Conduct one (1) hour minimum of training for the Owner's maintenance personnel in the operation and maintenance of the lighting equipment. Training time shall be extended as necessary to satisfy the Owner's Representative that all pertinent topics have been adequately covered.

D. The training shall be conducted after the Operating and Maintenance Manuals for the project are completed and available for use during the training session.

E. Maintain a training sign-in sheet, upon which participants in the training session, including the instructors, shall record their names. The training sign-in sheet shall be dated.

F. The training shall be conducted by technicians who are thoroughly familiar with the equipment and its features, and also with the Project. The training shall include instruction and field demonstration. As a minimum, the training shall cover, but not be limited to, the following topics:

1. General overview of lighting equipment, including lamp and ballast types.
2. Luminaire cleaning procedures.
3. Relamping and ballast replacement procedures and intervals.
4. Lamp disposal regulations.

G. At the conclusion of the training session, obtain written sign-off from the Commissioning Authority and the Owner's Representative. Insert a copy of the sign-off form and the training sign-in sheet into the Operating and Maintenance Manuals. Submit another copy of the sign-off form and the training sign-in sheet to the Architect.

END OF SECTION

DIVISION 31

EARTHWORK

SECTION 31 10 00
SITE CLEARING

PART 1 GENERAL

1.01 DEFINITIONS

A. Interfering or Objectionable Material: Trash, rubbish, and junk; vegetation and other organic matter, whether alive, dead, or decaying; topsoil.

B. Clearing: Removal of all designated trees, removal of brush, stumps, logs, and other vegetative materials, and interfering or objectionable material lying on or protruding above ground surface.

C. Grubbing: Removal of vegetation and other organic matter including stumps, buried logs, and roots to a depth of 12 inches below subgrade.

D. Scalping: Removal of sod without removing more than upper 3 inches of topsoil.

E. Stripping: Removal of topsoil remaining after applicable scalping is completed.

F. Project Limits: Areas, as shown or specified, within which Work is to be performed.

1.02 SUBMITTALS

A. Action Submittals: Drawings clearly showing clearing, grubbing, and stripping limits. Show access and identify falling requirements of any individual trees that may be flagged by the Owner for removal that lie beyond the clearing, grubbing, and stripping limits. Contractor's work and approach for tree removal shall be subject to the review and approval by the Engineer.

B. Contractor's tree removal and logging subcontractor including the superintendent and tree faller, shall be experienced in this type of work. Tree faller and individual responsible for the work shall both have not less than 5 years each, of acceptable work experience performing this type of work prior to beginning this Project, as approved by the Engineer.

1.03 QUALITY ASSURANCE

A. Obtain Engineer's approval of staked clearing, grubbing, and stripping limits, prior to commencing clearing, grubbing, and stripping.

1.04 SCHEDULING AND SEQUENCING

A. Clear Site only after perimeter erosion and sediment controls are in place.

B. Install erosion control measures immediately after site clearing and grubbing. Exposed soils shall not remain uncovered for more than 2 days unless it is actively being worked.

C. Complete applicable Work specified in Section 02 41 00, Demolition; Section 31 23 16, Excavation, prior to placing fill or backfill.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 GENERAL

A. Clear, grub, and strip areas actually needed for waste disposal, borrow, or Site improvements within limits shown or specified.

B. Do not injure or deface vegetation or damage roots of vegetation that is not designated for removal.

C. Remove rubbish, trash, and junk from entire area within Project limits.

D. Obtain any permits needed and follow all applicable laws, ordinances, and other requirements by governing agencies while performing the Work.

3.02 CLEARING

A. Clear areas within clearing limits shown or specified.

B. Additionally as part of the clearing work, removal of any tree that is within 2 feet of the clearing limit shown, as measured from the clearing limit to the closest edge of the trunk of the tree at a point located 3 feet average height above the ground surface.

C. Additional trees (in addition to the trees within the clearing limits and the trees within 2 feet of the clearing limits as described above) as designated by the Engineer shall also be removed at the Contractor's expense. This additional tree removal activity shall include removal of up to six trees that will be designated by the Engineer for removal. Up to six additional trees shall be in addition to the trees that fall within 2 feet of the clearing limits as described above and may include the following:

1. Large trees that are located sufficiently close to the grading limits and whose root system may be damaged by the required grading work to occur within the clearing and/or grading limits.
2. Trees that are designated for removal for any reason, as identified by the Engineer, and are located outside of the clearing limits shown.

D. Fell trees so that they fall away from all existing facilities and so that vegetation not designated for removal is not damaged. All trees shall be felled on the Owner's property that has been designated for clearing. Do not allow trees to fall on adjacent structures, utilities, or in other areas that could result in damage. If trees are in danger of falling in occupied areas including roads and other public areas, flaggers and spotters shall be employed to assure that work areas have been cleared and remain clear of occupation until after trees are safely felled.

E. Cut off shrubs, brush, weeds, and grasses to within 2 inches of ground surface.

3.03 GRUBBING, SCALPING, AND STRIPPING

A. Contractor shall perform grubbing, scalping, and stripping to the extent necessary for proper excavation and disposal of materials to be excavated and removed from the Site.

B. Topsoils when stripped from the building and playground area should be immediately protected with erosion control measures.

3.04 MERCHANTABLE TIMBER

A. Contractor shall cut and remove all trees and vegetation from the Site within the areas specified. If present on Site, trees classified as merchantable timber as well as all other vegetation and debris removed from the Site shall become the property of the Contractor. Contractor shall be responsible for all expenses associated with removal from the work area, and shall retain the profits associated with the removal, sale, and disposal of any and all materials.

3.05 TREE REMOVAL INSIDE AND OUTSIDE CLEARING LIMITS

A. Remove all large trees and dead, dying, leaning, or otherwise unsound trees that may strike and damage Project facilities in falling as designated by the Engineer. Remove any trees that have been flagged for removal as designated.

B. Cut stumps off flush with ground, remove debris, and if disturbed, restore surrounding area to its original condition.

3.06 DISPOSAL

A. Clearing, Grubbing, Scalpings, and Strippings Debris:

1. Dispose of debris offsite.
2. Burning of debris onsite will not be allowed.
3. Woody debris may be chipped. Chips may be sold to Contractor's benefit or incorporated into landscaping so long as the product meets the requirements of the specifications for that work.

4. Limit offsite disposal of clearing and grubbing debris to locations that are approved by federal, state, and local authorities, and that will not be visible from Project.

END OF SECTION

SECTION 31 23 16
EXCAVATION

PART 1 GENERAL

1.01 DEFINITIONS

A. Common Excavation: Removal of material not classified as rock excavation.

1.02 SUBMITTALS

A. Informational Submittals:

1. Excavation Plan, Detailing:
   a. Methods and sequencing of excavation.
   b. Proposed offsite spoil disposal sites.
   c. Numbers, types, and sizes of equipment proposed to perform excavations.
   d. Anticipated difficulties and proposed resolutions.
2. Pipe Support Plan. Where new pipes will be installed under existing pipes, submit a plan for supporting the existing pipes during excavation, installation of the new pipe, and backfilling. The plan shall be prepared and stamped by an independent structural engineer (not directly employed by the Contractor) licensed in the State of Washington. The Engineer who prepared the plan shall be on Site to oversee the work while the pipe support system is being installed and utilized.

1.03 QUALITY ASSURANCE

A. Provide adequate survey control to avoid unauthorized overexcavation.

1.04 WEATHER LIMITATIONS

A. Material excavated when frozen or when air temperature is less than 32 degrees F shall not be used as fill or backfill until material completely thaws.

B. Material excavated during inclement weather shall not be used as fill or backfill until after material drains and dries sufficiently for proper compaction.

1.05 SEQUENCING AND SCHEDULING

A. Demolition: Complete applicable Work specified in Section 02 41 00, Demolition, prior to excavating.

B. Clearing, Grubbing, and Stripping: Complete applicable Work specified in Section 31 10 00, Site Clearing, prior to excavating.

C. Groundwater Control: Dewatering, as required prior to excavation and beginning backfilling.

D. Excavation Support: Install and maintain as necessary to support sides of excavations and prevent detrimental settlement and lateral movement of existing facilities, adjacent property, and completed Work.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 GENERAL

A. Excavate to lines, grades, and dimensions shown and as necessary to accomplish Work. Excavate to within tolerance of plus or minus 0.1 foot, except where dimensions or grades are shown or specified as maximum or minimum. Allow for forms, working space, granular base, topsoil, and similar items, wherever applicable. Trim to neat lines where concrete is to be deposited against earth.

B. Do not overexcavate without written authorization of Engineer.

C. Remove or protect obstructions as shown in Section 01 50 00, Temporary Facilities and Controls.

D. Blasting and use of explosives are not allowed.

3.02 UNCLASSIFIED EXCAVATION

A. Excavation is unclassified. Complete all excavation regardless of the type, nature, or condition of the materials encountered.

3.03 EXCAVATION UNDER PILE AND PILE SUPPORTED STRUCTURES

A. Excavation to the lines and grades shown.

B. Do not excavate closer than 36 inches to the final grade until ready to perform the final excavation.

C. Do not allow any construction equipment to operate directly on, or closer to the final excavated surfaces than 36 inches. Perform the final excavation with excavator, working at 36 inches or more above the final grade. Use a bucket having smooth cutter (no teeth). Do not disturb the native soils below the required depth of excavation. Keep all groundwater and surface water pump out of the excavation area while working.

D. Excavate to the limits of the area to be backfilled as shown on Drawings.

E. Obtain approval from the Engineer prior to backfilling on the prepared foundation.

F. Keep excavation areas free of standing water at all times. Provide pumps, sumps, and drains as needed to keep all work areas free of water.

G. Excavate and prepare subgrade only in limited areas as the work proceeds, as needed to be able to reach work areas for placing geotextile on subgrade and then ballast rock on the prepared foundation over geotextile. Work sufficiently small areas as needed so that the foundation areas can be prepared and covered immediately so subgrade is not deteriorated because of groundwater, seepage, or other factors that could soften or cause deterioration of the prepared subgrade. Do not leave prepared subgrade open any longer than needed. Do not leave prepared subgrade areas open overnight without covering with ballast rock. Leave sufficient geotextile exposed at the edges and temporary boundaries at all times as needed to meet the requirements for geotextile overlap. Geotextile overlap shall be per the manufacturer's recommendations and shall provide for geotextile overlapped with geotextile surfaces in contact between each other without soil or rock materials creating separation between the two geotextile surfaces. Do not attempt to fill the overlap area and then later remove the materials to create the overlap.

H. Keep all foundations free of water while preparing to backfill and during backfilling.

I. Extend the geotextile fabric up the sides and ends of the excavation as needed to encapsulate the sides and ends of the fill areas for ballast rock. Sides and ends of excavation areas shall be formed in dense undisturbed soils. If the soils are loosened in the process of making the excavation, remove the loose soils so the geotextile and ballast will bear directly against dense undisturbed native soils.

J. Place geotextile and backfill as shown on Drawings and as specified in Section 31 23 23, Fill and Backfill.

3.04 TRENCH WIDTH

A. Minimum Width of Trenches:

1. Single Pipes, Conduits, Direct-Buried Cables, and Duct Banks:
   a. Less than 4-inch Outside Diameter or Width: 18 inches.
   b. Greater than 4-inch Outside Diameter or Width: 18 inches greater than outside diameter or width of pipe, conduit, direct-buried cable, or duct bank.
   c. Trench width for large diameter pipes shall be as shown on Drawings.

2. Multiple Pipes, Conduits, Cables, or Duct Banks in Single Trench: 18 inches greater than aggregate width of pipes, conduits, cables, duct banks, plus space between.
3. Increase trench widths by thicknesses of sheeting.
4. Provide trench widths specifically shown on Drawings for selected pipes where CLSM backfill is shown having specified widths.

B. Maximum Trench Width: Unlimited, unless otherwise shown or specified, or unless excess width will cause damage to existing facilities, adjacent property, or completed Work.

C. At the time of excavation, provide vertical shoring for trenches where CLSM is required for backfilling pipes. Contractor shall establish means and methods of shoring; however, shoring shall be installed and braced directly against dense undisturbed earth, shall extend up to the top of the CLSM trench backfill zone or higher if needed, and shall be capable of being removed as the CLSM backfill is placed around the pipes. The shoring shall be capable of being pulled out while the CLSM is still fresh and flowable, and shall allow the CLSM backfill to flow by gravity directly against the native undisturbed soils as the shoring/sheeting is removed.

3.05 PIPE BEDDING GROOVES FOR NONPERFORATED DRAIN LINES

A. Semicircular, trapezoidal, or 90-degree-V.

B. Excavated or plowed into trench bottom. Forming groove by compaction will not be acceptable.

3.06 EMBANKMENT AND CUT SLOPES

A. Shape, trim, and finish cut slopes to conform with lines, grades, and cross-sections shown, with proper allowance for topsoil or slope protection, where shown.

B. Remove stones and rock that exceed 3-inch diameter and that are loose and may roll down slope. Remove exposed roots from cut slopes.

C. Round tops of cut slopes in soil to not less than a 6-foot radius, provided such rounding does not extend offsite or outside easements and rights-of-way, or adversely impacts existing facilities, adjacent property, or completed Work.

3.07 STOCKPILING EXCAVATED MATERIAL

A. Remove all excavated materials from the Site. No on-site stockpiling shall be allowed.

B. Do not temporarily stockpile excavated material adjacent to trenches and other excavations, unless excavation side slopes and excavation support systems are designed, constructed, and maintained for stockpile loads.

C. Do not temporarily stockpile excavated materials near or over existing facilities, adjacent property, or completed Work, if weight of stockpiled material could induce excessive settlement.

3.08 DISPOSAL OF SPOIL

A. Dispose of all excavated materials offsite.

B. Dispose of debris resulting from removal of underground facilities as specified in Section 02 41 00, Demolition, for demolition debris.

C. Dispose of debris resulting from removal of organic matter, trash, refuse, and junk as specified in Section 31 10 00, Site Clearing, for clearing and grubbing debris.

END OF SECTION

SECTION 31 23 23
FILL AND BACKFILL

PART 1 GENERAL

1.01 REFERENCES

A. The following is a list of standards which may be referenced in this section:

1. ASTM International (ASTM):
   a. C117, Standard Test Method for Materials Finer Than 75-Micrometers (No. 200) Sieve in Mineral Aggregates by Washing.
   b. C136, Standard Method for Sieve Analysis of Fine and Coarse Aggregates.
   c. D75, Standard Practice for Sampling Aggregates.
   d. D698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600 kN-m/m^3)).
   e. D1556, Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
   f. D1557, Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2,700 kN-m/m^3)).
   g. D4253, Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.
   h. D4254, Standard Test Method for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density.
   i. D6938, Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

1.02 DEFINITIONS

A. Relative Compaction:

1. Ratio, in percent, of as-compacted field dry density to laboratory maximum dry density as determined in accordance with ASTM D1557.
2. Apply corrections for oversize material to either as-compacted field dry density or maximum dry density, as determined by Engineer.

B. Optimum Moisture Content:

1. Determined in accordance with ASTM Standard specified to determine maximum dry density for relative compaction.
2. Determine field moisture content on basis of fraction passing 3/4-inch sieve.

C. Relative Density: Calculated in accordance with ASTM D4254 based on maximum index density determined in accordance with ASTM D4253 and minimum index density determined in accordance with ASTM D4254.

D. Prepared Ground Surface: Ground surface after completion of required demolition, clearing and grubbing, scalping of sod, stripping of topsoil, excavation to grade, and subgrade preparation.

E. Completed Course: A course or layer that is ready for next layer or next phase of Work.

F. Lift: Loose (uncompacted) layer of material.

G. Geosynthetics: Geotextiles, geogrids, or geomembranes.

H. Well-Graded:

1. A mixture of particle sizes with no specific concentration or lack thereof of one or more sizes.
2. Does not define numerical value that must be placed on coefficient of uniformity, coefficient of curvature, or other specific grain size distribution parameters.
3. Used to define material type that, when compacted, produces a strong and relatively incompressible soil mass free from detrimental voids.

I. Stress Influence Area:

1. Area within planes sloped downward and outward at 60-degree angle from horizontal measured from:
   a. 1 foot outside outermost edge at base of foundations or slabs.
   b. 1 foot outside outermost edge at surface of roadways or shoulder.
   c. 0.5 foot outside exterior at spring line of pipes or culverts.

J. Borrow Material: Material from required excavations or from designated borrow areas on or near Site.

K. Imported Material: Materials obtained from sources offsite, suitable for specified use.

L. Structural Fill: Imported fill materials as required under structures, pavements, and other facilities.

M. Embankment Material: Fill materials required to raise existing grade in areas other than under structures.

N. Standard Specifications: When referenced in this section, shall mean Washington State Department of Transportation Standard Specifications for Road, Bridge and Municipal Construction, 2018.

1.03 SUBMITTALS

A. Informational Submittals:

1. Manufacturer's data sheets for compaction equipment.
2. Certified test results from independent testing agency.

1.04 QUALITY ASSURANCE

A. Notify Engineer when:

1. Structure is ready for backfilling, and whenever backfilling operations are resumed after a period of inactivity.
2. Soft or loose subgrade materials are encountered wherever embankment or site fill is to be placed.
3. Fill material appears to be deviating from Specifications.

1.05 SEQUENCING AND SCHEDULING

A. Complete applicable Work specified in Section 02 41 00, Demolition; Section 31 10 00, Site Clearing; Section 31 23 16, Excavation, prior to placing fill or backfill.

B. Backfill against concrete structures only after concrete has attained compressive strength of 3,000 psi. Obtain Engineer's acceptance of concrete work and attained strength prior to placing backfill.

C. Do not place granular base, subbase, or surfacing until after subgrade has been prepared.

PART 2 PRODUCTS

2.01 SOURCE QUALITY CONTROL

A. Gradation Tests: One or more tests as necessary to locate acceptable sources of imported material.

B. Samples:

1. Collected in accordance with ASTM D75:
   a. During production of imported material, provide Samples and testing as needed to assure consistency of the product. Contractor shall

remove and replace material that is found to not meet the specification requirements.

b. Clearly mark to show source of material and intended use.

2.02 GRAVEL BORROW

A. Shall be imported material as specified in the Standard Specifications, Section 9-03.14(1), Gravel Borrow, except that maximum size shall be limited to 2 inches.

B. Gravel Borrow gradation shall be modified if needed during wet weather periods and shall have less than 4 percent passing the No. 200 sieve size during these times if the use Gravel Borrow for backfilling results in the material being too wet for required compaction without resulting in pumping and yielding as determined by the Engineer.

C. Gravel Borrow shall be free from dirt, clay, organic matter, or other deleterious material.

2.03 GRAVEL BACKFILL FOR DRAINS

A. Shall be imported material as specified in the Standard Specifications, Section 9-03.12(4), Gravel Backfill for drains.

2.04 BALLAST

A. Shall be imported material as specified in the Standard Specifications, Section 9-03.9(2), Permeable Ballast.

2.05 CRUSHED SURFACING BASE COURSE (CSBC)

A. Shall be imported material as specified in the Standard Specifications, Section 9-03.9(3), Crushed Surfacing, Base Course.

2.06 QUARRY SPALLS

A. Shall be imported material as specified in the Standard Specifications, Section 9-13.1(5), Quarry Spalls.

B. Quarry spalls shall meet all other requirements of WSDOT Section 9-13, Riprap, Quarry Spalls, Slope Protection, and Rock for Erosion and Scour Protection and Rock Walls.

2.07 SAND

A. Shall be imported material as specified in the Standard Specifications, Section 9-03.1 Aggregates for Portland Cement Concrete, Class 1.

2.08 CONTROLLED LOW-STRENGTH MATERIAL (CLSM)

A. Also known as Controlled Density Fill (CDF), as specified in Standard Specifications Section 2-09.3(1)E Backfilling.

2.09 WATER FOR MOISTURE CONDITIONING

A. Free of hazardous or toxic contaminates, or contaminants deleterious to proper compaction.

2.10 BASE COURSE ROCK

A. Shall be Crushed Surfacing Base Course (CSBC) as specified in Section 32 11 23, Aggregate Base Courses.

2.11 MINERAL AGGREGATE TYPE 26

A. Shall consist of washed, durable sand and gravel meeting the following gradation requirements:

US Sieve Size	**Percent Passing by Weight**
3/4-inch	100
No. 4	28 - 56
No. 8	20 - 50
No. 50	3 - 12
No. 200	0 - 1

B. L.A. Abrasion shall be 35 percent maximum.

2.12 ROCK PAD

A. Shall be as specified in Standard Specifications, Section 9-03.11(2) Streambed Cobbles, as specified for 8-inch Cobbles.

2.13 BIORETENTION SOIL

A. Shall be as specified in Section 33 40 10, Bioretention.

2.14 TOPSOIL

A. Shall be as specified in Section 32 91 13, Soil Preparation.

2.15 GEOTEXTILE

A. Shall be as specified in Section 31 32 19.16, Geotextile.

2.16 USE OF CRUSHED RECYCLED PORTLAND CEMENT CONCRETE

A. Recycled portland cement concrete aggregates shall not be allowed for use on this Project.

PART 3 EXECUTION

3.01 GENERAL

A. Unless noted otherwise, all fill shall be imported structural fill.

B. Keep placement surfaces free of water, debris, and foreign material during placement and compaction of fill and backfill materials.

C. Do not place fill material that is too wet or too dry for proper compaction. Obtain material having suitable moisture content and verify prior to hauling for use at the Site. Moisture content of soils placed for compaction shall range from not more than 2 percent wet or dry of optimum as determined by ASTM D1557. Material shall be stable when compacted and shall not yield or pump under loading from construction activities.

D. Place and spread fill and backfill materials in horizontal lifts of uniform thickness, in a manner that avoids segregation, and compact each lift to specified densities prior to placing succeeding lifts. Slope lifts only where necessary to conform to final grades or as necessary to keep placement surfaces drained of water.

E. During filling and backfilling, keep level of fill and backfill around each structure and buried tank even.

F. Do not place fill or backfill, if fill or backfill material is frozen, or if surface upon which fill or backfill is to be placed is frozen.

G. If pipe, conduit, duct bank, or cable is to be laid within fill or backfill:

1. Fill or backfill to an elevation 2 feet above top of item to be laid.
2. Excavate trench for installation of item.
3. Install bedding, if applicable, as specified in Section 31 23 23.15, Trench Backfill.
4. Install item.
5. Backfill envelope zone and remaining trench, as specified in Section 31 23 23.15, Trench Backfill, before resuming filling or backfilling specified in this section.

H. Tolerances:

1. Final Lines and Grades: Within a tolerance of 0.1 foot unless dimensions or grades are shown or specified otherwise.

2. Grade to establish and maintain slopes and drainage as shown. Reverse slopes are not permitted.

I. Settlement: Correct and repair any subsequent damage to structures, pavements, curbs, slabs, piping, and other facilities, caused by settlement of fill or backfill material.

3.02 BACKFILL UNDER AND AROUND STRUCTURES

A. Under Facilities: Within influence area beneath structures, slabs, pavements, curbs, piping, conduits, duct banks, and other facilities, backfill as shown on Drawings.

B. Under Facilities and where not shown on Drawings: Within influence area beneath structures slabs, pavements, curbs, piping, conduits, duct banks, and other facilities, backfill with CSBC.

C. Place material in lifts not exceeding 8 inches and compact each lift to not less than 95 percent of its maximum density as determined in accordance with ASTM D1557.

D. Subsurface Drainage: Backfill as shown on Drawings. Place gravel backfill for drains to the limits shown and as required to construct.

E. Backfill around facilities as shown on Drawings. If not shown, backfill with Gravel Borrow. Backfill to lines and grades shown, with proper allowance for topsoil thickness where shown. Place in horizontal lifts of not more than 6 inches and compact each lift to not less than 95 percent of its maximum density in accordance with ASTM D1557.

3.03 BACKFILL UNDER PILE AND PILE SUPPORTED STRUCTURES

A. Perform final excavation under these structures as specified in Section 31 23 16, Excavation.

B. Do not allow any construction equipment to operate directly on, or closer to the final excavated surfaces than 36 inches. Perform the final excavation with excavator, working at 36 inches or more above the final grade. Use a bucket having smooth cutter (no teeth). Do not disturb the native soils below the required depth of excavation. Keep all groundwater and surface water pump out of the excavation area while working.

C. Excavate to the limits of the area to be backfilled as shown on Drawings.

D. Prior to replacing structural fill, excavate as far as necessary to reduce soft or unsuitable soils. Obtain approval from Engineer prior to overexcavation.

E. Obtain approval from the Engineer prior to backfilling on the prepared foundation.

F. Keep excavation areas free of standing water at all times. Provide pumps, sumps, and drains as needed to keep all work areas free of water.

G. Building footprint and playground area shall be graded smooth and sloped to drain. The building footprint shall then be blanketed with a minimum of 6 inches of ballast.

H. Place geotextile on dense undisturbed foundation prior to placing any ballast material. Leave sufficient geotextile exposed at the edges and temporary boundaries at all times as needed to meet the requirements for geotextile overlap. Geotextile overlap shall provide for geotextile overlapped with geotextile surfaces in contact between each other without soil or rock materials creating separation between the two geotextile surfaces. Do not attempt to fill the overlap area and then later remove the materials to create the overlap.

I. Place ballast over the geotextile on the prepared foundation to the thickness and extent shown on Drawings. Grade to the required thickness using a small dozer or other tracked equipment that does not disturb the prepared subgrade.

J. Extend the geotextile fabric up the sides and ends of the excavation as needed to encapsulate the sides and ends of the fill areas for ballast rock. Sides and ends of excavation areas shall be formed in dense undisturbed soils. If the soils are loosened in the process of making the excavation, remove the loose soils so the geotextile fabric and ballast will bear directly against dense undisturbed native soils.

K. Place geotextile and backfill as shown on Drawings and as specified in Section 31 23 23, Fill and Backfill.

L. Prepare the foundation and place and spread geotextile and ballast rock as the excavation proceeds. Immediately cover the prepared foundation with ballast as soon as a sufficiently large area can be prepared. Do not leave prepared subgrade open to deteriorate. Keep all water pumped off the prepared subgrade and get it covered with geotextile and ballast as soon as possible. Do not leave prepared subgrade open overnight.

M. Install foundation drain in the ballast rock as shown prior to covering top of ballast with geotextile wrap.

N. After foundation drain is installed and base geotextile layer is completed on bottom and sides of areas to receive ballast, then wrap geotextile over the top of the ballast layer.

O. After placing and spreading geotextile and ballast to the require thickness and limits shown, place CSBC to the thickness shown. Spread and compact as specified, and graded to the required subgrade elevation for the concrete foundation slabs.

P. Do not allow any equipment other than light tracked dozer, small tracked excavator, or other spreading equipment, and compactors to operate on the ballast and/or CSBC surfaces. Keep all wheeled equipment off these areas.

Q. Maintain sumps and drains as needed to keep all groundwater pumped from the work areas. Maintain groundwater and surface water that collects in excavated areas no higher than 12 inches below the top of prepared CSBC subbase under slabs and footings.

3.04 CONSTRUCTION OF SUBGRADE PIPING UNDER STRUCTURES

A. Contractor shall assume that excavation for and construction of subgrade pipelines may occur during the fall and winter months of the year when there is more likely to be a greater possibility of encountered wet weather in the process. To the extent possible, plan the work to occur during non-rain periods. Be prepared to and always pump and otherwise control water that seeps into the ballast layer of the foundation and into pipe excavations.

B. The subgrade soils are very moisture sensitive and will become soft and unworkable if these materials are disturbed in the presence of moisture. Assuming the work is likely to occur during wet weather period of the year, the geotextile layer and ballast layer shall be installed immediately as the subgrade is prepared so as to protect the subgrade from exposure and damage. The Contractor shall keep all large equipment including all wheeled equipment off the ballast and subgrade at all times as specified previously.

C. If the construction of subgrade piping under structures occurs other than during likely wet seasons of the year, the Contractor may propose another approach to the work but will be subject to review and acceptance of conditions by the Engineer at the time of construction.

D. Lay out the work and plan and conduct the excavation and installation of pipelines during non-rainy periods to the extent possible. Make excavations at the location and to the depth necessary to construct pipelines to the lines and grades shown. Cut through the ballast layer and geotextile as necessary to accomplish the Work. Install sumps as needed to control water that drains into the excavation. Avoid disturbance that softens or weakens the native material while performing the work. Install pipes, reinforcing steel, forms, and pour concrete backfill as shown. Pour concrete so it is directly in contact with native undisturbed soil around the perimeter of the trench where cut into the native soil (below the ballast layer).

E. After encasement is completed, remove forms and finish filling around the encasements with ballast as needed to complete the ballast layer as shown. Replace geotextile over the top of ballast if outside of the perimeter of the footings or within 5 feet of the outside edge of footings as shown.

3.05 FILL

A. Outside Influence Areas beneath Structures, Pavements, Curbs, Slabs, Piping, and Other Facilities: Unless otherwise shown, place Gravel Borrow as follows:

1. Allow for topsoil where required.
2. Maximum 8-inch thick horizontal lifts.
3. Place and compact fill across full width of embankment in horizontal lifts.
4. Except in landscaped areas, compact top 2 feet to not less than 95 percent of its maximum density in accordance with ASTM D1557. In landscaped areas, compact each lift to not less than 90 percent of its maximum density in accordance with ASTM D1557.
5. Dress completed embankment with allowance for topsoil, crest surfacing, and slope protection, where applicable.

3.06 SITE TESTING

A. Gradation:

1. One sample from each 500 tons of finished product or more often as determined by Engineer, if variation in gradation is occurring, or if material appears to depart from Specifications.
2. If test results indicate material does not meet Specification requirements, terminate material placement until corrective measures are taken.
3. Remove material placed in Work that does not meet Specification requirements.

B. In-Place Density Tests:

1. In accordance with ASTM D1556. During placement of materials:
   a. Test at representative locations at least daily as backfilling and compaction occurs.
   b. Test CSBC and Gravel Borrow at representative locations not more than 50 feet horizontally and spaced at 2 feet vertically as the backfilling proceeds.
   c. Perform additional testing if failing tests occur and/or if variable conditions occur.

3.07 SAND BLANKET OVER VAPOR RETARDER

A. Place sand in manner that avoids damage to underlying vapor retarder.

B. Moisten sand and thoroughly compact it with a vibratory plate compactor.

3.08 GRANULAR BASE, SUBBASE, AND SURFACING

A. Place and compact as specified in Section 32 11 23, Aggregate Base Courses.

3.09 REPLACING OVEREXCAVATED MATERIAL

A. Replace excavation carried below grade lines shown or established by Engineer as follows:

1. Beneath Footings: Concrete of strength equal to that of respective footing as specified in Section 03 30 00, Cast-in-Place Concrete.
2. Beneath Fill or Backfill: Same material as specified for overlying fill or backfill.
3. Beneath Slabs-On-Grade: Granular fill.
4. Trenches:
   a. Unauthorized Overexcavation: Either trench stabilization material or Material specified for backfill in pipe zone, as specified in Section 31 23 23.15, Trench Backfill.
   b. Authorized Overexcavation: Trench stabilization material, as specified in Section 31 23 23.15, Trench Backfill.

3.10 ACCESS ROAD SURFACING

A. Place and compact as specified in Section 32 11 23, Aggregate Base Courses.

END OF SECTION

SECTION 31 23 23.15
TRENCH BACKFILL

PART 1 GENERAL

1.01 REFERENCES

A. The following is a list of standards which may be referenced in this section:

1. American Public Works Association (APWA): Uniform Color Code.
2. ASTM International (ASTM):
   a. C33/C33M, Standard Specification for Concrete Aggregates.
   b. C94/C94M, Standard Specification for Ready-Mixed Concrete.
   c. C117, Standard Test Method for Materials Finer than 75 Micrometer (No. 200) Sieve in Mineral Aggregates by Washing.
   d. C136, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
   e. C150/C150M, Standard Specification for Portland Cement.
   f. C618, Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
   g. C1012/C1012M, Standard Test Method for Length Change of Hydraulic-Cement Mortars Exposed to a Sulfate Solution.
   h. D75/D75M, Standard Practice for Sampling Aggregates.
   i. D698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600 kN-m/m^3)).
   j. D1140, Standard Test Methods for Amount of Material in Soils Finer than No. 200 (75 micrometer) Sieve.
   k. D1557, Standard Test Methods for Laboratory Compaction Characteristics of Soil using Modified Effort (56,000 ft-lbf/ft^3 (2,700 kN-m/m^3)).
   l. D2487, Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).
   m. D4253, Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.
   n. D4254, Standard Test Methods for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density.
   o. D4318, Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
3. National Electrical Manufacturers Association (NEMA): Z535.1, Safety Colors.

1.02 DEFINITIONS

A. Base Rock: Granular material consisting of CSBC upon which manhole bases and other structures are placed.

B. Bedding Material: Granular material upon which pipes, conduits, cables, or duct banks are placed.

C. Imported Material: Material obtained by Contractor from source(s) offsite.

D. Lift: Loose (uncompacted) layer of material.

E. Pipe Zone: Backfill zone that includes full trench width and extends from prepared trench bottom to an upper limit above top outside surface of pipe, conduit, cable or duct bank.

F. Prepared Trench Bottom: Graded trench bottom after excavation and installation of stabilization material, if required, but before installation of bedding material.

G. Relative Compaction: The ratio, in percent, of the as-compacted field dry density to the laboratory maximum dry density as determined by ASTM D1557. Corrections for oversize material may be applied to either as-compacted field dry density or maximum dry density, as determined by Engineer.

H. Relative Density: As defined by ASTM D4253 and ASTM D4254.

I. Selected Backfill Material: Material available onsite that Engineer determines to be suitable for a specific use.

J. Well-Graded: A mixture of particle sizes that has no specific concentration or lack thereof of one or more sizes producing a material type that, when compacted, produces a strong and relatively incompressible soil mass free from detrimental voids. Satisfying both of the following requirements, as defined in ASTM D2487:

1. Coefficient of Curvature: Greater than or equal to 1 and less than or equal to 3.
2. Coefficient of Uniformity: Greater than or equal to 4 for materials classified as gravel, and greater than or equal to 6 for materials classified as sand.

1.03 SUBMITTALS

A. Action Submittals:

1. Shop Drawings: Manufacturer's descriptive literature for marking tapes and tracer wire.
2. Samples shall be in accordance with ASTM D75/D75M:
   a. Trench stabilization material.

b. Bedding and pipe zone material.
c. Gravel Borrow.
d. Gravel Backfill for drains.
e. Earthfill.
f. Sand.

B. Informational Submittals:

1. Catalog and manufacturer's data sheets for compaction equipment.
2. Certified Gradation Analysis: Submit not less than 30 days prior to delivery for imported materials or anticipated use for excavated materials, except for trench stabilization material that will be submitted prior to material delivery to Site.

PART 2 PRODUCTS

2.01 MARKING TAPE

A. Detectable:

1. Solid aluminum foil, visible on unprinted side, encased in protective high visibility, inert polyethylene plastic jacket.
2. Foil Thickness: Minimum 0.35 mils.
3. Laminate Thickness: Minimum 5 mils.
4. Width: 3 inches.
5. Identifying Lettering: Minimum 1-inch high, permanent black lettering imprinted continuously over entire length.
6. Joining Clips: Tin or nickel-coated furnished by tape manufacturer.
7. Manufacturers and Products:
   a. Reef Industries; Terra Tape, Sentry Line Detectable.
   b. Mutual Industries; Detectable Tape.
   c. Presco; Detectable Tape.

B. Color: In accordance with APWA Uniform Color Code.

Color*	Facility
Red	Electric power lines, cables, conduit, and lightning cables
Orange	Communicating alarm or signal lines, cables, or conduit
Yellow	Gas, petroleum
Green	Sewers and drain lines
Blue	Potable water
Purple	Reclaimed water, irrigation, and slurry lines
*As specified in NEMA Z535.1, Safety Color Code.	

2.02 TRENCH STABILIZATION

A. Shall be as specified for Crushed Surfacing Base Course in Section 31 23 23, Fill and Backfill.

2.03 BEDDING MATERIAL AND PIPE ZONE MATERIAL

A. Unfrozen, friable, and no clay balls, roots, or other organic material.

B. Bedding and Pipe Zone Material shall be CLSM if shown on Drawings.

C. Clean or gravelly sand with less than 5 percent passing No. 200 sieve, as determined in accordance with ASTM D1140, or gravel or crushed rock within maximum particle size and other requirements as follows unless otherwise specified.

1. Duct Banks: 3/4-inch maximum particle size.
2. PVC Irrigation System Piping and Ductile Iron Pipe with Polyethylene Wrap: 3/8-inch maximum particle size.
3. Pipe Under 18-Inch Diameter: 3/4-inch maximum particle size, except 1/4 inch for stainless steel pipe, copper pipe, tubing, and plastic pipe under 3-inch diameter.
4. Pipe 18-Inch Diameter and Greater: 3/4-inch maximum particle size for ductile iron pipe, concrete pipe, and welded steel pipe.
5. Perforated Pipe: Granular drain material.
6. Conduit and Direct-Buried Cable:
    a. Sand, clean or clean to silty, less than 12 percent passing No. 200 sieve.
    b. Individual Particles: Free of sharp edges.
    c. Maximum Size Particle: Pass a No. 4 sieve.
    d. If more than 5 percent passes No. 200 sieve, the fraction that passes No. 40 sieve shall be nonplastic as determined in accordance with ASTM D4318.

2.04 BACKFILL ABOVE THE PIPE ZONE

A. Remove all water or seepage that collects in the trench prior to beginning placement and spreading of fill materials for backfill above the pipe zone.

B. Place Gravel Borrow or other material as shown above the pipe zone. Place backfill in horizontal lifts not exceeding 8 inches prior to compaction, and compact each layer to not less than 95 percent of its maximum density.

2.05 GEOTEXTILE

A. Shall be as specified for Geotextile in Section 31 23 23, Fill and Backfill.

2.06 SOURCE QUALITY CONTROL

A. Perform gradation analysis in accordance with ASTM C136 for:

1. Trench stabilization material.
2. Bedding and pipe zone material.
3. Gravel Borrow. Observe wet weather gradation requirements for Gravel Borrow as stated in Section 31 23 23, Fill and Backfill, if placement and compaction becomes a problem.
4. Gravel backfill for drains.

B. Certify Laboratory Performance of Mix Designs: Concrete.

PART 3 EXECUTION

3.01 TRENCH PREPARATION

A. Water Control:

1. Promptly remove and dispose of water entering trench as necessary to grade trench bottom and to compact backfill and install manholes, pipe, conduit, direct-buried cable, or duct bank. Do not place concrete, lay pipe, conduit, direct-buried cable, or duct bank in water.
2. Remove water in a manner that minimizes soil erosion from trench sides and bottom.
3. Provide continuous water control until trench backfill is complete.

B. Remove foreign material and backfill contaminated with foreign material that falls into trench.

3.02 TRENCH BOTTOM

A. Firm Subgrade: Grade with hand tools, remove loose and disturbed material, and trim off high areas and ridges left by excavating bucket teeth. Allow space for bedding material if shown or specified.

B. Soft Subgrade: If subgrade is encountered that may require removal to prevent pipe settlement, notify Engineer. Engineer will determine depth of overexcavation, if any required.

3.03 TRENCH STABILIZATION MATERIAL INSTALLATION

A. Wherever trench stabilization material is used, it shall be completely wrapped and surrounded with geotextile.

B. Rebuild trench bottom with trench stabilization material if required during construction by the Engineer.

C. Where trench stabilization material is to be placed, first prepare trench bottom and sides as needed, and then place geotextile in the prepared trench bottom observing the required minimum overlap of joints. Extend geotextile fabric up the sides of trench temporarily until trench stabilization materials has been placed. Place material over the full width of the trench in lifts as needed. Bring to the required grade, provide allowance for bedding thickness. Then completely encapsulate the top of the trench stabilization materials by wrapping the geotextile over the top before placing bedding material.

D. Compact each lift so as to provide a firm, unyielding support for the bedding material prior to placing succeeding lifts.

3.04 PIPE BEDDING

A. Furnish imported bedding material where, in the opinion of Engineer, excavated material is unsuitable for bedding or insufficient in quantity.

B. Place over full width of prepared trench bottom in two equal lifts when required depth exceeds 8 inches.

C. Hand grade and compact each lift to provide a firm, unyielding surface.

D. Minimum Thickness as Follows:

1. Pipe 15 Inches and Smaller: 4 inches.
2. Conduit: 3 inches.
3. Direct-Buried Cable: 3 inches.
4. Duct Banks: 3 inches.

E. Check grade and correct irregularities in bedding material. Loosen top 1 inch to 2 inches of compacted bedding material with a rake or by other means to provide a cushion before laying each section of pipe, conduit, direct-buried cable, or duct bank.

F. Install to form continuous and uniform support except at bell holes, if applicable, or minor disturbances resulting from removal of lifting tackle.

G. Bell or Coupling Holes: Excavate in bedding at each joint to permit proper assembly and inspection of joint and to provide uniform bearing along barrel of pipe or conduit.

3.05 BACKFILL PIPE ZONE

A. Upper limit of pipe zone above the outside of the pipe barrel shall not be less than following:

1. Pipe: 12 inches, unless shown otherwise.

2. Conduit: 3 inches, unless shown otherwise.
3. Direct-Buried Cable: 3 inches, unless shown otherwise.
4. Duct Bank: 3 inches, unless shown otherwise.

B. Restrain pipe, conduit, cables, and duct banks as necessary to prevent their movement during backfill operations.

C. Place material simultaneously in lifts on both sides of pipe and, if applicable, between pipes, conduit, cables, and duct banks installed in same trench.

1. Pipe 10-Inch and Smaller Diameter: First lift less than or equal to 1/2 pipe diameter.
2. Pipe Over 10-Inch Diameter: Maximum 6-inch lifts.

D. For granular materials, thoroughly tamp each lift, including area under haunches, with handheld tamping bars supplemented by "walking in" and slicing material under haunches with a shovel to ensure voids are completely filled before placing each succeeding lift.

E. Each lift shall be compacted with a minimum of two passes by either a vibratory plate compactor or a power-driven impact compactor. Take care to avoid damaging pipe and pipe coating.

3.06 MARKING TAPE INSTALLATION

A. Continuously install detectable marking tape along centerline of buried piping as shown on Drawings. Coordinate with piping installation drawings.

3.07 BACKFILL ABOVE PIPE ZONE

A. General:

1. Process all imported material as needed to meet specified gradation requirements.
2. Adjust moisture content as necessary to obtain specified compaction.
3. Do not allow backfill to free fall into trench or allow heavy, sharp pieces of material to be placed as backfill until after at least 2 feet of backfill has been provided over top of pipe.
4. Do not use power driven impact type compactors for compaction until at least 4 feet of backfill is placed over top of pipe.
5. Backfill to grade with proper allowances for topsoil, crushed rock surfacing, and pavement thicknesses, wherever applicable.
6. Backfill around structures with same class backfill as specified for adjacent trench, unless otherwise shown or specified.

B. Backfill:

1. Place in lifts not exceeding thickness of 9 inches.
2. Mechanically compact each lift to a minimum of 95 percent relative compaction prior to placing succeeding lifts.

3.08 REPLACEMENT OF TOPSOIL

A. Where topsoil is required, replace topsoil in top 12 inches of backfilled trench.

B. Maintain finished grade of topsoil even with adjacent area and grade as necessary to restore drainage.

3.09 MAINTENANCE OF TRENCH BACKFILL

A. After each section of trench is backfilled, maintain surface of backfilled trench even with adjacent ground surface until final surface restoration is completed.

B. Gravel Surfacing Rock: Add crushed surfacing base course where applicable and as necessary to keep surface of backfilled trench even with adjacent ground surface, and grade and compact as necessary to keep surface of backfilled trenches smooth, free from ruts and potholes, and suitable for normal traffic flow.

C. Topsoil: Add topsoil where applicable and as necessary to maintain surface of backfilled trench level with adjacent ground surface.

D. Other Areas: Add excavated material where applicable and keep surface of backfilled trench level with adjacent ground surface.

3.10 SETTLEMENT OF BACKFILL

A. Settlement of trench backfill, or of fill, or facilities constructed over trench backfill will be considered a result of defective compaction of trench backfill. Defective work shall be replaced by the Contract at their expense.

END OF SECTION

SECTION 31 32 19.16
GEOTEXTILE

PART 1 GENERAL

1.01 REFERENCES

A. The following is a list of standards that may be referenced in this section:

1. ASTM International (ASTM):
   a. D737, Standard Test Method for Air Permeability of Textile Fabrics.
   b. D4355, Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus.
   c. D4491, Standard Test Methods for Water Permeability of Geotextiles by Permittivity.
   d. D4533, Standard Test Method for Trapezoid Tearing Strength of Geotextiles.
   e. D4595, Standard Test Method for Tensile Properties of Geotextiles by the Wide-Width Strip Method.
   f. D4632, Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.
   g. D4716, Test Method for Determining the (In-Plane) Flow Rate per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head.
   h. D4751, Standard Test Method for Determining Apparent Opening Size of a Geotextile.
   i. D4833, Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products.
   j. D4884, Standard Test Method for Strength of Sewn or Thermally Bonded Seams of Geotextiles.
   k. D4886, Standard Test Method for Abrasion Resistance of Geotextiles (Sand Paper/Sliding Block Method).
   l. D5199, Standard Test Method for Measuring the Nominal Thickness of Geosynthetics.
   m. D5261, Standard Test Method for Measuring Mass per Unit Area of Geotextiles.
   n. D6193, Standard Practice for Stitches and Seams.

1.02 DEFINITIONS

A. Fabric: Geotextile, a permeable geosynthetic comprised solely of textiles.

B. Maximum Average Roll Value (MaxARV): Maximum of series of average roll values representative of geotextile furnished.

C. Minimum Average Roll Value (MinARV): Minimum of series of average roll values representative of geotextile furnished.

D. Nondestructive Sample: Sample representative of finished Work, prepared for testing without destruction of Work.

E. Overlap: Distance measured perpendicular from overlapping edge of one sheet to underlying edge of adjacent sheet.

F. Seam Efficiency: Ratio of tensile strength across seam to strength of intact geotextile, when tested according to ASTM D4884.

G. Standard Specifications: When referenced in this section, shall mean Washington State Department of Transportation Standard Specifications for Road, Bridge and Municipal Construction, 2018.

1.03 SUBMITTALS

A. Action Submittals:

1. Shop Drawings:
   a. Manufacturer material specifications and product literature.
   b. Installation drawings showing geotextile sheet layout, location of seams, direction of overlap, and sewn seams.
   c. Description of proposed method of geotextile deployment, sewing equipment, sewing methods, and provisions for holding geotextile temporarily in place until permanently secured.
2. Samples:
   a. Geotextile: One-piece, minimum 18 inches long, taken across full width of roll of each type and weight of geotextile furnished for Project. Label each with brand name and furnish documentation of lot and roll number from which each Sample was obtained.
   b. If Field Sewn Seams are Proposed: 5-foot length of seam, 12 inches wide with seam along center, for each type and weight of geotextile.
   c. Securing Pin and Washer: One each.

B. Informational Submittals:

1. Certifications from each geotextile manufacturer that furnished products have specified property values. Certified property values shall be either minimum or maximum average roll values, as appropriate, for geotextiles furnished.
2. Field seam efficiency test results.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Deliver each roll with sufficient information attached to identify it for inventory and quality control.

B. Handle products in manner that maintains undamaged condition.

C. Do not store products directly on ground. Ship and store geotextile with suitable wrapping for protection against moisture and ultraviolet exposure. Store geotextile in way that protects it from elements. If stored outdoors, elevate and protect geotextile with waterproof cover.

1.05 SCHEDULING AND SEQUENCING

A. Where geotextile is to be laid directly upon ground surface, prepare subgrade as specified in Section 31 23 16, Excavation, first.

B. Notify Engineer whenever geotextiles are to be placed. Do not place geotextile without Engineer's approval of underlying materials.

PART 2 PRODUCTS

2.01 GENERAL

A. Construction geotextile for permanent erosion control shall be woven geotextile as listed below.

B. Construction geotextile for underground drainage shall be non-woven geotextile as listed below.

2.02 WOVEN GEOTEXTILE

A. Composed of polymeric yarn interlaced to form planar structure with uniform weave pattern.

B. Calendared or finished so yarns will retain their relative position with respect to each other.

C. Polymeric Yarn: Long-chain synthetic polymers (polyester or polypropylene) with stabilizers or inhibitors added to make filaments resistant to deterioration due to heat and ultraviolet light exposure.

D. Sheet Edges: Selvaged or finished to prevent outer material from separating from sheet.

E. Unseamed Sheet Width: Minimum 6 feet.

F. Nominal Weight per Square Yard: 0.4 pounds per ASTM D5261.

G. Physical Properties: Conform to requirements in Table 4 and Table 5 for permanent erosion control, moderate survivability of Section 9-33.2 of the Standard Specifications.

2.03 NONWOVEN GEOTEXTILE

A. Pervious sheet of polyester, polypropylene, or polyethylene fabricated into stable network of fibers that retain their relative position with respect to each other. Nonwoven geotextile shall be composed of continuous or discontinuous (staple) fibers held together through needle-punching, spun-bonding, thermal-bonding, or resin-bonding.

B. Geotextile Edges: Selvaged or otherwise finished to prevent outer material from pulling away from geotextile.

C. Unseamed Sheet Width: Minimum 6 feet.

D. Nominal Weight per Square Yard: 0.4 pounds per ASTM D5261.

E. Physical Properties: Conform to requirements in Table 1 and Table 2 of Section 9-33.2 of the Standard Specifications.

2.04 SEWING THREAD

A. Polypropylene, polyester, or Kevlar thread.

B. Durability: Equal to or greater than durability of geotextile sewn.

2.05 TRIAXIAL GEOGRID

A. Tensar TriAx TX130S or approved equivalent.

PART 3 EXECUTION

3.01 LAYING GEOTEXTILE

A. Lay and maintain geotextile smooth and free of tension, folds, wrinkles, or creases.

3.02 SHEET ORIENTATION ON SLOPES

A. Orient geotextile with long dimension of each sheet parallel to direction of slope.

3.03 JOINTS

A. Unseamed Joints:

1. Overlapped.
2. Overlap, unless otherwise shown:
   a. Foundation/Subgrade Stabilization: Minimum 18 inches.
   b. Riprap: Minimum 18 inches.
   c. Drain Trenches: Minimum 18 inches, except overlap shall equal trench width if trench width is less than 18 inches.
   d. Other Applications: Minimum 12 inches.

B. Sewn Seams: Made wherever stress transfer from one geotextile sheet to another is necessary and is not accomplished with an overlapping seam conforming to the manufacturer's recommendations. Sewn seams, as approved by Engineer, also may be used instead of overlap at joints for applications that do not require stress transfer.

1. Seam Efficiency:
   a. Minimum 12 inches.
   b. Verified by preparing and testing minimum of one set of nondestructive Samples per acre of each type and weight of geotextile installed.
   c. Tested according to ASTM D4884.
2. Types:
   a. Preferred: "J" type seams.
   b. Acceptable: Flat or butterfly seams.
3. Stitch Count: Minimum three to maximum seven stitches per inch.
4. Stitch Type: Double-thread chainstitch according to ASTM D6193.
5. Sewing Machines: Capable of penetrating four layers of geotextile.
6. Stitch Location: 2 inches from geotextile sheet edges, or more, if necessary to develop required seam strength.

3.04 SECURING GEOTEXTILE

A. Secure geotextile during installation as necessary with sandbags or other means approved by Engineer.

3.05 PLACING PRODUCTS OVER GEOTEXTILE

A. Before placing material over geotextile, notify Engineer. Do not cover installed geotextile until after Engineer provides authorization to proceed.

B. If tears, punctures, or other geotextile damage occurs during placement of overlying products, remove overlying products as necessary to expose damaged geotextile. Repair damage as specified in Article Repairing Geotextile.

3.06 QUARRY SPALLS OR RIPRAP APPLICATIONS

A. Sew joints where wave run-up may occur.

B. Limit height of riprap fall onto geotextile to prevent damage.

1. Drop Height: 3 feet for less than 200-pound rock.

3.07 GEOTEXTILE-REINFORCED EARTH WALL APPLICATIONS

A. Sew exposed joints; extend sewn seams minimum 3 feet behind face of wall.

B. Protect exposed geotextile from damage, ultraviolet light exposure, and deterioration until permanent facing is applied.

3.08 SILT FENCE APPLICATIONS

A. Install geotextile in one piece, or continuously sewn to make one piece, for full length and height of fence, including portion of geotextile buried in toe trench.

B. Install bottom edge of sheet in toe trench and backfill in a way that securely anchors geotextile in trench.

C. Securely fasten geotextile to wire mesh backing and each support post in a way that will not result in tearing of geotextile when fence is subjected to service loads.

D. Promptly repair or replace silt fence that becomes damaged.

3.09 REPAIRING GEOTEXTILE

A. Repair or replace torn, punctured, flawed, deteriorated, or otherwise damaged geotextile.

B. Repair Procedure:

1. Place patch of undamaged geotextile over damaged area and at least 18 inches in all directions beyond damaged area.
2. Remove interfering material as necessary to expose damaged geotextile for repair.
3. Sew patches or secure them with heat fusion tacking or with pins and washers, as specified above in Article Securing Geotextile, or by other means approved by Engineer.

3.10 REPLACING CONTAMINATED GEOTEXTILE

A. Protect geotextile from contamination that would interfere, in Engineer's opinion, with its intended function. Remove and replace contaminated geotextile with clean geotextile.

END OF SECTION

SECTION 31 37 00
RIPRAP

PART 1 GENERAL

1.01 REFERENCES

A. The following is a list of standards which may be referenced in this section:

1. ASTM International (ASTM):
   a. C94/C94M, Standard Specification for Ready-Mixed Concrete.
   b. C136, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
   c. C150, Standard Specification for Portland Cement.
   d. C535, Standard Test Method for Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.

1.02 DEFINITIONS

A. Refer to applicable definitions in Section 31 23 23, Fill and Backfill.

B. Standard Specifications: When referenced in this section, shall mean Washington State Department of Transportation Standard Specifications for Road, Bridge and Municipal Construction, 2018.

1.03 SUBMITTALS

A. Action Submittals:

1. Shop Drawings: Description and location of proposed sources of riprap.

B. Informational Submittals:

1. Certified Test Results:
   a. Riprap:
      1) Gradation.
      2) Abrasion resistance.
      3) Bulk density.
2. Trip tickets showing source, type, and weight of each load of material delivered to Site and scaleman's daily report.

1.04 QUALITY ASSURANCE

A. Riprap Source: Quarry that has produced riprap and has Washington State Department of Transportation qualify quarry list.

1.05 SCHEDULING AND SEQUENCING

A. Complete subgrade preparation as specified in Section 31 23 16, Excavation, and geotextile installation as specified in Section 31 32 19.16, Geotextile, prior to placing riprap.

PART 2 PRODUCTS

2.01 RIPRAP

A. Hard and durable quarry stone free from fractures, bedding planes, pronounced weathering, and earth or other adherent coatings.

B. Riprap shall meet the following graduation requirements for grading:

Sieve Size	Percent Passing
8”	100
3”	40 max
3/4”	10 max

PART 3 EXECUTION

3.01 PLACING RIPRAP ON RIPRAP BEDDING

A. Place riprap over prepared subgrade to uniform thickness, minimum 12 inch.

B. Intermix different sizes of pieces to eliminate segregation and to fill voids between larger pieces with smaller pieces and work surface free from irregularities.

C. Use placement and intermixing methods that avoid disturbing prepared subgrade and underlying geotextile or damaging existing facilities, completed Work, or adjacent property.

END OF SECTION

DIVISION 32

EXTERIOR IMPROVEMENTS

SECTION 32 11 23
AGGREGATE BASE COURSES

PART 1 GENERAL

1.01 REFERENCES

A. The following is a list of standards which may be referenced in this section:

1. ASTM International (ASTM):
   a. C29, Standard Test Method for Bulk Density (Unit Weight) and Voids in Aggregate.
   b. C88, Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate.
   c. C117, Standard Method of Test for Materials Finer Than 75µm (No. 200) Sieve in Mineral Aggregates by Washing.
   d. C131, Standard Specification for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
   e. C183, Standard Method of Test for Sieve Analysis of Fine and Coarse Aggregates.
   f. D698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lb/ft^3 (600 kN-m/m^3)).
   g. D1557, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lb/ft^3 (2700 kN-m/m^3)).
   h. D1883, Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils.
   i. D2216, Standard Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass.
   j. D2419, Test Method for Sand Equivalent Value of Soils and Fine Aggregate.
   k. D2844, Standard Specification for Resistance R-Value and Expansion Pressure of Compacted Soils.
   l. D4318, Standard Test Methods for Liquid Limit, Plastic Limit and Plasticity Index of Soils.
   m. D4791, Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate.
   n. D5195, Standard Test Methods for Density of Soil and Rock In-Place Below Surface by Nuclear Methods.
   o. D6938, Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

1.02 DEFINITIONS

A. Completed Course: Compacted, unyielding, free from irregularities, with smooth, tight, even surface, true to grade, line, and cross-section.

B. Completed Lift: Compacted with uniform cross-section thickness.

C. Base Course: Crushed aggregate or similar as specified placed and compacted on prepared subgrade or subbase course.

D. Gravel Surfacing: Aggregate used for construction of low-volume access and staging area that can be easily graded and compacted.

E. Leveling Course: Crushed aggregate placed and compacted on base course to be used for finish grading.

F. Standard Specifications: When referenced in this section, shall mean Washington Department of Transportation Standard Specifications for Road, Bridge, and Municipal Construction, 2018.

G. Subbase Course: Sandy, gravelly material placed and compacted on prepared subgrade.

1.03 SUBMITTALS

A. Informational Submittals:

1. Certified Test Results on Source Materials: Submit copies from commercial testing laboratory as specified in Section 01 33 00, Submittal Procedures.

PART 2 PRODUCTS

2.01 BASE COURSE

A. As specified for parking lot and roadway crushed surfacing base course in Section 9-03.9(3) of the Standard Specifications.

B. Physical Qualities:

1. Abrasion, ASTM C131: 35 percent maximum wear.
2. Fractured Face: One fractured face of combined aggregate retained on the No. 4 sieve
3. Degradation factor of base course is 15 minimum.

2.02 GRAVEL SURFACING TOP COURSE

A. As specified for parking lot and roadway crushed surfacing top course in Section 9-03.9(3) of the Standard Specifications.

B. Physical Qualities:

1. Abrasion, ASTM C131: 35 percent maximum wear.
2. Fractured Face: One fractured face of combined aggregate retained on the No. 4 sieve.
3. Degradation factor of top course is 15 minimum.

2.03 SOURCE QUALITY CONTROL

A. Perform tests necessary to locate acceptable source of materials meeting specified requirements.

B. Final approval of aggregate material will be based on test results of installed materials.

C. Should separation of coarse from fine materials occur during processing or stockpiling, immediately change methods of handling materials to correct uniformity in grading.

PART 3 EXECUTION

3.01 SUBGRADE PREPARATION

A. As specified in Section 31 23 23, Fill and Backfill.

B. Obtain Engineer's acceptance of subgrade before placing base course or surfacing material.

C. Do not place base course or surfacing materials on soft, muddy, or frozen subgrade.

3.02 EQUIPMENT

A. Compaction Equipment: Adequate in design and number to provide compaction and to obtain specified density for each layer.

3.03 HAULING AND SPREADING

A. In accordance with Section 2.04 of the Standard Specifications.

B. Hauling Materials:

1. Do not haul over surfacing in process of construction.
2. Loads: Of uniform capacity.
3. Maintain consistent gradation of material delivered; loads of widely varying gradations will be cause for rejection.

C. Spreading Materials:

1. Distribute material to provide required density, depth, grade, and dimensions with allowance for subsequent lifts.
2. Produce even distribution of material upon roadway or prepared surface without segregation.
3. Should segregation of coarse from fine materials occur during placing, immediately change methods of handling materials to correct uniformity in grading.

3.04 CONSTRUCTION OF COURSES

A. Construction of Courses: In accordance with Section 4.02.3 of the Standard Specifications.

B. Base Course:

1. Maximum Completed Lift Thickness: 6 inches.
2. Completed Course Total Thickness: As shown.
3. Spread lift on preceding course to required cross-section.

C. Top Course:

1. Maximum Completed Lift Thickness: 4 inches.
2. Completed Course Total Thickness: As shown.
3. Spread on roadway or preceding course to depth, grade, and cross-section shown.

3.05 ROLLING AND COMPACTION

A. In accordance with Section 2-03.3(14)D of the Standard Specifications

B. Commence compaction of each layer of base and top course after spreading operations and continue until density of 95 percent of maximum density has been achieved as determined by ASTM D1557.

C. Apply water as needed to obtain specified densities.

D. Place and compact each lift to the required density before succeeding lift is placed.

E. Surface Defects: Remedy by loosening and rerolling. Reroll entire area, including surrounding surface, until thoroughly compacted.

F. Finished surface shall be true to grade and crown before proceeding with surfacing.

3.06 SURFACE TOLERANCES

A. Blade or otherwise work surfacing as necessary to maintain grade and cross-section at all times, and to keep surface smooth and thoroughly compacted.

B. Finished Surface of Untreated Aggregate Base course within plus or minus 0.04 foot of grade shown at any individual point.

C. Gravel top course: Within 0.04 foot from lower edge of 10-foot straightedge placed on finished surface, parallel to centerline.

3.07 FIELD QUALITY CONTROL

A. In-Place Density Tests:

1. Provide Engineer at least 2 days advance notification prior to testing.
2. Show proof that areas meet specified requirements before identifying density test locations.
3. Refer to Table 2 for minimum sampling and testing requirements for aggregate base course and surfacing.

Table 2
Minimum Sampling and Testing Requirements

Property	Test Method	Frequency	Sampling Point
Gradation	ASTM C117and ASTM C183	One sample every 1,000 tons	Roadbed after processing out of stockpile
Moisture Density (Maximum Density)	ASTM D1557	One test for every aggregate grading produced	Production output or stockpile
In-Place Density and Moisture Content	ASTM D5195, ASTM D6938, and ASTM D2216 for moisture content	One for each 1,000 tons	In-place completed, compacted area

3.08 CLEANING

A. Remove excess material from the Work area. Clean stockpile and staging areas of all excess aggregate.

END OF SECTION

SECTION 32 12 16
ASPHALT PAVING

PART 1 GENERAL

1.01 REFERENCES

A. The following is a list of standards which may be referenced in this section:

1. American Association of State Highway and Transportation Officials (AASHTO):
   a. M17, Standard Specification for Mineral Filler for Bituminous Paving Mixtures.
   b. M81, Standard Specification for Cut-Back Asphalt (Rapid Curing Type).
   c. M82, Standard Specification for Cut-Back Asphalt (Medium Curing Type).
   d. M140, Standard Specification for Emulsified Asphalt.
   e. M156, Standard Specification for Requirements for Mixing Plants for Hot-mixed, Hot-laid Bituminous Paving Mixes.
   f. M208, Standard Specification for Cationic Emulsified Asphalt.
   g. R35, Standard Practice for Superpave Volumetric Design for Hot Mix Asphalt.
   h. T166, Standard Method of Test for Bulk Specific Gravity (Gmb) of Compacted Hot Mix Asphalt (HMA) Mixtures Using Saturated Surface-Dry Specimens.
   i. T176, Standard Method of Test for Plastic Fines in Graded Aggregates and Soils by Use of the Sand Equivalent Test.
   j. T209, Standard Method of Test for Theoretical Maximum Specific Gravity (Gmm) and Density of Hot Mix Asphalt (HMA).
   k. T245, Standard Method of Test for Resistance to Plastic Flow of Asphalt Mixtures Using Marshall Apparatus.
   l. T246, Standard Method of Test for Resistance to Deformation and Cohesion of Hot Mix Asphalt (HMA) by Means of Hveem Apparatus.
   m. T247, Standard Method of Test for Preparation of Test Specimens of Hot Mix Asphalt (HMA) by Means of California Kneading Compactor.
   n. T283, Standard Method of Test for Resistance of Compacted Hot Mix Asphalt (HMA) to Moisture-Induced Damage.
   o. T304, Standard Method of Test for Uncompacted Void Content of Fine Aggregate.
   p. T312, Standard Method of Test for Preparing and Determining the Density of Hot Mix Asphalt (HMA) Specimens by Means of a Superpave Gyratory Compactor.

2. Asphalt Institute (AI):
   a. Manual Series No. 2 (MS-2), Mix Design Methods for Asphalt Concrete.
   b. Superpave Series No. 2 (SP-2), Superpave Mix Design.
3. ASTM International (ASTM):
   a. D75, Standard Method of Test for Sampling of Aggregates.
   b. D140, Standard Method of Test for Sampling Bituminous Materials.
   c. D979, Standard Method of Test for Sampling Bituminous Paving Mixtures.
   d. D2041, Standard Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures.
   e. D2489, Standard Method of Test for Determining Degree of Particle Coating of Asphalt Mixtures.
   f. D4318, Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
   g. D4791, Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate.
   h. D5821, Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate.
   i. E329 REV A, Standard Specification for Agencies Engaged in Construction Inspection Testing, or Special Inspection.

1.02 DEFINITIONS

A. Asphalt Treated Base (ATB): A compacted course of base material which has been weatherproofed and stabilized by treatment with an asphalt binder.

B. Combined Aggregate: All mineral constituents of asphalt concrete mix, including mineral filler and separately sized aggregates.

C. Maximum Aggregate Size: One sieve size larger than the nominal aggregate size.

D. Nominal Aggregate Size: One sieve size larger than the first sieve that retains more than 10 percent aggregate.

E. Prime Coat: Low viscosity cutback or emulsified asphalt applied to granular base in preparation of paving to coat and bond loose materials, harden the surface, plug voids, prevent moisture migration, and provide adhesion.

F. Reclaimed Asphalt Pavement (RAP): Removed and/or processed pavement materials containing binder and aggregate.

G. Seal Coat: Term used for various applications of emulsified asphalt, with or without sand or aggregate, to protect the asphalt surface from aging due to wear, degradation from the sun, wind, and water. Also used to improve skid resistance and aesthetics. The term seal coat can be used to define fog seal, slurry seal, chip seal or sand seal, depending on application.

H. General Special Provision: When referenced in this section, shall mean Washington State Department of Transportation Standard Specifications for Road, Bridge, and Municipal Construction, as maintained by the American Public Works Association of Washington (APWA-WA) as a Local Agency General Special Provision (GSP). GSPs 4-SA1 and 9-03.6 are used together to define the current ATB specification.

I. Standard Specifications: When referenced in this section, shall mean Washington State Department of Transportation Standard Specifications for Road, Bridge, and Municipal Construction, 2018.

J. Tack Coat: Thin layer of emulsified asphalt applied to hard surfaces, including new pavement lifts, to promote adhesion and bonding.

1.03 MIX DESIGN

A. The mix design requirements for asphalt treated base shall be as described in Standard Specifications Section 9-03.6(3). N_{design} will be 100 gyrations for all ATB design applications. The asphalt binder shall be PG 64-22 unless specifically altered in the Project Specifications. The proposed mix design will be submitted for review on WSDOT Form 350-042 with included notes applicable to the ATB design evaluation.

1.04 SUBMITTALS

A. Informational Submittals:

1. Asphalt Concrete Mix Formula:
   a. Submit minimum of 15 days prior to start of production.
   b. Submittal to include the following information:
      1) Gradation and portion for each aggregate constituent used in mixture to produce a single gradation of aggregate within specified limits.
      2) Bulk specific gravity for each aggregate constituent.
      3) Measured maximum specific gravity of mix at optimum asphalt content determined in accordance with ASTM D2041.
      4) Properties as stated in Section 5-04 of the Standard Specifications, for at least four different asphalt contents other than optimum, two below optimum, and two above optimum.
      5) Percent of asphalt lost due to absorption by aggregate.

6) Index of Retained Strength (TSR) at optimum asphalt content as determined by AASHTO T283.
7) Percentage of asphalt cement, to nearest 0.1 percent, to be added to mixture.
8) Optimum mixing temperature.
9) Optimum compaction temperature.
10) Temperature-viscosity curve of asphalt cement to be used.
11) Brand name of any additive to be used and percentage added to mixture.

2. Test Report for Asphalt Cement:
   a. Submit minimum 10 days prior to start of production.
   b. Show appropriate test method(s) for each material and the test results.
3. Manufacturer's Certificate of Compliance for the following materials:
   a. Aggregate: Gradation, source test results.
   b. Asphalt for Binder: Type, grade, and viscosity-temperature curve.
   c. Prime Coat: Type and grade of asphalt.
   d. Tack Coat: Type and grade of asphalt.
   e. Additives.
   f. Mix: Conforms to job-mix formula.
4. Statement of qualification for independent testing laboratory.
5. Test Results:
   a. Mix design.
   b. Asphalt concrete core.
   c. Gradation and asphalt content of uncompacted mix.
   d. Field density.
   e. Quality control.

1.05 QUALITY ASSURANCE

A. Qualifications:

1. Independent Testing Laboratory: In accordance with ASTM E329 REV A.
2. Asphalt concrete mix formula shall be prepared by approved certified independent laboratory under the supervision of a certified asphalt technician.

B. Asphalt Mixing Plant

1. Asphalt mixing plants for asphalt treated base shall meet the following requirements:
   a. Heating: The plant shall be capable of heating the aggregates to the required temperature.

b. Proportioning: The mixing plant shall be capable of proportioning the aggregates to meet the Specifications, and the asphalt binder will be introduced at the rate specified in the approved mix design. If the aggregates are supplied in two or more sizes, means shall be provided for proportioning or blending the different sizes of aggregates to produce material meeting the Specification requirements.
c. Recycled asphalt pavement (RAP) may be used in the production of ATB. If utilized, the amount of RAP shall not exceed 30 percent of the total weight of the ATB. The final gradation and asphalt binder content will conform to the approved Job Mix Formula (JMF). ATB will be evaluated under Commercial Evaluation as shown in Section 9-03.8(7) of the Standard Specifications. Va limits under Section 9-03.8(7) are excluded from ATB evaluation criteria.
d. Mixing: The mixer shall be capable of producing a uniform mixture of uniformly coated aggregates meeting the requirements of the General Special Provision.

C. Compaction Control Strip:

1. General:
   a. Construct to approximately 400 square yards in area and at location that will become a portion of completed paved area.
   b. Thickness: Typical of thickness to be paved on Project.
2. Rollers Used for Compaction:
   a. Steel Wheel Rollers: Minimum static weight 10 tons (9 mg).
   b. Pneumatic Rollers: Capable of exerting pressure of 80 psi (550 kPa) on bituminous surface.
   c. Vibratory Rollers: Static weight minimum 6 tons (5.5 mg), capable of applying a 10-ton (9-mg) impact force equipped with amplitude and frequency control specifically designed for compaction of bituminous mixtures.
3. Compaction:
   a. Compact bituminous mat, using a standard rolling pattern that covers entire control strip. Request that Engineer performs final density test.
   b. Continue rolling until no further compaction can be obtained as determined by field density testing.
   c. Temperature and condition of bituminous mat shall be considered workable when further compaction can no longer be obtained.
4. Target Density Determination:
   a. Select test point near center of normal roller pass, but no closer than 2 feet (600 millimeters) from edge of mat and 50 feet (15 meters) from either end of control strip. Mat thickness at this point shall be at least depth of finished pavement.
   b. Point at which no further densification can be obtained.
5. Establish new target density if change is made in mix design, nominal depth of mat being placed, aggregate source, or material properties.

1.06 ENVIRONMENTAL REQUIREMENTS

A. Temperature: Do not apply asphalt materials or place asphalt mixes when ground temperature is lower than 50 degrees F (10 degrees C) or air temperature is lower than 40 degrees F (4 degrees C). Measure ground and air temperature in shaded areas away from heat sources or wet surfaces.

B. Moisture: Do not apply asphalt materials or place asphalt mixes when application surface is wet.

PART 2 PRODUCTS

2.01 MATERIALS

A. Tack Coat:

1. Emulsified Asphalt for Tack Coat or Seal Coat: Grade SS-1, SS-1h conforming to AASHTO M140.

B. Sand for Blotter Material or Sand Seal: Clean, dry, with 100 percent passing No. 4 (4.75-millimeter) sieve, and a maximum of 10 percent passing No. 200 (75 m) sieve.

2.02 ASPHALT CONCRETE MIXES

A. General:

1. Mix formula shall not be modified except with written approval of Engineer.
2. Source Changes:
   a. Should material source(s) change, establish new asphalt concrete mix formula before new material(s) is used.
   b. Perform check tests of properties of plant-mix bituminous materials on first day of production and as requested by Engineer to confirm that properties are in compliance with design criteria.
   c. Make adjustments in gradation or asphalt content as necessary to meet design criteria.

B. Hot Mix Asphalt (HMA): Grade 64-22, Class 1/2 inch as specified in Section 9-02.1(4) of the Standard Specifications.

C. Composition: Hot-plant mix of aggregate, mineral filler if required, and paving grade asphalt cement. The several aggregate fractions shall be sized, uniformly graded, and combined in such proportions that resulting mixture meets grading requirements of mix formula.

D. Aggregate for Hot Mix Asphalt: As specified in Section 9-03.8 of the General Special Provisions.

E. Asphalt Treated Base as specified in Section 9-02.1 and Section 9-02.4 of the Standard Specifications, and the following:

1. Aggregates for Asphalt Treated Base (ATB):
   a. General Requirements:
      1) Aggregates for asphalt treated base shall be manufactured from ledge rock, talus, or gravel, in accordance with the provisions of Section 3-01 that meet the following test requirements:
         a) Los Angeles Wear, 500 Rev.: 30 percent maximum.
         b) Degradation Factor: 15 minimum.
   b. Grading:
      1) Aggregates for asphalt treated base shall meet the following requirements for grading (all percentages are by weight):

Sieve Size	Percent Passing
2”	100
1/2”	56 - 100
No. 4	32 - 72
No. 10	22 - 57
No. 40	8 - 32
No. 200	2 - 9

   c. Test Requirements:
      1) When the aggregates are combined within the limits set forth in Section 9-03.6(2) of the General Special Provisions and mixed in the laboratory with the designated grade of asphalt, the mixture shall be capable of meeting the following test values:
         a) Percent of Theoretical Maximum Specific Gravity (GMM) (approximate): 93 at 100 gyrations.
         b) AASHTO T324, WSDOT TM T718, or ASTM D3625: Pass (Acceptable anti-strip evaluation tests).
         c) The sand equivalent value of the mineral aggregate for asphalt treated base (ATB) shall not be less than 35.

PART 3 EXECUTION

3.01 GENERAL

A. Traffic Control:

1. In accordance with Section 01 50 00, Temporary Facilities and Controls.

2. Minimize inconvenience to traffic, but keep vehicles off freshly treated or paved surfaces to avoid pickup and tracking of asphalt.

B. Driveways: Repave driveways from which pavement was removed. Leave driveways in as good or better condition than before start of construction.

3.02 LINE AND GRADE

A. Provide and maintain intermediate control of line and grade, independent of underlying base, to meet finish surface grades and minimum thickness.

B. Shoulders: Construct to line, grade, and cross-section shown.

3.03 PREPARATION

A. Prepare subgrade as specified in Section 31 23 16, Excavation.

B. Aggregates for asphalt treated base shall be stockpiled before use in accordance with the requirements of Section 3-02 of the WSDOT General Special Provisions. The aggregates shall be heated as required by the Engineer.

C. Existing Roadway:

1. Modify profile by grinding, milling, or overlay methods as approved, to provide meet lines and surfaces and to produce smooth riding connection to existing facility.
2. Remove existing material to a minimum depth of 1 inch (25 millimeters).
3. Paint edges of meet line with tack coat prior to placing new pavement.

D. Thoroughly coat edges of contact surfaces (curbs, manhole frames) with emulsified asphalt or asphalt cement prior to laying new pavement. Prevent staining of adjacent surfaces.

3.04 PAVEMENT APPLICATION

A. General: Place asphalt concrete mixture on approved, prepared base in conformance with Standard Specifications.

B. Tack Coat:

1. Apply uniformly to clean, dry surfaces avoiding overlapping of applications.
2. Do not apply more tack coat than necessary for the day's paving operation.
3. Touch up missed or lightly coated surfaces and remove excess material.
4. Application Rate: 0.05 gallon per square yard to 0.15 gallon per square yard (0.25 liter per square meter to 0.70 liter per square meter) of asphalt (residual if diluted emulsified asphalt).

C. Pavement Mix:

1. Prior to Paving:
   a. Sweep primed surface free of dirt, dust, or other foreign matter.
   b. Patch holes in primed surface with asphalt concrete pavement mix.
   c. Blot excess prime material with sand.
2. Place asphalt concrete pavement mix in two equal lifts.
3. Compacted Lift Thickness:
   a. Minimum: Twice maximum aggregate size, but in no case less than 1 inch (25 millimeters).
   b. Maximum: 4 inches (100 millimeters).
4. Total Compacted Thickness: As shown.
5. Sequence placement so that meet lines are straight and edges are vertical.
6. Collect and dispose of segregated aggregate from raking process. Do not scatter material over finished surface.
7. Joints:
   a. Offset edge of each layer a minimum of 6 inches (150 millimeters) so joints are not directly over those in underlying layer.
   b. Offset longitudinal joints in roadway pavements so longitudinal joints in wearing layer coincide with pavement centerlines and lane divider lines.
   c. Form transverse joints by cutting back on previous day's run to expose full vertical depth of layer.
8. Succeeding Lifts: Apply tack coat to pavement surface between each lift.
9. After placement of pavement, seal meet line by painting a minimum of 6 inches (150 millimeters) on each side of joint with cutback or emulsified asphalt. Cover immediately with sand.

D. Subgrade Protection Course:

1. Unless otherwise specified by the Engineer, the Contractor shall place the asphalt treated base as a protection for the prepared subgrade on all sections of individual roadways which are to receive asphalt treated base as soon as 10,000 square yards of subgrade is completed. This requirement shall not be limited to contiguous areas on the Project.
2. The surface of the subgrade protection layer when constructed on a grading project shall conform to grade and smoothness requirements that apply to the subgrade upon which it is placed.

E. Finish Course

1. The final surface course of the asphalt treated base, excluding shoulders, shall not deviate at any point more than 3/8 inch from the bottom of a 10-foot straightedge laid in any direction on the surface on either side of the roadway crown. Failure to meet this requirement shall necessitate sufficient

surface correction to achieve the required tolerance, as approved by the Engineer, at no expense to the Contracting Agency.

2. When portland cement concrete pavement is placed on an asphalt base, the surface tolerance of the asphalt base shall be such that no elevation lies more than 0.05 feet below nor 0.00 feet above the plan grade minus the specified plan depth of portland cement concrete pavement. Prior to placing the portland cement concrete pavement, any such irregularities shall be brought to the required tolerance by grinding or other means approved by the Engineer, at no expense to the Contracting Agency.

F. Compaction:

1. Uniformly compact each course until no further evidence of consolidation is visible and roller marks are eliminated. When placement rate exceeds 100 tons (90 mg) per hour, operate minimum of two rollers for compaction.
2. Roll until roller marks are eliminated and minimum density of 95 percent of mix design unit weight at optimum asphalt content is obtained.
3. Asphalt treated base shall be spread with a spreading machine equipped with a stationary, vibratory, or oscillating screed or cut-off device, subject to the approval of the Engineer. Approval of the equipment shall be based on a job demonstration that the finished product will meet all requirements of the Specifications. Automatic controls will not be required. Unless otherwise directed by the Engineer, the nominal compacted depth of any ATB layer shall not exceed 0.40 feet. On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impractical, the paving may be done with other equipment or by hand.
4. The internal temperature of the ATB mixture at the time compaction is achieved shall be a minimum of 185 degrees F. Rollers shall only be operated in the static mode when the internal temperature of the mix is less than 175 degrees F.

G. Anti-Stripping Additive: An anti-stripping additive shall be added to the asphalt binder material in accordance with Section 9-02.4 in the amount designated in a WSDOT mix design/anti-strip evaluation report for a dense graded hot mix asphalt design from the same gravel source within the last 24 months or as evaluated separately by an accredited lab using current WSDOT test methods (AASHTO T324 – Hamburg or WSDOT TM T718 – Modified Lottman). Alternately, the ATB may be evaluated for anti-strip additive using ASTM D3625 (Standard Practice for Effect of Water on Bituminous-Coated Aggregate Using Boiling Water) by an accredited lab. The anti-stripping additive required will be the minimum amount necessary to achieve a passing evaluation.

H. Tolerances:

1. General: Conduct measurements for conformity with crown and grade immediately after initial compression. Correct variations immediately by removal or addition of materials and by continuous rolling.
2. Completed Surface or Wearing Layer Smoothness:
   a. Uniform texture, smooth, and uniform to crown and grade.
   b. Maximum Deviation: 1/8 inch (3 millimeter) from lower edge of a 12-foot (3.6-meter) straightedge, measured continuously parallel and at right angle to centerline.
   c. If surface of completed pavement deviates by more than twice specified tolerances, remove and replace wearing surface.
3. Transverse Slope Maximum Deviation: 1/4 inch (6 millimeters) in 12 feet (3.6 meters) from rate of slope shown.
4. Finished Grade:
   a. Perform field differential level survey on maximum 50-foot (15-meter) grid and along grade breaks.
   b. Maximum Deviation: 0.02 foot (6 millimeters) from grade shown.

I. Seal Coat:

1. General: Apply seal coat of paving grade or emulsified asphalt to finished surface at longitudinal and transverse joints, joints at abutting pavements, areas where asphalt concrete was placed by hand, patched surfaces, and other areas as directed by Engineer.
2. Preparation:
   a. Surfaces that are to be sealed shall be maintained free of holes, dry, and clean of dust and loose material.
   b. Seal in dry weather and when temperature is above 35 degrees F (2 degrees C).
3. Application:
   a. Fill cracks over 1/16 inch (1.5 millimeters) in width with asphalt-sand slurry or approved crack sealer prior to sealing.
   b. When sealing patched surfaces and joints with existing pavements, extend minimum 6 inches (150 millimeters) beyond edges of patches.

3.05 PAVEMENT OVERLAY

A. Preparation:

1. Remove fatty asphalt, grease drippings, dust, and other deleterious matter.
2. Surface Depressions: Fill with asphalt concrete mix, and thoroughly compact.
3. Damaged Areas: Remove broken or deteriorated asphalt concrete and patch as specified in Article Patching.

4. Portland Cement Concrete Joints: Remove joint filler to minimum 1/2 inch (12 millimeters) below surface.

B. Application:

1. Tack Coat: As specified in this section.
2. Place and compact asphalt concrete as specified in Article Pavement Application.
3. Place first layer to include widening of pavement and leveling of irregularities in surface of existing pavement.
4. When leveling irregular surfaces and raising low areas, the actual compacted thickness of any one lift shall not exceed 2 inches (50 millimeters).
5. Actual compacted thickness of intermittent areas of 120 square yards (100 square meters) or less may exceed 2 inches (50 millimeters), but not 4 inches (100 millimeters).
6. Final wearing layer shall be of uniform thickness, and meet grade and cross-section as shown.

3.06 PATCHING

A. Preparation:

1. Remove damaged, broken, or unsound asphalt concrete adjacent to patches. Trim to straight lines exposing smooth, sound, vertical edges.
2. Prepare patch subgrade as specified in Section 31 23 16, Excavation.

B. Application:

1. Patch Thickness: 3 inches (75 millimeters) or thickness of adjacent asphalt concrete, whichever is greater.
2. Place asphalt concrete mix across full width of patch in layers of equal thickness.
3. Spread and grade asphalt concrete with hand tools or mechanical spreader, depending on size of area to be patched.

C. Compaction:

1. Roll patches with power rollers capable of providing compression of 200 pounds per linear inch to 300 pounds per linear inch (350 Newtons per linear centimeter to 525 Newtons per linear centimeter). Use hand tampers where rolling is impractical.
2. Begin rolling top course at edges of patches, lapping adjacent asphalt surface at least one-half the roller width. Progress toward center of patch overlapping each preceding track by at least one-half width of roller.
3. Make sufficient passes over entire area to remove roller marks and to produce desired finished surface.

D. Tolerances:

1. Finished surface shall be flush with and match grade, slope, and crown of adjacent surface.
2. Surface smoothness shall not deviate more than plus 1/4 inch (6 millimeters) or minus 0 inch when a 4-foot straightedge is laid across patched area between edges of new pavement and surface of old surfacing.

E. Field Density Tests:

1. Perform tests from cores or sawed samples in accordance with AASHTO T166.
2. Measure with properly operating and calibrated nuclear density gauge in accordance with ASTM D2950.
3. Maximum Density: In accordance with ASTM D2041, using sample of mix taken prior to compaction from same location as density test sample.

F. Testing Frequency:

1. Quality Control Tests:
   a. Asphalt Content, Aggregate Gradation: Once per every 500 tons (400 mg) of mix or once every 4 hours, whichever is greater.
   b. Mix Design Properties, Measured Maximum (Rice's) Specific Gravity: Once every 1,000 tons (900 mg) or once every 8 hours, whichever is greater.
2. Density Tests: Once every 500 tons (450 mg) of mix or once every 4 hours, whichever is greater.

END OF SECTION

SECTION 32 16 00
CURBS AND GUTTERS

PART 1 GENERAL

1.01 REFERENCES

A. The following is a list of standards which may be referenced in this section:

1. American Association of State Highway and Transportation Officials (AASHTO): T 99, Standard Specification for the Moisture-Density Relations of Soils Using a 2.5 kg (5.5 pound) Rammer and a 305 mm (12 in.) Drop.
2. American Concrete Institute (ACI): 304R, Guide for Measuring, Mixing, Transporting, and Placing Concrete.
3. ASTM International (ASTM):
   a. C94, Standard Specification for Ready-Mixed Concrete.
   b. C309, Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
   c. D994, Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type).
4. Standard Specification: State of Washington: Washington Department of Transportation Standard Specifications for Road, Bridge, and Municipal Construction, 2018.

1.02 SUBMITTALS

A. Action Submittals:

1. Form Material: Information on metal forms, including type, condition, surface finish, and intended function.
2. Complete data on concrete mix, including aggregate gradations and admixtures in accordance with requirements of ASTM C94.

B. Informational Submittals:

1. Curing Compound: Manufacturer's Certificate of Compliance.
2. Ready-mix delivery ticket for each truck in accordance with ASTM C94.

1.03 QUALITY ASSURANCE

A. Regulatory Requirements: Conform to the Washington Department of Transportation Standard Specifications for Road, Bridge, and Municipal Construction, 2018.

PART 2 PRODUCTS

2.01 MATERIALS

A. Conform to the requirements of the referenced Standard Specification.

2.02 EXPANSION JOINT FILLER

A. Preformed asphalt-impregnated, expansion joint material meeting ASTM D994, 1/2-inch thick.

2.03 CONCRETE

A. Ready-mixed concrete meeting ASTM C94, Option A, with compressive strength of 4,000 psi at 28 days (Class 4000). Cast-in-place concrete as specified in Section 03 30 00, Cast-in-Place Concrete.

B. Maximum Aggregate Size: 1-1/2 inch.

C. Slump: 2 inches to 4 inches.

2.04 CURING COMPOUND

A. Liquid membrane forming, clear or translucent, suitable for spray application and meeting ASTM C309, Type 1.

PART 3 EXECUTION

3.01 INSTALLATION

A. Perform Work in accordance with the referenced Standard Specification.

3.02 FORMWORK

A. Wood forms are only allowed for forming a curve.

B. Lumber Materials:

1. 2-inch dressed dimension lumber, or metal of equal strength, straight, free from defects that would impair appearance or structural quality of completed curb and sidewalk.
2. 1-inch dressed lumber or plywood may be used where short-radius forms are required.

C. Metals: Steel in new undamaged condition.

D. Setting Forms:

1. Construct forms to shape, lines, grades, and dimensions.
2. Stake securely in place.

E. Bracing:

1. Brace forms to prevent change of shape or movement resulting from placement.
2. Construct short-radius curved forms to exact radius.

F. Tolerances:

1. Do not vary tops of forms from gradeline more than 1/8 inch when checked with 10-foot straightedge.
2. Do not vary alignment of straight sections more than 1/8 inch in 10 feet.

3.03 PLACING CONCRETE

A. Prior to placing concrete, remove water from excavation and debris and foreign material from forms.

B. Place concrete as soon as possible, and within 1-1/2 hours after adding cement to mix without segregation or loss of ingredients, and without splashing.

C. Place, process, finish, and cure concrete in accordance with applicable requirements of ACI 304, and this section. Wherever requirements differ, the more stringent shall govern.

D. To ensure concrete is uniformly consolidated, vibrate until concrete becomes uniformly plastic.

3.04 CURB CONSTRUCTION

A. Construct ramps at pedestrian crossings.

B. Expansion Joints: Place at maximum 45-foot intervals, at the beginning and end of curved portions of curb, and at connections to existing curbs. Install expansion joint filler at each joint.

C. Curb Facing: Do not allow horizontal joints within 7 inches from top of curb.

D. Contraction Joints:

1. Maximum 15-foot intervals in curb.
2. Provide open joint type by inserting thin, oiled steel sheet vertically in fresh concrete to force coarse aggregate away from joint.
3. Insert steel sheet to full depth of curb.

4. Remove steel sheet with sawing motion after initial set has occurred in concrete and prior to removing front curb form.
5. Finish top of curb with steel trowel and finish edges with steel edging tool.

E. Front Face:

1. Remove front form and finish exposed surfaces when concrete has set sufficiently to support its own weight.
2. Finish formed face by rubbing with burlap sack or similar device to produce uniformly textured surface, free of form marks, honeycomb, and other defects.
3. Remove and replace defective concrete.
4. Apply curing compound to exposed surfaces of curb upon completion of finishing.
5. Continue curing for minimum of 5 days.

F. Backfill curb with earth upon completion of curing period, but not before 7 days has elapsed since placing concrete.

1. Backfill shall be free from rocks 2 inches and larger and other foreign material.
2. Compact backfill firmly.

3.05 SIDEWALK CONSTRUCTION

A. Thickness:

1. 4 inches in walk areas.
2. 6 inches in driveway areas.

B. Connection to Existing Sidewalk:

1. Remove old concrete back to an existing contraction joint.
2. Clean the surface.

C. Expansion Joints: Place in adjacent curb, where sidewalk ends at curb, and around posts, poles, or other objects penetrating sidewalk. Install expansion joint filler at each joint. Expansion joints shall be full depth.

D. Contraction Joints:

1. Provide transversely to walks at locations opposite contraction joints in curb.
2. Dimensions: 3/16-inch by 1-inch weakened plane joints.
3. Construct straight and at right angles to surface of walk.

E. Finish:

1. Broom surface with fine-hair broom at right angles to length of walk and tool at edges, joints, and markings.
2. Mark walks transversely at 5-foot intervals with jointing tool; finish edges with rounded steel edging tool.
3. Apply curing compound to exposed surfaces upon completion of finishing.
4. Protect sidewalk from damage and allow to cure for at least 7 days.

END OF SECTION

SECTION 32 17 23
PAVEMENT MARKINGS

PART 1 GENERAL

1.01 REFERENCES

A. The following is a list of standards which may be referenced in this section:

1. American Association of State Highway and Transportation Officials (AASHTO):
   a. M237, Standard Specification for Epoxy Resin Adhesives for Bonding Traffic Markers to Hardened Portland Cement and Asphalt Concrete.
   b. M247, Standard Specification for Glass Beads Used in Traffic Paint.
   c. M248, Standard Specification for Ready-Mixed White and Yellow Traffic Paints.
   d. M249, Standard Specification for White and Yellow Reflective Thermoplastic Striping Material (Solid Form).
2. ASTM International (ASTM): D4280, Standard Specification Extended Life Type, Nonplowable, Prismatic, Raised, Retroreflective Pavement Markers.
3. Federal Specifications (FS):
   a. A-A-2886A, Paint, Traffic, Solvent Based.
   b. TT-B-1325C, Beads (Glass Spheres); Retroreflective.
4. The 2017 Edition of the City of Seattle's Standard Specifications and Standard Plans for Road, Bridge and Municipal Construction.

1.02 DEFINITIONS

A. Standard Specifications: The 2017 Edition of the City of Seattle's Standard Specifications and Standard Plans for Road, Bridge and Municipal Construction, except that measurement and payment described therein do not apply.

1.03 SUBMITTALS

A. Action Submittals:

1. Shop Drawings:
   a. Product Data:
      1) Paint.
      2) Thermoplastic material.
      3) Epoxies, resins, and primers to be used.
      4) Parking lot signage, including poles and mounting hardware
   b. Glass Beads: Proposed gradation.

B. Informational Submittals:

1. Description of proposed methods for removal of drips, overspray, improper markings, paint and thermoplastic material tracked by traffic, and existing markings.
2. Manufacturer's Certificate of Compliance for products specified in this section.
3. Equipment List: Proposed equipment to be used, including descriptive data.
4. Manufacturer's Instructions:
   a. Application of preformed tape.
   b. Application of portland cement concrete primer.
   c. Application of glass beads.
   d. Application of epoxy resin.
   e. Installation of reflective markers.

PART 2 PRODUCTS

2.01 GENERAL

A. All products shall be in accordance with Section 9-29 of the Standard Specifications.

2.02 PAINT

A. Paint and striping products shall be free of prohibited materials.

B. Color: White or yellow, and blue

C. Traffic paint in accordance with: Section 8-22 of the Standard Specifications.

D. Homogeneous, easily stirred to smooth consistency, with no hard settlement or other objectionable characteristics during storage period of 6 months.

2.03 THERMOPLASTIC MARKING

A. Color: White, except as shown otherwise on Drawings.

B. AASHTO M249.

2.04 GLASS BEADS

A. In accordance with Section 8-22.3(3)G of the Standard Specifications.

PART 3 EXECUTION

3.01 GENERAL

A. New pavement surfaces shall be at least 30 days old before applying paint or markings.

3.02 SURFACE PREPARATION

A. Cleaning:

1. Thoroughly clean surfaces to be marked before application of pavement marking material.
2. Remove dust, dirt, and other granular surface deposits by sweeping, blowing with compressed air, rinsing with water or a combination of these methods.
3. Completely remove rubber deposits, surface laitance, existing paint markings, and other coatings adhering to pavement with scrapers, wire brushes, sandblasting, approved chemicals, or mechanical abrasion.
4. Scrub areas of old pavement affected with oil or grease with several applications of trisodium phosphate solution or other approved detergent or degreaser, and rinse thoroughly after each application.
5. Surfaces shall be completely free of dirt and ice, and dry of water at the time of application of materials specified herein.
6. Oil-Soaked Areas: After cleaning, seal with cut shellac to prevent bleeding through the new paint.
7. Reclean surfaces when the Work has been stopped due to rain.
8. Existing Pavement Markings:
   a. Remove existing pavement markings that may interfere or conflict with newly applied marking patterns, or that may result in a misleading or confusing traffic pattern.
   b. Do not apply thermoplastic markings over existing preformed or thermoplastic markings.
   c. Perform grinding, scraping, sandblasting or other operations so finished pavement surface is not damaged.

B. New Asphalt Pavement: Allow a minimum pavement cure time of 30 days before applying paint.

3.03 PAINT APPLICATION

A. General:

1. Thoroughly mix pigment and vehicle together prior to application, and keep thoroughly agitated during application.
2. Do not add thinner.

3. Unless specifically allowed per the manufacturer's recommendations, apply only when air and pavement temperatures are above 40 degrees F and less than 95 degrees F. Maintain paint temperature within these same limits.
4. Apply only when surface is dry.
5. Do not apply when conditions are windy to the point of causing overspray or fuzzy line edges.
6. Provide guidelines and templates to control paint application.
7. Take special precautions in marking numbers, letters, and symbols.
8. Sharply outline edges of markings and apply without running or spattering.

B. Rate of Application:

1. Reflective Markings: Apply evenly, 105 plus or minus 5 square feet per gallon.
2. Glass Bead Application:
   a. Apply immediately following application of paint.
   b. Use evenly distributed drop-on application method.
   c. Rate: 6 pounds per gallon of paint.
3. Nonreflective Markings: Apply paint evenly to pavement surface at a rate of 105 plus or minus 5 square feet per gallon.
4. On new pavement or new asphalt surface treatments, apply two coats of paint at a uniform rate of 210 square feet per gallon.

C. Drying:

1. Provide maximum drying time to prevent undue softening of bitumen and pickup, displacement, or discoloration by traffic.
2. If drying is abnormally slow, discontinue painting operations until cause is determined and corrected.

D. Protection:

1. Protect markings from traffic until paint is thoroughly dry.
2. Protect surfaces from disfiguration by paint spatters, splashes, spills, or drips.

E. Cleanup: Remove paint spatters, splashes, spills, or drips from the Work and staging areas including areas outside the immediate Work area where spills occur.

3.04 THERMOPLASTIC MARKING APPLICATION

A. Following specified surface preparation, prime and apply marking and glass beads to provide a reflectorized strip as shown on Drawings.

B. Application Temperatures:

1. Pavement Surface: Minimum 40 degrees F and rising.
2. Thermoplastic: Minimum 375 degrees F, maximum 425 degrees F.

C. Primer:

1. On portland cement concrete and existing asphalt pavements, apply epoxy resin primer/sealer according to thermoplastic manufacturer's recommendations.
2. All primer/sealer to dry prior to applying thermoplastic.

D. Thermoplastic Marking:

1. Extrude or spray in a molten state, free of dirt or tint at a minimum thickness of 0.125 inch; maximum thickness of 0.190 inch.
2. Apply centerline, skipline, edgeline, and other longitudinal type markings with a mobile applicator.
3. Apply special markings, crosswalks, stop bars, legends, arrows, and similar patterns with a portable, extrusion-type applicator.

E. Glass Bead Application:

1. Immediately after marker application, mechanically apply such that the beads are held by and imbedded in the surface of the molten material.
2. Application Rate: 1 pound per 20 square feet of compound.

F. Cool completed marking to ambient temperature prior to allowing vehicular traffic.

END OF SECTION

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. The Contractor shall provide all labor, materials, equipment and tools necessary for the complete installation of a synthetic grass playground surface with a stable draining base. The complete synthetic grass field system shall consist of, but not necessarily be limited to, the following:

1. Playground construction with the extent of artificial turf work as shown on the drawings.

2. Subgrade, base, and drainage construction as outlined herein.

3. Quality synthetic grass product manufactured in the USA. Product shall meet or exceed all guidelines as established herein, or for characteristics not specifically stated, shall meet or exceed all guidelines published by the Synthetic Turf Council.

4. The synthetic grass surface shall be specifically designed, manufactured and installed for the intended use as a playground safety surface.

5. A 2.125 closed cell playground pad (which provides consistent 1292-04 Hic and GMAX ratings), which will be used to provide an ASTM rated 8 foot fall height safety surface.

1.02 Related Sections

A. Section 03 30 00 – Concrete

B. Section 11 68 33 – Play Area Equipment

C. Section 31 23 23.00 – Fill and Backfill

D. Section 32 11 23 – Aggregate Base Course

E. Section 32 33 00 – Site Furnishings

F. Section 33 41 01 – Storm Drain and Sanitary Sewer Piping

1.03 SYSTEM PERFORMANCE

A. Contractor shall ensure that products for playground system meet the following performance requirements:

1. All components and their installation method shall be designed and manufactured for use on playgrounds. The materials as hereinafter

specified shall withstand full climatic exposure in the location of the playground, be resistant to insect infestation, rot, fungus, mold and mildew; it shall also withstand ultra-violet rays and extreme heat; the free flow of water vertically through the playing surface and into the drainage system below the surface.

2. The seams of all system components shall provide a permanent, tight, secure, and hazard free playing surface.

3. The installed synthetic playground grass and drainage system shall allow for drainage and water flow through the system at a rate of not less than 30 inches per hour.

4. At the time of substantial completion, the system's ASTM 1292 rated surface shall have a fall height rating based on playground design up to 8'. Testing shall be based on ASTM 1292-04. At no time throughout the life of the warranty shall the fall height rating be less than the original design.

5. Based on independent laboratory tests, the synthetic grass product must be shown to meet or exceed ASTM testing standards as specified by Architect/Engineer or owner.

1.04 SERVICE AND QUALITY ASSURANCE

A. ForeverLawn of Puget Sound located in Olympia, Washington at 360-455-9500; hereinafter referred to as "synthetic grass vendor" shall provide ongoing service quality assurance and warranty consisting of**,** but not necessarily be limited to, the following:

B. The synthetic grass vendor must provide competent workmen skilled in this type of field installation. The synthetic grass vendor shall provide a qualified installation foreman to coordinate and review the component parts of the synthetic grass system. Foreman shall be introduced to Owner or Owner's representative prior to start of construction.

C. The synthetic grass vendor and installer must be IPEMA Certified with no less than six completed playground installations. Installer must be competent in the installation of this material, including attachment of seams prior to the start of turf installation.

D. Accessibility of Surface Systems: ASTM 1951 ADA Compliant. Playground grass ensures wheelchair access under and around all playground equipment as required by the American Disabilities Act.

E. Flammability: ForeverLawn Playground Grass passes all required ASTM D2859 with a flash point of greater than 600 degrees F. It is resistant to damage and

spreading of ignition in typical exposures such as lighted cigarette dropped on this surface.

F. Playground Grass and safety pad system have a drain rate of 30 inches or more per hour.

G. The synthetic grass vendor shall submit its manufacturer's warranty, which warrants the usability and playability of the synthetic grass playground system for its intended uses with the following minimum characteristics:

1. Provide full coverage of materials for a minimum of ten (10) years for the date of substantial completion.

2. Warrant that the materials installed meet or exceed the product specifications.

3. Be from a single source covering workmanship and all materials.

4. Assure the availability of exact or substantially the same replacement materials for the synthetic grass system for the full warranty period.

5. Include general wear and damage caused by UV degradation. The warranty may specifically exclude vandalism and Acts of God beyond the control of the manufacturer or installer.

H. Synthetic Grass Vendor contact information:

1. ForeverLawn c/o Northwest Playground Equipment
P. O. Box 2410, Issaquah, WA 98027
Office: 425-313-9161
chris@nwplayground.com

1.05 SUBMITTALS

A. Synthetic Grass Vendor must submit the following to Owner or Owner's Representative prior to ordering material:

1. One (1) 12"x12" loose sample of proposed synthetic grass product and resilient base course representative of finished synthetic grass playground system.

2. One (1) copy of independent test report from a certified independent laboratory certifying the proposed playground surface system is fully compliant with ASTM 1292-04 up to 8' fall height.

3. One (1) copy of independent test report from a certified independent laboratory certifying the proposed playground surface system is fully compliant with ASTM 1951 Standardized test for ADA Compliance.

4. One (1) of the product warranty for proposed synthetic grass product.

5. One (1) copy of their maintenance instructions. These instructions will include all necessary instructions for the proper care and maintenance of the newly installed synthetic turf system.

6. One (1) copy of edge details of proposed installation and terminations of synthetic grass playground system.

7. One (1) copy of a signed letter from synthetic grass vendor certifying that the proposed synthetic grass product is manufactured in the USA.

8. One (1) copy (if requested) of independent laboratory test reports on system or components.

PART 2 - PRODUCTS

2.01 SYNTHETIC GRASS SYSTEM

A. Synthetic grass – FLI PlaygroundGrass ACADEMY

1. Pile Weight: 48 oz/sy

2. Face Yarn Type: Polyethylene XP slit film. Secondary: Heat set textured nylon monofilament

3. Yarn Count: Primary 8040/1; Secondary 5040/2

4. Pile Height (tufted): 1 7/8 inch (finish height may be slightly lower)

5. Color: 6 color layout, see plan for design 18-3649D.

6. Construction: Broadloom tufted, Dual yarn, same row

7. Tufting Gauge: 3/8”

8. Primary Backing: 6.0 oz Link 18 pic 1 part (3 components) polypropylene, polyester and fiber backing

9. Secondary Backing: 50 oz/sy urethane

10. Tertiary Backing: 3.5 oz/sy geotextile fleece

11. Total Product Weight: 113 oz s/y (+/- 2 oz)

12. Finished Roll Width: 15 feet (4.6 m)

13. Finished Roll Length: Up to 240 feet (73 m)

B. The synthetic grass shall be delivered in 15' foot wide rolls. The rolls will be laid out and installed as specified in the site layout and equipment placement drawings. All seams shall be installed and secured with micromechanical bonding. Seams secured with adhesive or stitching alone shall not be acceptable.

C. Safety Surface

1. Rated according to ASTM F1292-04 for a minimum height of 8 feet: All performance statements must be accompanied by independent test data from a nationally certified testing agency outlining all materials of system construction.

2. Rated according to ASTM F 1951 Standardized Test For ADA Compliance

PART 3 - EXECUTION

3.01 BASE AND DRAINAGE CONSTRUCTION

A. The synthetic grass base contractor shall strictly adhere to the installation procedures outlined under this section and by the Architect/Engineer's drawings. Any variance from these requirements must be accepted in writing, by the synthetic grass vendor, and submitted to the Owner or Owner's Representative, verifying that the changes do not adversely affect the performance or warranty.

B. Excavation: Existing ground cover shall be excavated to the depth established on the excavation plan. The sub grade shall also be compacted to a minimum of a 90% compaction rate. A 5/8 minus to ¼ minus with fines gravel is required for adequate drainage.

C. Synthetic or plastic wood nailer board: The synthetic turf perimeter fastening structure shall be installed before the drainage aggregate.

1. Install a bend a board by Epic Plastic, not less than ¾" x 2". Nailer board will be fastened to the adjacent concrete surfacing with ¼" x 1-1/2" Tapcon masonry screws. Nailer board shall be flush to grade or as specified in site detail drawings. This shall be the responsibility of the synthetic turf base contractor. See synthetic turf edge attachment detail.

D. Base Drainage Aggregate: Installation of the free draining base Aggregate of 5/8 minus (with fines) or smaller, shall follow procedures that protect the base grade soils. It must be installed to a minimum depth of 2 inches. The drainage network

and its existing elevations shall not be disrupted through ground pressures from trucks, dozers or by any other means.

E. The stone shall be left firm, but not over-compacted as to protect the porosity and drainage capabilities of the aggregate profile.

F. The free draining base course should be designed to meet local soil and weather conditions. It must be installed to a minimum depth of 2 inches with an overall compaction rate of 90%.

G. RESILIENT BASE INSTALLATION: A free draining aggregate base of a minimum of 2" is installed then a 2.125 closed cell playground pad (ASTM 1292-04) is installed and leveled on the gravel base for an 8 foot fall system.

3.02 SYNTHETIC GRASS SYSTEM INSTALLATION

A. After a final inspection of the stone base by the synthetic grass contractor and the Owner's Representative, the synthetic turf installation shall begin. The synthetic grass product shall be delivered in 15' foot wide rolls.

B. Synthetic grass rolls shall be joined via micro-mechanical bond seaming and reinforced with specialty turf adhesive where necessary.

1. Seams shall be flat, tight and permanent with no separation or fraying.

2. Seams shall be rolled with weighted roller to ensure adhesion.

3. Synthetic turf yarn fabric that is trapped or glued between seams shall be freed from the seams by hand or other approved method to an upright position prior to the commencement of brushing and top dressing synthetic grass rolls by the manufacturer wherever possible.

C. Synthetic Turf Perimeter Attachment:

1. After final layout and seaming of the synthetic grass product, the synthetic turf material shall be wrapped over the edge of the curb nailer board and secured the full depth of the nailer board.

2. The turf shall be attached to the synthetic wood or plastic nailer board by stainless steel staples, screws, and/or nails, with minimum 7/16" x 1-1/2" stainless steel staples at 1" minimum on center.

3. Soil or surfacing material outside of the defined playground area shall be backfilled against turf wrapped perimeter edge and have zero transition edge to synthetic turf unless otherwise specified.

3.03 CLOSEOUT

A. The synthetic grass vendor must verify that a qualified representative has inspected the installation and that the finished playground surface conforms to the manufacturer's requirements.

B. Extra materials: Owner shall be given option to retain and store excess materials such as excess turf ordered for project, but not installed.

3.04 CLEAN UP

A. Contractor shall provide the labor, supplies and equipment as necessary for final cleaning of surfaces and installed items.

B. During the contract and at intervals as directed by the Owner or Owner's Representative and as synthetic grass system installation is completed, clear the site of all extraneous materials, rubbish, or debris and leave the site in a clean, safe, well draining, neat condition.

C. Surfaces, recesses, enclosures, etc. shall be cleaned as necessary to leave the work area in a clean, immaculate condition ready for immediate occupancy and use by the Owner.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. Wetland buffer fencing, play area fencing.

B. Drawings, General Provisions of the Contract and Division 1 Specifications, apply to this section.

1.02 SUBMITTALS

A. Furnish Owner with a verification of order and schedule for product delivery.

B. Furnish a shop drawing showing dimensional layout, gates, and post spacing. Include any revisions proposed in order to clear existing tree trunks and branches. Indicate top of fence resolution (running horizontal slope or stepped arrangement).

C. Furnish manufacturer's data, warranty, unit weights of framework and catalog cuts on post, rail, and fencing products.

1.03 FENCE TYPES

A. Wetland buffer fence and play area fence shall be wood, 3 rail, and 4 feet in height.

B. Fence shall contain 3 horizontal rails, evenly spaced vertically. Posts shall have evenly spaced, round mortises to accept rail tenons.

PART 2 - MATERIALS

2.01 GENERAL

A. All material used in construction of wood fences and gates shall be #1 and better Lodge Pole Pine. Treat all wood in accordance with AWPA specifications for the pressure treatment of Western Woods, latest edition. Where possible, pre-cut material before treatment. All field cuts and drilled holes shall be field treated in accordance with AWPA M-4.

1. All lumber shall be pressure-treated as follows:

Species/Type	Treatment	Retention
Lodge Pole Pine AWPA Standard C2	ACQ	0.20

2. All treatment shall be in accordance with AWPA C2

3. CCA treated lumber shall not be stained brown with factory-applied stain.

B. Posts shall be 6-inch diameter, with 6-foot length for 4 feet exposed and 2 feet buried. Embed posts in concrete as identified on plans.

C. Rails shall be 3-inch diameter, maximum length of 8 feet

PART 3 - INSTALLATION

3.01 GENERAL

A. Verify with General Contractor the surveyed fence locations prior to construction.

B. Protect and maintain survey monuments.

C. Verify and coordinate with the General Contractor, the location of existing utilities.

D. Field stake fence lines at intervals not exceeding 500 feet or line of sight. Field stake terminal and corner posts.

3.02 TERMINAL AND LINE POSTS

A. Line posts shall be spaced at intervals not exceeding 8 feet, plumbed, in line and placed in a vertical position. All posts to be embedded in concrete.

3.03 POST SETTING

Diameter of Hole	Minimum Depth of Hole	Post Embedment	Height of Fence	Post
9 inches	24 inches	24 inches	4 feet	Line
9 inches	24 inches	24 inches	4 feet	Terminal

3.04 SITE APPLIED WOOD TREATMENT

A. Apply preservative treatment in accordance with manufacturer's instructions.

B. Treat site-sawn cuts.

C. Allow preservative to dry prior to erecting members.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY:

A. Section includes:

1. Dry stack rockery construction from imported materials. Includes subgrade adjustment, base course, backfill and rock placement as shown on drawings.

B. Related sections:

1. Section 31 23 16 – Excavation
2. Section 31 23 23.00 – Fill and Backfill
3. Section 31 23 23.15 – Trench Backfill
4. Section 31 37 00 – Riprap
5. Section 33 40 10 – Bioretention
6. Section 33 41 01 – Storm Drain Sanitary Sewer and Drainage Piping

C. Drawings, general provisions of the Contract, and Division-1 Specification Sections apply to this section.

1.02 REFERENCES:

A. Association of Rockery Contractors (ARC Standards 1993).

PART 2 - PRODUCTS

2.01 MATERIALS:

A. Basalt – locally sourced fractured stone; One to Five man rock as indicated on plans according to wall height.

1. Lynch Creek Basalt available from Lynch Creek Quarry (360) 832-4269
2. Basalt Rockery Rock available from Washington Rock Quarry (253) 262-1661
3. Or approved equal.

PART 3 - EXECUTION

3.01 QUALIFICATIONS

A. Stone placement shall be executed by a qualified and experienced firm. Defined as experience not under eight (8) years of stone placement and in ownership of appropriate machinery to load, set and shift stone as described above.

B. Installer shall be familiar with techniques to inventory and document the existing wall layout in order to re-build the wall to its pre-existing conditions.

3.02 SLOPES:

A. Minimum and maximum slope of soil above rockery shall match existing conditions.

3.03 FILL COMPACTION:

A. Per Site Grading and Earthwork Sections.

B. Verify subgrade is satisfactory for placement of rockery walls prior to installing keyway rock.

3.04 ROCK PLACEMENT:

A. Verify rock wall does not conflict with any existing or proposed utilities prior to beginning construction. Notify Engineer of any conflicts.

B. Install the first course of rock (keyway) on firm unyielding soil. Provide full contact between the rock and soil. The bottom of the first course of rock shall be a minimum of 12" below the lowest adjacent site grade. Ensure first course is installed and backfilled within 24 hours of excavation.

C. Place rocks so that there are no continuous joint planes in either the vertical or lateral direction. Each rock shall bear on at least two (2) rocks below it. Rocks shall be placed so that there is some bearing between flat rock faces rather than on joints. Joints between courses shall slope downwards towards the material being protected (away from the face of the rockery).

3.05 FACE INCLINATION:

A. The face of the rockery should be inclined at a gradient to match adjoining rockery to remain in place.

B. Provide a consistent batter, flat vertical faces, and top course.

3.06 STONE FINISH:

A. Clean the surface of the stone only if directed by the Engineer in the field.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Trash Receptacles
2. Chairs
3. Side Tables
4. Wood Benches
5. Bike Racks

B. Related Sections:

1. Section 01 45 00 Quality Control
2. Section 03 30 00 Cast In Place Concrete
3. Section 05 50 00 Metal Fabrications
4. Section 32 12 16 Asphalt Paving

C. Drawings, the provisions of the Agreement, including bonds and certificates, the General Conditions, and Division 1 specification sections apply to all work of this section.

D. Substitutions: Substitute products will be considered only under the terms and conditions of Section 01 25 00.

1.02 SUBMITTALS

A. Submit in accordance with requirements of Section 01 33 00.

B. Product Data: Submit complete product data for each item listed herein.

1.03 DELIVERY, STORAGE AND HANDLING

A. Handle products in accordance with manufacturer's instructions.

B. Store products in manufacturer's original packaging until ready for installation in a secured enclosure. Protect materials from theft, damage and inclement weather.

C. Protect products from impacts and abrasion during storage.

PART 2 - PRODUCTS

2.01 FURNISHINGS

A. Trash Receptacles:

1. MyTcoat Litter Receptacle

   a. Model: RRd32-A-00-000

   b. Plastic Dome Lid: RDT32-P-00-000.

   c. Color: Black for receptacle and dome.

   d. Mounting: Surface mount.

2. Contact: MyTcoat 1-855-637-9616

3. Or approved equal.

B. Chairs:

1. Forms + Surfaces Vaya Chair, FSC® 100% Cumaru hardwood slats.

   a. Model: SCVYA-W

   b. Metal finish: Standard texture color: Cream.

   c. Chair frames and armrests: extruded and cast aluminum.

   d. Seats and seat backs: FSC 100% Cumaru hardwood slats.

   e. Wood finish: Penofin® hardwood formula "Transparent Natural"

   f. Mounting: Surface mount. Provide threaded anchors and stainless steel mounting screws.

2. Contact: Forms + Surfaces; Matt Laurer; cell: 971.409.0340; email: sales@forms-surfaces.com website: www.forms-surfaces.com

3. Or approved equal.

C. Side Table:

1. Forms + Surfaces Vaya 25” x 26” side table, FSC® 100% Cumaru hardwood slat table top.

   a. Model: STVYA-2526W

b. Metal finish: Standard texture color: Cream.

c. Frame: extruded aluminum with cast aluminum legs.

d. Table top: FSC 100% Cumaru hardwood slats.

e. Wood finish: Penofin® hardwood formula "Transparent Natural"

f. Mounting: Surface mount with stainless steel hardware.

2. Contact: Forms + Surfaces; Matt Laurer; cell: 971.409.0340; email: sales@forms-surfaces.com website: www.forms-surfaces.com

3. Or approved equal.

D. Wood Benches

1. Forms + Surfaces Vaya Bench, 4 foot, backed, FSC® 100% Cumaru hardwood slats.

a. Model: SBVYA-2526W

b. Metal finish: Standard texture color: Cream.

c. Bench frame and armrests: extruded and cast aluminum.

d. Seats and seatbacks: FSC 100% Cumaru hardwood slats.

e. Wood finish: Penofin® hardwood formula "Transparent Natural"

f. Mounting: Provide threaded anchors and stainless steel mounting screws.

2. Contact: Forms + Surfaces; Matt Laurer; cell: 971.409.0340; email: sales@forms-surfaces.com website: www.forms-surfaces.com

3. Or approved equal.

E. Bike Racks

1. Landscape Forms FLO bike rack.

a. 3 bike capacity.

b. Electro polished stainless steel.

c. Surface mount option. Provide stainless steel hardware.

2. Contact: Landscape Forms; Tim Gish, 800.521.2546, www.landscapeforms.com

3. Or approved equal.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Prior to starting work, carefully inspect installed work of other trades and verify that such work is complete to the point where work of this section may properly commence. Notify the Engineer in writing of conditions detrimental to the proper and timely completion of the work.

B. Do not begin installation until all unsatisfactory conditions are resolved. Beginning work constitutes acceptance of site conditions and responsibility for defective installation caused by prior observable conditions.

3.02 INSTALLATION

A. General:

1. Install in conformance to applicable ADA guidelines.

B. Trash receptacles

1. Install size and quantity according to the plans and manufacturer's installation instructions.

C. Chairs, Side tables and Wood Benches

1. Install size and quantity according to the plans and manufacturer's installation instructions.

D. Bike Racks

1. Install size and quantity according to the plans and manufacturer's installation instructions.

END OF SECTION

PART 1 - GENERAL

1.01 SCOPE

A. Work includes furnishing and installing GreenLoxx MSE wall/slope stabilization to the lines and grades designated on the construction drawings and as specified herein.

1.02 DESCRIPTION

A. GreenLoxx MSE is comprised of 5 primary components: Filtrexx GroSoxx® fascia, Filtrexx® Growing Media™, geogrid, irrigation and vegetation. These components work together to establish a mechanically stabilized system of reinforced vegetation.

B. GreenLoxx MSE shall be designed as a plantable fascia providing the function of a structural wall. GreenLoxx MSE is designed to be installed in accordance with these specifications and the manufacturer's installation manual, to follow the lines and grades designated on the drawings/plans. Work shall include excavation, GroSoxx, reinforcement (geogrid), irrigation components, specified vegetation and related system accessories per engineering and landscape specifications.

1.03 REFERENCES

A. GroSoxx Mesh: Multifilament polypropylene: ASTMG-155

B. Geosynthetic reinforcement: ASTM D 6637, ASTM D 5262, ASTM D 5261, and GRI GG-4 (b)

C. Filtrexx Certified Growing Media: PH – 5.0-8.0 in accordance with TMECC 04.11-A, moisture content of less than 60% in accordance with standardized test methods for moisture determination, 100% passing a 2 in (50mm) sieve, 99% passing a 1 in (25mm) sieve, minimum of 60% passing a ½ in (12.5mm) sieve in accordance with TMECC 02.02-B, "Sample Sieving for Aggregate Size Classification".

1.04 DEFINITIONS:

A. GroSoxx: Multifilament Polypropylene mesh encapsulating Filtrexx Growing Media used for a soft vegetative fascia.

B. Geosynthetic Reinforcement: Geogrid fabric used to provide stability and protection to the GroSoxx

C. Filtrexx Certified Growing Media: Blended growth media, appropriate to the site and the plant list, placed in GroSoxx Fascia Unit that meets the strict requirements of the Filtrexx program.

D. Irrigation Components: Drip tape, and all connection accessories, used internally in the GreenLoxx MSE WallDelivery, Storage and Handling

PART 2 - PRODUCTS

2.01 SYSTEM PRODUCTS

A. GroSoxx/ Fascia Units: (as locally produced by a licensed manufacturer): GroSoxx is comprised of tubular mesh netting material specifically designed to retain Filtrexx® Growing Media™, seed and other materials. This finished product, stacked during construction, promotes healthy vegetation and long term growth. Moisture flows freely to both reduce hydrostatic pressure and increase drainage of subsurface moisture to the vegetated fascia. The openings in GroSoxx are such that they allow for root growth while retaining Growing Media for healthy vegetation from either seed, plugs or live stakes.

B. Geosynthetic Reinforcement: Geogrid is a commonly used component for soil stabilization. GreenLoxx MSE may be installed using a FLW geogrid to meet the requirements of the project engineer. Filtrexx Geogrid is typically bi-axial in strength for constructability and with open apertures of 2” by 2” to facilitate insertion of live plant material without cutting the grid. The Geogrid is wrapped around the GroSoxx Fascia units and returned back into the excavated fill area allowing for a positive connection between with layers of compacted fill. Therefore, as geogrid spacing varies from application to application, GroSoxx fascia size (8 in dia. or 200mm to 24 in dia. or 600mm) is adjusted to meet the grid-spacing requirements as determined by the site engineer.

C. Filtrexx Certified Growing Media: Compost growing media specified to match the planting list for the region of use, in order to facilitate successful grow-out / long-term coverage of the completed wall or slope system. Documentation of composition can be provided on request.

D. Or approved equal.

2.02 SUBMITTALS

A. Shop Drawings: Retaining wall design calculations, including global stability analysis and drawings are to be stamped by a registered Professional Engineer licensed in the state of the project. Filtrexx International can provide design services, pertaining to Filtrexx LivingWalls

B. Product Data: Material description for all components listed in section 1.02 of this section to include, composition, MSDS sheets, manufacturer certifications and installation information for each product specified as part of the system.

C. Planting Plan: Plant list with elevation views, approved suppliers, seasonal requirements for planting, fertilization, plant coverage targets, methods of measurement, erosion control plans addressing site runoff during and after construction, maintenance agreements.

2.03 DELIVERY, STORAGE & HANDLING

A. Contractor shall check the materials upon delivery to assure the proper materials have been received.

B. GroSoxx are to match specified length and diameter per engineered drawings, while also being free of any rips or tears in mesh material.

C. Contractor shall protect the materials from damage, as damaged materials shall not be used in the project.

PART 3 - EXECUTION

3.01 SITE PREPARATION

A. Prior to construction of GreenLoxx MSE, preparation of the project area will be necessary. The project area must be excavated to fulfill engineered drawings of the wall. Typically GreenLoxx MSE walls are built at a 70 degree angle of inclination and this set back must be accounted for during excavating. Care should be taken during installation not to disturb excessive areas that will then need to be re-vegetated. Site fill should be properly stored or discarded as site preparation is taking place per specifications or site engineer.

3.02 BASE COURSE

A. Upon completion of initial site preparation, construction of the base course may begin. Start by rolling out the geogrid from the back of the excavated site (to the specified depth from the face) to the face, where the first course of the GroSoxx is to be installed. Place sections of geogrid from one end of the wall to the other end overlapping one foot of grid between sections. Place the first two courses of GroSoxx on the grid, one layer of GrowSoxx on top of the other, at the face of the wall and along the length of the wall. After the first two courses of GrowSoxx have been laid out the preapproved back fill can be placed over the geogrid behind the GrowSoxx and compacted. Once compaction is reached, wrap the geogrid over the face of the GroSoxx and pull the grid onto the newly compacted filled area keeping the geogrid taught. The installation of the drain tile and outlet spouts are then laid out and installed as shown on the plans.

3.03 INSTALLATIONOF SUCCESSIVE COURSES

A. Successive courses of GrowSoxx, geogrid and compacted backfill will be set upon previous courses with a batter specified by the site engineer and shown on the plans. Follow the same step of rolling out and overlapping the geogrid to the prescribed depth on top of the previous compacted fill along the entire length of the wall. Place two rows of GroSoxx on the geogrid along the length of the face (at specified batter). Backfill the area behind the GroSoxx and compact. Install the irrigation (refer to section 3.05). Wrap back the remaining geogrid and keep it taught on the face. Continue placing geogrid, GroSoxx, and approved compacted backfill; the weight of successive layers will slightly compact the GroSoxx. Walking along the courses of GroSoxx or tamping them will ensure consistent settlement as well. Continue placing successive courses to the proscribed height as designated on the plans or by the site engineer.

3.04 PLANTING

A. GroSoxx were designed from their inception to be planted and grown over. The system is intended to be a reliable means for creating strong, economical structures that quickly disappear into the natural landscape. The desired seed mix/cover crop is typically premixed with the Growing Media inside the GroSoxx. The system design shall facilitate the structural facing becoming completely covered with selected plantings once established to yield an end-product that blends into the surrounding landscape. If planting live plants instead of from seed, planting must start from the top course and continue down the face of the wall. Always consult with the owner and/or their representatives early in the project to determine all responsible parties with regard to plants, quantity, design, maintenance and feeding. Obtain Engineers review prior to site cutting or making adjustments which are not part of the scheduled work.

3.05 MAINTENANCE

A. Maintain and care of the vegetated portions of the wall system until 30 days after final acceptance. After that time, the Owner will become responsible for maintenance. Maintenance is required to ensure the vegetation is established and is in healthy, vigorous growing condition. The initial maintenance required will depend on the plantable unit infill, type of vegetation, local weather conditions and exposure. Ensure proper water is applied to ensure grow-in during the maintenance period.

3.06 WARRANTY

A. Filtrexx International warrants to its customers that each finished GroSoxx sold is manufactured in accordance with Filtrexx Specifications, and warranties 3 years after it is properly installed. (This does not apply to GroSoxx not produced by Filtrexx international or a Filtrexx Manufacturer.) If a particular GroSoxx does

not meet this warranty standard, the customer shall notify Filtrexx International in writing and, pursuant to Filtrexx International's directions, such customer shall return the applicable GroSoxx to the manufacturer or destroy them. Filtrexx International shall ship to its customer, as applicable, at Filtrexx's expense, replacement GroSoxx which shall be Filtrexx's sole remedy for breach of this warranty. Filtrexx shall have no obligation to install such replacement GroSoxx.

B. This Warranty shall not apply to any GroSoxx which is damaged or defective or fails to meet the warranty standard due to the manner in which it was installed, any chemicals coming in contact with the GroSoxx, the design of the structure in which a GroSoxx is used, excessive or unforeseen site conditions, soil conditions, manufacturing defects, or other conditions beyond Filtrexx's control.

C. The above sets forth the sole warranty from Filtrexx international regarding the product and is made in lieu of all other warranties, express or implied, and Filtrexx international specifically disclaims the implied warranties of merchantability and fitness for a particular purpose.

1. Technical Support: 314-287-4470

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings, general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections apply to this Section.

1.2 SUMMARY

A. Section Includes: Performance and material requirements for the installation of an efficient and fully automatic irrigation system.

1.3 REFERENCES

A. WSDOT, Road and Bridge Standards

B. ASTM B43 - Standard Specification for Brass and Copper Pipe and fittings

C. ASTM D1785 - Standard Specification for Schedule 40 PVC Pipe

D. ASTM D2241 - Standard Specification for PVC Plastic pipe

E. ASTM D2466 - Standard Specification for Schedule 40 PVC fittings.

F. ASTM D2466-78 - Schedule 80 PVC fittings

G. ASTM D2564 - Standard Specification for PVC Solvent Cements

H. ASTM D2855 - Standard Recommended Practice for making Solvent Cemented Joints with PVC Pipe and Fittings

I. ASTM D3139 - Swing joint pipe and fittings

J. ASTM F-656 - Standard Specifications for PVC Primers

K. Foundation for Cross Connection Control and Hydraulic Research - University of Southern California

1.4 WORK INCLUDED

A. The Work covers a complete, automatically controlled, spray irrigation system including: all required trenching, backfilling and compacting; sleeving, installation of pipe, valves, fittings, and all other appurtenances; connections to water, gate valves, testing; removal and relocation of irrigation controller, electrical connections, wiring, and system fine tuning. Coordinate all Work with other trades.

1.5 REQUIREMENTS

A. Work and materials shall be in accordance with the latest rules, regulations and other applicable state or local-plumbing, electrical and health codes. Nothing in the Contract Documents is to be construed to permit Work not conforming to these codes.

1.6 SUBMITTALS

A. Submit the following items under provisions of Section 01 33 00 (if used).

B. Product Data: Submit product data before beginning work. Include manufacturer's product literature for all products to be installed in this system. Include material showing manufacturer's name, catalog numbers, catalog cuts, technical data and installation, operation and maintenance instructions for each product.

C. Point of Connection Water Pressure Test: Test water pressure at point(s) of connection. Verify pressure is in the range indicated on the drawings. Submit written results of test to the Owner's Representative.

D. Maintain a current record of all pipe and equipment placement and record any variations approved by the Owner's Representative. Upon completion of the system and prior to release of final payment, provide a neat and legible record drawing of the completed system. Any pipe not installed in accordance with the plans as originally contracted shall be sufficiently dimensioned to a permanent structure for location after burial. Update record drawings DAILY.

E. Maintenance Manuals: Provide minimum of two (2) operation and maintenance manuals in digital format. The manuals shall be indexed and tabbed and include the following items/information:

1. List of authorized distributors and service representatives (in the area) for each item of irrigation equipment: include names, addresses and phone numbers.

2. Guarantee/warranty certificates for all equipment used and Contractor's written warranty for entire system one (1) year guarantee.

3. Manufacturer's maintenance sheets, replacement parts list and equipment brochures for all equipment used. All composite data sheets shall have the specified products used in the field clearly highlighted.

4. Winterization and Spring start up procedures.

5. A pocket for one (1) copy of the approved record drawings to be added at the time of final inspection.

1.7 SUBSTITUTIONS

A. Substitutions will be considered during the bid process per Section 01 25 00 (if used).

1.8 QUALITY ASSURANCE

A. Qualifications: Washington State licensed landscape/irrigation contractor with a minimum of three years of experience installing irrigation systems of this scale.

B. Work and materials shall be in strict accordance with the latest codes, regulations and other applicable state or local laws. Nothing in the Contract Documents is to be construed to permit work not conforming to these codes.

C. The City if Kirkland shall obtain and pay for all permits and approvals required by the local jurisdictional authorities for the full operation of the system.

D. All work called for on the drawings by notes shall be furnished and installed whether or not specifically mentioned in the specifications. Do not install the sprinkler system as indicated on the drawings when it is obvious in the field that obstructions or grade conditions exist which cause discrepancies with the construction plans, details, legend or specific notes. All such discrepancies shall be brought to the attention of the Owner's Representative. In the event this is not done, the Contractor shall assume full responsibility for the necessary revisions.

E. Due to the scale of drawings, it is not possible to indicate all offsets, fittings, sleeves, etc. which may be required. Carefully investigate the structural and finished conditions affecting all of this work and plan accordingly. Drawings are generally diagrammatic and indicative of the work to be installed. The work shall be installed in such a manner as to avoid conflicts between irrigation system, planting and architectural features.

F. The work is subject to tests and inspections by the Owner's Representative as specified. Furnish written notice to the Owner's Representative one week prior to the required test or inspection.

1.9 PROJECT CONDITIONS

A. Underground utilities and elements: Locate all underground utilities and elements prior to digging and/or driving stakes. Take care to neither disturb nor damage any existing above ground or underground utilities or elements. Keep streets, sidewalks and site clean, free from debris and affected drains open and free flowing at all times.

B. Site inspection and layout: Before proceeding with any work, inspect the site, carefully check all grades and verify all dimensions and conditions affecting the work in order to proceed. Changes or alterations to the system to meet actual conditions shall be made at the Contractor's expense. Irrigation plan is diagrammatic and is not intended to show exact locations of existing or proposed piping or valves. Locate new items as closely as possible to related curbs, walls, fences or edges of paving. Pipelines shown parallel on drawing may be placed in a common trench but separated by at least 6 inches. Sprinkler heads are shown accurately and shall be installed as indicated by center of symbol.

1.10 DELIVERY, STORAGE, HANDLING AND PROTECTION

A. Protect work and materials from damage during construction and storage. PVC pipe and fittings shall be protected from extreme temperatures and other weather conditions and direct sunlight in accordance with manufacturer's written recommendations.

B. Assume all responsibility for damage to adjacent construction and restore to its original condition should damage occur as a result of this work.

1.11 WARRANTY

A. Guarantee system against defects of installation and material for a period of 1 year after Owner's final acceptance of the irrigation system. Guarantee shall also cover repair or damage to any part of the premises resulting from leaks or other defects in material, equipment and workmanship to the satisfaction of the Owner. During guarantee period, check and clean filters and emitters, manually flush each zone and otherwise insure adequate operation of system at maximum one-month intervals during the operational year. Guarantee shall also cover repair or damage to any part of the premises resulting from leaks or other defects in material, equipment, and workmanship. Repairs, if required, shall be done promptly upon notification at no additional cost.

B. As part of the warranty, deactivate and drain the system prior to the onset of the freezing season and reactivate the system at the onset of the spring growing season. Each event must be accomplished once during the warranty period. In the event the system is completed in a season when it will not be in use, winterize the system upon completion of testing (and approval by the Owner's Representative) and reactivate the system in the spring. Submit a letter certifying that the system was winterized and drained and indicate the date such action was accomplished. The Contractor is responsible for any damage resulting from failure to comply.

1.12 SYSTEM FAMILIARIZATION

A. Before final acceptance of the system, provide the necessary keys and/or other tools required to operate, drain and activate the system. Provide two (2) complete sets of tools and keys to the Owner (i.e.: water keys, quick coupler keys with hose swivel attachments, valve cover keys and controller keys).

B. Provide the following minimum standards of training with the Owner's personnel before final acceptance of the system.

1. General system operation, maintenance and winterization—4 hours on site.

PART 2 - PRODUCTS

2.1 SUMMARY

A. All materials used throughout the system shall be new, unused, and in perfect condition except as noted. Refer to the irrigation materials legend, notes, detail drawings and these specifications for specific equipment to be used. Equipment or materials installed

or furnished without prior approval of the Owner's Representative may be rejected and the Contractor will be required to remove such materials from the site at his own expense.

2.2 BRASS PIPE AND ACCESSORIES

A. Brass pipe and fittings shall conform to industry standards and be in conformance with applicable ASTM or ANSI standards.

2.3 PLASTIC PIPE AND ACCESSORIES

A. PVC Pipe:

1. Marked with the manufacturer's name, class of pipe, NSF seal and date of manufacturing run. Pipe shall bear no evidence of interior or exterior extrusion marks. Conform to US Standard PS 22-70, ASTM D2241, ASTM D 1784, D3139, and D1869.

2. Fittings: Schedule 40.

B. Schedule 40 PVC pipe for mainlines; Schedule 40 PVC for laterals.

C. All PVC pipe must be delivered in at least twenty-foot (20') lengths.

D. Sleeves required for main and lateral lines located under paving shall be Schedule 40 PVC, with the inside diameter (I.D.) of sleeve to be twice the outside diameter (O.D.) of the insert pipe, maximum 1 insert pipe per sleeve. All wiring to be in separate sleeves from piping sleeves.

E. Sleeves under roadways (sidewalks, street rights-of-way, boulevards or parkways) where heavy vehicular traffic is anticipated shall be ductile iron pipe, with the inside diameter (I.D.) of the sleeve shall be at least 1 inch greater than the outside diameter (O.D.) of the total inserted pipes. All wiring shall be in separate gray conduit sleeve.

F. Fittings: PVC - ASTM D2464, D2466. Use Teflon tape on all threaded fittings.

2.4 CEMENT & SOLVENT

A. Cement: Weld On 705 or 711 cement (grey)

B. Primer: P-70 primer (purple).

2.5 AUTOMATIC VALVES

A. Master Valve: Size & type as indicated on drawings.

B. Automatic Valve: Size & type as indicated on drawings.

2.6 AUTOMATIC CONTROLLER

A. Type and size as shown on the Plans and Details.

B. Install per manufacturer's instructions.

C. Final location of automatic controller shall be approved by Owner's Representative.

2.7 FLOW SENSOR

A. Type and size as shown on the Plans and Details.

B. Install per manufacturer's instructions.

2.8 CONTROL WIRE FOR VALVES

A. Insulated, single strand copper designed for 24-50 volts and UL approved as UF (Underground Feeder). UL and UF designations clearly marked or embossed on the insulation jacket of the wire. Copper conductor must meet or exceed ASTM B-3 specifications. In no case shall wire be less that 14 gauge.

B. Control wire harness to be enclosed in Schedule 40 PVC conduit.

C. Separate "hot" (red or black) lead for each valve. Common wire (white) for each controller. Spare wire (Orange color). Identify wire color on As-Builts.

D. Looped wires shall be provided within four (4) feet of each wire connection to solenoid. Control wires shall also be snaked underneath mainlines to allow "slack" in the lines.

E. Copper conductors must meet or exceed ASTM B-3 requirements.

F. One spare wire (orange) for each 4 zones is required unless otherwise shown on the Drawings. For clarification; Zones 1 to 4 require one spare wire, Zones 5 to 8 require an additional spare wire, Zones 9 to 12 require an additional spare wire, etc. The spare wire(s) shall be installed to the farthest valve(s) location(s) from the controller. Loop the spare wires in each valve box.

2.9 QUICK COUPLING VALVES

A. Type, manufacture and size(s) shown on the drawings. Install all quick coupling valves in a 10" diameter valve box as shown in the Details

B. One inch (1"), all brass, and one or two-piece bodies, with locking brass tops and have galvanized steel swing joints as shown in the Details. Provide two (2) operating keys and hose swivels.

C. Quick coupler valve for use of compressed air for winterizing: 1", all brass, two piece bodies with locking brass tops. Provide one (1) operating key.

2.10 GATE VALVES

A. Gate valves: Types, manufacture and sizes as shown on the Plans and Details.

B. Gate Valves two inches (2") and smaller: All bronze construction with 'tee' handle, 175 psi water working pressure, Mueller Oriseal Mark II, Red and White or approved equal.

2.11 POP-UP SPRINKLER HEADS

A. Types, manufacture and sizes shown on the Plans and Details.

B. All heads shall have a built-in pressure-regulating device. The device shall regulate nozzle pressure to the design pressure. The pressure-regulating device shall be an internal part of the pop-up stem.

C. The heads shall have matched precipitation rate nozzles with adjusting screws.

D. The heads shall be equipped with check valves to prevent low head drainage. The check valves shall hold back pressures equivalent to 14 feet of head.

2.12 SWING JOINTS

A. Types, manufacture, and sizes shown on the Plans and Details.

B. Swing joints for quick couplers shall be installed in valve boxes, per the Details.

C. Pre-fabricated swing joints, for irrigation heads, shall be triple swing joints. Swing shall consist of street ells, ells, and nipples for full adjustability. Fittings shall have "O" ring seals.

2.13 VALVE BOXES

A. Type, manufacture and size shown on the Plans and Details and/or the following:

1. NDS 10 inch diameter round box (for drain valves, quick couplers and gate valves), green color.

2. NDS 1220-12 with bolt down locking lid and extensions as required (for single valve only) green color.

3. NDS 1730-18 with bolt down locking lid and extensions as required (use for two valves), green color.

4. Use 10" round box for isolation valves and flush manifolds. 6" pit box for air/vacuum relief valves and flush valves.

B. Lids to be labeled: Automatic control valves - ACV, master valve boxes - MV, gate valves - GV, etc.

2.14 IDENTIFICATION

A. Detectable marking tape: Christy's 3" detectable marking tape consists of a minimum 5 mil overall thickness; five ply composition; ultra-high molecular weight; 100% virgin polyethylene; acid, alkaline and corrosion resistant. The tape shall have a 20 gauge solid aluminum foil core, encapsulated within 2.55 mil polyethylene backing. Tape tensile strength shall be in accordance with ASTM D882-80A and be not less than 7,800 psi. Tape legend—Caution Irrigation Line Below. TA-DT-3-GI.

B. Valve Markers: Christy's Identification Tags manufactured from polyurethane Behr Desopan, incorporating an integral attachment neck and reinforced attachment hole and will be capable of withstanding 180 lbs. pull force. Tag shall be approximately 2.25" x 2.75" in size. All lettering will be hot stamped in black and capable of withstanding outdoor usage.

1. Valve Number Markers: The standard alphanumeric designations shall incorporate lettering 1 1/8" in height. Tag color will be yellow. Marking tag will be double side stamped with zone valve number.

2. Non-Potable Water Markers: Purple Christy's marker with Suffix #009, 'Warning Recycled Water Do Not Drink, Aviso Auga Impurano Tomar' with non-potable water graphics.

2.15 BACKFILL MATERIAL

A. Backfill around all irrigation heads: planting soil per planting specification.

B. Bedding material for use around all pipes and equipment as shown on the Details: native topsoil with no rocks or other debris more than 1 inch diameter or common builder's sand.

C. 3/8" washed rock for valve box sump.

2.16 ACCESSORIES

A. Vinyl Insulated Wire Connectors: Scotch-Lok #3570 or 3M-DBY, Direct Bury Splice Kit.

B. Stainless Steel Clamps: 304 AISI stainless steel, one "ear" type. The "ear" shall be capable of being pinched with a pinching tool to secure the tubing around the insert barbed fitting. Interior clamp wall shall be smooth to prevent crimping or pinching of tubing.

C. Pressure Gauge: Fluid filled pressure gauge, dial pressure registered from 0 to 200 psi. Ashcroft 1009 AL with one quarter inch (1/4") gage cock.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Prior to starting work, schedule pre-construction meeting with Owner's Representative. In addition, carefully inspect the preparatory work of other trades, and verify that such work is acceptable for the installation of the work of this Section. Report all unacceptable conditions to the Owner's Representative. Do not begin work until unacceptable conditions have been resolved. Beginning of work constitutes Contractor acceptance of conditions.

3.2 LAYOUT

A. Layout in accordance with plans and details as shown on the drawings. Locate apparatus and equipment in planting areas where there is easy access for maintenance.

B. If minor changes in location of irrigation equipment are required, or are directed by the Owner's Representative, work shall be accomplished by the Contractor at no additional cost to the Owner provided such changes are ordered before items or work directly connected to the same area are installed and provided no additional materials are required.

3.3 TRENCHING

A. Trenches: Wide enough to allow a minimum of 6 inches between parallel PVC pipe lines. Prior to installation, trenches must be adequately tamped to prevent component separation due to settling. Pipe lines depths to provide the minimum cover from finished grade as follows:

1. 18" cover from top of main lines.

2. 12" cover from top of lateral lines.

B. Exercise care when excavating trenches near existing trees. Where roots are one and a half inches (1-1/2") and greater in diameter are encountered hand excavate and tunnel. When large roots are exposed, wrap with heavy burlap for protection and prevent excessive drying. Trenches dug by machines adjacent to trees having roots one and a half inches (1-1/2") and less in diameter shall have the sides hand trimmed making a clean cut of the roots. Trenches having exposed tree roots shall be back-filled within twenty-four (24) hours unless adequately protected with moist burlap or canvas.

C. The top six inches (6") of soil shall be kept separate from subsoil and shall be replaced as the top layer when backfill is made.

D. Excavate trenches with vertical sides and no wider at any point than is necessary to lay the pipe or install equipment. Locate outside of paved areas wherever possible.

E. Materials unsuitable for bedding of pipe to be removed to a depth 4" below trench bottom, and replaced with suitable bedding.

F. All trenches must be straight, with appropriate pipe-fittings used to allow pipe to be laid without undue bending and not have abrupt changes in grade.

G. The trench bottom must be free of rocks or sharp-edged objects.

3.4 PIPE AND FITTINGS

A. Cut PVC pipe ends at 90 degrees to the pipe length and clean all cutting burrs prior to cementing. Use of a deburring tool is highly recommended. Wipe pipe ends clean. Apply primer to both fitting and pipe end. Apply a light coat of cement on the inside of the fitting and a heavier coat on the outside of the pipe. Insert pipe into the fitting and given a quarter turn to seat the cement. Wipe excess cement from the outside of the pipe. Test pipe as indicated elsewhere in these specifications. Backfill the center of the pipe lengths until the pressure test is complete.

B. Cure all welded joints at least 15 minutes before moving and 24 hours before water is permitted in the pipe.

C. Insure that the inside of the pipe is absolutely clean. Protect any pipe ends not being worked on. Cleaning of cutting burrs is MANDATORY.

D. Where possible install PVC lines and valves adjacent to planter bed edges.

E. Provide pipe sleeves double the diameter of the enclosed irrigation line(s). Use Schedule 40 PVC pipe for sleeves. Install “link-seal” around interior pipe in sleeves to prevent soil erosion from planter bed.

F. Exercise care in handling, loading, unloading and storing to avoid damage. The pipe and fittings shall be stored under cover, and shall be transported in a vehicle with a bed long enough to allow the length of pipe to lay flat, so as not to be subject to undue bending or concentrated external load at any point. Any pipe that has been dented or damaged shall be discarded until such damage has been cut out and the pipe is rejoined with a coupling.

G. Appropriate primer shall be used with solvent glue. Solvent welded joints shall be given at least fifteen (15) minutes set-up time before moving or handling. Pipe shall be partially center loaded to prevent arching and slipping. No water shall be permitted in pipe until a period of at least 24 hours has elapsed for solvent weld setting and curing.

H. No PVC pipe may be threaded or connected to a threaded fitting without an adapter. Use Teflon tape on all male threads.

I. Great care must be taken to insure the inside of the pipe is absolutely clean. Any pipe ends not being worked on must be protected and not left open.

3.5 BRASS PIPE AND FITTINGS

A. Brass pipe shall be installed in accordance with the local Plumbing Code and as shown on the Plans and Details.

B. Teflon tape all male threads to prevent leaks and corrosion.

C. Wrap all brass pipes with black PVC tape where they pass through grouted openings in concrete vaults.

3.6 PIPE SLEEVES

A. Place Schedule 40 main line in PVC Schedule 40 sleeves at least 2x larger than the pipe diameter under paved areas. Under drives and roads use ductile iron pipe or PVC Schedule 80 sleeves at least 2x larger than the insert pipe diameter under paved areas.

B. Place Schedule 40 lateral lines in PVC Schedule 40 sleeves at least 2x larger than the pipe diameter under paved areas. Under drives and roads use ductile iron pipe or PVC Schedule 80 sleeves at least 2x larger than the insert pipe diameter under paved areas.

C. Sleeve trenches shall be back-filled with approved backfill material (6 inches minimum above and 4 inches below the pipe) and compacted in layers to 95% compaction, using manual or mechanical tamping devices. Trenches for piping shall be compacted to equal the compaction of the existing adjacent undisturbed soil and shall be left in firm unyielding condition. All trenches shall be left flush with the adjoining grade.

D. Extend sleeves twelve inches (12”) minimum beyond back edge of curbs and pavement. Provide temporary seal for pipe ends and mark locations at grade with wood stakes.

3.7 RISERS AND SWING JOINTS

A. All pop-up sprinkler heads and quick coupler swing joints must be constructed according to the Details.

B. Minimum riser size shall be the pipe size of the sprinkler head.

C. All threaded joints are to have Teflon tape (approved for PVC pipe) applied to male threads only.

D. Risers are to be capped after installation in preparation for pressure testing.

E. All pop-up sprinkler heads and quick couplers shall have swing joints that allow the head to be set perpendicular and flush with finish grades.

3.8 QUICK COUPLING VALVE

A. Install in 10” diameter valve box as shown in the Details.

3.9 AUTOMATIC VALVES

A. Flush supply lines before installing automatic valves. Install one union upstream of valve in manifold. Use valve box extensions to ensure that box extends a minimum of 5 inches below the bottom of the box valve. Leave valve pit with a clean layer of gravel in the bottom with 4 inch clearance (min.) between gravel and bottom of valve.

3.10 CONTROL WIRES

A. Install in accordance with local code.

B. Control wires shall be taped together at five (5) foot intervals with black electrical tape; then this bundle shall be snaked along the bottom of the supply lines to allow for slack in the line for repairs.

C. All splices must be contained within the valve box where a valve is installed. Allow 36” minimum expansion coils for each connection so that the valve bonnet may be removed and placed outside the box for maintenance. All splice to be made with vinyl insulated connectors and sealed in epoxy resin, Scotchlock No. 3570 or DBY connectors.

D. Place control wires in trench prior to placing pipe. Cover control wires with minimum 2” of approved backfill.

E. Tie a loose 36 inch long loop in all wiring at changes of direction greater than 30 degrees. Untie all loops after all connections have been made.

F. One unconnected spare orange control wire (one spare wire for each 4 valves) is to be run from the controller through each intermediate control valve box. Provide a thirty-six inch (36") long, loop in each box. Where control valves run in opposite directions from the controller, run a separate spare wire in each direction.

G. Minimum size of wire is to be determined strictly by the following chart:

No. of Valves	Maximum Length of Common Wire 500'	1000'	2000'	3000'
1	14	14	14	14
2	14	14	14	10
3	14	14	10	8
4	14	14	10	8
5	14	10	8	6
6	14	10	6	6
7	14	8	6	4
8	14	8	6	4
9	14	8	4	4
10	10	6	4	2
11	10	6	4	-

H. The control wires shall be color coded as follows: Neutral or common wire – White, Lead-in wire – Black, Extra wire – Orange.

I. Control wires shall be installed in 2-inch minimum gray PVC schedule 80 sleeve under all paved areas.

J. All wires shall be brought to the irrigation controller. Bring wires into the box through the conduit.

3.11 AUTOMATIC CONTROLLERS

A. Final location of controller approved by Owner's Representative. The 120-volt electrical power to the controller is to be furnished by a licensed electrician. Irrigation Contractor is responsible for the low voltage valve electrical hookup.

B. Install irrigation controller & cabinet per manufacturer's specifications and details.

C. A diagram of schedule shall be posted in the controller to facilitate the selection of the valves to be operated.

D. Install all control equipment in controller cabinet per manufacturer's specifications.

3.12 SYSTEM FLUSHING

A. Flush entire system prior to the installation of valves and sprinkler heads components.

3.13 POP-UP SPRINKLER HEADS

A. Install per details. Spacing of heads shall not exceed spacing shown on the Plans for any reason.

B. Heads along curbs, walks, paving, etc. shall be placed 1/2 inch above finish grade and no closer than 4 inches from paving edge.

C. All heads shall be set perpendicular to finish grade unless otherwise designated on the Plans.

D. Backfill around heads per the Details.

3.14 BACKFILLING

A. Back-filling shall be done when pipe is not in an expanded condition due to heat or pressure. Cooling of the pipe can be accomplished by operating the system for a short time before back-fill, or by back-filling in the early part of the morning before the heat of the day.

B. In refilling the trenches, the fill around, 4 inches below, and 6 inches above the pipe and fittings shall be suitable bedding material or sand, as required, and tamped. The remainder of the backfill shall contain no lumps or rocks larger than three inches. A

three-inch separation is required between all pipes when more than one pipe occupies the trench.

C. All roots, rocks and surplus excavation shall be removed from the site unless otherwise directed. Any turf areas buried under ditch excavation shall be raked clean of any excavated material.

D. Trenches under roads or paved areas shall be back-filled and tamped with a mechanical tamper in successive six-inch (6") lifts. Paving shall be replaced to the satisfaction of the Owner's Representative.

E. Prior to completing backfill, place detectable marking tape directly above the installed lateral and supply mains and secure to pipe with tape for future line detection. Provide extra length to clearly expose ends in the valve boxes.

F. If, for any reason, any part of the sprinkler system is back-filled before approved location, testing, or inspection is authorized, it must be completely uncovered and exposed until approved for back-filling by the Owner's Representative.

3.15 PRESSURE TEST

A. Notify the Owner's Representative at least 72 hours prior to the test.

B. Valves do not need to be installed for pressure test. Valve manifolds, quick couplers and drain valve swing joints may be capped. Purge all air from the mainline prior to testing.

C. Hydrostatically test the mainline at a pressure of 150 psi. To be valid, all tests must be performed under the direction and supervision of the Owner's Representative. Maximum allowable drop is 0 (zero) psi in a one-hour test.

D. Hydro-static pressure test Lateral lines at test at existing static water pressure. To be valid, all tests must be performed under the direction and supervision of the Owner's Representative. Maximum allowable drop is 0 (zero) psi in a one-hour test.

3.16 CLEANING AND REPAIRS

A. Repair or replace any damaged materials, surfaces, and finishes caused by Work of this Section to the satisfaction of the Owner and at no additional cost to the Owner.

B. Clean up as each portion as Work progresses. Remove refuse and excess dirt from the site and legally dispose of it off-site. All walks and paving shall be swept down.

3.17 PERFORMANCE TEST

A. Request Owner's Representative attendance at the system coverage test. Give a minimum of one-week prior notice. Prior to performance test, adjust valves, check heads, check for leaks and coverage.

B. Perform a system coverage test for each zone, in the presence of the Owner's Representative. Repair any clogged or damaged irrigation components. Correct all deficiencies, without additional cost, until the system is approved by the Owner's Representative. Test system for both manual and fully automatic operation.

3.18 BALANCE AND ADJUSTMENT

A. Balance and adjust the various components of the sprinkler system so the overall operation of the system is most efficient. This includes a synchronization of the controllers, adjustments to pressure regulations, pressure relief valves, part circle sprinkler heads, drip emitters and individual station adjustments on the controller.

3.19 MAINTENANCE TRAINING

A. Schedule a training session for the Owner's maintenance personnel for the operation of the system. Furnish sufficient training to the Owner's personnel in the operation, maintenance, and winterization of the system. The Owner's Representative will be notified of this session at least 72 hours in advance and may be part of the training session. The Contractor shall be liable for all damages or losses resulting from failure to comply with the provisions of this paragraph.

3.20 WINTERIZATION

A. Deactivate and drain the system prior to the onset of the freezing season and reactivate at the onset of the spring season. Accomplish each at least once during the warranty period. If construction is completed when the system is not in use, winterize after testing. Certify by letter the dates of winterization/activation. Repair damage from failure to comply.

B. When using compressed air to winterize the system, do so in short cycles at no more than 40-psi air pressure. Do not allow pipe close to the compressor to get hot to the touch.

3.21 FINAL APPROVAL

A. Upon completion of all tests, final approval for the system will be contingent upon Contractor providing reproducible "as-built" drawings and three-ring binders of all catalog cuts/manufacturer's instruction/maintenance and operation information as well as complete sets of all tools and keys required.

END OF SECTION

DIVISION 32—EXTERIOR IMPROVEMENTS
Section 32 91 13—Soil Preparation

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. Subgrade preparation
2. Topsoil installation in planting beds and lawn areas.

B. Related Sections:

1. Section 31 10 00 Site Clearing
2. Section 31 23 16 Excavation
3. Section 23 23.00 Fill and Backfill
4. Section 23 23.15 Trench Backfill
5. Section 31 23 19.16 Geotextile
6. Section 32 84 00 Irrigation
7. Section 32 93 00 Landscape Planting
8. Section 32 93 10 Tree and Shrub Protection
9. Section 33 40 10 Bioretention soils

1.02 SUBMITTALS

A. Make submittals in accordance with Section 01 33 00.

B. Samples: Deliver samples, in large size Ziploc bags, of all soils (components if separate), mulch, and gravel to the project site for review at the Pre-Landscaping Conference. Include a list of sources. Include laboratory test results and amendment recommendations with topsoil and general fill samples. Samples shall be unaltered and of quantity sufficient to allow for proper inspection and review.

C. The Contractor shall submit four (1) copy to the Architect/Engineer for approval of current sieve analysis and the source of the imported base sand proposed for use on the project. The sieve analysis shall include the same sieve sizes as those indicated in the specifications and shall be wet sieves as designated in the specifications.

D. Testing: Test all soil and soil components intended for project as follows.

1. Provide a one cubic foot representative sample of each component from supplier stockpiles. All stockpile sampling shall be per ASTM D 75 and Appendixes for securing samples from stockpiles. Stockpiles shall be manufactured sufficiently in advance of testing so that pH, organic content, and carbon/nitrogen ratio have stabilized.

2. Provide a detailed analysis of imported topsoil from an approved, local, testing laboratory. Perform all tests for gradation, organic content, soil chemistry and pH. Testing reports shall include the following tests and recommendations.

   a. Mechanical gradation (sieve analysis) shall be performed and compared to the USDA Soil Classification System. Sieve analysis shall be by combined hydrometer and wet sieving using sodium hexametaphosphate as a dispersant in compliance with ASTM D 422 after destruction of organic matter by H2O2. To facilitate review and approval of sieve analysis, provide a computer generated gradation curve from Laboratory.

   b. Percent of organics shall be determined by the loss on ignition of oven-dried samples. Test samples minus #10 material shall be oven-dried to a constant weight at a temperature of 450 degrees Fahrenheit.

   c. Chemical analysis shall be undertaken for Nitrate Nitrogen, Ammonium Nitrogen, Phosphorus, Potassium, Calcium, Magnesium, extractable Aluminum, Lead, Zinc, Cadmium, Copper, Soluble Salts, and pH and buffer pH. A Conductivity Meter shall be used to measure Soluble Salts in 1:2 soil/water (v/v). Except where otherwise noted, nutrient tests shall be for available nutrients.

3. Soil analysis tests shall show recommendations for soil additives to correct soils deficiencies and enhance fertility to accomplish planting work as specified.

4. Laboratory to send testing report and recommendations directly to the Owner.

PART 2 - PRODUCTS

2.01 TOPSOIL

A. General

1. Bio retention Topsoil: See section 33 40 10.

B. Imported Topsoil Mix: 85% sandy loam soil and 15% organic soil amendment by volume.

1. Sandy Loam:

a. Shall meet or exceed the requirements of WSDOT Topsoil Type A, of the Current Edition of the "Standard Specifications for Road, Bridge and Municipal Construction" (WSDOT/APWA)

b. Shall be of a sandy loam textural class as determined by the U.S. Department of Agriculture Classification System

2. Organic Soil Amendment

a. Composted Municipal Yard Waste. Compost products shall meet the following physical criteria:

1) 100 percent shall pass through a 1-inch sieve when tested in accordance with WSDOT Test Method 602 and 603 (AASHTO T87 and T88).
2) The pH range shall be between 5.5 and 8.5 when tested in accordance with WSDOT Test.
3) Foreign material (plastic, mineral soils, concrete, metal etc.) shall be no more than 2 percent on a dry weight or volume basis, whichever provides for the least amount of foreign material.
4) Compost material to a temperature adequate to kill weeds and weed seeds.
5) Documentation that the compost meets federal and state health and safety regulations.

b. Slow release organic fertilizers per soil test results and recommendations.

3. Topsoil Source:

a. Cedar Grove Composting, Seattle WA. 877-764-5748.

b. Or approved equal.

C. Slow Release Organic Fertilizers: The following fertilizer specification is to be used for bid price only. Specific amendments and fertilizer specification will be determined by soil laboratory from submitted soil samples. Adjustments to this formulation shall be at no cost to the Owner:

1. Soil amendments/Fertilizer (available from Horizon Locations (425) 828-4554) or approved substitution:

   a. Evergreen Trees and Shrubs: TurfGro 8-2-4 (granulated), 0.33 lbs (1 cup) per one gallon container + 0.16lbs (½ cup) per foot of height or width, whichever is greater.

   b. Deciduous Trees and Shrubs: TurfGro 8-2-4 (granulated), 0.16 lbs (½ cup) per foot of height or width, whichever is greater, + 0.33 lbs (1 cup) per cubic foot of soil in rootball

   c. Perennials, grasses, groundcovers and vines: TurfGro 8-2-4 (granulated), 0.16 lbs (½ cup) per foot of height or width, whichever is greater, + 0.33 lbs(1 cup) per cubic foot of soil in rootball

   d. All planting beds to receive Montana rock phosphate 1 lb per 15 sq ft. and North Atlantic Kelp 10 lbs per 1,000 sq ft

   e. PH Adjusters Lime: 50% Agricultural grade finely ground dolomitic limestone and 50% calcium carbonate limestone with gradation as follows: minimum 75 percent passing 100-mesh sieve, and 100 percent passing 20-mesh sieve

PART 3 - EXECUTION

3.01 SUBGRADES AND SOIL DEPTHS

A. Native grade is to be left clean and even at the following depths:

1. Planting area subgrades: 12” below finish grade. Provide 8 inches compacted depth topsoil and 4 inch depth mulch.

2. Mitigation planting area subgrades: Pit planting. Refer to Drawings included in Critical Area Report

3.02 SUBGRADE PREPARATION

A. If the subgrades are established, or prepared by others prior to commencement of work described in this Section, verify that subgrades are complete. Commencement of work indicates acceptance of subgrades. Rotovate or scarify all compacted subgrades to promote a transition between subgrade material and imported topsoil. Remove debris from areas. Float or drag subgrades to produce smooth, uniform surfaces. Distribute excess soil evenly throughout the site or haul off the site if required.

B. Minimal subgrade preparation is required for undisturbed turf areas. Do not rotovate or scarify grades in these areas unless approved by the Architect/Engineer.

3.03 INSTALLATION

A. Imported Topsoil Application at Planting and Lawn areas:

1. Scarify compacted subgrades to a depth of 4 inches.

2. Apply 1/2 depth of topsoil, mix with subgrade, and compact.

3. Apply remaining topsoil and compact to specified depth.

4. Compact each lift of topsoil and fill to 85% of maximum dry density, as measured in accordance with ASTM D1557. Soil depth measured after compaction.

5. Mound finish grade of planting areas. Provide minimum 2% slope of finished topsoil from high point in center of planting area or planter toward edges.

6. Provide smooth grades as shown on the drawings. Grade to ensure adequate drainage in all areas.

7. Rake to a smooth, uniform finish.

B. Fine grade all areas to uniform finish following grading information shown on the plans. Feather new grades into existing grades. All grades shall flow smoothly into one another.

END OF SECTION

DIVISION 32—EXTERIOR IMPROVEMENTS
Section 32 92 19—Hydroseeding

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. Furnish all materials, equipment, and labor necessary for preparation, seeding, fertilizing, mulching, and protection of hydroseeded areas. For type of seed and requirements for planting soil see the Plans and/or other sections of these Specifications.

B. Related Sections:

1. Section 31 00 00 Earthwork
2. Section 32 40 00 Living Wall System
3. Section 32 84 00 Irrigation
4. Section 32 93 00 Landscape Planting

1.02 QUALITY ASSURANCE

A. Seed: Seed to be furnished in containers that show the following information: seed name, lot number, net weight, percentage of purity, germination, weed seed and inert material. Seed which has become wet, moldy, or otherwise damaged will not be accepted. Seed to conform to the requirements of the Washington State seed law and when applicable the Federal Seed Act, and to be certified" grade or better.

1.03 SUBMITTALS

A. Seed Mix: Complete analysis including purity test data and germination test dates for each cultivar used.

B. Seed vendor's certification for required seed mixture, indicating percentage by weight and percentages of purity, germination and weed seed for each species.

C. Mulch and tackifier: Submit source and type to be used.

D. Fertilizer: Source and type to be used.

1.04 FIELD QUALITY CONTROL

A. Grading Inspection

1. Rough grading to be inspected and approved by Engineer prior to placing planting soil.

2. Finish grading to be inspected and approved by Engineer prior to seed application.

B. Inspections

1. The contractor to request a provisional inspection upon completion of the work. Upon completion of punch list, provisional acceptance will be made in writing by the owner.

2. Final acceptance will be at the end of the one year guarantee period, and after all required repairs have been made.

1.05 GUARANTEE AND REPLACEMENT

A. Hydroseeding to be guaranteed per Section 32 93 00 Landscape Planting.

B. Seeded areas must have a relatively uniform stand of vegetation with no bare spots over 6" square at the time of provisional acceptance. Reseed at the original rate and fertilize with 15-22-15 at the rate of 15 lbs. per 1,000 square feet. All areas failing to vigorously establish within 90 days after germination or a growing season whichever is longest for any reason whatsoever to be redone.

PART 2 - PRODUCTS

2.01 MULCH

A. Mulch to be wood cellulose fiber from Alder, containing no growth or germination inhibiting substances; a soil binding agent (tackifier) is required; mulch to be dyed a suitable color to facilitate placement.

2.02 SOIL BINDING AGENT

A. Soil binding agent to consist of non-toxic, biodegradable materials which are environmentally safe such as ESI - TAK or approved equal.

2.03 SEED

A. Seed to be the following:
1. Hydroseed: Native Seed Mix
a. PT 404 Native Upland Mix with Color. Source: PT Lawn Seed 503.239.7518 www.ptlawnseed.com
b. Mix Includes:

1) California Brome – *Bromus carinatus*

2) Blue Wildrye – *Elymus glaucus*

3) Streambank Rye – *Lupinus rivularis*

4) Western Yarrow – *Achillea millefolium*

PART 3 - EXECUTION

3.01 PREPARATION:

A. All soil preparation operations, compaction and clean-up of debris to be done prior to seeding as specified elsewhere.

3.02 COMPACTION:

A. Compact with sheeps foot roller, cleated crawler tractor, vibratory roller, or equipment approved by owner. Equipment must produce 150-300 pounds per square inch of ground pressure. Compaction to produce a uniform rough textured surface free of tire ruts, depressions, low spots and ready for seeding and mulching. A minimum of four passes are required. After compaction, finish grade to be flush with the top of curbs, catch basins and other structures.

3.03 WATERING:

A. If required by the owner, water to be provided to condition the soil for compaction or to provide dust control. Water to be furnished and applied from on-site supply or by watering truck if necessary.

3.04 SEEDING:

A. Fertilizer, seed and mulch to be applied in one operation with approved hydraulic equipment. Apply materials at the following rates:

1. Mulch - 50 lbs. per 1,000 square feet.

2. Seed – 1 lb. per 1,000 square feet.

3. Soil Binding Agent - 1 lb. per 1,000 square feet.

B. Seeding shall not be done during windy weather or when the ground is frozen. Give the Owner 48 hours notice of seeding operation. Seeding season will be March 15th to October 15th. No seeding to be done before or after these dates without Owner's written approval. If seeding is done during Summer, then regular watering must be provided by means of the fully automatic irrigation system.

C. Equipment to utilize water as carrying agent utilizing continuous built-in agitation system. Equipment with a gear pump is not acceptable.

D. Pump a continuous, non-fluctuating supply of homogenous slurry to provide a uniform distribution of material over designated areas.

3.05 MAINTENANCE

A. Maintain seeded areas until vegetation is well established and exhibits a vigorous growing condition.

B. Maintenance to include protection, and watering, until Physical Completion.

3.06 ACCEPTANCE

A. Inspection to determine Physical Completion of seeded areas will be made by the Owner's Representative upon Contractor's request. Provide notification at least five (5) working days before requested inspection date.

1. Seeded areas will be provisionally accepted provided all requirements, including maintenance, have been complied with and vegetation is well established and exhibits a vigorous growing condition.

2. Areas failing to show a vigorous stand of vegetation to be reseeded at the contractor's expense.

B. Upon Physical Completion, the owner will assume maintenance.

3.07 CLEANING

A. Perform cleaning during installation of the work and upon completion of the work. Remove from site all excess materials, soil, debris, and equipment. Repair damage resulting from seeding operations.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Trees.
2. Shrubs.
3. Ground covers and vines.
4. Perennials and grasses.
5. Root barrier.
6. Livestakes

B. Related Sections:

1. Section 31 00 00 – Site Clearing
2. Section 31 23 16 – Excavation
3. Section 31 23 23.00 – Fill and Backfill
4. Section 31 23 19.16 - Geotextile
5. Section 32 19 13 – Soil Preparation
6. Section 32 84 00 - Irrigation
7. Section 32 92 19 – Hydroseeding

C. Drawings, general provisions of the Contract, and Division-01 Specification sections, apply to this section.

1.02 REFERENCES

A. Plant Grading:

1. American Association of Nurserymen.
2. American National Standards Institute (ANSI): ANSI-Z 60.l-l980 American Standard for Nursery Stock.
3. State of Washington Standards for Nursery Stock.

B. Plant Material Identification:

1. Sunset Western Garden Book, Eighth Edition, 2007.

2. Hortus Third, L.H. Bailey, 1976.

3. Standardized Plant Names as adopted by the American Joint Committee on Horticultural Nomenclature, current edition.

C. American Society for Testing and Materials (ASTM):

1. D75: Standard Practice for Sampling Aggregates.

2. D422: Standard Test Method for Particle-Size Analysis of Soils.

3. D1557: Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort.

4. D5268: Standard Specification for Topsoil Used for Landscaping Purposes.

1.03 SUBMITTALS

A. Make submittals in accordance with Section 01 33 00.

B. Plant procurement list:

1. Not less than 60 days prior to installation, furnish a written schedule of the location, root condition, and size of all plants indicated on the drawings. Indicate plants that must be reviewed, approved, and dug while dormant.

2. Only plants grown in Hardiness Zone 1 through 8b as established by the USDA Plant Hardiness Zone Map, latest edition, will be accepted.

C. Mulch Sample: Deliver in large size Ziploc bags to the project site for review at the Pre-Landscaping Conference. Include material source and sieve analysis. Samples shall be unaltered and of quantity sufficient to allow for proper inspection and review.

D. Tree Ties and Stakes: Provide source and manufactures cut sheet

1.04 QUALITY ASSURANCE

A. Qualifications of Landscaping Subcontractor: Landscaping firm shall be active and experienced in landscape work of the type specified, and able to show evidence of successful completion of projects of similar scope.

B. Comply with referenced standards for identification and grading of plant materials. All plants shall conform to the State of Washington No. 1 as to:

1. Health and vitality.

2. Condition of foliage.

3. Root system.

4. Freedom from pest or mechanical damage.

5. Plant form according to the accepted normal shape of the species.

C. Pre-Landscaping Conference:

1. In conjunction with the procurement of plants specified herein, meet with the Architect/Engineer or his representative to discuss and verify contract requirements, schedule, local materials, and local planting methods.

D. Planting Conditions: Do not install plants during excessive weather conditions including: frozen soil, overly saturated soil, high winds or extreme heat.

1.05 DELIVERY, STORAGE AND HANDLING

A. Store plant materials from time of approval until delivery to job site for installation.

B. Take adequate precautions to protect the plants during delivery, handling, and storage, and replace damaged plants at no additional cost to the Owner.

C. Maintain all stored plants until delivery to job site for installation.

D. Live stakes shall be transported and stored in shaded, cool, moist conditions. They must be covered in burlap and wetted daily while stored.

1.06 SEQUENCING AND SCHEDULING

A. Coordinate landscaping with work of other trades specified elsewhere.

B. Do not perform landscaping work in areas subject to the subsequent work of other sections, unless approved otherwise.

C. Perform work in accordance with the approved schedule specified in Submittals. If a schedule delay occurs, immediately notify the Architect/Engineer and revise and resubmit schedule.

D. Collect live stakes between October and March when the plants are dormant. Install live stakes as soon as possible after collection and no longer than two weeks after collection.

1.07 SUBCONTRACTOR GUARANTEE

A. In accordance Division-01 Specification sections, guarantee materials and workmanship for a period of one year following Physical Completion.

B. During the warranty period, the Subcontractor will not be held responsible for damage to properly installed plants resulting from excessive weather conditions as described in this section, or other factors beyond the Subcontractor's control.

C. For plants requiring replacement, reinstate a one year warranty beginning from the date of replacement.

D. Replacement:

1. Plants found in unsatisfactory condition, as determined by the Architect/Engineer, shall be removed from the site. All removed plants shall be replaced as soon as conditions permit within the normal planting season, at no additional cost to the Owner.

2. Perform all corrective procedures in accordance with contract requirements.

3. Exceptions: During the Warranty period, Contractor will not be held responsible for damage to properly installed plants resulting from vandalism, excessive weather conditions, negligence on the part of the Owner, or other factors beyond the Contractor's control.

4. Warranty shall not include damage or loss of trees, plants, or groundcovers caused by fires, floods, freezing rains, lightning storms, or winds over seventy-five (75) MPH, winter kill caused by extreme cold and severe winter conditions not typical of the planting area as classified by the most current USDA Plant Hardiness zone map

5. Replacement plants shall be of the same variety, size and root condition as existing adjacent plant materials and shall include new growth that may have occurred since planting, such that replacement plants match existing plants of the same variety.

1.08 MAINTENANCE

A. Maintain the landscape work until 30 days after Physical Completion. After that time, the Owner will become responsible for maintenance.

B. Planting area maintenance work includes checking irrigation operation, weeding, cultivating, removing dead materials, resetting plants to proper grades or upright position, mowing, edging, and other operations necessary to the proper care of the landscape work. Minimum of one site visit every two weeks is required.

PART 2 - PRODUCTS

2.01 EXTERIOR PLANTS

A. Plant materials: Furnish nursery-grown trees, shrubs, groundcovers, vines, perennials and grasses complying with ANSI Z60.1, with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock free of disease, insects, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.

1. Provide balled and burlapped, fabric bag-grown, container-grown, or live stake plant material as specified in the plant schedule.

2. Renewable Resources: Plants specified are indigenous or low maintenance varieties, tolerant of site's existing soils and climate without supplemental irrigation or fertilization once established.

2.02 PLANTING MATERIALS

A. Slow Release Organic Fertilizers: See Section 32 91 13 Soil Preparation.

B. Live Stakes:

1. Live stake cuttings must meet the following criteria:
   a. Must be collected from healthy plants while the plants are dormant.
   b. The top of the cutting shall have a straight cut immediately above a bud.
   c. The bottom of the cutting shall have an approximate 45 degree angle.
   d. Must be cut and installed with the bark intact with no branches or stems attached.
   e. Must be 1” to 1 ½” in diameter over the entire length.
   f. Must be 4’ to 5’ in length.

C. Mulch:

1. Mulch products must meet the following criteria:

   a. 100 percent shall pass through a 1-inch sieve when tested in accordance with WSDOT Test Method 602 and 603 (AASHTO T87 and T88).

b. The pH range shall be between 5.5 and 8.5 when tested in accordance with WSDOT Test.

c. Foreign material (plastic, mineral soils, concrete, metal etc.) shall be no more than 2 percent on a dry weight or volume basis, whichever provides for the least amount of foreign material

d. Compost material to a temperature adequate to kill weeds and weed seeds

e. Color shall be dark brown.

2. Mulch Source:

a. Mulch from recycled site debris: Coordinate with Site Clearing Section to identify and prepare suitable organic debris for use as mulch on site. Submit sample for testing and apply nitrification agent as recommended.

b. "Summit Compost" available from NW Washington Compost (360) 563-2408. or approved substitute.

1) Nitrification Agent for "Summit Compost" Mulch: mix at least 3 lbs of Nitroform per cubic yard of Summit Compost.

2.03 PLANTING ACCESSORIES

A. Tree Stakes:

1. 2" diameter Lodgepole Pine doweled tree stakes, 8 feet long.

B. Tree Ties:

1. "Chainlock" Tree Tie, 1" thick, black.

C. Plastic Root Barrier:

1. Polypropylene with ultraviolet inhibitors, 75% post-consumer recycled content. DeepRoot UB 18-2 or approved equal.

PART 3 - EXECUTION

3.01 EXTERIOR PLANTING

A. Install per locations indicated on plans.

B. Bed Establishment:

1. Loosen subgrade of planting beds to a minimum depth of 8 inches.

2. Remove stones larger than 1 inch in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.

3. Thoroughly blend planting soil mix off-site before spreading or spread topsoil, apply soil amendments and fertilizer on surface, and thoroughly blend planting soil mix.

4. Spread planting soil mix to a depth of 8 inches, but not less than required to meet finish grades after natural settlement. Do not spread if planting soil or subgrade is frozen, muddy, or excessively wet.

5. Finish Grading: Grade planting beds to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.

C. Trees and Shrubs:

1. Pits and Trenches: Excavate circular pits with sides sloped inward. Trim base leaving center area raised slightly to support root ball and assist in drainage. Do not further disturb base. Scarify sides of plant pit smeared or smoothed during excavation. Excavate approximately three times as wide as ball diameter.

2. Install root control barrier, per manufacturer’s recommendations, between back of sidewalk and plantings. Top of root control barrier to be flush with bottom of mulch.

3. Set trees and shrubs plumb and in center of pit or trench with top of root ball flush with adjacent finish grades.

   a. Balled and Burlapped: Remove burlap and wire baskets from tops of root balls and partially from sides, but do not remove from under root balls. Remove pallets, if any, before setting. Do not use planting stock if root ball is cracked or broken before or during planting operation.

   b. Container grown: Carefully remove root ball from container without damaging root ball or plant. Loosen girdled or circling roots and scarify rootball.

   c. Fabric Bag Grown: Carefully remove root ball from fabric bag without damaging root ball or plant. Do not use planting stock if root ball is cracked or broken before or during planting operation.

d. Bare root: Carefully remove packing materials and soak roots in water 3 to 6 hours. Prune dead or damaged roots. Do not allow roots to dry out. Mound soil in the bottom of the planting hole to near ground level and gently spread roots to cascade down over the sides of the mound.

e. Place planting soil mix around root ball in layers, tamping to settle mix and eliminate voids and air pockets. When pit is approximately one-half backfilled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed. Water again after placing and tamping final layer of planting soil mix.

D. Tree and Shrub Pruning: Prune and thin trees and shrubs according to standard horticultural practice. Do not over prune. Prune trees to retain required height and spread. Do not cut tree leaders; remove only injured or dead branches from trees. Prune shrubs to retain natural character. Shrub sizes indicated are sizes after pruning.

E. Ground Covers, vines, perennials and grasses:

1. Set out and space ground cover and plants as indicated.

2. Dig holes large enough to allow spreading of roots, and backfill with planting soil.

3. Work soil around roots to eliminate air pockets and leave a slight saucer indentation around plants to hold water.

4. Water thoroughly after planting, taking care not to cover plant crowns with wet soil.

5. Protect plants from hot sun and wind; remove protection if plants show evidence of recovery from transplanting shock.

F. Live stakes:

1. Provide 1” diameter pilot hole for each live stake.

2. Install live stake cutting so that half the length is buried in soil.

3. Water thoroughly after planting.

G. Planting Bed Mulching:

1. Mulch backfilled surfaces of planting beds and other areas indicated. Apply 4-inch average thickness of mulch, and finish level with adjacent finish grades. Taper mulch to 1" depth at trunks or stems.

H. Protect exterior plants from damage due to landscape operations, operations by other contractors and trades, and others. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged exterior planting.

I. Properly protect all plantings from the harmful effects of wind, unusual weather, construction activities, and abuse until final acceptance.

J. Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of them off Owner's property.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. This section includes administrative and procedural requirements for the protection of trees, shrubs, and plant material not designated for removal. Such trees, shrubs, and plant materials shall be left in place and protected from damage or injury by the Contractor during construction, using full and adequate methods of protection as described herein or as directed by the Engineer.

1.02 TREE WORK

A. Tree work, including root pruning shall be performed by experienced certified tree specialists working in their area of expertise, contractor shall submit and obtain approval for subcontractors performing tree work from the Engineer prior to performing any tree work within the Washington Park Arboretum

1.03 RELATED SECTIONS:

A. Section 01 57 13 - Construction Stormwater Control

B. Section 02 41 00 - Demolition

C. Section 31 00 00 – Site Clearing

D. Section 31 23 16 – Excavation

E. Section 31 23 23.00 – Fill and Backfill

F. Section 31 37 00 - Riprap

PART 2 - PRODUCTS

2.01 RIGID TREE PROTECTION FENCING:

A. Rigid tree protection fencing shall be comprised of the following:

1. Chain link fencing materials including driven posts, rails (as required), braces and mesh, 6’-0” in height from finish grade.

2. Posts and rails shall be a minimum of 1-1/2” OD steel pipe and of sufficient length for direct embedment as indicated on plans.

3. Mesh shall be 2”x 2” x 11ga. minimum woven chain link fabric.

4. If approved by Engineer, post bases shall be minimum 16”x 8” x 8” high concrete piers with sleeves for posts, or approved equal.

5. Planking materials shall be either steel plates or timber made of 4-inch thick material and shall cover a minimum area 8 square feet.

PART 3 - EXECUTION

3.01 PROTECTION WITHIN THE DRIP-LINE OR WITHIN TREE PROTECTION FENCING:

A. Where existing trees are within the area of work, or where existing trees outside the area of work have drip-lines extending into the area of work, the Contractor shall employ all methods to minimize adverse impact to these existing trees including limbs and roots. The Contractor shall notify the Engineer of any construction work within the drip-line of trees at least one (1) Working Day before the scheduled activity. These methods may include but not be limited to:

1. Temporary chain link construction fencing.

2. Temporary tie-up of low limbs.

3. Application of a 4- to 6-inch thick layer of mulch (or wood chips salvaged from clearing and grubbing operations) within the drip-line of trees.

4. Timber or steel planking for protection of surface roots from Equipment.

5. Tree root pruning or other tree root treatment as directed by the Engineer and/or the SPR Senior Urban Forester.

B. No storage of equipment or materials shall be allowed within the drip-line of trees not designated for removal or within the tree protection fencing boundary at any time. Steel planking, or timber planking shall be used to support backhoe and other Equipment stabilizers when set within the drip-line of a tree or sodded / planting area.

C. Where sidewalk, curb, and pavement removal and placement operations occur that impact tree roots 1-inch or greater in diameter, the Engineer will determine how these tree roots are to be handled.

D. Tree protection fencing is temporary and may be moved and re-used as the trail construction progresses. No work shall commence until the tree protection fence is in place for any given work zone and no tree protection shall be moved until the work is substantially complete in any given work zone.

3.02 ABOVE-GRADE WORK:

A. Tree removal or tree trimming within 10 feet of any overhead utility lines require the Contractor notify the utility provider (PSE) with at least two (2) weeks' notice.

B. When the Contractor anticipates construction operations that will unavoidably affect tree limbs, the Contractor shall notify the Engineer at least five (5) Working Days in advance of commencing such operations. Coordinate with the City Parks Department to make arrangements for inspection.

1. Before trimming any trees, the Contractor shall notify the Engineer of the proposed method and the amount of trimming anticipated.

2. Trimming shall be done by a professional tree service company whose past and current performance is in accordance with National Arborist Association tree-pruning standards.

3.03 TRENCHING, TUNNELING AND GRADING WITHIN THE DRIP-LINE:

A. Trenching, tunneling and grading within the drip-line of existing trees not designated for removal shall be reviewed by the Engineer prior to commencing work, and defined zone clearance requirements reviewed in the field.

B. Excavation or tunneling of any kind within the "critical root zone," as defined by the Standard Plans, and/or within the tree protection fencing boundary will not be allowed unless the Contractor requests permission to do so at least two (2) Working Days in advance and receives approval of the Engineer. Contact the City of Kirkland inspection team to make arrangements for inspection.

C. Treatment of Roots: Excavation around roots 2-inch in diameter and greater requires handwork.

1. Individual tree roots 2-inch or greater in diameter shall not be cut, but rather protected when within the drip-line of the tree and within the area designated to be protected by the tree protection fence.

2. Tree roots smaller than 1-inch in diameter shall be cleanly cut flush with the edge of the trench or tunnel.

3. Ripping or tearing of tree roots will not be allowed.

4. When large roots are exposed in any excavation, wrap with heavy, wet burlap for protection and to prevent excessive drying.

5. Trenches having exposed the roots shall be backfilled within 24 hours unless adequately protected with moist burlap or canvas.

6. An Air Spade or Air Knife is a compressed air tool that removes soil without damaging roots, even fine fibrous roots. The tools convert compressed air to a directional jet stream by use of specially nozzles fitted to the end of a hand held lance. The skilled use of this compressed air tool will break up and remove the soil from around tree roots. The finely

focused stream of air penetrates the ground to a depth of up to 30 cm and can be aimed to crumble and blast the soil away. It is possible to cause damage to the root cortex of thin barked species. Two specially designed filter units are necessary to reduce the oil content of the air stream down to a more acceptable 0.05 parts per million. It is important to install filters in the air line between the compressor unit and the hand held lance.

3.04 REPAIR, REPLACEMENT AND PAYMENT FOR DAMAGE:

A. Trees or other plant material not ordered or designated to be removed but that are destroyed or irreparably damaged by Contractor operations as determined by the Engineer, shall be repaired or replaced by the Contractor in accordance with the Engineer's recommendations (at least 2 replacement trees for every 1 tree removed).

1. Replacements shall be of the same species and as nearly as possible of the same size as the trees to be replaced (minimum of 2" caliper).

2. The Contractor shall allow one (1) Working Day advance notice for inspection of nursery stock replacements by the Engineer.

B. Payment: In addition to the Contractor's restoration approved by the Engineer, the Contractor will be assessed damages for the difference in the dollar value of the damaged tree, shrub, or other plant material, and the dollar value of the replacement.

1. The dollar value will be determined by the Engineer from the "Guide for Establishing Values of Trees and Other Plants," prepared by the Council of Tree and Landscape Appraisers, current edition. Damages assessed will be deducted from moneys due or that may become due to the Contractor.

2. The University of Washington uses CTLA (Council of Tree and Landscape Appraisers) formulas to appraise value of plant collections. The Trunk Formula Method (TFM) is used for trees unable to be transplanted based on a similar tree. UW plant collection adjustment factors fall under three formula factors: Species rating, Location (includes site, contribution and placement by percent), and Installation Costs that accounts for UW's curation and propagation/nursery production costs.

a. Appraised value = Basic tree cost x Species% x Condition% x Location%.

b. Basic Tree Cost = Trunk area increase of the appraised tree x Unit Tree Cost + Installed Tree Cost Location = (Site% + Contribution% + Placement%) divided by 3.

c. Current Installation Costs for deciduous tree collections are $2,002 and conifers are $924.

C. Planting of replacement stock shall be done in accordance with the requirements of the Contract Documents during the first fall or spring planting period, whichever comes first.

END OF SECTION

DIVISION 33

UTILITIES

SECTION 33 12 13
WATER SERVICE CONNECTIONS

PART 1 GENERAL

1.01 REFERENCES

A. The following is a list of standards which may be referenced in this section:

1. American Association of State Highway and Transportation Officials (AASHTO).
2. American Water Works Association (AWWA): C800, Underground Service Line Valves and Fittings.
3. ASTM International (ASTM):
   a. A53/A53M, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
   b. B32, Standard Specification for Solder Metal.
   c. B88, Standard Specification for Seamless Copper Water Tube.
   d. D3350, Standard Specification for Polyethylene Plastics Pipe and Fittings Material.
4. NSF International (NSF):
   a. NSF/ANSI 61, Drinking Water System Components - Health Effects.
   b. NSF/ANSI 372, Drinking Water System Components - Lead Content.

1.02 SUBMITTALS

A. Action Submittals:

1. Shop Drawings:
   a. Product Data:
      1) Pipe material data.
      2) Materials of construction for corporation stops, curb stops, and meter stops. Check valves, back-flow assemblies, valve box.
      3) Fitting types.
      4) Meter boxes, vaults and covers.
   b. Details with dimensions and fabricating tolerances for component ends.
   c. Drawing showing how components of water service connection will fit together.
   d. Operating pressure and allowable test pressure for components making up the service connection.
   e. Allowable test pressure for connected components.
   f. Proposed thrust restraint data for restraining joints including drawing details, materials, assembly ratings, and pipe attachment methods.
   g. Factory test results of components.

B. Informational Submittals:

1. Manufacturer's Certificate of Compliance, in accordance with AWWA C800.
2. Manufacturer's Certificate of Compliance, in accordance with NSF/ANSI 61.
3. Statement of Qualifications:
   a. Piping manufacturer.
   b. Fitting and specials manufacturer.
4. Procedure for field testing water mains and service connections, including disinfection.

PART 2 PRODUCTS

2.01 GENERAL

A. Components and Materials in Contact with Water for Human Consumption: Comply with the requirements of the Safe Drinking Water Act and other applicable federal, state, and local requirements. Provide certification by manufacturer or an accredited certification organization recognized by the Authority Having Jurisdiction that components and materials comply with the maximum lead content standard in accordance with NSF/ANSI 61 and NSF/ANSI 372.

1. Use or reuse of components and materials without a traceable certification is prohibited.

2.02 SERVICE CONNECTION

A. Refer to Northshore Utility District Engineering Specifications and Standard Water Details 4, and coordinate product names and requirements with these Specifications. Furnish components same size as nominal designation of service pipe for the 1-inch service line.

1. 1-inch corporation stop.
2. 1-inch curb stop.
3. 1-inch meter coupling.
4. Meter with meter box.
5. Pressure reducing check valves.

B. Refer to Northshore Utility District Engineering Specifications and Standard Water Detail 4, and coordinate product names and requirements with these Specifications. Furnish components same size as nominal designation of service pipe for the 1-inch service line.

1. 1-inch corporation stop.

2. 1-inch curb stop.
3. 1-inch ball valve with cast iron valve box
4. 1-inch meter coupling.
5. Meter with meter box.
6. Pressure reducing check valves.

2.03 SERVICE SADDLES

A. Provide in accordance with the following:

Mainline Material	Saddle Characteristics	Tap Size	Manufacturer*
Ductile Iron Class 52 or Greater	Not Applicable (Direct Taping will be allowed)	1”	Not Applicable
Ductile Iron Pipe, Less Than Class 52, Cast Iron	Single strap epoxy coated ductile iron casting with CC threads.	1”, 1-1/2”, 2”	Mueller Company Type DR1S Ford Meter Box Company Type FC101 Romac Industries, Inc. Type 101NS Or approved equal
PVC Pipe	Double strap saddle with coated saddle and wide stainless steel straps Epoxy coated ductile iron casting with CC threads. No U-bolt Type straps will be allowed	1”, 1-1/2”, 2”	Mueller Company Type DR2S Ford Meter Box Company Type FC202 Romac Industries, Inc. Type 202NS Or approved equal
*Model number for each manufacturer will depend on pipe material saddle is attached to and whether the native soils are aggressive or relatively neutral.			

1. Choose model number for each manufacturer based on pipe being saddled and corrosivity of surrounding soils.
2. Style:
   a. Double strap with wide straps for metal pipe.
   b. One-piece, full-circle, single stainless body with double bolt for use on plastic pipe.
3. Saddle: Coated to prevent corrosion.

4. Manufacturers:
   a. Mueller Company.
   b. Ford Meter Box Company.
   c. Romac Industries.

2.04 CORPORATION STOPS

A. Shall be per Northshore Utility District Standard Water Detail 4 and Detail 5.

2.05 MISCELLANEOUS FITTINGS

A. Service materials including valves, pipe and fittings be as specified on the Standard Details. All brass appurtenances shall be "lead free" and conform to NSF/ANSI 372 and NSF/ANSI 61 standards.

2.06 CHECK VALVES

A. One-inch check valves shall be per Northshore Utility District Standard Water Detail 4 and Detail 5.

2.07 METER BOXES, VAULTS, AND COVERS

A. Characteristics:

1. Able to withstand AASHTO H20 loading characteristics.
2. Rectangular body.
3. Cast iron lid, removable for meter reading.

B. The meter boxes shall be according to the Northshore Utility District Standard Water Detail 13, 1 inch to 2-inch Fire Sprinkler or Irrigation Backflow Prevention.

C. The premise isolation backflow assembly use, either a double check valve assembly or reduced pressure backflow assembly (backflow assembly), shall meet WAC 246-290-490 "Cross-Connection Control" and be an approved assembly as shown on the Washington State approval listing.

D. The backflow assembly is to be tested at installation and annually thereafter. The test shall be performed by a certified Washington State Backflow Assembly Tester. Certified testers shall be determined per Northshore Utility District Standard Water Detail 13.

E. Manufacturers and Products:

Service Size	Characteristics	Manufacturer & Model
3/4” through 2”	Rectangular concrete body and cast-iron lids; extensions as required	Brooks Products, Inc.; model number dependent on service size

2.08 METER YOKES

A. Shall be per Northshore Utility District Standard Water Detail 4 and Detail 5.

2.09 BALL VALVES

A. Shall be Ford No. B11-666 or approved equal for 1-inch piping.

B. Valve box shall be two-piece cast iron per the Northshore Utility District Engineering Specifications and Standard Water Detail 4 and Detail 5.

C. Shall be connected with brass nipple, length to fit.

D. Adapter, MIPxPack Joint, Ford No. C86-66 or approved equal for 1-inch piping connections.

E. Locator Wire: 14-gauge copper, continuous, solid core, neoprene coated per the Specifications. Connection at the meter setter shall be made with an all stainless-steel hose clamp. Connection at the main line wire shall be made with a split-bolt connector. Strip coating prior to connection.

F. 1-1/2-inch meter setter shall be Ford VBH8612B or approved equal.

G. 1-inch meter setter with dual check valve shall be Ford VBHC74-84W-11-44A-FP-NL, A.Y. McDonald 762-412WDDDD 44x15, or Mueller 390B2588-6A03N or approved equal with 1 inch, minus 90 degree brass street elbow (if required by District) and 1 inch adapter.

2.10 METERS

A. Characteristics:

1. Size to match associated piping service and flow requirements.
2. Magnetic drive, positive displacement.
3. Connections to match adjacent piping.
4. Materials to resist soil corrosivity (if any).
5. Frost protection bottom.
6. Rated for working pressure of adjacent piping.
7. Meters will be furnished by Owner.

2.11 POLYETHYLENE PLASTIC PIPE

A. Characteristics:

1. Manufactured from ultra-high molecular weight, high-density polyethylene.
2. Conforming to ASTM D2239, PE 4710, and AWWA C901.
3. Working Pressure Rating 250 psi.
4. Standard dimension ratio (SDR) of 7 or smaller.
5. At a minimum, the pipe pressure rating, SIDR, and ASTM classification shall be clearly printed on the pipe.

B. Manufacturer and Product: Phillips Products Co.; Driscopipe 5100.

PART 3 EXECUTION

3.01 GENERAL

A. Install water meters after entire water system is ready for operation.

B. Depth of cover over the pipe shall be minimum 18 inches.

C. Install service connection in accordance with Northshore Utility District Standard Details.

3.02 TRENCH EXCAVATION AND BACKFILL

A. In accordance with Northshore Utility District Engineering Specifications Section 9.7 or Sections 31 23 16, Excavation and Section 31 23 23.15, Trench Backfill.

3.03 CONNECTION TO MAIN

A. All service installations shall be according to the Standard Details.

B. Clean exterior of main of dirt and other foreign matter that may impair the quality of the completed connection.

C. Place service clamp (saddle) at desired location.

D. Clamp by tightening alternate nuts progressively.

E. Do not place service clamp within 1 foot of pipe joint, or another clamp.

F. Make taps with adapters for the size main being tapped.

3.04 UNDERCROSSING OF HARD SURFACE ROADS

A. Open-cut asphalt or concrete roads.

3.05 POLYETHYLENE PLASTIC PIPE

A. Install in conformance with manufacturer's recommendations.

3.06 METER BOXES

A. Installation:

1. Construct enclosures plumb, and flush with existing ground surface unless shown otherwise.
2. Use standard extension sections to adjust to grade.
3. Place lightly compacted earth backfill inside meter box to depth shown.
4. Backfill around meter vaults as specified in Section 31 23 23.15, Trench Backfill.
5. Install meter in horizontal position with dial at required depth below cover.
6. Corporation Stops: OPEN position.
7. Angle Stops: CLOSED position.
8. The backflow assembly shall be installed immediately behind the water meter on private property.

3.07 TESTING

A. After backfilling the water main with sufficient material to prevent movement of the pipeline and allowing sufficient time for the concrete blocking to set, the water main shall be pressure tested in convenient lengths as directed by the District. In general, new mains shall be tested between valves and large sections of untested main will not be permitted to accumulate.

B. Testing shall occur per Northshore Utility District Engineering Specification, Test Duration: At least 15 minutes.

C. Inspect for leaks and repair before backfilling.

3.08 DISINFECTION OF SERVICE CONNECTIONS

A. Sterilization and flushing of water mains and services shall occur per Northshore Utility District Engineering Specifications 10.22.

B. Extra chlorine will be put into the system by Owner during service connection transfers to provide adequate disinfection capacity when above procedures are executed.

END OF SECTION

SECTION 33 12 19
WATER UTILITY DISTRIBUTION FIRE HYDRANTS

PART 1 GENERAL

1.01 REFERENCES

A. The following is a list of standards which may be referenced in this section:

1. American Water Works Association (AWWA):
   a. C502, Dry-Barrel Fire Hydrants.
   b. C600, Installation of Ductile-Iron Mains and Their Appurtenances.
2. ASTM International (ASTM): C94, Standard Specification for Ready-Mixed Concrete.
3. FM Global Approved.
4. NSF International (NSF):
   a. NSF/ANSI 61, Drinking Water System Components - Health Effects.
   b. NSF/ANSI 372, Drinking Water System Components - Lead Content.
5. UL: 246, Standard for Hydrants for Fire-Protection Service.

1.02 SUBMITTALS

A. Action Submittals: Catalog cuts of system components.

1. Include calculations for thrust blocks for high-pressure installations (if required).

B. Informational Submittal:

1. Certificate of Compliance: Upon completion of the system installation, verify all fire department hose connections, and check all fire safety devices to ensure their readiness for emergency connection and operation.

PART 2 PRODUCTS

2.01 GENERAL

A. Components and Materials in Contact with Water for Human Consumption: Comply with the requirements of the Safe Drinking Water Act and other applicable federal, state, and local requirements. Provide certification by manufacturer or an accredited certification organization recognized by the

Authority Having Jurisdiction that components and materials comply with the maximum lead content standard in accordance with NSF/ANSI 61 and NSF/ANSI 372.

1. Use or reuse of components and materials without a traceable certification is prohibited.

2.02 LOW PRESSURE HYDRANTS

A. Hydrant:

1. Break flange or safety top type.
2. Nominal 5-1/4-inch main valve opening with 6-inch bottom connections.
3. Conform to AWWA C502, except working pressure of psi.
4. Two 2-1/2-inch NST hose ports.
5. One 5-inch pumper connection with Storz Adapter (integral or non-integral).
6. Operating Nuts: 1-1/4-inch point to flat pentagon nut operating by turning to the left.
7. Nozzle shall be fitted with renewable bronze nipples locked in place.
8. Mechanical joint inlet connection.
9. Coated with Steelcote SR53 heavy duty brush type enamel. Top coat shall be two brush coats of Sherwin/Williams White Industrial Enamel No. B54W101, in accordance with the Northshore Utility District Standard Water Details 3: Fire Hydrant Assembly.
10. Manufacturers and Products. Use one of the following in conformance with AWWA Standard Specification C-502:
    a. Mueller Co.; Superior Centurion.
    b. American Darling; B-62-B.
    c. Clow; Medallion.
    d. M&H; 129.
    e. East Jordan Iron Works; WaterMaster 5CD250.

B. Main Valve:

1. Depth of Bury: 3-1/2 feet.
2. Equip with O-ring seals.
3. Valve opens on counterclockwise rotation.

2.03 PRECAST CONCRETE PIER BLOCK

A. Nominal dimensions of 8-inch thickness by 16-inch square base.

B. Compressive Strength: 3,000 psi at 28 days.

2.04 GRAVEL FOR DRAINAGE

A. Washed 3/4-inch crushed rock or graded river gravel. Free of organic matter, sand, loam, clay, and other small particles that will restrict water flow through gravel.

2.05 FOUNDATION STABILIZATION MATERIAL

A. Furnish when existing trench material or imported pipe base material will not support soft or flooded spots in excavated trench.

B. Maximum 3-inch hard rock free from excessive clay material, but enough fines to bind larger fragments.

2.06 CONCRETE FOR THRUST BLOCKING

A. Ready-mix meeting ASTM C94, Alternative 2.

B. Compressive Strength: 2,500 psi at 28 days.

C. Aggregate Size: 1-1/2 inches.

D. Slump: 2 inches to 4 inches.

2.07 THRUST TIES

A. 3/4-inch-diameter steel rods.

B. Duc-Lugs Manufacturer: Romac.

PART 3 EXECUTION

3.01 GENERAL

A. Install hydrants in accordance with Section 3.7 and Section 3.8 of AWWA C600, unless specified otherwise.

3.02 EXCAVATION

A. Excavate to subgrade. Fill over excavated areas with foundation stabilization material. Tamp to provide firm foundation.

3.03 BASE BLOCK

A. Place on firm, level subgrade to ensure uniform support.

3.04 INSTALLATION OF HYDRANTS

A. Locate hydrants to provide accessibility and to minimize potential damage from vehicles.

1. Relocate improperly set hydrants.
2. Hydrant Located behind Curbs: Set barrel so pumper nozzle or hose nozzle caps are a minimum of 18 inches from gutter face of curb.
3. Hydrant Located in Space between Curb and Sidewalk: Not less than 8 inches, clear from sidewalks.
4. Hydrant Located between Sidewalk and Property Line: Minimum clearance 8 inches from sidewalk.
5. Set hydrants so safety flange is a minimum of 2 inches above finished ground or sidewalk level.
6. Fire hydrants shall be set plumb and ports shall be oriented as directed by the Fire Protection District of Kirkland.

B. Place hydrant on base block carefully to prevent the base block from breaking.

C. Joints shall conform to Section 3.4 of AWWA C600 when cast or ductile iron pipe is used.

D. 6 inch Cl 52 ductile iron pipe, 3 foot minimum and 50 foot maximum with restrained joints.

E. Gate valves shall be ductile iron body valves with resilient wedge conforming to the latest revision of AWWA Standard C515 and shall be NSF 61 approved. Valves shall have epoxy coating fusion bonded to all internal and external surfaces of the valve body and bonnet in compliance with AWWA C550. The wedge shall be fully encapsulated in rubber. The valves shall be non-rising stem, open to the left, equipped with standard 2 inch square operating nuts, and O-ring seals at all joints.

1. Manufacturers and Products:
   a. Resilient Wedge Gate:
      1) Mueller; Super Centurion.
      2) American Darling; B-62-B.
      3) Clow Medallion.
      4) M&H; Series 129.
      5) East Jordan Works; Watermaster SCD250.
   b. Gate valves shall also be per the Northshore Utility Department Standard Water Detail 3.

F. Valve boxes shall be two-piece, cast iron, East Jordan Iron Works, per the Northshore Utility Department Standard Water Detail 3 and:

1. Valve box cover, 06800209.
2. Valve box top, 85557016U.
3. Valve box bottom, 85556024U.

G. Maintain hydrant in a plumb position during subsequent Work.

3.05 GRAVEL FOR DRAINAGE

A. Place gravel around base block and hydrant bottom in accordance with Section 3.7 of AWWA C600.

3.06 CONCRETE THRUST BLOCKING

A. Place blocking after hydrant is set in final position and join to pipe.

B. Concrete thrust block shall have a minimum of 4 square feet of bearing area against undisturbed earth for a standard pressure installation.

1. Calculate required bearing area for high pressure installation.

3.07 THRUST TIES

A. Install thrust ties in lieu of concrete thrust blocking when ground surface behind hydrant is less than 2 feet above top of hydrant base.

1. Install two tie rods between main valve and hydrant.
2. Install mechanical joint glands with lugs in joints between hydrant and main valve.

END OF SECTION

SECTION 33 40 10
BIORETENTION

PART 1 GENERAL

1.01 SUMMARY

A. This section specifies bioretention facility and construction requirements.

1.02 SUBMITTALS

A. Procedures: See Section 01 33 00, Submittal Procedures.

B. Bioretention Soil:

1. Aggregate Analysis: Grain size analysis results of the Mineral Aggregate for Bioretention Soil performed by an independent laboratory in accordance with ASTM D422, Standard Test Method for Particle Size Analysis of Soils.
2. Compost Analysis: Quality analysis results for the compost for Bioretention Soil performed in accordance with STA standards.
3. Mix Analysis: Organic content test results of the Bioretention Soil mix. Organic content test shall be performed in accordance with Testing Methods for the Examination of Compost and Composting (TMECC) 05.07A, "Loss-On-Ignition Organic Matter Method".
4. Mix Samples:
   a. Two 5-gallon Samples of the Bioretention Soil mix, along with the following information:
      1) The Manufacturer's Certificate(s) of Compliance from the Supplier of the Bioretention Soil mix, and (if different), the Suppliers of the mineral aggregate and compost components, including their name(s) and address(es).
      2) A description of the equipment and methods to mix the mineral aggregate and compost to produce Bioretention Soil.
      3) Laboratory Information. Including the following information about the testing laboratories:
         a) Name of Laboratory including contact person(s).
         b) Address(es).
         c) Phone contact(s).
         d) E-mail address(es).
         e) Qualifications of laboratory and personnel including date of current certification by STA, ASTM, AASHTO, or approved equal.

PART 2 PRODUCTS

2.01 BIORETENTION SOIL

A. Bioretention Soil:

1. Bioretention soil mix (BSM) shall be per City of Kirkland standard CK-L.01.

2.02 MINERAL AGGREGATE FOR BIORETENTION SOIL

1. Mineral aggregate shall be well graded.
2. Coefficient of Uniformity (D60/D10) equal or greater to 4.
3. Coefficient of Curve (D302/D60/D10) between 1 and 3.
4. Gradation:

Sieve Size	Percent Passing
3/8 inch	100
#4	95 - 100
#10	75 - 90
#40	25 - 40
#100	4 - 10
#200	2 - 4

2.03 COMPOST

A. Shall meet definition of "compost materials" in WAC 173-350-100, available online at http://www.ecy.wa.gov/programs/swfa/organics/soil.html.

B. Shall be produced at a composting facility permitted by the Washington Department of Ecology.

C. No visible free water or dust shall be produced when handling material.

D. Shall be tested in accordance with the US Composting Council "Testing Methods for the Examination of Compost and Composting" (TMECC).

E. Shall have a pH between 6.0 and 8.5.

F. Shall have a manufactured inert content less than 1 percent.

G. Shall have a minimum organic matter content of 40 percent by dry weight.

H. Shall have a maturity greater than 80 percent per TMECC.

I. Shall have stability of 7mg CO2 – C/G OM/day or below per TMECC.

J. Shall have a carbon to nitrogen ratio less than 25:1.

K. Testing Requirements: The compost Supplier shall test all compost products within 90 calendar days prior to application, at the Supplier's expense. Samples shall be collected using the Seal of Testing Assurance (STA) Sample collection protocol, available from the U.S. Composting Council, Phone: (631) 737-4931, www.compostingcouncil.org. The Sample shall be tested by an independent STA Program certified laboratory. A copy of the approved independent STA Program laboratory test report shall be submitted to the Engineer prior to initial application of the compost.

L. Screen to the following size gradation for Fine Compost when tested in accordance with TMECC test method 02.02-B, "Sample Sieving for Aggregate Size Classification."

1. Fine Compost shall meet the following gradation by dry weight:
   a. Minimum percent passing 2 inch equals 100 percent.
   b. Minimum percent passing 1 inch equals 99 percent.
   c. Minimum percent passing 5/8 inch equals 90 percent.
   d. Minimum percent passing 1/4 inch equals 75 percent.

2.04 BIORETENTION UNDERDRAIN

A. Bioretention Underdrain:

1. Slotted subsurface drain shall be PVC pipe per ASTM D1785 SCH 40.
2. Slots must be cut perpendicular to the long axis of the pipe and be 0.04 inch to 0.069 inches by 1-inch long and be spaced 0.25 inches apart. Slots shall be arranged in four rows spaced on 45-degree centers and cover half the circumference of the pipe.
3. A 6-inch rigid nonperforated observation pipe shall be connected to the underdrain every 250 feet to provide a cleanout port, as well as an observation well to monitor dewatering rates.

2.05 MINERAL AGGREGATE TYPE 26

A. For Gradation, refer to Section 31 23 23, Fill and Backfill

2.06 ROCK PAD AT INLET AND OUTFALL

A. Streambed Cobbles:

1. Maximum Size: 4 inches.

2. Gradation:

Approximate Size	Percent Passing
4 inch	70 - 100
3” square	30 - 60
3/4” square	10 max
U.S. No. 4	0 - 3

3. The portion passing the U.S. No. 4 sieve shall have a minimum sand equivalent of 60.

2.07 MULCH AND PLANTING

A. See Section 32 91 13, Soil Preparation, for mulch.

B. See Section 32 93 00, Landscape Planting, for plants and planting requirements.

PART 3 EXECUTION

3.01 BIORETENTION CELL CONSTRUCTION

A. General Requirements:

1. Exclude runoff to cells until completion. Runoff shall not be allowed to enter the bioretention cell until authorized by the Project Representative.
2. Protect bioretention soil from water. Bioretention soil shall be protected from rainfall, surface runoff and other sources of added moisture at the Supplier’s site, in covered conveyance, and at the Project Site until incorporated into the Work.
3. Excluded heavy equipment from cells and berms. No heavy equipment shall operate within the cell or earth berm perimeter once bioretention cell excavation has begun, including during exaction, backfilling, tree pit preparation, mulching, or planting.
4. If the footprint of the cell was used as sedimentation best management practices (BMPs), the sediment shall be completely removed by overexcavate at least 3 inches below the bottom of the sediment or the top of the subgrade and backfill with granular fill.

3.02 GRADING AND PLACEMENT FOR BIORETENTION CELLS

A. The Contractor shall scarify the surface of the subgrade to a minimum depth of 3 inches prior to placement of bioretention soil or mineral aggregate for discharge subbase gravel, if applicable.

B. Soil placement and consolidation shall not occur when the bioretention soil is excessively wet.

C. Placing bioretention soil shall not be allowed if the area receiving bioretention soil is frozen, excessively wet or saturated or has been subjected to more than 1/2 inch of precipitation within 48-hours prior to mixing or placement. The Engineer will have final authority to determine if wet or saturated conditions exist.

D. The Contractor shall not convey runoff to the bioretention cell grading until the Project Site draining to the bioretention area has been stabilized and authorization is given by Engineer. Prior to the area being stabilized and the cell being planted, runoff shall be prevented from entering the bioretention cells, and is authorized by the Engineer.

E. Excavation:

1. No heavy equipment shall operate within the cell or earth berm perimeter once bioretention cell excavation has begun, including during excavation, backfilling, tree pit preparation, mulching, or planting.
2. At the locations shown on Drawings, bioretention cells shall be excavated to accommodate the placing of bioretention soil and gravel backfill for drain for discharge subbase gravel as shown on Drawings.
3. The Contractor shall provide the Engineer the opportunity to inspect the excavation prior to placement of any material or subgrade soil scarification.
4. After excavation to subgrade, if any sediment laden runoff has entered the cell, the sediment deposition shall be removed by overexcavating the cell by a 3-inch minimum. An additional 3-inches of bioretention soil shall be placed at the Contractor's expense.

F. If applicable, after placement of gravel backfill for drain for discharge subbase gravel, if any sediment laden runoff has entered the cell, the sediment deposition shall be removed by excavating gravel backfill for drain in the cell by a 3-inch minimum and replacing it with clean gravel backfill for drain at the Contractor's expense.

G. Place bioretention soil as shown on Drawings in loose lifts of 8 inches. Compact bioretention soil to a relative compaction of 85 percent to 90 percent of modified maximum dry density (ASTM D1557), where slopes allow, as determined by the Engineer. Final soil depth shall be measured and verified only after the soil has been compacted. Final depth of bioretention soil shall be as shown on Drawings.

H. After placement of bioretention soil, and before planting or mulching, the Contractor shall notify the Engineer at least 1 working day in advance. The Engineer will perform compaction testing.

I. Rake soil to final grade. Cell shall be consolidated or compacted as specified above, and approved by Engineer prior to planting.

END OF SECTION

SECTION 33 41 01
STORM DRAIN AND SANITARY SEWER PIPING

PART 1 GENERAL

1.01 REFERENCES

A. The following is a list of standards which may be referenced in this section and any supplemental Data Sheets:

1. American Association of State Highway and Transportation Officials (AASHTO):
   a. M36M, Standard Specification for Corrugated Steel Pipe, Metallic-Coated, for Sewers and Drains.
   b. M190M, Standard Specification for Bituminous Coated Corrugated Metal Culvert Pipe and Pipe Arches.
   c. M196M, Standard Specification for Corrugated Aluminum Pipe for Sewers and Drains.
2. American Water Works Association (AWWA):
   a. C104/A21.4, Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water.
   b. C105/A21.5, Polyethylene Encasement for Ductile-Iron Pipe Systems.
   c. C110/A21.10, Ductile-Iron and Gray-Iron Fittings, 3 in. Through 48 in. (75 mm Through 1200 mm) for Water and Other Liquids.
   d. C111/A21.11, Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
   e. C116/A21.16, Fusion Bonded Epoxy.
   f. C151/A21.51, Ductile-Iron Pipe, Centrifugally Cast, for Water.
   g. C153/A21.53, Ductile Iron Material Requirements.
3. ASTM International (ASTM):
   a. A536, Standard for Ductile Iron Pipe.
   b. A746, Standard Specification for Ductile Iron Gravity Sewer Pipe.
   c. C14, Standard Specification for Concrete Sewer, Storm Drain, and Culvert Pipe.
   d. C76, Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
   e. C150, Standard Specification for Portland Cement.
   f. C311, Standard Test Methods for Sampling and Testing Fly Ash or Natural Pozzolans for Use as a Mineral Admixture in Portland-Cement Concrete.
   g. C361, Standard Specification for Reinforced Concrete Low-Head Pressure Pipe.

h. C425, Standard Specification for Compression Joints for Vitrified Clay Pipe and Fittings.
i. C443, Standard Specification for Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets.
j. C497, Standard Test Methods for Concrete Pipe, Manhole Sections, or Tile.
k. C507, Standard Specification for Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe.
l. C595, Standard Specification for Blended Hydraulic Cements.
m. C618, Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete.
n. C655, Standard Specification for Reinforced Concrete D-Load Culvert, Storm Drain, and Sewer Pipe.
o. C700, Standard Specification for Vitrified Clay Pipe, Extra Strength, Standard Strength, and Perforated.
p. C1012, Standard Test Method for Length Change of Hydraulic-Cement Mortars Exposed to a Sulfate Solution.
q. D1248, Standard Specification for Polyethylene Plastics Extrusion Materials for Wire and Cable.
r. D1784, Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.
s. D2412, Standard Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading.
t. D3034, Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
u. D3212, Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
v. F477, Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
w. F679, Standard Specification for Poly(Vinyl Chloride) (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings.
x. F794, Standard Specification for Poly(Vinyl Chloride) (PVC) Profile Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter.
y. F894, Standard Specification for Polyethylene (PE) Large Diameter Profile Wall Sewer and Drain Pipe.

1.02 DEFINITION

A. Standard Specifications: When referenced in this section, shall mean Washington State Department of Transportation Standard Specifications for Road, Bridge and Municipal Construction, 2018

1.03 SUBMITTALS

A. Informational Submittals: Manufacturer's Certification of Compliance.

B. All product data and information sheets.

PART 2 PRODUCTS

2.01 PIPE AND FITTINGS

A. Ductile iron pipe, and polyvinyl chloride (PVC), as specified in the Data Sheets following "End of Section." ADS/Hancor pipe is not allowed to be installed within the City of Kirkland.

B. Underdrain pipe shall be slotted PVC Schedule 40 conforming to City of Kirkland Standard CK-L.01.

2.02 SERVICE AND DRAIN CONNECTIONS

A. Pipe and fittings for individual service connection shall be of one type of material throughout.

B. Flexible Expansion Joint:

1. EBAA IRON Flex-Tend or approved equal.
2. 50/50 expansion / contraction travel.
3. Single Ball MJ x MJ.

C. Meg-A-Lugs.

2.03 STORM CLEAN OUT

A. The clean out shall be 8 inches in size and as shown on Drawings, with the exception of label as DRAIN on the cast iron lid.

B. A cast-in-place concrete ring around the casting shall be Class 3000 concrete.

PART 3 EXECUTION

3.01 INSTALLATION OF PIPE, FITTINGS, AND APPURTENANCES

A. General:

1. Pipe laying shall proceed upgrade with spigot ends pointing in direction of flow.
2. Excavate bell holes at each joint to permit correct assembly and inspection of entire joint.

3. Pipe invert may deviate from line or grade up to 1/2 inch for line and 1/4 inch for grade, provided that finished pipe line will present a uniform bore, and such variation does not result in a level or reverse sloping invert, or less than minimum slope shown.
4. Pipe bedding shall form continuous and uniform bearing and support for pipe barrel between joints. Pipe shall not rest directly on bell or pipe joint.
5. Prevent entry of foreign material into gasketed joints.
6. Plug or close off pipes that are stubbed off for manhole, concrete structure, or for connection by others, with temporary watertight plugs.

B. Ductile Iron Pipe Corrosion Protection:

1. Remove foreign material from the exterior of the pipe.
2. Wrap pipe with polyethylene encasement tube 2 feet longer than the pipe section prior to laying pipe section.
3. After assembling the pipe joint, overlap encasement tube with adjacent tube and seal joints with securing tape.
4. Provide additional securing tape at 3-foot intervals along the pipe.
5. Repair rips, punctures, or other damage to the polyethylene with securing tape.
6. Fittings may be wrapped with a flat sheet or split tube provided all seams are securely taped.

C. Service Connections:

1. Install sewer service expansion joint in-line with building service and 6-inch ductile iron service, without deflection.
2. Minimum Slope: 1/8 inch per foot unless otherwise shown on Drawings.

D. Square-End Underdrains: Cover top and sides of the joints with a strip of asphalt-saturated 30-pound roofing felt.

E. Perforated Underdrain: Lay with open joints and with perforations down.

3.02 PRESSURE TESTING

A. As specified in Section 7-04.3(1) Cleaning and Testing of the Standard Specifications.

3.03 SANITARY SEWER INSPECTION

A. Sanitary Sewers shall be inspected by the use of a Closed Circuit Television (CCTV) camera per Northshore Utility District Engineering Specifications, Methods of Construction, Section 10.7(e)

3.04 REPAIR AND RETESTING

A. Sections of pipe not meeting the pressure test requirements have individual joints tested and sealed**.**

B. Following repairs, sections shall be retested as specified.

3.05 STORM CLEANING

A. Prior to final acceptance and final manhole-to-manhole inspection of the storm drain system by Engineer, flush and clean all parts of the system, plugging downstream end of system to prevent sediment and debris from entering the existing storm drain system or the adjacent wetland. Remove all accumulated construction debris, rocks, gravel, sand, silt, and other foreign material from the storm drain system at or near the closest downstream manhole. If necessary, use mechanical rodding or bucketing equipment. Do not allow sediment, debris, turbid water, or other foreign substances to enter existing storm drain system or the adjacent wetland.

B. Upon Engineer's final manhole-to-manhole inspection of the sewer system, if any foreign matter is still present in the system, reflush and clean the sections and portions of the lines as required.

C. Flush underdrain system, disposing of sediment and debris off site. After flushing underdrain system, clean downstream catch basin and structures.

3.06 SUPPLEMENTS

A. The supplements listed below, following "End of Section," are a part of this Specification:

Number	Title
-.02	Ductile Iron
-.03	Polyvinyl Chloride (PVC) SDR 35

END OF SECTION

SECTION 33 41 01.02 DUCTILE IRON	
Item	**Description**
Pipe	Thickness Class: 52 Thickness Design: ASTM A746 Material: AWWA C151/A21.51. Centrifugally cast, Grade 60-42-10 iron.
Interior Lining	Cement-Mortar: AWWA C104/A21.4,
Exterior Coating	For exposed pipe segment only. AWWA C151/A21.50.
Protective Encasement	Securing Tape: Thermoplastic material with minimum thickness 8 mils, width 1 inch, and pressure sensitive adhesive face capable of bonding to metal, bituminous coating, and polyethylene.
Fittings	AWWA C110/A21.10.
Fittings—Lining and Coating	AWWA C116/A21.16.
Joints	Rubber Gasketed Push-On: AWWA C111/A21.11 with lubricant as approved by manufacturer.
Plugs	Removable. Removal shall provide a socket suitable for making a flexible jointed lateral connection or extension.
Source Quality Control	In accordance with specified reference standard.

END OF SECTION

SECTION 33 41 01.03 POLYVINYL CHLORIDE (PVC)	
Item	**Description**
Pipe: 15-inch diameter and under	ASTM D3034: Standard dimension ratio less than 35, except that the cell classification shall be 12454-B or 12454-C as defined in ASTM D1784.
Pipe: 18- through 24-inch diameter	ASTM F679: Standard dimension ratio less than 35, except that the cell classification shall be 12454-C as defined in ASTM D1784.
Ribbed Profile Pipe: 18- through 36-inch diameter	ASTM F794: Minimum stiffness of 46 psi when tested in accordance with ASTM D2412, except that the cell classification shall be 12454-C as defined in ASTM D1784.
Joints	ASTM D3212 rubber gasketed.
Gaskets	ASTM F477. Lubricants: As approved by manufacturer.
Fittings	PVC, gasketed. Provide plug when service piping is not required.
Plugs	Removable. Removal shall provide a socket suitable for making a flexible jointed lateral connection or extension.
Source Quality Control Testing	In accordance with specified ASTM.

END OF SECTION

SECTION 33 44 13.13
CATCH BASINS AND MANHOLES

PART 1 GENERAL

1.01 REFERENCES

A. The following is a list of standards that may be referenced in this section:

1. American Welding Society (AWS): Code for Welding in Building Construction.
2. ASTM International (ASTM):
   a. A36/A36M, Standard Specification for Carbon Structural Steel.
   b. A48/A48M, Standard Specification for Gray Iron Castings.
   c. A615/A615M, Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
   d. C94/C94M, Standard Specification for Ready-Mixed Concrete.
   e. C387/C387M, Standard Specification for Packaged, Dry, Combined Materials for Mortar and Concrete.
   f. C478, Standard Specification for Circular Precast Reinforced Concrete Manhole Sections.

1.02 DEFINITIONS

A. Standard Specifications: When referenced in this section, shall mean Washington State Department of Transportation Standard Specifications for Road, Bridge, and Construction 2018.

B. Northshore Utility District Engineering Specifications: When referenced in this section shall mean Northshore Utility District 2018 Engineering Specifications, Materials of Construction, and Method for Construction.

1.03 SUBMITTAL

A. Action Submittals:

1. Shop Drawings including details of construction, knock out size, direction, and elevation, reinforcing and joints, anchors, lifting, and other items cast into members.
2. Shop Drawings of any appurtenance inside the catch basin, such as orifice, or any other flow control fixtures.

1.04 QUALITY ASSURANCE

A. Construct manhole as Precast Manholes with Base Liner in conformance with Northshore Utility District Standard Sewer Details 1 and Northshore Utility Department Standard Specifications.

B. Manufacturer Qualifications:

1. Precast Concrete and Precast Prestressed Concrete: Product of manufacturer with 3 years' experience producing precast concrete products of quality specified.
2. Precast Plant: PCI certified plant with current specifications
3. The Contractor shall provide written certification from the manhole manufacturer that the manholes provided meet or exceed the specifications and that the materials used in the construction of the manhole are in accordance with the specifications. Manhole certification shall be per Northshore Utility District Standard Specifications Section 9.3 (k), added as a Supplement following "End of Section."

PART 2 PRODUCTS

2.01 CONCRETE

A. Type: Ready-mixed, conforming to ASTM C94/C94M, Alternate 2.

B. Compressive Field Strength: Not less than 2,500 psi at 28 days.

C. Maximum Size of Aggregate: 1-1/2 inch.

D. Slump: Between 2 inches and 4 inches.

E. Assumed Field Strength: 85 percent of strength of laboratory-cured cylinders.

2.02 REINFORCING STEEL

A. Conform to ASTM A615/A615M, Grade 60, deformed bars.

2.03 PRECAST UNITS

A. Conform to ASTM C478 and Drawings.

1. Submit details of proposed units to Engineer for review.

B. Concrete Risers for Extensions: 6 inches high maximum and of same quality as sections.

1. Confirm acceptability of risers with Engineer before installation.

2.04 MORTAR

A. Standard premixed mortar conforming to ASTM C387/C387M, Type S, or proportion one part portland cement to two parts clean, well-graded sand which will pass a 1/8-inch screen.

B. Admixtures may be used if not exceeding the following percentages of weight of cement:

1. Hydrated Lime: 10 percent.
2. Diatomaceous Earth or Other Inert Materials: 5 percent.

C. Consistency of Mortar: As required to readily adhere to concrete.

2.05 FRAMES AND GRATINGS

A. Frames and Grates for Catch Basins and Storm Drain Inlets shall be per Kirkland Pre-approved Plans: Cast iron conforming to ASTM A48/A48, Class 30.

B. Bearing Surfaces: Clean and provide uniform contact.

C. Castings: Tough, close-grained gray iron, sound, smooth, clean, free from blisters, blowholes, shrinkage, cold shuts, and defects.

2.06 MANHOLES

A. General: Manholes shall be per Northshore Utility District Engineering Specifications, Section 9.3 and Section 9.4, and is included as a Supplement following “End of Section.”

B. Manhole Base Liner:

1. All new manholes shall be installed with a prefabricated manhole base liner made of polypropylene (PP) and/or fiberglass reinforced plastic (FRP).
2. Manhole base liners shall be per Northshore Utility District Engineering Specifications, Section 9.3(b), and is included as a Supplement following “End of Section.”

C. Manhole Sections: Manhole base liners shall be per Northshore Utility District Engineering Specifications, Section 9.3(a), and is included as a Supplement following “End of Section.”

D. Manhole Steps: Manhole base liners shall be per Northshore Utility District Engineering Specifications, Section 9.3(c), and is included as a Supplement following “End of Section.”

E. Manhole Channels: Manhole base liners shall be per Northshore Utility District Engineering Specifications, Section 9.3(e), and is included as a Supplement following "End of Section."

F. Pipe Connections: Manhole base liners shall be per Northshore Utility District Engineering Specifications, Section 9.3(f), and is included as a Supplement following "End of Section."

2.07 SEWER CLEANOUT

A. Cleanout frame and cover shall be locking type equal to Amorcast 12 inch by 12 inch by 12 inch RPM Box Assembly with Pentahead locking bolt style and "CO" imprinted on cover, part number A6001423A (see NUD Standard Sewer Detail 9).

2.08 MANHOLE FRAME AND COVER

A. Manhole base liners shall be per Northshore Utility District Engineering Specifications, Section 9.4, and is included as a Supplement following "End of Section."

PART 3 EXECUTION

3.01 GENERAL

A. Installation shall meet the requirements of Standard Specification Section 7-05 and Section 9-04.

3.02 EXCAVATION AND BACKFILL

A. Excavation: As specified in Section 31 23 16, Excavation.

B. Backfill: As specified in Section 31 23 23, Fill and Backfill.

3.03 CONSTRUCTION OF CATCH BASINS AND INLETS

A. Construct inlets and catch basins at locations shown and in accordance with Drawings. Construct tight and well-braced forms to dimensions and elevations required. Chamfer form corners.

B. Prior to placing concrete, remove water and debris from forms. Moisten forms just prior to placing concrete. Handle concrete from transporting vehicle to forms in a continuous manner as rapidly as practical without segregation or loss of ingredients. Immediately after placing, compact concrete with mechanical vibrator. Limit duration of vibration to time necessary to produce satisfactory consolidation without causing segregation.

C. Screed top surface of exposed slabs and walls. When initial water has been absorbed, float surfaces with wood float and lightly trowel with steel trowel to smooth finish free from marks or irregularities. Finish exposed edges with steel edging tool. Remove forms and patch defects in concrete with mortar mixed in same proportions as original concrete mix.

D. Use a membrane-forming curing compound to prevent loss of moisture for 7 days. Apply curing compound immediately after removal of forms or finishing of slabs. Protect concrete from damage during curing period.

3.04 PLACING PRECAST UNITS

A. Place on 6 inch minimum compacted granular fill, as specified in Section 31 23 23, Fill and Backfill.

B. If material in bottom of trench is unsuitable for supporting unit, excavate and backfill to required grade with 3-inch minus, clean, pit-run material. Set units to grade at locations shown.

3.05 EXTENSIONS

A. Install watertight extensions as shown in Standard Details. Lay risers in mortar with sides plumb and tops to grade. Seal joints with mortar, with interior and exterior troweled smooth. Prevent mortar from drying out and cure by applying a curing compound.

3.06 INSTALLATION OF FRAMES AND GRATES

A. Set frames and grates at elevations indicated or as determined in field and in conformance with Drawings.

B. Frames may be cast in, or set in mortar.

3.07 CLEANING

A. Upon completion, clean structure of silt, debris, and foreign matter.

3.08 SUPPLEMENTS

A. The supplement listed below, following “End of Section,” is a part of this Specification:

1. Northshore Utility District 2018 Engineering Specifications, Materials of Construction Section 9.3 Manholes and Section 9.4 Manhole and Cleanout Frame and Covers.

END OF SECTION

(d) FLEXIBLE COUPLING ADAPTERS

Flexible coupling adapters shall meet the specifications set forth in the AWWA Standard C219 coupling specification and be rated for working pressures up to 250 psi. Flexible coupling adapters shall be Romac XR501, Hymax 2000, or District approved equal.

9.3 MANHOLES

Manholes shall be of the offset type, shall be precast concrete sections with a precast base, and shall be made from 3,000 psi structural concrete. All manhole joints shall be watertight and shall be confined O-ring type. They shall be constructed in full compliance with the Standard Details and as further specified herein.

Manhole materials and manufacturing shall be in accordance with ASTM C478.

Minimum standard manhole depth is eight (8) feet and maximum depth is eighteen (18) feet. Depths other than within this range shall require special design and approval by the District.

The base sections and risers of the manholes shall be arranged so no pipes pass through the manhole joints.

(a) Manhole Sections

Manhole sections shall be placed and aligned so as to provide plumb vertical sides and vertical alignment of the ladder steps. The completed manhole shall be rigid, true to dimension and be watertight. The ladder shall be rigidly attached to the side of the manhole.

Manhole grade rings shall be reinforced 3,000 psi structural concrete, 24 inches in diameter and 4 inches high. Grade rings shall be set in a full-width bed of cement grout. Provide grout between rings and between upper ring and casting. Inside rings shall be troweled smooth with 1/2" (minimum) of grout in order to provide a watertight surface.

In addition to the O-ring rubber gaskets, all new manhole joints shall be sealed with a flexible butyl joint sealant conforming to ASTM C990-96 and Federal Specification SS-S-210. The flexible butyl joint sealant shall be “Kent Seal #2” as manufactured by Hamilton-Kent Company or “Ram-Nek” as manufactured by K.T. Snyder Company.

Steel lifting loops or hooks for precast manhole components shall be removed to a minimum depth of one (1) inch below the surface and the remaining hole packed with grout. Precast sections with damaged joint surfaces or with cracks or other damage that may permit infiltration will not be allowed.

Reinforcement for precast manholes shall be in accordance with ASTM C 478-97.

(b) BASE LINERS

All new manholes shall be installed with a prefabricated manhole base liner made of polypropylene (PP) and/or fiberglass reinforced plastic (FRP). The base liner shall be integrally cast and adequately anchored inside new precast concrete manhole base sections during the concrete casting process at the manhole suppliers manufacturing facility. The base liner shall be cast integral with the precast concrete manhole base section in accordance with the liner manufacturer's specifications. The liner must be fully supported during the casting process and lifting devices shall not penetrate the base liner.

The manhole base liner shall be prefabricated from a one piece homogeneous composite and/or thermoplastic with a minimum thickness of 0.12" (3 mm) and shall be in lengths and nominal inside diameters corresponding to the precast concrete base section and be a non load-bearing component, which is resistant to the chemical environment normally found in wastewater collection systems. The outer surface of the liner shall be coated with aggregate and/or PP pellets bonded to the outer surface and have perforated PP I-beam "bonding bridge" anchors bonded to the outer surface in order to insure adequate anchoring to concrete base sections to pass vacuum testing with 10" of negative pressure.

The inside liner surfaces shall be free of bulges, dents and other defects that result in a variation of inside diameter of more than 1/4" (7 mm) for base liner flow channel and pipe connections. The precast concrete pipe penetration joint surfaces shall be free of excess concrete at external and internal surfaces to insure a proper seal between the pipe connection and the liner.

The manhole base liner shall include full flow channels with side-walls to the crown of the pipe. The inner surface of the bench shall be provided with an anti-skid pattern. Watertight gasketed pipe bell connections to suit specific pipe types, grade and alignment, shall be monolithically attached to the base liners and shall extend to the outside profile of the precast concrete structure.

If PP base liner is utilized, a minimum slope of 0.06' is acceptable across the invert channel. The FRP base liner shall require the District standard minimum slope of 0.1' across the invert channel.

Base liner properties shall be in accordance with the following:

MATERIALS

Polypropylene (PP):	100% Copolymer
Minimum thickness:	3mm
Hardness:	75 Shore D
Density:	56.8 lb/ft^3 (0.91 g/cm^3)
Color:	Dull mustard/goldenrod
Fiberglass Reinforced Plastic (FRP):	Polyurethane Hybrid Composite
Glass fiber:	Type E, min fiber length of 0.625" (16mm), 10 - 12% content by weight
Inert filler:	10 - 13% content by weight
Minimum thickness:	3mm
Hardness:	85 Shore D
Density:	73.0 lb/ft^3 (1.17 g/cm^3)
Color:	Dull mustard/goldenrod
Aggregate bonding medium:	Processed sand containing crushed & uncrushed dry and cleaned semi-round particles in the 0.08 - 0.12" (2 - 3mm) size range
Gaskets:	Polyisoprene, unless otherwise specified
Hardness:	50 - 55 Shore A

PHYSICAL PROPERTIES

Percolation Test:	Water absorption of top surface - 0.032%
Thermal shock (CSA-B45-M93):	100 thermal cycles - no sign of surface defects

Chemical Resistance (ASTM D1308):

Selected Reagents

Reagent	Result
Nitric Acid 69%	No surface Degradation - Surface Staining
Hydrochloric Acid 60%	No surface Degradation
Ammonia 28%	No surface Degradation
Sodium Hydroxide 5.25%	No surface Degradation
Sulfuric Acid 50%	No surface Degradation
Sulfuric Acid 70%	No surface Degradation
Sulfuric Acid 80%	No surface Degradation
Acetone	No surface Degradation
Unleaded Gasoline	No surface Degradation
Turpentine	No surface Degradation
Acetone Immersion (ASTM D2152)	No Attack

Base liners shall be manufactured and supplied by Predl Systems North America of Burnaby, B.C.

(c) MANHOLE STEPS

Manhole steps shall be made of ½" Grade 60 Steel reinforcing bars coated with copolymer polypropylene, equal to Lane International Manhole step N0. P-14850.

The steps shall be installed at the manhole manufacturer's yard in conformance with the step manufacturer requirements. At a minimum, the step ends shall be coated with non-shrink epoxy grout and driven into pre-drilled holes with dimensions of 1" inch diameter and 3-1/2" depth. The pre-drilled holes shall not penetrate the exterior manhole wall.

(d) GRADE ADJUSTMENT

The depth of the 24" diameter manhole neck from the top of the frame to the top of the cone shall be from between 14" and 26".

(e) CHANNELS

All new manholes shall be provided with fiberglass reinforced plastic base liners per Subsection 9.3.b of these specifications, unless otherwise indicated on the plans or approved by the District. Manholes approved for cement concrete channels shall conform to this subsection of the specifications.

Channels shall be made to conform accurately to the sewer grade and shall be brought together smoothly with well-rounded junctions, subject to approval by the District.

Channels shall consist of commercial grade concrete, minimum Class 3000 in accordance with Section 6-02 of the 2016 Standard Specifications for Road, Bridge and Municipal Construction of the Washington State Department of Transportation.

The channels shall be field poured after the inlet and outlet pipes have been laid and firmly grouted into place at the proper elevation. Allowances shall be made for a minimum of one-tenth foot (0.1') drop in elevation across the manhole in the direction of flow. The maximum allowable drop in inlet elevation across the manhole in the direction of flow shall be 0.5 ft. Channel sides shall be carried up vertically from the invert to three-quarters of the diameter of the various pipes. The concrete bench shall be warped evenly and sloped two percent (2%) to drain. Rough, uneven surfaces will not be permitted. Channels shall be constructed to allow the installation and use of a mechanical plug of the appropriate size.

(f) PIPE CONNECTIONS

All pipe entering or leaving the manhole shall be placed on firmly compacted bedding. Special care shall be taken to see that the openings through which pipes enter the structure are completely and firmly filled with mortar from the outside to insure water tightness. All PVC pipe connections to manholes shall be made with GPK PVC Manhole Adapters (also known as “sand collars”) with an external abrasive silica layer or Kor-N-Seal Connector manufactured by NPC. Inc.

All stubbed out sewer pipes placed through manhole walls for future connections shall be suitably plugged and blocked in a manner acceptable to the District.

(g) SHELF REPAIRS

Shelf repairs at connections to the existing manholes shall be class 3000 commercial grade cement in accordance with the Engineering Specifications.

(h) GROUT

Grout for all uses including, but not limited to, manhole channels, shelves, pick-holes, and adjusting rings, shall be cement based, nonshrink, noncorrrosive, and nonmetallic grout conforming to ASTM C 1107, Grade C. Grout shall be Dayton 1107 Advantage Grout as provided by Dayton Superior Corporation, Oregon, IL., or approved equal. The District may sample and test grout to determine conformance with the specifications.

(i) DROP MANHOLES

Drop manholes shall, in all respects, be constructed as a standard manhole with the exception of the drop connection as shown on the Standard Detail.

(j) LIFT HOLES

All lift holes shall be completely filled smooth with grout both inside and out in order to insure water-tightness.

(k) MANHOLE CERTIFICATION

The Contractor shall provide written certification from the manhole manufacturer that the manholes provided meet or exceed the specifications and that the materials used in the construction of the manhole are in accordance with the specifications. A Manufacturer's Certificate of Compliance shall be provided for each manhole delivered to the project and shall include the manufacturer's name and address, the District's manhole number, reference to the applicable project specifications being used, the design mix and 28-day strength of the cement concrete used, drawings indicating reinforcing steel details, such as size and location, results of materials testing conducted by the manufacturer and the signature of a responsible corporate official of the manufacturer.

The District may test manholes and materials used at any time, including after installation, and any manhole not conforming to the specifications shall be rejected by the District and replaced with a conforming manhole provided and installed by the Contractor.

9.4 MANHOLE AND CLEANOUT FRAME AND COVERS

Frames and covers shall be cast iron and conform to the Standard Details and these specifications. Castings shall conform to the requirements of ASTM A-48, Class 30 and shall be free of porosity, shrink cavities, cold shuts or cracks, or any surface defects that would impair serviceability. Repair of defects by welding, or by the use of smooth-on or similar material, will not be permitted. Frames and covers shall be machine-finished or ground on seating surfaces so as to assure non-rocking fit in any position and interchangeability of covers.

All manhole frames and covers will be locking type. Manhole frame and cover shall be East Jordan Ergo Assembly, Part No. 001040105L01.

Cleanout frame and cover shall be locking type equal to Armorcast 12"x12"x12" RPM Box Assembly with Pentahead locking bolt style and "CO" imprinted on cover, part number A6001423A (see NUD Standard Sewer Detail #9).

PREVAILING WAGES

City of Kirkland

PREVAILING WAGE RATES

Prevailing wage rates can be found at:
www.lni.wa.gov/tradeslicensing/prevwage/wagerates

King County

A copy of the applicable wage rates is available for viewing in our office:

City Hall Annex
310 1st Street
Kirkland, WA 98033

The City of Kirkland will mail a hard copy of the applicable wage rates upon request.
Send your request to the Project Engineer, or jmuse@kirklandwa.gov

State of Washington
Department of Labor & Industries

Prevailing Wage Section - Telephone 360-902-5335
PO Box 44540, Olympia, WA 98504-4540

Washington State Prevailing Wage

The PREVAILING WAGES listed here include both the hourly wage rate and the hourly rate of fringe benefits. On public works projects, worker's wage and benefit rates must add to not less than this total. A brief description of overtime calculation requirements are provided on the Benefit Code Key.

Journey Level Prevailing Wage Rates for the Effective Date: 12/13/2019

County	Trade	Job Classification	Wage	Holiday	Overtime	Note	*Risk Class
King	Carpenters	Acoustical Worker	$62.44	7A	4C		View
King	Carpenters	Carpenter	$62.44	7A	4C		View
King	Carpenters	Carpenters on Stationary Tools	$62.57	7A	4C		View
King	Carpenters	Creosoted Material	$62.54	7A	4C		View
King	Carpenters	Floor Finisher	$62.44	7A	4C		View
King	Carpenters	Floor Layer	$62.44	7A	4C		View
King	Carpenters	Scaffold Erector	$62.44	7A	4C		View
King	Cement Masons	Application of all Composition Mastic	$62.97	7A	4U		View
King	Cement Masons	Application of all Epoxy Material	$62.47	7A	4U		View
King	Cement Masons	Application of all Plastic Material	$62.97	7A	4U		View
King	Cement Masons	Application of Sealing Compound	$62.47	7A	4U		View
King	Cement Masons	Application of Underlayment	$62.97	7A	4U		View
King	Cement Masons	Building General	$62.47	7A	4U		View
King	Cement Masons	Composition or Kalman Floors	$62.97	7A	4U		View
King	Cement Masons	Concrete Paving	$62.47	7A	4U		View
King	Cement Masons	Curb & Gutter Machine	$62.97	7A	4U		View
King	Cement Masons	Curb & Gutter, Sidewalks	$62.47	7A	4U		View
King	Cement Masons	Curing Concrete	$62.47	7A	4U		View
King	Cement Masons	Finish Colored Concrete	$62.97	7A	4U		View
King	Cement Masons	Floor Grinding	$62.97	7A	4U		View
King	Cement Masons	Floor Grinding/Polisher	$62.47	7A	4U		View
King	Cement Masons	Green Concrete Saw, self-powered	$62.97	7A	4U		View
King	Cement Masons	Grouting of all Plates	$62.47	7A	4U		View
King	Cement Masons	Grouting of all Tilt-up Panels	$62.47	7A	4U		View
King	Cement Masons	Gunite Nozzleman	$62.97	7A	4U		View
King	Cement Masons	Hand Powered Grinder	$62.97	7A	4U		View

King	Cement Masons	Journey Level	$62.47	7A	4U		View
King	Cement Masons	Patching Concrete	$62.47	7A	4U		View
King	Cement Masons	Pneumatic Power Tools	$62.97	7A	4U		View
King	Cement Masons	Power Chipping & Brushing	$62.97	7A	4U		View
King	Cement Masons	Sand Blasting Architectural Finish	$62.97	7A	4U		View
King	Cement Masons	Screed & Rodding Machine	$62.97	7A	4U		View
King	Cement Masons	Spackling or Skim Coat Concrete	$62.47	7A	4U		View
King	Cement Masons	Troweling Machine Operator	$62.97	7A	4U		View
King	Cement Masons	Troweling Machine Operator on Colored Slabs	$62.97	7A	4U		View
King	Cement Masons	Tunnel Workers	$62.97	7A	4U		View
King	Drywall Applicator	Journey Level	$62.44	5D	1H		View
King	Electrical Fixture Maintenance Workers	Journey Level	$30.59	5L	1E		View
King	Electricians - Inside	Cable Splicer	$83.17	7C	4E		View
King	Electricians - Inside	Cable Splicer (tunnel)	$89.34	7C	4E		View
King	Electricians - Inside	Certified Welder	$80.36	7C	4E		View
King	Electricians - Inside	Certified Welder (tunnel)	$86.25	7C	4E		View
King	Electricians - Inside	Construction Stock Person	$41.48	7C	4E		View
King	Electricians - Inside	Journey Level	$77.55	7C	4E		View
King	Electricians - Inside	Journey Level (tunnel)	$83.17	7C	4E		View
King	Fence Erectors	Fence Erector	$43.11	7A	4V	8Y	View
King	Fence Erectors	Fence Laborer	$43.11	7A	4V	8Y	View
King	Flaggers	Journey Level	$43.11	7A	4V	8Y	View
King	Glaziers	Journey Level	$66.51	7L	1Y		View
King	Heat & Frost Insulators And Asbestos Workers	Journeyman	$76.61	5J	4H		View
King	Heating Equipment Mechanics	Journey Level	$85.88	7F	1E		View
King	Ironworkers	Journeyman	$72.18	7N	1O		View
King	Laborers	Air, Gas Or Electric Vibrating Screed	$50.86	7A	4V	8Y	View
King	Laborers	Airtrac Drill Operator	$52.44	7A	4V	8Y	View
King	Laborers	Ballast Regular Machine	$50.86	7A	4V	8Y	View
King	Laborers	Batch Weighman	$43.11	7A	4V	8Y	View
King	Laborers	Brick Pavers	$50.86	7A	4V	8Y	View
King	Laborers	Brush Cutter	$50.86	7A	4V	8Y	View
King	Laborers	Brush Hog Feeder	$50.86	7A	4V	8Y	View
King	Laborers	Burner	$50.86	7A	4V	8Y	View
King	Laborers	Caisson Worker	$52.44	7A	4V	8Y	View
King	Laborers	Carpenter Tender	$50.86	7A	4V	8Y	View
King	Laborers	Cement Dumper-paving	$51.80	7A	4V	8Y	View
King	Laborers	Cement Finisher Tender	$50.86	7A	4V	8Y	View
King	Laborers	Change House Or Dry Shack	$50.86	7A	4V	8Y	View
King	Laborers	Chipping Gun (30 Lbs. And Over)	$51.80	7A	4V	8Y	View
King	Laborers	Chipping Gun (Under 30 Lbs.)	$50.86	7A	4V	8Y	View

King	Laborers	Choker Setter	$50.86	7A	4V	8Y	View
King	Laborers	Chuck Tender	$50.86	7A	4V	8Y	View
King	Laborers	Clary Power Spreader	$51.80	7A	4V	8Y	View
King	Laborers	Clean-up Laborer	$50.86	7A	4V	8Y	View
King	Laborers	Concrete Dumper/Chute Operator	$51.80	7A	4V	8Y	View
King	Laborers	Concrete Form Stripper	$50.86	7A	4V	8Y	View
King	Laborers	Concrete Placement Crew	$51.80	7A	4V	8Y	View
King	Laborers	Concrete Saw Operator/Core Driller	$51.80	7A	4V	8Y	View
King	Laborers	Crusher Feeder	$43.11	7A	4V	8Y	View
King	Laborers	Curing Laborer	$50.86	7A	4V	8Y	View
King	Laborers	Demolition: Wrecking & Moving (Incl. Charred Material)	$50.86	7A	4V	8Y	View
King	Laborers	Ditch Digger	$50.86	7A	4V	8Y	View
King	Laborers	Diver	$52.44	7A	4V	8Y	View
King	Laborers	Drill Operator (Hydraulic, Diamond)	$51.80	7A	4V	8Y	View
King	Laborers	Dry Stack Walls	$50.86	7A	4V	8Y	View
King	Laborers	Dump Person	$50.86	7A	4V	8Y	View
King	Laborers	Epoxy Technician	$50.86	7A	4V	8Y	View
King	Laborers	Erosion Control Worker	$50.86	7A	4V	8Y	View
King	Laborers	Faller & Bucker Chain Saw	$51.80	7A	4V	8Y	View
King	Laborers	Fine Graders	$50.86	7A	4V	8Y	View
King	Laborers	Firewatch	$43.11	7A	4V	8Y	View
King	Laborers	Form Setter	$50.86	7A	4V	8Y	View
King	Laborers	Gabian Basket Builders	$50.86	7A	4V	8Y	View
King	Laborers	General Laborer	$50.86	7A	4V	8Y	View
King	Laborers	Grade Checker & Transit Person	$52.44	7A	4V	8Y	View
King	Laborers	Grinders	$50.86	7A	4V	8Y	View
King	Laborers	Grout Machine Tender	$50.86	7A	4V	8Y	View
King	Laborers	Groutmen (Pressure) Including Post Tension Beams	$51.80	7A	4V	8Y	View
King	Laborers	Guardrail Erector	$50.86	7A	4V	8Y	View
King	Laborers	Hazardous Waste Worker (Level A)	$52.44	7A	4V	8Y	View
King	Laborers	Hazardous Waste Worker (Level B)	$51.80	7A	4V	8Y	View
King	Laborers	Hazardous Waste Worker (Level C)	$50.86	7A	4V	8Y	View
King	Laborers	High Scaler	$52.44	7A	4V	8Y	View
King	Laborers	Jackhammer	$51.80	7A	4V	8Y	View
King	Laborers	Laserbeam Operator	$51.80	7A	4V	8Y	View
King	Laborers	Maintenance Person	$50.86	7A	4V	8Y	View
King	Laborers	Manhole Builder-Mudman	$51.80	7A	4V	8Y	View
King	Laborers	Material Yard Person	$50.86	7A	4V	8Y	View
King	Laborers	Motorman-Dinky Locomotive	$51.80	7A	4V	8Y	View
King	Laborers	Nozzleman (Concrete Pump, Green Cutter When Using	$51.80	7A	4V	8Y	View

		Combination Of High Pressure Air & Water On Concrete & Rock, Sandblast, Gunite, Shotcrete, Water Blaster, Vacuum Blaster)					
King	Laborers	Pavement Breaker	$51.80	7A	4V	8Y	View
King	Laborers	Pilot Car	$43.11	7A	4V	8Y	View
King	Laborers	Pipe Layer Lead	$52.44	7A	4V	8Y	View
King	Laborers	Pipe Layer/Tailor	$51.80	7A	4V	8Y	View
King	Laborers	Pipe Pot Tender	$51.80	7A	4V	8Y	View
King	Laborers	Pipe Reliner	$51.80	7A	4V	8Y	View
King	Laborers	Pipe Wrapper	$51.80	7A	4V	8Y	View
King	Laborers	Pot Tender	$50.86	7A	4V	8Y	View
King	Laborers	Powderman	$52.44	7A	4V	8Y	View
King	Laborers	Powderman's Helper	$50.86	7A	4V	8Y	View
King	Laborers	Power Jacks	$51.80	7A	4V	8Y	View
King	Laborers	Railroad Spike Puller - Power	$51.80	7A	4V	8Y	View
King	Laborers	Raker - Asphalt	$52.44	7A	4V	8Y	View
King	Laborers	Re-timberman	$52.44	7A	4V	8Y	View
King	Laborers	Remote Equipment Operator	$51.80	7A	4V	8Y	View
King	Laborers	Rigger/Signal Person	$51.80	7A	4V	8Y	View
King	Laborers	Rip Rap Person	$50.86	7A	4V	8Y	View
King	Laborers	Rivet Buster	$51.80	7A	4V	8Y	View
King	Laborers	Rodder	$51.80	7A	4V	8Y	View
King	Laborers	Scaffold Erector	$50.86	7A	4V	8Y	View
King	Laborers	Scale Person	$50.86	7A	4V	8Y	View
King	Laborers	Sloper (Over 20")	$51.80	7A	4V	8Y	View
King	Laborers	Sloper Sprayer	$50.86	7A	4V	8Y	View
King	Laborers	Spreader (Concrete)	$51.80	7A	4V	8Y	View
King	Laborers	Stake Hopper	$50.86	7A	4V	8Y	View
King	Laborers	Stock Piler	$50.86	7A	4V	8Y	View
King	Laborers	Swinging Stage/Boatswain Chair	$43.11	7A	4V	8Y	View
King	Laborers	Tamper & Similar Electric, Air & Gas Operated Tools	$51.80	7A	4V	8Y	View
King	Laborers	Tamper (Multiple & Self-propelled)	$51.80	7A	4V	8Y	View
King	Laborers	Timber Person - Sewer (Lagger, Shorer & Cribber)	$51.80	7A	4V	8Y	View
King	Laborers	Toolroom Person (at Jobsite)	$50.86	7A	4V	8Y	View
King	Laborers	Topper	$50.86	7A	4V	8Y	View
King	Laborers	Track Laborer	$50.86	7A	4V	8Y	View
King	Laborers	Track Liner (Power)	$51.80	7A	4V	8Y	View
King	Laborers	Traffic Control Laborer	$46.10	7A	4V	9C	View
King	Laborers	Traffic Control Supervisor	$46.10	7A	4V	9C	View
King	Laborers	Truck Spotter	$50.86	7A	4V	8Y	View
King	Laborers	Tugger Operator	$51.80	7A	4V	8Y	View
King	Laborers	Tunnel Work-Compressed Air Worker 0-30 psi	$120.61	7A	4V	9B	View

King	Laborers	Tunnel Work-Compressed Air Worker 30.01-44.00 psi	$125.64	7A	4V	9B	View
King	Laborers	Tunnel Work-Compressed Air Worker 44.01-54.00 psi	$129.32	7A	4V	9B	View
King	Laborers	Tunnel Work-Compressed Air Worker 54.01-60.00 psi	$135.02	7A	4V	9B	View
King	Laborers	Tunnel Work-Compressed Air Worker 60.01-64.00 psi	$137.14	7A	4V	9B	View
King	Laborers	Tunnel Work-Compressed Air Worker 64.01-68.00 psi	$142.24	7A	4V	9B	View
King	Laborers	Tunnel Work-Compressed Air Worker 68.01-70.00 psi	$144.14	7A	4V	9B	View
King	Laborers	Tunnel Work-Compressed Air Worker 70.01-72.00 psi	$146.14	7A	4V	9B	View
King	Laborers	Tunnel Work-Compressed Air Worker 72.01-74.00 psi	$148.14	7A	4V	9B	View
King	Laborers	Tunnel Work-Guage and Lock Tender	$52.54	7A	4V	8Y	View
King	Laborers	Tunnel Work-Miner	$52.54	7A	4V	8Y	View
King	Laborers	Vibrator	$51.80	7A	4V	8Y	View
King	Laborers	Vinyl Seamer	$50.86	7A	4V	8Y	View
King	Laborers	Watchman	$39.18	7A	4V	8Y	View
King	Laborers	Welder	$51.80	7A	4V	8Y	View
King	Laborers	Well Point Laborer	$51.80	7A	4V	8Y	View
King	Laborers	Window Washer/Cleaner	$39.18	7A	4V	8Y	View
King	Laborers - Underground Sewer & Water	General Laborer & Topman	$50.86	7A	4V	8Y	View
King	Laborers - Underground Sewer & Water	Pipe Layer	$51.80	7A	4V	8Y	View
King	Landscape Construction	Landscape Construction/Landscaping Or Planting Laborers	$39.18	7A	4V	8Y	View
King	Landscape Construction	Landscape Operator	$68.02	7A	3K	8X	View
King	Metal Fabrication (In Shop)	Fitter	$15.86		1		View
King	Metal Fabrication (In Shop)	Laborer	$12.00		1		View
King	Metal Fabrication (In Shop)	Machine Operator	$13.04		1		View
King	Metal Fabrication (In Shop)	Painter	$12.00		1		View
King	Metal Fabrication (In Shop)	Welder	$15.48		1		View
King	Painters	Journey Level	$43.40	6Z	2B		View
King	Pile Driver	Crew Tender	$67.31	7A	4C		View
King	Pile Driver	Crew Tender/Technician	$67.31	7A	4C		View
King	Pile Driver	Hyperbaric Worker - Compressed Air Worker 0-30.00 PSI	$77.93	7A	4C		View
King	Pile Driver	Hyperbaric Worker - Compressed Air Worker 30.01 - 44.00 PSI	$82.93	7A	4C		View
King	Pile Driver	Hyperbaric Worker - Compressed Air Worker 44.01 - 54.00 PSI	$86.93	7A	4C		View
King	Pile Driver	Hyperbaric Worker -	$91.93	7A	4C		View

		Compressed Air Worker 54.01 - 60.00 PSI					
King	Pile Driver	Hyperbaric Worker - Compressed Air Worker 60.01 - 64.00 PSI	$94.43	7A	4C		View
King	Pile Driver	Hyperbaric Worker - Compressed Air Worker 64.01 - 68.00 PSI	$99.43	7A	4C		View
King	Pile Driver	Hyperbaric Worker - Compressed Air Worker 68.01 - 70.00 PSI	$101.43	7A	4C		View
King	Pile Driver	Hyperbaric Worker - Compressed Air Worker 70.01 - 72.00 PSI	$103.43	7A	4C		View
King	Pile Driver	Hyperbaric Worker - Compressed Air Worker 72.01 - 74.00 PSI	$105.43	7A	4C		View
King	Pile Driver	Journey Level	$62.69	7A	4C		View
King	Playground & Park Equipment Installers	Journey Level	$12.00		1		View
King	Plumbers & Pipefitters	Journey Level	$87.69	6Z	1G		View
King	Roofers	Journey Level	$53.27	5A	3H		View
King	Roofers	Using Irritable Bituminous Materials	$56.27	5A	3H		View
King	Stone Masons	Journey Level	$58.82	5A	1M		View
King	Truck Drivers	Asphalt Mix Over 16 Yards	$61.59	5D	4Y	8L	View
King	Truck Drivers	Asphalt Mix To 16 Yards	$60.75	5D	4Y	8L	View
King	Truck Drivers	Dump Truck	$60.75	5D	4Y	8L	View
King	Truck Drivers	Dump Truck & Trailer	$61.59	5D	4Y	8L	View
King	Truck Drivers	Other Trucks	$61.59	5D	4Y	8L	View
King	Truck Drivers - Ready Mix	Transit Mix	$61.59	5D	4Y	8L	View

APPENDIX A: PLANS UNDER SEPARATE COVER

City of Kirkland

APPENDIX B: PERMITS

City of Kirkland

ARMY CORPS PERMIT

City of Kirkland

DEPARTMENT OF THE ARMY
SEATTLE DISTRICT, CORPS OF ENGINEERS
P.O. BOX 3755
SEATTLE, WASHINGTON 98124-3755

REPLY TO
ATTENTION OF

DEC 1 9 2017

RECEIVED BY
ESA
DATE - 12-22-17

Regulatory Branch

Ms. Jessica Redman
Environmental Science Associates
5309 Shilshole Avenue Northwest, Suite 200
Seattle, WA 98107

Reference: NWS-2017-1097
Kirkland, City of
(Totem Lake Park Boardwalk)

Dear Ms. Redman:

We have reviewed your memorandum dated October 5, 2017, to determine if a Department of the Army (DA) permit would be required to drive pin-piles for the installation of a new boardwalk over wetlands at Kirkland, Washington, as depicted on the enclosed drawings dated September 28, 2017. We have reviewed the information you provided to us pursuant to Section 404 of the Clean Water Act, and determined that a DA permit is not required for your proposed work as described in your memorandum and drawings.

Under Section 404 of the Clean Water Act, a DA permit is normally required for the discharge of dredged or fill material (e.g., fill, excavation, or mechanized land clearing) into waters of the U.S., including wetlands and navigable waters of the U.S. For more information, see the enclosed *Clean Water Act Extracts and Definitions*. Because driving pin-piles and installing structures over wetlands, as described in your memorandum, does not involve a discharge of dredged or fill material, a Section 404 DA permit is not required.

While a DA permit is not required, local, State, and other Federal requirements may still apply. For assistance in determining other permit requirements for the proposed project, we recommend you contact the Washington State Governor's Office of Regulatory Innovation and Assistance via the internet at www.oria.wa.gov.

If you have any questions, please contact Mr. Andrew Shuckhart at andrew.j.shuckhart@usace.army.mil or by phone at (206) 316-3822

Sincerely,

for Matthew Bennett, Section Chief
Regulatory Branch

Enclosures

Project Number

10/3/2017 1:17:06 PM

G:\PROJECTS\Totem Lake Park Ph 1\Drawings\Model\Rev\Totem Lake Park-PH1.rvt

Totem Lake Park Phase 1

City of Kirkland

12031 Totem Lake Way, Kirkland, WA 98034

PARTNERSHIP berger

1721 8th Ave N
Seattle, WA 98109

206 378-5617
bergerpartnership.com

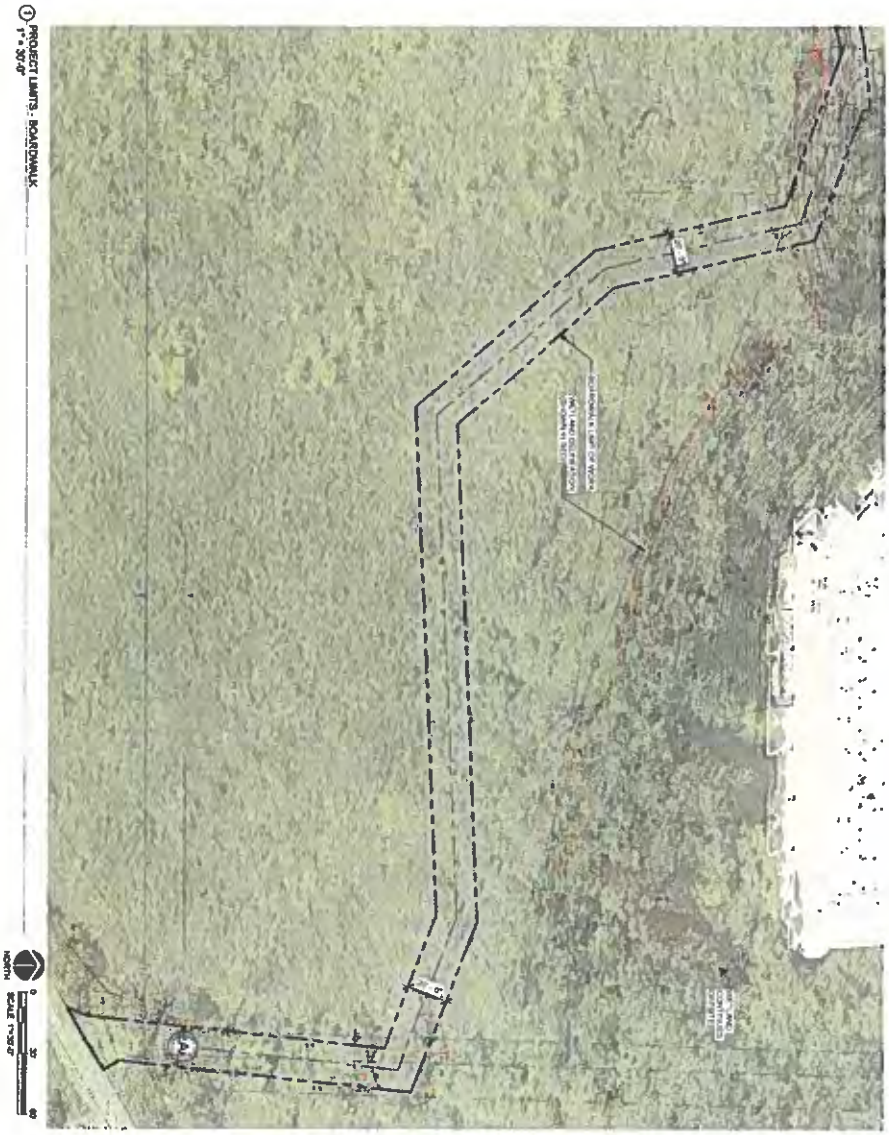
30% Design Progress

9/26/2017

#	DESCRIPTION	DATE

OVERALL PROJECT LIMITS

G100



Totem Lake Park Phase 1

City of Kirkland

12031 Totem Lake Way, Kirkland, WA 98034

PARTNERSHIP berger

1721 8th Ave N
Seattle, WA 98109

206 285 5277
bergerpartnership.com

30% Design Progress

9/28/2017

DATE

PROJECT LIMITS - BOARDWALK

G101

US Army Corps of Engineers ®
Seattle District

CLEAN WATER ACT
Extracts and Definitions

EXTRACTS from the Clean Water Act:

1. SECTION 404

(a) The Secretary of the Army, acting through the Chief of Engineers, may issue permits, after notice and opportunity for public hearings for the discharge of dredged or fill material into the navigable waters at specified disposal sites.

(b) Subject to subsection (c) of this section, each such disposal site shall be specified for each such permit by the Secretary of the Army (1) through the application of guidelines developed by the Administrator of the Environmental Protection Agency (Administrator), in conjunction with the Secretary of the Army, which guidelines shall be based upon criteria comparable to the criteria applicable to the territorial seas, the contiguous zone, and the ocean under section 403(c), and (2) in any case where such guidelines under clause (1) alone would prohibit the specification of a site, through the application additionally of the economic impacts of the site on navigation and anchorage.

(c) The Administrator is authorized to prohibit the specification (including the withdrawal of specification) of any defined area as a disposal site, and he is authorized to deny or restrict the use of any defined area for specification (including the withdrawal of specification) as a disposal site, whenever he determines, after notice and opportunity for public hearings, that the discharge of such materials into such area will have an unacceptable adverse effect on municipal water supplies, shellfish beds and fishery areas (including spawning and breeding areas), wildlife, or recreational areas. Before making such determination, the Administrator shall set forth in writing and make public his findings and his reasons for making any determination under this subsection.

2. SECTION 301

This section prohibits the discharge of any pollutant including fill or dredged material except as in compliance with various sections of the Clean Water Act, including Section 404.

3. SECTION 307

The Administrator shall publish a list of toxic pollutants. Each toxic pollutant shall be subject to effluent standards (which may include a prohibition). Under this section it is unlawful to violate any such effluent standards or prohibition.

4. SECTION 309

This section provides that any person who willfully or negligently violates the provisions of this Act may be punished by a fine of not less than $2,500 or more than $37,500 per day of violation or by imprisonment for not more than one year or by both. In addition, any person violating this Act may be subject to a civil penalty of not more than $37,500 per day of violation.

DEFINITIONS regarding the Clean Water Act:

The term "**wetlands**" means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. The Corps of Engineers has the responsibility for determining whether a specific wetland area is within Section 404 jurisdiction.

The term "**adjacent**" means bordering, contiguous, or neighboring. Wetlands separated from other waters of the United States by manmade dikes or barriers, natural river berms, beach dunes, and the like are "adjacent wetlands."

The term "**discharge of dredged material**" means the addition, including redeposition, of dredged material, runoff from a contained land or water disposal area, and any addition, including redeposition, of excavated material. These activities include mechanized landclearing, grading, filling in low areas, sidecasting of excavated material from new ditching work, and other placement of excavated material into waters of the United States, including wetlands.

The term "**discharge of fill material**" means the addition of fill material used for the primary effect of replacing any portion of a water of the U.S. with dry land or of changing the bottom elevation of a water of the U.S., including wetlands. The placement of pilings constitutes a discharge of fill material when such placement has or would have the effect of a discharge of fill material.

The term "**ordinary high water mark**" means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area.

ESA

5309 Shilshole Avenue, NW
Suite 200
Seattle, WA 98107
206.789.9658 phone
206.789.9684 fax

www.esassoc.com

memorandum

date October 5, 2017

to Andrew Shuckart – US Army Corps of Engineers Regulatory Project Manager – North King County

from Jessica Redman, Ecologist

subject Totem Lake Park Boardwalk, Kirkland, WA

This memorandum serves as a cover letter to the attached boardwalk construction sequence and site plans for the proposed Totem Lake Park. As per our telephone conversation on September 20, 2017, these materials are being provided to determine if a Clean Water Act – Section 404 permit will be necessary for project construction.

The study area is located within Totem Lake Park, in the northeast portion of the City of Kirkland (Section 28, Township 26N, Range 5E) (Figure 1). It is located within the Juanita Creek basin on the east side of Interstate 405. Totem Lake Park is generally bordered by residential developments to the north and commercial developments to the west, south, and east. Interstate 405 lies approximately 0.2 miles to the west and the Cross Kirkland Corridor Trail (CKC Trail) extends along the southeastern perimeter of the Park.

Totem Lake Park covers 17 acres and was originally part of the Totem Lake Mall property. In 1973, the mall's developer donated the land to the King Conservation District (KCD) and the site is currently co-managed by KCD and the City. The City is proposing improvements to Totem Lake Park under a Master Plan. This Project is Phase 1 of the Master Plan and would construct an approximately 870 linear-foot boardwalk on the eastern portion of the property. The boardwalk will provide a connection between the CKC Trail and the existing foot path on the north side of the park. Footings for portions of the boardwalk within the wetland will be pre-cast hollow pipe piles. The boardwalk will be constructed incrementally behind piling installation to provide a stable work surface over the wetland. The boardwalk will be composed of open grating to minimize impacts to wetland functions. Removal of existing vegetation for construction will be performed by hand and limited to the extent possible. All construction equipment will be kept above water levels during the entirety of construction. For more details, please see the attached Boardwalk Construction Sequence memorandum and project information.

Based on our conversation, I assume that the enclosed materials will be sufficient for you to conclude if a permit will be required or not. I look forward to an email or letter with your decision. Alternately, if further materials or a pre-application meeting would be of use, please let me know. Also, feel free to contact me if you have any questions at 206-789-9658 or jredman@esassoc.com.

Memo

To:	Project team	**Date:**	10.3.17
From:	Matt Martenson / Matt Martenson	**Page:**	1 of 3
Subject:	Boardwalk Construction Sequence		

Boardwalk construction sequence to limit impacts to the Totem Lake wetland complex for the east boardwalk. Project is schedule for construction in 2019.

- Project description and intent:
    - Construct a boardwalk supported by pipe pilings through an existing wetland.
    - Impacts to the existing wetland will be limited to the greatest extent feasible.
    - Provide mitigation for all impacts on site.
    - Boardwalk will be a wood frame structure with steel grating that will meet ADA requirements and allow light to penetrate through to vegetation below, to the greatest extent possible.
    - Elevation of boardwalk will be such that no element of the wood framing system will be below water during 100 year storm events (approx. elevation of 125).
    - Materials selected for the structure shall be environmentally selected to avoid known risks to wetland systems. (Avoid galvanized materials, no arsenic, or any caustic materials).

- Work limits and tree / plant protection:
    - Work limits shall be defined to limit impacts to the surrounding wetland complex.
    - Work will be limited to a 10 foot offset from centerline of boardwalk along the alignment path as indicated on plans.
    - No access will be allowed beyond the work limit lines for heavy construction. Wetland enhancement planting may occur beyond these limits.

- Site preparation and clearing:
    - Clear existing vegetation by hand. Vegetation will be cut flush to the ground or to the water surface. No mechanized clearing will occur.
    - Haul excess material from site if not suitable to leave in place.

- Pipe pilings:

- No excavation, disturbance of site soils, or mechanized clearing shall be allowed.
- Project design to consider pipe piling size to limit impact to the greatest extent feasible. 2 inch diameter pipe piles are being investigated since they do not require large equipment to install.
- Construct temporary platforms over wetland grade and cut vegetation to drive piles.

- Boardwalk framing and decking:
  - Boardwalk will be constructed incrementally behind pilling installation to provide a more stable work surface over the wetland.
  - All construction equipment will be kept above water levels during the entirety of construction.
  - Boardwalk framing and decking materials have been selected for the ability to be installed with small equipment (or by hand) to avoid impacts.
  - Boardwalk will be built in approximate 8'-0" wide x 20'-0" long segments.

- Site restoration
  - Any temporary impacts to wetland vegetation will be mitigated through wetland enhancement, post-construction.

- Suggested Boardwalk Construction Sequence
  1. Construct concrete abutment outside of wetland at end(s) of boardwalk.
  2. Clear maximum 12'-0" wide x 24'-0" long section of woody vegetation at beginning (or continuation) of boardwalk alignment, by hand. Leave soil, roots, and emergent plants in place.
  3. Lay plywood or other sheet good to use as work surface on installed pipe pilings.
  4. Manually drive a group of 2" diameter piles using power/hand tools (no motorized or tracked vehicles) approximately 20'-0" from abutment or piles, whichever is closer.

Memo

To:	Project team	**Date:**	10.3.17
From:	Matt Martenson / Matt Martenson	**Page:**	3 of 3
Subject:	Boardwalk Construction Sequence		

5. Construct framing and decking in approximate 20'-0" segments.
6. Remove work surface from under constructed framing and decking
7. Repeat steps 2 through 6.

Note: All construction equipment will be kept above water levels during the entirety of construction.

End of Memo

1 OVERALL PROJECT LIMITS
1" = 50'-0"

NORTH

0 50' 100'
SCALE: 1"=50'-0"

berger PARTNERSHIP
1721 8th Ave N
Seattle, WA 98109
206 325 6877
bergerpartnership.com

Totem Lake Park Phase 1
City of Kirkland

12031 Totem Lake Way, Kirkland, WA 98034

SET TYPE:
30% Design Progress

SET ISSUE DATE:
9/28/2017

REVISIONS:

Δ	DESCRIPTION	DATE

DRAWN/CHECKED:
Author / Checker

SHEET NAME:
OVERALL PROJECT LIMITS

SHEET NUMBER:
G100

Filename: G:\PROJECT\Totem Lake Park Ph 1\Drawings\Models\Revit\Totem Lake Park-PH1.rvt
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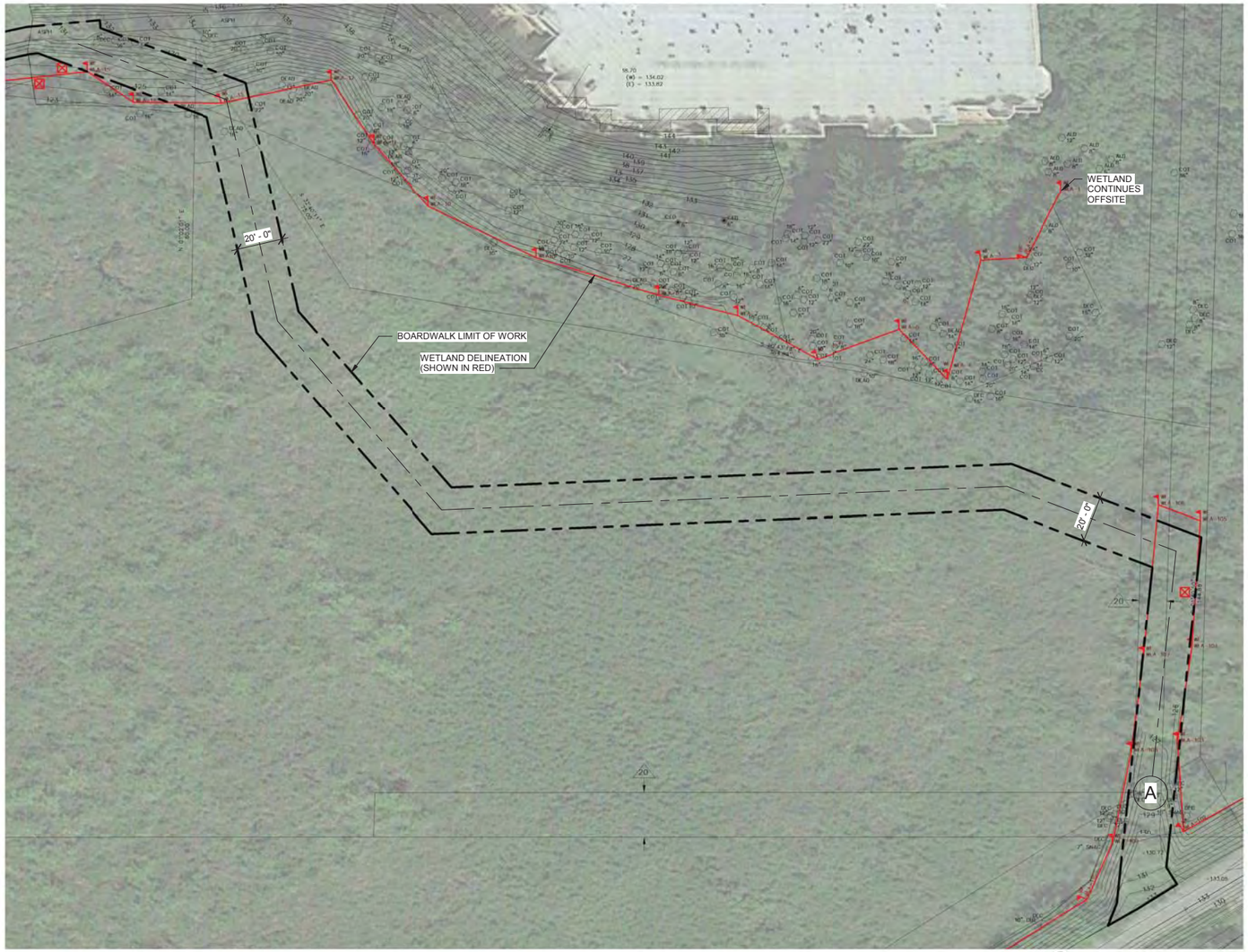
Berger Partnership Project Number: Project Number



1 PROJECT LIMITS - BOARDWALK
1" = 30'-0"

NORTH

0 30' 60'
SCALE: 1"=30'-0"

berger PARTNERSHIP
1721 8th Ave N
Seattle, WA 98109
206.325.6877
bergerpartnership.com

Totem Lake Park Phase 1
City of Kirkland

12031 Totem Lake Way, Kirkland, WA 98034

SET TYPE:
30% Design Progress

SET ISSUE DATE:
9/28/2017

REVISIONS:

Δ	DESCRIPTION	DATE

DRAWN/CHECKED:
MM / AM

SHEET NAME:
PROJECT LIMITS - BOARDWALK

SHEET NUMBER:
G101

Berger Partnership Project Number: Project Number
Plotted: 10/3/2017 1:17:23 PM
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HPA PERMIT

City of Kirkland

HYDRAULIC PROJECT APPROVAL

Washington Department of
Fish & Wildlife
PO Box 43234
Olympia, WA 98504-3234
(360) 902-2200

Issued Date: January 14, 2019
Project End Date: January 13, 2024

Permit Number: 2019-4-32+01
FPA/Public Notice Number: N/A
Application ID: 16337

PERMITTEE	AUTHORIZED AGENT OR CONTRACTOR
The City of Kirkland Public Works Department	Environmental Science Associates
ATTENTION: Brian Baker	ATTENTION: Jessica Redman
123 5th Avenue	5309 Shilshole Ave NW
Kirkland, WA 98033	Seattle, WA 98107-5344

Project Name: Totem Lake Park Development -- Phase 1

Project Description: This project is Phase 1 of the Master Plan and would construct an approximately 720 linear-foot boardwalk over the Totem Lake Wetland (Wetland A) on the eastern and northern portion of the property. The boardwalk will provide a connection between the Cross Kirkland Corridor Trail and the existing foot path on the north side of the park.

PROVISIONS

TIMING - PLANS - INVASIVE SPECIES CONTROL

1. TIMING LIMITATION: You may begin the project immediately and you must complete the project by January 13, 2024, provided: Project mitigation shall be completed prior to or concurrent with other project construction activities.

2. APPROVED PLANS: You must accomplish the work per plans and specifications submitted with the application and approved by the Washington Department of Fish and Wildlife entitled, "Totem Lake Park Phase 1", labeled "60% DESIGN SUBMITTAL", and dated July 18, 2018; and per the "Draft TOTEM LAKE PARK DEVELOPMENT --PHASE 1 Critical Areas Report and Conceptual Mitigation Plan", dated November 2018, except as modified by this Hydraulic Project Approval (HPA). You must have a copy of these plans and this HPA available on site during all phases of the project construction.

3. INVASIVE SPECIES CONTROL: Thoroughly clean all equipment and gear before arriving and leaving the job site to prevent the transport and introduction of aquatic invasive species. Properly dispose of any water and chemicals used to clean gear and equipment. You can find additional information in the Washington Department of Fish and Wildlife's Invasive Species Management Protocols (November 2012), available online at http://wdfw.wa.gov/publications/01490/wdfw01490.pdf.

NOTIFICATION REQUIREMENTS

4. PRE- AND POST-CONSTRUCTION NOTIFICATION: You, your agent, or contractor must contact the Washington Department of Fish and Wildlife by e-mail to larry.fisher@dfw.wa.gov and to HPAapplications@dfw.wa.gov; mail to Post Office Box 43234, Olympia, Washington 98504-3234; or fax to (360) 902-2946 at least three business days before starting work, and again within seven days after completing the work. The notification must include the permittee's name, project location, starting date for work or date the work was completed, and the permit number. See also Provision 28 regarding approval of the large woody material installations by the habitat biologist.

5. FISH KILL/ WATER QUALITY PROBLEM NOTIFICATION: If a fish kill occurs or fish are observed in distress at the job site, immediately stop all activities causing harm. Immediately notify the Washington Department of Fish and Wildlife habitat biologist listed below of the problem by calling 425-313-5683 or425-449-6790. If the likely cause of the fish kill or fish distress is related to water quality, also notify the Washington Military Department Emergency Management Division at 1-800-258-5990. Activities related to the fish kill or fish distress must not resume until the Washington Department of Fish and Wildlife gives approval. The Washington Department of Fish and Wildlife may

require additional measures to mitigate impacts.

STAGING, JOB SITE ACCESS, AND EQUIPMENT

6. Establish staging areas (used for equipment storage, vehicle storage, fueling, servicing, and hazardous material storage) in a location and manner that will prevent contaminants such as petroleum products, hydraulic fluid, fresh concrete, sediments, sediment-laden water, chemicals, or any other toxic or harmful materials from entering waters of the state.

7. Clearly mark boundaries to establish the limit of work associated with site access and construction.

8. Limit the removal of native woody vegetation to the minimum amount needed to construct the project.

9. Check equipment daily for leaks and complete any required repairs in an upland location before using the equipment in or near the water.

10. Use environmentally acceptable lubricants composed of biodegradable base oils such as vegetable oils, synthetic esters, and polyalkylene glycols in equipment operated in or near the water.

CONSTRUCTION-RELATED SEDIMENT, EROSION AND POLLUTION CONTAINMENT

11. Protect all disturbed areas from erosion. Maintain erosion and sediment control until all work and cleanup of the job site has been completed.

12. All erosion control materials that will remain onsite must be composed of 100% biodegradable materials.

13. Straw used for erosion and sediment control, must be certified free of noxious weeds and their seeds.

14. Stop all hydraulic project activities except those needed to control erosion and siltation, if flow conditions arise that will result in erosion or siltation of waters of the state.

15. Prevent project contaminants, such as petroleum products, hydraulic fluid, fresh concrete, sediments, sediment-laden water, chemicals, or any other toxic or harmful materials, from entering or leaching into waters of the state.

16. Route construction water (wastewater) from the project to an upland area above the limits of anticipated floodwater. Remove fine sediment and other contaminants before discharging the construction water to waters of the state.

17. Deposit waste material from the project, such as construction debris, silt, excess dirt, or overburden, in an upland area above the limits of anticipated floodwater unless the material is approved by the Washington Department of Fish and Wildlife for reuse in the project.

18. Deposit all trash from the project at an appropriate upland disposal location.

CONSTRUCTION MATERIALS

19. Store all construction and deconstruction material in a location and manner that will prevent contaminants such as petroleum products, hydraulic fluid, fresh cement, sediments, sediment-laden water, chemicals, or any other toxic or harmful materials from entering waters of the state.

20. Do not use wood treated with oil-type preservatives (creosote, pentachlorophenol) in any hydraulic project. You may use wood treated with waterborne preservatives (ACZA, ACQ) provided the wood is approved by the Western Wood Preservers Institute for use in the aquatic environment. Any use of treated wood in the aquatic environment must follow guidelines and best management practices available at www.wwpinstitute.org.

DEMOBILIZATION AND CLEANUP

21. Do not relocate removed or replaced structures within waters of the state. Remove and dispose of these structures in an upland area above the limits of anticipated floodwater.

22. Seed areas disturbed by construction activities with a native seed mix suitable for the site that has at least one quick-establishing plant species.

23. Complete installation of mitigation plantings prior to the end of the first dormant season (late fall through late winter)

after completion of other project grading activities per the approved plan (Provision 2). Maintain plantings for at least three years to ensure at least eighty percent initial survival of each species of a contingency species approved by the habitat biologist. Failure to achieve the eighty percent survival in year three will require you to submit a plan with follow-up measures to achieve requirements or reasons to modify requirements.

24. Upon completion of the project, remove all materials or equipment from the site and dispose of all excess spoils and waste materials in an upland area above the limits of anticipated floodwater.

25. Remove temporary erosion and sediment control methods after job site is stabilized or within three months of project completion, whichever is sooner.

LOCATION #1:	Site Name: Totem Lake Park , Kirkland, WA					
WORK START:	January 14, 2019			WORK END:	January 13, 2024	
WRIA		Waterbody:			Tributary to:	
08 - Cedar - Sammamish		Juanita Creek			Juanita Bay	
1/4 SEC:	Section:	Township:	Range:	Latitude:	Longitude:	County:
	28	26 N	05 E	47.7115805	-122.1746305	King
Location #1 Driving Directions						
From I-405 N take exit 20B for 120th Avenue NE. Continue on to 120th Avenue NE. Make a right on Totem Lake Way						

APPLY TO ALL HYDRAULIC PROJECT APPROVALS

This Hydraulic Project Approval pertains only to those requirements of the Washington State Hydraulic Code, specifically Chapter 77.55 RCW. Additional authorization from other public agencies may be necessary for this project. The person(s) to whom this Hydraulic Project Approval is issued is responsible for applying for and obtaining any additional authorization from other public agencies (local, state and/or federal) that may be necessary for this project.

This Hydraulic Project Approval shall be available on the job site at all times and all its provisions followed by the person (s) to whom this Hydraulic Project Approval is issued and operator(s) performing the work.

This Hydraulic Project Approval does not authorize trespass.

The person(s) to whom this Hydraulic Project Approval is issued and operator(s) performing the work may be held liable for any loss or damage to fish life or fish habitat that results from failure to comply with the provisions of this Hydraulic Project Approval.

Failure to comply with the provisions of this Hydraulic Project Approval could result in a civil penalty of up to one hundred dollars per day and/or a gross misdemeanor charge, possibly punishable by fine and/or imprisonment.

HYDRAULIC PROJECT APPROVAL

Issued Date: January 14, 2019
Project End Date: January 13, 2024

Permit Number: 2019-4-32+01
FPA/Public Notice Number: N/A
Application ID: 16337

All Hydraulic Project Approvals issued under RCW 77.55.021 are subject to additional restrictions, conditions, or revocation if the Department of Fish and Wildlife determines that changed conditions require such action. The person(s) to whom this Hydraulic Project Approval is issued has the right to appeal those decisions. Procedures for filing appeals are listed below.

MINOR MODIFICATIONS TO THIS HPA: You may request approval of minor modifications to the required work timing or to the plans and specifications approved in this HPA unless this is a General HPA. If this is a General HPA you must use the Major Modification process described below. Any approved minor modification will require issuance of a letter documenting the approval. A minor modification to the required work timing means any change to the work start or end dates of the current work season to enable project or work phase completion. Minor modifications will be approved only if spawning or incubating fish are not present within the vicinity of the project. You may request subsequent minor modifications to the required work timing. A minor modification of the plans and specifications means any changes in the materials, characteristics or construction of your project that does not alter the project's impact to fish life or habitat and does not require a change in the provisions of the HPA to mitigate the impacts of the modification. If you originally applied for your HPA through the online Aquatic Protection Permitting System (APPS), you may request a minor modification through APPS. A link to APPS is at http://wdfw.wa.gov/licensing/hpa/. If you did not use APPS you must submit a written request that clearly indicates you are seeking a minor modification to an existing HPA. Written requests must include the name of the applicant, the name of the authorized agent if one is acting for the applicant, the APP ID number of the HPA, the date issued, the permitting biologist, the requested changes to the HPA, the reason for the requested change, the date of the request, and the requestor's signature. Send by mail to: Washington Department of Fish and Wildlife, PO Box 43234, Olympia, Washington 98504-3234, or by email to HPAapplications@dfw.wa.gov. You should allow up to 45 days for the department to process your request.

MAJOR MODIFICATIONS TO THIS HPA: You may request approval of major modifications to any aspect of your HPA. Any approved change other than a minor modification to your HPA will require issuance of a new HPA. If you originally applied for your HPA through the online Aquatic Protection Permitting System (APPS), you may request a major modification through APPS. A link to APPS is at http://wdfw.wa.gov/licensing/hpa/. If you did not use APPS you must submit a written request that clearly indicates you are requesting a major modification to an existing HPA. Written requests must include the name of the applicant, the name of the authorized agent if one is acting for the applicant, the APP ID number of the HPA, the date issued, the permitting biologist, the requested changes to the HPA, the reason for the requested change, the date of the request, and the requestor's signature. Send your written request by mail to: Washington Department of Fish and Wildlife, PO Box 43234, Olympia, Washington 98504-3234. You may email your request for a major modification to HPAapplications@dfw.wa.gov. You should allow up to 45 days for the department to process your request.

APPEALS INFORMATION

If you wish to appeal the issuance, denial, conditioning, or modification of a Hydraulic Project Approval (HPA), Washington Department of Fish and Wildlife (WDFW) recommends that you first contact the department employee who issued or denied the HPA to discuss your concerns. Such a discussion may resolve your concerns without the need for further appeal action. If you proceed with an appeal, you may request an informal or formal appeal. WDFW encourages you to take advantage of the informal appeal process before initiating a formal appeal. The informal appeal process includes a review by department management of the HPA or denial and often resolves issues faster and with less legal complexity than the formal appeal process. If the informal appeal process does not resolve your concerns, you may advance your appeal to the formal process. You may contact the HPA Appeals Coordinator at (360) 902-2534 for more information.

Washington Department of
Fish & Wildlife
PO Box 43234
Olympia, WA 98504-3234
(360) 902-2200

HYDRAULIC PROJECT APPROVAL

Issued Date: January 14, 2019
Project End Date: January 13, 2024

Permit Number: 2019-4-32+01
FPA/Public Notice Number: N/A
Application ID: 16337

A. INFORMAL APPEALS: WAC 220-660-460 is the rule describing how to request an informal appeal of WDFW actions taken under Chapter 77.55 RCW. Please refer to that rule for complete informal appeal procedures. The following information summarizes that rule.

A person who is aggrieved by the issuance, denial, conditioning, or modification of an HPA may request an informal appeal of that action. You must send your request to WDFW by mail to the HPA Appeals Coordinator, Department of Fish and Wildlife, Habitat Program, PO Box 43234, Olympia, Washington 98504-3234; e-mail to HPAapplications@dfw.wa.gov; fax to (360) 902-2946; or hand-delivery to the Natural Resources Building, 1111 Washington St SE, Habitat Program, Fifth floor. WDFW must receive your request within 30 days from the date you receive notice of the decision. If you agree, and you applied for the HPA, resolution of the appeal may be facilitated through an informal conference with the WDFW employee responsible for the decision and a supervisor. If a resolution is not reached through the informal conference, or you are not the person who applied for the HPA, the HPA Appeals Coordinator or designee may conduct an informal hearing or review and recommend a decision to the Director or designee. If you are not satisfied with the results of the informal appeal, you may file a request for a formal appeal.

B. FORMAL APPEALS: WAC 220-660-470 is the rule describing how to request a formal appeal of WDFW actions taken under Chapter 77.55 RCW. Please refer to that rule for complete formal appeal procedures. The following information summarizes that rule.

A person who is aggrieved by the issuance, denial, conditioning, or modification of an HPA may request a formal appeal of that action. You must send your request for a formal appeal to the clerk of the Pollution Control Hearings Boards and serve a copy on WDFW within 30 days from the date you receive notice of the decision. You may serve WDFW by mail to the HPA Appeals Coordinator, Department of Fish and Wildlife, Habitat Program, PO Box 43234, Olympia, Washington 98504-3234; e-mail to HPAapplications@dfw.wa.gov; fax to (360) 902-2946; or hand-delivery to the Natural Resources Building, 1111 Washington St SE, Habitat Program, Fifth floor. The time period for requesting a formal appeal is suspended during consideration of a timely informal appeal. If there has been an informal appeal, you may request a formal appeal within 30 days from the date you receive the Director's or designee's written decision in response to the informal appeal.

C. FAILURE TO APPEAL WITHIN THE REQUIRED TIME PERIODS: If there is no timely request for an appeal, the WDFW action shall be final and unappealable.

Habitat Biologist	Larry.Fisher@dfw.wa.gov	Larry Fisher	for Director
Larry Fisher	425-313-5683		WDFW

CITY OF KIRKLAND
Planning and Building Department
123 5th Avenue, Kirkland, WA 98033
www.kirklandwa.gov ~ 425.587.3600

DETERMINATION OF NON-SIGNIFICANCE (DNS)

Case No.: SEP18-00520 **DATE ISSUED:** December 20, 2018

Project Name: Totem Lake Park – Phase 1

Project Location: 12031 NE Totem Lake Way and Totem Lake Park

Project Description: Construct a portion of the Totem Lake Park Master Plan (Phase 1). The proposal is for the construction of the following park improvements: restrooms, kiosk, parking, terraced seating, passive lawn area, a play area, promenade walk with seating nodes, an elevated lake viewing pier, and a boardwalk trail with habitat viewing. The proposal, which includes a mitigation plan, is being evaluated through the City's Public Agency and Public Utility Exception critical area review process.

Proponent: Brian Baker, Public Works Project Coordinator with City of Kirkland

Project Planner: Scott Guter

Lead agency is the City of Kirkland

The lead agency for this proposal has determined that it does not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21.030 (2)(c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public upon request.

This DNS is issued under WAC 197-11-340(2); the lead agency will not act on this proposal for 14 days from the date issued. Comments must be submitted to Scott Guter, project planner at sguter@kirklandwa.gov by 5:00 PM on January 3, 2019. Please reference case number SEP18-00520.

Responsible official:

Adam Weinstein, AICP, Planning & Building Director
Date: December 17, 2018
City of Kirkland
Planning & Building Department
123 Fifth Avenue, Kirkland, WA 98033 – 425.587.3600

You may appeal this determination to the Planning & Building Department at City of Kirkland, 123 Fifth Avenue, Kirkland, WA 98033 no later than 5:00 PM on January 3, 2019 (date, 14 days from date issued) by a Written Notice of Appeal. You should be prepared to make specific factual objections and reference case number SEP18-00520. Contact Scott Guter, project planner in the Planning & Building Department at 425.587.3247 to ask about the procedures for SEPA appeals. See also KMC 24.02.230 Administrative Appeals.

Publish in The Seattle Times on: Wednesday, December 26, 2018

Distribute this notice with a copy of the Environmental Checklist to:

GENERAL NOTICING

- Department of Ecology - Environmental Review
- Muckleshoot Tribal Council - Environmental Division, Tribal Archeologist
- Muckleshoot Tribal Council - Environmental Division, Fisheries Division Habitat
- Cascade Water Alliance – Director of Planning
- Totem Lake Neighborhood Association
- Lake Washington School District No. 414: Budget Manager and Director of Support Services
- Washington State Dept. of Archaeology & Historic Preservation
- King County Dept. of Transportation - Employer Transportation Representative
- Seattle & King County Public Health - SEPA Coordinator

AGENCIES WITH JURISDICTION, AFFECTED AGENCIES, AND/OR INTERESTED PARTIES

- Department of Ecology - Environmental ReviewDepartment of Fish and Wildlife – Olympia
- Muckleshoot Tribal Council - Environmental Division, Fisheries Division Habitat Program
- U.S. Army Corps of Engineers - Seattle District
- Eastside Audubon Society
- Northshore Utility District - Operations Department, Engineering Director, and Senior Civil Engineer
- Seattle City Light - Department of Finance and Administration

cc: Applicant
King Conservation District
Planning Department File, Case No. SAR18-00519

Distributed by: _____ December 20, 2018
(Karin Bayes, Office Specialist) Date

DEPT. OF ECOLOGY CONSTRUCTION STORM WATER GENERAL PERMIT

City of Kirkland

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

April 30, 2019

Brian Baker
City of Kirkland
123 5th Ave.
Kirkland, WA 98033-6189

RE: Coverage under the Construction Stormwater General Permit (CSWGP)

Permit number:	**WAR307876**
Site Name:	**Totem Lake Park Phase 1**
Location:	**12031 NE Totem Lake Way**
	Kirkland, WA **County: King**
Disturbed Acres:	**3.3**

Dear Brian Baker:

The Washington State Department of Ecology (Ecology) received your Notice of Intent for coverage under Ecology's Construction Stormwater General Permit (CSWGP). This is your permit coverage letter. Your permit coverage is effective April 30, 2019. **Please retain this permit coverage letter as the official record of permit coverage for your site.**

Ecology has approved use of electronic formats as long as they are easily produced on your construction site. A mobile friendly copy of the CSWGP permit, permit forms, and information related to your permit can be viewed and downloaded at www.ecology.wa.gov/eCoverage-packet. Please contact your Permit Administrator, listed below, if you would like to receive a hard copy of the CSWGP.

Please take time to read the entire permit and contact Ecology if you have any questions.

Electronic Discharge Monitoring Reports (WQWebDMR)
This permit requires that Permittees submit monthly discharge monitoring reports (DMRs) for the full duration of permit coverage (from issuance date to termination). DMRs must be submitted electronically using Ecology's secure online system, WQWebDMR. To sign up for WQWebDMR go to www.ecy.wa.gov/programs/wq/permits/paris/webdmr.html. If you have questions, contact the portal staff at (360) 407-7097 (Olympia area), or (800) 633-6193/option 3, or email WQWebPortal@ecy.wa.gov.

Appeal Process
You have a right to appeal coverage under the general permit to the Pollution Control Hearing Board (PCHB). Appeals must be filed within 30 days of the date of receipt of this letter. Any appeal is limited to the general permit's applicability or non-applicability to a specific discharger. The appeal process is governed by chapter 43.21B RCW and chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2). For more information regarding your right to appeal, go to https://fortress.wa.gov/ecy/publications/SummaryPages/1710007.html to view Ecology's Focus Sheet: *Appeal of General Permit Coverage*.

Ecology Field Inspector Assistance
If you have questions regarding stormwater management at your construction site, please contact Maria Zeman of Ecology's Northwest Regional Office in Bellevue at Maria.Zeman@ecy.wa.gov, or at 425-649-7100.

Questions or Additional Information
Ecology is committed to providing assistance. Please review our web page at www.ecology.wa.gov/constructionstormwaterpermit. If you have questions about the Construction Stormwater General Permit, please contact your Permit Administrator, Jess Eakens at jess.eakens@ecy.wa.gov or (360) 407-6442.

Sincerely,

Vincent McGowan, P.E., Manager
Program Development Services Section
Water Quality Program

Issuance Date: November 18, 2015
Effective Date: January 1, 2016
Expiration Date: December 31, 2020

Modification Issuance Date: March 22, 2017
Modification Effective Date: May 5, 2017

CONSTRUCTION STORMWATER GENERAL PERMIT

National Pollutant Discharge Elimination System (NPDES) and State Waste Discharge General Permit for Stormwater Discharges Associated with Construction Activity

State of Washington
Department of Ecology
Olympia, Washington 98504

In compliance with the provisions of
Chapter 90.48 Revised Code of Washington
(State of Washington Water Pollution Control Act)
and
Title 33 United States Code, Section 1251 et seq.
The Federal Water Pollution Control Act (The Clean Water Act)

Until this permit expires, is modified, or revoked, Permittees that have properly obtained coverage under this general permit are authorized to discharge in accordance with the special and general conditions that follow.

Heather R. Bartlett
Water Quality Program Manager
Washington State Department of Ecology

TABLE OF CONTENTS

LIST OF TABLES

SUMMARY OF PERMIT REPORT SUBMITTALS

Refer to the Special and General Conditions within this permit for additional submittal requirements. Appendix A provides a list of definitions. Appendix B provides a list of acronyms.

Table 1: Summary of Required Submittals

Permit Section	Submittal	Frequency	First Submittal Date
S5.A and S8	High Turbidity/Transparency Phone Reporting	As Necessary	Within 24 hours
S5.B	Discharge Monitoring Report	Monthly*	Within 15 days following the end of each month
S5.F and S8	Noncompliance Notification – Telephone Notification	As necessary	Within 24-hours
S5.F	Noncompliance Notification – Written Report	As necessary	Within 5 Days of non-compliance
S9.C	Request for Chemical Treatment Form	As necessary	Written approval from Ecology is required prior to using chemical treatment (with the exception of dry ice or CO_2 to adjust pH)
G2	Notice of Change in Authorization	As necessary	
G6	Permit Application for Substantive Changes to the Discharge	As necessary	
G8	Application for Permit Renewal	1/permit cycle	No later than 180 days before expiration
G9	Notice of Permit Transfer	As necessary	
G20	Notice of Planned Changes	As necessary	
G22	Reporting Anticipated Non-compliance	As necessary	

SPECIAL NOTE: *Permittees must submit electronic Discharge Monitoring Reports (DMRs) to the Washington State Department of Ecology monthly, regardless of site discharge, for the full duration of permit coverage. Refer to Section S5.B of this General Permit for more specific information regarding DMRs.

Table 2: Summary of Required On-site Documentation

Document Title	Permit Conditions
Permit Coverage Letter	See Conditions S2, S5
Construction Stormwater General Permit	See Conditions S2, S5
Site Log Book	See Conditions S4, S5
Stormwater Pollution Prevention Plan (SWPPP)	See Conditions S9, S5

SPECIAL CONDITIONS

S1. PERMIT COVERAGE

A. Permit Area

This Construction Stormwater General Permit (CSWGP) covers all areas of Washington State, except for federal operators and Indian Country as specified in Special Condition S1.E.3.

B. Operators Required to Seek Coverage Under this General Permit:

1. Operators of the following construction activities are required to seek coverage under this CSWGP:

   a. Clearing, grading and/or excavation that results in the disturbance of one or more acres (including off-site disturbance acreage authorized in S1.C.2) and discharges stormwater to surface waters of the State; and clearing, grading and/or excavation on sites smaller than one acre that are part of a larger common plan of development or sale, if the common plan of development or sale will ultimately disturb one acre or more and discharge stormwater to surface waters of the State.

      i. This includes forest practices (including, but not limited to, class IV conversions) that are part of a construction activity that will result in the disturbance of one or more acres, and discharge to surface waters of the State (that is, forest practices that prepare a site for construction activities); and

   b. Any size construction activity discharging stormwater to waters of the State that the Washington State Department of Ecology (Ecology):

      i. Determines to be a significant contributor of pollutants to waters of the State of Washington.

      ii. Reasonably expects to cause a violation of any water quality standard.

2. Operators of the following activities are not required to seek coverage under this CSWGP (unless specifically required under Special Condition S1.B.1.b. above):

   a. Construction activities that discharge all stormwater and non-stormwater to ground water, sanitary sewer, or combined sewer, and have no point source discharge to either surface water or a storm sewer system that drains to surface waters of the State.

   b. Construction activities covered under an Erosivity Waiver (Special Condition S2.C).

   c. Routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.

C. Authorized Discharges:

1. *Stormwater Associated with Construction Activity.* Subject to compliance with the terms and conditions of this permit, Permittees are authorized to discharge stormwater associated with construction activity to surface waters of the State or to a storm sewer system that drains to surface waters of the State. (Note that "surface waters of the State" may exist on a construction site as well as off site; for example, a creek running through a site.)

2. *Stormwater Associated with Construction Support Activity*. This permit also authorizes stormwater discharge from support activities related to the permitted construction site (for example, an on-site portable rock crusher, off-site equipment staging yards, material storage areas, borrow areas, etc.) provided:

   a. The support activity relates directly to the permitted construction site that is required to have an NPDES permit; and

   b. The support activity is not a commercial operation serving multiple unrelated construction projects, and does not operate beyond the completion of the construction activity; and

   c. Appropriate controls and measures are identified in the Stormwater Pollution Prevention Plan (SWPPP) for the discharges from the support activity areas.

3. *Non-Stormwater Discharges*. The categories and sources of non-stormwater discharges identified below are authorized conditionally, provided the discharge is consistent with the terms and conditions of this permit:

   a. Discharges from fire-fighting activities.

   b. Fire hydrant system flushing.

   c. Potable water, including uncontaminated water line flushing.

   d. Hydrostatic test water.

   e. Uncontaminated air conditioning or compressor condensate.

   f. Uncontaminated ground water or spring water.

   g. Uncontaminated excavation dewatering water (in accordance with S9.D.10).

   h. Uncontaminated discharges from foundation or footing drains.

   i. Uncontaminated or potable water used to control dust. Permittees must minimize the amount of dust control water used.

   j. Routine external building wash down that does not use detergents.

   k. Landscape irrigation water.

The SWPPP must adequately address all authorized non-stormwater discharges, except for discharges from fire-fighting activities, and must comply with Special Condition S3.

At a minimum, discharges from potable water (including water line flushing), fire hydrant system flushing, and pipeline hydrostatic test water must undergo the following: dechlorination to a concentration of 0.1 parts per million (ppm) or less, and pH adjustment to within 6.5 – 8.5 standard units (su), if necessary.

D. Prohibited Discharges:

The following discharges to waters of the State, including ground water, are prohibited.

1. Concrete wastewater.
2. Wastewater from washout and clean-up of stucco, paint, form release oils, curing compounds and other construction materials.
3. Process wastewater as defined by 40 Code of Federal Regulations (CFR) 122.2 (see Appendix A of this permit).
4. Slurry materials and waste from shaft drilling, including process wastewater from shaft drilling for construction of building, road, and bridge foundations unless managed according to Special Condition S9.D.9.j.
5. Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance.
6. Soaps or solvents used in vehicle and equipment washing.
7. Wheel wash wastewater, unless managed according to Special Condition S9.D.9.
8. Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, unless managed according to Special Condition S9.D.10.

E. Limits on Coverage

Ecology may require any discharger to apply for and obtain coverage under an individual permit or another more specific general permit. Such alternative coverage will be required when Ecology determines that this CSWGP does not provide adequate assurance that water quality will be protected, or there is a reasonable potential for the project to cause or contribute to a violation of water quality standards.

The following stormwater discharges are not covered by this permit:

1. Post-construction stormwater discharges that originate from the site after completion of construction activities and the site has undergone final stabilization.
2. Non-point source silvicultural activities such as nursery operations, site preparation, reforestation and subsequent cultural treatment, thinning, prescribed burning, pest and fire control, harvesting operations, surface drainage, or road construction and maintenance, from which there is natural runoff as excluded in 40 CFR Subpart 122.
3. Stormwater from any federal operator.

4. Stormwater from facilities located on "Indian Country" as defined in 18 U.S.C.§1151, except portions of the Puyallup Reservation as noted below.

   Indian Country includes:

   a. All land within any Indian Reservation notwithstanding the issuance of any patent, and, including rights-of-way running through the reservation. This includes all federal, tribal, and Indian and non-Indian privately owned land within the reservation.

   b. All off-reservation Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same.

   c. All off-reservation federal trust lands held for Native American Tribes.

      Puyallup Exception: Following the *Puyallup Tribes of Indians Land Settlement Act of 1989*, 25 U.S.C. §1773; the permit does apply to land within the Puyallup Reservation except for discharges to surface water on land held in trust by the federal government.

5. Stormwater from any site covered under an existing NPDES individual permit in which stormwater management and/or treatment requirements are included for all stormwater discharges associated with construction activity.

6. Stormwater from a site where an applicable Total Maximum Daily Load (TMDL) requirement specifically precludes or prohibits discharges from construction activity.

S2. APPLICATION REQUIREMENTS

A. Permit Application Forms

1. Notice of Intent Form/Timeline

   a. Operators of new or previously unpermitted construction activities must submit a complete and accurate permit application (Notice of Intent, or NOI) to Ecology.

   b. Operators must apply using the electronic application form (NOI) available on Ecology's website http://www.ecy.wa.gov/programs/wq/stormwater/construction/index.html. Permittees unable to submit electronically (for example, those who do not have an internet connection) must contact Ecology to request a waiver and obtain instructions on how to obtain a paper NOI.

      Department of Ecology
      Water Quality Program - Construction Stormwater
      PO Box 47696
      Olympia, Washington 98504-7696

c. The operator must submit the NOI at least 60 days before discharging stormwater from construction activities and must submit it on or before the date of the first public notice (see Special Condition S2.B below for details). The 30-day public comment period begins on the publication date of the second public notice. Unless Ecology responds to the complete application in writing, based on public comments, or any other relevant factors, coverage under the general permit will automatically commence on the thirty-first day following receipt by Ecology of a completed NOI, or the issuance date of this permit, whichever is later; unless Ecology specifies a later date in writing as required by WAC173-226-200(2).

d. If an applicant intends to use a Best Management Practice (BMP) selected on the basis of Special Condition S9.C.4 ("demonstrably equivalent" BMPs), the applicant must notify Ecology of its selection as part of the NOI. In the event the applicant selects BMPs after submission of the NOI, it must provide notice of the selection of an equivalent BMP to Ecology at least 60 days before intended use of the equivalent BMP.

e. Permittees must notify Ecology regarding any changes to the information provided on the NOI by submitting an updated NOI. Examples of such changes include, but are not limited to:

    i. Changes to the Permittee's mailing address,

    ii. Changes to the on-site contact person information, ***and***

    iii. Changes to the area/acreage affected by construction activity.

f. Applicants must notify Ecology if they are aware of contaminated soils and/or groundwater associated with the construction activity. Provide detailed information with the NOI (as known and readily available) on the nature and extent of the contamination (concentrations, locations, and depth), as well as pollution prevention and/or treatment BMPs proposed to control the discharge of soil and/or groundwater contaminants in stormwater. Examples of such detail may include, but are not limited to:

    i. List or table of all known contaminants with laboratory test results showing concentration and depth,

    ii. Map with sample locations,

    iii. Temporary Erosion and Sediment Control (TESC) plans,

    iv. Related portions of the Stormwater Pollution Prevention Plan (SWPPP) that address the management of contaminated and potentially contaminated construction stormwater and dewatering water,

    v. Dewatering plan and/or dewatering contingency plan.

2. Transfer of Coverage Form

   The Permittee can transfer current coverage under this permit to one or more new operators, including operators of sites within a Common Plan of Development, provided the Permittee submits a Transfer of Coverage Form in accordance with General Condition G9. Transfers do not require public notice.

B. Public Notice

For new or previously unpermitted construction activities, the applicant must publish a public notice at least one time each week for two consecutive weeks, at least 7 days apart, in a newspaper with general circulation in the county where the construction is to take place. The notice must contain:

1. A statement that "The applicant is seeking coverage under the Washington State Department of Ecology's Construction Stormwater NPDES and State Waste Discharge General Permit".

2. The name, address and location of the construction site.

3. The name and address of the applicant.

4. The type of construction activity that will result in a discharge (for example, residential construction, commercial construction, etc.), and the number of acres to be disturbed.

5. The name of the receiving water(s) (that is, the surface water(s) to which the site will discharge), or, if the discharge is through a storm sewer system, the name of the operator of the system.

6. The statement: "Any persons desiring to present their views to the Washington State Department of Ecology regarding this application, or interested in Ecology's action on this application, may notify Ecology in writing no later than 30 days of the last date of publication of this notice. Ecology reviews public comments and considers whether discharges from this project would cause a measurable change in receiving water quality, and, if so, whether the project is necessary and in the overriding public interest according to Tier II antidegradation requirements under WAC 173-201A-320. Comments can be submitted to: Department of Ecology, PO Box 47696, Olympia, Washington 98504-7696 Attn: Water Quality Program, Construction Stormwater."

C. Erosivity Waiver

Construction site operators may qualify for an erosivity waiver from the CSWGP if the following conditions are met:

1. The site will result in the disturbance of fewer than 5 acres and the site is not a portion of a common plan of development or sale that will disturb 5 acres or greater.

2. Calculation of Erosivity "R" Factor and Regional Timeframe:

   a. The project's rainfall erosivity factor ("R" Factor) must be less than 5 during the period of construction activity, as calculated (see the CSWGP homepage http://www.ecy.wa.gov/programs/wq/stormwater/construction/index.html for a link to the EPA's calculator and step by step instructions on computing the "R" Factor in the EPA Erosivity Waiver Fact Sheet). The period of construction activity starts when the land is first disturbed and ends with final stabilization. In addition:

   b. The entire period of construction activity must fall within the following timeframes:

      i. For sites west of the Cascades Crest: June 15 – September 15.

      ii. For sites east of the Cascades Crest, excluding the Central Basin: June 15 – October 15.

      iii. For sites east of the Cascades Crest, within the Central Basin: no additional timeframe restrictions apply. The Central Basin is defined as the portions of Eastern Washington with mean annual precipitation of less than 12 inches. For a map of the Central Basin (Average Annual Precipitation Region 2), refer to http://www.ecy.wa.gov/programs/wq/stormwater/construction/resourcesguidance.html.

3. Construction site operators must submit a complete Erosivity Waiver certification form at least one week before disturbing the land. Certification must include statements that the operator will:

   a. Comply with applicable local stormwater requirements; ***and***

   b. Implement appropriate erosion and sediment control BMPs to prevent violations of water quality standards.

4. This waiver is not available for facilities declared significant contributors of pollutants as defined in Special Condition S1.B.1.b. or for any size construction activity that could reasonably expect to cause a violation of any water quality standard as defined in Special Condition S1.B.1.b.ii.

5. This waiver does not apply to construction activities which include non-stormwater discharges listed in Special Condition S1.C.3.

6. If construction activity extends beyond the certified waiver period for any reason, the operator must either:

    a. Recalculate the rainfall erosivity "R" factor using the original start date and a new projected ending date and, if the "R" factor is still under 5 *and* the entire project falls within the applicable regional timeframe in Special Condition S2.C.2.b, complete and submit an amended waiver certification form before the original waiver expires; ***or***

    b. Submit a complete permit application to Ecology in accordance with Special Condition S2.A and B before the end of the certified waiver period.

S3. COMPLIANCE WITH STANDARDS

A. Discharges must not cause or contribute to a violation of surface water quality standards (Chapter 173-201A WAC), ground water quality standards (Chapter 173-200 WAC), sediment management standards (Chapter 173-204 WAC), and human health-based criteria in the National Toxics Rule (40 CFR Part 131.36). Discharges not in compliance with these standards are not authorized.

B. Prior to the discharge of stormwater and non-stormwater to waters of the State, the Permittee must apply all known, available, and reasonable methods of prevention, control, and treatment (AKART). This includes the preparation and implementation of an adequate SWPPP, with all appropriate BMPs installed and maintained in accordance with the SWPPP and the terms and conditions of this permit.

C. Ecology presumes that a Permittee complies with water quality standards unless discharge monitoring data or other site-specific information demonstrates that a discharge causes or contributes to a violation of water quality standards, when the Permittee complies with the following conditions. The Permittee must fully:

    1. Comply with all permit conditions, including planning, sampling, monitoring, reporting, and recordkeeping conditions.

    2. Implement stormwater BMPs contained in stormwater management manuals published or approved by Ecology, or BMPs that are demonstrably equivalent to BMPs contained in stormwater technical manuals published or approved by Ecology, including the proper selection, implementation, and maintenance of all applicable and appropriate BMPs for on-site pollution control. (For purposes of this section, the stormwater manuals listed in Appendix 10 of the Phase I Municipal Stormwater Permit are approved by Ecology.)

D. Where construction sites also discharge to ground water, the ground water discharges must also meet the terms and conditions of this CSWGP. Permittees who discharge to ground water through an injection well must also comply with any applicable requirements of the Underground Injection Control (UIC) regulations, Chapter 173-218 WAC.

S4. MONITORING REQUIREMENTS, BENCHMARKS AND REPORTING TRIGGERS

A. Site Log Book

The Permittee must maintain a site log book that contains a record of the implementation of the SWPPP and other permit requirements, including the installation and maintenance of BMPs, site inspections, and stormwater monitoring.

B. Site Inspections

The Permittee's site inspections must include all areas disturbed by construction activities, all BMPs, and all stormwater discharge points under the Permittee's operational control. (See Special Conditions S4.B.3 and B.4 below for detailed requirements of the Permittee's Certified Erosion and Sediment Control Lead [CESCL].)

Construction sites one acre or larger that discharge stormwater to surface waters of the State must have site inspections conducted by a certified CESCL. Sites less than one acre may have a person without CESCL certification conduct inspections.

1. The Permittee must examine stormwater visually for the presence of suspended sediment, turbidity, discoloration, and oil sheen. The Permittee must evaluate the effectiveness of BMPs and determine if it is necessary to install, maintain, or repair BMPs to improve the quality of stormwater discharges.

   Based on the results of the inspection, the Permittee must correct the problems identified by:

   a. Reviewing the SWPPP for compliance with Special Condition S9 and making appropriate revisions within 7 days of the inspection.

   b. Immediately beginning the process of fully implementing and maintaining appropriate source control and/or treatment BMPs as soon as possible, addressing the problems no later than within 10 days of the inspection. If installation of necessary treatment BMPs is not feasible within 10 days, Ecology may approve additional time when an extension is requested by a Permittee within the initial 10-day response period.

   c. Documenting BMP implementation and maintenance in the site log book.

2. The Permittee must inspect all areas disturbed by construction activities, all BMPs, and all stormwater discharge points at least once every calendar week and within 24 hours of any discharge from the site. (For purposes of this condition, individual discharge events that last more than one day do not require daily inspections. For example, if a stormwater pond discharges continuously over the course of a week, only one inspection is required that week.) The Permittee may reduce the inspection frequency for temporarily stabilized, inactive sites to once every calendar month.

3. The Permittee must have staff knowledgeable in the principles and practices of erosion and sediment control. The CESCL (sites one acre or more) or inspector (sites less than one acre) must have the skills to assess the:

   a. Site conditions and construction activities that could impact the quality of stormwater, ***and***

   b. Effectiveness of erosion and sediment control measures used to control the quality of stormwater discharges.

4. The SWPPP must identify the CESCL or inspector, who must be present on site or on-call at all times. The CESCL must obtain this certification through an approved erosion and sediment control training program that meets the minimum training standards established by Ecology (see BMP C160 in the manual referred to in Special Condition S9.C.1 and 2).

5. The Permittee must summarize the results of each inspection in an inspection report or checklist and enter the report/checklist into, or attach it to, the site log book. At a minimum, each inspection report or checklist must include:

   a. Inspection date and time.

   b. Weather information, the general conditions during inspection and the approximate amount of precipitation since the last inspection, and precipitation within the last 24 hours.

   c. A summary or list of all implemented BMPs, including observations of all erosion/sediment control structures or practices.

   d. A description of the locations:

      i. Of BMPs inspected;

      ii. Of BMPs that need maintenance and why;

      iii. Of BMPs that failed to operate as designed or intended; ***and***

      iv. Where additional or different BMPs are needed, and why.

   e. A description of stormwater discharged from the site. The Permittee must note the presence of suspended sediment, turbidity, discoloration, and oil sheen, as applicable.

   f. Any water quality monitoring performed during inspection.

   g. General comments and notes, including a brief description of any BMP repairs, maintenance or installations made following the inspection.

   h. A summary report and a schedule of implementation of the remedial actions that the Permittee plans to take if the site inspection indicates that the site is out of compliance. The remedial actions taken must meet the requirements of the SWPPP and the permit.

i. The name, title, and signature of the person conducting the site inspection, a phone number or other reliable method to reach this person, and the following statement: "I certify that this report is true, accurate, and complete to the best of my knowledge and belief."

Table 3: Summary of Primary Monitoring Requirements

Size of Soil Disturbance[1]	Weekly Site Inspections	Weekly Sampling w/ Turbidity Meter	Weekly Sampling w/ Transparency Tube	Weekly pH Sampling[2]	CESCL Required for Inspections?
Sites that disturb less than 1 acre, but are part of a larger Common Plan of Development	Required	Not Required	Not Required	Not Required	No
Sites that disturb 1 acre or more, but fewer than 5 acres	Required	Sampling Required – either method[3]		Required	Yes
Sites that disturb 5 acres or more	Required	Required	Not Required[4]	Required	Yes

[1] Soil disturbance is calculated by adding together all areas that will be affected by construction activity. Construction activity means clearing, grading, excavation, and any other activity that disturbs the surface of the land, including ingress/egress from the site.
[2] If construction activity results in the disturbance of 1 acre or more, and involves significant concrete work (1,000 cubic yards of poured concrete or recycled concrete over the life of a project) or the use of engineered soils (soil amendments including but not limited to Portland cement-treated base [CTB], cement kiln dust [CKD], or fly ash), and stormwater from the affected area drains to surface waters of the State or to a storm sewer stormwater collection system that drains to other surface waters of the State, the Permittee must conduct pH sampling in accordance with Special Condition S4.D.
[3] Sites with one or more acres, but fewer than 5 acres of soil disturbance, must conduct turbidity or transparency sampling in accordance with Special Condition S4.C.
[4] Sites equal to or greater than 5 acres of soil disturbance must conduct turbidity sampling using a turbidity meter in accordance with Special Condition S4.C.

C. Turbidity/Transparency Sampling Requirements

1. Sampling Methods

   a. If construction activity involves the disturbance of 5 acres or more, the Permittee must conduct turbidity sampling per Special Condition S4.C.

   b. If construction activity involves 1 acre or more but fewer than 5 acres of soil disturbance, the Permittee must conduct either transparency sampling **or** turbidity sampling per Special Condition S4.C.

2. Sampling Frequency

   a. The Permittee must sample all discharge points at least once every calendar week when stormwater (or authorized non-stormwater) discharges from the site or enters any on-site surface waters of the state (for example, a creek running through a site); sampling is not required on sites that disturb less than an acre.

   b. Samples must be representative of the flow and characteristics of the discharge.

   c. Sampling is not required when there is no discharge during a calendar week.

   d. Sampling is not required outside of normal working hours or during unsafe conditions.

   e. If the Permittee is unable to sample during a monitoring period, the Permittee must include a brief explanation in the monthly Discharge Monitoring Report (DMR).

   f. Sampling is not required before construction activity begins.

   g. The Permittee may reduce the sampling frequency for temporarily stabilized, inactive sites to once every calendar month.

3. Sampling Locations

   a. Sampling is required at all points where stormwater associated with construction activity (or authorized non-stormwater) is discharged off site, including where it enters any on-site surface waters of the state (for example, a creek running through a site).

   b. The Permittee may discontinue sampling at discharge points that drain areas of the project that are fully stabilized to prevent erosion.

   c. The Permittee must identify all sampling point(s) on the SWPPP site map and clearly mark these points in the field with a flag, tape, stake or other visible marker.

   d. Sampling is not required for discharge that is sent directly to sanitary or combined sewer systems.

e. The Permittee may discontinue sampling at discharge points in areas of the project where the Permittee no longer has operational control of the construction activity.

4. Sampling and Analysis Methods

a. The Permittee performs turbidity analysis with a calibrated turbidity meter (turbidimeter) either on site or at an accredited lab. The Permittee must record the results in the site log book in nephelometric turbidity units (NTUs).

b. The Permittee performs transparency analysis on site with a 1¾-inch-diameter, 60-centimeter (cm)-long transparency tube. The Permittee will record the results in the site log book in centimeters (cm).

Table 4: Monitoring and Reporting Requirements

Parameter	Unit	Analytical Method	Sampling Frequency	Benchmark Value	Phone Reporting Trigger Value
Turbidity	NTU	SM2130	Weekly, if discharging	25 NTUs	250 NTUs
Transparency	cm	Manufacturer instructions, or Ecology guidance	Weekly, if discharging	33 cm	6 cm

5. Turbidity/Transparency Benchmark Values and Reporting Triggers

The benchmark value for turbidity is 25 NTUs or less. The benchmark value for transparency is 33 centimeters (cm). Note: Benchmark values do not apply to discharges to segments of water bodies on Washington State's 303(d) list (Category 5) for turbidity, fine sediment, or phosphorus; these discharges are subject to a numeric effluent limit for turbidity. Refer to Special Condition S8 for more information.

a. Turbidity 26 – 249 NTUs, or Transparency 32 – 7 cm:

If the discharge turbidity is 26 to 249 NTUs; or if discharge transparency is less than 33 cm, but equal to or greater than 6 cm, the Permittee must:

i. Review the SWPPP for compliance with Special Condition S9 and make appropriate revisions within 7 days of the date the discharge exceeded the benchmark.

ii. Immediately begin the process to fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible, addressing the problems within 10 days of the date the discharge exceeded the benchmark. If installation of necessary treatment BMPs is not feasible within 10 days, Ecology may approve additional time when the Permittee requests an extension within the initial 10-day response period.

iii. Document BMP implementation and maintenance in the site log book.

b. Turbidity 250 NTUs or greater, or Transparency 6 cm or less:

If a discharge point's turbidity is 250 NTUs or greater, or if discharge transparency is less than or equal to 6 cm, the Permittee must complete the reporting and adaptive management process described below.

i. Telephone or submit an electronic report to the applicable Ecology Region's Environmental Report Tracking System (ERTS) number (or through Ecology's Water Quality Permitting Portal [WQWebPortal] – Permit Submittals when the form is available) within 24 hours, in accordance with Special Condition S5.A.

- **Central Region** (Okanogan, Chelan, Douglas, Kittitas, Yakima, Klickitat, Benton): (509) 575-2490
- **Eastern Region** (Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman): (509) 329-3400
- **Northwest Region** (Kitsap, Snohomish, Island, King, San Juan, Skagit, Whatcom): (425) 649-7000
- **Southwest Region** (Grays Harbor, Lewis, Mason, Thurston, Pierce, Clark, Cowlitz, Skamania, Wahkiakum, Clallam, Jefferson, Pacific): (360) 407-6300

Links to these numbers and the ERTS reporting page are located on the following web site: http://www.ecy.wa.gov/programs/wq/stormwater/construction/index.html.

ii. Review the SWPPP for compliance with Special Condition S9 and make appropriate revisions within 7 days of the date the discharge exceeded the benchmark.

iii. Immediately begin the process to fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible, addressing the problems within 10 days of the date the discharge exceeded the benchmark. If installation of necessary treatment BMPs is not feasible within 10 days, Ecology may approve additional time when the Permittee requests an extension within the initial 10-day response period.

iv. Document BMP implementation and maintenance in the site log book.

v. Sample discharges daily until:

a) Turbidity is 25 NTUs (or lower); ***or***

b) Transparency is 33 cm (or greater); ***or***

c) The Permittee has demonstrated compliance with the water quality limit for turbidity:

1) No more than 5 NTUs over background turbidity, if background is less than 50 NTUs, ***or***

2) No more than 10% over background turbidity, if background is 50 NTUs or greater; ***or***

d) The discharge stops or is eliminated.

D. pH Sampling Requirements – Significant Concrete Work or Engineered Soils

If construction activity results in the disturbance of 1 acre or more, ***and*** involves significant concrete work (significant concrete work means greater than 1000 cubic yards poured concrete or recycled concrete used over the life of a project) or the use of engineered soils (soil amendments including but not limited to Portland cement-treated base [CTB], cement kiln dust [CKD], or fly ash), and stormwater from the affected area drains to surface waters of the State or to a storm sewer system that drains to surface waters of the State, the Permittee must conduct pH sampling as set forth below. Note: In addition, discharges to segments of water bodies on Washington State's 303(d) list (Category 5) for high pH are subject to a numeric effluent limit for pH; refer to Special Condition S8.

1. For sites with significant concrete work, the Permittee must begin the pH sampling period when the concrete is first poured and exposed to precipitation, and continue weekly throughout and after the concrete pour and curing period, until stormwater pH is in the range of 6.5 to 8.5 (su).

2. For sites with recycled concrete where monitoring is required, the Permittee must begin the weekly pH sampling period when the recycled concrete is first exposed to precipitation and must continue until the recycled concrete is fully stabilized with the stormwater pH in the range of 6.5 to 8.5 (su).

3. For sites with engineered soils, the Permittee must begin the pH sampling period when the soil amendments are first exposed to precipitation and must continue until the area of engineered soils is fully stabilized.

4. During the applicable pH monitoring period defined above, the Permittee must obtain a representative sample of stormwater and conduct pH analysis at least once per week.

5. The Permittee must sample pH in the sediment trap/pond(s) or other locations that receive stormwater runoff from the area of significant concrete work or engineered soils before the stormwater discharges to surface waters.

6. The benchmark value for pH is 8.5 standard units. Anytime sampling indicates that pH is 8.5 or greater, the Permittee must either:

a. Prevent the high pH water (8.5 or above) from entering storm sewer systems or surface waters; ***or***

b. If necessary, adjust or neutralize the high pH water until it is in the range of pH 6.5 to 8.5 (su) using an appropriate treatment BMP such as carbon dioxide (CO_2) sparging or dry ice. The Permittee must obtain written approval from Ecology before using any form of chemical treatment other than CO_2 sparging or dry ice.

7. The Permittee must perform pH analysis on site with a calibrated pH meter, pH test kit, or wide range pH indicator paper. The Permittee must record pH sampling results in the site log book.

S5. REPORTING AND RECORDKEEPING REQUIREMENTS

A. High Turbidity Reporting

Anytime sampling performed in accordance with Special Condition S4.C indicates turbidity has reached the 250 NTUs or more (or transparency less than or equal to 6 cm) high turbidity reporting level, the Permittee must either call the applicable Ecology Region's Environmental Report Tracking System (ERTS) number by phone within 24 hours of analysis or submit an electronic ERTS report (or submit an electronic report through Ecology's Water Quality Permitting Portal (WQWebPortal) – Permit Submittals when the form is available). See the CSWGP web site for links to ERTS and the WQWebPortal: http://www.ecy.wa.gov/programs/wq/stormwater/construction/index.html. Also, see phone numbers in Special Condition S4.C.5.b.i.

B. Discharge Monitoring Reports (DMRs)

Permittees required to conduct water quality sampling in accordance with Special Conditions S4.C (Turbidity/Transparency), S4.D (pH), S8 (303[d]/TMDL sampling), and/or G13 (Additional Sampling) must submit the results to Ecology.

Permittees must submit monitoring data using Ecology's WQWebDMR web application accessed through Ecology's Water Quality Permitting Portal. To find out more information and to sign up for WQWebDMR go to: http://www.ecy.wa.gov/programs/wq/permits/paris/portal.html.

Permittees unable to submit electronically (for example, those who do not have an internet connection) must contact Ecology to request a waiver and obtain instructions on how to obtain a paper copy DMR at:

Department of Ecology
Water Quality Program - Construction Stormwater
PO Box 47696
Olympia, Washington 98504-7696

Permittees who obtain a waiver not to use WQWebDMR must use the forms provided to them by Ecology; submittals must be mailed to the address above. Permittees shall

submit DMR forms to be received by Ecology within 15 days following the end of each month.

If there was no discharge during a given monitoring period, all Permittees must submit a DMR as required with “no discharge" entered in place of the monitoring results. DMRs are required for the full duration of permit coverage (from issuance date to termination). For more information, contact Ecology staff using information provided at the following web site: www.ecy.wa.gov/programs/wq/permits/paris/contacts.html.

C. Records Retention

The Permittee must retain records of all monitoring information (site log book, sampling results, inspection reports/checklists, etc.), Stormwater Pollution Prevention Plan, copy of the permit coverage letter (including Transfer of Coverage documentation), and any other documentation of compliance with permit requirements for the entire life of the construction project and for a minimum of three years following the termination of permit coverage. Such information must include all calibration and maintenance records, and records of all data used to complete the application for this permit. This period of retention must be extended during the course of any unresolved litigation regarding the discharge of pollutants by the Permittee or when requested by Ecology.

D. Recording Results

For each measurement or sample taken, the Permittee must record the following information:

1. Date, place, method, and time of sampling or measurement.
2. The first and last name of the individual who performed the sampling or measurement.
3. The date(s) the analyses were performed.
4. The first and last name of the individual who performed the analyses.
5. The analytical techniques or methods used.
6. The results of all analyses.

E. Additional Monitoring by the Permittee

If the Permittee monitors any pollutant more frequently than required by this permit using test procedures specified by Special Condition S4 of this permit, the results of this monitoring must be included in the calculation and reporting of the data submitted in the Permittee’s DMR.

F. Noncompliance Notification

In the event the Permittee is unable to comply with any part of the terms and conditions of this permit, and the resulting noncompliance may cause a threat to human health or the environment (such as but not limited to spills of fuels or other materials, catastrophic pond or slope failure, and discharges that violate water quality standards), or exceed

numeric effluent limitations (see S8. Discharges to 303(d) or TMDL Waterbodies), the Permittee must, upon becoming aware of the circumstance:

1. Notify Ecology within 24-hours of the failure to comply by calling the applicable Regional office ERTS phone number (refer to Special Condition S4.C.5.b.i. or www.ecy.wa.gov/programs/wq/stormwater/construction/turbidity.html for Regional ERTS phone numbers).

2. Immediately take action to prevent the discharge/pollution, or otherwise stop or correct the noncompliance, and, if applicable, repeat sampling and analysis of any noncompliance immediately and submit the results to Ecology within five (5) days of becoming aware of the violation.

3. Submit a detailed written report to Ecology within five (5) days, of the time the Permittee becomes aware of the circumstances, unless requested earlier by Ecology. The report must be submitted using Ecology's Water Quality Permitting Portal (WQWebPortal) - Permit Submittals, unless a waiver from electronic reporting has been granted according to S5.B. The report must contain a description of the noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

   The Permittee must report any unanticipated bypass and/or upset that exceeds any effluent limit in the permit in accordance with the 24-hour reporting requirement contained in 40 C.F.R. 122.41(l)(6).

   Compliance with these requirements does not relieve the Permittee from responsibility to maintain continuous compliance with the terms and conditions of this permit or the resulting liability for failure to comply. Upon request of the Permittee, Ecology may waive the requirement for a written report on a case-by-case basis, if the immediate notification is received by Ecology within 24 hours.

G. Access to Plans and Records

1. The Permittee must retain the following permit documentation (plans and records) on site, or within reasonable access to the site, for use by the operator or for on-site review by Ecology or the local jurisdiction:

   a. General Permit

   b. Permit Coverage Letter

   c. Stormwater Pollution Prevention Plan (SWPPP)

   d. Site Log Book

2. The Permittee must address written requests for plans and records listed above (Special Condition S5.G.1) as follows:

a. The Permittee must provide a copy of plans and records to Ecology within 14 days of receipt of a written request from Ecology.

b. The Permittee must provide a copy of plans and records to the public when requested in writing. Upon receiving a written request from the public for the Permittee's plans and records, the Permittee must either:

   i. Provide a copy of the plans and records to the requester within 14 days of a receipt of the written request; ***or***

   ii. Notify the requester within 10 days of receipt of the written request of the location and times within normal business hours when the plans and records may be viewed; and provide access to the plans and records within 14 days of receipt of the written request; ***or***

   iii. Within 14 days of receipt of the written request, the Permittee may submit a copy of the plans and records to Ecology for viewing and/or copying by the requester at an Ecology office, or a mutually agreed location. If plans and records are viewed and/or copied at a location other than at an Ecology office, the Permittee will provide reasonable access to copying services for which a reasonable fee may be charged. The Permittee must notify the requester within 10 days of receipt of the request where the plans and records may be viewed and/or copied.

S6. PERMIT FEES

The Permittee must pay permit fees assessed by Ecology. Fees for stormwater discharges covered under this permit are established by Chapter 173-224 WAC. Ecology continues to assess permit fees until the permit is terminated in accordance with Special Condition S10 or revoked in accordance with General Condition G5.

S7. SOLID AND LIQUID WASTE DISPOSAL

The Permittee must handle and dispose of solid and liquid wastes generated by construction activity, such as demolition debris, construction materials, contaminated materials, and waste materials from maintenance activities, including liquids and solids from cleaning catch basins and other stormwater facilities, in accordance with:

A. Special Condition S3, Compliance with Standards

B. WAC 173-216-110

C. Other applicable regulations

S8. DISCHARGES TO 303(d) OR TMDL WATERBODIES

A. Sampling and Numeric Effluent Limits For Certain Discharges to 303(d)-listed Waterbodies

1. Permittees who discharge to segments of waterbodies listed as impaired by the State of Washington under Section 303(d) of the Clean Water Act for turbidity, fine sediment, high pH, or phosphorus, must conduct water quality sampling according to the requirements of this section, and Special Conditions S4.C.2.b-f and S4.C.3.b-d, and must comply with the applicable numeric effluent limitations in S8.C and S8.D.

2. All references and requirements associated with Section 303(d) of the Clean Water Act mean the most current listing by Ecology of impaired waters (Category 5) that exists on January 1, 2016, or the date when the operator's complete permit application is received by Ecology, whichever is later.

B. Limits on Coverage for New Discharges to TMDL or 303(d)-listed Waters

Operators of construction sites that discharge to a TMDL or 303(d)-listed waterbody are not eligible for coverage under this permit *unless* the operator:

1. Prevents exposing stormwater to pollutants for which the waterbody is impaired, and retains documentation in the SWPPP that details procedures taken to prevent exposure on site; ***or***

2. Documents that the pollutants for which the waterbody is impaired are not present at the site, and retains documentation of this finding within the SWPPP; ***or***

3. Provides Ecology with data indicating the discharge is not expected to cause or contribute to an exceedance of a water quality standard, and retains such data on site with the SWPPP. The operator must provide data and other technical information to Ecology that sufficiently demonstrate:

   a. For discharges to waters without an EPA-approved or -established TMDL, that the discharge of the pollutant for which the water is impaired will meet in-stream water quality criteria at the point of discharge to the waterbody; ***or***

   b. For discharges to waters with an EPA-approved or -established TMDL, that there is sufficient remaining wasteload allocation in the TMDL to allow construction stormwater discharge and that existing dischargers to the waterbody are subject to compliance schedules designed to bring the waterbody into attainment with water quality standards.

   Operators of construction sites are eligible for coverage under this permit if Ecology issues permit coverage based upon an affirmative determination that the *discharge will not cause or contribute to the existing impairment.*

C. Sampling and Numeric Effluent Limits for Discharges to Water Bodies on the 303(d) List for Turbidity, Fine Sediment, or Phosphorus

1. Permittees who discharge to segments of water bodies on the 303(d) list (Category 5) for turbidity, fine sediment, or phosphorus must conduct turbidity sampling in accordance with Special Condition S4.C.2 and comply with either of the numeric effluent limits noted in Table 5 below.

2. As an alternative to the 25 NTUs effluent limit noted in Table 5 below (applied at the point where stormwater [or authorized non-stormwater] is discharged off-site), Permittees may choose to comply with the surface water quality standard for turbidity. The standard is: no more than 5 NTUs over background turbidity when the background turbidity is 50 NTUs or less, or no more than a 10% increase in turbidity when the background turbidity is more than 50 NTUs. In order to use the water quality standard requirement, the sampling must take place at the following locations:

   a. Background turbidity in the 303(d)-listed receiving water immediately upstream (upgradient) or outside the area of influence of the discharge.

   b. Turbidity at the point of discharge into the 303(d)-listed receiving water, inside the area of influence of the discharge.

3. Discharges that exceed the numeric effluent limit for turbidity constitute a violation of this permit.

4. Permittees whose discharges exceed the numeric effluent limit shall sample discharges daily until the violation is corrected and comply with the non-compliance notification requirements in Special Condition S5.F.

Table 5: Turbidity, Fine Sediment & Phosphorus Sampling and Limits for 303(d)-Listed Waters

Parameter identified in 303(d) listing	Parameter Sampled	Unit	Analytical Method	Sampling Frequency	Numeric Effluent Limit[1]
• Turbidity • Fine Sediment • Phosphorus	Turbidity	NTU	SM2130	Weekly, if discharging	25 NTUs, at the point where stormwater is discharged from the site; OR In compliance with the surface water quality standard for turbidity (S8.C.2.a)

[1]Permittees subject to a numeric effluent limit for turbidity may, at their discretion, choose either numeric effluent limitation based on site-specific considerations including, but not limited to, safety, access and convenience.

D. Discharges to Water Bodies on the 303(d) List for High pH

1. Permittees who discharge to segments of water bodies on the 303(d) list (Category 5) for high pH must conduct pH sampling in accordance with the table below, and comply with the numeric effluent limit of pH 6.5 to 8.5 su (Table 6).

Table 6: pH Sampling and Limits for 303(d)-Listed Waters

Parameter identified in 303(d) listing	Parameter Sampled/Units	Analytical Method	Sampling Frequency	Numeric Effluent Limit
High pH	pH /Standard Units	pH meter	Weekly, if discharging	In the range of 6.5 – 8.5

2. At the Permittee's discretion, compliance with the limit shall be assessed at one of the following locations:

   a. Directly in the 303(d)-listed waterbody segment, inside the immediate area of influence of the discharge; or

   b. Alternatively, the Permittee may measure pH at the point where the discharge leaves the construction site, rather than in the receiving water.

3. Discharges that exceed the numeric effluent limit for pH (outside the range of 6.5 – 8.5 su) constitute a violation of this permit.

4. Permittees whose discharges exceed the numeric effluent limit shall sample discharges daily until the violation is corrected and comply with the non-compliance notification requirements in Special Condition S5.F.

E. Sampling and Limits for Sites Discharging to Waters Covered by a TMDL or Another Pollution Control Plan

1. Discharges to a waterbody that is subject to a Total Maximum Daily Load (TMDL) for turbidity, fine sediment, high pH, or phosphorus must be consistent with the TMDL. Refer to http://www.ecy.wa.gov/programs/wq/tmdl/TMDLsbyWria/TMDLbyWria.html for more information on TMDLs.

   a. Where an applicable TMDL sets specific waste load allocations or requirements for discharges covered by this permit, discharges must be consistent with any specific waste load allocations or requirements established by the applicable TMDL.

      i. The Permittee must sample discharges weekly or as otherwise specified by the TMDL to evaluate compliance with the specific waste load allocations or requirements.

      ii. Analytical methods used to meet the monitoring requirements must conform to the latest revision of the Guidelines Establishing Test Procedures for the Analysis of Pollutants contained in 40 CFR Part 136. Turbidity and pH methods need not be accredited or registered unless conducted at a laboratory which must otherwise be accredited or registered.

   b. Where an applicable TMDL has established a general waste load allocation for construction stormwater discharges, but has not identified specific requirements,

compliance with Special Conditions S4 (Monitoring) and S9 (SWPPPs) will constitute compliance with the approved TMDL.

c. Where an applicable TMDL has not specified a waste load allocation for construction stormwater discharges, but has not excluded these discharges, compliance with Special Conditions S4 (Monitoring) and S9 (SWPPPs) will constitute compliance with the approved TMDL.

d. Where an applicable TMDL specifically precludes or prohibits discharges from construction activity, the operator is not eligible for coverage under this permit.

2. Applicable TMDL means a TMDL for turbidity, fine sediment, high pH, or phosphorus that is completed and approved by EPA before January 1, 2016, or before the date the operator's complete permit application is received by Ecology, whichever is later. TMDLs completed after the operator's complete permit application is received by Ecology become applicable to the Permittee only if they are imposed through an administrative order by Ecology, or through a modification of permit coverage.

S9. STORMWATER POLLUTION PREVENTION PLAN

The Permittee must prepare and properly implement an adequate Stormwater Pollution Prevention Plan (SWPPP) for construction activity in accordance with the requirements of this permit beginning with initial soil disturbance and until final stabilization.

A. The Permittee's SWPPP must meet the following objectives:

1. To implement best management practices (BMPs) to prevent erosion and sedimentation, and to identify, reduce, eliminate or prevent stormwater contamination and water pollution from construction activity.

2. To prevent violations of surface water quality, ground water quality, or sediment management standards.

3. To control peak volumetric flow rates and velocities of stormwater discharges.

B. General Requirements

1. The SWPPP must include a narrative and drawings. All BMPs must be clearly referenced in the narrative and marked on the drawings. The SWPPP narrative must include documentation to explain and justify the pollution prevention decisions made for the project. Documentation must include:

a. Information about existing site conditions (topography, drainage, soils, vegetation, etc.).

b. Potential erosion problem areas.

c. The 13 elements of a SWPPP in Special Condition S9.D.1-13, including BMPs used to address each element.

d. Construction phasing/sequence and general BMP implementation schedule.

e. The actions to be taken if BMP performance goals are not achieved—for example, a contingency plan for additional treatment and/or storage of stormwater that would violate the water quality standards if discharged.

f. Engineering calculations for ponds, treatment systems, and any other designed structures. When a treatment system requires engineering calculations, these calculations must be included in the SWPPP. Engineering calculations do not need to be included in the SWPPP for treatment systems that do not require such calculations.

2. The Permittee must modify the SWPPP if, during inspections or investigations conducted by the owner/operator, or the applicable local or state regulatory authority, it is determined that the SWPPP is, or would be, ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site. The Permittee must then:

   a. Review the SWPPP for compliance with Special Condition S9 and make appropriate revisions within 7 days of the inspection or investigation.

   b. Immediately begin the process to fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible, addressing the problems no later than 10 days from the inspection or investigation. If installation of necessary treatment BMPs is not feasible within 10 days, Ecology may approve additional time when an extension is requested by a Permittee within the initial 10-day response period.

   c. Document BMP implementation and maintenance in the site log book.

   The Permittee must modify the SWPPP whenever there is a change in design, construction, operation, or maintenance at the construction site that has, or could have, a significant effect on the discharge of pollutants to waters of the State.

C. Stormwater Best Management Practices (BMPs)

BMPs must be consistent with:

1. Stormwater Management Manual for Western Washington (most current approved edition at the time this permit was issued), for sites west of the crest of the Cascade Mountains; ***or***

2. Stormwater Management Manual for Eastern Washington (most current approved edition at the time this permit was issued), for sites east of the crest of the Cascade Mountains; ***or***

3. Revisions to the manuals listed in Special Condition S9.C.1. & 2., or other stormwater management guidance documents or manuals which provide an equivalent level of pollution prevention, that are approved by Ecology and incorporated into this permit in accordance with the permit modification requirements of WAC 173-226-230; ***or***

4. Documentation in the SWPPP that the BMPs selected provide an equivalent level of pollution prevention, compared to the applicable Stormwater Management Manuals, including:

   a. The technical basis for the selection of all stormwater BMPs (scientific, technical studies, and/or modeling) that support the performance claims for the BMPs being selected.

   b. An assessment of how the selected BMP will satisfy AKART requirements and the applicable federal technology-based treatment requirements under 40 CFR part 125.3.

D. SWPPP – Narrative Contents and Requirements

The Permittee must include each of the 13 elements below in Special Condition S9.D.1-13 in the narrative of the SWPPP and implement them unless site conditions render the element unnecessary and the exemption from that element is clearly justified in the SWPPP.

1. Preserve Vegetation/Mark Clearing Limits

   a. Before beginning land-disturbing activities, including clearing and grading, clearly mark all clearing limits, sensitive areas and their buffers, and trees that are to be preserved within the construction area.

   b. Retain the duff layer, native topsoil, and natural vegetation in an undisturbed state to the maximum degree practicable.

2. Establish Construction Access

   a. Limit construction vehicle access and exit to one route, if possible.

   b. Stabilize access points with a pad of quarry spalls, crushed rock, or other equivalent BMPs, to minimize tracking sediment onto roads.

   c. Locate wheel wash or tire baths on site, if the stabilized construction entrance is not effective in preventing tracking sediment onto roads.

   d. If sediment is tracked off site, clean the affected roadway thoroughly at the end of each day, or more frequently as necessary (for example, during wet weather). Remove sediment from roads by shoveling, sweeping, or pickup and transport of the sediment to a controlled sediment disposal area.

   e. Conduct street washing only after sediment removal in accordance with Special Condition S9.D.2.d. Control street wash wastewater by pumping back on site or otherwise preventing it from discharging into systems tributary to waters of the State.

3. Control Flow Rates

   a. Protect properties and waterways downstream of development sites from erosion and the associated discharge of turbid waters due to increases in the

velocity and peak volumetric flow rate of stormwater runoff from the project site, as required by local plan approval authority.

b. Where necessary to comply with Special Condition S9.D.3.a, construct stormwater retention or detention facilities as one of the first steps in grading. Assure that detention facilities function properly before constructing site improvements (for example, impervious surfaces).

c. If permanent infiltration ponds are used for flow control during construction, protect these facilities from siltation during the construction phase.

4. Install Sediment Controls

The Permittee must design, install and maintain effective erosion controls and sediment controls to minimize the discharge of pollutants. At a minimum, the Permittee must design, install and maintain such controls to:

a. Construct sediment control BMPs (sediment ponds, traps, filters, infiltration facilities, etc.) as one of the first steps in grading. These BMPs must be functional before other land disturbing activities take place.

b. Minimize sediment discharges from the site. The design, installation and maintenance of erosion and sediment controls must address factors such as the amount, frequency, intensity and duration of precipitation, the nature of resulting stormwater runoff, and soil characteristics, including the range of soil particle sizes expected to be present on the site.

c. Direct stormwater runoff from disturbed areas through a sediment pond or other appropriate sediment removal BMP, before the runoff leaves a construction site or before discharge to an infiltration facility. Runoff from fully stabilized areas may be discharged without a sediment removal BMP, but must meet the flow control performance standard of Special Condition S9.D.3.a.

d. Locate BMPs intended to trap sediment on site in a manner to avoid interference with the movement of juvenile salmonids attempting to enter off-channel areas or drainages.

e. Provide and maintain natural buffers around surface waters, direct stormwater to vegetated areas to increase sediment removal and maximize stormwater infiltration, unless infeasible.

f. Where feasible, design outlet structures that withdraw impounded stormwater from the surface to avoid discharging sediment that is still suspended lower in the water column.

5. Stabilize Soils

a. The Permittee must stabilize exposed and unworked soils by application of effective BMPs that prevent erosion. Applicable BMPs include, but are not limited to: temporary and permanent seeding, sodding, mulching, plastic covering, erosion control fabrics and matting, soil application of polyacrylamide

(PAM), the early application of gravel base on areas to be paved, and dust control.

b. The Permittee must control stormwater volume and velocity within the site to minimize soil erosion.

c. The Permittee must control stormwater discharges, including both peak flow rates and total stormwater volume, to minimize erosion at outlets and to minimize downstream channel and stream bank erosion.

d. Depending on the geographic location of the project, the Permittee must not allow soils to remain exposed and unworked for more than the time periods set forth below to prevent erosion:

West of the Cascade Mountains Crest
During the dry season (May 1 - September 30): 7 days
During the wet season (October 1 - April 30): 2 days

East of the Cascade Mountains Crest, except for Central Basin*
During the dry season (July 1 - September 30): 10 days
During the wet season (October 1 - June 30): 5 days

The Central Basin*, East of the Cascade Mountains Crest
During the dry season (July 1 - September 30): 30 days
During the wet season (October 1 - June 30): 15 days

*Note: The Central Basin is defined as the portions of Eastern Washington with mean annual precipitation of less than 12 inches.

e. The Permittee must stabilize soils at the end of the shift before a holiday or weekend if needed based on the weather forecast.

f. The Permittee must stabilize soil stockpiles from erosion, protected with sediment trapping measures, and where possible, be located away from storm drain inlets, waterways, and drainage channels.

g. The Permittee must minimize the amount of soil exposed during construction activity.

h. The Permittee must minimize the disturbance of steep slopes.

i. The Permittee must minimize soil compaction and, unless infeasible, preserve topsoil.

6. Protect Slopes

a. The Permittee must design and construct cut-and-fill slopes in a manner to minimize erosion. Applicable practices include, but are not limited to, reducing continuous length of slope with terracing and diversions, reducing slope steepness, and roughening slope surfaces (for example, track walking).

b. The Permittee must divert off-site stormwater (run-on) or ground water away from slopes and disturbed areas with interceptor dikes, pipes, and/or swales. Off-site stormwater should be managed separately from stormwater generated on the site.

c. At the top of slopes, collect drainage in pipe slope drains or protected channels to prevent erosion.

   i. West of the Cascade Mountains Crest: Temporary pipe slope drains must handle the peak 10-minute flow rate from a Type 1A, 10-year, 24-hour frequency storm for the developed condition. Alternatively, the 10-year, 1-hour flow rate predicted by an approved continuous runoff model, increased by a factor of 1.6, may be used. The hydrologic analysis must use the existing land cover condition for predicting flow rates from tributary areas outside the project limits. For tributary areas on the project site, the analysis must use the temporary or permanent project land cover condition, whichever will produce the highest flow rates. If using the Western Washington Hydrology Model (WWHM) to predict flows, bare soil areas should be modeled as "landscaped area."

   ii. East of the Cascade Mountains Crest: Temporary pipe slope drains must handle the expected peak flow rate from a 6-month, 3-hour storm for the developed condition, referred to as the short duration storm.

d. Place excavated material on the uphill side of trenches, consistent with safety and space considerations.

e. Place check dams at regular intervals within constructed channels that are cut down a slope.

7. Protect Drain Inlets

a. Protect all storm drain inlets made operable during construction so that stormwater runoff does not enter the conveyance system without first being filtered or treated to remove sediment.

b. Clean or remove and replace inlet protection devices when sediment has filled one-third of the available storage (unless a different standard is specified by the product manufacturer).

8. Stabilize Channels and Outlets

a. Design, construct and stabilize all on-site conveyance channels to prevent erosion from the following expected peak flows:

   i. West of the Cascade Mountains Crest: Channels must handle the peak 10-minute flow rate from a Type 1A, 10-year, 24-hour frequency storm for the developed condition. Alternatively, the 10-year, 1-hour flow rate indicated by an approved continuous runoff model, increased by a factor of 1.6, may be used. The hydrologic analysis must use the existing land

cover condition for predicting flow rates from tributary areas outside the project limits. For tributary areas on the project site, the analysis must use the temporary or permanent project land cover condition, whichever will produce the highest flow rates. If using the WWHM to predict flows, bare soil areas should be modeled as "landscaped area."

ii. East of the Cascade Mountains Crest: Channels must handle the expected peak flow rate from a 6-month, 3-hour storm for the developed condition, referred to as the short duration storm.

b. Provide stabilization, including armoring material, adequate to prevent erosion of outlets, adjacent stream banks, slopes, and downstream reaches at the outlets of all conveyance systems.

9. Control Pollutants

Design, install, implement and maintain effective pollution prevention measures to minimize the discharge of pollutants. The Permittee must:

a. Handle and dispose of all pollutants, including waste materials and demolition debris that occur on site in a manner that does not cause contamination of stormwater.

b. Provide cover, containment, and protection from vandalism for all chemicals, liquid products, petroleum products, and other materials that have the potential to pose a threat to human health or the environment. On-site fueling tanks must include secondary containment. Secondary containment means placing tanks or containers within an impervious structure capable of containing 110% of the volume contained in the largest tank within the containment structure. Double-walled tanks do not require additional secondary containment.

c. Conduct maintenance, fueling, and repair of heavy equipment and vehicles using spill prevention and control measures. Clean contaminated surfaces immediately following any spill incident.

d. Discharge wheel wash or tire bath wastewater to a separate on-site treatment system that prevents discharge to surface water, such as closed-loop recirculation or upland land application, or to the sanitary sewer with local sewer district approval.

e. Apply fertilizers and pesticides in a manner and at application rates that will not result in loss of chemical to stormwater runoff. Follow manufacturers' label requirements for application rates and procedures.

f. Use BMPs to prevent contamination of stormwater runoff by pH-modifying sources. The sources for this contamination include, but are not limited to: bulk cement, cement kiln dust, fly ash, new concrete washing and curing waters, recycled concrete stockpiles, waste streams generated from concrete grinding and sawing, exposed aggregate processes, dewatering concrete vaults, concrete

pumping and mixer washout waters. (Also refer to the definition for "concrete wastewater" in Appendix A--Definitions.)

g. Adjust the pH of stormwater or authorized non-stormwater if necessary to prevent an exceedance of groundwater and/or surface water quality standards.

h. Assure that washout of concrete trucks is performed off-site or in designated concrete washout areas only. Do not wash out concrete truck drums or concrete handling equipment onto the ground, or into storm drains, open ditches, streets, or streams. Washout of concrete handling equipment may be disposed of in a designated concrete washout area or in a formed area awating concrete where it will not contaminate surface or ground water. Do not dump excess concrete on site, except in designated concrete washout areas. Concrete spillage or concrete discharge directly to groundwater or surface waters of the State is prohibited. Do not wash out to formed areas awaiting LID facilities.

i. Obtain written approval from Ecology before using any chemical treatment, with the exception of CO_2 or dry ice used to adjust pH.

j. Uncontaminated water from water-only based shaft drilling for construction of building, road, and bridge foundations may be infiltrated provided the wastewater is managed in a way that prohibits discharge to surface waters. Prior to infiltration, water from water-only based shaft drilling that comes into contact with curing concrete must be neutralized until pH is in the range of 6.5 to 8.5 (su).

10. Control Dewatering

a. Permittees must discharge foundation, vault, and trench dewatering water, which have characteristics similar to stormwater runoff at the site, into a controlled conveyance system before discharge to a sediment trap or sediment pond.

b. Permittees may discharge clean, non-turbid dewatering water, such as well-point ground water, to systems tributary to, or directly into surface waters of the State, as specified in Special Condition S9.D.8, provided the dewatering flow does not cause erosion or flooding of receiving waters. Do not route clean dewatering water through stormwater sediment ponds. Note that “surface waters of the State” may exist on a construction site as well as off site; for example, a creek running through a site.

c. Other dewatering treatment or disposal options may include:

i. Infiltration.

ii. Transport off site in a vehicle, such as a vacuum flush truck, for legal disposal in a manner that does not pollute state waters.

iii. Ecology-approved on-site chemical treatment or other suitable treatment technologies (see S9.D.9.i. regarding chemical treatment written approval).

iv. Sanitary or combined sewer discharge with local sewer district approval, if there is no other option.

v. Use of a sedimentation bag with discharge to a ditch or swale for small volumes of localized dewatering.

d. Permittees must handle highly turbid or contaminated dewatering water separately from stormwater.

11. Maintain BMPs

a. Permittees must maintain and repair all temporary and permanent erosion and sediment control BMPs as needed to assure continued performance of their intended function in accordance with BMP specifications.

b. Permittees must remove all temporary erosion and sediment control BMPs within 30 days after achieving final site stabilization or after the temporary BMPs are no longer needed.

12. Manage the Project

a. Phase development projects to the maximum degree practicable and take into account seasonal work limitations.

b. Inspection and monitoring – Inspect, maintain and repair all BMPs as needed to assure continued performance of their intended function. Conduct site inspections and monitoring in accordance with Special Condition S4.

c. Maintaining an updated construction SWPPP – Maintain, update, and implement the SWPPP in accordance with Special Conditions S3, S4 and S9.

13. Protect Low Impact Development (LID) BMPs

The primary purpose of LID BMPs/On-site LID Stormwater Management BMPs is to reduce the disruption of the natural site hydrology. LID BMPs are permanent facilities.

a. Permittees must protect all Bioretention and Rain Garden facilities from sedimentation through installation and maintenance of erosion and sediment control BMPs on portions of the site that drain into the Bioretention and/or Rain Garden facilities. Restore the facilities to their fully functioning condition if they accumulate sediment during construction. Restoring the facility must include removal of sediment and any sediment-laden Bioretention/Rain Garden soils, and replacing the removed soils with soils meeting the design specification.

b. Permittees must maintain the infiltration capabilities of Bioretention and Rain Garden facilities by protecting against compaction by construction equipment and foot traffic. Protect completed lawn and landscaped areas from compaction due to construction equipment.

c. Permittees must control erosion and avoid introducing sediment from surrounding land uses onto permeable pavements. Do not allow muddy construction equipment on the base material or pavement. Do not allow sediment-laden runoff onto permeable pavements.

d. Permittees must clean permeable pavements fouled with sediments or no longer passing an initial infiltration test using local stormwater manual methodology or the manufacturer's procedures.

e. Permittees must keep all heavy equipment off existing soils under LID facilities that have been excavated to final grade to retain the infiltration rate of the soils.

E. SWPPP – Map Contents and Requirements

The Permittee's SWPPP must also include a vicinity map or general location map (for example, a USGS quadrangle map, a portion of a county or city map, or other appropriate map) with enough detail to identify the location of the construction site and receiving waters within one mile of the site.

The SWPPP must also include a legible site map (or maps) showing the entire construction site. The following features must be identified, unless not applicable due to site conditions:

1. The direction of north, property lines, and existing structures and roads.
2. Cut and fill slopes indicating the top and bottom of slope catch lines.
3. Approximate slopes, contours, and direction of stormwater flow before and after major grading activities.
4. Areas of soil disturbance and areas that will not be disturbed.
5. Locations of structural and nonstructural controls (BMPs) identified in the SWPPP.
6. Locations of off-site material, stockpiles, waste storage, borrow areas, and vehicle/equipment storage areas.
7. Locations of all surface water bodies, including wetlands.
8. Locations where stormwater or non-stormwater discharges off-site and/or to a surface waterbody, including wetlands.
9. Location of water quality sampling station(s), if sampling is required by state or local permitting authority.

10. Areas where final stabilization has been accomplished and no further construction-phase permit requirements apply.

11. Location or proposed location of LID facilities.

S10. NOTICE OF TERMINATION

A. The site is eligible for termination of coverage when it has met any of the following conditions:

1. The site has undergone final stabilization, the Permittee has removed all temporary BMPs (except biodegradable BMPs clearly manufactured with the intention for the material to be left in place and not interfere with maintenance or land use), and all stormwater discharges associated with construction activity have been eliminated; ***or***

2. All portions of the site that have not undergone final stabilization per Special Condition S10.A.1 have been sold and/or transferred (per General Condition G9), and the Permittee no longer has operational control of the construction activity; ***or***

3. For residential construction only, the Permittee has completed temporary stabilization and the homeowners have taken possession of the residences.

B. When the site is eligible for termination, the Permittee must submit a complete and accurate Notice of Termination (NOT) form, signed in accordance with General Condition G2, to:

Department of Ecology
Water Quality Program – Construction Stormwater
PO Box 47696
Olympia, Washington 98504-7696

When an electronic termination form is available, the Permittee may choose to submit a complete and accurate Notice of Termination (NOT) form through the Water Quality Permitting Portal rather than mailing a hardcopy as noted above.

The termination is effective on the thirty-first calendar day following the date Ecology receives a complete NOT form, unless Ecology notifies the Permittee that the termination request is denied because the Permittee has not met the eligibility requirements in Special Condition S10.A.

Permittees are required to comply with all conditions and effluent limitations in the permit until the permit has been terminated.

Permittees transferring the property to a new property owner or operator/Permittee are required to complete and submit the Notice of Transfer form to Ecology, but are not required to submit a Notice of Termination form for this type of transaction.

GENERAL CONDITIONS

G1. DISCHARGE VIOLATIONS

All discharges and activities authorized by this general permit must be consistent with the terms and conditions of this general permit. Any discharge of any pollutant more frequent than or at a level in excess of that identified and authorized by the general permit must constitute a violation of the terms and conditions of this permit.

G2. SIGNATORY REQUIREMENTS

A. All permit applications must bear a certification of correctness to be signed:

1. In the case of corporations, by a responsible corporate officer;
2. In the case of a partnership, by a general partner of a partnership;
3. In the case of sole proprietorship, by the proprietor; ***or***
4. In the case of a municipal, state, or other public facility, by either a principal executive officer or ranking elected official.

B. All reports required by this permit and other information requested by Ecology (including NOIs, NOTs, and Transfer of Coverage forms) must be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

1. The authorization is made in writing by a person described above and submitted to Ecology.
2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters.

C. Changes to authorization. If an authorization under paragraph G2.B.2 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph G2.B.2 above must be submitted to Ecology prior to or together with any reports, information, or applications to be signed by an authorized representative.

D. Certification. Any person signing a document under this section must make the following certification:

> "I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my

knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

G3. RIGHT OF INSPECTION AND ENTRY

The Permittee must allow an authorized representative of Ecology, upon the presentation of credentials and such other documents as may be required by law:

A. To enter upon the premises where a discharge is located or where any records are kept under the terms and conditions of this permit.

B. To have access to and copy – at reasonable times and at reasonable cost – any records required to be kept under the terms and conditions of this permit.

C. To inspect – at reasonable times – any facilities, equipment (including monitoring and control equipment), practices, methods, or operations regulated or required under this permit.

D. To sample or monitor – at reasonable times – any substances or parameters at any location for purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act.

G4. GENERAL PERMIT MODIFICATION AND REVOCATION

This permit may be modified, revoked and reissued, or terminated in accordance with the provisions of Chapter 173-226 WAC. Grounds for modification, revocation and reissuance, or termination include, but are not limited to, the following:

A. When a change occurs in the technology or practices for control or abatement of pollutants applicable to the category of dischargers covered under this permit.

B. When effluent limitation guidelines or standards are promulgated pursuant to the CWA or Chapter 90.48 RCW, for the category of dischargers covered under this permit.

C. When a water quality management plan containing requirements applicable to the category of dischargers covered under this permit is approved, ***or***

D. When information is obtained that indicates cumulative effects on the environment from dischargers covered under this permit are unacceptable.

G5. REVOCATION OF COVERAGE UNDER THE PERMIT

Pursuant to Chapter 43.21B RCW and Chapter 173-226 WAC, the Director may terminate coverage for any discharger under this permit for cause. Cases where coverage may be terminated include, but are not limited to, the following:

A. Violation of any term or condition of this permit.

B. Obtaining coverage under this permit by misrepresentation or failure to disclose fully all relevant facts.

C. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge.

D. Failure or refusal of the Permittee to allow entry as required in RCW 90.48.090.

E. A determination that the permitted activity endangers human health or the environment, or contributes to water quality standards violations.

F. Nonpayment of permit fees or penalties assessed pursuant to RCW 90.48.465 and Chapter 173-224 WAC.

G. Failure of the Permittee to satisfy the public notice requirements of WAC 173-226-130(5), when applicable.

The Director may require any discharger under this permit to apply for and obtain coverage under an individual permit or another more specific general permit. Permittees who have their coverage revoked for cause according to WAC 173-226-240 may request temporary coverage under this permit during the time an individual permit is being developed, provided the request is made within ninety (90) days from the time of revocation and is submitted along with a complete individual permit application form.

G6. REPORTING A CAUSE FOR MODIFICATION

The Permittee must submit a new application, or a supplement to the previous application, whenever a material change to the construction activity or in the quantity or type of discharge is anticipated which is not specifically authorized by this permit. This application must be submitted at least sixty (60) days prior to any proposed changes. Filing a request for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not relieve the Permittee of the duty to comply with the existing permit until it is modified or reissued.

G7. COMPLIANCE WITH OTHER LAWS AND STATUTES

Nothing in this permit will be construed as excusing the Permittee from compliance with any applicable federal, state, or local statutes, ordinances, or regulations.

G8. DUTY TO REAPPLY

The Permittee must apply for permit renewal at least 180 days prior to the specified expiration date of this permit. The Permittee must reapply using the electronic application form (NOI) available on Ecology's website. Permittees unable to submit electronically (for example, those who do not have an internet connection) must contact Ecology to request a waiver and obtain instructions on how to obtain a paper NOI.

Department of Ecology
Water Quality Program - Construction Stormwater
PO Box 47696
Olympia, Washington 98504-7696

G9. TRANSFER OF GENERAL PERMIT COVERAGE

Coverage under this general permit is automatically transferred to a new discharger, including operators of lots/parcels within a common plan of development or sale, if:

A. A written agreement (Transfer of Coverage Form) between the current discharger (Permittee) and new discharger, signed by both parties and containing a specific date for transfer of permit responsibility, coverage, and liability (including any Administrative Orders associated with the Permit) is submitted to the Director; and

B. The Director does not notify the current discharger and new discharger of the Director's intent to revoke coverage under the general permit. If this notice is not given, the transfer is effective on the date specified in the written agreement.

When a current discharger (Permittee) transfers a portion of a permitted site, the current discharger must also submit an updated application form (NOI) to the Director indicating the remaining permitted acreage after the transfer.

G10. REMOVED SUBSTANCES

The Permittee must not re-suspend or reintroduce collected screenings, grit, solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of stormwater to the final effluent stream for discharge to state waters.

G11. DUTY TO PROVIDE INFORMATION

The Permittee must submit to Ecology, within a reasonable time, all information that Ecology may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The Permittee must also submit to Ecology, upon request, copies of records required to be kept by this permit [40 CFR 122.41(h)].

G12. OTHER REQUIREMENTS OF 40 CFR

All other requirements of 40 CFR 122.41 and 122.42 are incorporated in this permit by reference.

G13. ADDITIONAL MONITORING

Ecology may establish specific monitoring requirements in addition to those contained in this permit by administrative order or permit modification.

G14. PENALTIES FOR VIOLATING PERMIT CONDITIONS

Any person who is found guilty of willfully violating the terms and conditions of this permit shall be deemed guilty of a crime, and upon conviction thereof shall be punished by a fine of up to ten thousand dollars ($10,000) and costs of prosecution, or by imprisonment at the discretion of the court. Each day upon which a willful violation occurs may be deemed a separate and additional violation.

Any person who violates the terms and conditions of a waste discharge permit shall incur, in addition to any other penalty as provided by law, a civil penalty in the amount of up to ten thousand dollars ($10,000) for every such violation. Each and every such violation shall be a separate and distinct offense, and in case of a continuing violation, every day's continuance shall be deemed to be a separate and distinct violation.

G15. UPSET

Definition – "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of the following paragraph are met.

A Permittee who wishes to establish the affirmative defense of upset must demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that: 1) an upset occurred and that the Permittee can identify the cause(s) of the upset; 2) the permitted facility was being properly operated at the time of the upset; 3) the Permittee submitted notice of the upset as required in Special Condition S5.F, and; 4) the Permittee complied with any remedial measures required under this permit.

In any enforcement proceeding, the Permittee seeking to establish the occurrence of an upset has the burden of proof.

G16. PROPERTY RIGHTS

This permit does not convey any property rights of any sort, or any exclusive privilege.

G17. DUTY TO COMPLY

The Permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

G18. TOXIC POLLUTANTS

The Permittee must comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if this permit has not yet been modified to incorporate the requirement.

G19. PENALTIES FOR TAMPERING

The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than two years per violation, or by both. If a conviction of a person is for a violation committed after a first conviction of such person under this condition, punishment shall be a fine of not more than $20,000 per day of violation, or imprisonment of not more than four (4) years, or both.

G20. REPORTING PLANNED CHANGES

The Permittee must, as soon as possible, give notice to Ecology of planned physical alterations, modifications or additions to the permitted construction activity. The Permittee should be aware that, depending on the nature and size of the changes to the original permit, a new public notice and other permit process requirements may be required. Changes in activities that require reporting to Ecology include those that will result in:

A. The permitted facility being determined to be a new source pursuant to 40 CFR 122.29(b).

B. A significant change in the nature or an increase in quantity of pollutants discharged, including but not limited to: for sites 5 acres or larger, a 20% or greater increase in acreage disturbed by construction activity.

C. A change in or addition of surface water(s) receiving stormwater or non-stormwater from the construction activity.

D. A change in the construction plans and/or activity that affects the Permittee's monitoring requirements in Special Condition S4.

Following such notice, permit coverage may be modified, or revoked and reissued pursuant to 40 CFR 122.62(a) to specify and limit any pollutants not previously limited. Until such modification is effective, any new or increased discharge in excess of permit limits or not specifically authorized by this permit constitutes a violation.

G21. REPORTING OTHER INFORMATION

Where the Permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to Ecology, it must promptly submit such facts or information.

G22. REPORTING ANTICIPATED NON-COMPLIANCE

The Permittee must give advance notice to Ecology by submission of a new application or supplement thereto at least forty-five (45) days prior to commencement of such discharges, of any facility expansions, production increases, or other planned changes, such as process modifications, in the permitted facility or activity which may result in noncompliance with permit limits or conditions. Any maintenance of facilities, which might necessitate

unavoidable interruption of operation and degradation of effluent quality, must be scheduled during non-critical water quality periods and carried out in a manner approved by Ecology.

G23. REQUESTS TO BE EXCLUDED FROM COVERAGE UNDER THE PERMIT

Any discharger authorized by this permit may request to be excluded from coverage under the general permit by applying for an individual permit. The discharger must submit to the Director an application as described in WAC 173-220-040 or WAC 173-216-070, whichever is applicable, with reasons supporting the request. These reasons will fully document how an individual permit will apply to the applicant in a way that the general permit cannot. Ecology may make specific requests for information to support the request. The Director will either issue an individual permit or deny the request with a statement explaining the reason for the denial. When an individual permit is issued to a discharger otherwise subject to the construction stormwater general permit, the applicability of the construction stormwater general permit to that Permittee is automatically terminated on the effective date of the individual permit.

G24. APPEALS

A. The terms and conditions of this general permit, as they apply to the appropriate class of dischargers, are subject to appeal by any person within 30 days of issuance of this general permit, in accordance with Chapter 43.21B RCW, and Chapter 173-226 WAC.

B. The terms and conditions of this general permit, as they apply to an individual discharger, are appealable in accordance with Chapter 43.21B RCW within 30 days of the effective date of coverage of that discharger. Consideration of an appeal of general permit coverage of an individual discharger is limited to the general permit's applicability or nonapplicability to that individual discharger.

C. The appeal of general permit coverage of an individual discharger does not affect any other dischargers covered under this general permit. If the terms and conditions of this general permit are found to be inapplicable to any individual discharger(s), the matter shall be remanded to Ecology for consideration of issuance of an individual permit or permits.

G25. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit, or application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

G26. BYPASS PROHIBITED

A. Bypass Procedures

Bypass, which is the intentional diversion of waste streams from any portion of a treatment facility, is prohibited for stormwater events below the design criteria for

stormwater management. Ecology may take enforcement action against a Permittee for bypass unless one of the following circumstances (1, 2, 3 or 4) is applicable.

1. Bypass of stormwater is consistent with the design criteria and part of an approved management practice in the applicable stormwater management manual.

2. Bypass for essential maintenance without the potential to cause violation of permit limits or conditions.

   Bypass is authorized if it is for essential maintenance and does not have the potential to cause violations of limitations or other conditions of this permit, or adversely impact public health.

3. Bypass of stormwater is unavoidable, unanticipated, and results in noncompliance of this permit.

   This bypass is permitted only if:

   a. Bypass is unavoidable to prevent loss of life, personal injury, or severe property damage. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass.

   b. There are no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, maintenance during normal periods of equipment downtime (but not if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance), or transport of untreated wastes to another treatment facility.

   c. Ecology is properly notified of the bypass as required in Special Condition S5.F of this permit.

4. A planned action that would cause bypass of stormwater and has the potential to result in noncompliance of this permit during a storm event.

   The Permittee must notify Ecology at least thirty (30) days before the planned date of bypass. The notice must contain:

   a. A description of the bypass and its cause.

   b. An analysis of all known alternatives which would eliminate, reduce, or mitigate the need for bypassing.

   c. A cost-effectiveness analysis of alternatives including comparative resource damage assessment.

   d. The minimum and maximum duration of bypass under each alternative.

   e. A recommendation as to the preferred alternative for conducting the bypass.

f. The projected date of bypass initiation.

g. A statement of compliance with SEPA.

h. A request for modification of water quality standards as provided for in WAC 173-201A-110, if an exceedance of any water quality standard is anticipated.

i. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the bypass.

5. For probable construction bypasses, the need to bypass is to be identified as early in the planning process as possible. The analysis required above must be considered during preparation of the Stormwater Pollution Prevention Plan (SWPPP) and must be included to the extent practical. In cases where the probable need to bypass is determined early, continued analysis is necessary up to and including the construction period in an effort to minimize or eliminate the bypass.

   Ecology will consider the following before issuing an administrative order for this type bypass:

   a. If the bypass is necessary to perform construction or maintenance-related activities essential to meet the requirements of this permit.

   b. If there are feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, stopping production, maintenance during normal periods of equipment down time, or transport of untreated wastes to another treatment facility.

   c. If the bypass is planned and scheduled to minimize adverse effects on the public and the environment.

   After consideration of the above and the adverse effects of the proposed bypass and any other relevant factors, Ecology will approve, conditionally approve, or deny the request. The public must be notified and given an opportunity to comment on bypass incidents of significant duration, to the extent feasible. Approval of a request to bypass will be by administrative order issued by Ecology under RCW 90.48.120.

B. Duty to Mitigate

The Permittee is required to take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.

APPENDIX A – DEFINITIONS

AKART is an acronym for "all known, available, and reasonable methods of prevention, control, and treatment." AKART represents the most current methodology that can be reasonably required for preventing, controlling, or abating the *pollutants* and controlling pollution associated with a discharge.

Applicable TMDL means a TMDL for turbidity, fine sediment, high pH, or phosphorus, which was completed and approved by EPA before January 1, 2016, or before the date the operator's complete permit application is received by Ecology, whichever is later.

Applicant means an *operator* seeking coverage under this permit.

Benchmark means a *pollutant* concentration used as a permit threshold, below which a *pollutant* is considered unlikely to cause a water quality violation, and above which it may. When *pollutant* concentrations exceed benchmarks, corrective action requirements take effect. Benchmark values are not water quality standards and are not numeric effluent limitations; they are indicator values.

Best Management Practices (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: *stormwater* associated with construction activity, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Buffer means an area designated by a local *jurisdiction* that is contiguous to and intended to protect a sensitive area.

Bypass means the intentional diversion of waste streams from any portion of a treatment facility.

Calendar Day A period of 24 consecutive hours starting at 12:00 midnight and ending the following 12:00 midnight.

Calendar Week (same as **Week**) means a period of seven consecutive days starting at 12:01 a.m. (0:01 hours) on Sunday.

Certified Erosion and Sediment Control Lead (CESCL) means a person who has current certification through an approved erosion and sediment control training program that meets the minimum training standards established by Ecology (see BMP C160 in the SWMM).

Chemical Treatment means the addition of chemicals to *stormwater* and/or authorized non-stormwater prior to filtration and discharge to surface waters.

Clean Water Act (CWA) means the Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, and 97-117; USC 1251 et seq.

Combined Sewer means a sewer which has been designed to serve as a sanitary sewer and a storm sewer, and into which inflow is allowed by local ordinance.

Common Plan of Development or Sale means a site where multiple separate and distinct *construction activities* may be taking place at different times on different schedules and/or by different contractors, but still under a single plan. Examples include: 1) phased projects and projects with multiple filings or lots, even if the separate phases or filings/lots will be constructed under separate contract or by separate owners (e.g., a development where lots are sold to separate builders); 2) a development plan that may be phased over multiple years, but is still under a consistent plan for long-term development; 3) projects in a contiguous area that may be unrelated but still under the same contract, such as construction of a building extension and a new parking lot at the same facility; and 4) linear projects such as roads, pipelines, or utilities. If the project is part of a common plan of development or sale, the disturbed area of the entire plan must be used in determining permit requirements.

Composite Sample means a mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite" (collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increases while maintaining a constant time interval between the aliquots.

Concrete Wastewater means any water used in the production, pouring and/or clean-up of concrete or concrete products, and any water used to cut, grind, wash, or otherwise modify concrete or concrete products. Examples include water used for or resulting from concrete truck/mixer/pumper/tool/chute rinsing or washing, concrete saw cutting and surfacing (sawing, coring, grinding, roughening, hydro-demolition, bridge and road surfacing). When *stormwater* comingles with concrete wastewater, the resulting water is considered concrete wastewater and must be managed to prevent discharge to *waters of the State*, including *ground water*.

Construction Activity means land disturbing operations including clearing, grading or excavation which disturbs the surface of the land. Such activities may include road construction, construction of residential houses, office buildings, or industrial buildings, site preparation, soil compaction, movement and stockpiling of topsoils, and demolition activity.

Contaminant means any hazardous substance that does not occur naturally or occurs at greater than natural background levels. See definition of "*hazardous substance*" and WAC 173-340-200.

Contaminated Groundwater means groundwater which contains *contaminants*, *pollutants*, or *hazardous substances* that do not occur naturally or occur at levels greater than natural background.

Contaminated Soil means soil which contains *contaminants*, *pollutants*, or *hazardous substances* that do not occur naturally or occur at levels greater than natural background.

Demonstrably Equivalent means that the technical basis for the selection of all stormwater BMPs is documented within a SWPPP, including:

1. The method and reasons for choosing the stormwater BMPs selected.

2. The *pollutant* removal performance expected from the BMPs selected.
3. The technical basis supporting the performance claims for the BMPs selected, including any available data concerning field performance of the BMPs selected.
4. An assessment of how the selected BMPs will comply with state water quality standards.
5. An assessment of how the selected BMPs will satisfy both applicable federal technology-based treatment requirements and state requirements to use all known, available, and reasonable methods of prevention, control, and treatment (AKART).

Department means the Washington State Department of Ecology.

Detention means the temporary storage of *stormwater* to improve quality and/or to reduce the mass flow rate of discharge.

Dewatering means the act of pumping *ground water* or *stormwater* away from an active construction site.

Director means the Director of the Washington State Department of Ecology or his/her authorized representative.

Discharger means an owner or *operator* of any facility or activity subject to regulation under Chapter 90.48 RCW or the Federal Clean Water Act.

Domestic Wastewater means water carrying human wastes, including kitchen, bath, and laundry wastes from residences, buildings, industrial establishments, or other places, together with such ground water infiltration or surface waters as may be present.

Ecology means the Washington State Department of Ecology.

Engineered Soils means the use of soil amendments including, but not limited, to Portland cement treated base (CTB), cement kiln dust (CKD), or fly ash to achieve certain desirable soil characteristics.

Equivalent BMPs means operational, source control, treatment, or innovative BMPs which result in equal or better quality of stormwater discharge to *surface water* or to *ground water* than BMPs selected from the SWMM.

Erosion means the wearing away of the land surface by running water, wind, ice, or other geological agents, including such processes as gravitational creep.

Erosion and Sediment Control BMPs means BMPs intended to prevent erosion and sedimentation, such as preserving natural vegetation, seeding, mulching and matting, plastic covering, filter fences, sediment traps, and ponds. Erosion and sediment control BMPs are synonymous with stabilization and structural BMPs.

Federal Operator is an entity that meets the definition of "*Operator*" in this permit and is either any department, agency or instrumentality of the executive, legislative, and judicial branches of

the Federal government of the United States, or another entity, such as a private contractor, performing construction activity for any such department, agency, or instrumentality.

Final Stabilization (same as **fully stabilized** or **full stabilization**) means the establishment of a permanent vegetative cover, or equivalent permanent stabilization measures (examples of permanent non-vegetative stabilization methods include, but are not limited to riprap, gabions or geotextiles) which prevents erosion.

Ground Water means water in a saturated zone or stratum beneath the land surface or a surface waterbody.

Hazardous Substance means any dangerous or extremely hazardous waste as defined in RCW 70.105.010 (5) and (6), or any dangerous or extremely dangerous waste as designated by rule under chapter 70.105 RCW; any hazardous substance as defined in RCW 70.105.010(10) or any hazardous substance as defined by rule under chapter 70.105 RCW; any substance that, on the effective date of this section, is a hazardous substance under section 101(14) of the federal cleanup law, 42 U.S.C., Sec. 9601(14); petroleum or petroleum products; and any substance or category of substances, including solid waste decomposition products, determined by the director by rule to present a threat to human health or the environment if released into the environment. The term hazardous substance does not include any of the following when contained in an underground storage tank from which there is not a release: crude oil or any fraction thereof or petroleum, if the tank is in compliance with all applicable federal, state, and local law.

Injection Well means a well that is used for the subsurface emplacement of fluids. (See Well.)

Jurisdiction means a political unit such as a city, town or county; incorporated for local self-government.

National Pollutant Discharge Elimination System (NPDES) means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring, and enforcing permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, 318, and 405 of the Federal Clean Water Act, for the discharge of *pollutants* to surface waters of the State from point sources. These permits are referred to as NPDES permits and, in Washington State, are administered by the Washington State Department of Ecology.

Notice of Intent (NOI) means the application for, or a request for coverage under this general permit pursuant to WAC 173-226-200.

Notice of Termination (NOT) means a request for termination of coverage under this general permit as specified by Special Condition S10 of this permit.

Operator means any party associated with a construction project that meets either of the following two criteria:

- The party has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or

- The party has day-to-day operational control of those activities at a project that are necessary to ensure compliance with a SWPPP for the site or other permit conditions (e.g., they are authorized to direct workers at a site to carry out activities required by the SWPPP or comply with other permit conditions).

Permittee means individual or entity that receives notice of coverage under this general permit.

pH means a liquid's measure of acidity or alkalinity. A pH of 7 is defined as neutral. Large variations above or below this value are considered harmful to most aquatic life.

pH Monitoring Period means the time period in which the pH of *stormwater* runoff from a site must be tested a minimum of once every seven days to determine if *stormwater* pH is between 6.5 and 8.5.

Point Source means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, and container from which *pollutants* are or may be discharged to surface waters of the State. This term does not include return flows from irrigated agriculture. (See Fact Sheet for further explanation.)

Pollutant means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, domestic sewage sludge (biosolids), munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste. This term does not include sewage from vessels within the meaning of section 312 of the CWA, nor does it include dredged or fill material discharged in accordance with a permit issued under section 404 of the CWA.

Pollution means contamination or other alteration of the physical, chemical, or biological properties of waters of the State; including change in temperature, taste, color, turbidity, or odor of the waters; or such discharge of any liquid, gaseous, solid, radioactive or other substance into any *waters of the State* as will or is likely to create a nuisance or render such waters harmful, detrimental or injurious to the public health, safety or welfare; or to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses; or to livestock, wild animals, birds, fish or other aquatic life.

Process Wastewater means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product. If *stormwater* commingles with process wastewater, the commingled water is considered process wastewater.

Receiving Water means the waterbody at the point of discharge. If the discharge is to a *storm sewer system*, either surface or subsurface, the receiving water is the waterbody to which the storm system discharges. Systems designed primarily for other purposes such as for ground water drainage, redirecting stream natural flows, or for conveyance of irrigation water/return flows that coincidentally convey *stormwater* are considered the receiving water.

Representative means a *stormwater* or wastewater sample which represents the flow and characteristics of the discharge. Representative samples may be a grab sample, a time-proportionate *composite sample*, or a flow proportionate sample. Ecology's Construction Stormwater Monitoring Manual provides guidance on representative sampling.

Responsible Corporate Officer for the purpose of signatory authority means: (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

Sanitary Sewer means a sewer which is designed to convey domestic wastewater.

Sediment means the fragmented material that originates from the weathering and erosion of rocks or unconsolidated deposits, and is transported by, suspended in, or deposited by water.

Sedimentation means the depositing or formation of sediment.

Sensitive Area means a waterbody, wetland, stream, aquifer recharge area, or channel migration zone.

SEPA (State Environmental Policy Act) means the Washington State Law, RCW 43.21C.020, intended to prevent or eliminate damage to the environment.

Significant Amount means an amount of a *pollutant* in a discharge that is amenable to available and reasonable methods of prevention or treatment; or an amount of a *pollutant* that has a reasonable potential to cause a violation of surface or ground water quality or sediment management standards.

Significant Concrete Work means greater than 1000 cubic yards poured concrete or recycled concrete used over the life of a project.

Significant Contributor of Pollutants means a facility determined by Ecology to be a contributor of a significant amount(s) of a *pollutant*(s) to waters of the State of Washington.

Site means the land or water area where any "facility or activity" is physically located or conducted.

Source Control BMPs means physical, structural or mechanical devices or facilities that are intended to prevent *pollutants* from entering *stormwater*. A few examples of source control

BMPs are erosion control practices, maintenance of stormwater facilities, constructing roofs over storage and working areas, and directing wash water and similar discharges to the *sanitary sewer* or a dead end sump.

Stabilization means the application of appropriate BMPs to prevent the erosion of soils, such as, temporary and permanent seeding, vegetative covers, mulching and matting, plastic covering and sodding. See also the definition of Erosion and Sediment Control BMPs.

Storm Drain means any drain which drains directly into a *storm sewer system*, usually found along roadways or in parking lots.

Storm Sewer System means a means a conveyance, or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains designed or used for collecting or conveying *stormwater*. This does not include systems which are part of a *combined sewer* or Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

Stormwater means that portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a stormwater drainage system into a defined surface waterbody, or a constructed infiltration facility.

Stormwater Management Manual (SWMM) or **Manual** means the technical Manual published by Ecology for use by local governments that contain descriptions of and design criteria for BMPs to prevent, control, or treat *pollutants* in *stormwater*.

Stormwater Pollution Prevention Plan (SWPPP) means a documented plan to implement measures to identify, prevent, and control the contamination of point source discharges of *stormwater*.

Surface Waters of the State includes lakes, rivers, ponds, streams, inland waters, salt waters, and all other surface waters and water courses within the jurisdiction of the State of Washington.

Temporary Stabilization means the exposed ground surface has been covered with appropriate materials to provide temporary stabilization of the surface from water or wind erosion. Materials include, but are not limited to, mulch, riprap, erosion control mats or blankets and temporary cover crops. Seeding alone is not considered stabilization. Temporary stabilization is not a substitute for the more permanent "*final stabilization*."

Total Maximum Daily Load (TMDL) means a calculation of the maximum amount of a *pollutant* that a waterbody can receive and still meet state water quality standards. Percentages of the total maximum daily load are allocated to the various pollutant sources. A TMDL is the sum of the allowable loads of a single *pollutant* from all contributing point and nonpoint sources. The TMDL calculations must include a "margin of safety" to ensure that the waterbody can be protected in case there are unforeseen events or unknown sources of the *pollutant*. The calculation must also account for seasonable variation in water quality.

Transfer of Coverage (TOC) means a request for transfer of coverage under this general permit as specified by General Condition G9 of this permit.

Treatment BMPs means BMPs that are intended to remove *pollutants* from *stormwater*. A few examples of treatment BMPs are detention ponds, oil/water separators, biofiltration, and constructed wetlands.

Transparency means a measurement of water clarity in centimeters (cm), using a 60 cm transparency tube. The transparency tube is used to estimate the relative clarity or transparency of water by noting the depth at which a black and white Secchi disc becomes visible when water is released from a value in the bottom of the tube. A transparency tube is sometimes referred to as a "turbidity tube."

Turbidity means the clarity of water expressed as nephelometric turbidity units (NTUs) and measured with a calibrated turbidimeter.

Uncontaminated means free from any contaminant. See definition of "*contaminant*" and WAC 173-340-200.

Waste Load Allocation (WLA) means the portion of a receiving water's loading capacity that is allocated to one of its existing or future point sources of pollution. WLAs constitute a type of water quality based effluent limitation (40 CFR 130.2[h]).

Water-only Based Shaft Drilling is a shaft drilling process that uses water only and no additives are involved in the drilling of shafts for construction of building, road, or bridge foundations.

Water quality means the chemical, physical, and biological characteristics of water, usually with respect to its suitability for a particular purpose.

Waters of the State includes those waters as defined as "waters of the United States" in 40 CFR Subpart 122.2 within the geographic boundaries of Washington State and "waters of the State" as defined in Chapter 90.48 RCW, which include lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and water courses within the jurisdiction of the state of Washington.

Well means a bored, drilled or driven shaft, or dug hole whose depth is greater than the largest surface dimension. (See Injection well.)

Wheel Wash Wastewater means any water used in, or resulting from the operation of, a tire bath or wheel wash (BMP C106: Wheel Wash), or other structure or practice that uses water to physically remove mud and debris from vehicles leaving a construction site and prevent track-out onto roads. When *stormwater* comingles with wheel wash wastewater, the resulting water is considered wheel wash wastewater and must be managed according to Special Condition S9.D.9.

APPENDIX B – ACRONYMS

AKART	All Known, Available, and Reasonable Methods of Prevention, Control, and Treatment
BMP	Best Management Practice
CESCL	Certified Erosion and Sediment Control Lead
CFR	Code of Federal Regulations
CKD	Cement Kiln Dust
cm	Centimeters
CTB	Cement-Treated Base
CWA	Clean Water Act
DMR	Discharge Monitoring Report
EPA	Environmental Protection Agency
ERTS	Environmental Report Tracking System
ESC	Erosion and Sediment Control
FR	Federal Register
LID	Low Impact Development
NOI	Notice of Intent
NOT	Notice of Termination
NPDES	National Pollutant Discharge Elimination System
NTU	Nephelometric Turbidity Unit
RCW	Revised Code of Washington
SEPA	State Environmental Policy Act
SWMM	Stormwater Management Manual
SWPPP	Stormwater Pollution Prevention Plan
TMDL	Total Maximum Daily Load
UIC	Underground Injection Control
USC	United States Code
USEPA	United States Environmental Protection Agency
WAC	Washington Administrative Code
WQ	Water Quality
WWHM	Western Washington Hydrology Model

Notice of Intent

Construction Stormwater General Permit

Application Type: [X] **New** [ ] **Renewal** **Permit Number:** **NOI:** 21952

I. Contact Information

Applicant

Honorific: **First Name:** Frank **Last Name:** Reinart

Organization Name: City of Kirkland **Title:** Planner

Mailing Address: 123 5th Ave

City: Kirkland **State:** WA **Zip Code:** 98033-6189

Email: freinart@kirklandwa.gov

Primary Phone: 425-587-3823 **Secondary Phone:**

UBI Number:

Permittee

Honorific: **First Name:** Brian **Last Name:** Baker

Organization Name: City of Kirkland **Title:** Project Coordinator

Mailing Address: 123 5th Ave

City: Kirkland **State:** WA **Zip Code:** 98033-6189

Email: bbaker@kirklandwa.gov

Primary Phone: 425-587-3874 **Secondary Phone:**

UBI Number:

Site Contact

Honorific: **First Name:** Brian **Last Name:** Baker

Organization Name: City of Kirkland **Title:**

Mailing Address: 123 5th Ave

City: Kirkland **State:** WA **Zip Code:** 98033-6189

Email: bbaker@kirklandwa.gov

Primary Phone: 425-587-3874 **Secondary Phone:**

UBI Number:

Site Owner		
Honorific:	**First Name:** Tracey	**Last Name:** Dunlap
Organization Name: City of Kirkland		**Title:** Deputy City Manager
Mailing Address: 123 5th Ave		
City: Kirkland	**State:** WA	**Zip Code:** 98033-6189
Email: tdunlap@kirklandwa.gov		
Primary Phone: 425-587-3101		**Secondary Phone:**
UBI Number:		

II. Electronic Discharge Monitoring Reporting

You must submit monthly discharge monitoring reports using Ecology's Electronic Discharge Monitoring Reporting (WQWebDMR) system. To sign up for WQWebDMR, or to register a new site, go to ecology.wa.gov/Regulations-Permits/Permits-certifications/Stormwater-general-permits, and click on the "Construction Stormwater" link. You will find information on WQWebDMR under the "WQWebDMR and PARIS" link on the right-hand side. If you are unable to submit your DMRs electronically, you may contact Ecology to request a waiver. Ecology will generally only grant waiver requests to those permittees without internet access. Only a permittee or representative, designated in writing, may request access to or a waiver from WQWebDMR. To have the ability to use the system immediately, you must submit the Electronic Signature Agreement with your application. If you have questions on this process, contact Ecology's WQWebDMR staff at WQWebPortal@ecy.wa.gov or 360-407-7097.

III. Site Information

Site Project Name: Totem Lake Park Phase 1

Street Address or Location Description: 12031 NE Totem Lake Way

City: Kirkland **County:** King **Zip Code:** 98034

Latitude: 47.711887 **Longitude:** -122.177561

Type of Construction Activity:

- [ ] Residential
- [ ] Commercial
- [ ] Industrial
- [ ] Highway or Road (city, county, state)
- [ ] Utilities (specify):
- [x] Other (specify): Park Recreational

Site Acreage

Total site/project size: 18.8 acres

Total disturbed area: 3.3 acres

Total area of soil disturbance for your site/project over the life of the project. Include grading, equipment staging, excavation, borrow pit, material storage areas, dump areas, haul roads, side-cast areas, off-site construction support areas, and all other soil disturbance acreage associated with the project.

Will 1,000 cubic yards or more of poured concrete or recycled concrete be used over the life of the project? [ ] Yes [x] No

Estimated project start date: 6/1/2019 **Estimated project completion date:** 7/31/2020

Other Permits

None

IV. Existing Site Conditions

1. Are you aware of contaminated soils on this site? [ ] Yes [x] No
2. Are you aware of groundwater contamination located within the site boundary? [ ] Yes [x] No
3. If you answered yes to question 1 or 2, will any contaminated soils be distrubed or will any contaminated groundwater be discharged due to the proposed construction activity? [ ] Yes [ ] No

If yes, please provide detailed information (as known and readily available) on the nature and extent of the contamination (concentrations, locations, and depth) as well as pollution prevention and/or treatment Best Management Practices (BMPs) proposed to control the discharge of soil and/or groundwater contaminants in stormwater. This should include information that would be included in related portions of the Stormwater Pollution Prevention Plan (SWPPP) that describe how contaminated and potentially contaminated construction stormwater and dewatering water will be managed. You may attach this information separately, if needed

V. Stormwater Pollution Prevention Plan (SWPPP)

You must develop a SWPPP prior to starting construction. Do not submit your SWPPP with your application. If you answered yes to the questions in Part IV, please submit the information that would be included in related portions of the SWPPP that describe how contaminated and potentially contaminated construction stormwater and dewatering water will be managed.

VI. Best Management Practices (BMPs)

You must use the BMPs listed in the Stormwater Management Manual for Western Washington or the Stormwater Management Manual for Eastern Washington or other manuals approved by Ecology. Alternatively, you may use demonstrably equivalent BMPs on the basis of permit condition S9.C.4. If you intend to use a BMP at your site that is not included in these manuals, but that you believe meets the definition of a demonstrably equivalent BMP, you must notify the appropriate regional office. (See Definitions in the Construction Stormwater General Permit).*

http://ecology.wa.gov/Regulations-Permits/Permits-certifications/Stormwater-general-permits/Construction-stormwater-permit#contacts

**Note that if you receive permit coverage without indicating the preference for a demonstrably equivalent BMP and later decide to use one, you must provide Ecology with notice of the selection of an equivalent BMP no less than 60 days before the intended use of the equivalent BMP.*

VII. Discharge/Receiving Water Information

Indicate whether your site's stormwater and/or dewatering water could enter surface waters, directly and/or indirectly:

[X] Water will discharge directly or indirectly (through a storm drain system or roadside ditch) into one or more surface waterbodies (wetlands, creeks, lakes, and all other surface waters and water courses).

If your discharge is to a storm sewer system, provide the name of the operator of the storm sewer system:

City of Kirkland

[ ] Water will discharge to ground with 100% infiltration, with no potential to reach surface waters under any conditions.

If your project includes dewatering, you must include dewatering plans and discharge locations in your site Stormwater Pollution Prevention Plan.

Location of Discharge into Surface Waterbody

Outfall Number	Outfall Description	Surface Waterbody Name	Outfall Type	Latitude	Longitude
LAKE	Surface to Totem Lake Wetland	Totem Lake	Surface Water Body	47.711569	-122.177443

VIII. State Environmental Policy Act (SEPA)

This Notice of Intent (NOI) is incomplete and cannot be approved until the applicable SEPA requirements under Chapter 197-11 WAC are met.

Who is the SEPA lead agency on your site? City of Kirkland

Has the SEPA lead agency issued a final decision on your checklist? [X] Yes [ ] No [ ] Exempt

If No: The NOI is incomplete. Ecology will hold the application until a final SEPA decision is made or the Construction Stormwater NOI public comment period ends, whichever is later. **You must notify Ecology once the lead agency has issued a determination.**

If Yes: Type of SEPA decision issued: DNS

Date of final SEPA decision: 12/20/2018

Date when all SEPA-related comment & appeal periods ended or will end: 1/24/2019

If Exempt:

- ☐ Watershed Restoration & Fish Habitat Enhancement Exemption (RCW 43.21C.0382).
- ☐ Infill Development Exemption (RCW 43.21C.229).
- ☐ Planned Action Exemption (RCW 43.21C.031).
- ☐ Categorical Exemption. Under what section of the SEPA Rule (WAC 197-11-800) is it exempt?

Section: _____

IX. Public Notice

You must publish a public notice at least **once** a week for **two** consecutive weeks with **seven days** between publications, in at least a **single** newspaper of general circulation in the county in which the facility is located. Ecology cannot grant permit coverage sooner than the end of the 30-day public comment period, which begins on the date of the **second** public notice.

Newspaper Name	First Public Notice Date	Second Public Notice Date
Seattle Daily Journal Of Commerce	3/22/2019	3/29/2019

X. Certification of Permittees

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

_____ 3/27/2019

Permittee Signature Date

SEPA PERMIT

City of Kirkland

CITY OF KIRKLAND
Planning and Building Department
123 5th Avenue, Kirkland, WA 98033
www.kirklandwa.gov ~ 425.587.3600

DETERMINATION OF NON-SIGNIFICANCE (DNS)

Case No.: SEP18-00520 **DATE ISSUED:** December 20, 2018

Project Name: Totem Lake Park – Phase 1

Project Location: 12031 NE Totem Lake Way and Totem Lake Park

Project Description: Construct a portion of the Totem Lake Park Master Plan (Phase 1). The proposal is for the construction of the following park improvements: restrooms, kiosk, parking, terraced seating, passive lawn area, a play area, promenade walk with seating nodes, an elevated lake viewing pier, and a boardwalk trail with habitat viewing. The proposal, which includes a mitigation plan, is being evaluated through the City's Public Agency and Public Utility Exception critical area review process.

Proponent: Brian Baker, Public Works Project Coordinator with City of Kirkland

Project Planner: Scott Guter

Lead agency is the City of Kirkland

The lead agency for this proposal has determined that it does not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21.030 (2)(c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public upon request.

This DNS is issued under WAC 197-11-340(2); the lead agency will not act on this proposal for 14 days from the date issued. Comments must be submitted to Scott Guter, project planner at sguter@kirklandwa.gov by 5:00 PM on January 3, 2019. Please reference case number SEP18-00520.

Responsible official:

Adam Weinstein, AICP, Planning & Building Director
Date: December 17, 2018
City of Kirkland
Planning & Building Department
123 Fifth Avenue, Kirkland, WA 98033 – 425.587.3600

You may appeal this determination to the Planning & Building Department at City of Kirkland, 123 Fifth Avenue, Kirkland, WA 98033 no later than 5:00 PM on January 3, 2019 (date, 14 days from date issued) by a Written Notice of Appeal. You should be prepared to make specific factual objections and reference case number SEP18-00520. Contact Scott Guter, project planner in the Planning & Building Department at 425.587.3247 to ask about the procedures for SEPA appeals. See also KMC 24.02.230 Administrative Appeals.

Publish in The Seattle Times on: Wednesday, December 26, 2018

Distribute this notice with a copy of the Environmental Checklist to:

GENERAL NOTICING

- Department of Ecology - Environmental Review
- Muckleshoot Tribal Council - Environmental Division, Tribal Archeologist
- Muckleshoot Tribal Council - Environmental Division, Fisheries Division Habitat
- Cascade Water Alliance – Director of Planning
- Totem Lake Neighborhood Association
- Lake Washington School District No. 414: Budget Manager and Director of Support Services
- Washington State Dept. of Archaeology & Historic Preservation
- King County Dept. of Transportation - Employer Transportation Representative
- Seattle & King County Public Health - SEPA Coordinator

AGENCIES WITH JURISDICTION, AFFECTED AGENCIES, AND/OR INTERESTED PARTIES

- Department of Ecology - Environmental ReviewDepartment of Fish and Wildlife – Olympia
- Muckleshoot Tribal Council - Environmental Division, Fisheries Division Habitat Program
- U.S. Army Corps of Engineers - Seattle District
- Eastside Audubon Society
- Northshore Utility District - Operations Department, Engineering Director, and Senior Civil Engineer
- Seattle City Light - Department of Finance and Administration

cc: Applicant
King Conservation District
Planning Department File, Case No. SAR18-00519

Distributed by: _____ December 20, 2018
(Karin Bayes, Office Specialist) Date

PSE PERMIT

City of Kirkland

31900164

DocuSign Envelope ID: 0C7B1BE1-765C-4EE6-9CCE-CF1FA6BD99DB

PSE PUGET SOUND ENERGY

COMMERCIAL ELECTRIC FACILITIES CONTRACT

Date 2/15/2019

Contract is subject to revision after 90 days

CUSTOMER (OWNER) NAME City of Kirkland		CO-OWNER NAME (IF APPLICABLE)	
SERVICE ADDRESS 12031 NE Totem Lake Way	CITY Kirkland	STATE WA	ZIP 98034
BILLING ADDRESS 123 5th Ave	CITY Kirkland	STATE WA	ZIP 98033
PHONE 206-441-4522	EMAIL bbaker@kirklandwa.gov	PSE WORKORDER NO. 105090647	

Summary of Charges:		Brief Description of Work:
		Primary line extension, new padmount transformer
Construction Costs:	$ 10,187.94	
Transformation Charges:	$ 1,986.81	
Less Applicable Margin Allowance:	$ 0.00	
Sub-Total (Potential Refundable Costs):	$ 12,174.75	
Permitting Fees*:	$ 0.00	
Relocation/Removal of Existing Facilities:	$ 0.00	**Brief Description of Other Costs:**
Other Non-Refundable Construction Charges:	$ 0.00	N/A
Sub-Total (Non-Refundable Costs):	$ 0.00	
Total Amount to be Billed Under This Contract:	$ 12,174.75	
Customer Initials	JS	

*If the above Permitting Fees are associated with service work only, those costs will be billed with the applicable service charges below after the service is energized.

SECONDARY SERVICE CHARGES (PERMANENT AND TEMPORARY) ARE NOT INCLUDED IN THE SUMMARY OF CHARGES ABOVE

Any applicable **Secondary Service Type** charges listed below will be billed after your service line installation, based on the actual work performed. Base Costs, in the table below, include Schedule 87 tax and are current costs effective 11/1/2018. These charges also do not include permitting fees, trenching and other excavation related work that is your responsibility. The Secondary Service Type charges from the list below that apply to your project will be **invoiced on a second bill**.

Secondary Service Type (480 Voltage or Below)	Base Cost
Single wire run to handhole or transformer	$611.12
Each additional run of wire(per circuits)	$140.60
Each additional trip beyond 1st trip due to customer requirements	$418.48 per trip
Hourly rate for additional engineering	$182.67
Underground Temporary Service Charge	$182.00
Overhead Temporary Service Charge	$260.00
Overhead Permanent Service Charge	$1,039.57

Customer Initials: _____

By signing this contract you are authorizing PSE to continue with all the needed elements to complete your project. Upon receipt of a signed contract, PSE will bill you for the amount indicated on the "*Total Amount to Be Billed Under This Contract*" line. The bill will sent to the billing address listed on this contract. PSE requires payment of these line extension charges prior to scheduling construction. Payments can be made via pse.com (fees may apply), by mail, or at a PSE Pay Station. Delaying payment may result in a construction delay for your project. Customer requested changes in the scope of the project may result in additional charges, and/or delays to your project.

Signature: [signature] Name: Kathy Brown Title: PW Director Date: 03/21/2019

TERMS AND CONDITIONS

PROJECT INFORMATION

1. The PSE drawing shows the proposed scope of your project including the location of permanent, above ground electrical facilities required to provide electrical service to your project. Fault current information for transformers associated with your project is noted on the work sketch drawing. Please review this drawing as soon as possible to ensure there are no unforeseen conflicts between PSE's design and your project. If you determine there are conflicts or if you identify a discrepancy while reviewing the drawing for your project, please contact me at the number below. **This is attached as Exhibit A.**
2. Additional construction-related information and information on metering and service entrance requirements areprovided in PSE's Electric Service handbook for commercial projects. If you would like a copy of the handbook please contact me at the number below. It is your responsibility to provide your project manager, site superintendent, and/or subcontractors with any relevant information from this correspondence that apply to their work in support of your project.
3. The Excavation Requirements & Final Grade Certification must be signed by the project owner or designee and returned to me along with a signed copy of this contract. **This is attached as Exhibit B.**
4. Transformers have been sized for diversified commercial loads only, and shall not be used for high load factor (continuous) temporary power uses, such as electric heaters for dry-out. Fault currents for non- residential transformers in your project are noted on the attached PSE design drawing. Please notify the PSE representative listed on this contract immediately if you believe there are conflicts between this design and your project. It is your responsibility to provide your project manager, site superintendent, and subcontractors with any information from this correspondence and it's attachments that apply to their work.
5. The requirements for trenching by customers on public right-of-ways and/or on Puget Sound Energy easements must be signed by the project owner or designee and returned along with a signed copy of this contract. **This is attached as Exhibit C.**

POTENTIAL REFUNDS

Margin Allowance:

If PSE has not provided a Margin Allowance or if your Margin Allowance exceeds $75,000, PSE agrees to calculate and refund the Margin Allowance, subject to Schedule 85, up to two (2) years after the line extension is energized. Customers are responsible for making the refund request.

DIM Refund:

Other refunds associated with the line extension charge may be available if additional permanent service hook-ups are made to your line extension. These service hook-ups must be made within five (5) years of the date on which your project is initially energized Customers are responsible for making all refund requests. A refund may be requested one (1) time within six (6) years of the date on which your line extension is initially energized. It is the customer's responsibility to make the refund request. Your refund request should be directed to PSE's Customer Accounting Coordinators at Schedule85refundrequests@pse.com.

RATE SCHEDULE 85

All terms and conditions, costs, and refunds are in accordance with PSE's Rate Schedule 85, and any discrepancies between this contract and the Rate Schedule will be resolved in favor of the Rate Schedule. Rate Schedule 85 contains more detailed information covering costs, refunds, rights, and obligations than is reflected in this contract. The entirety of Rate Schedule 85 can be viewed at PSE's website www.pse.com.

This cost information is valid for 90 days from the date of this contract. Should we receive your contract after this period, the costs will be subject to changes.

The amount noted on this contract is an estimated cost; however PSE's Schedule 85 line extension tariff requires customers to pay the actual cost of construction. PSE will determine the actual cost of the job once construction is complete. If the actual cost of the job is more than 10% above or below the estimated cost, an additional billing or refund will result to account for the difference.

PSE PUGET SOUND ENERGY

REQUIREMENTS FOR TRENCHING BY CUSTOMERS ON PUBLIC RIGHT-OF-WAYS AND/OR ON PUGET SOUND ENERGY, INC. EASEMENTS

The following outlines most local governmental guidelines and company standards for trenching on a public right-of-way or Puget Sound Energy, Inc. (PSE) easement. Any trenching performed by the customer, or their contractor, under a PSE permit or easement must comply with these requirements.

1. All trench construction must be performed by a Washington State licensed and bonded contractor.
2. Trench excavation, backfill, restoration, and facility placement must be coordinated with a PSE designated representative, and receive on-site approval by that representative, and local jurisdiction.
3. Right-of-way easement trenching and backfill must be performed during normal business hours, Monday through Friday. Same day excavation and backfill is required for all trenching. Job start notification to the local jurisdiction is the responsibility of Potelco, Inc. Customer shall notify Potelco Project Manager three working days prior to trenching. Penalties for failure to comply with this requirement will be borne by the customer.
4. If the job scope requires excavation beyond a single day, fencing and barricading must be installed around utility facilities exposed above the trench, if allowed, must be in accordance with local regulatory requirements.
5. PSE, all participating utilities, and One-Call Locate, must be notified a minimum of 72 hours in advance of the date and time for right-of-way trenching and facility placement. The One-Call Locate number is 1-800-424-5555. State law requires locating service notification.
6. Excavated material must remain clear of the roadway whenever possible. Excavation material, spoils, and debris shall be removed off-site each day, in accordance with local regulatory requirements. All erosion control requirements in accordance with local regulatory requirements are the responsibility of the customer.
7. Material excavated from the shoulder of the right-of-way shall be properly disposed, and replaced with select backfill material in accordance with local regulatory requirements.
8. Proper compaction is required to comply with local regulatory specifications. If the permit requires compaction testing, the cost of said testing is the responsibility of the customer.
9. All permit requirements, traffic control plans, traffic control and flagging shall meet local regulatory specifications and satisfaction.
10. In the event of failure to abide by the above requirements, PSE reserves the right, at its sole discretion, to assume trenching. In the event of delays due to equipment failure, PSE may assume trenching to meet regulatory and joint construction requirements. The customer is responsible for all trenching costs, and will reimburse the company for costs should PSE perform the trenching.

Customer Initials: KB

11. The customer agrees to indemnify, defend and hold harmless PSE from all liability (including reasonable attorneys' fees) arising out of, or in connection with, the above mentioned trenching activities.

Customer Initials: KB

I AGREE TO ADHERE TO THE ABOVE CONDITIONS

Service Address: 12031 NE Totem Lake Way Kirkland 98034 Work Order Number: 105090647

Signature: John F Stanford Name: Kathy Brown Title: PW Director Date: 03/21/2019

PUGET SOUND ENERGY

PSE ELECTRICAL FACILITIES
EXCAVATION REQUIREMENTS AND FINAL GRADE CERTIFICATION

PURPOSE

This document is an agreement between Puget Sound Energy (PSE) and the **Owner/Developer** (Developer) who is providing excavation for the installation of PSE's facilities. This document **does not** provide an easement for operating rights. If PSE determines that a recordable easement on the Developer's property or other property is necessary, it shall be the Developer's responsibility to obtain such easements in a form acceptable to PSE prior to construction.

EXCAVATION REQUIREMENTS

The requirements and conditions outlined below apply when you provide the excavation for PSE's electrical facilities as a condition of receiving electrical service for your project. If you need additional information, please call the PSE contact person listed below.

1. Developer is responsible for acquiring utility locates by calling One-Call, 1-800-424-5555 at least 48 hours (two full working week days) prior to digging. The excavation must meet the requirements of the Washington Administrative Code and Safety Standards.
2. Developer shall call the PSE contact person noted below for trench and route approval prior to starting excavation.
3. The electrical primary trench shall be excavated to provide a minimum of 36 inches of facility coverage, to a maximum trench depth of 48 inches. The electric service trench shall be excavated to provide a minimum of 24 inches of facility coverage, to a maximum trench depth of 36 inches. A 12 inch horizontal separation is required between PSE electrical facilities and other utilities within a joint trench.
4. All back fill must be free of sharp objects and construction debris. Developer shall provide and install sand bedding and shading for electrical facility protection as directed by PSE's contact person. Developer is responsible for any damages caused by improper backfill or compaction.
5. Developer agrees to maintain a minimum of 2 feet of horizontal clearance between PSE conduit, pipe or conductors and any foundation on Developer's property.
6. The vault excavation shall be dug to the dimensions noted on the attached work sketch. Vault holes shall have a solid level bottom with a 6 inch deep layer of crushed rock bedding.
7. Developer shall provide the excavation for PSE electrical facilities within the designed location. Developer shall identify and provide final grade, property lines, and utility easements prior to installation of PSE's electrical facilities.
8. Developer will be financially liable for the relocation of PSE's facilities which are inadequately covered, located outside the area where PSE has adequate operating rights, improperly graded inhibiting standard access and/or any damages resulting from dig-ins due to changes or variations in grade that are made after the installation of PSE's facilities.

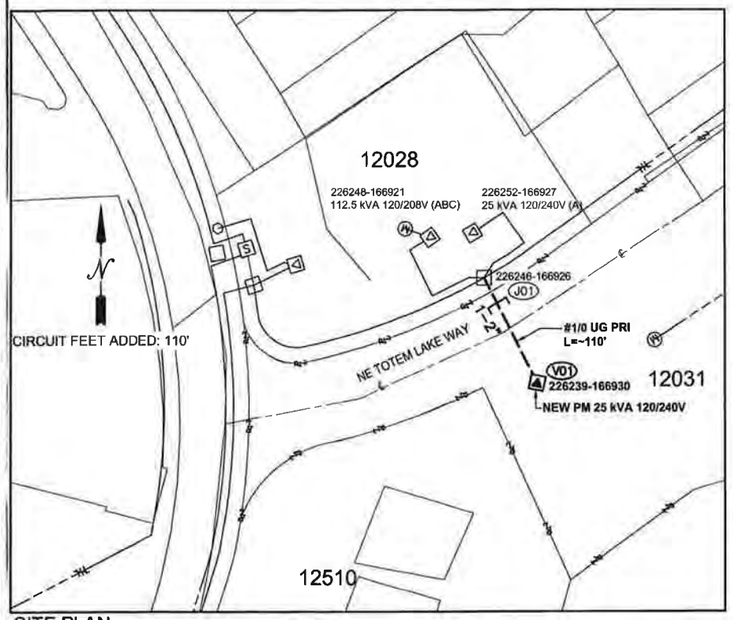
FINAL GRADE CERTIFICATION

By my signing below, I certify that the electrical facilities work area shall be at final grade prior to excavation. I assume full responsibility for my excavation work and the resulting location of these facilities. I also agree to indemnify, defend, and hold harmless Puget Sound Energy from all liability arising out of, or in connection with my work, including but not limited to all claims, losses, damages, and expenses, including reasonable attorney's fees, which result from my failure to excavate within easement areas or rights-of-way, or from digging without adequate rights on adjoining properties.

Service Address: 12031 NE Totem Lake Way Kirkland 98034 Work Order Number: 105090647

Signature: [signature] Name: Kathy Brown Title: PW Director Date: 03/21/2019

2806 08/15



SITE PLAN
SCALE: 1" = 50'

SITE SPECIFIC NOTES

J01 GRID # 226246-166926
- EXISTING J-BOX TO REMAIN
- INSTALL (1) NEW 12kV ELBOW **[ELB10J]** PER STD 6041.1000 (CØ)
- INSTALL CABLE TAG **EID068**

V01 GRID #226239-166930
- INSTALL NEW 36"x42"x38" MP UNISTRUT VAULT **[MINU1SR]** PER STD 6045 1010 (3-19a x 1)
- INSTALL NEW 120/240 **25kVA** PM XFMR **(MID 6247000)** PER STD 6045 1010
- INSTALL CABLE TAG **EID068**
- INSTALL GRID **#226239-166930**
- CONNECT (1) RUN OF CUSTOMER-OWNED 3/0 SVC

J01 TO V01
- INSTALL (1) 2" DB120 CONDUIT, L=~100' (L=___')
- INSTALL (1) RUN OF 1/0 UG PRI, L=~110' (L=___')

*****CUSTOMER TO PROVIDE ALL TRENCHING, BACKFILL AND RESTORATION*****

TRANSFORMER INSTALLATION

Installed at site: V01
Grid Number: 226239-166930
kVA Rating: 25kVA
Material ID#: 6247000

Foreman to redline the following information

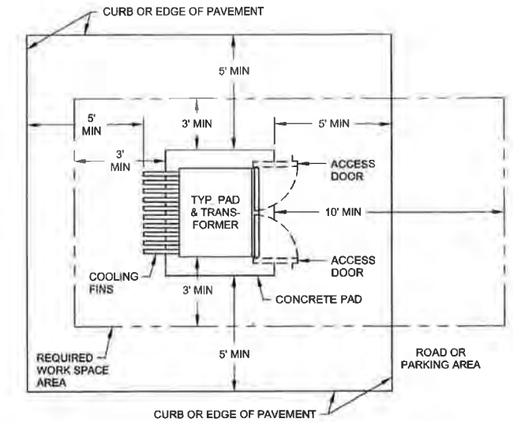
Company ID#: _____
Primary phase connected to: CØ
Tested Secondary Voltage _____

Fault Current

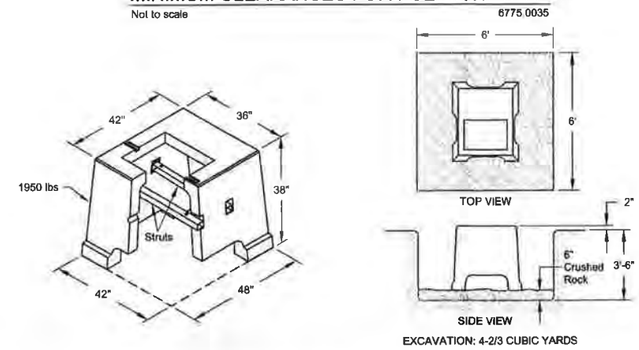
1Ø PM & OH TRANSFORMERS (240/120V)						
			(120v) WINDINGS		(240v) WINDINGS	
Location	SIZE	R/X	Min. %Z	Fault Current	Min. %Z	Fault Current
V01	25 kVA	0.8	2.23	9300 Amps	1.7	6100 Amps

FOREMAN MUST FILL IN
CABLE #:
MANUFACTURER: _____
YEAR MANUFACT: _____

25kVA PM XFMR @V01
Load: 3.47 kW
LRC: 65 AMPS
% V. Drop: 0.3%
% Flicker: 1.5%



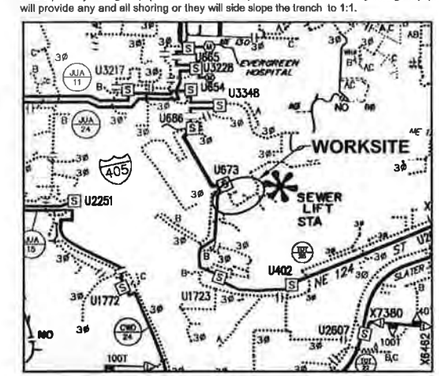
MINIMUM CLEARANCES FOR PSE EQUIPMENT
Not to scale 6775.0035



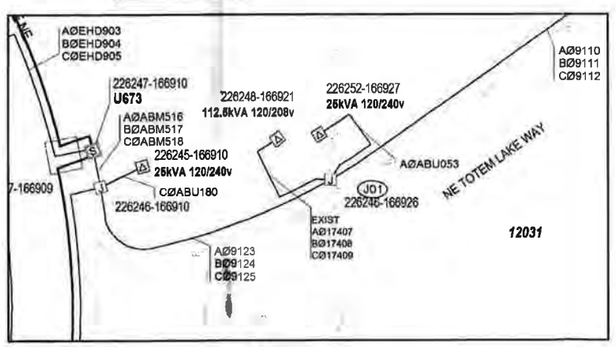
VAULT & EXCAVATION DETAIL
Not to scale 6045.1000

POWER GENERAL NOTES - COMMERCIAL PROJECT

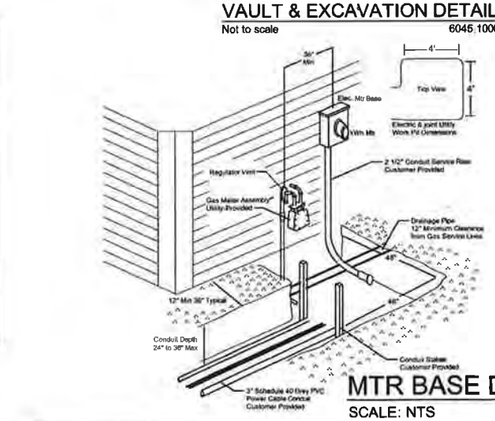
1. All materials to be installed in accordance with Puget Sound Energy's (PSE) standards. Any deviation from this work sketch must be AUTHORIZED by PSE's Project Manager and NOTED on the Foremans' Copy.
2. All switching arrangements and/or outage arrangements are to be made with the Project Manager at least three (3) working days in advance.
3. Contact the Utilities Underground Location Center (1-800-424-5555) at least 48 hours prior to commencing work to get the underground facilities located.
4. STAKING: The customer will provide all staking (transformer, handhole, trench, grade, lot, pole, sidewalk, etc.). See sketch and details for locations. Equipment locations must be approved by the Project Manager.
5. SITE PREPARATION: The work area will be at or near finished grade, clear of trench spoils or construction materials which would restrict construction and/or equipment access, before work can begin.
6. Roads shall be paved or have a compacted, crushed rock base in place.
7. CLEARANCES: Transformers require a minimum of 6 feet from fire fighting equipment, 10 feet from combustible walls, overhangs, doors, and windows, and a minimum of 5 feet from the back of curb (or guard posts will be required per PSE standards). All conduits and vaults are to be at least 5 feet away from water, storm and sewer lines when paralleling them in the right of way, and at least 1 foot when crossing them.
8. All work is to be done in accordance with local municipal and county permit requirements as applicable.
9. Customer/Developer is responsible to provide, install and maintain all secondary service cables, conduits and crossings from the individual unit's meter base to the designated connection point.
10. Inclement weather conditions may cause delays in construction times and dates.
11. EXCAVATION: The customer is to provide all trenching, backfill, vault excavations, compaction and restoration per this sketch and per PSE standards. A minimum protective cover of 36" is required over PSE's primary voltage equipment and 24" is required of PSE's secondary voltage equipment. The customer will provide any and all shoring or they will side slope the trench to 1:1.



OVERHEAD CIRCUIT MAP
SCALE: 6" = 1 MILE



PRIMARY UNDERGROUND CIRCUIT ONE-LINE DIAGRAM
MAP #2605E110(PRE CONSTRUCTION)
SCALE: 1" = 50'

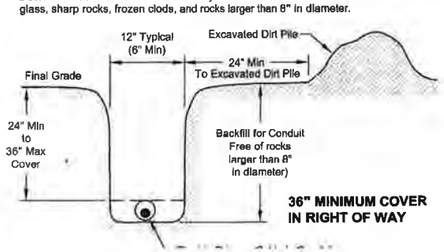


MTR BASE DETAIL
SCALE: NTS

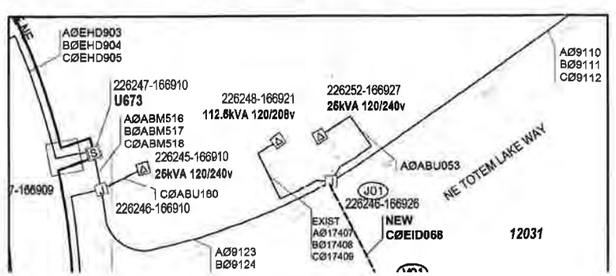
EROSION & SEDIMENT CONTROL REQUIREMENTS

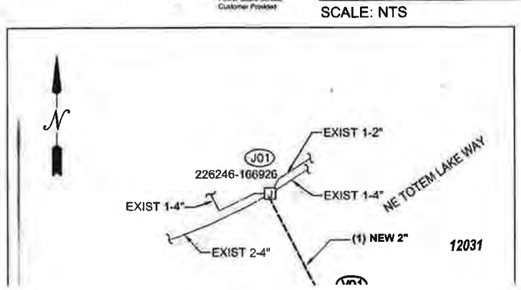
EROSION & SEDIMENT CONTROL SHALL BE PER PSE STANDARD PRACTICE 0150.3200 TECHNIQUES FOR TEMPORARY EROSION & SEDIMENT CONTROL & ANY ADDITIONAL LOCAL JURISDICTION REQUIREMENTS. (LOCAL JURISDICTIONS MAY HAVE ADDITIONAL REQUIREMENTS INCLUDING NOTES DETAILING WHERE EROSION OR SEDIMENT CONTROL STRUCTURES ARE TO BE INSTALLED, CROSS SECTION DETAILS OF THE TYPICAL EROSION STRUCTURES, & SPECIAL REQUIREMENTS FOR WORK IN SENSITIVE AREAS.)

Backfill for In Conduit - The backfill layer shall be soil that is free from construction debris, glass, sharp rocks, frozen clods, and rocks larger than 8" in diameter.



36" MINIMUM COVER IN RIGHT OF WAY





FOREMAN (CHECK BOX WHEN COMPLETED)

- ☐ PSE Equipment LOCKED/SECURED & Work Area left in CLEAN/SAFE Condition.
- ☐ Grid, Cable, and Switch numbers INSTALLED & VERIFIED.
- ☐ Field Changes RED-LINED on As-built.
- ☐ Material VERIFIED and CHANGES noted on Paperwork.
- ☐ Total PRIMARY Cable noted on As-built.
- ☐ Company ID#'s RECORDED in correct location on As-built.
- ☐ Indicate correct FUSE SIZE on As built & VERIFY proper PHASE.
- ☐ Deviations noted on the As-built and their reason.
- ☐ I certify that the work performed meets PSE's standards and procedures and that all quality requirements are met

Foreman's Signature _____
Print Name _____ Date _____

PROJECT PHASE	NOTIF#	ORDER#
PWR Superior	506626343	105090647
Perm Service	506653681	104311627

Project Manager Contact Information:
Manager: BRENDAN BAUGHN
Cell Phone: 425-748-6318
E-Mail: brendan.baughn@pse.com

	Developer:	PSE
"Locates Required"	Yes X / No	Yes / No X
"Outages Required"	Yes	No X
"Flagging Required"	Yes	No X

REV#	DATE	BY	DESCRIPTION
3	N/A	N/A	N/A
2	N/A	N/A	N/A
1	N/A	N/A	N/A

COUNTY	Emor Sect	Gas Wk Ctr	POWER WK CTR
KING	N/A	N/A	QCNOKE
1/4 SEC	OP MAP		PLAT MAP
NW26 T26N R05E	N/A		N/A

U-MAP NO (POWER)	OH CKT MAP	UG CKT MAP	CIRCUIT NO
2605E110	2605E132	2605E110	TOT-25

Vicinity Map
TG PG 506 F5

Owner / Developer Contact Info

CITY OF KIRKLAND
123 5TH AVE
KIRKLAND, WA 98033
ATTN: BRIAN BAKER 425-587-3874 off

For contacts below dial 1-888-CALL PSE (225-5773)

CALL 811 TWO BUSINESS DAYS BEF

THIS SKETCH NOT TO BE RELIED UPON FOR EXACT LOCATION OF EX

REAL ESTATE/EASEMENT	PERMIT
RW-111738	N

FUNCTION	CONTACT	PHONE NO
PROJECT MGR	B. BAUGHN	425-748-63
ENGR - POWER	B. OKAZAKI	425-449-74
REVISED		
DRAWN BY	ALEKSEI K.	425 748 63
CHECKED BY		
APPROVED BY		
FOREMAN #1		
FOREMAN #2		
MAPPING		

NUD PERMIT

City of Kirkland

319001163

NORTHSHORE UTILITY DISTRICT

6830 NE 185th St. | Kenmore, WA 98028
Ph: (425) 398-4401 | Fax: (425) 398-4430 | www.nud.net

REQUEST FOR WATER METER REMOVAL

I, Kathy Brown, City of Kirkland (Print Name) request to have the water meter removed from the property addressed at 12031 NE TOTEM LAKE WAY, and identified under District account number _____. I have been informed that a $75 fee will be added to the final water bill for the removal of the meter. I am aware that if the property is connected to the public sewer system, I must obtain a permit, from the District, and cap the side sewer connection at the property line. I am aware that I will continue to be billed for sewer base charges, even after the water meter has been removed, until the side sewer capping has been inspected and approved by the District. I understand that there will be charges for future reconnection.

REASON FOR METER REMOVAL REQUEST (*check one*):

- ☐ Home is being demolished.
- ☐ Home is vacant or will be vacant for an extended period of time.
- ☐ Home is unsafe/uninhabitable.
- ☒ Property is being redeveloped.
- ☐ Other (*briefly describe*):

John F Starkard
Signature

MARCH 21, 2019
Date

☐ Legal Property Owner
☒ Property Owner's Authorized Agent

(425) 587-3874
Phone No.

Address to Send Final Bill: 123 5th Ave KIRKLAND WA 98033
ATTN: BRIAN BAKER

FOR DISTRICT USE ONLY
ROUTING – INITIAL & DATE

_____ Engineering _____ Operations ☐ copy to Cross Connection

_____ Finance _____ GIS

_____ File Acct. status to be: ☐ Dormant ☐ Closed

Latest Revision Date: 1/12/18

NORTHSHORE UTILITY DISTRICT
6830 NE 185th St
Kenmore, WA 98028-2684
P O Box 82489
Kenmore, WA 98028-2684
Ph: (425) 398-4400 | Fax: (425) 398-4430 | www.nud.net

This Estimate is Valid for 45 Days from the Date Shown Below

Name:	*City of Kirkland*	*Date:*	*2/22/2019*
Location:	*Totem Lake Park Phase One*	*Work Order #:*	
Phone:	*425-587-3900*		

Description of work: *Install 2 Water Services and 1 Fire hydrant. Abandon 1 Fire hydrant, hydrant run and water services Restore sidewalk and trench patch with HMA No overlay included in bid.*

Labor:

Employee Type:	Hours	Wage	Labor cost	Overhead	Total
Lead Utility Worker (0155)	32	$43.49	$1,391.68	2.25	$3,131.28
Senior Utility Worker (2105)	32	$38.02	$1,216.64	2.25	$2,737.44
Utility Worker (7049)	32	$28.94	$926.08	2.25	$2,083.68
Utility Worker (7050)	30	$29.50	$885.00	2.25	$1,991.25
Utility Worker (7062)	30	$26.50	$795.00	2.25	$1,788.75
subtotal					$11,732.40

Equipment (Tools & Equipment require ID #):

Equipment Type:	Hours	Cost/ea.	Cost	Overhead	Total
Step Van (TRK85)	30	$18.00	$540.00	1.25	$675.00
Vactor Truck (TRK90)	24	$71.00	$1,704.00	1.25	$2,130.00
Dump Truck (TRK79)	30	$44.00	$1,320.00	1.25	$1,650.00
F550 Truck (TRK01)	24	$21.00	$504.00	1.25	$630.00
Mini Excavator (TRK86)	16	$36.00	$576.00	1.25	$720.00
Dump Truck (TRK56)	6	$79.00	$474.00	1.25	$592.50
subtotal					$6,397.50

Materials:

Description:	Quantity	Cost / ea.	Cost	Overhead	Total
Composite Meter Lid w/ Hinge	2	$80.23	$160.46	1.25	$200.58
Composite Meter Box	2	$89.49	$178.98	1.25	$223.73
Class B Asphalt (per ton)	5	$89.65	$448.25	1.25	$560.31
Poly Pipe Stiffener	4	$2.17	$8.68	1.25	$10.85
1 in Meter Setter	2	$345.57	$691.14	1.25	$863.93
Brass Coupling Adapter (54)	2	$29.55	$59.10	1.25	$73.88
Brass Coupling Adapter (493)	2	$34.23	$68.46	1.25	$85.58
Brass 90 Degree Bend Fitting	2	$8.42	$16.84	1.25	$21.05
Valve Plug Corp	2	$51.49	$102.98	1.25	$128.73
1 in Poly Pipe	200	$0.54	$108.00	1.25	$135.00
Romac Tapping 8 x 6 tapping sleeve	1	$631.25	$631.25	1.25	$789.06
6 in Gate Valve	1	$563.66	$563.66	1.25	$704.58
6 in DI cap	2	$48.99	$97.98	1.25	$122.48
6 in MJ Plug	1	$88.27	$88.27	1.25	$110.34
5 foot Fire Hydrant	1	$2,381.48	$2,381.48	1.25	$2,976.85
Restraint Follower	5	$41.44	$207.20	1.25	$259.00
Drain Rock	0.5	$25.75	$12.88	1.25	$16.09
Concrete Block Large	3	$2.83	$8.49	1.25	$10.61
Plastic Shims	8	$1.00	$8.00	1.25	$10.00
Valve Can Lid	1	$17.70	$17.70	1.25	$22.13
Bolt kits Flange 6 inch w/ Gasket	1	$15.35	$15.35	1.25	$19.19
Valve Can Soil Pipe	1	$88.82	$88.82	1.25	$111.03
Top Soil	3	$22.00	$66.00	1.25	$82.50
Valve Can Top	1	$41.34	$41.34	1.25	$51.68
Valve Can Bottom	1	$55.99	$55.99	1.25	$69.99
Concrete Bags 60lb	30	$4.31	$129.30	1.25	$161.63
5/8" Crushed Rock	30	$25.75	$772.50	1.25	$965.63
subtotal					$8,786.37

Reimbursables:

Description:	Quantity	Cost / ea.	Cost	Overhead	Total
subtotal					

Administrative / Other:

Description:	Quantity	Cost / ea.	Cost	Overhead	Total
Permit	1	$550.00	$550.00	1.00	$550.00
subtotal					$550.00

Taxable Subtotal (Minus Reimbursables):		**$27,466.27**
Sales Tax:	**10.00%**	**$2,746.63**

Deposit Required: **$30,212.90**

I understand that the required deposit amount is an estimate only, and that the actual costs for time and materials may exceed this amount. Upon payment of the deposit, I authorize the described work to commence. I understand I will be invoiced for all costs that exceed the paid deposit, and agree to pay any such invoice within 30 days of billing.

Print Name: JOHN F. STARBARD

Signature: John F Starbard

DOC/19/7594

Northshore Utility District Application For Water Service Agreement

6830 NE 185th St., Kenmore, WA 98028 | 425-398-4400 Fax: 425-398-4430

Base Map: _____ WO #: _____

Applicant to Complete all Blue Highlighted Sections – PLEASE PRINT

Property Address: 12031 NE TOTEM LAKE WAY

City: KIRKLAND | Zip code: 98033

Property Owner: CITY OF KIRKLAND

Owner Address: 123 FIFTH AVE.

City: KIRKLAND | State: WA | Zip code: 98033

Business Phone: 425-587-3874 | Home Phone:

Type of Development

☐ Single Family	Sq. Footage: 411	☐ Manufactured Home	☒ Municipality	
☐ Condo/Townhomes	☐ Individually Metered	# of Units:		
☐ Apartment Complex	# of Buildings in Complex:	# of Units:		
☐ Commercial Building	☐ Restaurant	Sq. Footage:	# of Stories:	
☐ Fire Sprinklers/Protection	☐ Irrigation System	☐ School	☐ Church	☒ Park

Additional Information: RESTROOM PERMIT

Legal Description

Tax ID: 6928400032 00 | Lot #: | Block:

Legal Description:

I HAVE READ AND FULLY UNDERSTAND AND ACCEPT THE TERMS AND CONDITIONS OF THIS AGREEMENT LISTED ON THE REVERSE SIDE

Print Applicant Name: JOHN STARBARD

Business Phone: (425) 587-3874 | ☐ Owner | ☒ Owner's Rep

Applicant Signature: John F Starbard | Date: 03/21/19

District to Complete this Section

Account Number: | ☐ Service & Set ☐ Service Only ☐ Set Only | Upgrade: to _____ from _____

Jurisdiction: | Cycle: | ☐ Future Service Install | Lighting Area #:

This account provides _____ inch fire protection to accounts:

This account receives _____ inch fire protection from account:

Bill Fire Protection charges to: Protected Acct: ☐ or Fire Acct: ☐

☐ Domestic | ☐ Water ULID | ☐ Fire Protection | ☐ Irrigation | ☐ DE Project

Meter Information

Meter #:	Size:	Make:
Transmitter #:	Meter Rte #:	Seq #:
Register #:	Read:	Install Date:

Meter Location:

Backside connection verified: ☐ Yes ☐ No

Meter # before: _____ Meter # after: _____

Comments:

Checklist

Easement Needed: ☐ Yes ☐ No ☐ Easement Provided

☐ Meter Sizing Verification Form Received ☐ Stake Provided or Meter Box Installed

Premise Isolation: ____ DCVA ____ RPBA ☐ Flow Through | Lock Meter ☐ Yes ☐ No

Connection Fee Information

Description	Cost	Date Paid	Receipt #
Meter Size _____			
Local Facilities Charge			
Major Facilities Charge			
Fire Protection Charge			
ROW Permit Fee			
(Misc.)			
Total			

Routing - Initial and Date

App. Taken By:	Approved for Install:
Cross Conn. Review:	Finance Dept.:
Dispatch:	GIS:
Scanning:	

CONTINUED ON REVERSE SIDE

NORTHSHORE UTILITY DISTRICT
Application and Agreement for Water Service | TERMS and CONDITIONS

The undersigned hereby applies for a water meter and water service from Northshore Utility District ("District"), for the property ("Property") described on the reverse side of this application. The undersigned is:

- ☐ the legal owner or owners ("Owner") of Property.
- ☒ a representative of the legal owner(s) of Property ("Owner"), who is authorized to present information related to this application and accept the terms and conditions stated herein. If the undersigned is not so authorized by Owner to act on his/her/their behalf for the purposes stated herein, this application shall be void and the water service so granted hereunder terminated without refund of any fees paid.

Current and future owner(s) of Property and/or their representative(s) are, individually and collectively, hereinafter referred to as "Applicant." Applicant agrees to the following terms as conditions for receiving water service from District:

1. Applicant shall pay all applicable charges and follow all regulations set forth by the District currently and hereinafter adopted by the Board of Commissioners.
2. If Applicant: (a) fails to pay charges billed by District when due, or (b) violates the regulations of District or the terms and conditions contained herein, the District may discontinue the water service at Applicant's expense until the charges are paid and/or Applicant is no longer in violation of the District's regulations and/or the terms and conditions of this Agreement. Applicant shall be required to pay a reconnection fee before water service is resumed.
3. Applicant understands that the base water charges will continue even when the service property is vacant and no water is used. (Applicant should consider inquiring about pulling the water meter for a much extended vacancy.)
4. Applicant agrees to indemnify and hold District harmless for any and all claims for damages caused by water supply interruptions, tampering by third parties, and/or system malfunction including, without limitation, claims for damages to persons or property, direct or consequential damages, special damages, or loss of profit or revenue. Such interruption or failure shall not constitute a breach of contract on the part of District, or in any way relieve the Applicant from performing the obligations of this Agreement.
5. Applicant will be responsible for any damage caused by Applicant or his/her agents to the District's facilities including, but not limited to, mainlines, service lines, meters, meter locks, meter boxes and other appurtenances. Applicant shall be billed for, and agrees to pay, the cost of damage repairs. Any District invoice for such damage not paid within thirty (30) days of mailing shall incur interest of 12% per annum until paid. Further, District shall have the right to terminate water service until the invoice is paid.
6. Applicant understands that it is a federal crime to tamper (operating or cutting) with any of a water utility's facilities (as described in the preceding paragraph). Violator is subject to fine (up to $1,000,000) and/or jail sentence (up to 20 years).
7. All service line connections up to and including the meter and meter box shall remain the property of the District. Private plumbing from the meter to the building or structure receiving service shall remain Property owner's property.
8. Identifying and staking water meter location is the responsibility of Applicant. Stakes are to be set at the edge of the right-of-way, adjacent to the property line. Failure to accurately identify and stake meter location may result in additional re-locate charges. In order to avoid scheduling and installation delays, the stake must be in place prior to scheduling the work.
9. In the event of meter malfunction (such as a stuck meter), District shall estimate the water consumption of Property based on its historical average usage of the past three years regardless of the actual occupant(s) or occupancy.
10. With the exception of a County/City approved accessory dwelling unit, Applicant agrees that water service may not be furnished to any building or facility other than the dwelling or building identified to District as the structure to receive service at the time of this application. District agrees to provide water service for the specific land use as indicated on the front of the application.
11. Change of land use or increasing total square-footage to above 5,000 S.F. for a single-family home will void this Agreement and require re-application for service.
12. Applicant warrants that all information on drawings, plans and documents submitted in support of this application are correct and accurate. Any alteration in construction from the submitted plans and drawings done without written approval by the District will void this application and the related approval.
13. Applicant agrees: (a) not to obstruct access to the meter for reading, repair, or service in any manner, (b) to keep the meter free from dirt and debris, and (c) to restrain dogs or any other animals which may interfere with reading the meter. If Applicant fails to remove any obstruction to the meter within 30 days of notice from the District, District may remove such obstruction and Applicant agrees to pay the cost of such removal. At its sole option, District may also choose to discontinue service until the obstruction is removed.
14. The District's system has been designed to provide normal minimum static water pressure of 30 and 140 pounds per square inch (PSI), measured at the water meter. Applicant assumes the responsibility to determine the exact water pressure at the meter. Where pressure exceeds 80 PSI, it shall be Applicant's responsibility to install, at Applicant's sole expense, an appropriate type of pressure regulator with strainer. (Reference: Uniform Plumbing Code, 19th Edition. Sec. 1007b). If Applicant desires higher pressure than is provided, it is the Applicant's responsibility to install the facilities necessary to achieve the desired pressure. The District shall use its best efforts to ensure safe and adequate pressure in the mains, but shall not be liable for damage resulting from negligence of Applicant in failing to provide reasonable safeguards for his/her own property.
15. The Applicant agrees to comply with all current City, State and District regulations and as may be modified and revised regarding cross-connections.
16. Where applicable and possible, the District shall install water meters in a meter bank in a sequence that corresponds to the location of the properties receiving service. Connecting Property to the correct meter is the responsibility of Applicant. If Applicant or his contractor connects Property to the incorrect meter, Applicant is responsible for all undercharging of water actually used since such incorrect connection by Property or neighboring properties and for correcting the situation. This requirement shall be binding upon all subsequent property owners.
17. Applicant understands that for all new construction, the side sewer connection must be inspected and approved by the District prior to the water meter installation.
18. Billing for service charges shall commence for all serviced units effective the date of installation of a water meter, regardless of occupancy. In the event of nonpayment or default by the applicant in the performance of any of the terms and conditions of this agreement, all amounts then owing or thereafter accruing to the District shall become immediately due and payable. Applicant may be charged late fees and interest charges of 1½% per month on any water or service charges not paid by the due date, as well as all costs, including attorney's fees, incurred by the District for collecting any delinquent amounts or in enforcing this Agreement. Pursuant to Title 57 of the Revised Codes of Washington, all unpaid water charges of every description become a priority lien against Property. In the event of the foreclosure of said lien by the District, the applicant agrees to pay the related expenses incurred by District including reasonable attorney's fees. In such event, Applicant shall forfeit all right to service from this service connection and all related fees previously paid.
19. Unless specific exemption applies per negotiated agreement, encroachment upon any District utility easement within Property shall void this application.
20. By execution of this Agreement, Applicant guarantees payment of all fees, rates, and charges due for any other account(s) that Applicant may have with District.
21. In the event any action or proceeding is brought by either party against the other related to this Agreement, the substantially prevailing party shall be entitled to recover from the other party its costs, including but not limited to reasonable attorney's fees, incurred in such action or proceeding, including any trial, appeal, or bankruptcy proceeding, which amounts shall be included in any judgment entered in such action or proceeding; provided, however, that if more than one matter is disputed and each party prevails as to one or more of the disputed matters, then such costs, expenses and attorney's fees shall be awarded in proportion to the monetary values of the matters on which each party prevailed. As part of the consideration for this Agreement, each of the parties hereto waives the right to trial by jury in connection with any dispute or action under this Agreement. In any action brought to interpret or enforce any of the provisions of this Agreement, the venue of the same shall be King County, Washington.
22. The terms of this Application/Agreement shall be conditions running with Property binding upon all subsequent owners of Property.

Print Name: JOHN STARBARD

Signature: John Starbard

Date: MARCH 21, 2019

Mailing Address: 123 FIFTH AVE, KIRKLAND WA 98033

Email Address: BBAKER@KIRKLANDWA.GOV (on behalf of John Starbard)

Phone: (425) 587-3874

DOC/19/7593

Northshore Utility District Application For Water Service Agreement

6830 NE 185th St., Kenmore, WA 98028 | 425-398-4400 Fax: 425-398-4430

Base Map: _____ WO #: _____

Applicant to Complete all Blue Highlighted Sections – PLEASE PRINT

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Business Phone: 425-587-3874 | Home Phone:

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☐ Single Family	Sq. Footage:	☐ Manufactured Home	☒ Municipality
☐ Condo/Townhomes	☐ Individually Metered	# of Units:	
☐ Apartment Complex	# of Buildings in Complex:	# of Units:	
☐ Commercial Building	☐ Restaurant	Sq. Footage:	# of Stories:
☐ Fire Sprinklers/Protection	☒ Irrigation System	☐ School	☐ Church	☒ Park

Additional Information: IRRIGATION SYSTEM

Legal Description

Tax ID: 6928400032 00 | Lot #: | Block:

Legal Description:

I HAVE READ AND FULLY UNDERSTAND AND ACCEPT THE TERMS AND CONDITIONS OF THIS AGREEMENT LISTED ON THE REVERSE SIDE

Print Applicant Name: JOHN STARBARD

Business Phone: (425) 587-3874 | ☐ Owner | ☒ Owner's Rep

Applicant Signature: John T Starbard | Date: 03/21/19

District to Complete this Section

Account Number: | ☐ Service & Set ☐ Service Only ☐ Set Only | Upgrade: to _____ from _____

Jurisdiction: | Cycle: | ☐ Future Service Install | Lighting Area #:

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☐ Domestic | ☐ Water ULID | ☐ Fire Protection | ☐ Irrigation | ☐ DE Project

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Transmitter #:	Meter Rte #:	Seq #:
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Meter Location:

Backside connection verified: ☐ Yes ☐ No

Meter # before: _____ Meter # after: _____

Comments:

Checklist

Easement Needed: ☐ Yes ☐ No | ☐ Meter Sizing Verification Form Received

☐ Easement Provided | ☐ Stake Provided or Meter Box Installed

Premise Isolation: ____ DCVA ____ RPBA ☐ Flow Through | Lock Meter ☐ Yes ☐ No

Connection Fee Information

Description	Cost	Date Paid	Receipt #
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App. Taken By:	Approved for Install:
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CONTINUED ON REVERSE SIDE

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Print Name: JOHN STARBARD

Signature: John F Starbard

Date: MARCH 21, 2019

Mailing Address: 123 FIFTH AVE. KIRKLAND WA 98033

Email Address: BBAKER@KIRKLANDWA.GOV (on behalf of Kathy Brown)

Phone: (425) 587-3874

DOC/19/7595

Northshore Utility District - Application for Side Sewer Permit

6830 NE 185th St., Kenmore, WA 98028 425-398-4400

Base Map:

Applicant to Complete all Yellow Highlighted Sections – PLEASE PRINT

Prop. Address: 12031 NE TOTEM LAKE WAY | City: KIRKLAND | Zip code: 98033

Owner: CITY OF KIRKLAND | Phone/Email: 425-587-3874

Sewer Contractor: TBD | Contractor phone #:

Tax ID/Parcel #: 6928400032 00 | Water Meter Size: 1"

Parcel Legal Description:

NUD Comments:

See Reverse Side

District Use Only

Account #: | Permit #:

Project name:

☐ Single Family ☐ Commercial ☐ Church

☐ Park ☐ School ☐ Restaurant

☐ Municipality ☐ Apartment # of units ____

☐ Industrial/Manufactured | Manufactured # of units ____

☐ Condo/Town single meter ☐ Condo, # of units ____

Easement needed ☐ Provided ☐ City limits:

Pumped System ☐ Agreement Signed ☐

Description	Cost	Date Paid	Receipt #
SS Permit			
MFC			
LFC			
Depreciation			
ROW			
Misc.			
Total			

Checklist

☐ ROW Permit Issued ☐ Site Plan

☐ Metro form complete ☐ Approved Contractor

Permit to: | Date:

F.O.G. Required

☐ Grease Interceptor ☐ Oil/Water Separator

Inspection

Inspector(s): | Date(s):

Water Test: | Air Test:

Pass Date: | Type of pipe:

Cleanout Box Inspected By: Date:

Routing – Initial and Date

App.Taken By: | Apprvd for Install:

FOG Inspector: | Dispatch/Activate:

Finance | GIS:

Scanning: | Doc. #:

NORTHSHORE UTILITY DISTRICT
Application and Agreement for Side Sewer Permit and Service | TERMS and CONDITIONS

The undersigned hereby applies for permission to construct or repair a side sewer to the service property ("Property"), as described on the reverse side of this Application/Agreement. The undersigned is the:

☐ the legal owner(s) ("Owner") of Property.

☐ a representative of the legal owner(s) of Property ("Owner"), who is authorized to present information related to this application and accept the terms and conditions stated herein on behalf of Owner. If the undersigned is not so authorized by Owner to act on his/her/their behalf for the purposes stated herein, this Application/Agreement shall be void and the sewer service so granted hereunder terminated without refund of any fees paid.

Current and future owner(s) of Property and/or their representative(s) are, individually and collectively, hereinafter referred to as "Applicant." The terms of this Application/Agreement shall be conditions running with Property binding upon all subsequent owners of Property. Applicant agrees to the following terms as conditions for receiving sanitary sewer service from Northshore Utility District ("District"):

1. All applicable charges, regulations and construction requirements, adopted and set forth by District from time to time, shall be paid and complied with fully and completely. Unpaid charges shall become a lien against Property and subject to foreclosure pursuant to RCW 57.
2. Applicant hereby agrees to maintain the side sewer constructed under this permit in accordance with the rules and regulations of District, and will permit entry access by authorized representatives of District onto Property, at any reasonable time, for the purpose of inspection for compliance with all District regulations.
3. Applicant is notified that District's sewer system is a sanitary sewer and agrees not to allow connection from storm water drainage from any source into the District's collection system. This includes, but is not limited to, roof downspouts, building footing drains, springs or underground water from any property, and any outside groundwater drains.
4. Applicant and the applicant's contractor agree to indemnify and hold District harmless, for any liability, damage and/or costs, which may accrue from the prosecution of side sewer work under this permit.
5. Applicant and Applicant's contractor agree to safeguard the work done under this permit in such a manner as to prevent injury and/or damage to the public. Such precautions shall include the employment of all necessary safety measures such as lighting, barricades and safe access, ingress or egress throughout the working area and to comply with all regulatory requirements for job site safety.
6. In order to protect the District's sewer system and the public health and welfare, Applicant agrees to employ a side sewer contractor approved by District, registered by the State of Washington with adequate and satisfactory liability insurance, for all work to be prosecuted within public rights-of-way and on private property.
7. No backfilling shall be done until the work has been inspected and approved by the District's authorized inspector. Applicant and/or Applicant's contractor must call for inspection upon completion of construction, before backfilling, of any portion of the side sewer.
8. Applicant and Applicant's contractor agree that all street cleanup and road restoration shall be made to the satisfaction of all governing authorities (City, County, State and Federal agencies and District) and any private property owners impacted by the construction or repair of the side sewer.
9. Applicant and the Applicant's contractor agree to obtain, at no cost or liability to District, all necessary permits for the construction work (except the right-of-way permit) to be accomplished under this permit. District will obtain any necessary right-of-way permit at Applicant's expense.
10. Applicant agrees to indemnify and hold District harmless under any situation or condition, which may develop, on or in Property's side sewer lateral, which lateral is the subject of this application, whereby sewage fails to flow, backs up and/or is deposited on Property or the premises of Owner.
11. Additional inspection or callback resulting from the contractor's inability to have work ready for inspection when the contractor schedules an inspection appointment, poor workmanship or failure to comply with the regulations and construction requirements of District, shall be paid for by Applicant on a time and materials' basis at rates published (rate resolution) on the District's website. Failure to pay for the services rendered will result in a lien being filed against Property and refusal of service by District.
12. Applicant understands that for all new construction, the side sewer connection must be inspected and approved by the District prior to the water meter installation.
13. A notice of occupancy or change of ownership shall be furnished to the District immediately upon a change of ownership and/or occupancy of Property.
14. Applicant warrants that all information on the drawings, plans and document submitted in support of this application is correct and accurate. Construction alteration from the submitted plans and drawings, without written consent from District, will void this Application/Agreement and the side sewer permit so issued.
15. To avoid delaying Applicant's project, this side sewer permit may be approved prior to the proper installation of the sewer clean-out box at the connection. However, if said clean-out box is not properly installed and inspected within 30 days of Property's connection to water service or supply, Applicant agrees that District shall have the right to rescind the approval of the side sewer permit and withhold water and sewer services from Applicant until said clean-out box is properly installed and inspected.
16. Unless specific exemption applies per negotiated agreement, encroachment upon any District utility easement within Property shall void this Application/Agreement and the side sewer permit so issued.
17. Billing for sewer service will commence with the inspected and approved side sewer connection regardless of water service availability, completion or occupancy status of the connected structure. In the event any action or proceeding is brought by either party against the other related to this Application/Agreement, the substantially prevailing party shall be entitled to recover from the other party its costs, including but not limited to reasonable attorney's fees, incurred in such action or proceeding, including any trial, appeal, or bankruptcy proceeding, which amounts shall be included in any judgment entered in such action or proceeding; provided, however, that if more than one matter is disputed and each party prevails as to one or more of the disputed matters, then such costs, expenses and attorney's fees shall be awarded in proportion to the monetary values of the matters on which each party prevailed. As part of the consideration for this Application/Agreement, each of the parties hereto waives the right to trial by jury in connection with any dispute or action under this Application/Agreement. In any action brought to interpret or enforce any of the provisions of this Agreement, the venue of same shall be King County, Washington.

Print Name: JOHN STARBARD

Signature: John F Starbard

Date: March 21, 2019

Mailing Address: 123 FIFTH AVE. KIRKLAND WA

Email Address: BBAKER@KIRKLANDWA.GOV (on behalf of Kathy Brown)

Phone: 425-587-3874

DEMOLITION PERMIT: EXISTING BUILDING

City of Kirkland

City of Kirkland
123 Fifth Avenue
Kirkland WA 98033
425-587-3600

DEMOLITION PERMIT

Permit Number: DEM19-01211
Type: Demolition
Work Class: Demolition

Permit Information

Job Address:	**Project:** TOTEM LAKE PARK	**Application Date:**	02/20/2019
12031 NE TOTEM LAKE WAY	**Parcel:** 6928400032	**Issue Date:**	09/04/2019
KIRKLAND,WA 98034	**Valuation:**	**Expiration Date:**	09/04/2021
Dwelling Units:	**Septic System:**	**Code Edition:**	

DEM19-01211

Scope of Work

Totem Lake Park Demo: Demolish existing yuppie pawn building (7,000 sf) and abandon the utilities on site.

Contacts

Type	Contact Name	Address	Phone
Applicant	MBP Contact 2018 MBP.com	123 5TH AVE KIRKLAND,WA 98033	
Owner	CITY OF KIRKLAND	123 5TH AVE KIRKLAND,WA 98033	
Owner is Contractor	OWNER IS CONTRACTOR		
Primary Contact	Brian Baker City of Kirkland	123 5TH AVE KIRKLAND,WA 98033	425 587-3874

Type of Occupancy

Type of Structure

Type of Work

Demolition

Conditions

The City approved plans and permit inspection record must remain on the job site for use by City inspection personnel.

Any sales tax reported to the State in association with this project should be coded to the City of Kirkland tax location code 1716. I certify that the information furnished by me is true and correct to the best of my knowledge and the applicable City of Kirkland requirements will be met.

☐ OWNER: or ☐ AGENT: _____ Date: _____
(Print)

_____
(Signature)

12031 NE TOTEM LAKE W

City of Kirkland
123 5th Avenue
Kirkland, WA 98033
425-587-3600

SPECIFIC PERMIT CONDITIONS

BUILDING ADDRESS	PERMIT NUMBER	PERMIT TYPE	WORK CLASS	DATE PRINTED
12031 NE TOTEM LAKE WAY	DEM19-01211	Demolition	Demolition	3/18/2019

DESCRIPTION OF WORK:
Totem Lake Park Demo: Demolish existing yuppie pawn building and abandon the utilities on site.

Building Department Conditions:

Demolition Conditions

You may contact Tanya Elder at 425-587-3614 for Building Department questions related to this permit.

1. SCOPE - Do not exceed scope of permit.

2. A separate permit is required for any new construction.

3. This demolition permit does not authorize any cutting or digging for footings or foundations. A SEPERATE BUILDING PERMIT MUST BE ISSUED PRIOR TO ANY FOOTING OR FOUNDATION WORK.

4. No excavation or fill is authorized to encroach upon a neighboring property without explicit agreement by the adjoining property owner.

5. Excavations and/or slopes created by removing structures of any kind shall be far enough from property lines and/or neighboring structures to prevent slopes steeper than 1:1. Should it be likely that you will create a steeper slope, you are required to submit a building permit application with engineered plans prior to creating the slope. Contact the Building Division at 425-587-3600 for additional information.

6. The removal of underground tanks such as but not limited to fuel tanks is not included with this permit. The City of Kirkland does not currently issue permits to remove such tanks, however applicants are encouraged to seek out other possible authorities having jurisdiction in order to determine if permits may be required by those agencies.

Asbestos Requirements for Demolition

It shall be unlawful for any person to cause or allow demolition unless the property owner or the owner's agent determines whether there are suspect asbestos-containing materials in the work area and obtain an asbestos survey of any suspect asbestos-containing materials by a currently certified building inspector. For more information contact the Puget Sound Clean Air Agency at 206-343-8800 or 1-800-552-3565.

Planning Department Conditions:

PLANNING CONDITIONS - Contact: Thomas Hoque, 425.587.3036

PCD 1. ALL - HOURS OF CONSTRUCTION - All development activity and heavy equipment operation is restricted to 7:00 a.m. to 8:00 p.m. Monday through Friday, and 9:00 a.m. to 6:00 p.m. Saturday. Other restrictions on Saturday include: no working in the right-of-way, no work requiring inspection, and no trucking into or out of the site; however, light grading work on-site on Saturday is allowed. NO development activity or heavy equipment operation may occur on Sundays or the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day.

PCD 2. MAXIMUM NOISE LEVELS - All mechanical units shall comply with the maximum environmental noise levels established pursuant to the Noise Control Act of 1974, Revised Code of Washington (RCW) 70.107. See Chapter 173-60 Washington Administrative Code (WAC). A link to the WAC and RCW is available at www.kirklandpermits.net.

PCD 3. SF/DEMO-TREE PROTECTION - Prior to any grading or site construction, the applicant shall install temporary but immovable construction fencing around the drip line of all significant trees to be retained. Tree fencing shall remain in place until the Planning Department authorizes its removal.

PCD 4. SF/DEMO–NO TREE REMOVAL ALLOWED - Except as authorized on the approved site plan, no tree removal is permitted as part of this demolition permit without prior Planning Department approval.

PCD 5. PLACING MATERIALS NEAR TREES. No person may conduct any activity within the protected area of any tree designated to remain, including, but not limited to, operating or parking equipment, placing solvents, storing building material or soil deposits, or dumping concrete washout or other chemicals. During construction, no person shall attach any object to any tree designated for protection.

Public Works Department Conditions:

PUBLIC WORKS CONDITIONS

Demo Conditions

1. Scheduling a Public Works Inspection: All required inspections must be requested by the contractor or permit applicant by 3:00 PM on the day prior to the inspection. Request inspections by going online at www.mybuildingpermit.com. If you need to speak with your Public Works Construction Inspector prior to scheduling your first inspection, call 425.587.3800; be prepared to provide your permit number and site address.

2. All Work Must Meet Kirkland Standards: All work associated with this project, including street improvements and utility connections, must meet the City of Kirkland Public Works Standards and Policies. Purchase the Manual from Public Works or view on-line at www.kirklandwa.gov (navigate to PW Development Services).

3. PW Sign-Off Prior to Bldg Final Inspection: The Building Permit Inspection Card must be signed off by Public Works prior to any request for the final building inspection.

4. Daily work is limited to Monday through Friday, from 7:00 a.m. to 8:00 p.m. (arterial traffic lanes is 9 a.m. to 3:30 p.m.) and Saturday 9:00 a.m. to 6:00 p.m. No utility work in the ROW after 12:00 p.m. on Fridays; restoration only.

A. No work will be allowed on holidays that are observed by the City of Kirkland.

B. No work on Sunday.

C. No work is allowed on Saturday in the public right-of-way or any on-site utilities; light grading is permitted onsite. Also, no trucks permitted to haul in or out.

D. The following is the schedule of City closure days and holidays, and the work allowed:

- MLK Jr. Day - onsite grading only
- President's Day - onsite grading only
- Memorial Day - no work
- Independence Day - no work
- Labor Day - no work
- Veteran's Day observed - onsite grading only
- Thanksgiving Day - no work
- Day after Thanksgiving - onsite grading only
- Christmas Eve observed - onsite grading only
- Christmas Day - no work
- New Year's Eve observed - onsite grading only
- New Year's Day - no work

5. Contact NUD or WWD For Final Billing: Applicant must contact NUD (425-398-4400) or WWD (425-487-41000 for final billing and must close account prior to any demolition activity. Retirement of water and sewer services shall be overseen and inspected by that district.

6. No Stockpiling in Right-Of-Way: All rights-of-ways, streets and sidewalks shall be kept clean and shall not be used for stockpiling any construction materials of debris.

7. Protect Adjacent Properties: Adequate drainage protection must be provided for adjacent properties. Whether during a demolition, or during construction, applicants must control development runoff during any phase so as to ensure activities will not cause a nuisance or adversely impact adjacent private and public property.

8. Cover All Exposed Soil: Construction drainage control shall be maintained by the developer and subject to periodic inspections. During the period from May 1 to September 30, all denuded soils must be covered within 7 days; between October 1 and April 30, all denuded soils must be covered within 12 hours. Additional erosion control measures may be required based on site and weather conditions. Exposed soils shall be stabilized at the end of the workday prior to a weekend, holiday, or predicted rain event.

9. Illicit Discharges and Connections (Municipal Code 15.52) are prohibited into the Storm Drain System:

Contractor is responsible for keeping streets clean and free of contaminants at all times and for preventing an illicit discharge (KMC 15.52) into the municipal storm drain system. If your construction project causes an illicit discharge to the municipal storm drain system, the City of Kirkland Storm Maintenance Division will be called to clean the public storm system, and other affected public infrastructure. The contractor(s), property owner, vendor, and any other responsible party may be charged all costs associated with the clean-up and may also be assessed a fine (KMC 1.12.200). The minimum fine is $500. A fine for a repeat violation shall be determined by multiplying the surface water fine by the number of violations. A fine may be reduced or waived for persons who immediately self-report violation to the city at 425-587-3900. A Final Inspection of your Project will not be granted until all costs associated with the clean-up, and

Public Works Department Conditions:

penalties, are paid to the City of Kirkland.

10. Install Erosion Control Prior to Construction: Erosion control measures approved by the Public Works Department must be installed and inspected prior to the commencement of any construction.

11. Erosion Control Inspections: Erosion and Sediment Control (ESC) Inspections Required: Approved ESC measures must be installed prior to commencement of construction, and periodic inspections will be conducted during the course of construction.

☐ ESC Inspection #1 - Required prior to pouring concrete for foundation and footings.

☐ ESC Inspection #2 - Required after foundation backfill, rough grading, and prior to subfloor framing inspection. Subfloor framing inspection will not be performed until this ESC inspection has been successfully completed.

☐ ESC Inspection #3 - Required for final site stabilization. A final building department inspection and sign-off will not occur until the final ESC inspection has been fully completed.

☐ For demolition permits, only ESC Inspection #3 is required.

12. Replace Damaged Public Improvement: Any public improvements damaged during construction shall be replaced prior to final building inspection.

13. Shoring Requirements: During any site excavation and/or demolition, a minimum 1 to 1 (45 degrees) cut slopes must be maintain from the edge of any roadways/access roads to the bottom of the excavations. An engineered temporary shoring design with site stabilization measures must be used to quickly stabilize hazardous cuts during construction (all exposed soil and slopes must be stabilized for erosion control). Deep cuts adjacent to roadways where 1 to 1 slopes cannot be maintained or soils conditions require additional stabilization measures, the project soils engineer must be on site to provide guidance during excavation.

City of Kirkland
123 5th Avenue
Kirkland, WA 98033

INSPECTION RECORD - THIS CARD MUST BE POSTED ON SITE

Schedule an inspection by 6:00 PM for next day inspections

Schedule online at: **www.MyBuildingPermit.com**

Permit #: **DEM19-01211**

How to request an inspection:

1) Go to **http://www.MyBuildingPermit.com**
2) Select Kirkland as the Jurisdiction.
3) Select Permit Number or Address.
4) Follow the on-screen instructions.

BUILDING ADDRESS	PARCEL NUMBER	DATE PRINTED	PERMIT TYPE	WORKCLASS	SQ FT	VALUATION
12031 NE TOTEM LAKE WAY	6928400032	3/18/19	Demolition	Demolition	0	$100,000.00

REQUIRED INSPECTIONS - DO NOT COVER ANY WORK PRIOR TO INSPECTION

	Inspection	IVR	Date	Insp	Inspection	IVR	Date	Insp
1	PCD - Tree Fencing Installation	605						
2	PW - Erosion Control	102						
3	PW - Final	195						

* Note: 1st erosion control inspection is required prior to any excavation.

* 2nd erosion control inspection is required after foundation backfill.

(These erosion control inspections only apply if they are listed on the above checklist)

Departmental staff: BLD is Building Dept, PW is Public Works Dept, PCD is Planning Dept, and FIR is Fire Dept

NOTE: THIS INSPECTION RECORD IS THE CERTIFICATE OF OCCUPANCY WHEN THE BUILDING FINAL INSPECTION HAS BEEN APPROVED

Inspector's Comments

City of Kirland
Totem Lake Park Phase 1

PKC1390200
JOB NO. 00-00-PW
100% DESIGN SUBMITTAL
February 08, 2019

A separate permit is required for any new construction.

This **demolition permit** does not authorize any cutting or digging for footings or foundations. A SEPERATE BUILDING PERMIT MUST BE ISSUED PRIOR TO ANY FOOTING OR FOUNDATION WORK.

This demolition permit does not authorize demolition activity to cross property lines or affect adjacent properties unless explicitly authorized by the owner(s) of the propert(ies) affected.

Asbestos Requirements for Demolition
It shall be unlawful for any person to cause or allow demolition unless the property owner or the owner's agent determines whether there are suspect asbestos-containing materials in the work area and obtain an asbestos survey of any suspect asbestos-containing materials by a currently certified building inspector. For more information contact the Puget Sound Clean Air Agency at 206-343-8800 or 1-800-552-3565.

Related Permits: BNR19-01207, BNO19-01213, LSM19-01212

Sheet Index

Sheet Number	Sheet Name	Designed By	Building Permit (Restroom)	Building Permit (Boardwalk)	LSM Permit	Electrical Permit	Plumbing Permit	PSE Permit	NUD Permit
G000	COVER	Landscape	•	•	•	•	•	•	•
G001	LANDSCAPE GENERAL NOTES & SCHEDULES	Landscape			•				
G002	PROJECT LIMITS - OVERALL	Landscape							
G003	PROJECT LIMITS - BOARDWALK	Landscape							
G004	DEDUCTIVE ALTERNATE PLAN	Landscape			•				
ET101	EXISTING TREE PLAN - PARK	Landscape			•				
ET102	EXISTING TREE PLAN - TRAIL	Landscape			•				
ET103	EXISTING TREE PLAN - BOARDWALK	Landscape		•	•				
C001	CIVIL GENERAL NOTES	Civil			•				
C002	CIVIL GENERAL NOTES	Civil			•	•			
C101	SITE PREPARATION PLAN - PARK	Civil			•				•
C102	SITE PREPARATION PLAN - TRAIL	Civil			•				
C103	SITE PREPARATION PLAN - BOARDWALK	Civil		•	•				
BD100	BUILDING DEMOLITION	Architect	•		•				
C201	CESC PLAN - PARK	Civil			•				
C202	CESC PLAN - TRAIL	Civil			•				
C203	CESC PLAN - BOARDWALK	Civil		•	•				
C301	UTILITY PLAN - PARK	Civil	•		•		•		•
C401	DRAINAGE PLAN - PARK	Civil			•				
C402	DRAINAGE PLAN - PARK	Civil			•				
CD101	DRAINAGE DETAILS - PARK	Civil			•				
CD102	CIVIL PAVING DETAILS	Civil			•				
CD103	DRAINAGE SECTIONS - PARK	Civil			•				
CG101	GRADING & PAVING PLAN - PARK	Civil	•		•				
CG102	GRADING & PAVING PLAN - TRAIL	Civil	•		•				
CG103	GRADING & PAVING PLAN - BOARDWALK	Civil		•	•				
CG201	GRADING PLAN - PARK - ENLARGEMENT	Civil			•				
L101	SITE PLAN - PARK	Landscape			•				
L102	SITE PLAN - TRAIL	Landscape			•				
L103	SITE PLAN - BOARDWALK	Landscape		•					
L200	BOARDWALK ELEVATIONS	Landscape		•					
L201	BOARDWALK ELEVATIONS	Landscape		•					
L202	PARK ELEVATIONS	Landscape			•				
L400	PLAY AREA ENLARGEMENTS	Landscape			•				
L401	LANDSCAPE ENLARGEMENTS	Landscape			•				
L402	PLAY AREA ENLARGEMENTS	Landscape			•				
L403	PAVING JOINTING & PATTERN DETAIL PLAN	Landscape			•				
LD101	LANDSCAPE PAVING DETAILS	Landscape			•				
LD102	PLAY AREA DETAILS	Landscape			•				
LD103	STAIR & RAILING DETAILS	Landscape		•					
LD104	WALL & FENCE DETAILS	Landscape		•					
LD105	TRAIL TYPICAL DETAIL	Landscape		•	•				
LD106	OVERLOOK DETAILS	Landscape			•				
LD107	GEOTECHNICAL WALL DETAIL	Geotechnical			•				
LD200	METAL GUARDRAIL DETAILS	Landscape		•					
LD201	METAL GUARDRAIL DETAILS	Landscape		•					
LD202	METAL GUARDRAIL DETAILS	Landscape		•					
LD203	METAL GUARDRAIL @ BOARDWALK OVERLOOK	Landscape		•					
SS001	GENERAL STRUCTURAL NOTES	Site Structural	•	•					
SS002	GENERAL STRUCTURAL NOTES	Site Structural	•	•					
SS003	STATEMENT OF SPECIAL INSPECTIONS	Site Structural	•	•					
SS100	STRUCTURAL SHEET LAYOUT	Site Structural	•	•					
SS101	PARK PLAN	Site Structural	•						
SS102	TRAIL PLAN	Site Structural		•					

Sheet Index

Sheet Number	Sheet Name	Designed By	Building Permit (Restroom)	Building Permit (Boardwalk)	LSM Permit	Electrical Permit	Plumbing Permit	PSE Permit	NUD Permit
SS103	BOARDWALK PLAN	Site Structural		•					
SSD101	DETAILS	Site Structural		•					
SSD102	DETAILS	Site Structural		•					
S001	STRUCTURAL NOTES	Building Structural	•						
S002	STRUCTURAL NOTES	Building Structural	•						
S003	STRUCTURAL NOTES	Building Structural	•						
S101	FOUNDATION PLAN	Building Structural	•						
S201	ROOF FRAMING PLAN	Building Structural	•						
SD100	DETAILS	Building Structural	•						
SD101	DETAILS	Building Structural	•						
SD102	DETAILS	Building Structural	•						
A000	ABBREVIATIONS & SYMBOLS	Architect	•						
A001	SCHEDULES, DOOR & FRAME TYPES	Architect	•						
A100	SLAB/CURB PLAN	Architect	•						
A101	BUILDING PLAN	Architect	•						
A102	UPPER WALL PLAN	Architect	•						
A103	ROOF PLAN	Architect	•						
A301	REFLECTED CEILING PLAN	Architect	•			•			
A401	EXTERIOR ELEVATIONS I	Architect	•						
A402	EXTERIOR ELEVATIONS II	Architect	•						
A403	PERSPECTIVES	Architect	•						
AD100	ENLARGED PLANS	Architect	•				•		
AD101	INTERIOR ELEVATIONS	Architect	•				•		
AD102	BUILDING SECTION I	Architect	•				•		
AD103	BUILDING SECTION II	Architect	•				•		
AD104	SLOPED COLUMNS SECTIONS	Architect	•						
AD105	WALL SECTIONS	Architect	•						
AD106	WALL DETAILS	Architect	•						
M001	MECHANICAL GENERAL INFORMATION	Mechanical	•			•	•		
M002	SCHEDULES	Mechanical	•			•	•		
M101	BUILDING MECHANICAL PLANS	Mechanical	•			•	•		
M201	PLUMBING DIAGRAM	Mechanical	•				•		
M301	SECTIONS AND ELEVATIONS	Mechanical	•				•		
MD101	DETAILS	Mechanical	•						
E001	SYMBOLS LIST & ABBREVIATIONS	Electrical	•			•		•	
E002	WSEC COMPLIANCE FORMS	Electrical	•			•		•	
E003	WSEC COMPLIANCE FORMS	Electrical	•			•		•	
E004	WSEC COMPLIANCE FORMS	Electrical	•			•		•	
E101	ELECTRICAL SITE PLAN	Electrical	•			•		•	
E201	ENLARGED BUILDING PLANS	Electrical	•			•		•	
E301	ONE-LINE DIAGRAM AND SCHEDULES	Electrical	•			•		•	
ED100	DETAILS	Electrical	•			•		•	
IR001	IRRIGATION NOTES & SCHEDULE	Irrigation			•				
IR101	IRRIGATION PLAN - PARK	Irrigation			•				
ID100	IRRIGATION DETAILS	Irrigation			•				
ID101	IRRIGATION DETAILS	Irrigation			•				
LP101	PLANTING PLAN - PARK	Landscape			•				
LP102	PLANTING PLAN - TRAIL	Landscape			•				
LP103	PLANTING PLAN - BOARDWALK	Landscape			•				
LD300	PLANTING DETAILS	Landscape			•				
LD301	PLANTING DETAILS	Landscape			•				

Grand total: 105

Team Contact Info

Prime Consultant:

Berger Partnership - Landscape Architecture
Primary: Matt Martenson
Phone: 206-492-5560
Email: mattm@bergerpartnership.com
Secondary: Andy Mitton
Phone: 206-492-5562
Email: andym@bergerpartnership.com

Subconsultant Team

CH2M Hill - Civil Engineering
Primary:Jesse Williams
Email: jesse.williams@ch2m.com

Swenson Say Faget - Structural Engineering
Primary: Gregory Juttner
Email: gjuttner@ssfengineers.com

ESA - Environmental
Primary: Jessica Redman
Email: jredman@esassoc.com

KPFF - Survey
Primary: Jereme Chapman
Email: jereme.chapman@kpff.com

Symbiosis Tree Care: Arborist
Primary: Kurt Fickelsen
Email: kurtfick@gmail.com

Enginuity Systems - Spray Park Mechanical:
Primary: Jesse Barksdale
Email: jesse@enginuitysys.com

ORB Architects: Architecture
Primary: Geoff Anderson
Email: ganderson@innovaarchitects.com

NAC Architecture: Electrical Engineering
Primary: Mark McMicheal
Email: mmcmicheal@nacarchitecture.com

Design 2426: Irrigation
Primary: Jason Anderson
Email: jasona@design2426.com

Vicinity Map

Applicable Codes:

Compliance with the following codes shall be required:

Accessibility	2010 Americans with Disabilities (ADA) Standards for Accessible Design
Building	2015 International Building Code (IBC)
Electrical	2017 National Electrical Code
Energy Efficiency	2015 Washington State Energy Code (WSEC)
Fire	2015 International Fire Code with Washington Amendments
Mechanical	2015 Washington State Energy Code (WSEC)
Plumbing	2015 Uniform Plumbing Code

Drawing Set Printing and Reproduction Notes/Req's:

1. DRAWING SET SHEET SIZE IS 22" X 34".
2. DRAWING SET UTILIZES COLORED INFORMATION AND SHALL BE PRINTED AND REPRODUCED IN COLOR

City/Owner Contact Info

City of Kirkland:
Project Manager: Brian Baker
Phone: 425-587-3874
Email: bbaker@kirklandwa.gov

berger PARTNERSHIP
1927 Post Alley, Ste 2
Seattle, WA 98101
206.325.6877
bergerpartnership.com

City of Kirkland
Reviewed by T Elder
03/18/2019

Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

STATE OF WASHINGTON ANDY MITTON NO. 882 EXP. 6/30/2020 LANDSCAPE ARCHITECT

SET TYPE
100% Design Submittal

SET ISSUE DATE
02/08/2019

REVISIONS

Δ	DESCRIPTION	DATE

DRAWN/CHECKED
MM / AM

SHEET NAME
COVER

DEM19-01211
Page 1 of 5

SHEET NUMBER
G000

EROSION/SEDIMENTATION CONTROL - PLAN NOTES

1. THE APPROVED CONSTRUCTION SEQUENCE SHALL BE AS FOLLOWS:
   a. CONDUCT PRE-CONSTRUCTION MEETING.
   b. FLAG OR FENCE CLEARING LIMITS.
   c. POST SIGN WITH NAME AND PHONE NUMBER OF TESC SUPERVISOR.
   d. INSTALL CATCH BASIN PROTECTION IF REQUIRED.
   e. GRADE AND INSTALL CONSTRUCTION ENTRANCE(S).
   f. INSTALL PERIMETER PROTECTION (SILT FENCE, BRUSH BARRIER, ETC.).
   g. CONSTRUCT SEDIMENT PONDS AND TRAPS.
   h. GRADE AND STABILIZE CONSTRUCTION ROADS.
   i. CONSTRUCT SURFACE WATER CONTROLS (INTERCEPTOR DIKES, PIPE SLOPE DRAINS, ETC.) SIMULTANEOUSLY WITH CLEARING AND GRADING FOR PROJECT DEVELOPMENT.
   j. MAINTAIN EROSION CONTROL MEASURE IN ACCORDANCE WITH CITY OF KIRKLAND STANDARDS AND MANUFACTURER'S RECOMMENDATIONS.
   k. RELOCATE EROSION CONTROL MEASURES OR INSTALL NEW MEASURES SO THAT AS SITE CONDITIONS CHANGE, THE EROSION AND SEDIMENT CONTROL IS ALWAYS IN ACCORDANCE WITH THE CITY TESC MINIMUM REQUIREMENTS.
   l. COVER ALL AREAS WITHIN THE SPECIFIED TIME FRAME WITH STRAW, WOOD FIBER MULCH, COMPOST, PLASTIC SHEETING, CRUSHED ROCK OR EQUIVALENT.
   m. STABILIZE ALL AREAS THAT REACH FINAL GRADE WITHIN 7 DAYS.
   n. SEED OR SOD ANY AREAS TO REMAIN UNWORKED FOR MORE THAN 30 DAYS.
   o. UPON COMPLETION OF THE PROJECT, ALL DISTURBED AREAS MUST BE STABILIZED AND BEST MANAGEMENT PRACTICES REMOVED IF APPROPRIATE.

2. CONTRACTOR IS RESPONSIBLE FOR KEEPING STREETS CLEAN AND FREE OF CONTAMINANTS AT ALL TIMES AND FOR PREVENTING AN ILLICIT DISCHARGE (KMC 15.52) INTO THE MUNICIPAL STORM DRAIN SYSTEM. IF YOUR CONSTRUCTION PROJECT CAUSES AN ILLICIT DISCHARGE TO THE MUNICIPAL STORM DRAIN SYSTEM, THE CITY OF KIRKLAND STORM MAINTENANCE DIVISION WILL BE CALLED AT (425) 587-3900 TO CLEAN THE PUBLIC STORM SYSTEM, AND OTHER AFFECTED PUBLIC INFRASTRUCTURE. THE CONTRACTOR(S), PROPERTY OWNER, AND ANY OTHER RESPONSIBLE PARTY MAY BE CHARGED ALL COSTS ASSOCIATED WITH THE CLEAN-UP AND MAY ALSO BE ASSESSED MONETARY PENALTIES (KMC 1.12.200). THE MINIMUM PENALTY IS $250. A FINAL INSPECTION OF YOUR PROJECT WILL NOT BE GRANTED UNTIL ALL COSTS ASSOCIATED WITH THE CLEAN-UP, AND PENALTIES, ARE PAID TO THE CITY OF KIRKLAND.

3. CONSTRUCTION DEWATERING DISCHARGES SHALL ALWAYS MEET WATER QUALITY GUIDELINES LISTED IN COK POLICY E-1. SPECIFICALLY, DISCHARGES TO THE PUBLIC STORMWATER DRAINAGE SYSTEM MUST BE BELOW 25NTU, AND NOT CONSIDERED AN ILLICIT DISCHARGE (PER KMC 15.52.090).
   TEMPORARY DISCHARGES TO SANITARY SEWER REQUIRE PRIOR AUTHORIZATION AND PERMIT FROM KING COUNTY INDUSTRIAL WASTE PROGRAM (206-263-3000) AND NOTIFICATION TO THE PUBLIC WORKS CONSTRUCTION INSPECTOR.

4. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH CITY OF KIRKLAND STANDARDS, SPECIFICATIONS, AND GENERAL POLICIES.

5. THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THIS PLAN SHALL BE SET BY SURVEY AND CLEARLY FLAGGED IN THE FIELD BY A CLEARING CONTROL FENCE PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE OR REMOVAL OF ANY GROUND COVER BEYOND THE FLAGGED EROSION - PLAN NOTES (CONTINUED) CLEARING LIMITS SHALL BE PERMITTED. THE FLAGGING SHALL BE MAINTAINED BY THE PERMITTEE/CONTRACTOR FOR THE DURATION OF CONSTRUCTION.

6. APPROVAL OF THIS EROSION/SEDIMENTATION CONTROL (ESC) PLAN DOES NOT CONSTITUTE AN APPROVAL OF PERMANENT ROAD OR DRAINAGE DESIGN (E.G., SIZE AND LOCATION OF ROADS, PIPES, RESTRICTORS, CHANNELS, RETENTION FACILITIES, UTILITIES, ETC.).

7. THE CITY WILL TRANSFER THE NPDES PERMIT TO THE CONTRACTOR. THE IMPLEMENTATION OF THIS ESC PLAN AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE PERMITTEE/CONTRACTOR UNTIL ALL CONSTRUCTION IS APPROVED.

8. A COPY OF THE APPROVED ESC PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.

9. THE ESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED PRIOR TO OR IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES IN SUCH A MANNER AS TO ENSURE THAT SEDIMENT-LADEN WATER DOES NOT ENTER THE DRAINAGE SYSTEM OR VIOLATE APPLICABLE WATER STANDARDS. WHEREVER POSSIBLE, MAINTAIN NATURAL VEGETATION FOR SILT CONTROL.

10. THE ESC FACILITIES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DETAILS ON THE APPROVED PLANS. LOCATIONS MAY BE MOVED TO SUIT FIELD CONDITIONS, SUBJECT TO APPROVAL BY THE ENGINEER AND THE CITY OF KIRKLAND INSPECTOR.

11. THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED (E.G., ADDITIONAL SUMPS, RELOCATION OF DITCHES AND SILT FENCES, ETC.) AS NEEDED FOR UNEXPECTED STORM EVENTS. ADDITIONALLY, MORE ESC FACILITIES MAY BE REQUIRED TO ENSURE COMPLETE SILTATION CONTROL. THEREFORE, DURING THE COURSE OF CONSTRUCTION IT SHALL BE THE OBLIGATION AND RESPONSIBILITY OF THE CONTRACTOR TO ADDRESS ANY NEW CONDITIONS THAT MAY BE CREATED BY HIS ACTIVITIES AND TO PROVIDE ADDITIONAL FACILITIES OVER AND ABOVE THE MINIMUM REQUIREMENTS AS MAY BE NEEDED.

12. THE ESC FACILITIES SHALL BE INSPECTED BY THE PERMITTEE/CONTRACTOR DAILY DURING NON-RAINFALL PERIODS, EVERY HOUR (DAYLIGHT) DURING A RAINFALL EVENT, AND AT THE END OF EVERY RAINFALL, AND MAINTAINED AS NECESSARY TO ENSURE THEIR CONTINUED FUNCTIONING. IN ADDITION, TEMPORARY SILTATION PONDS AND ALL TEMPORARY SILTATION CONTROLS SHALL BE MAINTAINED IN A SATISFACTORY CONDITION UNTIL SUCH TIME THAT CLEARING AND/OR CONSTRUCTION IS COMPLETED, PERMANENT DRAINAGE FACILITIES ARE OPERATIONAL, AND THE POTENTIAL FOR EROSION HAS PASSED. WRITTEN RECORDS SHALL BE KEPT DOCUMENTING THE REVIEWS OF THE ESC FACILITIES, AND A COPY OF THESE RECORDS SHALL BE PROVIDED TO THE CITY OF KIRKLAND AT THE CLOSE OF THE PROJECT.

13. THE ESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN 48 HOURS FOLLOWING A STORM EVENT.

14. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES, SUCH AS WASH PADS, MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.

15. ALL DENUDED SOILS MUST BE STABILIZED WITH AN APPROVED TESC METHOD (E.G. SEEDING, MULCHING, PLASTIC COVERING, CRUSHED ROCK) WITHIN THE FOLLOWING TIMELINES:
   • MAY 1 TO SEPTEMBER 30 - SOILS MUST BE STABILIZED WITHIN 7 DAYS OF GRADING.
   • OCTOBER 1 TO APRIL 30 - SOILS MUST BE STABILIZED WITHIN 2 DAYS OF GRADING.
   • STABILIZE SOILS AT THE END OF THE WORKDAY PRIOR TO A WEEKEND, HOLIDAY, OR PREDICTED RAIN EVENT.

16. WHERE SEEDING FOR TEMPORARY EROSION CONTROL IS REQUIRED, FAST GERMINATING GRASSES SHALL BE APPLIED AT AN APPROPRIATE RATE (EXAMPLE: ANNUAL OR PERENNIAL RYE APPLIED AT APPROXIMATELY 80 POUNDS PER ACRE).

17. WHERE STRAW MULCH IS REQUIRED FOR TEMPORARY EROSION CONTROL, IT SHALL BE APPLIED AT A MINIMUM THICKNESS OF 2".

18. CLEARING LIMITS SHALL BE DELINEATED WITH A CLEARING CONTROL FENCE. THE CLEARING CONTROL FENCE SHALL CONSIST OF A 6-FT. HIGH CHAIN LINK FENCE ADJACENT THE DRIP LINE OF TREES TO BE SAVED, WETLAND OR STREAM BUFFERS, AND SENSITIVE SLOPES. CLEARING CONTROL FENCES ALONG WETLAND OR STREAM BUFFERS OR UPSLOPE OF SENSITIVE SLOPES SHALL BE ACCOMPANIED BY AN EROSION CONTROL FENCE. IF APPROVED BY THE CITY, A FOUR-FOOT HIGH ORANGE MESH CLEARING CONTROL FENCE MAY BE USED TO DELINEATE CLEARING LIMITS IN ALL OTHER AREAS.

19. OFF-SITE STREETS MUST BE KEPT CLEAN AT ALL TIMES. IF DIRT IS DEPOSITED ON THE PUBLIC STREET SYSTEM, THE STREET SHALL BE IMMEDIATELY CLEANED WITH POWER SWEEPER OR OTHER EQUIPMENT. ALL VEHICLES SHALL LEAVE THE SITE BY WAY OF THE CONSTRUCTION ENTRANCE AND SHALL BE CLEANED OF ALL DIRT THAT WOULD BE DEPOSITED ON THE PUBLIC STREETS.

20. ROCK FOR EROSION PROTECTION OF ROADWAY DITCHES, WHERE REQUIRED, MUST BE OF SOUND QUARRY ROCK, PLACED TO A DEPTH OF 1' AND MUST MEET THE FOLLOWING SPECIFICATIONS: 4"-8" ROCK/40%-70% PASSING; 2"-4" ROCK/30%-40% PASSING; AND 1"-2" ROCK/10%-20% PASSING. RECYCLED CONCRETE SHALL NOT BE USED FOR EROSION PROTECTION, INCLUDING CONSTRUCTION ENTRANCE OR TEMPORARY STABILIZATION ELSEWHERE ON THE SITE.

21. IF ANY PART(S) OF THE CLEARING LIMIT BOUNDARY OR TEMPORARY EROSION/SEDIMENTATION CONTROL PLAN IS/ARE DAMAGED, IT SHALL BE REPAIRED IMMEDIATELY.

22. ALL PROPERTIES ADJACENT TO THE PROJECT SITE SHALL BE PROTECTED FROM SEDIMENT DEPOSITION AND RUNOFF.

23. AT NO TIME SHALL MORE THAN 1' OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED IMMEDIATELY FOLLOWING REMOVAL OF EROSION CONTROL BMPS. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT-LADEN WATER INTO THE DOWNSTREAM SYSTEM.

24. ANY PERMANENT RETENTION/DETENTION FACILITY USED AS A TEMPORARY SETTLING BASIN SHALL BE MODIFIED WITH THE NECESSARY EROSION CONTROL MEASURES AND SHALL PROVIDE ADEQUATE STORAGE CAPACITY. IF THE PERMANENT FACILITY IS TO FUNCTION ULTIMATELY AS AN INFILTRATION OR DISPERSION SYSTEM, THE FACILITY SHALL NOT BE USED AS A TEMPORARY SETTLING BASIN. NO UNDERGROUND DETENTION TANK, DETENTION VAULT, OR SYSTEM WHICH BACKS UNDER OR INTO A POND SHALL BE USED AS A TEMPORARY SETTLING BASIN.

25. THE WASHED GRAVEL BACKFILL ADJACENT TO THE FILTER FABRIC FENCE SHALL BE REPLACED AND THE FILTER FABRIC CLEANED IF IT IS NONFUNCTIONAL BY EXCESSIVE SILT ACCUMULATION AS DETERMINED BY THE CITY OF KIRKLAND. ALSO, ALL INTERCEPTOR SWALES SHALL BE CLEANED IF SILT ACCUMULATION EXCEEDS ONE-QUARTER DEPTH.

26. PRIOR TO THE OCTOBER 1 OF EACH YEAR (THE BEGINNING OF THE WET SEASON), ALL DISTURBED AREAS SHALL BE REVIEWED TO IDENTIFY WHICH ONES CAN BE SEEDED IN PREPARATION FOR THE WINTER RAINS. THE IDENTIFIED DISTURBED AREA SHALL BE SEEDED WITHIN ONE WEEK AFTER OCTOBER 1. A SITE PLAN DEPICTING THE AREAS TO BE SEEDED AND THE AREAS TO REMAIN UNCOVERED SHALL BE SUBMITTED TO THE PUBLIC WORKS CONSTRUCTION INSPECTOR. THE INSPECTOR CAN REQUIRE SEEDING OF ADDITIONAL AREAS IN ORDER TO PROTECT SURFACE WATERS, ADJACENT PROPERTIES, OR DRAINAGE FACILITIES.

27. ANY CATCH BASINS COLLECTING RUNOFF FROM THE SITE, WHETHER THEY ARE ON OR OFF THE SITE, SHALL HAVE ADEQUATE PROTECTION FROM SEDIMENT. CATCH BASINS DIRECTLY DOWNSTREAM OF THE CONSTRUCTION ENTRANCE OR ANY OTHER CATCH BASIN AS DETERMINED BY THE CITY INSPECTOR SHALL BE PROTECTED WITH A "STORM DRAIN PROTECTION INSERT" OR EQUIVALENT.

28. DO NOT FLUSH CONCRETE BY-PRODUCTS OR TRUCKS NEAR OR INTO THE STORM DRAINAGE SYSTEM. IF EXPOSED AGGREGATE IS FLUSHED INTO THE STORM SYSTEM, IT COULD MEAN RE-CLEANING THE ENTIRE DOWNSTREAM STORM SYSTEM, OR POSSIBLY RE-LAYING THE STORM LINE.

29. RECYCLED CONCRETE SHALL NOT BE STOCKPILED ON SITE. USE OR REUSE OF RECYCLED CONCRETE ON THE SITE IS PROHIBITED.

NORTHSHORE UTILITY DISTRICT GENERAL NOTES

SMALL PROJECTS SERVICE SEWER AND WATER GENERAL NOTES:

1. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH THE SMALL PROJECT SERVICE SPECIFICATIONS AND THE STANDARD DETAILS OF NORTHSHORE UTILITY DISTRICT.

UTILITY LOCATES:
2. THE APPROXIMATE LOCATIONS OF EXISTING UTILITIES ARE SHOWN ON PLANS AND PROFILES FOR CONVENIENCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF UTILITY LOCATIONS SHOWN AND FOR DISCOVERY OF POSSIBLE ADDITIONAL UTILITIES NOT SHOWN ON PLANS.
3. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE LOCATED, BY APPROPRIATE UTILITY DISTRICTS OR COMPANIES, ALL UNDERGROUND UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
4. FOR UTILITY LOCATES IN KING COUNTY, CALL 1-800-424-5555 PRIOR TO DIGGING.

PRE-CON:
5. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD AT CITY OF KIRKLAND OFFICE OR ONSITE PRIOR TO THE START OF CONSTRUCTION. DISTRICT STAFF WILL NOTIFY THE APPROPRIATE AGENCIES OR REPRESENTATIVES.

SURVEYING:
6. PRIOR TO CONSTRUCTION, LOT CORNERS, EASEMENTS AND PRIVATE ACCESS TRACTS SHALL BE STAKED.
7. HORIZONTAL CONTROL DATA SHALL BE NAD '83/'91. VERTICAL CONTROL SHALL BE NAVD-88 DATUM.
8. AT THE CONCLUSION OF CONSTRUCTION, THE DEVELOPER'S REGISTERED PROFESSIONAL SURVEYOR SHALL PREPARE A DRAWING BASED ON THE SURVEYED LOCATION OF ALL APPURTENANCES INSTALLED, INCLUDING BUT NOT LIMITED TO, MANHOLES, CLEANOUTS, WATER METERS AND WATER SERVICE LINES.

CONSTRUCTION:
9. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE SMALL PROJECT SERVICE SPECIFICATIONS AND THE STANDARD DETAILS OF NORTHSHORE UTILITY DISTRICT.

MATERIALS:
10. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE SMALL PROJECT SERVICE SPECIFICATIONS AND THE STANDARD DETAILS OF NORTHSHORE UTILITY DISTRICT.

PLACEMENT:
11. SEWER AND WATER SERVICE LOCATIONS SHALL BE AS SHOWN ON THE PLANS OR AS OTHERWISE APPROVED BY NORTHSHORE UTILITY DISTRICT.

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City of Kirkland
Reviewed by T Elder
03/18/2019

ch2m

Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

2-8-19

SET TYPE:
100% Design Submittal

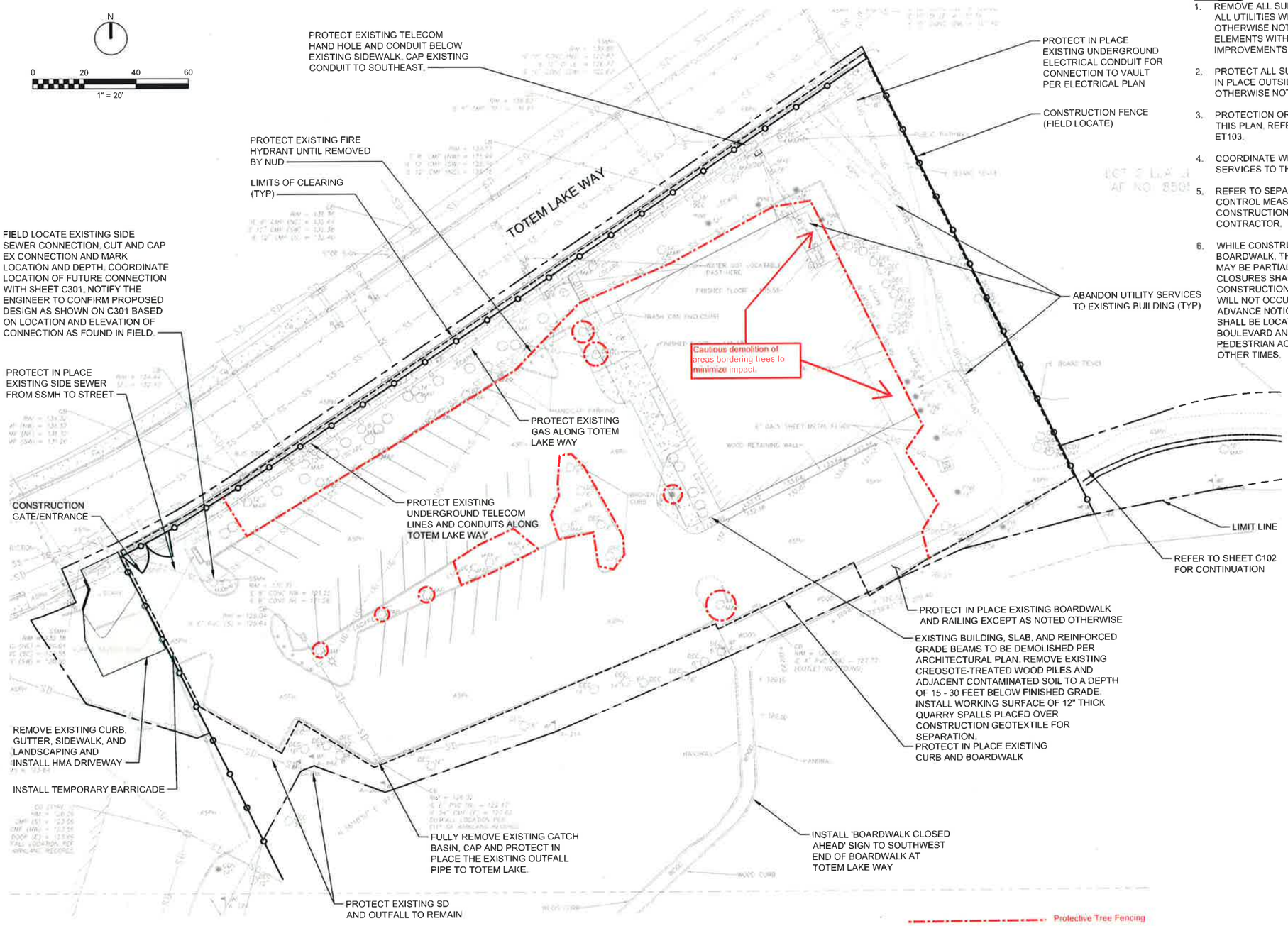
SET ISSUE DATE:
2/8/2019

REVISIONS:

DRAWN CHECKED:
DRW / CHK

SHEET NAME: DEM19-01211
CIVIL GENERAL NOTES

SHEET NUMBER:
C001



SITE PREPARATION PLAN

1" = 20'

NOTES:

1. REMOVE ALL SURFACE FEATURES, PAVEMENTS, AND ABANDON ALL UTILITIES WITHIN THE LIMITS OF CLEARING UNLESS OTHERWISE NOTED. DEMOLISH UTILITIES AND FOUNDATION ELEMENTS WITHIN THE LIMITS OF WORK THAT CONFLICT WITH IMPROVEMENTS, UNLESS OTHERWISE NOTED.
2. PROTECT ALL SURFACE FEATURES, PAVEMENTS, AND UTILITIES IN PLACE OUTSIDE THE LIMITS OF CLEARING UNLESS OTHERWISE NOTED.
3. PROTECTION OR REMOVAL OF VEGETATION NOT SHOWN ON THIS PLAN. REFER TO LANDSCAPE PLANS ET101, ET102, AND ET103.
4. COORDINATE WITH UTILITY PROVIDERS TO ABANDON UTILITY SERVICES TO THE EXISTING BUILDING.
5. REFER TO SEPARATE TESC PLAN FOR EROSION AND SEDIMENT CONTROL MEASURES TO BE IMPLEMENTED DURING CONSTRUCTION. CESC/SWPPP WILL BE TRANSFERRED TO THE CONTRACTOR.
6. WHILE CONSTRUCTING THE EASTERN PORTION OF THE NEW BOARDWALK, THE CROSS KIRKLAND CORRIDOR (CKC) TRAIL MAY BE PARTIALLY CLOSED FOR CONSTRUCTION ACCESS. CLOSURES SHALL NOT EXCEED 15 DAYS TOTAL IN THE CONSTRUCTION PERIOD AND CLOSURES OF 1-2 HOURS PER DAY WILL NOT OCCUR MORE THAN 2 DAYS PER WEEK. PROVIDE ADVANCE NOTICE PRIOR TO ANY CLOSURE, AND SIGNAGE SHALL BE LOCATED ACROSS THE CKC AT TOTEM LAKE BOULEVARD AND 128TH LANE NE. PROVIDE MARKED PEDESTRIAN ACCESS ON THE SOUTH SIDE OF THE TRAIL AT ALL OTHER TIMES.

PCD APPROVED SITE PLAN
Any proposed changes to the approved site plan, such as but not limited to added hard surfaces, HVAC units, tree removals and accessory structures, must be submitted to the Building Department as a revision to the building permit for review and approval by all departments prior to implementation.

All mechanical units shall comply with the maximum environmental noise levels established pursuant to the Noise Control Act of 1974, Revised Code of Washington (RCW) 70.107. See Chapter 173-60 Washington Administrative Code (WAC).

NOTICE
HOURS OF WORK: 7AM TO 8PM MON-FRI
9AM TO 6PM SAT, NO WORK SUNDAYS & HOLIDAYS (PER KZC SEC. 115.25)
Exceptions must be approved in writing by Planning Official

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City of Kirkland
Reviewed by T Elder
03/18/2019

ch2m

Totem Lake Park Phase 1

City of Kirkland

12031 Totem Lake Way, Kirkland, WA 98034

2-8-19

100% Design Submittal

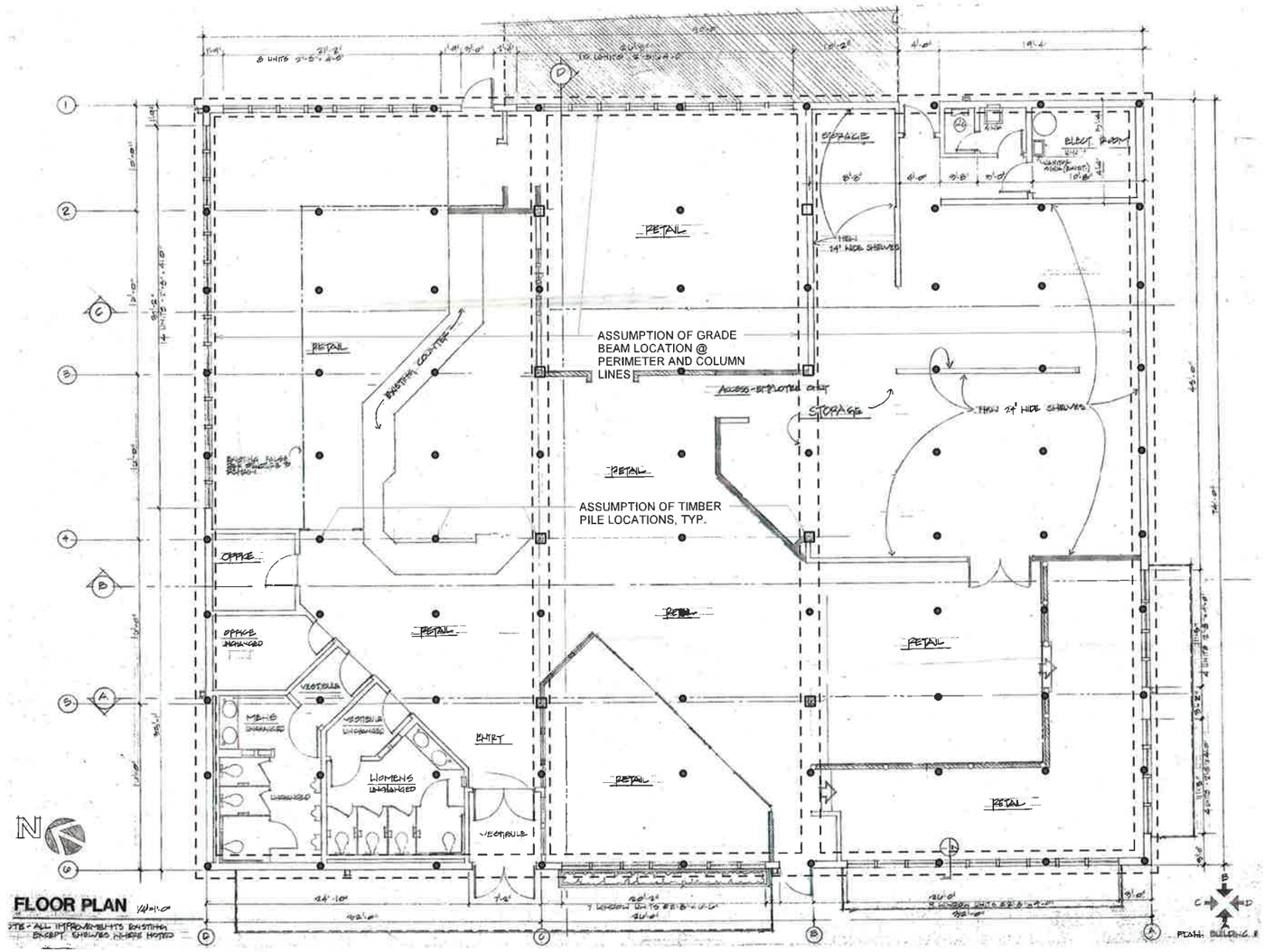
2/8/2019

DRW / CHK

DEM19-01211

SITE PREPARATION PLAN - PARK

C101



FLOOR PLAN 1/8"=1'-0"

SITE - ALL IMPROVEMENTS EXISTING EXCEPT SHELVES WHERE NOTED

PLAN: BUILDING 8

DEMOLITION NOTES:

- THE EXISTING STRUCTURE KNOWN AS THE "YUPPIE PAWN SHOP" IS TO BE DEMOLISHED IN CONJUNCTION WITH THE ADJACENT SITEWORK. THE BUILDING IS AN APPROXIMATELY 6,660 SF, WOOD FRAMED STRUCTURE THAT PREVIOUSLY SERVED AS A RESTAURANT AND RETAIL SPACE.
- THERE ARE NO RECORD DRAWINGS FOR THE BUILDING OTHER THAN THE PLAN SHOWN, REFER TO PHOTOS FOR THE BUILDING VOLUME AND HEIGHT.
- REFER TO SPECIFICATION SECTION 02 41 00 – DEMOLITION FOR ADDITIONAL REQUIREMENTS.
- REFER TO SECTION 01 74 19 - CONSTRUCTION WASTE MANAGEMENT FOR SALVAGE AND RECYCLING REQUIREMENTS.
- REFER TO ADDITIONAL DEMOLITION NOTES AND COORDINATION REQUIRED ON STRUCTURAL, LANDSCAPE, AND CIVIL DRAWINGS AND SPECIFICATIONS.
- PROTECT ANY VEGETATION AND SITE FEATURES SCHEDULED TO REMAIN.
- ABANDON ALL BUILDING UTILITIES. THIS INCLUDES, BUT IS NOT LIMITED TO POWER, DATA, AND WATER SERVICE. COORDINATE WITH THE APPROPRIATE UTILITY COMPANIES AS NECESSARY.
- DEMOLISH THE EXISTING FOUNDATIONS AS REQUIRED. THE BUILDING IS ASSUMED TO BE SUPPORTED ON GRADE BEAMS WITH STEEL AT PERIMETER AND COLUMN LINES. GRADE BEAMS AND SLABS SUPPORTED WITH 12"Ø CREOSOTE TIMBER PILES SPACED AT APPROXIMATELY 10' - 0" O.C., ASSUME 15' - 20' DEEP.
- REFER TO REPORT FROM ASSOCIATED EARTH SCIENCES AND CIVIL ENGINEERS FOR FULL REMOVAL.
- REFER TO HAZARDOUS MATERIALS REPORT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR VISITING THE PROPERTY AND VERIFYING THE EXISTING BUILDING CONDITIONS PRIOR TO PROVIDING A BID.

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INNOVA architects
950 Pacific Avenue, Suite
Tacoma, WA 98402
253-572-4903

City of Kirkland
Reviewed by T Elder
03/18/2019

Totem Lake Park Phase 1
City of Kirkland

12031 Totem Lake Way, Kirkland, WA 98034

STATE OF WASHINGTON REGISTERED ARCHITECT GEOFFREY E. ANDERSON

SET TYPE
100% Design Submittal

SET ISSUE DATE
2/8/2019

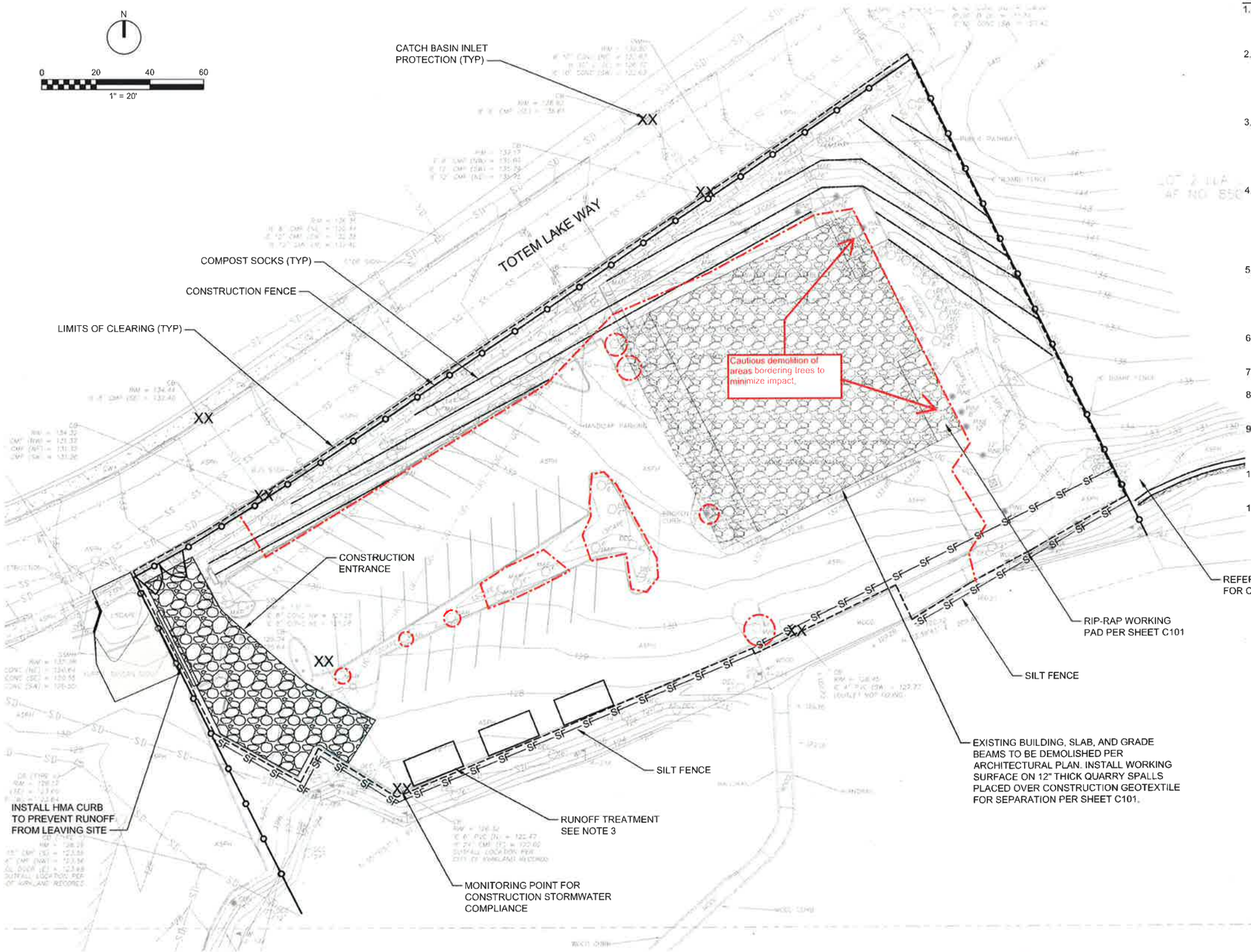
REVISIONS

REVNAME1	MM.DD.YYYY
REVNAME2	MM.DD.YYYY
REVNAME3	MM.DD.YYYY
REVNAME4	MM.DD.YYYY
REVNAME5	MM.DD.YYYY
REVNAME6	MM.DD.YYYY

DRAWN CHECKED
Author Checker

SHEET NAME DEM19-01211
BUILDING DEMOLITION

SHEET NUMBER
BD100



NOTES:

1. REMOVE TREES AS INDICATED ON TREE REMOVAL PLAN - PROTECT ON PLACE ALL OTHER TREES NOT INDICATED TO BE REMOVED.
2. A DRAFT SWPPP HAS BEEN PREPARED. CONTRACTOR SHALL MODIFY THE SWPPP AND THE ESC PLANS AS NEEDED TO REFLECT THE CONSTRUCTION SEQUENCE, MEANS AND METHODS. CESC/SWPPP WILL BE TRANSFERRED TO THE CONTRACTOR.
3. PROVIDE FINAL SWPPP, CONSTRUCTION EROSION AND SEDIMENTATION CONTROL LEAD, COVER MEASURES, RUNOFF TREATMENT, AND ALL OTHER MEASURES AS NECESSARY TO MEET CONSTRUCTION GENERAL PERMIT AND CITY OF KIRKLAND POLICY D-12 REQUIREMENTS.
4. THE ESC MEASURES SHOWN ON THIS PLAN AND DESCRIBED IN THE PROJECT SPECIFICATIONS ARE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, UPGRADE THESE MEASURES AS NEEDED TO COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL EROSION AND SEDIMENT CONTROL REGULATIONS.
5. IF TEMPORARY SHORING IS REQUIRED, CONTRACTOR SHALL DESIGN TEMPORARY SHORING PER APPLICABLE CODES AND STANDARDS, INCLUDING BUT NOT LIMITED TO WASHINGTON ADMINISTRATIVE CODE SAFETY STANDARDS FOR CONSTRUCTION WORK.
6. HIGH VISIBILITY FENCE SHALL BE PER WSDOT STANDARD PLAN I-10.10-01.
7. SILT FENCE SHALL BE PER WSDOT STANDARD PLAN I-30.10-02.
8. COMPOST SOCKS SHALL BE PER WSDOT STANDARD PLAN I-30.40-01.
9. PROVIDE EROSION CONTROL MEASURES FOR ALL DISTURBED AREAS INCLUDING STAGING, ACCESS, AND PARKING AREAS BEYOND THE LIMITS SHOWN ON THIS PLAN.
10. PLACE CATCH BASIN INSERT IN NEXT DOWNSTREAM INLET IN TOTEM LAKE WAY.
11. SLOPES STEEPER THAN 4:1 (HORIZONTAL:VERTICAL), NOT INCLUDING SLOPES BELOW THE WATER STORAGE AREA IN THE BIORETENTION CELLS, SHALL BE STABILIZED PER SLOPE STABILIZATION DETAIL 1 ON CD101.

LEGEND:

- LIMITS OF CLEARING
- TEMPORARY CONSTRUCTION FENCE
- COMPOST SOCKS
- XX CATCH BASIN INSERT

Protective Tree Fencing

CESC PLAN

1" = 20'

PCD APPROVED SITE PLAN
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All mechanical units shall comply with the maximum environmental noise levels established pursuant to the Noise Control Act of 1974, Revised Code of Washington (RCW) 70.107. See Chapter 173-60 Washington Administrative Code (WAC).

NOTICE
HOURS OF WORK: 7AM TO 8PM MON-FRI 9AM TO 6PM SAT. NO WORK SUNDAYS & HOLIDAYS (PER KZC SEC. 115.25) Exceptions must be approved in writing by Planning Official

/VER:
NTS, RELOCATIONS, OR EXTENSIONS FOR (S) ARE NOT DEPICTED HERE.

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City of Kirkland
Reviewed by T Elder
03/18/2019

ch2m.

Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

2-8-19

SET TYPE
100% Design Submittal

ISSUE DATE
2/8/2019

DRAWN / CHK
DRW / CHK

SHEET NAME
CESC PLAN - PARK

DEM19-01211
PRJ19-00115

SHEET NUMBER
C201

BUILDING PERMIT: RESTROOM

City of Kirkland

BUILDING PERMIT

City of Kirkland
123 Fifth Avenue
Kirkland WA 98033
425-587-3600

Permit Number: BNR19-01207
Type: Building Non Residential - BNR
Work Class: New

BNR19-01207

Permit Information

Plans Location: Electronic

Job Address:	**Project:**	TOTEM LAKE PARK	
12031 NE TOTEM LAKE WAY	**Parcel:**	6928400032	**Application Date:** 02/20/2019
	Valuation:	$480,000.00	**Issue Date:** 09/04/2019
	Sprinklered:		**Expiration Date:** 09/04/2022
	Dwelling Units:	0	**Code Edition:** 2015 IBC

Scope of Work

Totem Lake Park: Construct restroom building. (separate MNR19-01208 & PNR19-01209)

Contacts

Type	Name	Address	Phone
Owner	CITY OF KIRKLAND	123 5TH AVE KIRKLAND, WA 98033	B: C:
Owner is Contractor	OWNER IS CONTRACTOR		B: C:

ELECTRONIC

General Conditions

1. The issuance of this permit shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of this code or of any other ordinances of the jurisdiction.
2. The approved plans shall not be changed, modified, or altered without authorization from the building official.
3. This permit, inspection record and approved plans are required to be on the job site at all times.
4. All development activity and heavy equipment operation is restricted to 7:00 a.m. to 8:00 p.m., Monday through Friday, and 9:00 a.m. to 6:00 on Saturdays. No development activity or heavy equipment operation may occur on Sundays or holidays observed by the City.
5. All work is subject to field inspection. Do not cover any work until approved by a City inspector.
6. Inspection(s) required - Schedule on **http://MyBuildingPermit.com**
7. Contact the Building Division at 425-587-3600 with any questions.

12031 NE TOTEM LAKE WAY

SEE ATTACHED SHEET FOR SPECIFIC CONDITIONS

The City approved plans, permit and inspection record must remain on the job site for use by City inspection personnel.
Any sales tax reported to the State in association with this project should be coded to the City of Kirkland tax location code 1716.
I certify that the information furnished by me is true and correct to the best of my knowledge and the applicable City of Kirkland requirements will be met.

☐ Owner or ☐ Agent

(Check one) _____ (Print Name) _____ Date

_____
(Signature)

City of Kirkland
123 5th Avenue
Kirkland, WA 98033
425-587-3600

SPECIFIC PERMIT CONDITIONS

BUILDING ADDRESS	PERMIT NUMBER	PERMIT TYPE	WORK CLASS	DATE PRINTED
12031 NE TOTEM LAKE WAY	BNR19-01207	Building Non Residential - BNR	New	7/5/2019

DESCRIPTION OF WORK:
Totem Lake Park: Construct restroom building. (separate MNR19-01208 & PNR19-01209)

Building Department Conditions:

You may contact Tanya Elder at 425-587-3614 for Building Department questions related to this permit.

SCOPE - Do not exceed scope of permit.

A REVISION or SEPARATE PERMIT IS REQUIRED FOR:
Any modification beyond the original scope of the issued permit.

Separate permits are required for plumbing, mechanical or electrical work.

INSPECTIONS REQUIRED - See permit for instructions on how to schedule inspections.

SPECIAL INSPECTIONS REQUIRED – Welding, CMU, Piles, etc.

Planning Department Conditions:

Planning Department Conditions** Contact Christian Geitz at 425.587.3246

PCD 1. PLN TO PERFORM FINAL PRIOR TO BLD - BUILDING PERMIT INSPECTION CARD MUST BE SIGNED OFF BY PLANNING PRIOR TO ANY REQUEST FOR FINAL BUILDING INSPECTION. PLEASE CALL 425-587-3235 TO REQUEST INSPECTION. 24 HOUR ADVANCE NOTICE REQUIRED FOR INSPECTION.

PCD 2. REVISED SITE PLAN - Any proposed changes to the approved site plan must be submitted as a revision to the building permit for review and approval prior to implementation.

PCD 3. ALL - PROHIBITED VEGETATION - Plants listed as prohibited in the Kirkland Plant List (available from the Planning Department) shall not be planted in the City. These plants include Blackberry, Fragrant water lily, Ivy, Herb Robert, Knotweed, Old man's beard, Poison hemlock, Reed canary grass, Scotch broom, Spurge laurel, Yellow archangel, and Yellow flag iris. Other plants, while not prohibited, are discouraged, including Butterfly bush, English holly, and English laurel.

PCD 4. NON-NATIVE INVASIVE AND NOXIOUS PLANTS (KZC 95.51.5) - It is the responsibility of the property owner to remove non-native invasive plants and noxious plants from the vicinity of any tree or other vegetation that the City has required to be planted or protected. Removal must be performed in a manner that will not harm the tree or other vegetation that the City has required to be planted or protected. Prior to calling for a final inspection remove ivy from all trees from the ground up 5 feet above grade and from the trunk out 1 foot.

PCD 5. ALL - HOURS OF CONSTRUCTION - All development activity and heavy equipment operation is restricted to 7:00 a.m. to 8:00 p.m. Monday through Friday, and 9:00 a.m. to 6:00 p.m. Saturday. Other restrictions on Saturday include: no working in the right-of-way, no work requiring inspection, and no trucking into or out of the site; however, light grading work on-site on Saturday is allowed. NO development activity or heavy equipment operation may occur on Sundays or the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day.

PCD 6. MAXIMUM NOISE LEVELS - All mechanical units shall comply with the maximum environmental noise levels established pursuant to the Noise Control Act of 1974, Revised Code of Washington (RCW) 70.107. See Chapter 173-60 Washington Administrative Code (WAC). A link to the WAC and RCW is available at www.kirklandpermits.net.

PCD 7. WETLAND/STREAM BUFFER PROTECTION – Prior to beginning development activities, the applicant shall install a 6 -foot-high construction-phase chain link fence or equivalent fence, as approved by the Planning Official along the upland boundary of the entire wetland buffer with silt screen fabric installed per City standard, in a manner approved by the Planning Official. The construction-phase fence shall remain upright in the approved location for the duration of

Planning Department Conditions:

development activities.

PCD 8. SPLIT RAIL FENCE: Prior to Final Inspection, the applicant shall install between the upland boundary of all wetland buffers and the developed portion of the site, either (1) a permanent 3- to 4-foot-tall split rail fence; or (2) permanent planting of equal barrier value; or (3) equivalent barrier, as approved by the Planning Official. Installation of the permanent fence or planted barrier must be done by hand where necessary to prevent machinery from entering the wetland or its buffer.

Public Works Department Conditions:

PUBLIC WORKS CONDITIONS

1. Refer to the Contract Documents for construction of the subject project, including but not limited to all terms, conditions, provisions, agreements, construction plans, specifications, addenda, and all applicable standards, codes, laws, and regulations.

2. The CIP Division of Public Works will manage the construction process and provide inspections for right-of-way /street /public utilities improvements, for land surface modifications, and for construction stormwater pollution prevention /erosion and sediment control. Inspections may be provided by consultant(s) working on behalf of the CIP Division and/or by in-house staff, unless otherwise specified by the Contract Documents.

City of Kirkland
123 5th Avenue
Kirkland, WA 98033

INSPECTION RECORD - THIS CARD MUST BE POSTED ON SITE

Schedule an inspection by 6:00 PM for next day inspections

Schedule online at: **www.MyBuildingPermit.com**

Permit #: **BNR19-01207**

How to request an inspection:

1) Go to **http://www.MyBuildingPermit.com**
2) Select Kirkland as the Jurisdiction.
3) Select Permit Number or Address.
4) Follow the on-screen instructions.

BUILDING ADDRESS	PARCEL NUMBER	DATE PRINTED	PERMIT TYPE	WORKCLASS	SQ FT	VALUATION
12031 NE TOTEM LAKE WAY	6928400032	7/5/19	Building Non Residential - BNR	New	411	$480,000.00

REQUIRED INSPECTIONS - DO NOT COVER ANY WORK PRIOR TO INSPECTION

	Inspection	IVR	Date	Insp	Inspection	IVR	Date	Insp
1	BLD - Pre-con	200						
2	BLD - Piles	202						
3	BLD - Footings/Setback/UFER	210						
4	BLD - Foundation Walls	212						
5	BLD - Concrete Slab/PT Deck	232						
6	BLD - Footing Perimeter Drains	209						
7	BLD - Tightline Exterior Roof Drain	273						
8	BLD - CMU Walls	228						
9	BLD - Exterior Wall Sheathing	253						
10	BLD - Roof Sheathing	252						
11	BLD - Exterior Membrane/Flashing	280						
12	BLD - Hard Lid Framing	256						
13	BLD - Venting/Ventilation & Indoor Air Quality	283						
14	BLD - Framing	250						
15	BLD - Other	201						
16	PCD - Tree Fencing Installation	605						
17	FIR - Final	795						
18	BLD - Final	295						

* Note: 1st erosion control inspection is required prior to any excavation.

* 2nd erosion control inspection is required after foundation backfill.

(These erosion control inspections only apply if they are listed on the above checklist)

Departmental staff: BLD is Building Dept, PW is Public Works Dept, PCD is Planning Dept, and FIR is Fire Dept

NOTE: THIS INSPECTION RECORD IS THE CERTIFICATE OF OCCUPANCY WHEN THE BUILDING FINAL INSPECTION HAS BEEN APPROVED

Inspector's Comments

Restroom covered in this permit: BNR19-01207.
Related permits reviewed separately: ENR19-01119, MNR19-01208, PNR19-01209

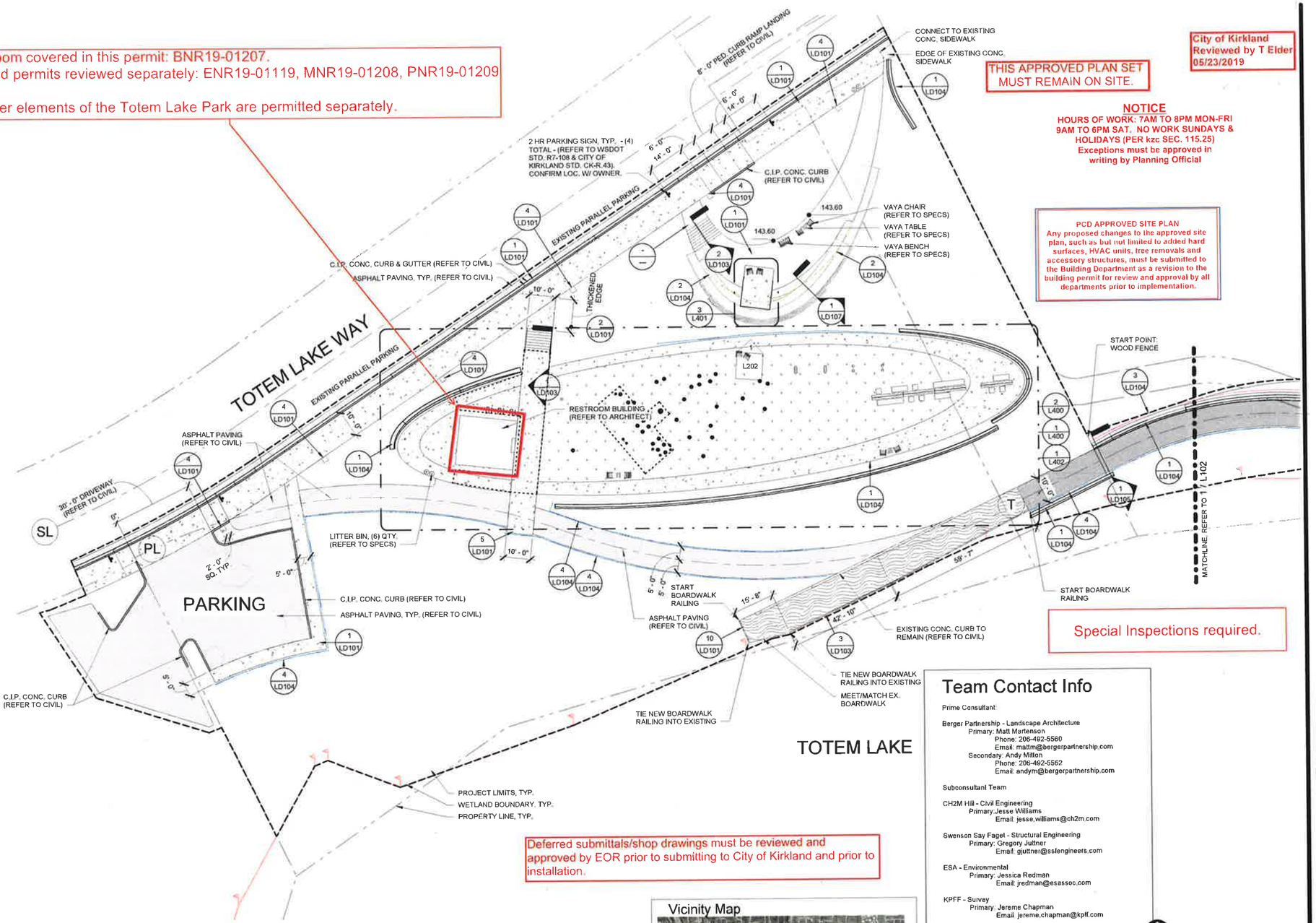
All other elements of the Totem Lake Park are permitted separately.

City of Kirkland
Reviewed by T Elder
05/23/2019

THIS APPROVED PLAN SET MUST REMAIN ON SITE.

NOTICE
HOURS OF WORK: 7AM TO 8PM MON-FRI
9AM TO 6PM SAT. NO WORK SUNDAYS & HOLIDAYS (PER kzc SEC. 115.25)
Exceptions must be approved in writing by Planning Official

PCD APPROVED SITE PLAN
Any proposed changes to the approved site plan, such as but not limited to added hard surfaces, HVAC units, tree removals and accessory structures, must be submitted to the Building Department as a revision to the building permit for review and approval by all departments prior to implementation.



Special Inspections required.

Deferred submittals/shop drawings must be reviewed and approved by EOR prior to submitting to City of Kirkland and prior to installation.

1 SITE PLAN - PARK
1" = 20'-0"

NORTH
0 20' 40'
SCALE: 1"=20'-0"

SITE LEGEND

- CONCRETE PAVING
- CONCRETE PAVING ON STRUCTURE
- CRUSHED ROCK PAVING
- SYNTHETIC TURF
- SYNTHETIC TURF ON STRUCTURE
- ASPHALT PAVING (REFER TO CIVIL)
- WOOD BOARDWALK DECKING @ EX. BOARDWALK
- PULTRUDED GRATING BOARDWALK
- STEEL BAR GRATING BOARDWALK
- PROJECT LIMITS
- EXTENT OF PILE SUPPORTED SLAB (REFER TO STRUCTURAL)
- PLAY EQUIPMENT POST TO STRUCTURAL PILE CONNECTION (REFER TO STRUCTURAL)
- CONCRETE PAVING THICKENED EDGE
- WOOD SPLIT RAIL FENCE
- WOOD FENCE
- BIKE RACK
- LITTER RECEPTACLE
- VAYA BENCH
- VAYA CHAIR
- VAYA TABLE
- CHAIN LINK FENCE
- FILTREXX WALL
- ROCKERY WALL BACKFILL MATERIAL
- ROCKERY WALL
- WETLAND BOUNDARY

ALIGNMENT SCHEDULE	
Name	Alignment Description
BL	BOARDWALK LAYOUT CENTERLINE
PL	PARK PATHWAY CENTERLINE
SL	STREET CENTERLINE
TL	TRAIL EDGE LINE
T	TRAIL CENTERLINE

Team Contact Info

Prime Consultant:

Berger Partnership - Landscape Architecture
Primary: Matt Martenson
Phone: 206-492-5560
Email: mattm@bergerpartnership.com
Secondary: Andy Mitton
Phone: 206-492-5562
Email: andym@bergerpartnership.com

Subconsultant Team

CH2M Hill - Civil Engineering
Primary: Jesse Williams
Email: jesse.williams@ch2m.com

Swenson Say Faget - Structural Engineering
Primary: Gregory Juttner
Email: gjuttner@sslengineers.com

ESA - Environmental
Primary: Jessica Redman
Email: jredman@esassoc.com

KPFF - Survey
Primary: Jereme Chapman
Email: jereme.chapman@kpff.com

Symbiosis Tree Care: Arborist
Primary: Kurt Fickeisen
Email: kurtfick@gmail.com

Enginuity Systems - Spray Park Mechanical
Primary: Jesse Barksdale
Email: jesse@enginuitysys.com

ORB Architects: Architecture
Primary: Geoff Anderson
Email: ganderson@innovaarchitects.com

NAC Architecture: Electrical Engineering
Primary: Mark McMicheal
Email: mmcmicheal@nacarchitecture.com

Design 2426: Irrigation
Primary: Jason Anderson
Email: jasona@design2426.com

Applicable Codes:

Compliance with the following codes shall be required:

Accessibility	2009 Americans with Disabilities (ADA) Standards for Accessible Design
Building	2015 International Building Code (IBC)
Electrical	2017 National Electrical Code
Energy Efficiency	2015 Washington State Energy Code (WSEC)
Fire	2015 International Fire Code with Washington Amendments
Mechanical	2015 Washington State Energy Code (WSEC)
Plumbing	2015 Uniform Plumbing Code

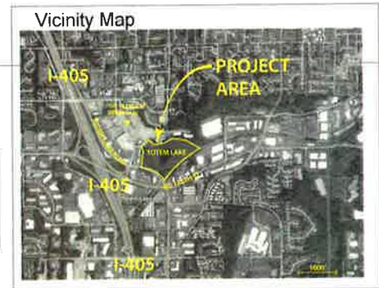
Drawing Set Printing and Reproduction Notes/Req's:

1. DRAWING SET SHEET SIZE IS 22" X 34".
2. DRAWING SET UTILIZES COLORED INFORMATION AND SHALL BE PRINTED AND REPRODUCED IN COLOR.

City/Owner Contact Info

City of Kirkland:
Project Manager: Brian Baker
Phone: 425-587-3874
Email: bbaker@kirklandwa.gov

Vicinity Map



BNR19-01207
Page 1 of 30

PARTNERSHIP berger
1927 Post Alley, Ste. 2
Seattle, WA 98101
206 325 0677
bergerpartnership.com

Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

STATE OF WASHINGTON ANDY MITTON NO. 882 EXP. 6/30/2020 LANDSCAPE ARCHITECT

SET TYPE
100% Design Submittal

SET ISSUE DATE
02/08/2019

REVISIONS

Δ	DESCRIPTION	DATE

DRAWN/CHECKED
MM / AM

SHEET NAME
SITE PLAN - PARK

SHEET NUMBER
L101

Berger Partnership Project Number: 2015.4875.02
Plotted: 2/8/2019 7:59:10 AM
Filename: C:\Users\mattm\Documents\Totem Lake Park-PH1_mattm@bergerpartnership.com.rvt

General Structural Notes

THE FOLLOWING APPLY UNLESS SHOWN OTHERWISE ON THE DRAWINGS

City of Kirkland
Reviewed by T Elder
05/23/2019

CRITERIA

1. ALL MATERIALS, WORKMANSHIP, DESIGN, AND CONSTRUCTION SHALL CONFORM TO THE DRAWINGS, SPECIFICATIONS, AND THE INTERNATIONAL BUILDING CODE (2015 EDITION).

2. DESIGN LOADING CRITERIA:
   HANDRAILS AND GUARDS
   GUARDRAILS/BALCONY RAILS . . . . . 50 PLF
   GUARDRAILS/BALCONY RAILS CONCENTRATED LOAD . . . . . 200 LBS
   BOARDWALK
   FLOOR LIVE LOAD (WALKWAY) . . . . . 60 PSF
   DEFLECTION CRITERIA
   LIVE LOAD DEFLECTION L/360
   TOTAL LOAD DEFLECTION L/240
   ENVIRONMENTAL LOADS
   SNOW . . . . . 25PSF OVER BOARDWALK SURFACE
   WIND . . . . . GCpi=0.18, 110 MPH, RISK CATEGORY II, EXPOSURE "B"
   EARTHQUAKE , ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE
   LATERAL SYSTEM (RAMPED BOARDWALK): ORDINARY STEEL CONCENTRICALLY BRACED FRAMES, R=3.25
   SITE CLASS=E, Ss=1.25, Sds=0.75, S1=0.48, SD1=0.77, Cs=0.602, SDC E, Ie=1.0

3. STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ARCHITECTURAL DRAWINGS FOR BIDDING AND CONSTRUCTION. ARCHITECTURAL DRAWINGS ARE THE PRIME CONTRACT DRAWINGS. ANY DISCREPANCIES FOUND AMONG THE DRAWINGS, THE SPECIFICATION, THESE GENERAL NOTES AND THE SITE CONDITIONS SHALL BE REPORTED TO THE ARCHITECT, WHO SHALL CORRECT SUCH DISCREPANCY IN WRITING. ANY WORK DONE BY THE GENERAL CONTRACTOR AFTER DISCOVERY OF SUCH DISCREPANCY SHALL BE DONE AT THE GENERAL CONTRACTOR'S RISK.

4. PRIMARY STRUCTURAL ELEMENTS NOT DIMENSIONED ON THE STRUCTURAL PLANS AND DETAILS SHALL BE LOCATED BY THE ARCHITECTURAL PLANS AND DETAILS. VERTICAL DIMENSION CONTROL IS DEFINED BY THE ARCHITECTURAL SECTIONS AND PLANS. DETAILING AND SHOP DRAWING PRODUCTION FOR STRUCTURAL ELEMENTS WILL REQUIRE DIMENSIONAL INFORMATION CONTAINED IN BOTH ARCHITECTURAL AND STRUCTURAL DRAWINGS.

5. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY PRECAUTIONS AND THE METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES REQUIRED TO PERFORM THE CONTRACTORS WORK. THE STRUCTURAL ENGINEER HAS NO OVERALL SUPERVISORY AUTHORITY OR ACTUAL AND/OR DIRECT RESPONSIBILITY FOR THE SPECIFIC WORKING CONDITIONS AT THE SITE AND/OR FOR ANY HAZARDS RESULTING FROM THE ACTIONS OF ANY TRADE CONTRACTOR. THE STRUCTURAL ENGINEER HAS NO DUTY TO INSPECT, SUPERVISE, NOTE, CORRECT, OR REPORT ANY HEALTH OR SAFETY DEFICIENCIES TO THE OWNER, CONTRACTORS, OR OTHER ENTITIES OR PERSONS AT THE PROJECT SITE.

6. CONTRACTOR SHALL PROVIDE TEMPORARY BRACING FOR THE STRUCTURE AND STRUCTURAL COMPONENTS UNTIL ALL FINAL CONNECTIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH THE PLANS. CONFORM TO ASCE 37-14 "DESIGN LOADS ON STRUCTURES DURING CONSTRUCTION".

7. CONTRACTOR-INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION. CHANGES SHOWN ON SHOP DRAWINGS ONLY WILL NOT SATISFY THIS REQUIREMENT.

8. DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY INDICATED BUT ARE OF SIMILAR CHARACTER TO DETAILS SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED, SUBJECT TO REVIEW AND APPROVAL BY THE ARCHITECT AND THE STRUCTURAL ENGINEER. ALL TYPICAL NOTES AND DETAILS SHOWN ON DRAWINGS SHALL APPLY, UNLESS NOTED OTHERWISE. TYPICAL DETAILS MAY NOT NECESSARILY BE INDICATED ON THE PLANS BUT SHALL STILL APPLY AS SHOWN OR DESCRIBED IN THE DETAILS. WHERE TYPICAL DETAILS ARE NOTED ON THE PLANS, THE SPECIFIED TYPICAL DETAIL SHALL BE USED. WHERE NO TYPICAL DETAIL IS NOTED, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CHOOSE THE APPROPRIATE TYPICAL DETAIL FROM THOSE PROVIDED OR REQUEST ADDITIONAL INFORMATION. THE CONTRACTOR SHALL SUBMIT ALL PROPOSED ALTERNATE TYPICAL DETAILS TO THOSE PROVIDED WITH RELATED CALCULATIONS TO THE ENGINEER FOR APPROVAL PRIOR TO SHOP DRAWING PRODUCTION AND FIELD USE.

9. ALL STRUCTURAL SYSTEMS, WHICH ARE TO BE COMPOSED OF COMPONENTS TO BE FIELD ERECTED, SHALL BE SUPERVISED BY THE SUPPLIER DURING MANUFACTURING, DELIVERY, HANDLING, STORAGE AND ERECTION IN ACCORDANCE WITH INSTRUCTIONS PREPARED BY THE SUPPLIER.

10. SHOP DRAWINGS FOR THE FOLLOWING ITEMS SHALL BE SUBMITTED TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION OF THESE ITEMS.

    STRUCTURAL STEEL

    CONTRACTOR SHALL SUBMIT WALL ELEVATION DRAWINGS OF AT LEAST 1/8" = 1'-0" SCALE INDICATING LOCATIONS OF CONNECTION EMBEDMENT'S AND WALL OPENINGS FOR REVIEW PRIOR TO CONSTRUCTION. CONTRACTOR SHALL COORDINATE WALL ELEVATION DRAWINGS WITH REINFORCEMENT SHOP DRAWINGS.

    APPROVED SETS OF ALL SHOP DRAWINGS SHALL ALSO BE SUBMITTED TO THE BUILDING DEPARTMENT.

11. SHOP DRAWING REVIEW: DIMENSIONS AND QUANTITIES ARE NOT REVIEWED BY THE ENGINEER OF RECORD, THEREFORE MUST BE VERIFIED BY THE CONTRACTOR. CONTRACTOR SHALL REVIEW AND STAMP DRAWINGS PRIOR TO REVIEW BY ENGINEER OF RECORD. CONTRACTOR SHALL REVIEW DRAWINGS FOR CONFORMANCE WITH THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND OPERATIONS OF CONSTRUCTION, AND ALL SAFETY PRECAUTIONS AND PROGRAMS INCIDENTAL THERETO. SUBMITTALS SHALL INCLUDE A REPRODUCIBLE AND ONE COPY; REPRODUCIBLE WILL BE MARKED AND RETURNED WITHIN TWO WEEKS OF RECEIPT WITH A NOTATION INDICATING THAT THE SUBMITTAL HAS BEEN FOUND TO BE IN GENERAL CONFORMANCE WITH THE DESIGN OF THE BUILDING. THE SUBMITTED ITEMS SHALL NOT BE INSTALLED UNTIL THEY HAVE BEEN APPROVED BY THE BUILDING OFFICIAL.

    SHOP DRAWING SUBMITTALS PROCESSED BY THE ENGINEER ARE NOT CHANGE ORDERS. THE PURPOSE OF SHOP DRAWING SUBMITTALS BY THE CONTRACTOR IS TO DEMONSTRATE TO THE ENGINEER THAT THE CONTRACTOR UNDERSTANDS THE DESIGN CONCEPT, BY INDICATING WHICH MATERIAL IS INTENDED TO BE FURNISHED AND INSTALLED AND BY DETAILING THE INTENDED FABRICATION AND INSTALLATION METHODS. IF DEVIATIONS, DISCREPANCIES, OR CONFLICTS BETWEEN SHOP DRAWING SUBMITTALS AND THE CONTRACT DOCUMENTS ARE DISCOVERED EITHER PRIOR TO OR AFTER SHOP DRAWING SUBMITTALS ARE PROCESSED BY THE ENGINEER, THE DESIGN DRAWINGS AND SPECIFICATIONS SHALL CONTROL AND SHALL BE FOLLOWED.

QUALITY ASSURANCE

12. SPECIAL INSPECTION SHALL BE PROVIDED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND SECTIONS 110 AND 1705 OF THE INTERNATIONAL BUILDING CODE BY A QUALIFIED TESTING AGENCY DESIGNATED BY THE ARCHITECT, AND RETAINED BY THE BUILDING OWNER. THE ARCHITECT, STRUCTURAL ENGINEER, AND BUILDING DEPARTMENT SHALL BE FURNISHED WITH COPIES OF ALL INSPECTION AND TEST RESULTS. SPECIAL INSPECTION OF THE FOLLOWING TYPES OF CONSTRUCTION IS REQUIRED UNLESS NOTED OTHERWISE.

STRUCTURAL STEEL FABRICATION AND ERECTION	SEE SHEET SS003
DRIVEN DEEP FOUNDATION	SEE SHEET SS003
CONCRETE CONSTRUCTION	SEE SHEET SS003

    PERIODIC INSPECTION: INSPECTION SHALL BE PERFORMED AT INTERVALS NECESSARY TO CONFIRM THAT WORK REQUIRING SPECIAL INSPECTION IS IN COMPLIANCE WITH REQUIREMENTS.
    CONTINUOUS INSPECTION: INSPECTOR SHALL BE ONSITE AND OBSERVE THE WORK REQUIRING INSPECTION AT ALL TIMES THAT WORK IS PERFORMED.

GEOTECHNICAL

13. FOUNDATION NOTES: SUBGRADE PREPARATION INCLUDING DRAINAGE, EXCAVATION, COMPACTION, AND FILLING REQUIREMENTS, SHALL CONFORM STRICTLY WITH RECOMMENDATIONS GIVEN IN THE SOILS REPORT OR AS DIRECTED BY THE SOILS ENGINEER.

    PILE CAPACITY 2" DIAMETER SCHEDULE 80 . . . . . 4,000 LBS
    PILE CAPACITY 3" DIAMETER SCHEDULE 40 . . . . . 10,000 LBS
    PILE CAPACITY 4" DIAMETER SCHEDULE 40 . . . . . 20,000 LBS
    PILE CAPACITY 6" DIAMETER SCHEDULE 60 . . . . . 30,000 LBS

    SOILS REPORT REFERENCE: PROJECT NO. 170126E001, SEPTEMBER 28TH, 2017, TOTEM LAKE PARK

14. PIPE PILES SHOWN ON THE PLANS SHALL BE EITHER 2" DIAMETER (SCHEDULE 80), 3" DIAMETER (SCHEDULE 40) OR 4" DIAMETER (SCHEDULE 40). ALL PIPE PILES SHALL BE GALVANIZED PER THE GEOTECHNICAL REPORT. THE MAXIMUM CAPACITY OF THE PILE SHALL BE 4 KIPS FOR A 2" DIAMETER PILE AND 20 KIPS FOR A 4" DIAMETER PILE. ALL PILES SHALL BE DRIVEN TO REFUSAL IN ACCORDANCE WITH THE GEOTECHNICAL REPORT. THE MAXIMUM PILE ECCENTRICITY SHALL BE 2 INCHES. CONTINUOUS SPECIAL INSPECTION IS REQUIRED FOR DRIVEN DEEP FOUNDATION ELEMENTS. SEE PLANS FOR OTHER SIZES, SPACING, AND CRITERIA.

CONCRETE

15. CONCRETE SHALL BE MIXED, PROPORTIONED, CONVEYED AND PLACED IN ACCORDANCE WITH ACI 301, INCLUDING TESTING PROCEDURES. CONCRETE SHALL ATTAIN A 28-DAY STRENGTH OF f'c = 4,000 PSI AND MIX SHALL CONTAIN NOT LESS THAN 5-1/2 SACKS OF CEMENT PER CUBIC YARD AND SHALL BE PROPORTIONED TO PRODUCE A SLUMP OF 5" OR LESS. REQUIRED CONCRETE STRENGTH IS BASED ON THE DURABILITY REQUIREMENTS OF SECTION 1904 OF THE IBC.

16. ALL CONCRETE WITH SURFACES EXPOSED TO WEATHER OR STANDING WATER SHALL BE AIR-ENTRAINED WITH AN AIR-ENTRAINING AGENT CONFORMING TO ASTM C260, C494, AND C618. TOTAL AIR CONTENT FOR FROST-RESISTANT CONCRETE SHALL BE IN ACCORDANCE WITH ACI 318-14, TABLE 19.3.2.1 MODERATE EXPOSURE, F1.

17. REINFORCING STEEL SHALL CONFORM TO ASTM A615 (INCLUDING SUPPLEMENT S1), GRADE 60, FY = 60,000 PSI.

18. DETAILING OF REINFORCING STEEL (INCLUDING HOOKS AND BENDS) SHALL BE IN ACCORDANCE WITH ACI 315-99 AND 318-14. LAP ALL CONTINUOUS REINFORCEMENT #5 AND SMALLER 40 BAR DIAMETERS OR 2'-0" MINIMUM. PROVIDE CORNER BARS AT ALL WALL AND FOOTING INTERSECTIONS. LAP CORNER BARS #5 AND SMALLER 40 BAR DIAMETERS OR 2'-0" MINIMUM. LAPS OF LARGER BARS SHALL BE MADE IN ACCORDANCE WITH ACI 318-14, CLASS B. LAP ADJACENT MATS OF WELDED WIRE FABRIC A MINIMUM OF 8" AT SIDES AND ENDS.

    NO BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE SHALL BE FIELD BENT UNLESS SPECIFICALLY SO DETAILED OR APPROVED BY THE STRUCTURAL ENGINEER.

19. CONCRETE PROTECTION (COVER) FOR REINFORCING STEEL SHALL BE AS FOLLOWS:

    FOOTINGS AND OTHER UNFORMED SURFACES CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH . . . . . 3"
    FORMED SURFACES EXPOSED TO EARTH OR WEATHER (#5 BARS OR SMALLER). . 1-1/2"
    COLUMN TIES OR SPIRALS AND BEAM STIRRUPS . . . . . 1-1/2"

20. CAST-IN-PLACE CONCRETE: SEE ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND DIMENSIONS OF DOOR AND WINDOW OPENINGS IN ALL CONCRETE WALLS. SEE MECHANICAL DRAWINGS FOR SIZE AND LOCATION OF MISCELLANEOUS MECHANICAL OPENINGS THROUGH CONCRETE WALLS. SEE ARCHITECTURAL DRAWINGS FOR ALL GROOVES, NOTCHES, CHAMFERS, FEATURE STRIPS, COLOR, TEXTURE, AND OTHER FINISH DETAILS AT ALL EXPOSED CONCRETE SURFACES, BOTH CAST-IN-PLACE AND PRECAST.

21. NON-SHRINK GROUT SHALL BE FURNISHED BY AN APPROVED MANUFACTURER AND SHALL BE MIXED AND PLACED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED RECOMMENDATIONS. GROUT STRENGTH SHALL BE AT LEAST EQUAL TO THE MATERIAL ON WHICH IT IS PLACED (4000 PSI MINIMUM).

ANCHORAGE

22. EXPANSION BOLTS INTO CONCRETE SHALL BE HOT DIPPED GALVANIZED "STRONG-BOLT 2" WEDGE ANCHORS AS MANUFACTURED BY THE SIMPSON STRONG TIE COMPANY AND INSTALLED IN STRICT CONFORMANCE TO ICC-ES REPORT NUMBER ESR-3037, INCLUDING MINIMUM EMBEDMENT REQUIREMENTS. PERIODIC SPECIAL INSPECTION IS REQUIRED TO VERIFY ANCHOR TYPE, ANCHOR DIMENSIONS, ANCHOR LOCATION, TIGHTENING TORQUE, HOLE DIMENSIONS, ANCHOR EMBEDMENT, AND ADHERENCE TO THE INSTALLATION INSTRUCTIONS.

23. EPOXY-GROUTED ITEMS (THREADED RODS OR REINFORCING BAR) SPECIFIED ON THE DRAWINGS SHALL BE INSTALLED USING "SET-XP" HIGH STRENGTH EPOXY AS MANUFACTURED BY THE SIMPSON STRONG, TIE COMPANY. INSTALL IN STRICT ACCORDANCE WITH ICC-ES REPORT NO. ESR-2508. MINIMUM BASE MATERIAL TEMPERATURE IS 50 DEGREES, F. RODS SHALL BE ASTM GALVANIZED A-36 UNLESS OTHERWISE NOTED. PERIODIC SPECIAL INSPECTION OF INSTALLATION IS REQUIRED TO VERIFY ANCHOR OR EMBEDDED BAR TYPE AND DIMENSIONS, LOCATION, ADHESIVE IDENTIFICATION AND EXPIRATION, HOLE DIMENSIONS, HOLE CLEANING PROCEDURE, ANCHOR EMBEDMENT, AND ADHERENCE TO THE INSTALLATION INSTRUCTIONS. CONTINUOUS SPECIAL INSPECTION IS REQUIRED FOR HORIZONTAL AND OVERHEAD INSTALLATIONS.

STEEL

24. STRUCTURAL STEEL DESIGN, FABRICATION, AND ERECTION SHALL BE BASED ON:

    A. AISC 360 AND SECTION 2205.2 OF THE INTERNATIONAL BUILDING CODE.
    B. APRIL 14, 2010 AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES AMENDED AS FOLLOWS: AS NOTED IN THE CONTRACT DOCUMENTS, BY THE DELETION OF PARAGRAPH 4.4.1, AND REVISE REFERENCE FROM "STRUCTURAL DESIGN DRAWINGS" TO "CONTRACT DOCUMENTS" IN PARAGRAPH 3.1.
    C. SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS.

25. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

TYPE OF MEMBER	ASTM SPECIFICATION	FY
A. WIDE FLANGE SHAPES	A992	50 KSI
B. OTHER SHAPES, PLATES, AND RODS	A36	36 KSI
C. PIPE COLUMNS	A53 (E OR S, GR.B)	35 KSI
D. STRUCTURAL TUBING	A500 (GR.B) OR ASTM A1085	
-SQUARE OR RECTANGULAR		46 KSI
-ROUND		42 KSI
E. CONNECTION BOLTS (3/4" ROUND, UNLESS SHOWN OTHERWISE)	A325-N	

26. ARCHITECTURALLY EXPOSED STRUCTURAL STEEL SHALL CONFORM TO SECTION 10 OF THE AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES.

27. ALL STEEL AND BOLTED CONNECTIONS EXPOSED TO THE WEATHER OR IN CONTACT WITH GROUND SHALL BE CORROSION PROTECTED BY GALVANIZATION (HOT DIPPED GALVANIZED), UNLESS OTHERWISE NOTED.

28. ALL A-325N CONNECTION BOLTS NEED ONLY BE TIGHTENED TO A SNUG TIGHT CONDITION, DEFINED AS THE TIGHTNESS THAT EXISTS WHEN ALL PLIES IN A JOINT ARE IN FIRM CONTACT. THIS MAY BE ATTAINED BY A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF AN IRONWORKER USING AN ORDINARY SPUD WRENCH.

29. ALL CAST-IN-PLACE ANCHORS EMBEDDED IN CONCRETE SHALL BE A307 HEADED BOLTS OR A36 THREADED ROD WITH AN ASTM 563 HEAVY HEX NUT TACK WELDED ON THE EMBEDDED END.

30. ALL WELDING SHALL BE IN CONFORMANCE WITH AISC AND AWS STANDARDS AND SHALL BE PERFORMED BY WABO CERTIFIED WELDERS USING E70XX ELECTRODES. ONLY PREQUALIFIED WELDS (AS DEFINED BY AWS) SHALL BE USED. ALL COMPLETE JOINT PENETRATION GROOVE WELDS SHALL BE MADE WITH A FILLER MATERIAL THAT HAS A MINIMUM CVN TOUGHNESS OF 20 FT-LBS AT -20 DEGREES F AND 40 FT - LBS AT 70 DEGREES F, AS DETERMINED BY AWS CLASSIFICATION OR MANUFACTURER CERTIFICATION.

ALL Welding:

1. Is required to be done by a WABO certified welder and have Special Inspections by a WABO certified Inspection Agency
or
Be done in a WABO certified fabrication shop.

AND

2. Have either the Special Inspection report or WABO fabrication shop certification available on site for the Building Inspector.

Special Inspections required.

Deferred submittals/shop drawings must be reviewed and approved by EOR prior to submitting to City of Kirkland and prior to installation.

BNR19-01207
Page 2 of 30

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Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

SET TYPE
100% Design Submittal

SET ISSUE DATE
2/8/2019

REVISIONS

DRAWN/CHECKED
NHD/GFJ

SHEET NAME
GENERAL STRUCTURAL NOTES

SHEET NUMBER
SS001

General Structural Notes

THE FOLLOWING APPLY UNLESS SHOWN OTHERWISE ON THE DRAWINGS

City of Kirkland
Reviewed by T Elder
05/23/2019

WOOD

31. FRAMING LUMBER SHALL BE S-DRY, KD, OR MC-19, AND GRADED AND MARKED IN CONFORMANCE WITH WCLIB STANDARD "GRADING RULES FOR WEST COAST LUMBER NO. 17", OR WWPA STANDARD, "WESTERN LUMBER GRADING RULES 2011". FURNISH TO THE FOLLOWING MINIMUM STANDARDS:

JOISTS AND BEAMS	(2X & 3X MEMBERS)	HEM-FIR NO. 2 MINIMUM BASE VALUE, Fb = 850 PSI
	(4X MEMBERS)	DOUGLAS FIR-LARCH NO. 1 MINIMUM BASE VALUE, Fb = 1000 PSI
BEAMS	(INCL. 6X AND LARGER)	DOUGLAS FIR-LARCH NO. 1 MINIMUM BASE VALUE, Fb = 1350 PSI
POSTS	(4X MEMBERS)	DOUGLAS FIR-LARCH NO. 2 MINIMUM BASE VALUE, Fc = 1350 PSI
	(6X AND LARGER)	DOUGLAS FIR-LARCH NO. 1 MINIMUM BASE VALUE, Fc = 1000 PSI
STUDS, PLATES & MISC. FRAMING:		DOUGLAS-FIR-LARCH OR HEM-FIR NO. 2

32. ALL WOOD IN DIRECT CONTACT WITH CONCRETE OR MASONRY SHALL BE PRESSURE-TREATED WITH AN APPROVED PRESERVATIVE OR (2) LAYERS OF ASPHALT IMPREGNATED BUILDING PAPER SHALL BE PROVIDED BETWEEN UNTREATED WOOD AND CONCRETE OR MASONRY.

33. PRESERVATIVE TREATED WOOD SHALL BE TREATED PER AWPA STANDARD U1 TO THE USE CATEGORY EQUAL TO OR HIGHER THAN THE INTENDED APPLICATION. TREATED WOOD FOR ABOVE GROUND USE SHALL BE TREATED TO AWPA UC3B. WOOD IN CONTINUOUS CONTACT WITH FRESH WATER OR SOIL SHALL BE TREATED TO AWPA UC4A. WOOD FOR USE IN PERMANENT FOUNDATIONS SHALL BE TREATED TO AWPA UC4B.

34. WOOD TREATED FOR FIRE RESISTANCE SHALL MEET THE REQUIREMENTS OF ASTM E 84 OR UL 723 AND HAVE A LISTED FLAME SPREAD INDEX OF 25 OR LESS. FIRE RETARDANT TREATED LUMBER AND WOOD STRUCTURAL PANELS SHALL BE LABELED IN ACCORDANCE WITH IBC 2303.2.4. WOOD TREATED FOR FIRE PROTECTION FOR USE IN INTERIOR ABOVE GROUND CONSTRUCTION AND CONTINUOUSLY PROTECTED FROM WEATHER AND OTHER SOURCES OF MOISTURE SHALL BE TREATED TO AWPA UCFA. WOOD TREATED FOR FIRE PROTECTION FOR USE IN EXTERIOR ABOVE GROUND CONSTRUCTION AND SUBJECT TO WETTING OR OTHER SOURCES OF MOISTURE SHALL BE TREATED TO AWPA UCFB.

35. FASTENERS AND TIMBER CONNECTORS USED WITH TREATED WOOD SHALL HAVE CORROSION RESISTANCE AS INDICATED IN THE FOLLOWING TABLE, UNLESS OTHERWISE NOTED.

WOOD TREATMENT	CONDITION	PROTECTION
HAS NO AMMONIA CARRIER	INTERIOR DRY	G90 GALVANIZED
CONTAINS AMMONIA CARRIER	INTERIOR DRY	G185 OR A185 HOT DIPPED OR CONTINUOUS HOT-GALVANIZED PER ASTM A653
CONTAINS AMMONIA CARRIER	INTERIOR WET	TYPE 304 OR 316 STAINLESS
CONTAINS AMMONIA CARRIER	EXTERIOR	TYPE 304 OR 316 STAINLESS
AZCA	ANY	TYPE 304 OR 316 STAINLESS

INTERIOR DRY CONDITIONS SHALL HAVE WOOD MOISTURE CONTENT LESS THAN 19%. WOOD MOISTURE CONTENT IN OTHER CONDITIONS (INTERIOR WET, EXTERIOR WET, AND EXTERIOR DRY) IS EXPECTED TO EXCEED 19%. CONNECTORS AND THEIR FASTENERS SHALL BE THE SAME MATERIAL. COMPLY WITH THE TREATMENT MANUFACTURERS RECOMMENDATIONS FOR PROTECTION OF METAL.

36. TIMBER CONNECTORS CALLED OUT BY LETTERS AND NUMBERS SHALL BE "STRONG-TIE" BY SIMPSON COMPANY, AS SPECIFIED IN THEIR CATALOG NUMBER C-C-2017. EQUIVALENT DEVICES BY OTHER MANUFACTURERS MAY BE SUBSTITUTED, PROVIDED THEY HAVE ICC-ES APPROVAL FOR EQUAL OR GREATER LOAD CAPACITIES. PROVIDE NUMBER AND SIZE OF FASTENERS AS SPECIFIED BY MANUFACTURER FOR MAXIMUM LOAD CARRYING CAPACITY. CONNECTORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

ALL 2X JOISTS SHALL BE CONNECTED TO FLUSH BEAMS WITH "LUS" SERIES JOIST HANGERS. ALL TJI JOISTS SHALL BE CONNECTED TO FLUSH BEAMS WITH "ITS" SERIES JOIST HANGERS. ALL DOUBLE-JOIST BEAMS SHALL BE CONNECTED TO FLUSH BEAMS WITH "MIT" SERIES JOIST HANGERS.

WHERE CONNECTOR STRAPS CONNECT TWO MEMBERS, PLACE ONE-HALF OF THE NAILS OR BOLTS IN EACH MEMBER.

ALL SHIMS SHALL BE SEASONED AND DRIED AND THE SAME GRADE (MINIMUM) AS MEMBERS CONNECTED.

37. WOOD FASTENERS

A. NAIL SIZES SPECIFIED ON DRAWINGS ARE BASED ON THE FOLLOWING SPECIFICATIONS:

SIZE	LENGTH	DIAMETER
6d	2"	0.113"
8d	2-1/2"	0.131"
10d	3"	0.148"
12d	3-1/4"	0.148"
16d BOX	3-1/2"	0.135"

IF CONTRACTOR PROPOSES THE USE OF ALTERNATE NAILS, THEY SHALL SUBMIT NAIL SPECIFICATIONS TO THE STRUCTURAL ENGINEER (PRIOR TO CONSTRUCTION) FOR REVIEW AND APPROVAL.

NAILS - PLYWOOD (APA RATED SHEATHING) FASTENERS TO FRAMING SHALL BE DRIVEN FLUSH TO FACE OF SHEATHING WITH NO COUNTERSINKING PERMITTED. TOE-NAILS SHALL BE DRIVEN AT AN ANGLE OF 30 DEGREES WITH THE MEMBER AND STARTED 1/3 THE LENGTH OF THE NAIL FROM THE MEMBER END.

B. ALL BOLTS IN WOOD MEMBERS SHALL CONFORM TO ASTM A307. PROVIDE WASHERS UNDER THE HEADS AND NUTS OF ALL BOLTS AND LAG BOLTS BEARING ON WOOD. INSTALLATION OF LAG BOLTS SHALL CONFORM TO THE NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION WITH A LEAD BORE HOLE OF 60 TO 70 PERCENT OF THE SHANK DIAMETER. LEAD HOLES ARE NOT REQUIRED FOR 3/8" AND SMALLER LAG SCREWS.

BNR19-01207
Page 3 of 30

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Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

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100% Design Submittal

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REVISIONS

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SHEET NAME
GENERAL STRUCTURAL NOTES

SHEET NUMBER
SS002

Statement of Special Inspections

Special inspections shall be provided per the requirements of IBC section 1705 and as noted herein

City of Kirkland
Reviewed by T Elder
05/23/2019

DRIVEN DEEP FOUNDATION ELEMENTS

VERIFICATION AND INSPECTION TASK	CONTINUOUS	PERIODIC	COMMENTS	REFERENCES
1. VERIFY ELEMENT MATERIALS, SIZES AND LENGTHS COMPLY WITH THE REQUIREMENTS	X			IBC 1705.7
2. OBSERVE DRIVING OPERATIONS AND MAINTAIN COMPLETE AND ACCURATE RECORDS FOR EACH ELEMENT	X			
5. SEE STEEL CONSTRUCTION INSPECTION REQUIREMENTS FOR STEEL PILE ELEMENTS				IBC 1705.2

STRUCTURAL STEEL

VERIFICATION AND INSPECTION TASK	CONTINUOUS	PERIODIC	COMMENTS	REFERENCE
1. FABRICATED AND ERECTED STEEL:				
a. COMPLIANCE WITH DETAILS SHOWN ON CONSTRUCTION DOCUMENTS		X		AISC 360, SECTION N5.7
b. APPLICATION OF JOINT DETAILS AT EACH CONNECTION		X		
2. MATERIAL VERIFICATION OF WELD FILLER MATERIALS:				
a. IDENTIFICATION MARKINGS TO CONFORM TO AWS SPECIFICATIONS IN THE APPROVED CONSTRUCTION DOCUMENTS		X		AISC 360, SECTION A3.5 AND APPLICABLE AWS A5 DOCUMENTS
b. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED		X		
3. INSPECTION OF WELDING:				
a. COMPLETE AND PARTIAL JOINT PENETRATION GROOVE WELD	X			IBC 1705.2 AWS D1.1
b. SINGLE PASS FILLET WELDS $\leq$ 5/16"		X		

CONCRETE AND CONCRETE REINFORCING

VERIFICATION AND INSPECTION TASK	CONTINUOUS	PERIODIC	COMMENTS	REFERENCE
1. INSPECTION OF REINFORCING STEEL INCLUDING PLACEMENT		X		IBC 1908.4 ACI 318: Ch. 20, 25.2, 25.3, 26.6.1–26.6.3
2. INSPECTION OF ANCHORS CAST IN CONCRETE		X		ACI 318: 17.8.2
3. INSPECTION OF POST-INSTALLED ANCHORS IN HARDENED CONCRETE MEMBERS:				
a. ADHESIVE ANCHORS	X		SEE ICC-ES ESR REPORT FOR ADDITIONAL REQUIREMENTS	ACI 318: 17.8.2.4
4. VERIFYING USE OF REQUIRED DESIGN MIX		X		IBC 1904.1 IBC 1904.2 IBC 1908.2 IBC 1908.3 ACI 318: Ch. 19, 26.4.3, 26.4.4
5. INSPECT FORMWORK FOR GENERAL CONFORMITY TO APPROVED PLANS FOR SIZE, SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED		X		ACI 318: 26.11.1.2(b)

NOTES

1. TESTING AND SPECIAL INSPECTION REPORTS SHALL BE PREPARED FOR EACH INSPECTION ITEM ON A DAILY BASIS WHENEVER WORK IS PERFORMED ON THAT ITEM. REPORTS SHALL BE DISTRIBUTED TO OWNER, CONTRACTOR, BUILDING OFFICIAL, ARCHITECT, AND STRUCTURAL ENGINEER.
2. "STRUCTURAL STEEL" REFERS TO STEEL CONSTRUCTION DEFINED BY AISC 303, "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES."

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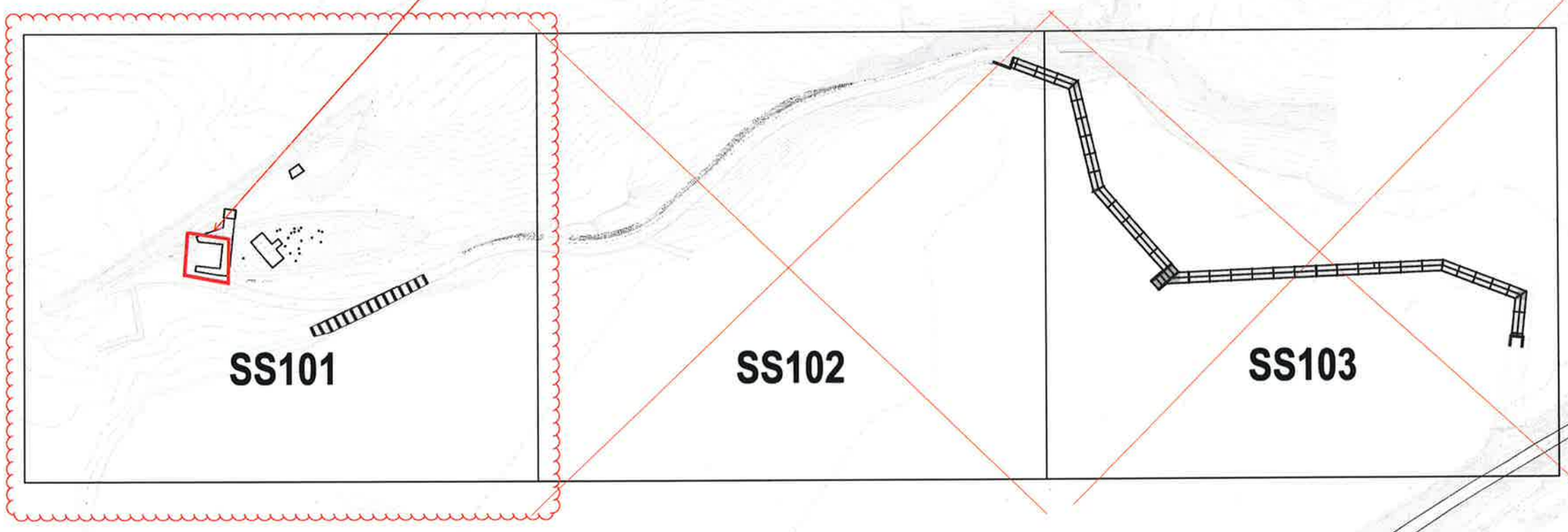
SHEET NAME
STATEMENT OF SPECIAL INSPECTIONS

SHEET NUMBER
SS003

City of Kirkland
Reviewed by T Elder
05/23/2019

Restroom covered in this permit: BNR19-01207.
Related permits: ENR19-01119, MNR19-01208, PNR19-01209

All other elements are permitted separately.



BNR19-01207
Page 5 of 30

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City of Kirkland

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SHEET NAME
STRUCTURAL SHEET LAYOUT

SHEET NUMBER
SS100

City of Kirkland
Reviewed by T Elder
05/23/2019

1. STRUCTURAL NOTES

ANY DISCREPANCY FOUND AMONG THE DRAWINGS, SPECIFICATIONS, THESE NOTES, AND THE SITE CONDITIONS SHALL BE REPORTED TO THE ARCHITECT AND THE STRUCTURAL ENGINEER, WHO SHALL CORRECT SUCH DISCREPANCY IN WRITING. ANY WORK DONE BY THE CONTRACTOR AFTER DISCOVERY OF SUCH DISCREPANCY SHALL BE DONE AT THE CONTRACTOR'S RISK. THE CONTRACTOR SHALL VERIFY AND COORDINATE THE DIMENSIONS AMONG ALL DRAWINGS PRIOR TO PROCEEDING WITH ANY WORK OR FABRICATION. THE CONTRACTOR IS RESPONSIBLE FOR ALL ERECTION BRACING, FORMWORK AND TEMPORARY CONSTRUCTION SHORING

1.1 BIDDERS WARRANTY

BY THE ACT OF SUBMITTING A BID FOR THE PROPOSED CONTRACT, THE CONTRACTOR WARRANTS THAT:

1.1.1 THE CONTRACTOR AND ALL SUBCONTRACTORS HE INTENDS TO USE (INCLUDING AGENTS AND SUPPLIERS) HAVE CAREFULLY AND THOROUGHLY REVIEWED THE DRAWINGS AND STRUCTURAL NOTES AND HAVE FOUND THEM COMPLETE AND FREE FROM AMBIGUITIES AND SUFFICIENT FOR THE PURPOSE INTENDED.

1.1.2 THE CONTRACTOR HAS CAREFULLY EXAMINED THE SITE OF THE WORK AND THAT FROM HIS OWN INVESTIGATIONS, HE HAS SATISFIED HIMSELF AS TO THE NATURE AND LOCATION OF THE WORK, AS TO THE CHARACTER, QUALITY, AND QUANTITIES OF MATERIAL AND DIFFICULTIES TO BE ENCOUNTERED, AS TO THE EXTENT OF EQUIPMENT AND OTHER FACILITIES NEEDED FOR THE PERFORMANCE OF THE WORK AND AS TO THE GENERAL AND LOCAL CONDITIONS, AND OTHER ITEMS WHICH MAY IN ANY AFFECT THE WORK OR ITS PERFORMANCE.

1.1.3 THE CONTRACTOR AND ALL WORKERS HE INTENDS TO USE ARE SKILLED AND EXPERIENCED IN THE TYPE OF CONSTRUCTION REPRESENTED BY THE DRAWINGS AND DOCUMENTS BID UPON

1.1.4 NEITHER THE CONTRACTOR NOR ANY OF HIS EMPLOYEES, AGENTS, INTENDED SUPPLIERS, OR SUBCONTRACTORS HAVE RELIED UPON ANY VERBAL REPRESENTATIONS ALLEGEDLY AUTHORIZED OR UNAUTHORIZED FROM THE OWNER OR HIS EMPLOYEES OR AGENTS, INCLUDING THE ARCHITECT OR ENGINEERS, IN ASSEMBLING THE BID FIGURES

1.1.5 CONTRACT DOCUMENT DRAWING COORDINATION:

1.1.5.1 THE REQUIREMENTS CONTAINED WITHIN THESE SECTIONS (1.1.5.1 THRU 1.1.5.7), SUPERSEDE REQUIREMENTS AND/OR RECOMMENDATIONS CONTAINED IN THE AISC "CODE OF STANDARD PRACTICE FOR STEEL BUILDING AND BRIDGES", AS WELL AS CASE DOCUMENT 962-D "A GUIDELINE ADDRESSING COORDINATION AND COMPLETENESS OF STRUCTURAL CONSTRUCTION DOCUMENTS"

1.1.5.2 THE CONTRACTOR AND ALL SUBCONTRACTORS HE INTENDS TO USE ARE AWARE OF AND ACKNOWLEDGE THAT CLOSE COORDINATION AMONG ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL AND OTHER TRADE DRAWINGS IS REQUIRED.

1.1.5.3 THE CONTRACTOR AND ALL SUBCONTRACTORS HE INTENDS TO USE SHALL RECOGNIZE THAT THE PROJECT CONTRACT DOCUMENTS INCLUDE THE ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ELECTRICAL AND OTHER TRADE DRAWINGS AND SPECIFICATIONS

1.1.5.4 THE CONTRACTOR AND ALL SUBCONTRACTORS ACKNOWLEDGE THAT CLOSE COORDINATION BETWEEN DISCIPLINES INCLUDED WITHIN THE CONTRACT DOCUMENTS IS NECESSARY. ELEMENTS THAT WILL REQUIRE CLOSE COORDINATION BY THE CONTRACTOR INCLUDE (BUT ARE NOT LIMITED TO):

1. VERIFICATION OF ALL DIMENSIONS INDICATED ON THE ARCHITECTURAL AND STRUCTURAL DRAWINGS
2. DETERMINATION OF ALL COLUMN LOCATIONS
3. DETERMINATION OF TOP OF FLOOR, TOP OF STEEL, WALL PLATE AND/OR TOP OF BEAM ELEVATIONS
4. DETERMINATION OF TOP OF FOOTING ELEVATIONS AND FOOTING STEP LOCATIONS
5. MECHANICAL/ELECTRICAL EQUIPMENT LOCATIONS AND WEIGHTS
6. LOCATION AND SIZE OF ALL MECHANICAL/ ELECTRICAL PENETRATIONS THROUGH WALLS AND FLOORS/ ROOFS
7. COORDINATION WITH DESIGNERS/ SUPPLIERS OF PRE-ENGINEERED COMPONENTS (JOISTS, TRUSSES, STAIRS, ETC.)

1.1.5.5 THE CONTRACTOR AND ALL SUBCONTRACTORS HE INTENDS TO USE SHALL MAKE CONSIDERATION FOR, AND INCLUDE MONIES FOR THE ABOVE IN THE PREPARATION OF THEIR BIDS

1.1.5.6 THE CONTRACTOR SHALL NOT SCALE THE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR LOCATIONS OF ELEMENTS NOTED ABOVE

1.1.5.7 ELECTRONIC COPIES OF THE STRUCTURAL DRAWINGS (PDF'S, CAD DRAWINGS OR BIM MODELS) MAY BE PROVIDED TO THE CONTRACTOR FOR THEIR USE. THESE FILES MAY BE PROVIDED AT THE REQUEST OF THE CONTRACTOR FOR THEIR CONVENIENCE ONLY. THE CONTRACTOR AGREES THAT THESE FILES SHALL NOT SUPERCEDE INFORMATION SHOWN ON THE ORIGINAL BID/ CONSTRUCTION DOCUMENTS. THE CONTRACTOR AGREES TO HOLD THE STRUCTURAL ENGINEER HARMLESS FOR ANY ERRORS OR DISCREPANCIES CONTAINED WITHIN THESE ELECTRONIC FILES.

1.1.6 THE BID FIGURE IS BASED SOLELY UPON THE CONSTRUCTION CONTRACT DOCUMENTS AND PROPERLY ISSUED WRITTEN OR VERBAL REPRESENTATIONS.

1.2 CODES

1.2.1 ALL METHODS, MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE 2012 INTERNATIONAL BUILDING CODE (IBC) AS AMENDED AND ADOPTED BY THE LOCAL BUILDING AUTHORITY.

1.2.2 ALL REFERENCES TO OTHER CODES, STANDARDS AND SPECIFICATIONS, (ACI, ASTM, ETC.), SHALL BE FOR THE EDITION CURRENTLY REFERENCED BY IBC AS AMENDED AND ADOPTED BY THE LOCAL BUILDING AUTHORITY.

1.3 DESIGN CRITERIA

1.3.1 UNIFORM LOADS:

LOCATION	LIVE LOAD	DEAD LOAD
ROOF	25 PSF (SNOW*)	ACTUAL
SLAB ON GRADE	50 PSF	ACTUAL

* THIS IS NOT A GROUND SNOW LOAD

1.3.1.2 SNOW LOAD (PER IBC SECTION 1608 AND CHAPTER 7 OF ASCE 7) – 25 SPF

1.3.2 CONCENTRATED LOADS:

ALL MANUFACTURERS OF PRE-ENGINEERED COMPONENTS OR SYSTEMS SHALL LOCATE, COORDINATE, VERIFY WEIGHTS, ETC., OF MECHANICAL UNITS OR OTHER CONCENTRATED LOADS AND DESIGN THEIR SYSTEM FOR THESE LOADS

1.3.3 LATERAL LOADS:

REPORTS, CERTIFICATES, AND OTHER DOCUMENTS RELATED TO THE STRUCTURAL INSPECTION AND TESTING SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ARCHITECT, OWNER AND THE LOCAL BUILDING OFFICIAL.

1.3.3.1 WIND: PER IBC SECTION 1609

BASIC WIND SPEED:	110 MPH
EXPOSURE:	B
WIND IMPORTANCE FACTOR (I_w)	1.0

1.3.3.2 SEISMIC: PER IBC SECTION 1613

*NOTE: STRUCTURE IS DEFINED AS A "SIGNIFICANT STRUCTURE" PER WASHINGTON STATE RCW REQUIREMENTS

S_{DS} :	1.36
S_{D1} :	1.45
S_S :	0.9
S_1 :	2.4
DESIGN BASE SHEAR:	81 KIPS
SEISMIC RESPONSE COEFFICIENT (C_S):	0.54

SITE CLASS F

IMPORTANCE FACTOR, Ie = 1.0

SEISMIC DESIGN CATEGORY D

SEISMIC IMPORTANCE FACTOR (I_E): 1.0

R = 2.5 (CANTILEVERED STEEL COLUMN SYSTEM)

R = 5.0 (BEARING WALL, SPECIAL REINFORCED MASONRY SHEAR WALLS)

ANALYSIS PROCEDURE USED: ELFA

SEISMIC FORCE-RESISTING SYSTEM	RESPONSE MODIFICATION COEFFICIENT (R)	SYSTEM OVERSTRENGTH FACTOR (Ω_0):
A. BEARING WALL SYSTEMS		
SPECIAL REINFORCED MASONRY SHEAR WALLS	5	2 1/2
C. MOMENT RESISTING FRAME SYSTEMS		
CANTILEVERED COLUMN SYSTEM	2 1/2	1 1/4

1.5 INSPECTION/TESTING REQUIREMENTS

SEE STATEMENT OF SPECIAL INSPECTION AND TESTING SHEET ______.

1.6 SHOP DRAWINGS

SUBMIT SHOP DRAWINGS TO ARCHITECT/ENGINEER FOR THE FOLLOWING:

1.6.1 CONCRETE MIX DESIGN SUBMITTALS

1.6.2 REINFORCING STEEL

1.6.3 STRUCTURAL AND MISCELLANEOUS STEEL INCLUDING WELD INSERTS AND ANCHORS

1.6.5 GLUED-LAMINATED/PARALAMS/LSL MEMBERS

*NOTE: ALL PRE-ENGINEERED COMPONENTS SHALL BE DESIGNED BY A LICENSED STRUCTURAL ENGINEER AS REQUIRED FOR "SIGNIFICANT STRUCTURES" IN WASHINGTON STATE.

1.6.6 SHOP DRAWING REVIEW NOTES:

1. STRUCTURAL ENGINEER SHALL REVIEW SHOP DRAWINGS FOR GENERAL CONFORMANCE WITH THE PROJECT CONSTRUCTION DOCUMENTS (PLANS AND SPECIFICATIONS)
2. STRUCTURAL ENGINEERING REVIEW OF SHOP DRAWINGS SHALL NOT RELIEVE THE GENERAL CONTRACTOR OF THEIR RESPONSIBILITY FOR REVIEW OF THE SHOP DRAWINGS FOR COMPLIANCE WITH THE PROJECT REQUIREMENTS
3. APPROVAL OF THE SHOP DRAWINGS BY THE ENGINEER OF RECORD SHALL NOT BE CONSIDERED AS A GUARANTEE BY THE ENGINEER THAT THE SHOP DRAWINGS COMPLY WITH ALL PROJECT REQUIREMENTS
4. CONCURRENT SHOP DRAWING REVIEW SHALL ONLY BE PERMITTED IF APPROVED BY THE ARCHITECT/ENGINEER OF RECORD PRIOR TO THE START OF SHOP DRAWING REVIEW.

1.7 MISCELLANEOUS

1.7.1 VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD

1.7.2 VERIFY SIZE AND LOCATION OF ALL OPENINGS IN THE FLOORS, ROOF AND WALLS WITH ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS

1.7.3 CONSTRUCTION DETAILS NOT SPECIFICALLY SHOWN ON THE DRAWINGS SHALL FOLLOW SIMILAR DETAILS OF SECTIONS OF THIS PROJECT AS APPROVED BY THE ARCHITECT/ ENGINEER

1.7.4 SEE ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR DIMENSIONS AND LOCATIONS OF OPENINGS NOT DIMENSIONED OR SHOWN ON STRUCTURAL PLANS.

1.7.5 FOR PIPES, CONDUITS, DUCTS AND MECHANICAL EQUIPMENT SUPPORTED OR BRACED FROM STRUCTURE: CONFORM TO SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION, INC., PUBLICATION "APPENDIX E: SEISMIC RESTRAINT MANUAL GUIDELINES FOR MECHANICAL SYSTEMS." ALL BRACING AND SUPPORTS SHALL BE DESIGNED FOR SEISMIC HAZARD LEVEL (SHL) B. SPRINKLER LINE ATTACHMENTS SHALL CONFORM TO NFPA PAMPHLET 13

1.7.6 THE STRUCTURE HAS BEEN DESIGNED TO RESIST CODE REQUIRED VERTICAL AND LATERAL FORCES AFTER THE CONSTRUCTION OF ALL STRUCTURAL ELEMENTS HAS BEEN COMPLETED. STABILITY OF THE STRUCTURE PRIOR TO COMPLETION IS THE SOLE RESPONSIBILITY OF THE GENERAL CONTRACTOR. THIS RESPONSIBILITY INCLUDES BUT IS NOT LIMITED TO JOB SITE SAFETY: ERECTION MEANS, METHODS, AND SEQUENCES; TEMPORARY SHORING, FORMWORK, AND BRACING; USE OF EQUIPMENT AND CONSTRUCTION PROCEDURES. WHERE SHORING IS REQUIRED, A SHORING PLAN, STAMPED BY A LICENSED PROFESSIONAL/STRUCTURAL ENGINEER SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL

1.8

THE FOLLOWING ITEMS ARE CONSIDERED TO BE DEFERRED SUBMITTALS UNDER SECTION 107.3.4.2 OF THE INTERNATIONAL BUILDING CODE AND MUST BE SUBMITTED TO THE ARCHITECT OR THE ENGINEER FOR REVIEW. THESE ITEMS WILL THEN BE FORWARDED TO THE BUILDING OFFICIAL FOR APPROVAL. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THEIR DESIGN AND SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL

1. CONCRETE MIX DESIGNS
2. CONNECTION OF WOOD NAILER TO THE PREFABRICATED OPEN-WEB STEEL JOIST AND JOIST GIRDERS

1.9 FABRICATOR APPROVAL

FABRICATOR SHALL SUBMIT A CERTICATE OF COMPLIANCE AND MILL TEST REPORTS TO THE BUILDING OFFICIAL PER IBC SECTION 1704.2.2 FOR THE FOLLOWING WORK.

1. MANUFACTURERS OF CONCRETE REINFORCEMENT COMPLYING WITH ASTM A 615, WHERE PROPOSED AS A SUBSTITUTE FOR REINFORCEMENT COMPLYING WITH ASTM A 706, IN SPECIAL REINFORCED CONCRETE SHEAR WALL, WHERE APPLICABLE.

2. MATERIAL PROPERTIES VERIFYING COMPLIANCE WITH AWS D1.4 FOR WELDABILITY OF THE CONCRETE REINFORCEMENT TO BE WELDED THAT COMPLIES WITH A STANDARD OTHER THAN ASTM A 706, WHERE APPLICABLE.

SITE PREPARATION/SOIL REMEDIATION

2.1 SOIL DATA

ALL FOUNDATION TO BE SUPPORTED BY STEEL PIPE PILES. SEE GEOTECHNICAL ENGINEERING REPORT BY ASSOCIATED EARTH SCIENCES, INC. SEE GEOTECH REPORT FOR ALL SUBGRADE PREPARATION REQUIREMENTS AS WELL AS CAPILLARY BREAK AND VAPOR BARRIER RECOMMENDATIONS.

2.2 EXCAVATION

EXCAVATE TO DEPTH SHOWN AND TO FIRM UNDISTURBED MATERIAL. OVER-EXCAVATIONS SHALL BE BACKFILLED WITH LEAN CONCRETE (f'_c=500–1200 PSI) OR STRUCTURAL FILL AT THE CONTRACTOR'S EXPENSE. EXERCISE EXTREME CARE DURING EXCAVATION TO AVOID DAMAGE TO BURIED LINES, TANKS, AND OTHER CONCEALED ITEMS UPON DISCOVERY, DO NOT PROCEED WITH WORK UNTIL RECEIVING WRITTEN INSTRUCTIONS FROM THE ARCHITECT. A COMPETENT REPRESENTATIVE OF THE OWNER SHALL INSPECT ALL FOOTING EXCAVATIONS FOR SUITABILITY OF BEARING SURFACES PRIOR TO PLACEMENT OF REINFORCING STEEL. PROVIDE DRAINAGE AS NECESSARY TO AVOID WATER-SOFTENED SUBGRADE.

2.3 FILL, BACKFILL AND COMPACTION

BACKFILL AGAINST WALLS SHALL NOT BE PLACED UNTIL AFTER THE REMOVAL OF ALL MATERIAL SUBJECT TO ROT OR CORROSION. ALL FILL PLACED AGAINST RETAINING WALLS OR BASEMENT WALLS SHALL BE FREE DRAINING GRANULAR MATERIAL. STRUCTURAL FILL OTHER THAN PER GRAVEL SHALL BE GRANULAR PLACED IN 6-INCH LIFTS AND COMPACTED TO AT LEAST 95% OF ITS MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-1557 (MOD PROCTOR). PEA GRAVEL FILL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 3/8" DIAMETER

STRUCTURAL CONCRETE

3.1 GENERAL

ALL CONCRETE SHALL BE HARD ROCK CONCRETE MEETING THE REQUIREMENTS OF ACI-301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS." PROPORTIONING OF INGREDIENTS FOR EACH CONCRETE MIX SHALL BE BY METHOD 2 OR THE ALTERNATE PROCEDURE GIVEN IN ACI-301. PLACE CONCRETE PER ACI-304 AND CONFORM TO ACI-604 (306) FOR WINTER CONCRETING AND ACI-605 (305) FOR HOT WEATHER CONCRETING. USE INTERIOR MECHANICAL VIBRATORS WITH 7,000 RPM MINIMUM FREQUENCY. DO NOT OVER-VIBRATE. CONCRETE SHALL BE PLACED MONOLITHICALLY BETWEEN CONSTRUCTION OR CONTROL JOINTS. PROTECT ALL CONCRETE FROM PREMATURE DRYING, EXCESSIVE HOT OR COLD TEMPERATURE FOR SEVEN DAYS AFTER PLACING

3.2 STRENGTH

TWENTY-EIGHT DAY COMPRESSIVE STRENGTHS SHALL BE:

	PSI
SLABS ON GRADE, BEAMS, COLUMNS, WALLS	4000
FOOTINGS, PILE CAPS	4000

CONCRETE SUPPLIER TO PROVIDE TEST RECORDS PER SECTION 5.3 OF ACI 318.

WHEN NO PRIOR EXPERIENCE OR TRIAL MIXTURE DATA ARE AVAILABLE, THE WATER/CEMENT RATIO FROM THE TABLE BELOW MAY BE USED, BUT ONLY WHEN SPECIAL PERMISSION IS GIVEN BY ENGINEER

MAXIMUM ABSOLUTE WATER-CEMENT RATIO BY WEIGHT

SPECIFIED COMPRESSIVE STRENGTH	NON-AIR ENTRAINED CONCRETE	AIR-ENTRAINED CONCRETE
4000	0.44	0.35

THESE MAXIMUMS MAY BE EXCEEDED IF TEST RECORDS PER SECTION 5.3 OF ACI 318 (BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE) ARE SUBMITTED TO AND APPROVED BY THE ENGINEER

3.3 MATERIALS

3.3.1 CEMENT: ASTM C150, TYPE I OR TYPE II. ENGINEER'S APPROVAL IS NEEDED FOR USE OF TYPE III CEMENT.

3.3.2 COARSE AND FINE AGGREGATE: ASTM C33

3.3.3 WATER SHALL BE CLEAN AND POTABLE

3.3.4 FLYASH: ASTM C618 CLASS C (CLASS F SHALL BE ALLOWED IF PERMITTED BY THE STRUCTURAL ENGINEER)

3.3.5 GROUND GRANULATED BLAST FURNACE SLAG (GGBFS): ASTM C989 GRADE 100 OR 120. GGBFS SHALL NOT BE PERMITTED UNLESS REVIEWED AND APPROVED BY THE STRUCTURAL ENGINEER

3.4 ADMIXTURES

3.4.1 WATER REDUCING ADMIXTURE: ASTM C494 ADMIXTURES SHALL BE USED IN EXACT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS

3.4.1.1 WATER REDUCING ADMIXTURES SHALL BE USED AT ALL HEAVILY CONGESTED AREAS (I.E. CONCRETE BEAMS, COLUMNS AND WALLS WITH REINFORCING SPACING OF 4" OR LESS)

3.4.2 CONCRETE USING ADMIXTURES TO PRODUCE FLOWABLE CONCRETE MAY BE USED SUBJECT TO ENGINEER'S APPROVAL

3.4.3 AIR ENTRAINMENT: ASTM C260 AND ASTM C494 ENTRAIN 5% PLUS/MINUS 1.5% BY VOLUME IN ALL CONCRETE EXPOSED TO WEATHER

3.4.4 NO OTHER ADMIXTURES PERMITTED UNLESS APPROVED BY THE ENGINEER

3.5 FIBROUS CONCRETE REINFORCEMENT

FIBROUS REINFORCEMENT SHALL BE 100% VIRGIN POLYPROPYLENE, FIBRILLATED FIBERS CONTAINING NO REPROCESSED OLEFIN MATERIALS AND SPECIFICALLY MANUFACTURED FOR USE AS CONCRETE SECONDARY REINFORCEMENT. VOLUME PER CUBIC YARD SHALL EQUAL A MINIMUM OF 0.1% (1.5 POUNDS). FIBERS ARE FOR THE CONTROL OF CRACKING DUE TO DRYING SHRINKAGE AND THERMAL EXPANSION/ CONTRACTION, REDUCTION OF PERMEABILITY, INCREASED IMPACT CAPACITY, SHATTER RESISTANCE, ABRASION RESISTANCE, AND ADDED TOUGHNESS. FIBER MANUFACTURER MUST DOCUMENT EVIDENCE OF 5 YEAR SATISFACTORY PERFORMANCE HISTORY, COMPLIANCE WITH APPLICABLE BUILDING CODES AND ASTM C-1116 TYPE III 4.1.3 AND ASTM C-1116 PERFORMANCE LEVEL I OUTLINED IN SECTION 21 NOTE 17. FIBROUS CONCRETE REINFORCEMENT SHALL BE MANUFACTURED BY FIBERMESH COMPANY, 4019 INDUSTRY DRIVE, CHATTANOOGA, TENNESSEE, OR APPROVED EQUIVALENT.

3.9 FORMWORK AND SHORING

3.9.1 FOLLOW RECOMMENDED PRACTICE FOR CONCRETE FORMWORK (ACI-347).

3.9.4 ALL SHORING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. FORMWORK SUPPORTS AND SHORING SHALL BE DESIGNED TO PROVIDE FINISHED CONCRETE SURFACES AT ALL FACES LEVEL, PLUMB AND TRUE TO THE DIMENSIONS AND ELEVATIONS SHOWN. TOLERANCES AND VARIATIONS SHALL BE AS SPECIFIED. A SHORING PLAN, STAMPED BY A LICENSED PROFESSIONAL ENGINEER SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

3.10 REINFORCING STEEL

DETAIL, FABRICATE, AND PLACE PER ACI-315 AND ACI-318. SUPPORT REINFORCEMENT WITH APPROVED CHAIRS, SPACERS, OR TIES.

3.10.1 DEFORMED BAR REINFORCEMENT: ASTM A615 GR 60

3.10.2 WELDABLE DEFORMED BAR REINFORCEMENT: ASTM A706 GR 60 OR ASTM A615 GR 40 AS NOTED ON STRUCTURAL DRAWINGS

3.10.3 LONGITUDINAL (VERTICAL) REINFORCEMENT RESISTING SEISMIC AXIAL FORCES IN STRUCTURAL WALL BOUNDARY ELEMENTS SHALL BE ASTM A706 GR 60. ASTM A615 GR 60 MAY BE USED IF:

3.10.3.1 THE ACTUAL YIELD STRENGTH BASED ON MILL TESTS DOES NOT EXCEED THE SPECIFIED YIELD BY MORE THAN 18 KSI; AND

3.10.3.2 THE RATIO OF THE ACTUAL ULTIMATE TENSILE STRENGTH TO THE ACTUAL YIELD STRENGTH IS NOT LESS THAN 1.25.

3.10.4 WELDED WIRE FABRIC: ASTM A-185 & ASTM A-82 F_y=65 KSI

3.10.5 DEFORMED BAR ANCHORS: ASTM A-496

3.10.6 EXCEPT AS NOTED SPECIFICALLY ON THE DRAWINGS; ALL REINFORCEMENT SHALL BE LAP-SPLICED AS FOLLOWS:

#6 AND SMALLER	48 X BAR DIAMETER
#7 AND LARGER	56 X BAR DIAMETER

NO MORE THAN 50% HORIZONTAL OR VERTICAL BARS SHALL BE SPLICED AT ONE LOCATION

3.10.7 EXCEPT AS NOTED SPECIFICALLY ON THE DRAWINGS, PROVIDE CORNER BARS TO MATCH QUANTITY AND DIAMETER OF HORIZONTAL REINFORCEMENT AND LAP WITH HORIZONTAL REINFORCEMENT AS FOLLOWS:

#6 AND SMALLER	48 X BAR DIAMETER
#7 AND LARGER	56 X BAR DIAMETER

THESE CORNER BARS SHALL BE PLACED AT ALL CORNERS AND INTERSECTIONS IN FOOTINGS AND WALLS

3.10.8 LAP WELDED WIRE FABRIC 12" OR ONE SPACING PLUS 2", WHICHEVER IS MORE

3.11 CONCRETE COVER ON REINFORCING (UNLESS SHOWN OTHERWISE)

3.11.1	BOTTOM OF FOOTINGS	3"
3.11.2	FORMED EARTH FACE AND SLAB ON GRADE	2"
3.11.3	WALLS, WEATHER FACE	1-1/2"
3.11.4	WALLS, INSIDE FACE	1"
3.11.5	COLUMNS TO STIRRUPS	1-1/2"
3.11.6	BEAMS TO STIRRUPS	1-1/2"
3.11.7	BOTTOM OF ELEVATED STRUCTURAL SLAB	3/4"

3.12 CONSTRUCTION AND CONTROL JOINTS

3.12.1 UNLESS NOTED OTHERWISE, LOCATION OF THE CONSTRUCTION OR CONTROL JOINTS IN SLAB ON GRADE SHALL BE ON COLUMN GRIDS OR UNDER PERMANENT PARTITIONS AND SHALL NOT EXCEED 15'-0" C/C EACH WAY. SEE ARCHITECTURAL DRAWINGS FOR JOINT SPACING REQUIREMENTS AND LOCATIONS AT EXPOSED SLAB LOCATIONS.

3.12.2 CONSTRUCTION JOINT SPACING IN WALLS SHALL NOT EXCEED 50' ON CENTER EXCEPT AS DIRECTED BY THE ARCHITECT/ENGINEER

3.13 CONDUIT AND PIPING EMBEDDED IN CONCRETE

3.13.1 ELECTRICAL CONDUIT SHALL NOT BE PLACED WITHIN A SLAB ON GRADE, BUT PLACED BELOW THE SLAB IN THE SUB-BASE

3.13.2 NO JOISTS, BEAMS OR GIRDERS SHALL BE SLEEVED FOR PIPING OR CONDUIT EXCEPT AS NOTED ON THE STRUCTURAL DRAWINGS OR AS APPROVED BY THE ARCHITECT/ENGINEER

3.14 GROUT FOR BEARING PLATES

THE NON-SHRINK GROUT SHALL MEET ASTM C1107 GRADE B OR EQUIVALENT (MASTERFLOW 928 BY BASF OR APPROVED EQUIVALENT). GROUT SHALL BE A PRE-PACKAGED HYDRAULIC CEMENT BASED MINERAL AGGREGATE GROUT, MIXED, PLACED AND CURED AS RECOMMENDED BY THE MANUFACTURER. COMPRESSIVE STRENGTH SHALL EXCEED 6000 PSI AT 28 DAYS

3.19 ADHESIVE EXPANSIVE WATERSTOPS

ADHESIVE EXPANSIVE WATERSTOP SHALL BE VOLCLAY WATERSTOP-RX (AS MANUFACTURED BY CETCO), SWELLSTOP OR HYDROTIGHT (GREENSTREAK), OR APPROVED EQUIVALENT. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

3.20 INTEGRAL CONCRETE WATERPROOFING

3.20.1 XYPEX ADMIXTURE C-1000 AT THE RATE OF 2%-3% BY WEIGHT OF CEMENT AS MANUFACTURED BY XYPEX CHEMICAL CORPORATION AND APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS WHERE INDICATED ON PLAN, OR,

3.20.2 EVERDURE CALTITE ADMIXTURE AT THE RATE OF 6 GAL PER YARD AND SUPERPLASTET AS MANUFACTURED BY CEMENTAID AND APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION WHERE INDICATED ON PLAN.

3.20.2.1 CONCRETE FREE WATER TO CEMENT RATIO SHALL NOT EXCEED 0.45

MASONRY

4.1 MORTAR AND GROUT

MORTAR: ASTM C-270, TYPE S, f'c = 1800 PSI AT 28 DAYS
(ASTM C-270, TYPE M, f'c = 2500 PSI AT 28 DAYS)

GROUT: ASTM C-476, f'c = 2500 PSI AT 28 DAYS
5-1/2 SACK MIX (MINIMUM), 3/8" MAX AGGREGATE
SLUMP 8" TO 11"

4.2 REINFORCEMENT: SEE SECTION 3 OF STRUCTURAL NOTES

4.3 CONCRETE MASONRY UNITS (CMU)

CONFORM TO ASTM C-90, MINIMUM FACE SHELL THICKNESS OF 1-1/4", GRADE N-1. MINIMUM COMPRESSIVE STRENGTH OF MASONRY (f'm) SHALL BE 1500 PSI

4.5 INSTALLATION OF MASONRY UNITS

PER THE IBC SECTION 2104 FOR UNIT MASONRY CONSTRUCTION REQUIREMENTS

4.6 SPECIAL INSPECTION

THE QUALITY ASSURANCE PROGRAM SHALL COMPLY WITH THE INSPECTION AND TESTING REQUIREMENTS OF CHAPTER 17 AND TMS 602/ACI 530.1/ASCE 6.

METALS

5.1 STRUCTURAL STEEL

5.1.1 ALL DETAILING, FABRICATION, AND ERECTION SHALL CONFORM TO THE AISC, "MANUAL OF STEEL CONSTRUCTION," LATEST EDITION EXCEPT AS AMENDED BY SECTION 1.1 OF THESE STRUCTURAL NOTES

5.1.2 STEEL W SHAPES SHALL BE ASTM A992 Fy=50 KSI. OTHER SHAPES AND PLATES SHALL BE ASTM A36 Fy=36 KSI

5.1.3 STEEL PIPE SECTIONS (PIPE) SHALL BE ASTM A53 TYPE E OR S, GRADE B, Fy=35 KSI

5.1.4 RECTANGULAR AND ROUND HOLLOW STEEL SECTIONS (HSS) OR TUBE STEEL SECTIONS (TS) SHALL BE ASTM A500, GRADE B, Fy=46 KSI (Fy=42 KSI FOR ROUND SECTIONS)

5.1.5 MACHINE BOLTS.

5.1.5.1 MACHINE BOLTS NOT SPECIFIED AS HIGH STRENGTH SHALL BE ASTM A-307.

5.1.5.2 HIGH STRENGTH BOLTS SHALL BE ASTM A-325 AND ASTM A-490. ALL BOLTS SHALL BE CONSIDERED BEARING TYPE WITH THREADS INCLUDED IN SHEAR PLANE (CONNECTION TYPE N) UNLESS NOTED OTHERWISE. ALL HIGH STRENGTH BOLTED CONNECTIONS SHALL BE INSTALLED WITH NUTS CONFORMING TO ASTM A563 AND HARDENED CONFORMING TO ASTM F436

5.1.5.2.1 FULLY PRE-TENSIONED AND SLIP CRITICAL CONNECTIONS SHALL BE AT LOCATIONS NOTED ON THE STRUCTURAL DRAWINGS

5.1.5.2.3 ALL HIGH STRENGTH BOLTS SHALL BE INSTALLED PER THE SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A-325 OR A-490 BOLTS (LATEST EDITION) BY THE RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS (WWW.BOLTCOUNCIL.ORG)

5.1.6 STEEL ANCHORAGE ELEMENTS

5.1.6.1 THREADED RODS SHALL BE ALL-THREAD. (F_y=36 KSI) U.N.O.

5.1.6.2 STUDS: "NELSON STUDS" SHALL BE BY NELSON STUD WELDING DIVISION, GREGORY INDUSTRIES, INC. OR APPROVED EQUIVALENT. COMPLYING WITH ASTM A108 – STUDS SHALL HAVE A MINIMUM F_u OF 65 KSI

5.1.6.3 EXPANSION ANCHORS SHALL BE HILTI KWIK BOLT TZ (ICC ESR-1917) CARBON STEEL ANCHORS, SIMPSON STRONG-BOLT (ICC ESR-1771) WEDGE ANCHORS, ITW-RED HEAD TRUEBOLT + (ICC ESR-2427) WEDGE ANCHORS, OR APPROVED EQUIVALENT WITH A CURRENT ICC REPORT THAT COMPLIES WITH THE CURRENT EDITION OF THE IBC RATED FOR USE IN CRACKED CONCRETE AND SUITABLE TO RESIST WIND AND SEISMIC FORCES IN THE SEISMIC DESIGN CATEGORY NOTED IN SECTION 1.3

5.1.6.4 POST INSTALLED ADHESIVE (EPOXY) ANCHOR RODS & REBAR DOWELS IN CONCRETE SHALL USE AN INJECTABLE TWO-COMPONENT EPOXY ADHESIVE WITH A CURRENT ICC REPORT THAT COMPLIES WITH THE CURRENT EDITION OF THE IBC RATED FOR USE IN CRACKED CONCRETE AND SUITABLE TO RESIST WIND AND SEISMIC FORCES IN THE SEISMIC DESIGN CATEGORY NOTED IN SECTION 1.3. FOR SOLID BASE MATERIAL USE SIMPSON SET-XP (ICC ESR-2508) OR HILTI HIT-RE 500-SD EPOXY (ICC ESR-2322) OR APPROVED EQUIVALENT.

5.1.6.5 ANCHOR RODS:

ANCHOR RODS SHALL BE ASTM F 1554, Fy=36 KSI WITH HOOKED END AT STUD WALL CONNECTIONS UNLESS NOTED OTHERWISE. AT COLUMN LOCATIONS ANCHOR RODS SHALL BE ASTM F1554, F_y=36 KSI WITH HEADED OR THREADED/NUTTED END. TACK WELD NUT TO ANCHOR ROD UNLESS NOTED OTHERWISE

HIGH STRENGTH ANCHOR RODS SHALL BE ASTM F1554, Fy=105 KSI WITH HEADED OR THREADED/NUTTED END. TACK WELD NUT TO ANCHOR ROD

5.1.6.6 POWDER ACTUATED FASTENERS: P.D.F.'S SHALL BE A MINIMUM 0.145"ø HILTI X-EDNI OR 0.157"ø HILTI X-U UNIVERSAL KNURLED SHANK FASTENER UNLESS NOTED OTHERWISE. PROVIDE MINIMUM 1" PENETRATION INTO CONCRETE. AT P.D.F.'S DRIVEN INTO STEEL FASTENERS SHALL BE DRIVEN SO THAT THE POINT OF THE FASTENER COMPLETELY PENETRATES THE STEEL BASE MATERIAL.

5.1.6.6.1 AT TOPPING SLABS, P/T SLABS OR SLABS WITH RADIANT HEAT TUBES EMBEDDED WITHIN THE SLAB LIMIT THE PDF PENETRATION TO 3/4" MAXIMUM AND COORDINATE WITH TENDON/TUBE PLACEMENT AND COVER

5.1.8 METAL PROTECTION: ALL STEEL EXPOSED TO WEATHER, MOISTURE, SOIL, OR AS NOTED SHALL BE GALVANIZED PER ASTM A-123 OR A153 AS APPLICABLE. ALL OTHER STEEL SURFACES SHALL BE SHOP PRIMED AFTER FABRICATION. LINTEL ANGLES SHALL HAVE A MINIMUM OF 1.5 OZ OF ZINC SPELTER PER SQUARE FOOT OF SURFACE AREA. REPAIR ALL DAMAGED AREAS OF GALVANIZED PARTS SUCH AS FIELD WELDS, ETC. APPLY REPAIR COATING THICKNESS GREATER THAN OR EQUAL TO ORIGINAL ZINC COATING THICKNESS.

5.1.9 WELDED MARK NUMBERS ON STRUCTURAL STEEL MEMBERS EXPOSED TO VIEW ARE UNACCEPTABLE, AND SHALL NOT BE PERMITTED. ANY WELDED MARKS SHALL BE REMOVED AT THE CONTRACTOR'S EXPENSE. SEE ARCH SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

5.1.10 CONTRACTOR NOTE: ALL VERTICAL LOAD CARRYING MEMBERS HAVE BEEN NOTED AS "COLUMNS" ON THE STRUCTURAL DRAWINGS. THIS NOTATION DOES NOT IDENTIFY THESE MEMBERS AS "POSTS" OR "COLUMNS" AS DEFINED BY THE LATEST OSHA RULES REGARDING COLUMN ANCHORAGE REQUIREMENTS (OSHA 29 CFR PARTS 1926.751 AND 1926.755). THE GENERAL CONTRACTOR, STEEL DETAILER, AND STEEL ERECTOR SHALL BE RESPONSIBLE TO DETERMINE THE CORRECT OSHA DESIGNATION OF EACH MEMBER REGARDLESS OF THE NOTATION SHOWN ON THE STRUCTURAL DRAWINGS

5.1.11 ALL STRUCTURAL STEEL MEMBERS EXPOSED TO VIEW SHALL BE CONSIDERED "ARCHITECTURALLY EXPOSED STRUCTURAL STEEL" (AESS) AND SHALL REQUIRE ADDITIONAL CONSIDERATION AT ALL WELDS AND CONNECTIONS PER AISC REQUIREMENTS. SEE ARCHITECTURAL DRAWINGS AND PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

5.2 WELDING

5.2.1 ALL WELDING SHALL BE IN ACCORDANCE WITH THE "STRUCTURAL WELDING CODE," AWS D1.1, AWS D1.4 AND AWS D1.8 AS APPROPRIATE.

5.2.2 ALL WELDING SHALL BE BY CERTIFIED WABO WELDERS; USE 70 KSI LOW HYDROGEN FILLER METAL, AND SHALL BE PROTECTED PER AWS D1.1 UNTIL USE. FOR ALL FULL PENETRATION WELDS, FILLER METAL SHALL BE NOTCH TOUGH TO MEET CHARPY V-NOTCH OF 20 FOOT-POUND AT -20F

5.2.3 NO WELDING OF REINFORCING STEEL SHALL BE ALLOWED EXCEPT WHERE SHOWN IN DRAWINGS. ALL WELDING OF REINFORCEMENT SHALL BE PER ANSI/AWS D1.4. THE FOLLOWING FILLER METAL SHALL BE USED WHEN WELDING REINFORCEMENT:

1. FOR WELDING OF ASTM A706 GR 60 REBAR, 80 KSI FILLER METAL

5.2.4 ALL FULL PENETRATION FIELD AND SHOP WELDS SHALL BE FULL TIME INSPECTED AND TESTED BY ULTRASONIC, NON-DESTRUCTIVE PROCEDURES. RESULTS OF TESTS SHALL BE SUBMITTED FOR REVIEW BY THE STRUCTURAL ENGINEER

PARTNERS berger
1927 Post Alley, Ste. 2
Seattle, WA 98101
206 325 6877
bergerpartnership.com

INNOVA architects
950 Pacific Avenue, Suite 450
Tacoma, WA 98402

Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

PAUL B. McCORMICK

SET TYPE
100% Design Submittal

02/08/2019

DRAWN/CHECKED
SH DM

SHEET NAME
STRUCTURAL NOTES

SHEET NUMBER
S001

5.3 WELDING PROCEDURE SPECIFICATION (WPS)

FOR ALL WELDING OF REINFORCING STEEL, NON PREQUALIFIED WELDS AND ALL WELDING OF COMPONENTS WHICH ARE PART OF THE SEISMIC FORCE RESISTING SYSTEM, CONTRACTOR SHALL SUBMIT A WELDING PROCEDURE SPECIFICATION (WPS) TO ENGINEER FOR APPROVAL PRIOR TO WELDING, EACH WPS SHALL INCLUDE ALL NECESSARY INFORMATION REQUIRED BY AWS D1.1, AWS D1.4 AND AWS D1.8 AND AS FOLLOWS:

1 APPLICABLE BASE METAL TYPES AND THICKNESSES

2 SKETCH OF JOINT INDICATING APPLICABLE DIMENSIONS INDIVIDUAL PASSES SHALL BE IDENTIFIED AND NUMBERED TO IDENTIFY THE SEQUENCE THE SKETCH SHALL IDENTIFY THE MAXIMUM THICKNESS AND BEAD WIDTH IN NO CASE SHALL THE LAYER THICKNESS EXCEED 1/4" NOR THE BEAD WIDTH EXCEED 5/8"

3 PREHEAT REQUIREMENTS

4 ELECTRICAL CHARACTERISTICS (I.E., CURRENT, VOLTAGE, TRAVEL SPEED, ETC.) ELECTRODE REQUIREMENTS SHALL MEET THE REQUIREMENTS OF AWS A5.1, AWS A5.5, AWS A5.17, AWS A5.23, AWS A5.18, AWS A5.20, AWS A5.28, AND AWS A5.29, AS APPLICABLE FOR WELDING METHOD USED

6 CARPENTRY

FRAMING LUMBER SHALL BE DF #2 SAWN LUMBER BEAMS AND HEADERS SHALL BE DF #2 OR AS SHOWN ON THE DRAWINGS. ALL 2" NOMINAL LUMBER SHALL BE KILN DRIED (KD). EACH PIECE OF LUMBER SHALL BEAR STAMP OF WEST COAST LUMBER INSPECTION BUREAU (WCLIB) AND/OR WESTERN WOOD PRODUCTS ASSOCIATION (WWPA) SHOWING GRADE MARK PROVIDE CUT WASHERS OR M.I.W. WHERE BOLT HEADS, NUTS AND LAG SCREWS BEAR ON WOOD. TREAT ALL WOOD IN CONTACT WITH CONCRETE, MORTAR, GROUT, MASONRY, AND WITHIN 12" OF EARTH; ALL WOOD OVER WATER; AND ALL WOOD IN CONTACT WITH EARTH; IN ACCORDANCE WITH AWPA SPECIFICATIONS FOR THE PRESSURE TREATMENT OF WESTERN WOODS, LATEST EDITION. WHERE POSSIBLE, PRE-CUT MATERIAL BEFORE TREATMENT. ALL FIELD CUTS AND DRILLED HOLES SHALL BE FIELD TREATED IN ACCORDANCE WITH AWPA M-4.

6.1 CARPENTRY HARDWARE

6.1.1 MACHINE BOLTS SHALL BE ASTM A-307.

6.1.2 WASHERS SHALL BE MALLEABLE IRON WASHERS (MIW) OR HEAVY PLATE CUT WASHERS.

6.1.3 NAILS SHALL BE COMMON, AMERICAN OR CANADIAN MANUFACTURER ONLY WITH MIN. DIAMETERS AS FOLLOWS:

NAIL NAME	MINIMUM NAIL SHANK DIAMETER	MINIMUM NAIL LENGTH
8d	0.131"ø	2 1/2"
10d	0.148"ø	3"
16d SINKER OR 12d	0.148"ø	3 1/4"
16d	0.162"ø	3 1/2"
20d	0.192"ø	4"

6.1.4 LAG SCREWS, SHEAR PLATES--SEE NATIONAL DESIGN SPECIFICATION.

6.1.5 ANCHORS AND CONNECTIONS SHALL BE SIMPSON, USP, OR ICC (INTERNATIONAL CODE COUNCIL) APPROVED. ALL FASTENERS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS UNLESS OTHERWISE SHOWN. SUBSTITUTED CONNECTIONS SHALL HAVE A TABULATED CAPACITY EQUAL TO OR GREATER THAN THE SPECIFIED CONNECTOR.

6.1.6 HARDWARE EXPOSED TO WEATHER OR IN UNHEATED PORTIONS OF BUILDING SHALL BE GALVANIZED PER SECTION 5 OF THESE NOTES

6.1.6.1 HARDWARE, ANCHORS, AND FASTENERS ATTACHED TO OR IN CONTACT WITH PRESERVATIVE TREATED WOOD SHALL BE STAINLESS STEEL OR GALVANIZED, UNLESS NOTED OTHERWISE, TO A COATING THICKNESS PER THE MANUFACTURER'S RECOMMENDATIONS FOR THE TYPE OF PRESERVATIVE USED. LIGHT GAGE HANGERS IN CONTACT WITH TREATED WOOD SHALL CONFORM TO A MINIMUM GALVANIZED COATING OF G185 OR APPROVED EQUIVALENT. IF PRESERVATIVE USED IS ACZA (AMMONIACAL COPPER ZINC ARSENATE), STAINLESS STEEL SHALL BE REQUIRED. IN THE EVENT OF A CONFLICT BETWEEN THE MANUFACTURER'S RECOMMENDATIONS AND OTHER METAL PROTECTION REQUIREMENTS CONTAINED IN THESE NOTES AND THE PROJECT SPECIFICATIONS, THE MOST STRINGENT REQUIREMENT SHALL BE USED.

6.2 MINIMUM NAILING: PER IBC TABLE 2304.9.1 FASTENING SCHEDULE.

6.3 COORDINATION AT HOLES IN WOOD STUD WALLS

6.3.1 PIPES IN INTERIOR NONBEARING WALLS. STUD PARTITIONS CONTAINING PIPES SHALL BE FRAMED, AND THE JOISTS SHALL BE SPACED, SO AS TO GIVE PROPER CLEARANCE FOR THE PIPING. WHERE A PARTITION CONTAINING PIPING RUNS PARALLEL TO THE JOISTS, THE JOISTS SHALL BE DOUBLED AND SPACED SO AS TO PERMIT THE PASSAGE OF SUCH PIPING, AND SHALL BE BRIDGED. WHERE PIPES ARE PLACED IN, OR PARTIALLY IN, A PARTITION NECESSITATING THE CUTTING OF THE SOLES OR PLATES, A SIMPSON RPS STRAP SHALL BE FASTENED TO EACH PLATE ACROSS AND TO EACH SIDE OF THE OPENING WITH NOT LESS THAN SIX 16d NAILS

6.3.2 CUTTING AND NOTCHING. IN EXTERIOR WALLS AND BEARING PARTITIONS, ANY WOOD STUD IS PERMITTED TO BE CUT OR NOTCHED TO A DEPTH NOT EXCEEDING 25 PERCENT OF ITS WIDTH. CUTTING OR NOTCHING OF STUDS TO A DEPTH NOT GREATER THAN 40 PERCENT OF THE WIDTH OF THE STUD IS PERMITTED IN NONBEARING PARTITIONS SUPPORTING NO LOADS OTHER THAN THE WEIGHT OF THE PARTITION.

6.3.2.1 ENGINEERED LUMBER. CUTTING AND NOTCHING SHALL NOT BE PERMITTED IN ENGINEERED LUMBER (LSL) STUDS WITHOUT APPROVAL FROM THE STRUCTURAL ENGINEER OF RECORD

6.3.3 BORED HOLES. A HOLE NOT GREATER IN DIAMETER THAN 33 PERCENT OF THE STUD WIDTH IS PERMITTED TO BE BORED IN ANY WOOD STUD WITHOUT ENGINEERING VERIFICATION. BORED HOLES NOT GREATER THAN 60 PERCENT OF THE WIDTH OF THE STUD ARE PERMITTED IN NONBEARING PARTITIONS, PROVIDED NOT MORE THAN ANY TWO ADJACENT STUDS ARE SO BORED. IN NO CASE SHALL THE EDGE OF THE BORED HOLE BE NEARER THAN 5/8-INCH FROM THE EDGE OF THE STUD. BORED HOLES SHALL NOT BE LOCATED AT THE SAME SECTION OF STUD AS A NOTCH OR CUT, AND SHALL NOT BE LOCATED WITHIN 8-INCHES OF THE END OF THE STUD.

6.3.3.1 ENGINEERED LUMBER. BORED HOLES SHALL NOT BE PERMITTED IN ENGINEERED LUMBER (LSL) STUDS WITHOUT APPROVAL FROM THE STRUCTURAL ENGINEER OF RECORD

6.4 SHEATHING (PLYWOOD/ORIENTED STRAND BOARD) EACH SHEET SHALL BEAR THE TRADEMARK OF THE AMERICAN PLYWOOD ASSOCIATION; ALL SHEATHING SHALL CONFORM TO STANDARD PS 2 OR PRP-108. THICKNESS, NUMBER OF PLIES, AND LAY-UP AS SHOWN. ALL PLYWOOD SHALL BE C-D INTERIOR WITH EXTERIOR GLUE OR AS NOTED ON THE DRAWINGS AND SHALL BE GROUP I OR II SPECIES. EXCEPT AS OTHERWISE SHOWN, PROVIDE THE FOLLOWING MINIMUM NAILING: PANEL EDGES 10d AT 6" ON CENTER; INTERMEDIATE SUPPORT 10d AT 12" ON CENTER. GAP SHEETS 1/8" FOR 4'X8' SHEETS AND 1/4" FOR 8'X8' AND LARGER SHEETS. THE MOISTURE CONTENT SHALL NOT BE GREATER THAN 15% AT TIME OF ROOFING. USE #10 TEK SCREWS TO ATTACH SHEATHING TO STEEL BEAMS SPACING AS NOTED ABOVE.

6.5 GLUED-LAMINATED TIMBER

MATERIALS, MANUFACTURE AND QUALITY CONTROL PER ANSI/AITC A190 "STRUCTURAL GLUED LAMINATED TIMBER." CAMBER 1-1/2 TIMES DEAD LOAD DEFLECTION WHERE NOT INDICATED ON DRAWINGS. ALL BEAM MEMBERS SHALL BE COMBINATION 24F-V4 FOR SIMPLE SPANS AND 24F-V8 FOR CONTINUOUS OR CANTILEVERED SPANS AND HAVE EXTERIOR GLUE. ALL COLUMN MEMBERS SHALL BE 24F-V8 UNLESS NOTED OTHERWISE. ALL MEMBERS EXPOSED TO VIEW SHALL BE ARCHITECTURAL APPEARANCE GRADE UNLESS NOTED OTHERWISE. ALL MEMBERS CONCEALED FROM VIEW SHALL BE INDUSTRIAL APPEARANCE UNLESS NOTED OTHERWISE. SEE ARCHITECTURAL DRAWINGS AND PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

6.5.1 ADHESIVES SHALL MEET THE REQUIREMENTS FOR WET CONDITIONS OF SERVICE.

6.5.2 MEMBERS SHALL BE MARKED INDICATING CONFORMANCE WITH ANSI/AITC 190.1. IN ADDITION, A CERTIFICATE OF SUCH CONFORMANCE SHALL BE PROVIDED TO THE BUYER

6.6 MANUFACTURED STRUCTURAL WOOD MEMBERS

6.6.1 PARALLAM PSL POSTS AND COLUMNS SHALL BE PARALLAM 1.8E AS MANUFACTURED BY ILEVEL OR APPROVED EQUIVALENT. PARALLAM PSL BEAMS SHALL BE PARALLAM 2.0E AS MANUFACTURED BY ILEVEL OR APPROVED EQUIVALENT

6.6.2 TIMBERSTRAND LSL COMMERCIAL STUDS SHALL BE TIMBERSTRAND 1.8E AS MANUFACTURED BY ILEVEL OR APPROVED EQUIVALENT.

6.6.3 MICROLLAM LVL MEMBERS SHALL BE MICROLLAM 1.9E AS MANUFACTURED BY ILEVEL OR APPROVED EQUIVALENT.

6.7.3 PROPRIETARY COMPONENTS SHALL HAVE ICC (INTERNATIONAL CODE COUNCIL) APPROVAL.

6.7.4 SHOP DRAWINGS SHALL INDICATE ALL REQUIRED PERMANENT BRACING (INCLUDING BOTTOM CHORD AND WEB BRACING SYSTEM TO RESIST WIND UPLIFT FORCES). SHOP CALCULATIONS SHALL INDICATE MEMBER STRESSES, SPECIES/ GRADES AND APPLICABLE ICC APPROVAL. SHOP DRAWINGS AND CALCULATIONS SHALL BE SEALED BY A PROFESSIONAL STRUCTURAL ENGINEER REGISTERED IN THE STATE OF THE PROJECT SITE.

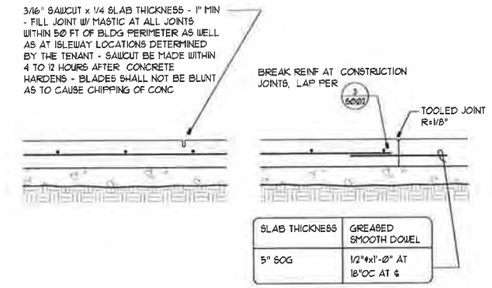
6.7.5 UNLESS NOTED OTHERWISE, THE TRUSS/JOIST MANUFACTURER SHALL SPECIFY AND FURNISH CONNECTION HARDWARE NECESSARY FOR INSTALLATION OF THEIR SYSTEM.

6.7.6 DESIGN AND MANUFACTURE OF METAL-PLATE-CONNECTED TRUSSES SHALL CONFORM TO CURRENT STANDARDS OF THE TRUSS PLATE INSTITUTE (TPI):

ANSI/TPI 1-2002: NATIONAL DESIGN STANDARDS FOR METAL-PLATE-CONNECTED WOOD TRUSS CONSTRUCTION

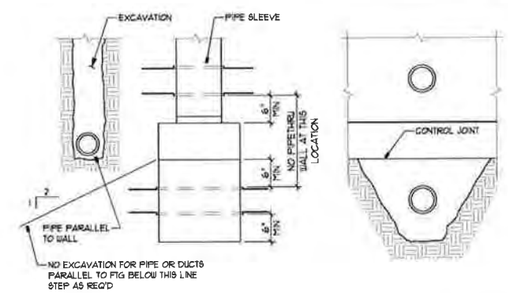
6.7.7 DELIVERED COMPONENTS SHALL BE ACCOMPANIED BY FABRICATOR'S CERTIFICATE OF CONFORMANCE TO THE REFERENCED STANDARDS, AND BY USER ADVISORY NOTICES EQUIVALENT TO:

BUILDING COMPONENT SAFETY INFORMATION, BCSI 2006: GUIDE TO GOOD PRACTICE FOR HANDLING, INSTALLING, RESTRAINING, AND BRACING OF METAL-PLATE-CONNECTED WOOD TRUSSES



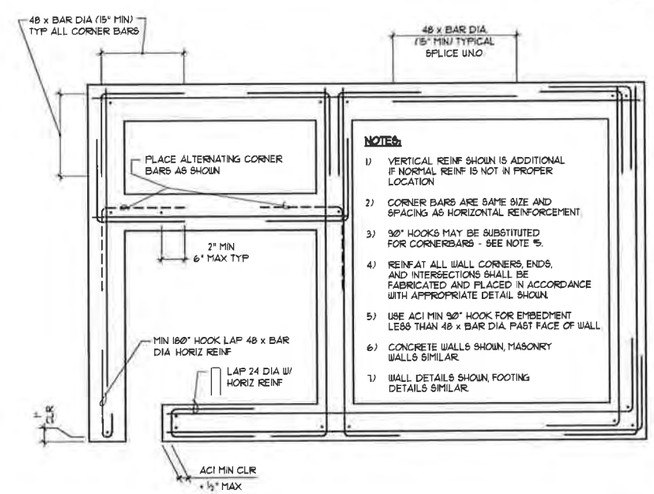
SECTION 1

NO SCALE



TYPICAL DETAIL OF PIPE AT CONCRETE FOOTING 2

NO SCALE



TYPICAL REINFORCEMENT PLACING DETAIL 3

NO SCALE

KEY TO ABBREVIATIONS

#	SQUARE
ø	DIAMETER
¢	CENTERLINE
PL	PLATE
AB	ANCHOR BOLT
ADJ	ADJACENT
AFF	ABOVE FINISH FLOOR
ARCH	ARCHITECTURAL, ARCHITECT
ASD	ALLOWABLE STRESS DESIGN
BLKG	BLOCKING
BM	BEAM
BNDY	BOUNDARY
BOT	BOTTOM
BRG	BEARING
BS	BOTH SIDES
CLG	CEILING
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONT	CONTINUOUS
CSK	COUNTERSINK
CTR	CENTER
CVR	COVER
DIA	DIAMETER
DIM	DIMENSION
ELEV	ELEVATION
EMB	EMBEDMENT
ENGR	ENGINEER
EQ	EQUAL, EQUIVALENT
ES	EACH SIDE
EW	EACH WAY
EXIST, EX	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
FDN	FOUNDATION
FF	FINISH FLOOR
FFE	FINISH FLOOR ELEVATION
FOC	FACE OF CONCRETE
FOM	FACE OF MASONRY
FOS	FACE OF STUD
FTG	FOOTING
GA	GAGE
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GWB	GYPSUM WALL BOARD
HGR	HANGER
HT	HEIGHT
IF	INSIDE FACE
INT	INTERIOR
JNT	JOINT
JST	JOIST
K, KIPS	KIPS = 1000 LBS
L	ANGLE
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LOC	LOCATE, LOCATION
LONGIT, LONG	LONGITUDINAL
MB	MACHINE BOLT
MECH	MECHANICAL
MFR	MANUFACTURER
MIW	MALLEABLE IRON WASHER
NS	NEAR SIDE
NTS	NOT TO SCALE
NWT	NORMAL WEIGHT
O/	OVER
OC	ON CENTER
OF	OUTSIDE FACE
OPP	OPPOSITE HAND
OSB	ORIENTED STRAND BOARD
PDF	POWDER DRIVEN FASTENERS
PERP	PERPENDICULAR
PLF	POUNDS PER LINEAR FOOT
PNL	PANEL
PRE-ENG, PE	PRE-ENGINEERED
PROV	PROVIDE
PW	PLYWOOD
REF	REFERENCE
RF	ROOF
SCHED	SCHEDULE
SHTG	SHEATHING
SIM	SIMILAR
SOG	SLAB ON GRADE
SPCG	SPACING
STIFF	STIFFENER
THK	THICK
THRD	THREADED
TO	TOP OF
TOC	TOP OF CONCRETE
TOF	TOP OF FOOTING
TOPL	TOP OF PLATE
TOS	TOP OF STEEL
TOW	TOP OF WALL
TRANS, TRANSV	TRANSVERSE
TRTD	TREATED
TS	TUBE STEEL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
W/	WITH
W/O	WITHOUT
WF	WIDE FLANGE

City of Kirkland
Reviewed by T Elder
05/23/2019

BNR19-01207
Page 7 of 30

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Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

PAUL B. McCORMICK, STATE OF WASHINGTON, 22361, PROFESSIONAL ENGINEER

SET TYPE
100% Design Submittal

SET ISSUANCE DATE
02/08/2019

REVISIONS

DRAWN/CHECKED
SH DM

SHEET NAME
STRUCTURAL NOTES

SHEET NUMBER
S002

City of Kirkland
Reviewed by T Elder
05/23/2019

QUALITY ASSURANCE NOTES:

STATEMENT OF SPECIAL INSPECTIONS

IBC	SI	SO	TITLE
1705.1.1	✓	✓	SPECIAL CASES (SEE FOLLOWING NOTES FOR EXTENTS)
1705.2	✓	✓	STEEL CONSTRUCTION (SEE TABLE 1705.2.3 AND AISC 360)
1705.3	✓	✓	CONCRETE CONSTRUCTION. (SEE TABLE 1705.3)
1705.5	✓	✓	WOOD CONSTRUCTION
1705.6	✓	✓	SOILS (SEE TABLE 1705.6)
1705.7	✓	✓	PILE FOUNDATIONS (SEE TABLE 1705.7)
1705.8	N/R	N/R	PIER FOUNDATIONS (SEE TABLE 1705.8)
1705.14	N/R	N/R	SPRAYED FIRE-RESISTANT MATERIALS
1705.15	N/R	N/R	MASTIC AND INTUMESCENT FIRE-RESISTANT COATINGS
1705.16	N/R	N/R	EXTERIOR INSULATION AND FINISH SYSTEMS (EIFS)
1705.17	N/R	N/R	FIRE RESISTANT PENTRATIONS AND JOINTS
1705.18	N/R	N/R	SMOKE CONTROL
1705.11.1	N/R	N/R	STRUCTURAL WOOD (WIND FORCE RESISTING SYSTEM)
1705.11.2	N/R	N/R	COLD-FORMED STEEL FRAMING (WIND FORCE RESISTING SYSTEM)
1705.11.3	N/R	N/R	WIND RESISTING COMPONENTS
1705.12.1	✓	✓	STRUCTURAL STEEL (SEISMIC FORCE RESISTING SYSTEM)
1705.12.2	✓	✓	STRUCTURAL WOOD (SEISMIC FORCE RESISTING SYSTEM)
1705.12.3	✓	✓	COLD-FORMED STEEL FRAMING (SEISMIC FORCE RESISTING SYSTEM)
1705.12.4	✓	N/R	DESIGNATED SEISMIC SYSTEM VERIFICATIONS
1705.12.5	N/R	N/R	ARCHITECTURAL COMPONENTS, ACCESS FLOORS
1705.12.6	✓	N/R	PLUMBING, MECHANICAL AND ELECTRICAL COMPONENTS
1705.12.7	N/R	N/R	STORAGE RACKS
1705.12.8	N/R	N/R	SEISMIC ISOLATION SYSTEM
1705.12.9	✓	✓	COLD-FORMED STEEL SPECIAL BOLTED MOMENT FRAMES

1) SI = SPECIAL INSPECTION REQUIRED.
2) SO = STRUCTURAL OBSERVATION REQUIRED.
3) SPECIAL INSPECTIONS INDICATED ARE FOR STRUCTURAL ELEMENTS ONLY. SEE ARCH AND ADD'L SPECIAL INSPECTIONS.
4) ✓ INDICATES REQUIRED ELEMENTS
5) N/R = NOT REQUIRED.

1.1 INSPECTION/TESTING REQUIREMENTS

SEE DRAWINGS, SPECIFICATION, AND 2015 IBC SECTION 110, AND CHAPTER 17.

1.2 INSPECTIONS BY THE BUILDING OFFICIAL (IBC SECTION 110)

1.2.1 FOUNDATION INSPECTION SHALL BE MADE AFTER EXCAVATIONS ARE COMPLETE AND ANY REQUIRED REINFORCING IS IN PLACE. ANY REQUIRED FORMS SHALL BE IN PLACE PRIOR TO INSPECTION.

1.2.2 CONCRETE SLAB OR UNDER FLOOR INSPECTION SHALL BE MADE AFTER ALL UNDER SLAB ACCESSORIES AND REINFORCEMENT ARE PLACED AND PRIOR TO CONCRETE SLAB PLACEMENT OR FLOOR SHEATHING INSTALLATION.

1.2.3 FRAME INSPECTIONS SHALL BE MADE AFTER ALL FRAMING IS COMPLETE AND ALL PIPES, DUCTS, ELECTRICAL, PLUMBING, ETC., ARE INSTALLED AND APPROVED PRIOR TO COVER.

1.2.4 IN ADDITION TO THE INSPECTION SPECIFIED ABOVE, THE BUILDING OFFICIAL IS AUTHORIZED TO MAKE OR REQUIRE OTHER INSPECTION OF ANY CONSTRUCTION WORK TO ASCERTAIN COMPLIANCE WITH THE PROVISIONS OF THE IBC

1.3 STRUCTURAL TESTS AND SPECIAL INSPECTIONS (IBC CHAPTER 17)

1.3.1 SEE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

1.3.2 STRUCTURAL TESTS AND SPECIAL INSPECTIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 17 OF THE IBC AS WELL AS ANY ADDITIONAL REQUIREMENTS OF THE BUILDING OFFICIAL. OMISSION FROM THE LIST BELOW OF TESTING AND INSPECTION REQUIREMENTS SHALL NOT RELIEVE THE CONTRACTOR FROM PROVIDING TESTING AND INSPECTION REQUIRED BY THE SPECIFICATIONS, THE IBC AND THE BUILDING OFFICIAL.

1.3.3 TESTING AND SPECIAL INSPECTIONS SHALL BE COMPLETED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 17 OF THE IBC FOR THE ITEMS LISTED IN THIS SECTION

1.3.4 REPORTS, CERTIFICATES AND OTHER DOCUMENTS RELATED TO THE STRUCTURAL INSPECTION AND TESTING SHALL BE THE SUBMITTED BY THE CONTRACTOR TO THE ARCHITECT, OWNER AND THE LOCAL BUILDING OFFICIAL.

1.4 STRUCTURAL OBSERVATION

1.4.1 STRUCTURAL OBSERVATION SHALL BE PERFORMED DURING CONSTRUCTION IN A MANNER AS REQUIRED TO BECOME GENERALLY FAMILIAR WITH THE IN PLACE CONSTRUCTION

1.4.2 STRUCTURAL OBSERVATION EXTENT SHALL BE AS INDICATED ABOVE. TIMING AND DURATION OF OBSERVATIONS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR DURING CONSTRUCTION

1.5 SPECIAL INSPECTOR: SHALL BE CURRENTLY WABO CERTIFIED AND UNDER THE SUPERVISION OF A REGISTERED PROFESSIONAL ENGINEER.

1.5.1 THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK ASSIGNED FOR CONFORMANCE WITH THE APPROVED DESIGN DRAWINGS AND SPECIFICATIONS

1.5.2 THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, THE ENGINEER OF RECORD, THE ARCHITECT OF RECORD, AND OTHER DESIGNATED PERSONS. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE GENERAL CONTRACTOR FOR CORRECTION. THEN, IF NOT IN CONFORMANCE, TO THE PROPER DESIGN AUTHORITY AND TO THE BUILDING OFFICIAL.

1.5.3 THE SPECIAL INSPECTOR SHALL SUBMIT A SEALED FINAL REPORT BY A REGISTERED PROFESSIONAL ENGINEER STATING WHETHER THE WORK REQUIRING SPECIAL INSPECTION WAS IN CONFORMANCE WITH THE APPROVED PLANS AND SPECIFICATIONS AND THE APPLICABLE WORKMANSHIP PROVISION OF THE IBC.

1.6 SPECIAL INSPECTION FOR STEEL CONSTRUCTION:

REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD[a]	IBC REFRENCE
1. MATERIAL VERIFICATION OF HIGH-STRENGTH BOLTS, NUTS AND WASHERS				
a. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS	–	X	APPLICABLE ASTM MATERIAL SPECIFICATIONS; AISC 360, SECTION A3.3	–
b. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED.	–	X	–	–
2. INSPECTION OF HIGH-STRENGTH BOLTING				
a. SNUG TYPE JOINTS	–	X	AISC 360 SECTION N5.6	–
b. PRETENSIONED AND SLIP CRITICAL JOINTS USING TURN-OF-NUT WITH MATCHMARKING, TWIST-OFF BOLT OR DIRECT TENSION INDICATOR METHODS OF INSTALLATION.	–	X		
c. PRE-TENSIONED AND SLIP CRITICAL JOINTS USING TURN-OF-NUT WITHOUT MATCHMARKING OR CALIBRATED WRENCH METHODS OF INSTALLATION.	X	–		
3. MATERIAL VERIFICATION OF STRUCTURAL STEEL:				
a. FOR STRUCTURAL STEEL, INDENTIFICATION MARKINGS TO CONFORM TO AISC 360	–	X	AISC 360, SECTION N2	
b. FOR OTHER STEEL, INDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS	–	X	APPLICABLE ASTM MATERIAL STANDARDS	
c. MANUFACTURER'S CERTIFIED TEST REPORTS	–	X		
4. MATERIAL VERIFICATION OF WELD FILLER MATERIALS:				
a. IDENTIFICATION MARKINGS TO CONFORM TO AWS SPECIFICATION IN THE APPROVED CONSTRUCTION DOCUMENTS	–	X	AISC 360, SECTION A3.5 AND APPLICABLE AWS A5 DOCUMENTS	–
b. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED.	–	X	–	–
5. INSPECTION OF WELDING				
a. STRUCTURAL STEEL AND COLD-FORMED STEEL DECK				
1) COMPLETE AND PARTIAL PENETRATION GROOVE WELDS	X	–	AWS D1.1	–
3) SINGLE PASS FILLET WELDS > 5/16"	X	–		
4) PLUG AND SLOT WELDS	X	–		
5) SINGLE PASS FILLET WELDS ≤ 5/16"	–	X		
6) FLOOR AND DECK WELDS	–	X	AWS D1.3	–
b. REINFORCING STEEL	–	–	AWS D1.4; ACI 318: 26.6.4	–
1) VERIFICATION OF WELDABILITY OF REINFORCING STEEL OTHER THAN ASTM A 706	–	X		
2) REINFORCING STEEL-RESISTING FLEXURAL AND AXIAL FORCES IN INTERMEDIATE AND SPECIAL MOMENT FRAMES, AND BOUNDARY ELEMENTS OF SPECIAL STRUCTURAL WALLS OF CONCRETE AND SHEAR REINFORCMENT	X	–		
3) SHEAR REINFORCING	X	–		
4) OTHER REINFORCING STEEL	–	X		
6. INSPECTION OF STEEL FRAME JOINT DETAILS FOR COMPLIANCE				
a. DETAILS SUCH AS BRACING AN STIFFENING	–	X	AISC 360	–
b. MEMBER LOCATIONS	–	X		
c. APPLICATION OF JOINT DETAILS AT EACH CONNECTION	–	X		

1.6.1 STEEL CONSTRUCTION: SPECIAL INSPECTION AND TESTING PER AISC 360, AISC 341 AND AWS D1.1 INCLUDING:

1. HIGH STRENGTH BOLTING: VERIFY THAT THE PROPER NUMBER AND TYPE OF BOLTS ARE INSTALLED WITH THE PROPER TORQUE. TORQUE TESTING NOT REQUIRED FOR BOLTS SPECIFIED AS BEARING TYPE (N) CONNECTIONS.

2. STRUCTURAL WELDING:

A. VERIFY THAT WELD FILLER MATERIAL AND MANUFACTURER'S CERTIFICATE OF COMPLIANCE CONFORM TO AWS SPECIFICATION SPECIFIED. VERIFY WELDERS ARE CERTIFIED BY WABO, THAT PROPER ELECTRODES IN OVEN DRY CONDITIONS ARE USED, AND THAT PROPER METHODS AND PREPARATIONS ARE USED.

B. PERIODIC SPECIAL INSPECTION OF WELDING SHALL BE PERFORMED FOR SINGLE PASS FILLET WELDS LESS THAN OR EQUAL TO 5/16" AND FLOOR AND DECK WELDS.

D. INSPECTION AND TESTING OF ALL WELDS SHALL BE AS FOLLOWS:

1. ALL WELDS SHALL BE CHECKED VISUALLY.

2. ALL SHOP AND FIELD WELDING SHALL BE SUBJECT TO INSPECTION BY A WABO CERTIFIED WELDING INSPECTOR EMPLOYED BY THE OWNER. THE INSPECTOR SHALL UTILIZE RADIOGRAPHIC, ULTRASONIC, OR MAGNETIC PARTICLE TESTING AND ANY OTHER AID TO VISUAL INSPECTION THAT MAY BE DEEMED NECESSARY TO ASSURE THE ADEQUACY OF WELDING. THE OWNER SHALL CARRY OUT TESTING AND INTERPRETATION AT ANY STAGE AFTER WELDING

3. 10% OF ALL FILLET WELDS SHALL BE CHECKED BY MAGNETIC PARTICLE TESTING

5. ALL WELDS FOUND DEFECTIVE AND REPAIRED SHALL BE REINSPECTED BY THE SAME METHOD ORIGINALLY USED. THE COST OF REPAIR AND REINSPECTION SHALL BE BORNE BY THE CONTRACTOR

6. STANDARDS FOR ACCEPTANCE SHALL BE AS GIVEN IN AWS D1.1

3. WELDING OF REINFORCING STEEL: PER IBC TABLE 1705.3 AND AWS D1.4, AND THE FOLLOWING:

A. VERIFY WELDABILITY OF REINFORCING STEEL FOR OTHER THAN ASTM A706.

B. PROVIDE WELDING PROCEDURE SPECIFICATION (WPS) PER SECTION 5.2 AND QUALIFYING TEST OF WPS AS REQ'D BY AWS D1.4.

C. CONTINUOUS SPECIAL INSPECTION SHALL BE PERFORMED PER IBC TABLE 1705.3

D. WELDS SHALL BE CHECKED BY RADIOGRAPHIC OR ULTRASONIC TESTING AS REQ'D BY AWS D1.1.

1.7 SPECIAL INSPECTION FOR CONCRETE CONSTRUCTION: IBC TABLE 1705.3

REQUIRED SPECIAL INSPECTION AND TEST OF CONCRETE CONSTRUCTION

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD[a]	IBC REFRENCE
1. INSPECT REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT.	–	X	ACI 318 Ch 20, 25.2, 25.3, 26.6.1-26.6.3	1908.4
2. REINFORCING BAR WELDING: a. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706;	–	X	AWS D1.4 ACI 318: 26.6.4	–
b. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16" AND		X		
c. INSPECT ALL OTHER WELDS	X			
3. INSPECT ANCHORS CAST IN CONCRETE.	–	X	ACI 318: 17.8.2	–
4. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS.[b] a. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS.	X		ACI 318: 17.8.2.4	–
b. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.[a]		X	ACI 318: 17.8.2	
5. VERIFY USE OF REQUIRED DESIGN MIX.	–	X	ACI 318: Ch. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3
6. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	–	ASTM C172 ASTM C31 ACI 318: 26.4, 26.12	1908.10
7. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	–	ACI 318: 26.5	1908.6, 1908.7, 1908.8
8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES	–	X	ACI 318: 26.5.3 – 26.5.5	1908.9
9. INSPECT PRESTRESSED CONCRETE FOR: a. APPLICATION OF PRESTRESSING FORCES; AND	X	–	ACI 318: 28.10	–
b. GROUTING OF BONDED PRESTRESSING TENDONS.	X	–		
10. INSPECT ERECTION OF PRECAST CONCRETE MEMBERS.	–	X	ACI 318: Ch. 26.8	–
11. VERIFY IN-SITU CONCRETE STRENGH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS.	–	X	ACI 318: 26.11.2	–
12. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	–	X	ACI 318: 26.11.1.2(b)	–

FOR SI: 1 INCH = 25.4 mm.
a. WHERE APPLICABLE, SEE ALSO SECTION 1705.12, SPECIAL INSPECTION FOR SEISMIC RESISTANCE.
b. SPECIFIC REQUIREMENTS FOR SPECIAL INSPECTION SHALL BE INCLUDED IN THE RESEARCH REPORT FOR THE ANCHOR ISSUED BY AN APPROVED SOURCE IN ACCORDANCE WITH 17.8.2 IN ACI 318, OR OTHER QUALIFICATION PROCEDURES. WHERE SPECIFIC REQUIREMENTS ARE NOT PROVIDED, SPECIAL INSPECTION REQUIREMENTS SHALL BE SPECIFIED BY THE REGISTERED DESIGN PROFESSIONAL AND SHALL BE APPROVED BY THE BUILDING OFFICIAL PRIOR TO THE COMMENCEMENT OF THE WORK.
d. X = REQUIRED ELEMENTS
e – = NOT REQUIRED

1.10 SPECIAL INSPECTION FOR SOILS: SPECIAL INSPECTIONS FOR EXISTING SITE SOIL CONDTIONS, FILL PLACEMENT AND LOAD BEARING REQUIREMENTS SHALL BE AS REQUIRED BY TABLE 1705.6

IBC TABLE 1705.6

REQUIRED SPECIAL INSPECTIONS AND TEST OF SOILS

VERIFICATION AND INSPECTION TASK	CONTINUOUS DURING TASK LISTED	PERIODICALLY DURING TASK LISTED	
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY	–	X	
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL	–	X	
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS	–	X	
4. VERIFY USE OF PROPER MATERIALS, DENSITIES, AND LIFT THICKNESS DURING PLACEMENT AND COMPACTION OF COMPACTED FILL	X	–	
5. PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY	–	X	

a X = REQUIRED ELEMENTS
b – = NOT REQUIRED

1.13 ADDITIONAL REQUIRED SPECIAL INSPECTION FOR SEISMIC RESISTANCE PER IBC SECTION 1705:

1.13.2 WOOD CONSTRUCTION:
B PERIODIC SPECIAL INSPECTION OF NAILING, BOLTING, ANCHORING AND OTHER FASTENING COMPONENTS WITHIN THE SEISMIC FORCES RESISTING SYSTEM INCLUDING STRUTS, BRACES, AND HOLD-DOWNS. SPECIAL INSPECTION IS NOT REQUIRED FOR SHEARWALLS AND DIAPHRAGM NAILING WHERE FASTENER SPACING IS MORE THAN 4-INCHES ON CENTER

1.13.6 ARCHITECTURAL COMPONENTS: PERIODIC SPECIAL INSPECTION DURING THE ERECTION AND FASTENING OF EXTERIOR CLADDING, INTERIOR AND EXTERIOR NONBEARING WALLS, AND INTERIOR AND EXTERIOR VENEER EXCEPT FOR IN STRUCTURES 30-FEET OR LESS IN HEIGHT, FOR CLADDING OR VENEER 5 PSF IN WEIGHT OR LESS, OR FOR INTERIOR NONBEARING WALLS 15 PSF IN WEIGHT OR LESS.

1.14 EPOXY ANCHORS: SPECIAL INSPECTION SHALL BE REQUIRED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS

1.15 EXPANSION ANCHORS: SPECIAL INSPECTION SHALL BE REQUIRED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS

1.16 SHOTCRETE: SEE SECTION 3.17 OF STRUCTURAL NOTES

1.17 SEISMIC JOINT SYSTEM: VERIFY JOINTS AND POLYMERIC NOSING IS INSTALLED PER MANUFACTURER'S SPECIFICATIONS. VERIFY REGLETS, FLASHING, SEISMIC JOINT COVERS, ET AL, ARE INSTALLED PROPERLY.

BNR19-01207
Page 8 of 30

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ISSUE TYPE
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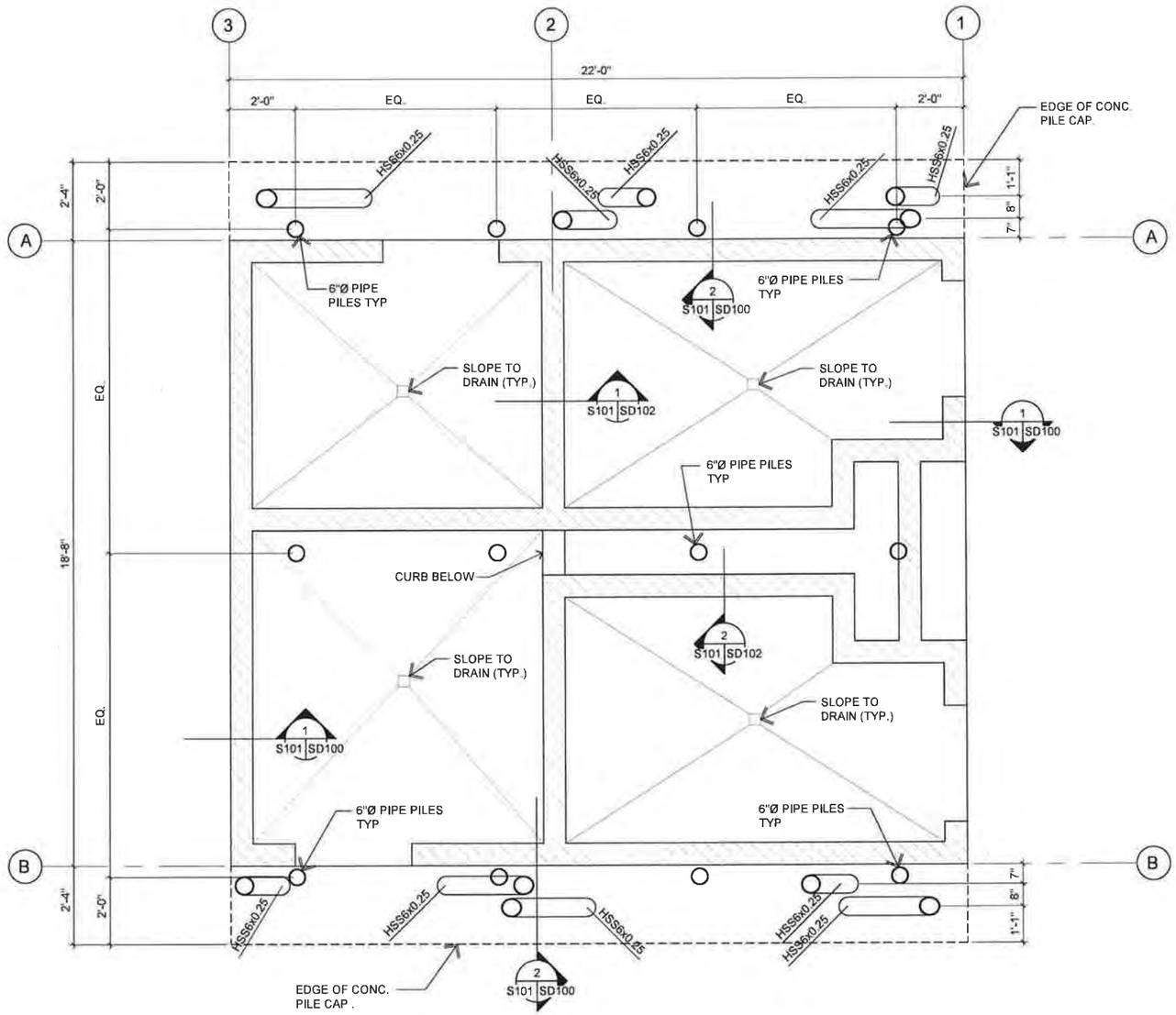
SHEET NAME
STRUCTURAL NOTES

SHEET NUMBER
S003



FOUNDATION PLAN
1/2" = 1'-0" 17-116-BDG 1 S101 NORTH

NOTES

1. SEE SHEET S01 AND S02 FOR STRUCTURAL NOTES AND TYPICAL DETAILS
2. VERIFY ALL WINDOW, LOUVER, AND DOOR WIDTHS, HEIGHTS AND LOCATIONS WITH ARCHITECTURAL
3. SEE ARCHITECTURAL/MECHANICAL DRAWINGS FOR DRAINS, SLOPES, AND OTHER FLOOR DEPRESSIONS NOT SHOWN
4. SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS, ELEVATIONS, AND WALLS NOT SHOWN.
5. SEE SOILS REPORT FOR FOUNDATION AND PILE CAP SUPPORT
6. SEE SHEET AD105 FOR COLUMN BASE PLATE LOCATIONS.
7. ALL CURBS SHALL HAVE A COVED BASE AT ALL INTERIOR FACES - SEE ARCHITECTURAL DRAWINGS

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1/2" = 1'-0" 2' 1' 0 2' 4' 6'

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SHEET NAME
FOUNDATION PLAN

SHEET NUMBER
S101

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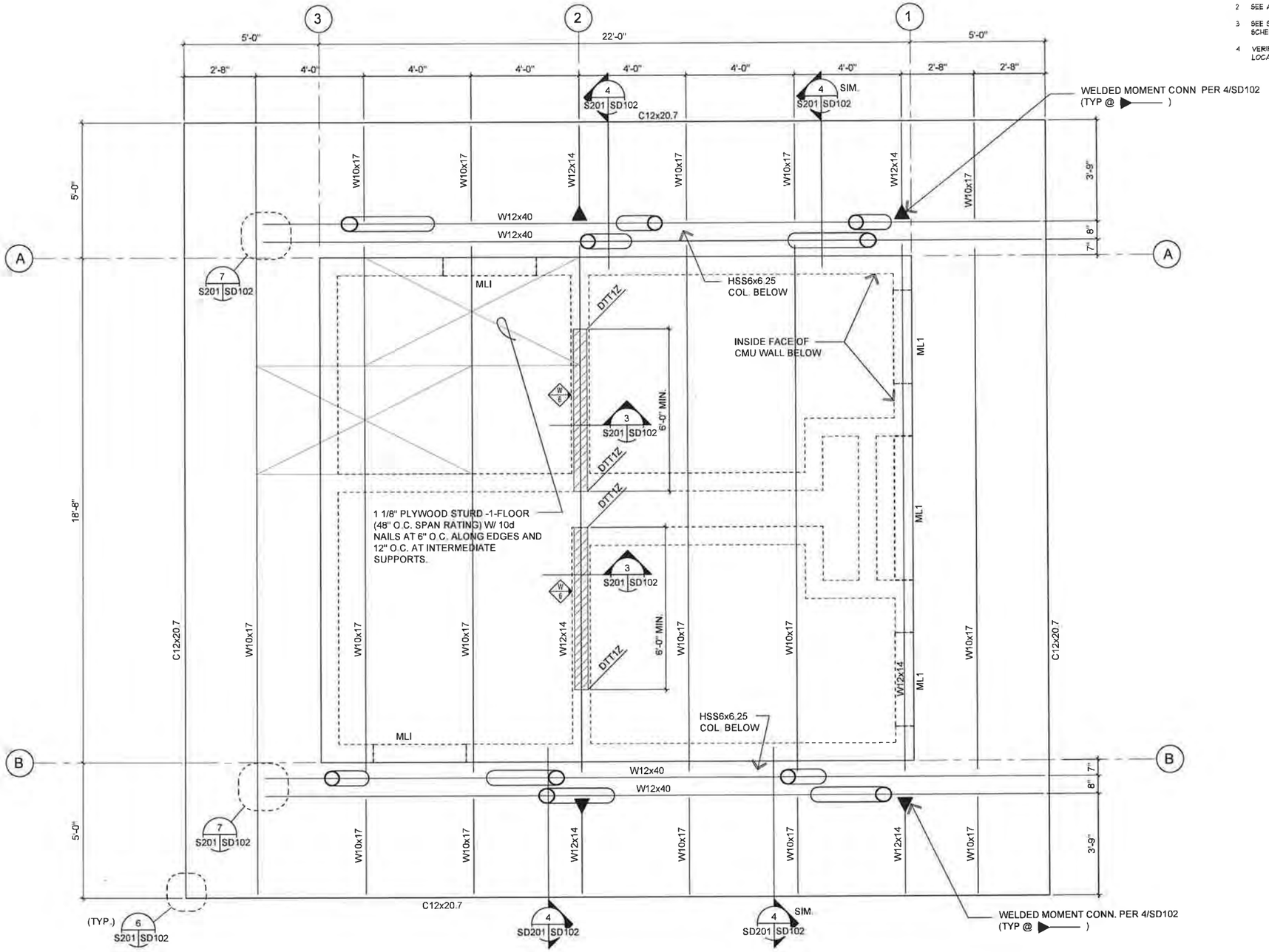
ROOF FRAMING NOTES:

1. ALL WOOD STUD WALLS ABOVE ALL 8" CMU WALLS SHALL BE TYPE W2 SHEAR WALLS U.N.O. SEE 1 / SD101 FOR SHEARWALL SCHEDULE
2. SEE ARCH DRAWING AD101 FOR ROOF SLOPE
3. SEE STRUCT DRAWING SD101 FOR TYPICAL MASONRY DETAILS AND LINTEL SCHEDULE
4. VERIFY ALL WINDOW, LOUVER, AND DOOR WIDTHS, HEIGHTS AND LOCATIONS WITH ARCHITECTURAL



ROOF FRAMING PLAN
1/2" = 1'-0" 17-116-BDG 1 S201 NORTH

1/2" = 1'-0" 2' 1' 0 2' 4' 6'

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Page 10 of 30

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SHEET NAME
ROOF FRAMING PLAN

SHEET NUMBER
S201

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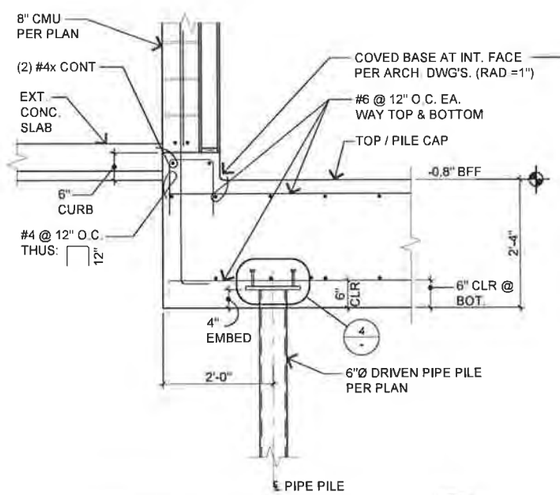
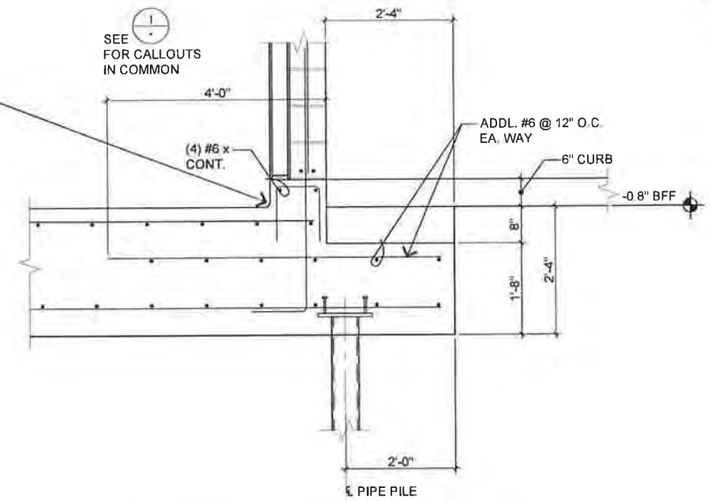
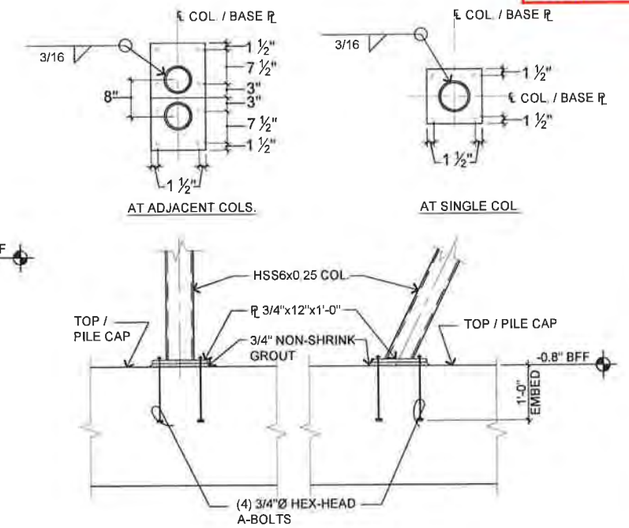


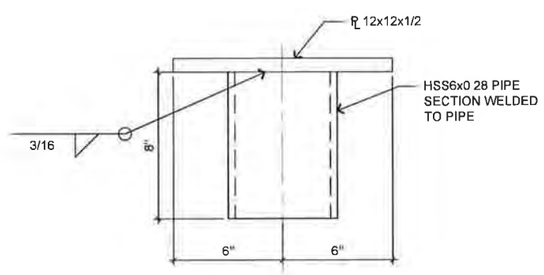
SECTION
3/4" = 1'-0"
1 S101 SD100



SECTION
3/4" = 1'-0"
2 S101 SD100

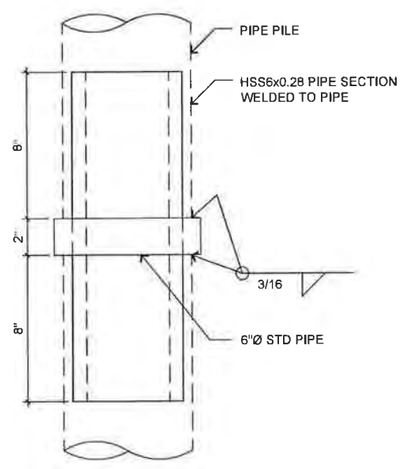


COLUMN BASE PLATE
3/4" = 1'-0"
3 S101 SD100



CAP FOR 6"Ø ASTM A53 GR. B PIPE PILES

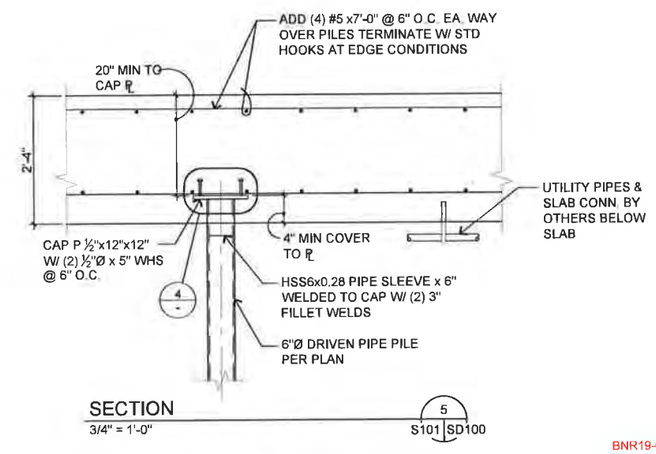
NOTE:
CUT OFF PILE AT APPROPRIATE ELEVATION IN FTG & HAMMER CAP ONTO TOP OF PILE



COUPLER FOR SPLICING 6"Ø ASTM A53 GR. B PIPE PILES

NOTE:
SPLICE PIPE PILES BY HAMMERING COUPLER INTO END OF SECTION

PILE CAP PLATE - 6" PIPE
3" = 1'-0"
4 S101 SD100



SECTION
3/4" = 1'-0"
5 S101 SD100

BNR19-01207
Page 11 of 30

1/2" = 1'-0" 2' 1' 0 2' 4' 6'

3" = 1'-0" 6" 3" 0 3" 1'

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SHEET NAME
DETAILS

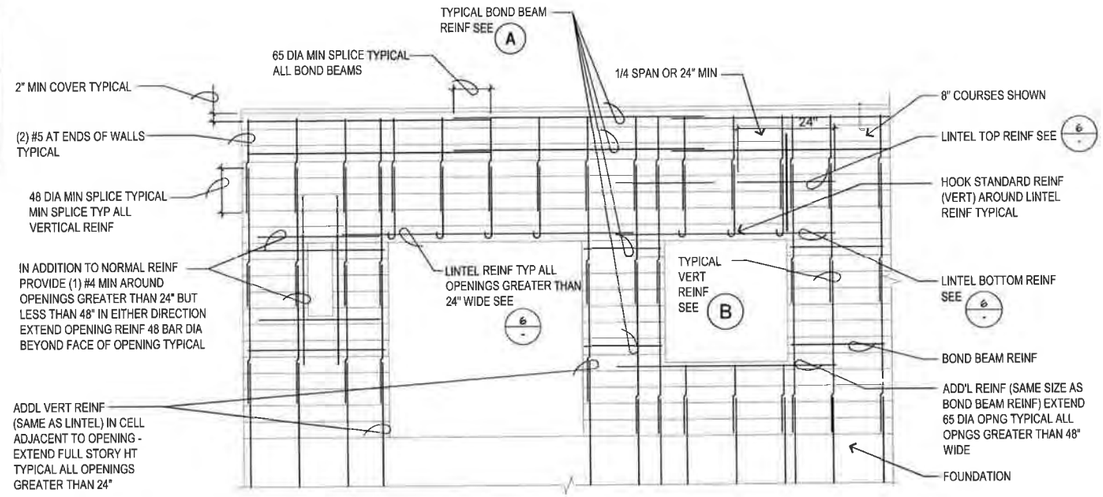
SHEET NUMBER
SD100

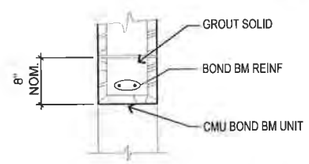
SHEAR WALL SCHEDULE (1)

MARK (3) (6) (8) (9)	SHEATHING (2) (11)	NAILING SIZE (1) (14)	NAILING SPACING (2) (10)	STUD SIZE AT ADJOINING PANEL EDGES	BLOCKING SIZE (5)	FOUNDATION SILL R SIZE	FOUNDATION SILL R ATTACHMENT (4) (13) (14)	2x BOTTOM R ATTACHMENT TO WOOD BELOW	REMARKS
8	15/32" APA RATED SHTG	10d COMMON (0.148" Ø x 23/4" MIN)	6" O.C. EDGES 12" O.C. FIELD	2x	2x FLAT	2x	3/4"Ø AT 48"O.C.	16d AT 6"OC STAGGERED	310 PLF

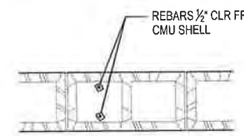
APA RATED SHEATHING SHEARWALL NOTES:

1. NAILS SHALL BE COMMON FROM AN AMERICAN OR CANADIAN MFR ONLY. MINIMUM NAIL PENETRATION INTO WOOD FRAMING SHALL BE 1 1/2" FOR 10d NAILS. NAIL DIAMETERS AND LENGTHS SHALL BE PER NOTE 6.1.3 SHEET S0.02.
2. APA RATED SHEATHING MATERIAL MAY BE EITHER PLYWOOD OR ORIENTED STRAND BOARD. SHEATHING MAY BE ORIENTED EITHER HORIZONTALLY OR VERTICALLY.
3. ALL WALLS ABOVE 8" C.M.U. WALLS WITHOUT DESIGNATION SHALL BE TYPE 8, WHERE THE SHEAR WALL HAS BEEN DESIGNATED ON THE PLANS TO EXTEND ALONG LENGTHS OF WALLS WITH PENETRATIONS, SHEATHING AND NAILING OF THAT TYPE SHALL BE REQUIRED ABOVE AND BELOW WALL OPENINGS. OTHERWISE, SHEATHING AND NAILING ABOVE AND BELOW OPENINGS MAY BE TYPE 8 .
4. ANCHOR BOLTS SHALL HAVE 6" MIN. EMBED. SEE DETAILS FOR TYPE OF CONNECTION REQUIRED. PROVIDE A MINIMUM OF (2) ANCHOR BOLTS PER PIECE, WITH ONE ANCHOR LOCATED NOT MORE THAN 12" OR LESS THAN 4" FROM EACH END OF EACH PIECE.
5. PANEL BLOCKING SHALL BE A 2X4 MIN OR 3X4 MIN PLACED FLAT, CENTERED ON THE JOINT AND SHALL BE REQUIRED AT ALL UNSUPPORTED PANEL EDGES.
6. WHEN THE SHEATHING IS REQUIRED ON ONE SIDE ONLY, PLACE ON THE SIDE OF THE SYMBOL. WHERE THE SHEATHING IS REQUIRED ON BOTH SIDES OF THE WALL, STAGGER THE PANEL JOINTS ON THE STUDS SUCH THAT JOINTS ON OPPOSITE SIDES OF THE WALL DO NOT FALL ON THE SAME STUD.
7. PROVIDE PANEL EDGE NAILING OF SHEATHING TO ALL COLUMNS WITH HOLDOWNS AND STUDS ATTACHED TO STEEL TUBE COLUMNS.
8. SHEARWALLS SHALL RUN CONTINUOUS THROUGH BREAKS CAUSED BY INTERSECTING WALLS.
9. UNLESS NOTED OTHERWISE, THE SHEARWALL DESIGNATION APPLIES TO FULL EXTENT OF WALL BETWEEN CORNERS OF WALLS.
10. NAIL SPACING APPLIES TO ALL STUDS, TOP AND BOTTOM PLATES AND BLOCKING.
11. MINIMUM SHEATHING DIMENSION SHALL BE 24" AT BOUNDARIES AND CHANGES IN FRAMING UNLESS ALL EDGES ARE BLOCKED.
12. AT NOTED WALLS FOUNDATION SILL PLATES AND ALL FRAMING MEMBERS RECEIVING EDGE NAILING FROM ABUTTING PANELS SHALL NOT BE LESS THAN A SINGLE 3-INCH NOMINAL MEMBER. A SINGLE 2x FOUNDATION SILL PLATE MAY BE USED (IN LIEU OF A 3x SILL PLATE) PROVIDED ANCHOR BOLT SPACING IS REDUCED TO 1/2 THE VALUE GIVEN ABOVE.
13. A 3" x 3" X 1/4" STEEL PLATE WASHER SHALL BE USED AT ALL SILL PLATE ATTACHMENT BOLTS.
14. HOT DIPPED GALVANIZED FASTENERS (ELECTROPLATED FASTENERS ARE NOT ACCEPTABLE) SHALL BE USED TO ATTACH TO ALL TREATED WOOD MEMBERS.
15. WHERE 3x AND 4x NOMINAL SILL PLATES ARE USED, (2) 20d BOX END NAILS SHALL BE SUBSTITUTED FOR (2) 16d COMMON NAILS REQUIRED BY NOTE 6.2 ON SHEET S0.01.





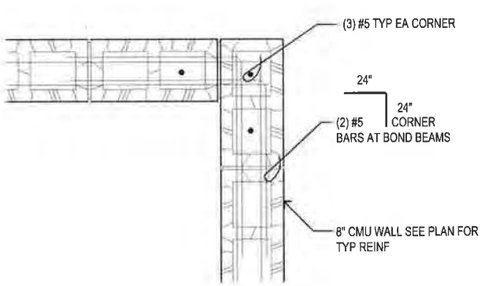
TYPICAL BOND BEAM (A)



TYP PLACEMENT OF VERT REINF WHEN (2) BARS REQD (B)

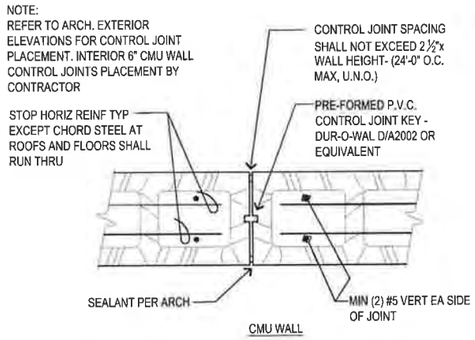
NOTES :
1. TYPICAL REINFORCEMENT SHOWN USE MORE IF REQUIRED BY SPECIAL DETAIL
2. FOR CORNER BAR USE 30" 30" SAME SIZE AND SPACING AS TYP HORIZ REINF
3. HOOK ALL REINF THAT CANNOT BE EXTENDED
4. GROUT ALL CELLS CONTAINING REINF ANCHOR BOLTS OR OTHER EMBEDDED ITEMS
5. FOR CONTROL JOINTS IN CMU WALLS SEE 4

TYP MASONRY WALL EVEVATION (2)
3/4" = 1'-0" S201 SD101



PLAN (3)
3/4" = 1'-0" S201 SD101

NOTE:
REFER TO ARCH. EXTERIOR ELEVATIONS FOR CONTROL JOINT PLACEMENT. INTERIOR 6" CMU WALL CONTROL JOINTS PLACEMENT BY CONTRACTOR



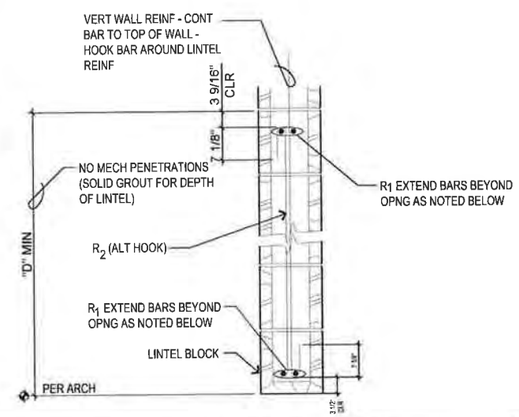
TYP MASONRY CONTROL JOINT (4)
3/4" = 1'-0" S201 SD101

MASONRY WALL SCHEDULE (5)

MARK*	TYPE*	HORIZ. REINF.	VERT. REINF.	REMARKS
1	8" CMU	(2) #5 AT 24" OC	#5 AT 24" OC	TYPICAL WALL

* MARKS SIGNIFY CMU WALL TYPE ABOVE FOUNDATIONS

NOTES
1. SEE SHEET S0.1 AND S0.2 FOR STRUCTURAL NOTES AND TYPICAL DETAILS.
2. VERIFY ALL WINDOW, LOUVER, AND DOOR WIDTHS, HEIGHTS AND LOCATIONS WITH ARCHITECTURAL.
3. SEE ARCHITECTURAL/MECHANICAL DRAWINGS FOR DRAINS, SLOPES, AND OTHER FLOOR DEPRESSIONS NOT SHOWN.
4. SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS, ELEVATIONS, AND WALLS NOT SHOWN.
5. SEE SOILS REPORT FOR FOUNDATION AND SLAB SUPPORT.
6. T.O.F. = TOP OF FOOTING ELEVATION BELOW FINISH FLOOR ELEVATION.
7. GENERAL CONTRACTOR TO VERIFY TOP OF FOOTING ELEVATIONS WITH FINAL GRADING PLANS.
8. SEE ARCHITECTURAL DRAWING A1.2 FOR LOWER LOUVER OPENINGS NOT SHOWN.
9. PROVIDE SLAB CONTROL JOINTS AT 12'-6" O.C. MAX. PER PLAN. SEE DETAIL 1/S0.2



LINTEL SCHEDULE

TYPE	"D" (INCHES)	R_1	R_2	REMARKS
ML 1	16"	(2) # 5	NONE	EXTEND R_1 REINF 3'-0" BEYOND OPNG EA SIDE

TYP LINTEL DETAIL (6)
3/4" = 1'-0" S201 SD101

3/4" = 1' - 0" 12" 6" 0 1' 2'

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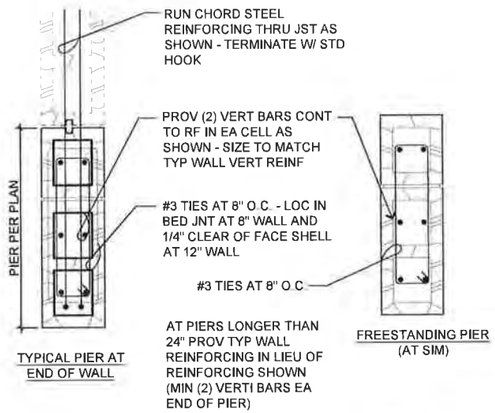
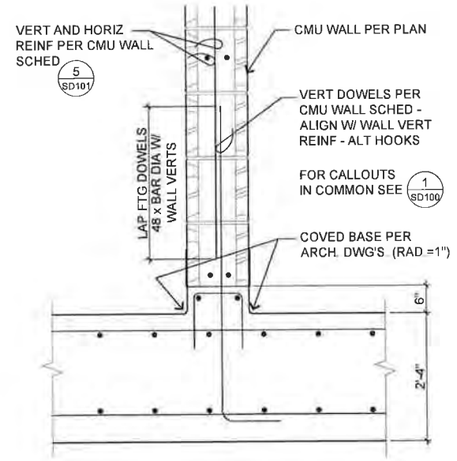
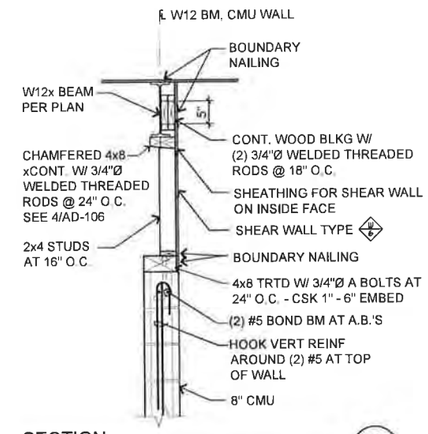


PLAN
3/4" = 1'-0"
1 S201 SD102



SECTION
3/4" = 1'-0"
2 S201 SD102



SECTION
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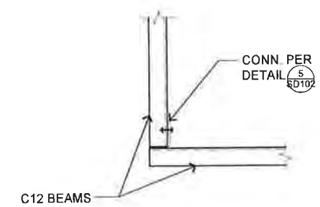
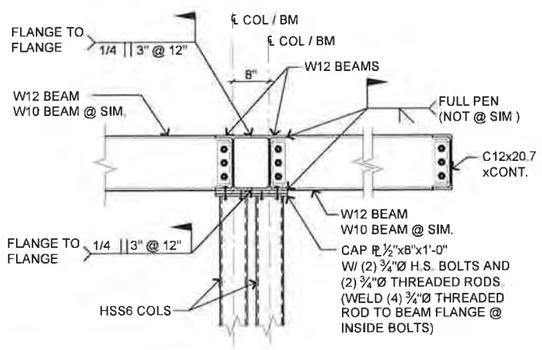
3 S201 SD102



SECTION
1" = 1'-0"
6 S201 SD102

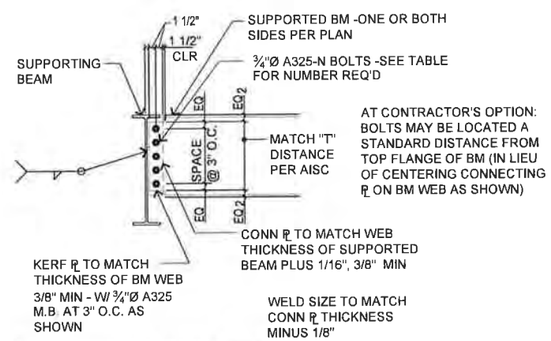


SUPPORTED BM SIZE	NUMBER OF A325-N
W 6x	1
W 8x	2
W 10x	2
W 12x	3

AT CONTRACTOR'S OPTION: BOLTS MAY BE LOCATED A STANDARD DISTANCE FROM TOP FLANGE OF BM (IN LIEU OF CENTERING CONNECTING ℙ ON BM WEB AS SHOWN)

NOTE:
A325-N BOLTS DO NOT REQUIRE PRETENSION AND MAY BE USED WITH THREADS INCLUDED IN THE SHEAR PLANE

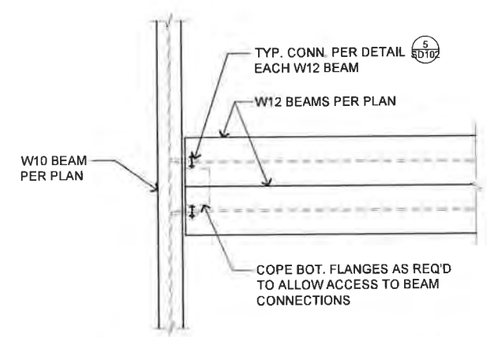
BEAM SECTION
3/4" = 1'-0"
4 S201 SD102



SUPPORTED BM SIZE	NUMBER OF A325-N
W 6x	1
W 8x	2
W 10x	2
W 12x	3

NOTE:
A325-N BOLTS DO NOT REQUIRE PRETENSION AND MAY BE USED WITH THREADS INCLUDED IN THE SHEAR PLANE

STEEL BEAM SECTION
3/4" = 1'-0"
5 S201 SD102



SECTION
1" = 1'-0"
7 S201 SD102

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Page 13 of 30

3/4" = 1' - 0" 12" 6" 0 1' 2'

1" = 1'-0" 1' 6" 0 2' 4'

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SHEET NAME
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ABBREVIATIONS

&	AND
@	AT
∠	ANGLE
AB	ANCHOR BOLT
AC	ACOUSTIC
A/C	AIR CONDITIONING
ACB	ACOUSTICAL CEILING BOARD
ACC	ACCESSIBLE
ACM	ASBESTOS CONTAINING MATERIAL
ACOUS	ACOUSTICAL
ACP	ACOUSTICAL CEILING PANEL
ACT	ACOUSTICAL CEILING TILE
ACU	AIR CONDITIONING UNIT
AD	AREA DRAIN, ACCESS DOOR
ADD	ADDENDUM, ADDITIVE
ADDL	ADDITIONAL
ADJ	ADJACENT, ADJUSTABLE
AF	ACCESS FLOOR
AFC	ACOUSTICAL FABRIC COVER
AFF	ABOVE FINISH FLOOR
AFG	ABOVE FINISH GRADE
AGG	AGGREGATE
ALUM	ALUMINUM
ALT	ALTERNATE
ANOD	ANODIZED
AP	ACCESS PANEL
APC	ACOUSTICAL PANEL CEILING
APPD	APPROVED
APPROX	APPROXIMATE (LY)
APT	APARTMENT UNIT
ARCH	ARCHITECTURE (URAL)
ASPH	ASPHALT
AVE	AVENUE
AWF	ACOUSTICAL WALL FABRIC
AWP	ACOUSTICAL WALL PANEL
B	BATH
BBQ	BARBEQUE
BD	BOARD
BF	BOTH FACES
BIT	BITUMEN
BITUM	BITUMINOUS
BLDG	BUILDING
BLK(G)	BLOCK (ING)
BM	BEAM, BENCH MARK
BO	BOTTOM OF
BOT	BOTTOM
BOW	BOTTOM OF WALL
BR	BRICK, BEDROOM
BRG	BEARING
BS	BACKSPLASH
BSMT	BASEMENT
BTWN	BETWEEN
BUR	BUILT-UP ROOFING
℄	CENTERLINE
CAB	CABINET, CEMENT ASBESTOS BOARD
CB	CATCH BASIN
CBU	CEMENTIOUS BACKER UNITS
C/C	CENTER TO CENTER
CD	CUP DISPENSER
CEM	CEMENT
CER	CERAMIC
CF	CUBIC FEET
CFCI	CONTRACTOR FINISHED/CONTRACTOR INSTALLED
CFM	CUBIC FEET PER MINUTE
CFT	CONDUCTIVE FLOOR TILE
CG	CORNER GUARD
CHAN	CHANNEL
CHBD	CHALKBOARD
CI	CAST IRON
CIP	CAST IN PLACE
CJ	CONTROL JOINT
CLF	CHAIN LINK FENCE
CLG	CEILING
CLK	CAULKING
CLO	CLOSET
CLR	CLEAR (ANCE)
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS
COORD	COORDINATE
CORR	CORRIDOR
CPT	CARPET (ED)
CRS	COURSE (ES)
CS	CONCRETE SEALER
CT	CERAMIC TILE
CTCS	CERAMIC TILE CORNER SHELF
CTR	COUNTER
CTSD	CERAMIC TILE CORNER DISH
CTSK	COUNTER SINK
CTV	CABLE TELEVISION
CU	CUBIC
C/W	COLD WATER
C/W	COMPLETE WITH
CWB	CAPILLARY WATER BARRIER
CY	CUBIC YARD(S)
d	PENNY NAILS
D	DEEP, DEPTH, DRYER
DBL	DOUBLE
DEMO	DEMOLITION, DEMOLISH
DEP	DEPRESSED
DEPT	DEPARTMENT
DET, DTL	DETAIL
DF	DRINKING FOUNTAIN
D FIR	DOUGLAS FIR
DI	DUCTILE IRON, DEIONIZED WATER
DIA, Ø	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DIM PT	DIMENSION POINT
DISP	DISPOSAL
DL	DEAD LOAD
DMPF	DAMPPROOFING
DN	DOWN
DPR	DAMPER
DR	DOOR
DS	DOWNSPOUT
DV	DRYER VENT
DW	DISHWASHER
DWG	DRAWING
E	EAST
EA	EACH
EB	EXPANSION BOLT
EF	EACH FACE, EXHAUST FAN
EFS	EXTERIOR FINISH SYSTEM
EIFS	EXTERIOR INSULATION & FINISH SYSTEM
EJ	EXPANSION JOINT
ELEC	ELECTRIC (AL)
EL	ELEVATION
ELEV	ELEVATOR, ELEVATION
EM	ENTRY MAT
EN	ENAMEL
ENCL	ENCLOSURE
EOS	EDGE OF SLAB
EP	ELECTRICAL PANEL (BOARD)
EPNT	EPOXY PAINT
EPX	EPOXY
EQ	EQUAL, EQUALLY
EQUIP	EQUIPMENT
ES	EACH SIDE
EST	ESTIMATE (ED)
EW	EACH WAY
EWC	ELECTRIC WATER COOLER
EX	EXPANSION
EXC	EXCAVATE
EXH	EXHAUST
EXIST, (E)	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
FA	FIRE ALARM
FBD	FIBERBOARD
FBO	FURNISHED BY OTHERS
FD	FLOOR DRAIN
FDN	FOUNDATION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER & CABINET
F/F	FACE TO FACE
FF	FACTORY FINISH, FINISH FLOOR
FF&E	FURNITURE, FIXTURES & EQUIPMENT
FGL	FIBERGLASS
FH	FIRE HYDRANT
FHC	FIREHOSE CABINET
FIN	FINISH (ED)
FL	FLOOR (ING)
FLUOR	FLUORESCENT
FM	FACTORY MUTUAL
FND	FEMININE NAPKIN DISPOSAL
FNV	FEMININE NAPKIN VENDOR
FO, F/O	FACE OF
FOC	FACE OF CONCRETE OR CMU
FOF	FACE OF FINISH
FOIC	FURNISHED BY OWNER/INSTALLED BY CONTRACTOR
FOIO	FURNISHED BY OWNER/INSTALLED BY OWNER
FOM	FACE OF MASONRY
FOS	FACE OF STUD, FACE OF SLAB
FP	FIREPLACE
FPRF	FIREPROOFING
FPWH	FREEZE PROOF WALL HYDRANT
FR	FIRE-RESISTIVE
FRC	FIBER REINFORCED CONCRETE
FRG	FIBER REINFORCED GYPSUM
FRP	FIBERGLASS REINFORCED PLASTIC
FRT	FIRE RETARDANT TREATED
FS	FLOOR SINK
FT	FOOT, FEET
FTG	FOOTING
FURR	FURRING, FURRED
FUT	FUTURE
FWC	FABRIC WALL COVERING
G	GAS
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GB	GRAB BAR
GC	GENERAL CONTRACTOR
GCMU	GLAZED CONCRETE MASONRY UNIT
GD	GARBAGE DISPOSAL
GFCI	GROUND FAULT CIRCUIT INTERRUPTOR
GFGI	GOVERNMENT FURNISHED, CONTRACTOR INSTALLED GOVERNMENT FURNISHED, GOVERNMENT INSTALLED
GFRC	GLASS FIBER REINFORCED CONCRETE
GL	GLASS, GLAZING
GLU-LAM	GLUE-LAMINATED
GND	GROUND
GPM	GALLONS PER MINUTE
GR	GRADE
GRGL	GLARE REDUCING GLASS (GLAZING)
GS	GALVANIZED STEEL
GSB	GYPSUM SHEATHING BOARD, GYPSUM SOFFIT BOARD
GSF	GROSS SQUARE FOOT(AGE)
GSL	GYPSUM SHAFT LINER
GVP	GYPSUM VENEER PLASTER
GWB	GYPSUM WALL BOARD
GYP	GYPSUM
GYP SHTG	GYPSUM SHEATHING
H	HIGH
HB	HOSE BIB
HBGC	HIGH BUILD GLAZE COATING
HC	HANDICAP, HOLLOW CORE
HCT	HOLLOW CLAY TILE
HD	HAND DRYER, HAIR DRYER
HDDL	HIGH DENSITY OVERLAID
HDR	HEADER
HDWD	HARDWOOD
HDWR	HARDWARE
HIWC	HIGH IMPACT WALL COVERING
HM	HOLLOW METAL
HO	HOLD-OPEN
HORIZ	HORIZONTAL
HP	HYDRO POOL
HR	HOUR, HANDRAIL
HRC	HOSE REEL CABINET
HRSF	HIGH RATE SAND FILTER
HT	HEIGHT
HTG	HEATING
HVAC	HEATING/VENTILATION/AIR CONDITIONING
HW	HOT WATER
HWT	HOT WATER TANK
HWD	HOT WATER DISPENSER
ID	INSIDE DIMENSION, INSIDE DIAMETER
IE	INVERT ELEVATION
IG	INSULATED GLASS
IN	INCH
INCL	INCLUDE (D, ING)
INFO	INFORMATION
INSUL	INSULATE(D), (ION)
INT	INTERIOR
INV	INVERT
IPS	IRON PIPE SIZE
JAN	JANITOR
JST	JOIST
JT	JOINT
JB	JUNCTION BOX
K, KIT	KITCHEN
KD	KILN DRIED
KDF	KNOCK DOWN FRAME
KO	KNOCK-OUT
KP	KICKPLATE
KS	KNEE SPACE
L	LONG, LENGTH, LEFT
LAM	LAMINATE
LAV	LAVATORY
LB	LAG BOLT
LBS, #	POUNDS
LF	LINEAL FOOT/FEET
LG	LENGTH, LONG
LH	LEFT HAND
LHR	LEFT HAND REVERSE
LKR	LOCKER
LL	LIVE LOAD
LMS	LIQUID MARKING SURFACE
LPT	LOW POINT
LRH	LIGHT REFLECTIVE HARDNER
LSD	LIQUID SOAP DISPENSER
LT	LIGHT
LTG	LIGHTING
LVR	LOUVER
LWC	LIGHTWEIGHT CONCRETE
MACH	MACHINE
MAS	MASONRY
MAT	MATERIAL
MAX	MAXIMUM
MB	MACHINE BOLT
MC	MEDICINE CABINET
MDF	MEDIUM DENSITY FIBERBOARD
MDO	MEDIUM DENSITY OVERLAY
MECH	MECHANICAL
MEMB	MEMBRANE
MET	METAL
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MTL	METAL
MEZZ	MEZZANINE
MFR	MANUFACTURER
MH	MANHOLE
MIR	MIRROR
MJ	MACHINE JOLT
MLD	MOLDING
MO	MASONRY OPENING
MOD	MODIFIED
MR	MOISTURE RESISTANT
MTD	MOUNTED
MULL	MULLION
MW	MICROWAVE OVEN
N	NORTH
(N)	NEW
N/A	NOT APPLICABLE
NAT	NATURAL
N/C	NONCOMBUSTIBLE
NFS	NON-FROST SUSCEPTIBLE
NFVA	NET FREE VENT AREA
NIC	NOT IN CONTRACT
NO, #	NUMBER
NOM	NOMINAL
NP	NOT PROVIDED
NR	NONRATED
NRC	NOISE REDUCTION COEFFICIENT
NSF	NET SQUARE FEET
NTS	NOT TO SCALE
O	OVER
O/O	OUT TO OUT
OA	OVERALL
OBS	OBSCURE
OC	ON CENTER
OD	OUTSIDE DIMENSION, OVERFLOW DRAIN
OF	OUTSIDE FACE
OFCI	OWNER FURNISHED/CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED/OWNER INSTALLED
OFF	OFFICE
OH	OVERHEAD
ORD	OVERFLOW ROOF DRAIN
OPNG	OPENING
OPP	OPPOSITE
OR	OUTSIDE RADIUS
OS	OUTSIDE
OSB	ORIENTED STRAND BOARD
OTS	OPEN TO STRUCTURE
P.L.	PROPERTY LINE
P	POWER
PA	PUBLIC ADDRESS
PAR	PARALLEL
PB	PANIC BAR
PBD	PARTICLEBOARD
PC	PRECAST, POINT OF CURVE
PCD	PAPER CUP DISPENSER
PERF	PERFORATED
PERP	PERPENDICULAR
PF	PREFABRICATED
PI	POINT OF INTERSECTION
PJ	PANEL JOINT
PL	PLATE
PLAM	PLASTIC LAMINATE
PLAS	PLASTER
PLYWD	PLYWOOD
PNL	PANEL
PNT	PAINT
POC	POINT OF CONNECTION
POL	POLISHED
POLY	POLYETHYLENE
PP	POWER POLE
PR	PAIR
PRCST	PRECAST
PREFAB	PREFABRICATED
PROP	PROPERTY
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSL	PARALLEL STRAND LUMBER
PT	POINT, PRESSURE TREAT (ED)
PTD	PAPER TOWEL DISPENSER
PTD/WR	PTD & WASTE RECEPTACLE
PTN	PARTITION
PTR	PAPER TOWEL RECEPTACLE
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
PW	POTABLE WATER
PWT	PREFABRICATED WOOD TRUSS
QUAN	QUANTITY
QT	QUARRY TILE
R	RISER, RADIUS, THERMAL RESISTANCE
RA	RETURN AIR
RAD, R	RADIUS
RB	RUBBER BASE, RESILIENT BASE
RD	ROOF DRAIN, ROAD
RDO	ROOF DRAIN OVERFLOW
REBAR	REINFORCING BAR
REC	RECESSED
RECP	RECEPTACLE
RECT	RECTANGULAR
REF	REFERENCE
REFR	REFRIGERATOR
REG	REGISTER
REINF	REINFORCE (ED, ING)
REQ'D	REQUIRED
REQ'T	REQUIREMENT
RESIL	RESILIENT
RET	RETAINING
REV	REVISION
RFG	ROOFING
RH	RIGHT HAND, RELATIVE HUMIDITY, ROBE HOOK
RHR	RIGHT HAND REVERSE
RL	RAIN LEADER
RM	ROOM
RO	ROUGH OPENING
ROW	RIGHT OF WAY
R&S	ROD & SHELF
R&R	REMOVE & REPLACE
RR	RAILROAD
RS	ROUGH SAWN
RT	RESILIENT TILE
RUB	RUBBER
RV	RANGE VENT
RWL	RAIN WATER LEADER
S	SLOPE, SOUTH
SAN	SANITARY SEWER
SC	SOLID CORE
SCWD	SOLID CORE WOOD
SCD	SEAT COVER DISPENSER
SCHED	SCHEDULE
SCR	SHOWER CURTAIN ROD
SD	SOAP DISPENSER, STORM DRAIN, SMOKE DETECTOR
SECT	SECTION
SF	SQUARE FOOT/FEET
SG	SAFETY GLAZING
SH	SHOWER
SHT	SHEET
SHTG	SHEATHING
SIM	SIMILAR
SK	SINK
SLR	SEALER
SLV	SLEEVE
SM	SHEET METAL, SHOWER MODULE
SMHC	SHOWER MODULE HANDICAPPED
SMH	SHELF/MOP HOLDER
SMR	SURFACE METAL RACEWAY
SND	SANITARY NAPKIN DISPENSER, SANITARY NAPKIN DISPOSAL
SOG	SLAB ON GRADE
SOV	SHUT OFF VALVE
SP	STANDPIPE, SOLID PLASTIC
SPEC	SPECIFICATION (S)
SQ	SQUARE
SR	SEMI-RECESSED
SS	SANITARY SEWER, STAINLESS STEEL
SSK	SERVICE SINK
SSM	SOLID SURFACE MATERIAL
SST	STAINLESS STEEL
SSV	SAND STAIN VARNISH
ST	STAIN, STONE, STREET
STC	SOUND TRANSMISSION CLASS
STD	STANDARD
STL	STEEL
STOR	STORAGE
STFT	STORE FRONT
STRUCT	STRUCTURAL
SURF	SURFACE
SV	SHEET VINYL
S/V	STAIN & VARNISH
SWL	STATIC WATER LEVEL
SWR	SEWER
SYM	SYMMETRICAL
T, TR	TREAD
TB	TOWEL BAR
T&B	TOP & BOTTOM
TD	TOWEL DISPENSER
TEL	TELEPHONE
TER, TZ	TERRAZZO
TESC	TEMPORARY EROSION & SEDIMENTATION CONTROL
TFCI	TENANT FURNISHED/ CONTRACTOR INSTALLED
T&G	TONGUE & GROOVE
TG	TEMPERED GLASS
THK	THICK (NESS)
TKBD	TACKBOARD
TO	TOP OF
TOB	TOP OF BEAM
TOC	TOP OF CURB, TOP OF CONCRETE, TOP OF COLUMN
TOF	TOP OF FOUNDATION
TOM	TOP OF MASONRY
TOP	TOP OF PAVEMENT, TOP OF PLATE
TOS	TOP OF SLAB
TOW	TOP OF WALL
TPD	TOILET PAPER DISPENSER
TPTN	TOILET PARTITION
TRAN	TRANSPARENT
TS	TUBE STEEL
TTD	TOILET TISSUE DISPENSER
TTH	TOOTHBRUSH HOLDER
TV	TELEVISION
TWC	TEXTILE WALL COVERING
TYP	TYPICAL
UC	UNDERCUT
U/C	UNDER COUNTER
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORIES
UNF	UNFINISHED
UNO	UNLESS NOTED OTHERWISE
UR	URINAL
UV	ULTRA VOILET
UFAS	UNIFORM FEDERAL ACCESSIBILITY STANDARDS
V	VENT
VAR	VARIES
VAT	VINYL ASBESTOS TILE
VCT	VINYL COMPOSITION TILE
VENT	VENTILATOR
VERT	VERTICAL
VEST	VESTIBULE
VG	VERTICAL GRAIN
VIN	VINYL
VR	VAPOR RETARDER
VTR	VENT THROUGH ROOF
VWC	VINYL WALL COVERING
W	WATER, WEST, WIDE, WIDTH, WASHER
W/	WITH
WB	WALL BASE, WASTE BASKET
WC	WATER CLOSET, WALL COVERING
WD	WOOD
WF	WIDE FLANGE
WG	WIRE GLASS
WH	WATER HEATER, WALL HUNG
W/I	WITHIN
WIN	WINDOW
WM	WIRE MESH
W/O	WITHOUT
WP	WATER PROOF, WORKING POINT
WPL	WEATHER PROOF LOUVER
WR	WASTE RECEPTACLE, WATER RESISTANT
WR/GWB	WATER RESISTANT GWB
WS	WEATHER STRIPPING, WATER STOP
WSCT	WAINSCOT
WT	WEIGHT, WATER TANK
WW	WALL TO WALL
WWF	WELDED WIRE FABRIC
X BRACE	CROSS BRACE
YD	YARD, YARD DRAIN

SYMBOLS

NORTH	PROJECT NORTH (PLAN REFERENCE ONLY - SEE SURVEY FOR TRUE NORTH)
1 / A6 A8	SECTION CUT/ ELEVATION NUMBER OR LETTER SHEET DRAWN SHEET TAKEN
1 / A6 A8	DETAIL NUMBER SHEET DRAWN SHEET TAKEN
A B C D / A / A6 A8	ELEVATION LETTER SHEET DRAWN SHEET TAKEN
1	LOUVER TYPE
A	GLAZING TYPE
1	WALL TYPE
1	DEMO FLAG NOTE
12	WORK FLAG NOTE
13.5	GRID LINE
101	DOOR NUMBER
KITCHEN 113	ROOM IDENTIFICATION NUMBER
UP/DN	STAIR OR SLOPE DIRECTION
	CHAIN LINK FENCE
	ELEVATION INDICATOR
VINYL CPT	FLOOR MATERIAL INDICATOR

REFER TO INDIVIDUAL DISCIPLINE SHEETS FOR ADDITIONAL SYMBOLS AND ABBREVIATIONS

MATERIAL DESIGNATION

- EXISTING WALLS TO REMAIN
- WALLS OR ITEMS TO BE REMOVED (DASHED)
- NEW STUD WALLS
- NEW BRICK OR CMU WALLS
- CONCRETE
- EARTH
- FILL MATERIAL
- GYPSUM WALLBOARD (LARGE SCALE)
- CEMENT FIBER BOARD / SIDING (LARGE SCALE)
- CONTINUOUS BLOCKING
- NON-CONTINUOUS BLOCKING

City of Kirkland
Reviewed by T Elder
05/23/2019

BNR19-01207
Page 14 of 30

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Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

STATE OF WASHINGTON REGISTERED ARCHITECT GEOFFREY E. ANDERSON

SET TYPE
100% Design Submittal

SET ISSUE DATE
2/8/2019

REVISIONS

REVNAME1	MM.DD.YYYY
REVNAME2	MM.DD.YYYY
REVNAME3	MM.DD.YYYY
REVNAME4	MM.DD.YYYY
REVNAME5	MM.DD.YYYY
REVNAME6	MM.DD.YYYY

Rev. Number indicated by a

DRAWN/CHECKED
GO GEA

SHEET NAME
ABBREVIATIONS & SYMBOLS

SHEET NUMBER
A000

DOOR SCHEDULE

DOOR								FRAME			DETAIL				
NO.	TYPE	WIDTH	HEIGHT	THICK	MAT	FIN	FIRE RATING	TYPE	MAT	FIN	HEAD	JAMB	SILL	HDWRE	REMARKS
01	16	3'-0"	7' - 0"	1 3/4"	HM	PNT		A	HM	PNT	1/A001	1/A001 SIM	2/A001		
02	16	3'-0"	7' - 0"	1 3/4"	HM	PNT		A	HM	PNT	1/A001	1/A001 SIM	2/A001		
03	16	3'-0"	7' - 0"	1 3/4"	HM	PNT		A	HM	PNT	1/A001	1/A001 SIM	2/A001		OVERHEAD STOP SET TO PREVENT SWING FROM HITING STEEL COLUMNS
04	16	3'-0"	7' - 0"	1 3/4"	HM	PNT		A	HM	PNT	1/A001	1/A001 SIM	2/A001		OVERHEAD STOP SET TO PREVENT SWING FROM HITING STEEL COLUMNS

City of Kirkland
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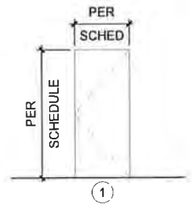
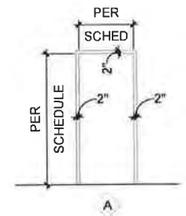
05/23/2019

ABBREVIATIONS

FF	FACTORY FINISH
HM	HOLLOW METAL
PNT	PAINT
MFR	MANUFACTURER
SST	STAINLESS STEEL



DOOR TYPES
1/4" = 1'-0"



FRAME TYPES
1/4" = 1'-0"

RESTROOM BUILDING DESCRIPTION:

CONSTRUCT AN APPROXIMATELY 440 SF RESTROOM BUILDING FOR THE TOTEM LAKE PARK. THERE SHALL BE 3 INDIVIDUAL UNISEX RESTROOM, AND A UTILITY/JANITOR/SERVICE ROOM. THE CORE BUILDING IS CMU, WITH TRANSOM GLAZING WITH A LARGE OVERHANGING ROOF SUPPORTED BY STEEL COLUMNS. THE BUILDING IS HEATED.

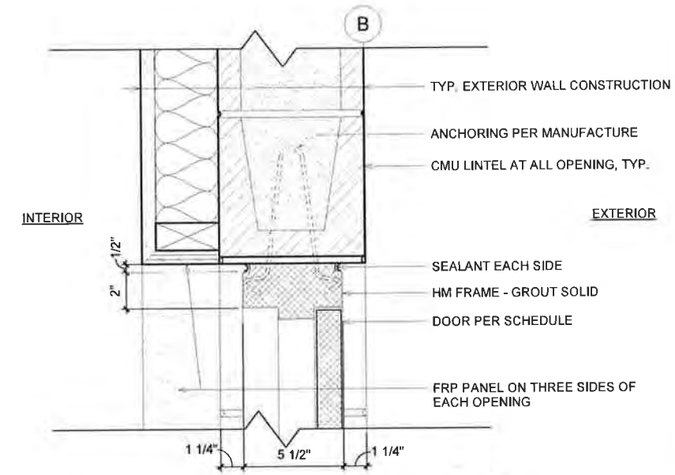
TOTAL FLOOR AREA: 440 SF, 1-STORY (5,500 ALLOWABLE)

BUILDING OCCUPANCY: U

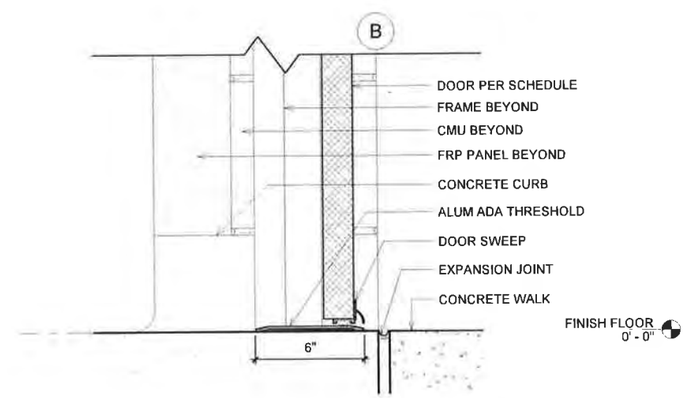
CONSTRUCTION TYPE: V-B

WSEC REQUIREMENTS:

- SUBMIT AIR BARRIER TEST REPORT TO JURISDICTION ONE TEST IS COMPLETE
- IF TEST RESULTS EXCEED 0.40 CFM/FT2 AT 0.3 IN. WG, THEN VISUALLY INSPECT AIR BARRIER AND SEAL NOTED SOURCES OF LEAKAGE.
- SUBMIT A FOLLOW-UP REPORT TO JURISDICTION NOTING CORRECTIVE MEASURES TAKEN.
- INCLUDE AIR BARRIER TEST REPORT IN COMPLIANCE DOCUMENTATION PROVIDED TO BUILDING OWNER.
- PROJECT CLOSE-OUT DOCUMENTATION IS REQUIRED, INCLUDING APPLICABLE WSEC ENVELOPE COMPLIANCE FORMS AND CALCULATIONS, AND FENESTRATION NFRC RATING CERTIFICATES.



DOOR HEAD/ JAMB SIM.
3" = 1'-0"
1 AD105 A001



DOOR SILL
3" = 1'-0"
2 AD105 A001

3" = 1'-0" 9" 6" 0 3" 1'

BNR19-01207
Page 15 of 30

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REVNAME6	MM.DD.YYYY

Rev. Numbers determined by A

DRAWN/CHECKED
SES GEA

SHEET NAME
SCHEDULES, DOOR & FRAME TYPES

SHEET NUMBER
A001

City of Kirkland
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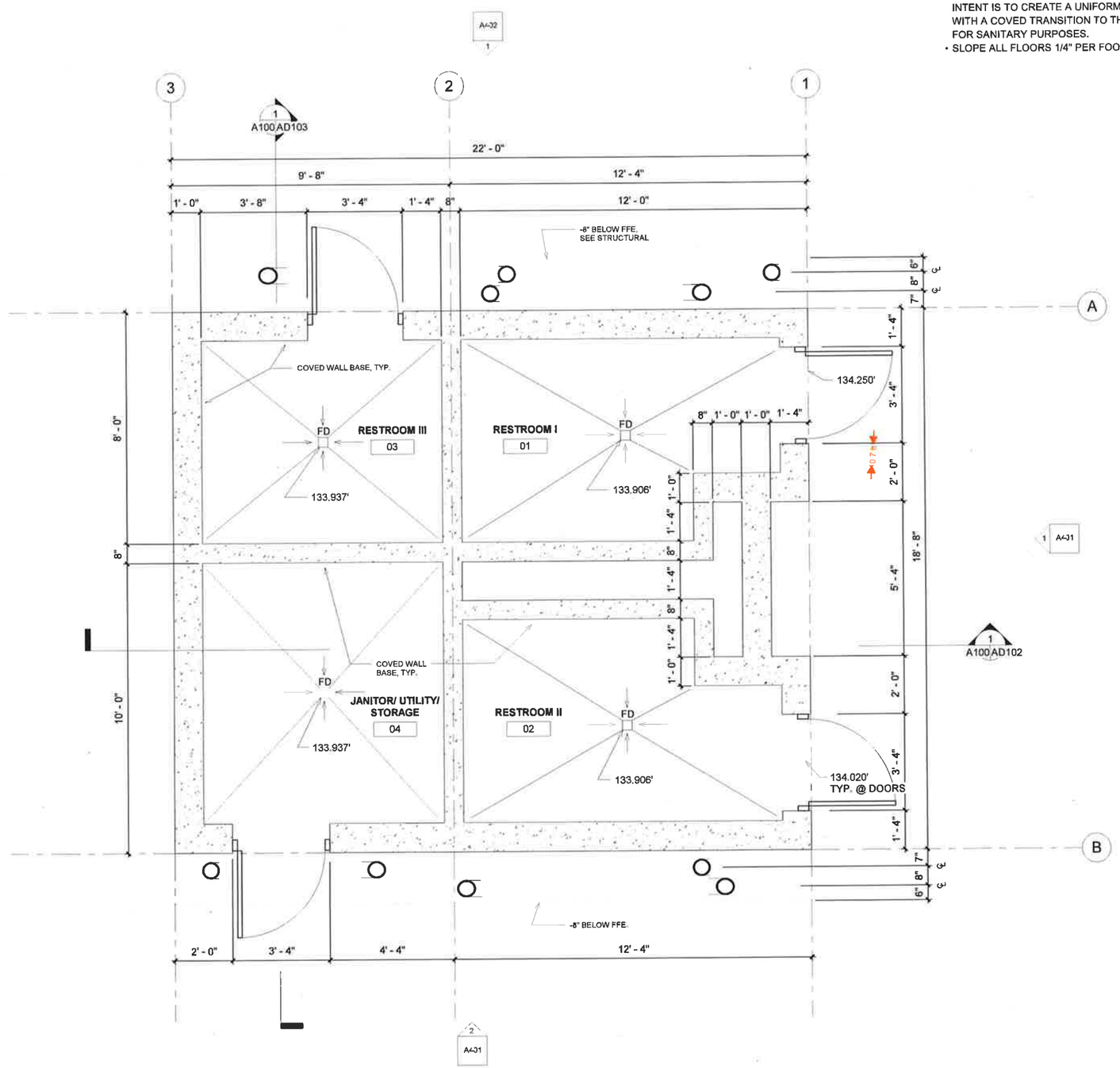
GENERAL NOTES:

- THIS PLAN DEPICTS THE 6" HEIGHT CONCRETE WALLS. THE INTENT IS TO CREATE A UNIFORM BASE AT ALL THE WALLS WITH A COVED TRANSITION TO THE FLOOR OF WET AREAS FOR SANITARY PURPOSES.
- SLOPE ALL FLOORS 1/4" PER FOOT MIN. TO FLOOR DRAINS.



CONCRETE SLAB/CURB PLAN
1/2" = 1'-0"
1 A001 A100

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Page 16 of 30

PARTNERSHIP berger
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253-572-4903

Totem Lake Park Phase 1
City of Kirkland

12031 Totem Lake Way, Kirkland, WA 98034

AIA REGISTERED ARCHITECT
GEOFFREY E. ANDERSON
STATE OF WASHINGTON

SET TYPE
100% Design Submittal

SET ISSUE DATE
2/8/2019

REVISIONS

REVNAME1	MM.DD.YYYY
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REVNAME3	MM.DD.YYYY
REVNAME4	MM.DD.YYYY
REVNAME5	MM.DD.YYYY
REVNAME6	MM.DD.YYYY

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SHEET NAME
SLAB/CURB PLAN

SHEET NUMBER
A100

Berger Partnership Project Number XXXXXXXX.XX Plotted 08.18.2011 5:18 PM by Gennadiy Ogay Filename p:\2017\17-116 totem lake splash pad (berger)\drawing\lacad-totem lake park-ph1 - title block.dwg

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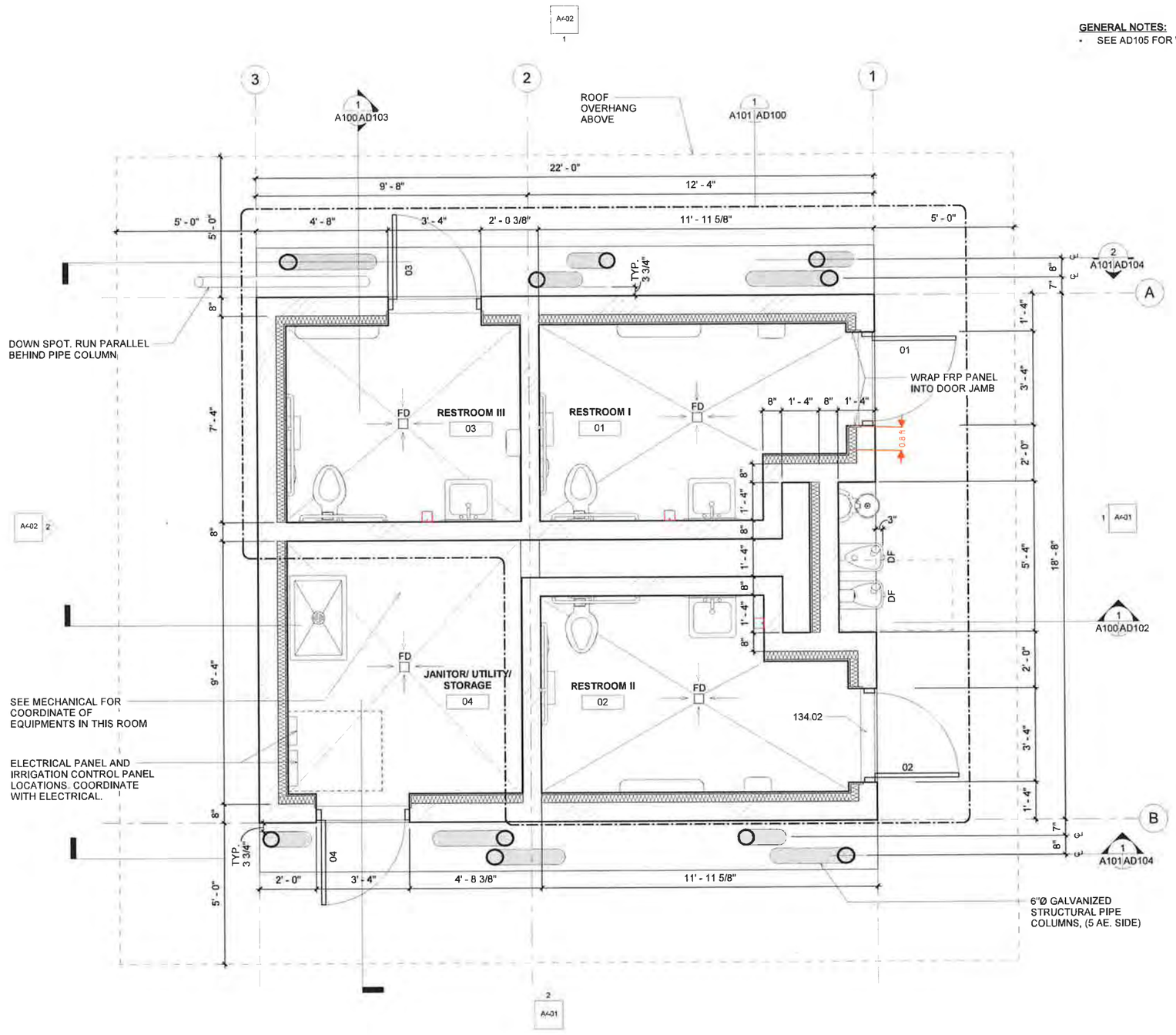
05/23/2019

GENERAL NOTES:

- SEE AD105 FOR WALL TYPE NOTES



FLOOR PLAN
1/2" = 1'-0"

1/2" = 1'-0"

BNR19-01207
Page 17 of 30

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SHEET NAME
BUILDING PLAN

SHEET NUMBER
A101

Berger Partnership Project Number: XXXXXXXX.XX Plotted: 08.18.2011 5:18 PM by: Gennadiy Ogay Filename: p:\2017\17-116 totem lake splash pad (berger)\drawings\acad-totem lake park-ph1 - title block.dwg

City of Kirkland
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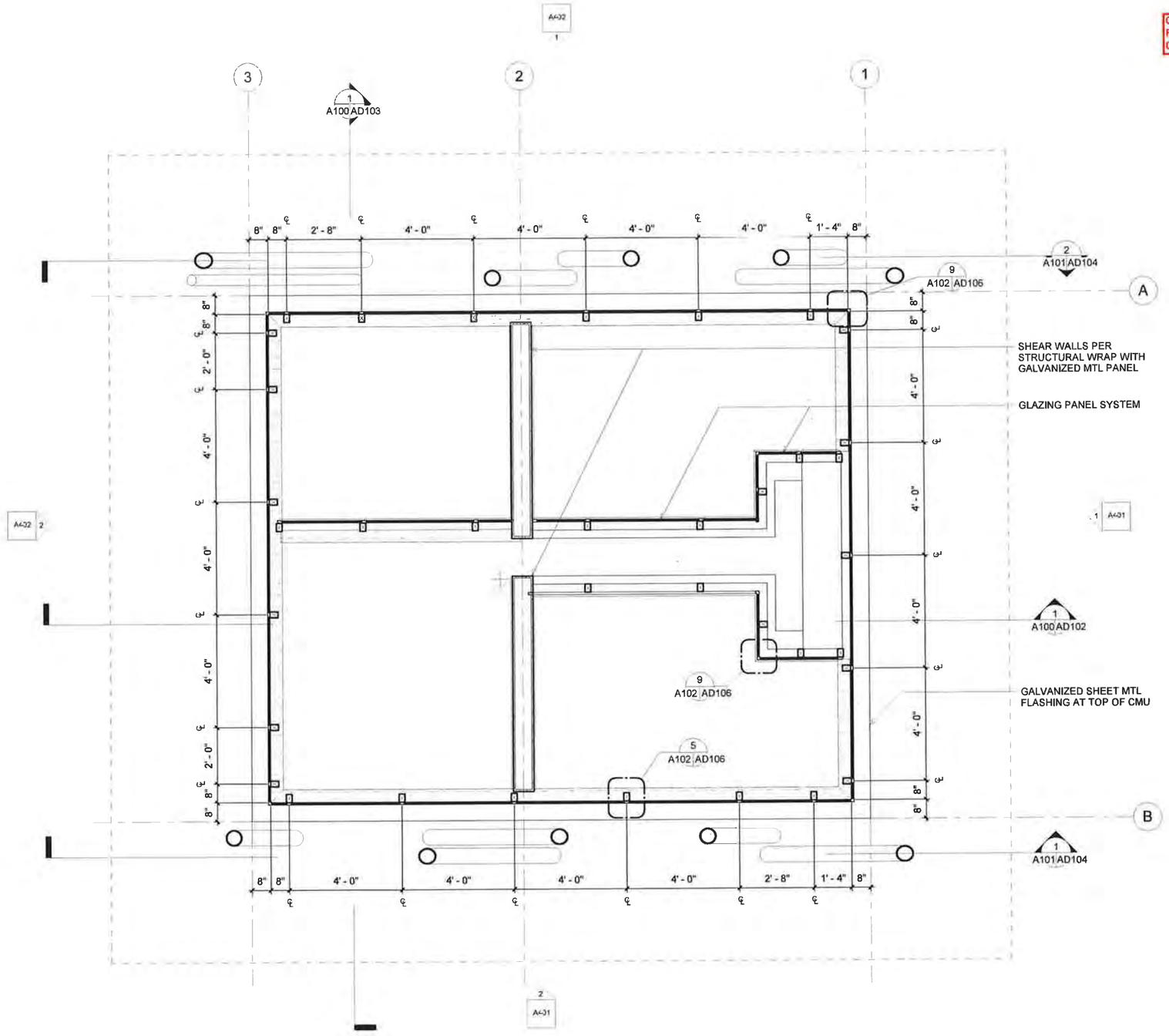

UPPER WALL
1/2" = 1'-0"
1
A401 A102

NORTH

BNR19-01207
Page 18 of 30

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1	REVNAME1	MM.DD.YYYY
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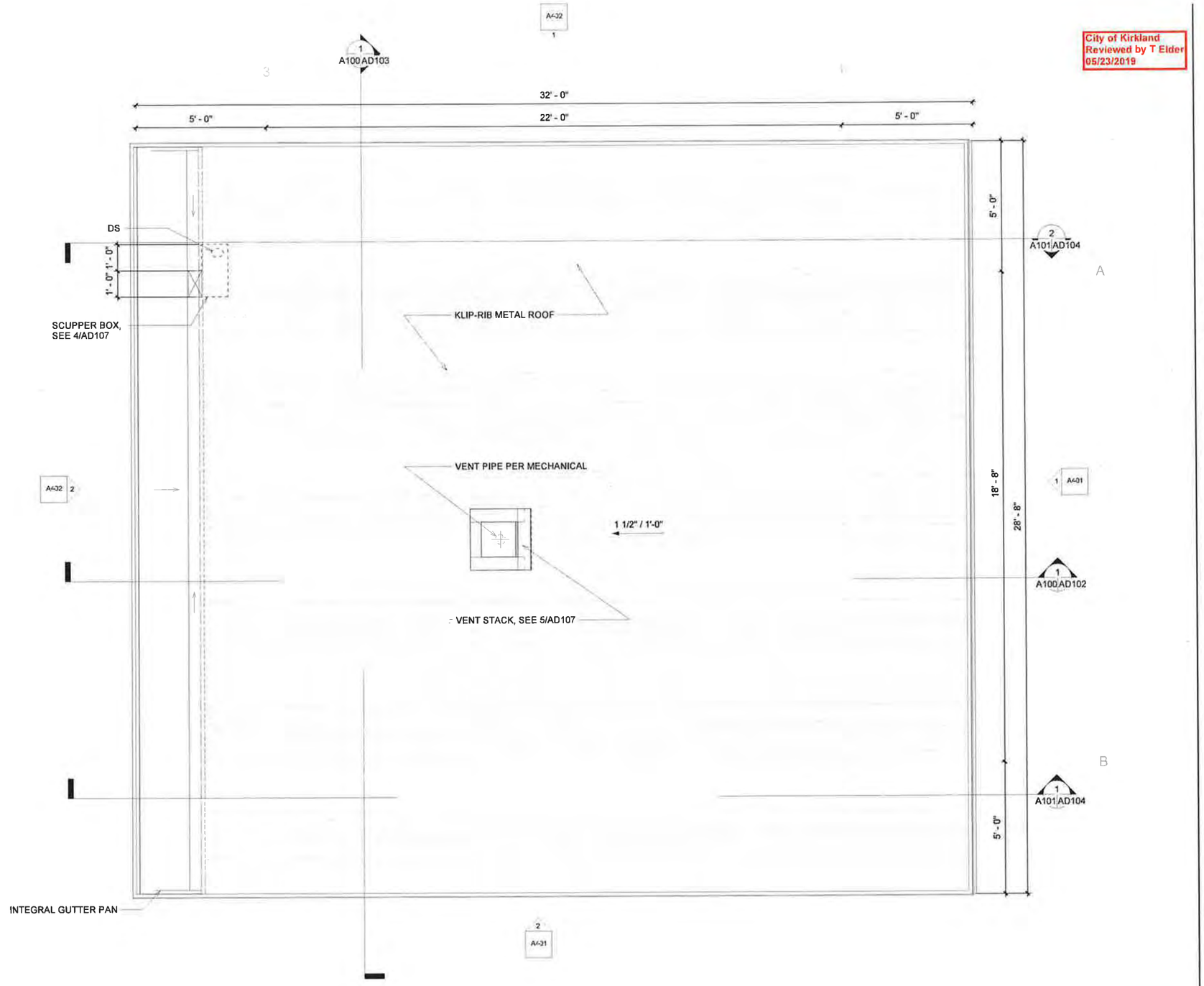
SHEET NAME
UPPER WALL PLAN

SHEET NUMBER
A102



ROOF PLAN
1/2" = 1'-0"
1 A103

NORTH

1/2" = 1'-0" 2' 1' 0 2' 4' 6'

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SHEET NAME
ROOF PLAN

SHEET NUMBER
A103

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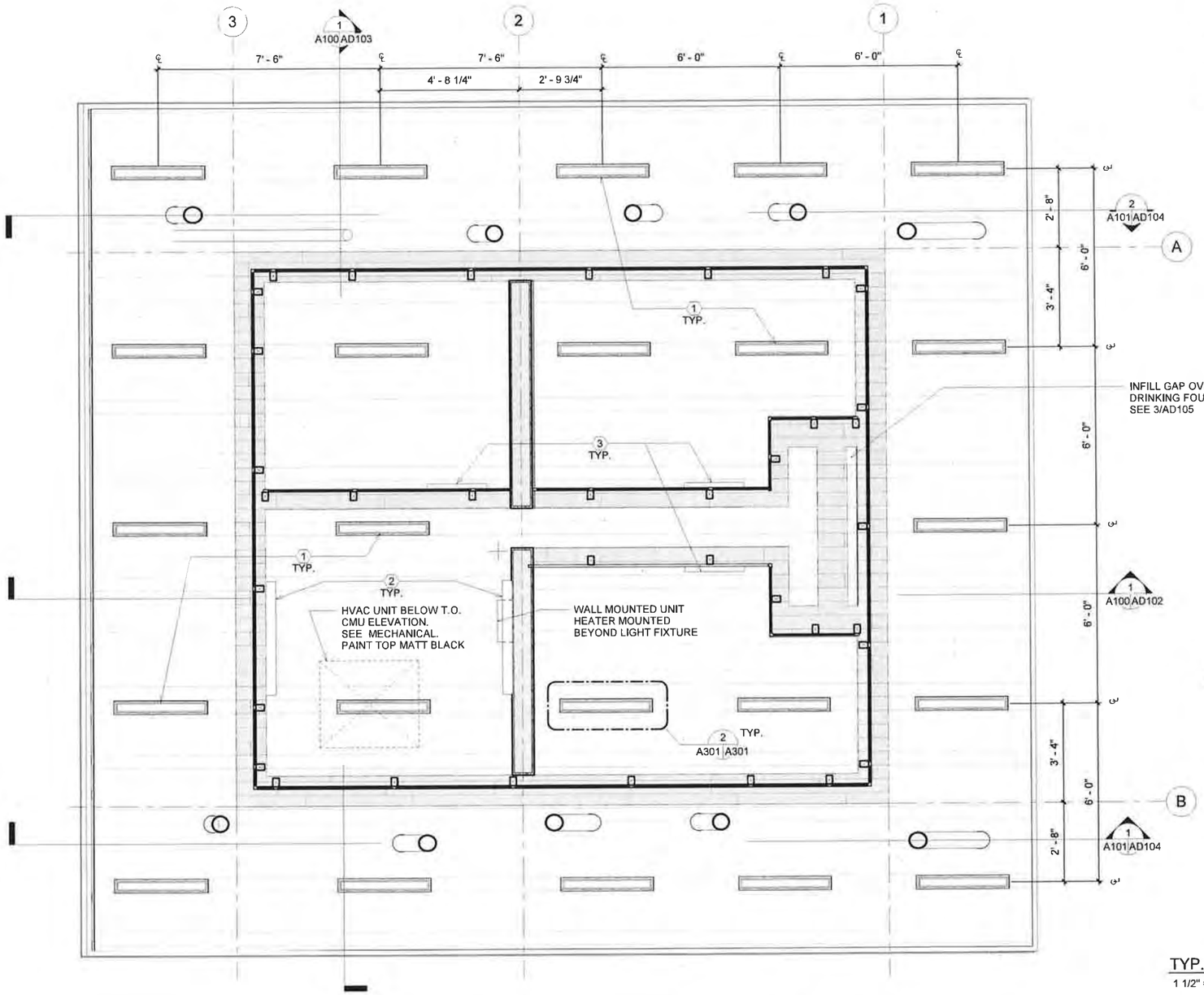
RCP LEGENDS

1x6 IPE WOOD SOFFIT BOARD

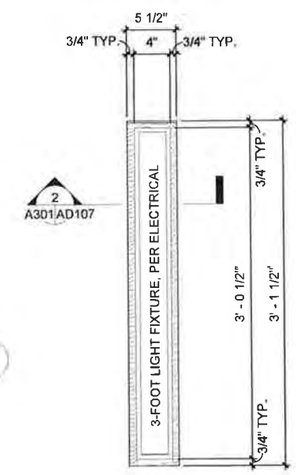
RCP NOTES

1. CEILING LIGHTS PER ELECTRICAL
2. WALL MOUNT LIGHTS PER ELECTRICAL
3. VANITY LIGHTS PER ELECTRICAL



REFLECTED CEILING PLAN (1 / A301)
1/2" = 1'-0"

NORTH



TYP. LIGHT FIXTURE OPENING (2 / A301)
1 1/2" = 1'-0"

BNR19-01207
Page 20 of 30

1 1/2" = 1'-0" : 8" 4" 0 6" 1' 2'

1/2" = 1'-0" : 2' 1' 0 2' 4' 6'

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REVNAME5	MM.DD.YYYY
REVNAME6	MM.DD.YYYY

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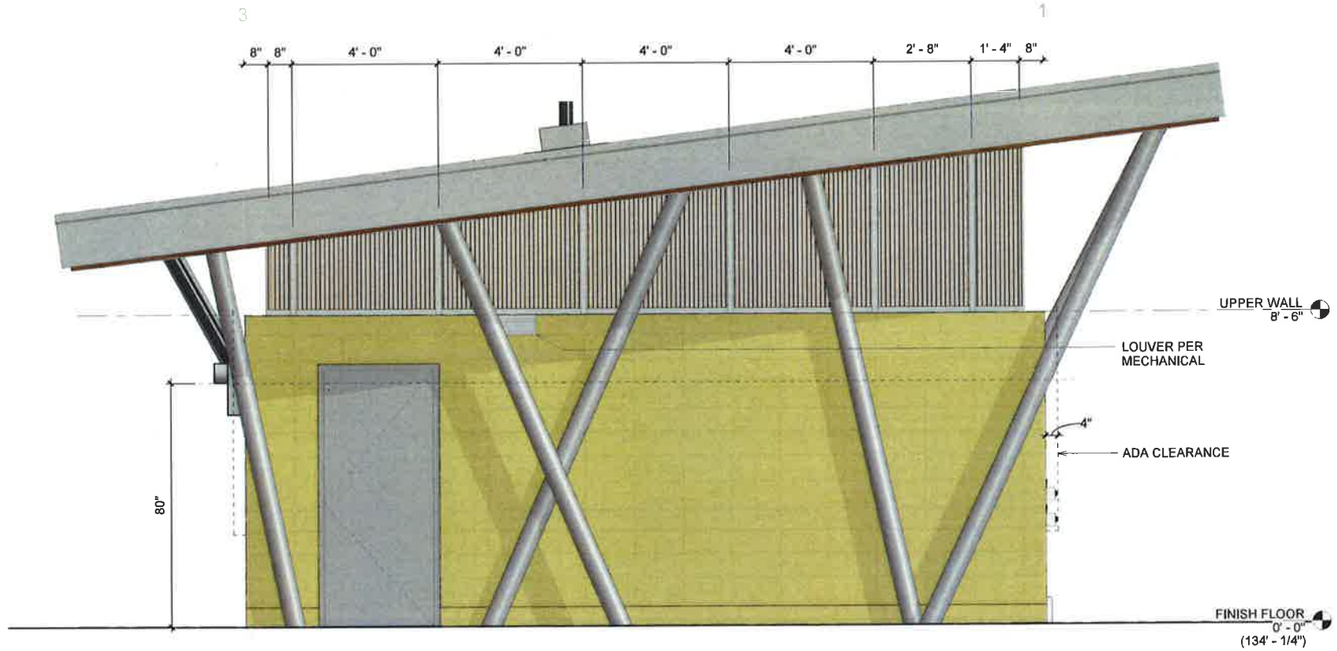
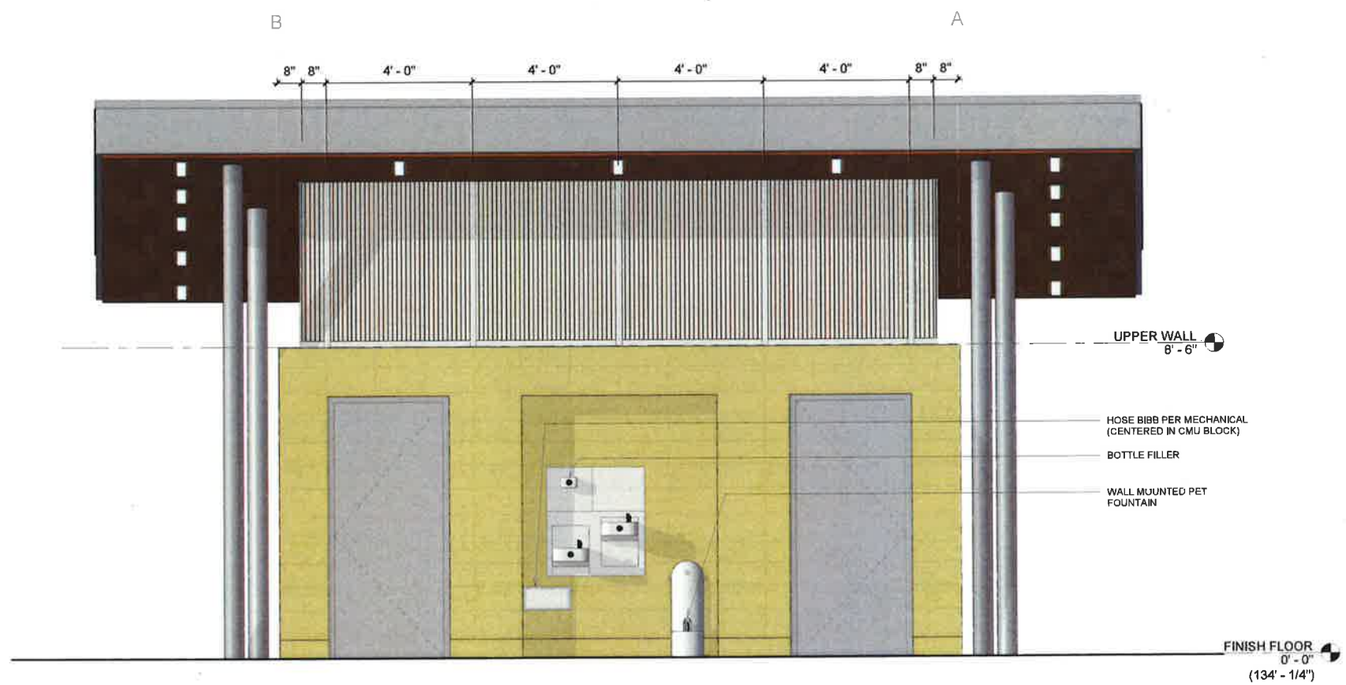
GO GEA

SHEET NAME
REFLECTED CEILING PLAN

SHEET NUMBER
A301



SOUTH ELEVATION
1/2" = 1'-0"
2
A100 A401



EAST ELEVATION
1/2" = 1'-0"
1
A100 A401

TOTAL VERTICAL FEN

City of Kirkland
Reviewed by T Elder
05/23/2019

SOUTH: 66.97 SF
EAST: 79.06 SF
NORTH: 66.97 SF
WEST: 33.91 SF

TOTAL: 246.91 SF

TOTAL WALL AREA:
691.34 SF

% OF VERTICAL FENESTRTION
TO GROSS WALL AREA:
= 35.7%

PROJECTION FACTOR:
PF = A/B
= 5'/4.5' MAX
PF ≥ 1.0

BNR19-01207
Page 21 of 30

2' 1' 0 2' 4' 6'
1/2" = 1'-0"

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REVNAME6	MM.DD.YYYY

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SHEET NAME
EXTERIOR ELEVATIONS I

SHEET NUMBER
A401

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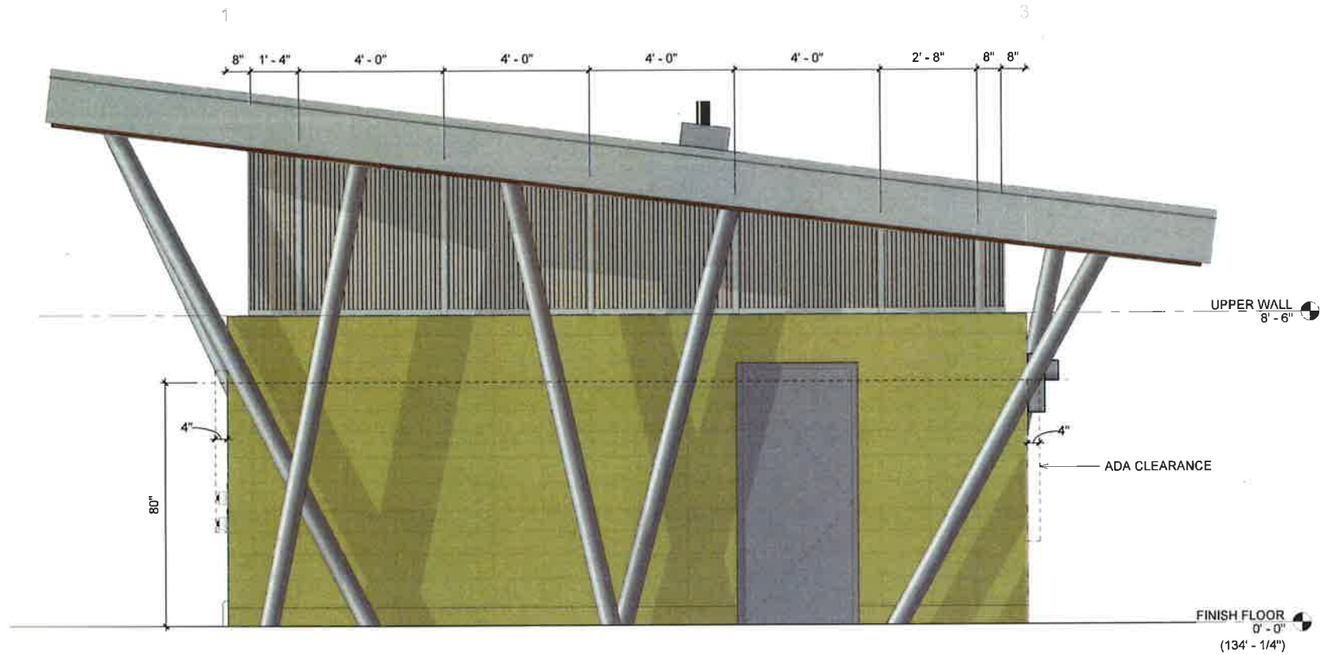
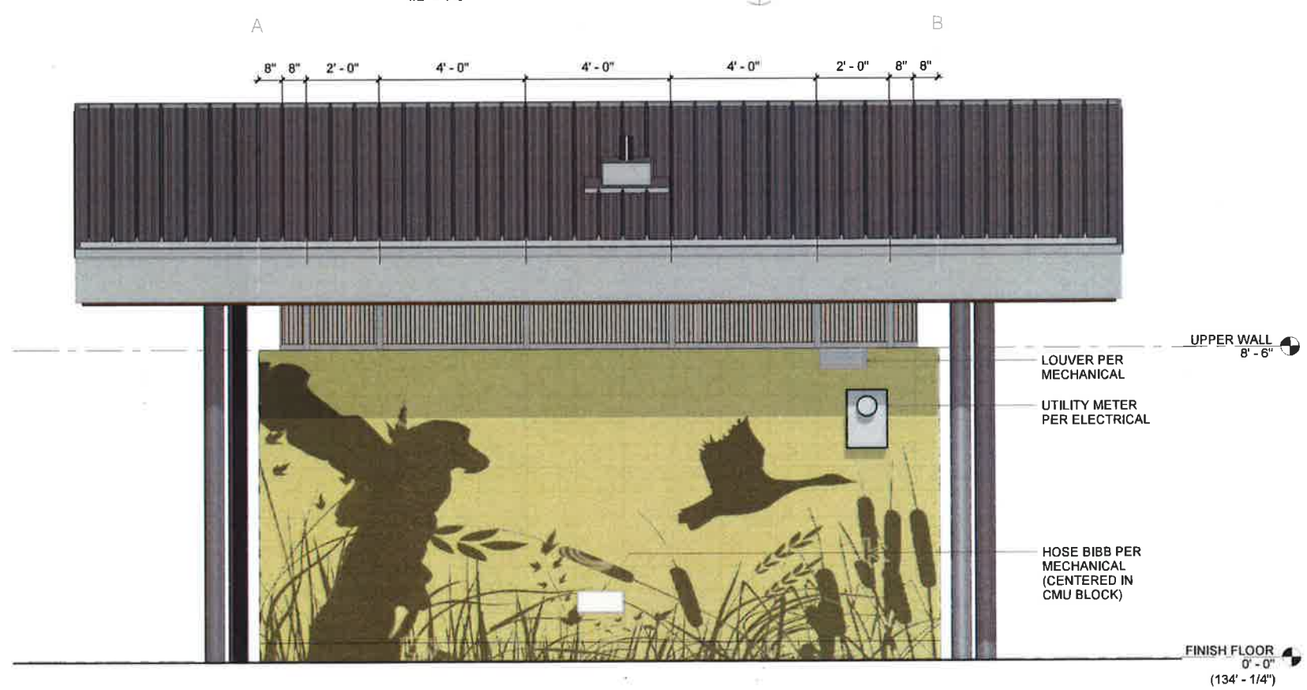
05/23/2019



NORTH ELEVATION
1/2" = 1'-0"
1
A100 A402



WEST ELEVATION
1/2" = 1'-0"
2
A100 A402

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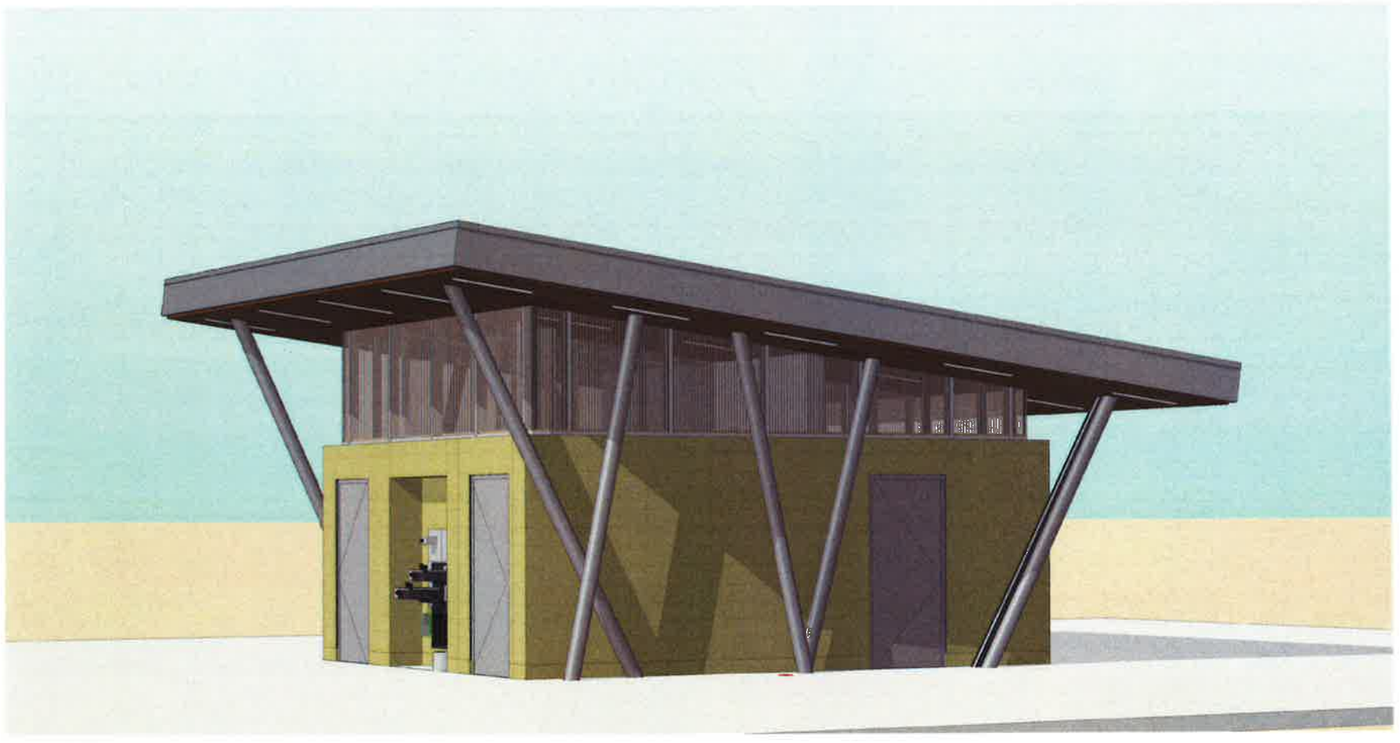
SHEET NAME
EXTERIOR ELEVATIONS II

SHEET NUMBER
A402

Berger Partnership Project Number: XXXXXXXX.XX Printed: 08.18.2011 5:18 PM By: Gennadiy Ogay Filename: p:\2011\17-118 totem lake splash pad (berger)\drawings\acad-totem lake park-ph1 - title block.dwg

PERSPECTIVE VIEW I

PERSPECTIVE VIEW III



PERSPECTIVE VIEW II

PERSPECTIVE VIEW IV

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City of Kirkland

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SHEET NAME
PERSPECTIVES

SHEET NUMBER
A403

Berger Partnership Project Number: XXXXXXXX.XX Plotted: 08.18.2011 5:18 PM By: Gennadiy Ogay Filename: p:\2017\17-116 totem lake splash pad (berger)\drawings\acad-totem lake park-ph1 - title block.dwg

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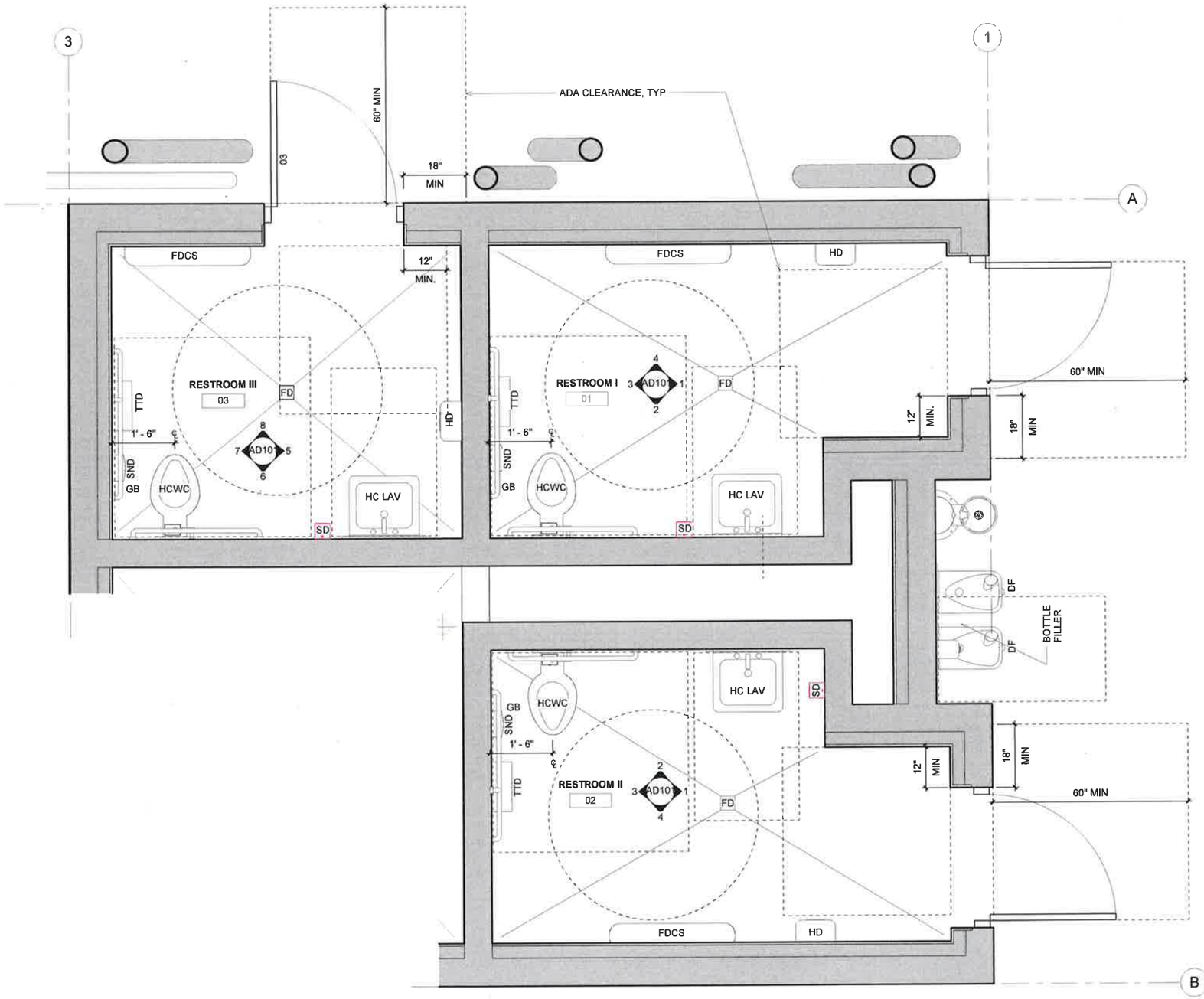

ENLARGED PLAN - RESTROOMS
3/4" = 1'-0"
1 A101 AD100

NORTH

3/4" = 1'-0"
16" 8" 0 1' 2' 4'

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Page 24 of 30

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Totem Lake Park Phase 1
City of Kirkland

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STATE OF WASHINGTON REGISTERED ARCHITECT GEOFFREY E. ANDERSON

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6	REVNAME6		MM.DD.YYYY

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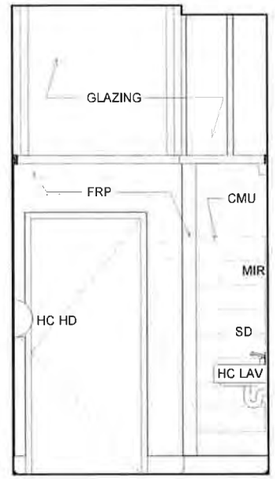
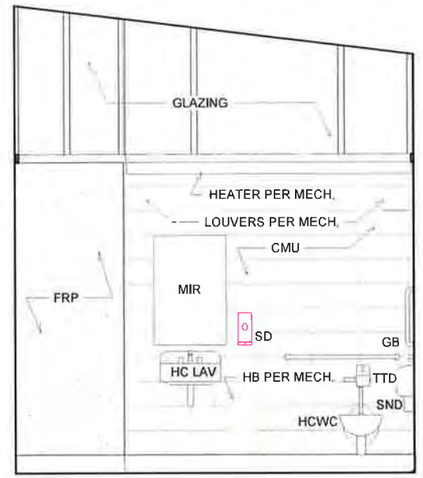
SHEET NAME
ENLARGED PLANS

SHEET NUMBER
AD100

Berger Partnership Project Number: XXXXXXXX.XX Plotted: 08.18.2011 5:16 PM By: Gennadiy Ogay File name: p:\2017\17-116 totem lake splash pad (berger)\drawings\acad-totem lake park-ph1 - title block.dwg



ELEVATION 1



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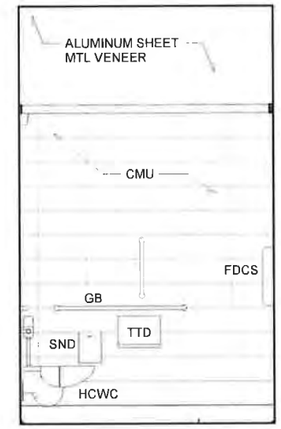

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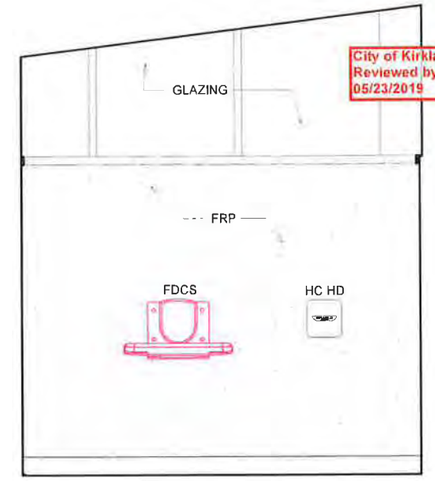

ELEVATION 4

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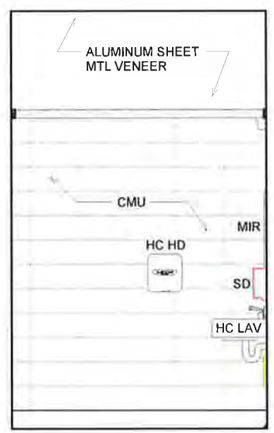
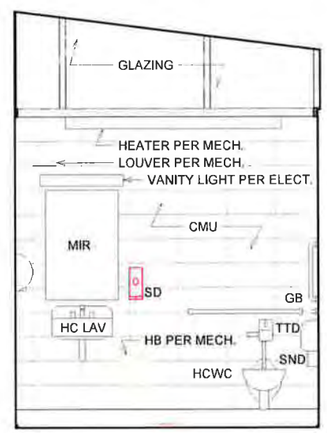
RESTROOM 01, 02 OPP

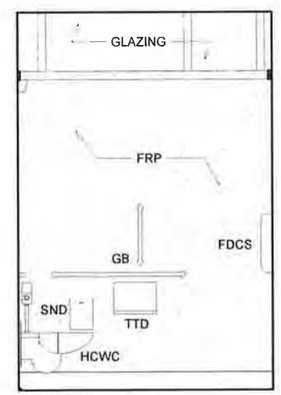
1/2" = 1'-0"



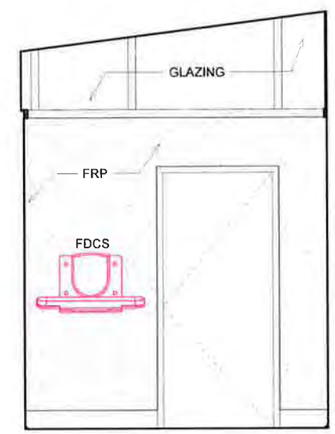
ELEVATION 5



ELEVATION 6



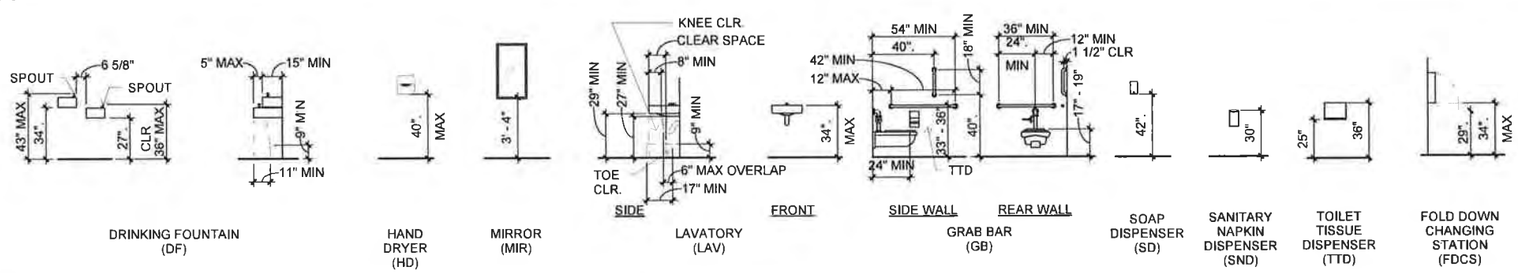
ELEVATION 7



ELEVATION 8

RESTROOM 03

1/2" = 1'-0"



DRINKING FOUNTAIN (DF) | HAND DRYER (HD) | MIRROR (MIR) | LAVATORY (LAV) | GRAB BAR (GB) | SOAP DISPENSER (SD) | SANITARY NAPKIN DISPENSER (SND) | TOILET TISSUE DISPENSER (TTD) | FOLD DOWN CHANGING STATION (FDCS)

TYPICAL FIXTURE/ EQUIPMENT MOUNTING HEIGHTS

FOR HANDICAP ACCESSIBILITY (U.O.N.)

1/2" = 1'-0" 2' 1' 0 2' 4' 6'

BNR19-01207
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GEOFFREY E. ANDERSON
STATE OF WASHINGTON

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6	REVNAME6	MM.DD.YYYY

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SHEET NAME
INTERIOR ELEVATIONS

SHEET NUMBER
AD101

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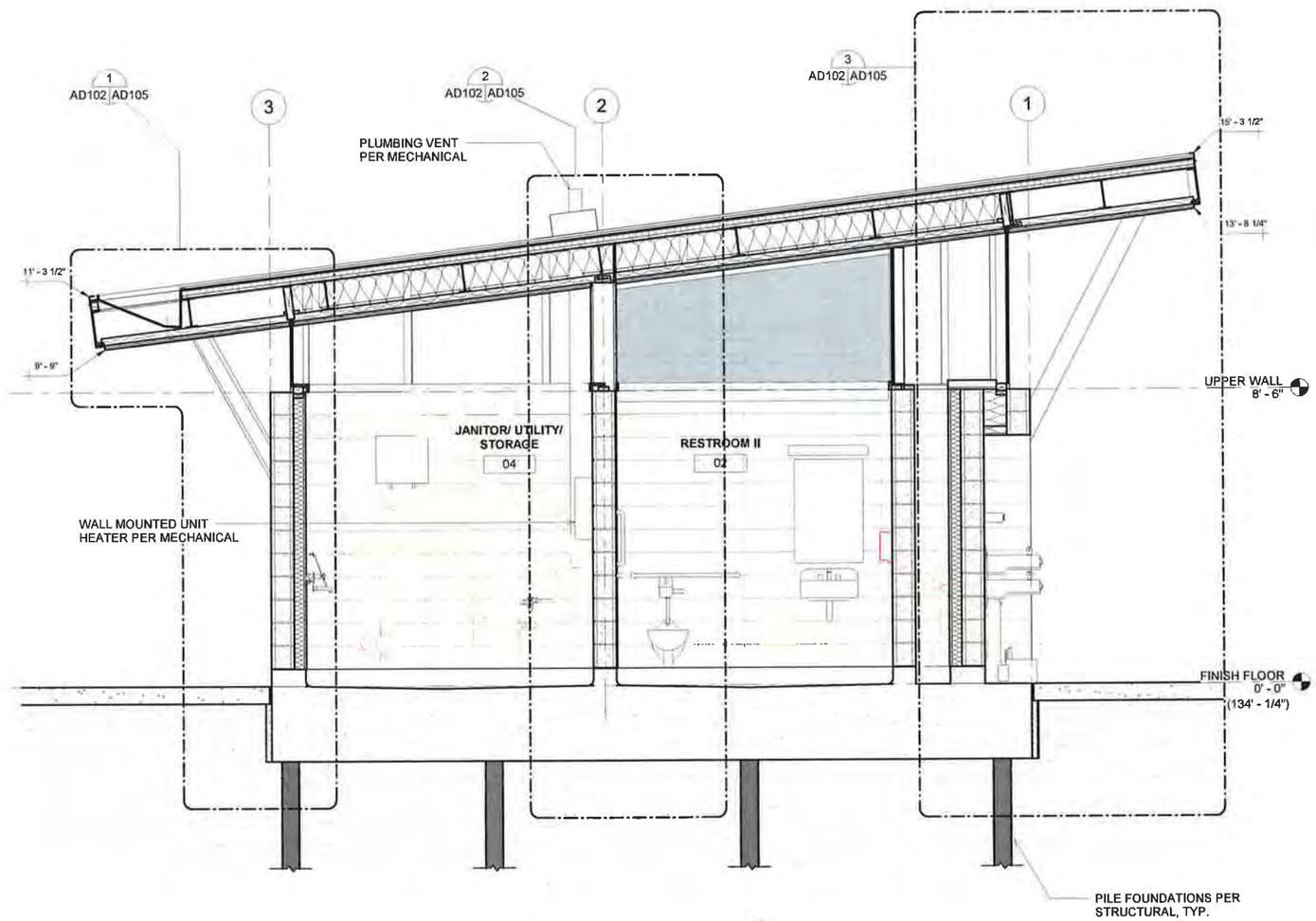

BUILDING SECTION
1/2" = 1'-0"
1
A100 AD102

BNR19-01207
Page 26 of 30

3/4" = 1'-0"
16" 8" 0 1' 2' 4'

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	REVNAME4	MM.DD.YYYY
	REVNAME5	MM.DD.YYYY
	REVNAME6	MM.DD.YYYY

File Name: Revised by

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SHEET NAME
BUILDING SECTION I

SHEET NUMBER
AD102

Berger Partnership Project Number: XXXXXXXX.XX Plotted: 08.18.2011 5:18 PM By: Gennadiy Ogay File name: p:\2017\17-116 totem lake splash pad (berger)\drawings\acad-totem lake park-ph1 - title block.dwg

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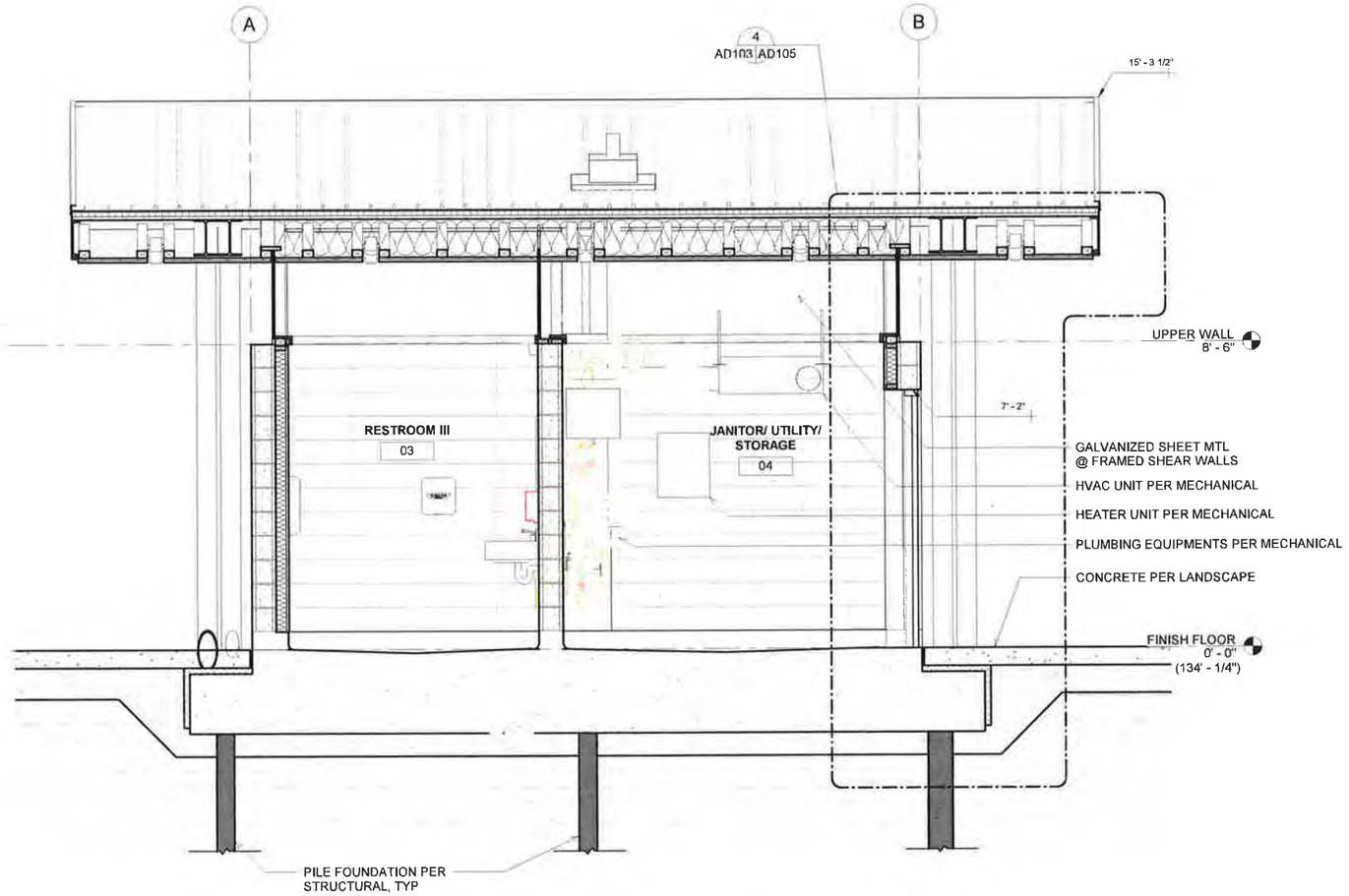

BUILDING SECTION
1/2" = 1'-0"
1
A100 AD103

BNR19-01207
Page 27 of 30

1/2" = 1'-0" 2' 1' 0 2' 4' 6'

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SHEET NAME
BUILDING SECTION II

SHEET NUMBER
AD103

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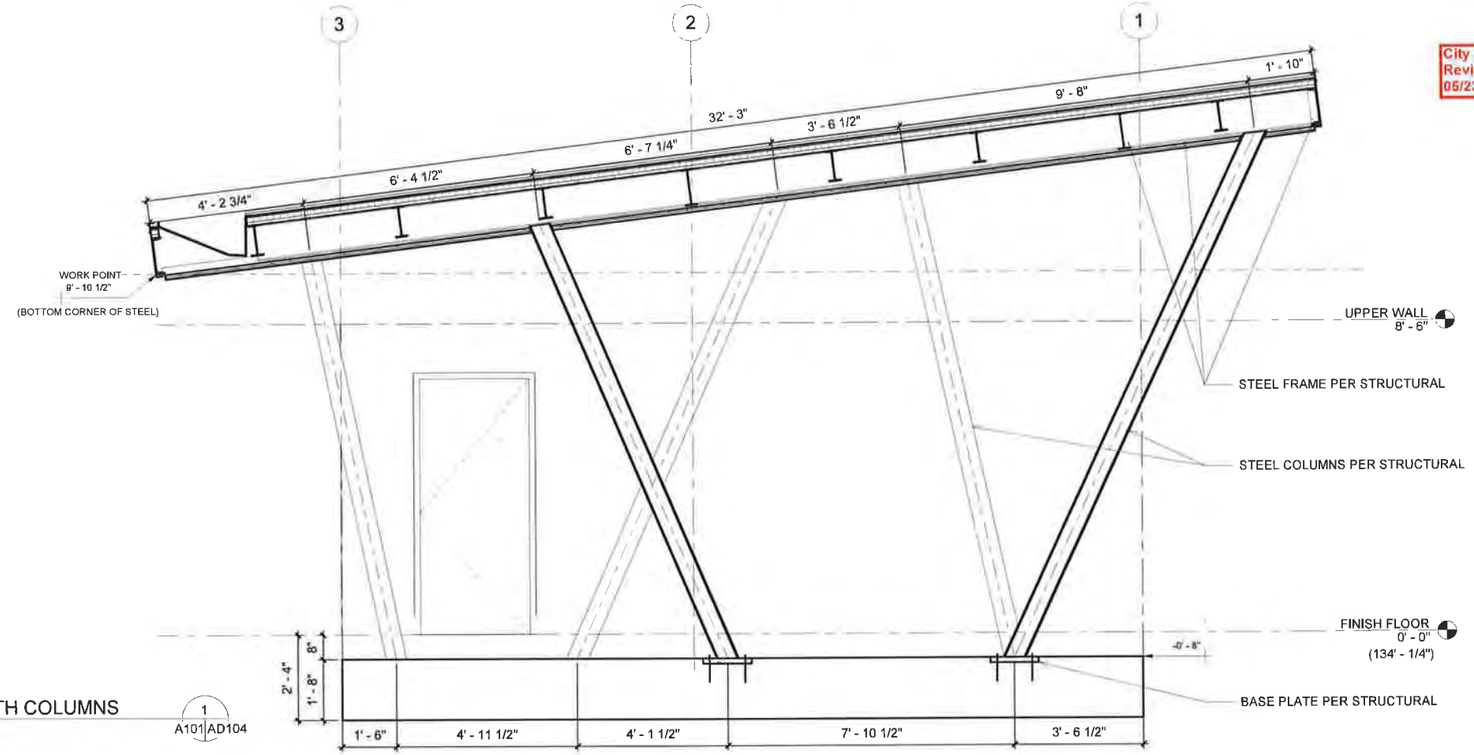
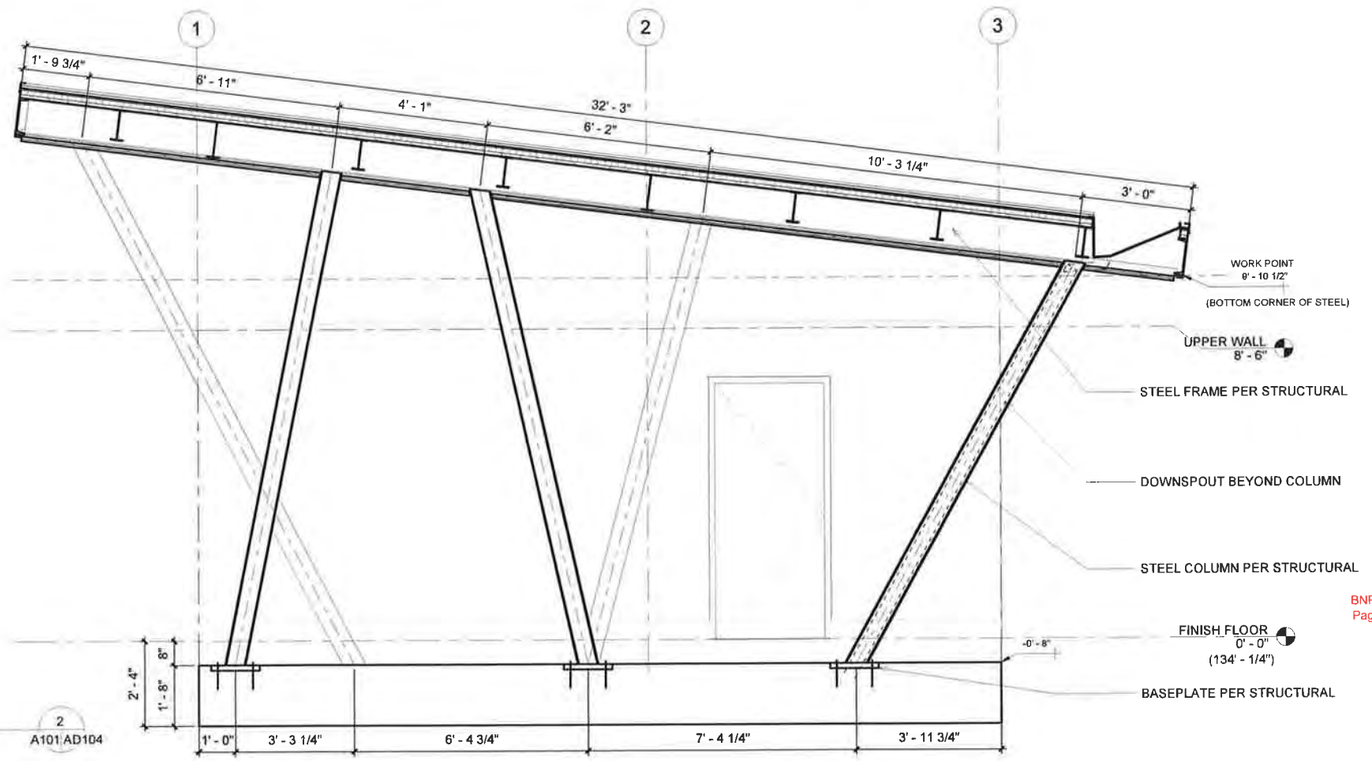
05/23/2019



SECTION - SOUTH COLUMNS
1/2" = 1'-0"
1 A101 AD104



SECTION - NORTH COLUMNS
1/2" = 1'-0"
2 A101 AD104

BNR19-01207
Page 28 of 30

PARTNERSHIP berger
1927 Post Alley, Ste. 2
Seattle, WA 98101
206.325.6877
bergerpartnership.com

INNOVA architects
950 Pacific Avenue, Suite 450
Tacoma, WA 98402
253-572-4903

Totem Lake Park Phase 1
City of Kirkland

12031 Totem Lake Way, Kirkland, WA 98034

REGISTERED ARCHITECT
GEOFFREY E. ANDERSON
STATE OF WASHINGTON

SET TYPE
100% Design Submittal

SET ISSUE DATE
2/8/2019

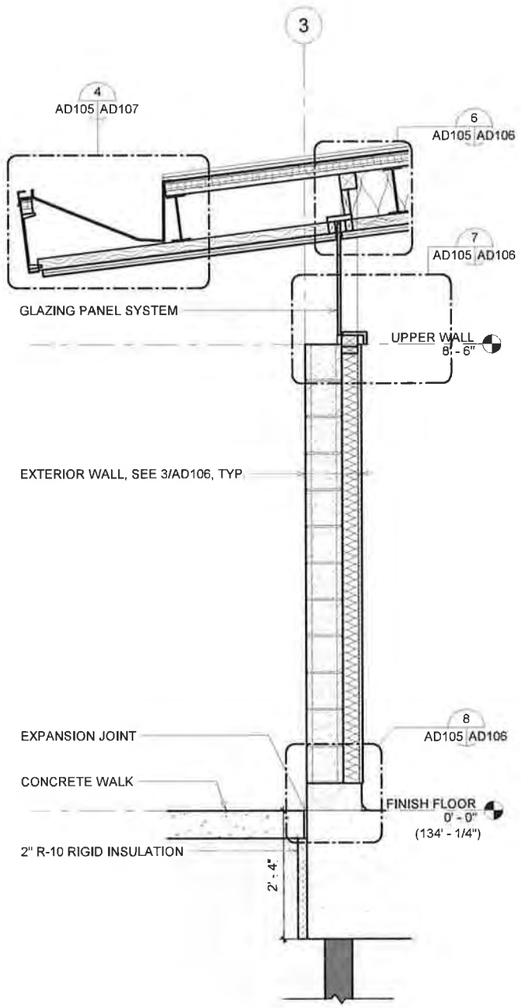
REVISIONS

REVNAME1	MM.DD.YYYY
REVNAME2	MM.DD.YYYY
REVNAME3	MM.DD.YYYY
REVNAME4	MM.DD.YYYY
REVNAME5	MM.DD.YYYY
REVNAME6	MM.DD.YYYY

DRAWN/CHECKED
Author Checker

SHEET NAME
SLOPED COLUMNS SECTIONS

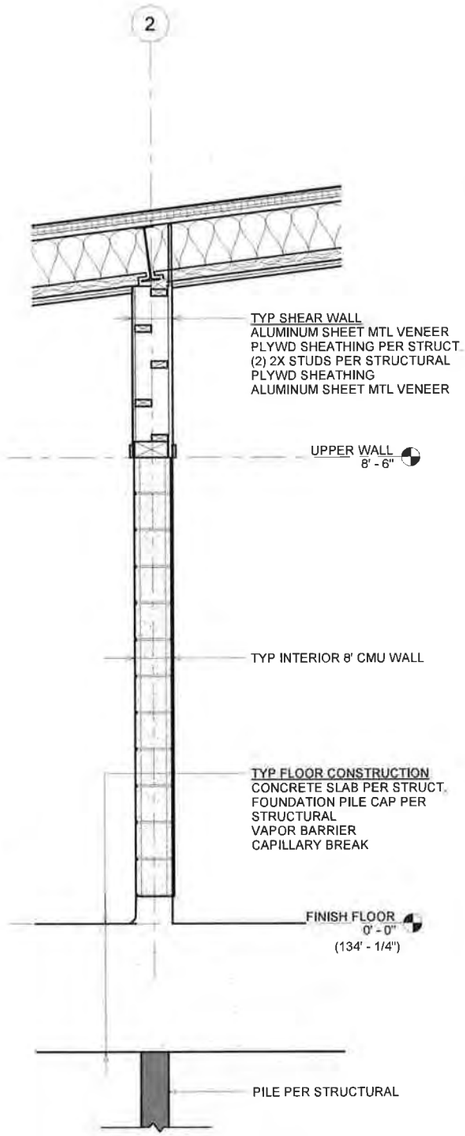
SHEET NUMBER
AD104



WALL SECTION - 1

3/4" = 1'-0"

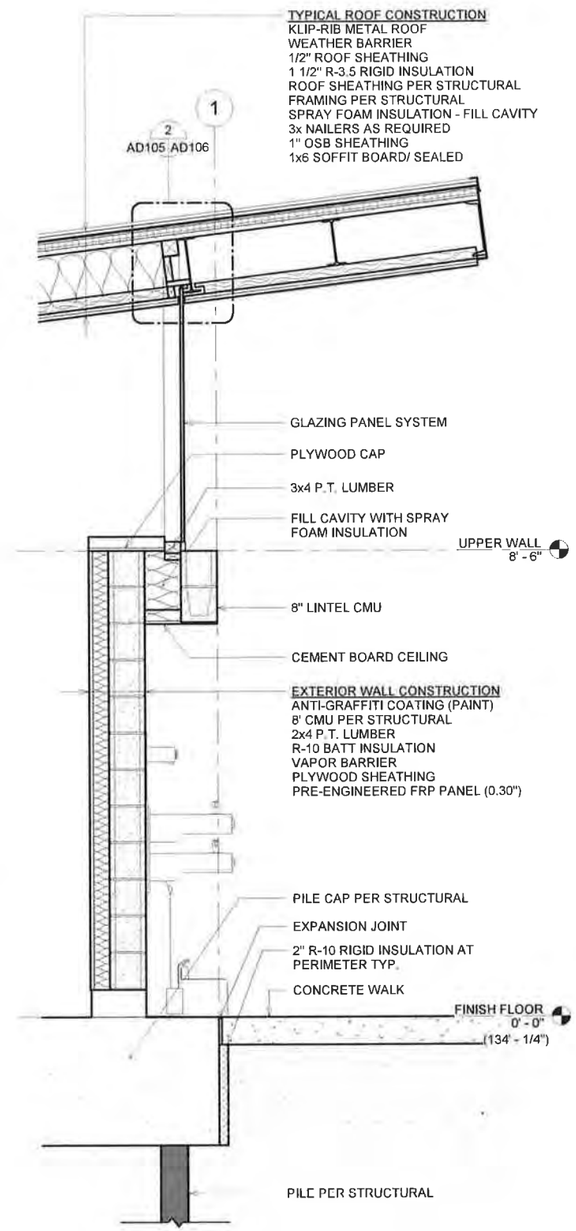
1 AD102 AD105



WALL SECTION - 2

3/4" = 1'-0"

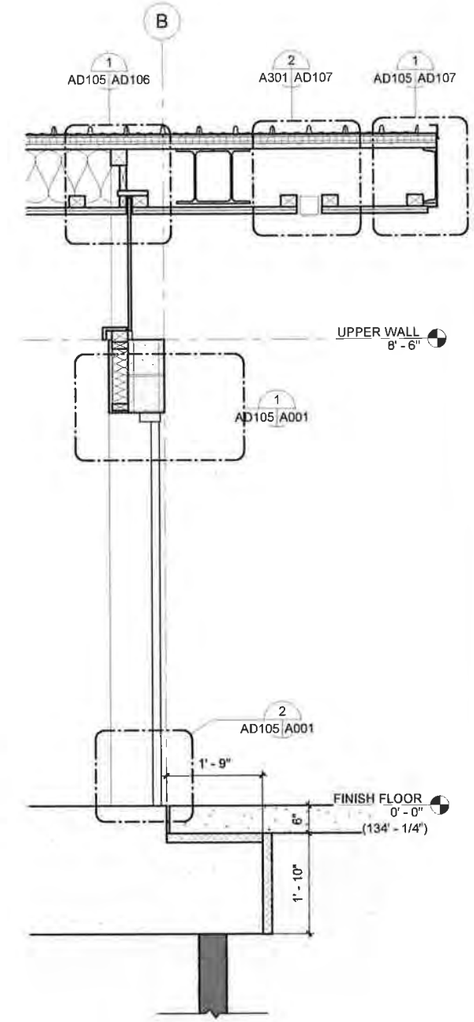
2 AD102 AD105



WALL SECTION - 3

3/4" = 1'-0"

3 AD102 AD105



WALL SECTION - 4

3/4" = 1'-0"

4 AD103 AD105

City of Kirkland
Reviewed by T Elder
05/23/2019

BNR19-01207
Page 29 of 30

berger PARTNERSHIP
1927 Post Alley, Ste. 2
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206.325.6877
bergerpartnership.com

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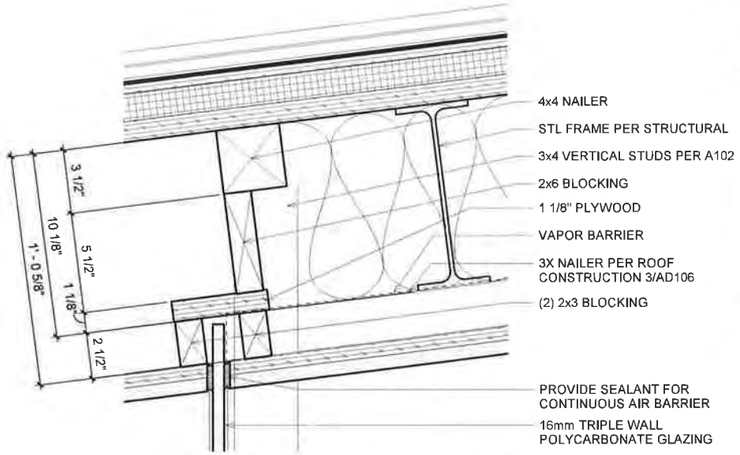
REVNAME5	MM.DD.YYYY
REVNAME6	MM.DD.YYYY

DRAWN/CHECKED
SES GEA

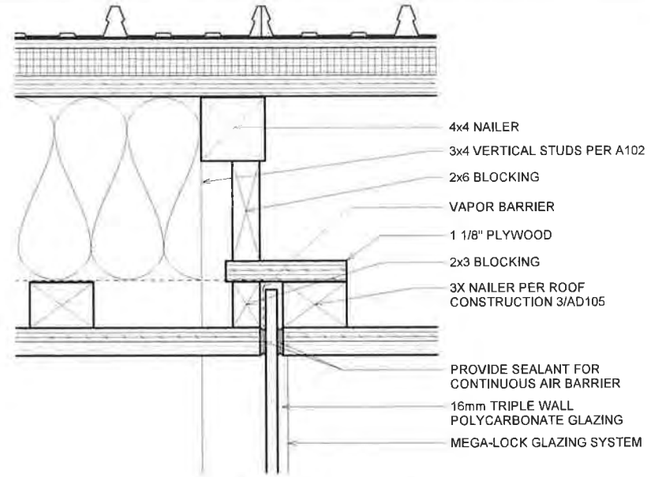
SHEET NAME
WALL SECTIONS

SHEET NUMBER
AD105

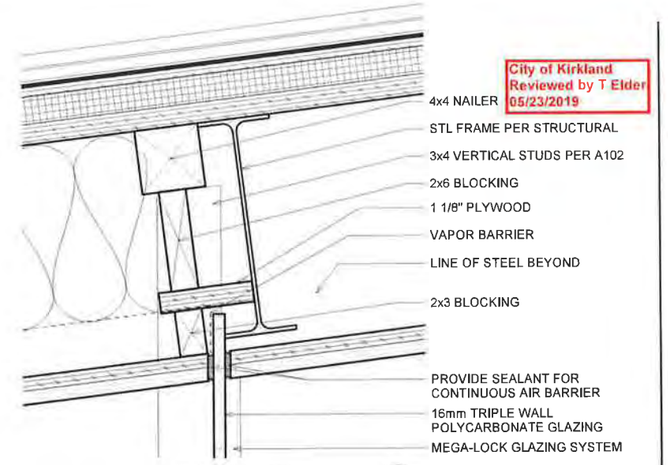
Berger Partnership Project Number: XXXXXXXX.XX Plotted: 08.18.2011 5:18 PM By: Gennadiy Ogay Filename: p:\2017\17-116 totem lake splash pad (berger)\drawings\acad-totem lake park-ph1 - title block.dwg



GLAZING TOP (WEST) 6 AD105 AD106
3" = 1'-0"

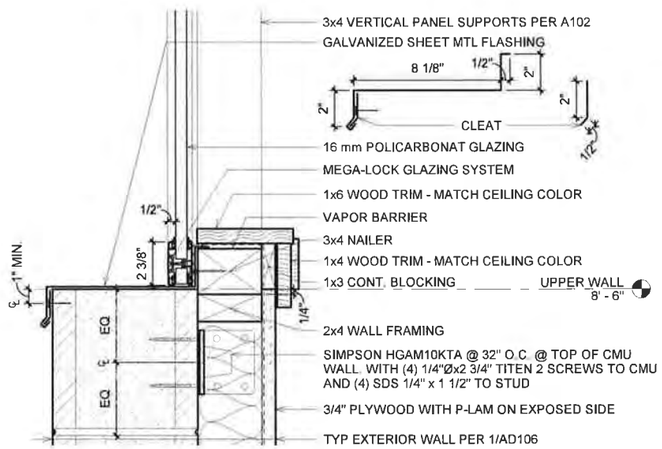


GLAZING TOP (NORTH, SOUTH) 1 AD105 AD106
3" = 1'-0"

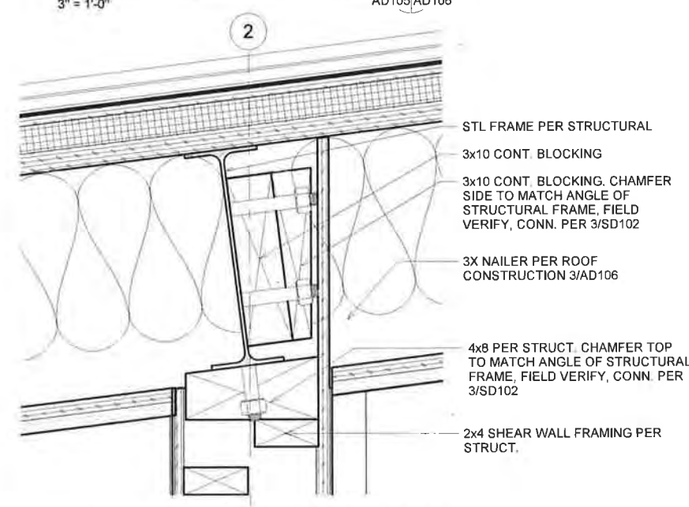


City of Kirkland
Reviewed by T Elder
05/23/2019

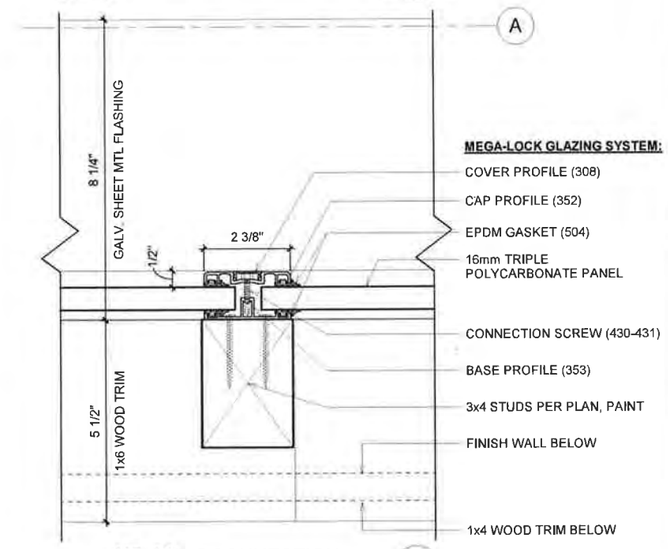
GLAZING TOP (EAST) 2 AD105 AD106
3" = 1'-0"



GLAZING BOTTOM 7 AD105 AD106
3" = 1'-0"



SHEAR WALL TOP 4 AD106
3" = 1'-0"



GLAZING JOINT CONNECTION 5 A102 AD106
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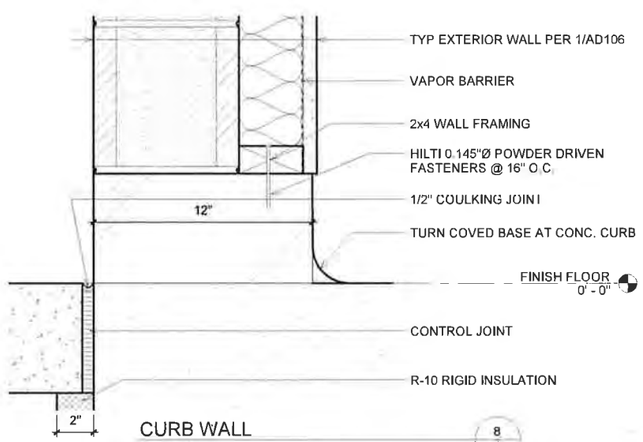
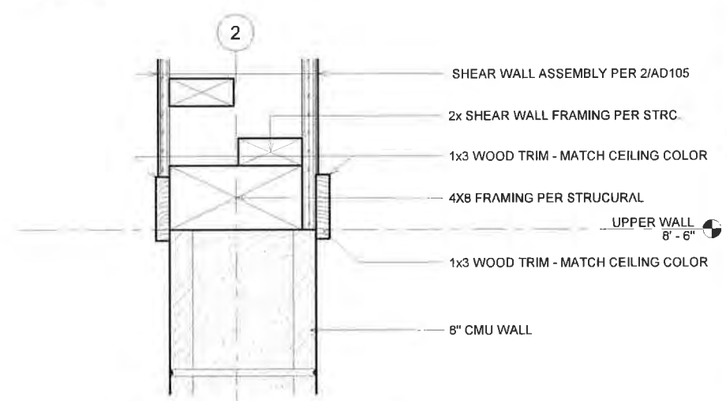
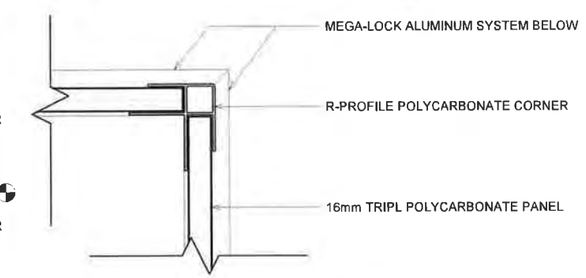


CURB WALL 8 AD105 AD106
3" = 1'-0"



SHEAR WALL BOTTOM 3 AD106
3" = 1'-0"



GLAZING CORNER CONNECTION 9 A102 AD106
6" = 1'-0"

BNR19-01207
Page 30 of 30

3" = 1'-0" 9" 6" 0 3" 1'
6" = 1'-0" 6" 3" 0 6" 1'

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Totem Lake Park Phase 1
City of Kirkland

12031 Totem Lake Way, Kirkland, WA 98034

8404 REGISTERED ARCHITECT
GEOFFREY E. ANDERSON
STATE OF WASHINGTON

SET TYPE
100% Design Submittal

SET ISSUE DATE
2/8/2019

REVISIONS

REVNAME1	MM.DD.YYYY
REVNAME2	MM.DD.YYYY
REVNAME3	MM.DD.YYYY
REVNAME4	MM.DD.YYYY
REVNAME5	MM.DD.YYYY
REVNAME6	MM.DD.YYYY

Bid Addendum Reissued by A

DRAWN/CHECKED
SES GEA

SHEET NAME
WALL DETAILS

SHEET NUMBER
AD106

ELECTRICAL PERMIT

City of Kirkland

Electrical Permit

City of Kirkland
123 Fifth Avenue
Kirkland WA 98033
425-587-3600

Permit Number: ENR19-01119
Type: Electrical Non Residential - ENR
Work Class: New Structure

ENR19-01119

Permit Information

Job Address:	**Project:**	TOTEM LAKE PARK	**Application Date:**	02/19/2019
12031 NE TOTEM LAKE WAY Kirkland, WA 98034	**Parcel:**	6928400032	**Issue Date:**	09/04/2019
	Valuation:	$196,000.00	**Expiration Date:**	09/04/2020
	Dwelling Units:		**Code Edition:**	2017 NEC

Scope of Work

Totem Lake Park Electrical: New 200 AMP service, pedestrian lighting, conduit and power for mechanical/electrical equipment.

Contacts

Type	Name	Address	Phone
Owner	CITY OF KIRKLAND	123 5TH AVE KIRKLAND, WA 98033	B: C:
Project Contact	BRIAN BAKER	123 FIFTH AVE KIRKLAND, WA 98033	B: 4255873874 C:
Applicant	BRIAN BAKER	123 FIFTH AVE KIRKLAND, WA 98033	B: 4255873874 C:

Request an inspection before 6 p.m. for next business day. Requests made after 6 p.m. will be scheduled on the second business day following the request.

How to request an inspection:

1) Go to **http://mybuildingpermit.com**
2) Select Kirkland as the Jurisdiction.
3) Locate the permit using the permit # or property address
4) Follow the on-screen instructions to complete the inspection request.

REQUIRED INSPECTIONS

	ID	Date	Inspector
1. ELE - Pre-con	400		
2. ELE - Other	401		
3. ELE - Temporary Power	402		
4. ELE - Feeder	403		
5. ELE - Slab (Cover)	404		
6. ELE - Ditch	406		
7. ELE - Bonding/Grounding	408		
8. ELE - Service	414		
9. ELE - Wall Cover	416		
10. ELE - Ceiling Cover	418		
11. ELE - Rough In	432		
12. ELE - Final	495		

12031 NE TOTEM LAKE WAY

Signature

See conditions on the back of this permit.

This permit and any accompanying plans must remain on the job site for use by City inspection personnel.
Any sales tax reported to the State in association with this project should be coded to the City of Kirkland tax location code 1716.
I certify that the information furnished by me is true and correct to the best of my knowledge and the applicable City of Kirkland requirements will be met.

☐ Owner or ☐ Agent
(Check one)

(Print Name)

Date

(Signature)

City of Kirkland
123 Fifth Avenue
Kirkland WA 98033
425-587-3600

Permit Number: ENR19-01119
Type: Electrical Non Residential - ENR
Work Class: New Structure

General Conditions

1. The issuance of this permit shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of this code or of any other ordinances of the jurisdiction.
2. The approved plans shall not be changed, modified, or altered without authorization from the building official.
3. This permit, inspection record and approved plans are required to be on the job site at all times.
4. All development activity and heavy equipment operation is restricted to 7:00 a.m. to 8:00 p.m., Monday through Friday, and 9:00 a.m. to 6:00 on Saturdays. No development activity or heavy equipment operation may occur on Sundays or holidays observed by the City.
5. All work is subject to field inspection. Do not cover any work until approved by a City inspector.
6. Inspection(s) required - Go to **http://mybuildingpermit.com** Select Kirkland as the Jurisdiction and Locate the permit by selecting Permit # or Property Address. Follow the on-screen instructions to complete the inspection request.
7. Contact the Building Division at 425-587-3600 with any questions.

Inspector's Comments

City of Kirkland
123 5th Avenue
Kirkland, WA 98033
425-587-3600

SPECIFIC PERMIT CONDITIONS

BUILDING ADDRESS	PERMIT NUMBER	PERMIT TYPE	WORK CLASS	DATE PRINTED
12031 NE TOTEM LAKE WAY	ENR19-01119	Electrical Non Residential - ENR	New Structure	3/20/2019

DESCRIPTION OF WORK:
Totem Lake Park Electrical: New 200 AMP service, pedestrian lighting, conduit and power for mechanical/electrical equipment.

Building Department Conditions:

BUILDING DEPTARTMENT CONDITIONS - Plan reviewer James Tumelson at 425-587-3617

This condition sheet is part of the approved plans and shall remain attached. The approval of plans and specifications does not permit the violation of any section of the International Residential Code, or other ordinances or state law. Conditions as indicated below, along with the unchanged information shown on the drawings must be complied with.

THE PLANS FOR THIS PROJECT WERE REVIEWED ELECTRONICALLY. Applicant must print a full set of the City stamped EPlans using ink that is resistant to water damage. This copy of the City stamped plans must be kept on the job site at all times, protected and maintained in good condition. The construction of buildings and structures shall result in a system that provides a complete load path capable of transferring all loads from their point of origin through the load-resisting elements to the foundation. R301.1

CONDITIONS OF APPROVAL - This condition sheet is part of the approved plans and shall remain attached. The approval of plans and specifications does not permit the violation of any section of the NFPA 70 or other ordinances or state law. Conditions as indicated below, along with the unchanged information shown on the drawings must be complied with.

HOURS OF WORK: 7AM TO 8PM MON-FRI, 9AM TO 6PM SAT; NO WORK SUNDAYS AND HOLIDAYS (PER KZC SEC 115.25). Exceptions must be approved in writing by Planning Official.

SEE APPROVED PLANS - The approved plans shall not be changed, modified, or altered without authorization from the building official. The approved plans are required to be on the job site. Section 21.06 K.M.C.

INSPECTIONS REQUIRED; WHEN TO COVER - See permit for how to schedule inspections. All electrical elements and each phase of construction must be inspected prior to cover. Photos are not a substitute for inspections. It is possible that un-needed inspections are listed on your permit. Please call only for the inspections you need and ask your inspector which apply if you are not sure.

SCOPE OF WORK - Changes to the scope of work, design, materials or method of construction will require revised plans to be submitted. The plans must be reviewed and approved by City of Kirkland review staff prior to being implemented in the field. Additional review fees will be charges as applicable.

ADDRESS NUMBERS - New and existing buildings shall have approved address numbers placed in a position that is plainly legible and visible from the street or road fronting the property. These numbers shall contrast with their background. Address number shall be Arabic numerals or alphabet letters. Numbers shall be a minimum of 4 inches (4”) high with a minimum stroke width of 0.5 inches (1/2”).

RECESSED FIXTURES (CAN LIGHTS) AND SIMILAR PENETRATIONS - Floor/ceiling assemblies separating dwelling units in the same building shall be of not less than one-hour fire resistive construction. Roof/ceiling assemblies may also be rated assemblies. Recessed fixtures shall be installed such that the required fire resistive rating will not be reduced. Unless the fixtures are rated, membrane penetrations for recessed downlights and similar shall be "tented" with GWB of the same fire resistive rating as the ceiling.

CONCRETE GROUNDING ELECTRODE - All electrical services for new buildings or structures shall have a concrete encased electrode installed complying with current NEC. The grounding electrode system inspection shall be conducted with the footing inspection before the placement of concrete.

Building Department Conditions:

OVERHEAD ELECTRICAL SERVICES – Other than a panel change in the exact same location, new overhead electrical services not allowed. Exceptions must be approved in writing by Public Works Official.

SEALED EXTERIOR BOXES - Electrical and low-voltage box on exterior walls shall have air barrier behind or sealed boxes shall be installed

City of Kirkland
Totem Lake Park Phase 1

PKC1390200
JOB NO. 00-00-PW
100% DESIGN SUBMITTAL
February 08, 2019

MUST REMAIN ON JOBSITE

Sheet Index

Sheet Number	Sheet Name	Designed By	Building Permit (Restroom)	Building Permit (Boardwalk)	LSM Permit	Electrical Permit	Plumbing Permit	PSE Permit	NUD Permit
G000	COVER	Landscape	•	•	•	•	•	•	•
G001	LANDSCAPE GENERAL NOTES & SCHEDULES	Landscape			•				
G002	PROJECT LIMITS - OVERALL	Landscape							
G003	PROJECT LIMITS - BOARDWALK	Landscape							
G004	DEDUCTIVE ALTERNATE PLAN	Landscape			•				
ET101	EXISTING TREE PLAN - PARK	Landscape			•				
ET102	EXISTING TREE PLAN - TRAIL	Landscape			•				
ET103	EXISTING TREE PLAN - BOARDWALK	Landscape		•	•				
C001	CIVIL GENERAL NOTES	Civil			•				
C002	CIVIL GENERAL NOTES	Civil			•	•			
C101	SITE PREPARATION PLAN - PARK	Civil			•				•
C102	SITE PREPARATION PLAN - TRAIL	Civil			•				
C103	SITE PREPARATION PLAN - BOARDWALK	Civil		•	•				
BD100	BUILDING DEMOLITION	Architect	•		•				
C201	CESC PLAN - PARK	Civil			•				
C202	CESC PLAN - TRAIL	Civil			•				
C203	CESC PLAN - BOARDWALK	Civil		•	•				
C301	UTILITY PLAN - PARK	Civil	•		•		•		•
C401	DRAINAGE PLAN - PARK	Civil			•				
C402	DRAINAGE PLAN - PARK	Civil							
CD101	DRAINAGE DETAILS - PARK	Civil			•				
CD102	CIVIL PAVING DETAILS	Civil			•				
CD103	DRAINAGE SECTIONS - PARK	Civil			•				
CG101	GRADING & PAVING PLAN - PARK	Civil	•		•				
CG102	GRADING & PAVING PLAN - TRAIL	Civil	•		•				
CG103	GRADING & PAVING PLAN - BOARDWALK	Civil		•	•				
CG201	GRADING PLAN - PARK - ENLARGEMENT	Civil			•				
L101	SITE PLAN - PARK	Landscape			•				
L102	SITE PLAN - TRAIL	Landscape			•				
L103	SITE PLAN - BOARDWALK	Landscape		•					
L200	BOARDWALK ELEVATIONS	Landscape		•					
L201	BOARDWALK ELEVATIONS	Landscape		•					
L202	PARK ELEVATIONS	Landscape			•				
L400	PLAY AREA ENLARGEMENT	Landscape			•				
L401	LANDSCAPE ENLARGEMENT	Landscape			•				
L402	PLAY AREA ENLARGEMENTS	Landscape			•				
L403	PAVING JOINTING & PATTERN DETAIL PLAN	Landscape			•				
LD101	LANDSCAPE PAVING DETAILS	Landscape			•				
LD102	PLAY AREA DETAILS	Landscape			•				
LD103	STAIR & RAILING DETAILS	Landscape							
LD104	WALL & FENCE DETAILS	Landscape		•					
LD105	TRAIL TYPICAL DETAIL	Landscape		•	•				
LD106	OVERLOOK DETAILS	Landscape			•				
LD107	GEOTECHNICAL WALL DETAIL	Geotechnical			•				
LD200	METAL GUARDRAIL DETAILS	Landscape		•					
LD201	METAL GUARDRAIL DETAILS	Landscape		•					
LD202	METAL GUARDRAIL DETAILS	Landscape		•					
LD203	METAL GUARDRAIL @ BOARDWALK OVERLOOK	Landscape		•					
SS001	GENERAL STRUCTURAL NOTES	Site Structural	•	•					
SS002	GENERAL STRUCTURAL NOTES	Site Structural	•	•					
SS003	STATEMENT OF SPECIAL INSPECTIONS	Site Structural	•	•					
SS100	STRUCTURAL SHEET LAYOUT	Site Structural	•	•					
SS101	PARK PLAN	Site Structural	•						
SS102	TRAIL PLAN	Site Structural		•					

Sheet Index

Sheet Number	Sheet Name	Designed By	Building Permit (Restroom)	Building Permit (Boardwalk)	LSM Permit	Electrical Permit	Plumbing Permit	PSE Permit	NUD Permit
SS103	BOARDWALK PLAN	Site Structural		•					
SSD101	DETAILS	Site Structural		•					
SSD102	DETAILS	Site Structural		•					
S001	STRUCTURAL NOTES	Building Structural	•						
S002	STRUCTURAL NOTES	Building Structural	•						
S003	STRUCTURAL NOTES	Building Structural	•						
S101	FOUNDATION PLAN	Building Structural	•						
S201	ROOF FRAMING PLAN	Building Structural	•						
SD100	DETAILS	Building Structural	•						
SD101	DETAILS	Building Structural	•						
SD102	DETAILS	Building Structural	•						
A000	ABBREVIATIONS & SYMBOLS	Architect	•						
A001	SCHEDULES, DOOR & FRAME TYPES	Architect	•						
A100	SLAB/CURB PLAN	Architect	•						
A101	BUILDING PLAN	Architect	•						
A102	UPPER WALL PLAN	Architect	•						
A103	ROOF PLAN	Architect	•						
A3[illegible]	REFLECTED CEILING PLAN	Architect	•			•			
A40[illegible]	EXTERIOR ELEVATIONS I	Architect	•						
A40[illegible]	EXTERIOR ELEVATIONS II	Architect	•						
A103	PERSPECTIVES	Architect	•						
AD100	ENLARGED PLANS	Architect	•				•		
AD101	INTERIOR ELEVATIONS	Architect	•						
AD102	BUILDING SECTION I	Architect	•				•		
AD103	BUILDING SECTION II	Architect	•				•		
AD104	SLOPED COLUMNS SECTIONS	Architect	•						
AD105	WALL SECTIONS	Architect	•						
AD106	WALL DETAILS	Architect	•						
M001	MECHANICAL GENERAL INFORMATION	Mechanical	•			•	•		
M[illegible]	SCHEDULES	Mechanical	•			•	•		
M101	BUILDING MECHANICAL PLANS	Mechanical	•			•	•		
M201	PLUMBING DIAGRAM	Mechanical	•				•		
M301	SECTIONS AND ELEVATIONS	Mechanical	•				•		
MD101	DETAILS	Mechanical	•						
E001	SYMBOLS LIST & ABBREVIATIONS	Electrical	•			•		•	
E002	WSEC COMPLIANCE FORMS	Electrical	•			•		•	
E003	WSEC COMPLIANCE FORMS	Electrical	•			•		•	
E004	WSEC COMPLIANCE FORMS	Electrical	•			•		•	
E101	ELECTRICAL SITE PLAN	Electrical	•			•		•	
E201	ENLARGED BUILDING PLANS	Electrical	•			•		•	
E301	ONE-LINE DIAGRAM AND SCHEDULES	Electrical	•			•		•	
ED100	DETAILS	Electrical	•			•		•	
IR001	IRRIGATION NOTES & SCHEDULE	Irrigation			•				
IR101	IRRIGATION PLAN - PARK	Irrigation			•				
ID100	IRRIGATION DETAILS	Irrigation			•				
ID101	IRRIGATION DETAILS	Irrigation			•				
LP101	PLANTING PLAN - PARK	Landscape			•				
LP102	PLANTING PLAN - TRAIL	Landscape			•				
LP103	PLANTING PLAN - BOARDWALK	Landscape			•				
LD300	PLANTING DETAILS	Landscape			•				
LD301	PLANTING DETAILS	Landscape			•				

Grand total: 105

Project review for electrical other sheets have been removed and or for reference only

NOTICE
HOURS OF WORK: 7AM TO 8PM MON FRI
9AM TO 6PM SAT. NO WORK SUNDAYS & HOLIDAYS (PER KZC SEC. 115.25)
Exceptions must be approved in writing by Planning Official

SEPARATE PERMITS REQUIRED:
-Building
-Plumbing
-Mechanical
-Fire

Team Contact Info

Prime Consultant:

Berger Partnership - Landscape Architecture
Primary: Matt Martenson
Phone: 206-492-5560
Email: mattm@bergerpartnership.com
Secondary: Andy Mitton
Phone: 206-492-5562
Email: andym@bergerpartnership.com

Subconsultant Team

CH2M Hill - Civil Engineering
Primary: Jesse Williams
Email: jesse.williams@ch2m.com

Swenson Say Faget - Structural Engineering
Primary: Gregory Juttner
Email: gjuttner@ssfengineers.com

ESA - Environmental
Primary: Jessica Redman
Email: jredman@esassoc.com

KPFF - Survey
Primary: Jereme Chapman
Email: jereme.chapman@kpff.com

Symbiosis Tree Care: Arborist
Primary: Kurt Fickeisen
Email: kurtfick@gmail.com

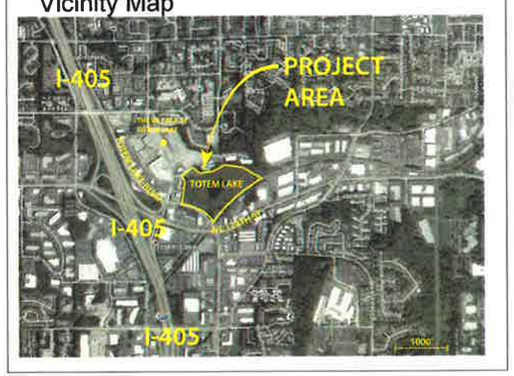
Enginuity Systems - Spray Park Mechanical:
Primary: Jesse Barksdale
Email: jesse@enginuitysys.com

ORB Architects: Architecture
Primary: Geoff Anderson
Email: ganderson@innovaarchitects.com

NAC Architecture: Electrical Engineering
Primary: Mark McMicheal
Email: mmcmicheal@nacarchitecture.com

Design 2426: Irrigation
Primary: Jason Anderson
Email: jasona@design2426.com

Vicinity Map



Applicable Codes:

Compliance with the following codes shall be required:

Accessibility	2010 Americans with Disabilities (ADA) Standards for Accessible Design
Building	2015 International Building Code (IBC)
Electrical	2017 National Electrical Code
Energy Efficiency	2015 Washington State Energy Code (WSEC)
Fire	2015 International Fire Code with Washington Amendments
Mechanical	2015 Washington State Energy Code (WSEC)
Plumbing	2015 Uniform Plumbing Code

Drawing Set Printing and Reproduction Notes/Req's:

1. DRAWING SET SHEET SIZE IS 22" X 34".
2. DRAWING SET UTILIZES COLORED INFORMATION AND SHALL BE PRINTED AND REPRODUCED IN COLOR.

City/Owner Contact Info

City of Kirkland:
Project Manager: Brian Baker
Phone: 425-587-3874
Email: bbaker@kirklandwa.gov

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206.325.6877
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Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

STATE OF WASHINGTON ANDY MITTON No. 882 EXP. 6/30/2020 LANDSCAPE ARCHITECT

SET TYPE
100% Design Submittal

SET ISSUE DATE
02/08/2019

REVISIONS
Δ DESCRIPTION DATE

DRAWN/CHECKED
MM / AM

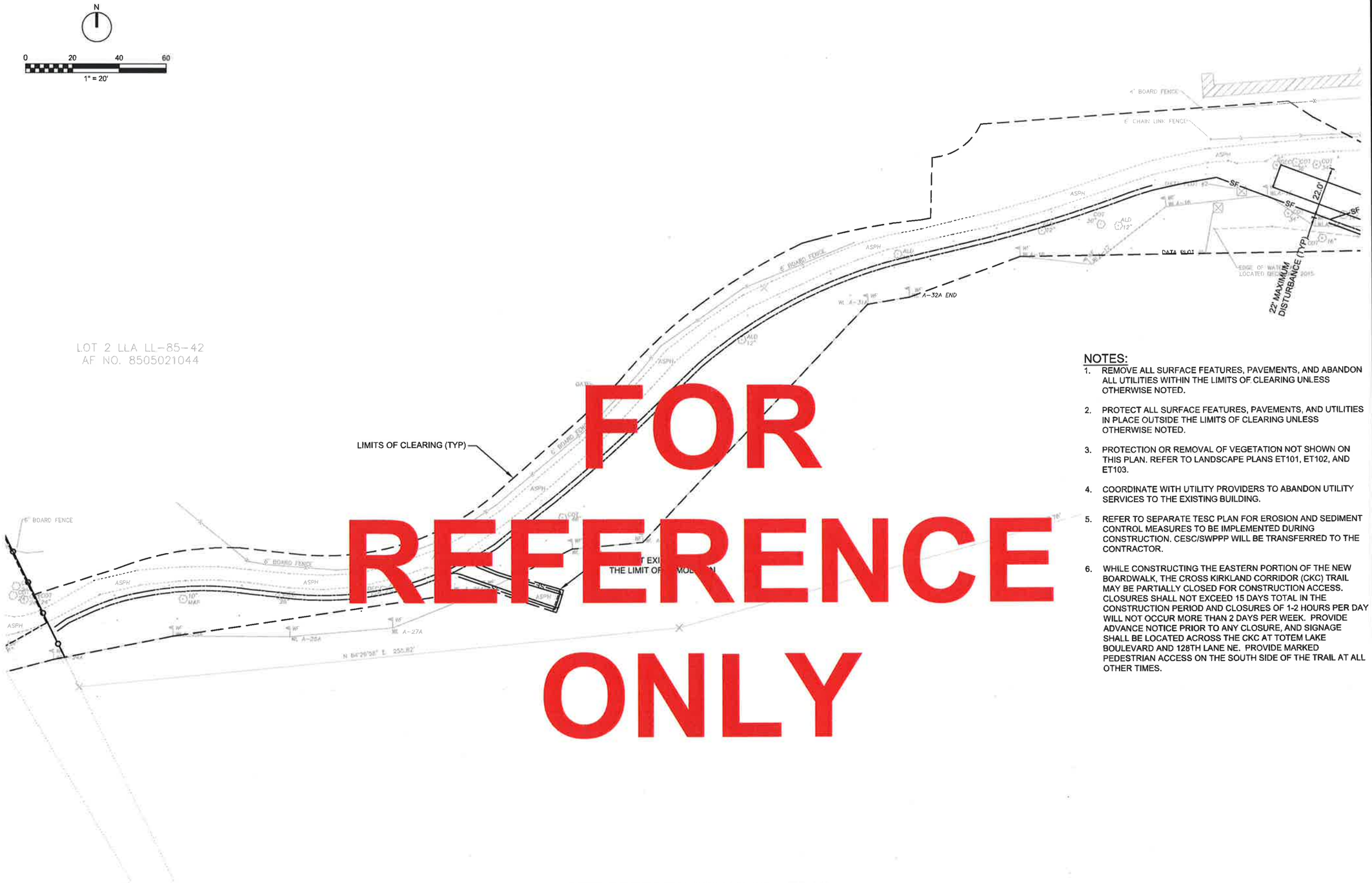
SHEET NAME
COVER

City of Kirkland Reviewed by J Tumelson 03/20/2019

SHEET NUMBER
G000

ENR19-01119
Page 1 of 16

Berger Partnership Project Number: 2015#875.02
Plotted: 2/11/2019 11:03:19 AM
Filename: C:\Users\mattm\Documents\Totem Lake Park-PH1_mattm@bergerpartnership.com.rvt



NOTES:

1. REMOVE ALL SURFACE FEATURES, PAVEMENTS, AND ABANDON ALL UTILITIES WITHIN THE LIMITS OF CLEARING UNLESS OTHERWISE NOTED.
2. PROTECT ALL SURFACE FEATURES, PAVEMENTS, AND UTILITIES IN PLACE OUTSIDE THE LIMITS OF CLEARING UNLESS OTHERWISE NOTED.
3. PROTECTION OR REMOVAL OF VEGETATION NOT SHOWN ON THIS PLAN. REFER TO LANDSCAPE PLANS ET101, ET102, AND ET103.
4. COORDINATE WITH UTILITY PROVIDERS TO ABANDON UTILITY SERVICES TO THE EXISTING BUILDING.
5. REFER TO SEPARATE TESC PLAN FOR EROSION AND SEDIMENT CONTROL MEASURES TO BE IMPLEMENTED DURING CONSTRUCTION. CESC/SWPPP WILL BE TRANSFERRED TO THE CONTRACTOR.
6. WHILE CONSTRUCTING THE EASTERN PORTION OF THE NEW BOARDWALK, THE CROSS KIRKLAND CORRIDOR (CKC) TRAIL MAY BE PARTIALLY CLOSED FOR CONSTRUCTION ACCESS. CLOSURES SHALL NOT EXCEED 15 DAYS TOTAL IN THE CONSTRUCTION PERIOD AND CLOSURES OF 1-2 HOURS PER DAY WILL NOT OCCUR MORE THAN 2 DAYS PER WEEK. PROVIDE ADVANCE NOTICE PRIOR TO ANY CLOSURE, AND SIGNAGE SHALL BE LOCATED ACROSS THE CKC AT TOTEM LAKE BOULEVARD AND 128TH LANE NE. PROVIDE MARKED PEDESTRIAN ACCESS ON THE SOUTH SIDE OF THE TRAIL AT ALL OTHER TIMES.

SITE PREPARATION PLAN - TRAIL

1" = 20'

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ch2m

Totem Lake Park Phase 1

City of Kirkland

12031 Totem Lake Way, Kirkland, WA 98034

2-8-19

SET TYPE:
100% Design Submittal

SET ISSUE DATE:
2/8/2019

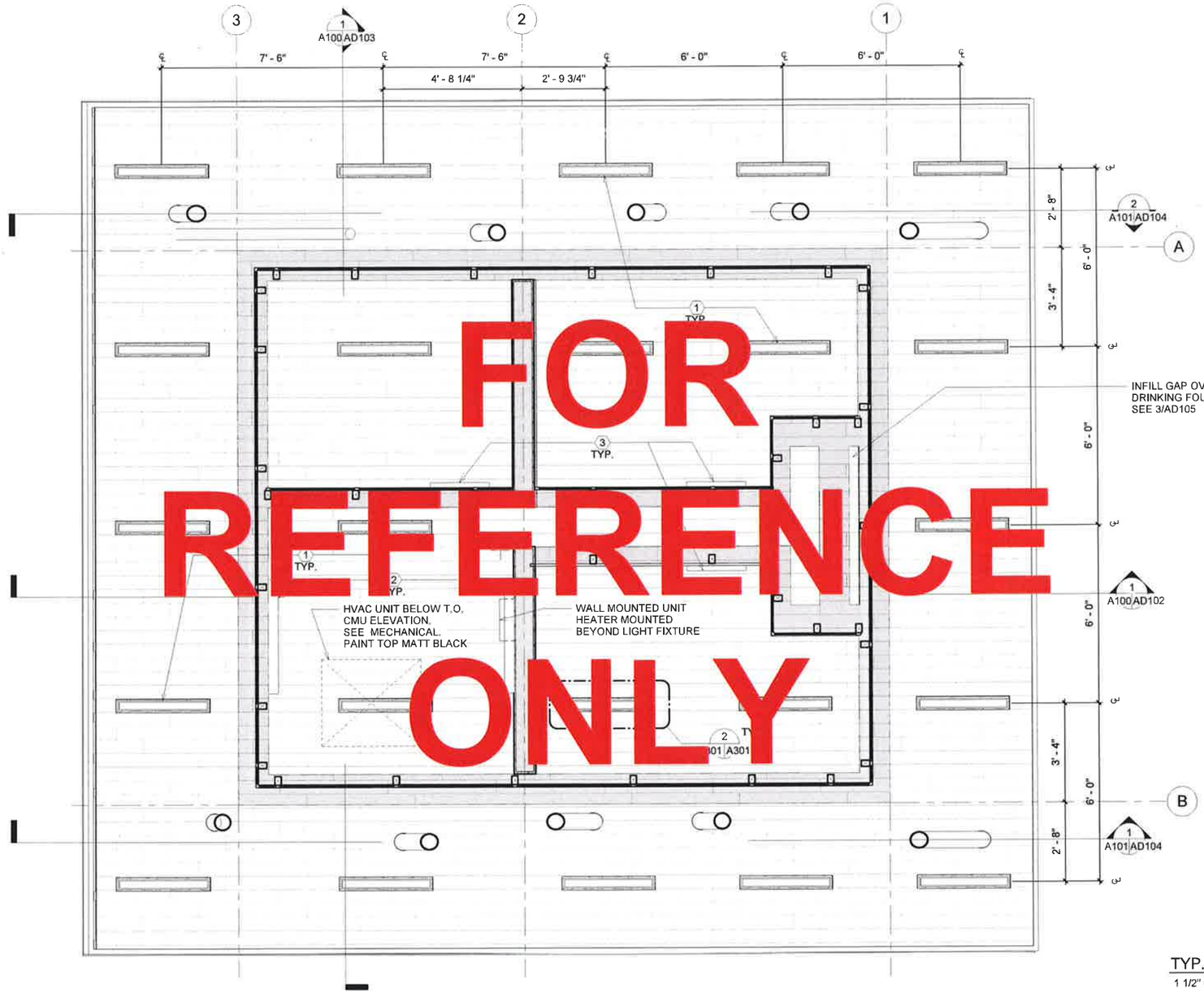
REVISIONS:

DRAWN/CHECKED:
DRW / CHK

SHEET NAME:
SITE PREP PLAN - TRAIL

City of Kirkland
Reviewed by
J Tumelson
03/20/2019

SHEET NUMBER:
C102



REFLECTED CEILING PLAN 1 A301
1/2" = 1'-0"

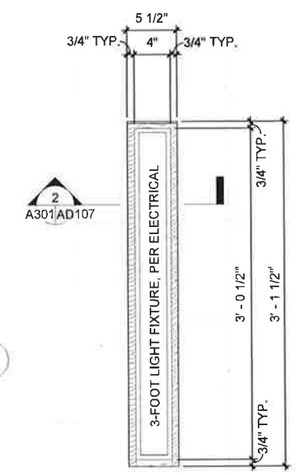
NORTH

RCP LEGENDS

1x6 IPE WOOD SOFFIT BOARD

RCP NOTES

1. CEILING LIGHTS PER ELECTRICAL
2. WALL MOUNT LIGHTS PER ELECTRICAL
3. VANITY LIGHTS PER ELECTRICAL



TYP. LIGHT FIXTURE OPENING 2 A301
1 1/2" = 1'-0"

1 1/2" = 1'-0" 8" 4" 0 6" 1' 2'

1/2" = 1'-0" 2' 1' 0 2' 4' 6'

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253-572-4903

Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

REGISTERED ARCHITECT
GEOFFREY E. ANDERSON
STATE OF WASHINGTON

SET TYPE
100% Design Submittal

SET ISSUE DATE
2/8/2019

REVISIONS

REVNAME1	MM.DD.YYYY
REVNAME2	MM.DD.YYYY
REVNAME3	MM.DD.YYYY
REVNAME4	MM.DD.YYYY
REVNAME5	MM.DD.YYYY
REVNAME6	MM.DD.YYYY

DRAWN/CHECKED
GO GO

SHEET NAME
REFLECTED CEILING PLAN

City of Kirkland
Reviewed by
J. Tuneleon
03/20/2019

SHEET NUMBER
A301

SYMBOL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	COLD WATER PIPING		MOTORIZED DAMPER
	HOT WATER PIPING	12X12 CD-1 / 100 27	DIFFUSER CALLOUT (SIZE, TYPE, CFM, 50 FPM THROW)
	HOT WATER RECIRCULATION PIPING	TI	TEMPERATURE GAUGE
	WASTE PIPING		RETURN/EXHAUST/TRANSFER AIRFLOW
	VENT PIPING		SUPPLY AIRFLOW
	PIPE OR DUCT BREAK (GRAPHIC ONLY - CONTINUOUS PIPE/DUCT)		STRAINER W/ BLOWDOWN VALVE & 3/4" HOSE CONNECTION
3"CO	FLUSH CLEANOUT OR SURFACE CLEANOUT		UNION
	VENT THROUGH ROOF		FLOOR DRAIN
	PRESSURE REDUCING VALVE		AUTOMATIC OR MANUAL AIR VENT
	CHECK VALVE		BALANCING VALVE
	BALL VALVE	BFP	BACKFLOW PREVENTER ASSEMBLY
	PUMP		CIRCUIT SETTER
	PIPE REDUCER		

ABBREVIATION LIST

ADA AMERICANS WITH DISABILITIES ACT
AMP AMPERES
BFP BACKFLOW PREVENTER
BTU BRITISH THERMAL UNIT
CFM CUBIC FEET PER MINUTE
CO CLEANOUT
CV COEFFICIENT OF FLOW
CW COLD WATER
DC DOUBLE CHECK
DEG DEGREE
EA EXHAUST AIR
EC ELECTRICAL CONTRACTOR
ENTH ENTHALPY
ERV ENERGY RECOVERY VENTILATOR
ESP EXTERNAL STATIC PRESSURE
ET EXPANSION TANK
FCO FLUSH CLEANOUT
FD FLOOR DRAIN
FPM FEET PER MINUTE
FT FEET
FU FIXTURE UNITS
GAL GALLON
GPD GALLONS PER DAY
GPF GALLONS PER FLUSH
GPH GALLONS PER HOUR
GPM GALLONS PER MINUTE
H HEIGHT
HB HOSE BIBB
HP HORSEPOWER
HW HOT WATER
[illegible] ELECATION
[illegible]DW INDI[illegible] WASTE
[illegible]W KILO[illegible]
[illegible]S [illegible]DS
[illegible]AX M[illegible]M
[illegible]CA MIN[illegible] CIRCUIT AMPACITY
[illegible]FG MAN[illegible]URER
MIN MINIMUM
MOCP MAXIMUM OVERCURRENT PROTECTION
MRT MEAN TEMPERATURE RATING
N/A NOT APPLICABLE
NPR NET PUMP SUCTION HEAD REQUIRED
[illegible]RE B[illegible]CE
[illegible]RE D[illegible]
PH PHASE
PRV PRESSURE R[illegible] VALV[illegible]
[illegible]S PER [illegible]A[illegible]H
PVC POLYVINYL [illegible]ORID[illegible]
RP REDUCED PR[illegible]RE
RPM REVOLUTION[illegible]R MINU[illegible]
[illegible] FOC[illegible]
TEMP TEMPERATURE
TS THERMOSTATIC
TV TEMPERING VALVE
TW TEMPERED WATER
TYP TYPICAL
UH U[illegible]EATER
V VE[illegible]
VFD VARI[illegible] FRE[illegible]CY DRIVE
VOLT VOLTA[illegible]
VTR VENT TH[illegible]ROOF
W WATT
W WIDTH
[illegible] WITH
[illegible] WATER CL[illegible]

GENERAL NOTES

1. PROVIDE SYSTEM STARTUP, ADJUSTMENTS, AND DOCUMENTATION TO MEET MINIMUM REQUIREMENTS OF THE 2015 WASHINGTON STATE ENERGY CODE - COMMERCIAL PROVISIONS SECTION C408.
2. OBTAIN AND PAY FOR ALL PERMITS AND CONSTRUCTION FEES. FURNISH FINAL CERTIFICATE TO OWNER SHOWING COMPLIANCE WITH CODE REQUIREMENTS.
3. LOCATE ALL VALVES, TRAPS, TEST PORTS, DAMPERS, CONTROLS, CLEANOUTS, ETC. TO BE ACCESSIBLE FOR MAINTENANCE, ADJUSTMENT, & TESTING. PROVIDE ACCESS PANELS FOR ALL CONCEALED DEVICES.
4. CONSTRUCT DUCTWORK ACCORDING TO WASHINGTON STATE ENERGY CODE SECTION C403.2.8.
5. PROVIDE EACH ZONE WITH THERMOSTATIC CONTROLS THAT PROVIDE A DEADBAND OF AT LEAST 5 DEGREES FAHRENHEIT IN WHICH HEATING AND COOLING ENERGY IS CAPABLE OF BEING SHUT OFF OR REDUCED TO A MINIMUM. THERMOSTATS SHALL BE CAPABLE OF THERMOSTATIC SETBACK, AUTOMATIC SETBACK AND SHUTDOWN, AND AUTOMATIC START CAPABILITIES PER WASHINGTON STATE ENERGY CODE SECTION C403.2.4.2.
6. PROVIDE MOTORIZED DAMPERS ON OUTDOOR AIR SUPPLY, EXHAUST OPENINGS, AND RELIEF OUTLETS. DAMPERS SHALL HAVE A MAXIMUM LEAKAGE RATE OF 20 CFM PER SQUARE FOOT AT 1" W.C. DAMPERS SMALLER THAT 24" IN EITHER DIRECTION SHALL HAVE A MAXIMUM LEAKAGE RATE OF 40 CFM PER SQUARE FOOT AT 1" W.C.
7. PROVIDE BALANCING DEVICES ON ALL NEW AIR INLETS AND OUTLETS AND OUTSIDE AIR DUCT SECTIONS.
8. AIR INLET AND OUTLET SIZES SHOWN ON PLANS ARE NECK SIZES. PROVIDE ADDITIONAL PANS, HARDWARE, ETC, REQUIRED TO INSTALL AIR INLETS AND OUTLETS.
9. DUCTWORK SHALL BE 2.0" PRESSURE CLASS UNLESS OTHERWISE NOTED ON THESE DRAWINGS.
10. TOTAL STATIC PRESSURE NOTED IN SCHEDULES SHALL BE ASSUMED TO INCLUDE DUCT SYSTEM, TERMINAL UNITS, FILTERS, COILS, ETC.
11. ALL PRESSURES LISTED ARE GAGE PRESSURES UNLESS OTHERWISE NOTED.
12. THE FIRST FIGURE OF DUCT SIZE CALLOUTS INDICATES DIMENSION OF FACE SHOWN OR INDICATED. DUCT SIZES ARE NET INSIDE DIMENSIONS. PROVIDE ANY APPLICABLE DUCT LINING AND INSULATION PER THESE PLANS AND SPECIFICATIONS.
13. HOT WATER DISCHARGE TEMPERATURE OF PUBLIC LAVATORIES SHALL BE 104 DEGREES FAHRENHEIT.
14. ALL SERVICE HOT WATER PIPING SYSTEMS SHALL CONFORM TO THE MAXIMUM PIPE LENGTH PER THE 2015 WASHINGTON STATE ENERGY CODE TABLE C404.3.1.
15. HOT WATER CIRCULATION SYSTEM SHALL HAVE CONTROL CAPABILITIES TO AUTOMATICALLY START THE CIRCULATION PUMP BASED ON DEMAND FOR HOT WATER AND SHUT-OFF PUMP WHEN THERE IS NO DEMAND AND WHEN THE DESIRED WATER TEMPERATURE IS MET PER 2015 WASHINGTON STATE ENERGY CODE SECTION C404.7.1.
16. SEISMIC PROVISIONS ARE REQUIRED - REFER TO SPECIFICATIONS.
17. COORDINATE ALL MECHANICAL WORK WITH OTHER TRADES TO INSURE PROPER AND ADEQUATE INTERFACE OF THEIR WORK WITH THE WORK OF MECHANICAL CONTRACTOR. PROVIDE COORDINATED SHOP DRAWINGS FOR APPROVAL PRIOR TO FABRICATION AND INSTALLATION.
18. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH NFPA 70 STANDARDS AND LOCAL REQUIREMENTS.
19. ALL FIELD WIRING SHALL REQUIRE AN ELECTRICAL PERMIT AND SHALL BE PERFORMED BY A LICENSED ELECTRICIAN.
20. A SHORT DASH IN A SCHEDULE TABLE CELL INDICATES THAT THE COLUMN HEADING IS NOT USED OR NOT APPLICABLE TO THAT SCHEDULED ITEM.
21. CONTRACTOR SHALL COORDINATE WITH LOCAL JURISDICTIONS (INCLUDING BUT NOT LIMITED TO BUILDING DEPARTMENT, SEWER UTILITY, ETC.) FOR ALL REQUIRED INSPECTIONS PRIOR TO PERFORMING WORK.
22. PROVIDE P-TRAPS AT EACH DRAIN CONNECTION TO SANITARY SEWER SYSTEM. PROVIDE TRAP PRIMERS & HEAT TRACE FOR ALL P-TRAPS.

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Totem Lake Park Phase 1

City of Kirkland

21031 Totem Lake Way, Kirkland, WA 98034

DONALD G. BERGQUIST
STATE OF WASHINGTON
18491
REGISTERED
PROFESSIONAL ENGINEER
02/08/2019

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Δ	DESCRIPTION	DATE

DRAWN/CHECKED
CN / JB

SHEET NAME
MECHANICAL INFORMATION

City of Kirkland
Reviewed by
J. Tumelson
03/20/2019

SHEET NUMBER
M001

ENERGY RECOVERY VENTILATOR SCHEDULE

SYMBOL	MANUFACTURER	MODEL NUMBER	CORE TYPE	AIRFLOW (CFM)	ESP (INWG)	RECOVERY EFFECIENCY			ELECTRICAL						WEIGHT (LBS)	NOTES
						TEMP. RECOVERY	ENTH. COOLING	ENTH. HEATING	VOLT	PHASE	HP	AMP	MCA	MOCP		
ERV-1	MITSUBISHI	LGH-F300RXS-E1	CROSS FLOW	200	0.28	71.00%	55.00%	68.00%	208	1	0.52	0.32 - 1.35	1.8	15	73	1, 2

NOTES:
1. OUTSIDE AND EXHAUST AIR DUCTS SHALL HAVE MOTORIZED DAMPERS THAT SHALL OPEN UPON ACTIVATION AND CLOSE UPON UNIT SHUTDOWN.
2. UNIT SHALL BE INSTALLED AND SUPPORTED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND DETAILS PROVIDED WITHIN THESE DOCUMENTS.

WEATHERPROOF LOUVER SCHEDULE

SYMBOL	MANUFACTURER	MODEL	CFM	SIZE (IN)		DEPTH	FREE AREA		MAX PD	VELOCITY	NOTES
				L	W	(IN)	%	SQ FT	(IN)	(FPM)	
L-1	GREENHECK	BVE	200	16.00	7.75	4.00	50.00	0.43	0.08	650	
L-2	GREENHECK	BVE	200	16.00	7.75	4.00	50.00	0.43	0.08	650	

NOTES:

PIPE INSULATION SCHEDULE

APPLICATION	TEMP RANGE (°F)	INSULATION CONDUCTIVITY		NOMINAL PIPE SIZE (IN)					TYPE	NOTES
		CONDUCTIVITY BTU X IN/(H X FT² X °F)	MRT (°F)	<1"	1" - 1-1/4"	1-1/2" - 3"	4" - 8"	≥8"		
CW	40-60	0.21-0.27	75	0.5	0.5	1.0			FIBERGL	
HW, HWC, TW	90-105	0.21-0.28	100	1.0	1.0	1.5		-	FIBER S W/ ASJ	L

GENERAL NOTES:
1. INSULATION THICKNESSES PER 2015 WASHINGTON STATE ENERGY CODE TABLE C403.2.9.
2. PROVIDE WITH PVC JACKETING IN ALL EXPOSED LOCATIONS (UTILITY ROOMS, STORAGE ROOMS, ETC.)
3. PROVIDE WITH ALUMINUM JACKETING IN ALL OUTDOOR LOCATIONS

AIR INLET & OUTLET SCHEDULE

SYMBOL	MANUFACTURER	MODEL	MOUNTING TYPE	STYLE	NOTES
EG-1	TITUS	50F	CT/WALL	VE	1
SD-1	TITUS	300RS	CT/WALL	LE	1

NOTES:
1. PROVIDE AIR BALANCING DEVICE AT EACH AIR INLET CUTL

ELECTRIC UNIT HEATER SCHEDULE

SYMBOL	MANUFACTURER	MODEL	CFM	HEATER	ELECTRICAL			WEIGHT	NOTES
				W					
UH-1		KCVI		840					
UH-2	G	KCVI	-	125	1	9.4			
		KCVI		1125		4			
UH-4	GE	UHWA		2000	1	-			1, 4

NOTES:
1. UNIT TO BE PR AL T OSTATS
2. UNIT TO BE PROVIDED WITH SINGLE POLE RIGHT SIDE WIRING THERMOSTAT.
3. UNIT TO BE PROVIDED WITH SINGLE POLE LEFT SIDE WIRING THERMOSTAT.
4. TOP OF UNIT HEATER TO BE INSTALLED AT 6'-0" ABOVE FINISHED FLOOR. COORDINATE EXACT LOCATION WITH ELECTRICAL EQUIPMENT.

DUCT INSULATION & LINING SCHEDULE

APPLICATION	R-VALUE (MIN)	K-VALUE (MAX)	NRC (MIN. 1")	THICKNESS (IN)	INSULATION LOCATION		TYPE	NOTES
					INSIDE DUCT	OUTSIDE DUCT		
OUTSIDE AIR DUCTWORK INSULATION	7	0.25	-	2.00	-	X	FLEXIBLE FIBERGLASS	1,2
SUPPLY DUCTWORK INSULATION	7	0.25	-	2.00	-	X	FLEXIBLE FIBERGLASS	1,2
RETURN/EXHAUST DUCTWORK INSULATION	7	0.25	-	2.00	-	X	FLEXIBLE FIBERGLASS	1,2
DUCT LINING - WITHIN 10' OF EXHAUST FAN	-	0.25	0.55	1.00	X	-	CLOSED-CELL ELASTOMERIC	

NOTES:
1. INSULATION THICKNESSES PER 2015 WASHINGTON STATE ENERGY CODE SECTION C402.2.8
2. PROVIDE WITH VAPOR BARRIER JACKETING.

PLUMBING FIXTURE SCHEDULE

SYMBOL	FIXTURE	MANUFACTURER	MODEL	PLUMBING CONNECTIONS (IN)						FLOW		ELECTRICAL			MOUNTING	NOTES
				WASTE	INDIV	VENT	HW	CW	TW	GPM	GPF	VOLT	PH	W		
FD-1	FLOOR DRAIN	JR SMITH	2010	3.00	-	2.00	-	-	-	-	-	-	-	-	FLOOR	2
HB-1	HOSE BIBB	ZURN	Z1341-P34	-	-	-	-	0.75	-	-	-	-	-	-	PIPE	
HB-2	HOSE BIBB	ZURN	Z1320-C-34EL-CL-SS-WC	-	-	-	-	0.75	-	-	-	-	-	-	WALL	2
HB-3	HOSE BIBB	ZURN	Z1330-C	-	-	-	-	0.75	-	-	-	-	-	-	WALL	2
P-1	WATER CLOSET	ACORN	2100-W-1-1.28-FVBO-HS-OFLC-ADA-CN	3.00	-	2.00	-	1.50	-	-	1.28	-	-	-	WALL	1,2,4
	SEAT	ACORN	HS-OFLC													
	FLUSH VALVE	SLOAN	CX-8158-1.28-SF-OR													
	CARRIER	JR SMITH														
P-2	LAVATORY	ACORN	1953-ADA-1-9-H1-GT-TE	2.00	-	2.00	-	-	0.50	0.50	-	-	-	-	WALL	1,2,4
	FAUCET	SLOAN	EBF-650-BAT-TEE-SF-0.5GPM-MLM-IR-FCT													
	CARRIER	JR SMITH														
P-3	DRINKING FOUNTAIN	HAWS	1119FR	(2) 2.00	-	(2) 1.50	-	0.50	-	0.45	-	-	-	-	WALL	2,3
P-3A	PET FOUNTAIN	TERRABOUND SOLUTIONS	9004-MWL	2.00	-	2.00	-	0.50	-	-	-	-	-	-	WALL	2
P-4	JANITORS SINK	ACORN	TSH3624-BDS-KDG3-KFC-KH36-KMH-KWG-2	3.00	-	2.00	0.75	0.75	-		-	-	-	-	FLOOR	
	FAUCET	ACORN													WALL	

NOTES:
1. SENSOR OPERATED WITH BATTERY POWER.
2. PROVIDE WITH VANDAL-RESISTANT HARDWARE.
3. HAWS 1920FR FREEZE RESISTANT BOTTLE FILLER, HAWS BP32 WALL PLATE, HAWS 6700.4L & 6700.4 BACKING PLATES.
4. INSTALL IN ACCORDANCE WITH ADA REQUIREMENTS.

TEMPERING VALVE SCHEDULE

SYMBOL	MANUFACTURER	MODEL	TYPE		LINE SIZE (IN)			CT	FLOW (GPM)		OUTLET	SERVICE	WEIGHT	NOTES
			TS	PB	INLET	OUTLET	PRV		MIN	MAX	TEMP (°F)		(LBS)	
TV-1	SYMMONS	MAXLINE 7-225	X	-	0.50	0.50	-	-	1	14	104	RESTROOM LAVATORY	-	

NOTES:

ELECTRIC WATER HEATER SCHEDULE

SYMBOL	MANUFACTURER	MODEL	TYPE	SERVICE	CAPACITY (GAL)	DISCHARGE TEMP (DEG F)	RECOVERY		ELECTRICAL			NOTES
							GPH	TEMP RISE	VOLT	PHASE	KW	
WH	RO	WHITE	TANK	DOMESTIC HW	12	120	12.29	100	208	1	3.00	1, 2

NOTES:
1. PROVIDE WITH WALL MOUNTING HARDWARE, DRAIN PAIN, SEISMIC RESTRAINTS, & TEMPERATURE/PRESSURE RELIEF VALVE
2. WALL MOUNT CONFIGURATION WITH BOTTOM PIPE CONNECTIONS.

EXPANSION TANK SCHEDULE

SYMBOL	MANUFACTURER	MODEL	TYPE	CONFIGURATION	PRESSURE (PSI)	VOLUME (GAL)		WEIGHT (LBS)	NOTES
						TOTAL	ACCEPTANCE		
ET-1	AMTROL	ST-5	DIAPHRAGM	VERTICAL	150	2.00	0.90	12.5	1

NOTES:
1. PROVIDE WITH WALL MOUNTING STRAPS.

BACKFLOW PREVENTER SCHEDULE

SYMBOL	MANUFACTURER	MODEL	LINE SIZE (IN)	SERVICE	TYPE		WATER PRESSURE (PSI)		WEIGHT (LBS)	NOTES
					RP	DC	INLET	OUTLET		
BFP-1	WATTS	009 SERIES	1.50	DOMESTIC CW	X	X	-	-	-	1, 2

NOTES:
1. PROVIDE WITH WYE-STRAINER, ISOLATION VALVES, & TEST PORTS.
2. PROVIDE WITH SEPARATE PRESSURE REDUCING VALVE

PUMP SCHEDULE

SYMBOL	MANUFACTURER	MODEL	SERVICE	TYPE	FLOW		HEAD	NPSHR	RPM	ELECTRICAL					STARTER				MOUNTING	WEIGHT	NOTES
					GPM	GPD	(FT)	(FT)		HP	W	AMP	VOLT	PHASE	VFD	MFG	EC	N/A		(LBS)	
CP-1	GRUNDFOS	UP 15-18 B5	HW RECIRCULATION	INLINE	4	-	6	-	-	-	86.00	-	120	1	-	-	-	X	INLINE	6	1

NOTES:
1. PROVIDE WITH AQUASTAT, TIMER, & MOTOR RATED SWITCH FOR CONTROL.

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City of Kirkland
Reviewed by
J Tumelson
03/20/2019

SHEET NUMBER
M002

Berger Partnership Project Number 17031
Plotted 2/6/2019 11:46:35 AM
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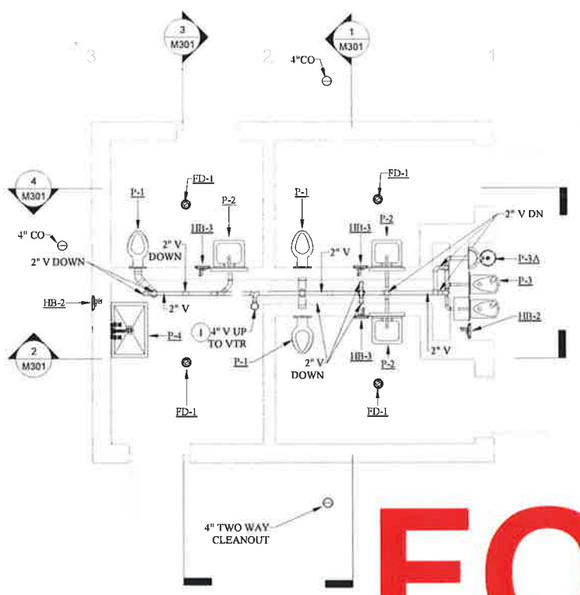
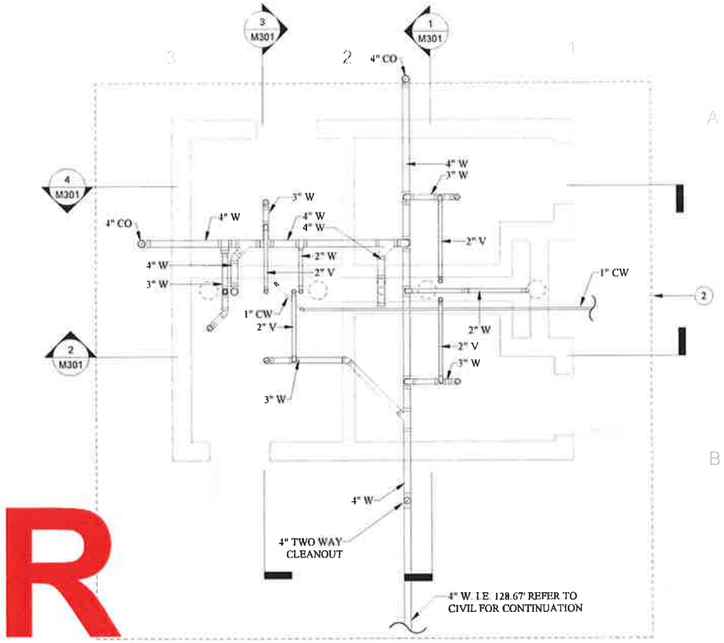
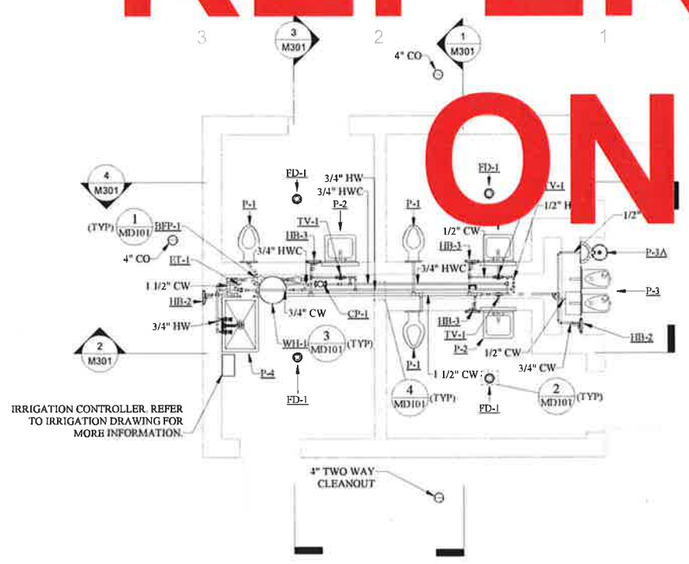


MECHANICAL ROOM ABOVE GRADE SANITARY PLUMBING FLOOR PLAN

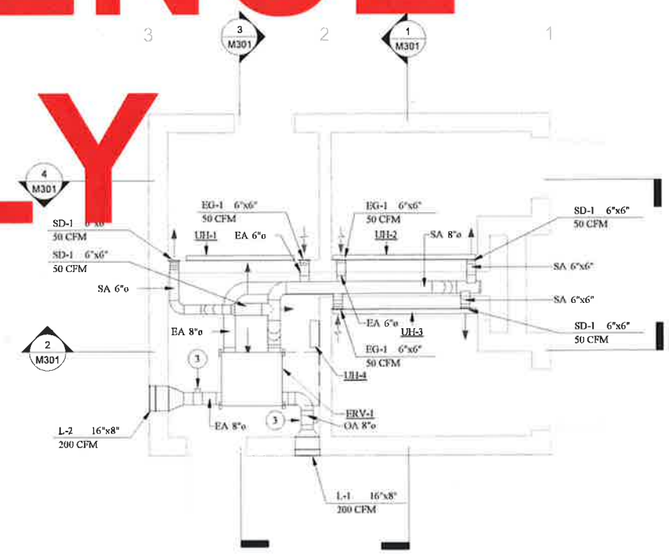


MECHANICAL ROOM BELOW GRADE PLUMBING FLOOR PLAN



MECHANICAL ROOM PLUMBING FLOOR PLAN

SCALE: 1/4" = 1'-0"



MECHANICAL ROOM HVAC FLOOR PLAN

SCALE: 1/4" = 1'-0"

FOR REFERENCE ONLY

PLAN NOTES

1. REFER TO ARCHITECTURAL DETAIL AD107/5.
2. ALL BELOW GRADE PIPING SHALL BE SUPPORTED BY HANGERS ATTACHED TO THE STRUCTURAL FLOOR USING HANGERS. PIPING AND HANGERS SHALL BE SET IN PLACE PRIOR TO BACKFILL AND SLAB INSTALLATION.
3. PROVIDE MOTORIZED DAMPER INTERLOCKED WITH ERV-1. DAMPER SHALL OPEN WHEN ERV-1 IS ACTIVATED ABD SHALL AUTOMATICALLY CLOSE WHEN THE UNIT IS DEACTIVATED.

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Totem Lake Park Phase 1
City of Kirkland
21031 Totem Lake Way, Kirkland, WA 98034

DONALD G. BERGQUIST — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER
02/08/2019

SET TYPE
100% Design Submittal

SET ISSUE DATE
02/08/2019

REVISIONS

Δ	DESCRIPTION	DATE

DRAWN/CHECKED
KT / JB

SHEET NAME
BUILDING PLANS

City of Kirkland Reviewed by J Tumelson 03/20/2019

SHEET NUMBER
M101

Project Partnership Project Number: 17031
Plotted 2/6/2019 11:48:37 AM
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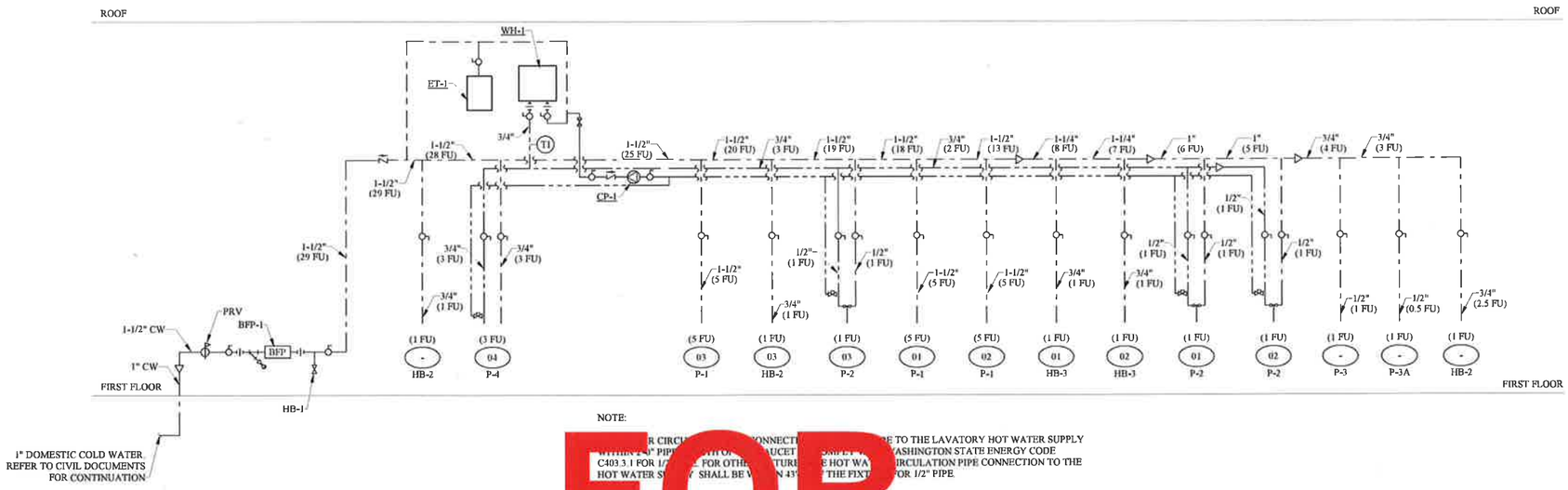
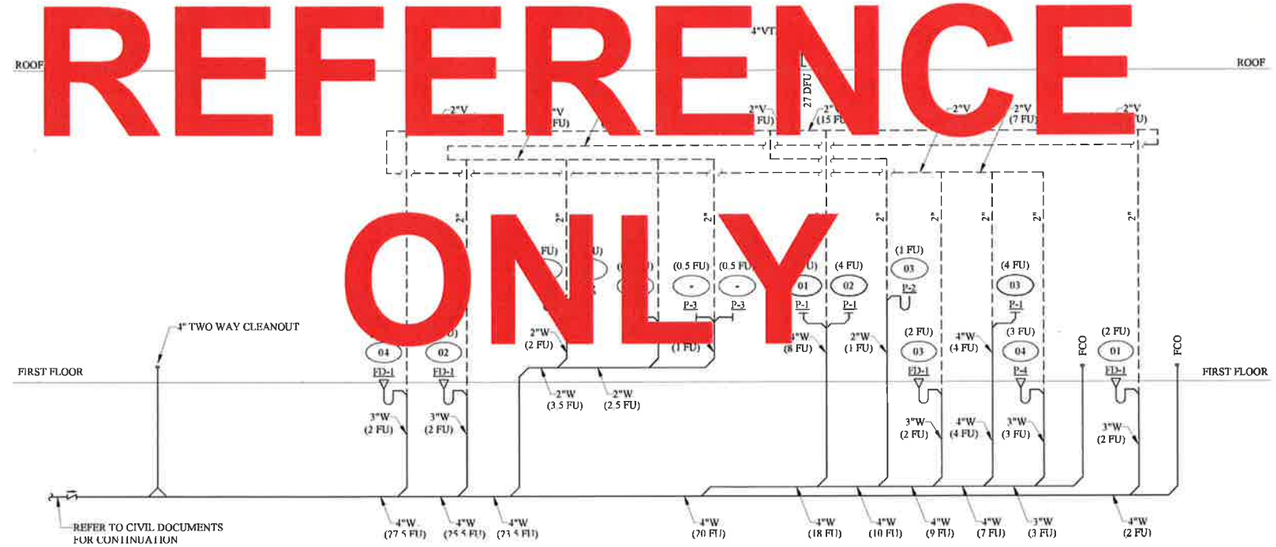


NOTE:

[illegible] R CIRCU[illegible] CONNECTI[illegible] E TO THE LAVATORY HOT WATER SUPPLY
[illegible] WITHIN 50' PIPE[illegible] FOR OUTLET[illegible] SUPPLY [illegible] ASHINGTON STATE ENERGY CODE
C403.3.1 FOR 1/2[illegible] FOR OTHE[illegible] TURE[illegible] E HOT WA[illegible] IRCULATION PIPE CONNECTION TO THE
HOT WATER S[illegible] SHALL BE W[illegible] N 43[illegible] THE FIXT[illegible] OR 1/2" PIPE

DOM[illegible]TIC [illegible]UMBI[illegible] RISER

SCALE: NONE



WASTE RISER DIAGRAM

SCALE: NONE

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Totem Lake Park Phase 1

City of Kirkland

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Δ	DESCRIPTION	DATE

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City of Kirkland
Reviewed by
J Tumelson
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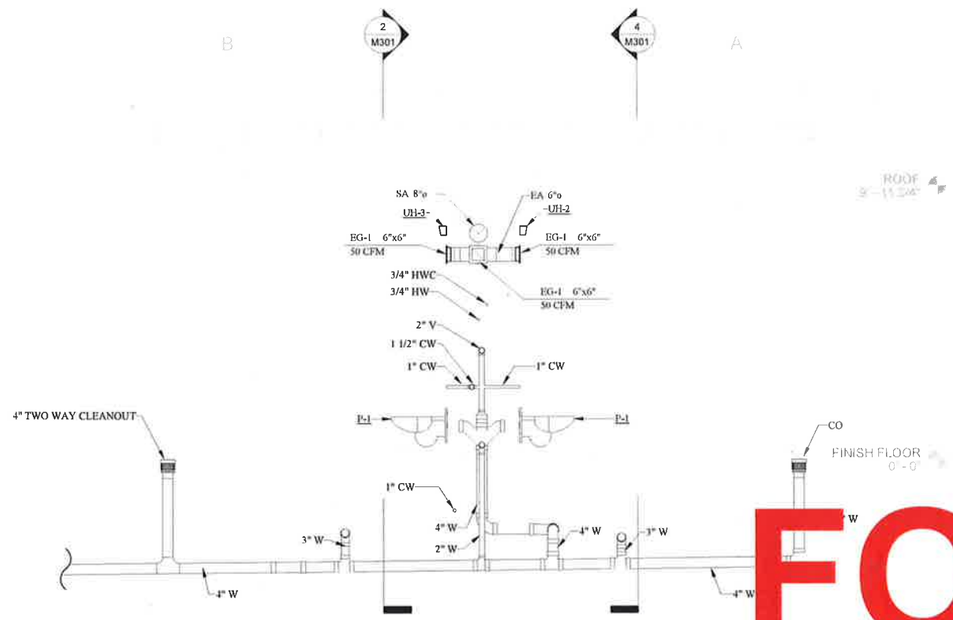
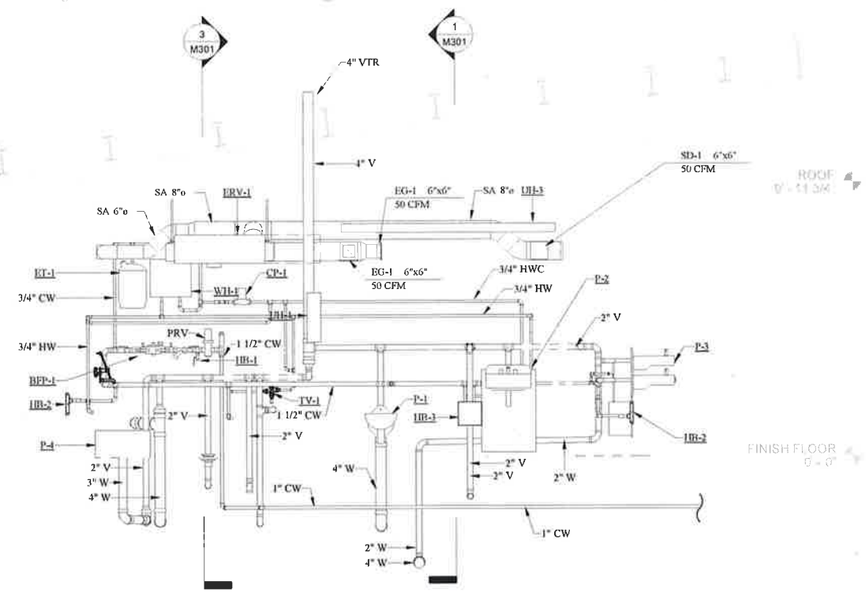
Plotted 2/6/2019 11:48:38 AM Filename Y:\2017\17031 Totem Lake Park\Drawings\05 Revit\17031 Totem Lake (2018)_Central.rvt

Berger Partnership Project Number 17031



Section1

SCALE: 3/8" = 1'-0"



Section 2

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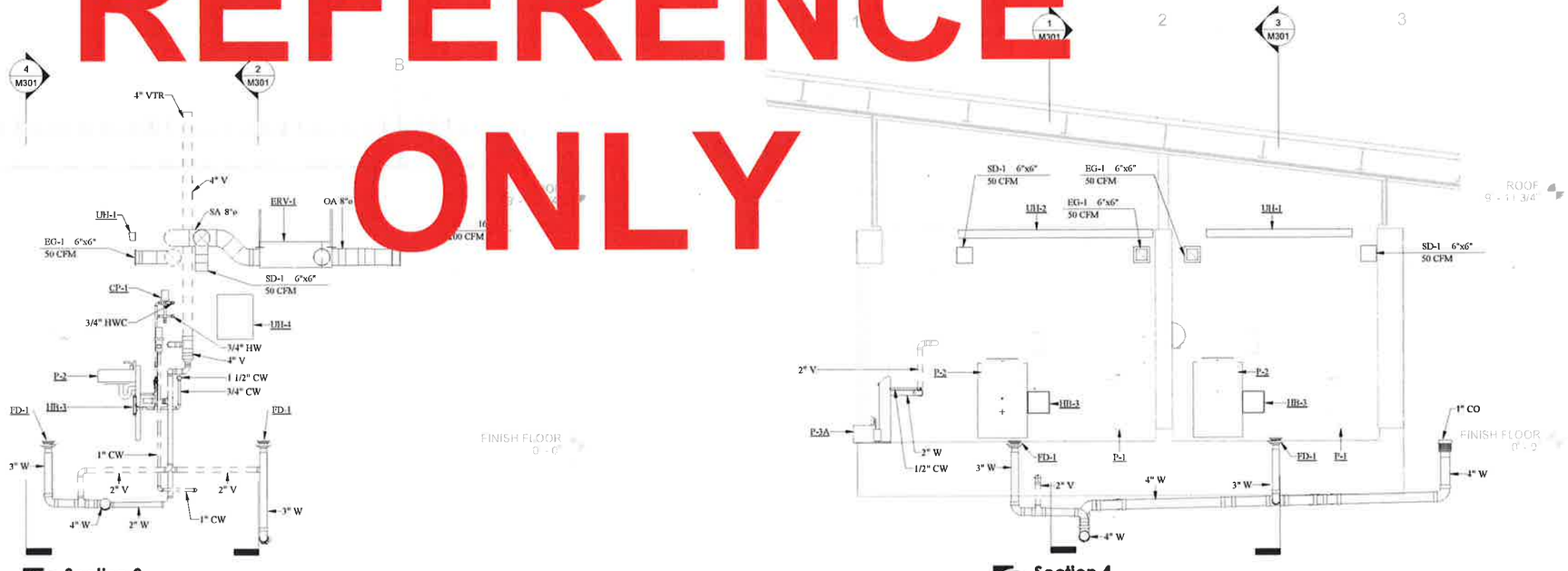

Section 3

SCALE: 3/8" = 1'-0"

Section 4

SCALE: 3/8" = 1'-0"

FOR REFERENCE ONLY

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Totem Lake Park Phase 1

City of Kirkland

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02/08/2019

SET TYPE
100% Design Submittal

SET ISSUE DATE:
02/08/2019

REVISIONS

Δ	DESCRIPTION	DATE

DRAWN/CHECKED
KT / JB

SHEET NAME
SECTIONS ELEVATIONS

City of Kirkland
Reviewed by
J Tumelson
03/20/2019

SHEET NUMBER
M301

Berger Partnership Project Number: 17031
Plotted: 2/6/2019 11:48:43 AM
Filename: Y:\2017\17031 Totem Lake Park\Drawings\05 Revit\17031 Totem Lake (2018)_Central.rvt

ELECTRICAL ABBREVIATIONS

ACPS	ACCESS CONTROL POWER SUPPLY
ACS	ACCESS CONTROL SYSTEM
AF	AMP FUSE
AFF	ABOVE FINISHED FLOOR DIRECTLY UNDER THE ITEM
AL	ALUMINUM
ALT	ALTERNATE
ANN	ANNUNCIATOR
ARCH	ARCHITECTURAL
ATS	AUTOMATIC TRANSFER SWITCH
BATT	BATTERY
BKBD	BACKBOARD
BOT	BOTTOM
BS	BACKSPLASH
C	CONDUIT
C3	CATEGORY 3
C5	CATEGORY 5
C5E	CATEGORY 5E
C6	CATEGORY 6
CAB	CABINET
CATV	COMMUNITY ANTENNA TELEVISION
CB	CIRCUIT BREAKER
CCT	CIRCUIT(S)
CCTV	CLOSED CIRCUIT TELEVISION
CLG	CEILING
CLK	CLOCK
CO	CONDUIT ONLY
COMM	COMMUNICATIONS
CONC	CONCRETE
CONT	CONTACTOR
CONTR	CONTRACTOR
COW	COMPUTER ON WHEELS
CPS	CAMERA POWER SUPPLY
CT	CURRENT TRANSFORMER
CTL	CONTROL
CU	COPPER
CWB	COLD WEATHER BALLAST
DCS	DOOR CONTROL SYSTEM
DDC	DIRECT DIGITAL CONTROL
DET	DETECTOR
DISC	DISTRIBUTION
DIV	DIVISION
DN	DOWN
DW	DISHWASHER
DX	DUPLEX
EA	EACH
EF	EXHAUST FAN
EHD	ELECTRIC HANDHAIR DRYER
ELEV	ELEVATION
EMCS	ENERGY MANAGEMENT & CONTROLS SYSTEM
EMER	EMERGENCY
EMS	ENERGY MANAGEMENT SYSTEM
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
EOLR	END OF LINE RESISTOR
EPO	EMERGENCY POWER OFF
EQP	EQUIPMENT
ER	TELECOMMUNICATIONS EQUIPMENT ROOM
EWC	ELECTRIC WATER COOLER
EXG	EXISTING
F	FUSE
F/SD	FIRE/SMOKE DAMPER
FA	FIRE ALARM
FAC	FIRE ALARM EXTENDER PANEL
FACP	FIRE ALARM CONTROL PANEL
FIX	FIXTURE
FLR	FLOOR
FMC	FLEXIBLE METAL CONDUIT
FO	FIBER-OPTIC
FSD	FAN SHUTDOWN
GCS	GATE CONTROL SYSTEM
GEN	GENERATOR
GFI	GROUND FAULT INTERRUPTER
GFP	GROUND FAULT PROTECTION
GND	GROUND
GRC	GALVANIZED RIGID STEEL CONDUIT
HT	HEIGHT
HTR	HEATER
HWT	WATER HEATER
IC	INTERCOM
ICM	INTERCOM MASTER STATION
ICS	INTERCOM SLAVE STATION
IDF	TELECOMMUNICATIONS INTERMEDIATE DISTRIBUTION FRAME
IDP	INTRUSION DETECTION SYSTEM PANEL
IG	ISOLATED GROUND
IMC	INTERMEDIATE METAL CONDUIT
ISP	INSIDE PLANT
JB	JUNCTION BOX
JE	JUNCTION ENCLOSURE
KS	KEY SWITCH
LAN	LOCAL AREA NETWORK
LB	ELBOW
LCP	LIGHTING CONTROL PANEL
LFMC	LIQUID FLEXIBLE METAL CONDUIT
LOC	LOCATION
LTG	LIGHTING
LV	LOW VOLTAGE
M	MICROWAVE
MC	METAL CLAD CABLE
MCC	MOTOR CONTROL CENTER
MDF	TELECOMMUNICATIONS MAIN DISTRIBUTION FACILITY
MIC	MICROPHONE
MM	MULTI-MODE
MMOF	MULTIMODE OPTICAL FIBER
MMS	MANUAL MOTOR STARTER
MTD	MOUNTED
MTR	MOTOR
NC	NORMALLY-CLOSED
NL	NIGHT LIGHT
NO	NORMALLY-OPEN
OAN	OR AS NOTED
OFCI	OWNER-FURNISHED, CONTRACTOR-INSTALLED

ELECTRICAL ABBREVIATIONS

OH	OVERHEAD
OHC	OVERHEAD COMMUNICATIONS
OSP	OUTSIDE PLANT
PA	PUBLIC ADDRESS
PB	PUSHBUTTON
PC	PHOTOCELL
PLWD	PLYWOOD
PMP	PUMP
PNL	PANELBOARD
PROJ	PROJECTOR
PT	POTENTIAL TRANSFORMER
PVC	RIGID NONMETALLIC CONDUIT
PWR	POWER
RCRP	RECEPTACLE CONTROL RELAY PANEL
REC	RECEPTACLE CONTROL RELAY PANEL
REF	REFRIGERATOR
RIO	ROUGH-IN ONLY
RMC	RIGID METAL CONDUIT
RNC	RIGID NON-METALLIC CONDUIT
SC	SHORT CIRCUIT
SCBD	SCOREBOARD
SEC	SECURITY
SECT	SECTION
SIM	SIMILAR
SM	SINGLE-MODE
SMOF	SINGLE-MODE OPTICAL FIBER
SMR	SURFACE METAL RACEWAY
SPD	SURGE PROTECTION DEVICE
SURF	SURFACE
SV	SOLENOID VALVE
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SYS	SYSTEMS
TC	TIME CLOCK
TEL	TELEPHONE
TELCOM	TELECOMMUNICATIONS
TGB	TELECOMMUNICATIONS GROUND BUS
TMGB	TELECOMMUNICATIONS MAIN GROUNDING BUS BAR
TP	TRAP PRIMER
TR	TELECOMMUNICATIONS ROOM
TYP	TYPICAL
UC	UNDER CABINET
UF	UNDER FLOOR
UG	UNDERGROUND
UGPP	UNDERGROUND PRIMARY POWER
UGSP	UNDERGROUND SECONDARY POWER
UGT	UNDERGROUND TELECOMMUNICATIONS
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERUPTABLE POWER SUPPLY
UTP	UNSHIELDED TWISTED PAIR CABLE
VER	VERIFY
WAN	WIDE AREA NETWORK
WAP	WIRELESS ACCESS POINT
WAPA	WIRELESS ACCESS POINT EXTERIOR ANTENNA
WG	WIRE GUARD
WP	WEATHERPROOF
WPL	WEATHERPROOF LOCKING
WPU	WEATHERPROOF WHILE IN USE
XC	CROSS CONNECT
XFMR	TRANSFORMER
XFR	TRANSFER
XP	EXPLOSIONPROOF

ELECTRICAL SYMBOLS

GENERAL

NOTES:
1 INDICATED MOUNTING HEIGHTS ARE TO THE CENTER LINE OF BOX UNLESS NOTED OTHERWISE

2 SEE PLANS FOR NON-STANDARD MOUNTING HEIGHTS

3 POWER DEVICES SHOWN ON SYSTEM SHEETS E4 SERIES SHALL BE FOR COORDINATION ONLY NOT ALL DEVICES ARE SHOWN FOR CLARITY

(3) CODED NOTE REFERENCE

101 ROOM NUMBER

FC-1 MECHANICAL/SPECIAL EQUIPMENT DESIGNATION

LOW VOLTAGE ENCLOSURE

LUMINAIRES

15b A01 LUMINAIRE
LUMINAIRE TYPE
CIRCUIT & SWITCH LEG OR CONTROL
(# DENOTES CENTER LAMPS WHERE APPLICABLE)

SHADING DENOTES LUMINAIRE [CONNECTED TO EMERGENCY POWER SYSTEM] [EQUIPPED WITH EMERGENCY BALLAST]

STRIP LUMINAIRE

S02 9 a
LUMINAIRE TYPE
CCT NO
CONTROL CCT
EXTERIOR POLE MOUNTED LUMINAIRE
BASE TYPE
DISTRIBUTION TYPE

SWITCHING DEVICES

SUBSCRIPTS DENOTE:
"A" ABOVE COUNTER, CENTER 4" ABOVE TOP OF COUNTER OR BACKSPLASH
"B2" 2-BUTTON FOR STEP DIMMING CONTROL
"a-z" EACH LOWER CASE LETTER DENOTES (1) SWITCH & ORDER OF SW'S

WALL SWITCH OCCUPANCY SENSOR +45"

WALL SWITCH +46"

OS
"S" DENOTES STANDALONE (DIRECT WIRE) DEVICE
"M" DENOTES LCM SYSTEM DEVICE
"P" DENOTES LCP SYSTEM DEVICE
OCCUPANCY/VACANCY SENSOR

LIGHTING CONTROL DESIGNATION
LCP1 NL
LIGHTING CONTROL PANEL
CONTROL RELAY(S)
BRANCH CIRCUIT NUMBER

RECEPTACLE & POWER CONNECTIONS

SUBSCRIPTS DENOTE
"A" ABOVE COUNTER CENTER 4" ABOVE TOP OF COUNTER OR BACKSPLASH
"C" RECEPTACLE FOR COPIER +18
"CLG" RECEPTACLE INSTALLED IN CEILING
"CPS" CAMERA POWER SUPPLY CONNECTION
"D" RECEPTACLE FOR DRYER +30
"DW" DISHWASHER CONNECTION BELOW COUNTER +18
"F" RECEPTACLE FOR FREEZER +46"
"FH" FUME HOOD CONNECTION
"IH" INSTAHOT CONNECTION
"H" MOUNT HORIZONTAL
"HA" MOUNT HORIZONTAL ABOVE COUNTER CENTER 4" ABOVE TOP OF COUNTER OR BACKSPLASH
"HD" HAND DRYER - HEIGHT PER INTERIOR ELEVATION
"ICE" ICE MACHINE +18
"M" RECEPTACLE FOR MICROWAVE - HEIGHT PER INTERIOR ELEVATION
"R" RECEPTACLE FOR REFRIGERATOR +46"
"RG" RECEPTACLE FOR IMAGE +60
"RH" RANGE HOOD - HEIGHT PER INTERIOR ELEVATION
"RO" RANGE/OVEN +30
"TK" MOUNT HORIZONTALLY IN TOE KICK
"UC" UNDER-COUNTER REFRIGERATOR +18
"V" RECEPTACLE FOR VENDING MACHINE +46"
"VP" RECEPTACLE FOR VIDEO PROJECTOR MOUNTED 4 11/16 ABOVE PROJECTOR AVIDATA
"W" RECEPTACLE FOR WASHING MACHINE +30
"WC" WATER COOLER - CONCEALED BEHIND UNIT SKIRT
"WP" WEATHER-PROOF DEVICE
"WPU" WEATHER-PROOF DEVICE WHILE-IN-USE

DUPLEX RECEPTACLE +18"

DOUBLE DUPLEX RECEPTACLE +18"

GROUND FAULT CIRCUIT INTERRUPTING RECEPTACLE +18"

SPECIAL PURPOSE EQUIPMENT CONNECTION
PROVIDE FUSIBLE DISCONNECT WHERE REQUIRED

XX-1 MOTOR CONNECTION

DISCONNECT SWITCH

MOTOR STARTER OR VFD AS INDICATED

COMBINATION STARTER OR VFD AS INDICATED

NAME PANELBOARD

INTERFACE RELAY W/10AMP MIN CONTACTS

RACEWAY & WIRING

FLUSH COUPLING

OUTLET/JUNCTION BOX

CONCEALED RACEWAY

CROSSHATCH DENOTES WIRES BESIDES EQUIPMENT GROUND CONDUCTOR NO CROSSHATCH DENOTES 2 # 12 WIRES PLUS #12 EQUIPMENT GROUND CONDUCTOR DOT DENOTES AN ADDITIONAL #12 ISOLATED GROUND CONDUCTOR

CONDUIT STUB

POWER DISTRIBUTION

C25 FEEDER DESIGNATION

CIRCUIT BREAKER

GFP CIRCUIT BREAKER W/GROUND-FAULT PROTECTION

FUSE

SWITCH

FUSIBLE SWITCH

GROUNDING ELECTRODE

NORMALLY OPEN CONTACTOR/RELAY

NORMALLY CLOSED CONTACTOR/RELAY

MAGNETIC MOTOR STARTER

MANUAL MOTOR STARTER W/OVERLOAD HEATERS

LIGHTNING ARRESTOR

DEMAND METER

UM USER METER

METERING TRANSFORMERS

TRANSFORMER

M METER

FAULT INDICATOR

SYMMETRICAL SHORT CIRCUIT VALUE

DEMOLITION SUBSCRIPTS

E	DENOTES EXISTING TO REMAIN IN SERVICE
R	DENOTES EXISTING TO BE REMOVED
ER	DENOTES EXISTING TO BE RELOCATED
RE	DENOTES RELOCATED ITEM IN NEW LOCATION
RR	DENOTES REMOVE AND REINSTALL IN ORIGINAL LOCATION
EA	DENOTES EXISTING TO BE ABANDONED IN PLACE REMOVE DEVICE & WIRING AND PROVIDE BLANK PLATE
RN	DENOTES EXISTING TO BE REPLACED WITH NEW AT ORIGINAL LOCATION

- SHEET LIST -

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Totem Lake Park Phase 1
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MARK ADRIAN MCALLISTER STATE OF WASHINGTON 34208 REGISTERED PROFESSIONAL ENGINEER

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100% Design Submittal

SET ISSUE DATE
2/8/2019

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Δ DESCRIPTION DATE

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LAI / MAM

City of Kirkland Reviewed by J.Tunnelson 03/20/2019

SHEET NAME
SYMBOLS ABBREVIATIONS

SHEET NUMBER
E001

Design Partnership Project Number
Plotted 2/8/2019 4:12:38 PM
File name D:_Revit\Totem Lake Park-PH1_ELEC_jiversonlvl

Exterior Lighting

LTG-EXT

2015 Washington State Energy Code Compliance Forms for Commercial Buildings including R2, R3, R4 over 3 stories and all R1 — Revised Nov 2017

Project Title:	Totem Lake Park Phase 1	Date	11/8/2018
Exterior Lighting Zone	Zone 1 • Zone 2 Zone 3 Zone 4 *Exterior Lighting Zone selection required to enable LTG-EXT form. Zones are defined in Table C405.5.2(1) and specified by the jurisdiction.*	For Building Department Use	
Calculation Area	New construction; Addition - stand alone; Addition + existing; Alteration with < 50% ext. wattage replaced; Alteration with ≥ 50% ext. wattage replaced	User Note	
Building Grounds *Applies to individual luminaires > 100 Watts*	☐ Efficacy > 80 lumens/watt ☐ Exemption ☐ Controlled by motion sensor		

Tradable Maximum Allowed Lighting Wattage NOTE 1

Base Site Allowance: 600

Tradable Surfaces	Surface Description	Area (ft²), perimeter (lf) or # of items	Allowed Watts per ft² or per lf	Allowed Watts x ft² (or x lf) NOTE 2
Grounds Walkways <10' wide		3600	0.7 W/LF	2520
Grounds Walkways >10' wide		389	0.14 W/Ft2	54

Total Allowed Tradable + Site Allowance Watts: 3175

Tradable Proposed Lighting Wattage NOTE 3

Tradable Surface	Fixture Description NOTE 4, 5	Number of Fixtures	Watts per Fixture NOTE 6	Watts Proposed
Grounds Walkways >10' wide	Z02	16	11	173
Grounds Walkways <10' wide	Z01	6	26	156

Total proposed tradable watts may not exceed the sum of total allowed tradable watts plus the base site allowance. Any base site allowance not needed to make tradable watts comply can be applied to individual non-tradable categories.

Total Proposed Tradable Watts: 329

Site Allowance Remaining: 600

Non-Tradable Maximum Allowed Lighting Wattage NOTE 1

Non-Tradable Surfaces	Surface Description	Area (ft²), perimeter (lf) or # of items	Allowed Watts per ft², lf or item	Allowed Watts x ft² (or x lf) NOTE 2

Non-Tradable Proposed Lighting Wattage NOTE 3, 7

Non-Tradable Surface	Fixture Description NOTE 4, 5	Number of Fixtures	Watts per Fixture NOTE 6	Watts Proposed

Non-tradable proposed watts may not exceed allowed watts for any individual surface unless the total excess watts for all non-tradable surfaces are less than the remaining site allowance.

Non-Tradable Watts Exceeding LPA: 0

Remaining Site Allowance: 600

Exterior Lighting

COMPLIES WITH MAX. ALLOWANCE

Note 1 - List all exterior surfaces per Table C405.5.2(2) that occur in the project scope. Select exterior surface categories from drop down menu.
*Note 2 - **Unlit Message** - Enter lighting fixture information for this surface in Proposed Lighting Wattage table to generate Lighting Power Allowance.*
Note 3 - List all proposed lighting fixtures including existing-to-remain fixtures.
Note 4 - For proposed Fixture Description, indicate fixture type, lamp type, number of lamps in the fixture, and ballast type (if applicable).
Note 5 - Existing-to-remain fixtures shall be included in the Tradable and Non-Tradable Proposed Lighting Wattage tables in the same manner as new fixtures. Identify as existing in fixture description.
Note 6 - For proposed Watts/Fixture enter the luminaire wattage for installed lamp and ballast using manufacturer or other approved source. For luminaires with screw-in lamps, enter the manufacturer's listed maximum input wattage of the fixture (not the lamp wattage). For low voltage lighting, enter the wattage of the transformer.
Note 7 - Automated Teller and Night Depositories - For each location, enter the number of ATM machines or depositories within that location. If there are multiple locations in the project, enter each location individually in the Non-Tradable Maximum Allowed Lighting Wattage table and identify the location in the Surface Description section.

Interior Lighting - Space-By-Space Method

LTG-INT-SPACE

2015 Washington State Energy Code Compliance Forms for Commercial Buildings including R2, R3, R4 over 3 stories and all R1 — Revised Nov 2017

Project Title:	Totem Lake Park Phase 1	Date	11/8/2018
Calculation Area NOTE 8	New Construction; Addition - stand alone; Addition + existing Spaces where < 50% of luminaires are replaced; Spaces where ≥ 50% of luminaires are replaced; Spaces where the use is changing (C505)	For Building Department Use	
LPA Calculation Type	Standard; Additional Efficiency Package Option C406.3 Reduced Interior Lighting Power *To comply with C406.3, the Proposed LPD shall be 25% lower than the Target LPA. Refer to C406.3 for additional requirements.*	User Note	

Maximum Allowed Lighting Wattage NOTE 1

Location (plan #, room #)	Space Type	Ceiling Height NOTE 2	Gross Interior Area in ft²	Allowed Watts per ft²	Watts Allowed (watts/ft² x area)
	Restroom all other		64	0.780	50
	Restroom all other		75	0.780	58
	Restroom all other		78	0.780	61
	Electrical/mechanical		64	0.760	48
		Total Area	280		

Retail Display Allowance from LTG-INT-DISPLAY: ☐

Lobby Art/Exhibit Display Allowance from LTG-INT-DISPLAY NOTE 8: ☐ — Allowed Watts: 217

Proposed Lighting Wattage NOTE 3

Location (plan #, room #)	Fixture Description NOTE 4, 5, 6	Number of Fixtures	Watts/ Fixture NOTE 7		Watts Proposed
SEE PLANS	S02 - SURFACE MOUNTED VALDAL RESISTANT VANITY	3	25		75
SEE PLANS	S03 - WALL MOUNTED INDUSTRIAL STRIP	2	19		38
SEE PLANS	S01A - WET LOCATION, SURFACE MOUNTED	7	14		98

Proposed Retail Display Lighting from LTG-INT-DISPLAY: ☐

Total Proposed Watts may not exceed Total Allowed Watts for Interior Lighting — Total Proposed Watts: 211

Interior Lighting Power Allowance

COMPLIES

Note 1 - List all unique space types per Table C405.4.2(1) that occur in the project scope. Select space type category from drop down menu.
Note 2 - Indicate ceiling height for atriums and spaces utilizing the ceiling height adjustment per Table C405.4.2(2). Footnotes d thru f.
Note 3 - List all proposed lighting fixtures including exempt lighting equipment and existing-to-remain fixtures.
Note 4 - For proposed Fixture Description, indicate fixture type, lamp type (e.g. T-8), number of lamps in the fixture, and ballast type (if included). For each lighting, list the length of the track (in feet) in addition to the fixture, lamp, and ballast information.
Note 5 - For lighting equipment eligible for exemption per C405.4.1, note exception number and leave Watts/Fixture blank.
Note 6 - Existing-to-remain fixtures shall be included in the Proposed Lighting Wattage table in the same manner as new fixtures. Identify as existing in fixture description.
Note 7 - For proposed Watts/Fixture enter the luminaire wattage for installed lamp and ballast using manufacturer or other approved source. For luminaires with screw-in lamps, enter the manufacturer's listed maximum input wattage of the fixture (not the lamp wattage). For low voltage lighting, enter the wattage of the transformer. For line voltage track/busway systems, enter the larger of the attached luminaire wattage or 50 watts/linear foot, or enter the wattage limit of permanent current limiting device.
Note 8 - Lobby Art/Exhibit Display Allowance is independent of the Maximum Allowed Lighting Wattage. Enter all proposed lobby art/exhibit display fixtures in LTG-INT-DISPLAY form only.
Note 9 - Calculation Area Details:
a. Lighting fixtures in a building addition may comply as a stand alone project, or they may be combined with the overall existing building lighting systems to demonstrate compliance. Refer to C502.1.
b. For alterations and building additions, provide Space Types and gross interior areas in the Maximum Allowed Lighting Wattage table. If a building addition will consist as combined with the overall existing building lighting systems, include all applicable existing Space Types and gross interior areas.
c. If less than 50% of existing lighting fixtures will be replaced, provide total existing lighting wattage (prior to alteration) in the space provided in the Maximum Allowed Lighting Wattage table.
d. If lighting alteration project includes some building areas or spaces where < 50% of luminaires are replaced, and other areas or spaces where ≥ 50% of luminaires are replaced, then these areas or spaces may be documented separately. If multiple forms will be completed to demonstrate compliance for the total scope of the alteration project, describe scope covered in form in User Note section.

Lighting Summary

LTG-SUM

2015 Washington State Energy Code Compliance Forms for Commercial Buildings including R2, R3, R4 over 3 stories and all R1 — Revised Nov 2017

Project Info	Project Title: Totem Lake Park Phase 1 Applicant Information: Provide contact information for individual who can respond to inquiries about compliance form information provided Company Name: City of Kirkland Company Address: 12031 Totem Lake Way, Kirkland, WA 98034 Applicant Name: Lars Iverson Applicant Phone: 206-441-4522 Applicant Email: lversen@nacarchitecture.com	Date: 11/8/2018 For Building Department Use	
Compliance forms do not require a password to use. Instructional and calculating cells are unlocked.			

Project Description	☑ New Building ☐ Addition ☐ Alteration ☐ No Lighting Scope *Include PROJ-SUM form (included in envelope forms workbook) with lighting compliance forms*
Interior Lighting System Description *Briefly describe interior lighting system type and features* ☑ Interior Lighting Plans Included	restrooms controlled via occupancy sensors and mechnilec room controlled via occupancy sensor wall switch
Interior Lighting Power Allowance Method	☐ Building Area Method ☑ Space-by-space Method *Select method used in project.*
Interior Lighting Controls *Select method of compliance for lighting controls*	☐ All C405.2.1 - C405.2.8 Lighting Controls ☐ C405.2 Exception 5 Luminaire Level Lighting Controls (LLLC) ☐ Additional Efficiency Package Option C406.4 Enhanced Digital Lighting Controls *To comply with C406.4 no less than 90% of the total installed interior lighting power shall comply with the required controls per C406.4*
Dwelling Unit Interior Lighting	*Permanently installed interior lighting fixtures in dwelling units comply with:* No Dwelling Units C405.2 thru C405.5 Commercial Lighting Controls and LPA C406.3 High Efficacy Lighting R404.1 Residential High Efficacy Lighting *Dwelling unit lighting complies with WSEC Residential provisions in lieu of WSEC Commercial provisions*
Exterior Lighting System Description *Briefly describe exterior lighting system type and features* ☑ Exterior Lighting Plans Included	Fixtures under the soffit and sidewalks

Building Additions — *Refer to Section C502.2.6 for additional requirements*

Compliance Method	Interior Lighting	External Lighting
Lighting systems in addition area comply with all applicable provisions as a stand alone new construction project.	☑	☑
Lighting systems in addition are combined with existing building lighting systems to demonstrate compliance	☐	☐

Addition is combined with existing:
For interior lighting projects, include new + existing-to-remain interior lighting fixture wattage in Proposed Lighting Wattage table in LTG-INT-BLD or LTG-INT-SPACE form
For exterior lighting projects, include new + existing-to-remain exterior lighting fixture wattage in Proposed Tradable and Proposed Non-Tradable Lighting Wattage tables in LTG-EXT form

Lighting Summary, cont.

LTG-SUM

2015 Washington State Energy Code Compliance Forms for Commercial Buildings including R2, R3, R4 over 3 stories and all R1 — Revised Nov 2017

Project Title: Totem Lake Park Phase 1 — Date: 11/8/2018

Change of Space Use

☐ Existing interior lighting systems in areas undergoing a change in space use are upgraded to comply with LPAs for the new space types per Tables C405.4.2(1) or C406.4.2(2).

Identify interior spaces requiring LPD upgrade to the current Code in Proposed Lighting Wattage table in LTG-INT-BLD or LTG-INT-SPACE form.

Interior and Exterior Lighting Alterations

Select all Lighting Power and Lighting Control elements that apply to the scope of the retrofit project. If project includes a combination of spaces where less than 50% of the existing fixtures are replaced in some spaces and 50% or more of the fixtures are replaced in others then provide separate lighting power compliance forms for the two retrofit conditions. Spaces undergoing the same type of retrofit may be combined into one lighting power compliance form

Refer to Section C503.6 for additional requirements.

All alteration lighting controls shall be commissioned per C408.3

Lighting Power	Interior lighting	Parking garage	External lighting
50% or more of existing are replaced	☐	☐	☐
Less than 50% of existing are replaced	☐	☐	☐
Lamp and/or ballast replacement only – existing total wattage not increased	☐	☐	☐

50% or more replaced *- Total lighting power of new + existing-to-remain fixtures shall comply with total LPA per Sections C405.4.2 and C405.5.2. Include new + existing-to-remain fixtures in Proposed Lighting Wattage table in LTG-INT-BLD, LTG-INT-SPACE or LTG-EXT form*

Less than 50% replaced *- Total lighting power of new + existing-to-remain fixtures shall not exceed the total lighting power prior to alteration. Include new + existing-to-remain fixtures in the Proposed Lighting Wattage table in LTG-INT-BLD, LTG-INT-SPACE or LTG-EXT form*

50% threshold *applies to number of luminaires for interior spaces and parking garages and total installed wattage for exterior luminaires.*

Lighting Controls	Interior lighting	Parking garage	External lighting
New wiring installed to serve added fixtures and/or fixtures relocated to new circuit(s)	☐	☐	☐
New or moved lighting panel	☐	☐	☐
Interior space is reconfigured - luminaires unchanged or relocated only	☐		

New wiring or circuit *- For interior lighting, provide required manual controls per C405.2.3, occupancy sensor controls per C405.2.1, daylight responsive controls per C405.2.4 and application specific lighting controls per C405.2.5. For exterior lighting provide required controls per C405.2.7*

New or moved panel *- Provide all applicable lighting controls as noted for New Wiring and automatic time switch controls per C405.2.2*

Reconfigured interior space *- Provide all required lighting controls that apply to a new interior space. Application specific lighting control provisions per C405.2.5 do not apply to reconfigured spaces*

☐ ***No changes are being made to the interior or exterior lighting systems and existing space uses and configuration are not changed.***

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Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

MARK ADRIAN MONTGOMERY — STATE OF WASHINGTON — 34258 — REGISTERED PROFESSIONAL ENGINEER

SET TYPE
100% Design Submittal

SET ISSUE DATE
2/8/2019

REVISIONS

Δ	DESCRIPTION	DATE

DRAWN/CHECKED
LAI / MAM

SHEET NAME
WSEC COMPLIANCE FORMS

City of Kirkland Reviewed by J Tumelson 03/20/2019

SHEET NUMBER
E002

Lighting, Motor, and Electrical Permit Checklist, Pg. 2

LTG-CHK

2015 Washington State Energy Code Compliance Forms for Commercial Buildings including R2, R3, R4 over 3 stories and all R1

Revised Nov 2017

Project Title: Totem Lake Park Phase 1 | Date 11/8/2018

The following information is necessary to check a permit application for compliance with the lighting, motor, and electrical requirements in the Washington State Energy Code, Commercial Provisions.

Applicability (yes, no, na)	Code Section	Component	Compliance information required in permit documents	Location in Documents	Building Department Notes
NA	C405 2 5 - Item 3	Hotel/motel guest rooms	Indicate method of automatic control - vacancy or captive key control of all installed luminaires and switched receptacles in guest room		
NA	C405 2 5 - Item 4	Supplemental task lighting	Indicate method and location of automatic shut-off vacancy control for supplemental task lighting including under-shelf or under-cabinet lighting		
NA	C405 2 5 - Item 5	Lighting for non-visual applications	Indicate on plans eligible non-visual lighting applications include sq ft area of each lighting control zone		
			Indicate on plans that non-visual lighting are controlled independently from both general area lighting and other lighting applications within the same space		
			Indicate method of manual lighting control and applicable automatic lighting control		
NA	C405 2 5 - Item 6	Lighting equipment for sale or demonstration	Indicate on plans that lighting equipment for sale or demonstration are controlled independently from both general area lighting and other lighting applications within the same space;		
			Indicate method of manual lighting control and applicable automatic lighting control		
NA	C405 2 5 - Item 7	Means of egress lighting	Identify on plans egress fixtures that function as both normal and emergency means of egress illumination;		
			Provide calculation of lighting power density of total egress lighting		
			If total egress lighting power density is greater than 0 02 W/sq ft. indicate on plans egress fixtures requiring automatic shut-off during unoccupied periods;		
			Indicate method of automatic shut-off control		
Yes	C405 2 7	Exterior lighting controls	Indicate on exterior lighting plans and fixture schedules the automatic lighting control method control sequence and locations served;		
			For building facade and landscape lighting indicate automatic controls shut off lighting as a function of dawn/dusk and fixed opening/closing time;		
			For all other exterior lighting indicate automatic controls shut off lighting as a function of available daylight, include control sequence that also reduces lighting power by at least 50% between 12am-6am, or from 1 hour after closing to 1 hour before opening or based upon motion sensor		
Yes	C405 5 1	Exterior building grounds lighting controls	For building grounds fixtures greater than 100 watts, indicate on plans whether fixtures have efficacy greater than 60 lumens or are controlled by motion sensor or are exempt lighting per C405 5 2		
NA	C405 2 5 (listed after C405 2 7)	Area controls - Master control switches and circuit power limit	Indicate location(s) of master control switch(es) intended to control multiple independent switches; circuit breaker may not be used as a master control switch;		
			Verify that no 20 amp circuit controlled by a single switch or automatic control is loaded beyond 80%		
ADDITIONAL EFFICIENCY PACKAGE OPTION - ENHANCED DIGITAL LIGHTING CONTROLS					
NA	C406 4	Enhanced digital lighting controls	To comply with additional efficiency package option, indicate on plans all interior lighting fixtures that are individually addressed and provided with continuous dimming or exception taken;		
			Include calculation of percent total installed interior lighting power that is configured with required enhanced lighting control functions (min 90%, to comply with additional efficiency package option).		

The following information is necessary to check a permit application for compliance with the lighting, motor, and electrical requirements in the Washington State Energy Code, Commercial Provisions

Lighting, Motor, and Electrical Permit Checklist, Pg. 1

LTG-CHK

2015 Washington State Energy Code Compliance Forms for Commercial Buildings including R2, R3, R4 over 3 stories and all R1

Revised Nov 2017

Project Title: Totem Lake Park Phase 1 | Date 11/8/2018

The following information is necessary to check a permit application for compliance with the lighting, motor, and electrical requirements in the Washington State Energy Code, Commercial Provisions

Applicability (yes, no, na)	Code Section	Component	Compliance information required in permit documents	Location in Documents	Building Department Notes
LIGHTING CONTROLS					
Yes	C405 2	Lighting controls general	For all lighting fixtures indicate lighting control method on plans for spaces and lighting zone(s) served, or exception taken		
NA	C405 2	Luminaire level lighting controls (LLLC)	Indicate on plans all fixtures provided with LLLC in lieu of C405 2 lighting controls, provide description of control capabilities and performance parameters		
NA	C405 1	Lighting in dwelling units	For permanently installed lighting fixtures in dwelling units, indicate lighting control method on plans for spaces and lighting zone(s) served, or demonstrate compliance with high efficacy exception		
Yes	C405 2 3 C405 2 1 1 C405 2 2 2 C405 2 4 C405 2 5	Manual controls	Indicate on plans the method of manual lighting control (whether combined with occupancy sensor, automatic light reduction, daylight responsive or specific application controls), location of manual control device and area or specific application it serves		
NA	C405 2 2 1 C405 2 2 2 C405 2 3	Manual interior light reduction controls	Indicate on plans which method of manual 50% lighting load reduction is provided or whether lighting load is reduced via occupancy sensors or daylight responsive controls		
Yes	C405 2 2	Method of automatic shut-off control	Indicate on plans the method of automatic shut-off control during unoccupied periods (occupancy sensor time switch or digital timer switch) for all lighting zones;		
			Indicate locations where automatic shutoff is provided by other methods (occupancy sensor or digital timer switch) or which time switch control exception applies		
			Indicate on plans the spaces served by occupancy sensors		
Yes	C405 2 1 C405 2 1 1	Occupancy sensor controls	Indicate whether occupancy sensor controls are configured to be manual-on automatic 50%-on, or serve a space eligible for automatic 100%-on per exception		
NA	C405 2 1 2	Occupancy sensor controls - warehouses	Indicate aisleways and open areas in warehouse spaces provided with occupancy sensor controls that reduce lighting power by 50%		
NA	C405 2 2 1	Automatic time switch control	Indicate locations of override switches on plans and the lighting zone(s) served. Include area sq. ft.		
	C405 2 6	Digital timer switch	Indicate digital timer switch control includes manual on/off, time delay audible and visual indication of impending time-out		
NA	C405 2 4 2 C405 2 4 3	Daylight zones - Sidelight and toplight	Indicate primary and secondary sidelight daylight zone areas on plans, include sq. ft.;		
			Indicate toplight daylight zone areas on plans, include sq. ft.;		
			For small vertical fenestration assemblies (rough opening less than 10 percent of primary daylight zone) where daylight responsive controls are not required, provide fenestration area to daylight zone calculation(s)		
NA	C405 2 4	Daylight responsive controls	Indicate on plans lighting zone(s) served by daylight responsive controls		
			Identify sidelight and toplight daylight zones that are not provided with daylight sensing controls and the exception(s) that apply.		
			Indicate on plans the lighting load reduction method - continuous dimming, or stepped dimming that provides at least two even steps between 0%-100% of rated power;		
			Indicate that daylight sensing controls are configured to completely shut off all controlled lights in the lighting zone		
NA	C405 2 5	Additional controls - Specific application lighting controls	Identify spaces and lighting fixtures on plans that require specific application lighting controls per this section		
NA	C405 2 5 - Items 1&2	Display and accent lighting	Indicate on plans that display and accent lighting and display case lighting are controlled independently from both general area lighting and other lighting applications within the same space,		
			Indicate manual and automatic lighting control method		

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Totem Lake Park Phase 1
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MARK ADRIAN MCALLISTER — STATE OF WASHINGTON — 34258 — REGISTERED PROFESSIONAL ENGINEER

SET TYPE
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DRAWN/CHECKED
Author / Checker

City of Kirkland
Reviewed by
J Turnelson
03/20/2019

SHEET NAME
WSEC COMPLIANCE FORMS

SHEET NUMBER
E003

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Berger Partnership Project Number

Lighting, Motor, and Electrical Permit Checklist, Pg. 5 — LTG-CHK

2015 Washington State Energy Code Compliance Forms for Commercial Buildings including R2, R3, R4 over 3 stories and all R1 — Revised Nov 2017

Totem Lake Park Phase 1 — Date: 11/8/2018

The following information is necessary to check a permit application for compliance with the lighting, motor, and electrical requirements in the Washington State Energy Code, Commercial Provisions.

Applicability (yes, no, na)	Code Section	Component	Compliance information required in permit documents	Location in Documents	Building Department Notes
MOTORS, TRANSFORMERS, ELECTRIC METERS, INTERIOR TRANSPORTATION					
NA	C405.6	Electrical transformers	Include electrical transformer schedule on electrical plans; indicate transformer size, efficiency, or exception taken		
NA	C405.7	Dwelling unit electrical energy consumption	Indicate on electrical plans that each dwelling unit in Group R-2 has a separate electrical energy meter		
Yes	C405.8	Electric motor efficiency	Include all motors, including fractional hp motors, in electric motor schedule on electrical plans; indicate hp, rpm, rated efficiency, or exception applied		
NA	C405.9.1	Elevator cabs	For luminaires in each elevator cab, provide calculated average efficacy of combined fixtures that indicates efficacy is not less than 35 lumens per watt		
			Indicate rated watts per cfm for elevator cab ventilation fans do not exceed 0.33 watts per cfm.		
			Indicate automatic controls that de-energize lighting and ventilation fans when elevator is stopped and unoccupied for a period of 15 minutes or more		
NA	C405.9.2	Escalators and moving walks	Indicate escalators comply with ASME A17.1/CSA B44, automatic controls are configured to reduce operational speed to the minimum permitted when not in use		
NA	C405.9.3	Regenerative drive	Indicate all one-way down or reversible escalators are provided with a variable frequency regenerative drive		
DOCUMENTATION AND SYSTEM REQUIREMENTS TO SUPPORT COMMISSIONING (Cx)					
NA	C408.3	Scope of electrical power and lighting systems commissioning	Indicate that all electrical systems (receptacles, transformers, motors, vertical and horizontal transportation) for which the WSEC requires control functions and/or configuration to perform specific functions are required to be commissioned		
			Where total building lighting load is > 20 kW, or where total lighting load of luminaires requiring daylight sensing and/or occupancy control > 10 kW, indicate that all automatic lighting control systems are required to be commissioned, or provide building lighting power calculation demonstrating eligibility for exception		
NA	C408.1.3 C408.1.1 C408.1.2 C408.1.4.2 C103.6	Commissioning requirements in construction documents	Indicate Cx requirements in plans and specifications for all applicable electrical and lighting control systems per C408		
			Include general summary with at minimum items 1 thru 4 of the Cx plan per C408.1.2 including narrative description of activities, responsibilities of the Cx team, schedule of activities including verification of project close out documentation per C103.6, and conflict of interest plan (if required)		
			Include in general summary that a Cx project report or Compliance Checklist (Figure C408.1.4.2) shall be completed by the Certified Cx Professional and provided to the owner prior to the final electrical inspection		
NA	C408.3.1	Functional performance testing criteria	Identify in plans and specifications the intended operation of all equipment and controls during all modes of operation, including interfacing between new and existing-to-remain systems		
PROJECT CLOSE OUT DOCUMENTATION					
Yes	C103.6.3	Project close out documentation requirements	Indicate in plans that project close out documentation is required including WSEC lighting compliance forms and calculations that document all interior and exterior lighting area and/or surface types, lighting power allowances and installed densities		

If "no" is selected for any question, provide explanation:

End of Lighting, Motor & Transformer Permit Documents Checklist

Lighting, Motor, and Electrical Permit Checklist, Pg. 4 — LTG-CHK

2015 Washington State Energy Code Compliance Forms for Commercial Buildings including R2, R3, R4 over 3 stories and all R1 — Revised Nov 2017

Totem Lake Park Phase 1 — Date: 11/8/2018

The following information is necessary to check a permit application for compliance with the lighting, motor, and electrical requirements in the Washington State Energy Code, Commercial Provisions.

Applicability (yes, no, na)	Code Section	Component	Compliance information required in permit documents	Location in Documents	Building Department Notes
LIGHTING ALTERATIONS					
NA	C503.6	Interior and parking garage lighting fixture alterations	Where ≥ 50% of existing luminaires in interior space(s) or parking garage are replaced, indicate compliance path (building area or space-by-space method); include all new and existing-to-remain luminaires in compliance form (LTG-INT-BLD or LTG-INT-SPACE); indicate proposed lighting wattage does not exceed maximum allowed per compliance path		
			Where < 50% of existing luminaires in interior space(s) or parking garage are replaced, indicate total existing lighting wattage in each space prior to alteration; include all new and existing-to-remain luminaires in LTG-INT-SPACE form; indicate proposed total lighting wattage in alteration area does not exceed total existing lighting wattage prior to alteration		
	C503.6	Exterior lighting fixture alterations	Where ≥ 50% of existing exterior lighting wattage is replaced, include all new and existing-to-remain luminaires in LTG-EXT form; indicate proposed total exterior lighting wattage does not exceed maximum allowed		
			Where < 50% of existing exterior lighting wattage is replaced, indicate total existing lighting wattage prior to alteration; include all new and existing-to-remain luminaires in LTG-EXT form. Indicate proposed total exterior lighting wattage does not exceed total existing wattage prior to alteration		
NA	C503.6	Interior lighting wiring alterations	Where new wiring is installed to serve new interior luminaires and/or luminaires are relocated to a new circuit, indicate lighting controls are provided (as applicable) - manual (C405.2.3); occupancy sensor (C405.2.1); daylight responsive (C405.2.4); specific application (C405.2.5); exit signs (C405.3)		
NA	C503.6	Exterior lighting wiring alterations	Where new wiring is installed to serve new exterior luminaires and/or luminaires are relocated to new circuit, indicate exterior lighting controls are provided (C405.2.7)		
NA	C503.6	Lighting panel alterations	Where a new lighting panel is installed or an existing panel is moved (all new raceway and conductor wiring), indicate lighting controls are provided (as applicable) - same provisions as wiring alterations; time switch controls and manual light reduction controls (C405.2.2)		
	C503.6	Interior space reconfiguration	Where interior space(s) is reconfigured (permanently installed walls or ceiling-height partitions); indicate lighting controls are provided (as applicable) - same provisions as lighting panel alterations		
	C504.2	Lighting repairs	Identify existing luminaires being upgraded with bulb and/or ballast replacement, indicate fixture alteration does not increase existing fixture wattage		
	C505.1	Change of space use	Identify spaces on plans where the building area type or space use type is being changed from one type to another per Tables C405.4.2(1) or (2)		
			Indicate compliance path (building area or space-by-space method); include all new and existing-to-remain luminaires in compliance form (LTG-INT-BLD or LTG-INT-SPACE); indicate proposed lighting wattage does not exceed maximum allowed per compliance path		
RECEPTACLES					
NA	C405.10	Controlled receptacles	Identify all controlled and uncontrolled receptacles on electrical plans in each space in which they are required, include receptacle configuration such as spacing between controlled and uncontrolled, duplex devices, etc.		
			Indicate on plans whether the method of automatic control for each controlled receptacle zone is by occupant sensor or programmable time-of-day control		

The following information is necessary to check a permit application for compliance with the lighting, motor, and electrical requirements in the Washington State Energy Code, Commercial Provisions.

Lighting, Motor, and Electrical Permit Checklist, Pg. 3 — LTG-CHK

2015 Washington State Energy Code Compliance Forms for Commercial Buildings including R2, R3, R4 over 3 stories and all R1 — Revised Nov 2017

Project Title: Totem Lake Park Phase 1 — Date: 11/8/2018

The following information is necessary to check a permit application for compliance with the lighting, motor, and electrical requirements in the Washington State Energy Code, Commercial Provisions.

Applicability (yes, no, na)	Code Section	Component	Compliance information required in permit documents	Location in Documents	Building Department Notes
INTERIOR LIGHTING POWER & EFFICACY					
Yes	C405.4.1 C405.4.2	Total connected interior lighting power	Include all luminaires in lighting fixture schedule; indicate fixture types, lamps, ballasts, and manufacturer's rated watts per fixture		
			Identify spaces eligible for lighting power exemption on plans and in compliance forms; indicate the exception applied		
			Identify lighting equipment eligible for lighting power exemption in fixture schedule and in compliance forms; indicate the exception applied		
			Indicate that exempt lighting equipment is in addition to general area lighting and is controlled independently		
NA	C405.3	Exit signs	Indicate location of exit signs on plans and rated watts per fixture in lighting fixture schedule (maximum 5 watts per side)		
NA	C405.1	Lighting in dwelling units - lamp efficacy	If high efficacy exception is applied to permanently installed lighting fixtures in dwelling units, indicate in lighting fixture schedule if lamps in fixtures are high efficacy per R404.1. Calculate percentage of fixtures with high-efficacy lamps (project min=75% to comply with exception)		
Interior Lighting Power Calculation - Indicate compliance path taken					
NA	C405.4.2.1	Building Area Method	Complete required compliance forms – proposed wattage per building area does not exceed maximum allowed wattage per building area; identify locations of building areas on plans		
Yes	C405.4.2.2	Space-By-Space Method	Complete required compliance forms – total proposed wattage does not exceed maximum allowed wattage; identify locations of space types on plans, including retail display areas, lobby and exhibit display areas, and ceiling heights as applicable		
ADDITIONAL EFFICIENCY PACKAGE OPTION - REDUCED INTERIOR LIGHTING POWER DENSITY					
NA	C406.3	Reduced lighting power density	To comply with additional efficiency package option, demonstrate in compliance forms that total connected interior lighting wattage is 25% less than the total maximum allowed lighting wattage via Building Area Method or Space-By-Space Method		
NA	C406.3	Reduced lighting power density - dwelling unit lamp efficacy	For project with dwelling units, to comply with additional efficiency package option indicate in lighting fixture schedule if lamps in interior fixtures have efficacy rating of 60 lumens per watt or more. Calculate percentage of fixtures with lamps that have this efficacy rating (min 80% to comply with option)		
EXTERIOR LIGHTING POWER & EFFICACY					
Yes	C405.5.2	Total connected exterior lighting power	Include all luminaires in lighting fixture schedule; indicate fixture types, lamps, ballasts and manufacturer's rated watts per fixture.		
			Identify exterior applications eligible for lighting power exemption on plans and in compliance forms; indicate exception applied		
			Indicate that exempt exterior lighting is controlled independently from non-exempt exterior lighting; include exception claimed for each fixture or group of fixtures under exception category		
Yes	Table C405.5.2(1)	Exterior lighting zone	Indicate building exterior lighting zone as defined by the AHJ		
Yes	C405.5.1	Exterior building grounds lighting	For building grounds fixtures rated at greater than 100 watts that are complying based on efficacy, indicate rated lamp efficacy (in lumens per watt) in fixture schedule		
Yes	C405.5.2	Exterior lighting power calculations	Complete required compliance form – proposed wattage for exterior lighting plus base site allowed does not exceed maximum allowed		

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Totem Lake Park Phase 1
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MARK ADRIAN MCALLISTER — STATE OF WASHINGTON — 34258 — REGISTERED PROFESSIONAL ENGINEER

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Author / Checker

City of Kirkland Reviewed by J Tumelson 03/20/2019

SHEET NAME
WSEC COMPLIANCE FORMS

SHEET NUMBER
E004

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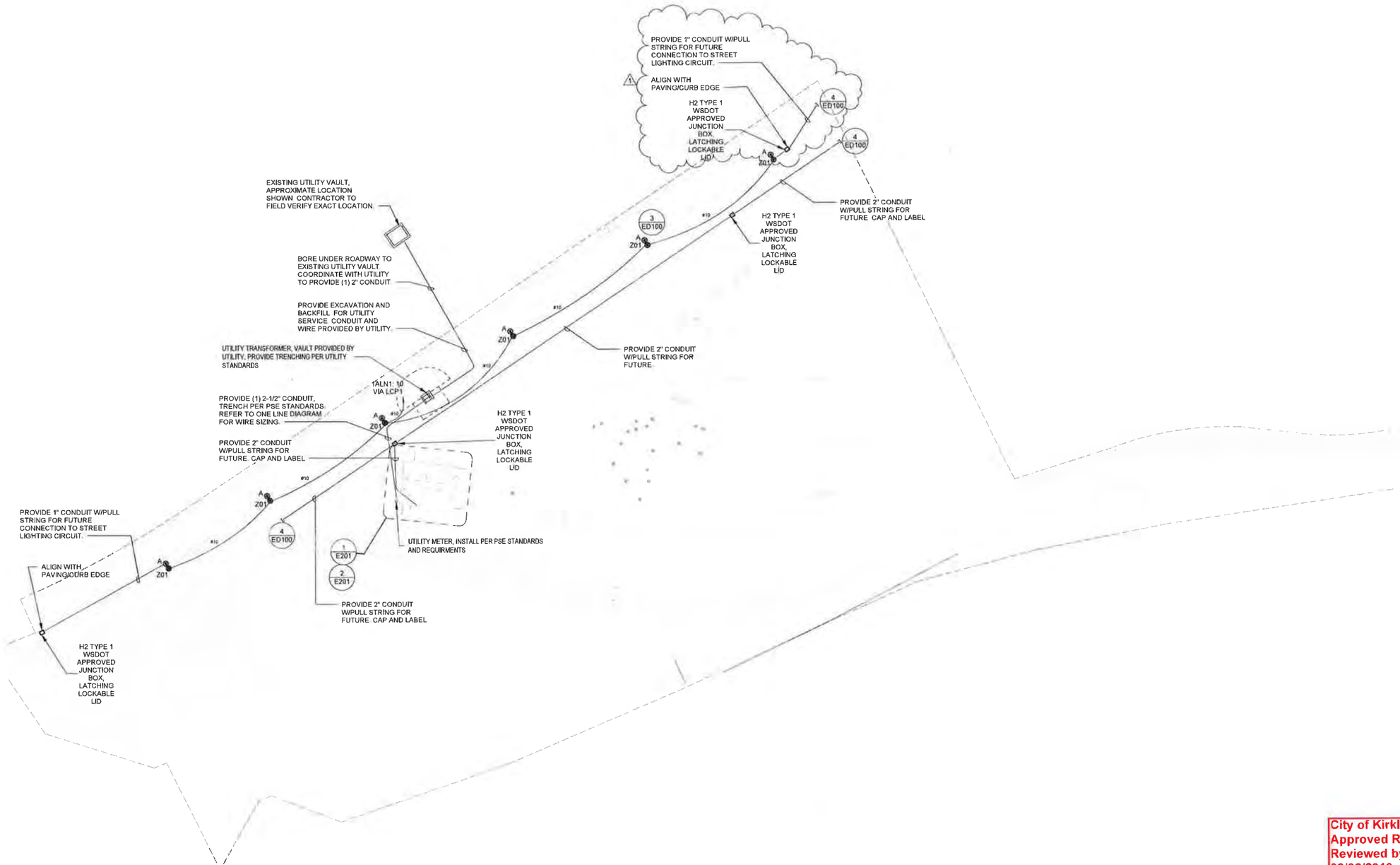
Project Partnership (Project Number)



ELECTRICAL SITE PLAN
Scale 1" = 20'-0"

City of Kirkland
Approved Revision
Reviewed by J Tumelson
08/02/2019

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Δ	DESCRIPTION	DATE
1	Permit Response	06/10/19

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ELECTRICAL SITE PLAN

SHEET NUMBER
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ENR19-01119
Revised Sheet
Page 1 of 2

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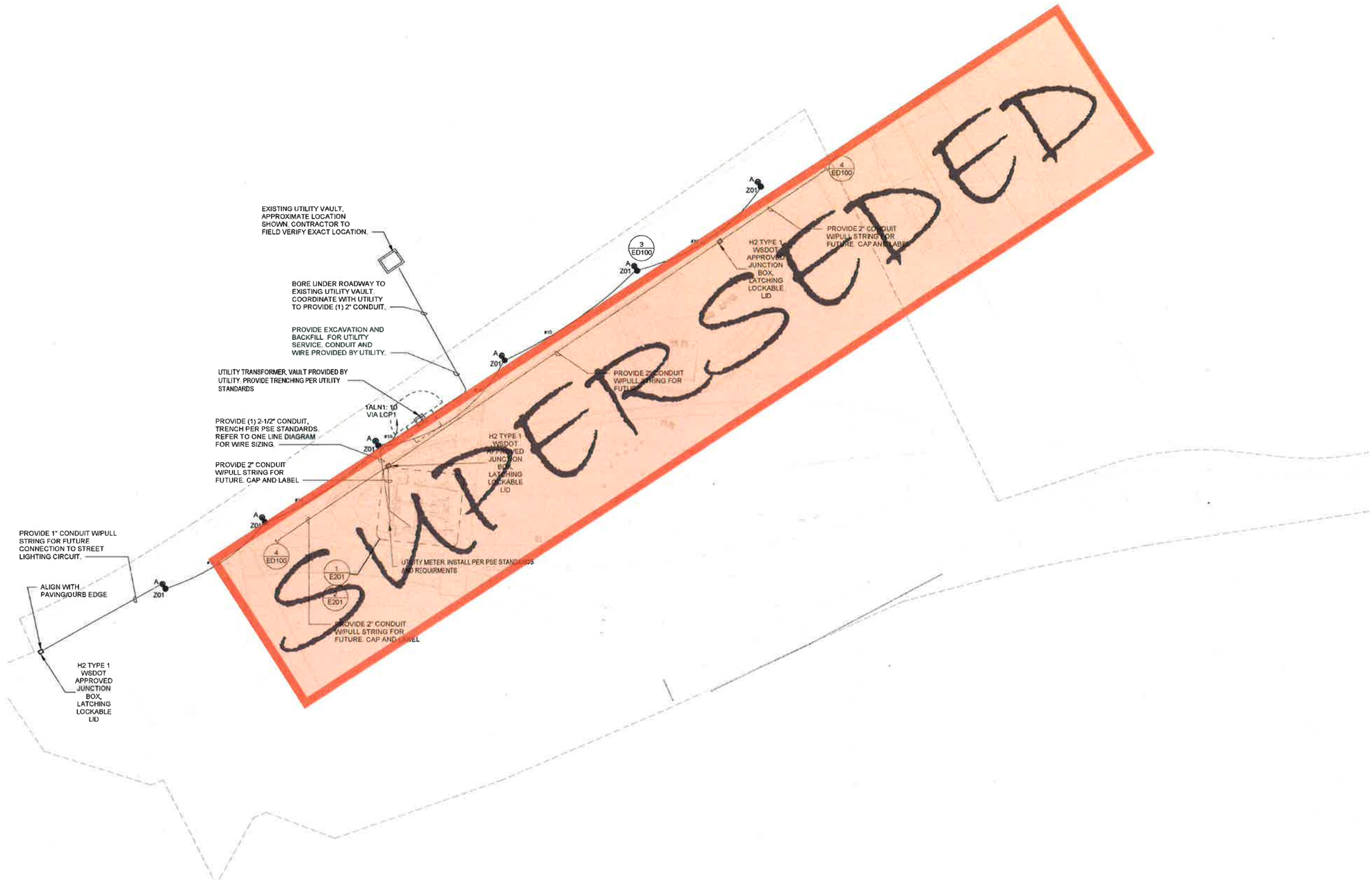
Berger Partnership Project Number:



ELECTRICAL SITE PLAN
Scale 1" = 20'-0"

Berger Partnership Project Number:

Plotted 2/8/2019 4:12:56 PM Filename D:_Revit\Totem Lake Park-PH1_ELEC_Iverson.rvt

berger PARTNERSHIP
1927 Post Alley, Ste 2
Seattle, WA 98101
206.325.6877
bergerpartnership.com

NAC ENGINEERING
nacarchitecture.com
2025 FIRST AVE | SUITE 300
SEATTLE WA 98121
P:206.441.4522

Totem Lake Park Phase 1

City of Kirkland

12031 Totem Lake Way, Kirkland, WA 98034

MARK ADRIAN MCALLISTER
STATE OF WASHINGTON
34258
REGISTERED PROFESSIONAL ENGINEER

SET TYPE
100% Design Submittal

SET ISSUE DATE
2/8/2019

REVISIONS:

Δ	DESCRIPTION	DATE

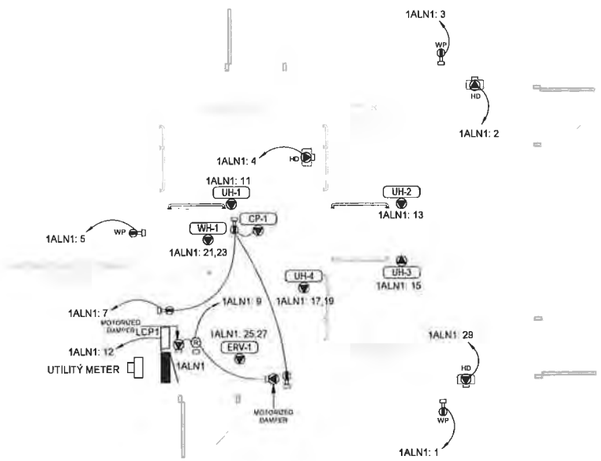
DRAWN/CHECKED
LAJ / MAM

SHEET NAME:
ELECTRICAL PLAN

City of Kirkland
Reviewed by
J Tumelson
03/20/2019

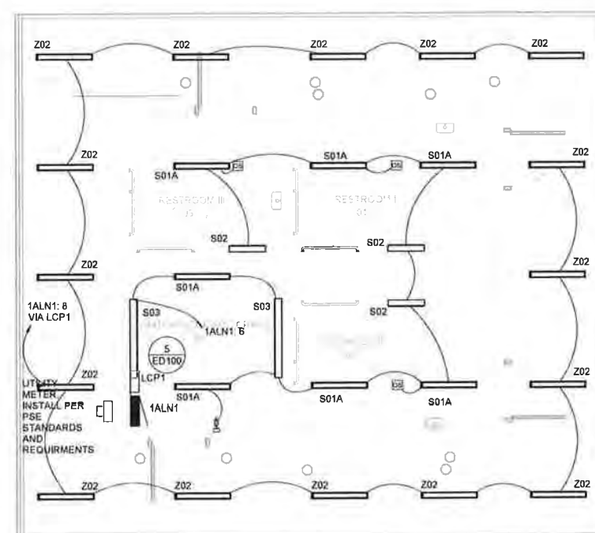
SHEET NUMBER
E101

ENR19-01119
Page 13 of 16



N

1 MECHANICAL BUILDING ELECTRICAL PLAN
1/4" = 1'-0"



N

2 MECHANICAL BUILDING LIGHTING PLAN
1/4" = 1'-0"

PARTNERSHIP berger
1927 Post Alley, Ste. 2
Seattle, WA 98101
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Totem Lake Park Phase 1

City of Kirkland

12031 Totem Lake Way, Kirkland, WA 98034

MARK ADRIAN MCALLISTER
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SET TYPE
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SET ISSUE DATE:
2/6/2019

REVISIONS

Δ	DESCRIPTION	DATE

DRAWN/CHECKED
LAI / MAM

SHEET NAME
ENLARGED PLANS

City of Kirkland
Reviewed by
J Tumahon
03/20/2019

SHEET NUMBER
E201

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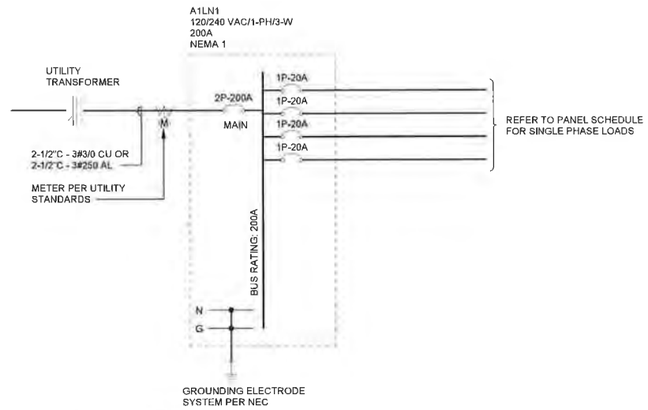

1 ONE-LINE DIAGRAM
Scale:

PANEL: 1ALN1

LOCATION: JANITOR/ UTILITY/... | VOLTS: 120/240 SINGLE | INTEGRAL SPD: No | SCCR RATING: 10000
SUPPLY: | PHASES 1 | ISO GND BAR: No | MAINS TYPE: MCB
MOUNTING: Surface | WIRES: 3 | FEED-THRU LUGS: No | MAINS RATING: 200 A
ENCLOSURE: Type 1 | BUS RATING: 200 | WIREWAY TO FLR: Yes

CCT	LOAD NAME	CCT NOTE	TRIP	POLE	A		B		POLE	TRIP	CCT NOTE	LOAD NAME	CCT
1	REC EXTERIOR SOUTH		20	1	180	1500			1	20		NCONT RESTROOM I 01	2
3	REC EXTERIOR NORTH		20	1			180	1500	1	20		NCONT RESTROOM III 03	4
5	REC EXTERIOR WEST		20	1	180	210			1	20		LTG Room 03, 04, 02, 01	6
7	JANITOR/ UTILITY/ STORAGE 04 ,REC		15	1			550	173	1	20		LTG EXTERIOR	8
9	NCONT JANITOR/ UTILITY/ STORAGE 04		20	1	100	156			1	20		LTG STREET	10
11	Other RESTROOM III 03 UH-1		20	1			840	250	1	20		LCP1,LCP2	12
13	Other RESTROOM I 01 UH-2		20	1	1128	0			1	20		--	14
15	Other RESTROOM II 02 UH-3		20	1			1128	0	1	20		--	16
17	Other JANITOR/ UTILITY/ STORAGE 04 UH-4		20	2	1000	0			1	20		--	18
19							1000	0	1	20		--	20
21	Other JANITOR/ UTILITY/ STORAGE 04 WH-1		20	2	1500	0			1	20		--	22
23							1500	0	1	20		--	24
25	Motor JANITOR/ UTILITY/ STORAGE 04 ERV-1		20	2	173	0			1	20		--	26
27							173	0	1	20		--	28
29	NCONT RESTROOM II 02		20	1	1500	0			1	20		--	30
31	--		20	1			0	0	1	20		--	32
33	--		20	1	0	0			1	20		--	34
35	--		20	1			0	0	1	20		--	36
37	--		20	1	0	0			1	20		--	38
39	--		20	1			0	0	1	20		--	40
41	--		20	1	0	0			1	20		--	42

SPECIAL PANEL FEATURES:		A	B	CIRCUITING NOTES:
A SERVICE: ENTRANCE RATED	CONN LOAD:	7626 VA	7293 VA	1.
B.	DMND LOAD:	6086 VA	7733 VA	2.
C.	DMND AMPS:	67 A	64 A	3.
D.				4.

LOAD CLASSIFICATION	CONNECTED...	DEMAND...	DEMAND LOAD	PANEL TOTALS	
LTG	538 VA	125.00%	673 VA	EXG DEMAND CURRENT @ 125%	
Motor	3346 VA	122.42%	4096 VA	TOTAL NEW CONNECTED LOAD:	14669 VA
Other	5105 VA	100.00%	5105 VA	TOTAL NEW DEMAND LOAD:	15553 VA
REC	1080 VA	100.00%	1080 VA	TOTAL NEW CONN CURRENT:	61.12 A
NCONT	4600 VA	100.00%	4600 VA	TOTAL NEW DEMAND CURRENT:	64.81 A
				TOTAL EXG + NEW CURRENT:	65 A
				UNBALANCED CURRENT:	3 A
LINE TOTALS:	14669 VA	106.03%	15553 VA		

Totem Lake Park Phase 1 #

- MECHANICAL ENERGY RECOVERY VENTILATOR SCHEDULE -

ID	DESCRIPTION	ROOM #	ROOM NAME	PANEL	CIRCUIT #	ELECT DATA	MOTOR HP	MOTOR FLA	CONNECTION TYPE	CB SIZE	DISC SIZE	FUSE SIZE	# PHASE WIRES	PHASE SIZE	NEUTRAL SIZE	GROUND SIZE	RACEWAY SIZE	STARTER TYPE	STARTER SIZE	REMARKS
ERV-1	ENERGY RECOVERY VENTILATOR	04	JANITOR/ UTILITY/ STORAGE	1ALN1	25,27	240 V/2-346 VA	1/2	1.4 A	DIRECT	20	30/2	2	2	12	-	12	3/4"	FVNR	1	PROVIDE CONTROL WIRING FROM ENERGY RECOVERY VENTILATOR TO INTERFACE RELAY AS SHOWN ON THE ENLARGED POWER PLAN SEE MECHANICAL PLANS FOR EXACT LOCATION OF EXHAUST/ RETURN AIR DAMPERS. INTERLOCK ON/OFF CONTROLS FOR ENERGY RECOVERY VENTILATOR WITH MOTORIZED DAMPERS FOR EACH DUCT. CONFIRM CONTROL VOLTAGE WITH UNIT MANUFACTURER AND PROVIDE CURRENT TRANSFORMERS AS NECESSARY TO COMPLETE INSTALLATION.

- MECHANICAL ELECTRIC UNIT HEATER SCHEDULE -

ID	DESCRIPTION	ROOM #	ROOM NAME	PANEL	CIRCUIT #	ELECT DATA	MOTOR HP	MOTOR FLA	CONNECTION TYPE	CB SIZE	DISC SIZE	FUSE SIZE	# PHASE WIRES	PHASE SIZE	NEUTRAL SIZE	GROUND SIZE	RACEWAY SIZE	STARTER TYPE	STARTER SIZE	REMARKS
UH-1	ELECTRIC UNIT HEATER	03	RESTROOM III	1ALN1	11	120 V/1-840 VA	-	7.0 A	DIRECT	20	30/1	-	1	12	12	12	3/4"	MMS	-	
UH-2	ELECTRIC UNIT HEATER	01	RESTROOM I	1ALN1	13	120 V/1-1128 VA	-	9.4 A	DIRECT	20	30/1	-	1	12	12	12	3/4"	MMS	-	
UH-3	ELECTRIC UNIT HEATER	02	RESTROOM II	1ALN1	15	120 V/1-1128 VA	-	9.4 A	DIRECT	20	30/1	-	1	12	12	12	3/4"	MMS	-	
UH-4	ELECTRIC UNIT HEATER	04	JANITOR/ UTILITY/ STORAGE	1ALN1	17,19	240 V/2-1999 VA	-	8.3 A	DIRECT	20	30/2	-	2	12	-	12	3/4"	MMS	-	

- MECHANICAL ELECTRIC WATER HEATER SCHEDULE -

ID	DESCRIPTION	ROOM #	ROOM NAME	PANEL	CIRCUIT #	ELECT DATA	MOTOR HP	MOTOR FLA	CONNECTION TYPE	CB SIZE	DISC SIZE	FUSE SIZE	# PHASE WIRES	PHASE SIZE	NEUTRAL SIZE	GROUND SIZE	RACEWAY SIZE	STARTER TYPE	STARTER SIZE	REMARKS
WH-1	ELECTRIC WATER HEATER	04	JANITOR/ UTILITY/ STORAGE	1ALN1	21,23	240 V/2-3000 VA	-	12.5 A	DIRECT	20	30/2	-	2	12	-	12	3/4"	-	-	

- MECHANICAL PUMP SCHEDULE -

ID	DESCRIPTION	ROOM #	ROOM NAME	PANEL	CIRCUIT #	ELECT DATA	MOTOR HP	MOTOR FLA	CONNECTION TYPE	CB SIZE	DISC SIZE	FUSE SIZE	# PHASE WIRES	PHASE SIZE	NEUTRAL SIZE	GROUND SIZE	RACEWAY SIZE	STARTER TYPE	STARTER SIZE	REMARKS
CP-1	CIRCULATION PUMP	04	JANITOR/ UTILITY/ STORAGE	1ALN1	7	120 V/1-10 VA	-	0.1 A	DIRECT	15	20/1	-	1	12	12	12	3/4"	MMS		

- INTERIOR LUMINAIRE SCHEDULE -

TYPE	MANUFACTURER	CATALOG #	ACCESSORIES	VOLTAGE	VA	WATTS	EFFICACY	DELIVERED LUMENS	K TEMP	CRI	NOTES
S01A	FINELITE	HP-4 WL SM 3' B 835 F SC C4		120 V	14	14			3500		
S02	KENNAL	MLHA5 24 R * PP 25L35 DCC 1 120		120 V	25	25			3500		
S03	COLUMBIA	LCL 435 LW E U		120 V	19	19			3500		MOUNT FIXTURE AT 7'-0" AFF. COORDINATE EXACT LOCATION WITH MECHANICAL TO AVOID CONFLICT

- EXTERIOR LUMINAIRE SCHEDULE -

TYPE	MANUFACTURER	CATALOG #	ACCESSORIES	VOLTAGE	VA	WATTS	EFFICACY	DELIVERED LUMENS	K TEMP	CRI	DISTRIBUTION TYPE	NOTES
Z01	NERI	SU-312L-06-3-P6-02 (A SO-UL-312-LED-NLG-06-4000K-4500LM		120 V	26	0			4000	70+	V	PROVIDE CUSTOM POLE 1307.701 WITH AGL FLANGE HAND HOLE AND CUSTOM G-N EXISTING.
Z02	FINELITE	HP-4 WL SM 3' S 835 F SC C4		120 V	41	41			3500			

City of Kirkland
Approved Revision
Reviewed by J Tumelson
08/02/2019

berger PARTNERSHIP
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206 325 6877 berger@partnership.com

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P 206 441 4522

Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

MARK ADRIAN MCALLISTER STATE OF WASHINGTON 34258 REGISTERED PROFESSIONAL ENGINEER

SET TYPE
100% Design Submittal

SET ISSUE DATE
2/8/2019

REVISIONS

Δ	DESCRIPTION	DATE
1	Permit Response	06/10/19

DRAWN/CHECKED
LAI / MAM

SHEET NAME
ONE-LINE DIAGRAM AND SCHEDULES

SHEET NUMBER
E301

ENR19-01119
Revised Sheet
Page 2 of 2

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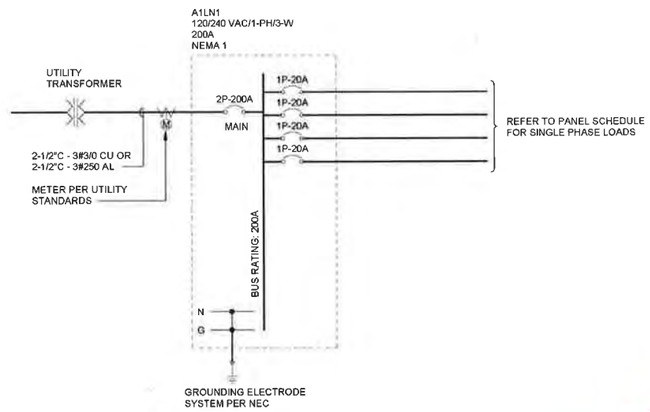
SUPERSEDED



1 ONE-LINE DIAGRAM
Scale:

PANEL: 1ALN1

LOCATION: JANITOR/ UTILITY/_	VOLTS: 120/240 SINGLE	INTEGRAL SPD: No	SCCR RATING: 10000
SUPPLY:	PHASES 1	ISO GND BAR: No	MAINS TYPE: MCB
MOUNTING: Surface	WIRES: 3	FEED-THRU LUGS: No	MAINS RATING: 200 A
ENCLOSURE: Type 1	BUS RATING: 200	WIREWAY TO FLR: Yes	

CCT	LOAD NAME	CCT NOTE	TRIP	POLE	A		B		POLE	TRIP	CCT NOTE	LOAD NAME	CCT
1	REC EXTERIOR SOUTH		20	1	180	1500			1	20		NCONT RESTROOM I 01	2
3	REC EXTERIOR NORTH		20	1			180	1500	1	20		NCONT RESTROOM III 03	4
5	REC EXTERIOR WEST		20	1	180	210			1	20		LTG Room 03, 04, 02, 01	6
7	JANITOR/ UTILITY/ STORAGE 04 ,REC		15	1			550	173	1	20		LTG EXTERIOR	8
9	NCONT JANITOR/ UTILITY/ STORAGE 04		20	1	100	156			1	20		LTG STREET	10
11	Other RESTROOM III 03 UH-1		20	1			840	250	1	20		LCP1,LCP2	12
13	Other RESTROOM I 01 UH-2		20	1	1128	0			1	20		--	14
15	Other RESTROOM II 02 UH-3		20	1			1128	0	1	20		--	16
17	Other JANITOR/ UTILITY/ STORAGE 04		20	2	1000	0			1	20		--	18
19	UH-4						1000	0	1	20		--	20
21	Other JANITOR/ UTILITY/ STORAGE 04		20	2	1500	0			1	20		--	22
23	WH-1						1500	0	1	20		--	24
25	Motor JANITOR/ UTILITY/ STORAGE 04		20	2	173	0			1	20		--	26
27	ERV-1						173	0	1	20		--	28
29	NCONT RESTROOM II 02		20	1	1500	0			1	20		--	30
31	--		20	1			0	0	1	20		--	32
33	--		20	1	0	0			1	20		--	34
35	--		20	1			0	0	1	20		--	36
37	--		20	1	0	0			1	20		--	38
39	--		20	1			0	0	1	20		--	40
41	--		20	1	0	0			1	20		--	42

SPECIAL PANEL FEATURES:	CONN LOAD:	7626 VA	7293 VA	CIRCUITING NOTES:
A. SERVICE ENTRANCE RATED	DMND LOAD:	[illegible]86 VA	7733 VA	1.
B.	DMND AMPS:	[illegible]7 A	64 A	2.
C.				3.
D.				4.

LOAD CLASSIFICATION	CONNECTED	DEMAND	DEMAND LOAD
LTG	538 VA	125.00%	673 VA
Motor	334[illegible] VA	122.42%	4096 VA
Other	[illegible]5 VA	100.00%	5105 VA
REC	[illegible]80 VA	100.00%	1080 VA
NCONT	4600 VA	100.0[illegible]%	4600 VA
TOTALS	14669 VA	106.03%	15553 VA

PANEL TOTALS	
EXG DEMAND CURRENT @ 125%:	
TOTAL NEW CONNECTED LOAD:	14669 VA
TOTAL NEW DEMAND LOAD:	15553 VA
TOTAL NEW CONN CURRENT:	61.12 A
TOTAL NEW DEMAND CURRENT:	64.81 A
TOTAL EXG + NEW CURRENT:	**65 A**
UNBALANCED CURRENT:	3 A

- MECHANICAL ENERGY RECOVERY VENTILATOR SCHEDULE -

ID	DESCRIPTION	ROOM		PANEL	CIRCUIT #	ELECT DATA	MOTOR		CONNECTION TYPE	CB SIZE	DISC SIZE	FUSE SIZE	# PHASE WIRES	PHASE SIZE	NEUTRAL SIZE	GROUND SIZE	RACEWAY SIZE	STARTER TYPE	STARTER SIZE	REMARKS
		#	NAME				HP	FLA												
ERV-1	ENERGY RECOVERY VENTILATOR	04	JANITOR/ UTILITY/ STORAGE	1ALN1	25,27	[illegible]/2-346 VA	1/2	1.4 A	DIRECT	20	30/2	2	2	12	-	12	3/4"	FVNR	1	PROVIDE CONTROL WIRING FROM ENERGY RECOVERY VENTILATOR TO INTERFACE RELAY AS SHOWN ON THE ENLARGED POWER PLAN. SEE MECHANICAL PLANS FOR EXACT LOCATION OF EXHAUST/ RETURN AIR DAMPERS INTERLOCK ON/OFF CONTROLS FOR ENERGY RECOVERY VENTILATOR WITH MOTORIZED DAMPERS FOR EACH DUCT CONFIRM CONTROL VOLTAGE WITH UNIT MANUFACTURER AND PROVIDE CURRENT TRANSFORMERS AS NECESSARY TO COMPLETE INSTALLATION

- MECHANICAL ELECTRIC UNIT HEATER SCHEDULE -

ID	DESCRIPTION	ROOM		PANEL	CIRCUIT #	ELECT DATA	MOTOR		CONNECTION TYPE	CB SIZE	DISC SIZE	FUSE SIZE	# PHASE WIRES	PHASE SIZE	NEUTRAL SIZE	GROUND SIZE	RACEWAY SIZE	STARTER TYPE	STARTER SIZE	REMARKS
		#	NAME				HP	FLA												
UH-1	ELECTRIC UNIT HEATER	03	RESTROOM III	1ALN1	11	12[illegible]-840 VA	-	7.0 A	DIRECT	20	30/1	-	1	12	12	12	3/4"	MMS	-	
UH-2	ELECTRIC UNIT HEATER	01	RESTROOM I	1ALN1	13	[illegible]0 V/1-1128 VA	-	9.4 A	DIRECT	20	30/1	-	1	12	12	12	3/4"	MMS	-	
UH-3	ELECTRIC UNIT HEATER	02	RESTROOM II	1ALN1	15	120 V/1-1128 VA	-	9.4 A	DIRECT	20	30/1	-	1	12	12	12	3/4"	MMS	-	
UH-4	ELECTRIC UNIT HEATER	04	JANITOR/ UTILITY/ STORAGE	1ALN1	17,19	240 V/2-1999 VA	-	8.3 A	DIRECT	20	30/2	-	2	12	-	12	3/4"	MMS	-	

- MECHANICAL ELECTRIC WATER HEATER SCHEDULE -

ID	DESCRIPTION	ROOM		PANEL	CIRCUIT #	ELECT DATA	MOTOR		CONNECTION TYPE	CB SIZE	DISC SIZE	FUSE SIZE	# PHASE WIRES	PHASE SIZE	NEUTRAL SIZE	GROUND SIZE	RACEWAY SIZE	STARTER TYPE	STARTER SIZE	REMARKS
		#	NAME				HP	FLA												
WH-1	ELECTRIC WATER HEATER	04	JANITOR/ UTILITY/ STORAGE	1ALN1	21,23	240 V/2-3000 VA	-	12.5 A	DIRECT	20	30/2	-	2	12	-	12	3/4"	-	-	

- MECHANICAL PUMP SCHEDULE -

ID	DESCRIPTION	ROOM		PANEL	CIRCUIT #	ELECT DATA	MOTOR		CONNECTION TYPE	CB SIZE	DISC SIZE	FUSE SIZE	# PHASE WIRES	PHASE SIZE	NEUTRAL SIZE	GROUND SIZE	RACEWAY SIZE	STARTER TYPE	STARTER SIZE	REMARKS
		#	NAME				HP	FLA												
CP-1	CIRCULATION PUMP	04	JANITOR/ UTILITY/ STORAGE	1ALN1	7	120 V/1-10 VA	-	0.1 A	DIRECT	15	20/1	-	1	12	12	12	3/4"	MMS	-	

- INTERIOR LUMINAIRE SCHEDULE -

TYPE	MANUFACTURER	CATALOG #	ACCESSORIES	VOLTAGE	VA	WATTS	EFFICACY	DELIVERED LUMENS	K TEMP	CRI	NOTES
S01A	FINELITE	HP-4 WL SM 3' B 835 F SC C4		120 V	14	14			3500		
S02	KENNAL	MLHA5 24 R * PP 25L35 DCC 1 120		120 V	25	25			3500		
S03	COLUMBIA	LCL 435 LW E U		120 V	19	19			3500		MOUNT FIXTURE AT 7'-0" AFF. CORRDINATE EXACT LOCATION WITH MECHANICAL TO AVOID CONFLICT

- EXTERIOR LUMINAIRE SCHEDULE -

TYPE	MANUFACTURER	CATALOG #	ACCESSORIES	VOLTAGE	VA	WATTS	EFFICACY	DELIVERED LUMENS	K TEMP	CRI	DISTRIBUTION TYPE	NOTES
Z01	NERI	SU-313L-06-3-P2-02 W/322L CUSTOM LENS		120 V	26	0			3500	70+	V	
Z02	FINELITE	HP-4 WL SM 3' S 835 F SC C4		120 V	11	11			3500			

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Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

MARK ADRIAN MCMICHAEL
34258
Mark

SET TYPE
100% Design Submittal

SET ISSUE DATE
2/8/2019

REVISIONS
Δ	DESCRIPTION	DATE

DRAWN/CHECKED
LAI / MAM

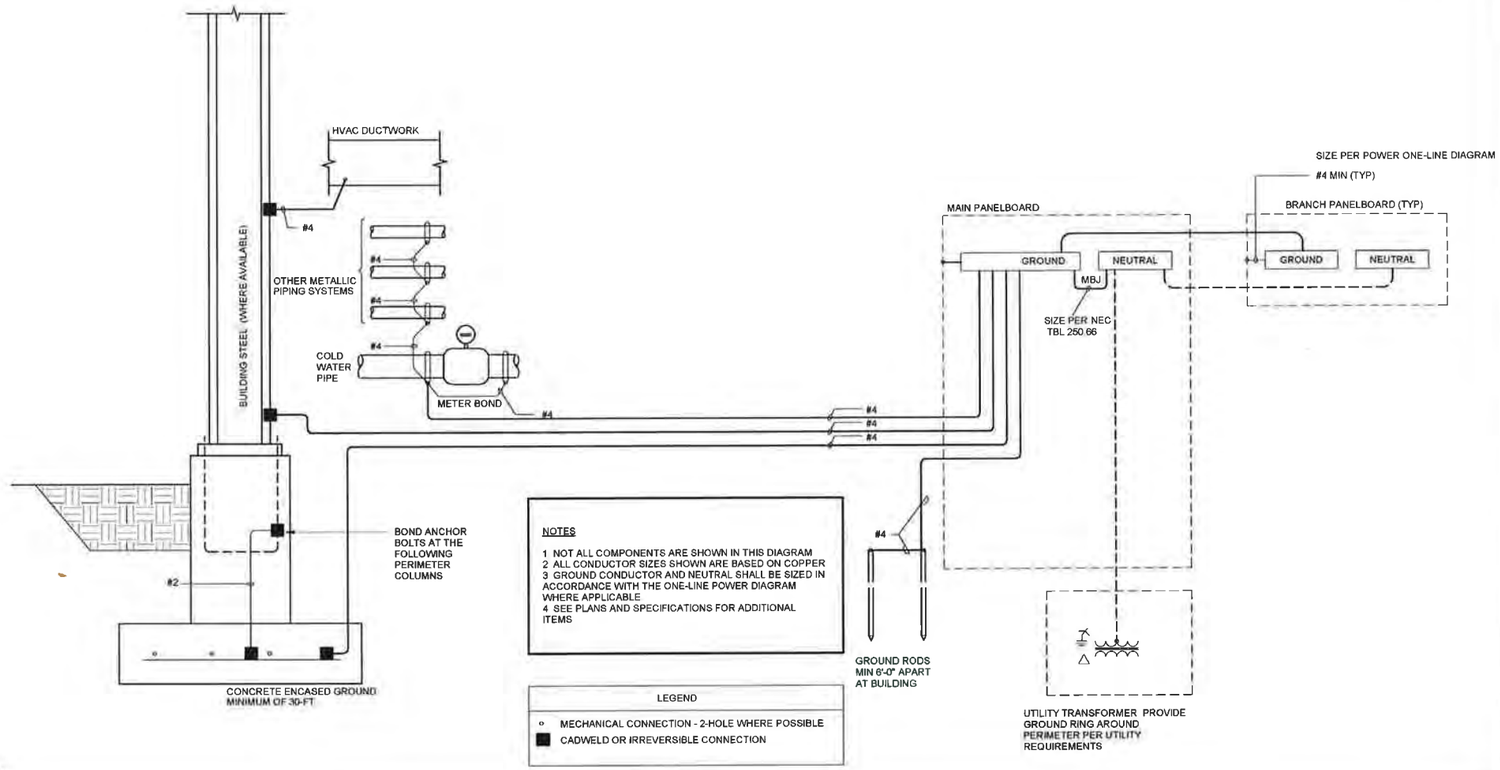
SHEET NAME
ONE-LINE [illegible]
AND SCHEDULES

City of Kirkland
Reviewed by
J Tumelson
03/20/2019

SHEET NUMBER
E301

Plotted 2/6/2019 4:12:59 PM Filename D:_Revit\Totem Lake Park-PH1_ELEC_iiverson.rvt

Berger Partnership Project Number



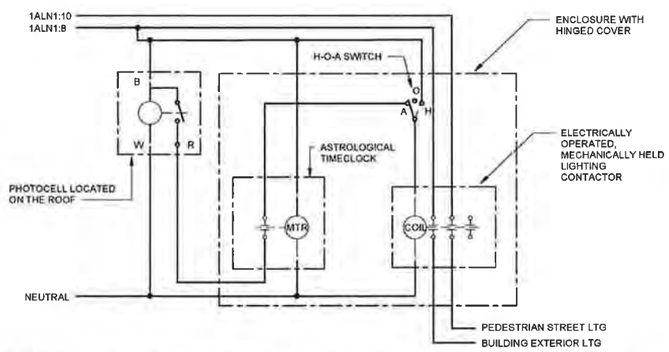
NOTES

1 NOT ALL COMPONENTS ARE SHOWN IN THIS DIAGRAM
2 ALL CONDUCTOR SIZES SHOWN ARE BASED ON COPPER
3 GROUND CONDUCTOR AND NEUTRAL SHALL BE SIZED IN ACCORDANCE WITH THE ONE-LINE POWER DIAGRAM WHERE APPLICABLE
4 SEE PLANS AND SPECIFICATIONS FOR ADDITIONAL ITEMS

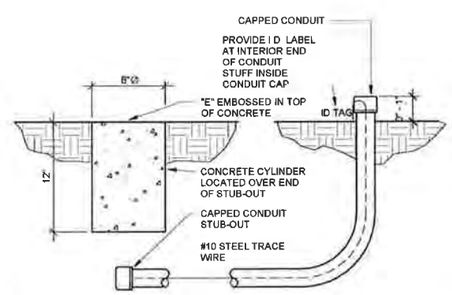
LEGEND

- MECHANICAL CONNECTION - 2-HOLE WHERE POSSIBLE
- CADWELD OR IRREVERSIBLE CONNECTION

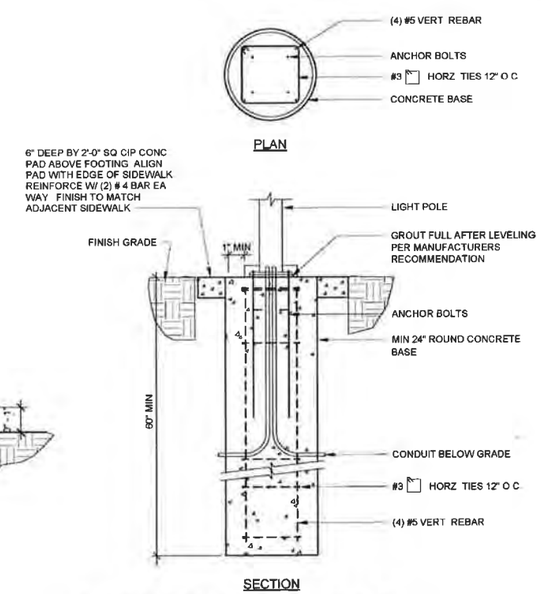
1 GROUNDING DIAGRAM
Scale: NTS



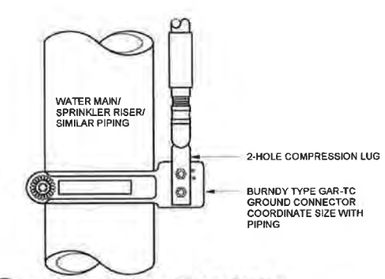
5 EXTERIOR LIGHTING CONTROL DIAGRAM
Scale: NTS



4 STUB-OUT LOCATOR
Scale: NTS



3 POLE BASE DETAIL - STYLE A
Scale: NTS



2 WATER PIPE CONNECTION
Scale: NTS

PARTNERSHIP berger
1927 Post Alley, Ste 2
Seattle, WA 98101
206.325.6877
bergerpartnership.com

NAC ENGINEERING
nacarchitecture.com
2025 FIRST AVE | SUITE 300
SEATTLE WA 98121
P:206.441.4522

Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

MARK ADRIAN MCALLISTER
STATE OF WASHINGTON
34258
REGISTERED PROFESSIONAL ENGINEER

SET TYPE
100% Design Submittal

SET ISSUE DATE:
2/8/2019

REVISIONS

Δ	DESCRIPTION	DATE

DRAWN/CHECKED
LAI / MAM

SHEET NAME:
DETAILS

City of Kirkland
Reviewed by
J Tumelson
03/20/2019

SHEET NUMBER
ED100

Plotted: 2/8/2019 4:12:39 PM Filename: D:_Revit\Totem Lake Park-PH1_ELEC_jiverson.rvt
Design Partnership Project Number

MECHANICAL PERMIT

City of Kirkland

Mechanical Permit

City of Kirkland
123 Fifth Avenue
Kirkland WA 98033
425-587-3600

Permit Number: MNR19-01208
Type: Mechanical Non Residential - MNR
Work Class: New Structure

MNR19-01208

Permit Information

Job Address:	**Project:**	TOTEM LAKE PARK	**Application Date:**	02/20/2019
12031 NE TOTEM LAKE WAY Kirkland, WA 98034	**Parcel:**	6928400032	**Issue Date:**	09/04/2019
	Valuation:	$19,000.00	**Expiration Date:**	09/04/2020
	Dwelling Units:		**Code Edition:**	2015 IMC

Scope of Work

Totem Lake Park Restroom: Install mechanical equipment related to new restroom (BNR19-01207).

Contacts

Type	Name	Address	Phone
Owner	CITY OF KIRKLAND	123 5TH AVE KIRKLAND, WA 98033	B: C:
Project Contact	BRIAN BAKER	123 FIFTH AVE KIRKLAND, WA 98033	B: 4255873874 C:
Applicant	BRIAN BAKER	123 FIFTH AVE KIRKLAND, WA 98033	B: 4255873874 C:
Owner is Contractor	OWNER IS CONTRACTOR		B: C:

Request an inspection before 6 p.m. for next business day. Requests made after 6 p.m. will be scheduled on the second business day following the request.

How to request an inspection:

1) Go to **http://mybuildingpermit.com**
2) Select Kirkland as the Jurisdiction.
3) Locate the permit using the permit # or property address
4) Follow the on-screen instructions to complete the inspection request.

REQUIRED INSPECTIONS

	ID	Date	Inspector
1. MEC - Other	301		
2. MEC - Fuel Gas Piping	310		
3. MEC - Ceiling Cover	314		
4. MEC - Wall Cover	316		
5. MEC - HVAC Piping (Hydronic/Chilled/Refrigerant)	318		
6. MEC - Hydronic Tubing	319		
7. MEC - Rough Mechanical	320		
8. MEC - Fire/Smoke Dampers	340		
9. MEC - Duct Seal	341		
10. MEC - Duct Insulation	342		
11. MEC - Final	395		

12031 NE TOTEM LAKE WAY

Signature

See conditions on the back of this permit.

This permit and any accompanying plans must remain on the job site for use by City inspection personnel.
Any sales tax reported to the State in association with this project should be coded to the City of Kirkland tax location code 1716.
I certify that the information furnished by me is true and correct to the best of my knowledge and the applicable City of Kirkland requirements will be met.

☐ Owner or ☐ Agent
(Check one)

(Print Name)

Date

(Signature)

City of Kirkland
123 Fifth Avenue
Kirkland WA 98033
425-587-3600

Permit Number: MNR19-01208
Type: Mechanical Non Residential - MNR
Work Class: New Structure

General Conditions

1. The issuance of this permit shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of this code or of any other ordinances of the jurisdiction.
2. The approved plans shall not be changed, modified, or altered without authorization from the building official.
3. This permit, inspection record and approved plans are required to be on the job site at all times.
4. All development activity and heavy equipment operation is restricted to 7:00 a.m. to 8:00 p.m., Monday through Friday, and 9:00 a.m. to 6:00 on Saturdays. No development activity or heavy equipment operation may occur on Sundays or holidays observed by the City.
5. All work is subject to field inspection. Do not cover any work until approved by a City inspector.
6. Inspection(s) required - Go to **http://mybuildingpermit.com** Select Kirkland as the Jurisdiction and Locate the permit by selecting Permit # or Property Address. Follow the on-screen instructions to complete the inspection request.
7. Contact the Building Division at 425-587-3600 with any questions.

Inspector's Comments

City of Kirkland
123 5th Avenue
Kirkland, WA 98033
425-587-3600

SPECIFIC PERMIT CONDITIONS

BUILDING ADDRESS	PERMIT NUMBER	PERMIT TYPE	WORK CLASS	DATE PRINTED
12031 NE TOTEM LAKE WAY	MNR19-01208	Mechanical Non Residential - MNR	New Structure	5/31/2019

DESCRIPTION OF WORK:
Totem Lake Park Restroom: Install mechanical equipment related to new restroom (BNR19-01207).

Building Department Conditions:

Inspections Required:
1. Rough Mechanical
2. Final Mechanical and Balancing Report

City of Kirkland
Totem Lake Park Phase 1

PKC1390200
JOB NO. 00-00-PW
100% DESIGN SUBMITTAL
February 08, 2019

City of Kirkland
Reviewed by B Braun
08/08/2019

Sheet Index

Sheet Number	Sheet Name	Designed By	Building Permit (Restroom)	Building Permit (Boardwalk)	LSM Permit	Electrical Permit	Plumbing Permit	PSE Permit	NUD Permit
G000	COVER	Landscape	•	•	•	•	•	•	•
G001	LANDSCAPE GENERAL NOTES & SCHEDULES	Landscape			•				
G002	PROJECT LIMITS - OVERALL	Landscape							
G003	PROJECT LIMITS - BOARDWALK	Landscape							
G004	DEDUCTIVE ALTERNATE PLAN	Landscape			•				
ET101	EXISTING TREE PLAN - PARK	Landscape			•				
ET102	EXISTING TREE PLAN - TRAIL	Landscape			•				
ET103	EXISTING TREE PLAN - BOARDWALK	Landscape		•	•				
C001	CIVIL GENERAL NOTES	Civil			•				
C002	CIVIL GENERAL NOTES	Civil			•	•			
C101	SITE PREPARATION PLAN - PARK	Civil			•				•
C102	SITE PREPARATION PLAN - TRAIL	Civil			•				
C103	SITE PREPARATION PLAN - BOARDWALK	Civil		•	•				
BD100	BUILDING DEMOLITION	Architect	•		•				
C201	CESC PLAN - PARK	Civil			•				
C202	CESC PLAN - TRAIL	Civil			•				
C203	CESC PLAN - BOARDWALK	Civil		•	•				
C301	UTILITY PLAN - PARK	Civil	•		•		•		•
C401	DRAINAGE PLAN - PARK	Civil			•				
C402	DRAINAGE PLAN - PARK	Civil			•				
CD101	DRAINAGE DETAILS - PARK	Civil			•				
CD102	CIVIL PAVING DETAILS	Civil			•				
CD103	DRAINAGE SECTIONS - PARK	Civil			•				
CG101	GRADING & PAVING PLAN - PARK	Civil	•		•				
CG102	GRADING & PAVING PLAN - TRAIL	Civil	•		•				
CG103	GRADING & PAVING PLAN - BOARDWALK	Civil		•	•				
CG201	GRADING PLAN - PARK - ENLARGEMENT	Civil			•				
L101	SITE PLAN - PARK	Landscape			•				
L102	SITE PLAN - TRAIL	Landscape			•				
L103	SITE PLAN - BOARDWALK	Landscape		•					
L200	BOARDWALK ELEVATIONS	Landscape		•					
L201	BOARDWALK ELEVATIONS	Landscape		•					
L202	PARK ELEVATIONS	Landscape			•				
L400	PLAY AREA ENLARGEMENTS	Landscape			•				
L401	LANDSCAPE ENLARGEMENTS	Landscape			•				
L402	PLAY AREA ENLARGEMENTS	Landscape			•				
L403	PAVING JOINTING & PATTERN DETAIL PLAN	Landscape			•				
LD101	LANDSCAPE PAVING DETAILS	Landscape			•				
LD102	PLAY AREA DETAILS	Landscape			•				
LD103	STAIR & RAILING DETAILS	Landscape		•					
LD104	WALL & FENCE DETAILS	Landscape		•					
LD105	TRAIL TYPICAL DETAIL	Landscape		•	•				
LD106	OVERLOOK DETAILS	Landscape			•				
LD107	GEOTECHNICAL WALL DETAIL	Geotechnical			•				
LD200	METAL GUARDRAIL DETAILS	Landscape		•					
LD201	METAL GUARDRAIL DETAILS	Landscape		•					
LD202	METAL GUARDRAIL DETAILS	Landscape		•					
LD203	METAL GUARDRAIL @ BOARDWALK OVERLOOK	Landscape		•					
SS001	GENERAL STRUCTURAL NOTES	Site Structural	•	•					
SS002	GENERAL STRUCTURAL NOTES	Site Structural	•	•					
SS003	STATEMENT OF SPECIAL INSPECTIONS	Site Structural	•	•					
SS100	STRUCTURAL SHEET LAYOUT	Site Structural	•	•					
SS101	PARK PLAN	Site Structural	•						
SS102	TRAIL PLAN	Site Structural		•					

Sheet Index

Sheet Number	Sheet Name	Designed By	Building Permit (Restroom)	Building Permit (Boardwalk)	LSM Permit	Electrical Permit	Plumbing Permit	PSE Permit	NUD Permit
SS103	BOARDWALK PLAN	Site Structural		•					
SSD101	DETAILS	Site Structural		•					
SSD102	DETAILS	Site Structural		•					
S001	STRUCTURAL NOTES	Building Structural	•						
S002	STRUCTURAL NOTES	Building Structural	•						
S003	STRUCTURAL NOTES	Building Structural	•						
S101	FOUNDATION PLAN	Building Structural	•						
S201	ROOF FRAMING PLAN	Building Structural	•						
SD100	DETAILS	Building Structural	•						
SD101	DETAILS	Building Structural	•						
SD102	DETAILS	Building Structural	•						
A000	ABBREVIATIONS & SYMBOLS	Architect	•						
A001	SCHEDULES, DOOR & FRAME TYPES	Architect	•						
A100	SLAB/CURB PLAN	Architect	•						
A101	BUILDING PLAN	Architect	•						
A102	UPPER WALL PLAN	Architect	•						
A103	ROOF PLAN	Architect	•						
A301	REFLECTED CEILING PLAN	Architect	•			•			
A401	EXTERIOR ELEVATIONS I	Architect	•						
A402	EXTERIOR ELEVATIONS II	Architect	•						
A403	PERSPECTIVES	Architect	•						
AD100	ENLARGED PLANS	Architect	•				•		
AD101	INTERIOR ELEVATIONS	Architect	•				•		
AD102	BUILDING SECTION I	Architect	•				•		
AD103	BUILDING SECTION II	Architect	•				•		
AD104	SLOPED COLUMNS SECTIONS	Architect	•						
AD105	WALL SECTIONS	Architect	•						
AD106	WALL DETAILS	Architect	•						
M001	MECHANICAL GENERAL INFORMATION	Mechanical	•			•	•		
M002	SCHEDULES	Mechanical	•			•	•		
M101	BUILDING MECHANICAL PLANS	Mechanical	•			•	•		
M201	PLUMBING DIAGRAM	Mechanical	•				•		
M301	SECTIONS AND ELEVATIONS	Mechanical	•				•		
MD101	DETAILS	Mechanical	•						
E001	SYMBOLS LIST & ABBREVIATIONS	Electrical	•			•		•	
E002	WSEC COMPLIANCE FORMS	Electrical	•			•		•	
E003	WSEC COMPLIANCE FORMS	Electrical	•			•		•	
E004	WSEC COMPLIANCE FORMS	Electrical	•			•		•	
E101	ELECTRICAL SITE PLAN	Electrical	•			•		•	
E201	ENLARGED BUILDING PLANS	Electrical	•			•		•	
E301	ONE-LINE DIAGRAM AND SCHEDULES	Electrical	•			•		•	
ED100	DETAILS	Electrical	•			•		•	
IR001	IRRIGATION NOTES & SCHEDULE	Irrigation			•				
IR101	IRRIGATION PLAN - PARK	Irrigation			•				
ID100	IRRIGATION DETAILS	Irrigation			•				
ID101	IRRIGATION DETAILS	Irrigation			•				
LP101	PLANTING PLAN - PARK	Landscape			•				
LP102	PLANTING PLAN - TRAIL	Landscape			•				
LP103	PLANTING PLAN - BOARDWALK	Landscape			•				
LD300	PLANTING DETAILS	Landscape			•				
LD301	PLANTING DETAILS	Landscape			•				

Grand total: 105

Mechanical work ONLY this permit.

NOTICE

HOURS OF WORK: 7AM TO 8PM MON-FRI
9AM TO 6PM SAT. NO WORK SUNDAYS & HOLIDAYS (PER kzc SEC. 115.25)
Exceptions must be approved in writing by Planning Official

MUST REMAIN ON JOB SITE

Team Contact Info

Prime Consultant:

Berger Partnership - Landscape Architecture
Primary: Matt Martenson
Phone: 206-492-5560
Email: mattm@bergerpartnership.com
Secondary: Andy Mitton
Phone: 206-492-5562
Email: andym@bergerpartnership.com

Subconsultant Team

CH2M Hill - Civil Engineering
Primary:Jesse Williams
Email: jesse.williams@ch2m.com

Swenson Say Faget - Structural Engineering
Primary: Gregory Juttner
Email: gjuttner@ssfengineers.com

ESA - Environmental
Primary: Jessica Redman
Email: jredman@esassoc.com

KPFF - Survey
Primary: Jereme Chapman
Email: jereme.chapman@kpff.com

Symbiosis Tree Care: Arborist
Primary: Kurt Fickeisen
Email: kurtfick@gmail.com

Enginuity Systems - Spray Park Mechanical:
Primary: Jesse Harksdale
Email: jesse@enginuitysys.com

ORB Architects: Architecture
Primary: Geoff Anderson
Email: ganderson@innovaarchitects.com

NAC Architecture: Electrical Engineering
Primary: Mark McMicheal
Email: mmcmicheal@nacarchitecture.com

Design 2426: Irrigation
Primary: Jason Anderson
Email: jasona@design2426.com

Vicinity Map

Applicable Codes:

Compliance with the following codes shall be required:

Accessibility	2010 Americans with Disabilities (ADA) Standards for Accessible Design
Building	2015 International Building Code (IBC)
Electrical	2017 National Electrical Code
Energy Efficiency	2015 Washington State Energy Code (WSEC)
Fire	2015 International Fire Code with Washington Amendments
Mechanical	2015 International Mechanical Code (IMC)
Plumbing	2015 Uniform Plumbing Code

Drawing Set Printing and Reproduction Notes/Req's:

1. DRAWING SET SHEET SIZE IS 22" X 34".
2. DRAWING SET UTILIZES COLORED INFORMATION AND SHALL BE PRINTED AND REPRODUCED IN COLOR.

City/Owner Contact Info

City of Kirkland:
Project Manager: Brian Baker
Phone: 425-587-3874
Email: bbaker@kirklandwa.gov

MNR19-01208

berger PARTNERSHIP
1927 Post Alley, Ste. 2
Seattle, WA 98101
206 325 6
bergerpar

Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

STATE OF WASHINGTON
ANDY MITTON
LANDSCAPE ARCHITECT
NO. 882 EXP. 6/30/2020

SET TYPE
100% Design Submittal

SET ISSUE DATE
02/08/2019

REVISIONS

Δ	DESCRIPTION	DATE

DRAWN/CHECKED
MM / AM

SHEET NAME
COVER

SHEET NUMBER
G000

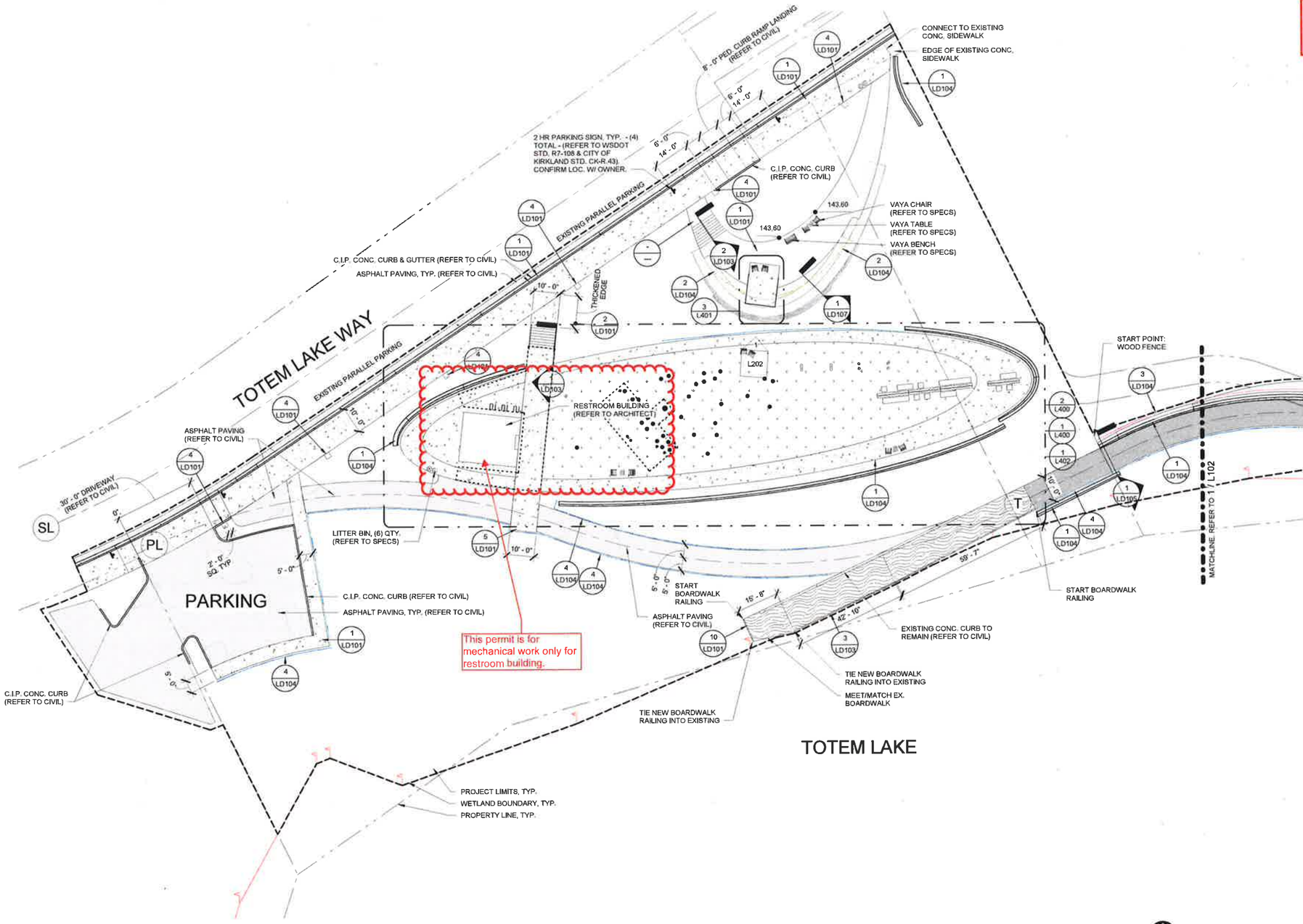
Berger Partnership Project Number: 20154875.02
Plotted: 2/11/2019 1:03:19 AM
Filename: C:\Users\mattm\Documents\Totem Lake Park-PH1_mattm@bergerpartnership.com.rvt

City of Kirkland
Reviewed by R Braun
08/08/2019

SITE LEGEND

- CONCRETE PAVING
- CONCRETE PAVING ON STRUCTURE
- CRUSHED ROCK PAVING
- SYNTHETIC TURF
- SYNTHETIC TURF ON STRUCTURE
- ASPHALT PAVING (REFER TO CIVIL)
- WOOD BOARDWALK DECKING @ EX. BOARDWALK
- PULTRUDED GRATING BOARDWALK
- STEEL BAR GRATING BOARDWALK
- PROJECT LIMITS
- EXTENT OF PILE SUPPORTED SLAB (REFER TO STRUCTURAL)
- PLAY EQUIPMENT POST TO STRUCTURAL PILE CONNECTION (REFER TO STRUCTURAL)
- CONCRETE PAVING THICKENED EDGE
- WOOD SPLIT RAIL FENCE
- WOOD FENCE
- BIKE RACK
- LITTER RECEPTACLE
- VAYA BENCH
- VAYA CHAIR
- VAYA TABLE
- CHAIN LINK FENCE
- FILTREXX WALL
- ROCKERY WALL BACKFILL MATERIAL
- ROCKERY WALL
- WETLAND BOUNDARY

ALIGNMENT SCHEDULE	
Name	Alignment Description
BL	BOARDWALK LAYOUT CENTERLINE
PL	PARK PATHWAY CENTERLINE
SL	STREET CENTERLINE
TL	TRAIL EDGE LINE
T	TRAIL CENTERLINE



1 SITE PLAN - PARK
1" = 20'-0"

NORTH

0 20' 40'
SCALE: 1"=20'-0"

bergpartnership
1927 Post Alley, Ste. 2
Seattle, WA 98101
206.325.68
bergpartnership

Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

STATE OF WASHINGTON
ANDY MITTON
NO. 882 EXP. 6/30/2020
LANDSCAPE ARCHITECT

SET TYPE
100% Design Submittal

SET ISSUE DATE:
02/08/2019

REVISIONS

Δ	DESCRIPTION	DATE

DRAWN/CHECKED
MM / AM

SHEET NAME
SITE PLAN - PARK

SHEET NUMBER
L101

Berger Partnership Project Number: 2015487.02 Plotted: 2/8/2019 7:59:10 AM Filename: C:\Users\mmitton\Documents\Totem Lake Park-PH1_mitton@bergpartnership.com.rvt

ABBREVIATIONS

&	AND
@	AT
∠	ANGLE
AB	ANCHOR BOLT
AC	ACOUSTIC
A/C	AIR CONDITIONING
ACB	ACOUSTICAL CEILING BOARD
ACC	ACCESSIBLE
ACM	ASBESTOS CONTAINING MATERIAL
ACOUS	ACOUSTICAL
ACP	ACOUSTICAL CEILING PANEL
ACT	ACOUSTICAL CEILING TILE
ACU	AIR CONDITIONING UNIT
AD	AREA DRAIN, ACCESS DOOR
ADD	ADDENDUM, ADDITIVE
ADDL	ADDITIONAL
ADJ	ADJACENT, ADJUSTABLE
AF	ACCESS FLOOR
AFC	ACOUSTICAL FABRIC COVER
AFF	ABOVE FINISH FLOOR
AFG	ABOVE FINISH GRADE
AGG	AGGREGATE
ALUM	ALUMINUM
ALT	ALTERNATE
ANOD	ANODIZED
AP	ACCESS PANEL
APC	ACOUSTICAL PANEL CEILING
APPD	APPROVED
APPROX	APPROXIMATE (LY)
APT	APARTMENT UNIT
ARCH	ARCHITECTURE (URAL)
ASPH	ASPHALT
AVE	AVENUE
AWF	ACOUSTICAL WALL FABRIC
AWP	ACOUSTICAL WALL PANEL
B	BATH
BBQ	BARBEQUE
BD	BOARD
BF	BOTH FACES
BIT	BITUMEN
BITUM	BITUMINOUS
BLDG	BUILDING
BLK(G)	BLOCK (ING)
BM	BEAM, BENCH MARK
BO	BOTTOM OF
BOT	BOTTOM
BOW	BOTTOM OF WALL
BR	BRICK, BEDROOM
BRG	BEARING
BS	BACKSPLASH
BSMT	BASEMENT
BTWN	BETWEEN
BUR	BUILT-UP ROOFING
℄	CENTERLINE
CAB	CABINET, CEMENT ASBESTOS BOARD
CB	CATCH BASIN
CBU	CEMENTIOUS BACKER UNITS
C/C	CENTER TO CENTER
CD	CUP DISPENSER
CEM	CEMENT
CER	CERAMIC
CF	CUBIC FEET
CFCI	CONTRACTOR FINISHED/CONTRACTOR INSTALLED
CFM	CUBIC FEET PER MINUTE
CFT	CONDUCTIVE FLOOR TILE
CG	CORNER GUARD
CHAN	CHANNEL
CHBD	CHALKBOARD
CI	CAST IRON
CIP	CAST IN PLACE
CJ	CONTROL JOINT
CLF	CHAIN LINK FENCE
CLG	CEILING
CLK	CAULKING
CLO	CLOSET
CLR	CLEAR (ANCE)
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS
COORD	COORDINATE
CORR	CORRIDOR
CPT	CARPET (ED)
CRS	COURSE (ES)
CS	CONCRETE SEALER
CT	CERAMIC TILE
CTCS	CERAMIC TILE CORNER SHELF
CTR	COUNTER
CTSD	CERAMIC TILE CORNER DISH
CTSK	COUNTER SINK
CTV	CABLE TELEVISION
CU	CUBIC
CW	COLD WATER
C/W	COMPLETE WITH
CWB	CAPILLARY WATER BARRIER
CY	CUBIC YARD(S)
d	PENNY NAILS
D	DEEP, DEPTH, DRYER
DBL	DOUBLE
DEMO	DEMOLITION, DEMOLISH
DEP	DEPRESSED
DEPT	DEPARTMENT
DET, DTL	DETAIL
DF	DRINKING FOUNTAIN
D FIR	DOUGLAS FIR
DI	DUCTILE IRON, DEIONIZED WATER
DIA, Ø	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DIM PT	DIMENSION POINT
DISP	DISPOSAL
DL	DEAD LOAD
DMPF	DAMPPROOFING
DN	DOWN
DPR	DAMPER
DR	DOOR
DS	DOWNSPOUT
DV	DRYER VENT
DW	DISHWASHER
DWG	DRAWING
E	EAST
EA	EACH
EB	EXPANSION BOLT
EF	EACH FACE, EXHAUST FAN
EFS	EXTERIOR FINISH SYSTEM
EIFS	EXTERIOR INSULATION & FINISH SYSTEM
EJ	EXPANSION JOINT
ELEC	ELECTRIC (AL)
EL	ELEVATION
ELEV	ELEVATOR, ELEVATION
EM	ENTRY MAT
EN	ENAMEL
ENCL	ENCLOSURE
EOS	EDGE OF SLAB
EP	ELECTRICAL PANEL (BOARD)
EPNT	EPOXY PAINT
EPX	EPOXY
EQ	EQUAL, EQUALLY
EQUIP	EQUIPMENT
ES	EACH SIDE
EST	ESTIMATE (ED)
EW	EACH WAY
EWC	ELECTRIC WATER COOLER
EX	EXPANSION
EXC	EXCAVATE
EXH	EXHAUST
EXIST, (E)	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
FA	FIRE ALARM
FBD	FIBERBOARD
FBO	FURNISHED BY OTHERS
FD	FLOOR DRAIN
FDN	FOUNDATION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER & CABINET
F/F	FACE TO FACE
FF	FACTORY FINISH, FINISH FLOOR
FF&E	FURNITURE, FIXTURES & EQUIPMENT
FGL	FIBERGLASS
FH	FIRE HYDRANT
FHC	FIREHOSE CABINET
FIN	FINISH (ED)
FL	FLOOR (ING)
FLUOR	FLUORESCENT
FM	FACTORY MUTUAL
FND	FEMININE NAPKIN DISPOSAL
FNV	FEMININE NAPKIN VENDOR
FO, F/O	FACE OF
FOC	FACE OF CONCRETE OR CMU
FOF	FACE OF FINISH
FOIC	FURNISHED BY OWNER/INSTALLED BY CONTRACTOR
FOIO	FURNISHED BY OWNER/INSTALLED BY OWNER
FOM	FACE OF MASONRY
FOS	FACE OF STUD, FACE OF SLAB
FP	FIREPLACE
FPRF	FIREPROOFING
FPWH	FREEZE PROOF WALL HYDRANT
FR	FIRE-RESISTIVE
FRC	FIBER REINFORCED CONCRETE
FRG	FIBER REINFORCED GYPSUM
FRP	FIBERGLASS REINFORCED PLASTIC
FRT	FIRE RETARDANT TREATED
FS	FLOOR SINK
FT	FOOT, FEET
FTG	FOOTING
FURR	FURRING, FURRED
FUT	FUTURE
FWC	FABRIC WALL COVERING
G	GAS
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GB	GRAB BAR
GC	GENERAL CONTRACTOR
GCMU	GLAZED CONCRETE MASONRY UNIT
GD	GARBAGE DISPOSAL
GFCI	GROUND FAULT CIRCUIT INTERRUPTOR
	GOVERNMENT FURNISHED, CONTRACTOR INSTALLED
GFGI	GOVERNMENT FURNISHED, GOVERNMENT INSTALLED
GFRC	GLASS FIBER REINFORCED CONCRETE
GL	GLASS, GLAZING
GLU-LAM	GLUE-LAMINATED
GND	GROUND
GPM	GALLONS PER MINUTE
GR	GRADE
GRGL	GLARE REDUCING GLASS (GLAZING)
GS	GALVANIZED STEEL
GSB	GYPSUM SHEATHING BOARD, GYPSUM SOFFIT BOARD
GSF	GROSS SQUARE FOOT(AGE)
GSL	GYPSUM SHAFT LINER
GVP	GYPSUM VENEER PLASTER
GWB	GYPSUM WALL BOARD
GYP	GYPSUM
GYP SHTG	GYPSUM SHEATHING
H	HIGH
HB	HOSE BIB
HBGC	HIGH BUILD GLAZE COATING
HC	HANDICAP, HOLLOW CORE
HCT	HOLLOW CLAY TILE
HD	HAND DRYER, HAIR DRYER
HDOL	HIGH DENSITY OVERLAID
HDR	HEADER
HDWD	HARDWOOD
HDWR	HARDWARE
HIWC	HIGH IMPACT WALL COVERING
HM	HOLLOW METAL
HO	HOLD-OPEN
HORIZ	HORIZONTAL
HP	HYDRO POOL
HR	HOUR, HANDRAIL
HRC	HOSE REEL CABINET
HRSF	HIGH RATE SAND FILTER
HT	HEIGHT
HTG	HEATING
HVAC	HEATING/VENTILATION/AIR CONDITIONING
HW	HOT WATER
HWT	HOT WATER TANK
HWD	HOT WATER DISPENSER
ID	INSIDE DIMENSION, INSIDE DIAMETER
IE	INVERT ELEVATION
IG	INSULATED GLASS
IN	INCH
INCL	INCLUDE (D, ING)
INFO	INFORMATION
INSUL	INSULATE(D), (ION)
INT	INTERIOR
INV	INVERT
IPS	IRON PIPE SIZE
JAN	JANITOR
JST	JOIST
JT	JOINT
JB	JUNCTION BOX
K, KIT	KITCHEN
KD	KILN DRIED
KDF	KNOCK DOWN FRAME
KO	KNOCK-OUT
KP	KICKPLATE
KS	KNEE SPACE
L	LONG, LENGTH, LEFT
LAM	LAMINATE
LAV	LAVATORY
LB	LAG BOLT
LBS, #	POUNDS
LF	LINEAL FOOT/FEET
LG	LENGTH, LONG
LH	LEFT HAND
LHR	LEFT HAND REVERSE
LKR	LOCKER
LL	LIVE LOAD
LMS	LIQUID MARKING SURFACE
LPT	LOW POINT
LRH	LIGHT REFLECTIVE HARDNER
LSD	LIQUID SOAP DISPENSER
LT	LIGHT
LTG	LIGHTING
LVR	LOUVER
LWC	LIGHTWEIGHT CONCRETE
MACH	MACHINE
MAS	MASONRY
MAT	MATERIAL
MAX	MAXIMUM
MB	MACHINE BOLT
MC	MEDICINE CABINET
MDF	MEDIUM DENSITY FIBERBOARD
MDO	MEDIUM DENSITY OVERLAY
MECH	MECHANICAL
MEMB	MEMBRANE
MET	METAL
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MTL	METAL
MEZZ	MEZZANINE
MFR	MANUFACTURER
MH	MANHOLE
MIR	MIRROR
MJ	MACHINE JOLT
MLD	MOLDING
MO	MASONRY OPENING
MOD	MODIFIED
MR	MOISTURE RESISTANT
MTD	MOUNTED
MULL	MULLION
MW	MICROWAVE OVEN
N	NORTH
(N)	NEW
N/A	NOT APPLICABLE
NAT	NATURAL
N/C	NONCOMBUSTIBLE
NFS	NON-FROST SUSCEPTIBLE
NFVA	NET FREE VENT AREA
N/C	NOT IN CONTRACT
NO, #	NUMBER
NOM	NOMINAL
NP	NOT PROVIDED
NR	NONRATED
NRC	NOISE REDUCTION COEFFICIENT
NSF	NET SQUARE FEET
NTS	NOT TO SCALE
O	OVER
O/O	OUT TO OUT
OA	OVERALL
OBS	OBSCURE
OC	ON CENTER
OD	OUTSIDE DIMENSION, OVERFLOW DRAIN
OF	OUTSIDE FACE
OFCI	OWNER FURNISHED/CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED/OWNER INSTALLED
OFF	OFFICE
OH	OVERHEAD
ORD	OVERFLOW ROOF DRAIN
OPNG	OPENING
OPP	OPPOSITE
OR	OUTSIDE RADIUS
OS	OUTSIDE
OSB	ORIENTED STRAND BOARD
OTS	OPEN TO STRUCTURE
PL	PROPERTY LINE
P	POWER
PA	PUBLIC ADDRESS
PAR	PARALLEL
PB	PANIC BAR
PBD	PARTICLEBOARD
PC	PRECAST, POINT OF CURVE
PCD	PAPER CUP DISPENSER
PERF	PERFORATED
PERP	PERPENDICULAR
PF	PREFABRICATED
PI	POINT OF INTERSECTION
PJ	PANEL JOINT
PL	PLATE
PLAM	PLASTIC LAMINATE
PLAS	PLASTER
PLYWD	PLYWOOD
PNL	PANEL
PNT	PAINT
POC	POINT OF CONNECTION
POL	POLISHED
POLY	POLYETHYLENE
PP	POWER POLE
PR	PAIR
PRCST	PRECAST
PREFAB	PREFABRICATED
PROP	PROPERTY
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSL	PARALLEL STRAND LUMBER
PT	POINT, PRESSURE TREAT (ED)
PTD	PAPER TOWEL DISPENSER
PTD/WR	PTD & WASTE RECEPTACLE
PTN	PARTITION
PTR	PAPER TOWEL RECEPTACLE
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
PW	POTABLE WATER
PWT	PREFABRICATED WOOD TRUSS
QUAN	QUANTITY
QT	QUARRY TILE
R	RISER, RADIUS, THERMAL RESISTANCE
RA	RETURN AIR
RAD, R	RADIUS
RB	RUBBER BASE, RESILIENT BASE
RD	ROOF DRAIN, ROAD
RDIO	ROOF DRAIN OVERFLOW
REBAR	REINFORCING BAR
REC	RECESSED
RECP	RECEPTACLE
RECT	RECTANGULAR
REF	REFERENCE
REFR	REFRIGERATOR
REG	REGISTER
REINF	REINFORCE (ED, ING)
REQ'D	REQUIRED
REQ'T	REQUIREMENT
RESIL	RESILIENT
RET	RETAINING
REV	REVISION
RFG	ROOFING
RH	RIGHT HAND, RELATIVE HUMIDITY, ROBE HOOK
RHR	RIGHT HAND REVERSE
RL	RAIN LEADER
RM	ROOM
RO	ROUGH OPENING
ROW	RIGHT OF WAY
R&S	ROD & SHELF
R&R	REMOVE & REPLACE
RR	RAILROAD
RS	ROUGH SAWN
RT	RESILIENT TILE
RUB	RUBBER
RV	RANGE VENT
RWL	RAIN WATER LEADER
S	SLOPE, SOUTH
SAN	SANITARY SEWER
SC	SOLID CORE
SCWD	SOLID CORE WOOD
SCD	SEAT COVER DISPENSER
SCHED	SCHEDULE
SCR	SHOWER CURTAIN ROD
SD	SOAP DISPENSER, STORM DRAIN, SMOKE DETECTOR
SECT	SECTION
SF	SQUARE FOOT/FEET
SG	SAFETY GLAZING
SH	SHOWER
SHT	SHEET
SHTG	SHEATHING
SIM	SIMILAR
SK	SINK
SLR	SEALER
SLV	SLEEVE
SM	SHEET METAL, SHOWER MODULE
SMHC	SHOWER MODULE HANDICAPPED
S/MH	SHELF/MOP HOLDER
SMR	SURFACE METAL RACEWAY
SND	SANITARY NAPKIN DISPENSER, SANITARY NAPKIN DISPOSAL
SOG	SLAB ON GRADE
SOV	SHUT OFF VALVE
SP	STANDPIPE, SOLID PLASTIC
SPEC	SPECIFICATION (S)
SQ	SQUARE
SR	SEMI-RECESSED
SS	SANITARY SEWER, STAINLESS STEEL
SSK	SERVICE SINK
SSM	SOLID SURFACE MATERIAL
SST	STAINLESS STEEL
SSV	SAND STAIN VARNISH
ST	STAIN, STONE, STREET
STC	SOUND TRANSMISSION CLASS
STD	STANDARD
STL	STEEL
STOR	STORAGE
STFT	STORE FRONT
STRUCT	STRUCTURAL
SURF	SURFACE
SV	SHEET VINYL
S/V	STAIN & VARNISH
SWL	STATIC WATER LEVEL
SWR	SEWER
SYM	SYMMETRICAL
T, TR	TREAD
TB	TOWEL BAR
T&B	TOP & BOTTOM
TD	TOWEL DISPENSER
TEL	TELEPHONE
TER, TZ	TERRAZZO
TESC	TEMPORARY EROSION & SEDIMENTATION CONTROL
TFCI	TENANT FURNISHED/ CONTRACTOR INSTALLED
T&G	TONGUE & GROOVE
TG	TEMPERED GLASS
THK	THICK (NESS)
TKBD	TACKBOARD
TO	TOP OF
TOB	TOP OF BEAM
TOC	TOP OF CURB, TOP OF CONCRETE, TOP OF COLUMN
TOF	TOP OF FOUNDATION
TOM	TOP OF MASONRY
TOP	TOP OF PAVEMENT, TOP OF PLATE
TOS	TOP OF SLAB
TOW	TOP OF WALL
TPD	TOILET PAPER DISPENSER
TPTN	TOILET PARTITION
TRAN	TRANSPARENT
TS	TUBE STEEL
TTD	TOILET TISSUE DISPENSER
TTH	TOOTHBRUSH HOLDER
TV	TELEVISION
TWC	TEXTILE WALL COVERING
TYP	TYPICAL
UC	UNDERCUT
U/C	UNDER COUNTER
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORIES
UNF	UNFINISHED
UNO	UNLESS NOTED OTHERWISE
UR	URINAL
UV	ULTRA VOILET
UFAS	UNIFORM FEDERAL ACCESSIBILITY STANDARDS
V	VENT
VAR	VARIES
VAT	VINYL ASBESTOS TILE
VCT	VINYL COMPOSITION TILE
VENT	VENTILATOR
VERT	VERTICAL
VEST	VESTIBULE
VG	VERTICAL GRAIN
VIN	VINYL
VR	VAPOR RETARDER
VTR	VENT THROUGH ROOF
VWC	VINYL WALL COVERING
W	WATER, WEST, WIDE, WIDTH, WASHER
W/	WITH
WB	WALL BASE, WASTE BASKET
WC	WATER CLOSET, WALL COVERING
WD	WOOD
WF	WIDE FLANGE
WG	WIRE GLASS
WH	WATER HEATER, WALL HUNG
W/I	WITHIN
WIN	WINDOW
WM	WIRE MESH
W/O	WITHOUT
WP	WATER PROOF, WORKING POINT
WPL	WEATHER PROOF LOUVER
WR	WASTE RECEPTACLE, WATER RESISTANT
WR/GWB	WATER RESISTANT GWB
WS	WEATHER STRIPPING, WATER STOP
WSCT	WAINSCOT
WT	WEIGHT, WATER TANK
W/W	WALL TO WALL
WWF	WELDED WIRE FABRIC
X BRACE	CROSS BRACE
YD	YARD, YARD DRAIN

SYMBOLS

- PROJECT NORTH (PLAN REFERENCE ONLY - SEE SURVEY FOR TRUE NORTH)
- SECTION CUT/ ELEVATION NUMBER OR LETTER
- SHEET DRAWN
- SHEET TAKEN
- DETAIL NUMBER
- SHEET DRAWN
- SHEET TAKEN
- ELEVATION LETTER
- SHEET DRAWN
- SHEET TAKEN
- LOUVER TYPE
- GLAZING TYPE
- WALL TYPE
- DEMO FLAG NOTE
- WORK FLAG NOTE
- GRID LINE
- DOOR NUMBER
- ROOM IDENTIFICATION NUMBER
- STAIR OR SLOPE DIRECTION
- CHAIN LINK FENCE
- ELEVATION INDICATOR
- FLOOR MATERIAL INDICATOR

REFER TO INDIVIDUAL DISCIPLINE SHEETS FOR ADDITIONAL SYMBOLS AND ABBREVIATIONS

MATERIAL DESIGNATION

- EXISTING WALLS TO REMAIN
- WALLS OR ITEMS TO BE REMOVED (DASHED)
- NEW STUD WALLS
- NEW BRICK OR CMU WALLS
- CONCRETE
- EARTH
- FILL MATERIAL
- GYPSUM WALLBOARD (LARGE SCALE)
- CEMENT FIBER BOARD / SIDING (LARGE SCALE)
- CONTINUOUS BLOCKING
- NON-CONTINUOUS BLOCKING

City of Kirkland
Reviewed by R Braun
03/08/2019

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Totem Lake Park Phase 1
City of Kirkland

12031 Totem Lake Way, Kirkland, WA 98034

STATE OF WASHINGTON 8424 REGISTERED ARCHITECT GEOFFREY E. ANDERSON

SET TYPE
100% Design Submittal

SET ISSUE DATE
2/8/2019

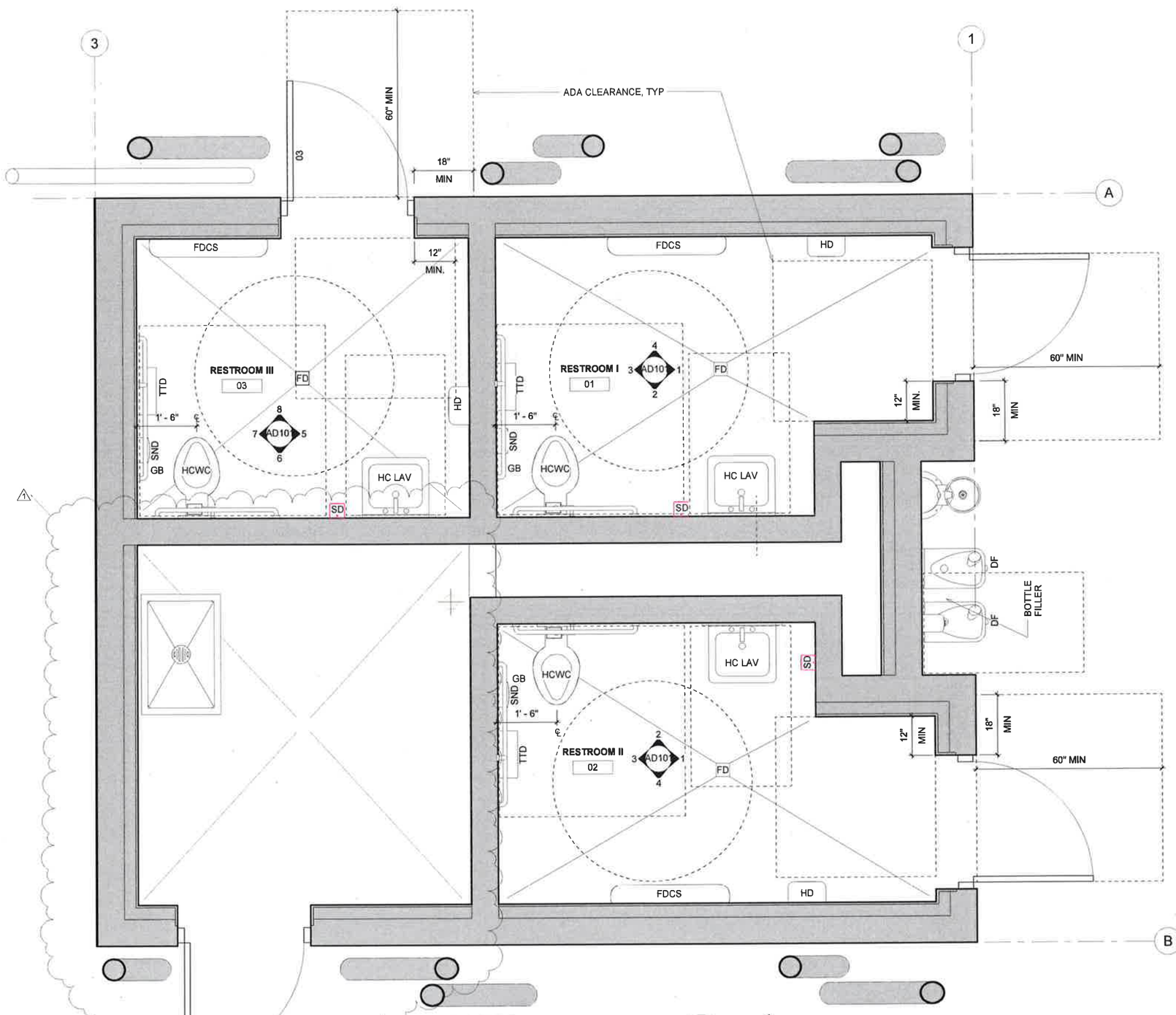
REVISIONS

REVNAME1	MM.DD.YYYY
REVNAME2	MM.DD.YYYY
REVNAME3	MM.DD.YYYY
REVNAME4	MM.DD.YYYY
REVNAME5	MM.DD.YYYY
REVNAME6	MM.DD.YYYY

DRAWN/CHECKED
GO GEA

SHEET NAME
ABBREVIATIONS & SYMBOLS

SHEET NUMBER
A000



ENLARGED PLAN - RESTROOMS
3/4" = 1'-0"
1
A101 AD100

3/4" = 1'-0"
16" 8" 0 1' 2' 4'

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Totem Lake Park Phase 1
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REGISTERED ARCHITECT
GEOFFREY E. ANDERSON
STATE OF WASHINGTON

SET TYPE:
100% Design Submittal

SET ISSUE DATE:
2/8/2019

REVISIONS

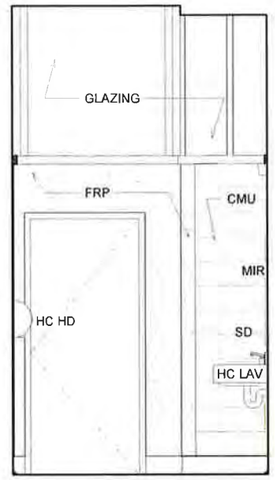
Δ	DESCRIPTION	DATE
1	Permit Response	2019/05/03

DRAWN/CHECKED
SES,GO GEA

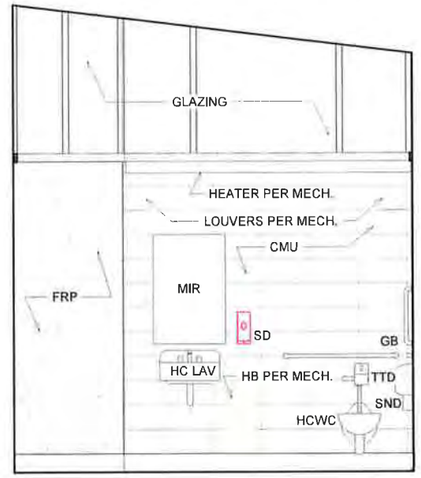
SHEET NAME
ENLARGED PLANS

SHEET NUMBER
AD100

Berger Partnership Project Number XXXXXXXX.XX Plotted: 06.18.2011 5:18 PM by: Gennadiy Ogay Filename: p:\2017\17-116 totem lake splash pad (berger)\drawings\acad-kotem lake park-ph1 - title block.dwg



ELEVATION 1



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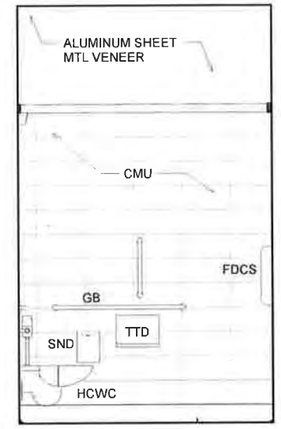
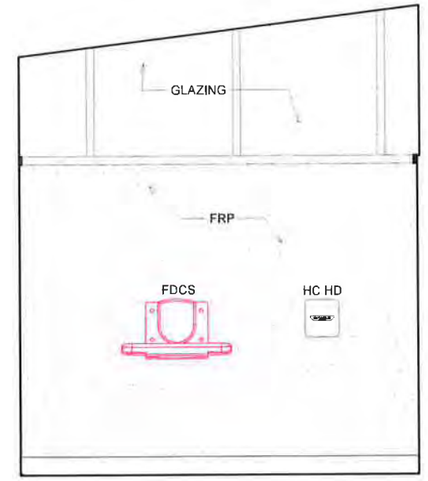


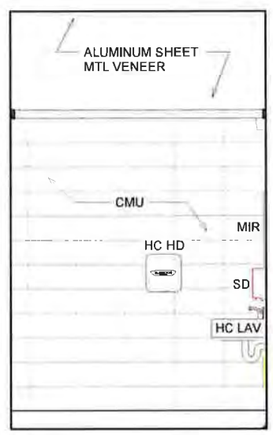
ELEVATION 3



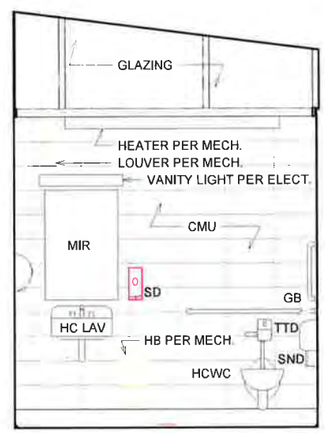
ELEVATION 4

RESTROOM 01, 02 OPP

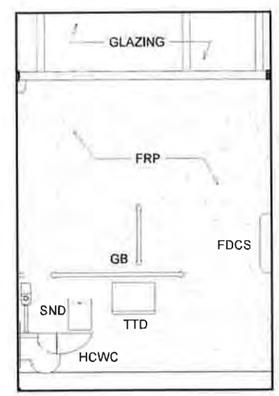
1/2" = 1'-0"



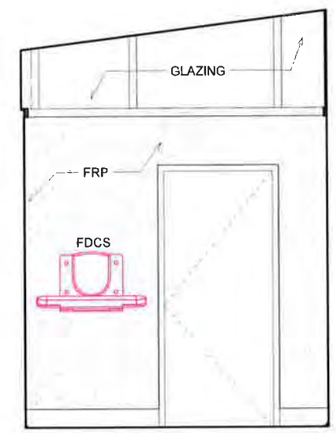
ELEVATION 5



ELEVATION 6



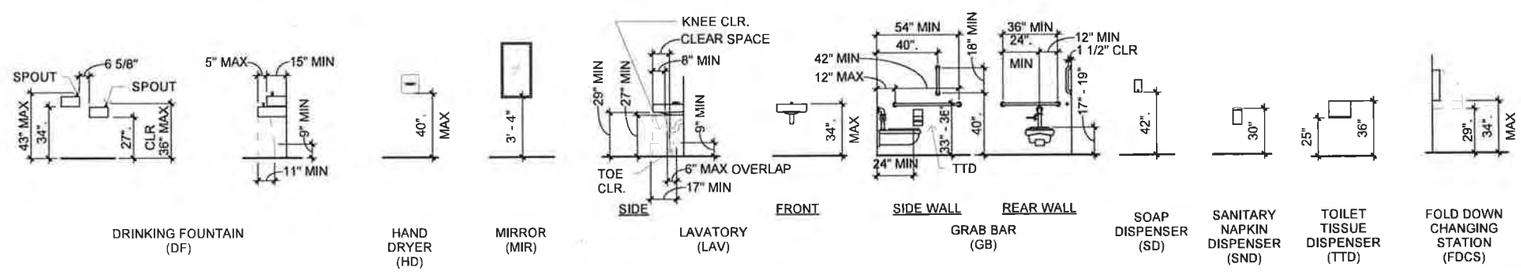
ELEVATION 7



ELEVATION 8

RESTROOM 03

1/2" = 1'-0"



DRINKING FOUNTAIN (DF) | HAND DRYER (HD) | MIRROR (MIR) | LAVATORY (LAV) | GRAB BAR (GB) | SOAP DISPENSER (SD) | SANITARY NAPKIN DISPENSER (SND) | TOILET TISSUE DISPENSER (TTD) | FOLD DOWN CHANGING STATION (FDCS)

TYPICAL FIXTURE/ EQUIPMENT MOUNTING HEIGHTS

FOR HANDICAP ACCESSIBILITY (U.O.N.)

1/2" = 1'-0" 2' 1' 0 2' 4' 6'

City of kirkland
Reviewed by R Braun
08/08/2019

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Totem Lake Park Phase 1
City of Kirkland

12031 Totem Lake Way, Kirkland, WA 98034

REGISTERED ARCHITECT
GEOFFREY E. ANDERSON
STATE OF WASHINGTON

SET TYPE
100% Design Submittal

SET ISSUE DATE
2/8/2019

REVISIONS

REVNAME1	MM.DD.YYYY
REVNAME2	MM.DD.YYYY
REVNAME3	MM.DD.YYYY
REVNAME4	MM.DD.YYYY
REVNAME5	MM.DD.YYYY
REVNAME6	MM.DD.YYYY

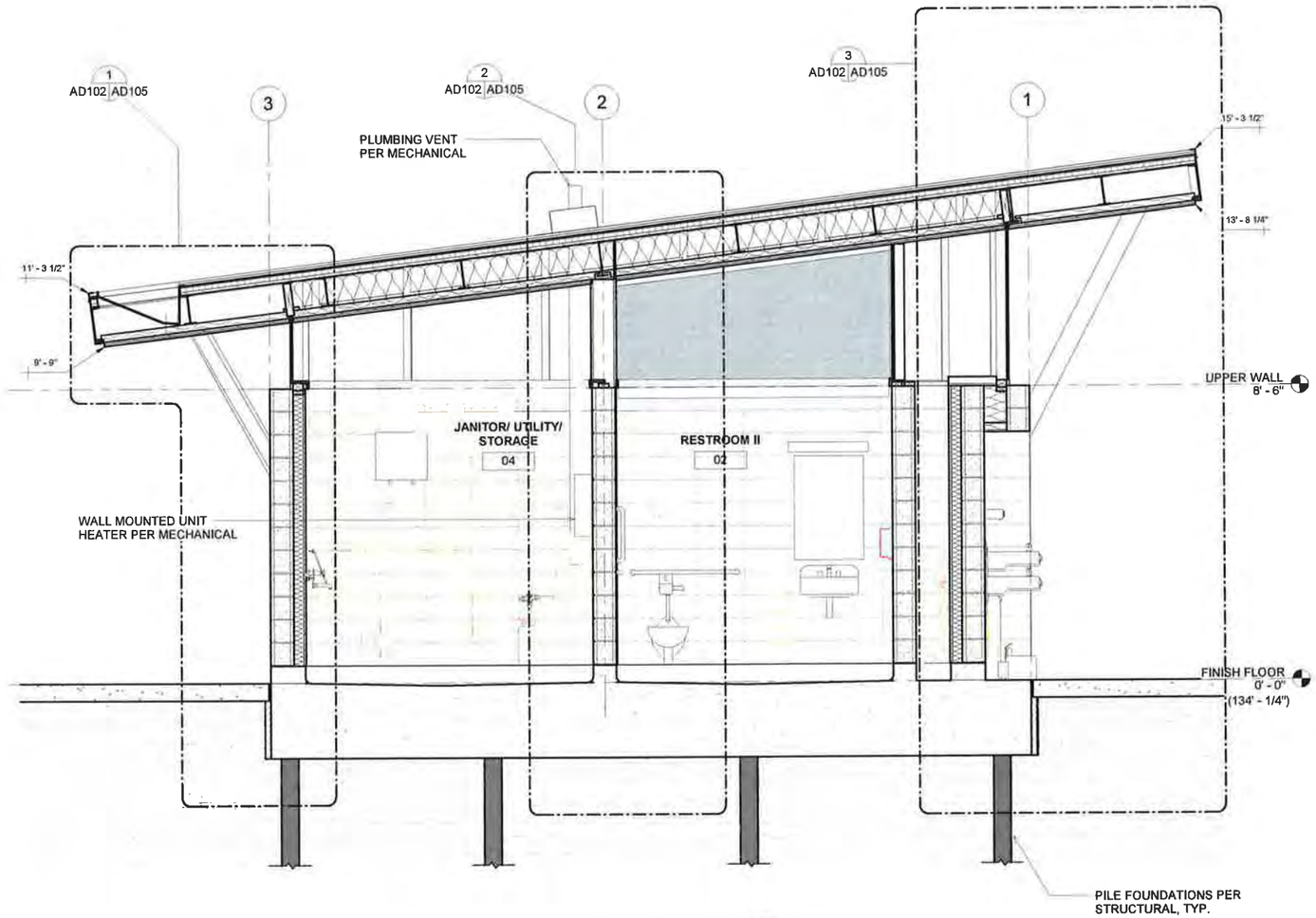
Per Spec. Reviewed by

DRAWN/CHECKED
SES, GO, GEA

SHEET NAME
INTERIOR ELEVATIONS

SHEET NUMBER
AD101

Berger Partnership Project Number: XXXXXXXX.XX Plotted: 08.18.2011 5:18 PM By: Gennadiy Ogay Filename: p:\2017\17-116 totem lake splash pad (berger)\drawings\acad-totem lake park-ph1 - title block.dwg



BUILDING SECTION
1/2" = 1'-0"

1
A100 AD102

3/4" = 1'-0" 16" 8" 0 1' 2' 4'

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SET TYPE
100% Design Submittal

SET ISSUE DATE
2/8/2019

REVISIONS

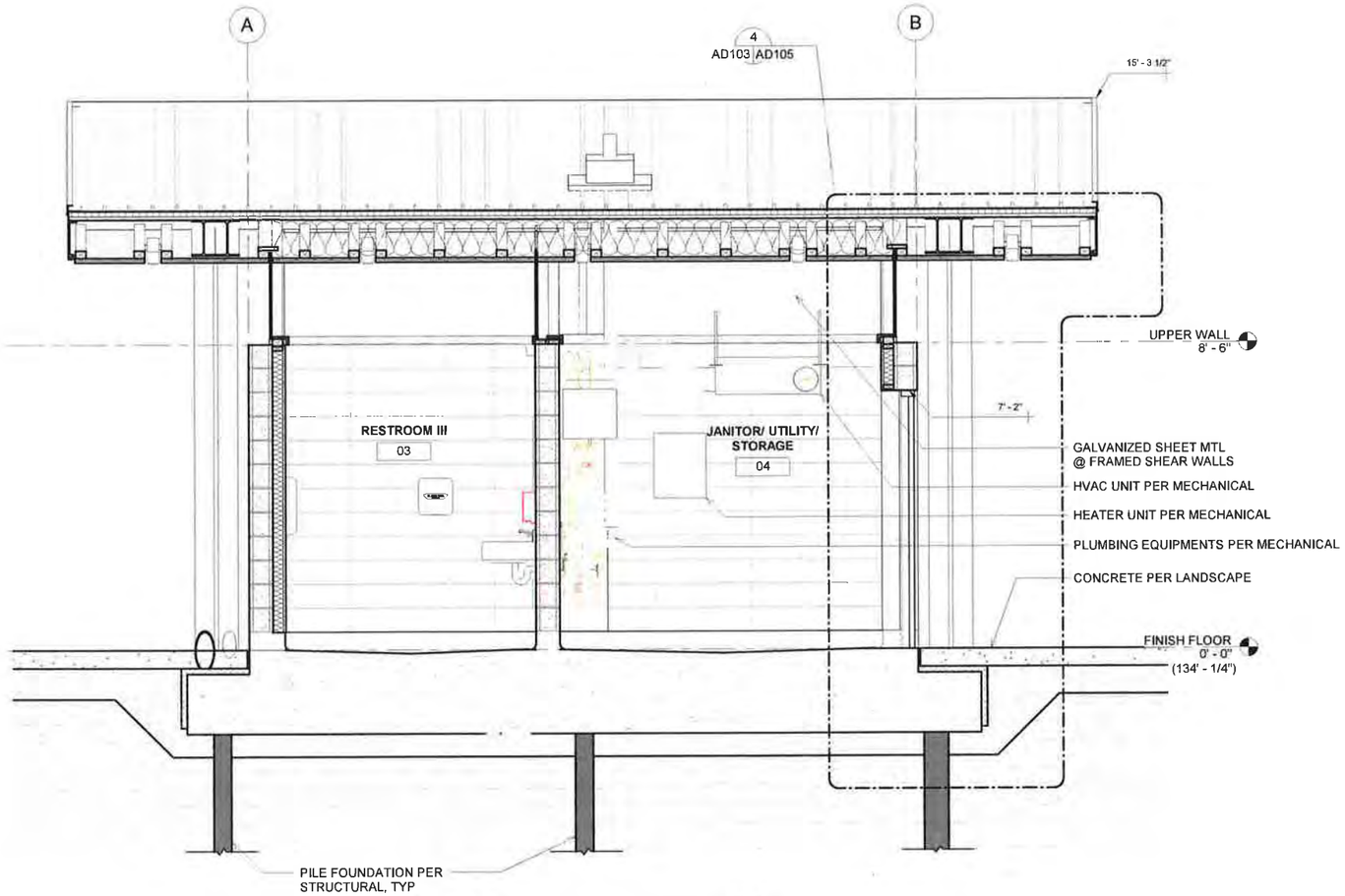
REVNAME1	MM.DD.YYYY
REVNAME2	MM.DD.YYYY
REVNAME3	MM.DD.YYYY
REVNAME4	MM.DD.YYYY
REVNAME5	MM.DD.YYYY
REVNAME6	MM.DD.YYYY

DRAWN/CHECKED:
GO GEA

SHEET NAME
BUILDING SECTION I

SHEET NUMBER
AD102

Berger Partnership Project Number: XXXXXXXX.XX Plotted: 08.18.2011 5:18 PM by: Gennadiy Ogay Filename: p:\2017\17-116 totem lake splash pad (berger)\drawings\acad-totem lake park-ph1 - title block.dwg



BUILDING SECTION 1 A100 AD103

1/2" = 1'-0"

1/2" = 1'-0" 2' 1' 0 2' 4' 6'

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Totem Lake Park Phase 1

City of Kirkland

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STATE OF WASHINGTON

SET TYPE
100% Design Submittal

SET ISSUE DATE
2/8/2019

REVISIONS

REVNAME1	MM.DD.YYYY
REVNAME2	MM.DD.YYYY
REVNAME3	MM.DD.YYYY
REVNAME4	MM.DD.YYYY
REVNAME5	MM.DD.YYYY
REVNAME6	MM.DD.YYYY

DRAWN/CHECKED
GO GEA

SHEET NAME
BUILDING SECTION II

SHEET NUMBER
AD103

Berger Partnership Project Number XXXXXXXX.XX Plotted 08.18.2011 5:18 PM By Gennadiy Ogay Filename p:\2017\17-116 totem lake splash pad (berger)\drawings\acad-4\totem lake park-ph1 - title block.dwg

SYMBOL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	COLD WATER PIPING		MOTORIZED DAMPER
	HOT WATER PIPING	12X12 CD-1 100 27	DIFFUSER CALLOUT (SIZE, TYPE, CFM, 50 FPM THROW)
	HOT WATER RECIRCULATION PIPING	TI	TEMPERATURE GAUGE
	WASTE PIPING		RETURN/EXHAUST/TRANSFER AIRFLOW
	VENT PIPING		SUPPLY AIRFLOW
	PIPE OR DUCT BREAK (GRAPHIC ONLY - CONTINUOUS PIPE/DUCT)		STRAINER W/ BLOWDOWN VALVE & 3/4" HOSE CONNECTION
3"CO	FLUSH CLEANOUT OR SURFACE CLEANOUT		UNION
	VENT THROUGH ROOF		FLOOR DRAIN
	PRESSURE REDUCING VALVE		AUTOMATIC OR MANUAL AIR VENT
	CHECK VALVE		BALANCING VALVE
	BALL VALVE	BFP	BACKFLOW PREVENTER ASSEMBLY
	PUMP		CIRCUIT SETTER
	PIPE REDUCER		

ABBREVIATION LIST

ADA	AMERICANS WITH DISABILTIES ACT
AMP	AMPERES
BFP	BACKFLOW PREVENTER
BTU	BRITISH THERMAL UNIT
CFM	CUBIC FEET PER MINUTE
CO	CLEANOUT
CV	COEFFICIENT OF FLOW
CW	COLD WATER
DC	DOUBLE CHECK
DEG	DEGREE
EA	EXHAUST AIR
EC	ELECTRICAL CONTRACTOR
ENTH	ENTHALPY
ERV	ENERGY RECOVERY VENTILATOR
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
FCO	FLUSH CLEANOUT
FD	FLOOR DRAIN
FPM	FEET PER MINUTE
FT	FEET
FU	FIXTURE UNITS
GAL	GALLON
GPD	GALLONS PER DAY
GPF	GALLONS PER FLUSH
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
H	HEIGHT
HB	HOSE BIBB
HP	HORSEPOWER
HW	HOT WATER
IE	INVERT ELECATION
IN	INCH
INDW	INDIRECT WASTE
KW	KILOWATT
L	LENGTH
LBS	POUNDS
MAX	MAXIMUM
MCA	MINIMUM CIRCUIT AMPACITY
MFG	MANUFACTURER
MIN	MINIMUM
MOCP	MAXIMUM OVERCURRENT PROTECTION
MRT	MEAN TEMPERATURE RATING
N/A	NOT APPLICABLE
NPR	NET PUMP SUCTION HEAD REQUIRED
PB	PRESSURE BALANCE
PD	PRESSURE DROP
PH	PHASE
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
RP	REDUCED PRESSURE
RPM	REVOLUTIONS PER MINUTE
SQ FT	SQUARE FOOT
TEMP	TEMPERATURE
TS	THERMOSTATIC
TV	TEMPERING VALVE
TW	TEMPERED WATER
TYP	TYPICAL
UH	UNIT HEATER
V	VENT
VFD	VARIABLE FREQUENCY DRIVE
VOLT	VOLTAGE
VTR	VENT THROUGH ROOF
W	WATT
W	WIDTH
W/	WITH
WC	WATER CLOSET

GENERAL NOTES

1. PROVIDE SYSTEM STARTUP ADJUSTMENTS, AND DOCUMENTATION TO MEET MINIMUM REQUIREMENTS OF THE 2015 WASHINGTON STATE ENERGY CODE - COMMERCIAL PROVISIONS SECTION C408
2. OBTAIN AND PAY FOR ALL PERMITS AND CONSTRUCTION FEES FURNISH FINAL CERTIFICATE TO OWNER SHOWING COMPLIANCE WITH CODE REQUIREMENTS
3. LOCATE ALL VALVES, TRAPS, TEST PORTS, DAMPERS, CONTROLS, CLEANOUTS, ETC TO BE ACCESSIBLE FOR MAINTENANCE, ADJUSTMENT, & TESTING PROVIDE ACCESS PANELS FOR ALL CONCEALED DEVICES
4. CONSTRUCT DUCTWORK ACCORDING TO WASHINGTON STATE ENERGY CODE SECTION C403 2 8
5. PROVIDE EACH ZONE WITH THERMOSTATIC CONTROLS THAT PROVIDE A DEADBAND OF AT LEAST 5 DEGREES FAHRENHEIT IN WHICH HEATING AND COOLING ENERGY IS CAPABLE OF BEING SHUT OFF OR REDUCED TO A MINIMUM. THERMOSTATS SHALL BE CAPABLE OF THERMOSTATIC SETBACK, AUTOMATIC SETBACK AND SHUTDOWN, AND AUTOMATIC START CAPABILITIES PER WASHINGTON STATE ENERGY CODE SECTION C403 2.4.2.
6. PROVIDE MOTORIZED DAMPERS ON OUTDOOR AIR SUPPLY, EXHAUST OPENINGS, AND RELIEF OUTLETS. DAMPERS SHALL HAVE A MAXIMUM LEAKAGE RATE OF 20 CFM PER SQUARE FOOT AT 1" W.C DAMPERS SMALLER THAT 24" IN EITHER DIRECTION SHALL HAVE A MAXIMUM LEAKAGE RATE OF 40 CFM PER SQUARE FOOT AT 1" W.C.
7. PROVIDE BALANCING DEVICES ON ALL NEW AIR INLETS AND OUTLETS AND OUTSIDE AIR DUCT SECTIONS.
8. AIR INLET AND OUTLET SIZES SHOWN ON PLANS ARE NECK SIZES. PROVIDE ADDITIONAL PANS, HARDWARE, ETC, REQUIRED TO INSTALL AIR INLETS AND OUTLETS.
9. DUCTWORK SHALL BE 2.0" PRESSURE CLASS UNLESS OTHERWISE NOTED ON THESE DRAWINGS.
10. TOTAL STATIC PRESSURE NOTED IN SCHEDULES SHALL BE ASSUMED TO INCLUDE DUCT SYSTEM, TERMINAL UNITS, FILTERS, COILS, ETC.
11. ALL PRESSURES LISTED ARE GAGE PRESSURES UNLESS OTHERWISE NOTED
12. THE FIRST FIGURE OF DUCT SIZE CALLOUTS INDICATES DIMENSION OF FACE SHOWN OR INDICATED. DUCT SIZES ARE NET INSIDE DIMENSIONS. PROVIDE ANY APPLICABLE DUCT LINING AND INSULATION PER THESE PLANS AND SPECIFICATIONS
13. HOT WATER DISCHARGE TEMPERATURE OF PUBLIC LAVATORIES SHALL BE 104 DEGREES FAHRENHEIT
14. ALL SERVICE HOT WATER PIPING SYSTEMS SHALL CONFORM TO THE MAXIMUM PIPE LENGTH PER THE 2015 WASHINGTON STATE ENERGY CODE TABLE C404 3 1
15. HOT WATER CIRCULATION SYSTEM SHALL HAVE CONTROL CAPABILITIES TO AUTOMATICALLY START THE CIRCULATION PUMP BASED ON DEMAND FOR HOT WATER AND SHUT-OFF PUMP WHEN THERE IS NO DEMAND AND WHEN THE DESIRED WATER TEMPERATURE IS MET PER 2015 WASHINGTON STATE ENERGY CODE SECTION C404 7.1
16. SEISMIC PROVISIONS ARE REQUIRED - REFER TO SPECIFICATIONS
17. COORDINATE ALL MECHANICAL WORK WITH OTHER TRADES TO INSURE PROPER AND ADEQUATE INTERFACE OF THEIR WORK WITH THE WORK OF MECHANICAL CONTRACTOR. PROVIDE COORDINATED SHOP DRAWINGS FOR APPROVAL PRIOR TO FABRICATION AND INSTALLATION.
18. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH NFPA 70 STANDARDS AND LOCAL REQUIREMENTS
19. ALL FIELD WIRING SHALL REQUIRE AN ELECTRICAL PERMIT AND SHALL BE PERFORMED BY A LICENSED ELECTRICIAN
20. A SHORT DASH IN A SCHEDULE TABLE CELL INDICATES THAT THE COLUMN HEADING IS NOT USED OR NOT APPLICABLE TO THAT SCHEDULED ITEM
21. CONTRACTOR SHALL COORDINATE WITH LOCAL JURISDICTIONS (INCLUDING BUT NOT LIMITED TO BUILDING DEPARTMENT, SEWER UTILITY, ETC.) FOR ALL REQUIRED INSPECTIONS PRIOR TO PERFORMING WORK.
22. PROVIDE P-TRAPS AT EACH DRAIN CONNECTION TO SANITARY SEWER SYSTEM. PROVIDE TRAP PRIMERS & HEAT TRACE FOR ALL P-TRAPS

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Totem Lake Park Phase 1

City of Kirkland

21031 Totem Lake Way, Kirkland, WA 98034

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PROFESSIONAL ENGINEER
02/08/2019

SET TYPE:
100% Design Submittal

SET ISSUE DATE
02/08/2019

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Δ	DESCRIPTION	DATE

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CN / JB

SHEET NAME
MECHANICAL GENERAL INFORMATION

SHEET NUMBER
M001

Berger Partnership Project Number 17031 Plotted 2/6/2019 11:48:34 AM File name Y:\2017\17031 Totem Lake Park\Drawings\05 Revit\17031 Totem Lake (2018)_Central.rvt

PIPE HANGER SCHEDULE

PIPE TYPE	SIZE	HORIZONTAL SPACING	VERTICAL SPACING	NOTES
CAST IRON WITH COMPRESSION GASKET JOINTS	ALL	EVERY OTHER JOINT UNLESS OVER 4 FT. THEN SUPPORT EACH JOINT	BASE AND EACH FLOOR, 15 FT MAX	1
CAST IRON (HUBLESS) WITH SHIELDED COUPLING JOINTS	ALL	EVERY OTHER JOINT UNLESS OVER 4 FT, THEN SUPPORT EACH JOINT	BASE AND EACH FLOOR, 15 FT MAX	1, 2
COPPER TUBE AND PIPE WITH SOLDERED OR BRAZED JOINTS	1-1/2" AND SMALLER 2" AND LARGER	6 FT 10 FT	EACH FLOOR, 10 FT MAXIMUM EACH FLOOR, 10 FT MAXIMUM	
SCHEDULE 80 PVC PIPE, 60-100 DEG F OPERATING TEMPERATURE	1" AND SMALLER 1-1/4" - 3" 4" - 8" 10" AND LARGER	4-1/2 FT 5-1/2 FT 7-1/2 FT 10 FT	- - - -	
SCHEDULE 40 PVC AND ABS DWV PIPE WITH SOLVENT CEMENTED JOINTS	ALL	4 FT	BASE AND EACH FLOOR	3, 4
COPPER PIPING WITH MECHANICAL JOINTS	1" AND SMALLER 1-1/4" TO 2-1/2"	6 FT 10 FT	10 FT 10 FT	
PEX-A PIPING, RIGID	ALL	5 FT	10 FT	
PEX-A PIPING, FLEXIBLE	ALL	5 FT	5 FT	

NOTES:

1 WHERE 10' PIPE SECTIONS ARE USED HORIZONTALLY, 10' HORIZONTAL SPACING, SUPPORT WITHIN 18" OF EACH JOINT AND AT EACH HORIZONTAL BRANCH CONNECTION. BRACE AT EVERY 40'

2 HANGERS SHALL NOT BE PLACED ON THE COUPLING

3 ALLOW FOR EXPANSION EVERY 30 FT

4 FOR VERTICAL PIPE, PROVIDE MID-STORY GUIDES

PLUMBING FIXTURE SCHEDULE

SYMBOL	FIXTURE	MANUFACTURER	MODEL	PLUMBING CONNECTIONS (IN) WASTE	VENT	HW	CW	TW	FLOW (GPM)	GPF	ELECTRICAL VOLT	PH	W	MOUNTING	NOTES
FD-1	FLOOR DRAIN	JR SMITH	2010	3.00	-	2.00	-	-	-	-	-	-	-	FLOOR	2
HB-1	HOSE BIBB	ZURN	Z1341-P34	-	-	-	-	0.75	-	-	-	-	-	PIPE	
HB-2	HOSE BIBB	ZURN	Z1330-C-34EI-CL-SS-WC	-	-	-	-	0.75	-	-	-	-	-	WALL	2
HB-3	HOSE BIBB	ZURN	Z1330-C	-	-	-	-	0.75	-	-	-	-	-	WALL	2
P-1	WATER CLOSET SEAT FLUSH VALVE CARRIER	ACORN ACORN SLOAN JR SMITH	2100-W-1-1.28-FVBO-HS-OFLC-ADA-CN HS-OFLC CX-8158-1.28-SF-OR	3.00	-	2.00	-	1.50	-	1.28	-	-	-	WALL	1, 2, 4
P-2	LAVATORY FAUCET CARRIER	ACORN SLOAN JR SMITH	1953-ADA-1-9-I11-GT-TE EBF-650-BAT-TEE-SF-0.5GPM-MLM-IR-PCT	2.00	-	2.00	-	-	0.30	0.50	-	-	-	WALL	1, 2, 4
P-3	DRINKING FOUNTAIN	HAWS	1119FR	(2) 2.00	-	(2) 1.50	-	0.50	-	0.45	-	-	-	WALL	2,3
P-3A	PET FOUNTAIN	TERRABOUND SOLUTIONS	9004-MWL	2.00	-	2.00	-	0.50	-	-	-	-	-	WALL	2
P-4	JANITORS SINK FAUCET	ACORN ACORN	TSH3624-BDS-KDG3-KFC-KH36-KMH-KWG-2	3.00	-	2.00	0.75	0.75	-	-	-	-	-	FLOOR WALL	

NOTES:

1 SENSOR OPERATED WITH BATTERY POWER

2 PROVIDE WITH VANDAL-RESISTANT HARDWARE

3 PROVIDE WITH HAWS 1920FR FREEZE RESISTANT BOTTLE FILLER. HAWS BP32 WALL PLATE. HAWS 6700 4L & 6700 4 BACKING PLATES

4 INSTALL IN ACCORDANCE WITH ADA REQUIREMENTS

AIR INLET & OUTLET SCHEDULE

SYMBOL	MANUFACTURER	MODEL	MOUNTING TYPE	STYLE	NOTES
EG-1	TITUS	50F	DUCT/WALL	EGGCRATE	1
SD-1	TITUS	300RS	DUCT/WALL	GRILLE	1

NOTES

1 PROVIDE AIR BALANCING DEVICE AT EACH AIR INLET AND OUTLET

ELECTRIC UNIT HEATER SCHEDULE

SYMBOL	MANUFACTURER	MODEL	CFM	HEATER W	ELECTRICAL VOLT	PHASE	AMPS	WEIGHT (LBS)	NOTES
UH-1	KING	KCV1209	-	840	120	1	7	11.2	3
UH-2	KING	KCV1212	-	1125	120	1	9.4	16.8	2
UH-3	KING	KCV1212	-	1125	120	1	9.4	16.8	3
UH-4	TRANE	UHWA021A	245	2000	208	1	-	41	1, 4

NOTES:

1 UNIT TO BE PROVIDED WITH INTEGRAL THERMOSTATS

2 UNIT TO BE PROVIDED WITH SINGLE POLE RIGHT SIDE WIRING THERMOSTAT

3 UNIT TO BE PROVIDED WITH SINGLE POLE LEFT SIDE WIRING THERMOSTAT

4 TOP OF UNIT HEATER TO BE INSTALLED AT 6'-0" ABOVE FINISHED FLOOR. COORDINATE EXACT LOCATION WITH ELECTRICAL EQUIPMENT

TEMPERING VALVE SCHEDULE

SYMBOL	MANUFACTURER	MODEL	TYPE TS	PB	LINE SIZE (IN) INLET	OUTLET	PRV	CT	FLOW (GPM) MIN	MAX	OUTLET TEMP (°F)	SERVICE	WEIGHT (LBS)	NOTES
TV-1	SYMMONS	MAXLINE 7-225	X	-	0.50	0.50	-	-	1	14	104	RESTROOM LAVATORY	-	

NOTES:

ELECTRIC WATER HEATER SCHEDULE

SYMBOL	MANUFACTURER	MODEL	TYPE	SERVICE	CAPACITY (GAL)	DISCHARGE TEMP (DEG F)	RECOVERY GPH	TEMP RISE	ELECTRICAL VOLT	PHASE	KW	NOTES
WH-1	BRADFORD WHITE	LE112WV3-1	TANK	DOMESTIC HW	12	120	12.29	100	208	1	3.00	1, 2

NOTES

1 PROVIDE WITH WALL MOUNTING HARDWARE, DRAIN PAN, SEISMIC RESTRAINTS, & TEMPERATURE/PRESSURE RELIEF VALVE

2 WALL MOUNT CONFIGURATION WITH BOTTOM PIPE CONNECTIONS

PIPE INSULATION SCHEDULE

APPLICATION	TEMP RANGE (°F)	INSULATION CONDUCTIVITY CONDUCTIVITY (BTU X IN/H X FT² X °F)	MRT (°F)	NOMINAL PIPE SIZE (IN) <1"	1" - 1-1/4"	1-1/2" - 3"	4" - 8"	≥8"	TYPE	NOTES
CW	40-60	0.21-0.27	75	0.5	0.5	1.0	-	-	FIBERGLASS W/ ASJ	1, 2, 3
HW, HWC, TW	90-105	0.21-0.28	100	1.0	1.0	1.5	-	-	FIBERGLASS W/ ASJ	1, 2, 3

GENERAL NOTES:

1 INSULATION THICKNESSES PER 2015 WASHINGTON STATE ENERGY CODE TABLE C403.2.9

2 PROVIDE WITH PVC JACKETING IN ALL EXPOSED LOCATIONS (UTILITY ROOMS, STORAGE ROOMS, ETC.)

3 PROVIDE WITH ALUMINUM JACKETING IN ALL OUTDOOR LOCATIONS

DUCT HANGER SCHEDULE

DUCT SIZE DIAMETER (IN)	RECT PERIMETER / 2 (IN)	MAX SPACING (FT)	WIRE DIA (GA)	ROD (IN)	STRAP	NOTES
10 AND DOWN	-	12	12	0.250	1" X 22 GA	1, 2, 3, 4
-	30 AND DOWN	10	10	0.135	1" X 22 GA	1, 2, 3, 4
-	30 AND DOWN	5	12	0.106	1" X 22 GA	1, 2, 3, 4

NOTES:

1 MINIMUM HANGER SIZE AND MAXIMUM HANGER SPACING PER SMACNA TABLE 5-1 AND 5-2

2 HORIZONTAL DUCT SHALL HAVE A SUPPOST WITHIN 2 FEET OF EACH ELBOW AND WITHIN 4 FEET OF EACH BRANCH INTERSECTION

3 SINGLE HANGER MAXIMUM ALLOWABLE LOAD FOR STRAPS IS: 1" X 22 GA - 260 LBS, 1" X 20 GA - 320 LBS, 1" X 18 GA - 420 LBS

4 SINGLE HANGER MAXIMUM ALLOWABLE LOAD FOR ROD DIAMETER IS: 0.106" - 80 LBS, 0.135" - 120 LBS, 0.162" - 160 LBS, 0.25" - 270 LBS, 0.375" - 680 LBS

EXPANSION TANK SCHEDULE

SYMBOL	MANUFACTURER	MODEL	TYPE	CONFIGURATION	PRESSURE (PSI)	VOLUME (GAL) TOTAL	ACCEPTANCE	WEIGHT (LBS)	NOTES
ET-1	AMTROL	ST-5	DIAPHRAGM	VERTICAL	150	2.00	0.90	12.5	1

NOTES:

1 PROVIDE WITH WALL MOUNTING STRAPS

BACKFLOW PREVENTER SCHEDULE

SYMBOL	MANUFACTURER	MODEL	LINE SIZE (IN)	SERVICE	TYPE RP	DC	WATER PRESSURE (PSI) INLET	OUTLET	WEIGHT (LBS)	NOTES
BFP-1	WATTS	009 SERIES	1.50	DOMESTIC CW	X	X	-	-	-	1, 2

NOTES

1 PROVIDE WITH WYE-STRAINER, ISOLATION VALVES, & TEST PORTS

2 PROVIDE WITH SEPARATE PRESSURE REDUCING VALVE

WEATHERPROOF LOUVER SCHEDULE

SYMBOL	MANUFACTURER	MODEL	CFM	SIZE (IN) L	W	DEPTH (IN)	FREE AREA %	SQ FT	MAX PD (IN)	VELOCITY (FPM)	NOTES
L-1	GREENHECK	BVE	200	16.00	7.75	4.00	50.00	0.43	0.08	650	
L-2	GREENHECK	BVE	200	16.00	7.75	4.00	50.00	0.43	0.08	650	

NOTES:

ENERGY RECOVERY VENTILATOR SCHEDULE

SYMBOL	MANUFACTURER	MODEL NUMBER	CORE TYPE	AIRFLOW (CFM)	ESP (INWG)	RECOVERY EFFECIENCY TEMP RECOVERY	ENTH COOLING	ENTH HEATING	ELECTRICAL VOLT	PHASE	HP	AMP	MCA	MOCP	WEIGHT (LBS)	NOTES
ERV-1	MITSUBISHI	LGH-F300RX5-E1	CROSS FLOW	200	0.28	71.00%	55.00%	68.00%	208	1	0.52	0.32 - 1.35	1.8	15	73	1, 2

NOTES:

1 OUTSIDE AND EXHAUST AIR DUCTS SHALL HAVE MOTORIZED DAMPERS THAT SHALL OPEN UPON ACTIVATION AND CLOSE UPON UNIT SHUTDOWN

2 UNIT SHALL BE INSTALLED AND SUPPORTED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND DETAILS PROVIDED WITHIN THESE DOCUMENTS.

DUCT INSULATION & LINING SCHEDULE

APPLICATION	R-VALUE (MIN)	K-VALUE (MAX)	NRC (MIN. 1")	THICKNESS (IN)	INSULATION LOCATION INSIDE DUCT	OUTSIDE DUCT	TYPE	NOTES
OUTSIDE AIR DUCTWORK INSULATION	7	0.25	-	2.00	-	X	FLEXIBLE FIBERGLASS	1,2
SUPPLY DUCTWORK INSULATION	7	0.25	-	2.00	-	X	FLEXIBLE FIBERGLASS	1,2
RETURN/EXHAUST DUCTWORK INSULATION	7	0.25	-	2.00	-	X	FLEXIBLE FIBERGLASS	1,2
DUCT LINING - WITHIN 10' OF EXHAUST FAN	-	0.25	0.55	1.00	X	-	CLOSED-CELL ELASTOMERIC	

NOTES:

1 INSULATION THICKNESSES PER 2015 WASHINGTON STATE ENERGY CODE SECTION C402.2.8

2 PROVIDE WITH VAPOR BARRIER JACKETING

PUMP SCHEDULE

SYMBOL	MANUFACTURER	MODEL	SERVICE	TYPE	FLOW GPM	GPD	HEAD (FT)	NPSHR (FT)	RPM	ELECTRICAL HP	W	AMP	VOLT	PHASE	STARTER VFD	MRG	EC	N/A	MOUNTING	WEIGHT (LBS)	NOTES
CP-1	GRUNDFOS	UP 15-18 B5	HW RECIRCULATION	INLINE	4	-	6	-	-	-	86.00	-	120	1	-	-	-	X	INLINE	6	1

NOTES:

1 PROVIDE WITH AQUASTAT, TIMER, & MOTOR RATED SWITCH FOR CONTROL

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Totem Lake Park Phase 1
City of Kirkland

21031 Totem Lake Way, Kirkland, WA 98034

SET TYPE
100% Design Submittal

SET ISSUE DATE
02/08/2019

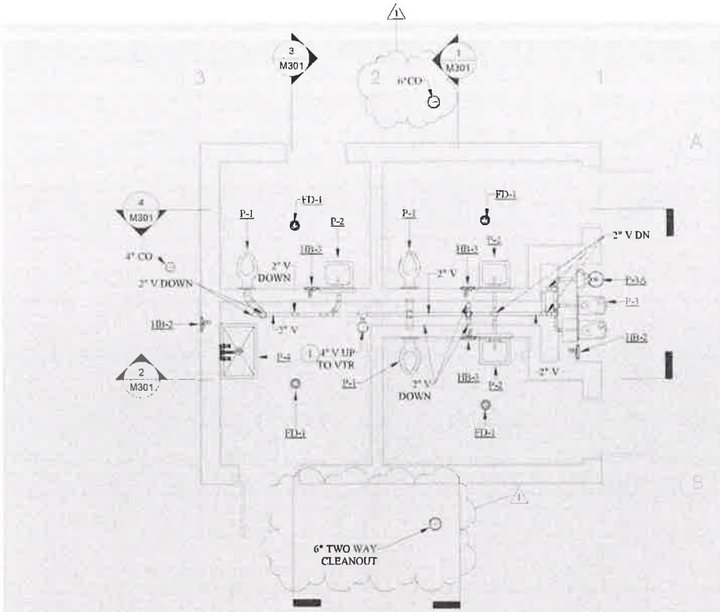
REVISIONS

Δ	DESCRIPTION	DATE
1	Permit Response	05/06/2019

DRAWN/CHECKED
CN / JB

SHEET NAME
SCHEDULES

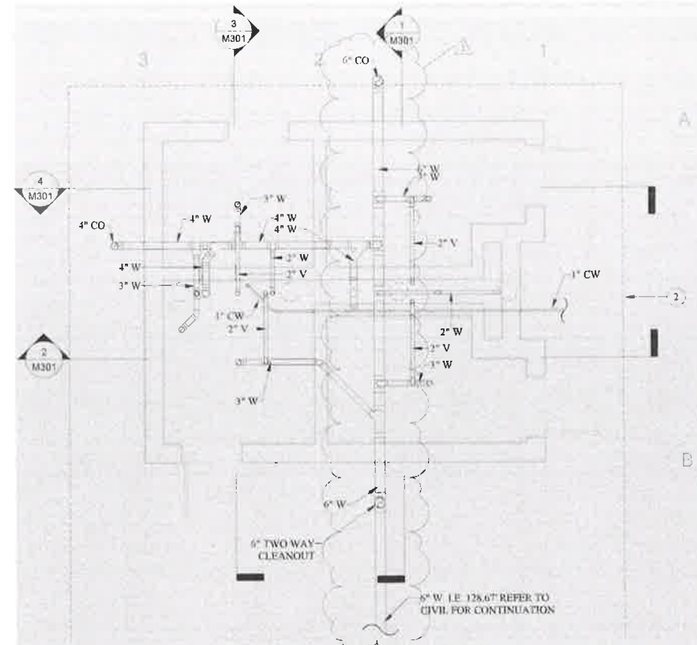
SHEET NUMBER
M002



MECHANICAL ROOM ABOVE GRADE SANITARY PLUMBING FLOOR PLAN

4 SCALE: 1/4" = 1'-0"

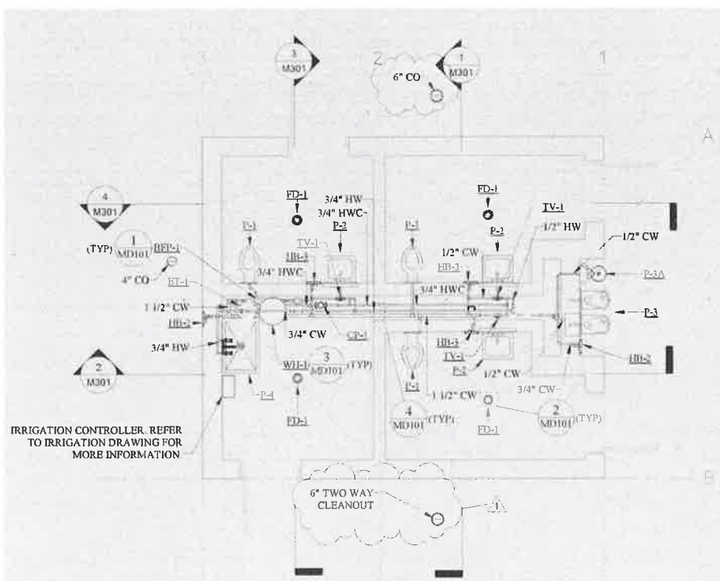
0 4' 8' 16'



MECHANICAL ROOM BELOW GRADE PLUMBING FLOOR PLAN

3 SCALE: 1/4" = 1'-0"

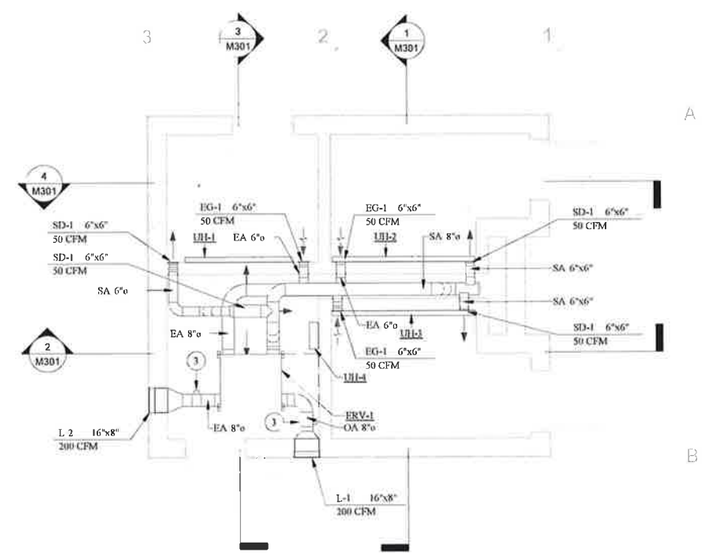
0 4' 8' 16'



MECHANICAL ROOM PLUMBING FLOOR PLAN

2 SCALE: 1/4" = 1'-0"

0 4' 8' 16'



MECHANICAL ROOM HVAC FLOOR PLAN

1 SCALE: 1/4" = 1'-0"

0 4' 8' 16'

PLAN NOTES

1. REFER TO ARCHITECTURAL DETAIL AD107/5.
2. ALL BELOW GRADE PIPING SHALL BE SUPPORTED BY HANGERS ATTACHED TO THE STRUCTURAL FLOOR USING HANGERS. PIPING AND HANGERS SHALL BE SET IN PLACE PRIOR TO BACKFILL AND SLAB INSTALLATION.
3. PROVIDE MOTORIZED DAMPER INTERLOCKED WITH ERV-1. DAMPER SHALL OPEN WHEN ERV-1 IS ACTIVATED ABD SHALL AUTOMATICALLY CLOSE WHEN THE UNIT IS DEACTIVATED.

City of Kirkland
Reviewed by R Braun
08/08/2019

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1	Permit Response	05/06/2019

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SHEET NAME
BUILDING MECHANICAL PLANS

SHEET NUMBER
M101

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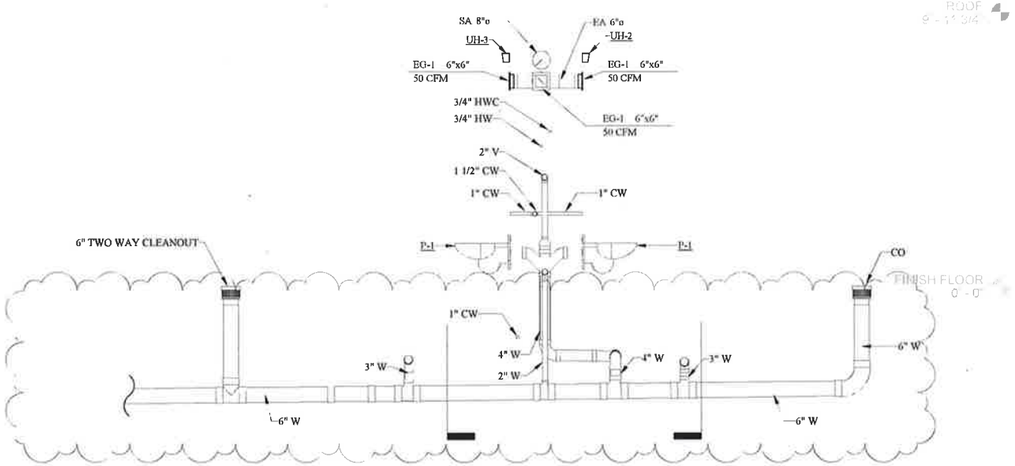
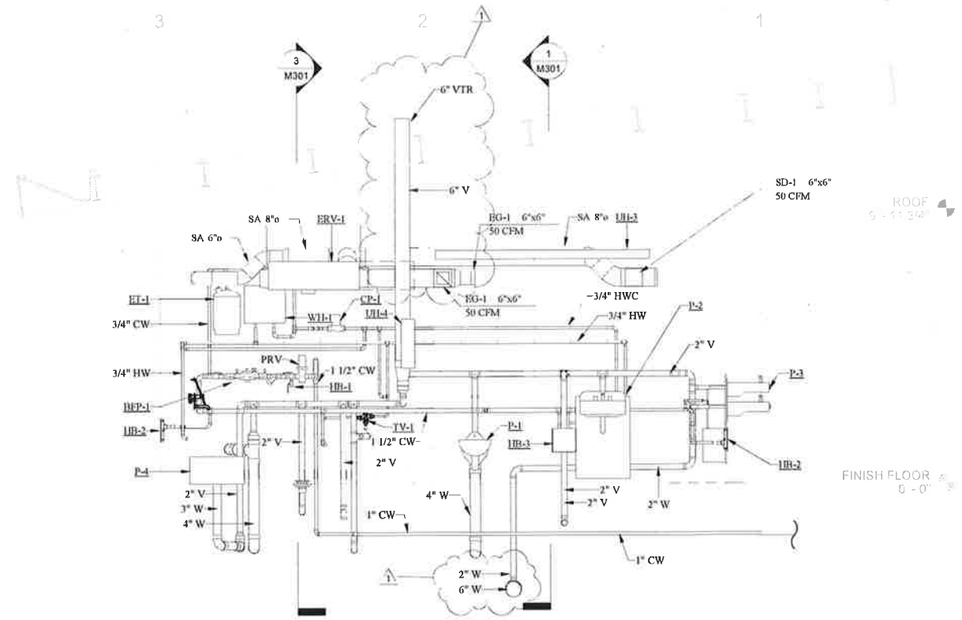


1 Section1

SCALE: 3/8" = 1'-0"



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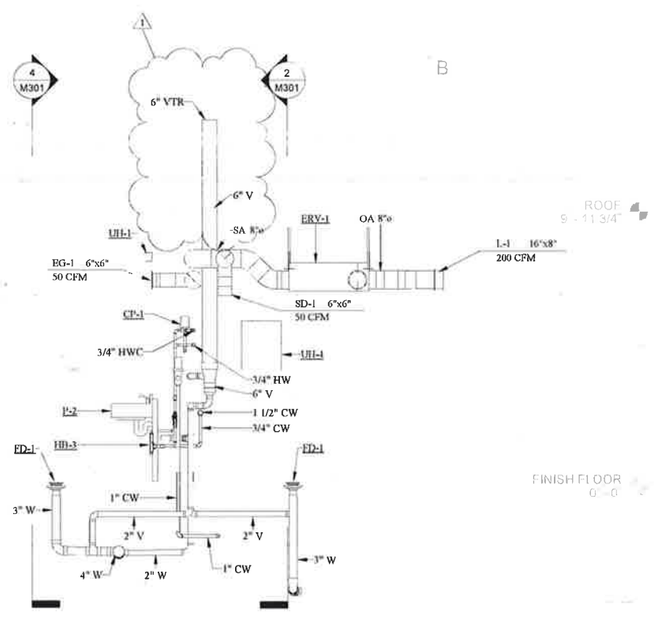

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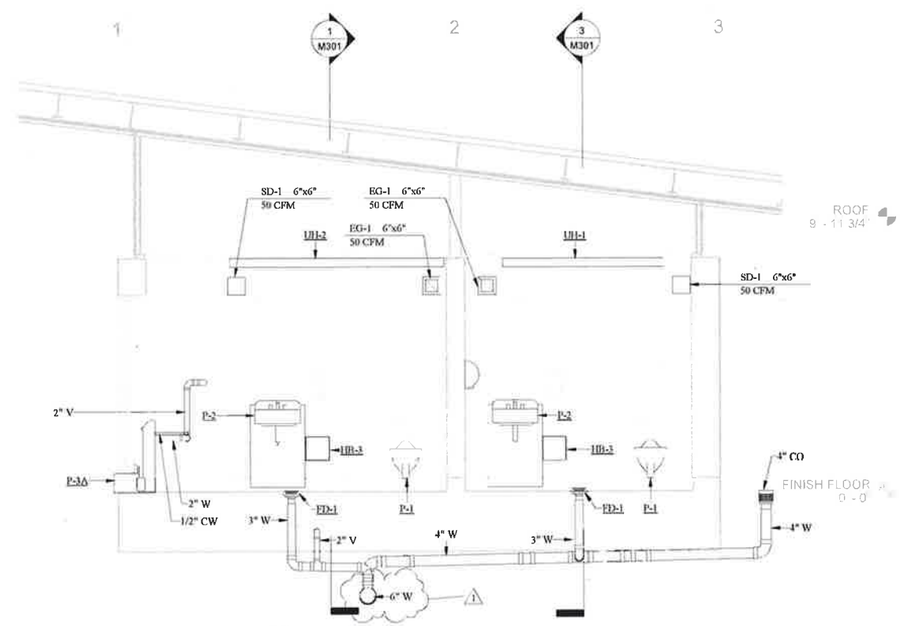

4 Section 4

SCALE: 3/8" = 1'-0"

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Totem Lake Park Phase 1
City of Kirkland

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SHEET NAME
SECTIONS AND ELEVATIONS

SHEET NUMBER
M301

Berger Partnership Project Number: 17031 Plotted: 5/20/2019 5:33:00 PM Filename: C:\Users\Karissa\Documents\17031 Totem Lake (2018)_Central_Karissa\26WY.rvt

ELECTRICAL ABBREVIATIONS

ACPS	ACCESS CONTROL POWER SUPPLY
ACS	ACCESS CONTROL SYSTEM
AF	AMP FUSE
AFF	ABOVE FINISHED FLOOR DIRECTLY UNDER THE ITEM
AL	ALUMINUM
ALT	ALTERNATE
ANN	ANNUNCIATOR
ARCH	ARCHITECTURAL
ATS	AUTOMATIC TRANSFER SWITCH
BATT	BATTERY
BKBD	BACKBOARD
BOT	BOTTOM
BS	BACKSPLASH
C	CONDUIT
C3	CATEGORY 3
C5	CATEGORY 5
C5E	CATEGORY 5E
C6	CATEGORY 6
CAB	CABINET
CATV	COMMUNITY ANTENNA TELEVISION
CB	CIRCUIT BREAKER
CCT	CIRCUIT(S)
CCTV	CLOSED CIRCUIT TELEVISION
CLG	CEILING
CLK	CLOCK
CO	CONDUIT ONLY
COMM	COMMUNICATIONS
CONC	CONCRETE
CONT	CONTACTOR
CONTR	CONTRACTOR
COW	COMPUTER ON WHEELS
CPS	CAMERA POWER SUPPLY
CT	CURRENT TRANSFORMER
CTL	CONTROL
CU	COPPER
CWB	CIRCUIT WEATHER BALLAST
DCS	DOOR CONTROL SYSTEM
DDC	DIRECT DIGITAL CONTROL
DET	DETECTOR
DISC	DISTRIBUTION
DIV	DIVISION
DN	DOWN
DW	DISHWASHER
DX	DUPLEX
EA	EACH
EF	EXHAUST FAN
EHD	ELECTRIC HANDHAIR DRYER
ELEV	ELEVATION
EMCS	ENERGY MANAGEMENT & CONTROLS SYSTEM
EMER	EMERGENCY
EMS	ENERGY MANAGEMENT SYSTEM
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
EOLR	END OF LINE RESISTOR
EPO	EMERGENCY POWER OFF
EQP	EQUIPMENT
ER	TELECOMMUNICATIONS EQUIPMENT ROOM
EWC	ELECTRIC WATER COOLER
EXG	EXISTING
F	FUSE
F/SD	FIRE/SMOKE DAMPER
FA	FIRE ALARM
FAC	FIRE ALARM EXTENDER PANEL
FACP	FIRE ALARM CONTROL PANEL
FIX	FIXTURE
FLR	FLOOR
FMC	FLEXIBLE METAL CONDUIT
FO	FIBER-OPTIC
FSD	FAN SHUTDOWN
GCS	GATE CONTROL SYSTEM
GEN	GENERATOR
GFI	GROUND FAULT INTERRUPTER
GFP	GROUND FAULT PROTECTION
GND	GROUND
GRC	GALVANIZED RIGID STEEL CONDUIT
HT	HEIGHT
HTR	HEATER
HWT	WATER HEATER
IC	INTERCOM
ICM	INTERCOM MASTER STATION
ICS	INTERCOM SLAVE STATION
IDF	TELECOMMUNICATIONS INTERMEDIATE DISTRIBUTION FRAME
IDP	INTRUSION DETECTION SYSTEM PANEL
IG	ISOLATED GROUND
IMC	INTERMEDIATE METAL CONDUIT
ISP	INSIDE PLANT
JB	JUNCTION BOX
JE	JUNCTION ENCLOSURE
KS	KEY SWITCH
LAN	LOCAL AREA NETWORK
LB	ELBOW
LCP	LIGHTING CONTROL PANEL
LFMC	LIQUID FLEXIBLE METAL CONDUIT
LOC	LOCATION
LTG	LIGHTING
LV	LOW VOLTAGE
M	MICROWAVE
MC	METAL CLAD CABLE
MCC	MOTOR CONTROL CENTER
MDF	TELECOMMUNICATIONS MAIN DISTRIBUTION FACILITY
MIC	MICROPHONE
MM	MULTI-MODE
MMOF	MULTIMODE OPTICAL FIBER
MMS	MANUAL MOTOR STARTER
MTD	MOUNTED
MTR	MOTOR
NC	NORMALLY-CLOSED
NL	NIGHT LIGHT
NO	NORMALLY-OPEN
OAN	OR AS NOTED
OFCI	OWNER-FURNISHED, CONTRACTOR-INSTALLED

ELECTRICAL ABBREVIATIONS

OH	OVERHEAD
OHC	OVERHEAD COMMUNICATIONS
OSP	OUTSIDE PLANT
PA	PUBLIC ADDRESS
PB	PUSHBUTTON
PC	PHOTOCELL
PLWD	PLYWOOD
PMP	PUMP
PNL	PANELBOARD
PROJ	PROJECTOR
PT	POTENTIAL TRANSFORMER
PVC	RIGID NONMETALLIC CONDUIT
PWR	POWER
RCRP	RECEPTACLE CONTROL RELAY PANEL
REC	RECEPTACLE CONTROL RELAY PANEL
REF	REFRIGERATOR
RIO	ROUGH-IN ONLY
RMC	RIGID METAL CONDUIT
RNC	RIGID NON-METALLIC CONDUIT
SC	SHORT CIRCUIT
SCBD	SCOREBOARD
SEC	SECURITY
SECT	SECTION
SIM	SIMILAR
SM	SINGLE-MODE
SMOF	SINGLE-MODE OPTICAL FIBER
SMR	SURFACE METAL RACEWAY
SPD	SURGE PROTECTION DEVICE
SURF	SURFACE
SV	SOLENOID VALVE
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SYS	SYSTEMS
TC	TIME CLOCK
TEL	TELEPHONE
TELCOM	TELECOMMUNICATIONS
TGB	TELECOMMUNICATIONS GROUND BUS
TMGB	TELECOMMUNICATIONS MAIN GROUNDING BUS BAR
TP	TRAP PRIMER
TR	TELECOMMUNICATIONS ROOM
TYP	TYPICAL
UC	UNDER CABINET
UF	UNDER FLOOR
UG	UNDERGROUND
UGPP	UNDERGROUND PRIMARY POWER
UGSP	UNDERGROUND SECONDARY POWER
UGT	UNDERGROUND TELECOMMUNICATIONS
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERUPTABLE POWER SUPPLY
UTP	UNSHIELDED TWISTED PAIR CABLE
VER	VERIFY
WAN	WIDE AREA NETWORK
WAP	WIRELESS ACCESS POINT
WAPA	WIRELESS ACCESS POINT EXTERIOR ANTENNA
WG	WIRE GUARD
WP	WEATHERPROOF
WPL	WEATHERPROOF LOCKING
WPU	WEATHERPROOF WHILE IN USE
XC	CROSS CONNECT
XFMR	TRANSFORMER
XFR	TRANSFER
XP	EXPLOSIONPROOF

ELECTRICAL SYMBOLS

GENERAL

NOTES:
1. INDICATED MOUNTING HEIGHTS ARE TO THE CENTER LINE OF BOX UNLESS NOTED OTHERWISE
2. SEE PLANS FOR NON-STANDARD MOUNTING HEIGHTS
3. POWER DEVICES SHOWN ON SYSTEM SHEETS E4 SERIES SHALL BE FOR COORDINATION ONLY NOT ALL DEVICES ARE SHOWN FOR CLARITY

3 — CODED NOTE REFERENCE
101 — ROOM NUMBER
FC-1 — MECHANICAL/SPECIAL EQUIPMENT DESIGNATION
— LOW VOLTAGE ENCLOSURE

LUMINAIRES

15a A01 — LUMINAIRE
- LUMINAIRE TYPE
- CIRCUIT & SWITCH LEG OR CONTROL (a' DENOTES CENTER LAMPS WHERE APPLICABLE)

SHADING DENOTES LUMINAIRE [CONNECTED TO EMERGENCY POWER SYSTEM] [EQUIPPED WITH EMERGENCY BALLAST]

STRIP LUMINAIRE

S02 9 a A
- LUMINAIRE TYPE
- CCT NO
- CONTROL CCT
- EXTERIOR POLE MOUNTED LUMINAIRE
- BASE TYPE
- DISTRIBUTION TYPE

SWITCHING DEVICES

SUBSCRIPTS DENOTE:
- 'A' ABOVE COUNTER, CENTER 4' ABOVE TOP OF COUNTER OR BACKSPLASH
- 'SD' 2-BUTTON FOR STEP DIMMING CONTROL
- 'abcd' EACH LOWER CASE LETTER DENOTES (1) SWITCH & ORDER OF SW'S

WALL SWITCH OCCUPANCY SENSOR +46"

WALL SWITCH +46"

OS — OCCUPANCY/VACANCY SENSOR
- 'S' DENOTES STANDALONE (DIRECT WIRE) DEVICE
- 'M' DENOTES LCP SYSTEM DEVICE
- 'P' DENOTES LCP SYSTEM DEVICE

LIGHTING CONTROL DESIGNATION
- LCP1 — LIGHTING CONTROL PANEL
- N1 — CONTROL RELAY(S)
- H1A1 — BRANCH CIRCUIT NUMBER

RECEPTACLE & POWER CONNECTIONS

SUBSCRIPTS DENOTE:
- 'A' ABOVE COUNTER, CENTER 4' ABOVE TOP OF COUNTER OR BACKSPLASH
- 'C' RECEPTACLE FOR COFFEE +18"
- 'CLG' RECEPTACLE EMBALLED IN CEILING
- 'CPS' CAMERA POWER SUPPLY CONNECTION
- 'D' RECEPTACLE FOR DRYER +30"
- 'DW' DISHWASHER CONNECTION BELOW COUNTER +18
- 'F' RECEPTACLE FOR FREEZER +46"
- 'FH' FUME HOOD CONNECTION
- 'IH' INSTAHOT CONNECTION
- 'H' MOUNT HORIZONTAL
- 'HA' MOUNT HORIZONTALABOVE COUNTER, CENTER 4' ABOVE TOP OF COUNTER OR BACKSPLASH
- 'HD' HAND DRYER - HEIGHT PER INTERIOR ELEVATION
- 'ICE' ICE MACHINE +18
- 'M' RECEPTACLE FOR MICROWAVE - HEIGHT PER INTERIOR ELEVATION
- 'R' RECEPTACLE FOR REFRIGERATOR +46"
- 'RG' RECEPTACLE FOR RANGE +30
- 'RH' RANGE HOOD - HEIGHT PER INTERIOR ELEVATION
- 'RO' RANGEOVEN +30
- 'TK' MOUNT HORIZONTALLY IN TOE KICK
- 'UC' UNDER-COUNTER REFRIGERATOR +18"
- 'V' RECEPTACLE FOR VENDING MACHINE +46"
- 'VP' RECEPTACLE FOR VIDEO PROJECTOR MOUNTED 4 1/2" ABOVE PROJECTOR AVIDATA
- 'W' RECEPTACLE FOR WASHING MACHINE +30"
- 'WC' WATER COOLER - CONCEALED BEHIND UNIT (NOT)
- 'WP' WEATHER-PROOF DEVICE
- 'WPU' WEATHER-PROOF DEVICE WHILE-IN-USE

DUPLEX RECEPTACLE +18"

DOUBLE DUPLEX RECEPTACLE +18"

GROUND FAULT CIRCUIT INTERRUPTING RECEPTACLE +18"

SPECIAL PURPOSE EQUIPMENT CONNECTION PROVIDE FUSIBLE DISCONNECT WHERE REQUIRED

XX-1 — MOTOR CONNECTION

DISCONNECT SWITCH

MOTOR STARTER OR VFD AS INDICATED

COMBINATION STARTER OR VFD AS INDICATED

NAME — PANELBOARD

INTERFACE RELAY W/10AMP MIN CONTACTS

RACEWAY & WIRING

FLUSH COUPLING

OUTLET/JUNCTION BOX

CONCEALED RACEWAY

CROSSHATCH DENOTES WIRES BESIDES EQUIPMENT GROUND CONDUCTOR NO CROSSHATCH DENOTES 2 # 12 WIRES PLUS #12 EQUIPMENT GROUND CONDUCTOR DOT DENOTES AN ADDITIONAL #12 ISOLATED GROUND CONDUCTOR

CONDUIT STUB

POWER DISTRIBUTION

CPD — FEEDER DESIGNATION

CIRCUIT BREAKER

GFP — CIRCUIT BREAKER W/GROUND-FAULT PROTECTION

FUSE

SWITCH

FUSIBLE SWITCH

GROUNDING ELECTRODE

NORMALLY OPEN CONTACTOR/RELAY

NORMALLY CLOSED CONTACTOR/RELAY

MAGNETIC MOTOR STARTER

MANUAL MOTOR STARTER W/OVERLOAD HEATERS

LIGHTNING ARRESTOR

DM — DEMAND METER

UM — USER METER

METERING TRANSFORMERS

TRANSFORMER

V — METER

FAULT INDICATOR

Isc — SYMMETRICAL SHORT CIRCUIT VALUE

DEMOLITION SUBSCRIPTS

E	DENOTES EXISTING TO REMAIN IN SERVICE
R	DENOTES EXISTING TO BE REMOVED
ER	DENOTES EXISTING TO BE RELOCATED
RE	DENOTES RELOCATED ITEM IN NEW LOCATION
RR	DENOTES REMOVE AND REINSTALL IN ORIGINAL LOCATION
EA	DENOTES EXISTING TO BE ABANDONED IN PLACE REMOVE DEVICE & WIRING AND PROVIDE BLANK PLATE
RN	DENOTES EXISTING TO BE REPLACED WITH NEW AT ORIGINAL LOCATION

This Sheet For Reference Only

- SHEET LIST -

NUMBER	SHEET NAME
E001	SYMBOLS LIST & ABBREVIATIONS
E002	WSEC COMPLIANCE FORMS
E003	WSEC COMPLIANCE FORMS
E004	WSEC COMPLIANCE FORMS
E101	ELECTRICAL SITE PLAN
E201	ENLARGED BUILDING PLANS
E301	ONE-LINE DIAGRAM AND SCHEDULES
ED100	DETAILS

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Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

MARK ADRIAN MCALLISTER — STATE OF WASHINGTON — 34258 — REGISTERED PROFESSIONAL ENGINEER

SET TYPE
100% Design Submittal

SET ISSUE DATE
2/8/2019

REVISIONS
Δ DESCRIPTION DATE

DRAWN/CHECKED
LAI / MAM

SHEET NAME
SYMBOLS LIST & ABBREVIATIONS

SHEET NUMBER
E001

Exterior Lighting

LTG-EXT

2015 Washington State Energy Code Compliance Forms for Commercial Buildings including R2, R3, R4 over 3 stories and all R1 — Revised Nov 2017

Project Title:	Totem Lake Park Phase 1	Date 11/8/2018
Exterior Lighting Zone	Zone 1 • Zone 2 Zone 3 Zone 4 *Exterior Lighting Zone selection required to enable LTG-EXT form. Zones are defined in Table C405.5.2(1) and specified by the jurisdiction.*	For Building Department Use
Calculation Area	New construction; Addition - stand alone; Addition + existing; Alteration with < 50% ext. wattage replaced; Alteration with ≥ 50% ext. wattage replaced	User Note
Building Grounds *Applies to individual luminaires > 100 Watts*	☐ Efficacy > 60 lumens/watt ☐ Exemption ☐ Controlled by motion sensor	

Tradable Maximum Allowed Lighting Wattage NOTE 1

Base Site Allowance: 600

Tradable Surfaces	Surface Description	Area (ft²), perimeter (lf) or # of items	Allowed Watts per ft² or per lf	Allowed Watts (x ft² (or x lf)) NOTE 2
Grounds Walkways <10 wide		3600	0.7 W/LF	2520
Grounds Walkways >10 wide		389	0.14 W/Ft2	54

Total Allowed Tradable + Site Allowance Watts: 3175

Tradable Proposed Lighting Wattage NOTE 3

Tradable Surface	Fixture Description NOTE 4, 5	Number of Fixtures	Watts per Fixture NOTE 6	Watts Proposed
Grounds Walkways >10' wide	Z02	16	11	173
Grounds Walkways <10 wide	Z01	6	26	156

Total proposed tradable watts may not exceed the sum of total allowed tradable watts plus the base site allowance. Any base site allowance not needed to make tradable watts comply can be applied to individual non-tradable categories.

Total Proposed Tradable Watts: 329

Non-Tradable Maximum Allowed Lighting Wattage NOTE 1

Site Allowance Remaining: 600

Non-Tradable Surfaces	Surface Description	Area (ft²), perimeter (lf) or # of items	Allowed Watts per ft² lf or item	Allowed Watts (x ft² (or x lf)) NOTE 2

Non-Tradable Proposed Lighting Wattage NOTE 3, 7

Non-Tradable Surface	Fixture Description NOTE 4, 5	Number of Fixtures	Watts per Fixture NOTE 6	Watts Proposed

Non-tradable proposed watts may not exceed allowed watts for any individual surface unless the total excess watts for all non-tradable surfaces are less than the remaining site allowance.

Non-Tradable Watts Exceeding LPA: 0

Remaining Site Allowance: 600

Exterior Lighting

COMPLIES WITH MAX. ALLOWANCE

Note 1 - List all exterior surfaces per Table C405.5.2(2) that occur in the project scope. Select exterior surface categories from drop down menu.
*Note 2 - **Unit Message** - Enter lighting fixture information for this surface in Proposed Lighting Wattage table to generate Lighting Power Allowance.*
Note 3 - List all proposed lighting fixtures including existing-to-remain fixtures.
Note 4 - For proposed Fixture Description, indicate fixture type, lamp type, number of lamps in the fixture, and ballast type (if applicable).
Note 5 - Existing-to-remain fixtures shall be included in the Tradable and Non-Tradable Proposed Lighting Wattage tables in the same manner as new fixtures. Identify as existing in fixture description.
Note 6 - For proposed Watts/Fixture enter the luminaire wattage for installed lamp and ballast using manufacturer or other approved source. For luminaires with screw-in lamps, enter the manufacturer's listed maximum input wattage of the fixture (not the lamp wattage). For low voltage lighting, enter the wattage of the transformer.
Note 7 - Automated Teller and Night Depositories - For each location, enter the number of ATM machines or depositories within that location. If there are multiple locations in the project, enter each location individually in the Non-Tradable Maximum Allowed Lighting Wattage table and identify the location in the Surface Description section.

Interior Lighting - Space-By-Space Method

LTG-INT-SPACE

2015 Washington State Energy Code Compliance Forms for Commercial Buildings including R2, R3, R4 over 3 stories and all R1 — Revised Nov 2017

Project Title:	Totem Lake Park Phase 1	Date 11/8/2018
Calculation Area NOTE 8	New Construction; Addition - stand alone; Addition + existing; Spaces where < 50% of luminaires are replaced; Spaces where ≥ 50% of luminaires are replaced; Spaces where the Use is changing (C505)	For Building Department Use
LPA Calculation Type	Standard; Additional Efficiency Package Option C406.3 Reduced Interior Lighting Power *To comply with C406.3, the Proposed LPD shall be 25% lower than the Target LPA. Refer to C406.3 for additional requirements.*	User Note

Maximum Allowed Lighting Wattage NOTE 1

Location (plan # room #)	Space Type	Ceiling Height NOTE 2	Gross Interior Area in ft²	Allowed Watts per ft²	Watts Allowed (watts/ft² x area)
	Restroom all other		64	0.780	50
	Restroom all other		75	0.780	58
	Restroom all other		78	0.780	61
	Electrical/mechanical		64	0.760	48

Total Area: 280

Retail Display Allowance from LTG-INT-DISPLAY:

Lobby Art/Exhibit Display Allowance from LTG-INT-DISPLAY NOTE 8:

Allowed Watts: 217

Proposed Lighting Wattage NOTE 3

Location (plan #, room #)	Fixture Description NOTE 4, 5, 6	Number of Fixtures	Watts/ Fixture NOTE 7		Watts Proposed
SEE PLANS	S02 - SURFACE MOUNTED VALDAL RESISTANT VANITY	3	25		75
SEE PLANS	S03 - WALL MOUNTED INDUSTRIAL STRIP	2	19		38
SEE PLANS	S01A - WET LOCATION SURFACE MOUNTED	7	14		98

Proposed Retail Display Lighting from LTG-INT-DISPLAY:

Total Proposed Watts may not exceed Total Allowed Watts for Interior Lighting

Total Proposed Watts: 211

Interior Lighting Power Allowance

COMPLIES

Note 1 - List all unique space types per Table C405.4.2(1) that occur in the project scope. Select space type category from drop down menu.
Note 2 - Indicate ceiling height for atriums and spaces utilizing the ceiling height adjustment per Table C405.4.2(2), Footnotes d thru f.
Note 3 - List all proposed lighting fixtures including exempt lighting equipment and existing-to-remain fixtures.
Note 4 - For proposed Fixture Description, indicate fixture type, lamp type (e.g. T-8), number of lamps in the fixture, and ballast type (if applicable). For track lighting, list the length of the track (in feet) in addition to the fixture, lamp, and ballast information.
Note 5 - For lighting equipment eligible for exemption per C405.4.1, note exception number and leave Watts/Fixture blank.
Note 6 - Existing-to-remain fixtures shall be included in the Proposed Lighting Wattage table in the same manner as new fixtures. Identify as existing in fixture description.
Note 7 - For proposed Watts/Fixture enter the luminaire wattage for installed lamp and ballast using manufacturer or other approved source. For luminaires with screw-in lamps, enter the manufacturer's listed maximum input wattage of the fixture (not the lamp wattage). For low voltage lighting, enter the wattage of the transformer. For line voltage track/busway systems, enter the larger of the attached luminaire wattage or 50 watts/linear foot, or enter the wattage limit of permanent current limiting device.
Note 8 - Lobby Art&Exhibit Display Allowance is independent of the Maximum Allowed Lighting Wattage. Enter all proposed lobby art/exhibit display fixtures in LTG-INT-DISPLAY form only.
Note 9 - Calculation Area Details:
a. Lighting fixtures in a building addition may comply as a stand alone project, or they may be combined with the overall existing building lighting systems to demonstrate compliance. Refer to C502.1.
b. For alterations and building additions, provide Space Types and gross interior areas in the Maximum Allowed Lighting Wattage table. If a building addition will comply as combined with the overall existing building lighting systems, include all applicable existing Space Types and gross interior areas.
c. If less than 50% of existing lighting fixtures will be replaced, provide total existing lighting wattage (prior to alteration) in the space provided in the Maximum Allowed Lighting Wattage table.
d. If lighting alteration project includes some building areas or spaces where < 50% of luminaires are replaced, and other areas or spaces where ≥ 50% of luminaires are replaced, then these areas or spaces may be documented separately. If multiple forms will be completed to demonstrate compliance for the total scope of the alteration project, describe scope covered in form in User Note section.

Lighting Summary

LTG-SUM

2015 Washington State Energy Code Compliance Forms for Commercial Buildings including R2, R3, R4 over 3 stories and all R1 — Revised Nov 2017

Project Info	Project Title: Totem Lake Park Phase 1	Date 11/8/2018
Compliance forms do not require a password to use. Instructional and calculating cells are unlocked.	Applicant Information. Please contact information for individual who can respond to inquiries about compliance form information provided Company Name: City of Kirkland Company Address: 12031 Totem Lake Way, Kirkland, WA 98034 Applicant Name: Lars Iverson Applicant Phone: 206 441 4522 Applicant Email: liverson@nacarchitecture.com	For Building Department Use

Project Description

☑ New Building ☐ Addition ☐ Alteration ☐ No Lighting Scope

Include PROJ-ADD-ALT form (included in versatile forms workbook) with lighting compliance forms

Interior Lighting System Description

Briefly describe interior lighting system type and features

☑ Interior Lighting Plans Included

restrooms controlled via occupancy sensors and a mechanical room controlled via occupancy sensor wall switch

Interior Lighting Power Allowance Method

☐ Building Area Method ☑ Space-by-space Method

Select method used in project.

Interior Lighting Controls

Select method of compliance for lighting controls

☐ All C405.2.1 - C405.2.8 Lighting Controls ☐ C405.2 Exception 5 Luminaire Level Lighting Controls (LLLC)

☐ Additional Efficiency Package Option C406.4 Enhanced Digital Lighting Controls

To comply with C406.4, no less than 90% of the total installed interior lighting power shall comply with the required controls per C406.4

Dwelling Unit Interior Lighting

Permanently installed interior lighting fixtures in dwelling units comply with: No Dwelling Units

C405.2 thru C405.5 Commercial Lighting Controls and LPA

C406.3 High Efficacy Lighting

R404.1 Residential High Efficacy Lighting

Dwelling unit lighting complies with WSEC Residential provisions in lieu of WSEC Commercial provisions

Exterior Lighting System Description

Briefly describe exterior lighting system type and features

☑ Exterior Lighting Plans Included

Fixtures under the soffit are dimmable

Building Additions

Refer to Section C502.2.6 for additional requirements

Compliance Method	Interior lighting	Exterior lighting
Lighting systems in addition area comply with all applicable provisions as a stand alone new construction project	☑	☑
Lighting systems in addition are combined with existing building lighting systems to demonstrate compliance	☐	☐

Addition is combined with existing:
For interior lighting projects, include new + existing-to-remain interior lighting fixture wattage in Proposed Lighting Wattage table in LTG-INT-BLD or LTG-INT-SPACE form

For exterior lighting projects, include new + existing-to-remain exterior lighting fixture wattage in Proposed Tradable and Proposed Non-Tradable Lighting Wattage tables in LTG-EXT form.

Lighting Summary, cont.

LTG-SUM

2015 Washington State Energy Code Compliance Forms for Commercial Buildings including R2, R3, R4 over 3 stories and all R1 — Revised Nov 2017

Project Title: Totem Lake Park Phase 1 — Date 11/8/2018

Change of Space Use

☐ Existing interior lighting systems in areas under-going a change in space use are upgraded to comply with LPAs for the new space types per Tables C405.4.2(1) or C405.4.2(2).

Identify interior spaces requiring LPD upgrade to the current Code in Proposed Lighting Wattage table in LTG-INT-BLD or LTG-INT-SPACE form.

Interior and Exterior Lighting Alterations

Select all Lighting Power and Lighting Control elements that apply to the scope of the retrofit project. If project includes a combination of spaces where less than 50% of the existing fixtures are replaced in some spaces, and 50% or more of the fixtures are replaced in others, then provide separate lighting power compliance forms for the two retrofit scenarios. Spaces undergoing the same type of retrofit may be combined into one lighting power compliance form.

Refer to Section C503.6 for additional requirements.

All alteration lighting controls shall be commissioned per C408.3

Lighting Power	Interior lighting	Parking garage	Exterior lighting
50% or more of existing are replaced	☐	☐	☐
Less than 50% of existing are replaced	☐	☐	☐
Lamp and/or ballast replacement only -- existing total wattage not increased	☐	☐	☐

50% or more replaced *- Total lighting power of new + existing-to-remain fixtures shall comply with total LPA per Sections C405.4.2 and C405.5.2. Include new + existing-to-remain fixtures in Proposed Lighting Wattage table in LTG-INT-BLD, LTG-INT-SPACE or LTG-EXT form.*

Less than 50% replaced *- Total lighting power of new + existing-to-remain fixtures shall not exceed the total lighting power prior to alteration. Include new + existing-to-remain fixtures in the Proposed Lighting Wattage table in LTG-INT-BLD, LTG-INT-SPACE or LTG-EXT form.*

50% threshold *applies to number of luminaires for interior spaces and parking garages, and total installed wattage for exterior luminaires.*

Lighting Controls	Interior lighting	Parking garage	Exterior lighting
New wiring installed to serve added fixtures and/or fixtures relocated to new circuit(s)	☐	☐	☐
New or moved lighting panel	☐	☐	☐
Interior space is reconfigured - luminaires unchanged or relocated only	☐		

New wiring or circuit *- For interior lighting, provide required manual controls per C403.2.3, occupancy sensor controls per C405.2.1, daylight responsive controls per C405.2.4 and application specific lighting controls per C403.2.3. For exterior lighting, provide required controls per C403.2.7*

New or moved panel *- Provide all applicable lighting controls as noted for New Wiring and automatic time switch controls per C405.2.2*

Reconfigured interior space *- Provide all required lighting controls that apply to a new interior space. Application specific lighting control exceptions per C405.2.5 do not apply to reconfigured spaces*

☐ ***No changes are being made to the interior or exterior lighting systems and existing space uses and configuration are not changed.***

This Sheet For Reference Only

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Reviewed by R Braun
08/06/2019

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Totem Lake Park Phase 1
City of Kirkland
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MARK ADRIAN MCMILLAN — STATE OF WASHINGTON — 34258 — REGISTERED PROFESSIONAL ENGINEER

SET TYPE
100% Design Submittal

SET ISSUE DATE
2/8/2019

REVISIONS

Δ	DESCRIPTION	DATE

DRAWN/CHECKED
LAI / MAM

SHEET NAME
WSEC COMPLIANCE FORMS

SHEET NUMBER
E002

Lighting, Motor, and Electrical Permit Checklist, Pg. 2

LTG-CHK

2015 Washington State Energy Code Compliance Forms for Commercial Buildings including R2, R3, R4 over 3 stories and all R1 — Revised Nov 2017

Project Title: Totem Lake Park Phase 1 — Date: 11/8/2018

The following information is necessary to check a permit application for compliance with the lighting, motor, and electrical requirements in the Washington State Energy Code, Commercial Provisions.

Applicability (yes, no, na)	Code Section	Component	Compliance information required in permit documents	Location in Documents	Building Department Notes
NA	C405.2.5 - Item 3	Hotel/motel guest rooms	Indicate method of automatic control - vacancy or captive key control of all installed luminaires and switched receptacles in guest room		
NA	C405.2.5 - Item 4	Supplemental task lighting	Indicate method and location of automatic shut-off vacancy control for supplemental task lighting including under-shelf or under-cabinet lighting		
NA	C405.2.5 - Item 5	Lighting for non-visual applications	Indicate on plans eligible non-visual lighting applications, include sq. ft. area of each lighting control zone,		
			Indicate on plans that non-visual lighting are controlled independently from both general area lighting and other lighting applications within the same space		
			Indicate method of manual lighting control and applicable automatic lighting control		
NA	C405.2.5 - Item 6	Lighting equipment for sale or demonstration	Indicate on plans that lighting equipment for sale or demonstration are controlled independently from both general area lighting and other lighting applications within the same space;		
			Indicate method of manual lighting control and applicable automatic lighting control		
NA	C405.2.5 - Item 7	Means of egress lighting	Identify on plans egress fixtures that function as both normal and emergency means of egress illumination,		
			Provide calculation of lighting power density of total egress lighting		
			If total egress lighting power density is greater than 0.02 W/sq.ft. indicate on plans egress fixtures requiring automatic shut-off during unoccupied periods		
			Indicate method of automatic shut-off control		
Yes	C405.2.7	Exterior lighting controls	Indicate on exterior lighting plans and fixture schedules the automatic lighting control method, control sequence, and locations served.		
			For building facade and landscape lighting indicate automatic controls shut off lighting as a function of dawn/dusk and fixed opening/closing time;		
			For all other exterior lighting indicate automatic controls shut off lighting as a function of available daylight, include control sequence that also reduces lighting power by at least 30% between 12am-6am or from 1 hour after closing to 1 hour before opening or based upon motion sensor		
Yes	C405.5.1	Exterior building grounds lighting controls	For building grounds fixtures greater than 100 watts indicate on plans whether fixtures have efficacy greater than 60 lumens/w; are controlled by motion sensor, or are exempt lighting per C405.5.2		
NA	C405.2.6 (listed after C405.2.7)	Area controls - Master control switches and circuit power limit	Indicate location(s) of master control switch(es) intended to control multiple independent switches; circuit breaker may not be used as a master control switch		
			Verify that no 20 amp circuit controlled by a single switch or automatic control is loaded beyond 80%		
ADDITIONAL EFFICIENCY PACKAGE OPTION - ENHANCED DIGITAL LIGHTING CONTROLS					
NA	C406.4	Enhanced digital lighting controls	To comply with additional efficiency package option, indicate on plans all interior lighting fixtures that are individually addressed and provided with continuous dimming or exception taken		
			Include calculation of percent total installed interior lighting power that is configured with required enhanced lighting control functions (min 90% to comply with additional efficiency package option).		

The following information is necessary to check a permit application for compliance with the lighting, motor, and electrical requirements in the Washington State Energy Code, Commercial Provisions

Lighting, Motor, and Electrical Permit Checklist, Pg. 1

LTG-CHK

2015 Washington State Energy Code Compliance Forms for Commercial Buildings including R2, R3, R4 over 3 stories and all R1 — Revised Nov 2017

Project Title: Totem Lake Park Phase 1 — Date: 11/8/2018

The following information is necessary to check a permit application for compliance with the lighting, motor, and electrical requirements in the Washington State Energy Code, Commercial Provisions.

Applicability (yes, no, na)	Code Section	Component	Compliance information required in permit documents	Location in Documents	Building Department Notes
LIGHTING CONTROLS					
Yes	C405.2	Lighting controls, general	For all lighting fixtures indicate lighting control method on plans for spaces and lighting zone(s) served, or exception taken		
NA	C405.2	Luminaire level lighting controls (LLLC)	Indicate on plans all fixtures provided with LLLC in lieu of C405.2 lighting controls provide description of control capabilities and performance parameters		
NA	C405.1	Lighting in dwelling units	For permanently installed lighting fixtures in dwelling units indicate lighting control method on plans for spaces and lighting zone(s) served or demonstrate compliance with high efficacy exception		
Yes	C405.2.3 C405.2.1.1 C405.2.2.2 C405.2.4 C405.2.5	Manual controls	Indicate on plans the method of manual lighting control (whether combined with occupancy sensor automatic light reduction daylight responsive or specific application controls) location of manual control device and area or specific application it serves		
NA	C405.2.2.1 C405.2.2.2 C405.2.3	Manual interior light reduction controls	Indicate on plans which method of manual 50% lighting load reduction is provided or whether lighting load is reduced via occupancy sensors or daylight responsive controls		
Yes	C405.2.2	Method of automatic shut-off control	Indicate on plans the method of automatic shut-off control during unoccupied periods (occupancy sensor time switch or digital timer switch) for all lighting zones;		
			Indicate locations where automatic shutoff is provided by other methods (occupancy sensor or digital timer switch) or which time switch control exception applies		
			Indicate on plans the spaces served by occupancy sensors;		
Yes	C405.2.1 C405.2.1.1	Occupancy sensor controls	Indicate whether occupancy sensor controls are configured to be manual-on, automatic 50%-on, or serve a space eligible for automatic 100%-on per exception		
NA	C405.2.1.2	Occupancy sensor controls - warehouses	Indicate aisleways and open areas in warehouse spaces provided with occupancy sensor controls that reduce lighting power by 50%		
NA	C405.2.2.1	Automatic time switch control	Indicate locations of override switches on plans and the lighting zone(s) served include area sq. ft.		
	C405.2.6	Digital timer switch	Indicate digital timer switch control includes manual on/off time delay audible and visual indication of impending time-out		
NA	C405.2.4.2 C405.2.4.3	Daylight zones - Sidelight and toplight	Indicate primary and secondary sidelight daylight zone areas on plans include sq. ft.;		
			Indicate toplight daylight zone areas on plans, include sq. ft.;		
			For small vertical fenestration assemblies (rough opening less than 10 percent of primary daylight zone) where daylight responsive controls are not required provide fenestration area to daylight zone calculation(s)		
NA	C405.2.4	Daylight responsive controls	Indicate on plans lighting zone(s) served by daylight responsive controls		
			Identify sidelight and toplight daylight zones that are not provided with daylight sensing controls and the exception(s) that apply;		
			Indicate on plans the lighting load reduction method - continuous dimming or stepped dimming that provides at least two even steps between 0%-100% of rated power		
			Indicate that daylight sensing controls are configured to completely shut off all controlled lights in the lighting zone		
NA	C405.2.5	Additional controls - Specific application lighting controls	Identify spaces and lighting fixtures on plans that require specific application lighting controls per this section		
NA	C405.2.5 - Items 1&2	Display and accent lighting	Indicate on plans that display and accent lighting and display case lighting are controlled independently from both general area lighting and other lighting applications within the same space;		
			Indicate manual and automatic lighting control method		

This Sheet For Reference Only

City of Kirkland
Reviewed by R Braun
03/08/2019

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Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

MARK ADRIAN MCALLISTER — STATE OF WASHINGTON — 34258 — REGISTERED PROFESSIONAL ENGINEER

SET TYPE
100% Design Submittal

SET ISSUE DATE
2/8/2019

REVISIONS

Δ	DESCRIPTION	DATE

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Author / Checker

SHEET NAME
WSEC COMPLIANCE FORMS

SHEET NUMBER
E003

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Lighting, Motor, and Electrical Permit Checklist, Pg. 5 — LTG-CHK

2015 Washington State Energy Code Compliance Forms for Commercial Buildings including R2, R3, R4 over 3 stories and all R1 — Revised Nov 2017

Totem Lake Park Phase 1 — Date: 11/8/2018

The following information is necessary to check a permit application for compliance with the lighting, motor, and electrical requirements in the Washington State Energy Code, Commercial Provisions.

Applicability (yes, no, na)	Code Section	Component	Compliance information required in permit documents	Location in Documents	Building Department Notes
MOTORS, TRANSFORMERS, ELECTRIC METERS, INTERIOR TRANSPORTATION					
NA	C405.6	Electrical transformers	Include electrical transformer schedule on electrical plans. Indicate transformer size, efficiency, or exception taken		
NA	C405.7	Dwelling unit electrical energy consumption	Indicate on electrical plans that each dwelling unit in Group R-2 has a separate electrical energy meter		
Yes	C405.8	Electric motor efficiency	Include all motors, including fractional hp motors, in electric motor schedule on electrical plans. Indicate hp, rpm, rated efficiency, or exception applied		
NA	C405.9.1	Elevator cabs	For luminaires in each elevator cab, provide calculated average efficacy of combined fixtures that indicates efficacy is not less than 35 lumens per watt		
			Indicate rated watts per cfm for elevator cab ventilation fans do not exceed 0.33 watts per cfm.		
			Indicate automatic controls that de-energize lighting and ventilation fans when elevator is stopped and unoccupied for a period of 15 minutes or more		
NA	C405.9.2	Escalators and moving walks	Indicate escalators comply with ASME A17.1/CSA B44, automatic controls are configured to reduce operational speed to the minimum permitted when not in use		
NA	C405.9.3	Regenerative drive	Indicate all one-way down or reversible escalators are provided with a variable frequency regenerative drive		
DOCUMENTATION AND SYSTEM REQUIREMENTS TO SUPPORT COMMISSIONING (Cx)					
NA	C408.3	Scope of electrical power and lighting systems commissioning	Indicate that all electrical systems (receptacles, transformers, motors, vertical and horizontal transportation) for which the WSEC requires control functions and / or configuration to perform specific functions are required to be commissioned		
			Where total building lighting load is > 20 kW, or where total lighting load of luminaires requiring daylight sensing and / or occupancy control > 10 kW, indicate that all automatic lighting control systems are required to be commissioned, or provide building lighting power calculation demonstrating eligibility for exception;		
NA	C405.13 C408.1.1 C408.1.2 C408.1.4.2 C103.6	Commissioning requirements in construction documents	Indicate Cx requirements in plans and specifications for all applicable electrical and lighting control systems per C408.		
			Include general summary with at minimum items 1 thru 4 of the Cx plan per C408.1.2 including: narrative description of activities, responsibilities of the Cx team, schedule of activities including verification of project close out documentation per C103.6, and conflict of interest plan (if required).		
			Include in general summary that a Cx project report or Compliance Checklist (Figure C408.1.4.2) shall be completed by the Certified Cx Professional and provided to the owner prior to the final electrical inspection		
NA	C408.3.1	Functional performance testing criteria	Identify in plans and specifications the intended operation of all equipment and controls during all modes of operation, including interfacing between new and existing-to-remain systems		
PROJECT CLOSE OUT DOCUMENTATION					
Yes	C103.6.3	Project close out documentation requirements	Indicate in plans that project close out documentation is required including WSEC lighting compliance forms and calculations that document all interior and exterior lighting area and / or surface types, lighting power allowances and installed densities		

If "no" is selected for any question, provide explanation:

End of Lighting, Motor & Transformer Permit Documents Checklist

Lighting, Motor, and Electrical Permit Checklist, Pg. 4 — LTG-CHK

2015 Washington State Energy Code Compliance Forms for Commercial Buildings including R2, R3, R4 over 3 stories and all R1 — Revised Nov 2017

Totem Lake Park Phase 1 — Date: 11/8/2018

The following information is necessary to check a permit application for compliance with the lighting, motor, and electrical requirements in the Washington State Energy Code, Commercial Provisions.

Applicability (yes, no, na)	Code Section	Component	Compliance information required in permit documents	Location in Documents	Building Department Notes
LIGHTING ALTERATIONS					
NA	C503.6	Interior and parking garage lighting fixture alterations	Where ≥ 50% of existing luminaires in interior space(s) or parking garage are replaced indicate compliance path (building area or space-by-space method). Include all new and existing-to-remain luminaires in compliance form (LTG-INT-BLD or LTG-INT-SPACE). Indicate proposed lighting wattage does not exceed maximum allowed per compliance path		
			Where < 50% of existing luminaires in interior space(s) or parking garage are replaced indicate total existing lighting wattage in each space prior to alteration. Include all new and existing-to-remain luminaires in LTG-INT-SPACE form. Indicate proposed total lighting wattage in alteration area does not exceed total existing lighting wattage prior to alteration		
	C503.6	Exterior lighting fixture alterations	Where ≥ 50% of existing exterior lighting wattage is replaced, include all new and existing-to-remain luminaires in LTG-EXT form. Indicate proposed total exterior lighting wattage does not exceed maximum allowed		
			Where < 50% of existing exterior lighting wattage is replaced, indicate total existing lighting wattage prior to alteration. Include all new and existing-to-remain luminaires in LTG-EXT form. Indicate proposed total exterior lighting wattage does not exceed total existing wattage prior to alteration		
NA	C503.6	Interior lighting wiring alterations	Where new wiring is installed to serve new interior luminaires and /or luminaires are relocated to a new circuit, indicate lighting controls are provided (as applicable) - manual (C405.2.3), occupancy sensor (C405.2.1); daylight responsive (C405.2.4), specific application (C405.2.5), exit signs (C405.3)		
NA	C503.6	Exterior lighting wiring alterations	Where new wiring is installed to serve new exterior luminaires and /or luminaires are relocated to new circuit, indicate exterior lighting controls are provided (C405.2.7)		
NA	C503.6	Lighting panel alterations	Where a new lighting panel is installed or an existing panel is moved (all new raceway and conductor wiring), indicate lighting controls are provided (as applicable) - same provisions as wiring alterations; time switch controls and manual light reduction controls (C405.2.2)		
	C503.6	Interior space reconfiguration	Where interior space(s) is reconfigured (permanently installed walls or ceiling-height partitions), indicate lighting controls are provided (as applicable) - same provisions as lighting panel alterations		
	C504.2	Lighting repairs	Identify existing luminaires being upgraded with bulb and / or ballast replacement; indicate fixture alterations does not increase existing fixture wattage		
	C505.1	Change of space use	Identify spaces on plans where the building area type or space use type is being changed from one type to another per Tables C405.4.2(1) or (2)		
			Indicate compliance path (building area or space-by-space method). Include all new and existing-to-remain luminaires in compliance form (LTG-INT-BLD or LTG-INT-SPACE). Indicate proposed lighting wattage does not exceed maximum allowed per compliance path		
RECEPTACLES					
NA	C405.10	Controlled receptacles	Identify all controlled and uncontrolled receptacles on electrical plans in each space in which they are required. Include receptacle configuration such as spacing between controlled and uncontrolled duplex devices, etc.		
			Indicate on plans whether the method of automatic control for each controlled receptacle zone is by occupant sensor or programmable time-of-day control		

The following information is necessary to check a permit application for compliance with the lighting, motor, and electrical requirements in the Washington State Energy Code, Commercial Provisions.

Lighting, Motor, and Electrical Permit Checklist, Pg. 3 — LTG-CHK

2015 Washington State Energy Code Compliance Forms for Commercial Buildings including R2, R3, R4 over 3 stories and all R1 — Revised Nov 2017

Project Title: Totem Lake Park Phase 1 — Date: 11/8/2018

The following information is necessary to check a permit application for compliance with the lighting, motor, and electrical requirements in the Washington State Energy Code, Commercial Provisions.

Applicability (yes, no, na)	Code Section	Component	Compliance information required in permit documents	Location in Documents	Building Department Notes
INTERIOR LIGHTING POWER & EFFICACY					
Yes	C405.4.1 C405.4.2	Total connected interior lighting power	Include all luminaires in lighting fixture schedule, indicate fixture types, lamps, ballasts and manufacturer's rated watts per fixture		
			Identify spaces eligible for lighting power exemption on plans and in compliance forms indicate the exception applied		
			Identify lighting equipment eligible for lighting power exemption in fixture schedule and in compliance forms. Indicate the exception applied		
			Indicate that exempt lighting equipment is in addition to general area lighting and is controlled independently		
NA	C405.3	Exit signs	Indicate location of exit signs on plans and rated watts per fixture in lighting fixture schedule (maximum 5 watts per side)		
NA	C405.1	Lighting in dwelling units - lamp efficacy	If high efficacy exception is applied to permanently installed lighting fixtures in dwelling units, indicate in lighting fixture schedule if lamps in fixtures are high efficacy per R404.1. Calculate percentage of fixtures with high efficacy lamps in project (min 75% to comply with exception)		
Interior Lighting Power Calculation - Indicate compliance path taken					
NA	C405.4.2.1	Building Area Method	Complete required compliance forms – proposed wattage per building area does not exceed maximum allowed wattage per building area. Identify locations of building areas on plans		
Yes	C405.4.2.2	Space-By-Space Method	Complete required compliance forms – total proposed wattage does not exceed maximum allowed wattage; identify locations of space types on plans including retail display areas, lobby art & exhibit display areas, and ceiling heights as applicable		
ADDITIONAL EFFICIENCY PACKAGE OPTION - REDUCED INTERIOR LIGHTING POWER DENSITY					
NA	C406.3	Reduced lighting power density	To comply with additional efficiency package option, demonstrate in compliance forms that total connected interior lighting wattage is 25% less than the total maximum allowed lighting wattage via Building Area Method or Space-By-Space Method		
NA	C406.3	Reduced lighting power density - dwelling unit lamp efficacy	For project with dwelling units, to comply with additional efficiency package option, indicate in lighting fixture schedule if lamps in interior fixtures have efficacy rating of 60 lumens per watt or more. Calculate percentage of fixtures with lamps that have this efficacy rating (min 85% to comply with option)		
EXTERIOR LIGHTING POWER & EFFICACY					
Yes	C405.5.2	Total connected exterior lighting power	Include all luminaires in lighting fixture schedule, indicate fixture types, lamps, ballasts, and manufacturer's rated watts per fixture;		
			Identify exterior applications eligible for lighting power exemption on plans and in compliance forms. Indicate exception applied		
			Indicate that exempt exterior lighting is controlled independently from non-exempt exterior lighting. Include exception claimed for each fixture or group of fixtures under exception category		
Yes	Table C405.5.2(1)	Exterior lighting zone	Indicate building exterior lighting zone as defined by the AHJ		
Yes	C405.5.1	Exterior building grounds lighting	For building grounds fixtures rated at greater than 100 watts that are complying based on efficacy, indicate rated lamp efficacy (in lumens per watt) in fixture schedule		
Yes	C405.5.2	Exterior lighting power calculations	Complete required compliance form – proposed wattage for exterior lighting plus base site allowed does not exceed maximum allowed		

The following information is necessary to check a permit application for compliance with the lighting, motor, and electrical requirements in the Washington State Energy Code, Commercial Provisions

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City of Kirkland
Reviewed by B Braun
08/08/2019

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Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

MARK ADRIAN JACKLIN — STATE OF WASHINGTON — 34258 — REGISTERED PROFESSIONAL ENGINEER

SET TYPE
100% Design Submittal

SET ISSUE DATE
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Δ	DESCRIPTION	DATE

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Author / Checker

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WSEC COMPLIANCE FORMS

SHEET NUMBER
E004

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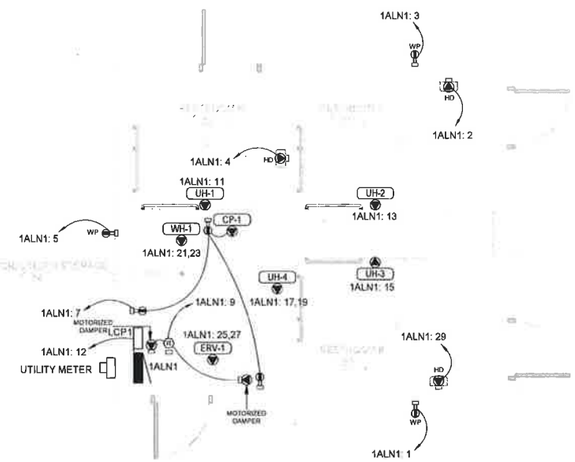

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1 MECHANICAL BUILDING ELECTRICAL PLAN
1/4" = 1'-0"

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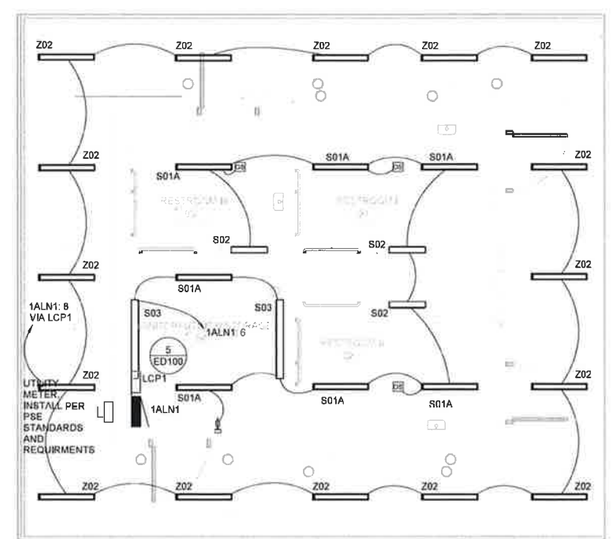

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2 MECHANICAL BUILDING LIGHTING PLAN
1/4" = 1'-0"

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Totem Lake Park Phase 1
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E201

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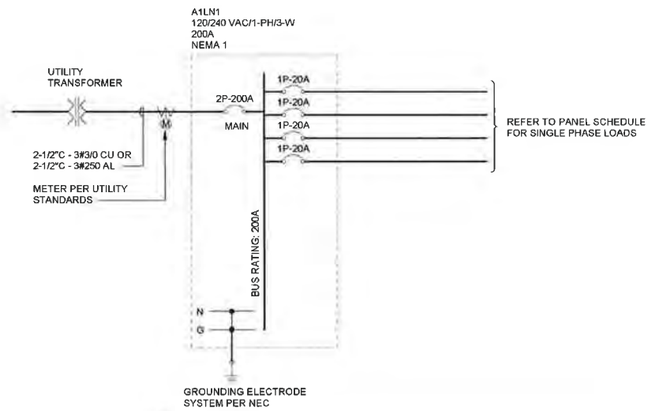

1 ONE-LINE DIAGRAM
Scale:

PANEL: 1ALN1

LOCATION: JANITOR/ UTILITY/ ... | VOLTS: 120/240 SINGLE | INTEGRAL SPD: No | SCCR RATING: 10000
SUPPLY: | PHASES 1 | ISO GND BAR: No | MAINS TYPE: MCB
MOUNTING: Surface | WIRES: 3 | FEED-THRU LUGS: No | MAINS RATING: 200 A
ENCLOSURE: Type 1 | BUS RATING: 200 | WIREWAY TO FLR: Yes

CCT	LOAD NAME	CCT NOTE	TRIP	POLE	A		B		POLE	TRIP	CCT NOTE	LOAD NAME	CCT
1	REC EXTERIOR SOUTH		20	1	180	1500			1	20		NCONT RESTROOM I 01	2
3	REC EXTERIOR NORTH		20	1			180	1500	1	20		NCONT RESTROOM III 03	4
5	REC EXTERIOR WEST		20	1	180	210			1	20		LTG Room 03, 04, 02, 01	6
7	JANITOR/ UTILITY/ STORAGE 04 ,REC		15	1			556	173	1	20		LTG EXTERIOR	8
9	NCONT JANITOR/ UTILITY/ STORAGE 04		20	1	100	156			1	20		LTG STREET	10
11	Other RESTROOM III 03 UH-1		20	1			840	250	1	20		LCP1,LCP2	12
13	Other RESTROOM I 01 UH-2		20	1	1128	0			1	20		--	14
15	Other RESTROOM II 02 UH-3		20	1			1128	0	1	20		--	16
17	Other JANITOR/ UTILITY/ STORAGE 04		20	2	1000	0			1	20		--	18
19	UH-4						1000	0	1	20		--	20
21	Other JANITOR/ UTILITY/ STORAGE 04		20	2	1500	0			1	20		--	22
23	WH-1						1500	0	1	20		--	24
25	Motor JANITOR/ UTILITY/ STORAGE 04		20	2	173	0			1	20		--	26
27	ERV-1						173	0	1	20		--	28
29	NCONT RESTROOM II 02		20	1	1500	0			1	20		--	30
31	--		20	1			0	0	1	20		--	32
33	--		20	1	0	0			1	20		--	34
35	--		20	1			0	0	1	20		--	36
37	--		20	1	0	0			1	20		--	38
39	--		20	1			0	0	1	20		--	40
41	--		20	1	0	0			1	20		--	42

SPECIAL PANEL FEATURES:				CIRCUITING NOTES:
A SERVICE ENTRANCE RATED	CONN LOAD:	7626 VA	7293 VA	1
B	DMND LOAD:	8086 VA	7733 VA	2
C	DMND AMPS:	67 A	64 A	3
D				4

LOAD CLASSIFICATION	CONNECTED...	DEMAND...	DEMAND LOAD	PANEL TOTALS	
LTG	538 VA	125.00%	673 VA	EXG DEMAND CURRENT @ 125%	
Motor	3346 VA	122.42%	4096 VA	TOTAL NEW CONNECTED LOAD:	14669 VA
Other	5105 VA	100.00%	5105 VA	TOTAL NEW DEMAND LOAD:	15553 VA
REC	1080 VA	100.00%	1080 VA	TOTAL NEW CONN CURRENT:	61.12 A
NCONT	4600 VA	100.00%	4600 VA	TOTAL NEW DEMAND CURRENT:	64.81 A
				TOTAL EXG + NEW CURRENT:	65 A
				UNBALANCED CURRENT:	3 A
LINE TOTALS:	14669 VA	106.03%	15553 VA		

Totem Lake Park Phase 1 #

City of Kirkland
Reviewed by R Braun
08/08/2019

This Sheet For Reference Only

- MECHANICAL ENERGY RECOVERY VENTILATOR SCHEDULE -

ID	DESCRIPTION	ROOM #	ROOM NAME	PANEL	CIRCUIT #	ELECT DATA	MOTOR HP	MOTOR FLA	CONNECTION TYPE	CB SIZE	DISC SIZE	FUSE SIZE	# PHASE WIRES	PHASE SIZE	NEUTRAL SIZE	GROUND SIZE	RACEWAY SIZE	STARTER TYPE	STARTER SIZE	REMARKS
ERV-1	ENERGY RECOVERY VENTILATOR	04	JANITOR/ UTILITY/ STORAGE	1ALN1	25,27	240 V/2-346 VA	1/2	1.4 A	DIRECT	20	30/2	2	2	12	-	12	3/4"	FVNR	1	PROVIDE CONTROL WIRING FROM ENERGY RECOVERY VENTILATOR TO INTERFACE RELAY AS SHOWN ON THE ENLARGED POWER PLAN SEE MECHANICAL PLANS FOR EXACT LOCATION OF EXHAUST/ RETURN AIR DAMPERS INTERLOCK ON/OFF CONTROLS FOR ENERGY RECOVERY VENTILATOR WITH MOTORIZED DAMPERS FOR EACH DUCT CONFIRM CONTROL VOLTAGE WITH UNIT MANUFACTURER AND PROVIDE CURRENT TRANSFORMERS AS NECESSARY TO COMPLETE INSTALLATION

- MECHANICAL ELECTRIC UNIT HEATER SCHEDULE -

ID	DESCRIPTION	ROOM #	ROOM NAME	PANEL	CIRCUIT #	ELECT DATA	MOTOR HP	MOTOR FLA	CONNECTION TYPE	CB SIZE	DISC SIZE	FUSE SIZE	# PHASE WIRES	PHASE SIZE	NEUTRAL SIZE	GROUND SIZE	RACEWAY SIZE	STARTER TYPE	STARTER SIZE	REMARKS
UH-1	ELECTRIC UNIT HEATER	03	RESTROOM III	1ALN1	11	120 V/1-840 VA	-	7.0 A	DIRECT	20	30/1	-	1	12	12	12	3/4"	MMS	-	
UH-2	ELECTRIC UNIT HEATER	01	RESTROOM I	1ALN1	13	120 V/1-1128 VA	-	9.4 A	DIRECT	20	30/1	-	1	12	12	12	3/4"	MMS	-	
UH-3	ELECTRIC UNIT HEATER	02	RESTROOM II	1ALN1	15	120 V/1-1128 VA	-	9.4 A	DIRECT	20	30/1	-	1	12	12	12	3/4"	MMS	-	
UH-4	ELECTRIC UNIT HEATER	04	JANITOR/ UTILITY/ STORAGE	1ALN1	17,19	240 V/2-1999 VA	-	8.3 A	DIRECT	20	30/2	-	2	12	-	12	3/4"	MMS	-	

- MECHANICAL ELECTRIC WATER HEATER SCHEDULE -

ID	DESCRIPTION	ROOM #	ROOM NAME	PANEL	CIRCUIT #	ELECT DATA	MOTOR HP	MOTOR FLA	CONNECTION TYPE	CB SIZE	DISC SIZE	FUSE SIZE	# PHASE WIRES	PHASE SIZE	NEUTRAL SIZE	GROUND SIZE	RACEWAY SIZE	STARTER TYPE	STARTER SIZE	REMARKS
WH-1	ELECTRIC WATER HEATER	04	JANITOR/ UTILITY/ STORAGE	1ALN1	21,23	240 V/2-3000 VA	-	12.5 A	DIRECT	20	30/2	-	2	12	-	12	3/4"	-	-	

- MECHANICAL PUMP SCHEDULE -

ID	DESCRIPTION	ROOM #	ROOM NAME	PANEL	CIRCUIT #	ELECT DATA	MOTOR HP	MOTOR FLA	CONNECTION TYPE	CB SIZE	DISC SIZE	FUSE SIZE	# PHASE WIRES	PHASE SIZE	NEUTRAL SIZE	GROUND SIZE	RACEWAY SIZE	STARTER TYPE	STARTER SIZE	REMARKS
CP-1	CIRCULATION PUMP	04	JANITOR/ UTILITY/ STORAGE	1ALN1	7	120 V/1-10 VA	-	0.1 A	DIRECT	15	20/1	-	1	12	12	12	3/4"	MMS		

- INTERIOR LUMINAIRE SCHEDULE -

TYPE	MANUFACTURER	CATALOG #	ACCESSORIES	VOLTAGE	VA	WATTS	EFFICACY	DELIVERED LUMENS	K TEMP	CRI	NOTES
S01A	FINELITE	HP-4 WL SM 3' B 835 F SC C4		120 V	14	14			3500		
S02	KENNAL	MLHA5 24 R * PP 25L35 DCC 1 120		120 V	25	25			3500		
S03	COLUMBIA	LCL 435 LW E U		120 V	19	19			3500		MOUNT FIXTURE AT 7'-0" AFF. COORDINATE EXACT LOCATION WITH MECHANICAL TO AVOID CONFLICT

- EXTERIOR LUMINAIRE SCHEDULE -

TYPE	MANUFACTURER	CATALOG #	ACCESSORIES	VOLTAGE	VA	WATTS	EFFICACY	DELIVERED LUMENS	K TEMP	CRI	DISTRIBUTION TYPE	NOTES
Z01	NERI	SU-313L-06-3-P2-02 W/322L CUSTOM LENS		120 V	26	0			3500	70+	V	
Z02	FINELITE	HP-4 WL SM 3' S 835 F SC C4		120 V	11	11			3500			

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ONE-LINE DIAGRAM AND SCHEDULES

SHEET NUMBER
E301

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Design Technology Project Number

PLUMBING PERMIT

City of Kirkland

Plumbing Permit

City of Kirkland
123 Fifth Avenue
Kirkland WA 98033
425-587-3600

Permit Number: PNR19-01209
Type: Plumbing Non Residential - PNR
Work Class: New Structure

PNR19-01209

Permit Information

Job Address:	**Project:**	TOTEM LAKE PARK	**Application Date:**	02/20/2019
12031 NE TOTEM LAKE WAY Kirkland, WA 98034	**Parcel:**	6928400032	**Issue Date:**	09/04/2019
	Valuation:	$90,000.00	**Expiration Date:**	09/04/2020
	Dwelling Units:		**Code Edition:**	2015 UPC

Scope of Work

Totem Lake Park Plumbing (Re: BNR19-01207): Plumbing work related to construction of new restroom. (Includes new meter hook ups: (1) new irrigation meter & (1) new building meter)

Contacts

Type	Name	Address	Phone
Owner	CITY OF KIRKLAND	123 5TH AVE KIRKLAND, WA 98033	B: C:
Project Contact	BRIAN BAKER	123 FIFTH AVE KIRKLAND, WA 98033	B: 4255873874 C:
Applicant	BRIAN BAKER	123 FIFTH AVE KIRKLAND, WA 98033	B: 4255873874 C:
Owner is Contractor	OWNER IS CONTRACTOR		B: C:

Request an inspection before 6 p.m. for next business day. Requests made after 6 p.m. will be scheduled on the second business day following the request.

How to request an inspection:

1) Go to **http://mybuildingpermit.com**
2) Select Kirkland as the Jurisdiction.
3) Locate the permit using the permit # or property address
4) Follow the on-screen instructions to complete the inspection request.

REQUIRED INSPECTIONS

	ID	Date	Inspector
1. PLM - Other	501		
2. PLM - Water Service Line	502		
3. PLM - Underslab	506		
4. PLM - Roof/Overflow Drain	510		
5. PLM - Rough Plumbing DWV	516		
6. PLM - Rough Water Lines	530		
7. PLM - Hydronic Heating	542		
8. PLM - Sand/Oil Separators/Grease Trap	583		
9. PLM - Final	595		

12031 NE TOTEM LAKE WAY

Signature

See conditions on the back of this permit.

This permit and any accompanying plans must remain on the job site for use by City inspection personnel.
Any sales tax reported to the State in association with this project should be coded to the City of Kirkland tax location code 1716.
I certify that the information furnished by me is true and correct to the best of my knowledge and the applicable City of Kirkland requirements will be met.

☐ Owner or ☐ Agent
(Check one)

(Print Name)

Date

(Signature)

City of Kirkland
123 Fifth Avenue
Kirkland WA 98033
425-587-3600

Permit Number: PNR19-01209
Type: Plumbing Non Residential - PNR
Work Class: New Structure

General Conditions

1. The issuance of this permit shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of this code or of any other ordinances of the jurisdiction.
2. The approved plans shall not be changed, modified, or altered without authorization from the building official.
3. This permit, inspection record and approved plans are required to be on the job site at all times.
4. All development activity and heavy equipment operation is restricted to 7:00 a.m. to 8:00 p.m., Monday through Friday, and 9:00 a.m. to 6:00 on Saturdays. No development activity or heavy equipment operation may occur on Sundays or holidays observed by the City.
5. All work is subject to field inspection. Do not cover any work until approved by a City inspector.
6. Inspection(s) required - Go to **http://mybuildingpermit.com** Select Kirkland as the Jurisdiction and Locate the permit by selecting Permit # or Property Address. Follow the on-screen instructions to complete the inspection request.
7. Contact the Building Division at 425-587-3600 with any questions.

Inspector's Comments

City of Kirkland
123 5th Avenue
Kirkland, WA 98033
425-587-3600

SPECIFIC PERMIT CONDITIONS

BUILDING ADDRESS	PERMIT NUMBER	PERMIT TYPE	WORK CLASS	DATE PRINTED
12031 NE TOTEM LAKE WAY	PNR19-01209	Plumbing Non Residential - PNR	New Structure	7/9/2019

DESCRIPTION OF WORK:
Totem Lake Park Plumbing (Re: BNR19-01207): Plumbing work related to construction of new restroom. (Includes new meter hook ups: (1) new irrigation meter & (1) new building meter)

Building Department Conditions:

Inspections Required:
1. Underground Plumbing
2. Rough Plumbing (Filtration NIC)
3. Final Plumbing and Backflow Test reports

Sheet Index

Sheet Number	Sheet Name	Designed By	Building Permit (Restroom)	Building Permit (Boardwalk)	LSM Permit	Electrical Permit	Plumbing Permit	PSE Permit	NUD Permit
G000	COVER	Landscape	•	•	•	•	•	•	•
G001	LANDSCAPE GENERAL NOTES & SCHEDULES	Landscape			•				
G002	PROJECT LIMITS - OVERALL	Landscape							
G003	PROJECT LIMITS - BOARDWALK	Landscape							
G004	DEDUCTIVE ALTERNATE PLAN	Landscape			•				
ET101	EXISTING TREE PLAN - PARK	Landscape			•				
ET102	EXISTING TREE PLAN - TRAIL	Landscape			•				
ET103	EXISTING TREE PLAN - BOARDWALK	Landscape		•	•				
C001	CIVIL GENERAL NOTES	Civil			•				
C002	CIVIL GENERAL NOTES	Civil			•	•			
C101	SITE PREPARATION PLAN - PARK	Civil			•				•
C102	SITE PREPARATION PLAN - TRAIL	Civil			•				
C103	SITE PREPARATION PLAN - BOARDWALK	Civil		•	•				
BD100	BUILDING DEMOLITION	Architect	•		•				
C201	CESC PLAN - PARK	Civil			•				
C202	CESC PLAN - TRAIL	Civil			•				
C203	CESC PLAN - BOARDWALK	Civil		•	•				
C301	UTILITY PLAN - PARK	Civil	•		•		•		•
C401	DRAINAGE PLAN - PARK	Civil			•				
C402	DRAINAGE PLAN - PARK	Civil			•				
CD101	DRAINAGE DETAILS - PARK	Civil			•				
CD102	CIVIL PAVING DETAILS	Civil			•				
CD103	DRAINAGE SECTIONS - PARK	Civil			•				
CG101	GRADING & PAVING PLAN - PARK	Civil	•		•				
CG102	GRADING & PAVING PLAN - TRAIL	Civil	•		•				
CG103	GRADING & PAVING PLAN - BOARDWALK	Civil		•	•				
CG201	GRADING PLAN - PARK - ENLARGEMENT	Civil			•				
L101	SITE PLAN - PARK	Landscape			•				
L102	SITE PLAN - TRAIL	Landscape			•				
L103	SITE PLAN - BOARDWALK	Landscape		•					
L200	BOARDWALK ELEVATIONS	Landscape		•					
L201	BOARDWALK ELEVATIONS	Landscape		•					
L202	PARK ELEVATIONS	Landscape			•				
L400	PLAY AREA ENLARGEMENTS	Landscape			•				
L401	LANDSCAPE ENLARGEMENTS	Landscape			•				
L402	PLAY AREA ENLARGEMENTS	Landscape			•				
L403	PAVING JOINTING & PATTERN DETAIL PLAN	Landscape			•				
LD101	LANDSCAPE PAVING DETAILS	Landscape			•				
LD102	PLAY AREA DETAILS	Landscape			•				
LD103	STAIR & RAILING DETAILS	Landscape		•					
LD104	WALL & FENCE DETAILS	Landscape		•					
LD105	TRAIL TYPICAL DETAIL	Landscape		•	•				
LD106	OVERLOOK DETAILS	Landscape			•				
LD107	GEOTECHNICAL WALL DETAIL	Geotechnical			•				
LD200	METAL GUARDRAIL DETAILS	Landscape		•					
LD201	METAL GUARDRAIL DETAILS	Landscape		•					
LD202	METAL GUARDRAIL DETAILS	Landscape		•					
LD203	METAL GUARDRAIL @ BOARDWALK OVERLOOK	Landscape		•					
SS001	GENERAL STRUCTURAL NOTES	Site Structural	•	•					
SS002	GENERAL STRUCTURAL NOTES	Site Structural	•	•					
SS003	STATEMENT OF SPECIAL INSPECTIONS	Site Structural	•	•					
SS100	STRUCTURAL SHEET LAYOUT	Site Structural	•	•					
SS101	PARK PLAN	Site Structural	•						
SS102	TRAIL PLAN	Site Structural		•					

Sheet Index

Sheet Number	Sheet Name	Designed By	Building Permit (Restroom)	Building Permit (Boardwalk)	LSM Permit	Electrical Permit	Plumbing Permit	PSE Permit	NUD Permit
SS103	BOARDWALK PLAN	Site Structural		•					
SSD101	DETAILS	Site Structural		•					
SSD102	DETAILS	Site Structural		•					
S001	STRUCTURAL NOTES	Building Structural	•						
S002	STRUCTURAL NOTES	Building Structural	•						
S003	STRUCTURAL NOTES	Building Structural	•						
S101	FOUNDATION PLAN	Building Structural	•						
S201	ROOF FRAMING PLAN	Building Structural	•						
SD100	DETAILS	Building Structural	•						
SD101	DETAILS	Building Structural	•						
SD102	DETAILS	Building Structural	•						
A000	ABBREVIATIONS & SYMBOLS	Architect	•						
A001	SCHEDULES, DOOR & FRAME TYPES	Architect	•						
A100	SLAB/CURB PLAN	Architect	•						
A101	BUILDING PLAN	Architect	•						
A102	UPPER WALL PLAN	Architect	•						
A103	ROOF PLAN	Architect	•						
A301	REFLECTED CEILING PLAN	Architect	•			•			
A401	EXTERIOR ELEVATIONS I	Architect	•						
A402	EXTERIOR ELEVATIONS II	Architect	•						
A403	PERSPECTIVES	Architect	•						
AD100	ENLARGED PLANS	Architect	•				•		
AD101	INTERIOR ELEVATIONS	Architect	•				•		
AD102	BUILDING SECTION I	Architect	•				•		
AD103	BUILDING SECTION II	Architect	•				•		
AD104	SLOPED COLUMNS SECTIONS	Architect	•						
AD105	WALL SECTIONS	Architect	•						
AD106	WALL DETAILS	Architect	•						
M001	MECHANICAL GENERAL INFORMATION	Mechanical	•			•	•		
M002	SCHEDULES	Mechanical	•			•	•		
M101	BUILDING MECHANICAL PLANS	Mechanical	•			•	•		
M201	PLUMBING DIAGRAM	Mechanical	•				•		
M301	SECTIONS AND ELEVATIONS	Mechanical	•				•		
MD101	DETAILS	Mechanical	•						
E001	SYMBOLS LIST & ABBREVIATIONS	Electrical	•			•		•	
E002	WSEC COMPLIANCE FORMS	Electrical	•			•		•	
E003	WSEC COMPLIANCE FORMS	Electrical	•			•		•	
E004	WSEC COMPLIANCE FORMS	Electrical	•			•		•	
E101	ELECTRICAL SITE PLAN	Electrical	•			•		•	
E201	ENLARGED BUILDING PLANS	Electrical	•			•		•	
E301	ONE-LINE DIAGRAM AND SCHEDULES	Electrical	•			•		•	
ED100	DETAILS	Electrical	•			•		•	
IR001	IRRIGATION NOTES & SCHEDULE	Irrigation			•				
IR101	IRRIGATION PLAN - PARK	Irrigation			•				
ID100	IRRIGATION DETAILS	Irrigation			•				
ID101	IRRIGATION DETAILS	Irrigation			•				
LP101	PLANTING PLAN - PARK	Landscape			•				
LP102	PLANTING PLAN - TRAIL	Landscape			•				
LP103	PLANTING PLAN - BOARDWALK	Landscape			•				
LD300	PLANTING DETAILS	Landscape			•				
LD301	PLANTING DETAILS	Landscape			•				

Grand total: 105

City of Kirkland
Totem Lake Park Phase 1

PKC1390200

JOB NO. 00-00-PW

100% DESIGN SUBMITTAL

February 08, 2019

MUST REMAIN ON JOB SITE

City of Kirkland
Reviewed by R Braun
05/30/2019

NOTICE

HOURS OF WORK: 7AM TO 8PM MON-FRI 9AM TO 6PM SAT. NO WORK SUNDAYS & HOLIDAYS (PER kzc SEC. 115.25)
Exceptions must be approved in writing by Planning Official

Applicable Codes:

Compliance with the following codes shall be required:

Accessibility	2010 Americans with Disabilities (ADA) Standards for Accessible Design
Building	2015 International Building Code (IBC)
Electrical	2017 National Electrical Code
Energy Efficiency	2015 Washington State Energy Code (WSEC)
Fire	2015 International Fire Code with Washington Amendments
Mechanical	2015 Washington State Energy Code (WSEC)
Plumbing	2015 Uniform Plumbing Code

Drawing Set Printing and Reproduction Notes/Req's:

1. DRAWING SET SHEET SIZE IS 22" X 34".
2. DRAWING SET UTILIZES COLORED INFORMATION AND SHALL BE PRINTED AND REPRODUCED IN COLOR.

City/Owner Contact Info

City of Kirkland:
Project Manager: Brian Baker
Phone: 425-587-3674
Email: bbaker@kirklandwa.gov

Team Contact Info

Prime Consultant:

Berger Partnership - Landscape Architecture
Primary: Matt Martenson
Phone: 206-492-5560
Email: mattm@bergerpartnership.com
Secondary: Andy Mitton
Phone: 206-492-5562
Email: andym@bergerpartnership.com

Subconsultant Team

CH2M Hill - Civil Engineering
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Email: jesse.williams@ch2m.com

Swenson Say Faget - Structural Engineering
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Email: gjuttner@ssfengineers.com

ESA - Environmental
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KPFF - Survey
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Email: jereme.chapman@kpff.com

Symbiosis Tree Care: Arborist
Primary: Kurt Fickeisen
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Enginuity Systems - Spray Park Mechanical:
Primary: Jesse Barksdale
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ORB Architects: Architecture
Primary: Geoff Anderson
Email: ganderson@innovaarchitects.com

NAC Architecture: Electrical Engineering
Primary: Mark McMicheal
Email: mmcmicheal@nacarchitecture.com

Design 2426: Irrigation
Primary: Jason Anderson
Email: jasona@design2426.com

Vicinity Map

berger PARTNERSHIP
1927 Post Alley, Ste 2
Seattle, WA 98101
206 505
bergerp

Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

STATE OF WASHINGTON
ANDY MITTON
No. 882 EXP. 6/30/2020
LANDSCAPE ARCHITECT

SET TYPE
100% Design Submittal

SET ISSUE DATE
02/08/2019

REVISIONS

Δ	DESCRIPTION	DATE

DRAWN/CHECKED
MM / AM

SHEET NAME
COVER

SHEET NUMBER
G000

STORM DRAINAGE - PLAN NOTES

1. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION.
2. BEFORE ANY CONSTRUCTION MAY OCCUR, THE CONTRACTOR SHALL HAVE PLANS WHICH HAVE BEEN SIGNED AND APPROVED BY THE CITY OF KIRKLAND PUBLIC WORKS DEPARTMENT, OBTAINED ALL CITY, COUNTY, STATE, FEDERAL AND OTHER REQUIRED PERMITS, AND HAVE POSTED ALL REQUIRED BONDS.
3. ALL STORM DRAINAGE IMPROVEMENTS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE CITY OF KIRKLAND PUBLIC WORKS PRE-APPROVED PLANS AND POLICIES AND THE STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION, PREPARED BY WSDOT AND THE AMERICAN PUBLIC WORKS ASSOCIATION (APWA)
4. ANY DEVIATION FROM THE APPROVED PLANS WILL REQUIRE WRITTEN APPROVAL, ALL CHANGES SHALL BE SUBMITTED TO THE CITY.
5. A COPY OF THE APPROVED STORM WATER PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
6. ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED OR SIMILARLY STABILIZED TO THE SATISFACTION OF THE CITY OF KIRKLAND DEPARTMENT OF PUBLIC WORKS FOR THE PREVENTION OF ON-SITE EROSION AFTER THE COMPLETION OF CONSTRUCTION.
7. MINIMUM COVER OVER STORM DRAINAGE PIPES IN ROW OR VEHICULAR PATH SHALL BE 18 INCHES, UNLESS OTHER DESIGN IS APPROVED.
8. STEEL PIPE SHALL HAVE ASPHALT TREATMENT #1 OR BETTER INSIDE AND OUTSIDE.
9. ALL CATCH BASINS SHALL BE TYPE I UNLESS OTHERWISE NOTED. CATCH BASINS WITH A DEPTH OF OVER FIVE FEET (5') TO THE PIPE INVERT SHALL BE A TYPE II CATCH BASIN. TYPE II CATCH BASINS EXCEEDING FIVE FEET (5') IN DEPTH SHALL HAVE A STANDARD LADDER INSTALLED. ALL CATCH BASIN LIDS ARE REQUIRED TO MEET KIRKLAND STANDARD PLAN SHEET CK-D.18A.
10. ALL STORM DRAINAGE MAIN EXTENSIONS WITHIN THE PUBLIC RIGHT-OF-WAY OR IN EASEMENTS MUST BE STAKED FOR LINE AND GRADE PRIOR TO STARTING CONSTRUCTION.
11. ALL PIPE, MANHOLES, CATCH BASINS, AND APPURTENANCES SHALL BE LAID ON A PROPERLY PREPARED FOUNDATION IN ACCORDANCE WITH THE CURRENT STATE OF WASHINGTON STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (WSDOT). THIS SHALL INCLUDE NECESSARY LEVELING OF THE TRENCH BOTTOM OR THE TOP OF THE FOUNDATION MATERIAL AS WELL AS PLACEMENT AND COMPACTION OF REQUIRED BEDDING MATERIAL TO UNIFORM GRADE SO THAT THE ENTIRE LENGTH OF THE PIPE WILL BE SUPPORTED ON A UNIFORMLY DENSE, UNYIELDING BASE. IF THE NATIVE MATERIAL IN THE BOTTOM OF THE TRENCH MEETS THE REQUIREMENTS FOR "GRAVEL BACKFILL FOR PIPE BEDDING," THE FIRST LIFT OF PIPE BEDDING MAY BE OMITTED PROVIDED THE MATERIAL IN THE BOTTOM OF THE TRENCH IS LOOSENED, REGRADED, AND COMPACTED TO FORM A DENSE UNYIELDING BASE. ALL PIPE BEDDING SHALL BE APWA CLASS B, TYPE I, OR BETTER. PIPE SHALL NOT BE INSTALLED ON SOD, FROZEN EARTH, LARGE BOULDERS, OR ROCK. PIPE BEDDING FOR FLEXIBLE PIPES SHALL BE PEA GRAVEL TO THE SPRINGLINE OF THE PIPE.
12. CONSTRUCTION OF DEWATERING DISCHARGES SHALL ALWAYS MEET WATER QUALITY GUIDELINES LISTED IN COK POLICY E-1. SPECIFICALLY, DISCHARGES TO THE PUBLIC STORMWATER DRAINAGE SYSTEM MUST BE BELOW 25NTU, AND NOT CONSIDERED A PROHIBITED DISCHARGE (PER KMC 15.52.090). TEMPORARY DISCHARGES TO SANITARY SEWER REQUIRE PRIOR AUTHORIZATION AND PERMIT FROM KING COUNTY INDUSTRIAL WASTE PROGRAM (206-263-3000) AND NOTIFICATION TO THE PUBLIC WORKS CONSTRUCTION INSPECTOR.
13. ALL TRENCH BACKFILL SHALL BE COMPACTED TO 95 PERCENT DENSITY IN ROADWAYS, ROADWAY SHOULDERS, ROADWAY PRISM AND DRIVEWAYS, AND 85 PERCENT DENSITY IN UNPAVED AREAS. ALL PIPE ZONE COMPACTION SHALL BE 95 PERCENT.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE SAFEGUARDS, SAFETY DEVICES, PROTECTIVE EQUIPMENT, CONFINED SPACE PROTECTION, FLAGGERS, AND ANY OTHER NEEDED ACTIONS TO PROTECT THE LIFE, HEALTH, AND SAFETY OF THE PUBLIC, AND TO PROTECT PROPERTY IN CONNECTION WITH THE PERFORMANCE OF WORK COVERED BY THE CONTRACT. ANY WORK WITHIN THE TRAVELED RIGHT-OF-WAY THAT MAY INTERRUPT NORMAL TRAFFIC FLOW SHALL REQUIRE A TRAFFIC CONTROL PLAN APPROVED BY THE CITY OF KIRKLAND. ALL SECTIONS OF THE WSDOT STANDARD SPECIFICATIONS, TRAFFIC CONTROL, AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) SHALL APPLY.
15. NO FINAL CUT OR FILL SLOPE SHALL EXCEED SLOPES OF TWO (2) HORIZONTAL TO ONE (1) VERTICAL WITHOUT STABILIZATION BY ROCKERY OR BY A STRUCTURAL RETAINING WALL.
16. ALL MANHOLE LADDERS SHALL BE FIRMLY ATTACHED AND EXTEND TO WITHIN 1' OF THE BOTTOM OF THE STRUCTURE.
17. APPROXIMATE LOCATIONS OF EXISTING UTILITIES HAVE BEEN OBTAINED FROM AVAILABLE RECORDS AND ARE SHOWN FOR CONVENIENCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF EXISTING UTILITY LOCATIONS WHETHER OR NOT THESE UTILITIES ARE SHOWN ON THE PLANS. THE CONTRACTOR SHALL EXERCISE ALL CARE TO AVOID DAMAGE TO ANY UTILITY. IF CONFLICTS WITH EXISTING UTILITIES ARISE DURING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE CITY CONSTRUCTION INSPECTOR AND ANY CHANGES REQUIRED SHALL BE APPROVED BY THE DEVELOPMENT ENGINEER PRIOR TO COMMENCEMENT OF RELATED CONSTRUCTION ON THE PROJECT.
18. THE UNDERGROUND UTILITY LOCATION SERVICE SHALL BE CONTACTED FOR FIELD LOCATION OF EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION. THE OWNER OR HIS REPRESENTATIVE SHALL BE CONTACTED IF A UTILITY CONFLICT EXISTS. FOR UTILITY LOCATION IN KING COUNTY, CALL 1-800-424-5555. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT UTILITY LOCATES ARE MAINTAINED THROUGHOUT THE LIFE OF THE PROJECT.
19. THE CONTRACTOR SHALL VERIFY THE LOCATIONS, WIDTHS, THICKNESS, AND ELEVATIONS OF ALL EXISTING PAVEMENTS AND STRUCTURES THAT ARE TO INTERFACE WITH NEW WORK. PROVIDE ALL TRIMMING, CUTTING, SAW CUTTING, GRADING, LEVELING, SLOPING, COATING, AND OTHER WORK, INCLUDING MATERIALS AS NECESSARY, TO CAUSE THE INTERFACE WITH EXISTING WORKS TO BE PROPER, ACCEPTABLE TO THE ENGINEER AND THE CITY OF KIRKLAND, COMPLETE IN PLACE AND READY TO USE.
20. ALL INLET, MANHOLE, AND CATCH BASIN FRAMES AND GRATES SHALL NOT BE ADJUSTED TO GRADE UNTIL IMMEDIATELY PRIOR TO FINAL PAVING. ALL CATCH BASIN GRATES SHALL BE SET 0.10' BELOW PAVEMENT LEVEL.
21. OPEN CUT ROAD CROSSINGS FOR UTILITY TRENCHES ON EXISTING TRAVELED ROADWAY SHALL BE BACKFILLED ONLY WITH 5/8" MINUS CRUSHED ROCK AND MECHANICALLY COMPACTED (UNLESS OTHERWISE APPROVED BY THE CITY). FOR STREETS CLASSIFIED AS ARTERIALS OR COLLECTORS, BACKFILL FOR CROSSINGS SHALL BE CDF. CUTS INTO THE EXISTING ASPHALT SHALL BE NEAT LINE CUT WITH SAW OR JACKHAMMER IN A CONTINUOUS LINE. A TEMPORARY COLD MIX PATCH MUST BE PLACED IMMEDIATELY AFTER BACKFILL AND COMPACTION. A PERMANENT HOT MIX PATCH SHALL BE PLACED WITHIN 30 DAYS AND SHALL BE A MINIMUM OF 1" THICKER THAN THE ORIGINAL ASPHALT WITH A MINIMUM THICKNESS OF 2". SEE STANDARD D.02.
22. ALL DAMAGES INCURRED TO PUBLIC AND/OR PRIVATE PROPERTY BY THE CONTRACTOR.DURING THE COURSE OF CONSTRUCTION SHALL BE PROMPTLY REPAIRED TO THE SATISFACTION OF THE CITY CONSTRUCTION INSPECTOR BEFORE PROJECT APPROVAL AND/OR THE RELEASE OF THE PROJECT'S PERFORMANCE BOND.
23. GROUT ALL SEAMS AND OPENINGS IN ALL INLETS, CATCH BASINS, AND MANHOLES. JETSET GROUT IS NOT ALLOWED. WHEN WIDENING AN EXISTING ROADWAY WHERE AN EXISTING TYPE I CATCH BASIN WILL REMAIN IN THE TRAVEL LANE, THE EXISTING FRAME AND COVER SHALL BE REPLACED WITH A ROUND, LOCKING FRAME AND COVER PER CITY OF KIRKLAND STANDARD PLAN CK-D18.A.
24. RECYCLED CONCRETE SHALL NOT BE USED AROUND STORMWATER FACILITIES OR ANYWHERE ON THIS SITE.

PIPE - MATERIALS:

25. ACCEPTABLE TYPES PUBLICLY OWNED AND MAINTAINED CONVEYANCE SYSTEMS
    A. PVC 3034
    B. DUCTILE IRON
    C. C900/C905
26. ALL PIPES SHALL HAVE A MINIMUM 18" OF PIPE COVER IN THE ROW OR PRIVATE DRIVES EXPOSED TO VEHICULAR TRAFFIC. IF PIPE COVER IS LESS THAN 18 INCHES THE PIPE SHALL BE DUCTILE IRON (CLASS 50) OR C-900. ALSO, ANY PIPES PROPOSED TO BE INSTALLED IN THE LOAD BEARING ZONE OF STRUCTURAL WALLS MUST BE PROTECTED BY A DUCTILE IRON (CLASS 50) SLEEVE. THE DESIGN OR USE OF DI SLEEVES MUST BE APPROVED BY THE CITY OF KIRKLAND DEPARTMENT OF PUBLIC WORKS.

CATCH BASIN/INLETS - GRATE SELECTION:

27. ALL FRAME AND COVERS SHALL BE LOCKABLE WITH A STANDARD 5/8" HEX DRIVE BOLT (EXCEPT ERGO FRAME AND COVER).

CATCH BASIN/INLETS - JOINTS:

28. TYPE I JOINTS SHALL BE NON-SHRINK GROUT.
29. TYPE II AND LARGER MANHOLES SHALL HAVE GASKETED JOINTS AND SHALL BE WATERTIGHT SEALED.
30. PVC AND OTHER PLASTIC PIPES REQUIRE A COUPLING ADAPTER MADE FOR THE PIPE TYPE AND CONCRETE JOINING.

CATCH BASIN/INLETS - CONSTRUCTION:

31. CATCH BASINS SHALL BE BEDDED IN CRUSHED SURFACING BASE COURSE.
32. ADJUSTMENTS OVER 2" TO GRADE SHALL BE WITH CONCRETE ADJUSTMENT RINGS.
33. ADJUSTMENTS UNDER 2" SHALL BE WITH CONCRETE OR NON-SHRINK GROUT.
34. FOR TYPE II CB'S WITH ECCENTRIC CONE TOP-SECTION, THE MAXIMUM ADJUSTMENT DISTANCE IS 12", NOT INCLUDING CASTING.
35. FOR TYPE II CB'S WITH FLAT-TOP, THE MAXIMUM ADJUSTMENT DISTANCE IS 12", NOT INCLUDING CASTING.
36. ALL CONNECTIONS TO STRUCTURES SHALL USE SAND COLLARS WITH NON-SHRINK GROUT (NO JET SET ALLOWED).
37. WOOD, ROCK, EXPANSION JOINT OR RED BRICK SHALL NOT BE USED AT ANY TIME. IF STANDARD GREY CONCRETE 2"X4"X8" BRICKS ARE USED THEY SHALL BE TOTALLY ENCAPSULATED WITH CONCRETE OR GROUT. THIS SHOULD APPLY TO ALL DRAWINGS.
38. ALL ADJUSTMENT RISERS SHALL BE GROUTED DOWN WITH NON-SHRINK GROUT OR PORTLAND CEMENT AND SAND MIXTURE. DRY STACKING IS NOT ALLOWED.

PAVING AND ROADWAY - PLAN NOTES

1. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION.
2. ALL ROADWAY WORK AND MATERIAL SHALL BE IN ACCORDANCE WITH THE CURRENT APWA AND CITY OF KIRKLAND STANDARDS AND SPECIFICATIONS.
3. ALL PUBLIC ROADWAYS SHALL BE CONSTRUCTED OF 4" CLASS "B" AC PAVING ON 6" ASPHALT-TREATED BASE (ATB) ON 4" MINIMUM OF 1-1/4" MINUS CRUSHED SURFACING BASE COURSE, UNLESS OTHERWISE APPROVED BY THE PUBLIC WORKS DEPARTMENT.
4. A COPY OF THE APPROVED ROADWAY PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
5. DENSITY TEST REPORTS WILL BE REQUIRED FOR ALL PUBLIC ROADWAYS AND ALL PRIVATE ROADWAYS. ALL TRENCH BACKFILL SHALL BE COMPACTED TO 95 PERCENT DENSITY IN ROADWAYS, ROADWAY SHOULDERS, ROADWAY PRISM AND DRIVEWAYS, AND 85 PERCENT DENSITY IN UNPAVED AREAS. ALL PIPE ZONE COMPACTION SHALL BE 95 PERCENT.
6. ALL COMMERCIAL AND RESIDENTIAL DRIVEWAYS MUST CONFORM TO THE CITY OF KIRKLAND DEPARTMENT OF PUBLIC WORKS DRIVEWAY POLICY.
7. ALL CONCRETE FOR SIDEWALKS AND CURB AND GUTTER MUST BE 4,000 PSI MINIMUM. (5-3/4 SACK MIX.)
8. ANY ROADWAY SIGNAGE OR STRIPING REMOVED OR TEMPORARILY MOVED BY THE CONTRACTOR SHALL BE RESTORED SO AS TO MEET THE CURRENT CITY OF KIRKLAND STANDARDS.
9. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ADEQUATE TEMPORARY TRAFFIC CONTROL TO ENSURE TRAFFIC SAFETY DURING CONSTRUCTION ACTIVITIES. THEREFORE, THE CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN TO THE PUBLIC WORKS DEPARTMENT PRIOR TO STARTING WORK. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) OR AS MODIFIED BY THE TRAFFIC ENGINEER.
10. SIDEWALK AND CURB AND GUTTER CANNOT BE POURED MONOLITHICALLY. THERE MUST BE A COLD JOINT OR FULL-DEPTH EXPANSION JOINT BETWEEN THEM.
11. ALL NEW SIGNS REQUIRED IN THE PUBLIC RIGHT-OF-WAY MUST BE PURCHASED FROM, AND INSTALLED BY, THE CITY OF KIRKLAND PUBLIC WORKS DEPARTMENT.
12. ANY EXISTING PUBLIC IMPROVEMENTS DAMAGED DURING CONSTRUCTION SHALL BE REPLACED PRIOR TO FINAL INSPECTION.
13. THE CONTRACTOR IS RESPONSIBLE FOR KEEPING ALL PUBLIC STREETS FREE FROM MUD AND DEBRIS AT ALL TIMES. THE CONTRACTOR SHALL BE PREPARED TO USE POWER SWEEPERS OR OTHER PIECES OF EQUIPMENT NECESSARY TO KEEP THE ROADWAYS CLEAN.
14. BACKFILL IN ALL STREET CUTS ON ARTERIALS WILL BE CONTROL DENSITY FILL (CDF). CONTRACTOR MUST PROVIDE STEEL PLATING NECESSARY TO ALLOW THE CDF TO CURE.
15. WHEN CONSTRUCTING NEW CURB AND GUTTER WHICH DOES NOT ALIGN WITH THE EXISTING EDGE OF PAVEMENT, THE ROADWAY MUST BE TAPERED FROM THE ENDS OF THE NEW CURB AND GUTTER TO MATCH THE EXISTING PAVEMENT. THE ENTRY TAPER INTO THE NEW IMPROVEMENTS SHALL BE 5:1, AND LEAVING THE NEW IMPROVEMENTS SHALL BE 10:1.
16. RESTORATION OF CUTS IN EXISTING PAVEMENT SHALL INCLUDE A T-CUT WITH A SAWCUT AND SEAL A MINIMUM OF 12 INCHES BEYOND THE TRENCH LIMITS PER PLAN NO. CK-D.02.

FIBER OPTIC CONDUIT NOTES

1. MAINTAIN REQUIRED CLEARANCES FROM OTHER UTILITIES. NOTIFY ENGINEER IF INSUFFICIENT CLEARANCE IS AVAILABLE.
2. INSTALL CONTINUOUS 4" WIDE METALLIC DETECTABLE WARNING TAPE ABOVE ALL CONDUIT. COMMUNICATIONS CABLE WARNING TAPE SHALL BE ORANGE AND LABELED WITH "CAUTION, BURIED FIBER BELOW" .
3. PROVIDE A GROUND IN EACH HAND HOLE.
4. INSTALL CONTINUOUS #10 AWG LOCATE WIRE IN EACH CONDUIT TRENCH. TERMINATE THE LOCATE WIRE TO THE GROUND ROD IN THE HAND HOLE.
5. CONDUIT BENDS SHALL BE 36" RADIUS MINIMUM, AND LIMIT BENDS TO 270 DEGREES CUMULATIVE BETWEEN HAND HOLES OR PULL BOXES.

City of Kirkland
Reviewed by R Braun
05/30/2019

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Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

WILLIAMS, STATE OF WASHINGTON, 40577, REGISTERED PROFESSIONAL ENGINEER
2-8-19

SET TYPE
100% Design Submittal

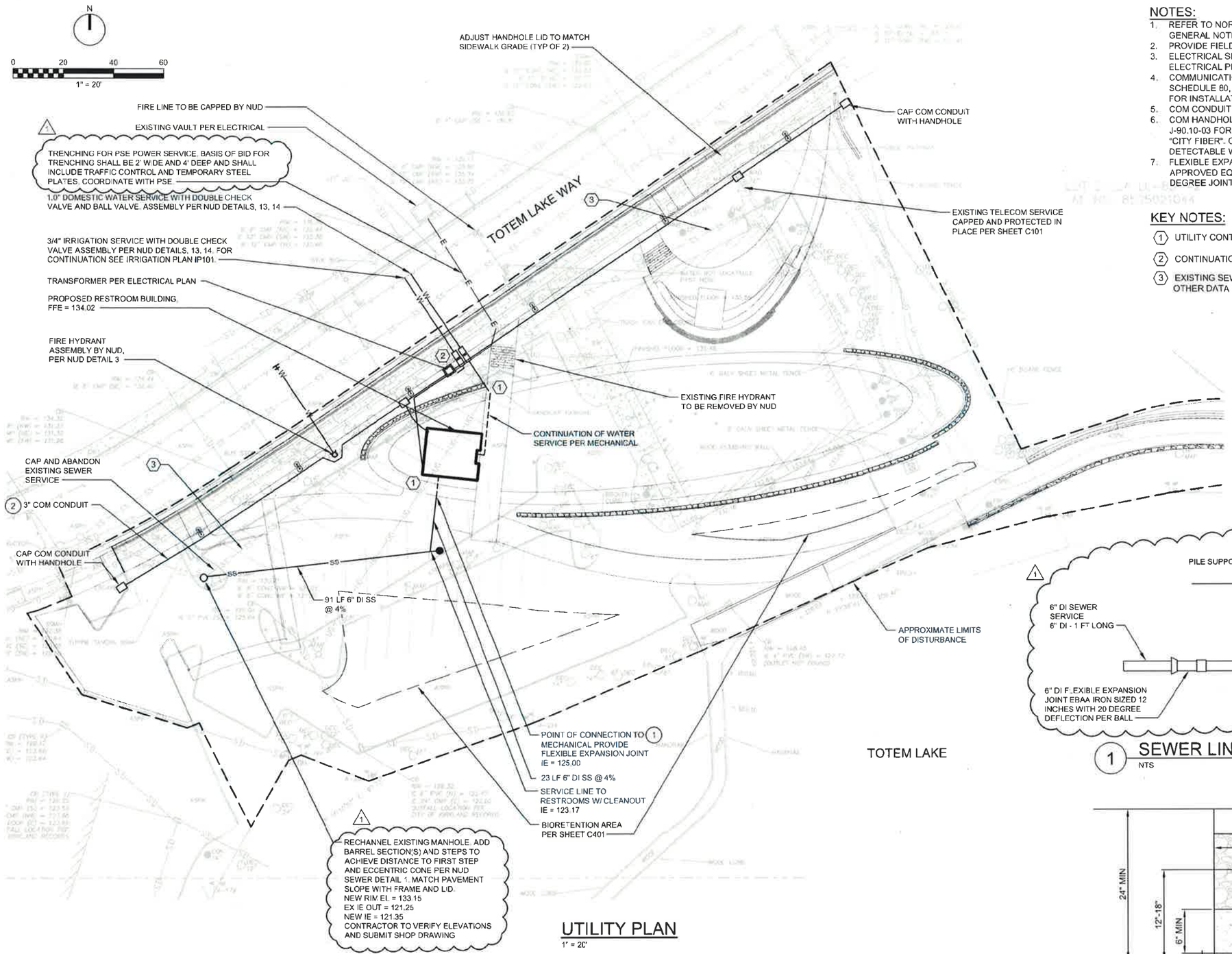
SET ISSUE DATE:
2/8/2019

REVISIONS:

DRAWN/CHECKED
DRW / CHK

SHEET NAME:
CIVIL GENERAL NOTES

SHEET NUMBER:
C002



UTILITY PLAN

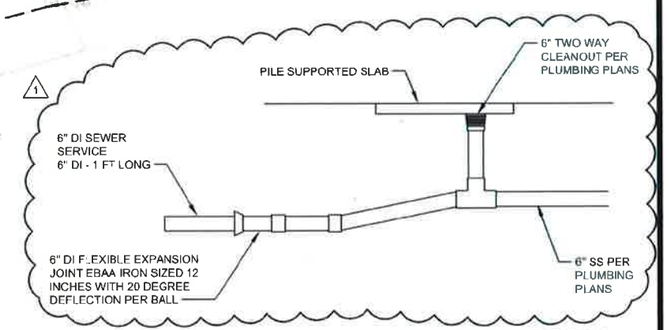
1" = 20'

NOTES:

1. REFER TO NORTHSHORE UTILITY DISTRICT WATER AND SEWER GENERAL NOTES ON C100.
2. PROVIDE FIELD LOK GASKETS FOR DUCTILE IRON SEWER PIPE.
3. ELECTRICAL SHOWN FOR REFERENCE ONLY. REFER TO ELECTRICAL PLANS FOR LOCATION AND DETAILS.
4. COMMUNICATIONS (COM) CONDUIT SHALL BE GRAY PVC SCHEDULE 80, 3' DIAMETER, WITH CONTINUOUS PULL STRING FOR INSTALLATION OF FUTURE FIBER OPTIC CABLE.
5. COM CONDUIT SHALL TERMINATE AT HANDHOLES.
6. COM HANDHOLE SHALL BE PER WSDOT STANDARD PLAN J-90.10-03 FOR PULL BOX, WITH STANDARD DUTY LID MARKED "CITY FIBER". OMIT WSDOT NAME AND LOGO. INSTALL DETECTABLE WARNING TAPE ABOVE CONDUIT.
7. FLEXIBLE EXPANSION JOINT SHALL BE EBAA FLEX-TEND OR APPROVED EQUAL WITH 12" EXPANSION JOINT WITH TWO 20 DEGREE JOINTS.

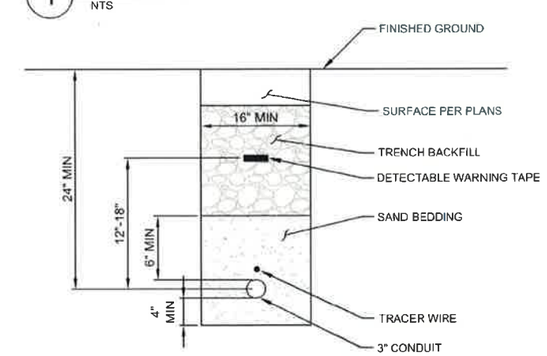
KEY NOTES:

1. UTILITY CONTINUATION BY MECHANICAL CONTRACTOR
2. CONTINUATION BY LANDSCAPE CONTRACTOR
3. EXISTING SEWER SERVICE TO BUILDING FOUND FROM OTHER DATA SOURCES. CONTRACTOR TO VERIFY.



1 SEWER LINE CONNECTION DETAIL

NTS



2 COM CONDUIT DETAIL

NTS

City of Kirkland
Reviewed by R Braun
05/30/2019

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Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

REVISIONS
100% Design Submittal

SUBMITTAL DATE
2/8/2019

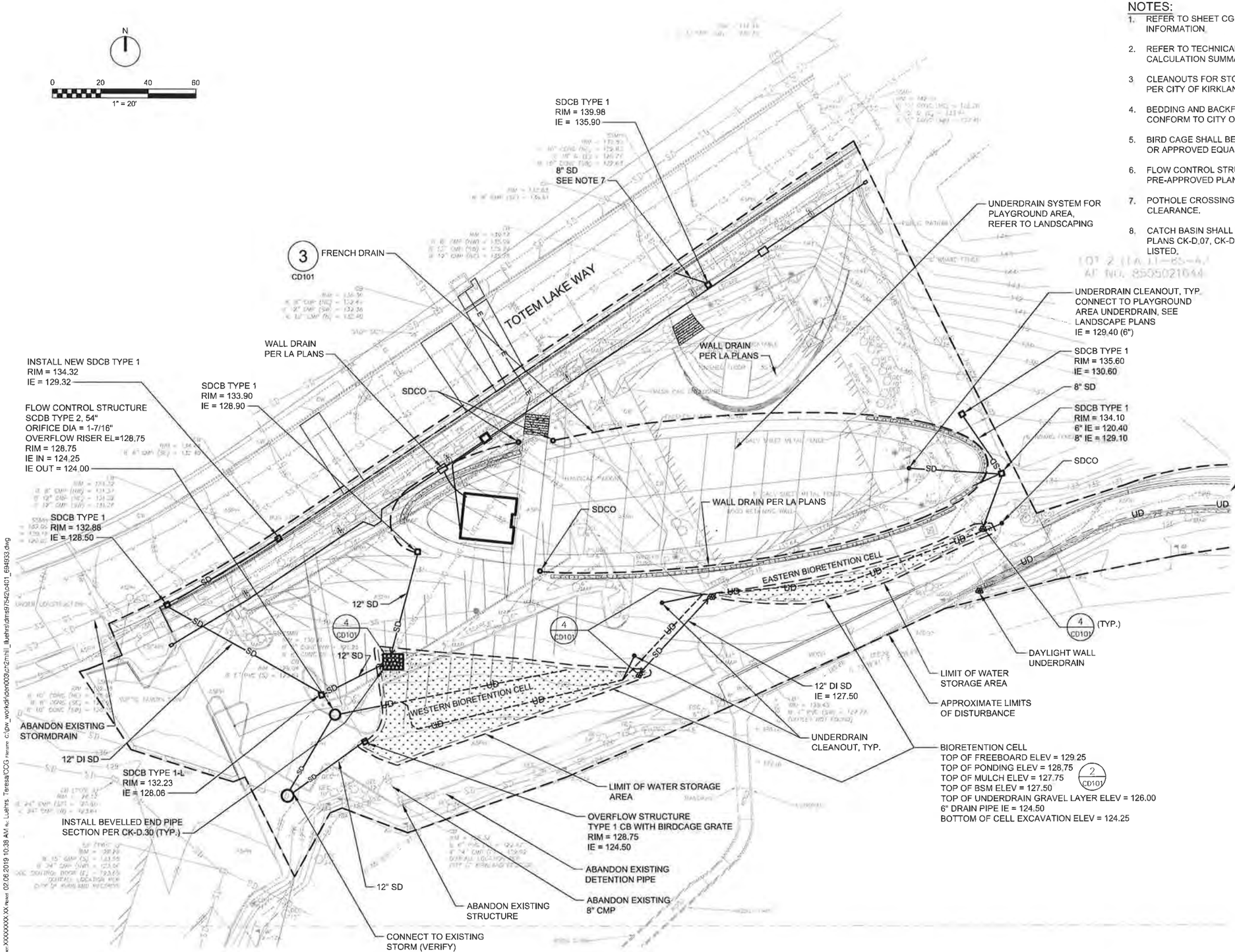
REVISIONS

Δ	DESCRIPTION	DATE
1	Permit Response	2019/05/03

DRAWN/CHECKED
DRW / CHK

SHEET NAME
UTILITY PLAN - PARK

SHEET NUMBER
C301



DRAINAGE PLAN

1" = 20'

NOTES:

1. REFER TO SHEET CG101 FOR PAVING AND GRADING INFORMATION.
2. REFER TO TECHNICAL INFORMATION REPORT FOR DETENTION CALCULATION SUMMARY.
3. CLEANOUTS FOR STORM DRAIN AND UNDERDRAIN SHALL BE PER CITY OF KIRKLAND PRE-APPROVED PLAN CK-D.05B.
4. BEDDING AND BACKFILL FOR STORM DRAIN PIPE SHALL CONFORM TO CITY OF KIRKLAND PRE-APPROVED PLAN CK-D.02.
5. BIRD CAGE SHALL BE ATWOOD FABRICATING TYPE 1 BIRD CAGE OR APPROVED EQUAL.
6. FLOW CONTROL STRUCTURE SHALL BE PER CITY OF KIRKLAND PRE-APPROVED PLAN CK-D.10.
7. POTHOLE CROSSING WITH EXISTING UTILITIES, VERIFY CLEARANCE.
8. CATCH BASIN SHALL BE PER CITY OF KIRKLAND PRE-APPROVED PLANS CK-D.07, CK-D.08, AND CK-D.09, DEPENDING ON TYPE LISTED.

City of Kirkland
Reviewed by R Braun
05/30/2019

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Totem Lake Park Phase 1

City of Kirkland

12031 Totem Lake Way, Kirkland, WA 98034

2-8-19

SET TYPE
100% Design Submittal

SET ISSUE DATE
2/8/2019

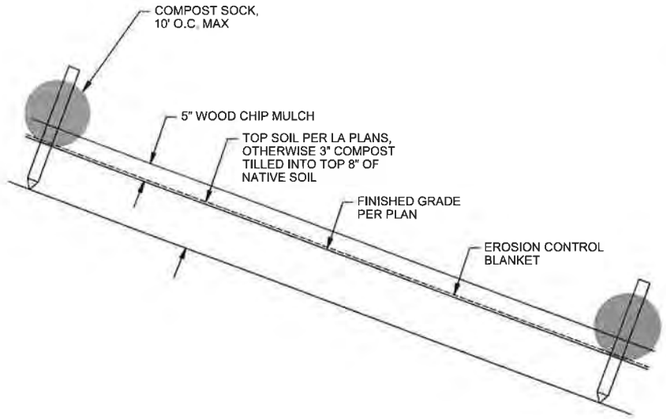
REVISIONS

DRAWN CHECKED
DRW / CHK

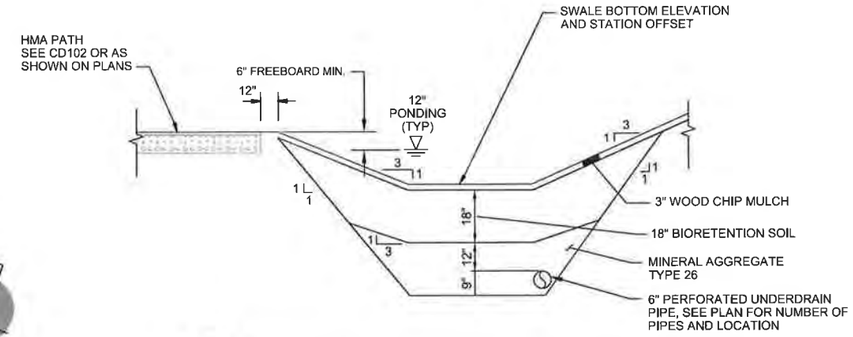
SHEET NAME:
DRAINAGE PLAN - PARK

SHEET NUMBER
C401

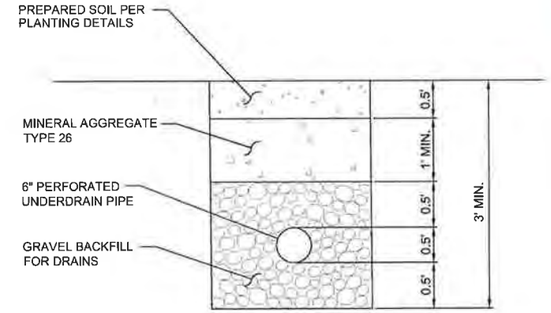
Hangar Planscape Project Number: XXXXXXXXX.XX Plotted: 02.06.2019 10:38 AM by: LuEthrs, Teresa(CCG Filename: C:\pw_work\dfi\dcon003\ch2mhill_luethrs\dms97542\c401_694933.dwg



1 SLOPE STABILIZATION DETAIL
NTS



2 TYPICAL BIORETENTION CELL SECTION
NTS



3 FRENCH DRAIN DETAIL
NTS

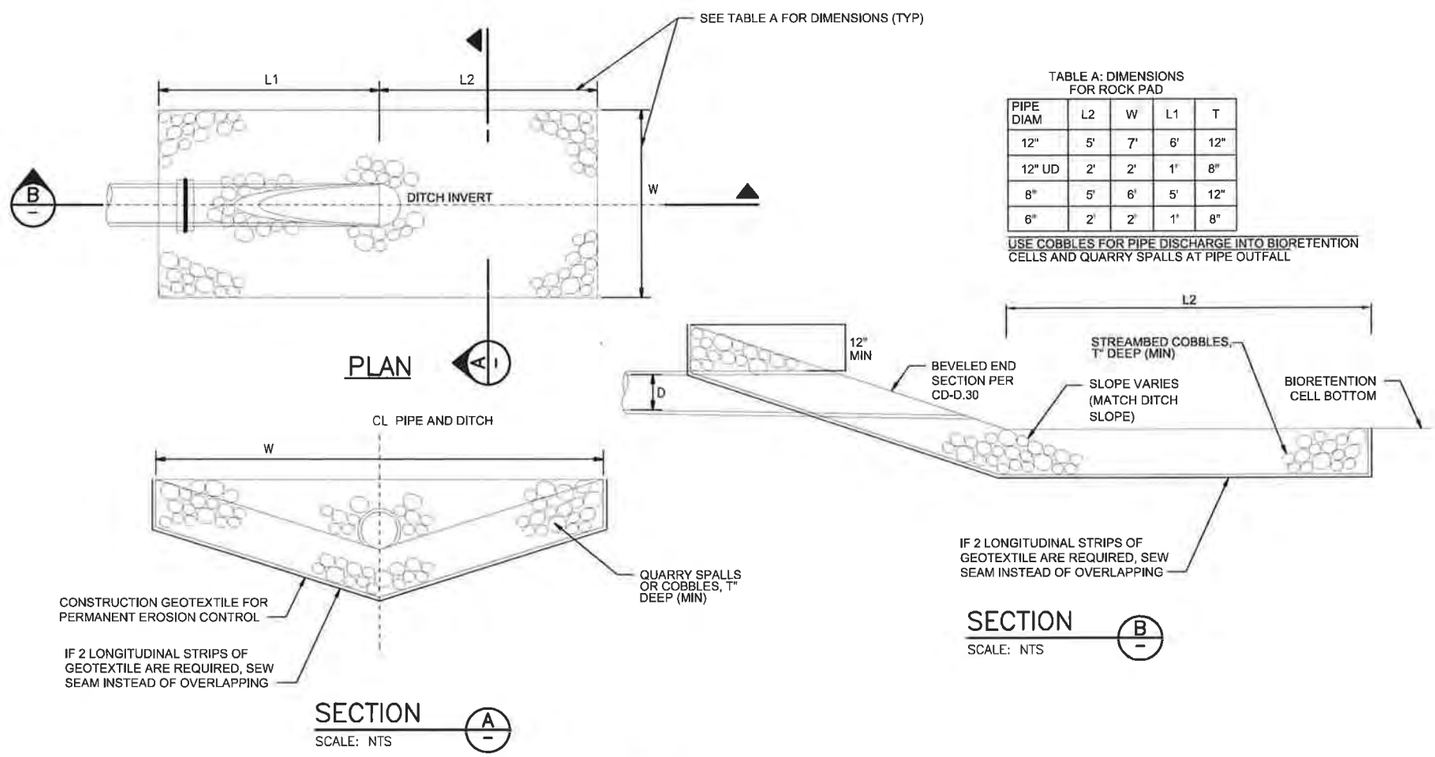


TABLE A: DIMENSIONS FOR ROCK PAD

PIPE DIAM	L2	W	L1	T
12"	5'	7'	6'	12"
12" UD	2'	2'	1'	8"
8"	5'	6'	5'	12"
6"	2'	2'	1'	8"

USE COBBLES FOR PIPE DISCHARGE INTO BIORETENTION CELLS AND QUARRY SPALLS AT PIPE OUTFALL

4 ROCK PAD AT OUTFALL
NTS

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Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

2-8-19

SET TYPE:
100% Design Submittal

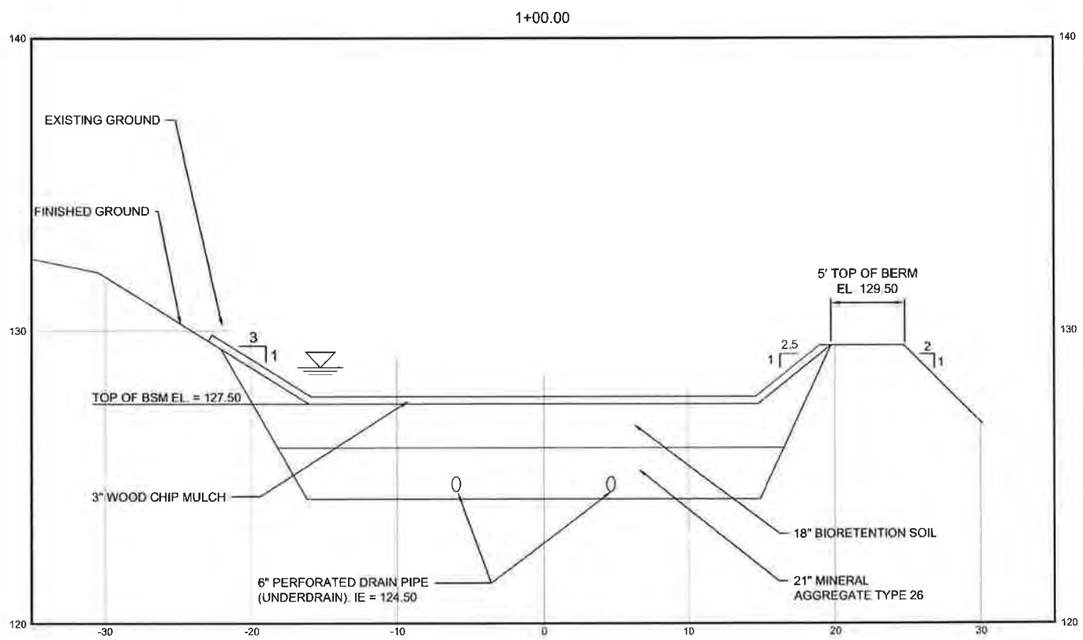
SET ISSUE DATE:
2/8/2019

REVISIONS:

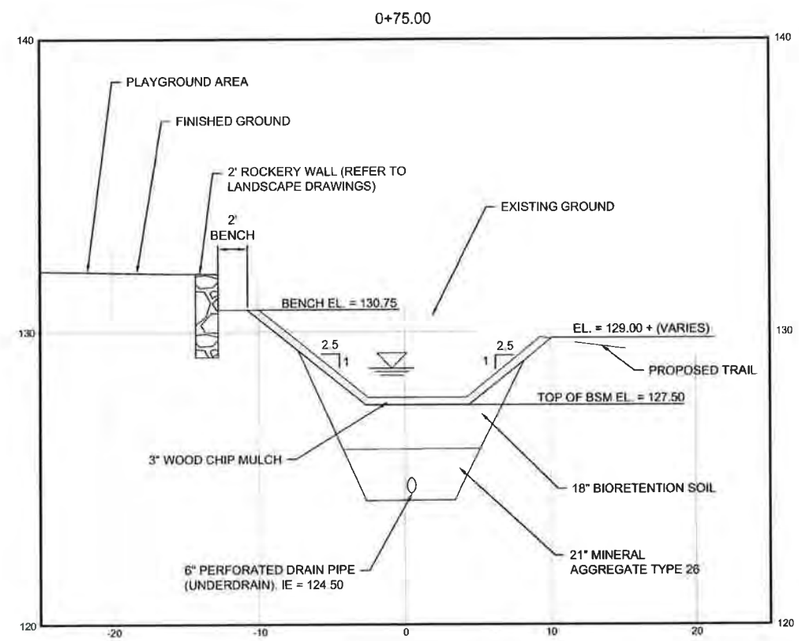
DRAWN/CHECKED:
DRW / CHK

SHEET NAME:
DRAINAGE DETAILS - PARK

SHEET NUMBER:
CD101



1 WESTERN BIORETENTION SECTION
SCALE: 1"=20'; 1"=10'V



2 EASTERN BIORETENTION SECTION
SCALE: 1"=20'; 1"=10'V

City of Kirkland
Reviewed by R Braun
05/30/2019

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Totem Lake Park Phase 1
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ISSUE DATE
2/8/2019

REVISIONS

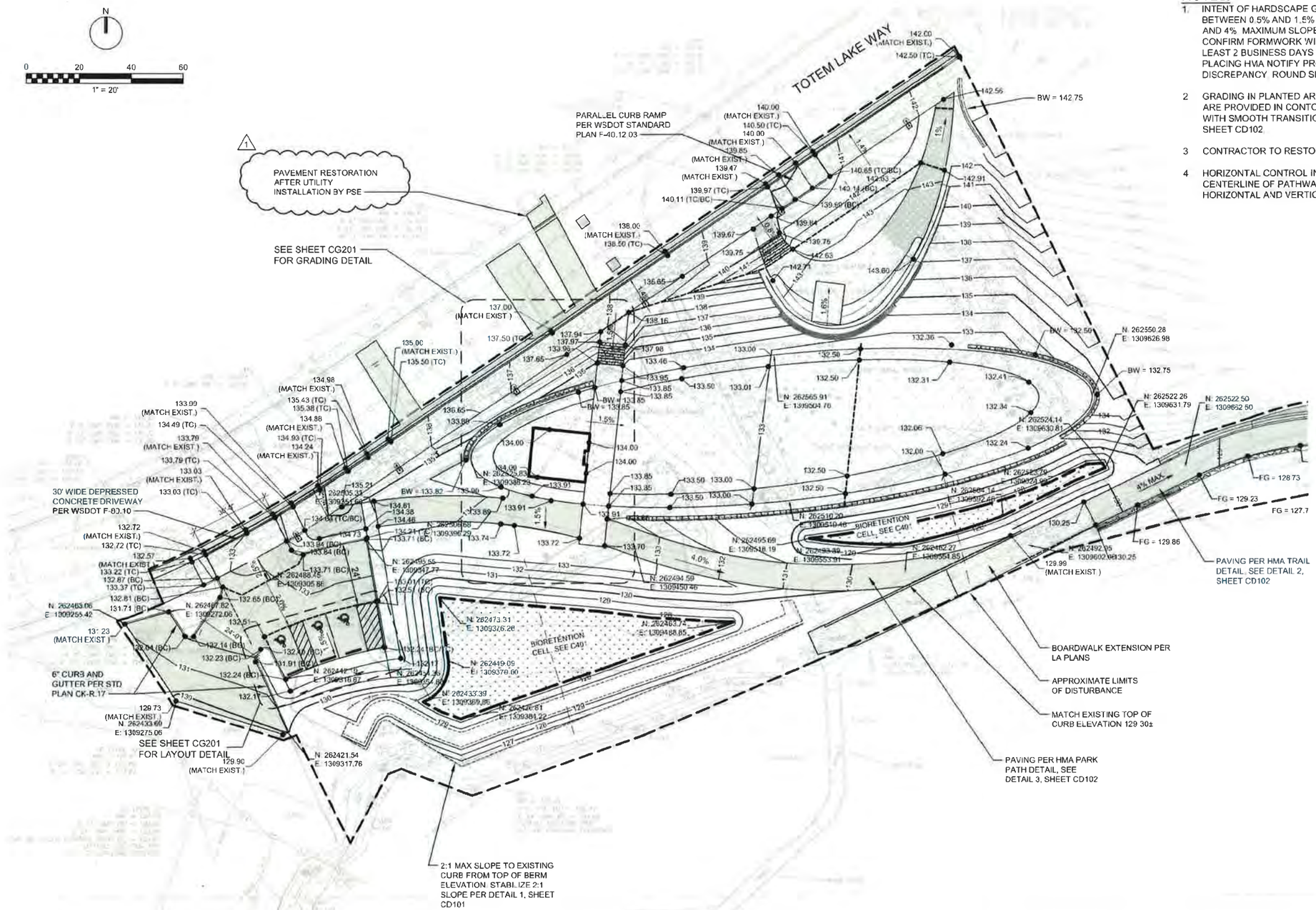
DRAWN / CHECKED
DRW / CHK

SHEET NAME
DRAINAGE SECTIONS - PARK

SHEET NUMBER
CD103

NOTES:

1. INTENT OF HARDSCAPE GRADING IS TO PRODUCE CROSS-SLOPE BETWEEN 0.5% AND 1.5% AND LONGITUDINAL SLOPE BETWEEN 0% AND 4%. MAXIMUM SLOPE IN ANY DIRECTION IN ADA STALLS IS 1.5%. CONFIRM FORMWORK WILL PRODUCE SLOPES IN THIS RANGE AT LEAST 2 BUSINESS DAYS BEFORE POURING CONCRETE; OR PLACING HMA NOTIFY PROJECT REPRESENTATIVE OF ANY DISCREPANCY. ROUND SLOPES PER DETAIL 5 ON SHEET CD102.
2. GRADING IN PLANTED AREAS SHALL BE SMOOTH. ANGLE POINTS ARE PROVIDED IN CONTOURS FOR EASE OF STAKING; CONSTRUCT WITH SMOOTH TRANSITIONS. ROUND SLOPES PER DETAIL 5 ON SHEET CD102.
3. CONTRACTOR TO RESTORE ALL AFFECTED PAVEMENT MARKINGS.
4. HORIZONTAL CONTROL INFORMATION PROVIDED FOR PATH IS TO CENTERLINE OF PATHWAY. REFER TO STRUCTURAL PLANS FOR HORIZONTAL AND VERTICAL LOCATIONS OF STRUCTURE.



LEGEND:

- GRADE BREAK
- 134.00 — SPOT ELEVATION
- FG 136.75 — FINISH GRADE
- CONTOUR
- HMA PAVING (SEE DETAILS ON CD-102)
- CONCRETE PAVING (REFER TO LANDSCAPE ARCHITECT)
- CRUSHED ROCK PAVING (REFER TO LANDSCAPE ARCHITECT)
- MATCH EXISTING

BC = BOTTOM OF CURB ELEVATION

TC = TOP OF CURB ELEVATION

GRADING & PAVING PLAN

1" = 20'

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Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

STATUS
100% Design Submittal

SUBMISSION DATE
2/8/2019

REVISIONS		
△	DESCRIPTION	DATE
1	Permit Response	2019-05/03

DRAWN BY / CHK
DRW / CHK

SHEET TITLE
GRADING & PAVING PLAN - PARK

SHEET NUMBER
CG101

ABBREVIATIONS

&	AND
@	AT
∠	ANGLE
AB	ANCHOR BOLT
AC	ACOUSTIC
A/C	AIR CONDITIONING
ACB	ACOUSTICAL CEILING BOARD
ACC	ACCESSIBLE
ACM	ASBESTOS CONTAINING MATERIAL
ACOUS	ACOUSTICAL
ACP	ACOUSTICAL CEILING PANEL
ACT	ACOUSTICAL CEILING TILE
ACU	AIR CONDITIONING UNIT
AD	AREA DRAIN, ACCESS DOOR
ADD	ADDENDUM, ADDITIVE
ADDL	ADDITIONAL
ADJ	ADJACENT, ADJUSTABLE
AF	ACCESS FLOOR
AFC	ACOUSTICAL FABRIC COVER
AFF	ABOVE FINISH FLOOR
AFG	ABOVE FINISH GRADE
AGG	AGGREGATE
ALUM	ALUMINUM
ALT	ALTERNATE
ANOD	ANODIZED
AP	ACCESS PANEL
APC	ACOUSTICAL PANEL CEILING
APPD	APPROVED
APPROX	APPROXIMATE (LY)
APT	APARTMENT UNIT
ARCH	ARCHITECTURE (URAL)
ASPH	ASPHALT
AVE	AVENUE
AWF	ACOUSTICAL WALL FABRIC
AWP	ACOUSTICAL WALL PANEL
B	BATH
BBQ	BARBEQUE
BD	BOARD
BF	BOTH FACES
BIT	BITUMEN
BITUM	BITUMINOUS
BLDG	BUILDING
BLK(G)	BLOCK (ING)
BM	BEAM, BENCH MARK
BO	BOTTOM OF
BOT	BOTTOM
BOW	BOTTOM OF WALL
BR	BRICK, BEDROOM
BRG	BEARING
BS	BACKSPLASH
BSMT	BASEMENT
BTWN	BETWEEN
BUR	BUILT-UP ROOFING
℄	CENTERLINE
CAB	CABINET, CEMENT ASBESTOS BOARD
CB	CATCH BASIN
CBU	CEMENTIOUS BACKER UNITS
C/C	CENTER TO CENTER
CD	CUP DISPENSER
CEM	CEMENT
CER	CERAMIC
CF	CUBIC FEET
CFCI	CONTRACTOR FINISHED/CONTRACTOR INSTALLED
CFM	CUBIC FEET PER MINUTE
CFT	CONDUCTIVE FLOOR TILE
CG	CORNER GUARD
CHAN	CHANNEL
CHBD	CHALKBOARD
CI	CAST IRON
CIP	CAST IN PLACE
CJ	CONTROL JOINT
CLF	CHAIN LINK FENCE
CLG	CEILING
CLK	CAULKING
CLO	CLOSET
CLR	CLEAR (ANCE)
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS
COORD	COORDINATE
CORR	CORRIDOR
CPT	CARPET (ED)
CRS	COURSE (ES)
CS	CONCRETE SEALER
CT	CERAMIC TILE
CTCS	CERAMIC TILE CORNER SHELF
CTR	COUNTER
CTSD	CERAMIC TILE CORNER DISH
CTSK	COUNTER SINK
CTV	CABLE TELEVISION
CU	CUBIC
CW	COLD WATER
C/W	COMPLETE WITH
CWB	CAPILLARY WATER BARRIER
CY	CUBIC YARD(S)
d	PENNY NAILS
D	DEEP, DEPTH, DRYER
DBL	DOUBLE
DEMO	DEMOLITION, DEMOLISH
DEP	DEPRESSED
DEPT	DEPARTMENT
DET, DTL	DETAIL
DF	DRINKING FOUNTAIN
D FIR	DOUGLAS FIR
DI	DUCTILE IRON, DEIONIZED WATER
DIA, Ø	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DIM PT	DIMENSION POINT
DISP	DISPOSAL
DL	DEAD LOAD
DMPF	DAMPPROOFING
DN	DOWN
DPR	DAMPER
DR	DOOR
DS	DOWNSPOUT
DV	DRYER VENT
DW	DISHWASHER
DWG	DRAWING
E	EAST
EA	EACH
EB	EXPANSION BOLT
EF	EACH FACE, EXHAUST FAN
EFS	EXTERIOR FINISH SYSTEM
EIFS	EXTERIOR INSULATION & FINISH SYSTEM
EJ	EXPANSION JOINT
ELEC	ELECTRIC (AL)
EL	ELEVATION
ELEV	ELEVATOR, ELEVATION
EM	ENTRY MAT
EN	ENAMEL
ENCL	ENCLOSURE
EOS	EDGE OF SLAB
EP	ELECTRICAL PANEL (BOARD)
EPNT	EPOXY PAINT
EPX	EPOXY
EQ	EQUAL, EQUALLY
EQUIP	EQUIPMENT
ES	EACH SIDE
EST	ESTIMATE (ED)
EW	EACH WAY
EWC	ELECTRIC WATER COOLER
EX	EXPANSION
EXC	EXCAVATE
EXH	EXHAUST
EXIST, (E)	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
FA	FIRE ALARM
FBD	FIBERBOARD
FBO	FURNISHED BY OTHERS
FD	FLOOR DRAIN
FDN	FOUNDATION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER & CABINET
F/F	FACE TO FACE
FF	FACTORY FINISH, FINISH FLOOR
FF&E	FURNITURE, FIXTURES & EQUIPMENT
FGL	FIBERGLASS
FH	FIRE HYDRANT
FHC	FIREHOSE CABINET
FIN	FINISH (ED)
FL	FLOOR (ING)
FLUOR	FLUORESCENT
FM	FACTORY MUTUAL
FND	FEMININE NAPKIN DISPOSAL
FNV	FEMININE NAPKIN VENDOR
FO, F/O	FACE OF
FOC	FACE OF CONCRETE OR CMU
FOF	FACE OF FINISH
FOIC	FURNISHED BY OWNER/INSTALLED BY CONTRACTOR
FOIO	FURNISHED BY OWNER/INSTALLED BY OWNER
FOM	FACE OF MASONRY
FOS	FACE OF STUD, FACE OF SLAB
FP	FIREPLACE
FPRF	FIREPROOFING
FPWH	FREEZE PROOF WALL HYDRANT
FR	FIRE-RESISTIVE
FRC	FIBER REINFORCED CONCRETE
FRG	FIBER REINFORCED GYPSUM
FRP	FIBERGLASS REINFORCED PLASTIC
FRT	FIRE RETARDANT TREATED
FS	FLOOR SINK
FT	FOOT, FEET
FTG	FOOTING
FURR	FURRING, FURRED
FUT	FUTURE
FWC	FABRIC WALL COVERING
G	GAS
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GB	GRAB BAR
GC	GENERAL CONTRACTOR
GCMU	GLAZED CONCRETE MASONRY UNIT
GD	GARBAGE DISPOSAL
GFCI	GROUND FAULT CIRCUIT INTERRUPTOR
	GOVERNMENT FURNISHED, CONTRACTOR INSTALLED
GFOI	GOVERNMENT FURNISHED, GOVERNMENT INSTALLED
GFRC	GLASS FIBER REINFORCED CONCRETE
GL	GLASS, GLAZING
GLU-LAM	GLUE-LAMINATED
GND	GROUND
GPM	GALLONS PER MINUTE
GR	GRADE
GRGL	GLARE REDUCING GLASS (GLAZING)
GS	GALVANIZED STEEL
GSB	GYPSUM SHEATHING BOARD, GYPSUM SOFFIT BOARD
GSF	GROSS SQUARE FOOT(AGE)
GSL	GYPSUM SHAFT LINER
GVP	GYPSUM VENEER PLASTER
GWB	GYPSUM WALL BOARD
GYP	GYPSUM
GYP SHTG	GYPSUM SHEATHING
H	HIGH
HB	HOSE BIB
HBGC	HIGH BUILD GLAZE COATING
HC	HANDICAP, HOLLOW CORE
HCT	HOLLOW CLAY TILE
HD	HAND DRYER, HAIR DRYER
HDOL	HIGH DENSITY OVERLAID
HDR	HEADER
HDWD	HARDWOOD
HDWR	HARDWARE
HIWC	HIGH IMPACT WALL COVERING
HM	HOLLOW METAL
HO	HOLD-OPEN
HORIZ	HORIZONTAL
HP	HYDRO POOL
HR	HOUR, HANDRAIL
HRC	HOSE REEL CABINET
HRSF	HIGH RATE SAND FILTER
HT	HEIGHT
HTG	HEATING
HVAC	HEATING/VENTILATION/AIR CONDITIONING
HW	HOT WATER
HWT	HOT WATER TANK
HWD	HOT WATER DISPENSER
ID	INSIDE DIMENSION, INSIDE DIAMETER
IE	INVERT ELEVATION
IG	INSULATED GLASS
IN	INCH
INCL	INCLUDE (D, ING)
INFO	INFORMATION
INSUL	INSULATE(D), (ION)
INT	INTERIOR
INV	INVERT
IPS	IRON PIPE SIZE
JAN	JANITOR
JST	JOIST
JT	JOINT
JB	JUNCTION BOX
K, KIT	KITCHEN
KD	KILN DRIED
KDF	KNOCK DOWN FRAME
KO	KNOCK-OUT
KP	KICKPLATE
KS	KNEE SPACE
L	LONG, LENGTH, LEFT
LAM	LAMINATE
LAV	LAVATORY
LB	LAG BOLT
LBS, #	POUNDS
LF	LINEAL FOOT/FEET
LG	LENGTH, LONG
LH	LEFT HAND
LHR	LEFT HAND REVERSE
LKR	LOCKER
LL	LIVE LOAD
LMS	LIQUID MARKING SURFACE
LPT	LOW POINT
LRH	LIGHT REFLECTIVE HARDNER
LSD	LIQUID SOAP DISPENSER
LT	LIGHT
LTG	LIGHTING
LVR	LOUVER
LWC	LIGHTWEIGHT CONCRETE
MACH	MACHINE
MAS	MASONRY
MAT	MATERIAL
MAX	MAXIMUM
MB	MACHINE BOLT
MC	MEDICINE CABINET
MDF	MEDIUM DENSITY FIBERBOARD
MDO	MEDIUM DENSITY OVERLAY
MECH	MECHANICAL
MEMB	MEMBRANE
MET	METAL
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MTL	METAL
MEZZ	MEZZANINE
MFR	MANUFACTURER
MH	MANHOLE
MIR	MIRROR
MJ	MACHINE JOLT
MLD	MOLDING
MO	MASONRY OPENING
MOD	MODIFIED
MR	MOISTURE RESISTANT
MTD	MOUNTED
MULL	MULLION
MW	MICROWAVE OVEN
N	NORTH
(N)	NEW
N/A	NOT APPLICABLE
NAT	NATURAL
N/C	NONCOMBUSTIBLE
NFS	NON-FROST SUSCEPTIBLE
NFVA	NET FREE VENT AREA
NIC	NOT IN CONTRACT
NO, #	NUMBER
NOM	NOMINAL
NP	NOT PROVIDED
NR	NONRATED
NRC	NOISE REDUCTION COEFFICIENT
NSF	NET SQUARE FEET
NTS	NOT TO SCALE
O	OVER
O/O	OUT TO OUT
OA	OVERALL
OBS	OBSCURE
OC	ON CENTER
OD	OUTSIDE DIMENSION, OVERFLOW DRAIN
OF	OUTSIDE FACE
OFCI	OWNER FURNISHED/CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED/OWNER INSTALLED
OFF	OFFICE
OH	OVERHEAD
ORD	OVERFLOW ROOF DRAIN
OPNG	OPENING
OPP	OPPOSITE
OR	OUTSIDE RADIUS
OS	OUTSIDE
OSB	ORIENTED STRAND BOARD
OTS	OPEN TO STRUCTURE
ℙ	PROPERTY LINE
P	POWER
PA	PUBLIC ADDRESS
PAR	PARALLEL
PB	PANIC BAR
PBD	PARTICLEBOARD
PC	PRECAST, POINT OF CURVE
PCD	PAPER CUP DISPENSER
PERF	PERFORATED
PERP	PERPENDICULAR
PF	PREFABRICATED
PI	POINT OF INTERSECTION
PJ	PANEL JOINT
PL	PLATE
PLAM	PLASTIC LAMINATE
PLAS	PLASTER
PLYWD	PLYWOOD
PNL	PANEL
PNT	PAINT
POC	POINT OF CONNECTION
POL	POLISHED
POLY	POLYETHYLENE
PP	POWER POLE
PR	PAIR
PRCST	PRECAST
PREFAB	PREFABRICATED
PROP	PROPERTY
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSL	PARALLEL STRAND LUMBER
PT	POINT, PRESSURE TREAT (ED)
PTD	PAPER TOWEL DISPENSER
PTD/WR	PTD & WASTE RECEPTACLE
PTN	PARTITION
PTR	PAPER TOWEL RECEPTACLE
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
PW	POTABLE WATER
PWT	PREFABRICATED WOOD TRUSS
QUAN	QUANTITY
QT	QUARRY TILE
R	RISER, RADIUS, THERMAL RESISTANCE
RA	RETURN AIR
RAD, R	RADIUS
RB	RUBBER BASE, RESILIENT BASE
RD	ROOF DRAIN, ROAD
RD/O	ROOF DRAIN OVERFLOW
REBAR	REINFORCING BAR
REC	RECESSED
RECP	RECEPTACLE
RECT	RECTANGULAR
REF	REFERENCE
REFR	REFRIGERATOR
REG	REGISTER
REINF	REINFORCE (ED, ING)
REQ'D	REQUIRED
REQT	REQUIREMENT
RESIL	RESILIENT
RET	RETAINING
REV	REVISION
RFG	ROOFING
RH	RIGHT HAND, RELATIVE HUMIDITY, ROBE HOOK
RHR	RIGHT HAND REVERSE
RL	RAIN LEADER
RM	ROOM
RO	ROUGH OPENING
ROW	RIGHT OF WAY
R&S	ROD & SHELF
R&R	REMOVE & REPLACE
RR	RAILROAD
RS	ROUGH SAWN
RT	RESILIENT TILE
RUB	RUBBER
RV	RANGE VENT
RWL	RAIN WATER LEADER
S	SLOPE, SOUTH
SAN	SANITARY SEWER
SC	SOLID CORE
SCWD	SOLID CORE WOOD
SCD	SEAT COVER DISPENSER
SCHED	SCHEDULE
SCR	SHOWER CURTAIN ROD
SD	SOAP DISPENSER, STORM DRAIN, SMOKE DETECTOR
SECT	SECTION
SF	SQUARE FOOT/FEET
SG	SAFETY GLAZING
SH	SHOWER
SHT	SHEET
SHTG	SHEATHING
SIM	SIMILAR
SK	SINK
SLR	SEALER
SLV	SLEEVE
SM	SHEET METAL, SHOWER MODULE
SMHC	SHOWER MODULE HANDICAPPED
SMH	SHELF/MOP HOLDER
SMR	SURFACE METAL RACEWAY
SND	SANITARY NAPKIN DISPENSER, SANITARY NAPKIN DISPOSAL
SOG	SLAB ON GRADE
SOV	SHUT OFF VALVE
SP	STANDPIPE, SOLID PLASTIC
SPEC	SPECIFICATION (S)
SQ	SQUARE
SR	SEMI-RECESSED
SS	SANITARY SEWER, STAINLESS STEEL
SSK	SERVICE SINK
SSM	SOLID SURFACE MATERIAL
SST	STAINLESS STEEL
SSV	SAND STAIN VARNISH
ST	STAIN, STONE, STREET
STC	SOUND TRANSMISSION CLASS
STD	STANDARD
STL	STEEL
STOR	STORAGE
STFT	STORE FRONT
STRUCT	STRUCTURAL
SURF	SURFACE
SV	SHEET VINYL
S/V	STAIN & VARNISH
SWL	STATIC WATER LEVEL
SWR	SEWER
SYM	SYMMETRICAL
T, TR	TREAD
TB	TOWEL BAR
T&B	TOP & BOTTOM
TD	TOWEL DISPENSER
TEL	TELEPHONE
TER, TZ	TERRAZZO
TESC	TEMPORARY EROSION & SEDIMENTATION CONTROL
TFCI	TENANT FURNISHED/ CONTRACTOR INSTALLED
T&G	TONGUE & GROOVE
TG	TEMPERED GLASS
THK	THICK (NESS)
TKBD	TACKBOARD
TO	TOP OF
TOB	TOP OF BEAM
TOC	TOP OF CURB, TOP OF CONCRETE, TOP OF COLUMN
TOF	TOP OF FOUNDATION
TOM	TOP OF MASONRY
TOP	TOP OF PAVEMENT, TOP OF PLATE
TOS	TOP OF SLAB
TOW	TOP OF WALL
TPD	TOILET PAPER DISPENSER
TPTN	TOILET PARTITION
TRAN	TRANSPARENT
TS	TUBE STEEL
TTD	TOILET TISSUE DISPENSER
TTH	TOOTHBRUSH HOLDER
TV	TELEVISION
TWC	TEXTILE WALL COVERING
TYP	TYPICAL
UC	UNDERCUT
U/C	UNDER COUNTER
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORIES
UNF	UNFINISHED
UNO	UNLESS NOTED OTHERWISE
UR	URINAL
UV	ULTRA VOILET
UFAS	UNIFORM FEDERAL ACCESSIBILITY STANDARDS
V	VENT
VAR	VARIES
VAT	VINYL ASBESTOS TILE
VCT	VINYL COMPOSITION TILE
VENT	VENTILATOR
VERT	VERTICAL
VEST	VESTIBULE
VG	VERTICAL GRAIN
VIN	VINYL
VR	VAPOR RETARDER
VTR	VENT THROUGH ROOF
VWC	VINYL WALL COVERING
W	WATER, WEST, WIDE, WIDTH, WASHER
W/	WITH
WB	WALL BASE, WASTE BASKET
WC	WATER CLOSET, WALL COVERING
WD	WOOD
WF	WIDE FLANGE
WG	WIRE GLASS
WH	WATER HEATER, WALL HUNG
W/I	WITHIN
WIN	WINDOW
WM	WIRE MESH
W/O	WITHOUT
WP	WATER PROOF, WORKING POINT
WPL	WEATHER PROOF LOUVER
WR	WASTE RECEPTACLE, WATER RESISTANT
WR/GWB	WATER RESISTANT GWB
WS	WEATHER STRIPPING, WATER STOP
WSCT	WAINSCOT
WT	WEIGHT, WATER TANK
WW	WALL TO WALL
WWF	WELDED WIRE FABRIC
X BRACE	CROSS BRACE
YD	YARD, YARD DRAIN

SYMBOLS

NORTH	PROJECT NORTH (PLAN REFERENCE ONLY - SEE SURVEY FOR TRUE NORTH)
1 / A6.A8	SECTION CUT/ ELEVATION NUMBER OR LETTER
	SHEET DRAWN
	SHEET TAKEN
1 / A6.A8	DETAIL NUMBER
	SHEET DRAWN
	SHEET TAKEN
A / B / C / D / A6.A8	ELEVATION LETTER
	SHEET DRAWN
	SHEET TAKEN
1	LOUVER TYPE
A	GLAZING TYPE
1	WALL TYPE
1	DEMO FLAG NOTE
12	WORK FLAG NOTE
13.5	GRID LINE
101	DOOR NUMBER
KITCHEN 113	ROOM IDENTIFICATION NUMBER
UP/DN	STAIR OR SLOPE DIRECTION
	CHAIN LINK FENCE
	ELEVATION INDICATOR
VINYL CPT	FLOOR MATERIAL INDICATOR

REFER TO INDIVIDUAL DISCIPLINE SHEETS FOR ADDITIONAL SYMBOLS AND ABBREVIATIONS

MATERIAL DESIGNATION

- EXISTING WALLS TO REMAIN
- WALLS OR ITEMS TO BE REMOVED (DASHED)
- NEW STUD WALLS
- NEW BRICK OR CMU WALLS
- CONCRETE
- EARTH
- FILL MATERIAL
- GYPSUM WALLBOARD (LARGE SCALE)
- CEMENT FIBER BOARD / SIDING (LARGE SCALE)
- CONTINUOUS BLOCKING
- NON-CONTINUOUS BLOCKING

City of Kirkland
Reviewed by B Braun
05/30/2019

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Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

WASH. REGISTERED ARCHITECT
GEOFFREY E. ANDERSON
STATE OF WASHINGTON

SET TYPE
100% Design Submittal

SET ISSUE DATE
2/8/2019

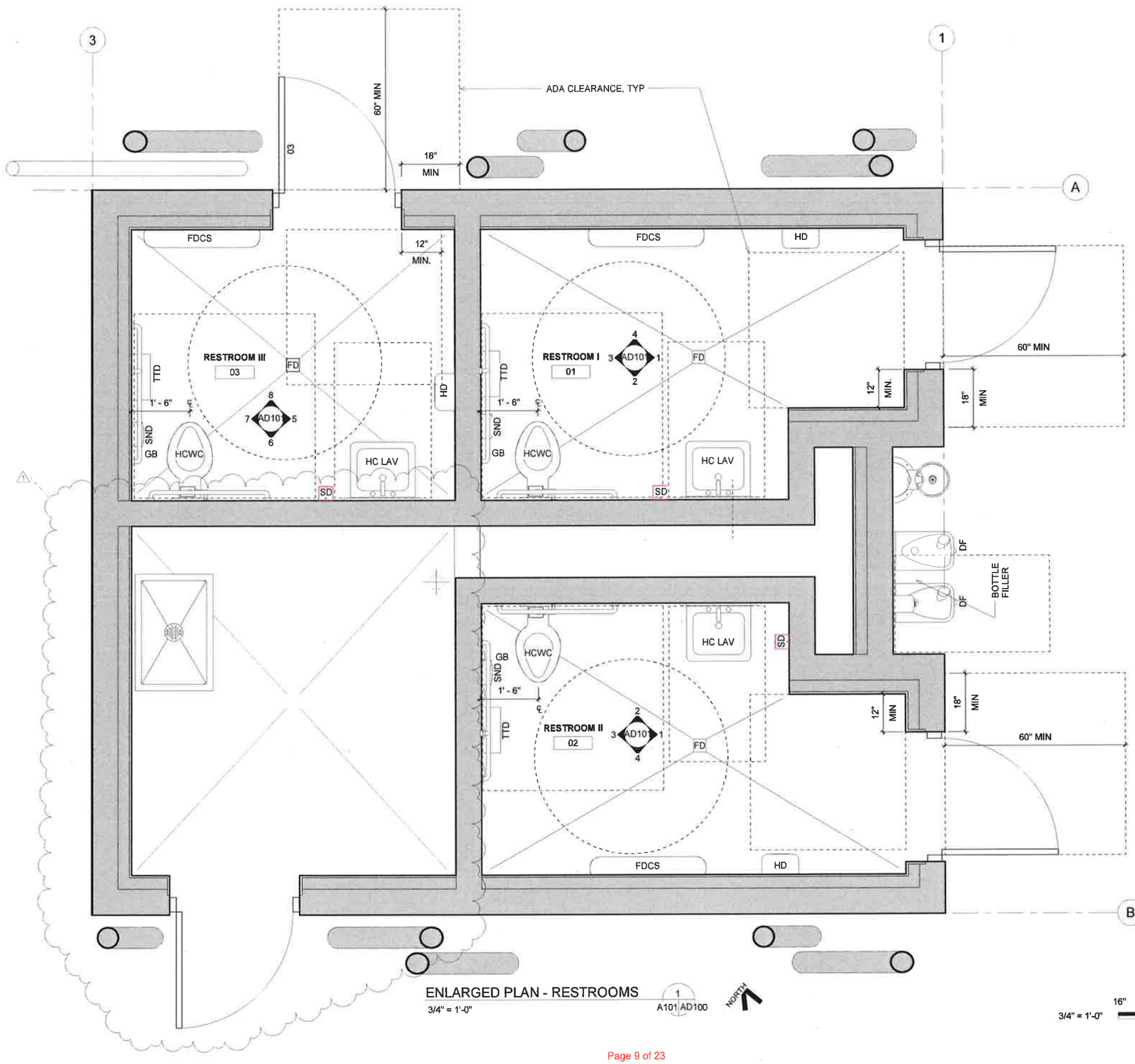
REVISIONS

REVNAME1	MM.DD.YYYY
REVNAME2	MM.DD.YYYY
REVNAME3	MM.DD.YYYY
REVNAME4	MM.DD.YYYY
REVNAME5	MM.DD.YYYY
REVNAME6	MM.DD.YYYY

DRAWN/CHECKED
GO GEA

SHEET NAME
ABBREVIATIONS & SYMBOLS

SHEET NUMBER
A000



ENLARGED PLAN - RESTROOMS
3/4" = 1'-0"
1 A101 AD100

NORTH

3/4" = 1'-0"
16" 8" 0 1' 2' 4'

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100% Design Submittal

SET ISSUE DATE
2/8/2019

REVISIONS

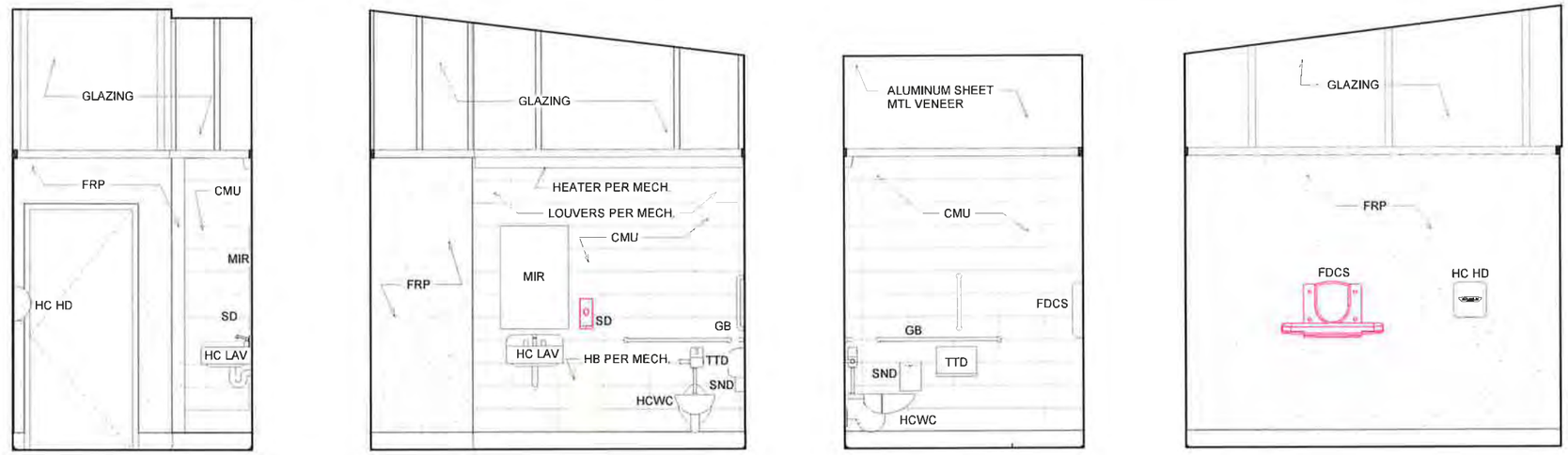
Δ	DESCRIPTION	DATE
1	Permit Response	2019/05/03

DRAWN/CHECKED
SES,GO GEA

SHEET NAME
ENLARGED PLANS

SHEET NUMBER
AD100

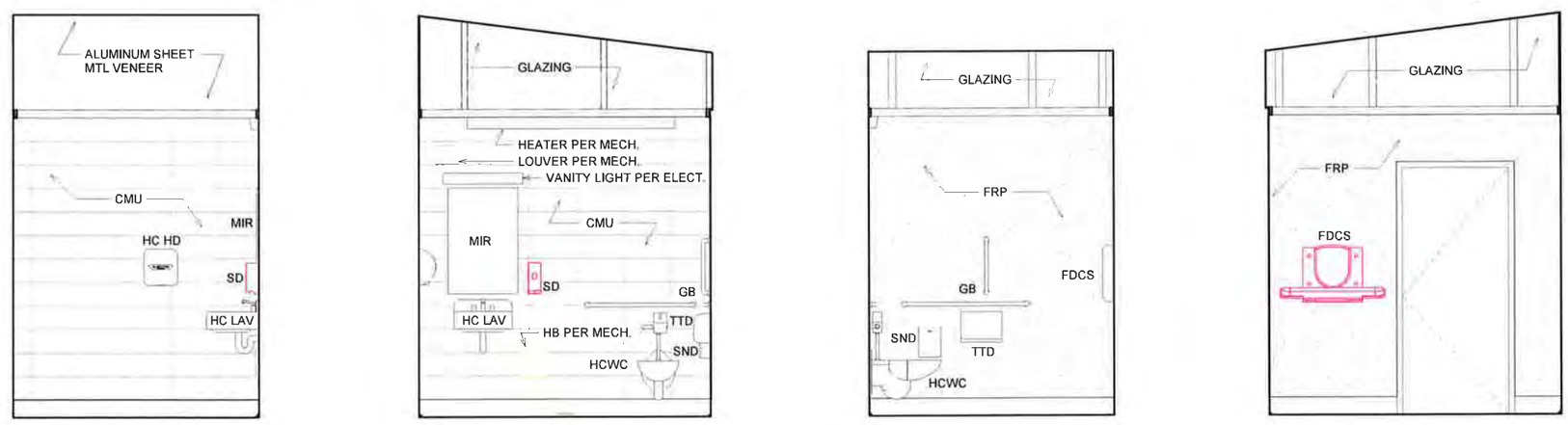
Berger Partnership Project Number: XXXXXXXXX.XX Plotted: 08.18.2011 5:18 PM By: Gennadiy Ogay Filename: p:\2017\17-116 totem lake splash pad (berger)\drawings\acad-totem lake park-ph1 - title block.dwg



ELEVATION 1 ELEVATION 2 ELEVATION 3 ELEVATION 4

RESTROOM 01, 02 OPP

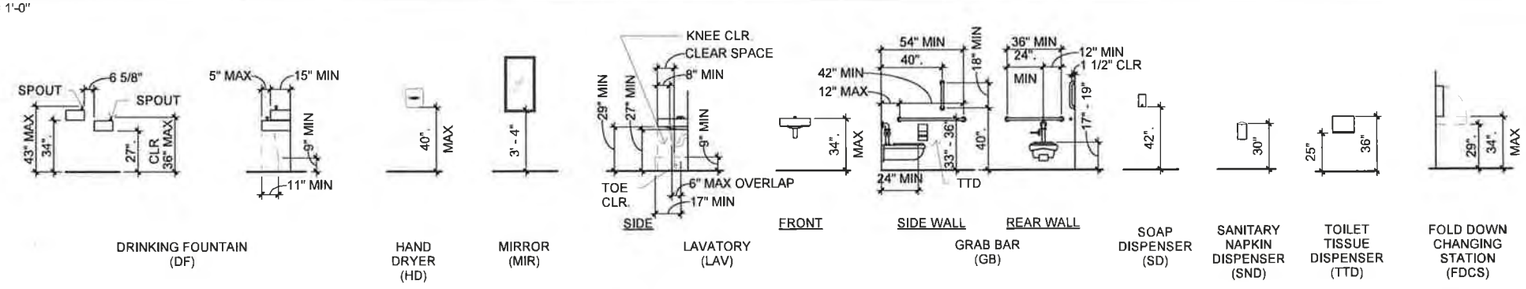
1/2" = 1'-0"



ELEVATION 5 ELEVATION 6 ELEVATION 7 ELEVATION 8

RESTROOM 03

1/2" = 1'-0"



TYPICAL FIXTURE/ EQUIPMENT MOUNTING HEIGHTS

FOR HANDICAP ACCESSIBILITY (U.O.N.)

1/2" = 1'-0" 2' 1' 0 2' 4' 6'

City of Kirkland
Reviewed by R Braun
05/30/2019

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SET TYPE
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SET ISSUE DATE
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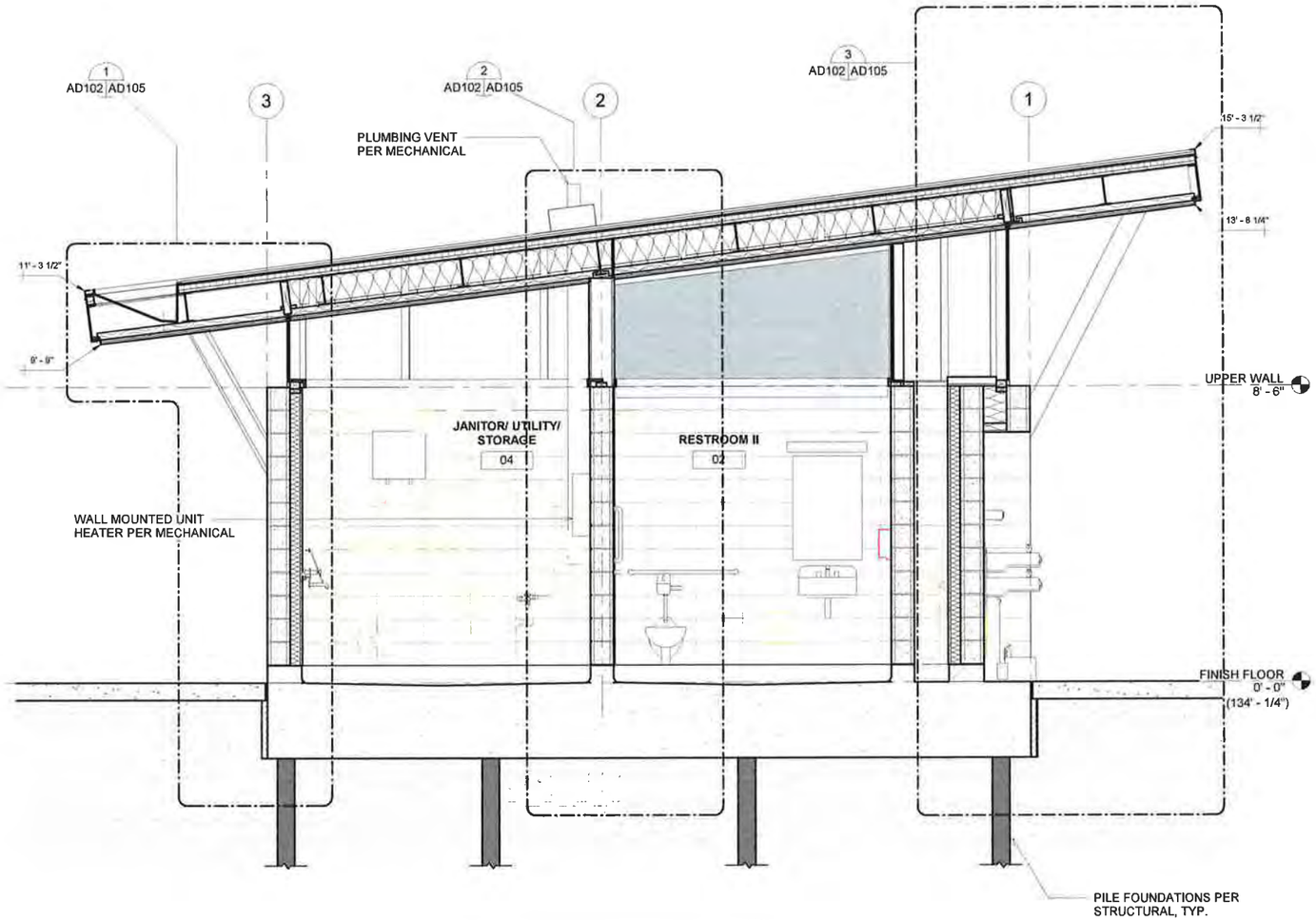
REVNAME4	MM.DD.YYYY
REVNAME5	MM.DD.YYYY
REVNAME6	MM.DD.YYYY

DRAWN/CHECKED
SES, GO, GEA

SHEET NAME
INTERIOR ELEVATIONS

SHEET NUMBER
AD101



BUILDING SECTION
1/2" = 1'-0"
1
A100 AD102

3/4" = 1'-0"
16" 8" 0 1' 2' 4'

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Totem Lake Park Phase 1
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SET TYPE:
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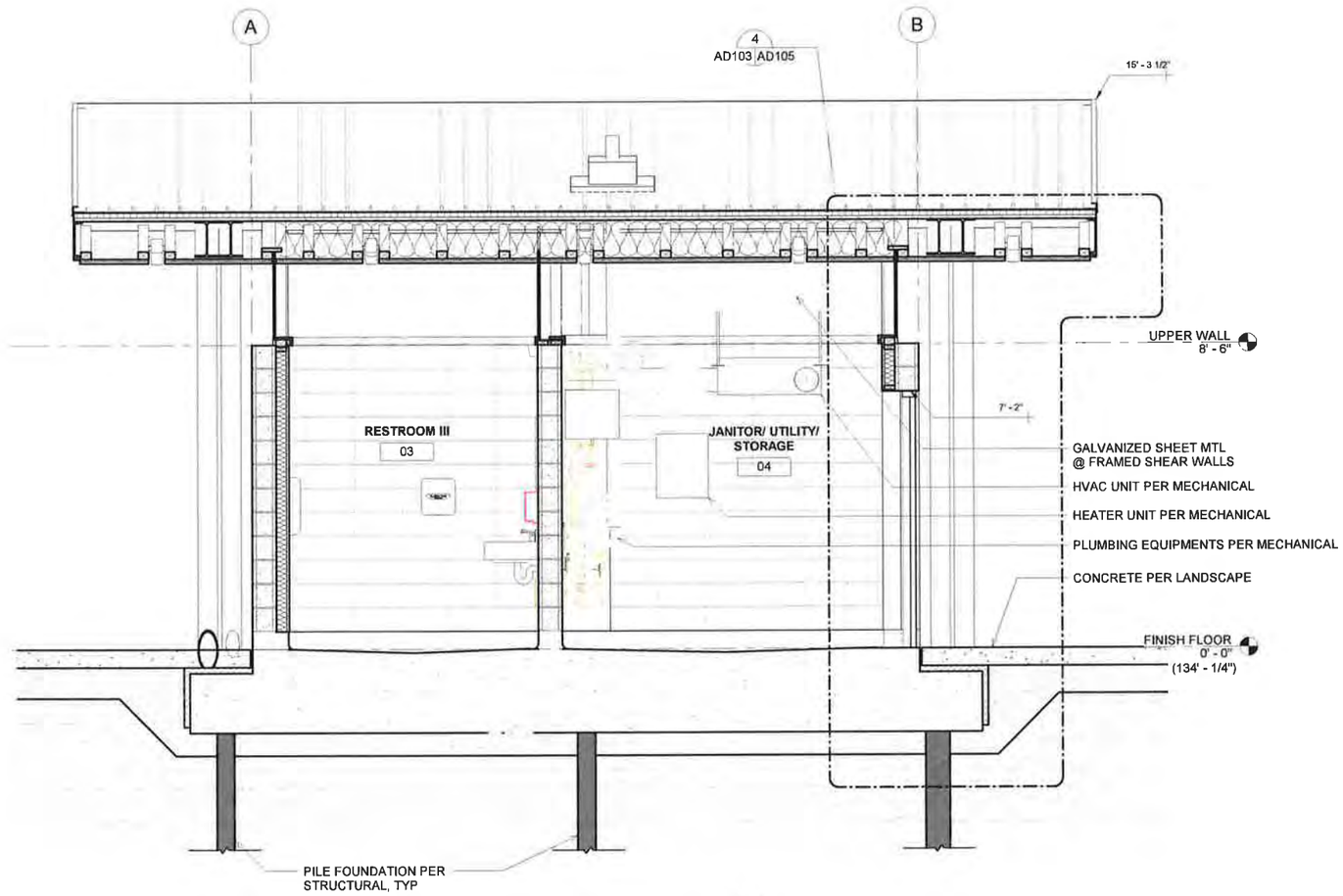
REVNAME3	MM.DD.YYYY
REVNAME4	MM.DD.YYYY
REVNAME5	MM.DD.YYYY
REVNAME6	MM.DD.YYYY

DRAWN/CHECKED
GO GEA

SHEET NAME
BUILDING SECTION I

SHEET NUMBER
AD102

Berger Partnership Project Number: XXXXXXXX.XX Plotted: 08.18.2011 5:18 PM By: Gennadiy Ogay Filename: p:\2017\17-116 totem lake splash pad (berger)\drawings\acad-totem lake park-ph1 - title block.dwg



BUILDING SECTION
1/2" = 1'-0"
1
A100 AD103

2' 1' 0 2' 4' 6'
1/2" = 1'-0"

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Totem Lake Park Phase 1
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REGISTERED ARCHITECT
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SET TYPE
100% Design Submittal

SET ISSUE DATE
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REVISIONS

REVNAME1	MM.DD.YYYY
REVNAME2	MM.DD.YYYY
REVNAME3	MM.DD.YYYY
REVNAME4	MM.DD.YYYY
REVNAME5	MM.DD.YYYY
REVNAME6	MM.DD.YYYY

DRAWN/CHECKED
GO GEA

SHEET NAME
BUILDING SECTION II

SHEET NUMBER
AD103

SYMBOL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	COLD WATER PIPING		MOTORIZED DAMPER
	HOT WATER PIPING	12X12 CD-1 100 27	DIFFUSER CALLOUT (SIZE TYPE, CFM, 50 FPM THROW)
	HOT WATER RECIRCULATION PIPING	TI	TEMPERATURE GAUGE
	WASTE PIPING		RETURN/EXHAUST/TRANSFER AIRFLOW
	VENT PIPING		SUPPLY AIRFLOW
	PIPE OR DUCT BREAK (GRAPHIC ONLY - CONTINUOUS PIPE/DUCT)		STRAINER W/ BLOWDOWN VALVE & 3/4" HOSE CONNECTION
	FLUSH CLEANOUT OR SURFACE CLEANOUT		UNION
	VENT THROUGH ROOF		FLOOR DRAIN
	PRESSURE REDUCING VALVE		AUTOMATIC OR MANUAL AIR VENT
	CHECK VALVE		BALANCING VALVE
	BALL VALVE	BFP	BACKFLOW PREVENTER ASSEMBLY
	PUMP		CIRCUIT SETTER
	PIPE REDUCER		

ABBREVIATION LIST

ADA	AMERICANS WITH DISABILTIES ACT
AMP	AMPERES
BFP	BACKFLOW PREVENTER
BTU	BRITISH THERMAL UNIT
CFM	CUBIC FEET PER MINUTE
CO	CLEANOUT
CV	COEFFICIENT OF FLOW
CW	COLD WATER
DC	DOUBLE CHECK
DEG	DEGREE
EA	EXHAUST AIR
EC	ELECTRICAL CONTRACTOR
ENTH	ENTHALPY
ERV	ENERGY RECOVERY VENTILATOR
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
FCO	FLUSH CLEANOUT
FD	FLOOR DRAIN
FPM	FEET PER MINUTE
FT	FEET
FU	FIXTURE UNITS
GAL	GALLON
GPD	GALLONS PER DAY
GPF	GALLONS PER FLUSH
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
H	HEIGHT
HB	HOSE BIBB
HP	HORSEPOWER
HW	HOT WATER
IE	INVERT ELECATION
IN	INCH
INDW	INDIRECT WASTE
KW	KILOWATT
L	LENGTH
LBS	POUNDS
MAX	MAXIMUM
MCA	MINIMUM CIRCUIT AMPACITY
MFG	MANUFACTURER
MIN	MINIMUM
MOCP	MAXIMUM OVERCURRENT PROTECTION
MRT	MEAN TEMPERATURE RATING
N/A	NOT APPLICABLE
NPR	NET PUMP SUCTION HEAD REQUIRED
PB	PRESSURE BALANCE
PD	PRESSURE DROP
PH	PHASE
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
RP	REDUCED PRESSURE
RPM	REVOLUTIONS PER MINUTE
SQ FT	SQUARE FOOT
TEMP	TEMPERATURE
TS	THERMOSTATIC
TV	TEMPERING VALVE
TW	TEMPERED WATER
TYP	TYPICAL
UH	UNIT HEATER
V	VENT
VFD	VARIABLE FREQUENCY DRIVE
VOLT	VOLTAGE
VTR	VENT THROUGH ROOF
W	WATT
W	WIDTH
W/	WITH
WC	WATER CLOSET

GENERAL NOTES

1. PROVIDE SYSTEM STARTUP, ADJUSTMENTS, AND DOCUMENTATION TO MEET MINIMUM REQUIREMENTS OF THE 2015 WASHINGTON STATE ENERGY CODE - COMMERCIAL PROVISIONS SECTION C408
2. OBTAIN AND PAY FOR ALL PERMITS AND CONSTRUCTION FEES FURNISH FINAL CERTIFICATE TO OWNER SHOWING COMPLIANCE WITH CODE REQUIREMENTS
3. LOCATE ALL VALVES, TRAPS, TEST PORTS, DAMPERS, CONTROLS, CLEANOUTS, ETC. TO BE ACCESSIBLE FOR MAINTENANCE, ADJUSTMENT, & TESTING PROVIDE ACCESS PANELS FOR ALL CONCEALED DEVICES
4. CONSTRUCT DUCTWORK ACCORDING TO WASHINGTON STATE ENERGY CODE SECTION C403 2.8
5. PROVIDE EACH ZONE WITH THERMOSTATIC CONTROLS THAT PROVIDE A DEADBAND OF AT LEAST 5 DEGREES FAHRENHEIT IN WHICH HEATING AND COOLING ENERGY IS CAPABLE OF BEING SHUT OFF OR REDUCED TO A MINIMUM. THERMOSTATS SHALL BE CAPABLE OF THERMOSTATIC SETBACK, AUTOMATIC SETBACK AND SHUTDOWN, AND AUTOMATIC START CAPABILITIES PER WASHINGTON STATE ENERGY CODE SECTION C403 2.4.2
6. PROVIDE MOTORIZED DAMPERS ON OUTDOOR AIR SUPPLY, EXHAUST OPENINGS, AND RELIEF OUTLETS DAMPERS SHALL HAVE A MAXIMUM LEAKAGE RATE OF 20 CFM PER SQUARE FOOT AT 1" W.C. DAMPERS SMALLER THAT 24" IN EITHER DIRECTION SHALL HAVE A MAXIMUM LEAKAGE RATE OF 40 CFM PER SQUARE FOOT AT 1" W.C.
7. PROVIDE BALANCING DEVICES ON ALL NEW AIR INLETS AND OUTLETS AND OUTSIDE AIR DUCT SECTIONS
8. AIR INLET AND OUTLET SIZES SHOWN ON PLANS ARE NECK SIZES PROVIDE ADDITIONAL PANS, HARDWARE, ETC, REQUIRED TO INSTALL AIR INLETS AND OUTLETS
9. DUCTWORK SHALL BE 2.0" PRESSURE CLASS UNLESS OTHERWISE NOTED ON THESE DRAWINGS
10. TOTAL STATIC PRESSURE NOTED IN SCHEDULES SHALL BE ASSUMED TO INCLUDE DUCT SYSTEM, TERMINAL UNITS, FILTERS, COILS, ETC
11. ALL PRESSURES LISTED ARE GAGE PRESSURES UNLESS OTHERWISE NOTED
12. THE FIRST FIGURE OF DUCT SIZE CALLOUTS INDICATES DIMENSION OF FACE SHOWN OR INDICATED DUCT SIZES ARE NET INSIDE DIMENSIONS PROVIDE ANY APPLICABLE DUCT LINING AND INSULATION PER THESE PLANS AND SPECIFICATIONS
13. HOT WATER DISCHARGE TEMPERATURE OF PUBLIC LAVATORIES SHALL BE 104 DEGREES FAHRENHEIT
14. ALL SERVICE HOT WATER PIPING SYSTEMS SHALL CONFORM TO THE MAXIMUM PIPE LENGTH PER THE 2015 WASHINGTON STATE ENERGY CODE TABLE C404.3.1
15. HOT WATER CIRCULATION SYSTEM SHALL HAVE CONTROL CAPABILITIES TO AUTOMATICALLY START THE CIRCULATION PUMP BASED ON DEMAND FOR HOT WATER AND SHUT-OFF PUMP WHEN THERE IS NO DEMAND AND WHEN THE DESIRED WATER TEMPERATURE IS MET PER 2015 WASHINGTON STATE ENERGY CODE SECTION C404.7.1.
16. SEISMIC PROVISIONS ARE REQUIRED - REFER TO SPECIFICATIONS
17. COORDINATE ALL MECHANICAL WORK WITH OTHER TRADES TO INSURE PROPER AND ADEQUATE INTERFACE OF THEIR WORK WITH THE WORK OF MECHANICAL CONTRACTOR. PROVIDE COORDINATED SHOP DRAWINGS FOR APPROVAL PRIOR TO FABRICATION AND INSTALLATION
18. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH NFPA 70 STANDARDS AND LOCAL REQUIREMENTS
19. ALL FIELD WIRING SHALL REQUIRE AN ELECTRICAL PERMIT AND SHALL BE PERFORMED BY A LICENSED ELECTRICIAN
20. A SHORT DASH IN A SCHEDULE TABLE CELL INDICATES THAT THE COLUMN HEADING IS NOT USED OR NOT APPLICABLE TO THAT SCHEDULED ITEM
21. CONTRACTOR SHALL COORDINATE WITH LOCAL JURISDICTIONS (INCLUDING BUT NOT LIMITED TO BUILDING DEPARTMENT, SEWER UTILITY, ETC.) FOR ALL REQUIRED INSPECTIONS PRIOR TO PERFORMING WORK.
22. PROVIDE P-TRAPS AT EACH DRAIN CONNECTION TO SANITARY SEWER SYSTEM PROVIDE TRAP PRIMERS & HEAT TRACE FOR ALL P-TRAPS

City of Kirkland
Reviewed by R Braun
05/30/2019

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DONALD G. BERGQUIST
STATE OF WASHINGTON
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REGISTERED
PROFESSIONAL ENGINEER
02/08/2019

SET TYPE
100% Design Submittal

SET ISSUE DATE
02/08/2019

REVISIONS

Δ	DESCRIPTION	DATE

DRAWN/CHECKED
CN / JB

SHEET NAME
MECHANICAL GENERAL INFORMATION

SHEET NUMBER
M001

Berger Partners Project Number 17031 Plotted 2/6/2019 11:48:34 AM Filename Y:\2017\17031 Totem Lake Park\Drawings\05 Revit\17031 Totem Lake (2018)_Central.rvt

PIPE HANGER SCHEDULE

PIPE TYPE	SIZE	HORIZONTAL SPACING	VERTICAL SPACING	NOTES
CAST IRON WITH COMPRESSION GASKET JOINTS	ALL	EVERY OTHER JOINT UNLESS OVER 4 FT, THEN SUPPORT EACH JOINT	BASE AND EACH FLOOR, 15 FT MAX	1
CAST IRON (HUBLESS) WITH SHIELDED COUPLING JOINTS	ALL	EVERY OTHER JOINT UNLESS OVER 4 FT, THEN SUPPORT EACH JOINT	BASE AND EACH FLOOR, 15 FT MAX	1, 2
COPPER TUBE AND PIPE WITH SOLDERED OR BRAZED JOINTS	1-1/2" AND SMALLER	6 FT	EACH FLOOR, 10 FT MAXIMUM	
	2" AND LARGER	10 FT	EACH FLOOR, 10 FT MAXIMUM	
SCHEDULE 80 PVC PIPE, 60-100 DEG F OPERATING TEMPERATURE	1" AND SMALLER	4-1/2 FT	-	
	1-1/4" - 3"	5-1/2 FT	-	
	4" - 8"	7-1/2 FT	-	
	10" AND LARGER	10 FT	-	
SCHEDULE 40 PVC AND ABS DWV PIPE WITH SOLVENT CEMENTED JOINTS	ALL	4 FT	BASE AND EACH FLOOR	3, 4
COPPER PIPING WITH MECHANICAL JOINTS	1" AND SMALLER	6 FT	10 FT	
	1-1/4" TO 2-1/2"	10 FT	10 FT	
PEX-A PIPING, RIGID	ALL	5 FT	10 FT	
PEX-A PIPING, FLEXIBLE	ALL	5 FT	5 FT	

NOTES:

1. WHERE 10' PIPE SECTIONS ARE USED HORIZONTALLY, 10' HORIZONTAL SPACING, SUPPORT WITHIN 18" OF EACH JOINT AND AT EACH HORIZONTAL BRANCH CONNECTION. BRACE AT EVERY 40'
2. HANGERS SHALL NOT BE PLACED ON THE COUPLING
3. ALLOW FOR EXPANSION EVERY 30 FT
4. FOR VERTICAL PIPE, PROVIDE MID-STORY GUIDES

PLUMBING FIXTURE SCHEDULE

SYMBOL	FIXTURE	MANUFACTURER	MODEL	PLUMBING CONNECTIONS (IN) WASTE	INDW	VENT	HW	CW	TW	FLOW GPM	GPF	ELECTRICAL VOLT	PH	W	MOUNTING	NOTES
FD-1	FLOOR DRAIN	JR SMITH	2010	3.00	-	2.00	-	-	-	-	-	-	-	-	FLOOR	2
HB-1	HOSE BIBB	ZURN	Z1341-P34	-	-	-	-	0.75	-	-	-	-	-	-	PIPE	
HB-2	HOSE BIBB	ZURN	Z1330-C-34EL-CI -SS-WC	-	-	-	-	0.75	-	-	-	-	-	-	WALL	2
HB-3	HOSE BIBB	ZURN	Z1330-C	-	-	-	-	0.75	-	-	-	-	-	-	WALL	2
P-1	WATER CLOSET	ACORN	2100-W-1-1.28-FVBO-HS-OFLC-ADA-CN	3.00	-	2.00	-	1.50	-	-	1.28	-	-	-	WALL	1,2,4
	SEAT	ACORN	HS-OFLC													
	FLUSH VALVE	SLOAN	CX-8158-1.28-SF-OR													
	CARRIER	JR SMITH														
P-2	LAVATORY	ACORN	1953-ADA-1-9-H1-GT-TE	2.00	-	2.00	-	-	0.50	0.50	-	-	-	-	WALL	1,2,4
	FAUCET	SLOAN	EBF-650-BAT-THE-SF-0.5GPM-MLM-IR-PCT													
	CARRIER	JR SMITH														
P-3	DRINKING FOUNTAIN	HAWS	1119FR	(2) 2.00	-	(2) 1.50	-	0.50	-	0.45	-	-	-	-	WALL	2,3
P-3A	PET FOUNTAIN	TERRABOUND SOLUTIONS	9004-MWL	2.00	-	2.00	-	0.50	-	-	-	-	-	-	WALL	2
P-4	JANITORS SINK	ACORN	TSI13624-BDS-KDG3-KFC-KH36-KMH-KWG-2	3.00	-	2.00	0.75	0.75	-		-	-	-	-	FLOOR	
	FAUCET	ACORN													WALL	

NOTES:

1. SENSOR OPERATED WITH BATTERY POWER
2. PROVIDE WITH VANDAL-RESISTANT HARDWARE
3. PROVIDE WITH HAWS 1920FR FREEZE RESISTANT BOTTLE FILLER, HAWS BP32 WALL PLATE, HAWS 6700 4L & 6700 4 BACKING PLATES
4. INSTALL IN ACCORDANCE WITH ADA REQUIREMENTS

AIR INLET & OUTLET SCHEDULE

SYMBOL	MANUFACTURER	MODEL	MOUNTING TYPE	STYLE	NOTES
EG-1	TITUS	50F	DUCT/WALL	EGGCRATE	1
SD-1	TITUS	300RS	DUCT/WALL	GRILLE	1

NOTES:

1. PROVIDE AIR BALANCING DEVICE AT EACH AIR INLET AND OUTLET

ELECTRIC UNIT HEATER SCHEDULE

SYMBOL	MANUFACTURER	MODEL	CFM	HEATER W	ELECTRICAL VOLT	PHASE	AMPS	WEIGHT (LBS)	NOTES
UH-1	KING	KCV1209	-	840	120	1	7	11.2	3
UH-2	KING	KCV1212	-	1125	120	1	9.4	16.8	2
UH-3	KING	KCV1212	-	1125	120	1	9.4	16.8	3
UH-4	TRANE	UHWA021A	245	2000	208	1	-	41	1, 4

NOTES:

1. UNIT TO BE PROVIDED WITH INTEGRAL THERMOSTATS
2. UNIT TO BE PROVIDED WITH SINGLE POLE RIGHT SIDE WIRING THERMOSTAT
3. UNIT TO BE PROVIDED WITH SINGLE POLE LEFT SIDE WIRING THERMOSTAT
4. TOP OF UNIT HEATER TO BE INSTALLED AT 6'-0" ABOVE FINISHED FLOOR. COORDINATE EXACT LOCATION WITH ELECTRICAL EQUIPMENT

TEMPERING VALVE SCHEDULE

SYMBOL	MANUFACTURER	MODEL	TYPE TS	PB	LINE SIZE (IN) INLET	OUTLET	PRV	CV	FLOW (GPM) MIN	MAX	OUTLET TEMP (°F)	SERVICE	WEIGHT (LBS)	NOTES
TV-1	SYMMONS	MAXLINE 7-225	X	-	0.50	0.50	-	-	1	14	104	RESTROOM LAVATORY	-	

NOTES:

ELECTRIC WATER HEATER SCHEDULE

SYMBOL	MANUFACTURER	MODEL	TYPE	SERVICE	CAPACITY (GAL)	DISCHARGE TEMP (DEG F)	RECOVERY GPH	TEMP RISE	ELECTRICAL VOLT	PHASE	KW	NOTES
WH-1	BRADFORD WHITE	LE112WV3-1	TANK	DOMESTIC HW	12	120	12.29	100	208	1	3.00	1, 2

NOTES:

1. PROVIDE WITH WALL MOUNTING HARDWARE, DRAIN PAN, SEISMIC RESTRAINTS, & TEMPERATURE/PRESSURE RELIEF VALVE
2. WALL MOUNT CONFIGURATION WITH BOTTOM PIPE CONNECTIONS

PIPE INSULATION SCHEDULE

APPLICATION	TEMP RANGE (°F)	INSULATION CONDUCTIVITY CONDUCTIVITY (BTU X IN/H X FT² X °F)	MRT (°F)	NOMINAL PIPE SIZE (IN) <1"	1" - 1-1/4"	1-1/2" - 3"	4" - 8"	≥8"	TYPE	NOTES
CW	40-60	0.21-0.27	75	0.5	0.5	1.0	-	-	FIBERGLASS W/ ASJ	1,2,3
HW, HWC, TW	90-105	0.21-0.28	100	1.0	1.0	1.5	-	-	FIBERGLASS W/ ASJ	1,2,3

GENERAL NOTES:

1. INSULATION THICKNESSES PER 2015 WASHINGTON STATE ENERGY CODE TABLE C403.2.9
2. PROVIDE WITH PVC JACKETING IN ALL EXPOSED LOCATIONS (UTILITY ROOMS, STORAGE ROOMS, ETC.)
3. PROVIDE WITH ALUMINUM JACKETING IN ALL OUTDOOR LOCATIONS

DUCT HANGER SCHEDULE

DUCT SIZE DIAMETER (IN)	RECT PERIMETER / 2 (IN)	MAX SPACING (FT)	WIRE DIA (GA)	ROD (IN)	STRAP	NOTES
10 AND DOWN	-	12	12	0.250	1" X 22 GA	1,2,3,4
-	30 AND DOWN	10	10	0.135	1" X 22 GA	1,2,3,4
-	30 AND DOWN	5	12	0.106	1" X 22 GA	1,2,3,4

NOTES:

1. MINIMUM HANGER SIZE AND MAXIMUM HANGER SPACING PER SMACNA TABLE 5-1 AND 5-2
2. HORIZONTAL DUCT SHALL HAVE A SUPPOST WITHIN 2 FEET OF EACH ELBOW AND WITHIN 4 FEET OF EACH BRANCH INTERSECTION
3. SINGLE HANGER MAXIMUM ALLOWABLE LOAD FOR STRAPS IS: 1" X 22 GA - 260 LBS, 1" X 20 GA - 320 LBS, 1" X 18 GA - 420 LBS
4. SINGLE HANGER MAXIMUM ALLOWABLE LOAD FOR ROD DIAMETER IS: 0.106" - 80 LBS, 0.135" - 120 LBS, 0.162" - 160 LBS, 0.25" - 270 LBS, 0.375" - 680 LBS

EXPANSION TANK SCHEDULE

SYMBOL	MANUFACTURER	MODEL	TYPE	CONFIGURATION	PRESSURE (PSI)	VOLUME (GAL) TOTAL	ACCEPTANCE	WEIGHT (LBS)	NOTES
ET-1	AMTROL	ST-5	DIAPHRAGM	VERTICAL	150	2.00	0.90	12.5	1

NOTES:

1. PROVIDE WITH WALL MOUNTING STRAPS

BACKFLOW PREVENTER SCHEDULE

SYMBOL	MANUFACTURER	MODEL	LINE SIZE (IN)	SERVICE	TYPE BP	DC	WATER PRESSURE (PSI) INLET	OUTLET	WEIGHT (LBS)	NOTES
BFP-1	WATTS	009 SERIES	1.50	DOMESTIC CW	X	X	-	-	-	1, 2

NOTES

1. PROVIDE WITH WYE-STRAINER, ISOLATION VALVES, & TEST PORTS
2. PROVIDE WITH SEPARATE PRESSURE REDUCING VALVE

WEATHERPROOF LOUVER SCHEDULE

SYMBOL	MANUFACTURER	MODEL	CFM	SIZE (IN) L	W	DEPTH (IN)	FREE AREA %	SQ FT	MAX PD (IN)	VELOCITY (FPM)	NOTES
L-1	GREENHECK	BVE	200	16.00	7.75	4.00	50.00	0.43	0.08	650	
L-2	GREENHECK	BVE	200	16.00	7.75	4.00	50.00	0.43	0.08	650	

NOTES:

ENERGY RECOVERY VENTILATOR SCHEDULE

SYMBOL	MANUFACTURER	MODEL NUMBER	CORE TYPE	AIRFLOW (CFM)	ESP (INWG)	RECOVERY EFFECIENCY TEMP RECOVERY	ENTH COOLING	ENTH HEATING	ELECTRICAL VOLT	PHASE	HP	AMP	MCA	MOCP	WEIGHT (LBS)	NOTES
ERV-1	MITSUBISHI	LGH-F300RX5-E3	CROSS FLOW	200	0.28	71.00%	55.00%	68.00%	208	1	0.52	0.32 - 1.35	1.8	15	73	1, 2

NOTES:

1. OUTSIDE AND EXHAUST AIR DUCTS SHALL HAVE MOTORIZED DAMPERS THAT SHALL OPEN UPON ACTIVATION AND CLOSE UPON UNIT SHUTDOWN
2. UNIT SHALL BE INSTALLED AND SUPPORTED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND DETAILS PROVIDED WITHIN THESE DOCUMENTS

DUCT INSULATION & LINING SCHEDULE

APPLICATION	R-VALUE (MIN)	K-VALUE (MAX)	NRC (MIN, 1")	THICKNESS (IN)	INSULATION LOCATION INSIDE DUCT	OUTSIDE DUCT	TYPE	NOTES
OUTSIDE AIR DUCTWORK INSULATION	7	0.25	-	2.00	-	X	FLEXIBLE FIBERGLASS	1,2
SUPPLY DUCTWORK INSULATION	7	0.25	-	2.00	-	X	FLEXIBLE FIBERGLASS	1,2
RETURN/EXHAUST DUCTWORK INSULATION	7	0.25	-	2.00	-	X	FLEXIBLE FIBERGLASS	1,2
DUCT LINING - WITHIN 10' OF EXHAUST FAN	-	0.25	0.55	1.00	X	-	CLOSED-CELL ELASTOMERIC	

NOTES:

1. INSULATION THICKNESSES PER 2015 WASHINGTON STATE ENERGY CODE SECTION C402.2.8
2. PROVIDE WITH VAPOR BARRIER JACKETING

PUMP SCHEDULE

SYMBOL	MANUFACTURER	MODEL	SERVICE	TYPE	FLOW GPM	GPD	HEAD (FT)	NPSHR (FT)	RPM	ELECTRICAL HP	W	AMP	VOLT	PHASE	STARTER VFD	MRT	EC	N/A	MOUNTING	WEIGHT (LBS)	NOTES
CP-1	GRUNDFOS	UP 15-10 BX	HW RECIRCULATION	INLINE	4	-	6	-	-	-	86.00	-	120	1	-	-	-	X	INLINE	6	1

NOTES:

1. PROVIDE WITH AQUASTAT, TIMER, & MOTOR RATED SWITCH FOR CONTROL

City of kirkland
Reviewed by R Braun
05/30/2019

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Totem Lake Park Phase 1
City of Kirkland
21031 Totem Lake Way, Kirkland, WA 98034

SET TYPE
100% Design Submittal

SET ISSUE DATE
02/08/2019

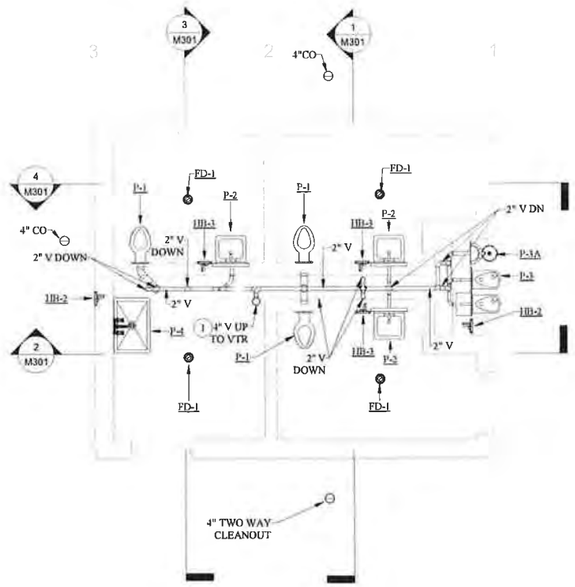
REVISIONS

#	DESCRIPTION	DATE
1	Permit Response	05/06/2019

DRAWN/CHECKED
CN / JB

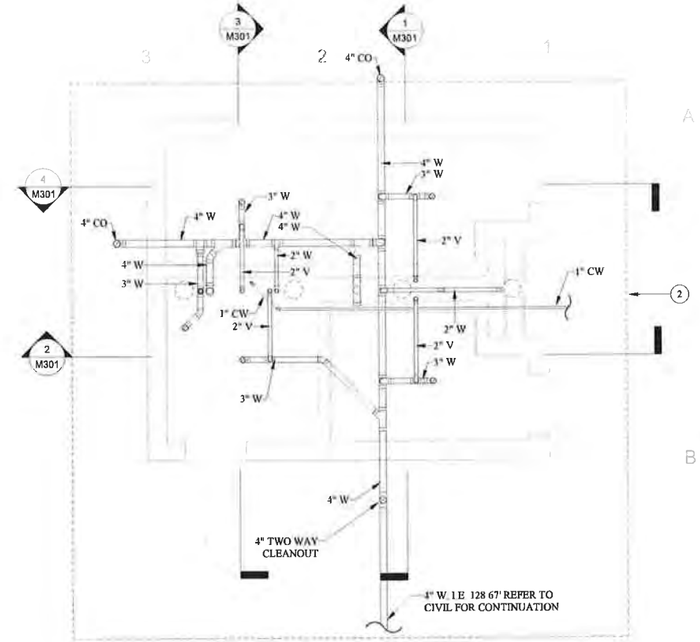
SHEET NAME
SCHEDULES

SHEET NUMBER
M002



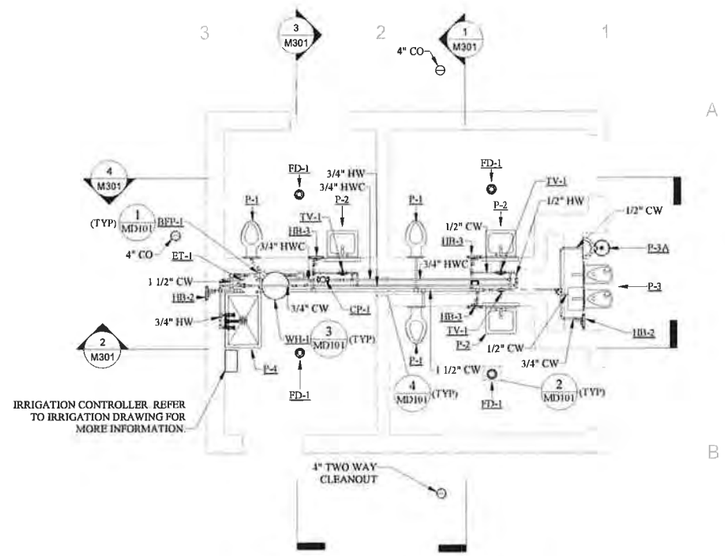
MECHANICAL ROOM ABOVE GRADE SANITARY PLUMBING FLOOR PLAN

4 SCALE: 1/4" = 1'-0"



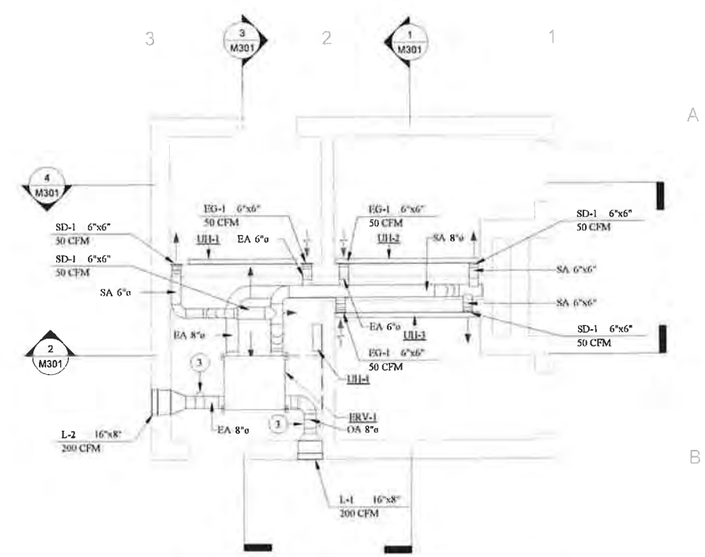
MECHANICAL ROOM BELOW GRADE PLUMBING FLOOR PLAN

3 SCALE: 1/4" = 1'-0"



MECHANICAL ROOM PLUMBING FLOOR PLAN

2 SCALE: 1/4" = 1'-0"



MECHANICAL ROOM HVAC FLOOR PLAN

1 SCALE: 1/4" = 1'-0"

PLAN NOTES

1. REFER TO ARCHITECTURAL DETAIL AD107/5
2. ALL BELOW GRADE PIPING SHALL BE SUPPORTED BY HANGERS ATTACHED TO THE STRUCTURAL FLOOR USING HANGERS. PIPING AND HANGERS SHALL BE SET IN PLACE PRIOR TO BACKFILL AND SLAB INSTALLATION
3. PROVIDE MOTORIZED DAMPER INTERLOCKED WITH ERV-1 DAMPER SHALL OPEN WHEN ERV-1 IS ACTIVATED ABD SHALL AUTOMATICALLY CLOSE WHEN THE UNIT IS DEACTIVATED

City of Kirkland
Reviewed by R Braun
05/30/2019

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Totem Lake Park Phase 1
City of Kirkland

21031 Totem Lake Way, Kirkland, WA 98034

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STATE OF WASHINGTON
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REGISTERED
PROFESSIONAL ENGINEER
02/08/2019

SET TYPE
100% Design Submittal

SET ISSUE DATE
02/08/2019

REVISIONS

Δ	DESCRIPTION	DATE

DRAWN/CHECKED
KT / JB

SHEET NAME
BUILDING MECHANICAL PLANS

SHEET NUMBER
M101

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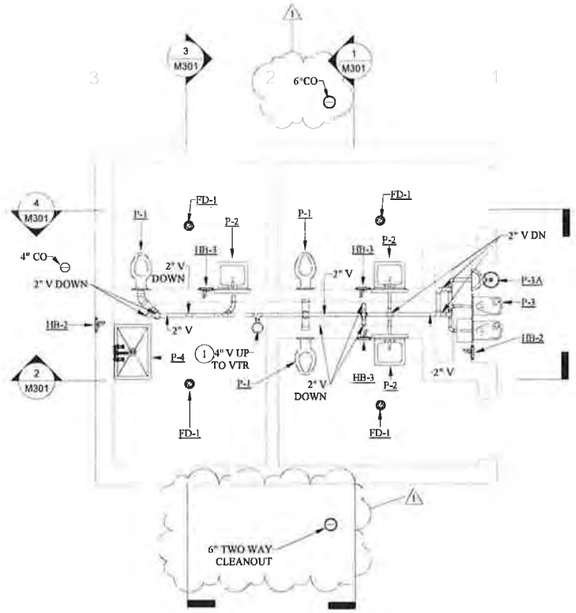
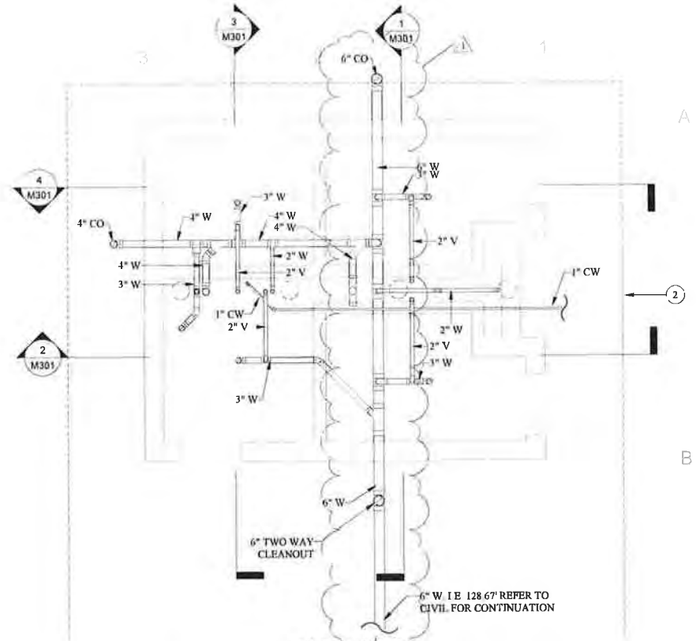
Berger Partnership Project Number: 17031



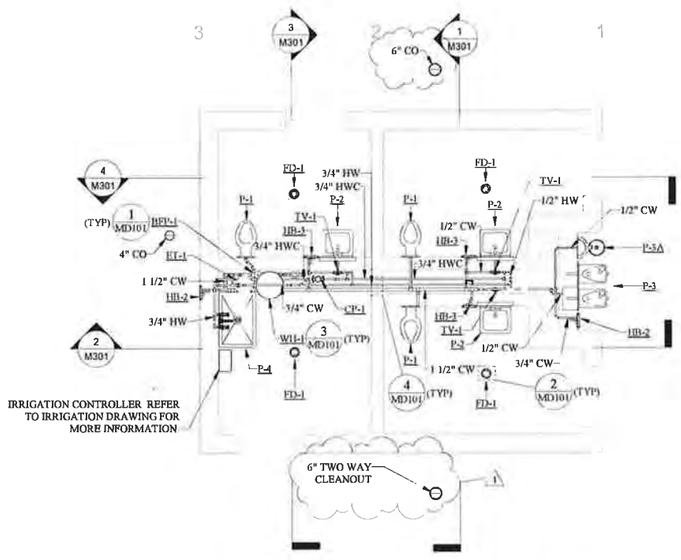
MECHANICAL ROOM ABOVE GRADE SANITARY PLUMBING FLOOR PLAN

4 SCALE: 1/4" = 1'-0"



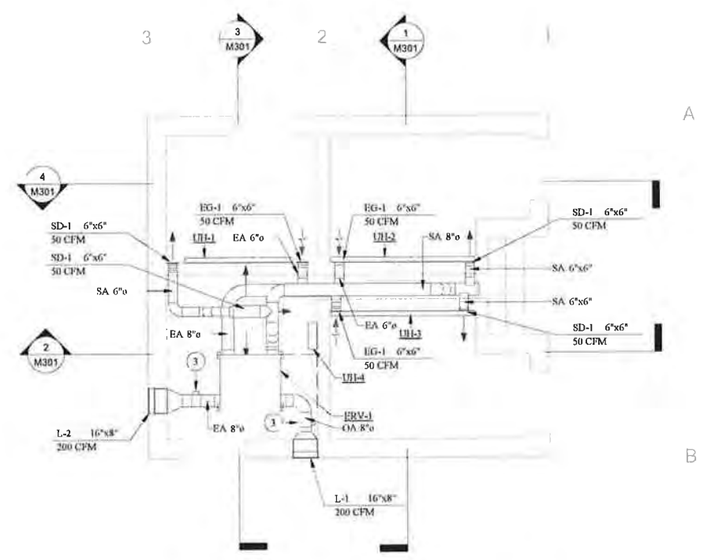
MECHANICAL ROOM BELOW GRADE PLUMBING FLOOR PLAN

3 SCALE: 1/4" = 1'-0"



MECHANICAL ROOM PLUMBING FLOOR PLAN

2 SCALE: 1/4" = 1'-0"



MECHANICAL ROOM HVAC FLOOR PLAN

1 SCALE: 1/4" = 1'-0"

PLAN NOTES

1. REFER TO ARCHITECTURAL DETAIL AD107/5
2. ALL BELOW GRADE PIPING SHALL BE SUPPORTED BY HANGERS ATTACHED TO THE STRUCTURAL FLOOR USING HANGERS PIPING AND HANGERS SHALL BE SET IN PLACE PRIOR TO BACKFILL AND SLAB INSTALLATION
3. PROVIDE MOTORIZED DAMPER INTERLOCKED WITH ERV-1 DAMPER SHALL OPEN WHEN ERV-1 IS ACTIVATED ABD SHALL AUTOMATICALLY CLOSE WHEN THE UNIT IS DEACTIVATED

City of Kirkland
Reviewed by R Braun
05/30/2019

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Totem Lake Park Phase 1
City of Kirkland

21031 Totem Lake Way, Kirkland, WA 98034

SET TYPE
100% Design Submittal

SET ISSUE DATE:
02/08/2019

REVISIONS

Δ	DESCRIPTION	DATE
1	Permit Response	05/08/2019

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KT / JB

SHEET NAME
BUILDING MECHANICAL PLANS

SHEET NUMBER
M101

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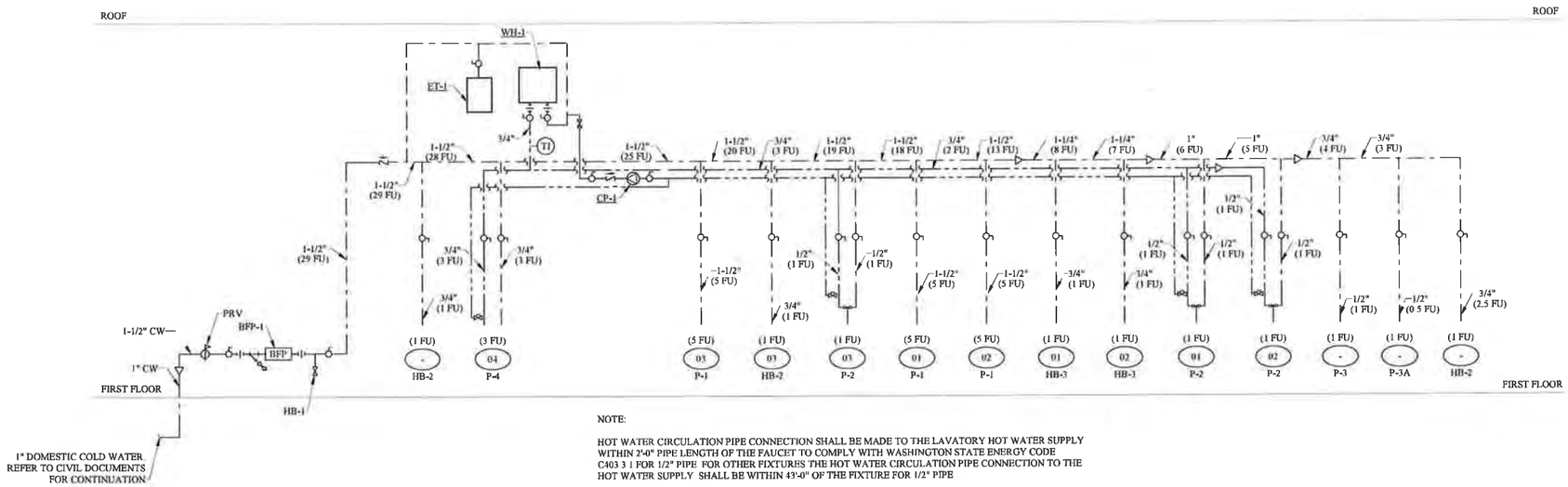
Berger Partnership Project Number: 17031

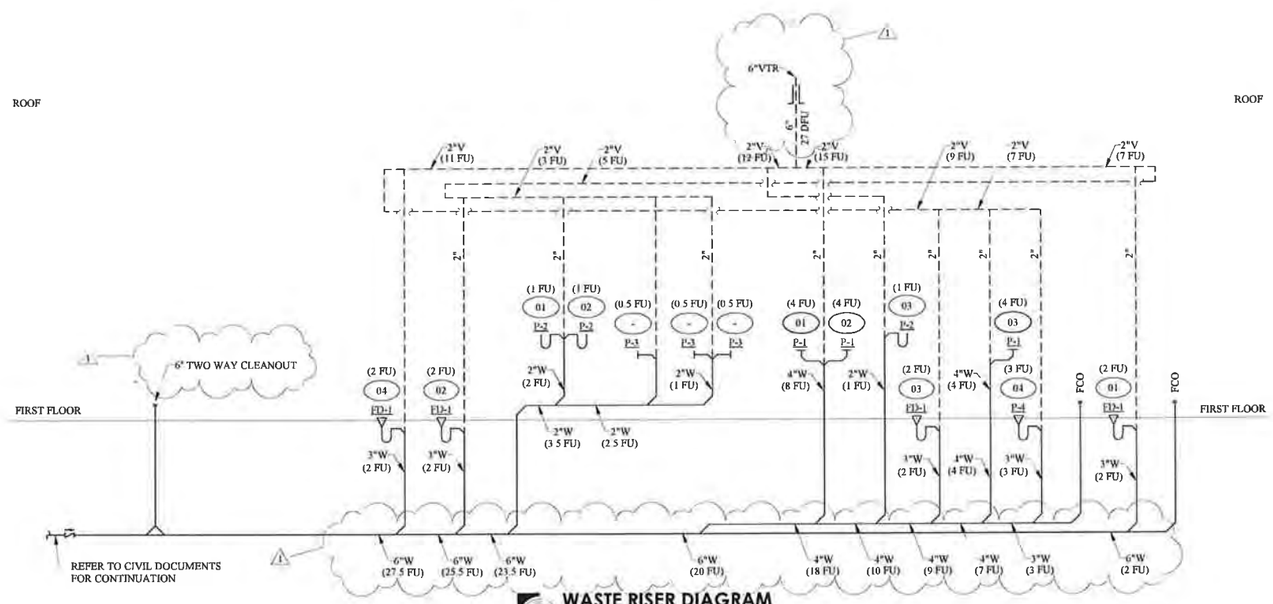


NOTE:

HOT WATER CIRCULATION PIPE CONNECTION SHALL BE MADE TO THE LAVATORY HOT WATER SUPPLY WITHIN 2'-0" PIPE LENGTH OF THE FAUCET TO COMPLY WITH WASHINGTON STATE ENERGY CODE C403 3 1 FOR 1/2" PIPE FOR OTHER FIXTURES THE HOT WATER CIRCULATION PIPE CONNECTION TO THE HOT WATER SUPPLY SHALL BE WITHIN 43'-0" OF THE FIXTURE FOR 1/2" PIPE

3 DOMESTIC PLUMBING RISER

SCALE: NONE



1 WASTE RISER DIAGRAM

SCALE: NONE

City of Kirkland
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05/30/2019

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Totem Lake Park Phase 1

City of Kirkland

21031 Totem Lake Way, Kirkland, WA 98034

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SHEET NAME:
PLUMBING DIAGRAMS

SHEET NUMBER
M201

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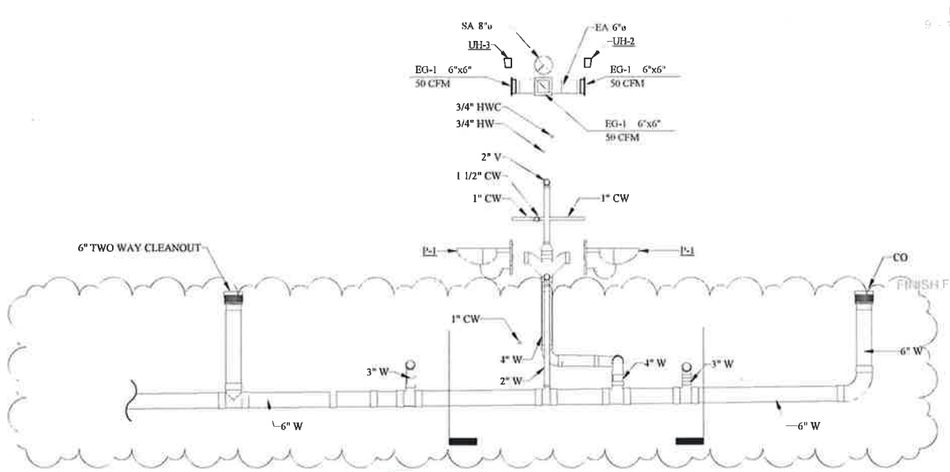
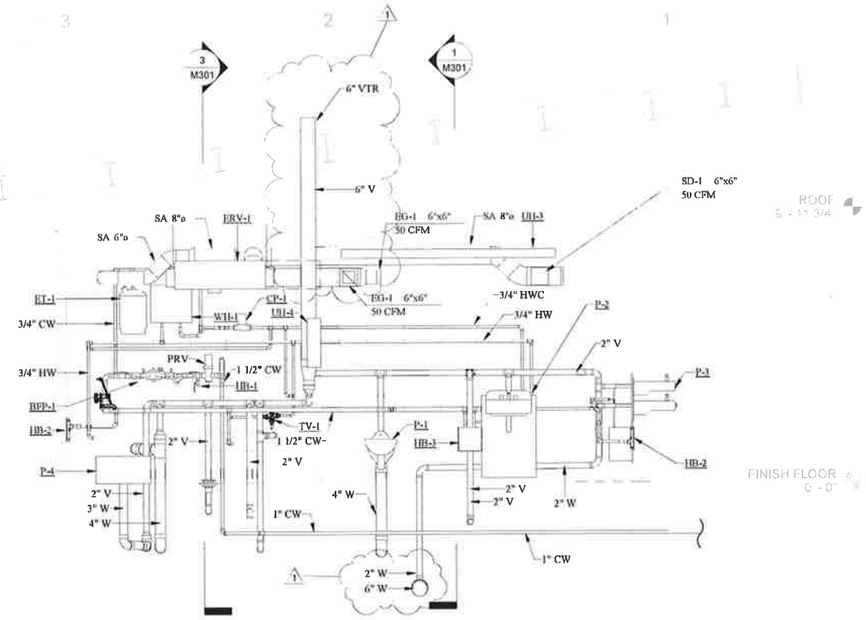


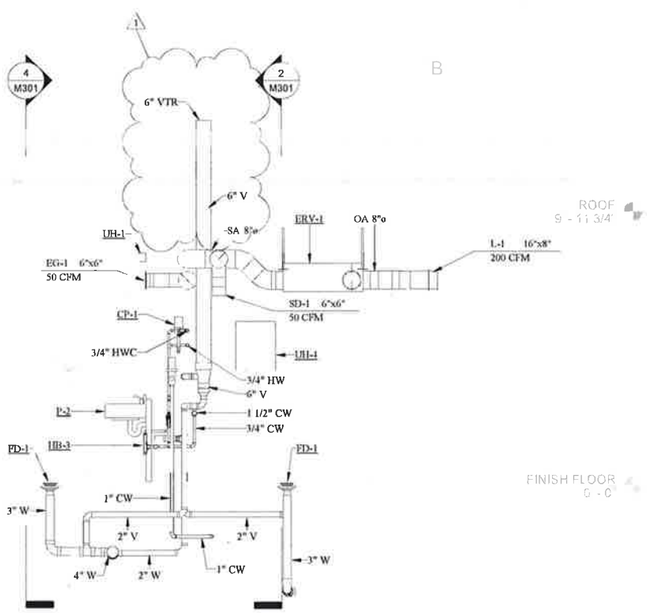
Section1

SCALE: 3/8" = 1'-0"



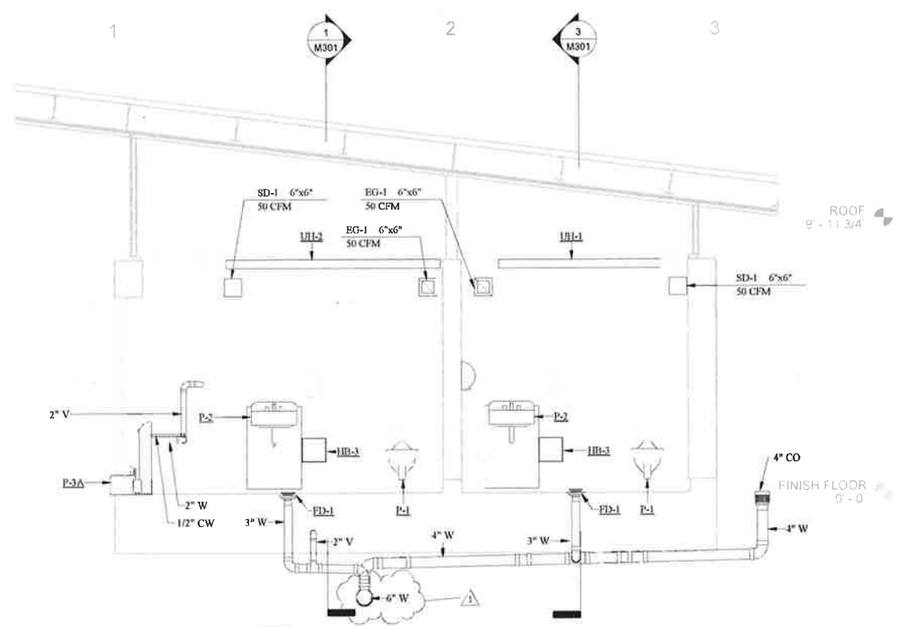
Section 2

SCALE: 3/8" = 1'-0"



Section 3

SCALE: 3/8" = 1'-0"



Section 4

SCALE: 3/8" = 1'-0"

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Totem Lake Park Phase 1
City of Kirkland

21031 Totem Lake Way, Kirkland, WA 98034

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1	Permit Response	05/06/2019

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KT / JB

SHEET NAME
SECTIONS AND ELEVATIONS

SHEET NUMBER:
M301

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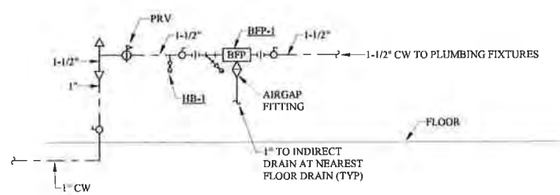
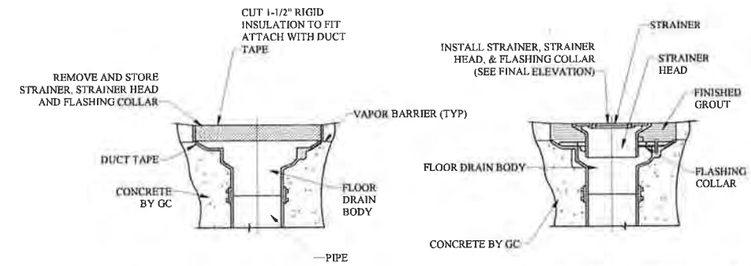


NOTE:

RACK-MOUNT ALL RISER COMPONENTS TO WALL

1 BACKFLOW PREVENTER INSTALLATION

SCALE: NONE

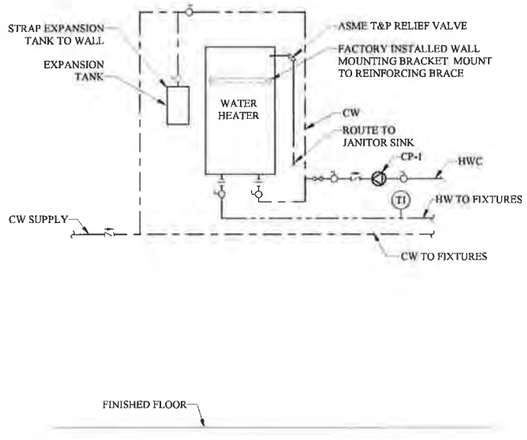


NOTE:

COMPLETE INSTALLATION OF FLOOR DRAIN AND SETTING OF FINAL ELEVATION SHALL NOT BE ALLOWED DURING INITIAL CONCRETE POUR

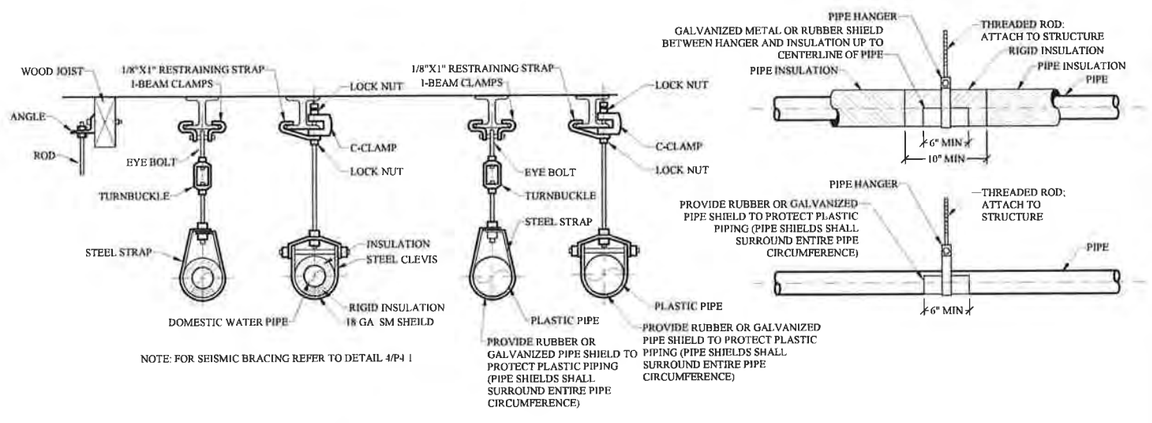
2 TYPICAL FLOOR DRAIN INSTALLATION DETAIL

SCALE: NONE



3 Water Heater Detail

SCALE: NONE



NOTE: FOR SEISMIC BRACING REFER TO DETAIL 4/P-1 1

4 PIPE SUPPORT

SCALE: NONE

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Totem Lake Park Phase 1

City of Kirkland

21031 Totem Lake Way, Kirkland, WA 98034

DONALD G. BERGQUIST
STATE OF WASHINGTON
18491
REGISTERED
PROFESSIONAL ENGINEER
02/08/2019

SET TYPE
100% Design Submittal

SET ISSUE DATE
02/08/2019

REVISIONS

Δ	DESCRIPTION	DATE

DRAWN/CHECKED
KT / JB

SHEET NAME
DETAILS

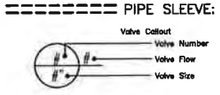
SHEET NUMBER
MD101

Bergquist Partnership Project Number: 17031
Plotted: 2/6/2019 11:48:46 AM
Filename: Y:\2017\17031 Totem Lake Park\Drawings\05 Revit\17031 Totem Lake (2018)_Central.rvt

IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	PSI
T	HUNTER MP CORNER PROS-12-PRS40-CV SHRUB ROTATOR, 12" (30.48 CM) POP-UP WITH FACTORY INSTALLED CHECK VALVE, PRESSURE REGULATED TO 40 PSI (2.76 BAR), MP ROTATOR NOZZLE. T=TURQUOISE ADJ ARC 45-105 ON PRS40 BODY.	40
LST RST SST	HUNTER MP STRIP PROS-12-PRS40-CV SHRUB ROTATOR, 12" (30.48 CM) POP-UP WITH FACTORY INSTALLED CHECK VALVE, PRESSURE REGULATED TO 40 PSI (2.76 BAR), MP ROTATOR NOZZLE. LST=IVORY LEFT STRIP, SST=BROWN SIDE STRIP, RST=COPPER RIGHT STRIP, ON PRS40 BODY.	40
M L O	HUNTER MP1000 PROS-12-PRS40-CV SHRUB ROTATOR, 12" (30.48 CM) POP-UP WITH CHECK VALVE, PRESSURE REGULATED TO 40 PSI (2.76 BAR), MP ROTATOR NOZZLE. M=MAROON ADJ ARC 90 TO 210, L=LIGHT BLUE 210 TO 270 ARC, O=OLIVE 360 ARC ON PRS40 BODY.	40
M G K	HUNTER MP2000 PROS-12-PRS40-CV SHRUB ROTATOR, 12" (30.48 CM) POP-UP WITH CHECK VALVE, PRESSURE REGULATED TO 40 PSI (2.76 BAR), MP ROTATOR NOZZLE. K=BLACK ADJ ARC 90-210, G=GREEN ADJ ARC 210-270, R=RED 360 ARC ON PRS40 BODY.	40
ADJ 360	HUNTER MP800SR PROS-12-PRS40-CV SHRUB ROTATOR, 12.0" POP-UP WITH CHECK VALVE, PRESSURE REGULATED TO 40 PSI (2.76 BAR), MP ROTATOR NOZZLE ON PRS40 BODY. OR = ORANGE ADJ ARC 90 TO 210.	40
M L O	HUNTER MP815 PROS-12-PRS40-CV SHRUB ROTATOR, 12" POP-UP WITH CHECK VALVE, PRESSURE REGULATED TO 40 PSI, MP ROTATOR NOZZLE. M=MAROON AND GRAY ADJ ARC 90 TO 210, L=LIGHT BLUE AND GRAY 210 TO 270 ARC, O=OLIVE AND GRAY 360 ARC ON PRS40 BODY.	40

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
	WEATHERMATIC 8200CR-XPR BRASS REMOTE CONTROL VALVE WITH PRESSURE REGULATOR
	HUNTER HQ-44LRC QUICK COUPLER VALVE, YELLOW RUBBER LOCKING COVER, RED BRASS AND STAINLESS STEEL, WITH 1" NPT INLET, 2-PIECE BODY.
	MATCO-NORCA 759 BRASS SHUT OFF BALL VALVE, 1/2" TO 4". TWO PIECE BODY, BLOW-OUT PROOF STEM, CHROME PLATED SOLID BRASS BALL, THREADED, WITH PTFE SEATS. SAME SIZE AS MAINLINE PIPE.
MV	WEATHERMATIC 8200CR-XPR 1" BRASS REMOTE CONTROL VALVE WITH PRESSURE REGULATOR
	1" WILKENS 600 SERIES PRESSURE REDUCING VALVE PRESSURE LIMITED TO 69.57 PSI SET TO 90 P.S.I.
BF	FEBCO 850U 1" DOUBLE CHECK BACKFLOW PREVENTION WITH UNION END BALL VALVE, 1/2" TO 2".
C	CALSENSE ET3000E SERIES CONTROLLER CONTROLLER SHALL BE 16 STATION CALSENSE ET3000E SERIES WITH LR (INTERNAL LOCAL RADIO MODEM) AND RRE (ENHANCED RADIO REMOTE RECEIVER BOARD) COMPONENTS. THE CONTROLLER SHALL BE HOUSED IN A FACTORY PRE-ASSEMBLED, UL-LISTED, WEATHER PROOF, LOCKABLE, STAINLESS STEEL ENCLOSURE (BY CALSENSE) SUITABLE FOR WALL MOUNTING (SSE-R).
FS	1" CALSENSE FLOW SENSOR FM-1B
M	WATER METER 3/4"
	IRRIGATION LATERAL LINE: PVC SCHEDULE 40
	IRRIGATION MAINLINE: PVC SCHEDULE 40
	PIPE SLEEVE: PVC SCHEDULE 40



VALVE SCHEDULE

NUMBER	MODEL	SIZE	TYPE	GPM	PSI	PSI @ POC	PRECIP
1	WEATHERMATIC 8200CR-XPR	1"	SHRUB ROTARY	18.13	48.50		0.23 in/h
2	WEATHERMATIC 8200CR-XPR	1"	SHRUB ROTARY	18.54	46.61		0.29 in/h
3	WEATHERMATIC 8200CR-XPR	1"	SHRUB ROTARY	16.28	43.50		0.26 in/h
4	WEATHERMATIC 8200CR-XPR	1"	SHRUB ROTARY	18.25	48.54		0.29 in/h
5	WEATHERMATIC 8200CR-XPR	1"	SHRUB ROTARY	13.66	44.55		0.66 in/h
6	WEATHERMATIC 8200CR-XPR	1-1/4"	SHRUB ROTARY	10.44	43.27		0.43 in/h
7	WEATHERMATIC 8200CR-XPR	1"	SHRUB ROTARY	3.96	42.61		0.50 in/h
8	WEATHERMATIC 8200CR-XPR	1"	SHRUB ROTARY	7.48	42.19		0.42 in/h
9	WEATHERMATIC 8200CR-XPR	1"	SHRUB ROTARY	9.03	42.70		0.31 in/h
10	WEATHERMATIC 8200CR-XPR	1"	SHRUB ROTARY	13.29	46.32		0.33 in/h
11	WEATHERMATIC 8200CR-XPR	1"	SHRUB ROTARY	14.04	47.22		0.32 in/h
12	WEATHERMATIC 8200CR-XPR	1"	SHRUB ROTARY	14.71	45.83		0.32 in/h

IRRIGATION NOTES

1. PROVIDE AND INSTALL ALL IRRIGATION IN CONFORMANCE WITH THE CITY OF KIRKLAND STANDARDS. IN THE EVENT OF CONFLICT BETWEEN NOTES OR DETAILS AND THESE DOCUMENTS, THE STANDARDS SHALL TAKE PRECEDENCE.
2. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES AND APPROPRIATE SAFETY REGULATIONS.
3. DRAWING IS SCHEMATIC. ACTUAL LOCATIONS MAY VARY DUE TO UTILITIES OR EXISTING CONDITIONS. CONTRACTOR IS RESPONSIBLE FOR LOCATING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
4. EXISTING STATIC P.S.I AT IRRIGATION METER IS 108 P.S.I. PRIOR TO INSTALLATION OF IRRIGATION SYSTEM, CONTRACTOR SHALL FIELD VERIFY EXISTING P.S.I. NOTIFY OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES BETWEEN THE DESIGN P.S.I. PRIOR TO PROCEEDING W/ WORK.
5. LOCATE QUICK COUPLING VALVE & AUTOMATIC CONTROL VALVES AT POINT OF EASY ACCESS. OWNER'S REPRESENTATIVE TO REVIEW & APPROVE FINAL LOCATION OF ALL QUICK COUPLERS & AUTOMATIC CONTROL VALVES PRIOR TO INSTALLATION.
6. HEAD LOCATION MUST BE ADJUSTED IN THE FIELD TO COMPLY W/ EXISTING SITE CONDITIONS AND PLANT MATERIALS. ADJUST SPRAY PATTERN FOR MAXIMUM COVERAGE AND MINIMUM OVERSPRAY.
7. ALL SHRUB AREA POP-UP SPRAY HEADS TO BE 6" HEIGHT. ALL TURF AREA POP-UPS TO BE 4" IN HEIGHT. (UNLESS OTHERWISE SPECIFIED ON PLAN)
8. CONTRACTOR SHALL COORDINATE IRRIGATION SLEEVING W/ PAVING WORK AS REQUIRED.
9. ALL IRRIGATION SLEEVES SHALL BE TWICE THE DIAMETER OF THE INSERT PIPE(S). SLEEVES SHALL NOT EXCEED 6" DIAMETER.
10. IRRIGATION CONTRACTOR TO PROVIDE AND INSTALL ALL REQUIRED PLUMBING SLEEVES WHERE NECESSARY. ALL IRRIGATION SLEEVING TO BE STAKED IN THE FIELD & LOCATED ON DIMENSIONED "AS-BUILT" DRAWING TO ALLOW FUTURE LOCATION & USE.
11. AIR BLOW IRRIGATION SYSTEM THROUGH QUICK COUPLERS TO WINTERIZE IRRIGATION SYSTEM.
12. PIPES TO SHARE TRENCHES WHERE POSSIBLE. SEPARATE COMMON PIPING BY 6" MIN.
13. WHERE PIPE SIZES ARE NOT SHOWN ON THE PLAN, PIPE SHALL BE SIZED TO THE NEXT LARGEST PIPE SIZE SHOWN UPSTREAM ON THE PLAN.
14. WHEN TRENCHING OCCURS AROUND TREES TO REMAIN, THE TREE ROOTS SHALL NOT BE CUT, BUT THE PIPE SHALL BE TUNNELED UNDER OR AROUND THE ROOTS BY CAREFUL HAND-DIGGING & TO AVOID INJURY TO THE ROOTS.
15. GENERAL CONTRACTOR TO PROVIDE AND INSTALL ALL CONDUIT TO CLOCK LOCATION.
16. GENERAL CONTRACTOR TO PROVIDE POWER SOURCE FOR CLOCK. (VERIFY LOCATION PRIOR TO BEGINNING WORK)

PARTNERSHIP
berger
1927 Post Alley, Ste 2
Seattle, WA 98101
206.322.
bergerpa

Design Two Four/Two Six
14835 161ST COURT SE
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ph. (425) 881-2426
cll. (206) 335-7719
www.design2426.com

Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

STATE OF WASHINGTON
JASON M. ANDERSON
LANDSCAPE ARCHITECT

SET TYPE
100% Design Submittal

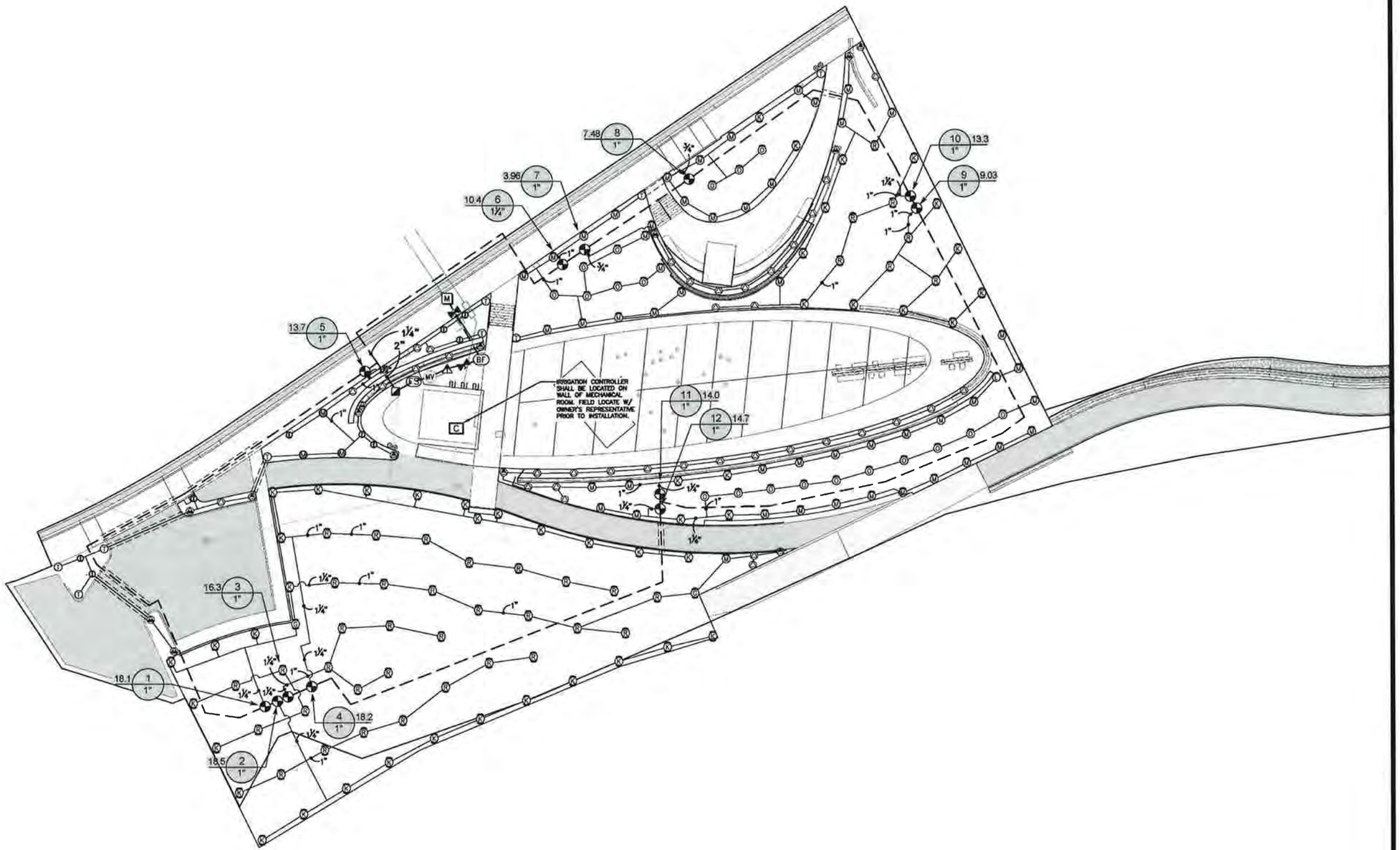
SET ISSUE DATE
02/08/2019

REVISIONS

DRAWN/CHECKED
JA

SHEET NAME
IRRIGATION NOTES & SCHEDULE

SHEET NUMBER
IR001



1 IRRIGATION PLAN - PARK
1" = 20'-0"

NORTH

0 20' 40'
SCALE 1"=20'-0"

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REGISTERED PROFESSIONAL
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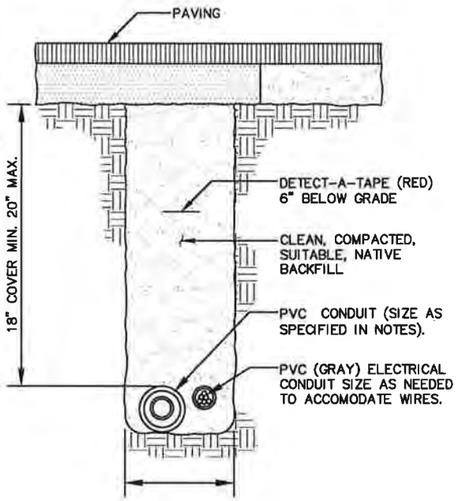
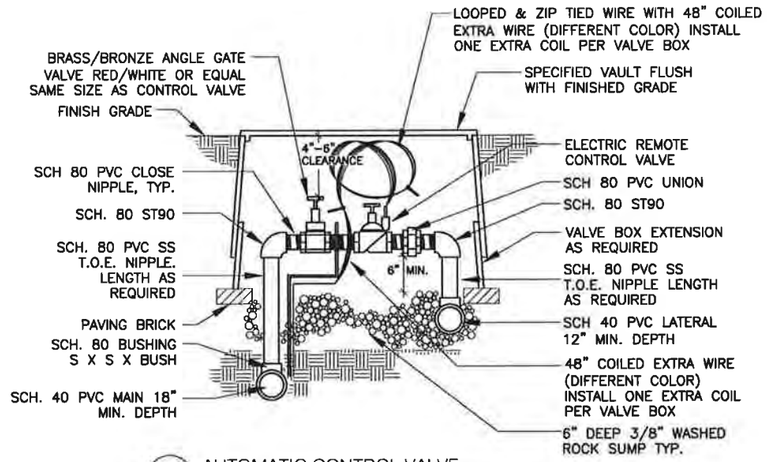
SHEET NAME
IRRIGATION PLAN - PARK

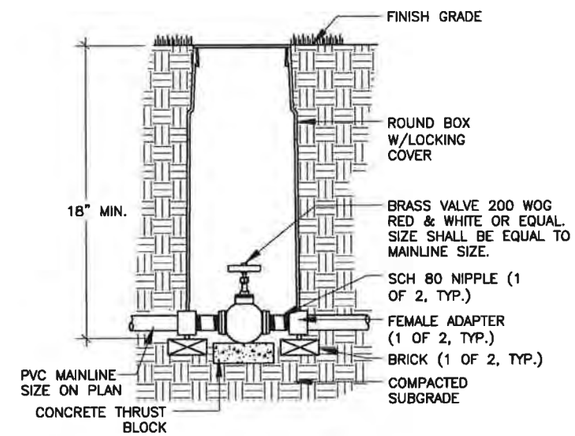
SHEET NUMBER
IR101



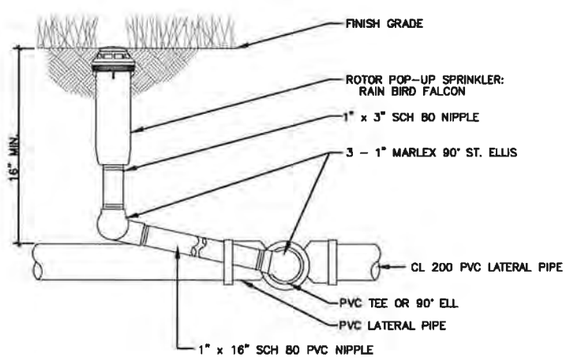
1 TRENCHING UNDER ASPHALT
SCALE: NTS



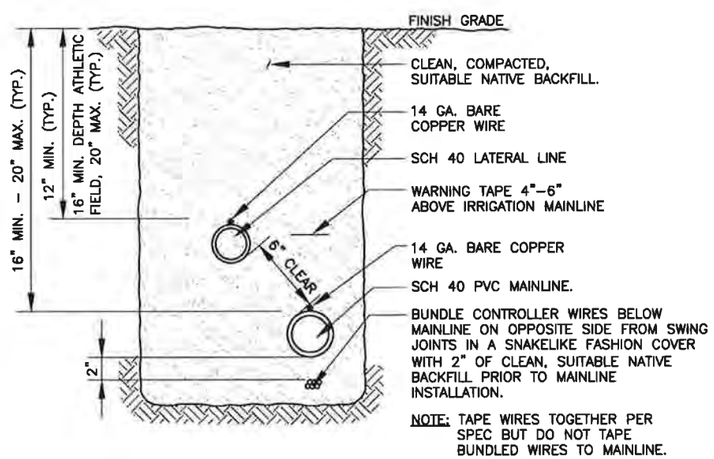
2 AUTOMATIC CONTROL VALVE
SCALE: NTS



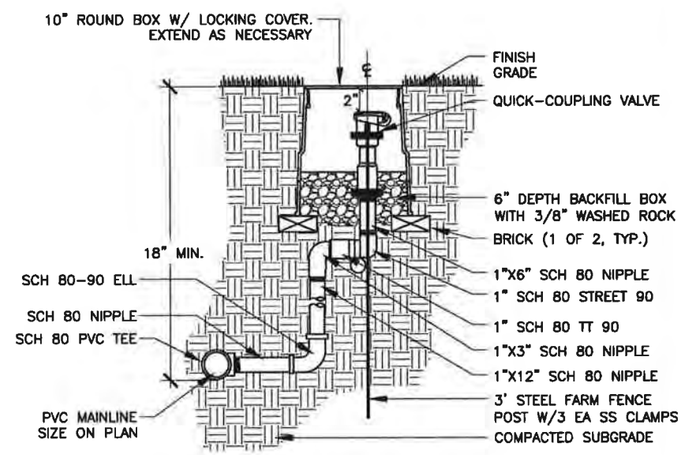
3 AUTOMATIC CONTROL VALVE
SCALE: NTS



4 ROTOR HEAD
SCALE: NTS



5 IRRIGATION TRENCHING
SCALE NTS



6 QUICK COUPLER VALVE
SCALE: NTS

City of Kirkland
Reviewed by R Braun
05/30/2019

PARTNERS berger
1927 Post Alley, Ste 2
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bergerpa

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JASON MARK ANDERSON
REGISTERED LANDSCAPE ARCHITECT

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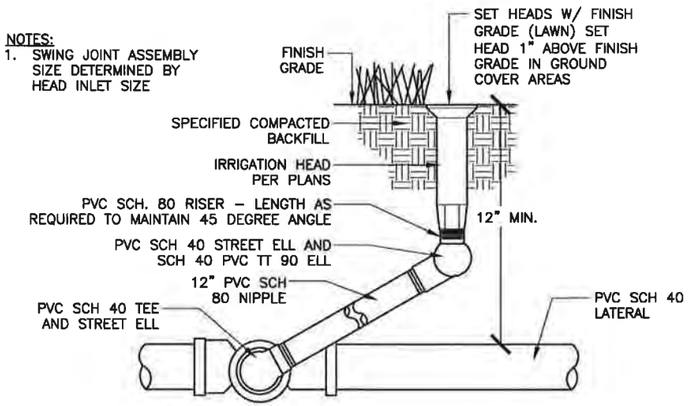
JA

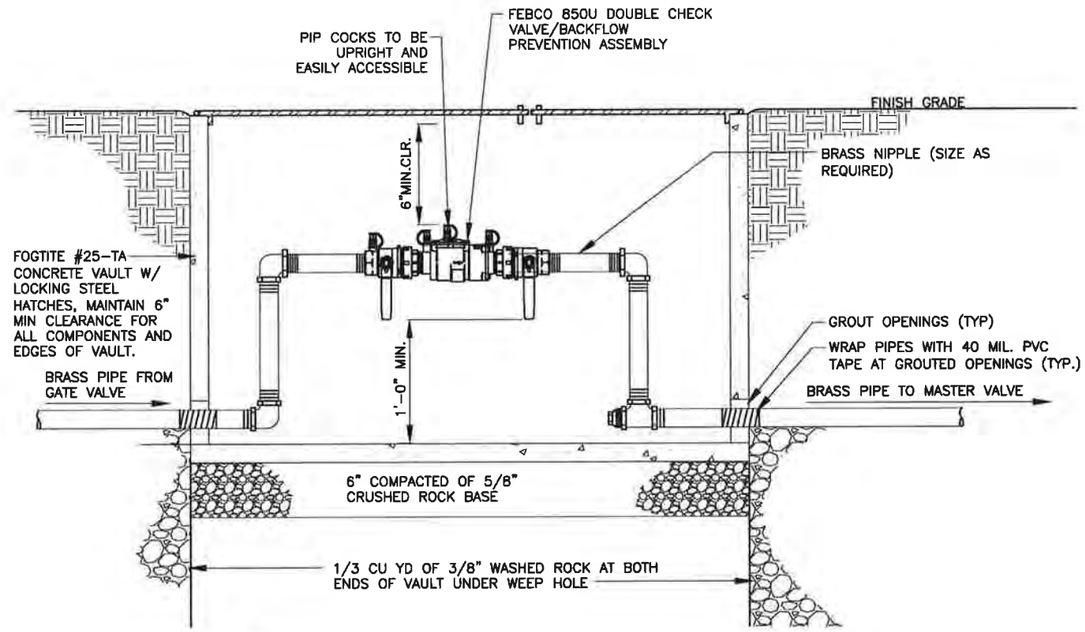
SHEET NAME
IRRIGATION DETAILS

SHEET NUMBER
ID100

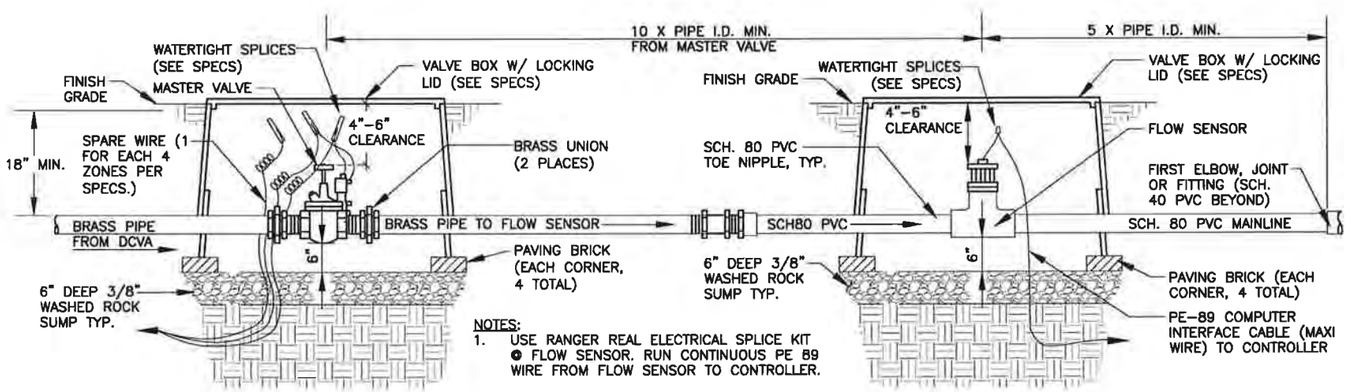
NOTES:
1. SWING JOINT ASSEMBLY SIZE DETERMINED BY HEAD INLET SIZE



1 SPRAY HEAD
SCALE: NTS



2 DOUBLE CHECK VALVE ASSEMBLY
SCALE: NTS



NOTES:
1. USE RANGER REAL ELECTRICAL SPLICE KIT @ FLOW SENSOR. RUN CONTINUOUS PE 89 WIRE FROM FLOW SENSOR TO CONTROLLER.
2. USE TEFLON TAPE ON ALL THREADED FITTINGS.

3 MASTER VALVE & FLOW SENSOR
SCALE: NTS

City of Kirkland
Reviewed by R Braun
05/30/2019

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JASON M. ANDERSON
REGISTERED LANDSCAPE ARCHITECT

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SET ISSUE DATE:
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REVISIONS:

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JA

SHEET NAME
IRRIGATION DETAILS

SHEET NUMBER
ID101

BUILDING PERMIT: BOARDWALK

City of Kirkland

BUILDING PERMIT

City of Kirkland
123 Fifth Avenue
Kirkland WA 98033
425-587-3600

Permit Number: BNO19-01213
Type: Building Not Occupied - BNO
Work Class: New

BNO19-01213

Permit Information

Plans Location: Electronic

Job Address:	**Project:**	TOTEM LAKE PARK		
12207 NE TOTEM LAKE WAY	**Parcel:**	8663270060	**Application Date:**	02/20/2019
	Valuation:	$1,500,000.00	**Issue Date:**	09/04/2019
	Sprinklered:		**Expiration Date:**	09/04/2022
	Dwelling Units:	0	**Code Edition:**	2015 IBC

Scope of Work

Totem Lake Park Boardwalk: Construct 700 linear foot wetland boardwalk and landing on the CKC and resurface boardwalk.

Contacts

Type	Name	Address	Phone
Owner	CITY OF KIRKLAND	123 5TH AVE KIRKLAND, WA 98033	B: C:
Project Contact	BRIAN BAKER	123 FIFTH AVE KIRKLAND, WA 98033	B: 4255873874 C:
Applicant	BRIAN BAKER	123 FIFTH AVE KIRKLAND, WA 98033	B: 4255873874 C:
Owner is Contractor	OWNER IS CONTRACTOR		B: C:

ELECTRONIC

General Conditions

1. The issuance of this permit shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of this code or of any other ordinances of the jurisdiction.
2. The approved plans shall not be changed, modified, or altered without authorization from the building official.
3. This permit, inspection record and approved plans are required to be on the job site at all times.
4. All development activity and heavy equipment operation is restricted to 7:00 a.m. to 8:00 p.m., Monday through Friday, and 9:00 a.m. to 6:00 on Saturdays. No development activity or heavy equipment operation may occur on Sundays or holidays observed by the City.
5. All work is subject to field inspection. Do not cover any work until approved by a City inspector.
6. Inspection(s) required - Schedule on **http://MyBuildingPermit.com**
7. Contact the Building Division at 425-587-3600 with any questions.

12207 NE TOTEM LAKE WAY

SEE ATTACHED SHEET FOR SPECIFIC CONDITIONS

The City approved plans, permit and inspection record must remain on the job site for use by City inspection personnel.
Any sales tax reported to the State in association with this project should be coded to the City of Kirkland tax location code 1716.
I certify that the information furnished by me is true and correct to the best of my knowledge and the applicable City of Kirkland requirements will be met.

☐ Owner or ☐ Agent

(Check one) _____ (Print Name) _____ Date

_____
(Signature)

City of Kirkland
123 5th Avenue
Kirkland, WA 98033
425-587-3600

SPECIFIC PERMIT CONDITIONS

BUILDING ADDRESS	PERMIT NUMBER	PERMIT TYPE	WORK CLASS	DATE PRINTED
12207 NE TOTEM LAKE WAY	BNO19-01213	Building Not Occupied - BNO	New	7/5/2019

DESCRIPTION OF WORK:
Totem Lake Park Boardwalk: Construct 700 linear foot wetland boardwalk and landing on the CKC and resurface boardwalk.

Building Department Conditions:

BUILDING DEPARTMENT CONDITIONS
You may contact Tanya Elder at 425-587-3614 for Building Department questions related to this permit.

1. The approved plans shall not be changed, modified, or altered without authorization from the building official. The approved plans are required to be on the job site.

2. No excavation or fill is authorized to encroach upon a neighboring property without explicit agreement by the adjoining property owner.

3. Structural Special Inspections are be required (to comply with Section 1704 IBC) as applicable. See Sheet SS003.

Submit field inspection reports, test lab reports, and final reports to Kirkland Building Department.

Planning Department Conditions:

Planning Department Conditions** Contact Christian Geitz at 425.587.3246

PCD 1. PLN TO PERFORM FINAL PRIOR TO BLD - BUILDING PERMIT INSPECTION CARD MUST BE SIGNED OFF BY PLANNING PRIOR TO ANY REQUEST FOR FINAL BUILDING INSPECTION. PLEASE CALL 425-587-3235 TO REQUEST INSPECTION. 24 HOUR ADVANCE NOTICE REQUIRED FOR INSPECTION.

PCD 2. SENSITIVE AREA DECISION CONDITIONS – All conditions of approval and mitigation standards established under file SAR18-00519 shall be followed.

PCD 3. REVISED SITE PLAN - Any proposed changes to the approved site plan must be submitted as a revision to the building permit for review and approval prior to implementation.

PCD 4. ALL - PROHIBITED VEGETATION - Plants listed as prohibited in the Kirkland Plant List (available from the Planning Department) shall not be planted in the City. These plants include Blackberry, Fragrant water lily, Ivy, Herb Robert, Knotweed, Old man's beard, Poison hemlock, Reed canary grass, Scotch broom, Spurge laurel, Yellow archangel, and Yellow flag iris. Other plants, while not prohibited, are discouraged, including Butterfly bush, English holly, and English laurel.

PCD 5. NON-NATIVE INVASIVE AND NOXIOUS PLANTS (KZC 95.51.5) - It is the responsibility of the property owner to remove non-native invasive plants and noxious plants from the vicinity of any tree or other vegetation that the City has required to be planted or protected. Removal must be performed in a manner that will not harm the tree or other vegetation that the City has required to be planted or protected. Prior to calling for a final inspection remove ivy from all trees from the ground up 5 feet above grade and from the trunk out 1 foot.

PCD 6. ALL - HOURS OF CONSTRUCTION - All development activity and heavy equipment operation is restricted to 7:00 a.m. to 8:00 p.m. Monday through Friday, and 9:00 a.m. to 6:00 p.m. Saturday. Other restrictions on Saturday include: no working in the right-of-way, no work requiring inspection, and no trucking into or out of the site; however, light grading work on-site on Saturday is allowed. NO development activity or heavy equipment operation may occur on Sundays or the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day.

PCD 7. WETLAND/STREAM BUFFER PROTECTION – Prior to beginning development activities, the applicant shall install a 6 -foot-high construction-phase chain link fence or equivalent fence, as approved by the Planning Official along the upland boundary of the entire wetland buffer with silt screen fabric installed per City standard, in a manner approved by the Planning Official. The construction-phase fence shall remain upright in the approved location for the duration of development activities.

Planning Department Conditions:

PCD 8. SPLIT RAIL FENCE: Prior to Final Inspection, the applicant shall install between the upland boundary of all wetland buffers and the developed portion of the site, either (1) a permanent 3- to 4-foot-tall split rail fence; or (2) permanent planting of equal barrier value; or (3) equivalent barrier, as approved by the Planning Official. Installation of the permanent fence or planted barrier must be done by hand where necessary to prevent machinery from entering the wetland or its buffer.

Public Works Department Conditions:

PUBLIC WORKS CONDITIONS

1. Refer to the Contract Documents for construction of the subject project, including but not limited to all terms, conditions, provisions, agreements, construction plans, specifications, addenda, and all applicable standards, codes, laws, and regulations.

2. The CIP Division of Public Works will manage the construction process and provide inspections for right-of-way /street /public utilities improvements, for land surface modifications, and for construction stormwater pollution prevention /erosion and sediment control. Inspections may be provided by consultant(s) working on behalf of the CIP Division and/or by in-house staff, unless otherwise specified by the Contract Documents.

City of Kirkland
123 5th Avenue
Kirkland, WA 98033

INSPECTION RECORD - THIS CARD MUST BE POSTED ON SITE

Schedule an inspection by 6:00 PM for next day inspections

Schedule online at: **www.MyBuildingPermit.com**

Permit #: **BNO19-01213**

How to request an inspection:

1) Go to **http://www.MyBuildingPermit.com**
2) Select Kirkland as the Jurisdiction.
3) Select Permit Number or Address.
4) Follow the on-screen instructions.

BUILDING ADDRESS	PARCEL NUMBER	DATE PRINTED	PERMIT TYPE	WORKCLASS	SQ FT	VALUATION
12207 NE TOTEM LAKE WAY	8663270060	7/5/19	Building Not Occupied - BNO	New	7000	$1,500,000.00

REQUIRED INSPECTIONS - DO NOT COVER ANY WORK PRIOR TO INSPECTION

	Inspection	IVR	Date	Insp	Inspection	IVR	Date	Insp
1	BLD - Pre-con	200						
2	BLD - Piles	202						
3	BLD - Footings/Setback/UFER	210						
4	BLD - Framing	250						
5	BLD - Other	201						
6	BLD - Final	295						

* Note: 1st erosion control inspection is required prior to any excavation.

* 2nd erosion control inspection is required after foundation backfill.

(These erosion control inspections only apply if they are listed on the above checklist)

Departmental staff: BLD is Building Dept, PW is Public Works Dept, PCD is Planning Dept, and FIR is Fire Dept

NOTE: THIS INSPECTION RECORD IS THE CERTIFICATE OF OCCUPANCY WHEN THE BUILDING FINAL INSPECTION HAS BEEN APPROVED

Inspector's Comments

City of Kirkland
Totem Lake Park Phase 1

PKC1390200
JOB NO. 00-00-PW
100% DESIGN SUBMITTAL
February 08, 2019

Sheet Index

Sheet Number	Sheet Name	Designed By	Building Permit (Restroom)	Building Permit (Boardwalk)	LSM Permit	Electrical Permit	Plumbing Permit	PSE Permit	NUD Permit
G000	COVER	Landscape	•	•	•	•	•	•	•
G001	LANDSCAPE GENERAL NOTES & SCHEDULES	Landscape			•				
G002	PROJECT LIMITS - OVERALL	Landscape							
G003	PROJECT LIMITS - BOARDWALK	Landscape							
G004	DEDUCTIVE ALTERNATE PLAN	Landscape			•				
ET101	EXISTING TREE PLAN - PARK	Landscape			•				
ET102	EXISTING TREE PLAN - TRAIL	Landscape			•				
ET103	EXISTING TREE PLAN - BOARDWALK	Landscape		•	•				
C001	CIVIL GENERAL NOTES	Civil			•				
C002	CIVIL GENERAL NOTES	Civil			•	•			
C101	SITE PREPARATION PLAN - PARK	Civil			•				•
C102	SITE PREPARATION PLAN - TRAIL	Civil			•				
C103	SITE PREPARATION PLAN - BOARDWALK	Civil		•	•				
BD100	BUILDING DEMOLITION	Architect	•		•				
C201	CESC PLAN - PARK	Civil			•				
C202	CESC PLAN - TRAIL	Civil			•				
C203	CESC PLAN - BOARDWALK	Civil		•	•				
C301	UTILITY PLAN - PARK	Civil	•		•		•		•
C401	DRAINAGE PLAN - PARK	Civil			•				
C402	DRAINAGE PLAN - PARK	Civil			•				
CD101	DRAINAGE DETAILS - PARK	Civil			•				
CD102	CIVIL PAVING DETAILS	Civil			•				
CD103	DRAINAGE SECTIONS - PARK	Civil			•				
CG101	GRADING & PAVING PLAN - PARK	Civil	•		•				
CG102	GRADING & PAVING PLAN - TRAIL	Civil	•		•				
CG103	GRADING & PAVING PLAN - BOARDWALK	Civil		•	•				
CG201	GRADING PLAN - PARK - ENLARGEMENT	Civil			•				
L101	SITE PLAN - PARK	Landscape			•				
L102	SITE PLAN - TRAIL	Landscape			•				
L103	SITE PLAN - BOARDWALK	Landscape		•					
L200	BOARDWALK ELEVATIONS	Landscape		•					
L201	BOARDWALK ELEVATIONS	Landscape		•					
L202	PARK ELEVATIONS	Landscape			•				
L400	PLAY AREA ENLARGEMENTS	Landscape			•				
L401	LANDSCAPE ENLARGEMENTS	Landscape			•				
L402	PLAY AREA ENLARGEMENTS	Landscape			•				
L403	PAVING JOINTING & PATTERN DETAIL PLAN	Landscape			•				
LD101	LANDSCAPE PAVING DETAILS	Landscape			•				
LD102	PLAY AREA DETAILS	Landscape			•				
LD103	STAIR & RAILING DETAILS	Landscape		•					
LD104	WALL & FENCE DETAILS	Landscape		•					
LD105	TRAIL TYPICAL DETAIL	Landscape		•	•				
LD106	OVERLOOK DETAILS	Landscape			•				
LD107	GEOTECHNICAL WALL DETAIL	Geotechnical			•				
LD200	METAL GUARDRAIL DETAILS	Landscape		•					
LD201	METAL GUARDRAIL DETAILS	Landscape		•					
LD202	METAL GUARDRAIL DETAILS	Landscape		•					
LD203	METAL GUARDRAIL @ BOARDWALK OVERLOOK	Landscape		•					
SS001	GENERAL STRUCTURAL NOTES	Site Structural	•	•					
SS002	GENERAL STRUCTURAL NOTES	Site Structural	•	•					
SS003	STATEMENT OF SPECIAL INSPECTIONS	Site Structural	•	•					
SS100	STRUCTURAL SHEET LAYOUT	Site Structural	•	•					
SS101	PARK PLAN	Site Structural	•						
SS102	TRAIL PLAN	Site Structural		•					

Sheet Index

Sheet Number	Sheet Name	Designed By	Building Permit (Restroom)	Building Permit (Boardwalk)	LSM Permit	Electrical Permit	Plumbing Permit	PSE Permit	NUD Permit
SS103	BOARDWALK PLAN	Site Structural		•					
SSD101	DETAILS	Site Structural		•					
SSD102	DETAILS	Site Structural		•					
S001	STRUCTURAL NOTES	Building Structural	•						
S002	STRUCTURAL NOTES	Building Structural	•						
S003	STRUCTURAL NOTES	Building Structural	•						
S101	FOUNDATION PLAN	Building Structural	•						
S201	ROOF FRAMING PLAN	Building Structural	•						
SD100	DETAILS	Building Structural	•						
SD101	DETAILS	Building Structural	•						
SD102	DETAILS	Building Structural	•						
A000	ABBREVIATIONS & SYMBOLS	Architect	•						
A001	SCHEDULES, DOOR & FRAME TYPES	Architect	•						
A100	SLAB/CURB PLAN	Architect	•						
A101	BUILDING PLAN	Architect	•						
A102	UPPER WALL PLAN	Architect	•						
A103	ROOF PLAN	Architect	•						
A301	REFLECTED CEILING PLAN	Architect	•			•			
A401	EXTERIOR ELEVATIONS I	Architect	•						
A402	EXTERIOR ELEVATIONS II	Architect	•						
A403	PERSPECTIVES	Architect	•						
AD100	ENLARGED PLANS	Architect	•				•		
AD101	INTERIOR ELEVATIONS	Architect	•				•		
AD102	BUILDING SECTION I	Architect	•				•		
AD103	BUILDING SECTION II	Architect	•				•		
AD104	SLOPED COLUMNS SECTIONS	Architect	•						
AD105	WALL SECTIONS	Architect	•						
AD106	WALL DETAILS	Architect	•						
M001	MECHANICAL GENERAL INFORMATION	Mechanical	•			•	•		
M002	SCHEDULES	Mechanical	•			•	•		
M101	BUILDING MECHANICAL PLANS	Mechanical	•			•	•		
M201	PLUMBING DIAGRAM	Mechanical	•				•		
M301	SECTIONS AND ELEVATIONS	Mechanical	•				•		
MD101	DETAILS	Mechanical	•						
E001	SYMBOLS LIST & ABBREVIATIONS	Electrical	•			•		•	
E002	WSEC COMPLIANCE FORMS	Electrical	•			•		•	
E003	WSEC COMPLIANCE FORMS	Electrical	•			•		•	
E004	WSEC COMPLIANCE FORMS	Electrical	•			•		•	
E101	ELECTRICAL SITE PLAN	Electrical	•			•		•	
E201	ENLARGED BUILDING PLANS	Electrical	•			•		•	
E301	ONE-LINE DIAGRAM AND SCHEDULES	Electrical	•			•		•	
ED100	DETAILS	Electrical	•			•		•	
IR001	IRRIGATION NOTES & SCHEDULE	Irrigation			•				
IR101	IRRIGATION PLAN - PARK	Irrigation			•				
ID100	IRRIGATION DETAILS	Irrigation			•				
ID101	IRRIGATION DETAILS	Irrigation			•				
LP101	PLANTING PLAN - PARK	Landscape			•				
LP102	PLANTING PLAN - TRAIL	Landscape			•				
LP103	PLANTING PLAN - BOARDWALK	Landscape			•				
LD300	PLANTING DETAILS	Landscape			•				
LD301	PLANTING DETAILS	Landscape			•				

Grand total: 105

All guard panels and related framing, including artwork used as panels, regardless of material, shall comply with strength and attachment requirements of IBC 1607.8, height requirements of IBC 1015.3, and opening requirements of IBC 1015.4.

NOTICE
HOURS OF WORK: 7AM TO 8PM MON-FRI
9AM TO 6PM SAT. NO WORK SUNDAYS & HOLIDAYS (PER KZC SEC. 115.25)
Exceptions must be approved in writing by Planning Official

PCD APPROVED SITE PLAN
Any proposed changes to the approved site plan, such as but not limited to added hard surfaces, HVAC units, tree removals and accessory structures, must be submitted to the Building Department as a revision to the building permit for review and approval by all departments prior to implementation.

ALL Welding:

1. Is required to be done by a WABO certified welder and have Special Inspections by a WABO certified Inspection Agency
or
Be done in a WABO certified fabrication shop.

AND

2. Have either the Special Inspection report or WABO fabrication shop certification available on site for the Building Inspector.

Special Inspections required.
See Sheet SS003.

Deferred submittals/shop drawings must be reviewed and approved by EOR prior to submitting to City of Kirkland and prior to installation.

Team Contact Info

Prime Consultant:

Berger Partnership - Landscape Architecture
Primary: Matt Martenson
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Email: mattm@bergerpartnership.com
Secondary: Andy Mitton
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Subconsultant Team

CH2M Hill - Civil Engineering
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Swenson Say Faget - Structural Engineering
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ESA - Environmental
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KPFF - Survey
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Symbiosis Tree Care: Arborist
Primary: Kurt Fickesen
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Enginuity Systems - Spray Park Mechanical
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ORB Architects: Architecture
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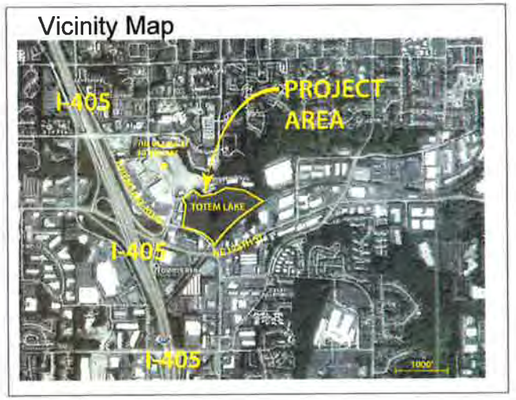
NAC Architecture: Electrical Engineering
Primary: Mark McMicheal
Email: mmcmicheal@nacarchitecture.com

Design 2426: Irrigation
Primary: Jason Anderson
Email: jasona@design2426.com

Vicinity Map



Applicable Codes:

Compliance with the following codes shall be required:

Accessibility	2010 Americans with Disabilities (ADA) Standards for Accessible Design
Building	2015 International Building Code (IBC)
Electrical	2017 National Electrical Code
Energy Efficiency	2015 Washington State Energy Code (WSEC)
Fire	2015 International Fire Code with Washington Amendments
Mechanical	2015 Washington State Energy Code (WSEC)
Plumbing	2015 Uniform Plumbing Code

Drawing Set Printing and Reproduction Notes/Req's:

1. DRAWING SET SHEET SIZE IS 22" X 34".
2. DRAWING SET UTILIZES COLORED INFORMATION AND SHALL BE PRINTED AND REPRODUCED IN COLOR.

City/Owner Contact Info

City of Kirkland
Project Manager: Brian Baker
Phone: 425-587-3874
Email: bbaker@kirklandwa.gov

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City of Kirkland
Reviewed by T Elder
07/05/2019

Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

STATE OF WASHINGTON
ANDY MITTON
NO. 882 EXP 6/30/2020
LANDSCAPE ARCHITECT

SET TYPE
100% Design Submittal

SET ISSUE DATE
02/08/2019

REVISIONS

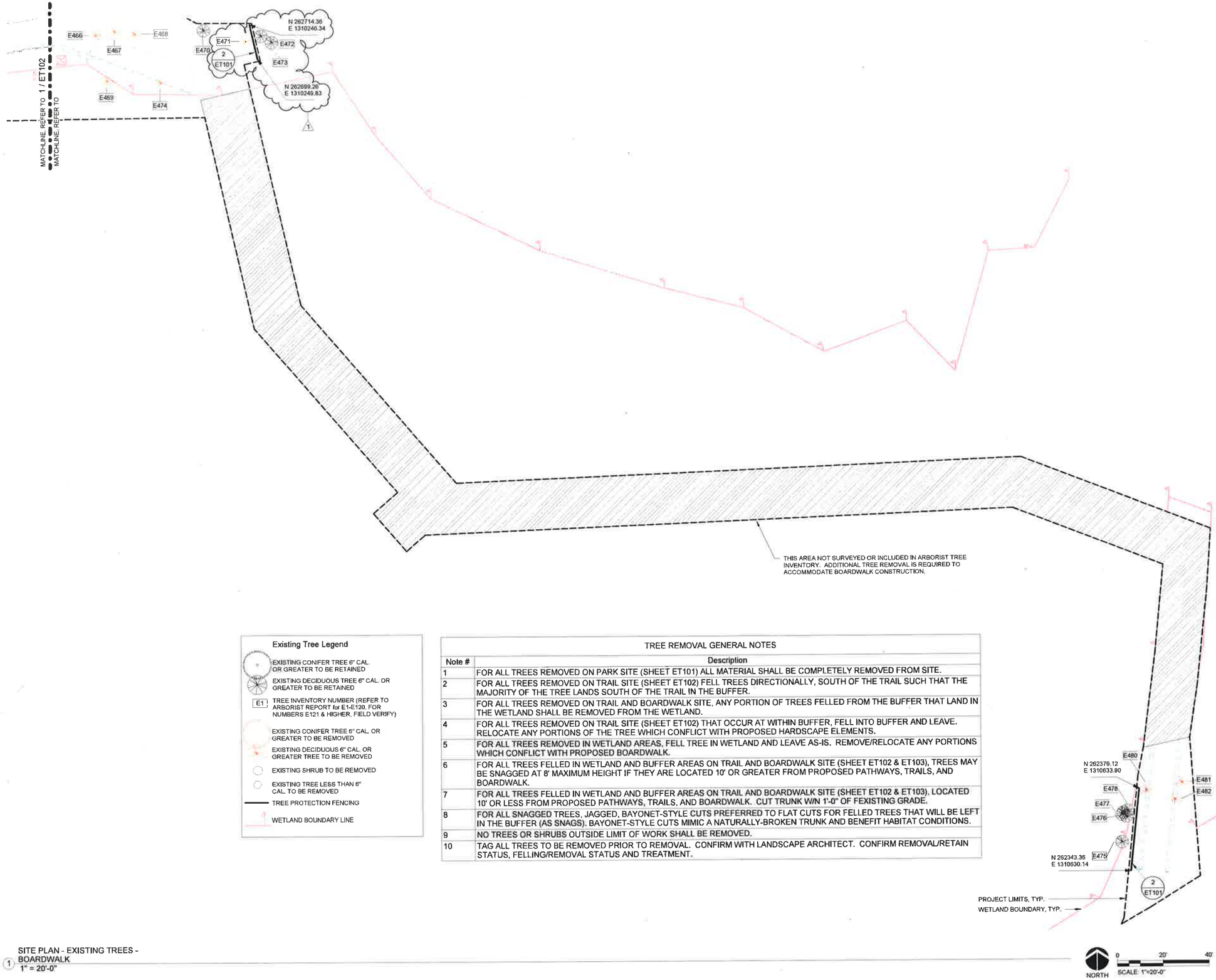
Δ	DESCRIPTION	DATE

BNO19-01213
Page 1 of 25

DRAWN/CHECKED
MM / AM

SHEET NAME
COVER

SHEET NUMBER
G000



SITE PLAN - EXISTING TREES - BOARDWALK
1" = 20'-0"

Existing Tree Legend

- EXISTING CONIFER TREE 6" CAL. OR GREATER TO BE RETAINED
- EXISTING DECIDUOUS TREE 6" CAL. OR GREATER TO BE RETAINED
- E1 TREE INVENTORY NUMBER (REFER TO ARBORIST REPORT for E1-E120. FOR NUMBERS E121 & HIGHER, FIELD VERIFY)
- EXISTING CONIFER TREE 6" CAL. OR GREATER TO BE REMOVED
- EXISTING DECIDUOUS 6" CAL. OR GREATER TREE TO BE REMOVED
- EXISTING SHRUB TO BE REMOVED
- EXISTING TREE LESS THAN 6" CAL. TO BE REMOVED
- TREE PROTECTION FENCING
- WETLAND BOUNDARY LINE

TREE REMOVAL GENERAL NOTES	
Note #	Description
1	FOR ALL TREES REMOVED ON PARK SITE (SHEET ET101) ALL MATERIAL SHALL BE COMPLETELY REMOVED FROM SITE.
2	FOR ALL TREES REMOVED ON TRAIL SITE (SHEET ET102) FELL TREES DIRECTIONALLY, SOUTH OF THE TRAIL SUCH THAT THE MAJORITY OF THE TREE LANDS SOUTH OF THE TRAIL IN THE BUFFER.
3	FOR ALL TREES REMOVED ON TRAIL AND BOARDWALK SITE, ANY PORTION OF TREES FELLED FROM THE BUFFER THAT LAND IN THE WETLAND SHALL BE REMOVED FROM THE WETLAND.
4	FOR ALL TREES REMOVED ON TRAIL SITE (SHEET ET102) THAT OCCUR AT WITHIN BUFFER, FELL INTO BUFFER AND LEAVE. RELOCATE ANY PORTIONS OF THE TREE WHICH CONFLICT WITH PROPOSED HARDSCAPE ELEMENTS.
5	FOR ALL TREES REMOVED IN WETLAND AREAS, FELL TREE IN WETLAND AND LEAVE AS-IS. REMOVE/RELOCATE ANY PORTIONS WHICH CONFLICT WITH PROPOSED BOARDWALK.
6	FOR ALL TREES FELLED IN WETLAND AND BUFFER AREAS ON TRAIL AND BOARDWALK SITE (SHEET ET102 & ET103), TREES MAY BE SNAGGED AT 8' MAXIMUM HEIGHT IF THEY ARE LOCATED 10' OR GREATER FROM PROPOSED PATHWAYS, TRAILS, AND BOARDWALK.
7	FOR ALL TREES FELLED IN WETLAND AND BUFFER AREAS ON TRAIL AND BOARDWALK SITE (SHEET ET102 & ET103), LOCATED 10' OR LESS FROM PROPOSED PATHWAYS, TRAILS, AND BOARDWALK. CUT TRUNK W/N 1'-0" OF FEXISTING GRADE.
8	FOR ALL SNAGGED TREES, JAGGED, BAYONET-STYLE CUTS PREFERRED TO FLAT CUTS FOR FELLED TREES THAT WILL BE LEFT IN THE BUFFER (AS SNAGS). BAYONET-STYLE CUTS MIMIC A NATURALLY-BROKEN TRUNK AND BENEFIT HABITAT CONDITIONS.
9	NO TREES OR SHRUBS OUTSIDE LIMIT OF WORK SHALL BE REMOVED.
10	TAG ALL TREES TO BE REMOVED PRIOR TO REMOVAL. CONFIRM WITH LANDSCAPE ARCHITECT. CONFIRM REMOVAL/RETAIN STATUS, FELLING/REMOVAL STATUS AND TREATMENT.

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City of Kirkland
Reviewed by T Elder
07/05/2019

Totem Lake Park Phase 1
City of Kirkland

12031 Totem Lake Way, Kirkland, WA 98034

STATE OF WASHINGTON
ANDY MITTON
No. 882 EXP. 6/30/2020
LANDSCAPE ARCHITECT

SET TYPE
100% Design Submittal

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02/08/2019

REVISIONS

Δ	DESCRIPTION	DATE
1	Permit Response	2019/05/16

BNO19-01213
Page 2 of 25

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SHEET NAME
EXISTING TREE PLAN - BOARDWALK

SHEET NUMBER
ET103

Berger Partnership Project Number: 2015487.02 Plotted: 5/15/2019 3:54:33 PM File name: C:\Users\angiao\Documents\Totem Lake Park-PH1_angiaoHSCM.rvt

EROSION/SEDIMENTATION CONTROL - PLAN NOTES

1. THE APPROVED CONSTRUCTION SEQUENCE SHALL BE AS FOLLOWS:
   a. CONDUCT PRE-CONSTRUCTION MEETING.
   b. FLAG OR FENCE CLEARING LIMITS.
   c. POST SIGN WITH NAME AND PHONE NUMBER OF TESC SUPERVISOR.
   d. INSTALL CATCH BASIN PROTECTION IF REQUIRED.
   e. GRADE AND INSTALL CONSTRUCTION ENTRANCE(S).
   f. INSTALL PERIMETER PROTECTION (SILT FENCE, BRUSH BARRIER, ETC.).
   g. CONSTRUCT SEDIMENT PONDS AND TRAPS.
   h. GRADE AND STABILIZE CONSTRUCTION ROADS.
   i. CONSTRUCT SURFACE WATER CONTROLS (INTERCEPTOR DIKES, PIPE SLOPE DRAINS, ETC.) SIMULTANEOUSLY WITH CLEARING AND GRADING FOR PROJECT DEVELOPMENT.
   j. MAINTAIN EROSION CONTROL MEASURE IN ACCORDANCE WITH CITY OF KIRKLAND STANDARDS AND MANUFACTURER'S RECOMMENDATIONS.
   k. RELOCATE EROSION CONTROL MEASURES OR INSTALL NEW MEASURES SO THAT AS SITE CONDITIONS CHANGE, THE EROSION AND SEDIMENT CONTROL IS ALWAYS IN ACCORDANCE WITH THE CITY TESC MINIMUM REQUIREMENTS.
   l. COVER ALL AREAS WITHIN THE SPECIFIED TIME FRAME WITH STRAW, WOOD FIBER MULCH, COMPOST, PLASTIC SHEETING, CRUSHED ROCK OR EQUIVALENT.
   m. STABILIZE ALL AREAS THAT REACH FINAL GRADE WITHIN 7 DAYS.
   n. SEED OR SOD ANY AREAS TO REMAIN UNWORKED FOR MORE THAN 30 DAYS.
   o. UPON COMPLETION OF THE PROJECT, ALL DISTURBED AREAS MUST BE STABILIZED AND BEST MANAGEMENT PRACTICES REMOVED IF APPROPRIATE.

2. CONTRACTOR IS RESPONSIBLE FOR KEEPING STREETS CLEAN AND FREE OF CONTAMINANTS AT ALL TIMES AND FOR PREVENTING AN ILLICIT DISCHARGE (KMC 15.52) INTO THE MUNICIPAL STORM DRAIN SYSTEM. IF YOUR CONSTRUCTION PROJECT CAUSES AN ILLICIT DISCHARGE TO THE MUNICIPAL STORM DRAIN SYSTEM, THE CITY OF KIRKLAND STORM MAINTENANCE DIVISION WILL BE CALLED AT (425) 587-3900 TO CLEAN THE PUBLIC STORM SYSTEM, AND OTHER AFFECTED PUBLIC INFRASTRUCTURE. THE CONTRACTOR(S), PROPERTY OWNER, AND ANY OTHER RESPONSIBLE PARTY MAY BE CHARGED ALL COSTS ASSOCIATED WITH THE CLEAN-UP AND MAY ALSO BE ASSESSED MONETARY PENALTIES (KMC 1.12.200). THE MINIMUM PENALTY IS $250. A FINAL INSPECTION OF YOUR PROJECT WILL NOT BE GRANTED UNTIL ALL COSTS ASSOCIATED WITH THE CLEAN-UP, AND PENALTIES, ARE PAID TO THE CITY OF KIRKLAND.

3. CONSTRUCTION DEWATERING DISCHARGES SHALL ALWAYS MEET WATER QUALITY GUIDELINES LISTED IN COK POLICY E-1. SPECIFICALLY, DISCHARGES TO THE PUBLIC STORMWATER DRAINAGE SYSTEM MUST BE BELOW 25NTU, AND NOT CONSIDERED AN ILLICIT DISCHARGE (PER KMC 15.52.090).
   TEMPORARY DISCHARGES TO SANITARY SEWER REQUIRE PRIOR AUTHORIZATION AND PERMIT FROM KING COUNTY INDUSTRIAL WASTE PROGRAM (206-263-3000) AND NOTIFICATION TO THE PUBLIC WORKS CONSTRUCTION INSPECTOR.

4. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH CITY OF KIRKLAND STANDARDS, SPECIFICATIONS, AND GENERAL POLICIES.

5. THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THIS PLAN SHALL BE SET BY SURVEY AND CLEARLY FLAGGED IN THE FIELD BY A CLEARING CONTROL FENCE PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE OR REMOVAL OF ANY GROUND COVER BEYOND THE FLAGGED EROSION - PLAN NOTES (CONTINUED) CLEARING LIMITS SHALL BE PERMITTED. THE FLAGGING SHALL BE MAINTAINED BY THE PERMITTEE/CONTRACTOR FOR THE DURATION OF CONSTRUCTION.

6. APPROVAL OF THIS EROSION/SEDIMENTATION CONTROL (ESC) PLAN DOES NOT CONSTITUTE AN APPROVAL OF PERMANENT ROAD OR DRAINAGE DESIGN (E.G., SIZE AND LOCATION OF ROADS, PIPES, RESTRICTORS, CHANNELS, RETENTION FACILITIES, UTILITIES, ETC.).

7. THE CITY WILL TRANSFER THE NPDES PERMIT TO THE CONTRACTOR. THE IMPLEMENTATION OF THIS ESC PLAN AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE PERMITTEE/CONTRACTOR UNTIL ALL CONSTRUCTION IS APPROVED.

8. A COPY OF THE APPROVED ESC PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.

9. THE ESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED PRIOR TO OR IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES IN SUCH A MANNER AS TO ENSURE THAT SEDIMENT-LADEN WATER DOES NOT ENTER THE DRAINAGE SYSTEM OR VIOLATE APPLICABLE WATER STANDARDS. WHEREVER POSSIBLE, MAINTAIN NATURAL VEGETATION FOR SILT CONTROL.

10. THE ESC FACILITIES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DETAILS ON THE APPROVED PLANS. LOCATIONS MAY BE MOVED TO SUIT FIELD CONDITIONS, SUBJECT TO APPROVAL BY THE ENGINEER AND THE CITY OF KIRKLAND INSPECTOR.

11. THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED (E.G., ADDITIONAL SUMPS, RELOCATION OF DITCHES AND SILT FENCES, ETC.) AS NEEDED FOR UNEXPECTED STORM EVENTS. ADDITIONALLY, MORE ESC FACILITIES MAY BE REQUIRED TO ENSURE COMPLETE SILTATION CONTROL. THEREFORE, DURING THE COURSE OF CONSTRUCTION IT SHALL BE THE OBLIGATION AND RESPONSIBILITY OF THE CONTRACTOR TO ADDRESS ANY NEW CONDITIONS THAT MAY BE CREATED BY HIS ACTIVITIES AND TO PROVIDE ADDITIONAL FACILITIES OVER AND ABOVE THE MINIMUM REQUIREMENTS AS MAY BE NEEDED.

12. THE ESC FACILITIES SHALL BE INSPECTED BY THE PERMITTEE/CONTRACTOR DAILY DURING NON-RAINFALL PERIODS, EVERY HOUR (DAYLIGHT) DURING A RAINFALL EVENT, AND AT THE END OF EVERY RAINFALL, AND MAINTAINED AS NECESSARY TO ENSURE THEIR CONTINUED FUNCTIONING. IN ADDITION, TEMPORARY SILTATION PONDS AND ALL TEMPORARY SILTATION CONTROLS SHALL BE MAINTAINED IN A SATISFACTORY CONDITION UNTIL SUCH TIME THAT CLEARING AND/OR CONSTRUCTION IS COMPLETED, PERMANENT DRAINAGE FACILITIES ARE OPERATIONAL, AND THE POTENTIAL FOR EROSION HAS PASSED. WRITTEN RECORDS SHALL BE KEPT DOCUMENTING THE REVIEWS OF THE ESC FACILITIES, AND A COPY OF THESE RECORDS SHALL BE PROVIDED TO THE CITY OF KIRKLAND AT THE CLOSE OF THE PROJECT.

13. THE ESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN 48 HOURS FOLLOWING A STORM EVENT.

14. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES, SUCH AS WASH PADS, MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.

15. ALL DENUDED SOILS MUST BE STABILIZED WITH AN APPROVED TESC METHOD (E.G. SEEDING, MULCHING, PLASTIC COVERING, CRUSHED ROCK) WITHIN THE FOLLOWING TIMELINES:
   • MAY 1 TO SEPTEMBER 30 - SOILS MUST BE STABILIZED WITHIN 7 DAYS OF GRADING.
   • OCTOBER 1 TO APRIL 30 - SOILS MUST BE STABILIZED WITHIN 2 DAYS OF GRADING
   • STABILIZE SOILS AT THE END OF THE WORKDAY PRIOR TO A WEEKEND, HOLIDAY, OR PREDICTED RAIN EVENT.

16. WHERE SEEDING FOR TEMPORARY EROSION CONTROL IS REQUIRED, FAST GERMINATING GRASSES SHALL BE APPLIED AT AN APPROPRIATE RATE (EXAMPLE: ANNUAL OR PERENNIAL RYE APPLIED AT APPROXIMATELY 80 POUNDS PER ACRE).

17. WHERE STRAW MULCH IS REQUIRED FOR TEMPORARY EROSION CONTROL, IT SHALL BE APPLIED AT A MINIMUM THICKNESS OF 2".

18. CLEARING LIMITS SHALL BE DELINEATED WITH A CLEARING CONTROL FENCE. THE CLEARING CONTROL FENCE SHALL CONSIST OF A 6-FT. HIGH CHAIN LINK FENCE ADJACENT THE DRIP LINE OF TREES TO BE SAVED, WETLAND OR STREAM BUFFERS, AND SENSITIVE SLOPES. CLEARING CONTROL FENCES ALONG WETLAND OR STREAM BUFFERS OR UPSLOPE OF SENSITIVE SLOPES SHALL BE ACCOMPANIED BY AN EROSION CONTROL FENCE. IF APPROVED BY THE CITY, A FOUR-FOOT HIGH ORANGE MESH CLEARING CONTROL FENCE MAY BE USED TO DELINEATE CLEARING LIMITS IN ALL OTHER AREAS.

19. OFF-SITE STREETS MUST BE KEPT CLEAN AT ALL TIMES. IF DIRT IS DEPOSITED ON THE PUBLIC STREET SYSTEM, THE STREET SHALL BE IMMEDIATELY CLEANED WITH POWER SWEEPER OR OTHER EQUIPMENT. ALL VEHICLES SHALL LEAVE THE SITE BY WAY OF THE CONSTRUCTION ENTRANCE AND SHALL BE CLEANED OF ALL DIRT THAT WOULD BE DEPOSITED ON THE PUBLIC STREETS.

20. ROCK FOR EROSION PROTECTION OF ROADWAY DITCHES, WHERE REQUIRED, MUST BE OF SOUND QUARRY ROCK, PLACED TO A DEPTH OF 1' AND MUST MEET THE FOLLOWING SPECIFICATIONS: 4"-8" ROCK/40%-70% PASSING; 2"-4" ROCK/30%-40% PASSING; AND 1"-2" ROCK/10%-20% PASSING. RECYCLED CONCRETE SHALL NOT BE USED FOR EROSION PROTECTION, INCLUDING CONSTRUCTION ENTRANCE OR TEMPORARY STABILIZATION ELSEWHERE ON THE SITE.

21. IF ANY PART(S) OF THE CLEARING LIMIT BOUNDARY OR TEMPORARY EROSION/SEDIMENTATION CONTROL PLAN IS/ARE DAMAGED, IT SHALL BE REPAIRED IMMEDIATELY.

22. ALL PROPERTIES ADJACENT TO THE PROJECT SITE SHALL BE PROTECTED FROM SEDIMENT DEPOSITION AND RUNOFF.

23. AT NO TIME SHALL MORE THAN 1' OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED IMMEDIATELY FOLLOWING REMOVAL OF EROSION CONTROL BMPS. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT-LADEN WATER INTO THE DOWNSTREAM SYSTEM.

24. ANY PERMANENT RETENTION/DETENTION FACILITY USED AS A TEMPORARY SETTLING BASIN SHALL BE MODIFIED WITH THE NECESSARY EROSION CONTROL MEASURES AND SHALL PROVIDE ADEQUATE STORAGE CAPACITY. IF THE PERMANENT FACILITY IS TO FUNCTION ULTIMATELY AS AN INFILTRATION OR DISPERSION SYSTEM, THE FACILITY SHALL NOT BE USED AS A TEMPORARY SETTLING BASIN. NO UNDERGROUND DETENTION TANK, DETENTION VAULT, OR SYSTEM WHICH BACKS UNDER OR INTO A POND SHALL BE USED AS A TEMPORARY SETTLING BASIN.

25. THE WASHED GRAVEL BACKFILL ADJACENT TO THE FILTER FABRIC FENCE SHALL BE REPLACED AND THE FILTER FABRIC CLEANED IF IT IS NONFUNCTIONAL BY EXCESSIVE SILT ACCUMULATION AS DETERMINED BY THE CITY OF KIRKLAND. ALSO, ALL INTERCEPTOR SWALES SHALL BE CLEANED IF SILT ACCUMULATION EXCEEDS ONE-QUARTER DEPTH.

26. PRIOR TO THE OCTOBER 1 OF EACH YEAR (THE BEGINNING OF THE WET SEASON), ALL DISTURBED AREAS SHALL BE REVIEWED TO IDENTIFY WHICH ONES CAN BE SEEDED IN PREPARATION FOR THE WINTER RAINS. THE IDENTIFIED DISTURBED AREA SHALL BE SEEDED WITHIN ONE WEEK AFTER OCTOBER 1. A SITE PLAN DEPICTING THE AREAS TO BE SEEDED AND THE AREAS TO REMAIN UNCOVERED SHALL BE SUBMITTED TO THE PUBLIC WORKS CONSTRUCTION INSPECTOR. THE INSPECTOR CAN REQUIRE SEEDING OF ADDITIONAL AREAS IN ORDER TO PROTECT SURFACE WATERS, ADJACENT PROPERTIES, OR DRAINAGE FACILITIES.

27. ANY CATCH BASINS COLLECTING RUNOFF FROM THE SITE, WHETHER THEY ARE ON OR OFF THE SITE, SHALL HAVE ADEQUATE PROTECTION FROM SEDIMENT. CATCH BASINS DIRECTLY DOWNSTREAM OF THE CONSTRUCTION ENTRANCE OR ANY OTHER CATCH BASIN AS DETERMINED BY THE CITY INSPECTOR SHALL BE PROTECTED WITH A "STORM DRAIN PROTECTION INSERT" OR EQUIVALENT.

28. DO NOT FLUSH CONCRETE BY-PRODUCTS OR TRUCKS NEAR OR INTO THE STORM DRAINAGE SYSTEM. IF EXPOSED AGGREGATE IS FLUSHED INTO THE STORM SYSTEM, IT COULD MEAN RE-CLEANING THE ENTIRE DOWNSTREAM STORM SYSTEM, OR POSSIBLY RE-LAYING THE STORM LINE.

29. RECYCLED CONCRETE SHALL NOT BE STOCKPILED ON SITE. USE OR REUSE OF RECYCLED CONCRETE ON THE SITE IS PROHIBITED.

NORTHSHORE UTILITY DISTRICT GENERAL NOTES

SMALL PROJECTS SERVICE SEWER AND WATER GENERAL NOTES:

1. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH THE SMALL PROJECT SERVICE SPECIFICATIONS AND THE STANDARD DETAILS OF NORTHSHORE UTILITY DISTRICT.

UTILITY LOCATES:
2. THE APPROXIMATE LOCATIONS OF EXISTING UTILITIES ARE SHOWN ON PLANS AND PROFILES FOR CONVENIENCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF UTILITY LOCATIONS SHOWN AND FOR DISCOVERY OF POSSIBLE ADDITIONAL UTILITIES NOT SHOWN ON PLANS.
3. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE LOCATED, BY APPROPRIATE UTILITY DISTRICTS OR COMPANIES, ALL UNDERGROUND UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
4. FOR UTILITY LOCATES IN KING COUNTY, CALL 1-800-424-5555 PRIOR TO DIGGING.

PRE-CON:
5. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD AT CITY OF KIRKLAND OFFICE OR ONSITE PRIOR TO THE START OF CONSTRUCTION. DISTRICT STAFF WILL NOTIFY THE APPROPRIATE AGENCIES OR REPRESENTATIVES.

SURVEYING:
6. PRIOR TO CONSTRUCTION, LOT CORNERS, EASEMENTS AND PRIVATE ACCESS TRACTS SHALL BE STAKED.
7. HORIZONTAL CONTROL DATA SHALL BE NAD '83/'91. VERTICAL CONTROL SHALL BE NAVD-88 DATUM.
8. AT THE CONCLUSION OF CONSTRUCTION, THE DEVELOPER'S REGISTERED PROFESSIONAL SURVEYOR SHALL PREPARE A DRAWING BASED ON THE SURVEYED LOCATION OF ALL APPURTENANCES INSTALLED, INCLUDING BUT NOT LIMITED TO, MANHOLES, CLEANOUTS, WATER METERS AND WATER SERVICE LINES.

CONSTRUCTION:
9. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE SMALL PROJECT SERVICE SPECIFICATIONS AND THE STANDARD DETAILS OF NORTHSHORE UTILITY DISTRICT.

MATERIALS:
10. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE SMALL PROJECT SERVICE SPECIFICATIONS AND THE STANDARD DETAILS OF NORTHSHORE UTILITY DISTRICT.

PLACEMENT:
11. SEWER AND WATER SERVICE LOCATIONS SHALL BE AS SHOWN ON THE PLANS OR AS OTHERWISE APPROVED BY NORTHSHORE UTILITY DISTRICT.

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City of Kirkland
Reviewed by T Elder
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Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

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Page 3 of 25

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DRW / CHK

SHEET NAME:
CIVIL GENERAL NOTES

SHEET NUMBER:
C001

STORM DRAINAGE - PLAN NOTES

1. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION.
2. BEFORE ANY CONSTRUCTION MAY OCCUR, THE CONTRACTOR SHALL HAVE PLANS WHICH HAVE BEEN SIGNED AND APPROVED BY THE CITY OF KIRKLAND PUBLIC WORKS DEPARTMENT, OBTAINED ALL CITY, COUNTY, STATE, FEDERAL AND OTHER REQUIRED PERMITS, AND HAVE POSTED ALL REQUIRED BONDS.
3. ALL STORM DRAINAGE IMPROVEMENTS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE CITY OF KIRKLAND PUBLIC WORKS PRE-APPROVED PLANS AND POLICIES AND THE STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION, PREPARED BY WSDOT AND THE AMERICAN PUBLIC WORKS ASSOCIATION (APWA)
4. ANY DEVIATION FROM THE APPROVED PLANS WILL REQUIRE WRITTEN APPROVAL, ALL CHANGES SHALL BE SUBMITTED TO THE CITY.
5. A COPY OF THE APPROVED STORM WATER PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
6. ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED OR SIMILARLY STABILIZED TO THE SATISFACTION OF THE CITY OF KIRKLAND DEPARTMENT OF PUBLIC WORKS FOR THE PREVENTION OF ON-SITE EROSION AFTER THE COMPLETION OF CONSTRUCTION.
7. MINIMUM COVER OVER STORM DRAINAGE PIPES IN ROW OR VEHICULAR PATH SHALL BE 18 INCHES, UNLESS OTHER DESIGN IS APPROVED.
8. STEEL PIPE SHALL HAVE ASPHALT TREATMENT #1 OR BETTER INSIDE AND OUTSIDE.
9. ALL CATCH BASINS SHALL BE TYPE I UNLESS OTHERWISE NOTED. CATCH BASINS WITH A DEPTH OF OVER FIVE FEET (5') TO THE PIPE INVERT SHALL BE A TYPE II CATCH BASIN. TYPE II CATCH BASINS EXCEEDING FIVE FEET (5') IN DEPTH SHALL HAVE A STANDARD LADDER INSTALLED. ALL CATCH BASIN LIDS ARE REQUIRED TO MEET KIRKLAND STANDARD PLAN SHEET CK-D.18A.
10. ALL STORM DRAINAGE MAIN EXTENSIONS WITHIN THE PUBLIC RIGHT-OF-WAY OR IN EASEMENTS MUST BE STAKED FOR LINE AND GRADE PRIOR TO STARTING CONSTRUCTION.
11. ALL PIPE, MANHOLES, CATCH BASINS, AND APPURTENANCES SHALL BE LAID ON A PROPERLY PREPARED FOUNDATION IN ACCORDANCE WITH THE CURRENT STATE OF WASHINGTON STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (WSDOT). THIS SHALL INCLUDE NECESSARY LEVELING OF THE TRENCH BOTTOM OR THE TOP OF THE FOUNDATION MATERIAL AS WELL AS PLACEMENT AND COMPACTION OF REQUIRED BEDDING MATERIAL TO UNIFORM GRADE SO THAT THE ENTIRE LENGTH OF THE PIPE WILL BE SUPPORTED ON A UNIFORMLY DENSE, UNYIELDING BASE. IF THE NATIVE MATERIAL IN THE BOTTOM OF THE TRENCH MEETS THE REQUIREMENTS FOR "GRAVEL BACKFILL FOR PIPE BEDDING," THE FIRST LIFT OF PIPE BEDDING MAY BE OMITTED PROVIDED THE MATERIAL IN THE BOTTOM OF THE TRENCH IS LOOSENED, REGRADED, AND COMPACTED TO FORM A DENSE UNYIELDING BASE. ALL PIPE BEDDING SHALL BE APWA CLASS B, TYPE I, OR BETTER. PIPE SHALL NOT BE INSTALLED ON SOD, FROZEN EARTH, LARGE BOULDERS, OR ROCK. PIPE BEDDING FOR FLEXIBLE PIPES SHALL BE PEA GRAVEL TO THE SPRINGLINE OF THE PIPE.
12. CONSTRUCTION OF DEWATERING DISCHARGES SHALL ALWAYS MEET WATER QUALITY GUIDELINES LISTED IN COK POLICY E-1. SPECIFICALLY, DISCHARGES TO THE PUBLIC STORMWATER DRAINAGE SYSTEM MUST BE BELOW 25NTU, AND NOT CONSIDERED A PROHIBITED DISCHARGE (PER KMC 15.52.090). TEMPORARY DISCHARGES TO SANITARY SEWER REQUIRE PRIOR AUTHORIZATION AND PERMIT FROM KING COUNTY INDUSTRIAL WASTE PROGRAM (206-263-3000) AND NOTIFICATION TO THE PUBLIC WORKS CONSTRUCTION INSPECTOR.
13. ALL TRENCH BACKFILL SHALL BE COMPACTED TO 95 PERCENT DENSITY IN ROADWAYS, ROADWAY SHOULDERS, ROADWAY PRISM AND DRIVEWAYS, AND 85 PERCENT DENSITY IN UNPAVED AREAS. ALL PIPE ZONE COMPACTION SHALL BE 95 PERCENT.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE SAFEGUARDS, SAFETY DEVICES, PROTECTIVE EQUIPMENT, CONFINED SPACE PROTECTION, FLAGGERS, AND ANY OTHER NEEDED ACTIONS TO PROTECT THE LIFE, HEALTH, AND SAFETY OF THE PUBLIC, AND TO PROTECT PROPERTY IN CONNECTION WITH THE PERFORMANCE OF WORK COVERED BY THE CONTRACT. ANY WORK WITHIN THE TRAVELED RIGHT-OF-WAY THAT MAY INTERRUPT NORMAL TRAFFIC FLOW SHALL REQUIRE A TRAFFIC CONTROL PLAN APPROVED BY THE CITY OF KIRKLAND. ALL SECTIONS OF THE WSDOT STANDARD SPECIFICATIONS, TRAFFIC CONTROL, AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) SHALL APPLY.
15. NO FINAL CUT OR FILL SLOPE SHALL EXCEED SLOPES OF TWO (2) HORIZONTAL TO ONE (1) VERTICAL WITHOUT STABILIZATION BY ROCKERY OR BY A STRUCTURAL RETAINING WALL.
16. ALL MANHOLE LADDERS SHALL BE FIRMLY ATTACHED AND EXTEND TO WITHIN 1' OF THE BOTTOM OF THE STRUCTURE.
17. APPROXIMATE LOCATIONS OF EXISTING UTILITIES HAVE BEEN OBTAINED FROM AVAILABLE RECORDS AND ARE SHOWN FOR CONVENIENCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF EXISTING UTILITY LOCATIONS WHETHER OR NOT THESE UTILITIES ARE SHOWN ON THE PLANS. THE CONTRACTOR SHALL EXERCISE ALL CARE TO AVOID DAMAGE TO ANY UTILITY. IF CONFLICTS WITH EXISTING UTILITIES ARISE DURING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE CITY CONSTRUCTION INSPECTOR AND ANY CHANGES REQUIRED SHALL BE APPROVED BY THE DEVELOPMENT ENGINEER PRIOR TO COMMENCEMENT OF RELATED CONSTRUCTION ON THE PROJECT.
18. THE UNDERGROUND UTILITY LOCATION SERVICE SHALL BE CONTACTED FOR FIELD LOCATION OF EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION. THE OWNER OR HIS REPRESENTATIVE SHALL BE CONTACTED IF A UTILITY CONFLICT EXISTS. FOR UTILITY LOCATION IN KING COUNTY, CALL 1-800-424-5555. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT UTILITY LOCATES ARE MAINTAINED THROUGHOUT THE LIFE OF THE PROJECT.
19. THE CONTRACTOR SHALL VERIFY THE LOCATIONS, WIDTHS, THICKNESS, AND ELEVATIONS OF ALL EXISTING PAVEMENTS AND STRUCTURES THAT ARE TO INTERFACE WITH NEW WORK. PROVIDE ALL TRIMMING, CUTTING, SAW CUTTING, GRADING, LEVELING, SLOPING, COATING, AND OTHER WORK, INCLUDING MATERIALS AS NECESSARY, TO CAUSE THE INTERFACE WITH EXISTING WORKS TO BE PROPER, ACCEPTABLE TO THE ENGINEER AND THE CITY OF KIRKLAND, COMPLETE IN PLACE AND READY TO USE.
20. ALL INLET, MANHOLE, AND CATCH BASIN FRAMES AND GRATES SHALL NOT BE ADJUSTED TO GRADE UNTIL IMMEDIATELY PRIOR TO FINAL PAVING. ALL CATCH BASIN GRATES SHALL BE SET 0.10' BELOW PAVEMENT LEVEL.
21. OPEN CUT ROAD CROSSINGS FOR UTILITY TRENCHES ON EXISTING TRAVELED ROADWAY SHALL BE BACKFILLED ONLY WITH 5/8" MINUS CRUSHED ROCK AND MECHANICALLY COMPACTED (UNLESS OTHERWISE APPROVED BY THE CITY). FOR STREETS CLASSIFIED AS ARTERIALS OR COLLECTORS, BACKFILL FOR CROSSINGS SHALL BE CDF. CUTS INTO THE EXISTING ASPHALT SHALL BE NEAT LINE CUT WITH SAW OR JACKHAMMER IN A CONTINUOUS LINE. A TEMPORARY COLD MIX PATCH MUST BE PLACED IMMEDIATELY AFTER BACKFILL AND COMPACTION. A PERMANENT HOT MIX PATCH SHALL BE PLACED WITHIN 30 DAYS AND SHALL BE A MINIMUM OF 1" THICKER THAN THE ORIGINAL ASPHALT WITH A MINIMUM THICKNESS OF 2". SEE STANDARD D.02.
22. ALL DAMAGES INCURRED TO PUBLIC AND/OR PRIVATE PROPERTY BY THE CONTRACTOR.DURING THE COURSE OF CONSTRUCTION SHALL BE PROMPTLY REPAIRED TO THE SATISFACTION OF THE CITY CONSTRUCTION INSPECTOR BEFORE PROJECT APPROVAL AND/OR THE RELEASE OF THE PROJECT'S PERFORMANCE BOND.
23. GROUT ALL SEAMS AND OPENINGS IN ALL INLETS, CATCH BASINS, AND MANHOLES. JETSET GROUT IS NOT ALLOWED. WHEN WIDENING AN EXISTING ROADWAY WHERE AN EXISTING TYPE I CATCH BASIN WILL REMAIN IN THE TRAVEL LANE, THE EXISTING FRAME AND COVER SHALL BE REPLACED WITH A ROUND, LOCKING FRAME AND COVER PER CITY OF KIRKLAND STANDARD PLAN CK-D18.A.
24. RECYCLED CONCRETE SHALL NOT BE USED AROUND STORMWATER FACILITIES OR ANYWHERE ON THIS SITE.

PIPE - MATERIALS:

25. ACCEPTABLE TYPES PUBLICLY OWNED AND MAINTAINED CONVEYANCE SYSTEMS
    A. PVC 3034
    B. DUCTILE IRON
    C. C900/C905
26. ALL PIPES SHALL HAVE A MINIMUM 18" OF PIPE COVER IN THE ROW OR PRIVATE DRIVES EXPOSED TO VEHICULAR TRAFFIC. IF PIPE COVER IS LESS THAN 18 INCHES THE PIPE SHALL BE DUCTILE IRON (CLASS 50) OR C-900. ALSO, ANY PIPES PROPOSED TO BE INSTALLED IN THE LOAD BEARING ZONE OF STRUCTURAL WALLS MUST BE PROTECTED BY A DUCTILE IRON (CLASS 50) SLEEVE. THE DESIGN OR USE OF DI SLEEVES MUST BE APPROVED BY THE CITY OF KIRKLAND DEPARTMENT OF PUBLIC WORKS.

CATCH BASIN/INLETS - GRATE SELECTION:

27. ALL FRAME AND COVERS SHALL BE LOCKABLE WITH A STANDARD 5/8" HEX DRIVE BOLT (EXCEPT ERGO FRAME AND COVER).

CATCH BASIN/INLETS - JOINTS:

28. TYPE I JOINTS SHALL BE NON-SHRINK GROUT.
29. TYPE II AND LARGER MANHOLES SHALL HAVE GASKETED JOINTS AND SHALL BE WATERTIGHT SEALED.
30. PVC AND OTHER PLASTIC PIPES REQUIRE A COUPLING ADAPTER MADE FOR THE PIPE TYPE AND CONCRETE JOINING.

CATCH BASIN/INLETS - CONSTRUCTION:

31. CATCH BASINS SHALL BE BEDDED IN CRUSHED SURFACING BASE COURSE.
32. ADJUSTMENTS OVER 2" TO GRADE SHALL BE WITH CONCRETE ADJUSTMENT RINGS.
33. ADJUSTMENTS UNDER 2" SHALL BE WITH CONCRETE OR NON-SHRINK GROUT.
34. FOR TYPE II CB'S WITH ECCENTRIC CONE TOP-SECTION, THE MAXIMUM ADJUSTMENT DISTANCE IS 12", NOT INCLUDING CASTING.
35. FOR TYPE II CB'S WITH FLAT-TOP, THE MAXIMUM ADJUSTMENT DISTANCE IS 12", NOT INCLUDING CASTING.
36. ALL CONNECTIONS TO STRUCTURES SHALL USE SAND COLLARS WITH NON-SHRINK GROUT (NO JET SET ALLOWED).
37. WOOD, ROCK, EXPANSION JOINT OR RED BRICK SHALL NOT BE USED AT ANY TIME. IF STANDARD GREY CONCRETE 2"X4"X8" BRICKS ARE USED THEY SHALL BE TOTALLY ENCAPSULATED WITH CONCRETE OR GROUT. THIS SHOULD APPLY TO ALL DRAWINGS.
38. ALL ADJUSTMENT RISERS SHALL BE GROUTED DOWN WITH NON-SHRINK GROUT OR PORTLAND CEMENT AND SAND MIXTURE. DRY STACKING IS NOT ALLOWED.

PAVING AND ROADWAY - PLAN NOTES

1. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION.
2. ALL ROADWAY WORK AND MATERIAL SHALL BE IN ACCORDANCE WITH THE CURRENT APWA AND CITY OF KIRKLAND STANDARDS AND SPECIFICATIONS.
3. ALL PUBLIC ROADWAYS SHALL BE CONSTRUCTED OF 4" CLASS "B" AC PAVING ON 6" ASPHALT-TREATED BASE (ATB) ON 4" MINIMUM OF 1-1/4" MINUS CRUSHED SURFACING BASE COURSE, UNLESS OTHERWISE APPROVED BY THE PUBLIC WORKS DEPARTMENT.
4. A COPY OF THE APPROVED ROADWAY PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
5. DENSITY TEST REPORTS WILL BE REQUIRED FOR ALL PUBLIC ROADWAYS AND ALL PRIVATE ROADWAYS. ALL TRENCH BACKFILL SHALL BE COMPACTED TO 95 PERCENT DENSITY IN ROADWAYS, ROADWAY SHOULDERS, ROADWAY PRISM AND DRIVEWAYS, AND 85 PERCENT DENSITY IN UNPAVED AREAS. ALL PIPE ZONE COMPACTION SHALL BE 95 PERCENT.
6. ALL COMMERCIAL AND RESIDENTIAL DRIVEWAYS MUST CONFORM TO THE CITY OF KIRKLAND DEPARTMENT OF PUBLIC WORKS DRIVEWAY POLICY.
7. ALL CONCRETE FOR SIDEWALKS AND CURB AND GUTTER MUST BE 4,000 PSI MINIMUM. (5-3/4 SACK MIX.)
8. ANY ROADWAY SIGNAGE OR STRIPING REMOVED OR TEMPORARILY MOVED BY THE CONTRACTOR SHALL BE RESTORED SO AS TO MEET THE CURRENT CITY OF KIRKLAND STANDARDS.
9. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ADEQUATE TEMPORARY TRAFFIC CONTROL TO ENSURE TRAFFIC SAFETY DURING CONSTRUCTION ACTIVITIES. THEREFORE, THE CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN TO THE PUBLIC WORKS DEPARTMENT PRIOR TO STARTING WORK. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) OR AS MODIFIED BY THE TRAFFIC ENGINEER.
10. SIDEWALK AND CURB AND GUTTER CANNOT BE POURED MONOLITHICALLY. THERE MUST BE A COLD JOINT OR FULL-DEPTH EXPANSION JOINT BETWEEN THEM.
11. ALL NEW SIGNS REQUIRED IN THE PUBLIC RIGHT-OF-WAY MUST BE PURCHASED FROM, AND INSTALLED BY, THE CITY OF KIRKLAND PUBLIC WORKS DEPARTMENT.
12. ANY EXISTING PUBLIC IMPROVEMENTS DAMAGED DURING CONSTRUCTION SHALL BE REPLACED PRIOR TO FINAL INSPECTION.
13. THE CONTRACTOR IS RESPONSIBLE FOR KEEPING ALL PUBLIC STREETS FREE FROM MUD AND DEBRIS AT ALL TIMES. THE CONTRACTOR SHALL BE PREPARED TO USE POWER SWEEPERS OR OTHER PIECES OF EQUIPMENT NECESSARY TO KEEP THE ROADWAYS CLEAN.
14. BACKFILL IN ALL STREET CUTS ON ARTERIALS WILL BE CONTROL DENSITY FILL (CDF). CONTRACTOR MUST PROVIDE STEEL PLATING NECESSARY TO ALLOW THE CDF TO CURE.
15. WHEN CONSTRUCTING NEW CURB AND GUTTER WHICH DOES NOT ALIGN WITH THE EXISTING EDGE OF PAVEMENT, THE ROADWAY MUST BE TAPERED FROM THE ENDS OF THE NEW CURB AND GUTTER TO MATCH THE EXISTING PAVEMENT. THE ENTRY TAPER INTO THE NEW IMPROVEMENTS SHALL BE 5:1, AND LEAVING THE NEW IMPROVEMENTS SHALL BE 10:1.
16. RESTORATION OF CUTS IN EXISTING PAVEMENT SHALL INCLUDE A T-CUT WITH A SAWCUT AND SEAL A MINIMUM OF 12 INCHES BEYOND THE TRENCH LIMITS PER PLAN NO. CK-D.02.

FIBER OPTIC CONDUIT NOTES

1. MAINTAIN REQUIRED CLEARANCES FROM OTHER UTILITIES. NOTIFY ENGINEER IF INSUFFICIENT CLEARANCE IS AVAILABLE.
2. INSTALL CONTINUOUS 4" WIDE METALLIC DETECTABLE WARNING TAPE ABOVE ALL CONDUIT. COMMUNICATIONS CABLE WARNING TAPE SHALL BE ORANGE AND LABELED WITH "CAUTION, BURIED FIBER BELOW" .
3. PROVIDE A GROUND IN EACH HAND HOLE.
4. INSTALL CONTINUOUS #10 AWG LOCATE WIRE IN EACH CONDUIT TRENCH. TERMINATE THE LOCATE WIRE TO THE GROUND ROD IN THE HAND HOLE.
5. CONDUIT BENDS SHALL BE 36" RADIUS MINIMUM, AND LIMIT BENDS TO 270 DEGREES CUMULATIVE BETWEEN HAND HOLES OR PULL BOXES.

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City of Kirkland
Reviewed by T Elder
07/05/2019

ch2m.

Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

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Page 4 of 25

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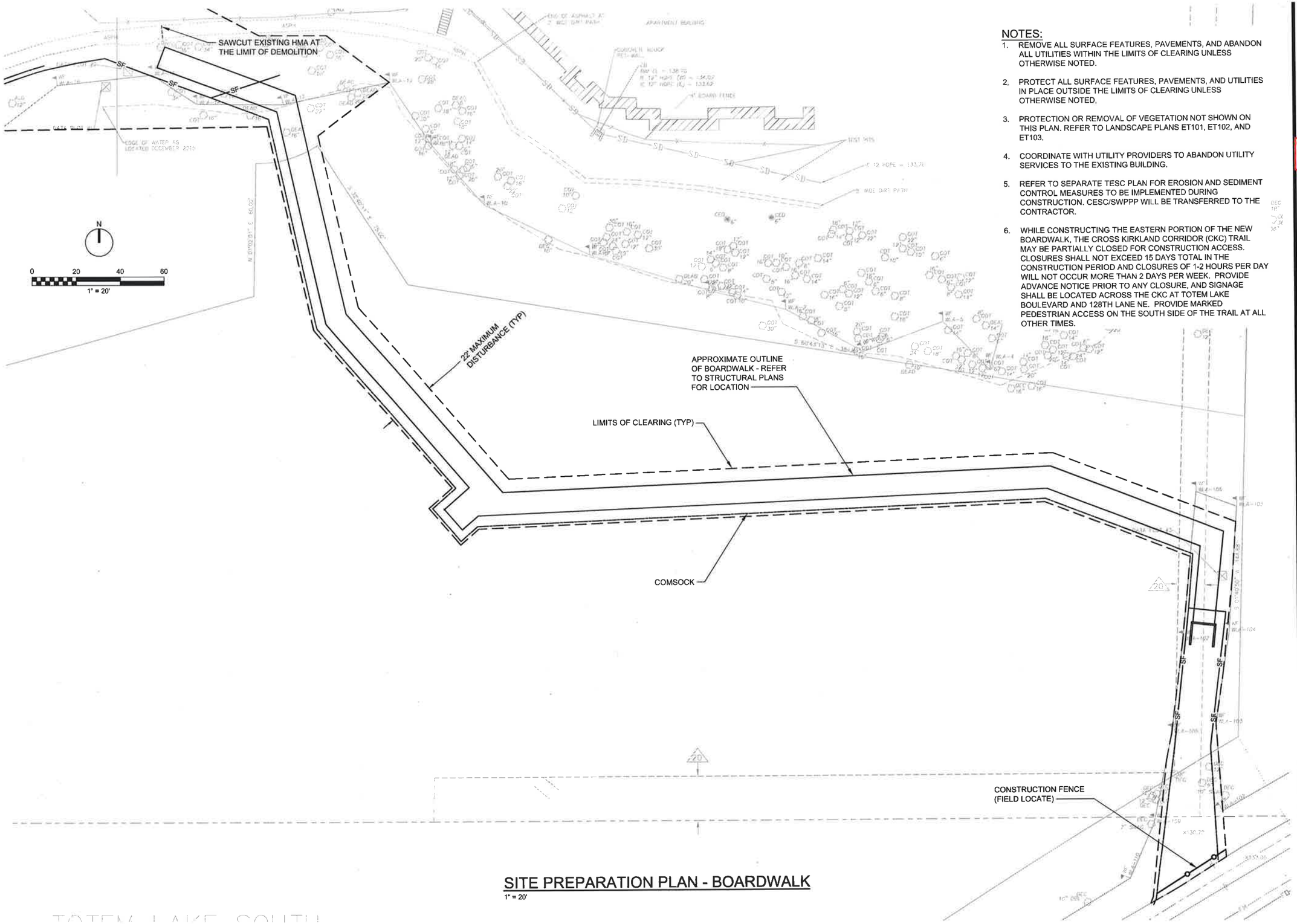
SHEET NAME:
CIVIL GENERAL NOTES

SHEET NUMBER:
C002



NOTES:

1. REMOVE ALL SURFACE FEATURES, PAVEMENTS, AND ABANDON ALL UTILITIES WITHIN THE LIMITS OF CLEARING UNLESS OTHERWISE NOTED.
2. PROTECT ALL SURFACE FEATURES, PAVEMENTS, AND UTILITIES IN PLACE OUTSIDE THE LIMITS OF CLEARING UNLESS OTHERWISE NOTED.
3. PROTECTION OR REMOVAL OF VEGETATION NOT SHOWN ON THIS PLAN. REFER TO LANDSCAPE PLANS ET101, ET102, AND ET103.
4. COORDINATE WITH UTILITY PROVIDERS TO ABANDON UTILITY SERVICES TO THE EXISTING BUILDING.
5. REFER TO SEPARATE TESC PLAN FOR EROSION AND SEDIMENT CONTROL MEASURES TO BE IMPLEMENTED DURING CONSTRUCTION. CESC/SWPPP WILL BE TRANSFERRED TO THE CONTRACTOR.
6. WHILE CONSTRUCTING THE EASTERN PORTION OF THE NEW BOARDWALK, THE CROSS KIRKLAND CORRIDOR (CKC) TRAIL MAY BE PARTIALLY CLOSED FOR CONSTRUCTION ACCESS. CLOSURES SHALL NOT EXCEED 15 DAYS TOTAL IN THE CONSTRUCTION PERIOD AND CLOSURES OF 1-2 HOURS PER DAY WILL NOT OCCUR MORE THAN 2 DAYS PER WEEK. PROVIDE ADVANCE NOTICE PRIOR TO ANY CLOSURE, AND SIGNAGE SHALL BE LOCATED ACROSS THE CKC AT TOTEM LAKE BOULEVARD AND 128TH LANE NE. PROVIDE MARKED PEDESTRIAN ACCESS ON THE SOUTH SIDE OF THE TRAIL AT ALL OTHER TIMES.

SITE PREPARATION PLAN - BOARDWALK

1" = 20'

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Totem Lake Park Phase 1

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Page 5 of 25

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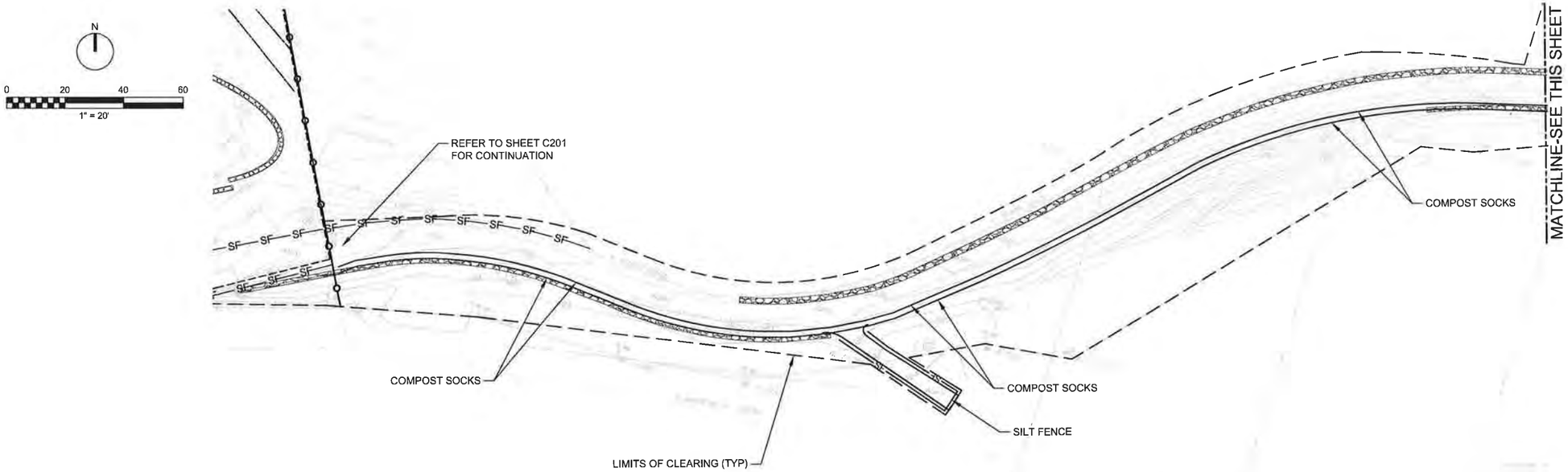
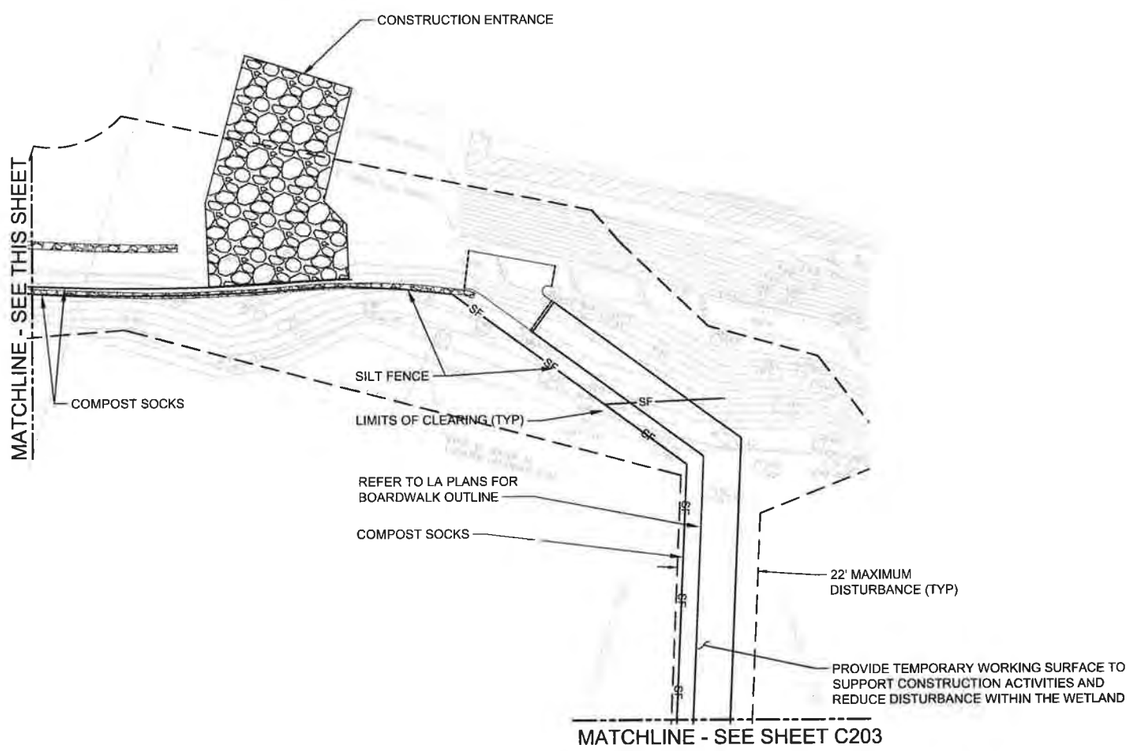
SHEET NAME:
SITE PREPARATION PLAN - BOARDWALK

SHEET NUMBER:
C103





CESC PLAN

1" = 20'

NOTES:

1. REMOVE TREES AS INDICATED ON TREE REMOVAL PLAN - PROTECT IN PLACE ALL OTHER TREES NOT INDICATED TO BE REMOVED.
2. A DRAFT SWPPP HAS BEEN PREPARED. CONTRACTOR SHALL MODIFY THE SWPPP AND THE ESC PLANS AS NEEDED TO REFLECT THE CONSTRUCTION SEQUENCE, MEANS AND METHODS. CESC/SWPPP WILL BE TRANSFERRED TO THE CONTRACTOR.
3. PROVIDE FINAL SWPPP, CONSTRUCTION EROSION AND SEDIMENTATION CONTROL LEAD, COVER MEASURES, RUNOFF TREATMENT, AND ALL OTHER MEASURES AS NECESSARY TO MEET CONSTRUCTION GENERAL PERMIT AND CITY OF KIRKLAND POLICY D-12 REQUIREMENTS.
4. THE ESC MEASURES SHOWN ON THIS PLAN AND DESCRIBED IN THE PROJECT SPECIFICATIONS ARE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, UPGRADE THESE MEASURES AS NEEDED TO COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL EROSION AND SEDIMENT CONTROL REGULATIONS.
5. IF TEMPORARY SHORING IS REQUIRED, CONTRACTOR SHALL DESIGN TEMPORARY SHORING PER APPLICABLE CODES AND STANDARDS, INCLUDING BUT NOT LIMITED TO WASHINGTON ADMINISTRATIVE CODE SAFETY STANDARDS FOR CONSTRUCTION WORK.
6. HIGH VISIBILITY FENCE SHALL BE PER WSDOT STANDARD PLAN I-10.10-01.
7. SILT FENCE SHALL BE PER WSDOT STANDARD PLAN I-30.10-02.
8. COMPOST SOCKS SHALL BE PER WSDOT STANDARD PLAN I-30.40-01.
9. PROVIDE EROSION CONTROL MEASURES FOR ALL DISTURBED AREAS INCLUDING STAGING, ACCESS, AND PARKING AREAS BEYOND THE LIMITS SHOWN ON THIS PLAN.
10. PLACE CATCH BASIN INSERT IN NEXT DOWNSTREAM INLET IN TOTEM LAKE WAY.
11. REFER TO SHEET L203 FOR A DESCRIPTION OF ALLOWABLE IMPACTS.
12. SLOPES STEEPER THAN 4:1 (HORIZONTAL:VERTICAL), INCLUDING SLOPES BELOW THE WATER STORAGE AREA IN THE BIORETENTION CELLS, SHALL BE STABILIZED PER SLOPE STABILIZATION DETAIL 1 ON SHEET CD101. (1)

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Totem Lake Park Phase 1

City of Kirkland

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REVISIONS:

△	DESCRIPTION	DATE
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BNO19-01213
Page 6 of 25

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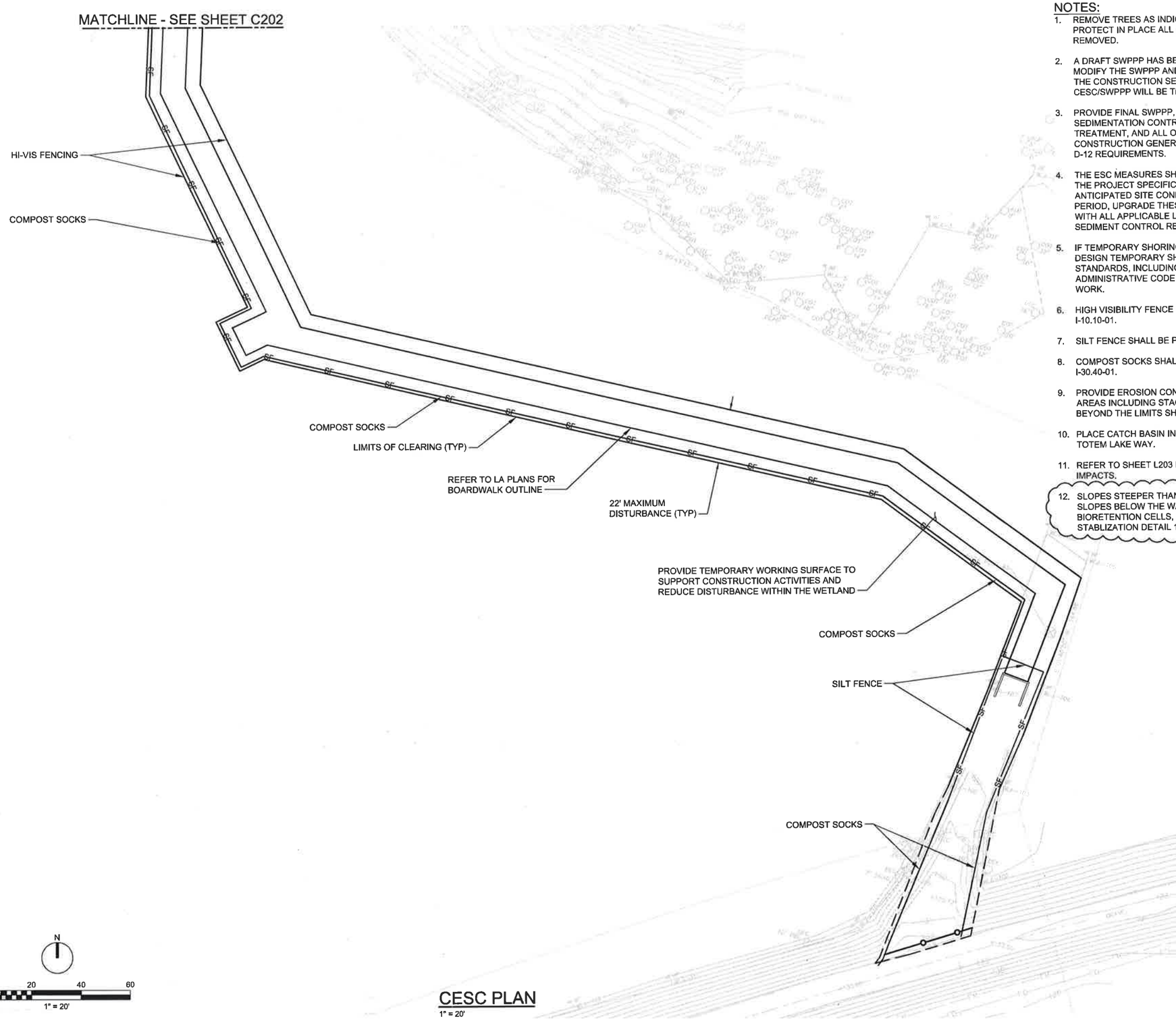
SHEET NAME
CESC PLAN - TRAIL

SHEET NUMBER
C202



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2. A DRAFT SWPPP HAS BEEN PREPARED. CONTRACTOR SHALL MODIFY THE SWPPP AND THE ESC PLANS AS NEEDED TO REFLECT THE CONSTRUCTION SEQUENCE, MEANS AND METHODS. CESC/SWPPP WILL BE TRANSFERRED TO THE CONTRACTOR.
3. PROVIDE FINAL SWPPP, CONSTRUCTION EROSION AND SEDIMENTATION CONTROL LEAD, COVER MEASURES, RUNOFF TREATMENT, AND ALL OTHER MEASURES AS NECESSARY TO MEET CONSTRUCTION GENERAL PERMIT AND CITY OF KIRKLAND POLICY D-12 REQUIREMENTS.
4. THE ESC MEASURES SHOWN ON THIS PLAN AND DESCRIBED IN THE PROJECT SPECIFICATIONS ARE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, UPGRADE THESE MEASURES AS NEEDED TO COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL EROSION AND SEDIMENT CONTROL REGULATIONS.
5. IF TEMPORARY SHORING IS REQUIRED, CONTRACTOR SHALL DESIGN TEMPORARY SHORING PER APPLICABLE CODES AND STANDARDS, INCLUDING BUT NOT LIMITED TO WASHINGTON ADMINISTRATIVE CODE SAFETY STANDARDS FOR CONSTRUCTION WORK.
6. HIGH VISIBILITY FENCE SHALL BE PER WSDOT STANDARD PLAN I-10.10-01.
7. SILT FENCE SHALL BE PER WSDOT STANDARD PLAN I-30.10-02.
8. COMPOST SOCKS SHALL BE PER WSDOT STANDARD PLAN I-30.40-01.
9. PROVIDE EROSION CONTROL MEASURES FOR ALL DISTURBED AREAS INCLUDING STAGING, ACCESS, AND PARKING AREAS BEYOND THE LIMITS SHOWN ON THIS PLAN.
10. PLACE CATCH BASIN INSERT IN NEXT DOWNSTREAM INLET IN TOTEM LAKE WAY.
11. REFER TO SHEET L203 FOR A DESCRIPTION OF ALLOWABLE IMPACTS.
12. SLOPES STEEPER THAN 4:1 (HORIZONTAL:VERTICAL), INCLUDING SLOPES BELOW THE WATER STORAGE AREA IN THE BIORETENTION CELLS, SHALL BE STABILIZED PER SLOPE STABILIZATION DETAIL 1 ON SHEET CD101. 1

CESC PLAN

1" = 20'

N

0 20 40 60

1" = 20'

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Totem Lake Park Phase 1

City of Kirkland

12031 Totem Lake Way, Kirkland, WA 98034

SET TYPE:
100% Design Submittal

SET ISSUE DATE:
2/8/2019

REVISIONS:

△	DESCRIPTION	DATE
1	Permit Response	2019/05/03

BNO19-01213
Page 7 of 25

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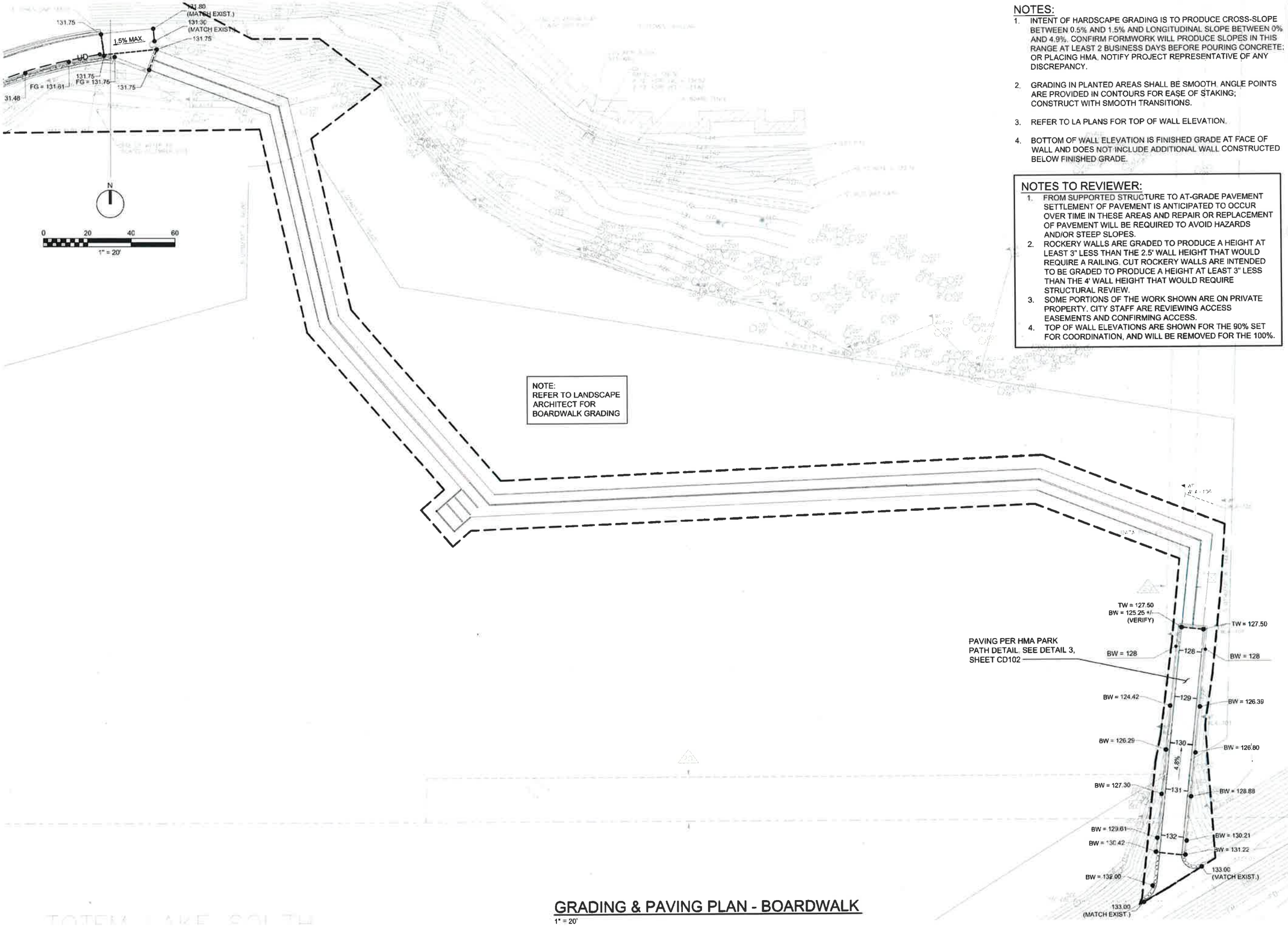
DRW / CHK

SHEET NAME:
CESC PLAN - BOARDWALK

SHEET NUMBER:
C203



GRADING & PAVING PLAN - BOARDWALK

1" = 20'

NOTES:

1. INTENT OF HARDSCAPE GRADING IS TO PRODUCE CROSS-SLOPE BETWEEN 0.5% AND 1.5% AND LONGITUDINAL SLOPE BETWEEN 0% AND 4.9%. CONFIRM FORMWORK WILL PRODUCE SLOPES IN THIS RANGE AT LEAST 2 BUSINESS DAYS BEFORE POURING CONCRETE; OR PLACING HMA. NOTIFY PROJECT REPRESENTATIVE OF ANY DISCREPANCY.
2. GRADING IN PLANTED AREAS SHALL BE SMOOTH. ANGLE POINTS ARE PROVIDED IN CONTOURS FOR EASE OF STAKING; CONSTRUCT WITH SMOOTH TRANSITIONS.
3. REFER TO LA PLANS FOR TOP OF WALL ELEVATION.
4. BOTTOM OF WALL ELEVATION IS FINISHED GRADE AT FACE OF WALL AND DOES NOT INCLUDE ADDITIONAL WALL CONSTRUCTED BELOW FINISHED GRADE.

NOTES TO REVIEWER:

1. FROM SUPPORTED STRUCTURE TO AT-GRADE PAVEMENT SETTLEMENT OF PAVEMENT IS ANTICIPATED TO OCCUR OVER TIME IN THESE AREAS AND REPAIR OR REPLACEMENT OF PAVEMENT WILL BE REQUIRED TO AVOID HAZARDS AND/OR STEEP SLOPES.
2. ROCKERY WALLS ARE GRADED TO PRODUCE A HEIGHT AT LEAST 3" LESS THAN THE 2.5' WALL HEIGHT THAT WOULD REQUIRE A RAILING. CUT ROCKERY WALLS ARE INTENDED TO BE GRADED TO PRODUCE A HEIGHT AT LEAST 3" LESS THAN THE 4' WALL HEIGHT THAT WOULD REQUIRE STRUCTURAL REVIEW.
3. SOME PORTIONS OF THE WORK SHOWN ARE ON PRIVATE PROPERTY. CITY STAFF ARE REVIEWING ACCESS EASEMENTS AND CONFIRMING ACCESS.
4. TOP OF WALL ELEVATIONS ARE SHOWN FOR THE 90% SET FOR COORDINATION, AND WILL BE REMOVED FOR THE 100%.

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Totem Lake Park Phase 1

City of Kirkland

12031 Totem Lake Way, Kirkland, WA 98034

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BNO19-01213
Page 8 of 25

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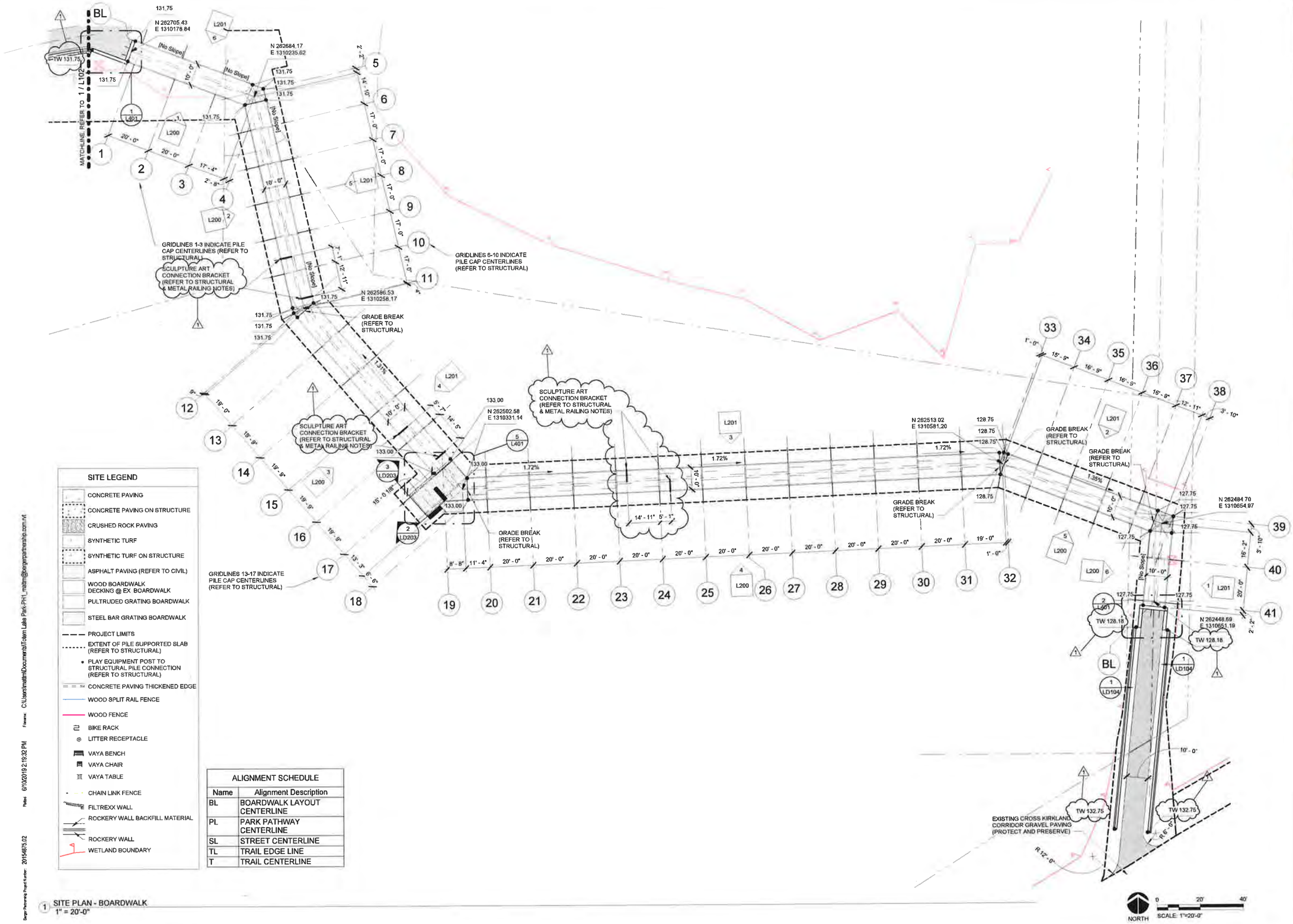
SHEET NAME
GRADING & PAVING PLAN - BOARDWALK

SHEET NUMBER
CG103



SITE LEGEND

- CONCRETE PAVING
- CONCRETE PAVING ON STRUCTURE
- CRUSHED ROCK PAVING
- SYNTHETIC TURF
- SYNTHETIC TURF ON STRUCTURE
- ASPHALT PAVING (REFER TO CIVIL)
- WOOD BOARDWALK DECKING @ EX BOARDWALK
- PULTRUDED GRATING BOARDWALK
- STEEL BAR GRATING BOARDWALK
- PROJECT LIMITS
- EXTENT OF PILE SUPPORTED SLAB (REFER TO STRUCTURAL)
- PLAY EQUIPMENT POST TO STRUCTURAL PILE CONNECTION (REFER TO STRUCTURAL)
- CONCRETE PAVING THICKENED EDGE
- WOOD SPLIT RAIL FENCE
- WOOD FENCE
- BIKE RACK
- LITTER RECEPTACLE
- VAYA BENCH
- VAYA CHAIR
- VAYA TABLE
- CHAIN LINK FENCE
- FILTREXX WALL
- ROCKERY WALL BACKFILL MATERIAL
- ROCKERY WALL
- WETLAND BOUNDARY

ALIGNMENT SCHEDULE	
Name	Alignment Description
BL	BOARDWALK LAYOUT CENTERLINE
PL	PARK PATHWAY CENTERLINE
SL	STREET CENTERLINE
TL	TRAIL EDGE LINE
T	TRAIL CENTERLINE

1 SITE PLAN - BOARDWALK
1" = 20'-0"

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Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

STATE OF WASHINGTON ANDY MITTON No 882 EXP 9/30/2020 LANDSCAPE ARCHITECT

SET TYPE:
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SET ISSUE DATE:
02/08/2019

REVISIONS:

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1	Permit Response	2019/06/10

BNO19-01213
Page 9 of 25

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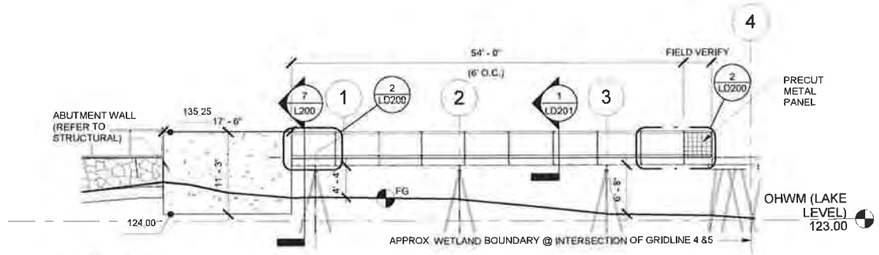
SHEET NAME:
SITE PLAN - BOARDWALK

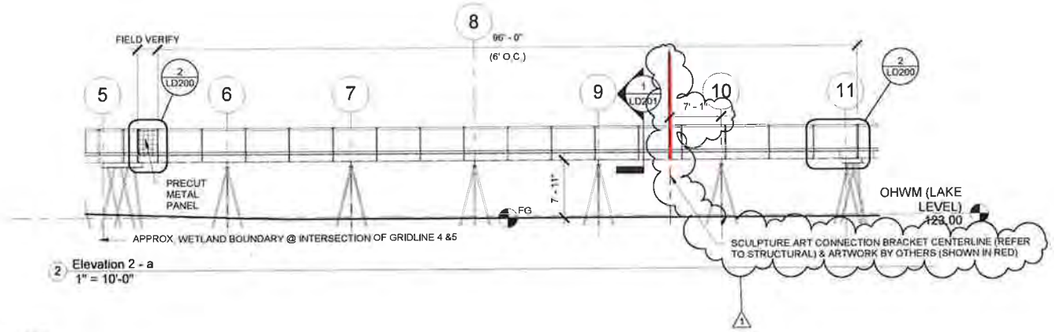
SHEET NUMBER
L103

Plotted: 6/10/2019 2:19:32 PM Filename: C:\Users\mattm\Documents\Totem Lake Park-PH1_matm@bergerpartnership.com.rvt

Berger Partnership Project Number: 2015475.02



1 Elevation 1 - a
1" = 10'-0"



2 Elevation 2 - a
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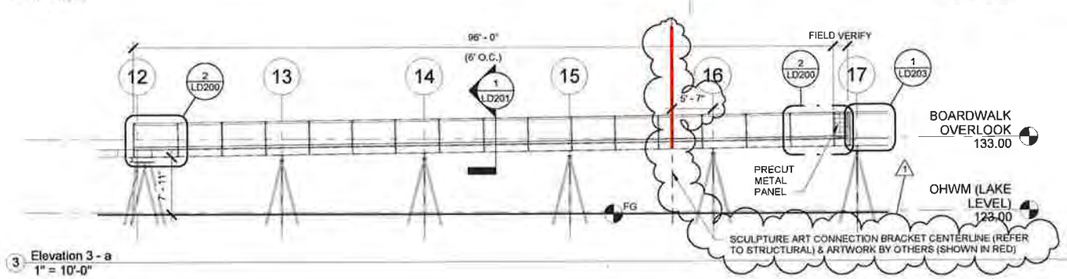

3 Elevation 3 - a
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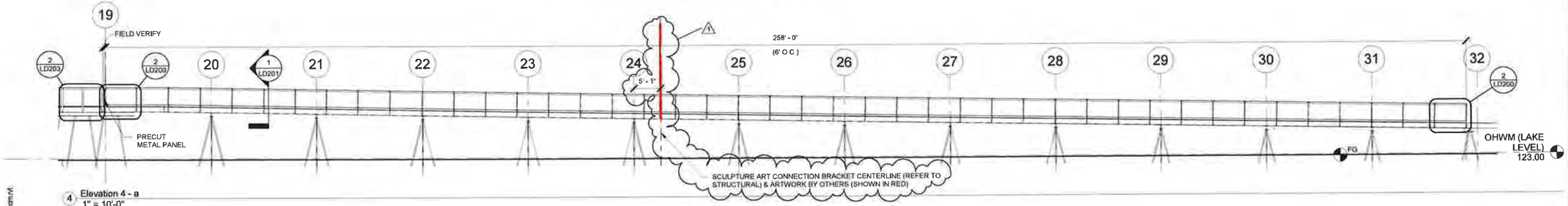
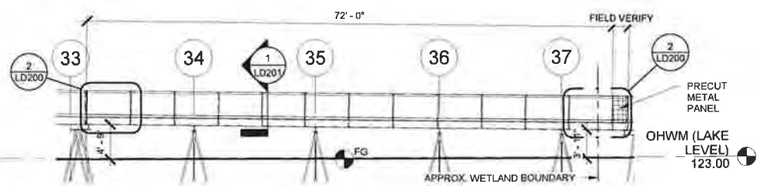


4 Elevation 4 - a
1" = 10'-0"



5 Elevation 5 - a
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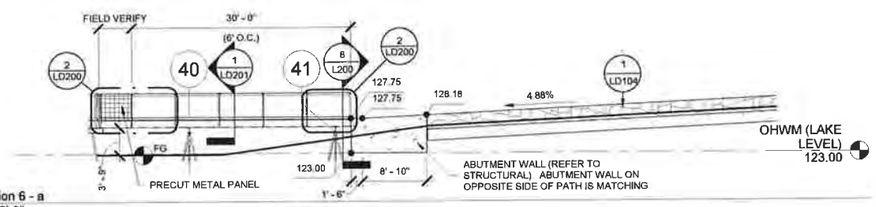
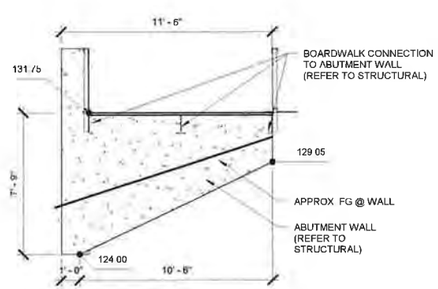
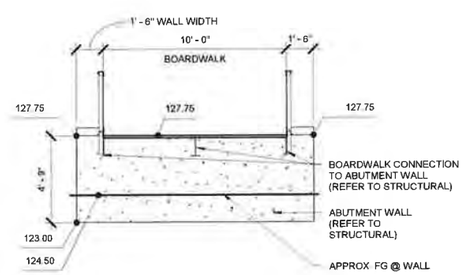


6 Elevation 6 - a
1" = 10'-0"



7 NORTH ABUTMENT WALL
1/4" = 1'-0"



8 SOUTH ABUTMENT WALL
1/4" = 1'-0"

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Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

STATE OF WASHINGTON
ANDY MITTON
NO. 882 EXP. 6/30/2020
LANDSCAPE ARCHITECT

SET TYPE
100% Design Submittal

SET ISSUE DATE
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1	Permit Response	2019/06/10

BNO19-01213
Page 10 of 25

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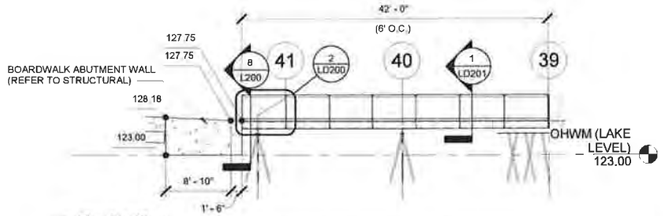
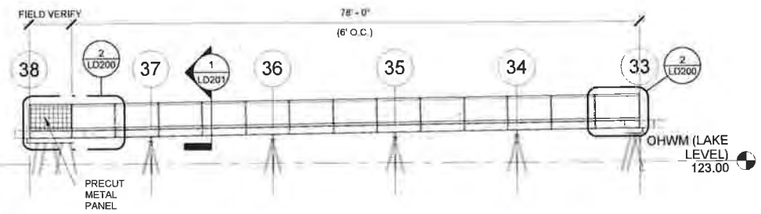
SHEET NAME
BOARDWALK ELEVATIONS

SHEET NUMBER
L200

Berger Partnership Project Number: 2015475.02 Plotted: 6/10/2019 2:19:38 PM Filename: C:\Users\mattm\Documents\Totem Lake Park-PH1_matm@bergerpartnership.com.rvt



1 Elevation 12 - a
1" = 10'-0"



2 Elevation 11 - a
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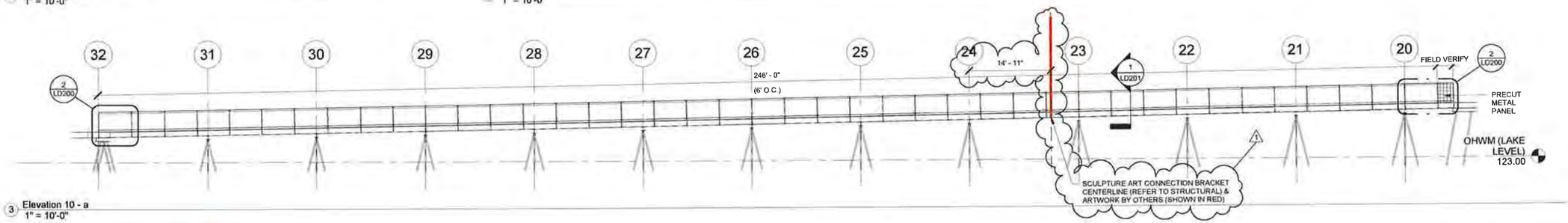
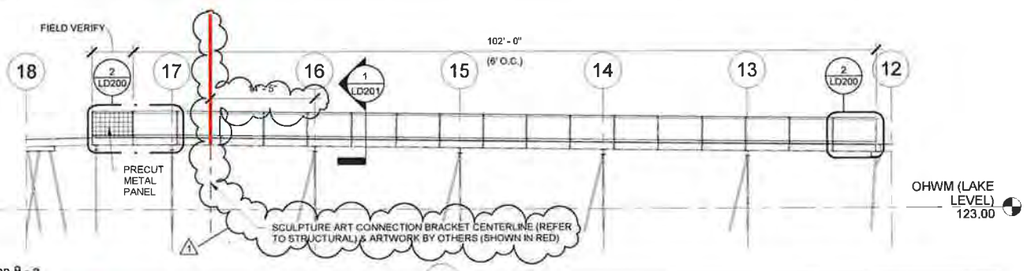
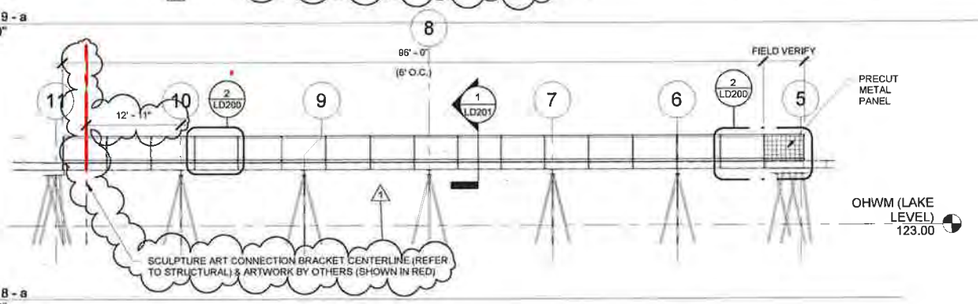


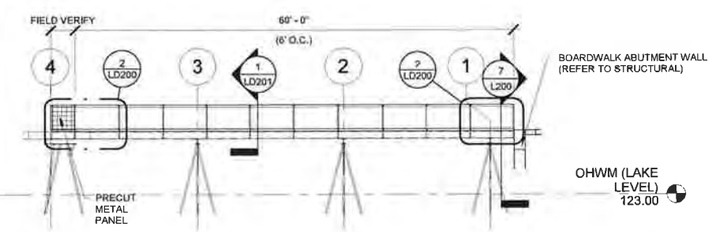
3 Elevation 10 - a
1" = 10'-0"



4 Elevation 9 - a
1" = 10'-0"



5 Elevation 8 - a
1" = 10'-0"



6 Elevation 7 - a
1" = 10'-0"

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Totem Lake Park Phase 1

City of Kirkland

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LANDSCAPE ARCHITECT

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BNO19-01213
Page 11 of 25

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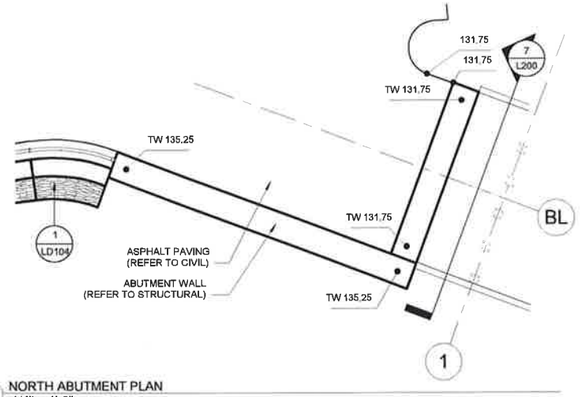
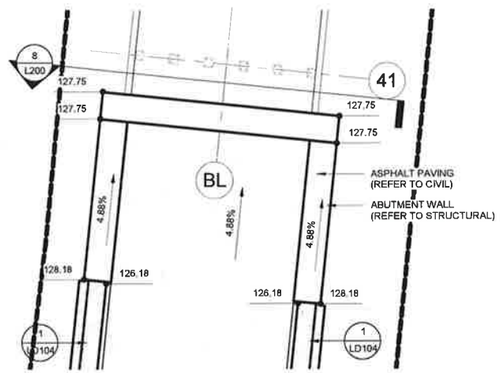
SHEET NAME
BOARDWALK ELEVATIONS

SHEET NUMBER
L201

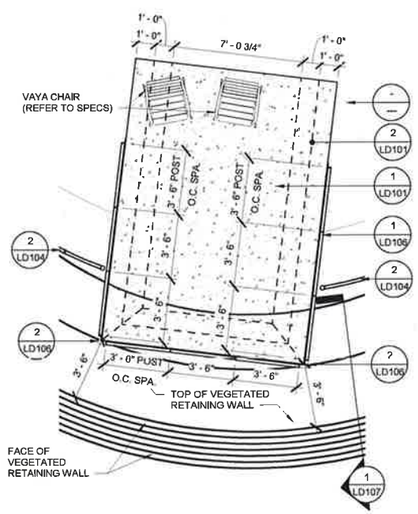
Berger Partnership Project Number 2015.4875.02 Plotted 6/10/2019 2:19:43 PM Filename C:\Users\mattm\Documents\Totem Lake Park-PH1_mattm@bergerpartnership.com.rvt



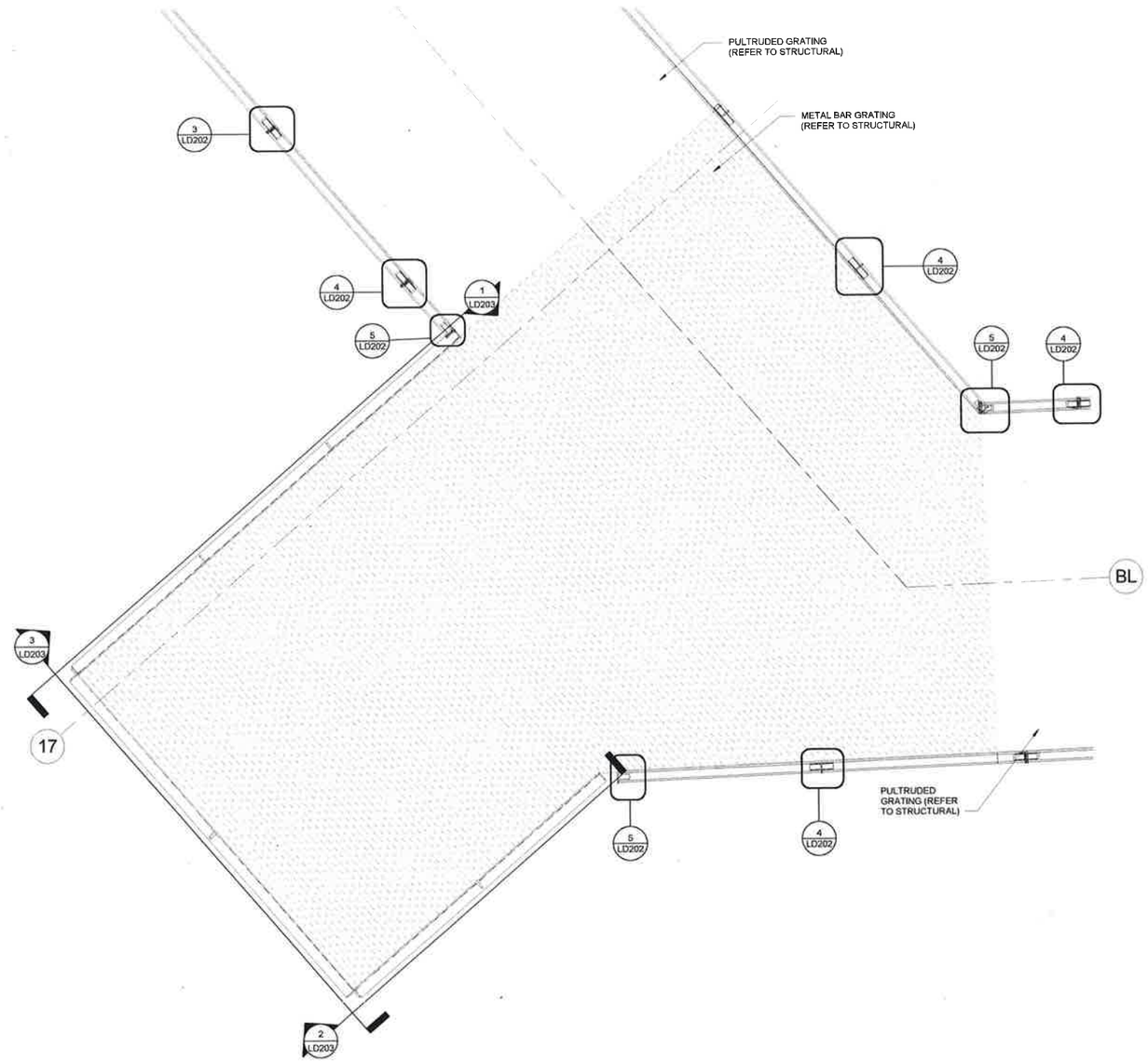
1 NORTH ABUTMENT PLAN
1/4" = 1'-0"



2 SOUTH ABUTMENT PLAN
1/4" = 1'-0"



3 OVERLOOK ENLARGEMENT
1/4" = 1'-0"



5 BOARDWALK OVERLOOK
ENLARGEMENT
1/2" = 1'-0"

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Totem Lake Park Phase 1

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BNO19-01213
Page 12 of 25

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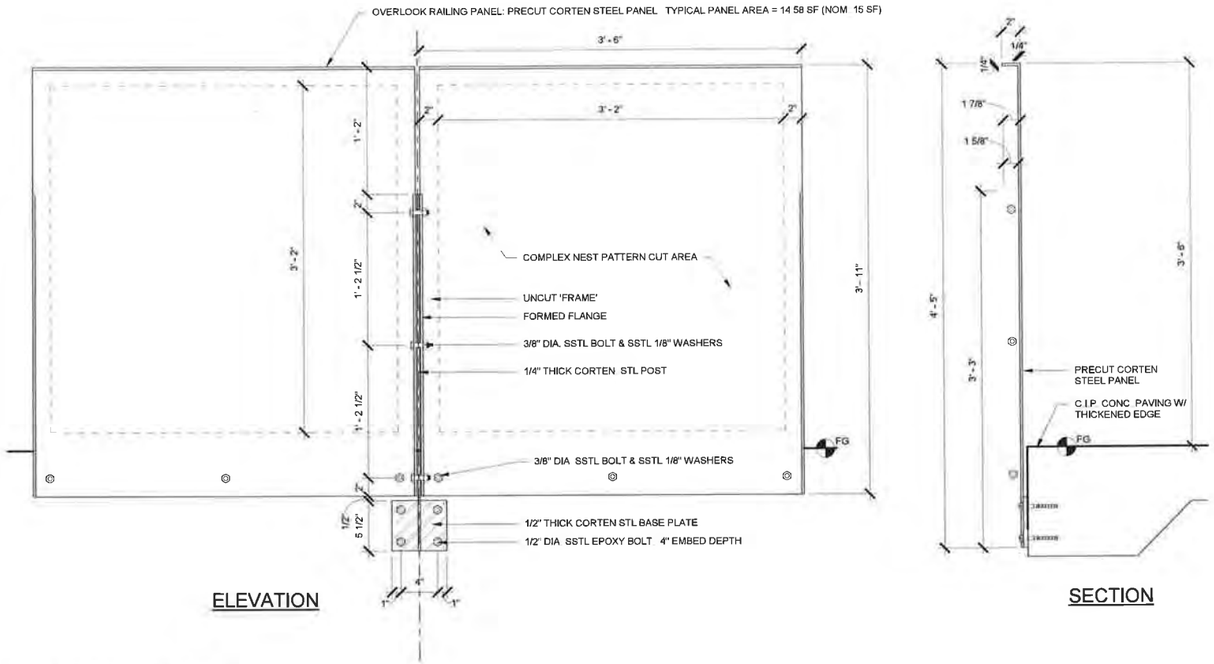
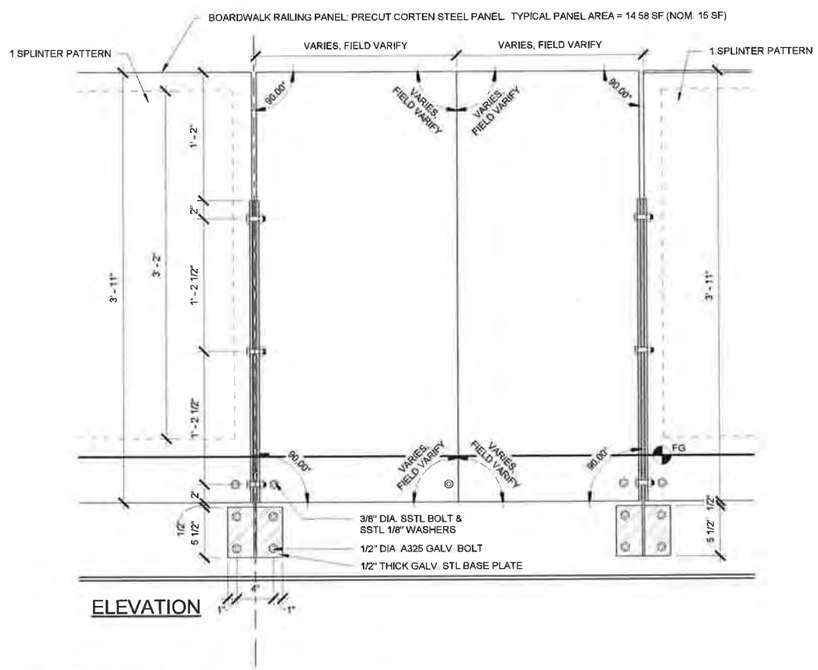
SHEET NAME:
LANDSCAPE ENLARGEMENTS

SHEET NUMBER
L401



1 OVERLOOK GUARDRAIL W/ POST
1 1/2" = 1'-0"



2 OVERLOOK GUARDRAIL @ CORNERS
1 1/2" = 1'-0"

Berger Partnership Project Number: 20154875.02 Plotted: 2/7/2019 9:32:22 AM Filename: C:\Users\matim\Documents\Totem Lake Park-PH1_matim@bergerpartnership.com.rvt

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City of Kirkland

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BNO19-01213
Page 13 of 25

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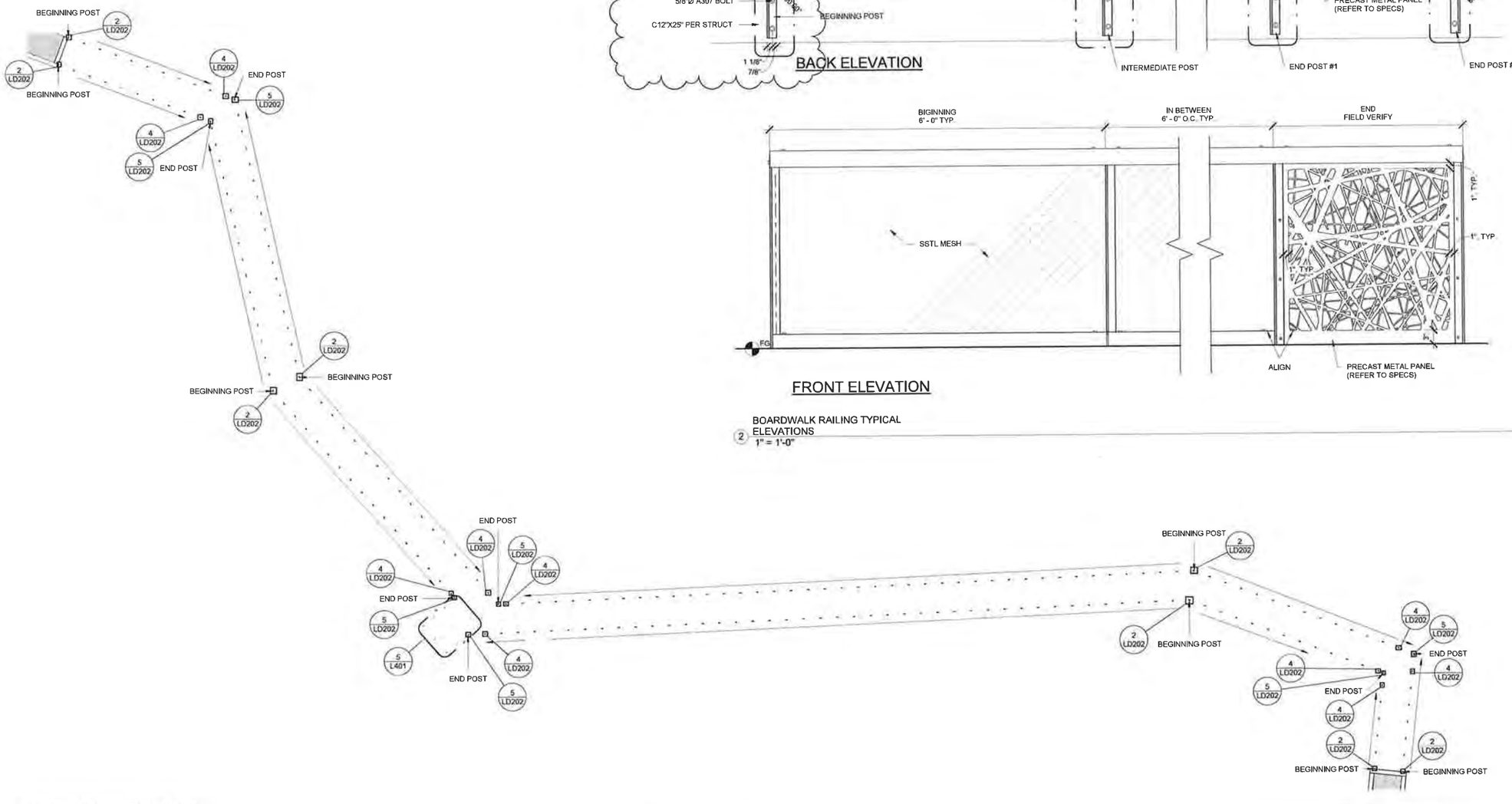
SHEET NAME
OVERLOOK DETAILS

SHEET NUMBER
LD106



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Totem Lake Park Phase 1

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1	Permit Response	2019/05/16

BNO19-01213
Page 14 of 25

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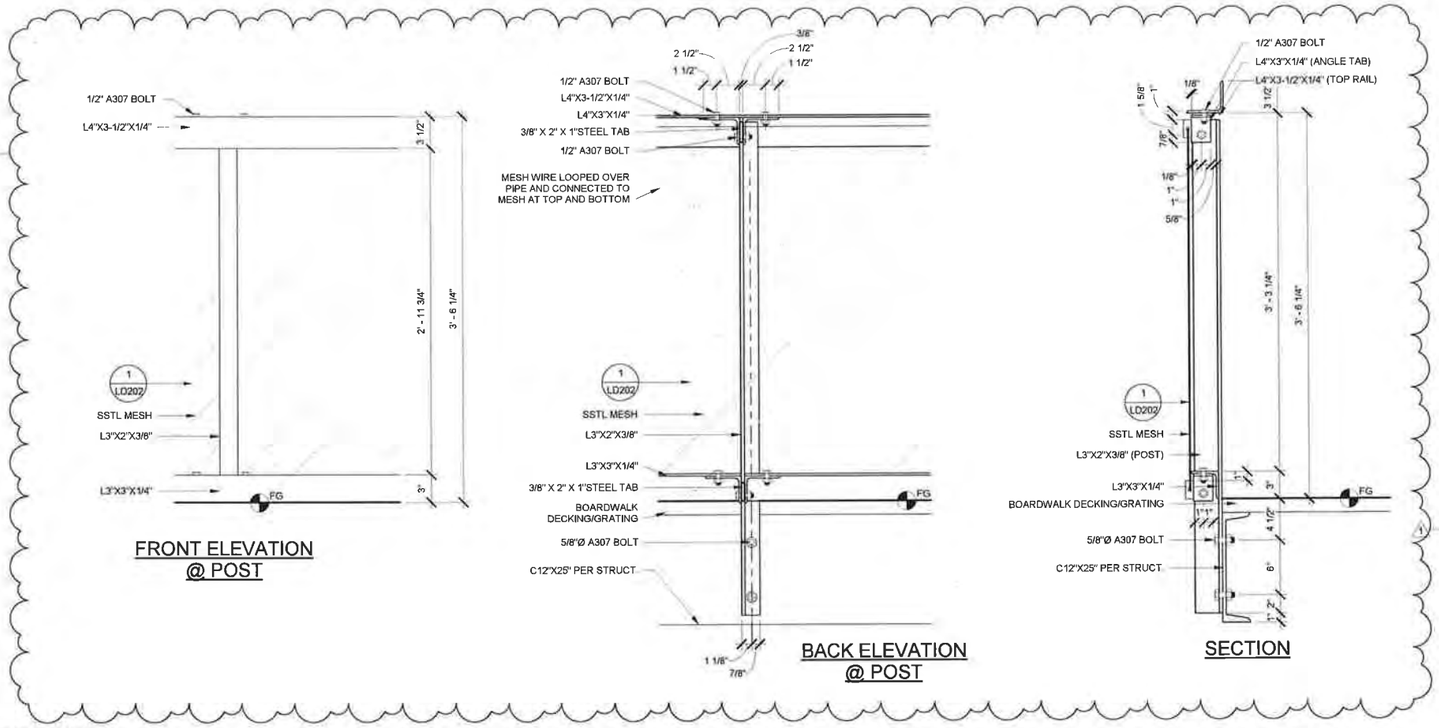
SHEET NAME
METAL GUARDRAIL DETAILS

SHEET NUMBER
LD200

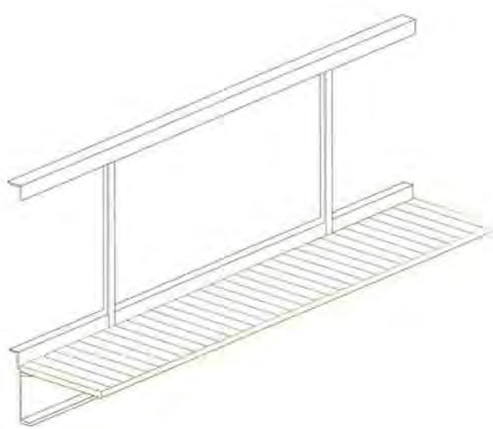
Berger Partnership Project Number 2015487.02 Plotted 5/15/2019 3:57:27 PM Filename C:\Users\angelo\Documents\Totem Lake Park-PH1_angeloHBCM.rvt



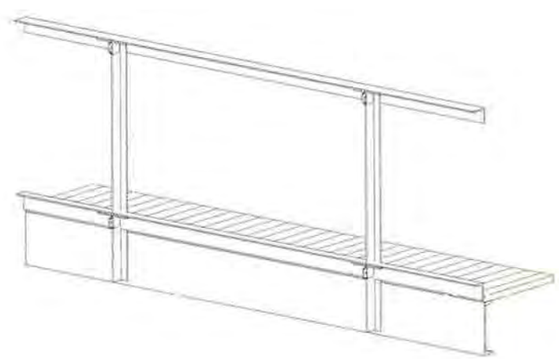
1 BOARDWALK RAILING
1 1/2" = 1'-0"

SSTL MESH SYSTEM REQUIREMENTS	
Note #	Comments
1	MESH SYSTEM/ASSEMBLY SHALL BE CAPABLE OF WITHSTANDING THE EFFECTS OF GRAVITY LOADS AND CONCENTRATED LOADS OF 200 LBS/FT (0.89 KN) APPLIED HORIZONTALLY ON AN AREA OF 1 SF.
2	MESH SYSTEM ASSEMBLY SHALL COMPLY WITH ALL ADA AND OSHA REGULATIONS AND SHALL BE FABRICATED AND INSTALLED TO COMPLY WITH APPLICABLE CODES AND REGULATIONS.
3	MAXIMUM OPENING IN MESH SYSTEM/ASSEBLY INCLUDING END CONDTIONS SHALL NOT PERMIT THE PASSAGE OF A 4" SPHERE ANYWHERE WITHIN THE SYSTEM OR BETWEEN THE SYSTEM AND THE POST/RAIL RAILING.
4	DESIGN TEMPERATURE RANGE: -30F TO 120F.
5	MESH SYSTEM ASSEMBLY SHALL E FABRICATED AND INSTALLED TO ACCOMODATE EXPANSION AND CONTRACTION OF METAL COMPONENTS WITHOUT CAUSING UNDUE STRESS, BUCKLING, OPENING OF JOINTS, AND DISTORTION.
6	TIGHTENING OF SYSTEM AND CABLES SHALL NOT RESULT IN EXCESSIVE DEFLECTION OR DISTORTION CAUSING SYSTEM TO NOT COMPLY WITH APPLICABLE CODES.
7	EXPOSED COMPONENTS SHALL BE OF THE SAME MATERIALS, COLOR AND FINISH AS MATERIAL TO WHICH APPLIED. ALL EXPOSED COMPONENTS SHALL HAVE THE SAME INHERENT TEXTURE AND COLOR.
8	COMPONENTS OF SYSTEM INCLUDE: END STOPS, CABLE/WIRE ROPE, TURNBUCKLES, MESH, THREADED ENDS, AND MESH WIRE.
9	ALL COMPONENTS SHALL BE STAINLESS STEEL.
10	ALL WIRE ROPE/CABLE SHALL BE PLUMB.
11	WIRE ROPE/CABLE SHALL BE 6X7 3/8" DIA. (10MM)
12	MESH SHALL BE WEB NET W/ INTEGRAL CLAMPS AT INTERSECTIONS, 5/64" DIA (2 MM) WIRE, 2-3/4" VERT. O.C. SPA. INTERSECTIONS X 4-57/64" HORIZ. O.C. SPA. INTERSECTIONS.
13	MESH SHALL BE MAXIMUM 40'-0" LENGTH BETWEEN ENDS AND WIRE ROPE/CABLES.
14	THE END OF EACH WIRE ROPE SHALL BE TIGHTENED TO 1000 LBS TENSION.

GENERAL RAILING NOTES	
Note #	Comments
1	RAILING MECHANICAL ATTACHMENTS SHALL UTILIZE LOCKING NUTS.
2	PROVIDE (6) SCULPTURE ART CONNECTIONS BRACKETS (REFER TO STRUCTURAL DETAIL) ARTWORK IS SEPARATE PROJECT - NOT INCLUDED, BUT CONNECTION BRACKETS ARE TO BE INCLUDED IN THIS PROJECT. REFER TO BOARDWALK SITE PLAN FOR LOCATIONS. CONFIRM LOCATIONS W/ LANDSCAPE ARCHITECT.
3	CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR METAL RAILINGS. SHOP DRAWINGS SHALL INCLUDE ALL MATERIALS, FINISHES, AND FASTENERS, SPLICESLOCATIONS OF ART CONNECTION BRACKETS AND CUTOUTS TO ACCOMODATE ARTWORK.
4	POSTS SHALL BE PLUMB.
5	POSTS SHALL BE LOCATED PER PLANS.
6	TOP RAILS AND PIPES SHALL BE PARALLEL TO BOARDWALK FINISH GRADE.
7	ALL MEMBERS, FASTENERS AND ATTACHMENT HARDWARE SHALL BE GALVANIZED STEEL UNLESS NOTED OTHERWISE.
8	SPLICES/JOINTS FOR TOP RAIL SHALL OCCUR CENTERED ON A POST SUCH THAT EACH END IS BOLTED TO ANGLE TABS.
9	FINISHED RAILING SHALL NOT PERMIT THE PASSAGE OF A 4" SPHERE.
10	FINISHED GUARDRAIL SHALL BE 3'-6 1/4" HEIGHT.
11	SPLICES FOR TOP AND BOTTOM PIPES SHALL BE SPACED AT MINIMUM 10' O.C.
12	PRECUT METAL PANELS SHALL BE POWDER COATED PER MANUFACTURER'S RECOMMENDATIONS. COLOR SHALL BE 'YELLOW YL01 CARDINAL'.
13	PRECUT METAL PANEL LENGTH SHALL BE FIELD MEASURED.



3 BOARDWALK RAILING FRONT (FOR REFERENCE ONLY)



2 BOARDWALK RAILING BACK (FOR REFERENCE ONLY)

berger PARTNERSHIP
727 Post Alley, Ste 2
Seattle, WA 98101
206 325 8677
bergerpartnership.com

City of Kirkland
Reviewed by T Elder
07/05/2019

Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

STATE OF WASHINGTON
ANDY MITTON
NO. 862 EXP. 6/30/2020
LANDSCAPE ARCHITECT

SET TYPE
100% Design Submittal

SET ISSUE DATE
02/08/2019

REVISIONS

Δ	DESCRIPTION	DATE
1	Permit Response	2019/05/16

BNO19-01213
Page 15 of 25

DRAWN/CHECKED
MM / AM

SHEET NAME
METAL GUARDRAIL DETAILS

SHEET NUMBER
LD201

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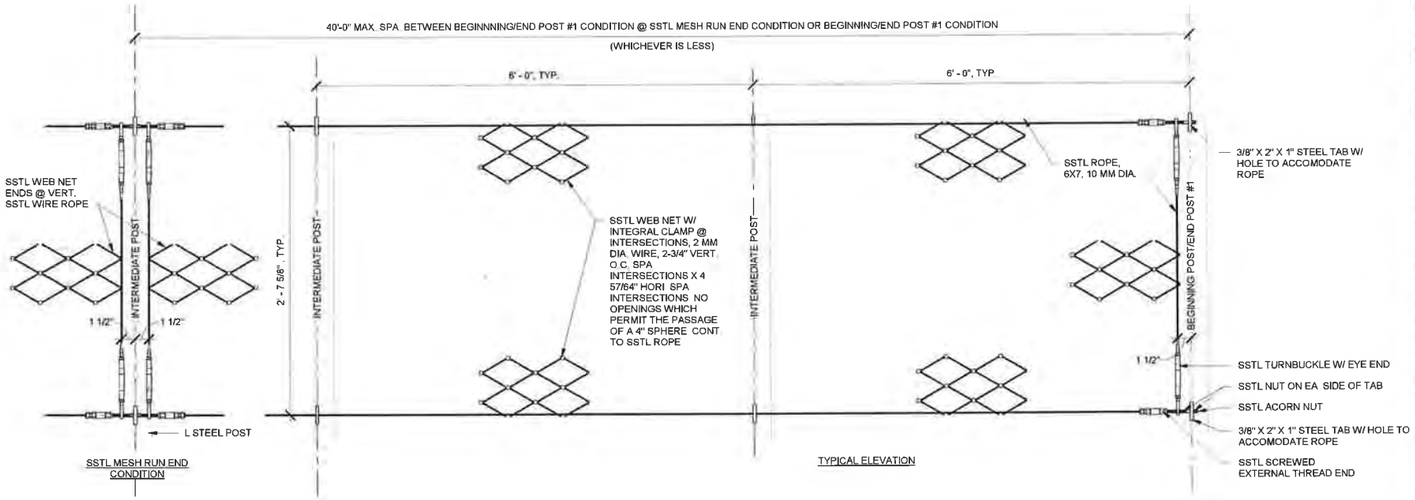
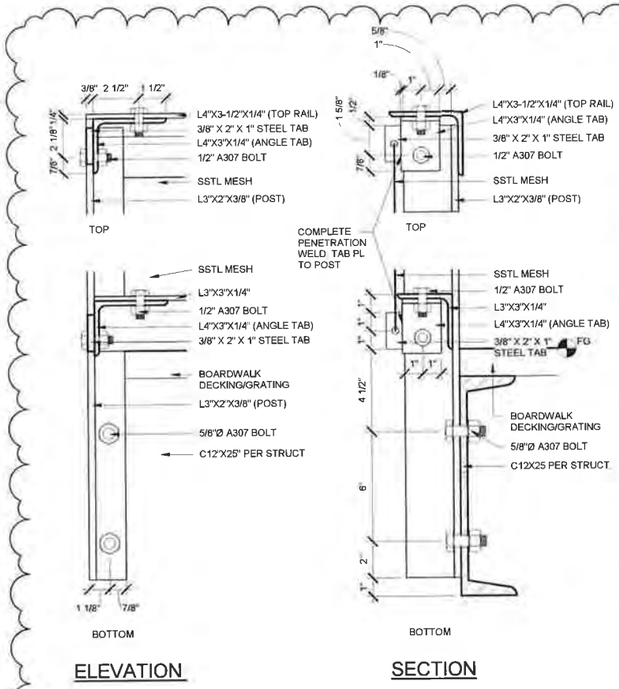
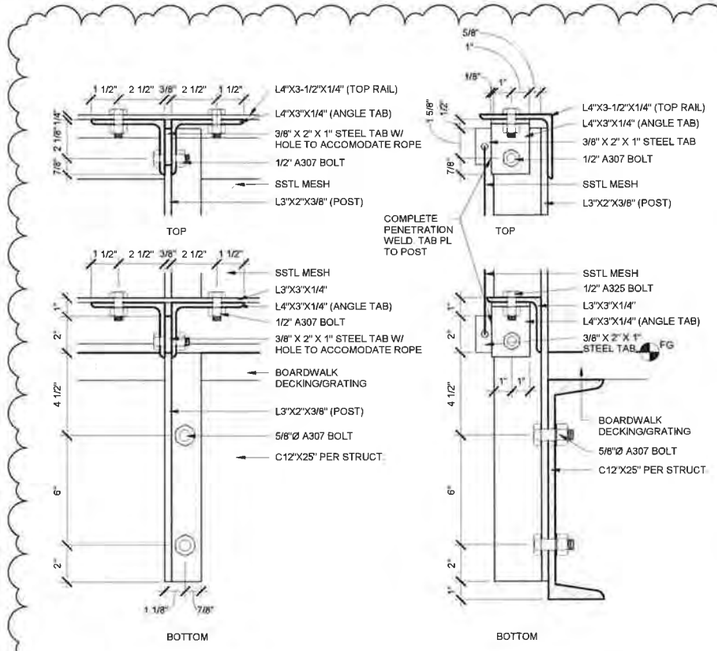
Berger Partnership Project Number: 2015875.02



1 BOARDWALK RAILING - WEB NET MESH
1 1/2" = 1'-0"



2 BOARDWALK RAILING @ BEGINNING POST
3" = 1'-0"



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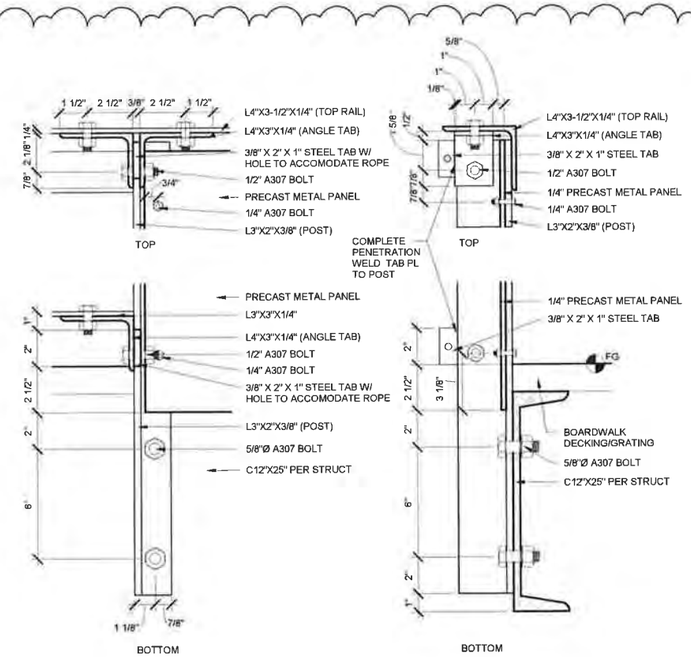

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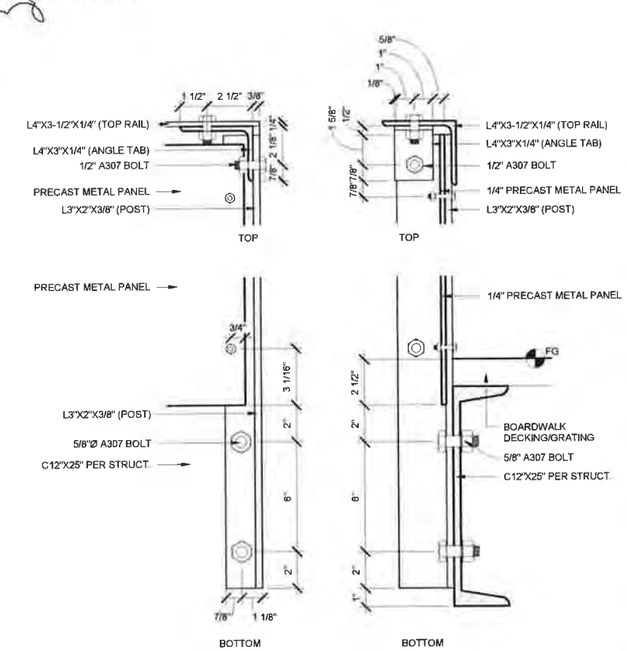
3" = 1'-0"



5 BOARDWALK RAILING @ END POST #2
3" = 1'-0"

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City of Kirkland
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07/05/2019

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STATE OF WASHINGTON
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BNO19-01213
Page 16 of 25

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SHEET NAME
METAL GUARDRAIL DETAILS

SHEET NUMBER
LD202

Berger Partnership Project Number 2015.4875.02
Plotted 5/15/2019 3:57:03 PM
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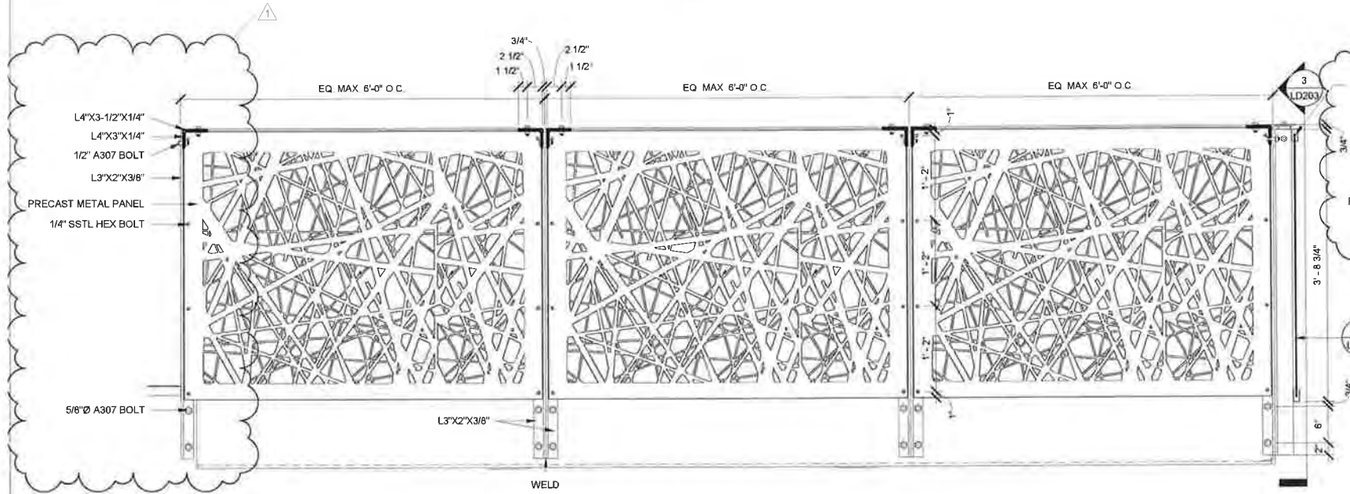
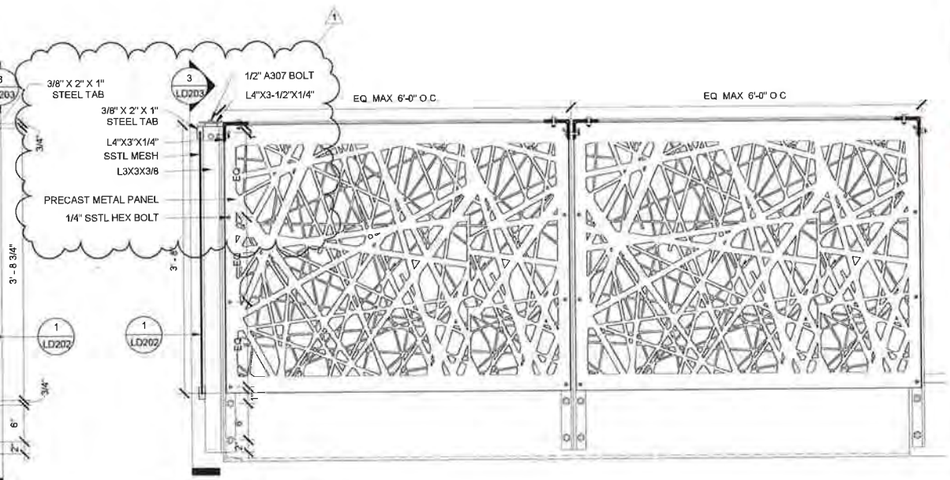


1 GUARDRAIL ELEVATION 3
1" = 1'-0"



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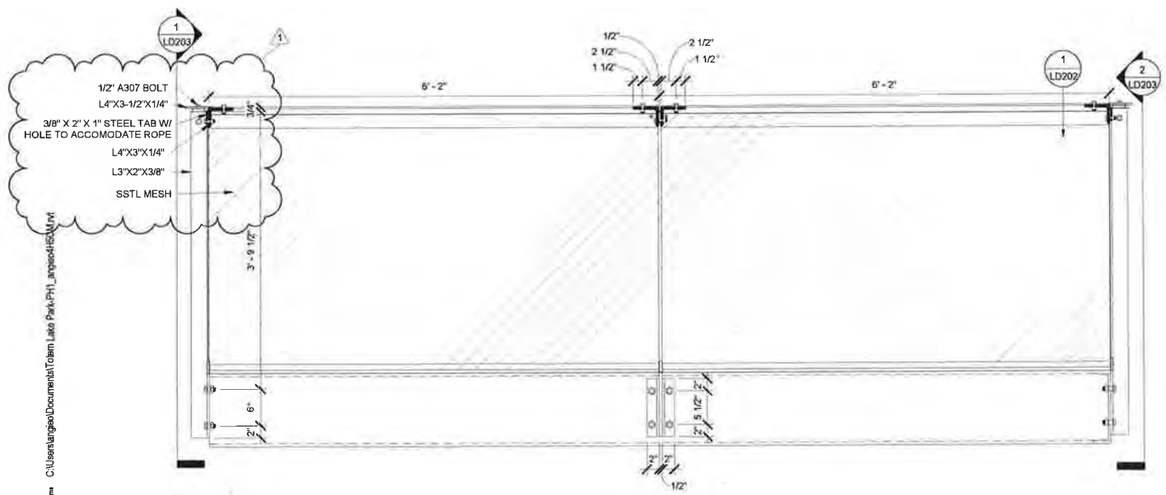

3 GUARDRAIL ELEVATION 2
1" = 1'-0"

4 OVERLOOK RAILING (FOR REFERENCE ONLY)

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Totem Lake Park Phase 1
City of Kirkland

12031 Totem Lake Way, Kirkland, WA 98034

STATE OF WASHINGTON ANDY MITTON NO. 882 EXP. 6/30/2020 LANDSCAPE ARCHITECT

SET TYPE:
100% Design Submittal

SET ISSUE DATE:
02/08/2019

REVISIONS:

Δ	DESCRIPTION	DATE
1	Permit Response	2019/05/16

DRAWN/CHECKED:
Author / Checker

SHEET NAME:
METAL GUARDRAIL @ BOARDWALK OVERLOOK

SHEET NO.
LD203

Berger Partnership Project number 2015487.02
Plotted 5/15/2019 3:57:17 PM
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General Structural Notes

THE FOLLOWING APPLY UNLESS SHOWN OTHERWISE ON THE DRAWINGS

CRITERIA

1. ALL MATERIALS, WORKMANSHIP, DESIGN, AND CONSTRUCTION SHALL CONFORM TO THE DRAWINGS, SPECIFICATIONS, AND THE INTERNATIONAL BUILDING CODE (2015 EDITION).

2. DESIGN LOADING CRITERIA:
   HANDRAILS AND GUARDS
   GUARDRAILS/BALCONY RAILS . . . . . 50 PLF
   GUARDRAILS/BALCONY RAILS CONCENTRATED LOAD . . . . . 200 LBS
   BOARDWALK
   FLOOR LIVE LOAD (WALKWAY) . . . . . 60 PSF
   DEFLECTION CRITERIA
   LIVE LOAD DEFLECTION L/360
   TOTAL LOAD DEFLECTION L/240
   ENVIRONMENTAL LOADS
   SNOW . . . . . 25PSF OVER BOARDWALK SURFACE
   WIND . . . . . GCpi=0.18, 110 MPH, RISK CATEGORY II, EXPOSURE "B"
   EARTHQUAKE . ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE
   LATERAL SYSTEM (RAMPED BOARDWALK): ORDINARY STEEL CONCENTRICALLY BRACED FRAMES, R=3.25
   SITE CLASS=E, Ss=1.25, Sds=0.75, S1=0.48, SD1=0.77, Cs=0.602, SDC E, Ie=1.0

3. STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ARCHITECTURAL DRAWINGS FOR BIDDING AND CONSTRUCTION. ARCHITECTURAL DRAWINGS ARE THE PRIME CONTRACT DRAWINGS. ANY DISCREPANCIES FOUND AMONG THE DRAWINGS, THE SPECIFICATION, THESE GENERAL NOTES AND THE SITE CONDITIONS SHALL BE REPORTED TO THE ARCHITECT, WHO SHALL CORRECT SUCH DISCREPANCY IN WRITING. ANY WORK DONE BY THE GENERAL CONTRACTOR AFTER DISCOVERY OF SUCH DISCREPANCY SHALL BE DONE AT THE GENERAL CONTRACTOR'S RISK.

4. PRIMARY STRUCTURAL ELEMENTS NOT DIMENSIONED ON THE STRUCTURAL PLANS AND DETAILS SHALL BE LOCATED BY THE ARCHITECTURAL PLANS AND DETAILS. VERTICAL DIMENSION CONTROL IS DEFINED BY THE ARCHITECTURAL SECTIONS AND PLANS. DETAILING AND SHOP DRAWING PRODUCTION FOR STRUCTURAL ELEMENTS WILL REQUIRE DIMENSIONAL INFORMATION CONTAINED IN BOTH ARCHITECTURAL AND STRUCTURAL DRAWINGS.

5. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY PRECAUTIONS AND THE METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES REQUIRED TO PERFORM THE CONTRACTORS WORK. THE STRUCTURAL ENGINEER HAS NO OVERALL SUPERVISORY AUTHORITY OR ACTUAL AND/OR DIRECT RESPONSIBILITY FOR THE SPECIFIC WORKING CONDITIONS AT THE SITE AND/OR FOR ANY HAZARDS RESULTING FROM THE ACTIONS OF ANY TRADE CONTRACTOR. THE STRUCTURAL ENGINEER HAS NO DUTY TO INSPECT, SUPERVISE, NOTE, CORRECT, OR REPORT ANY HEALTH OR SAFETY DEFICIENCIES TO THE OWNER, CONTRACTORS, OR OTHER ENTITIES OR PERSONS AT THE PROJECT SITE.

6. CONTRACTOR SHALL PROVIDE TEMPORARY BRACING FOR THE STRUCTURE AND STRUCTURAL COMPONENTS UNTIL ALL FINAL CONNECTIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH THE PLANS. CONFORM TO ASCE 37-14 "DESIGN LOADS ON STRUCTURES DURING CONSTRUCTION".

7. CONTRACTOR-INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION. CHANGES SHOWN ON SHOP DRAWINGS ONLY WILL NOT SATISFY THIS REQUIREMENT.

8. DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY INDICATED BUT ARE OF SIMILAR CHARACTER TO DETAILS SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED, SUBJECT TO REVIEW AND APPROVAL BY THE ARCHITECT AND THE STRUCTURAL ENGINEER. ALL TYPICAL NOTES AND DETAILS SHOWN ON DRAWINGS SHALL APPLY, UNLESS NOTED OTHERWISE. TYPICAL DETAILS MAY NOT NECESSARILY BE INDICATED ON THE PLANS BUT SHALL STILL APPLY AS SHOWN OR DESCRIBED IN THE DETAILS. WHERE TYPICAL DETAILS ARE NOTED ON THE PLANS, THE SPECIFIED TYPICAL DETAIL SHALL BE USED. WHERE NO TYPICAL DETAIL IS NOTED, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CHOOSE THE APPROPRIATE TYPICAL DETAIL FROM THOSE PROVIDED OR REQUEST ADDITIONAL INFORMATION. THE CONTRACTOR SHALL SUBMIT ALL PROPOSED ALTERNATE TYPICAL DETAILS TO THOSE PROVIDED WITH RELATED CALCULATIONS TO THE ENGINEER FOR APPROVAL PRIOR TO SHOP DRAWING PRODUCTION AND FIELD USE.

9. ALL STRUCTURAL SYSTEMS, WHICH ARE TO BE COMPOSED OF COMPONENTS TO BE FIELD ERECTED, SHALL BE SUPERVISED BY THE SUPPLIER DURING MANUFACTURING, DELIVERY, HANDLING, STORAGE AND ERECTION IN ACCORDANCE WITH INSTRUCTIONS PREPARED BY THE SUPPLIER.

10. SHOP DRAWINGS FOR THE FOLLOWING ITEMS SHALL BE SUBMITTED TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION OF THESE ITEMS.

    STRUCTURAL STEEL

    CONTRACTOR SHALL SUBMIT WALL ELEVATION DRAWINGS OF AT LEAST 1/8" = 1'-0" SCALE INDICATING LOCATIONS OF CONNECTION FMRFDMENT'S AND WALL OPENINGS FOR REVIEW PRIOR TO CONSTRUCTION. CONTRACTOR SHALL COORDINATE WALL ELEVATION DRAWINGS WITH REINFORCEMENT SHOP DRAWINGS.

    APPROVED SETS OF ALL SHOP DRAWINGS SHALL ALSO BE SUBMITTED TO THE BUILDING DEPARTMENT.

11. SHOP DRAWING REVIEW: DIMENSIONS AND QUANTITIES ARE NOT REVIEWED BY THE ENGINEER OF RECORD, THEREFORE MUST BE VERIFIED BY THE CONTRACTOR. CONTRACTOR SHALL REVIEW AND STAMP DRAWINGS PRIOR TO REVIEW BY ENGINEER OF RECORD. CONTRACTOR SHALL REVIEW DRAWINGS FOR CONFORMANCE WITH THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND OPERATIONS OF CONSTRUCTION, AND ALL SAFETY PRECAUTIONS AND PROGRAMS INCIDENTAL THERETO. SUBMITTALS SHALL INCLUDE A REPRODUCIBLE AND ONE COPY; REPRODUCIBLE WILL BE MARKED AND RETURNED WITHIN TWO WEEKS OF RECEIPT WITH A NOTATION INDICATING THAT THE SUBMITTAL HAS BEEN FOUND TO BE IN GENERAL CONFORMANCE WITH THE DESIGN OF THE BUILDING. THE SUBMITTED ITEMS SHALL NOT BE INSTALLED UNTIL THEY HAVE BEEN APPROVED BY THE BUILDING OFFICIAL.

    SHOP DRAWING SUBMITTALS PROCESSED BY THE ENGINEER ARE NOT CHANGE ORDERS. THE PURPOSE OF SHOP DRAWING SUBMITTALS BY THE CONTRACTOR IS TO DEMONSTRATE TO THE ENGINEER THAT THE CONTRACTOR UNDERSTANDS THE DESIGN CONCEPT, BY INDICATING WHICH MATERIAL IS INTENDED TO BE FURNISHED AND INSTALLED AND BY DETAILING THE INTENDED FABRICATION AND INSTALLATION METHODS. IF DEVIATIONS, DISCREPANCIES, OR CONFLICTS BETWEEN SHOP DRAWING SUBMITTALS AND THE CONTRACT DOCUMENTS ARE DISCOVERED EITHER PRIOR TO OR AFTER SHOP DRAWING SUBMITTALS ARE PROCESSED BY THE ENGINEER, THE DESIGN DRAWINGS AND SPECIFICATIONS SHALL CONTROL AND SHALL BE FOLLOWED.

QUALITY ASSURANCE

12. SPECIAL INSPECTION SHALL BE PROVIDED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND SECTIONS 110 AND 1705 OF THE INTERNATIONAL BUILDING CODE BY A QUALIFIED TESTING AGENCY DESIGNATED BY THE ARCHITECT, AND RETAINED BY THE BUILDING OWNER. THE ARCHITECT, STRUCTURAL ENGINEER, AND BUILDING DEPARTMENT SHALL BE FURNISHED WITH COPIES OF ALL INSPECTION AND TEST RESULTS. SPECIAL INSPECTION OF THE FOLLOWING TYPES OF CONSTRUCTION IS REQUIRED UNLESS NOTED OTHERWISE.

STRUCTURAL STEEL FABRICATION AND ERECTION	SEE SHEET SS003
DRIVEN DEEP FOUNDATION	SEE SHEET SS003
CONCRETE CONSTRUCTION	SEE SHEET SS003

    PERIODIC INSPECTION: INSPECTION SHALL BE PERFORMED AT INTERVALS NECESSARY TO CONFIRM THAT WORK REQUIRING SPECIAL INSPECTION IS IN COMPLIANCE WITH REQUIREMENTS.
    CONTINUOUS INSPECTION: INSPECTOR SHALL BE ONSITE AND OBSERVE THE WORK REQUIRING INSPECTION AT ALL TIMES THAT WORK IS PERFORMED.

GEOTECHNICAL

13. FOUNDATION NOTES: SUBGRADE PREPARATION INCLUDING DRAINAGE, EXCAVATION, COMPACTION, AND FILLING REQUIREMENTS, SHALL CONFORM STRICTLY WITH RECOMMENDATIONS GIVEN IN THE SOILS REPORT OR AS DIRECTED BY THE SOILS ENGINEER.

    PILE CAPACITY 2" DIAMETER SCHEDULE 80 . . . . . 4,000 LBS
    PILE CAPACITY 3" DIAMETER SCHEDULE 40 . . . . . 10,000 LBS
    PILE CAPACITY 4" DIAMETER SCHEDULE 40 . . . . . 20,000 LBS
    PILE CAPACITY 6" DIAMETER SCHEDULE 60 . . . . . 30,000 LBS

    SOILS REPORT REFERENCE: PROJECT NO. 170126E001, SEPTEMBER 28TH, 2017, TOTEM LAKE PARK

14. PIPE PILES SHOWN ON THE PLANS SHALL BE EITHER 2" DIAMETER (SCHEDULE 80), 3" DIAMETER (SCHEDULE 40) OR 4" DIAMETER (SCHEDULE 40). ALL PIPE PILES SHALL BE GALVANIZED PER THE GEOTECHNICAL REPORT. THE MAXIMUM CAPACITY OF THE PILE SHALL BE 4 KIPS FOR A 2" DIAMETER PILE AND 20 KIPS FOR A 4" DIAMETER PILE. ALL PILES SHALL BE DRIVEN TO REFUSAL IN ACCORDANCE WITH THE GEOTECHNICAL REPORT. THE MAXIMUM PILE ECCENTRICITY SHALL BE 2 INCHES. CONTINUOUS SPECIAL INSPECTION IS REQUIRED FOR DRIVEN DEEP FOUNDATION ELEMENTS. SEE PLANS FOR OTHER SIZES, SPACING, AND CRITERIA.

CONCRETE

15. CONCRETE SHALL BE MIXED, PROPORTIONED, CONVEYED AND PLACED IN ACCORDANCE WITH ACI 301, INCLUDING TESTING PROCEDURES. CONCRETE SHALL ATTAIN A 28-DAY STRENGTH OF f'c = 4,000 PSI AND MIX SHALL CONTAIN NOT LESS THAN 5-1/2 SACKS OF CEMENT PER CUBIC YARD AND SHALL BE PROPORTIONED TO PRODUCE A SLUMP OF 5" OR LESS. REQUIRED CONCRETE STRENGTH IS BASED ON THE DURABILITY REQUIREMENTS OF SECTION 1904 OF THE IBC.

16. ALL CONCRETE WITH SURFACES EXPOSED TO WEATHER OR STANDING WATER SHALL BE AIR-ENTRAINED WITH AN AIR-ENTRAINING AGENT CONFORMING TO ASTM C260, C494, AND C618. TOTAL AIR CONTENT FOR FROST-RESISTANT CONCRETE SHALL BE IN ACCORDANCE WITH ACI 318-14, TABLE 19.3.2.1 MODERATE EXPOSURE, F1.

17. REINFORCING STEEL SHALL CONFORM TO ASTM A615 (INCLUDING SUPPLEMENT S1), GRADE 60, FY = 60,000 PSI.

18. DETAILING OF REINFORCING STEEL (INCLUDING HOOKS AND BENDS) SHALL BE IN ACCORDANCE WITH ACI 315-99 AND 318-14. LAP ALL CONTINUOUS REINFORCEMENT #5 AND SMALLER 40 BAR DIAMETERS OR 2'-0" MINIMUM. PROVIDE CORNER BARS AT ALL WALL AND FOOTING INTERSECTIONS. LAP CORNER BARS #5 AND SMALLER 40 BAR DIAMETERS OR 2'-0" MINIMUM. LAPS OF LARGER BARS SHALL BE MADE IN ACCORDANCE WITH ACI 318-14, CLASS B. LAP ADJACENT MATS OF WELDED WIRE FABRIC A MINIMUM OF 8" AT SIDES AND ENDS.

    NO BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE SHALL BE FIELD BENT UNLESS SPECIFICALLY SO DETAILED OR APPROVED BY THE STRUCTURAL ENGINEER.

19. CONCRETE PROTECTION (COVER) FOR REINFORCING STEEL SHALL BE AS FOLLOWS:

    FOOTINGS AND OTHER UNFORMED SURFACES CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH . . . . . 3"
    FORMED SURFACES EXPOSED TO EARTH OR WEATHER (#5 BARS OR SMALLER). . 1-1/2"
    COLUMN TIES OR SPIRALS AND BEAM STIRRUPS . . . . . 1-1/2"

20. CAST-IN-PLACE CONCRETE: SEE ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND DIMENSIONS OF DOOR AND WINDOW OPENINGS IN ALL CONCRETE WALLS. SEE MECHANICAL DRAWINGS FOR SIZE AND LOCATION OF MISCELLANEOUS MECHANICAL OPENINGS THROUGH CONCRETE WALLS. SEE ARCHITECTURAL DRAWINGS FOR ALL GROOVES, NOTCHES, CHAMFERS, FEATURE STRIPS, COLOR, TEXTURE, AND OTHER FINISH DETAILS AT ALL EXPOSED CONCRETE SURFACES, BOTH CAST-IN-PLACE AND PRECAST.

21. NON-SHRINK GROUT SHALL BE FURNISHED BY AN APPROVED MANUFACTURER AND SHALL BE MIXED AND PLACED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED RECOMMENDATIONS. GROUT STRENGTH SHALL BE AT LEAST EQUAL TO THE MATERIAL ON WHICH IT IS PLACED (4000 PSI MINIMUM).

ANCHORAGE

22. EXPANSION BOLTS INTO CONCRETE SHALL BE HOT DIPPED GALVANIZED "STRONG-BOLT 2" WEDGE ANCHORS AS MANUFACTURED BY THE SIMPSON STRONG TIE COMPANY AND INSTALLED IN STRICT CONFORMANCE TO ICC-ES REPORT NUMBER ESR-3037, INCLUDING MINIMUM EMBEDMENT REQUIREMENTS. PERIODIC SPECIAL INSPECTION IS REQUIRED TO VERIFY ANCHOR TYPE, ANCHOR DIMENSIONS, ANCHOR LOCATION, TIGHTENING TORQUE, HOLE DIMENSIONS, ANCHOR EMBEDMENT, AND ADHERENCE TO THE INSTALLATION INSTRUCTIONS.

23. EPOXY-GROUTED ITEMS (THREADED RODS OR REINFORCING BAR) SPECIFIED ON THE DRAWINGS SHALL BE INSTALLED USING "SET-XP" HIGH STRENGTH EPOXY AS MANUFACTURED BY THE SIMPSON STRONG, TIE COMPANY. INSTALL IN STRICT ACCORDANCE WITH ICC-ES REPORT NO. ESR-2508. MINIMUM BASE MATERIAL TEMPERATURE IS 50 DEGREES, F. RODS SHALL BE ASTM GALVANIZED A-36 UNLESS OTHERWISE NOTED. PERIODIC SPECIAL INSPECTION OF INSTALLATION IS REQUIRED TO VERIFY ANCHOR OR EMBEDDED BAR TYPE AND DIMENSIONS, LOCATION, ADHESIVE IDENTIFICATION AND EXPIRATION, HOLE DIMENSIONS, HOLE CLEANING PROCEDURE, ANCHOR EMBEDMENT, AND ADHERENCE TO THE INSTALLATION INSTRUCTIONS. CONTINUOUS SPECIAL INSPECTION IS REQUIRED FOR HORIZONTAL AND OVERHEAD INSTALLATIONS.

STEEL

24. STRUCTURAL STEEL DESIGN, FABRICATION, AND ERECTION SHALL BE BASED ON:

    A. AISC 360 AND SECTION 2205.2 OF THE INTERNATIONAL BUILDING CODE.
    B. APRIL 14, 2010 AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES AMENDED AS FOLLOWS: AS NOTED IN THE CONTRACT DOCUMENTS, BY THE DELETION OF PARAGRAPH 4.4.1, AND REVISE REFERENCE FROM "STRUCTURAL DESIGN DRAWINGS" TO "CONTRACT DOCUMENTS" IN PARAGRAPH 3.1.
    C. SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS.

25. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

TYPE OF MEMBER	ASTM SPECIFICATION	FY
A. WIDE FLANGE SHAPES	A992	50 KSI
B. OTHER SHAPES, PLATES, AND RODS	A36	36 KSI
C. PIPE COLUMNS	A53 (E OR S, GR.B)	35 KSI
D. STRUCTURAL TUBING	A500 (GR.B) OR ASTM A1085	
-SQUARE OR RECTANGULAR		46 KSI
-ROUND		42 KSI
E. CONNECTION BOLTS (3/4" ROUND, UNLESS SHOWN OTHERWISE)	A325-N	

26. ARCHITECTURALLY EXPOSED STRUCTURAL STEEL SHALL CONFORM TO SECTION 10 OF THE AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES.

27. ALL STEEL AND BOLTED CONNECTIONS EXPOSED TO THE WEATHER OR IN CONTACT WITH GROUND SHALL BE CORROSION PROTECTED BY GALVANIZATION (HOT DIPPED GALVANIZED), UNLESS OTHERWISE NOTED.

28. ALL A-325N CONNECTION BOLTS NEED ONLY BE TIGHTENED TO A SNUG TIGHT CONDITION, DEFINED AS THE TIGHTNESS THAT EXISTS WHEN ALL PLIES IN A JOINT ARE IN FIRM CONTACT. THIS MAY BE ATTAINED BY A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF AN IRONWORKER USING AN ORDINARY SPUD WRENCH.

29. ALL CAST-IN-PLACE ANCHORS EMBEDDED IN CONCRETE SHALL BE A307 HEADED BOLTS OR A36 THREADED ROD WITH AN ASTM 563 HEAVY HEX NUT TACK WELDED ON THE EMBEDDED END.

30. ALL WELDING SHALL BE IN CONFORMANCE WITH AISC AND AWS STANDARDS AND SHALL BE PERFORMED BY WABO CERTIFIED WELDERS USING E70XX ELECTRODES. ONLY PREQUALIFIED WELDS (AS DEFINED BY AWS) SHALL BE USED. ALL COMPLETE JOINT PENETRATION GROOVE WELDS SHALL BE MADE WITH A FILLER MATERIAL THAT HAS A MINIMUM CVN TOUGHNESS OF 20 FT-LBS AT -20 DEGREES F AND 40 FT - LBS AT 70 DEGREES F, AS DETERMINED BY AWS CLASSIFICATION OR MANUFACTURER CERTIFICATION.

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City of Kirkland
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07/05/2019

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Totem Lake Park Phase 1
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12031 Totem Lake Way, Kirkland, WA 98034

SET TYPE
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2/8/2019

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BNO19-01213
Page 18 of 25

DRAWN/CHECKED
NHD/GFJ

SHEET NAME
GENERAL STRUCTURAL NOTES

SHEET NUMBER
SS001

General Structural Notes

THE FOLLOWING APPLY UNLESS SHOWN OTHERWISE ON THE DRAWINGS

WOOD

31. FRAMING LUMBER SHALL BE S-DRY, KD, OR MC-19, AND GRADED AND MARKED IN CONFORMANCE WITH WCLIB STANDARD "GRADING RULES FOR WEST COAST LUMBER NO. 17", OR WWPA STANDARD, "WESTERN LUMBER GRADING RULES 2011". FURNISH TO THE FOLLOWING MINIMUM STANDARDS:

JOISTS AND BEAMS	(2X & 3X MEMBERS)	HEM-FIR NO. 2 MINIMUM BASE VALUE, Fb = 850 PSI
	(4X MEMBERS)	DOUGLAS FIR-LARCH NO. 1 MINIMUM BASE VALUE, Fb = 1000 PSI
BEAMS	(INCL. 6X AND LARGER)	DOUGLAS FIR-LARCH NO. 1 MINIMUM BASE VALUE, Fb = 1350 PSI
POSTS	(4X MEMBERS)	DOUGLAS FIR-LARCH NO. 2 MINIMUM BASE VALUE, Fc = 1350 PSI
	(6X AND LARGER)	DOUGLAS FIR-LARCH NO. 1 MINIMUM BASE VALUE, Fc = 1000 PSI
STUDS, PLATES & MISC. FRAMING:		DOUGLAS-FIR-LARCH OR HEM-FIR NO. 2

32. ALL WOOD IN DIRECT CONTACT WITH CONCRETE OR MASONRY SHALL BE PRESSURE-TREATED WITH AN APPROVED PRESERVATIVE OR (2) LAYERS OF ASPHALT IMPREGNATED BUILDING PAPER SHALL BE PROVIDED BETWEEN UNTREATED WOOD AND CONCRETE OR MASONRY.

33. PRESERVATIVE TREATED WOOD SHALL BE TREATED PER AWPA STANDARD U1 TO THE USE CATEGORY EQUAL TO OR HIGHER THAN THE INTENDED APPLICATION. TREATED WOOD FOR ABOVE GROUND USE SHALL BE TREATED TO AWPA UC3B. WOOD IN CONTINUOUS CONTACT WITH FRESH WATER OR SOIL SHALL BE TREATED TO AWPA UC4A. WOOD FOR USE IN PERMANENT FOUNDATIONS SHALL BE TREATED TO AWPA UC4B.

34. WOOD TREATED FOR FIRE RESISTANCE SHALL MEET THE REQUIREMENTS OF ASTM E 84 OR UL 723 AND HAVE A LISTED FLAME SPREAD INDEX OF 25 OR LESS. FIRE RETARDANT TREATED LUMBER AND WOOD STRUCTURAL PANELS SHALL BE LABELED IN ACCORDANCE WITH IBC 2303.2.4. WOOD TREATED FOR FIRE PROTECTION FOR USE IN INTERIOR ABOVE GROUND CONSTRUCTION AND CONTINUOUSLY PROTECTED FROM WEATHER AND OTHER SOURCES OF MOISTURE SHALL BE TREATED TO AWPA UCFA. WOOD TREATED FOR FIRE PROTECTION FOR USE IN EXTERIOR ABOVE GROUND CONSTRUCTION AND SUBJECT TO WETTING OR OTHER SOURCES OF MOISTURE SHALL BE TREATED TO AWPA UCFB.

35. FASTENERS AND TIMBER CONNECTORS USED WITH TREATED WOOD SHALL HAVE CORROSION RESISTANCE AS INDICATED IN THE FOLLOWING TABLE, UNLESS OTHERWISE NOTED.

WOOD TREATMENT	CONDITION	PROTECTION
HAS NO AMMONIA CARRIER	INTERIOR DRY	G90 GALVANIZED
CONTAINS AMMONIA CARRIER	INTERIOR DRY	G185 OR A185 HOT DIPPED OR CONTINUOUS HOT-GALVANIZED PER ASTM A653
CONTAINS AMMONIA CARRIER	INTERIOR WET	TYPE 304 OR 316 STAINLESS
CONTAINS AMMONIA CARRIER	EXTERIOR	TYPE 304 OR 316 STAINLESS
AZCA	ANY	TYPE 304 OR 316 STAINLESS

INTERIOR DRY CONDITIONS SHALL HAVE WOOD MOISTURE CONTENT LESS THAN 19%. WOOD MOISTURE CONTENT IN OTHER CONDITIONS (INTERIOR WET, EXTERIOR WET, AND EXTERIOR DRY) IS EXPECTED TO EXCEED 19%. CONNECTORS AND THEIR FASTENERS SHALL BE THE SAME MATERIAL. COMPLY WITH THE TREATMENT MANUFACTURERS RECOMMENDATIONS FOR PROTECTION OF METAL.

36. TIMBER CONNECTORS CALLED OUT BY LETTERS AND NUMBERS SHALL BE "STRONG-TIE" BY SIMPSON COMPANY, AS SPECIFIED IN THEIR CATALOG NUMBER C-C-2017. EQUIVALENT DEVICES BY OTHER MANUFACTURERS MAY BE SUBSTITUTED, PROVIDED THEY HAVE ICC-ES APPROVAL FOR EQUAL OR GREATER LOAD CAPACITIES. PROVIDE NUMBER AND SIZE OF FASTENERS AS SPECIFIED BY MANUFACTURER FOR MAXIMUM LOAD CARRYING CAPACITY. CONNECTORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

ALL 2X JOISTS SHALL BE CONNECTED TO FLUSH BEAMS WITH "LUS" SERIES JOIST HANGERS. ALL TJI JOISTS SHALL BE CONNECTED TO FLUSH BEAMS WITH "ITS" SERIES JOIST HANGERS. ALL DOUBLE-JOIST BEAMS SHALL BE CONNECTED TO FLUSH BEAMS WITH "MIT" SERIES JOIST HANGERS.

WHERE CONNECTOR STRAPS CONNECT TWO MEMBERS, PLACE ONE-HALF OF THE NAILS OR BOLTS IN EACH MEMBER.

ALL SHIMS SHALL BE SEASONED AND DRIED AND THE SAME GRADE (MINIMUM) AS MEMBERS CONNECTED.

37. WOOD FASTENERS

A. NAIL SIZES SPECIFIED ON DRAWINGS ARE BASED ON THE FOLLOWING SPECIFICATIONS:

SIZE	LENGTH	DIAMETER
6d	2"	0.113"
8d	2-1/2"	0.131"
10d	3"	0.148"
12d	3-1/4"	0.148"
16d BOX	3-1/2"	0.135"

IF CONTRACTOR PROPOSES THE USE OF ALTERNATE NAILS, THEY SHALL SUBMIT NAIL SPECIFICATIONS TO THE STRUCTURAL ENGINEER (PRIOR TO CONSTRUCTION) FOR REVIEW AND APPROVAL.

NAILS - PLYWOOD (APA RATED SHEATHING) FASTENERS TO FRAMING SHALL BE DRIVEN FLUSH TO FACE OF SHEATHING WITH NO COUNTERSINKING PERMITTED. TOE-NAILS SHALL BE DRIVEN AT AN ANGLE OF 30 DEGREES WITH THE MEMBER AND STARTED 1/3 THE LENGTH OF THE NAIL FROM THE MEMBER END.

B. ALL BOLTS IN WOOD MEMBERS SHALL CONFORM TO ASTM A307. PROVIDE WASHERS UNDER THE HEADS AND NUTS OF ALL BOLTS AND LAG BOLTS BEARING ON WOOD. INSTALLATION OF LAG BOLTS SHALL CONFORM TO THE NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION WITH A LEAD BORE HOLE OF 60 TO 70 PERCENT OF THE SHANK DIAMETER. LEAD HOLES ARE NOT REQUIRED FOR 3/8" AND SMALLER LAG SCREWS.

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Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

SET TYPE
100% Design Submittal

SET ISSUE DATE
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REVISIONS

BNO19-01213
Page 19 of 25

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SHEET NAME
GENERAL STRUCTURAL NOTES

SHEET NUMBER
SS002

Statement of Special Inspections

Special inspections shall be provided per the requirements of IBC section 1705 and as noted herein

DRIVEN DEEP FOUNDATION ELEMENTS

VERIFICATION AND INSPECTION TASK	CONTINUOUS	PERIODIC	COMMENTS	REFERENCES
1. VERIFY ELEMENT MATERIALS, SIZES AND LENGTHS COMPLY WITH THE REQUIREMENTS	X			IBC 1705.7
2. OBSERVE DRIVING OPERATIONS AND MAINTAIN COMPLETE AND ACCURATE RECORDS FOR EACH ELEMENT	X			
5. SEE STEEL CONSTRUCTION INSPECTION REQUIREMENTS FOR STEEL PILE ELEMENTS				IBC 1705.2

STRUCTURAL STEEL

VERIFICATION AND INSPECTION TASK	CONTINUOUS	PERIODIC	COMMENTS	REFERENCE
1. FABRICATED AND ERECTED STEEL:				
a. COMPLIANCE WITH DETAILS SHOWN ON CONSTRUCTION DOCUMENTS		X		AISC 360, SECTION N5.7
b. APPLICATION OF JOINT DETAILS AT EACH CONNECTION		X		
2. MATERIAL VERIFICATION OF WELD FILLER MATERIALS:				
a. IDENTIFICATION MARKINGS TO CONFORM TO AWS SPECIFICATIONS IN THE APPROVED CONSTRUCTION DOCUMENTS		X		AISC 360, SECTION A3.5 AND APPLICABLE AWS A5 DOCUMENTS
b. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED		X		
3. INSPECTION OF WELDING:				
a. COMPLETE AND PARTIAL JOINT PENETRATION GROOVE WELD	X			IBC 1705.2 AWS D1.1
b. SINGLE PASS FILLET WELDS $\leq$ 5/16"		X		

CONCRETE AND CONCRETE REINFORCING

VERIFICATION AND INSPECTION TASK	CONTINUOUS	PERIODIC	COMMENTS	REFERENCE
1. INSPECTION OF REINFORCING STEEL INCLUDING PLACEMENT		X		IBC 1908.4 ACI 318: Ch. 20, 25.2, 25.3, 26.6.1–26.6.3
2. INSPECTION OF ANCHORS CAST IN CONCRETE		X		ACI 318: 17.8.2
3. INSPECTION OF POST-INSTALLED ANCHORS IN HARDENED CONCRETE MEMBERS:				
a. ADHESIVE ANCHORS	X		SEE ICC-ES ESR REPORT FOR ADDITIONAL REQUIREMENTS	ACI 318: 17.8.2.4
4. VERIFYING USE OF REQUIRED DESIGN MIX		X		IBC 1904.1 IBC 1904.2 IBC 1908.2 IBC 1908.3 ACI 318: Ch. 19, 26.4.3, 26.4.4
5. INSPECT FORMWORK FOR GENERAL CONFORMITY TO APPROVED PLANS FOR SIZE, SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED		X		ACI 318: 26.11.1.2(b)

NOTES

1. TESTING AND SPECIAL INSPECTION REPORTS SHALL BE PREPARED FOR EACH INSPECTION ITEM ON A DAILY BASIS WHENEVER WORK IS PERFORMED ON THAT ITEM. REPORTS SHALL BE DISTRIBUTED TO OWNER, CONTRACTOR, BUILDING OFFICIAL, ARCHITECT, AND STRUCTURAL ENGINEER.
2. "STRUCTURAL STEEL" REFERS TO STEEL CONSTRUCTION DEFINED BY AISC 303, "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES."

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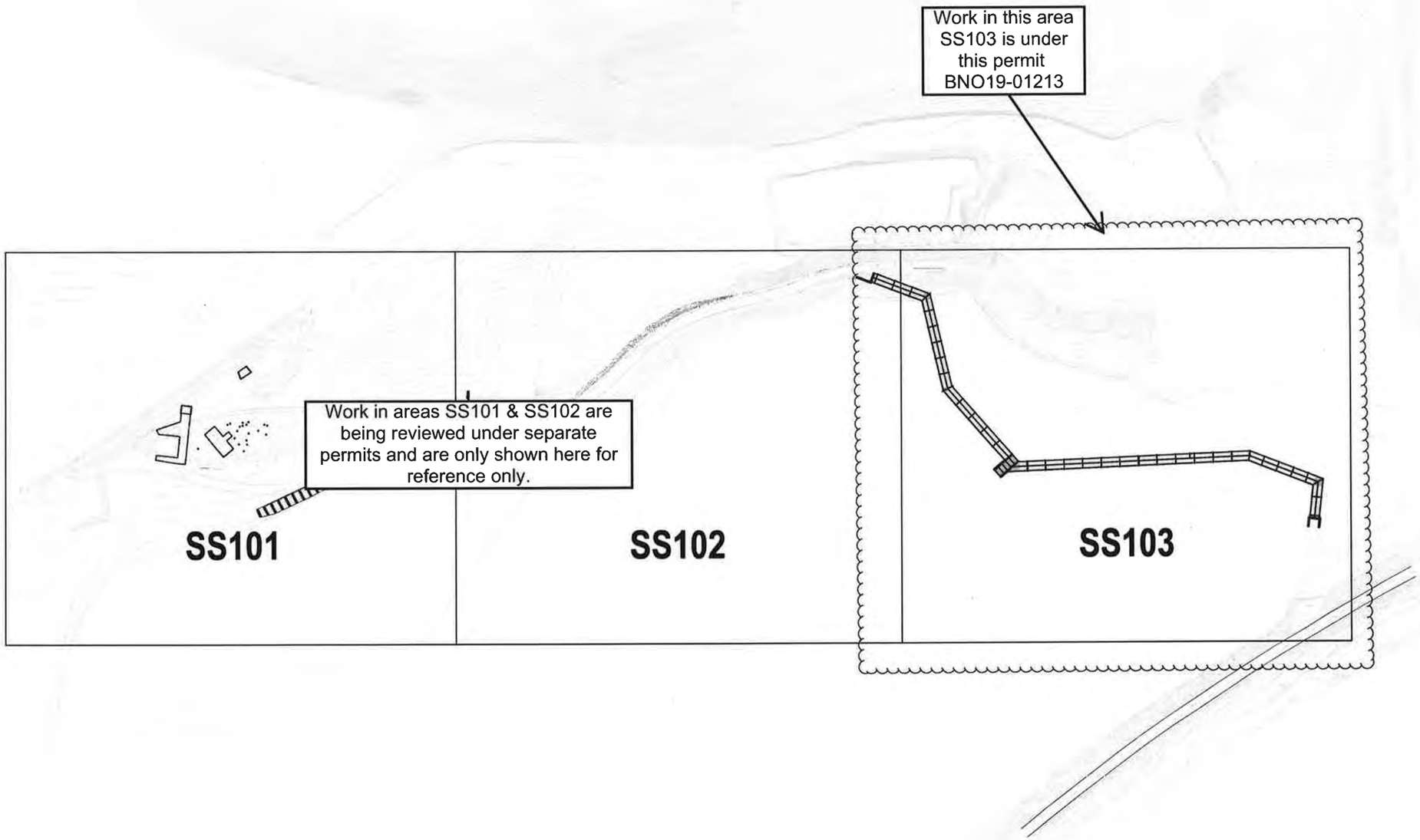
SHEET NAME:
STATEMENT OF SPECIAL INSPECTIONS

SHEET NUMBER
SS003



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BNO19-01213
Page 21 of 25

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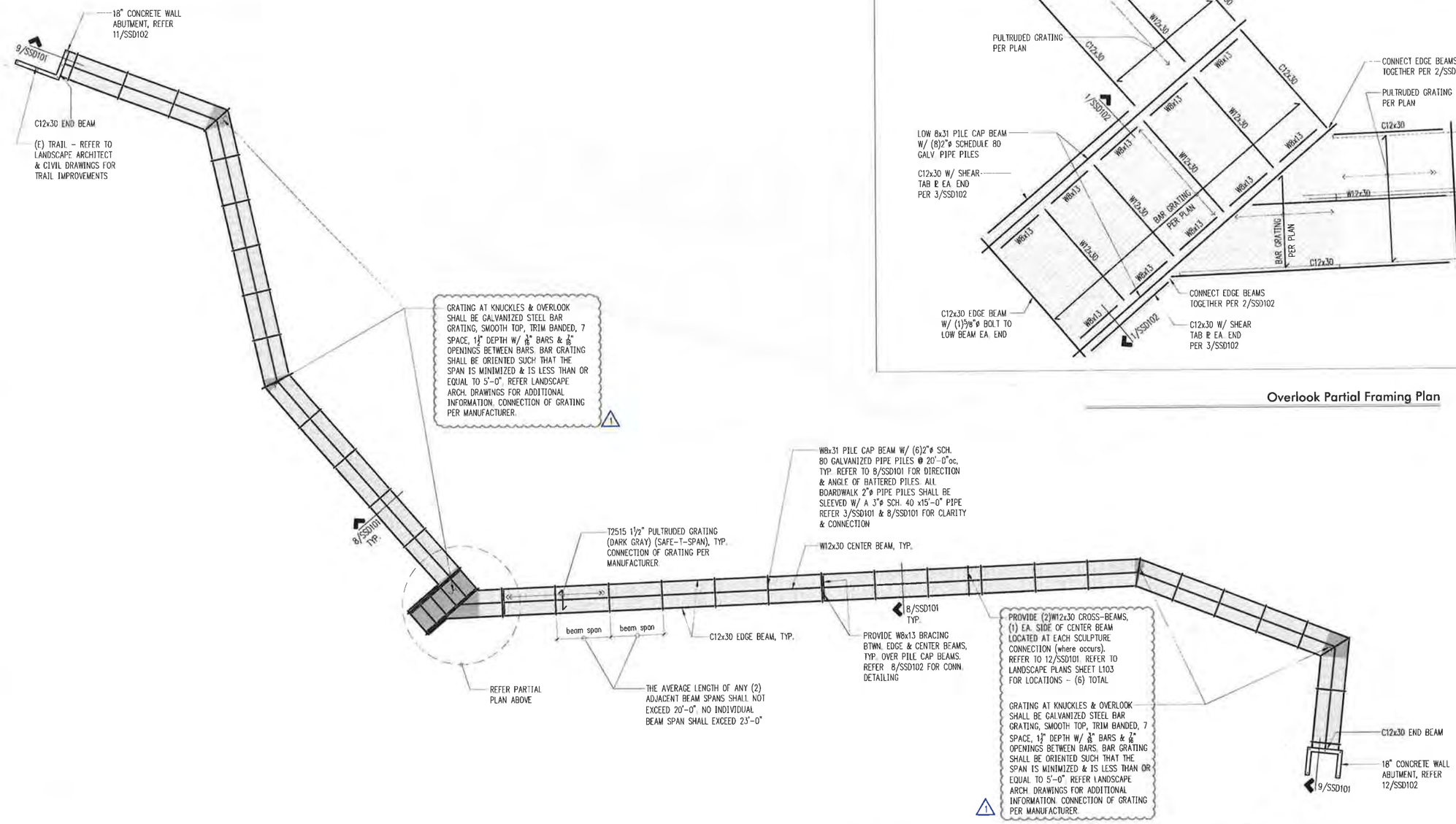
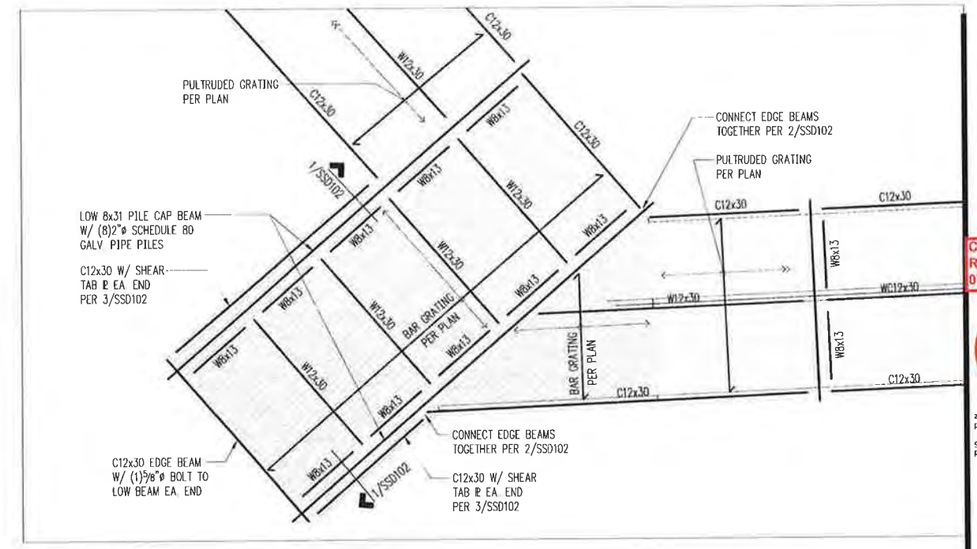
SHEET NAME
STRUCTURAL SHEET LAYOUT

SHEET NUMBER
SS100



Boardwalk Plan

Scale: 1"=20'-0"



Overlook Partial Framing Plan

Pin Pile Plan Notes

1. PIPE PILES SHALL BE 2"ø (SCHEDULE 80). ALL 2"ø PIPE PILES SUPPORTING ELEVATED BOARDWALK FRAMING SHALL BE SLEEVED WITH A 3"ø SCHEDULE 40 X 15'-0" PIPE. REFER 3/SSD101 AND 8/SSD101 FOR CONNECTION DETAILING.
2. ALL PILES SHALL BE DRIVEN TO REFUSAL. REFER TO THE GEOTECHNICAL REPORT AND PIPE PILE SCHEDULE THIS SHEET FOR MINIMUM HAMMER SIZE (POUNDS) AND REFUSAL CRITERIA.
3. MINIMUM EMBEDMENT: ALL PILES SHALL BE DRIVEN COMPLETELY THROUGH LOOSE MATERIAL INTO THE UNDERLYING COMPETENT NATURAL SEDIMENTS AS DETERMINED IN THE FIELD PER THE GEOTECHNICAL REPORT.
4. MONITORING: CONTINUOUS SPECIAL INSPECTION IS REQUIRED DURING INSTALLATION OF ALL PIPE PILES.
5. LOAD TESTING: REFER TO THE GEOTECHNICAL REPORT AND PIPE PILE SCHEDULE THIS SHEET FOR LOAD TESTING RECOMMENDATIONS/REQUIREMENTS.
6. REFER GENERAL STRUCTURAL NOTES FOR ADDITIONAL REQUIREMENTS.
7. REFER TO THE GEOTECHNICAL REPORT FOR ADDITIONAL REQUIREMENTS.

Plan Notes

1. DO NOT SCALE DRAWINGS. REFER TO LANDSCAPE DRAWINGS FOR DIMENSIONS & ELEVATIONS.
2. TYPICAL BOARDWALK ASSEMBLY SHALL CONSIST OF PULTRUDED GRATING OVER GALVANIZED STEEL FRAMING PER PLAN.
3. ALL FASTENERS & HARDWARE SHALL BE STAINLESS STEEL OR GALVANIZED PER GENERAL STRUCTURAL NOTES.
4. REFER TO GEOTECHNICAL REPORT FOR ADDITIONAL REQUIREMENTS.
5. REFER TO GENERAL STRUCTURAL NOTES FOR ADDITIONAL REQUIREMENTS.

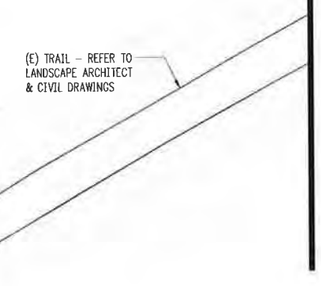
Pipe Pile Schedule

PIPE ø (inches)	WALL THICKNESS	MIN. HAMMER SIZE (lbs)	REFUSAL① CRITERIA (sec.)	ALLOWABLE② COMPRESSIVE LOADS (kips)
2	SCHED. 80	90	60	4

① REFUSAL IS DEFINED AS LESS THAN 1 INCH OF PENETRATION IN "X" SECONDS UNDER CONSTANT DRIVING.
② ALLOWABLE LOADS TO BE VERIFIED BY LOAD TESTS IN ACCORDANCE WITH ASTM D-1143 "QUICK LOAD TEST."

MINOR PIPE PILE ADJUSTMENT OPTIONS TO DEAL WITH OBSTRUCTIONS:

1. INDIVIDUAL PIPE PILES MAY BE SHIFTED ALONG THE LENGTH OF THE PILE CAP BEAMS 6" MAXIMUM IN EITHER DIRECTION.
2. PILE CAP BEAMS MAY BE SHIFTED ALONG THE LENGTH OF THE BOARDWALK 3'-0" IN EITHER DIRECTION EXCEPT AT KINKS IN BOARDWALK DIRECTIONS AND AT OVERLOOK. THE AVERAGE LENGTH OF ANY (2) ADJACENT BEAM SPANS SHALL NOT EXCEED 20'-0". NO INDIVIDUAL BEAM SPAN SHALL EXCEED 23'-0".
3. CONTACT ENGINEER IF MINOR SHIFT IN PIPE PILE DOES NOT CLEAR OBSTRUCTION.



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BNO19-01213
Page 22 of 25

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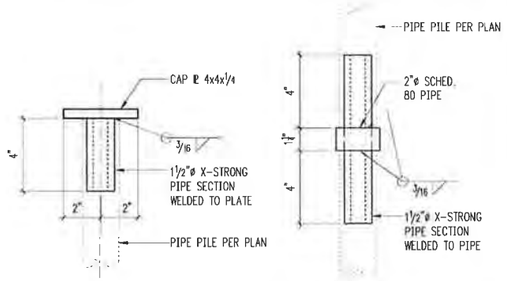
SHEET NAME
BOARDWALK PLAN

SHEET NUMBER
SS103



Cap For 2"ø SCH. 80 A53 GRADE B Pipe Piles

NOTE: CUT OFF PILE AT APPROPRIATE ELEVATION IN FTG. & HAMMER CAP ONTO TOP OF PILE

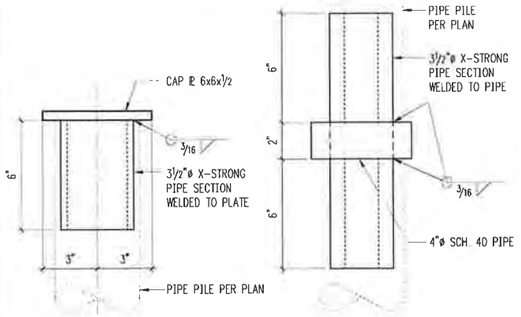
Coupler For Splicing 2"ø Sch. 80 A53 GRADE B Pipe Piles

NOTE: SPLICE PIPE PILES BY HAMMERING COUPLER INTO END OF SECTION

NOTES:
1. PLATE MATERIAL: A36
2. ALL BOLTS, STEEL FRAMING AND PLATE MATERIAL SHALL BE GALVANIZED.

3" = 1'-0"

Pile Cap Plate - 2" Pipe 1



Cap For 4"ø ASTM SCH. 40 A53 Gr. B Pipe Piles

NOTE: CUT OFF PILE AT APPROPRIATE ELEVATION IN FTG. & HAMMER CAP ONTO TOP OF PILE

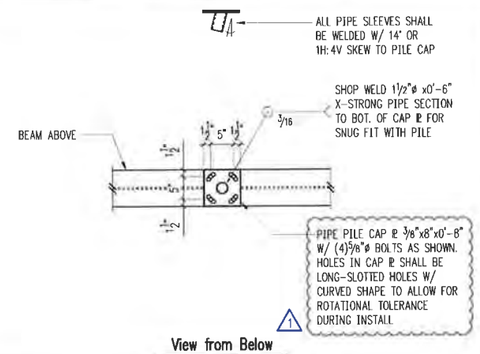
Coupler For Splicing 4"ø ASTM SCH. 40 A53 Gr. B Pipe Piles

NOTE: SPLICE PIPE PILES BY HAMMERING COUPLER INTO END OF SECTION

NOTES:
1. PLATE MATERIAL: A36
2. ALL BOLTS, STEEL FRAMING AND PLATE MATERIAL SHALL BE GALVANIZED.

3" = 1'-0"

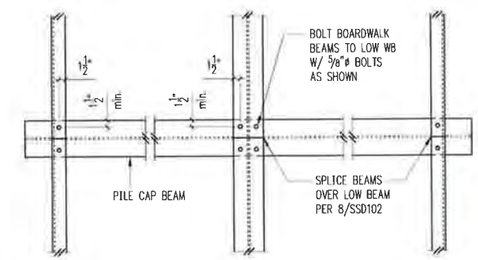
Pile Cap Plate - 4" Pipe 2



View from Below

NOTES:
1. BOLT TYPE: A307N
2. PLATE MATERIAL: A36
3. ALL BOLTS, STEEL FRAMING AND PLATE MATERIAL SHALL BE GALVANIZED.
4. OPTION TO FIELD WELD 3" SCH. 40 SLEEVE PIPE DIRECTLY TO CAP PLATE IN LIEU OF 1-1/2" PIPE SLEEVE AND 5/8"ø THRU BOLT @ CONTRACTOR'S OPTION.

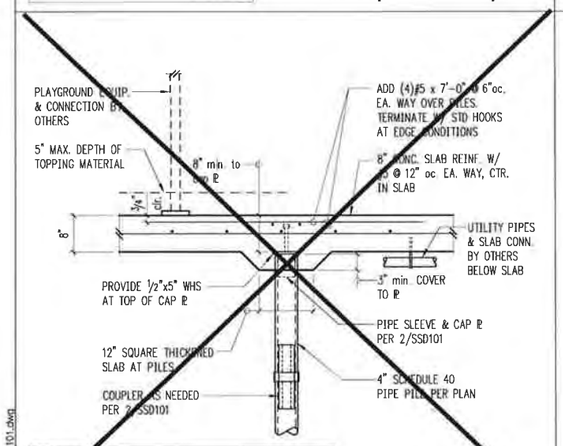
¾" = 1'-0" 3



Plan View

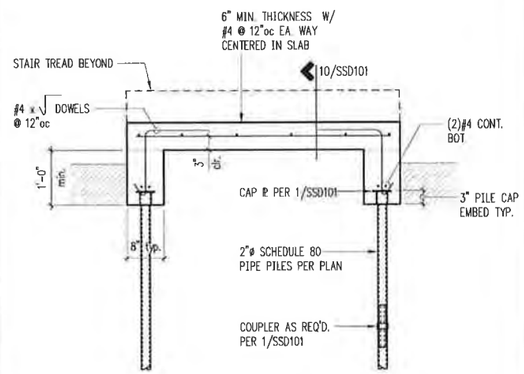
NOTES:
1. BOLT TYPE: A307N
2. PLATE MATERIAL: A36
3. ALL BOLTS, STEEL FRAMING AND PLATE MATERIAL SHALL BE GALVANIZED.
4. GUARDRAIL, GRATING, AND BRACING BEAMS NOT SHOWN FOR CLARITY.

¾" = 1'-0" 4



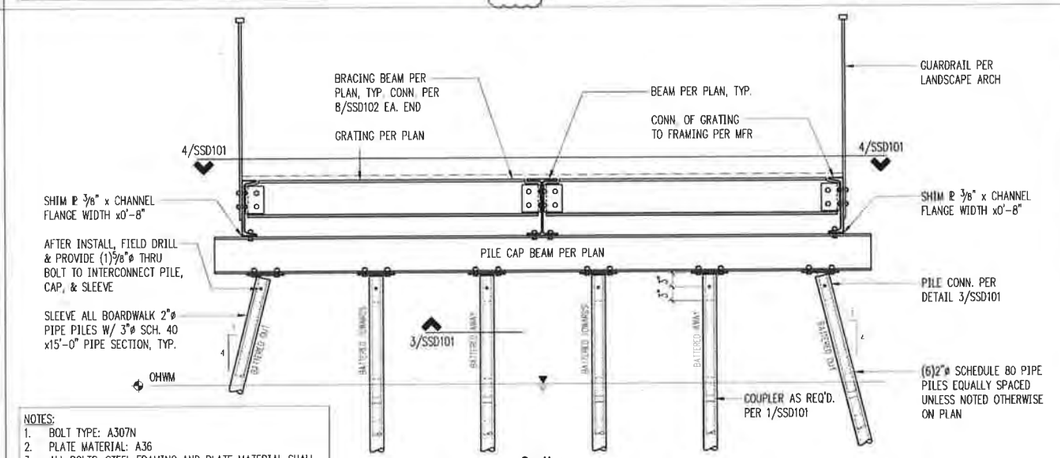
NOTES:
1. PLATE MATERIAL: A36
2. ALL BOLTS, STEEL FRAMING AND PLATE MATERIAL SHALL BE GALVANIZED.

¾" = 1'-0" 5



NOTES:
1. PLATE MATERIAL: A36
2. ALL BOLTS, STEEL FRAMING AND PLATE MATERIAL SHALL BE GALVANIZED.

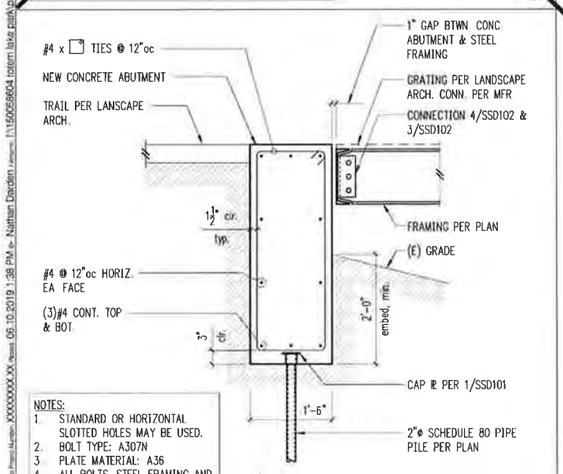
¾" = 1'-0" 6



Section

NOTES:
1. BOLT TYPE: A307N
2. PLATE MATERIAL: A36
3. ALL BOLTS, STEEL FRAMING AND PLATE MATERIAL SHALL BE GALVANIZED.
4. ALL PILES SHALL BE BATTERED AT 1H:4V (14°).
5. OPTION TO FIELD WELD 3" SCH. 40 SLEEVE PIPE DIRECTLY TO CAP PLATE IN LIEU OF 1-1/2" PIPE SLEEVE AND 5/8"ø THRU BOLT @ CONTRACTOR'S OPTION.

¾" = 1'-0" 8



NOTES:
1. STANDARD OR HORIZONTAL SLOTTED HOLES MAY BE USED.
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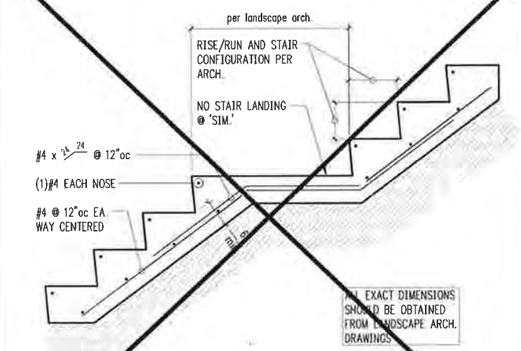
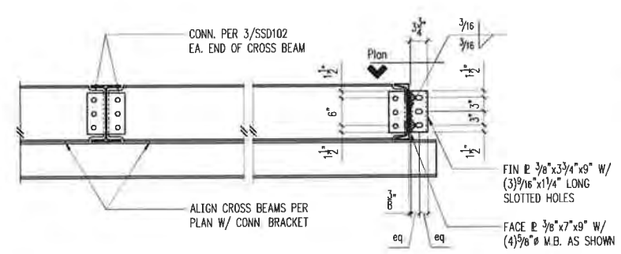
3. PLATE MATERIAL: A36
4. ALL BOLTS, STEEL FRAMING AND PLATE MATERIAL SHALL BE GALVANIZED.

¾" = 1'-0" 9

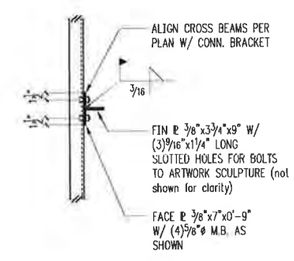


NOTES:
1. PLATE MATERIAL: A36
2. ALL BOLTS, STEEL FRAMING AND PLATE MATERIAL SHALL BE GALVANIZED.

¾" = 1'-0" 10



Sculpture Art Connection Bracket



Plan

NOTES:
1. STANDARD OR HORIZONTAL SLOTTED HOLES MAY BE USED.
2. BOLT TYPE: A307N
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4. ALL BOLTS, STEEL FRAMING AND PLATE MATERIAL SHALL BE GALVANIZED.

¾" = 1'-0" 12

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BNO19-01213
Page 23 of 25

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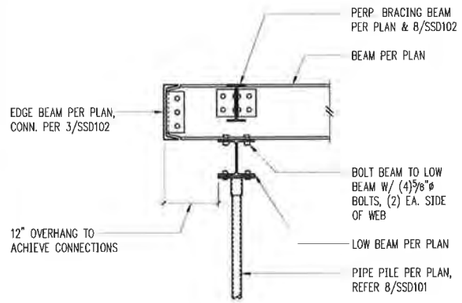
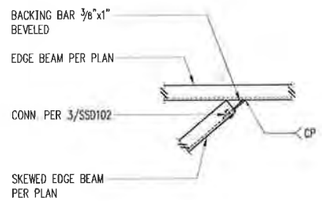
SHEET NAME
DETAILS

SHEET NUMBER
SSD101



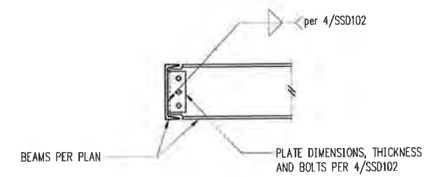
NOTES:
1. BOLT TYPE: A307N
2. PLATE MATERIAL: A36
3. ALL BOLTS, STEEL FRAMING AND PLATE MATERIAL SHALL BE GALVANIZED.

3/4" = 1'-0" 1



NOTES:
1. BOLT TYPE: A307N
2. PLATE MATERIAL: A36
3. ALL BOLTS, STEEL FRAMING AND PLATE MATERIAL SHALL BE GALVANIZED.

3/4" = 1'-0" 2



NOTES:
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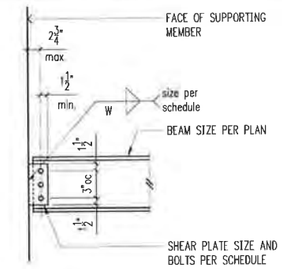
3/4" = 1'-0"

Typical Beam to Beam Connection 3



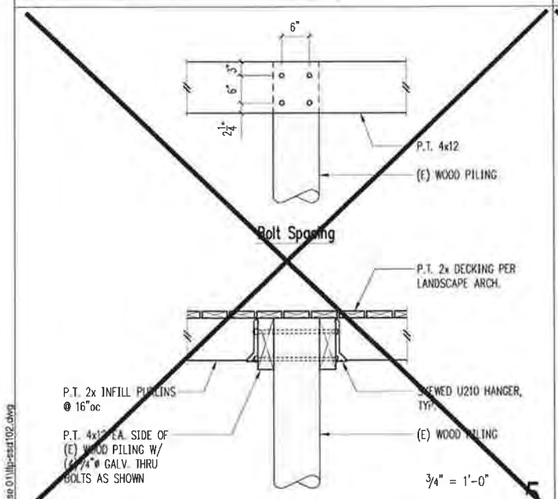
Shear Plate Schedule

Beam Size	No. of Bolts	Bolt Size	Plate Thickness	Weld Size	Capacity
C12, W12	3	3/4"ø	1/4"	3/16"	16k

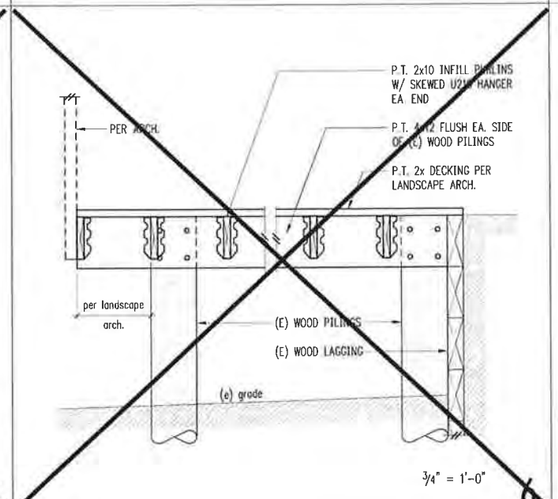
NOTES:
1. STANDARD OR HORIZONTAL SLOTTED HOLES MAY BE USED.
2. BOLT TYPE: A307N
3. PLATE MATERIAL: A36
4. ALL BOLTS, STEEL FRAMING AND PLATE MATERIAL SHALL BE GALVANIZED.

3/4" = 1'-0"

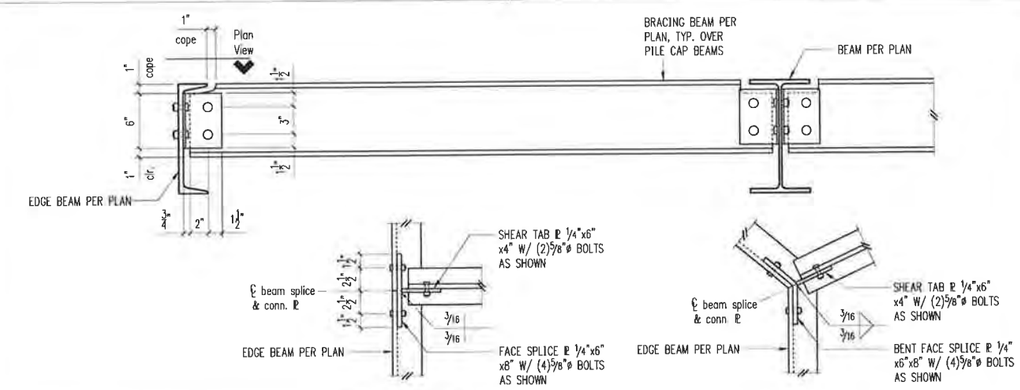
Typical Single Shear Plate Connection and Schedule 4



3/4" = 1'-0" 5



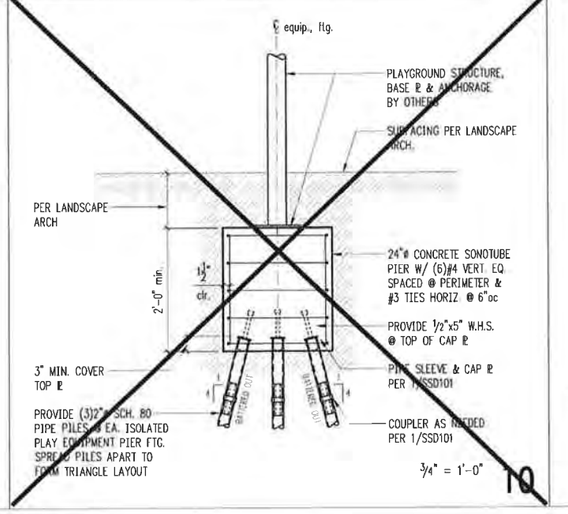
3/4" = 1'-0" 6



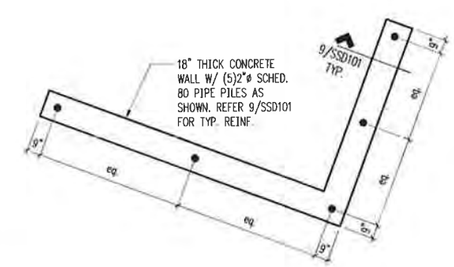
NOTES:
1. STANDARD OR HORIZONTAL SLOTTED HOLES MAY BE USED.
2. BOLT TYPE: A307N
3. PLATE MATERIAL: A36
4. ALL BOLTS, STEEL FRAMING AND PLATE MATERIAL SHALL BE GALVANIZED.

1 1/2" = 1'-0" 8

9



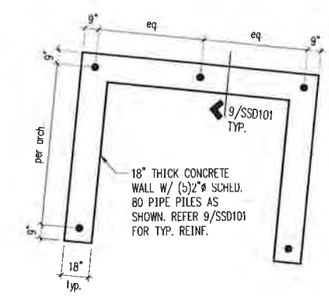
3/4" = 1'-0" 10



NOTES:
1. REFER LANDSCAPE ARCH. DRAWINGS FOR ALL EXACT DIMENSIONS AND ELEVATIONS.
2. BOARDWALK FRAMING AND TRAIL NOT SHOWN FOR CLARITY.

1/4" = 1'-0"

North Abutment Partial Plan 11



NOTES:
1. REFER LANDSCAPE ARCH. DRAWINGS FOR ALL EXACT DIMENSIONS AND ELEVATIONS.
2. BOARDWALK FRAMING AND TRAIL NOT SHOWN FOR CLARITY.

1/4" = 1'-0"

South Abutment Partial Plan 12

PARTNERSHIP berger
1017 Post Alley, Ste. 2
Seattle, WA 98101
206.905.6877
bergerpartnership.com

City of Kirkland
Reviewed by T Elder
07/05/2019

SSF STRUCTURAL ENGINEERING
2124 Third Avenue - Suite 100 - Seattle, WA 98121
p: 206.443.8212 ssfengineers.com
934 Broadway - Tacoma, WA 98402
p: 253.284.9470 ssfengineers.com

Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

SET TYPE
100% Design Submittal

ISSUE DATE
2/8/2019

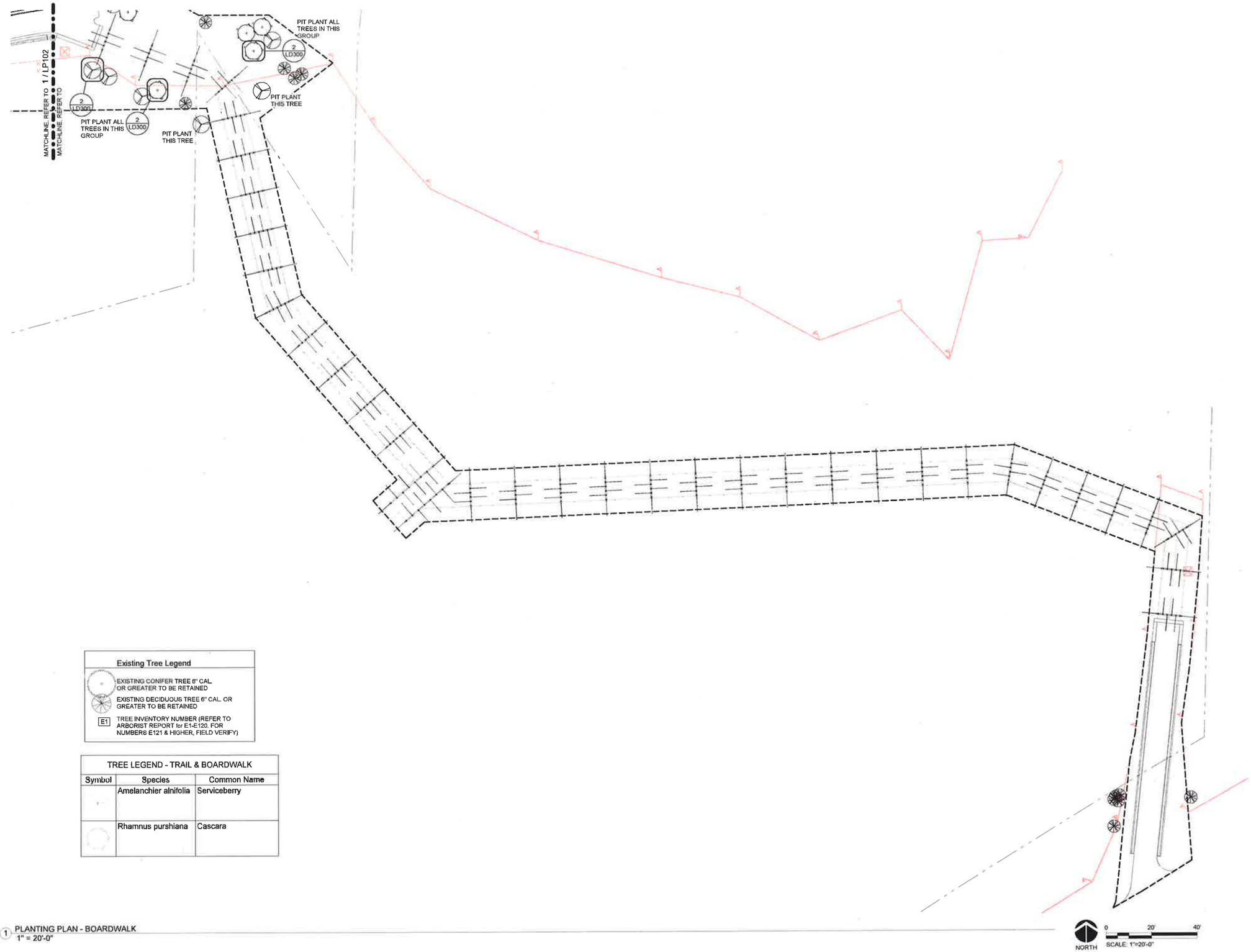
REVISIONS

BNO19-01213
Page 24 of 25

DRAWN/CHECKED
NHD/GFJ

SHEET NAME
DETAILS

SHEET NUMBER
SSD102



Existing Tree Legend	
	EXISTING CONIFER TREE 6" CAL OR GREATER TO BE RETAINED
	EXISTING DECIDUOUS TREE 6" CAL. OR GREATER TO BE RETAINED
E1	TREE INVENTORY NUMBER (REFER TO ARBORIST REPORT for E1-E120. FOR NUMBERS E121 & HIGHER, FIELD VERIFY)

TREE LEGEND - TRAIL & BOARDWALK

Symbol	Species	Common Name
	Amelanchier alnifolia	Serviceberry
	Rhamnus purshiana	Cascara

1 PLANTING PLAN - BOARDWALK
1" = 20'-0"

berger PARTNERSHIP
927 Post Alley, Ste. 2
Seattle, WA 98101
206 325 6877
bergerpartnership.com

City of Kirkland
Reviewed by T Elder
07/05/2019

Totem Lake Park Phase 1

City of Kirkland

12031 Totem Lake Way, Kirkland, WA 98034

STATE OF WASHINGTON
ANDY MITTON
NO. 882 EXP. 6/30/2020
LANDSCAPE ARCHITECT

SET TYPE
100% Design Submittal

SET ISSUE DATE
02/08/2019

REVISIONS:

Δ	DESCRIPTION	DATE

BNO19-01213
Page 25 of 25

DRAWN/CHECKED
MM / AM

SHEET NAME:
PLANTING PLAN - BOARDWALK

SHEET NUMBER
LP103

Berger Partnership Project Number: 20154875.02 Plotted: 2/7/2019 9:33:37 AM Filename: C:\Users\mattm\Documents\Totem Lake Park-PH1_mattm@bergerpartnership.com.rvt

LSM PERMIT

City of Kirkland

Land Surface Modification Permit

CIty of Kirkland
123 5th Avenue
Kirkland WA 98033
425-587-3600

Permit Number:	**LSM19-01212**
Type:	**Land Surface Modification**
Work Class:	**Site Development**

LSM19-01212

Permit Information

Job Address:	12031 NE TOTEM LAKE WAY	**Application Date:**	02/20/2019
Project:	TOTEM LAKE PARK	**Issue Date:**	09/04/2019
Parcel:	6928400032	**Expiration Date:**	09/04/2022

Scope of Work

Totem Lake Park Grading: Clearing and grading for the Former Yuppie Pawn site, including grading in front of the Totem lake hotel (widened path), and widened grading in front of apartment building, construction wetland boardwalk landing on the CKC, and minor grading near cafe veloce to allow a temp construction access out of their property during construction, widened asphalt walkways, ADA accessible parking lot.

Contacts

Type	Contact Name	Address	Phone
Applicant	MBP Contact 2018 MBP.com	123 5TH AVE KIRKLAND, WA 98033	
Owner	City of Kirkland	123 5TH AVE KIRKLAND, WA 98033	
Owner is Contractor	Owner is Contractor		
Primary Contact	Brian Baker City of Kirkland	123 5TH AVE KIRKLAND, WA 98033	425 587-3874

Water and Sewer Districts

Water: Northshore Utility District: 425-398-4400

Sewer: Northshore Utility District: 425-398-4400

Permit Type of Work

- ☐ Water
- ☐ Storm Drainage
- ☐ Sewer
- ☐ ROW

Conditions

The City approved plans, permit, conditions, and inspection record must remain on the job site for use by City inspection personnel. Any sales tax reported to the State in association with this project should be coded to the City of Kirkland tax location code 1716. I certify that the information furnished by me is true and correct to the best of my knowledge and the applicable City of Kirkland requirements will be met.

☐ Owner or ☐ Agent _____ DATE: _____

(Check one) (Print Name)

_____

(Signature)

12031 NE TOTEM LAKE WAY

City of Kirkland
123 5th Avenue
Kirkland, WA 98033
425-587-3600

SPECIFIC PERMIT CONDITIONS

BUILDING ADDRESS	PERMIT NUMBER	PERMIT TYPE	WORK CLASS	DATE PRINTED
12031 NE TOTEM LAKE WAY	LSM19-01212	Land Surface Modification	Site Development	7/11/2019

DESCRIPTION OF WORK:
Totem Lake Park Grading: Clearing and grading for the Former Yuppie Pawn site, including grading in front of the Totem lake hotel (widened path), and widened grading in front of apartment building, construction wetland boardwalk landing on the CKC, and minor grading near cafe veloce to allow a temp construction access out of their property during construction, widened asphalt walkways, ADA accessible parking lot.

Building Department Conditions:

BUILDING CONDITIONS:

- THE PLANS FOR THIS PROJECT WERE REVIEWED ELECTRONICALLY. Applicant must print a fullsized set of the City stamped EPlans using ink that is resistant to water damage. This copy of the City stamped plans must be kept on the job site at all times, protected and maintained in good condition.
- These conditions are part of the approved plans and shall remain attached. The approval of plans and specifications does not permit the violation of any section of the International Building/Residential Code, Uniform Plumbing Code or other ordinances or state law. Conditions as indicated below, along with the unchanged information shown on the drawings must be complied with.
- The approved plans shall not be changed, modified, or altered without authorization from the building official. The approved plans are required to be on the job site. Section 21.06 K.M.C.

Planning Department Conditions:

Planning Department Conditions** Contact Christian Geitz at 425.587.3246

PCD 1. PLN TO PERFORM FINAL PRIOR TO BLD - BUILDING PERMIT INSPECTION CARD MUST BE SIGNED OFF BY PLANNING PRIOR TO ANY REQUEST FOR FINAL BUILDING INSPECTION. PLEASE CALL 425-587-3235 TO REQUEST INSPECTION. 24 HOUR ADVANCE NOTICE REQUIRED FOR INSPECTION.

PCD 2. SENSITIVE AREA DECISION CONDITIONS – All conditions of approval and mitigation standards established under file SAR18-00519 shall be followed.

PCD 3. REVISED SITE PLAN - Any proposed changes to the approved site plan must be submitted as a revision to the building permit for review and approval prior to implementation.

PCD 4. ALL - PROHIBITED VEGETATION - Plants listed as prohibited in the Kirkland Plant List (available from the Planning Department) shall not be planted in the City. These plants include Blackberry, Fragrant water lily, Ivy, Herb Robert, Knotweed, Old man's beard, Poison hemlock, Reed canary grass, Scotch broom, Spurge laurel, Yellow archangel, and Yellow flag iris. Other plants, while not prohibited, are discouraged, including Butterfly bush, English holly, and English laurel.

PCD 5. NON-NATIVE INVASIVE AND NOXIOUS PLANTS (KZC 95.51.5) - It is the responsibility of the property owner to remove non-native invasive plants and noxious plants from the vicinity of any tree or other vegetation that the City has required to be planted or protected. Removal must be performed in a manner that will not harm the tree or other vegetation that the City has required to be planted or protected. Prior to calling for a final inspection remove ivy from all trees from the ground up 5 feet above grade and from the trunk out 1 foot.

PCD 6. ALL - HOURS OF CONSTRUCTION - All development activity and heavy equipment operation is restricted to 7:00 a.m. to 8:00 p.m. Monday through Friday, and 9:00 a.m. to 6:00 p.m. Saturday. Other restrictions on Saturday include: no working in the right-of-way, no work requiring inspection, and no trucking into or out of the site; however, light grading work on-site on Saturday is allowed. NO development activity or heavy equipment operation may occur on Sundays or the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day.

PCD 7. WETLAND/STREAM BUFFER PROTECTION – Prior to beginning development activities, the applicant shall install a 6 -foot-high construction-phase chain link fence or equivalent fence, as approved by the Planning Official along the upland boundary of the entire wetland buffer with silt screen fabric installed per City standard, in a manner approved by the

Planning Department Conditions:

Planning Official. The construction-phase fence shall remain upright in the approved location for the duration of development activities.

PCD 8. SPLIT RAIL FENCE: Prior to Final Inspection, the applicant shall install between the upland boundary of all wetland buffers and the developed portion of the site, either (1) a permanent 3- to 4-foot-tall split rail fence; or (2) permanent planting of equal barrier value; or (3) equivalent barrier, as approved by the Planning Official. Installation of the permanent fence or planted barrier must be done by hand where necessary to prevent machinery from entering the wetland or its buffer.

Public Works Department Conditions:

PUBLIC WORKS CONDITIONS

1. Refer to the Contract Documents for construction of the subject project, including but not limited to all terms, conditions, provisions, agreements, construction plans, specifications, addenda, and all applicable standards, codes, laws, and regulations.

2. The CIP Division of Public Works will manage the construction process and provide inspections for right-of-way /street /public utilities improvements, for land surface modifications, and for construction stormwater pollution prevention /erosion and sediment control. Inspections may be provided by consultant(s) working on behalf of the CIP Division and/or by in-house staff, unless otherwise specified by the Contract Documents.

City of Kirkland
123 5th Avenue
Kirkland, WA 98033

INSPECTION RECORD - THIS CARD MUST BE POSTED ON SITE

Schedule an inspection by 6:00 PM for next day inspections

Schedule online at: **www.MyBuildingPermit.com**

Permit #: **LSM19-01212**

How to request an inspection:

1) Go to **http://www.MyBuildingPermit.com**
2) Select Kirkland as the Jurisdiction.
3) Select Permit Number or Address.
4) Follow the on-screen instructions.

BUILDING ADDRESS	PARCEL NUMBER	DATE PRINTED	PERMIT TYPE	WORKCLASS	SQ FT	VALUATION
12031 NE TOTEM LAKE WAY	6928400032	7/11/19	Land Surface Modification	Site Development	0	$86.00

REQUIRED INSPECTIONS - DO NOT COVER ANY WORK PRIOR TO INSPECTION

	Inspection	IVR	Date	Insp	Inspection	IVR	Date	Insp
1	PW - Final	195						

* Note: 1st erosion control inspection is required prior to any excavation.

* 2nd erosion control inspection is required after foundation backfill.

(These erosion control inspections only apply if they are listed on the above checklist)

Departmental staff: BLD is Building Dept, PW is Public Works Dept, PCD is Planning Dept, and FIR is Fire Dept

NOTE: THIS INSPECTION RECORD IS THE CERTIFICATE OF OCCUPANCY WHEN THE BUILDING FINAL INSPECTION HAS BEEN APPROVED

Inspector's Comments

Planning Dept. HOLD ON ISSUANCE: Appeal period lapses 7/23/19. If no appeals are submitted, permit may be issued. See CPG with questions.

City of Kirkland
Totem Lake Park Phase 1

PKC1390200
JOB NO. 00-00-PW
100% DESIGN SUBMITTAL
February 08, 2019

Sheet Index

Sheet Number	Sheet Name	Designed By	Building Permit (Restroom)	Building Permit (Boardwalk)	LSM Permit	Electrical Permit	Plumbing Permit	PSE Permit	NUD Permit
G000	COVER	Landscape	•	•	•	•	•	•	•
G001	LANDSCAPE GENERAL NOTES & SCHEDULES	Landscape			•				
G002	PROJECT LIMITS - OVERALL	Landscape							
G003	PROJECT LIMITS - BOARDWALK	Landscape							
G004	DEDUCTIVE ALTERNATE PLAN	Landscape			•				
ET101	EXISTING TREE PLAN - PARK	Landscape			•				
ET102	EXISTING TREE PLAN - TRAIL	Landscape			•				
ET103	EXISTING TREE PLAN - BOARDWALK	Landscape		•	•				
C001	CIVIL GENERAL NOTES	Civil			•				
C002	CIVIL GENERAL NOTES	Civil			•	•			
C101	SITE PREPARATION PLAN - PARK	Civil			•				•
C102	SITE PREPARATION PLAN - TRAIL	Civil			•				
C103	SITE PREPARATION PLAN - BOARDWALK	Civil		•	•				
BD100	BUILDING DEMOLITION	Architect	•		•				
C201	CESC PLAN - PARK	Civil			•				
C202	CESC PLAN - TRAIL	Civil			•				
C203	CESC PLAN - BOARDWALK	Civil		•	•				
C301	UTILITY PLAN - PARK	Civil	•		•		•		•
C401	DRAINAGE PLAN - PARK	Civil			•				
C402	DRAINAGE PLAN - PARK	Civil			•				
CD101	DRAINAGE DETAILS - PARK	Civil			•				
CD102	CIVIL PAVING DETAILS	Civil			•				
CD103	DRAINAGE SECTIONS - PARK	Civil			•				
CG101	GRADING & PAVING PLAN - PARK	Civil	•		•				
CG102	GRADING & PAVING PLAN - TRAIL	Civil	•		•				
CG103	GRADING & PAVING PLAN - BOARDWALK	Civil		•	•				
CG201	GRADING PLAN - PARK - ENLARGEMENT	Civil			•				
L101	SITE PLAN - PARK	Landscape			•				
L102	SITE PLAN - TRAIL	Landscape			•				
L103	SITE PLAN - BOARDWALK	Landscape		•					
L200	BOARDWALK ELEVATIONS	Landscape		•					
L201	BOARDWALK ELEVATIONS	Landscape		•					
L202	PARK ELEVATIONS	Landscape			•				
L400	PLAY AREA ENLARGEMENTS	Landscape			•				
L401	LANDSCAPE ENLARGEMENTS	Landscape			•				
L402	PLAY AREA ENLARGEMENTS	Landscape			•				
L403	PAVING JOINTING & PATTERN DETAIL PLAN	Landscape			•				
LD101	LANDSCAPE PAVING DETAILS	Landscape			•				
LD102	PLAY AREA DETAILS	Landscape			•				
LD103	STAIR & RAILING DETAILS	Landscape		•					
LD104	WALL & FENCE DETAILS	Landscape		•					
LD105	TRAIL TYPICAL DETAIL	Landscape		•	•				
LD106	OVERLOOK DETAILS	Landscape			•				
LD107	GEOTECHNICAL WALL DETAIL	Geotechnical			•				
LD200	METAL GUARDRAIL DETAILS	Landscape		•					
LD201	METAL GUARDRAIL DETAILS	Landscape		•					
LD202	METAL GUARDRAIL DETAILS	Landscape		•					
LD203	METAL GUARDRAIL @ BOARDWALK OVERLOOK	Landscape		•					
SS001	GENERAL STRUCTURAL NOTES	Site Structural	•	•					
SS002	GENERAL STRUCTURAL NOTES	Site Structural	•	•					
SS003	STATEMENT OF SPECIAL INSPECTIONS	Site Structural	•	•					
SS100	STRUCTURAL SHEET LAYOUT	Site Structural	•	•					
SS101	PARK PLAN	Site Structural	•						
SS102	TRAIL PLAN	Site Structural		•					

Sheet Index

Sheet Number	Sheet Name	Designed By	Building Permit (Restroom)	Building Permit (Boardwalk)	LSM Permit	Electrical Permit	Plumbing Permit	PSE Permit	NUD Permit
SS103	BOARDWALK PLAN	Site Structural		•					
SSD101	DETAILS	Site Structural		•					
SSD102	DETAILS	Site Structural		•					
S001	STRUCTURAL NOTES	Building Structural	•						
S002	STRUCTURAL NOTES	Building Structural	•						
S003	STRUCTURAL NOTES	Building Structural	•						
S101	FOUNDATION PLAN	Building Structural	•						
S201	ROOF FRAMING PLAN	Building Structural	•						
SD100	DETAILS	Building Structural	•						
SD101	DETAILS	Building Structural	•						
SD102	DETAILS	Building Structural	•						
A000	ABBREVIATIONS & SYMBOLS	Architect	•						
A001	SCHEDULES, DOOR & FRAME TYPES	Architect	•						
A100	SLAB/CURB PLAN	Architect	•						
A101	BUILDING PLAN	Architect	•						
A102	UPPER WALL PLAN	Architect	•						
A103	ROOF PLAN	Architect	•						
A301	REFLECTED CEILING PLAN	Architect	•			•			
A401	EXTERIOR ELEVATIONS I	Architect	•						
A402	EXTERIOR ELEVATIONS II	Architect	•						
A403	PERSPECTIVES	Architect	•						
AD100	ENLARGED PLANS	Architect	•				•		
AD101	INTERIOR ELEVATIONS	Architect	•				•		
AD102	BUILDING SECTION I	Architect	•				•		
AD103	BUILDING SECTION II	Architect	•				•		
AD104	SLOPED COLUMNS SECTIONS	Architect	•						
AD105	WALL SECTIONS	Architect	•						
AD106	WALL DETAILS	Architect	•						
M001	MECHANICAL GENERAL INFORMATION	Mechanical	•			•	•		
M002	SCHEDULES	Mechanical	•			•	•		
M101	BUILDING MECHANICAL PLANS	Mechanical	•			•	•		
M201	PLUMBING DIAGRAM	Mechanical	•				•		
M301	SECTIONS AND ELEVATIONS	Mechanical	•				•		
MD101	DETAILS	Mechanical	•						
E001	SYMBOLS LIST & ABBREVIATIONS	Electrical	•			•		•	
E002	WSEC COMPLIANCE FORMS	Electrical	•			•		•	
E003	WSEC COMPLIANCE FORMS	Electrical	•			•		•	
E004	WSEC COMPLIANCE FORMS	Electrical	•			•		•	
E101	ELECTRICAL SITE PLAN	Electrical	•			•		•	
E201	ENLARGED BUILDING PLANS	Electrical	•			•		•	
E301	ONE-LINE DIAGRAM AND SCHEDULES	Electrical	•			•		•	
ED100	DETAILS	Electrical	•			•		•	
IR001	IRRIGATION NOTES & SCHEDULE	Irrigation			•				
IR101	IRRIGATION PLAN - PARK	Irrigation			•				
ID100	IRRIGATION DETAILS	Irrigation			•				
ID101	IRRIGATION DETAILS	Irrigation			•				
LP101	PLANTING PLAN - PARK	Landscape			•				
LP102	PLANTING PLAN - TRAIL	Landscape			•				
LP103	PLANTING PLAN - BOARDWALK	Landscape			•				
LD300	PLANTING DETAILS	Landscape			•				
LD301	PLANTING DETAILS	Landscape			•				

Grand total: 105

PCD APPROVED SITE PLAN
Any proposed changes to the approved site plan, such as but not limited to added hard surfaces, HVAC units, tree removals and accessory structures, must be submitted to the Building Department as a revision to the building permit for review and approval by all departments prior to implementation.

NOTICE
HOURS OF WORK: 7AM TO 8PM MON-FRI
9AM TO 6PM SAT. NO WORK SUNDAYS & HOLIDAYS (PER KZC SEC. 115.25)
Exceptions must be approved in writing by Planning Official

APPROVED PLANS
Permit No. LSM19-01212
May 29, 2019
Kirkland Public Works Dept.

A separate permit is required for demolition.
A separate permit is required for new construction.
No fire/life safety plan review has occurred for this Land Surface Modification permit.

This Land Surface Modification permit does not authorize any cutting or digging for footings or foundations. A SEPERATE BUILDING PERMIT MUST BE ISSUED PRIOR TO ANY FOOTING OR FOUNDATION WORK.

This Land Surface Modification permit does not authorize grading activity to cross property lines or affect adjacent properties unless explicitly authorized by the owner(s) of the propert(ies) affected."

Once the sizing of the vault (if applicable) has been approved, a separate building permit application for the vault can be submitted.

Team Contact Info

Prime Consultant:

Berger Partnership - Landscape Architecture
Primary: Matt Martenson
Phone: 206-492-5560
Email: mattm@bergerpartnership.com
Secondary: Andy Mitton
Phone: 206-492-5562
Email: andym@bergerpartnership.com

Subconsultant Team

CH2M Hill - Civil Engineering
Primary:Jesse Williams
Email: jesse.williams@ch2m.com

Swenson Say Faget - Structural Engineering
Primary: Gregory Juttner
Email: gjuttner@ssfengineers.com

EBA - Environmental
Primary: Jessica Redman
Email: jredman@esassoc.com

KPFF - Survey
Primary: Jereme Chapman
Email: jereme.chapman@kpff.com

Symbiosis Tree Care: Arborist
Primary: Kurt Fickelsen
Email: kurtfick@gmail.com

Enginuity Systems - Spray Park Mechanical:
Primary: Jesse Barksdale
Email: jasse@enginuitysys.com

ORB Architects: Architecture
Primary: Geoff Anderson
Email: ganderson@innovaarchitects.com

NAC Architecture: Electrical Engineering
Primary: Mark McMicheal
Email: mmcmicheal@nacarchitecture.com

Design 2426: Irrigation
Primary: Jason Anderson
Email: jasona@design2426.com

Vicinity Map

Applicable Codes:

Compliance with the following codes shall be required:

Accessibility	2010 Americans with Disabilities (ADA) Standards for Accessible Design
Building	2015 International Building Code (IBC)
Electrical	2017 National Electrical Code
Energy Efficiency	2015 Washington State Energy Code (WSEC)
Fire	2015 International Fire Code with Washington Amendments
Mechanical	2015 Washington State Energy Code (WSEC)
Plumbing	2015 Uniform Plumbing Code

Drawing Set Printing and Reproduction Notes/Req's:

1. DRAWING SET SHEET SIZE IS 22" X 34".
2. DRAWING SET UTILIZES COLORED INFORMATION AND SHALL BE PRINTED AND REPRODUCED IN COLOR.

City/Owner Contact Info

City of Kirkland:
Project Manager: Brian Baker
Phone: 425-587-3874
Email: bbaker@kirklandwa.gov

PARTNERSHIP berger
1927 Post Alley, Ste 2
Seattle, WA 98101
206 325 6877
bergerpartnership.com

Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

STATE OF WASHINGTON ANDY MITTON NO. 882 EXP. 6/30/2020 LANDSCAPE ARCHITECT

SET TYPE
100% Design Submittal

SET ISSUE DATE
02/08/2019

REVISIONS

Δ	DESCRIPTION	DATE

DRAWN/CHECKED
MM / AM

SHEET NAME
COVER

SHEET NUMBER
G000

Berger Partnership Project Number 2015487S.02
Plotted 2/11/2019 11:03:19 AM
Filename C:\Users\mattm\Documents\Totem Lake Park-PH1_mattm@bergerpartnership.com.rvt

PROJECT GENERAL NOTES	
Note #	Desription
1	ALL WORK EAST OF 'PARK SITE' ON 'TRAIL' AND 'BOARDWALK' SHEETS OCCURS IN EASEMENT AREAS. COORDINATE EXECUTION OF ALL WORK IN THIS AREA WITH OWNER. REFER TO SPECIFICATIONS.
2	SURVEY DATA LONG NORTH EDGE OF 'TRAIL' IS LIMITED. REFER TO SIGNED SURVEY INCLUDED WITH PROJECT MANUAL FOR EXTENT OF SURVEY.
3	SURVEY DATA LONG BOARDWALK ALIGNMENT IS LIMITED. REFER TO SIGNED SURVEY INCLUDED WITH PROJECT MANUAL FOR EXTENT OF SURVEY.
4	NO TEMPORARY OR PERMANENT CUT OR FILL ACTIVITIES SHALL BE ALLOWED WITHIN THE WETLAND. PILES ASSOCIATED WITH BOARDWALK CONSTRUCTION SHALL NOT BE COUNTED AS FILL.
5	IT ANTICIPATED THAT THE WETLAND BOARDWALK WILL BE CONSTRUCTED FROM TEMPORARY FLOATING PLATFORMS. THE CONTRACTOR SHALL SUBMIT WORK PLAN FOR BOARDWALK CONSTRUCTION PRIOR TO CONSTRUCTION.
6	PROJECT INCLUDES OFF SITE MITIGATION. REFER TO CRITICAL AREAS PLAN AND MITIGATION PLANS INCLUDED WITH CRITICAL AREAS PLAN FOR OFF SITE MITIGATION.
7	REFER TO LANDSCAPE PLANS FOR ALL TW AND BW INFORMATION, ELEVATIONS AND SPOT ELEVATIONS.
8	REFER TO CIVIL FOR ALL HORIZONTAL AND VERTICAL CONTROL FOR PAVEMENTS.

ABBREVIATIONS	
ABBREVIATION	DESCRIPTION
ALUM	ALUMINUM
ARCH	ARCHITECT
AVAIL	AVAILABLE
BAR	REBAR
BOT	BOTTOM
BS	BOTTOM OF STAIR
BW	BOTTOM OF WALL
C.I.P.	CAST IN PLACE
CI	CUBIC INCH
CIVIL	CIVIL ENGINEER
CJ	CONTROL JOINT
CLR	CLEAR
CNTRD	CENTERED
CONC	CONCRETE
CONT	CONTINUE(S)
CY	CUBIC YARD
DI	DUCTILE IRON
DIA	DIAMETER
E	EASTING
EA	EACH
EJ	EXPANSION JOINT
ELEC	ELECTRICAL ENGINEER
ELEV	ELEVATION
EMBED	EMBEDMENT
EQ	EQUAL(S)
EX	EXISTING
FF	FACE FEET
FG	FINISH GRADE ELEVATION
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GEOTECH	GEOTECHNICAL ENGINEER
HORIZ	HORIZONTAL

ABBREVIATIONS	
ABBREVIATION	DESCRIPTION
HT	HEIGHT
L. ARCH	LANDSCAPE ARCH
LF	LINEAL OR LINEAR FEET
MAX	MAXIMUM
MECH	MECHANICAL ENGINEER
MFG	MANUFACTURER
MIN	MINIMUM
N	NORTHING
O.C.	ON CENTER
PERF	PERFORATED
PJ	PATTERN JOINT/LINE
PL	PROPERTY LINE
PT	PRESSURE TREATED
R	RADIUS
SD	STORM DRAIN(AGE)
SF	SQUARE FEET
SPA	SPACING
SPECS	SPECIFICATIONS
SS	SANITARY SEWER
SSTL	STAINLESS STEEL
STL	STEEL
STRUCT	STRUCTURAL ENGINEER
SY	SQUARE YARD
TAN	TANGENT
TF	TOP OF FOOTING ELEVATION
TS	TOP OF STAIR
TW	TOP OF WALL ELEVATION
TYP	TYPICAL
VERT	VERTICAL
VOL	VOLUME
W/	WITH
Z	ELEVATION

ALIGNMENT SCHEDULE	
Name	Alignment Description
BL	BOARDWALK LAYOUT CENTERLINE
PL	PARK PATHWAY CENTERLINE
SL	STREET CENTERLINE
TL	TRAIL EDGE LINE
T	TRAIL CENTERLINE

SITE SEATING AND TABLE SCHEDULE		
Type	Count	Comments
Concrete Seating	11	Refer to Detail. Length varies.
Picnic Table	4	Refer to Detail.
Vaya Bench	1	Refer to Specs.
Vaya Chair	10	Refer to Specs.
Vaya Table	3	Refer to Specs.

SITE BIKE RACK AND LITTER BIN SCHEDULE		
Type	Count	Comments
Flo-Bike-Rack	3	Refer to Specs.
Litter Bin	4	Refer to Specs.

RAILING AND FENCE SCHEDULE		
Type	Length	Comments
Chain Link Fence	114.64	Refer to details.
Guard rail - Metal panel	31.69	Refer to details. Length does not include corner panels.
Guardrail - Metal panel	1268.83	Refer to details. Length does not include corner panels.
Wood Fence	556.34	Refer to details.
Wood Guardrail	1109.14	Refer to details.

PAVING SCHEDULE		
Type	Area	Comments
ASPHALT PAVING	14942 SF	Includes vehicular and pedestrian paving.
BOARDWALK	6594 SF	Includes putruded grating and metal bar grating.
CONCRETE PAVING	9702 SF	
SYNTHETIC TURF	6345 SF	
WOOD BOARDWALK	1300 SF	Decking and deck framing only. Assumes reuse of existing piles.
	38883 SF	

ROCKERY WALL FF TAKEOFFS		
Material: Name	Face Foot Area	Comments
Rockery Face @ 'Boardwalk' Site (near CKC)	386 SF	Represents exposed (visible) face foot only.
Rockery Face @ 'Park' Site	875 SF	Represents exposed (visible) face foot only.
Rockery Face @ 'Trail' Site	2922 SF	Represents exposed (visible) face foot only.
	4183 SF	

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Totem Lake Park Phase 1

City of Kirkland

12031 Totem Lake Way, Kirkland, WA 98034

STATE OF WASHINGTON
ANDY MITTON
NO. 882 EXP. 6/30/2020
LANDSCAPE ARCHITECT

SET TYPE:
100% Design Submittal

SET ISSUE DATE
02/08/2019

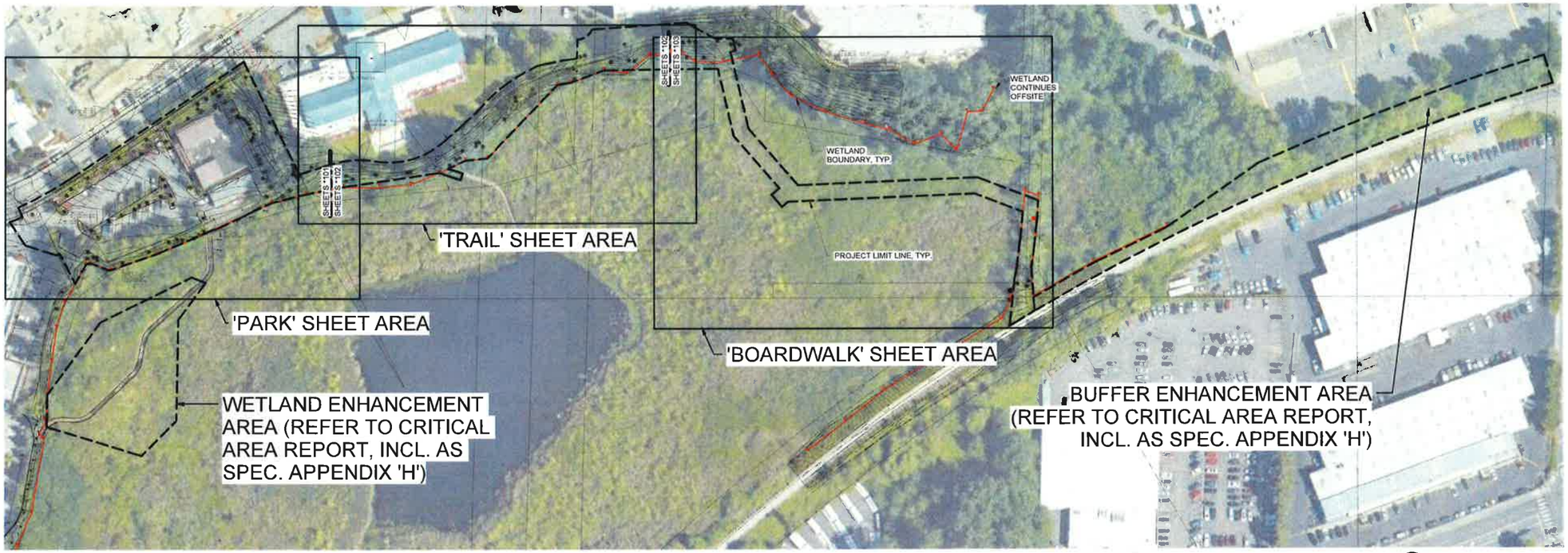
REVISIONS

Δ	DESCRIPTION	DATE

DRAWN/CHECKED
MM / AM

SHEET NAME
LANDSCAPE GENERAL NOTES & SCHEDULES

SHEET NUMBER
G001



1 OVERALL PROJECT LIMITS
1" = 80'-0"

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02/08/2019

REVISIONS

Δ	DESCRIPTION	DATE
1	Permit Response	2019/05/16

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SHEET NAME
PROJECT LIMITS - OVERALL

SHEET NUMBER
G002

Berger Partnership Project Number 2015487.02
Plotted 6/5/2019 8:09:50 AM
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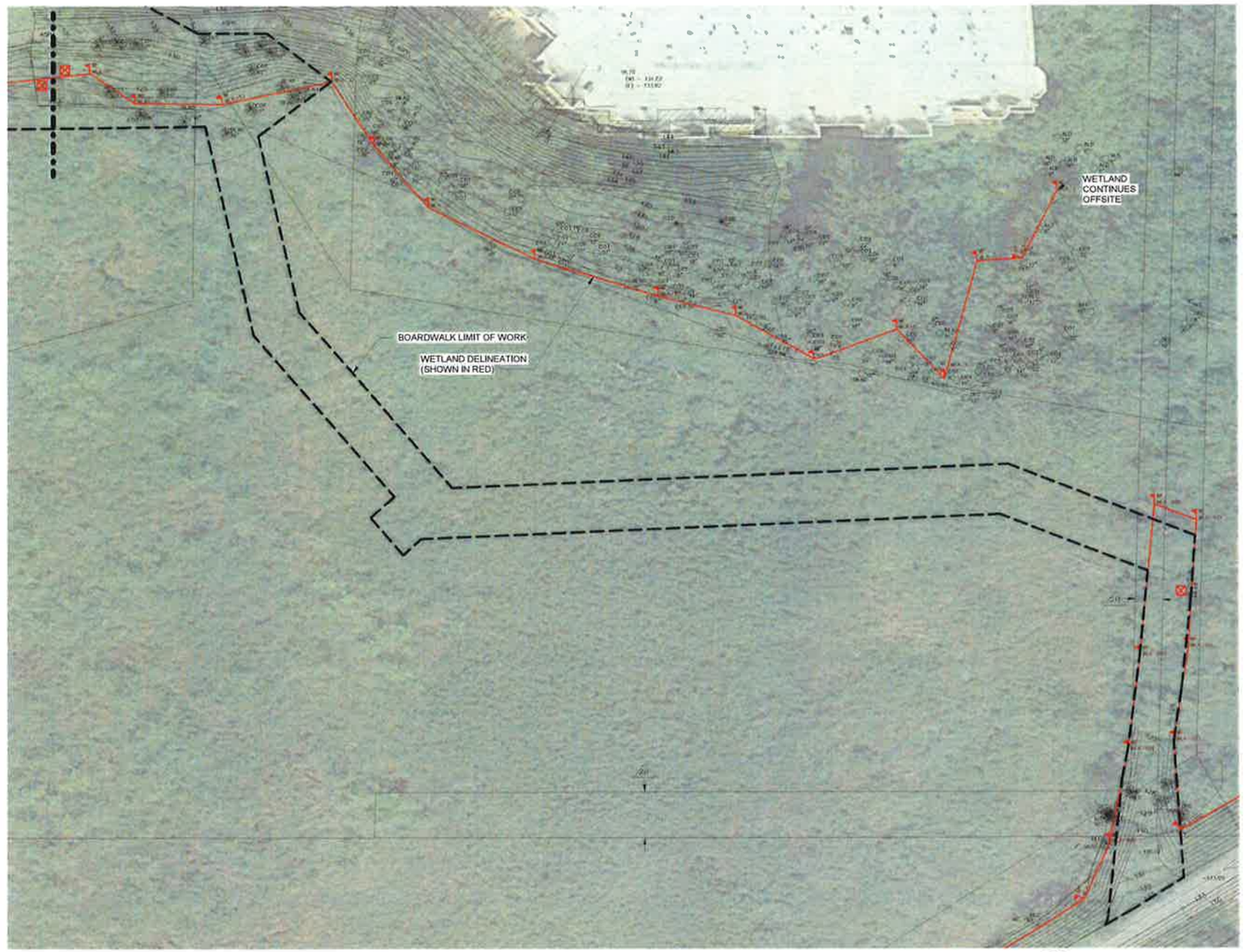

1 PROJECT LIMITS - BOARDWALK
1" = 30'-0"

NORTH 0 30' 60'
SCALE: 1"=30'-0"

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Totem Lake Park Phase 1

City of Kirkland

12031 Totem Lake Way, Kirkland, WA 98034

STATE OF WASHINGTON ANDY MITTON No. 882 EXP. 6/30/2020 LANDSCAPE ARCHITECT

SET TYPE:
100% Design Submittal

SET ISSUE DATE
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REVISIONS:

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MM / AM

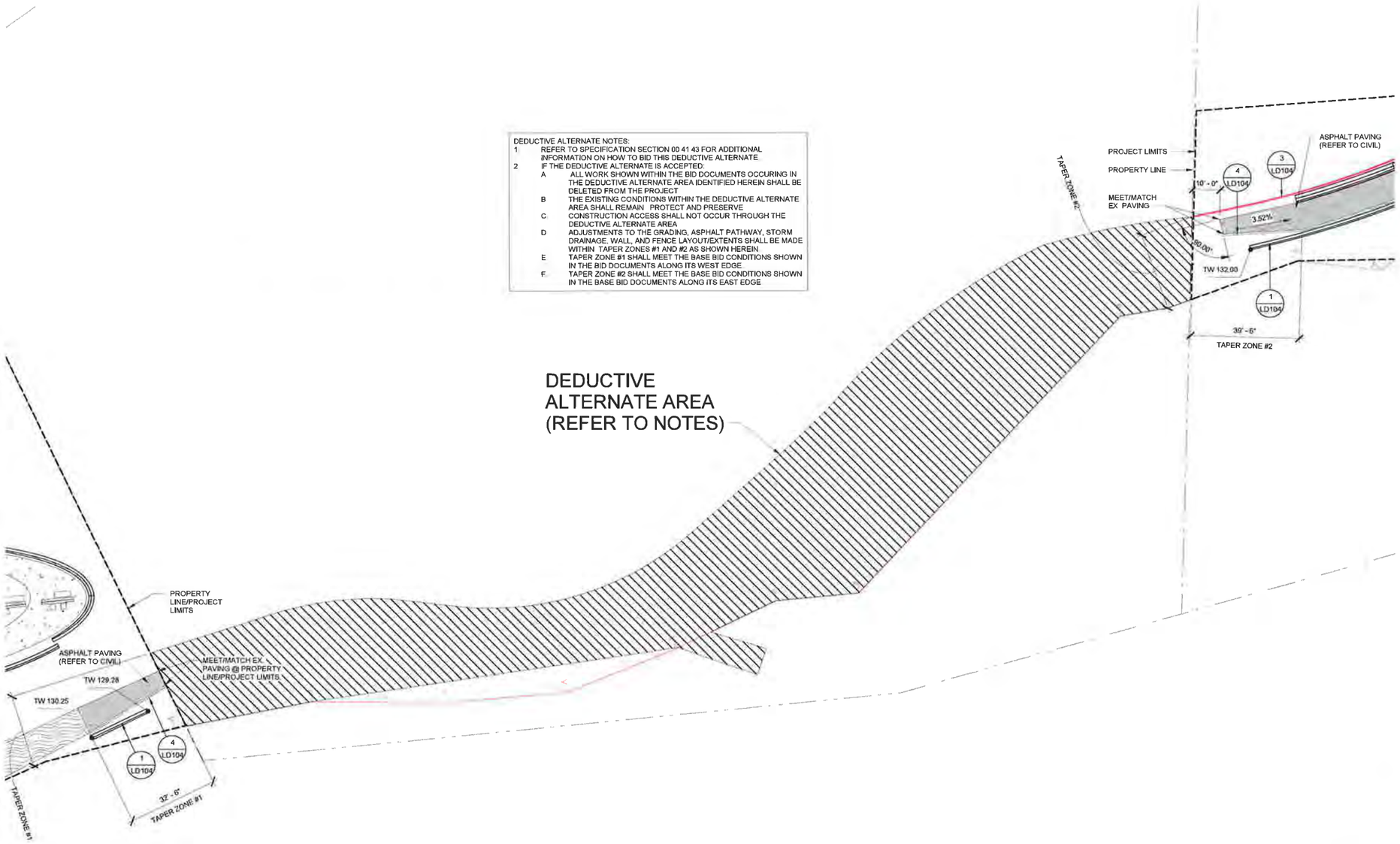
SHEET NAME
PROJECT LIMITS - BOARDWALK

SHEET NUMBER
G003

Berger Partnership Project Number: 2015.4875.02 Plotted: 2/7/2019 9:25:20 AM File name: C:\Users\mattm\Documents\Totem Lake Park-PH1_mattm@bergerpartnership.com.rvt

DEDUCTIVE ALTERNATE NOTES:

1. REFER TO SPECIFICATION SECTION 00 41 43 FOR ADDITIONAL INFORMATION ON HOW TO BID THIS DEDUCTIVE ALTERNATE.
2. IF THE DEDUCTIVE ALTERNATE IS ACCEPTED:
   - A. ALL WORK SHOWN WITHIN THE BID DOCUMENTS OCCURING IN THE DEDUCTIVE ALTERNATE AREA IDENTIFIED HEREIN SHALL BE DELETED FROM THE PROJECT.
   - B. THE EXISTING CONDITIONS WITHIN THE DEDUCTIVE ALTERNATE AREA SHALL REMAIN PROTECT AND PRESERVE
   - C. CONSTRUCTION ACCESS SHALL NOT OCCUR THROUGH THE DEDUCTIVE ALTERNATE AREA
   - D. ADJUSTMENTS TO THE GRADING, ASPHALT PATHWAY, STORM DRAINAGE, WALL, AND FENCE LAYOUT/EXTENTS SHALL BE MADE WITHIN TAPER ZONES #1 AND #2 AS SHOWN HEREIN
   - E. TAPER ZONE #1 SHALL MEET THE BASE BID CONDITIONS SHOWN IN THE BID DOCUMENTS ALONG ITS WEST EDGE.
   - F. TAPER ZONE #2 SHALL MEET THE BASE BID CONDITIONS SHOWN IN THE BASE BID DOCUMENTS ALONG ITS EAST EDGE



1 DEDUCTIVE ALTERNATE SITE PLAN
1" = 20'-0"

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Seattle, WA 98101
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Totem Lake Park Phase 1

City of Kirkland

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STATE OF WASHINGTON ANDY MITTON NO. 882 EXP 6/30/2020 LANDSCAPE ARCHITECT

SET TYPE:
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SET ISSUE DATE:
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Δ	DESCRIPTION	DATE

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SHEET NAME:
DEDUCTIVE ALTERNATE PLAN

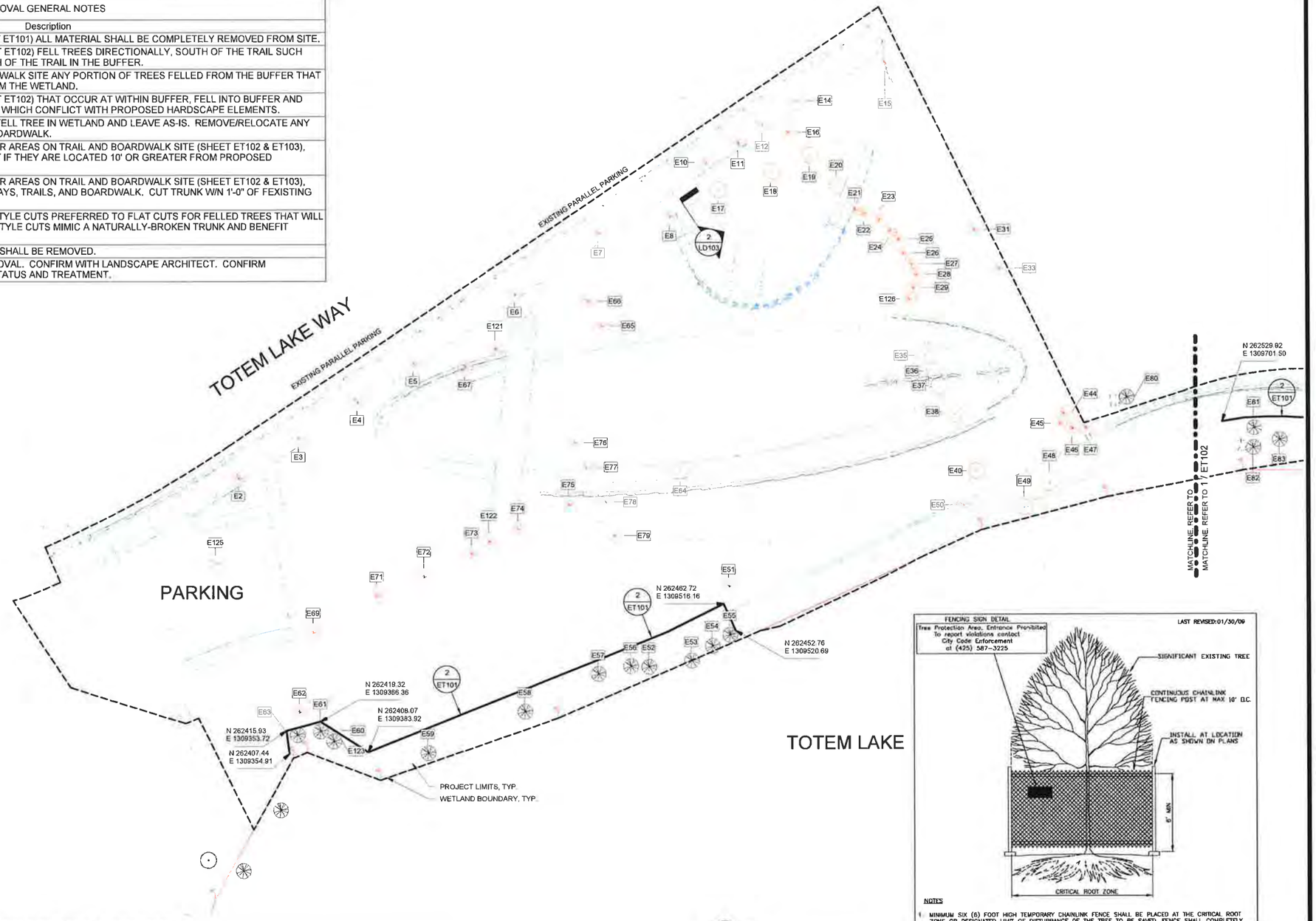
SHEET NUMBER
G004

Berger Partnership Project Number: 2015485.02 Plotted: 2/7/2019 9:25:27 AM File name: C:\Users\matim\Documents\Totem Lake Park-PH1_matim@bergerpartnership.com.rvt

TREE REMOVAL GENERAL NOTES	
Note #	Description
1	FOR ALL TREES REMOVED ON PARK SITE (SHEET ET101) ALL MATERIAL SHALL BE COMPLETELY REMOVED FROM SITE.
2	FOR ALL TREES REMOVED ON TRAIL SITE (SHEET ET102) FELL TREES DIRECTIONALLY, SOUTH OF THE TRAIL SUCH THAT THE MAJORITY OF THE TREE LANDS SOUTH OF THE TRAIL IN THE BUFFER.
3	FOR ALL TREES REMOVED ON TRAIL AND BOARDWALK SITE ANY PORTION OF TREES FELLED FROM THE BUFFER THAT LAND IN THE WETLAND SHALL BE REMOVED FROM THE WETLAND.
4	FOR ALL TREES REMOVED ON TRAIL SITE (SHEET ET102) THAT OCCUR AT WITHIN BUFFER, FELL INTO BUFFER AND LEAVE. RELOCATE ANY PORTIONS OF THE TREE WHICH CONFLICT WITH PROPOSED HARDSCAPE ELEMENTS.
5	FOR ALL TREES REMOVED IN WETLAND AREAS, FELL TREE IN WETLAND AND LEAVE AS-IS. REMOVE/RELOCATE ANY PORTIONS WHICH CONFLICT WITH PROPOSED BOARDWALK.
6	FOR ALL TREES FELLED IN WETLAND AND BUFFER AREAS ON TRAIL AND BOARDWALK SITE (SHEET ET102 & ET103), TREES MAY BE SNAGGED AT 8' MAXIMUM HEIGHT IF THEY ARE LOCATED 10' OR GREATER FROM PROPOSED PATHWAYS, TRAILS, AND BOARDWALK.
7	FOR ALL TREES FELLED IN WETLAND AND BUFFER AREAS ON TRAIL AND BOARDWALK SITE (SHEET ET102 & ET103), LOCATED 10' OR LESS FROM PROPOSED PATHWAYS, TRAILS, AND BOARDWALK. CUT TRUNK W/N 1'-0" OF FEXISTING GRADE.
8	FOR ALL SNAGGED TREES, JAGGED, BAYONET-STYLE CUTS PREFERRED TO FLAT CUTS FOR FELLED TREES THAT WILL BE LEFT IN THE BUFFER (AS SNAGS). BAYONET-STYLE CUTS MIMIC A NATURALLY-BROKEN TRUNK AND BENEFIT HABITAT CONDITIONS.
9	NO TREES OR SHRUBS OUTSIDE LIMIT OF WORK SHALL BE REMOVED.
10	TAG ALL TREES TO BE REMOVED PRIOR TO REMOVAL. CONFIRM WITH LANDSCAPE ARCHITECT. CONFIRM REMOVAL/RETAIN STATUS, FELLING/REMOVAL STATUS AND TREATMENT.

Existing Tree Legend

- EXISTING CONIFER TREE 6" CAL. OR GREATER TO BE RETAINED
- EXISTING DECIDUOUS TREE 6" CAL. OR GREATER TO BE RETAINED
- E1 — TREE INVENTORY NUMBER (REFER TO ARBORIST REPORT for E1-E120, FOR NUMBERS E121 & HIGHER, FIELD VERIFY)
- EXISTING CONIFER TREE 6" CAL. OR GREATER TO BE REMOVED
- EXISTING DECIDUOUS 6" CAL. OR GREATER TREE TO BE REMOVED
- EXISTING SHRUB TO BE REMOVED
- EXISTING TREE LESS THAN 6" CAL. TO BE REMOVED
- TREE PROTECTION FENCING
- WETLAND BOUNDARY LINE



1 SITE PLAN - EXISTING TREES - PARK
1" = 20'-0"

NOTES

1. MINIMUM SIX (6) FOOT HIGH TEMPORARY CHAINLINK FENCE SHALL BE PLACED AT THE CRITICAL ROOT ZONE OR DESIGNATED LIMIT OF DISTURBANCE OF THE TREE TO BE SAVED. FENCE SHALL COMPLETELY ENCIRCLE TREE(S). INSTALL FENCE POSTS USING PIER BLOCK ONLY. AVOID POST OR STAKES INTO MAJOR ROOTS. MODIFICATIONS TO FENCING MATERIAL AND LOCATION MUST BE APPROVED BY PLANNING OFFICIAL.
2. TREATMENT OF ROOTS EXPOSED DURING CONSTRUCTION: FOR ROOTS OVER ONE (1) INCH DIAMETER DAMAGED DURING CONSTRUCTION, MAKE A CLEAN STRAIGHT CUT TO REMOVE DAMAGED PORTION OF ROOT. ALL EXPOSED ROOTS SHALL BE TEMPORARILY COVERED WITH DAMP BURLAP TO PREVENT DRYING, AND COVERED WITH SOIL AS SOON AS POSSIBLE.
3. NO STOCKPILING OF MATERIALS, VEHICULAR TRAFFIC, OR STORAGE OF EQUIPMENT OR MACHINERY SHALL BE ALLOWED WITHIN THE LIMIT OF THE FENCING. FENCING SHALL NOT BE MOVED OR REMOVED UNLESS APPROVED BY THE CITY PLANNING OFFICIAL. WORK WITHIN PROTECTION FENCE SHALL BE DONE MANUALLY UNDER THE SUPERVISION OF THE ON-SITE ARBORIST AND WITH PRIOR APPROVAL BY THE CITY PLANNING OFFICIAL.
4. FENCING SIGNAGE AS DETAILED ABOVE MUST BE POSTED EVERY FIFTEEN (15) FEET ALONG THE FENCE. SIGN TO BE MINIMUM 11"X17", AND MADE OF WEATHERPROOF MATERIAL.

2 TREE PROTECTION
12" = 1'-0"

CITY OF KIRKLAND
PLAN NO. CK-R.49
TREE PROTECTION

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Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

STATE OF WASHINGTON ANDY MITTON AO 882 EXP. 6/30/2020 LANDSCAPE ARCHITECT

SET TYPE:
100% Design Submittal

SET ISSUE DATE
02/08/2019

REVISIONS

Δ	DESCRIPTION	DATE

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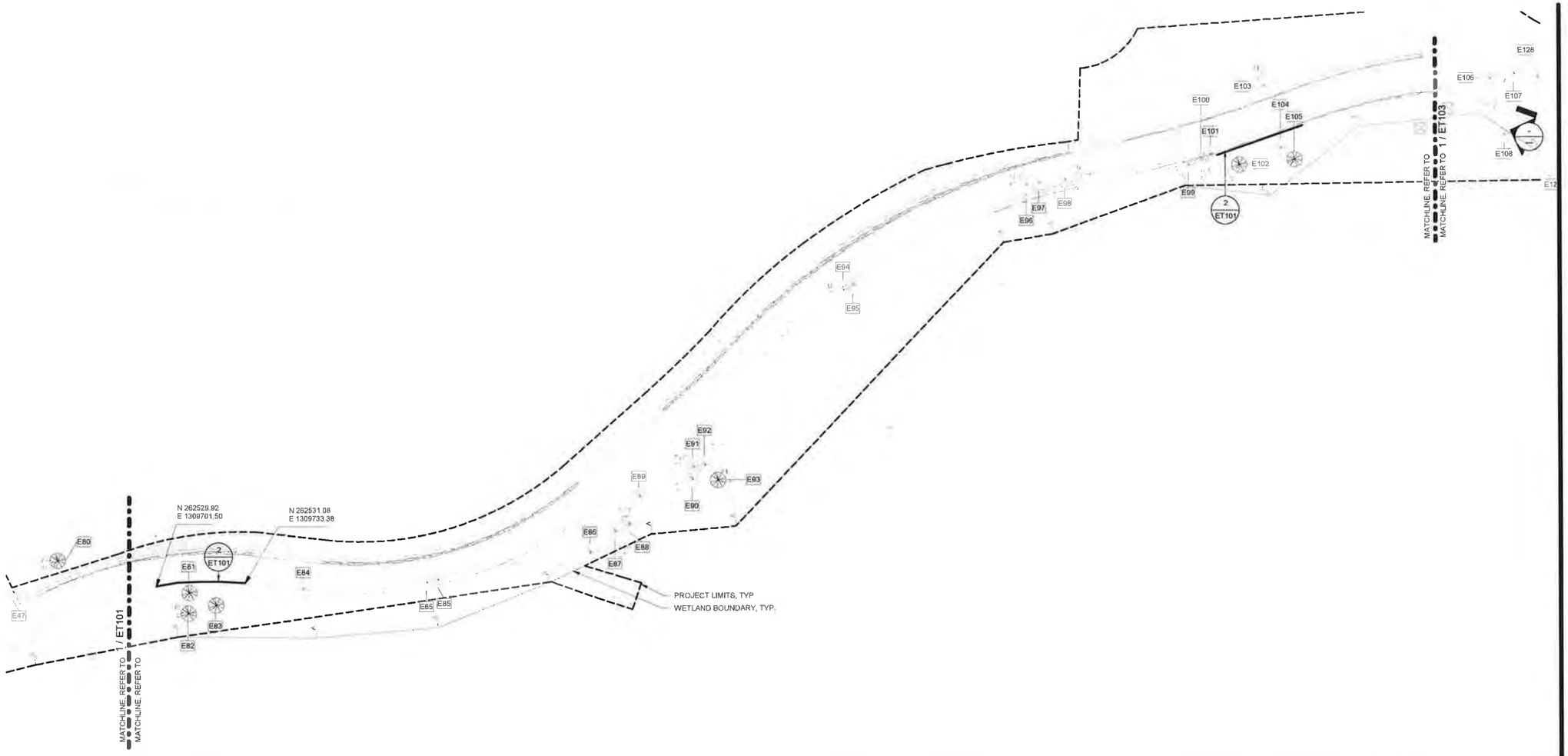
MM / AM

SHEET NAME
EXISTING TREE PLAN - PARK

SHEET NUMBER
ET101

Berger Partnership Project Number 20154875.02 Plotted 2/7/2019 9:42:37 AM Filename C:\Users\mattm\Documents\Totem Lake Park.PH1_mattm@bergerpartnership.com.rvt



1 SITE PLAN - EXISTING TREES - TRAIL
1" = 20'-0"

Existing Tree Legend

- EXISTING CONIFER TREE 6" CAL OR GREATER TO BE RETAINED
- EXISTING DECIDUOUS TREE 6" CAL. OR GREATER TO BE RETAINED
- E1 TREE INVENTORY NUMBER (REFER TO ARBORIST REPORT for E1-E120. FOR NUMBERS E121 & HIGHER, FIELD VERIFY)
- EXISTING CONIFER TREE 6" CAL. OR GREATER TO BE REMOVED
- EXISTING DECIDUOUS 6" CAL. OR GREATER TREE TO BE REMOVED
- EXISTING SHRUB TO BE REMOVED
- EXISTING TREE LESS THAN 6" CAL. TO BE REMOVED
- TREE PROTECTION FENCING
- WETLAND BOUNDARY LINE

TREE REMOVAL GENERAL NOTES	
Note #	Description
1	FOR ALL TREES REMOVED ON PARK SITE (SHEET ET101) ALL MATERIAL SHALL BE COMPLETELY REMOVED FROM SITE.
2	FOR ALL TREES REMOVED ON TRAIL SITE (SHEET ET102) FELL TREES DIRECTIONALLY, SOUTH OF THE TRAIL SUCH THAT THE MAJORITY OF THE TREE LANDS SOUTH OF THE TRAIL IN THE BUFFER.
3	FOR ALL TREES REMOVED ON TRAIL AND BOARDWALK SITE ANY PORTION OF TREES FELLED FROM THE BUFFER THAT LAND IN THE WETLAND SHALL BE REMOVED FROM THE WETLAND.
4	FOR ALL TREES REMOVED ON TRAIL SITE (SHEET ET102) THAT OCCUR AT WITHIN BUFFER, FELL INTO BUFFER AND LEAVE. RELOCATE ANY PORTIONS OF THE TREE WHICH CONFLICT WITH PROPOSED HARDSCAPE ELEMENTS.
5	FOR ALL TREES REMOVED IN WETLAND AREAS, FELL TREE IN WETLAND AND LEAVE AS-IS. REMOVE/RELOCATE ANY PORTIONS WHICH CONFLICT WITH PROPOSED BOARDWALK.
6	FOR ALL TREES FELLED IN WETLAND AND BUFFER AREAS ON TRAIL AND BOARDWALK SITE (SHEET ET102 & ET103), TREES MAY BE SNAGGED AT 8' MAXIMUM HEIGHT IF THEY ARE LOCATED 10' OR GREATER FROM PROPOSED PATHWAYS, TRAILS, AND BOARDWALK.
7	FOR ALL TREES FELLED IN WETLAND AND BUFFER AREAS ON TRAIL AND BOARDWALK SITE (SHEET ET102 & ET103), LOCATED 10' OR LESS FROM PROPOSED PATHWAYS, TRAILS, AND BOARDWALK. CUT TRUNK W/N 1'-0" OF FEXISTING GRADE.
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Totem Lake Park Phase 1

City of Kirkland

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STATE OF WASHINGTON
ANDY MITTON
NO. 982 EXP. 6/30/2020
LANDSCAPE ARCHITECT

SET TYPE
100% Design Submittal

ISSUE DATE
02/08/2019

REVISIONS

Δ	DESCRIPTION	DATE

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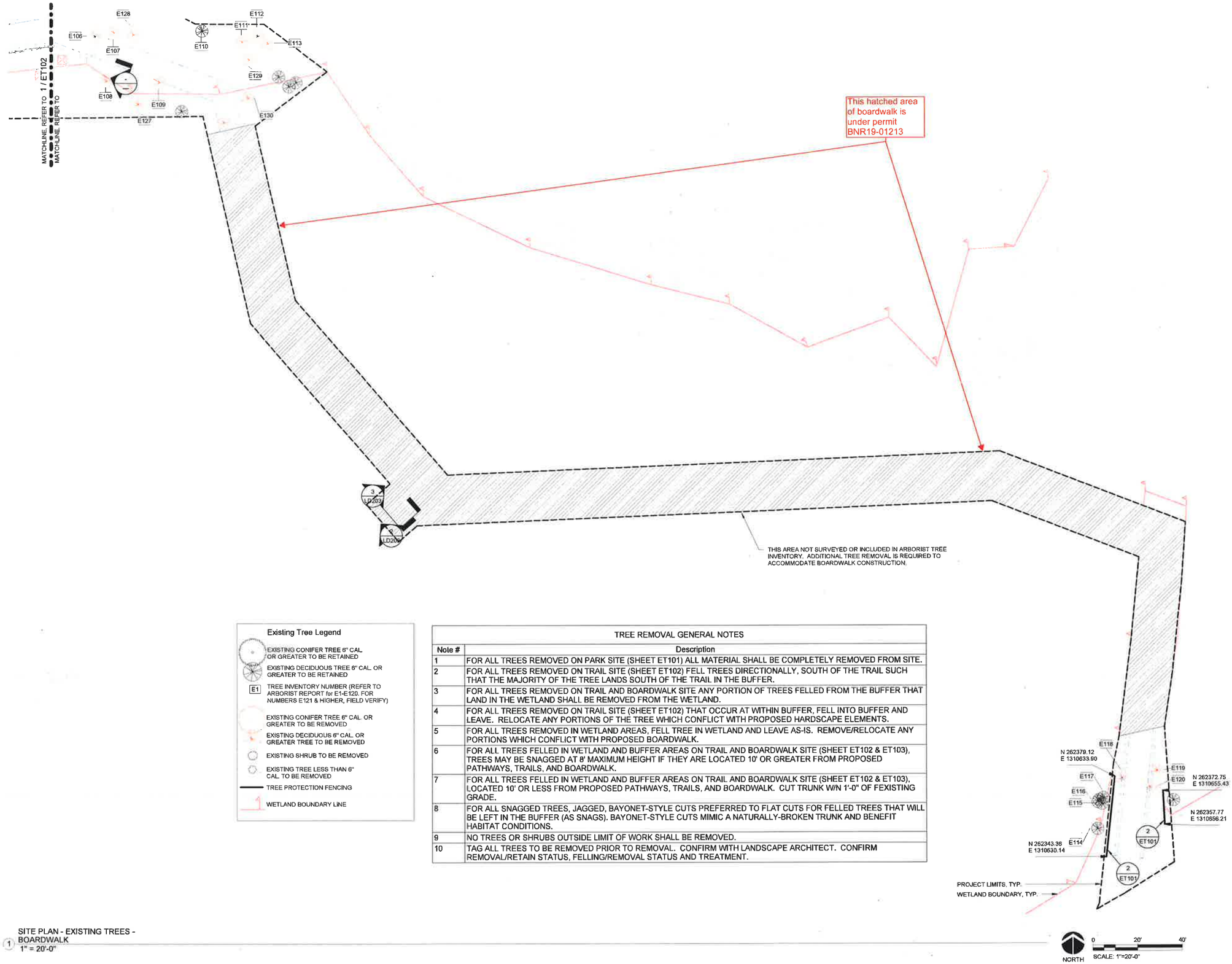
SHEET NAME
EXISTING TREE PLAN - TRAIL

SHEET NUMBER
ET102

Berger Partnership Project Number: 2015487.02
Plotted: 2/7/2019 9:42:46 AM
Filename: C:\Users\mattm\Documents\Totem Lake Park-PH1_mattm@bergerpartnership.com.rvt



Existing Tree Legend

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- EXISTING SHRUB TO BE REMOVED
- EXISTING TREE LESS THAN 6" CAL. TO BE REMOVED
- TREE PROTECTION FENCING
- WETLAND BOUNDARY LINE

TREE REMOVAL GENERAL NOTES

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1 SITE PLAN - EXISTING TREES - BOARDWALK
1" = 20'-0"

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Totem Lake Park Phase 1
City of Kirkland
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STATE OF WASHINGTON
ANDY MITTON
NO. 882 EXP. 6/30/2020
LANDSCAPE ARCHITECT

SET TYPE:
100% Design Submittal

SET ISSUE DATE:
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REVISIONS

Δ	DESCRIPTION	DATE

DRAWN/CHECKED
MM / AM

SHEET NAME
EXISTING TREE PLAN - BOARDWALK

SHEET NUMBER
ET103

Berger Partnership Project Number: 2015487.02
Plotted: 2/7/2019 9:42:55 AM
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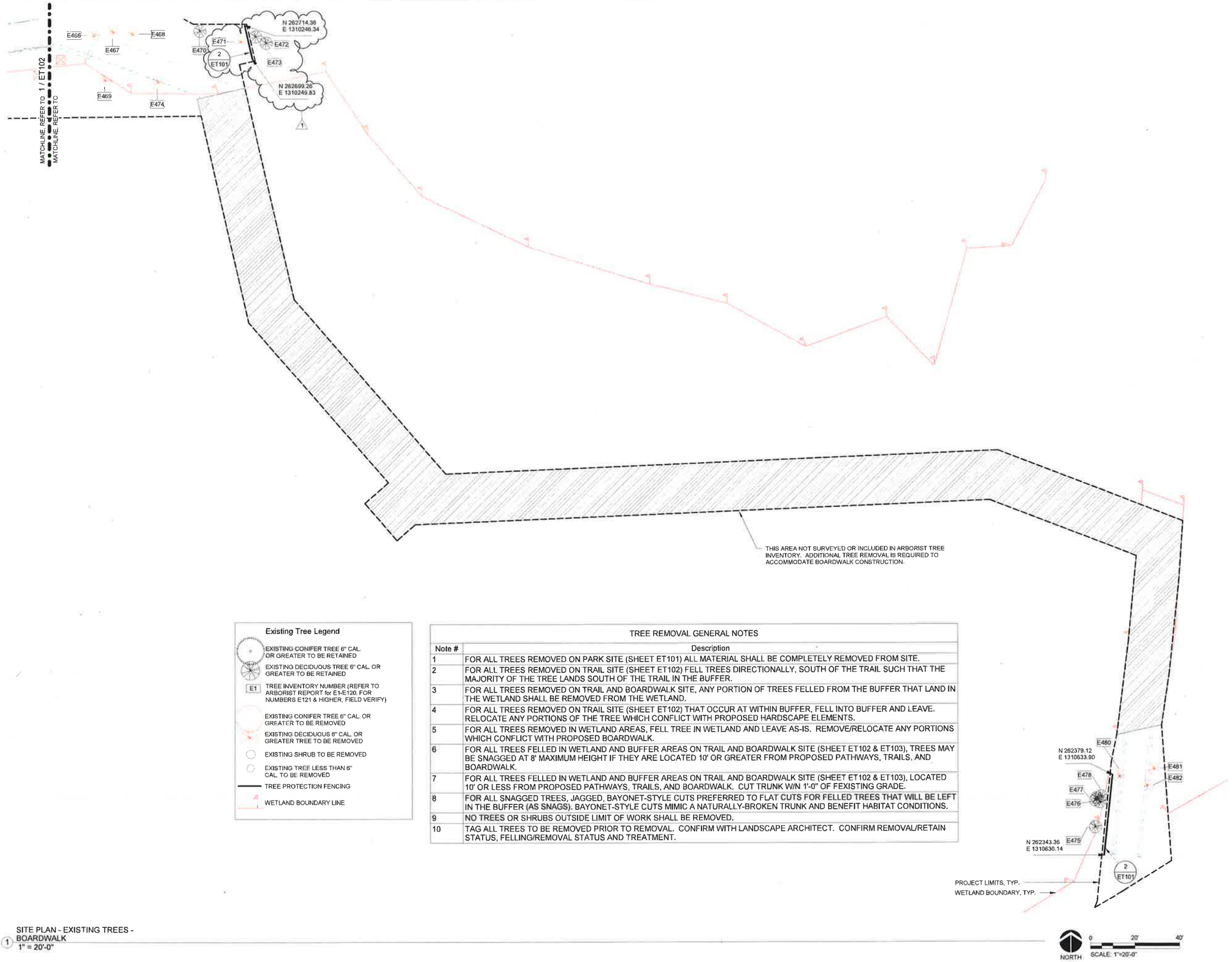

SITE PLAN - EXISTING TREES - BOARDWALK
1" = 20'-0"

Existing Tree Legend

- EXISTING CONIFER TREE 6" CAL OR GREATER TO BE RETAINED
- EXISTING DECIDUOUS TREE 6" CAL. OR GREATER TO BE RETAINED
- E1 TREE INVENTORY NUMBER (REFER TO ARBORIST REPORT for E1-E120. FOR NUMBERS E121 & HIGHER, FIELD VERIFY)
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- EXISTING SHRUB TO BE REMOVED
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- WETLAND BOUNDARY LINE

TREE REMOVAL GENERAL NOTES

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4	FOR ALL TREES REMOVED ON TRAIL SITE (SHEET ET102) THAT OCCUR AT WITHIN BUFFER, FELL INTO BUFFER AND LEAVE. RELOCATE ANY PORTIONS OF THE TREE WHICH CONFLICT WITH PROPOSED HARDSCAPE ELEMENTS.
5	FOR ALL TREES REMOVED IN WETLAND AREAS, FELL TREE IN WETLAND AND LEAVE AS-IS. REMOVE/RELOCATE ANY PORTIONS WHICH CONFLICT WITH PROPOSED BOARDWALK.
6	FOR ALL TREES FELLED IN WETLAND AND BUFFER AREAS ON TRAIL AND BOARDWALK SITE (SHEET ET102 & ET103), TREES MAY BE SNAGGED AT 8' MAXIMUM HEIGHT IF THEY ARE LOCATED 10' OR GREATER FROM PROPOSED PATHWAYS, TRAILS, AND BOARDWALK.
7	FOR ALL TREES FELLED IN WETLAND AND BUFFER AREAS ON TRAIL AND BOARDWALK SITE (SHEET ET102 & ET103), LOCATED 10' OR LESS FROM PROPOSED PATHWAYS, TRAILS, AND BOARDWALK. CUT TRUNK W/N 1'-0" OF FEXISTING GRADE.
8	FOR ALL SNAGGED TREES, JAGGED, BAYONET-STYLE CUTS PREFERRED TO FLAT CUTS FOR FELLED TREES THAT WILL BE LEFT IN THE BUFFER (AS SNAGS). BAYONET-STYLE CUTS MIMIC A NATURALLY-BROKEN TRUNK AND BENEFIT HABITAT CONDITIONS.
9	NO TREES OR SHRUBS OUTSIDE LIMIT OF WORK SHALL BE REMOVED.
10	TAG ALL TREES TO BE REMOVED PRIOR TO REMOVAL. CONFIRM WITH LANDSCAPE ARCHITECT. CONFIRM REMOVAL/RETAIN STATUS, FELLING/REMOVAL STATUS AND TREATMENT.

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Totem Lake Park Phase 1

City of Kirkland

12031 Totem Lake Way, Kirkland, WA 98034

STATE OF WASHINGTON ANDY MITTON AO 882 EXP 6/30/2020 LANDSCAPE ARCHITECT

SET TYPE
100% Design Submittal

SET ISSUE DATE
02/08/2019

REVISIONS

Δ	DESCRIPTION	DATE
1	Permit Response	2019/05/16

DRAWN/CHECKED
MM / AM

SHEET NAME
EXISTING TREE PLAN - BOARDWALK

SHEET NUMBER
ET103

Berger Partnership Project number 20154875.02 Plotted 5/15/2019 3:54:33 PM Filename C:\Users\angieo\Documents\Totem Lake Park-PH1_angieo4HSCM.rvt

EROSION/SEDIMENTATION CONTROL - PLAN NOTES

1. THE APPROVED CONSTRUCTION SEQUENCE SHALL BE AS FOLLOWS:
   a. CONDUCT PRE-CONSTRUCTION MEETING.
   b. FLAG OR FENCE CLEARING LIMITS.
   c. POST SIGN WITH NAME AND PHONE NUMBER OF TESC SUPERVISOR.
   d. INSTALL CATCH BASIN PROTECTION IF REQUIRED.
   e. GRADE AND INSTALL CONSTRUCTION ENTRANCE(S).
   f. INSTALL PERIMETER PROTECTION (SILT FENCE, BRUSH BARRIER, ETC.).
   g. CONSTRUCT SEDIMENT PONDS AND TRAPS.
   h. GRADE AND STABILIZE CONSTRUCTION ROADS.
   i. CONSTRUCT SURFACE WATER CONTROLS (INTERCEPTOR DIKES, PIPE SLOPE DRAINS, ETC.) SIMULTANEOUSLY WITH CLEARING AND GRADING FOR PROJECT DEVELOPMENT.
   j. MAINTAIN EROSION CONTROL MEASURE IN ACCORDANCE WITH CITY OF KIRKLAND STANDARDS AND MANUFACTURER'S RECOMMENDATIONS.
   k. RELOCATE EROSION CONTROL MEASURES OR INSTALL NEW MEASURES SO THAT AS SITE CONDITIONS CHANGE, THE EROSION AND SEDIMENT CONTROL IS ALWAYS IN ACCORDANCE WITH THE CITY TESC MINIMUM REQUIREMENTS.
   l. COVER ALL AREAS WITHIN THE SPECIFIED TIME FRAME WITH STRAW, WOOD FIBER MULCH, COMPOST, PLASTIC SHEETING, CRUSHED ROCK OR EQUIVALENT.
   m. STABILIZE ALL AREAS THAT REACH FINAL GRADE WITHIN 7 DAYS.
   n. SEED OR SOD ANY AREAS TO REMAIN UNWORKED FOR MORE THAN 30 DAYS.
   o. UPON COMPLETION OF THE PROJECT, ALL DISTURBED AREAS MUST BE STABILIZED AND BEST MANAGEMENT PRACTICES REMOVED IF APPROPRIATE.

2. CONTRACTOR IS RESPONSIBLE FOR KEEPING STREETS CLEAN AND FREE OF CONTAMINANTS AT ALL TIMES AND FOR PREVENTING AN ILLICIT DISCHARGE (KMC 15.52) INTO THE MUNICIPAL STORM DRAIN SYSTEM. IF YOUR CONSTRUCTION PROJECT CAUSES AN ILLICIT DISCHARGE TO THE MUNICIPAL STORM DRAIN SYSTEM, THE CITY OF KIRKLAND STORM MAINTENANCE DIVISION WILL BE CALLED AT (425) 587-3900 TO CLEAN THE PUBLIC STORM SYSTEM, AND OTHER AFFECTED PUBLIC INFRASTRUCTURE. THE CONTRACTOR(S), PROPERTY OWNER, AND ANY OTHER RESPONSIBLE PARTY MAY BE CHARGED ALL COSTS ASSOCIATED WITH THE CLEAN-UP AND MAY ALSO BE ASSESSED MONETARY PENALTIES (KMC 1.12.200). THE MINIMUM PENALTY IS $250. A FINAL INSPECTION OF YOUR PROJECT WILL NOT BE GRANTED UNTIL ALL COSTS ASSOCIATED WITH THE CLEAN-UP, AND PENALTIES, ARE PAID TO THE CITY OF KIRKLAND.

3. CONSTRUCTION DEWATERING DISCHARGES SHALL ALWAYS MEET WATER QUALITY GUIDELINES LISTED IN COK POLICY E-1. SPECIFICALLY, DISCHARGES TO THE PUBLIC STORMWATER DRAINAGE SYSTEM MUST BE BELOW 25NTU, AND NOT CONSIDERED AN ILLICIT DISCHARGE (PER KMC 15.52.090).
   TEMPORARY DISCHARGES TO SANITARY SEWER REQUIRE PRIOR AUTHORIZATION AND PERMIT FROM KING COUNTY INDUSTRIAL WASTE PROGRAM (206-263-3000) AND NOTIFICATION TO THE PUBLIC WORKS CONSTRUCTION INSPECTOR.

4. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH CITY OF KIRKLAND STANDARDS, SPECIFICATIONS, AND GENERAL POLICIES.

5. THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THIS PLAN SHALL BE SET BY SURVEY AND CLEARLY FLAGGED IN THE FIELD BY A CLEARING CONTROL FENCE PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE OR REMOVAL OF ANY GROUND COVER BEYOND THE FLAGGED EROSION - PLAN NOTES (CONTINUED) CLEARING LIMITS SHALL BE PERMITTED. THE FLAGGING SHALL BE MAINTAINED BY THE PERMITTEE/CONTRACTOR FOR THE DURATION OF CONSTRUCTION.

6. APPROVAL OF THIS EROSION/SEDIMENTATION CONTROL (ESC) PLAN DOES NOT CONSTITUTE AN APPROVAL OF PERMANENT ROAD OR DRAINAGE DESIGN (E.G., SIZE AND LOCATION OF ROADS, PIPES, RESTRICTORS, CHANNELS, RETENTION FACILITIES, UTILITIES, ETC.).

7. THE CITY WILL TRANSFER THE NPDES PERMIT TO THE CONTRACTOR. THE IMPLEMENTATION OF THIS ESC PLAN AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE PERMITTEE/CONTRACTOR UNTIL ALL CONSTRUCTION IS APPROVED.

8. A COPY OF THE APPROVED ESC PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.

9. THE ESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED PRIOR TO OR IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES IN SUCH A MANNER AS TO ENSURE THAT SEDIMENT-LADEN WATER DOES NOT ENTER THE DRAINAGE SYSTEM OR VIOLATE APPLICABLE WATER STANDARDS. WHEREVER POSSIBLE, MAINTAIN NATURAL VEGETATION FOR SILT CONTROL.

10. THE ESC FACILITIES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DETAILS ON THE APPROVED PLANS. LOCATIONS MAY BE MOVED TO SUIT FIELD CONDITIONS, SUBJECT TO APPROVAL BY THE ENGINEER AND THE CITY OF KIRKLAND INSPECTOR.

11. THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED (E.G., ADDITIONAL SUMPS, RELOCATION OF DITCHES AND SILT FENCES, ETC.) AS NEEDED FOR UNEXPECTED STORM EVENTS. ADDITIONALLY, MORE ESC FACILITIES MAY BE REQUIRED TO ENSURE COMPLETE SILTATION CONTROL. THEREFORE, DURING THE COURSE OF CONSTRUCTION IT SHALL BE THE OBLIGATION AND RESPONSIBILITY OF THE CONTRACTOR TO ADDRESS ANY NEW CONDITIONS THAT MAY BE CREATED BY HIS ACTIVITIES AND TO PROVIDE ADDITIONAL FACILITIES OVER AND ABOVE THE MINIMUM REQUIREMENTS AS MAY BE NEEDED.

12. THE ESC FACILITIES SHALL BE INSPECTED BY THE PERMITTEE/CONTRACTOR DAILY DURING NON-RAINFALL PERIODS, EVERY HOUR (DAYLIGHT) DURING A RAINFALL EVENT, AND AT THE END OF EVERY RAINFALL, AND MAINTAINED AS NECESSARY TO ENSURE THEIR CONTINUED FUNCTIONING. IN ADDITION, TEMPORARY SILTATION PONDS AND ALL TEMPORARY SILTATION CONTROLS SHALL BE MAINTAINED IN A SATISFACTORY CONDITION UNTIL SUCH TIME THAT CLEARING AND/OR CONSTRUCTION IS COMPLETED, PERMANENT DRAINAGE FACILITIES ARE OPERATIONAL, AND THE POTENTIAL FOR EROSION HAS PASSED. WRITTEN RECORDS SHALL BE KEPT DOCUMENTING THE REVIEWS OF THE ESC FACILITIES, AND A COPY OF THESE RECORDS SHALL BE PROVIDED TO THE CITY OF KIRKLAND AT THE CLOSE OF THE PROJECT.

13. THE ESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN 48 HOURS FOLLOWING A STORM EVENT.

14. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES, SUCH AS WASH PADS, MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.

15. ALL DENUDED SOILS MUST BE STABILIZED WITH AN APPROVED TESC METHOD (E.G. SEEDING, MULCHING, PLASTIC COVERING, CRUSHED ROCK) WITHIN THE FOLLOWING TIMELINES:
   - MAY 1 TO SEPTEMBER 30 - SOILS MUST BE STABILIZED WITHIN 7 DAYS OF GRADING.
   - OCTOBER 1 TO APRIL 30 - SOILS MUST BE STABILIZED WITHIN 2 DAYS OF GRADING.
   - STABILIZE SOILS AT THE END OF THE WORKDAY PRIOR TO A WEEKEND, HOLIDAY, OR PREDICTED RAIN EVENT.

16. WHERE SEEDING FOR TEMPORARY EROSION CONTROL IS REQUIRED, FAST GERMINATING GRASSES SHALL BE APPLIED AT AN APPROPRIATE RATE (EXAMPLE: ANNUAL OR PERENNIAL RYE APPLIED AT APPROXIMATELY 80 POUNDS PER ACRE).

17. WHERE STRAW MULCH IS REQUIRED FOR TEMPORARY EROSION CONTROL, IT SHALL BE APPLIED AT A MINIMUM THICKNESS OF 2".

18. CLEARING LIMITS SHALL BE DELINEATED WITH A CLEARING CONTROL FENCE. THE CLEARING CONTROL FENCE SHALL CONSIST OF A 6-FT. HIGH CHAIN LINK FENCE ADJACENT THE DRIP LINE OF TREES TO BE SAVED, WETLAND OR STREAM BUFFERS, AND SENSITIVE SLOPES. CLEARING CONTROL FENCES ALONG WETLAND OR STREAM BUFFERS OR UPSLOPE OF SENSITIVE SLOPES SHALL BE ACCOMPANIED BY AN EROSION CONTROL FENCE. IF APPROVED BY THE CITY, A FOUR-FOOT HIGH ORANGE MESH CLEARING CONTROL FENCE MAY BE USED TO DELINEATE CLEARING LIMITS IN ALL OTHER AREAS.

19. OFF-SITE STREETS MUST BE KEPT CLEAN AT ALL TIMES. IF DIRT IS DEPOSITED ON THE PUBLIC STREET SYSTEM, THE STREET SHALL BE IMMEDIATELY CLEANED WITH POWER SWEEPER OR OTHER EQUIPMENT. ALL VEHICLES SHALL LEAVE THE SITE BY WAY OF THE CONSTRUCTION ENTRANCE AND SHALL BE CLEANED OF ALL DIRT THAT WOULD BE DEPOSITED ON THE PUBLIC STREETS.

20. ROCK FOR EROSION PROTECTION OF ROADWAY DITCHES, WHERE REQUIRED, MUST BE OF SOUND QUARRY ROCK, PLACED TO A DEPTH OF 1' AND MUST MEET THE FOLLOWING SPECIFICATIONS: 4"-8" ROCK/40%-70% PASSING; 2"-4" ROCK/30%-40% PASSING; AND 1"-2" ROCK/10%-20% PASSING. RECYCLED CONCRETE SHALL NOT BE USED FOR EROSION PROTECTION, INCLUDING CONSTRUCTION ENTRANCE OR TEMPORARY STABILIZATION ELSEWHERE ON THE SITE.

21. IF ANY PART(S) OF THE CLEARING LIMIT BOUNDARY OR TEMPORARY EROSION/SEDIMENTATION CONTROL PLAN IS/ARE DAMAGED, IT SHALL BE REPAIRED IMMEDIATELY.

22. ALL PROPERTIES ADJACENT TO THE PROJECT SITE SHALL BE PROTECTED FROM SEDIMENT DEPOSITION AND RUNOFF.

23. AT NO TIME SHALL MORE THAN 1' OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED IMMEDIATELY FOLLOWING REMOVAL OF EROSION CONTROL BMPS. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT-LADEN WATER INTO THE DOWNSTREAM SYSTEM.

24. ANY PERMANENT RETENTION/DETENTION FACILITY USED AS A TEMPORARY SETTLING BASIN SHALL BE MODIFIED WITH THE NECESSARY EROSION CONTROL MEASURES AND SHALL PROVIDE ADEQUATE STORAGE CAPACITY. IF THE PERMANENT FACILITY IS TO FUNCTION ULTIMATELY AS AN INFILTRATION OR DISPERSION SYSTEM, THE FACILITY SHALL NOT BE USED AS A TEMPORARY SETTLING BASIN. NO UNDERGROUND DETENTION TANK, DETENTION VAULT, OR SYSTEM WHICH BACKS UNDER OR INTO A POND SHALL BE USED AS A TEMPORARY SETTLING BASIN.

25. THE WASHED GRAVEL BACKFILL ADJACENT TO THE FILTER FABRIC FENCE SHALL BE REPLACED AND THE FILTER FABRIC CLEANED IF IT IS NONFUNCTIONAL BY EXCESSIVE SILT ACCUMULATION AS DETERMINED BY THE CITY OF KIRKLAND. ALSO, ALL INTERCEPTOR SWALES SHALL BE CLEANED IF SILT ACCUMULATION EXCEEDS ONE-QUARTER DEPTH.

26. PRIOR TO THE OCTOBER 1 OF EACH YEAR (THE BEGINNING OF THE WET SEASON), ALL DISTURBED AREAS SHALL BE REVIEWED TO IDENTIFY WHICH ONES CAN BE SEEDED IN PREPARATION FOR THE WINTER RAINS. THE IDENTIFIED DISTURBED AREA SHALL BE SEEDED WITHIN ONE WEEK AFTER OCTOBER 1. A SITE PLAN DEPICTING THE AREAS TO BE SEEDED AND THE AREAS TO REMAIN UNCOVERED SHALL BE SUBMITTED TO THE PUBLIC WORKS CONSTRUCTION INSPECTOR. THE INSPECTOR CAN REQUIRE SEEDING OF ADDITIONAL AREAS IN ORDER TO PROTECT SURFACE WATERS, ADJACENT PROPERTIES, OR DRAINAGE FACILITIES.

27. ANY CATCH BASINS COLLECTING RUNOFF FROM THE SITE, WHETHER THEY ARE ON OR OFF THE SITE, SHALL HAVE ADEQUATE PROTECTION FROM SEDIMENT. CATCH BASINS DIRECTLY DOWNSTREAM OF THE CONSTRUCTION ENTRANCE OR ANY OTHER CATCH BASIN AS DETERMINED BY THE CITY INSPECTOR SHALL BE PROTECTED WITH A "STORM DRAIN PROTECTION INSERT" OR EQUIVALENT.

28. DO NOT FLUSH CONCRETE BY-PRODUCTS OR TRUCKS NEAR OR INTO THE STORM DRAINAGE SYSTEM. IF EXPOSED AGGREGATE IS FLUSHED INTO THE STORM SYSTEM, IT COULD MEAN RE-CLEANING THE ENTIRE DOWNSTREAM STORM SYSTEM, OR POSSIBLY RE-LAYING THE STORM LINE.

29. RECYCLED CONCRETE SHALL NOT BE STOCKPILED ON SITE. USE OR REUSE OF RECYCLED CONCRETE ON THE SITE IS PROHIBITED.

NORTHSHORE UTILITY DISTRICT GENERAL NOTES

SMALL PROJECTS SERVICE SEWER AND WATER GENERAL NOTES:

1. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH THE SMALL PROJECT SERVICE SPECIFICATIONS AND THE STANDARD DETAILS OF NORTHSHORE UTILITY DISTRICT.

UTILITY LOCATES:
2. THE APPROXIMATE LOCATIONS OF EXISTING UTILITIES ARE SHOWN ON PLANS AND PROFILES FOR CONVENIENCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF UTILITY LOCATIONS SHOWN AND FOR DISCOVERY OF POSSIBLE ADDITIONAL UTILITIES NOT SHOWN ON PLANS.
3. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE LOCATED, BY APPROPRIATE UTILITY DISTRICTS OR COMPANIES, ALL UNDERGROUND UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
4. FOR UTILITY LOCATES IN KING COUNTY, CALL 1-800-424-5555 PRIOR TO DIGGING.

PRE-CON:
5. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD AT CITY OF KIRKLAND OFFICE OR ONSITE PRIOR TO THE START OF CONSTRUCTION. DISTRICT STAFF WILL NOTIFY THE APPROPRIATE AGENCIES OR REPRESENTATIVES.

SURVEYING:
6. PRIOR TO CONSTRUCTION, LOT CORNERS, EASEMENTS AND PRIVATE ACCESS TRACTS SHALL BE STAKED.
7. HORIZONTAL CONTROL DATA SHALL BE NAD '83/'91. VERTICAL CONTROL SHALL BE NAVD-88 DATUM.
8. AT THE CONCLUSION OF CONSTRUCTION, THE DEVELOPER'S REGISTERED PROFESSIONAL SURVEYOR SHALL PREPARE A DRAWING BASED ON THE SURVEYED LOCATION OF ALL APPURTENANCES INSTALLED, INCLUDING BUT NOT LIMITED TO, MANHOLES, CLEANOUTS, WATER METERS AND WATER SERVICE LINES.

CONSTRUCTION:
9. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE SMALL PROJECT SERVICE SPECIFICATIONS AND THE STANDARD DETAILS OF NORTHSHORE UTILITY DISTRICT.

MATERIALS:
10. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE SMALL PROJECT SERVICE SPECIFICATIONS AND THE STANDARD DETAILS OF NORTHSHORE UTILITY DISTRICT.

PLACEMENT:
11. SEWER AND WATER SERVICE LOCATIONS SHALL BE AS SHOWN ON THE PLANS OR AS OTHERWISE APPROVED BY NORTHSHORE UTILITY DISTRICT.

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ch2m:

Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

2-8-19

SET TYPE:
100% Design Submittal

SET ISSUE DATE:
2/8/2019

REVISIONS:

DRAWN/CHECKED:
DRW / CHK

SHEET NAME:
CIVIL GENERAL NOTES

SHEET NUMBER:
C001

STORM DRAINAGE - PLAN NOTES

1. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION.
2. BEFORE ANY CONSTRUCTION MAY OCCUR, THE CONTRACTOR SHALL HAVE PLANS WHICH HAVE BEEN SIGNED AND APPROVED BY THE CITY OF KIRKLAND PUBLIC WORKS DEPARTMENT, OBTAINED ALL CITY, COUNTY, STATE, FEDERAL AND OTHER REQUIRED PERMITS, AND HAVE POSTED ALL REQUIRED BONDS.
3. ALL STORM DRAINAGE IMPROVEMENTS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE CITY OF KIRKLAND PUBLIC WORKS PRE-APPROVED PLANS AND POLICIES AND THE STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION, PREPARED BY WSDOT AND THE AMERICAN PUBLIC WORKS ASSOCIATION (APWA)
4. ANY DEVIATION FROM THE APPROVED PLANS WILL REQUIRE WRITTEN APPROVAL, ALL CHANGES SHALL BE SUBMITTED TO THE CITY.
5. A COPY OF THE APPROVED STORM WATER PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
6. ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED OR SIMILARLY STABILIZED TO THE SATISFACTION OF THE CITY OF KIRKLAND DEPARTMENT OF PUBLIC WORKS FOR THE PREVENTION OF ON-SITE EROSION AFTER THE COMPLETION OF CONSTRUCTION.
7. MINIMUM COVER OVER STORM DRAINAGE PIPES IN ROW OR VEHICULAR PATH SHALL BE 18 INCHES, UNLESS OTHER DESIGN IS APPROVED.
8. STEEL PIPE SHALL HAVE ASPHALT TREATMENT #1 OR BETTER INSIDE AND OUTSIDE.
9. ALL CATCH BASINS SHALL BE TYPE I UNLESS OTHERWISE NOTED. CATCH BASINS WITH A DEPTH OF OVER FIVE FEET (5') TO THE PIPE INVERT SHALL BE A TYPE II CATCH BASIN. TYPE II CATCH BASINS EXCEEDING FIVE FEET (5') IN DEPTH SHALL HAVE A STANDARD LADDER INSTALLED. ALL CATCH BASIN LIDS ARE REQUIRED TO MEET KIRKLAND STANDARD PLAN SHEET CK-D.18A.
10. ALL STORM DRAINAGE MAIN EXTENSIONS WITHIN THE PUBLIC RIGHT-OF-WAY OR IN EASEMENTS MUST BE STAKED FOR LINE AND GRADE PRIOR TO STARTING CONSTRUCTION.
11. ALL PIPE, MANHOLES, CATCH BASINS, AND APPURTENANCES SHALL BE LAID ON A PROPERLY PREPARED FOUNDATION IN ACCORDANCE WITH THE CURRENT STATE OF WASHINGTON STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (WSDOT). THIS SHALL INCLUDE NECESSARY LEVELING OF THE TRENCH BOTTOM OR THE TOP OF THE FOUNDATION MATERIAL AS WELL AS PLACEMENT AND COMPACTION OF REQUIRED BEDDING MATERIAL TO UNIFORM GRADE SO THAT THE ENTIRE LENGTH OF THE PIPE WILL BE SUPPORTED ON A UNIFORMLY DENSE, UNYIELDING BASE. IF THE NATIVE MATERIAL IN THE BOTTOM OF THE TRENCH MEETS THE REQUIREMENTS FOR "GRAVEL BACKFILL FOR PIPE BEDDING," THE FIRST LIFT OF PIPE BEDDING MAY BE OMITTED PROVIDED THE MATERIAL IN THE BOTTOM OF THE TRENCH IS LOOSENED, REGRADED, AND COMPACTED TO FORM A DENSE UNYIELDING BASE. ALL PIPE BEDDING SHALL BE APWA CLASS B, TYPE I, OR BETTER. PIPE SHALL NOT BE INSTALLED ON SOD, FROZEN EARTH, LARGE BOULDERS, OR ROCK. PIPE BEDDING FOR FLEXIBLE PIPES SHALL BE PEA GRAVEL TO THE SPRINGLINE OF THE PIPE.
12. CONSTRUCTION OF DEWATERING DISCHARGES SHALL ALWAYS MEET WATER QUALITY GUIDELINES LISTED IN COK POLICY E-1. SPECIFICALLY, DISCHARGES TO THE PUBLIC STORMWATER DRAINAGE SYSTEM MUST BE BELOW 25NTU, AND NOT CONSIDERED A PROHIBITED DISCHARGE (PER KMC 15.52.090). TEMPORARY DISCHARGES TO SANITARY SEWER REQUIRE PRIOR AUTHORIZATION AND PERMIT FROM KING COUNTY INDUSTRIAL WASTE PROGRAM (206-263-3000) AND NOTIFICATION TO THE PUBLIC WORKS CONSTRUCTION INSPECTOR.
13. ALL TRENCH BACKFILL SHALL BE COMPACTED TO 95 PERCENT DENSITY IN ROADWAYS, ROADWAY SHOULDERS, ROADWAY PRISM AND DRIVEWAYS, AND 85 PERCENT DENSITY IN UNPAVED AREAS. ALL PIPE ZONE COMPACTION SHALL BE 95 PERCENT.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE SAFEGUARDS, SAFETY DEVICES, PROTECTIVE EQUIPMENT, CONFINED SPACE PROTECTION, FLAGGERS, AND ANY OTHER NEEDED ACTIONS TO PROTECT THE LIFE, HEALTH, AND SAFETY OF THE PUBLIC, AND TO PROTECT PROPERTY IN CONNECTION WITH THE PERFORMANCE OF WORK COVERED BY THE CONTRACT. ANY WORK WITHIN THE TRAVELED RIGHT-OF-WAY THAT MAY INTERRUPT NORMAL TRAFFIC FLOW SHALL REQUIRE A TRAFFIC CONTROL PLAN APPROVED BY THE CITY OF KIRKLAND. ALL SECTIONS OF THE WSDOT STANDARD SPECIFICATIONS, TRAFFIC CONTROL, AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) SHALL APPLY.
15. NO FINAL CUT OR FILL SLOPE SHALL EXCEED SLOPES OF TWO (2) HORIZONTAL TO ONE (1) VERTICAL WITHOUT STABILIZATION BY ROCKERY OR BY A STRUCTURAL RETAINING WALL.
16. ALL MANHOLE LADDERS SHALL BE FIRMLY ATTACHED AND EXTEND TO WITHIN 1' OF THE BOTTOM OF THE STRUCTURE.
17. APPROXIMATE LOCATIONS OF EXISTING UTILITIES HAVE BEEN OBTAINED FROM AVAILABLE RECORDS AND ARE SHOWN FOR CONVENIENCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF EXISTING UTILITY LOCATIONS WHETHER OR NOT THESE UTILITIES ARE SHOWN ON THE PLANS. THE CONTRACTOR SHALL EXERCISE ALL CARE TO AVOID DAMAGE TO ANY UTILITY. IF CONFLICTS WITH EXISTING UTILITIES ARISE DURING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE CITY CONSTRUCTION INSPECTOR AND ANY CHANGES REQUIRED SHALL BE APPROVED BY THE DEVELOPMENT ENGINEER PRIOR TO COMMENCEMENT OF RELATED CONSTRUCTION ON THE PROJECT.
18. THE UNDERGROUND UTILITY LOCATION SERVICE SHALL BE CONTACTED FOR FIELD LOCATION OF EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION. THE OWNER OR HIS REPRESENTATIVE SHALL BE CONTACTED IF A UTILITY CONFLICT EXISTS. FOR UTILITY LOCATION IN KING COUNTY, CALL 1-800-424-5555. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT UTILITY LOCATES ARE MAINTAINED THROUGHOUT THE LIFE OF THE PROJECT.
19. THE CONTRACTOR SHALL VERIFY THE LOCATIONS, WIDTHS, THICKNESS, AND ELEVATIONS OF ALL EXISTING PAVEMENTS AND STRUCTURES THAT ARE TO INTERFACE WITH NEW WORK. PROVIDE ALL TRIMMING, CUTTING, SAW CUTTING, GRADING, LEVELING, SLOPING, COATING, AND OTHER WORK, INCLUDING MATERIALS AS NECESSARY, TO CAUSE THE INTERFACE WITH EXISTING WORKS TO BE PROPER, ACCEPTABLE TO THE ENGINEER AND THE CITY OF KIRKLAND, COMPLETE IN PLACE AND READY TO USE.
20. ALL INLET, MANHOLE, AND CATCH BASIN FRAMES AND GRATES SHALL NOT BE ADJUSTED TO GRADE UNTIL IMMEDIATELY PRIOR TO FINAL PAVING. ALL CATCH BASIN GRATES SHALL BE SET 0.10' BELOW PAVEMENT LEVEL.
21. OPEN CUT ROAD CROSSINGS FOR UTILITY TRENCHES ON EXISTING TRAVELED ROADWAY SHALL BE BACKFILLED ONLY WITH 5/8" MINUS CRUSHED ROCK AND MECHANICALLY COMPACTED (UNLESS OTHERWISE APPROVED BY THE CITY). FOR STREETS CLASSIFIED AS ARTERIALS OR COLLECTORS, BACKFILL FOR CROSSINGS SHALL BE CDF. CUTS INTO THE EXISTING ASPHALT SHALL BE NEAT LINE CUT WITH SAW OR JACKHAMMER IN A CONTINUOUS LINE. A TEMPORARY COLD MIX PATCH MUST BE PLACED IMMEDIATELY AFTER BACKFILL AND COMPACTION. A PERMANENT HOT MIX PATCH SHALL BE PLACED WITHIN 30 DAYS AND SHALL BE A MINIMUM OF 1" THICKER THAN THE ORIGINAL ASPHALT WITH A MINIMUM THICKNESS OF 2". SEE STANDARD D.02.
22. ALL DAMAGES INCURRED TO PUBLIC AND/OR PRIVATE PROPERTY BY THE CONTRACTOR.DURING THE COURSE OF CONSTRUCTION SHALL BE PROMPTLY REPAIRED TO THE SATISFACTION OF THE CITY CONSTRUCTION INSPECTOR BEFORE PROJECT APPROVAL AND/OR THE RELEASE OF THE PROJECT'S PERFORMANCE BOND.
23. GROUT ALL SEAMS AND OPENINGS IN ALL INLETS, CATCH BASINS, AND MANHOLES. JETSET GROUT IS NOT ALLOWED. WHEN WIDENING AN EXISTING ROADWAY WHERE AN EXISTING TYPE I CATCH BASIN WILL REMAIN IN THE TRAVEL LANE, THE EXISTING FRAME AND COVER SHALL BE REPLACED WITH A ROUND, LOCKING FRAME AND COVER PER CITY OF KIRKLAND STANDARD PLAN CK-D18.A.
24. RECYCLED CONCRETE SHALL NOT BE USED AROUND STORMWATER FACILITIES OR ANYWHERE ON THIS SITE.

PIPE - MATERIALS:

25. ACCEPTABLE TYPES PUBLICLY OWNED AND MAINTAINED CONVEYANCE SYSTEMS
    A. PVC 3034
    B. DUCTILE IRON
    C. C900/C905
26. ALL PIPES SHALL HAVE A MINIMUM 18" OF PIPE COVER IN THE ROW OR PRIVATE DRIVES EXPOSED TO VEHICULAR TRAFFIC. IF PIPE COVER IS LESS THAN 18 INCHES THE PIPE SHALL BE DUCTILE IRON (CLASS 50) OR C-900. ALSO, ANY PIPES PROPOSED TO BE INSTALLED IN THE LOAD BEARING ZONE OF STRUCTURAL WALLS MUST BE PROTECTED BY A DUCTILE IRON (CLASS 50) SLEEVE. THE DESIGN OR USE OF DI SLEEVES MUST BE APPROVED BY THE CITY OF KIRKLAND DEPARTMENT OF PUBLIC WORKS.

CATCH BASIN/INLETS - GRATE SELECTION:

27. ALL FRAME AND COVERS SHALL BE LOCKABLE WITH A STANDARD 5/8" HEX DRIVE BOLT (EXCEPT ERGO FRAME AND COVER).

CATCH BASIN/INLETS - JOINTS:

28. TYPE I JOINTS SHALL BE NON-SHRINK GROUT.
29. TYPE II AND LARGER MANHOLES SHALL HAVE GASKETED JOINTS AND SHALL BE WATERTIGHT SEALED.
30. PVC AND OTHER PLASTIC PIPES REQUIRE A COUPLING ADAPTER MADE FOR THE PIPE TYPE AND CONCRETE JOINING.

CATCH BASIN/INLETS - CONSTRUCTION:

31. CATCH BASINS SHALL BE BEDDED IN CRUSHED SURFACING BASE COURSE.
32. ADJUSTMENTS OVER 2" TO GRADE SHALL BE WITH CONCRETE ADJUSTMENT RINGS.
33. ADJUSTMENTS UNDER 2" SHALL BE WITH CONCRETE OR NON-SHRINK GROUT.
34. FOR TYPE II CB'S WITH ECCENTRIC CONE TOP-SECTION, THE MAXIMUM ADJUSTMENT DISTANCE IS 12", NOT INCLUDING CASTING.
35. FOR TYPE II CB'S WITH FLAT-TOP, THE MAXIMUM ADJUSTMENT DISTANCE IS 12", NOT INCLUDING CASTING.
36. ALL CONNECTIONS TO STRUCTURES SHALL USE SAND COLLARS WITH NON-SHRINK GROUT (NO JET SET ALLOWED).
37. WOOD, ROCK, EXPANSION JOINT OR RED BRICK SHALL NOT BE USED AT ANY TIME. IF STANDARD GREY CONCRETE 2"X4"X8" BRICKS ARE USED THEY SHALL BE TOTALLY ENCAPSULATED WITH CONCRETE OR GROUT. THIS SHOULD APPLY TO ALL DRAWINGS.
38. ALL ADJUSTMENT RISERS SHALL BE GROUTED DOWN WITH NON-SHRINK GROUT OR PORTLAND CEMENT AND SAND MIXTURE. DRY STACKING IS NOT ALLOWED.

PAVING AND ROADWAY - PLAN NOTES

1. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION.
2. ALL ROADWAY WORK AND MATERIAL SHALL BE IN ACCORDANCE WITH THE CURRENT APWA AND CITY OF KIRKLAND STANDARDS AND SPECIFICATIONS.
3. ALL PUBLIC ROADWAYS SHALL BE CONSTRUCTED OF 4" CLASS "B" AC PAVING ON 6" ASPHALT-TREATED BASE (ATB) ON 4" MINIMUM OF 1-1/4" MINUS CRUSHED SURFACING BASE COURSE, UNLESS OTHERWISE APPROVED BY THE PUBLIC WORKS DEPARTMENT.
4. A COPY OF THE APPROVED ROADWAY PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
5. DENSITY TEST REPORTS WILL BE REQUIRED FOR ALL PUBLIC ROADWAYS AND ALL PRIVATE ROADWAYS. ALL TRENCH BACKFILL SHALL BE COMPACTED TO 95 PERCENT DENSITY IN ROADWAYS, ROADWAY SHOULDERS, ROADWAY PRISM AND DRIVEWAYS, AND 85 PERCENT DENSITY IN UNPAVED AREAS. ALL PIPE ZONE COMPACTION SHALL BE 95 PERCENT.
6. ALL COMMERCIAL AND RESIDENTIAL DRIVEWAYS MUST CONFORM TO THE CITY OF KIRKLAND DEPARTMENT OF PUBLIC WORKS DRIVEWAY POLICY.
7. ALL CONCRETE FOR SIDEWALKS AND CURB AND GUTTER MUST BE 4,000 PSI MINIMUM. (5-3/4 SACK MIX.)
8. ANY ROADWAY SIGNAGE OR STRIPING REMOVED OR TEMPORARILY MOVED BY THE CONTRACTOR SHALL BE RESTORED SO AS TO MEET THE CURRENT CITY OF KIRKLAND STANDARDS.
9. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ADEQUATE TEMPORARY TRAFFIC CONTROL TO ENSURE TRAFFIC SAFETY DURING CONSTRUCTION ACTIVITIES. THEREFORE, THE CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN TO THE PUBLIC WORKS DEPARTMENT PRIOR TO STARTING WORK. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) OR AS MODIFIED BY THE TRAFFIC ENGINEER.
10. SIDEWALK AND CURB AND GUTTER CANNOT BE POURED MONOLITHICALLY. THERE MUST BE A COLD JOINT OR FULL-DEPTH EXPANSION JOINT BETWEEN THEM.
11. ALL NEW SIGNS REQUIRED IN THE PUBLIC RIGHT-OF-WAY MUST BE PURCHASED FROM, AND INSTALLED BY, THE CITY OF KIRKLAND PUBLIC WORKS DEPARTMENT.
12. ANY EXISTING PUBLIC IMPROVEMENTS DAMAGED DURING CONSTRUCTION SHALL BE REPLACED PRIOR TO FINAL INSPECTION.
13. THE CONTRACTOR IS RESPONSIBLE FOR KEEPING ALL PUBLIC STREETS FREE FROM MUD AND DEBRIS AT ALL TIMES. THE CONTRACTOR SHALL BE PREPARED TO USE POWER SWEEPERS OR OTHER PIECES OF EQUIPMENT NECESSARY TO KEEP THE ROADWAYS CLEAN.
14. BACKFILL IN ALL STREET CUTS ON ARTERIALS WILL BE CONTROL DENSITY FILL (CDF). CONTRACTOR MUST PROVIDE STEEL PLATING NECESSARY TO ALLOW THE CDF TO CURE.
15. WHEN CONSTRUCTING NEW CURB AND GUTTER WHICH DOES NOT ALIGN WITH THE EXISTING EDGE OF PAVEMENT, THE ROADWAY MUST BE TAPERED FROM THE ENDS OF THE NEW CURB AND GUTTER TO MATCH THE EXISTING PAVEMENT. THE ENTRY TAPER INTO THE NEW IMPROVEMENTS SHALL BE 5:1, AND LEAVING THE NEW IMPROVEMENTS SHALL BE 10:1.
16. RESTORATION OF CUTS IN EXISTING PAVEMENT SHALL INCLUDE A T-CUT WITH A SAWCUT AND SEAL A MINIMUM OF 12 INCHES BEYOND THE TRENCH LIMITS PER PLAN NO. CK-D.02.

FIBER OPTIC CONDUIT NOTES

1. MAINTAIN REQUIRED CLEARANCES FROM OTHER UTILITIES. NOTIFY ENGINEER IF INSUFFICIENT CLEARANCE IS AVAILABLE.
2. INSTALL CONTINUOUS 4" WIDE METALLIC DETECTABLE WARNING TAPE ABOVE ALL CONDUIT. COMMUNICATIONS CABLE WARNING TAPE SHALL BE ORANGE AND LABELED WITH "CAUTION, BURIED FIBER BELOW" .
3. PROVIDE A GROUND IN EACH HAND HOLE.
4. INSTALL CONTINUOUS #10 AWG LOCATE WIRE IN EACH CONDUIT TRENCH. TERMINATE THE LOCATE WIRE TO THE GROUND ROD IN THE HAND HOLE.
5. CONDUIT BENDS SHALL BE 36" RADIUS MINIMUM, AND LIMIT BENDS TO 270 DEGREES CUMULATIVE BETWEEN HAND HOLES OR PULL BOXES.

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Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

2-8-19

SET TYPE:
100% Design Submittal

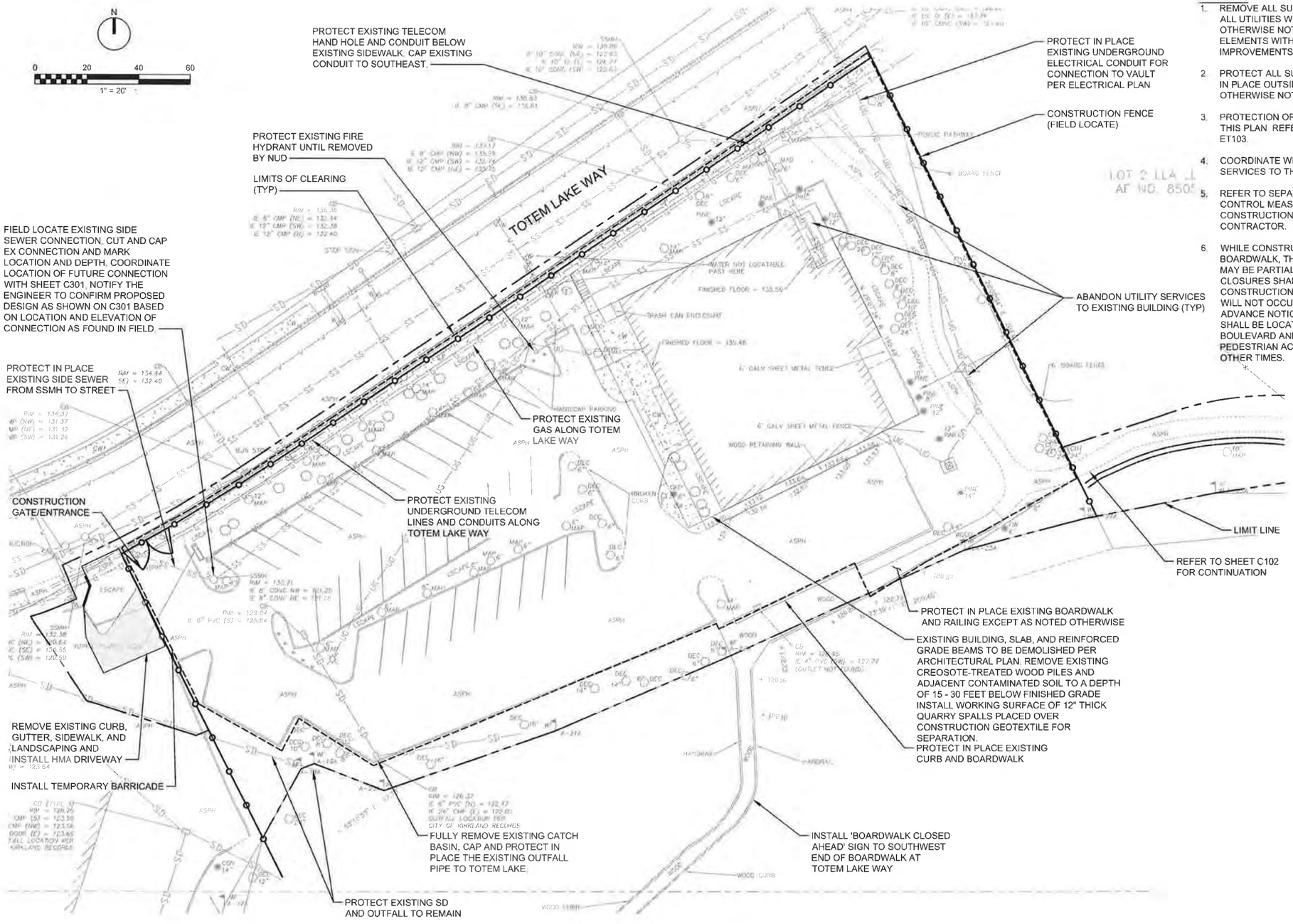
SET ISSUE DATE:
2/8/2019

REVISIONS:

DRAWING CHECKER:
DRW / CHK

SHEET NAME:
CIVIL GENERAL NOTES

SHEET NUMBER:
C002



SITE PREPARATION PLAN

1" = 20'

NOTES:

1. REMOVE ALL SURFACE FEATURES, PAVEMENTS, AND ABANDON ALL UTILITIES WITHIN THE LIMITS OF CLEARING UNLESS OTHERWISE NOTED. DEMOLISH UTILITIES AND FOUNDATION ELEMENTS WITHIN THE LIMITS OF WORK THAT CONFLICT WITH IMPROVEMENTS, UNLESS OTHERWISE NOTED.
2. PROTECT ALL SURFACE FEATURES, PAVEMENTS, AND UTILITIES IN PLACE OUTSIDE THE LIMITS OF CLEARING UNLESS OTHERWISE NOTED.
3. PROTECTION OR REMOVAL OF VEGETATION NOT SHOWN ON THIS PLAN. REFER TO LANDSCAPE PLANS ET101, ET102, AND ET103.
4. COORDINATE WITH UTILITY PROVIDERS TO ABANDON UTILITY SERVICES TO THE EXISTING BUILDING
5. REFER TO SEPARATE TESC PLAN FOR EROSION AND SEDIMENT CONTROL MEASURES TO BE IMPLEMENTED DURING CONSTRUCTION. CESC/SWPPP WILL BE TRANSFERRED TO THE CONTRACTOR.
6. WHILE CONSTRUCTING THE EASTERN PORTION OF THE NEW BOARDWALK, THE CROSS KIRKLAND CORRIDOR (CKC) TRAIL MAY BE PARTIALLY CLOSED FOR CONSTRUCTION ACCESS. CLOSURES SHALL NOT EXCEED 15 DAYS TOTAL IN THE CONSTRUCTION PERIOD AND CLOSURES OF 1-2 HOURS PER DAY WILL NOT OCCUR MORE THAN 2 DAYS PER WEEK. PROVIDE ADVANCE NOTICE PRIOR TO ANY CLOSURE, AND SIGNAGE SHALL BE LOCATED ACROSS THE CKC AT TOTEM LAKE BOULEVARD AND 128TH LANE NE. PROVIDE MARKED PEDESTRIAN ACCESS ON THE SOUTH SIDE OF THE TRAIL AT ALL OTHER TIMES.

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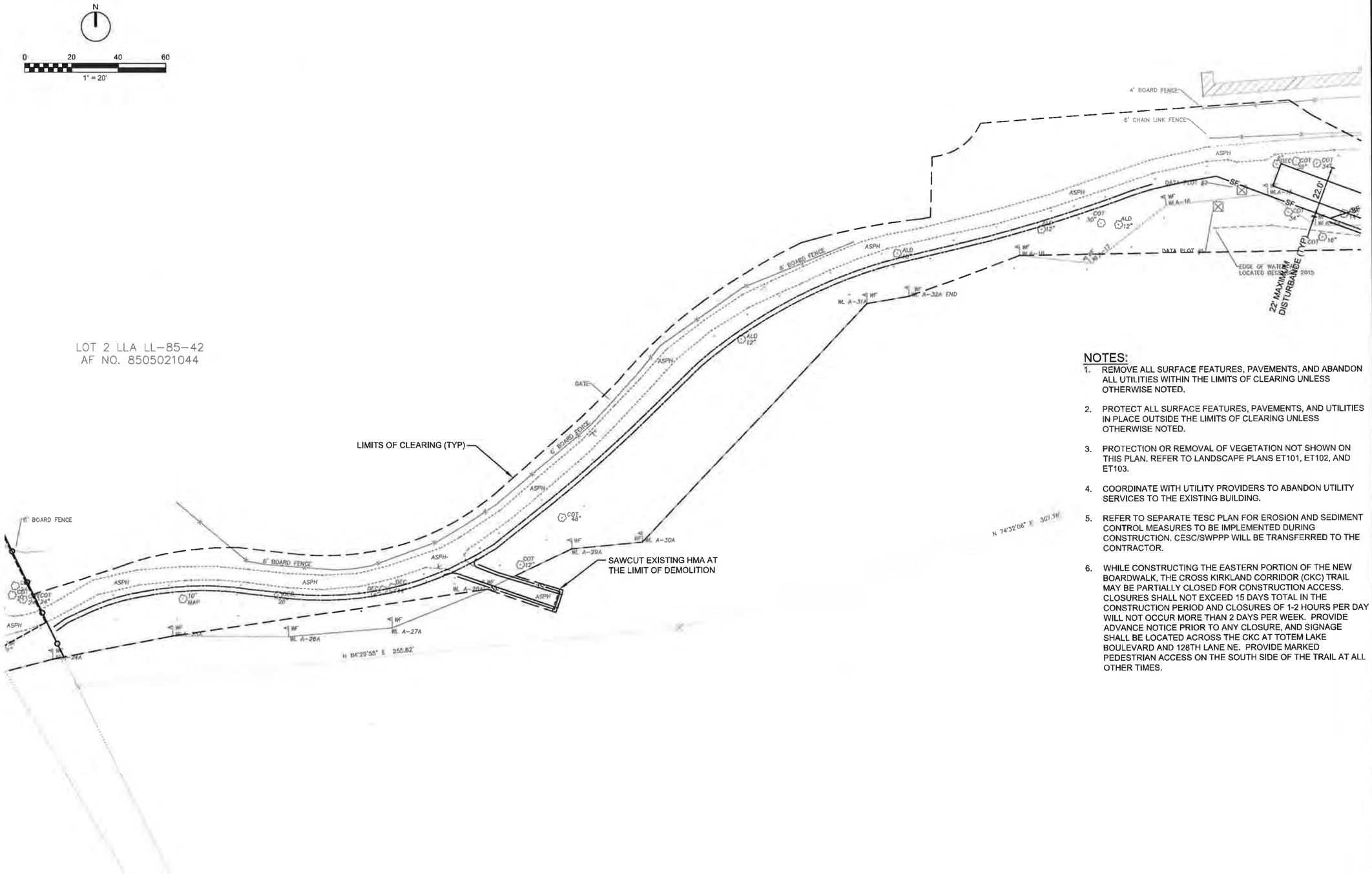
DRW / CHK

SHEET NAME
SITE PREPARATION PLAN - PARK

SHEET NUMBER
C101



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SITE PREPARATION PLAN - TRAIL

1" = 20'

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2-8-19

SET TYPE
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SET ISSUE DATE:
2/8/2019

REVISIONS:

DRAWN/CHECKED
DRW / CHK

SHEET NAME
SITE PREPARATION PLAN - TRAIL

SHEET NUMBER:
C102

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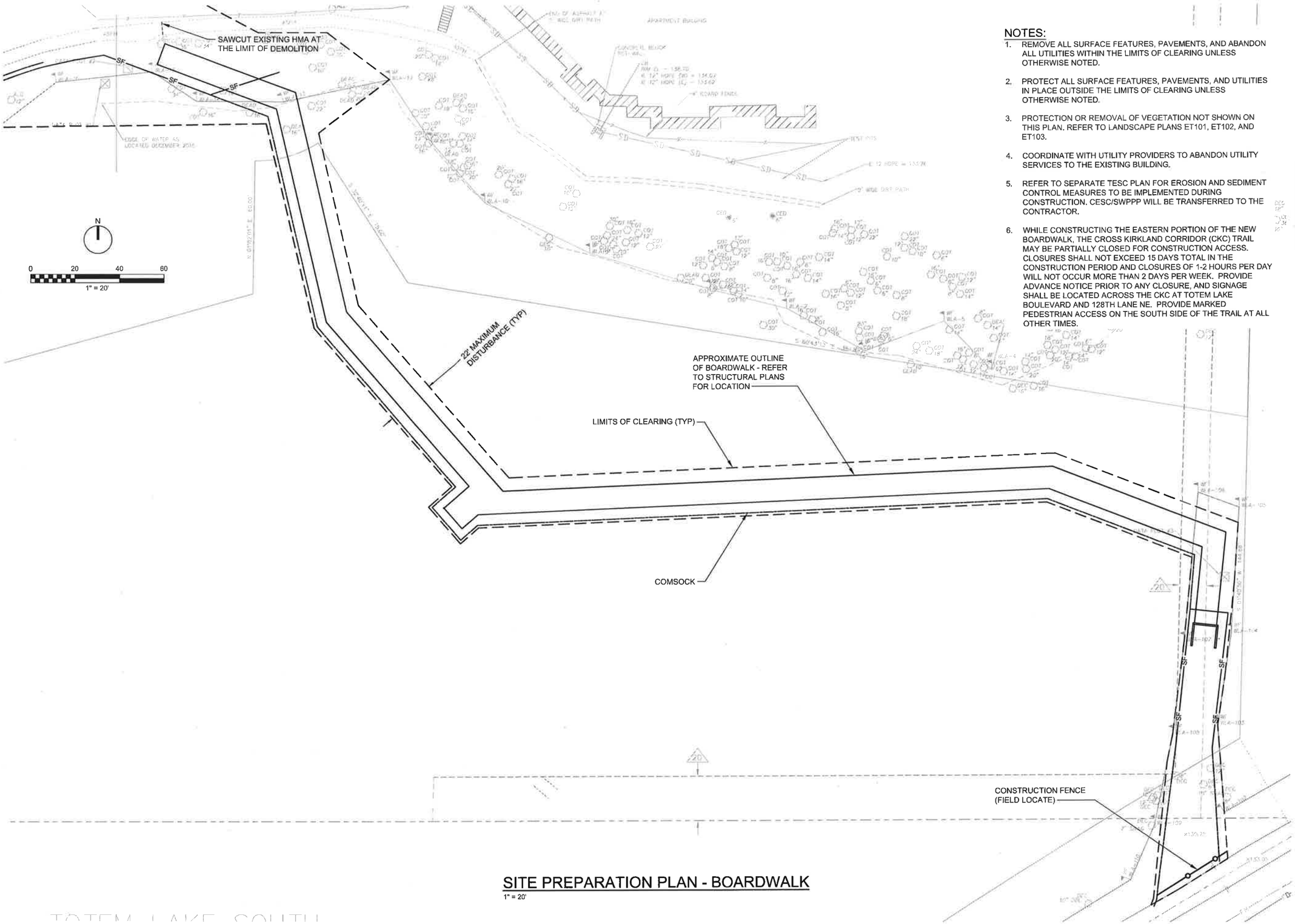

SITE PREPARATION PLAN - BOARDWALK

1" = 20'

NOTES:

1. REMOVE ALL SURFACE FEATURES, PAVEMENTS, AND ABANDON ALL UTILITIES WITHIN THE LIMITS OF CLEARING UNLESS OTHERWISE NOTED.
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Totem Lake Park Phase 1

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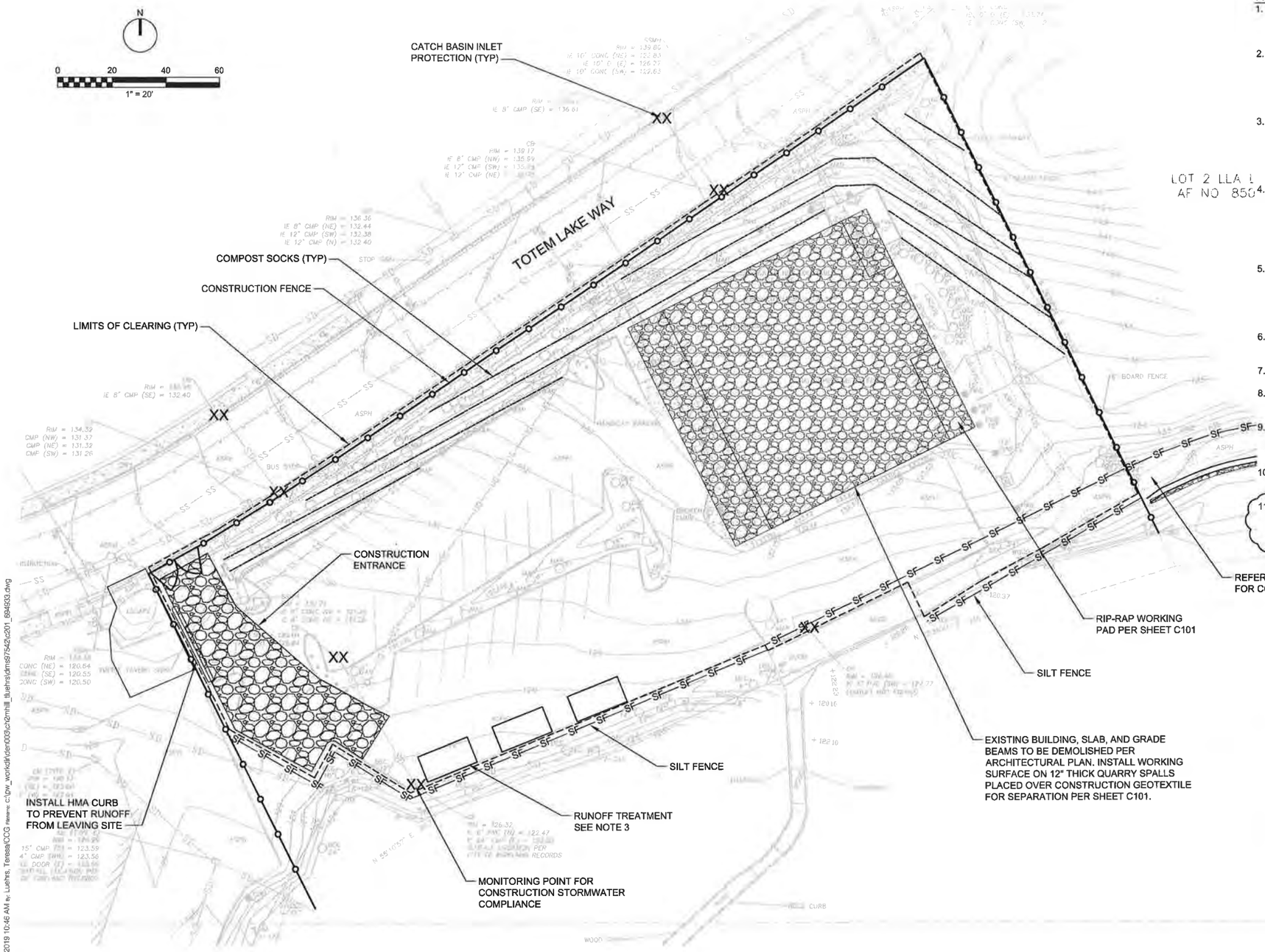
2/8/2019

REVISIONS:

DRAWN/CHECKED:
DRW / CHK

SHEET NAME:
SITE PREPARATION PLAN - BOARDWALK

SHEET NUMBER:
C103



NOTES:

1. REMOVE TREES AS INDICATED ON TREE REMOVAL PLAN - PROTECT ON PLACE ALL OTHER TREES NOT INDICATED TO BE REMOVED.
2. A DRAFT SWPPP HAS BEEN PREPARED. CONTRACTOR SHALL MODIFY THE SWPPP AND THE ESC PLANS AS NEEDED TO REFLECT THE CONSTRUCTION SEQUENCE, MEANS AND METHODS. CESC/SWPPP WILL BE TRANSFERRED TO THE CONTRACTOR.
3. PROVIDE FINAL SWPPP, CONSTRUCTION EROSION AND SEDIMENTATION CONTROL LEAD, COVER MEASURES, RUNOFF TREATMENT, AND ALL OTHER MEASURES AS NECESSARY TO MEET CONSTRUCTION GENERAL PERMIT AND CITY OF KIRKLAND POLICY D-12 REQUIREMENTS.
4. THE ESC MEASURES SHOWN ON THIS PLAN AND DESCRIBED IN THE PROJECT SPECIFICATIONS ARE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, UPGRADE THESE MEASURES AS NEEDED TO COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL EROSION AND SEDIMENT CONTROL REGULATIONS.
5. IF TEMPORARY SHORING IS REQUIRED, CONTRACTOR SHALL DESIGN TEMPORARY SHORING PER APPLICABLE CODES AND STANDARDS, INCLUDING BUT NOT LIMITED TO WASHINGTON ADMINISTRATIVE CODE SAFETY STANDARDS FOR CONSTRUCTION WORK.
6. HIGH VISIBILITY FENCE SHALL BE PER WSDOT STANDARD PLAN I-10.10-01.
7. SILT FENCE SHALL BE PER WSDOT STANDARD PLAN I-30.10-02.
8. COMPOST SOCKS SHALL BE PER WSDOT STANDARD PLAN I-30.40-01.
9. PROVIDE EROSION CONTROL MEASURES FOR ALL DISTURBED AREAS INCLUDING STAGING, ACCESS, AND PARKING AREAS BEYOND THE LIMITS SHOWN ON THIS PLAN.
10. PLACE CATCH BASIN INSERT IN NEXT DOWNSTREAM INLET IN TOTEM LAKE WAY.
11. SLOPES STEEPER THAN 4:1 (HORIZONTAL:VERTICAL), INCLUDING SLOPES BELOW THE WATER STORAGE AREA IN THE BIORETENTION CELLS, SHALL BE STABILIZED PER SLOPE STABILIZATION DETAIL 1 ON CD101. 1

LEGEND:

- LIMITS OF CLEARING
- TEMPORARY CONSTRUCTION FENCE
- COMPOST SOCKS
- XX CATCH BASIN INSERT

CESC PLAN

1" = 20'

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Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

SET TYPE:
100% Design Submittal

SET ISSUE DATE:
2/8/2019

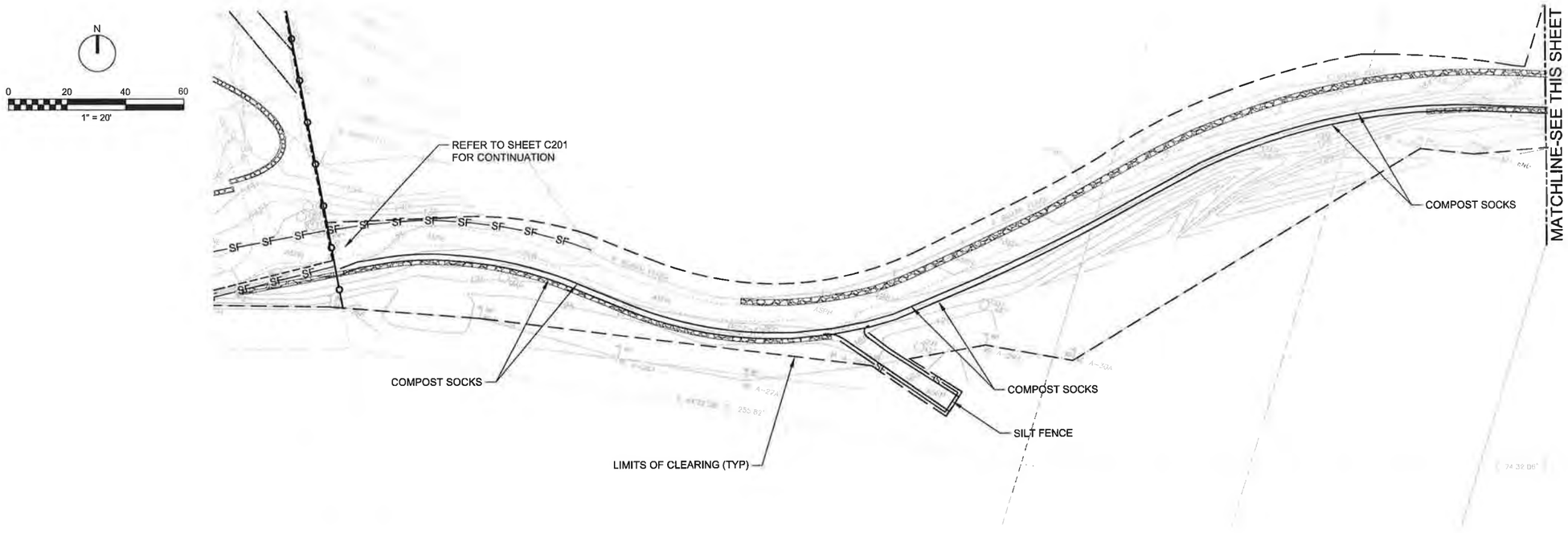
REVISIONS:

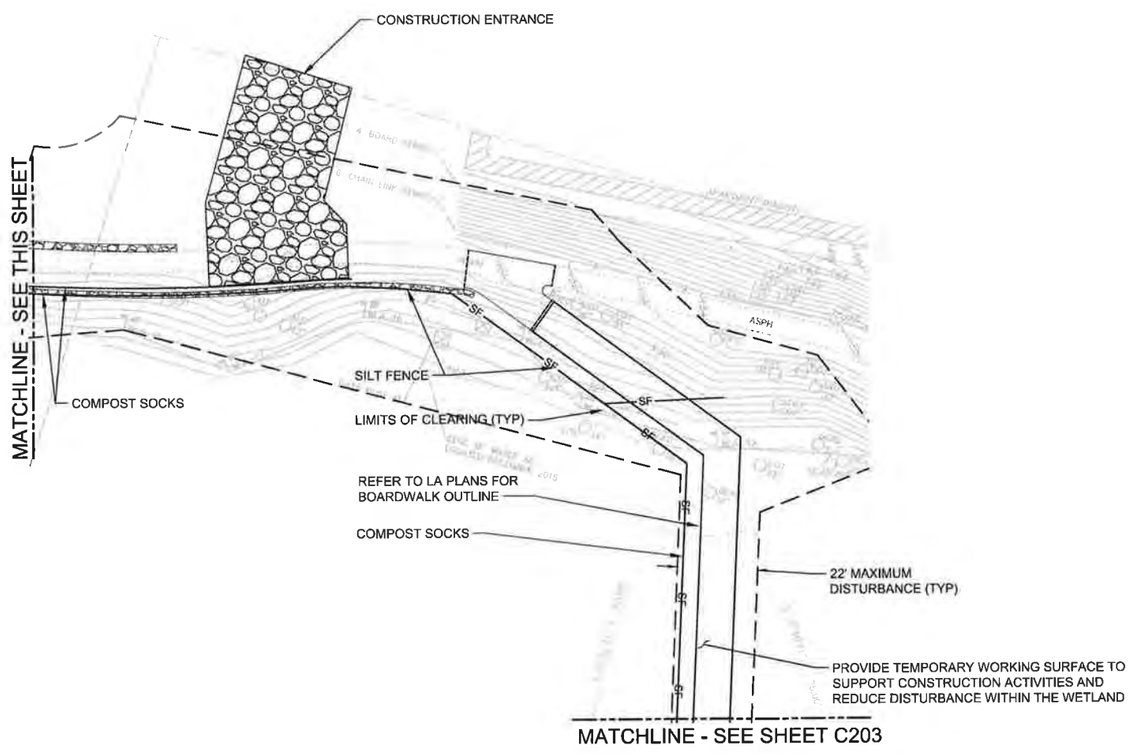
Δ	DESCRIPTION	DATE
1	Permit Response	2019/05/03

DRAWN/CHECKED:
DRW / CHK

SHEET NAME:
CESC PLAN - PARK

SHEET NUMBER:
C201





CESC PLAN

1" = 20'

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9. PROVIDE EROSION CONTROL MEASURES FOR ALL DISTURBED AREAS INCLUDING STAGING, ACCESS, AND PARKING AREAS BEYOND THE LIMITS SHOWN ON THIS PLAN.
10. PLACE CATCH BASIN INSERT IN NEXT DOWNSTREAM INLET IN TOTEM LAKE WAY.
11. REFER TO SHEET L203 FOR A DESCRIPTION OF ALLOWABLE IMPACTS.
12. SLOPES STEEPER THAN 4:1 (HORIZONTAL:VERTICAL), INCLUDING SLOPES BELOW THE WATER STORAGE AREA IN THE BIORETENTION CELLS, SHALL BE STABILIZED PER SLOPE STABILIZATION DETAIL 1 ON SHEET CD101. (1)

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Totem Lake Park Phase 1

City of Kirkland

12031 Totem Lake Way, Kirkland, WA 98034

SET TYPE:
100% Design Submittal

SET ISSUE DATE:
2/8/2019

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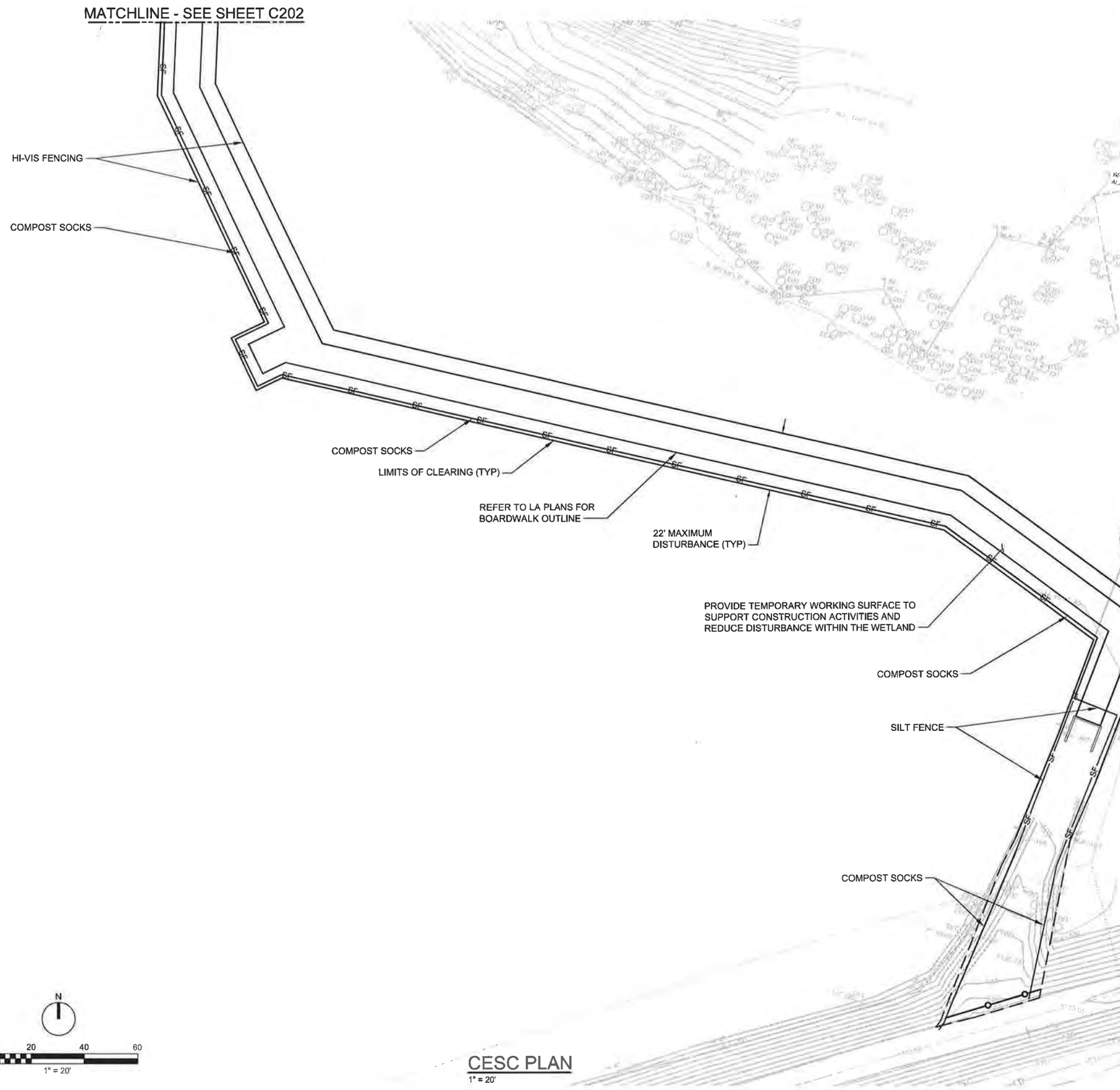
△	DESCRIPTION	DATE
1	Permit Response	2019/05/03

DRAWN/CHECKED:
DRW / CHK

SHEET NAME:
CESC PLAN - TRAIL

SHEET NUMBER:
C202



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11. REFER TO SHEET L203 FOR A DESCRIPTION OF ALLOWABLE IMPACTS.
12. SLOPES STEEPER THAN 4:1 (HORIZONTAL:VERTICAL), INCLUDING SLOPES BELOW THE WATER STORAGE AREA IN THE BIORETENTION CELLS, SHALL BE STABILIZED PER SLOPE STABLIZATION DETAIL 1 ON SHEET CD101. 1

N

0 20 40 60

1" = 20'

CESC PLAN

1" = 20'

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Totem Lake Park Phase 1

City of Kirkland

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SET TYPE:
100% Design Submittal

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REVISIONS:

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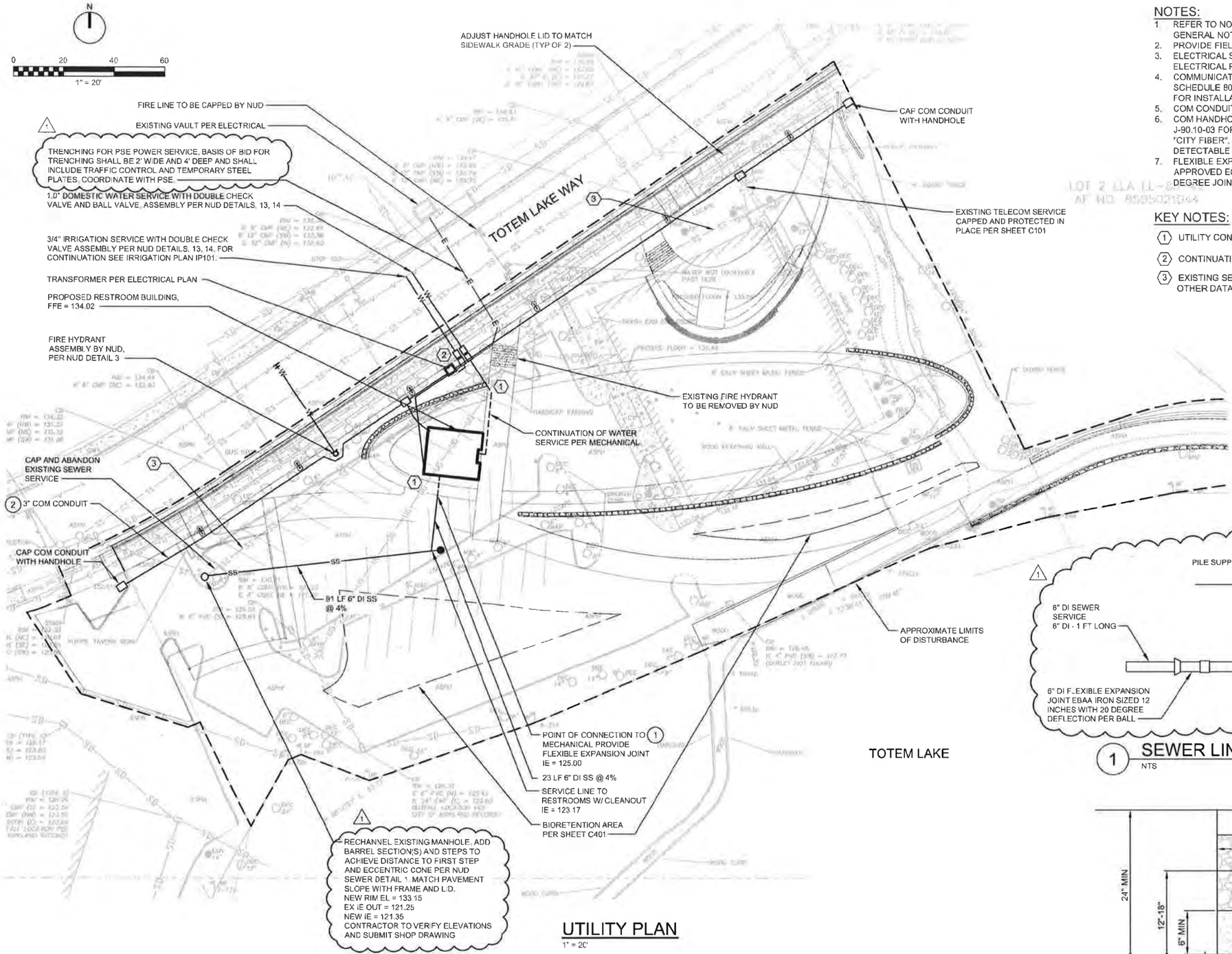
1	Permit Response	2019/05/03

DRAWN/CHECKED:
DRW / CHK

SHEET NAME:
CESC PLAN - BOARDWALK

SHEET NUMBER:
C203

Berger Partnership Project Number: XXXXXXXXX.XX Plotted: 05.06.2019 10:54 AM By: Luehrs, Teresa/CCG Filename: c:\pw_workdir\dms97542\c203_694933.dwg



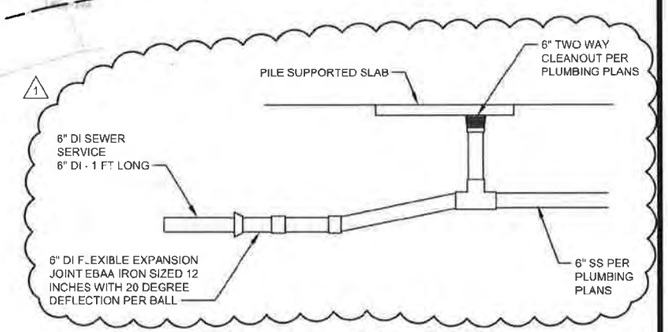
UTILITY PLAN
1" = 20'

NOTES:

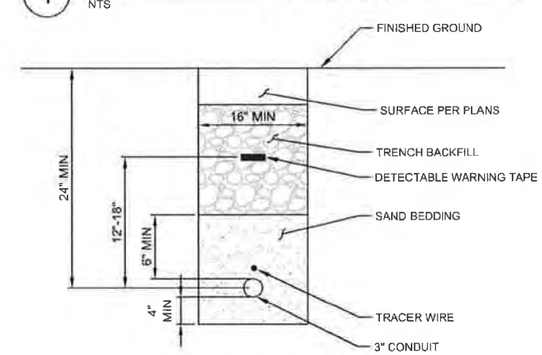
1. REFER TO NORTHSHORE UTILITY DISTRICT WATER AND SEWER GENERAL NOTES ON C100.
2. PROVIDE FIELD LOK GASKETS FOR DUCTILE IRON SEWER PIPE.
3. ELECTRICAL SHOWN FOR REFERENCE ONLY. REFER TO ELECTRICAL PLANS FOR LOCATION AND DETAILS.
4. COMMUNICATIONS (COM) CONDUIT SHALL BE GRAY PVC SCHEDULE 80, 3' DIAMETER, WITH CONTINUOUS PULL STRING FOR INSTALLATION OF FUTURE FIBER OPTIC CABLE.
5. COM CONDUIT SHALL TERMINATE AT HANDHOLES.
6. COM HANDHOLE SHALL BE PER WSDOT STANDARD PLAN J-90.10-03 FOR PULL BOX, WITH STANDARD DUTY LID MARKED "CITY FIBER". OMIT WSDOT NAME AND LOGO. INSTALL DETECTABLE WARNING TAPE ABOVE CONDUIT.
7. FLEXIBLE EXPANSION JOINT SHALL BE EBAA FLEX-TEND OR APPROVED EQUAL WITH 12" EXPANSION JOINT WITH TWO 20 DEGREE JOINTS.

KEY NOTES:

1. UTILITY CONTINUATION BY MECHANICAL CONTRACTOR.
2. CONTINUATION BY LANDSCAPE CONTRACTOR
3. EXISTING SEWER SERVICE TO BUILDING FOUND FROM OTHER DATA SOURCES. CONTRACTOR TO VERIFY.



1 SEWER LINE CONNECTION DETAIL
NTS



2 COM CONDUIT DETAIL
NTS

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DESIGN PHASE
100% Design Submittal

ISSUE DATE
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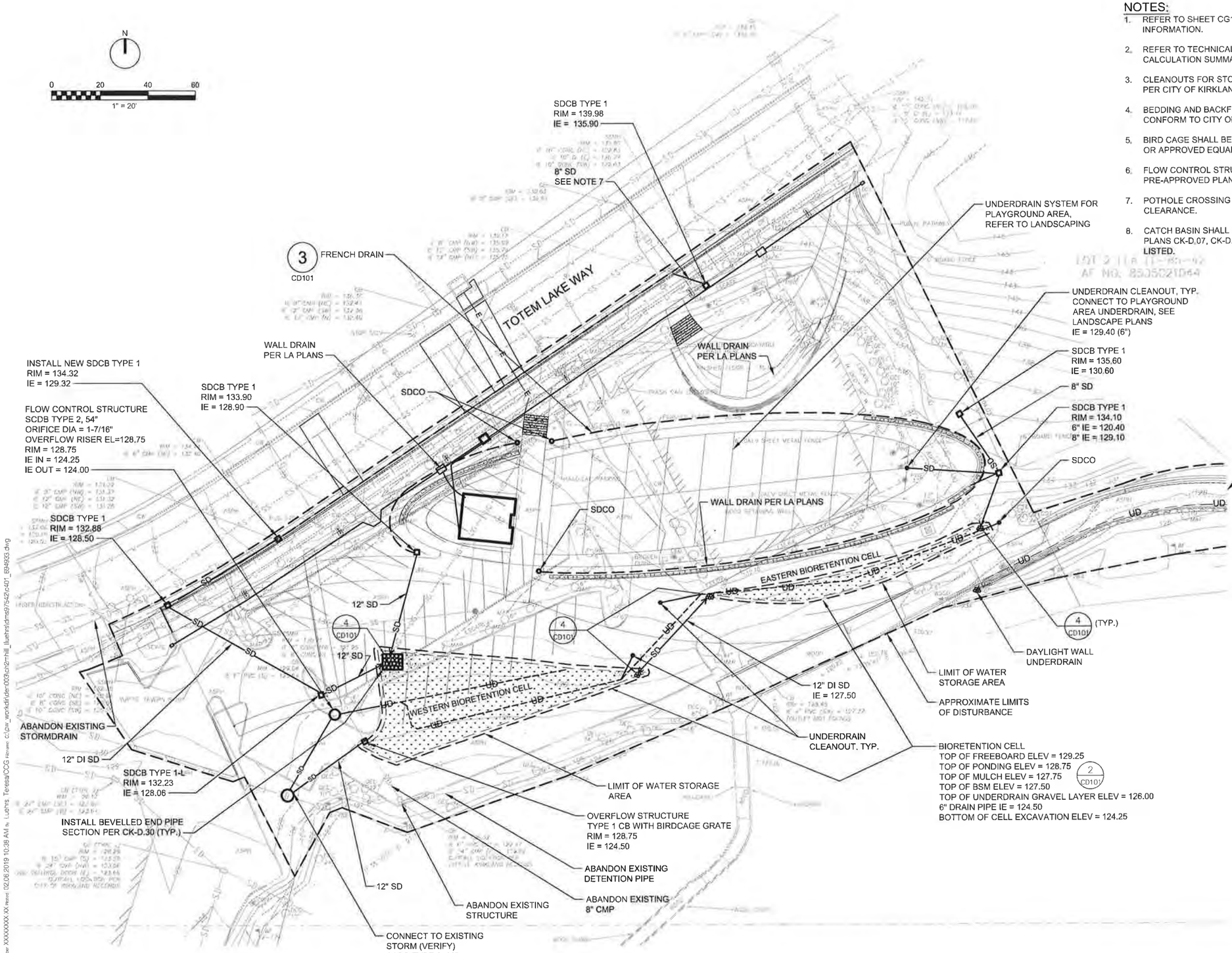
REVISION	DESCRIPTION	DATE
1	Permit Response	2019/05/03

DRAWN / CHECKED
DRW / CHK

SHEET NAME
UTILITY PLAN - PARK

SHEET NUMBER
C301



DRAINAGE PLAN

1" = 20'

NOTES:

1. REFER TO SHEET CG101 FOR PAVING AND GRADING INFORMATION.
2. REFER TO TECHNICAL INFORMATION REPORT FOR DETENTION CALCULATION SUMMARY.
3. CLEANOUTS FOR STORM DRAIN AND UNDERDRAIN SHALL BE PER CITY OF KIRKLAND PRE-APPROVED PLAN CK-D.05B.
4. BEDDING AND BACKFILL FOR STORM DRAIN PIPE SHALL CONFORM TO CITY OF KIRKLAND PRE-APPROVED PLAN CK-D.02.
5. BIRD CAGE SHALL BE ATWOOD FABRICATING TYPE 1 BIRD CAGE OR APPROVED EQUAL
6. FLOW CONTROL STRUCTURE SHALL BE PER CITY OF KIRKLAND PRE-APPROVED PLAN CK-D.10.
7. POTHOLE CROSSING WITH EXISTING UTILITIES, VERIFY CLEARANCE.
8. CATCH BASIN SHALL BE PER CITY OF KIRKLAND PRE-APPROVED PLANS CK-D.07, CK-D.08, AND CK-D.09, DEPENDING ON TYPE LISTED.

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Totem Lake Park Phase 1

City of Kirkland

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2-8-19

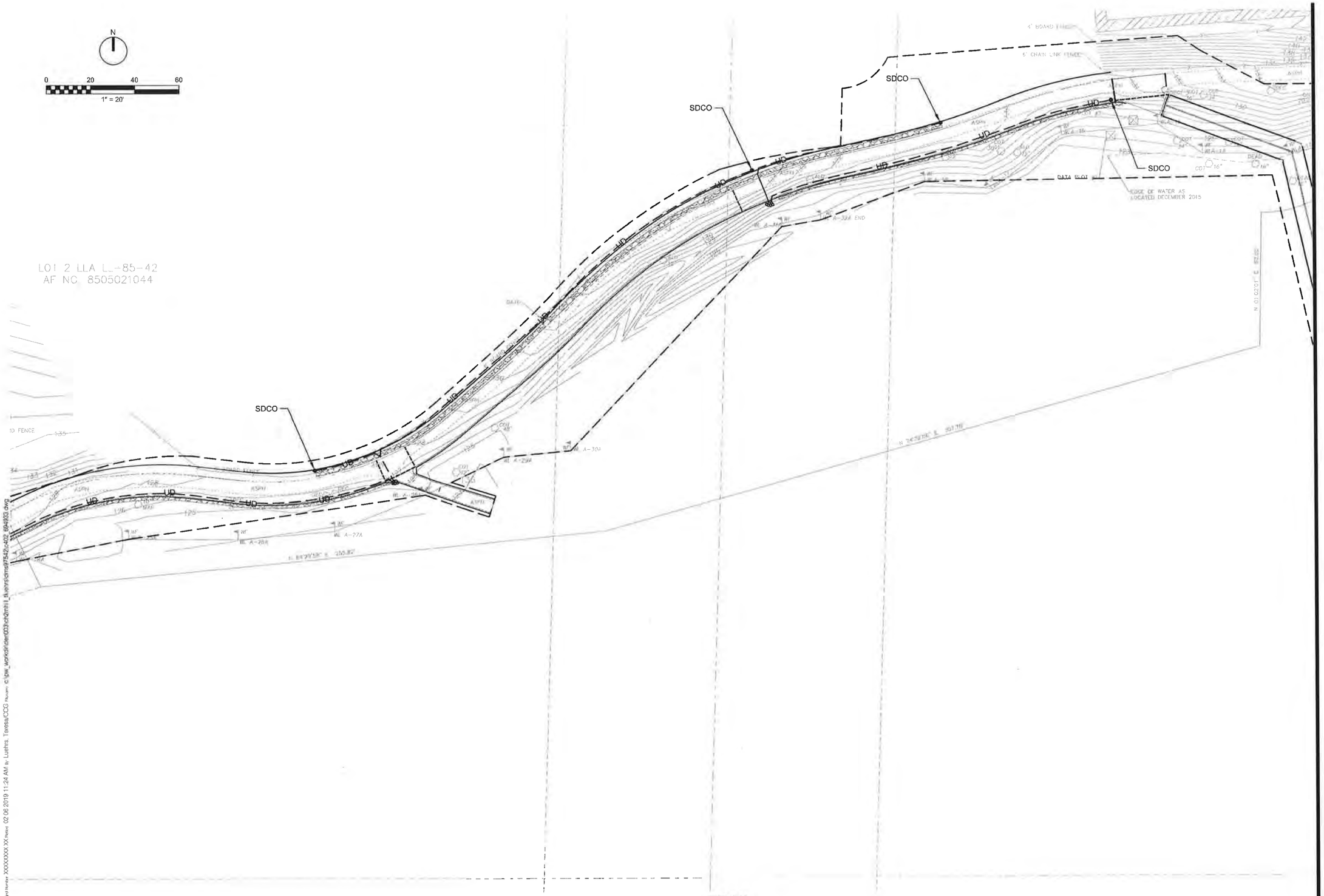
SET TYPE
100% Design Submittal

SET ISSUE DATE
2/8/2019

DRAWN CHECKED
DRW / CHK

SHEET NAME
DRAINAGE PLAN - PARK

SHEET NUMBER
C401



DRAINAGE PLAN - TRAIL
1" = 20'

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2/8/2019

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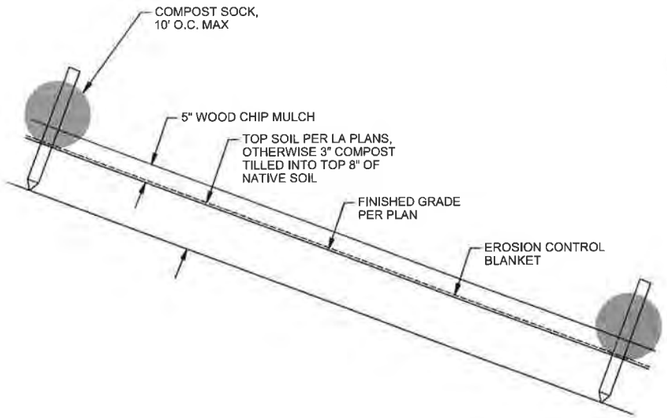
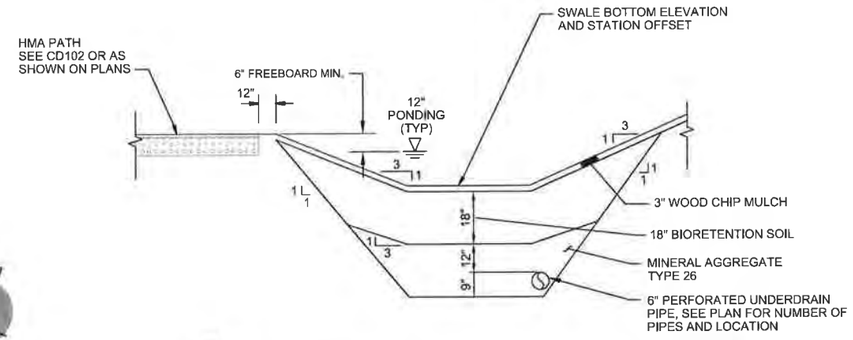
SHEET NAME
DRAINAGE PLAN - TRAIL

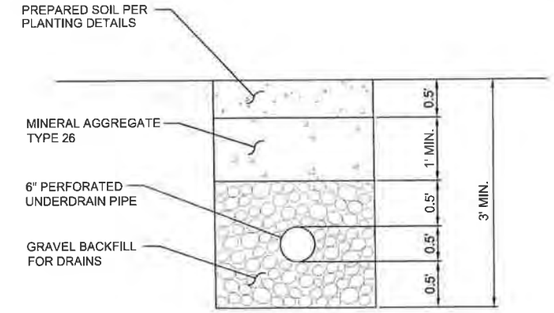
SHEET NUMBER
C402



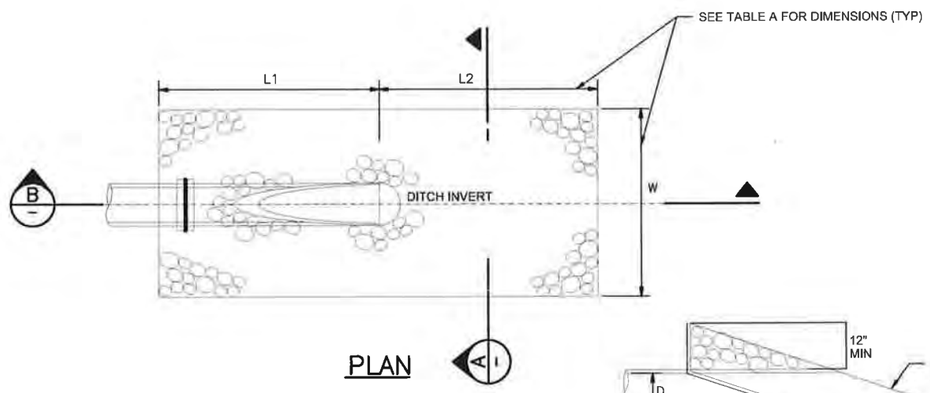
1 SLOPE STABILIZATION DETAIL
NTS



2 TYPICAL BIORETENTION CELL SECTION
NTS



3 FRENCH DRAIN DETAIL
NTS

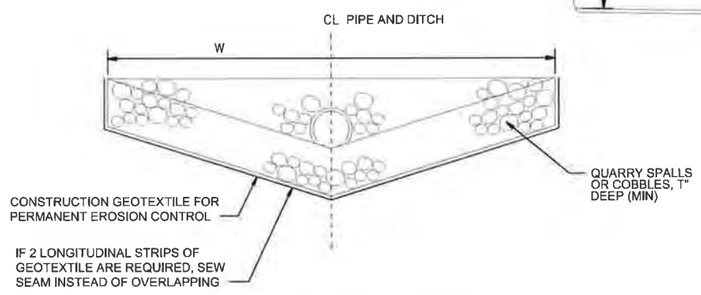


PLAN

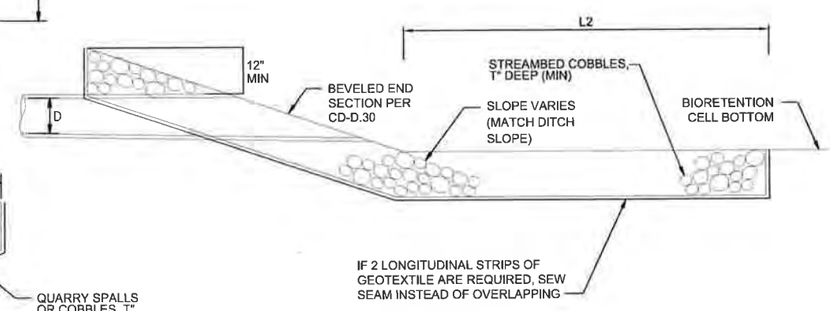
TABLE A: DIMENSIONS FOR ROCK PAD

PIPE DIAM	L2	W	L1	T
12"	5'	7'	6'	12"
12" UD	2'	2'	1'	8"
8"	5'	6'	5'	12"
6"	2'	2'	1'	8"

USE COBBLES FOR PIPE DISCHARGE INTO BIORETENTION CELLS AND QUARRY SPALLS AT PIPE OUTFALL



SECTION A
SCALE: NTS



SECTION B
SCALE: NTS

4 ROCK PAD AT OUTFALL
NTS

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City of Kirkland
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2-8-19

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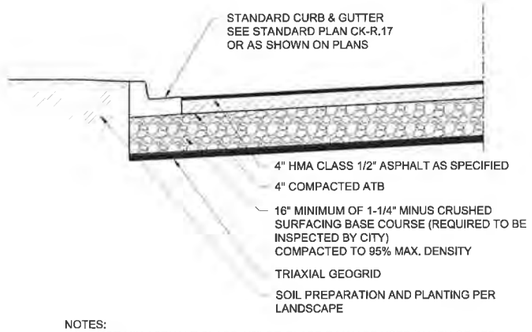
2/8/2019

REVISIONS:

DRAWN/CHECKED:
DRW / CHK

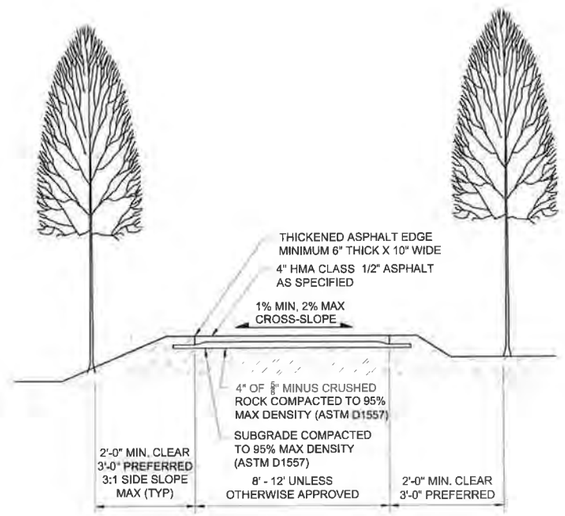
SHEET NAME:
DRAINAGE DETAILS - PARK

SHEET NUMBER:
CD101



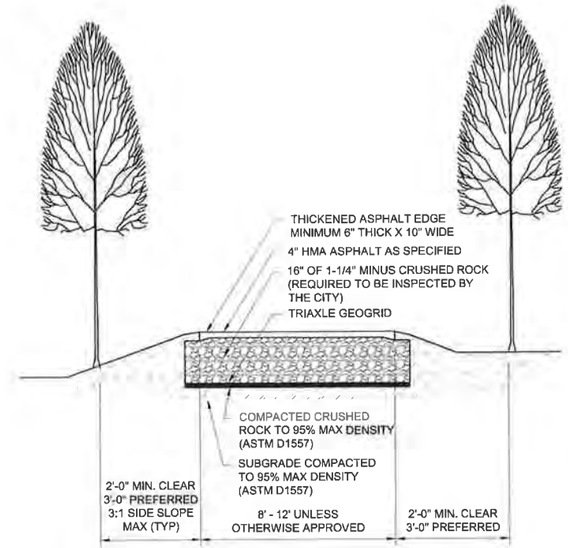
NOTES:
1. HOT MIX ASPHALT CLASS 1/2" OR CLASS B MAY BE USED IN LIEU OF ATB.

1 PARKING LOT PAVING SECTION
NTS



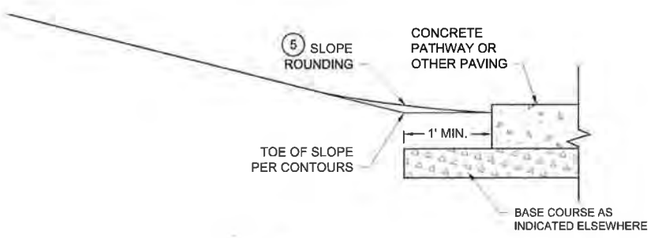
NOTES:
1. ALL PLANS MUST BE APPROVED BY THE CITY PRIOR TO CONSTRUCTION OF THE TRAIL. TRAIL CENTERLINE TO BE STAKED IN FIELD BY CONTRACTOR AND APPROVED BY THE APPROPRIATE CITY INSPECTOR.
2. SEE PATH EDGE DETAIL 4.

2 HMA TRAIL DETAIL
NTS

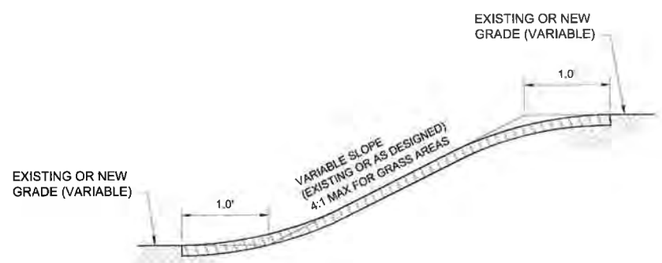


NOTES:
1. ALL PLANS MUST BE APPROVED BY THE CITY PRIOR TO CONSTRUCTION OF THE TRAIL. TRAIL CENTERLINE TO BE STAKED IN FIELD BY CONTRACTOR AND APPROVED BY THE APPROPRIATE CITY INSPECTOR.
2. SEE PATH EDGE DETAIL 4.

3 HMA PARK PATH DETAIL
NTS



4 TRAIL EDGE DETAIL
NTS



5 SLOPE ROUNDING DETAIL
NTS

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Totem Lake Park Phase 1
City of Kirkland
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2-8-19

SET TYPE:
100% Design Submittal

SET ISSUE DATE:
2/8/2019

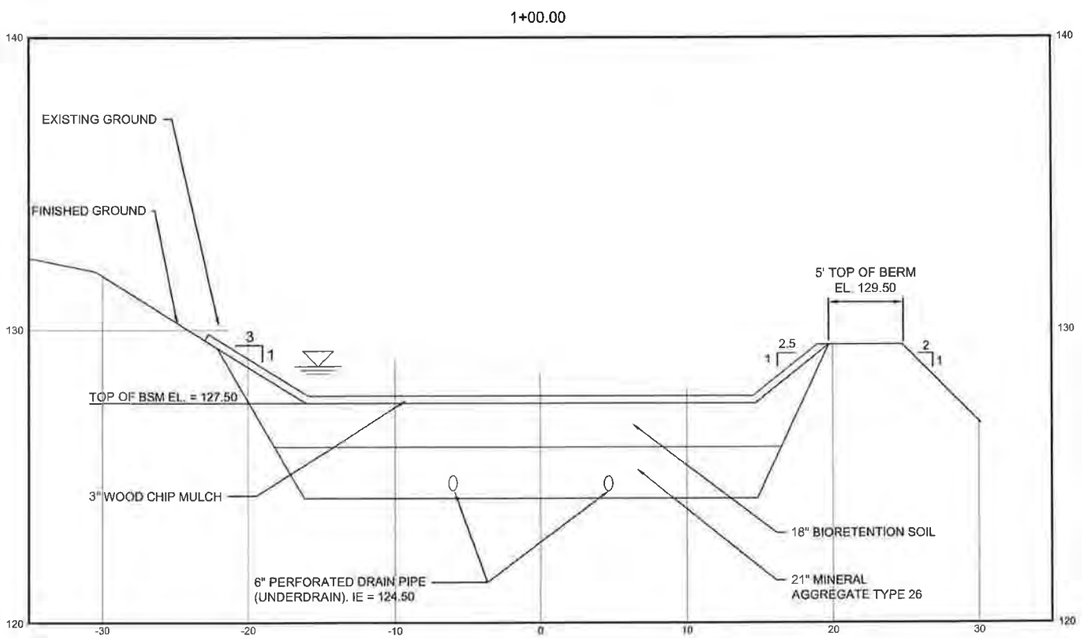
REVISIONS:

DRAWN/CHECKED:
DRW / CHK

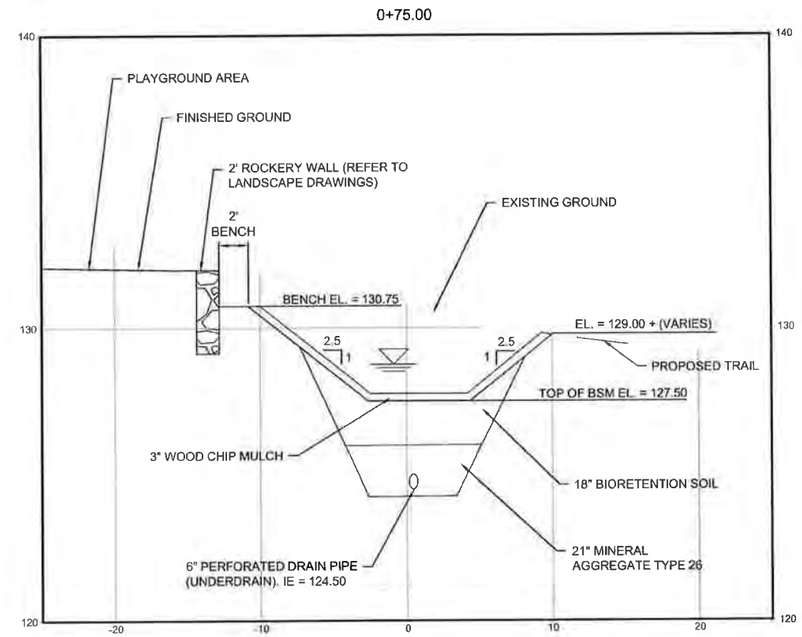
SHEET NAME:
CIVIL PAVING DETAILS

SHEET NUMBER:
CD102

Merge Remove Project Number XXXXXXXX XX Plotted: 02 06 2019 11:00 AM by: Luehrs, Teresa/CCG Filename: c:\pw_work\dfw\den003\ch2mhill_lluehrs\dms97542\cd102_694933.dwg



1 WESTERN BIORETENTION SECTION
SCALE: 1"=20'; 1"=10'V



2 EASTERN BIORETENTION SECTION
SCALE: 1"=20'; 1"=10'V

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2/8/2019

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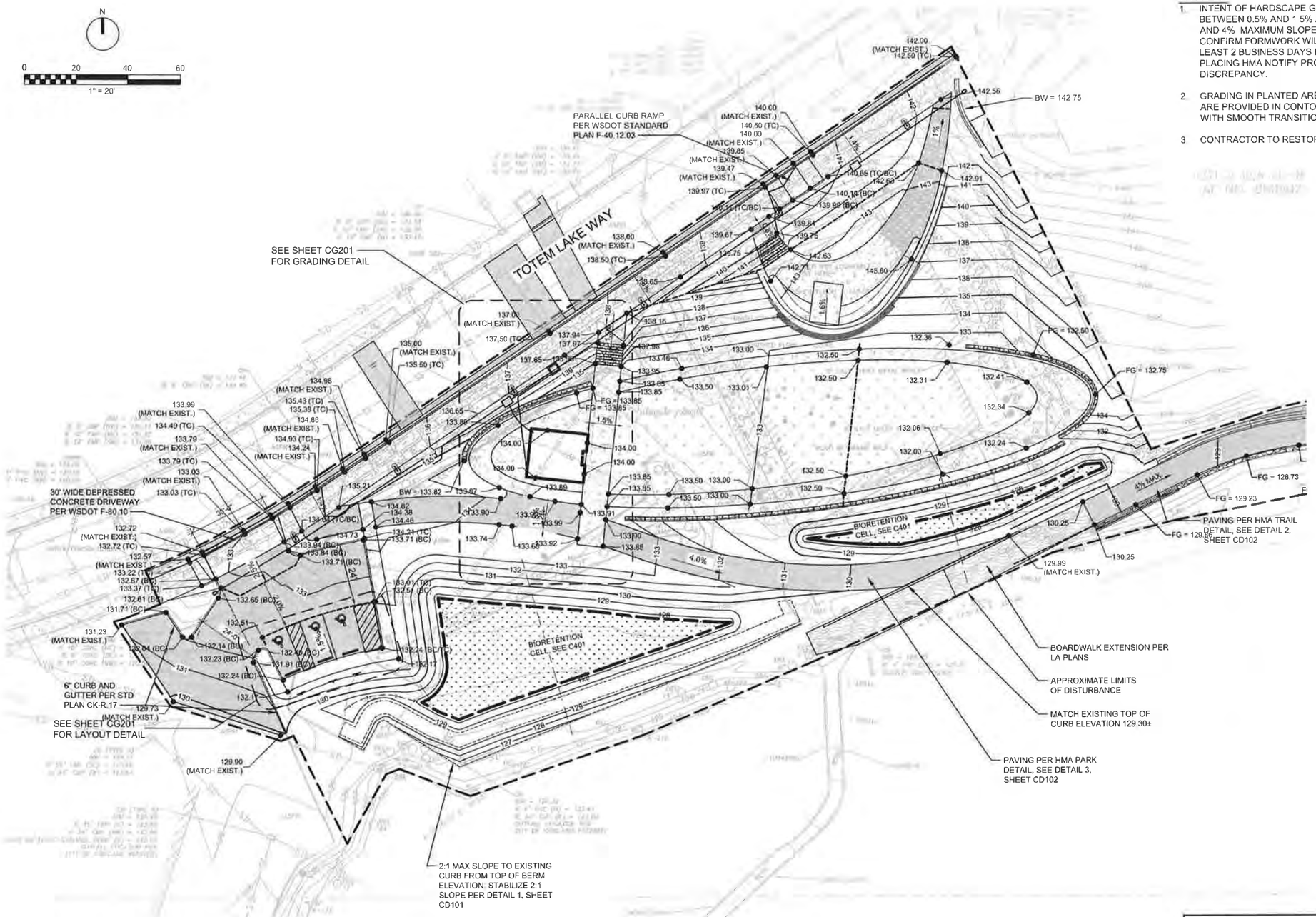
SHEET NAME
DRAINAGE SECTIONS - PARK

SHEET NUMBER
CD103



NOTES:

1. INTENT OF HARDSCAPE GRADING IS TO PRODUCE CROSS-SLOPE BETWEEN 0.5% AND 1.5% AND LONGITUDINAL SLOPE BETWEEN 0% AND 4% MAXIMUM SLOPE IN ANY DIRECTION IN ADA STALLS IS 1.5% CONFIRM FORMWORK WILL PRODUCE SLOPES IN THIS RANGE AT LEAST 2 BUSINESS DAYS BEFORE POURING CONCRETE; OR PLACING HMA NOTIFY PROJECT REPRESENTATIVE OF ANY DISCREPANCY.
2. GRADING IN PLANTED AREAS SHALL BE SMOOTH. ANGLE POINTS ARE PROVIDED IN CONTOURS FOR EASE OF STAKING; CONSTRUCT WITH SMOOTH TRANSITIONS.
3. CONTRACTOR TO RESTORE ALL AFFECTED PAVEMENT MARKINGS.

LEGEND:

- GRADE BREAK
- 134.00 — SPOT ELEVATION
- FG 136.75 — FINISH GRADE
- CONTOUR
- HMA PAVING (SEE DETAILS ON CD-102)
- CONCRETE PAVING (REFER TO LANDSCAPE ARCHITECT)
- CRUSHED ROCK PAVING (REFER TO LANDSCAPE ARCHITECT)
- MATCH EXISTING
- BC = BOTTOM OF CURB ELEVATION
- TC = TOP OF CURB ELEVATION

GRADING & PAVING PLAN

1" = 20'

NOTES TO REVIEWER:

1. PAVEMENT TRANSITIONS CONTROL CRACKING AND VERTICAL SETTLEMENT AT TRANSITION FROM SUPPORTED STRUCTURE TO AT-GRADE PAVEMENT. SETTLEMENT OF PAVEMENT IS ANTICIPATED TO OCCUR OVER TIME IN THESE AREAS AND REPAIR OR REPLACEMENT OF PAVEMENT WILL BE REQUIRED TO AVOID HAZARDS AND/OR STEEP SLOPES.
2. ROCKERY WALLS ARE GRADED TO PRODUCE A MAXIMUM HEIGHT OF 2.25" (AT LEAST 3" LESS THAN THE 2.5' WALL HEIGHT THAT WOULD REQUIRE A RAILING)
3. TOP OF WALL ELEVATIONS ARE SHOWN FOR THE 90% SET FOR COORDINATION, AND WILL BE REMOVED FOR THE 100%.

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City of Kirkland
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2-8-19

SET TYPE
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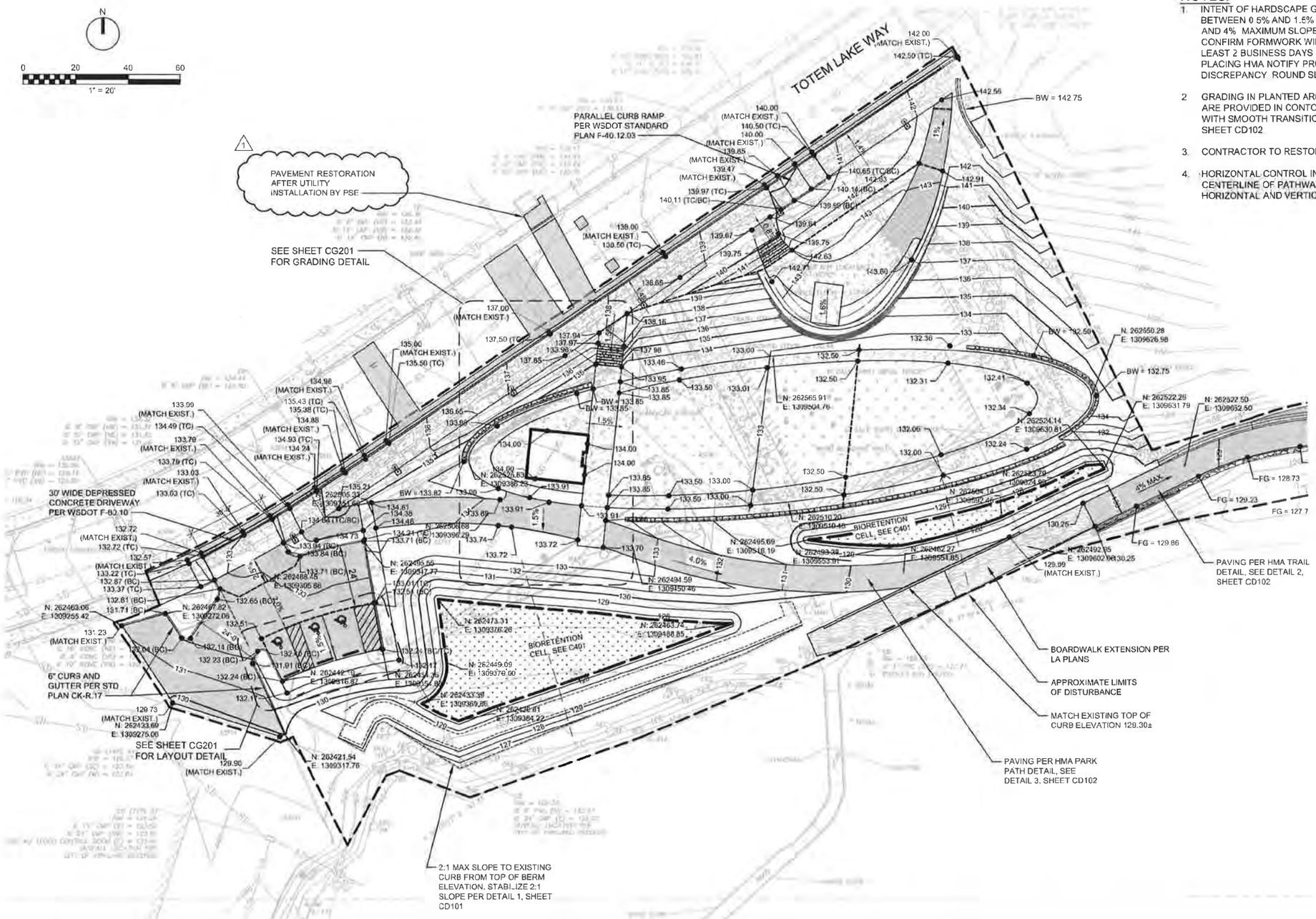
SET ISSUE DATE
2/8/2019

DRAWN / CHECKED
DRW / CHK

SHEET NAME
GRADING & PAVING PLAN - PARK

SHEET NUMBER
CG101



NOTES:

1. INTENT OF HARDSCAPE GRADING IS TO PRODUCE CROSS-SLOPE BETWEEN 0.5% AND 1.5% AND LONGITUDINAL SLOPE BETWEEN 0% AND 4%. MAXIMUM SLOPE IN ANY DIRECTION IN ADA STALLS IS 1.5%. CONFIRM FORMWORK WILL PRODUCE SLOPES IN THIS RANGE AT LEAST 2 BUSINESS DAYS BEFORE POURING CONCRETE; OR PLACING HMA NOTIFY PROJECT REPRESENTATIVE OF ANY DISCREPANCY. ROUND SLOPES PER DETAIL 5 ON SHEET CD102
2. GRADING IN PLANTED AREAS SHALL BE SMOOTH. ANGLE POINTS ARE PROVIDED IN CONTOURS FOR EASE OF STAKING; CONSTRUCT WITH SMOOTH TRANSITIONS. ROUND SLOPES PER DETAIL 5 ON SHEET CD102.
3. CONTRACTOR TO RESTORE ALL AFFECTED PAVEMENT MARKINGS.
4. HORIZONTAL CONTROL INFORMATION PROVIDED FOR PATH IS TO CENTERLINE OF PATHWAY. REFER TO STRUCTURAL PLANS FOR HORIZONTAL AND VERTICAL LOCATIONS OF STRUCTURE.

LEGEND:

- GRADE BREAK
- 134.00 SPOT ELEVATION
- FG 136.75 FINISH GRADE
- CONTOUR
- HMA PAVING (SEE DETAILS ON CD-102)
- CONCRETE PAVING (REFER TO LANDSCAPE ARCHITECT)
- CRUSHED ROCK PAVING (REFER TO LANDSCAPE ARCHITECT)
- MATCH EXISTING

BC = BOTTOM OF CURB ELEVATION

TC = TOP OF CURB ELEVATION

GRADING & PAVING PLAN

1" = 20'

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Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

100% Design Submittal

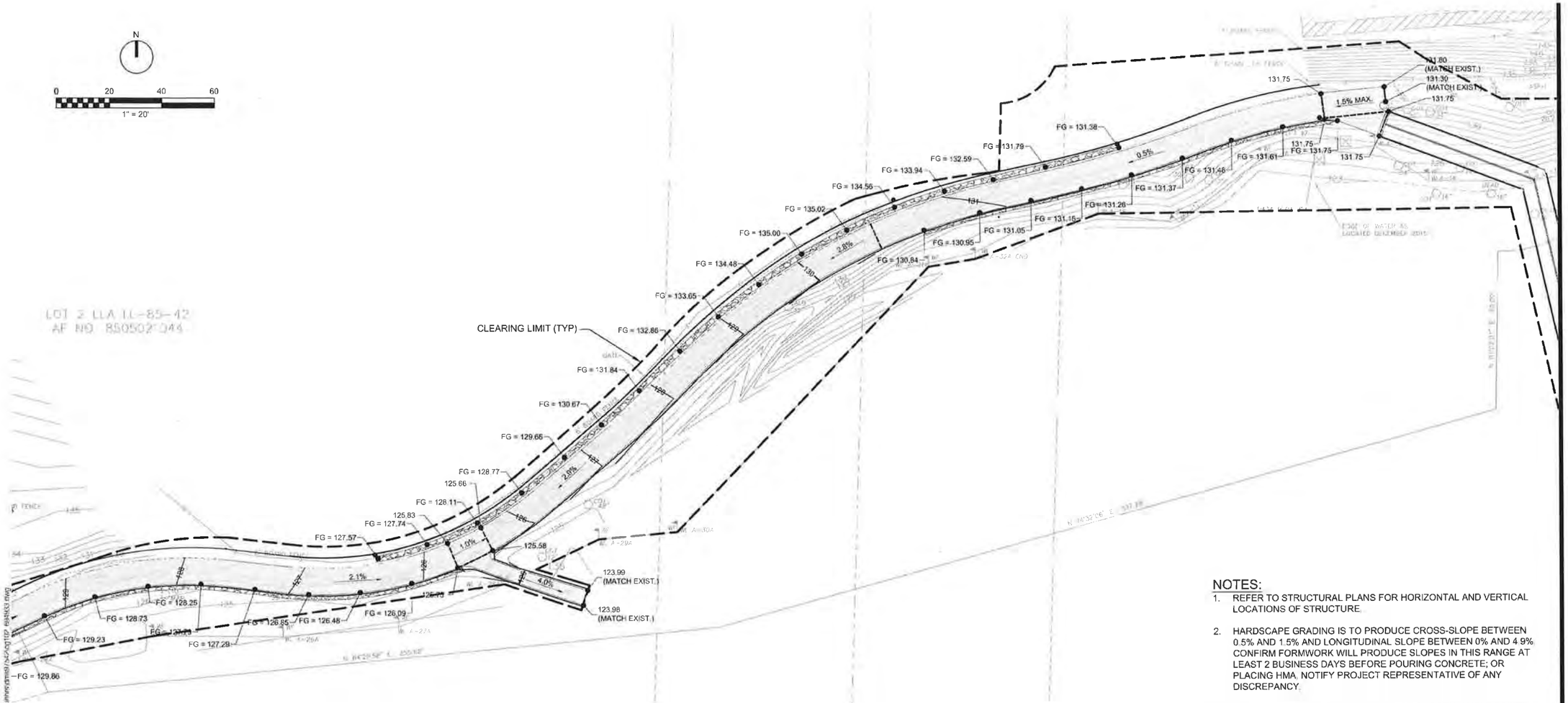
SET ISSUE DATE
2/8/2019

REVISIONS		
	DESCRIPTION	DATE
1	Permit Response	2018/05/03

DRAWN/CHECKED
DRW / CHK

SHEET TITLE
GRADING & PAVING PLAN - PARK

SHEET NUMBER
CG101



NOTES:

1. REFER TO STRUCTURAL PLANS FOR HORIZONTAL AND VERTICAL LOCATIONS OF STRUCTURE.
2. HARDSCAPE GRADING IS TO PRODUCE CROSS-SLOPE BETWEEN 0.5% AND 1.5% AND LONGITUDINAL SLOPE BETWEEN 0% AND 4.9%. CONFIRM FORMWORK WILL PRODUCE SLOPES IN THIS RANGE AT LEAST 2 BUSINESS DAYS BEFORE POURING CONCRETE; OR PLACING HMA, NOTIFY PROJECT REPRESENTATIVE OF ANY DISCREPANCY.
3. GRADING IN PLANTED AREAS SHALL BE SMOOTH. ANGLE POINTS ARE PROVIDED IN CONTOURS FOR EASE OF STAKING; CONSTRUCT WITH SMOOTH TRANSITIONS.
4. REFER TO LA PLANS FOR TOP OF WALL ELEVATION.
5. BOTTOM OF WALL ELEVATION IS FINISHED GRADE AT FACE OF WALL AND DOES NOT INCLUDE ADDITIONAL WALL CONSTRUCTED BELOW FINISHED GRADE.

NOTES TO REVIEWER:

1. FROM SUPPORTED STRUCTURE TO AT-GRADE PAVEMENT SETTLEMENT OF PAVEMENT IS ANTICIPATED TO OCCUR OVER TIME IN THESE AREAS AND REPAIR OR REPLACEMENT OF PAVEMENT WILL BE REQUIRED TO AVOID HAZARDS AND/OR STEEP SLOPES.
2. FILL ROCKERY WALLS ARE INTENDED TO BE GRADED TO PRODUCE A HEIGHT AT LEAST 3" LESS THAN THE 2.5' WALL HEIGHT THAT WOULD REQUIRE A RAILING. CUT ROCKERY WALLS ARE INTENDED TO BE GRADED TO PRODUCE A HEIGHT AT LEAST 3" LESS THAN THE 4" WALL HEIGHT THAT WOULD REQUIRE STRUCTURAL REVIEW.
3. SOME PORTIONS OF THE WORK SHOWN ARE ON PRIVATE PROPERTY. CITY STAFF ARE REVIEWING ACCESS EASEMENTS AND CONFIRMING ACCESS.
4. TOP OF WALL ELEVATIONS ARE SHOWN FOR THE 90% SET FOR COORDINATION, AND WILL BE REMOVED FOR THE 100%.

GRADING & PAVING PLAN - TRAIL

1" = 20'

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Totem Lake Park Phase 1

City of Kirkland

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2-8-19

SET TYPE
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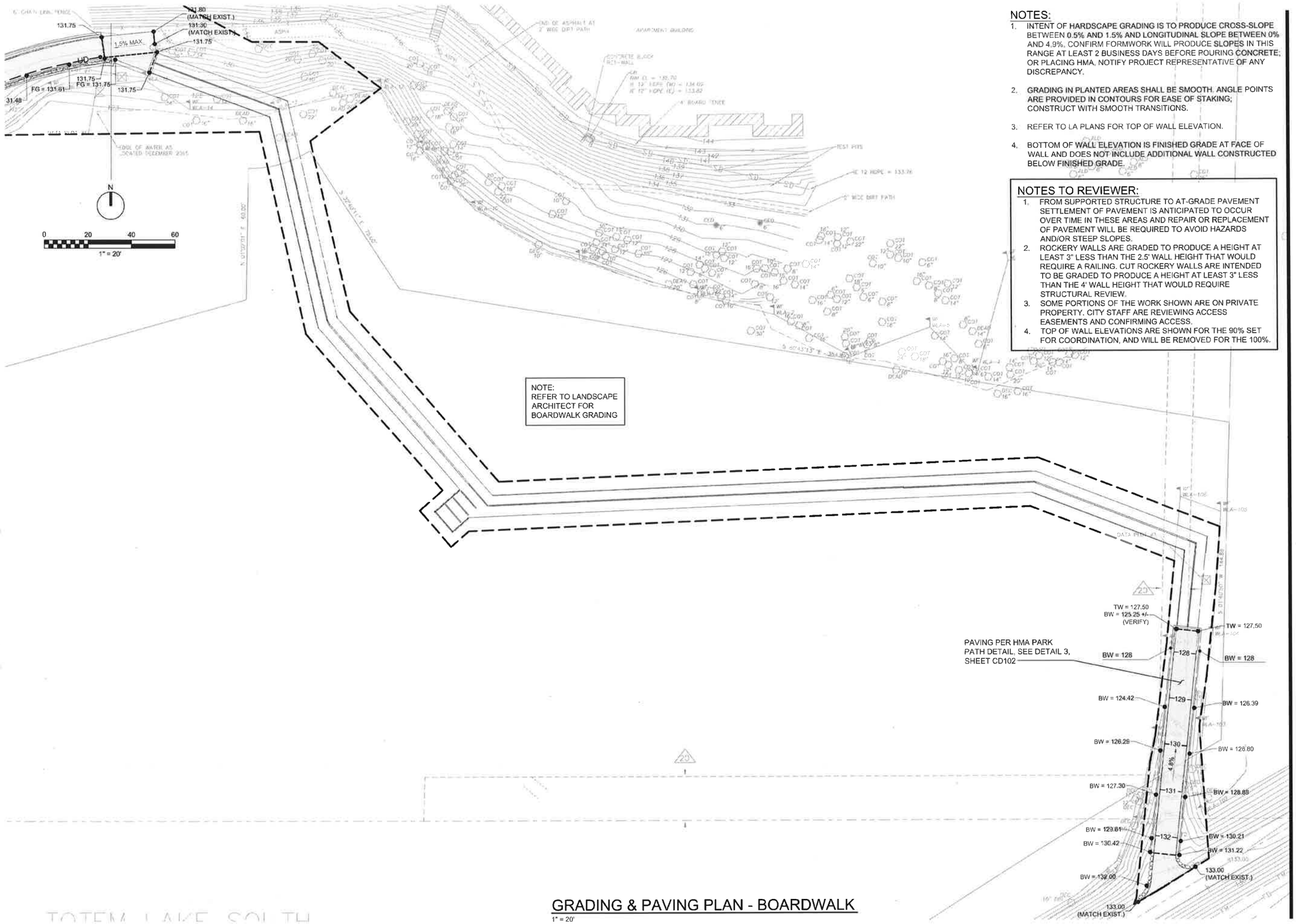
2/8/2019

REVISIONS

DRAWN / CHECKED
DRW / CHK

SHEET NAME
GRADING & PAVING PLAN - TRAIL

SHEET NUMBER
CG102



NOTES:

1. INTENT OF HARDSCAPE GRADING IS TO PRODUCE CROSS-SLOPE BETWEEN 0.5% AND 1.5% AND LONGITUDINAL SLOPE BETWEEN 0% AND 4.9%. CONFIRM FORMWORK WILL PRODUCE SLOPES IN THIS RANGE AT LEAST 2 BUSINESS DAYS BEFORE POURING CONCRETE; OR PLACING HMA. NOTIFY PROJECT REPRESENTATIVE OF ANY DISCREPANCY.
2. GRADING IN PLANTED AREAS SHALL BE SMOOTH. ANGLE POINTS ARE PROVIDED IN CONTOURS FOR EASE OF STAKING; CONSTRUCT WITH SMOOTH TRANSITIONS.
3. REFER TO LA PLANS FOR TOP OF WALL ELEVATION.
4. BOTTOM OF WALL ELEVATION IS FINISHED GRADE AT FACE OF WALL AND DOES NOT INCLUDE ADDITIONAL WALL CONSTRUCTED BELOW FINISHED GRADE.

NOTES TO REVIEWER:

1. FROM SUPPORTED STRUCTURE TO AT-GRADE PAVEMENT SETTLEMENT OF PAVEMENT IS ANTICIPATED TO OCCUR OVER TIME IN THESE AREAS AND REPAIR OR REPLACEMENT OF PAVEMENT WILL BE REQUIRED TO AVOID HAZARDS AND/OR STEEP SLOPES.
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3. SOME PORTIONS OF THE WORK SHOWN ARE ON PRIVATE PROPERTY. CITY STAFF ARE REVIEWING ACCESS EASEMENTS AND CONFIRMING ACCESS.
4. TOP OF WALL ELEVATIONS ARE SHOWN FOR THE 90% SET FOR COORDINATION, AND WILL BE REMOVED FOR THE 100%.

GRADING & PAVING PLAN - BOARDWALK

1" = 20'

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Totem Lake Park Phase 1
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2-8-19

SET TYPE
100% Design Submittal

SET ISSUE DATE
2/8/2019

REVISIONS

DRAWN / CHECKED
DRW / CHK

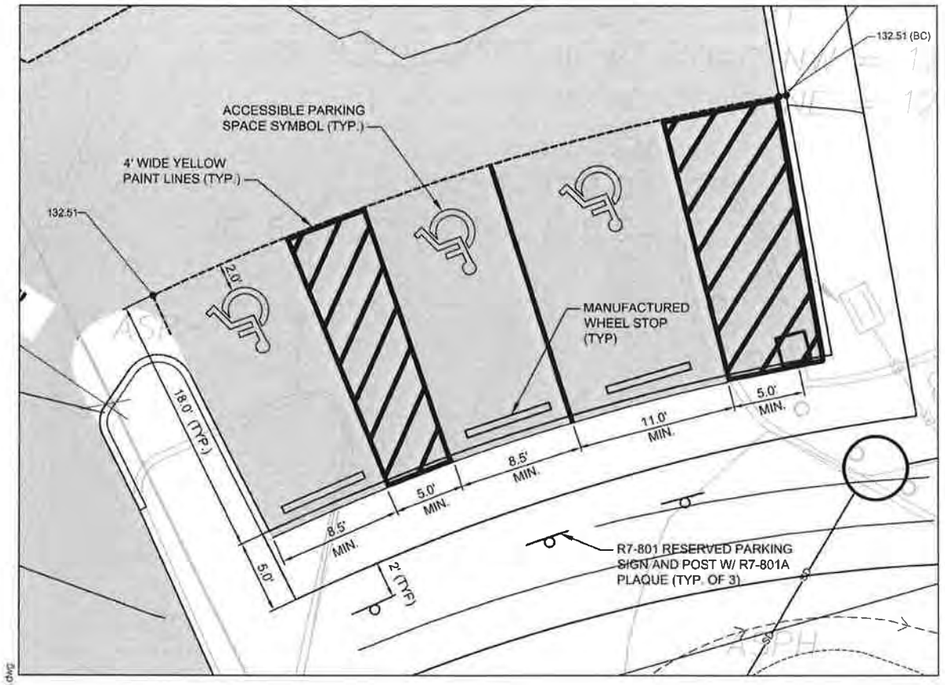
SHEET NAME
GRADING & PAVING PLAN - BOARDWALK

SHEET NUMBER
CG103

N

0 5 10 15

1"=5'



NOTES:

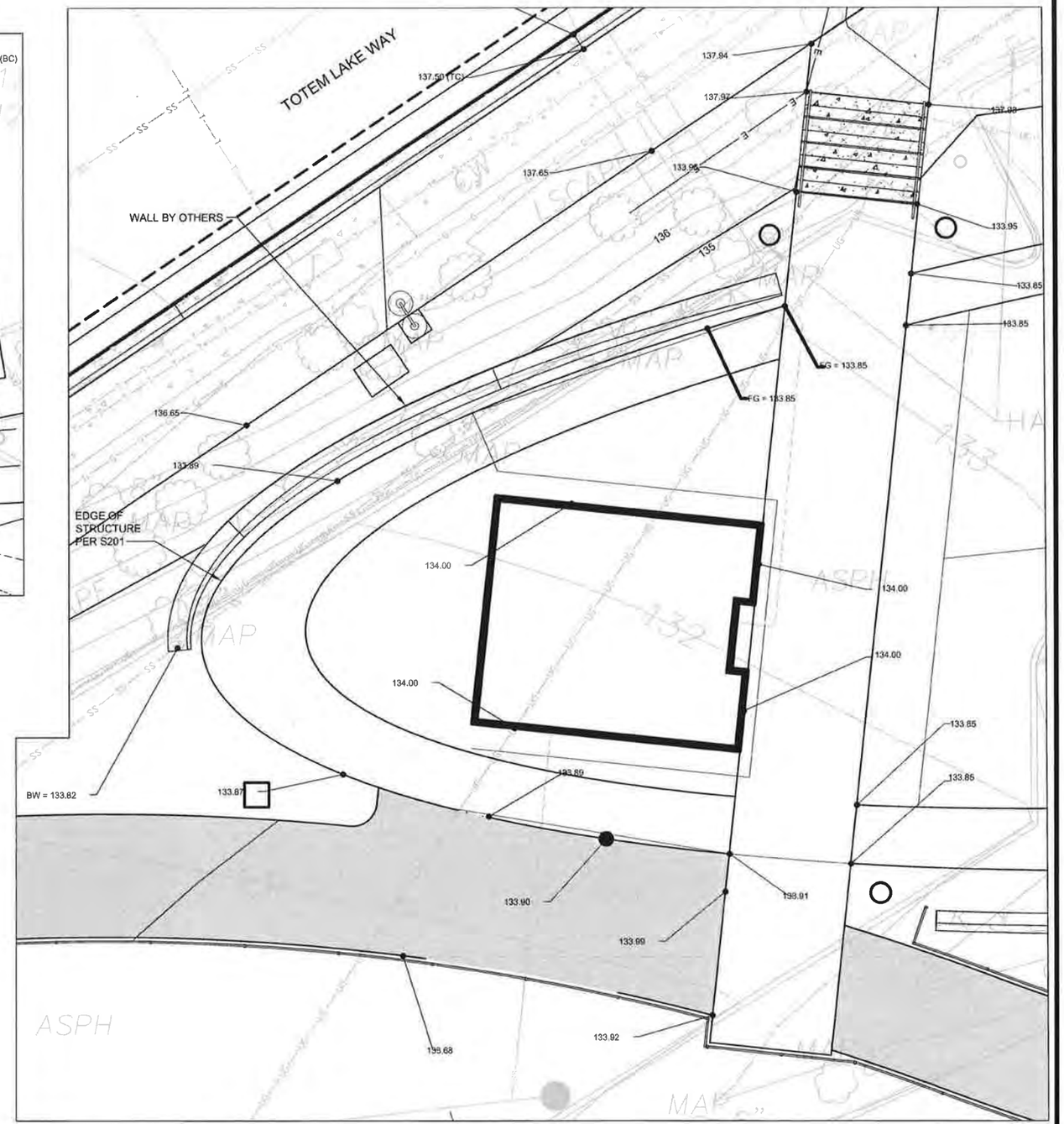
1. DIAGONAL STRIPING LAYOUT (ANGLE, SPACING, ETC.) PER WSDOT STANDARD PLAN M-17.10-02.
2. MANUFACTURED WHEEL STOPS SHALL BE PRECAST REINFORCED CONCRETE, 6" HIGH AND AT LEAST 6' LONG AND SECURED IN A MINIMUM OF 2 LOCATIONS.
3. TOP OF CURB ELEVATION IS 0.50' ABOVE BOTTOM OF CURB GRADE, UNLESS NOTED OTHERWISE.

PARKING LOT ENLARGED PLAN

1" = 5'

NOTES:

1. REMOVABLE BOLLARD PER CITY OF KIRKLAND STANDARD NO. CK-R.61.
2. WHEEL STOP PER CITY OF KIRKLAND DETAIL CK-R.18



GRADING & PAVING ENLARGED PLAN

1" = 5'

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Totem Lake Park Phase 1

City of Kirkland

12031 Totem Lake Way, Kirkland, WA 98034

2-8-19

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100% Design Submittal

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2/8/2019

REVISIONS

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DRW / CHK

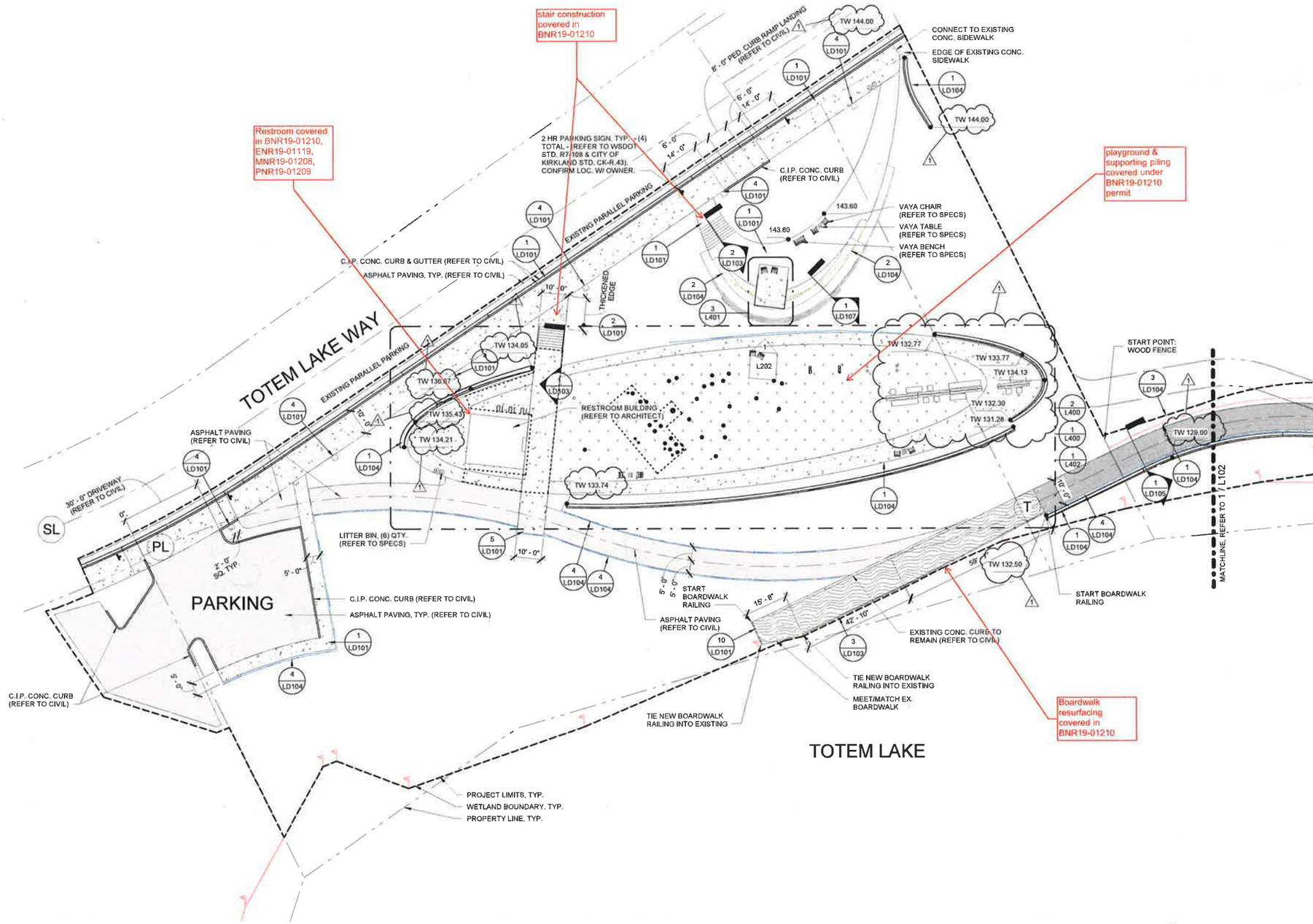
SHEET NAME:
GRADING PLAN - PARK - ENLARGEMENT

SHEET NUMBER
CG201

SITE LEGEND

- CONCRETE PAVING
- CONCRETE PAVING ON STRUCTURE
- CRUSHED ROCK PAVING
- SYNTHETIC TURF
- SYNTHETIC TURF ON STRUCTURE
- ASPHALT PAVING (REFER TO CIVIL)
- WOOD BOARDWALK DECKING @ EX. BOARDWALK
- PULTRUDED GRATING BOARDWALK
- STEEL BAR GRATING BOARDWALK
- PROJECT LIMITS
- EXTENT OF PILE SUPPORTED SLAB (REFER TO STRUCTURAL)
- PLAY EQUIPMENT POST TO STRUCTURAL PILE CONNECTION (REFER TO STRUCTURAL)
- CONCRETE PAVING THICKENED EDGE
- WOOD SPLIT RAIL FENCE
- WOOD FENCE
- BIKE RACK
- LITTER RECEPTACLE
- VAYA BENCH
- VAYA CHAIR
- VAYA TABLE
- CHAIN LINK FENCE
- FILTREXX WALL
- ROCKERY WALL BACKFILL MATERIAL
- ROCKERY WALL
- WETLAND BOUNDARY

ALIGNMENT SCHEDULE	
Name	Alignment Description
BL	BOARDWALK LAYOUT CENTERLINE
PL	PARK PATHWAY CENTERLINE
SL	STREET CENTERLINE
TL	TRAIL EDGE LINE
T	TRAIL CENTERLINE



1 SITE PLAN - PARK
1" = 20'-0"

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bergerpartnership.com

Totem Lake Park Phase 1

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STATE OF WASHINGTON ANDY MITTON NO. 682 EXP. 6/30/2020 LANDSCAPE ARCHITECT

SET TYPE
100% Design Submittal

SET ISSUE DATE
02/08/2019

REVISIONS

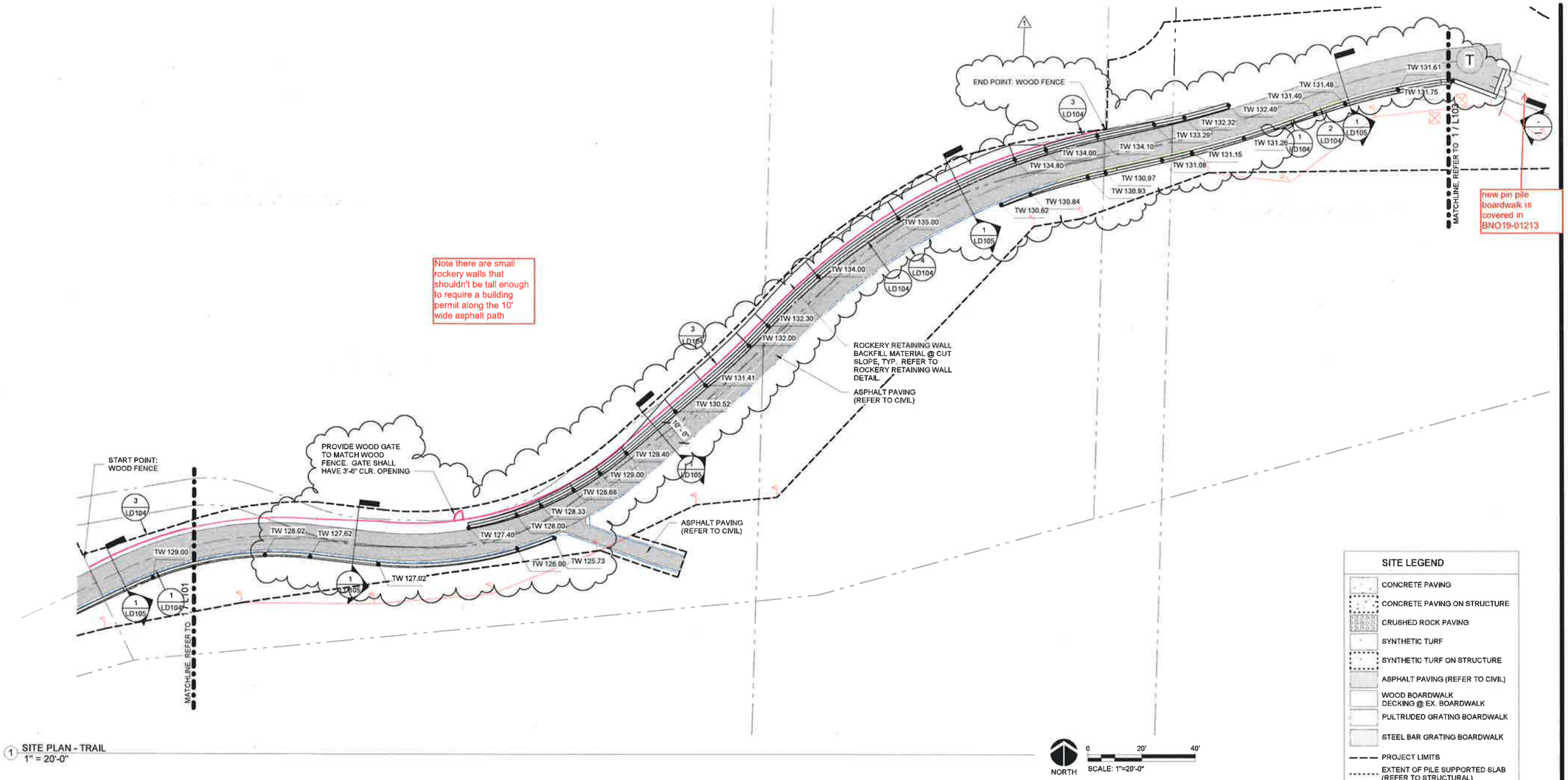
Δ	DESCRIPTION	DATE
1	Permit Response	2019/05/16

DRAWN/CHECKED
MM / AM

SHEET NAME
SITE PLAN - PARK

SHEET NUMBER
L101

Berger Partnership Project Number 2015487S.02 Plotted 5/21/2019 9:26:50 PM Filename C:\Users\matmm\Documents\Totem Lake Park-PH1_matmm@bergerpartnership.com.rvt



1 SITE PLAN - TRAIL
1" = 20'-0"

ALIGNMENT SCHEDULE	
Name	Alignment Description
BL	BOARDWALK LAYOUT CENTERLINE
PL	PARK PATHWAY CENTERLINE
SL	STREET CENTERLINE
TL	TRAIL EDGE LINE
T	TRAIL CENTERLINE

SITE LEGEND

- CONCRETE PAVING
- CONCRETE PAVING ON STRUCTURE
- CRUSHED ROCK PAVING
- SYNTHETIC TURF
- SYNTHETIC TURF ON STRUCTURE
- ASPHALT PAVING (REFER TO CIVIL)
- WOOD BOARDWALK DECKING @ EX. BOARDWALK
- PULTRUDED GRATING BOARDWALK
- STEEL BAR GRATING BOARDWALK
- PROJECT LIMITS
- EXTENT OF PILE SUPPORTED SLAB (REFER TO STRUCTURAL)
- PLAY EQUIPMENT POST TO STRUCTURAL PILE CONNECTION (REFER TO STRUCTURAL)
- CONCRETE PAVING THICKENED EDGE
- WOOD SPLIT RAIL FENCE
- WOOD FENCE
- BIKE RACK
- LITTER RECEPTACLE
- VAYA BENCH
- VAYA CHAIR
- VAYA TABLE
- CHAIN LINK FENCE
- FILTREXX WALL
- ROCKERY WALL BACKFILL MATERIAL
- ROCKERY WALL
- WETLAND BOUNDARY

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Totem Lake Park Phase 1

City of Kirkland

12031 Totem Lake Way, Kirkland, WA 98034

STATE OF WASHINGTON ANDY MITTON LA 882 EXP 6/30/2020 LANDSCAPE ARCHITECT

SET TYPE
100% Design Submittal

SET ISSUE DATE
02/08/2019

REVISIONS

Δ	DESCRIPTION	DATE
1	Permit Response	2019/05/16

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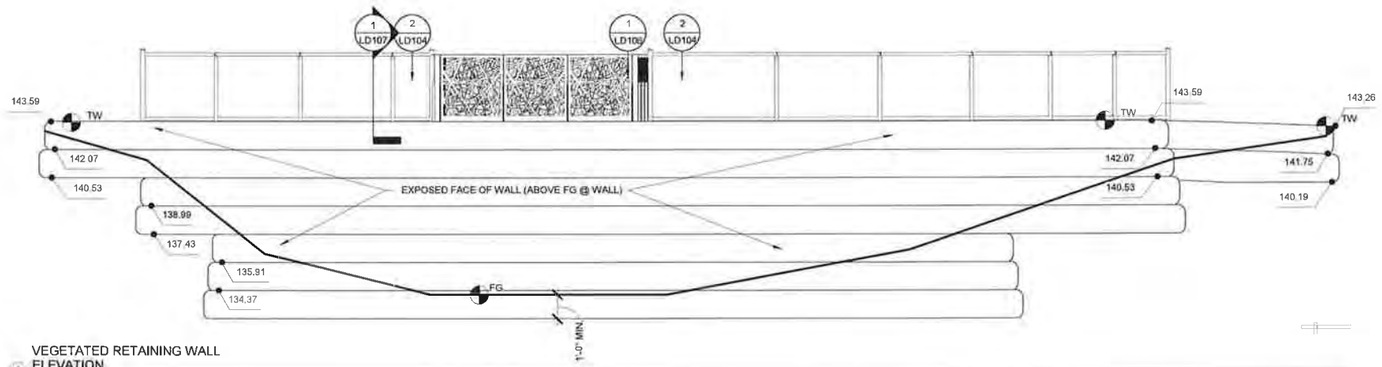
SHEET NAME
SITE PLAN - TRAIL

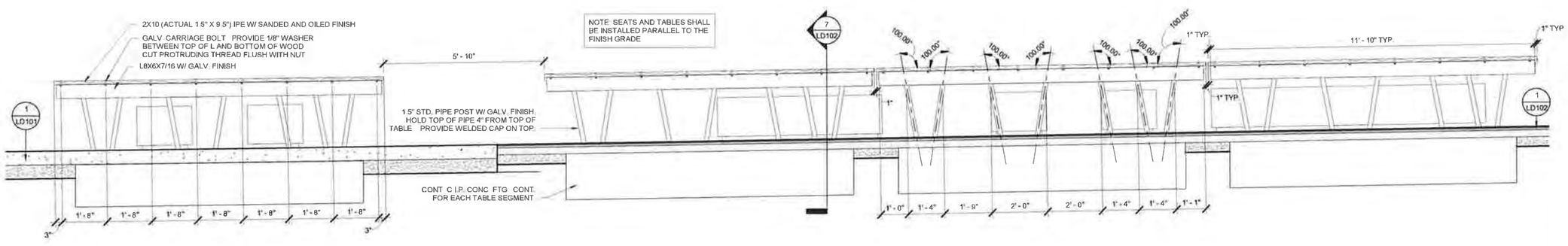
SHEET NUMBER
L102

Berger Partnership Project Number: 2015487.02 Plotted: 5/21/2019 9:27:05 PM Filename: C:\Users\mattm\Documents\Totem Lake Park-PH1_mattm@bergerpartnership.com.rvt



1 VEGETATED RETAINING WALL ELEVATION
1/4" = 1'-0"

NOTES
1. APPROXIMATE FINISH GRADE @ FACE OF WALL SHOWN. REFER TO CIVIL FOR GRADING
2. PLANT EXPOSED FACE OF WALL W/ SYMPHORICARPOS ALBUS & CORNUS SERICEA LIVESTAKES @ 2'-0" O.C. TRIANGULAR SPACING. DO NOT DAMAGE GEOGRID DURING PLANTING
3. QUANTITIES OF LIVESTAKES SHALL BE EQ. PROPORTION OF EA. SPECIES.
4. LIVESTAKE LAYOUT SHALL BE RANDOMIZED, EXCEPT FOR ON THE UPER 18" OF THE WALL - NO CORNUS SERICEA SHALL BE USED ON THE UPPER 18". INSTALL SYMPHORICARPOS ALBUS LIVESTAKES ONLY ON TOP OF WALL.
5. SYMPHORICARPOS ALBUS LIVESTAKES SHALL BE 1/2" DIA. x 3' LENGTH AND SHALL BE EMBEDED 18" INTO THE WALL.
6. CORNUS SERICEA LIVESTAKES SHALL BE 3/4" DIA. x 4' LENGTH AND SHALL BE EMBEDED 24" INTO THE WALL.
7. LIVESTAKES SHALL BE HARVESTED AND PLANTED WITHIN TWO WEEKS OF HARVEST/CUTTING AND SHALL BE STORED IN SHADED, COOL, MOIST CONDITIONS BEFORE PLANTING
8. LIVESTAKES SHALL BE INSTALLED BETWEEN OCTOBER 15TH AND MARCH 15TH
9. HYDROSEED EXPOSED FACE OF WALL W/ NATIVE SEED MIX TBD - CONFIRM W/ LANDSCAPE ARCH.



2 PICNIC ELEVATION
1/2" = 1'-0"

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Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

STATE OF WASHINGTON
ANDY MITTON
NO. 882 EXP. 6/30/2020
LANDSCAPE ARCHITECT

SET TYPE
100% Design Submittal

ISSUE DATE
02/08/2019

REVISIONS

Δ	DESCRIPTION	DATE

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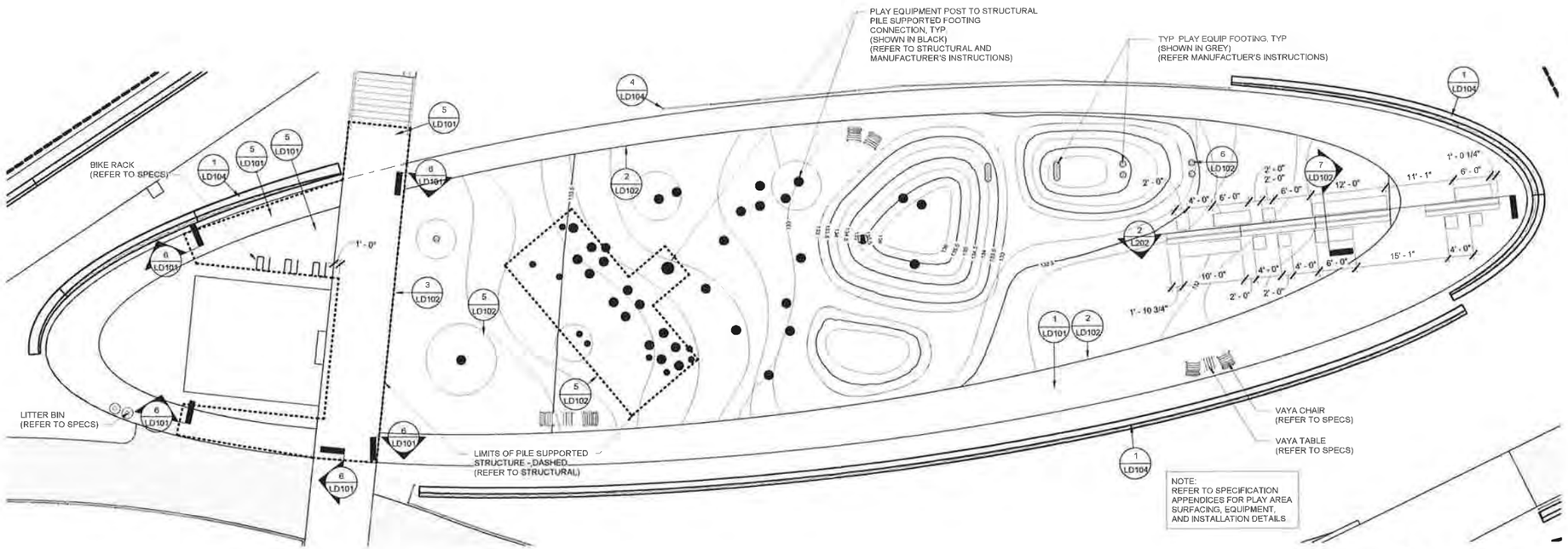
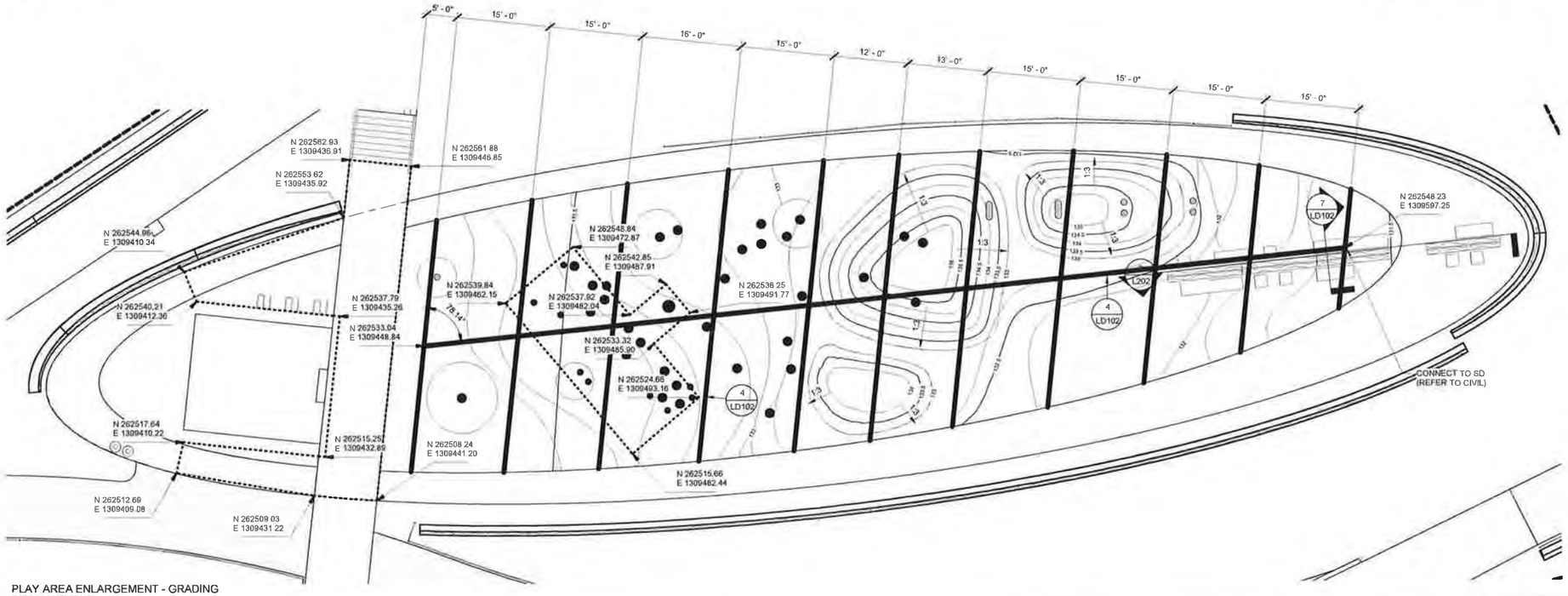
SHEET NAME
PARK ELEVATIONS

SHEET NUMBER
L202

Berger Partnership Project Number: 2015.675.02
Plotted: 2/7/2019 9:26:49 AM
Filename: C:\Users\mattm\Documents\Totem Lake Park-PH1_mattm@bergerpartnership.com.rvt



1 PLAY AREA ENLARGEMENT
1" = 10'-0"



2 PLAY AREA ENLARGEMENT - GRADING AND DRAINAGE
1" = 10'-0"

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Totem Lake Park Phase 1
City of Kirkland

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STATE OF WASHINGTON ANDY MITTON NO. 982 EXP. 6/30/2020 LANDSCAPE ARCHITECT

SET Type
100% Design Submittal

SET ISSUE DATE
02/08/2019

REVISIONS:

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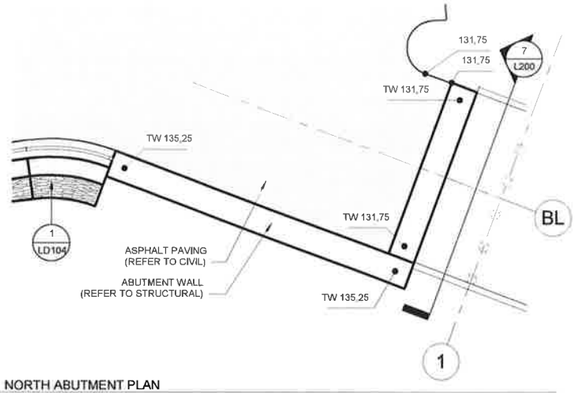
MM / AM

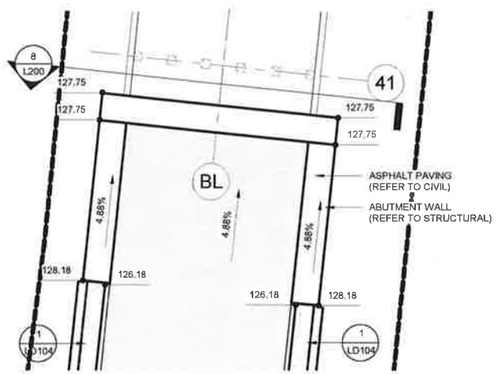
SHEET NAME
PLAY AREA ENLARGEMENTS

SHEET NUMBER
L400

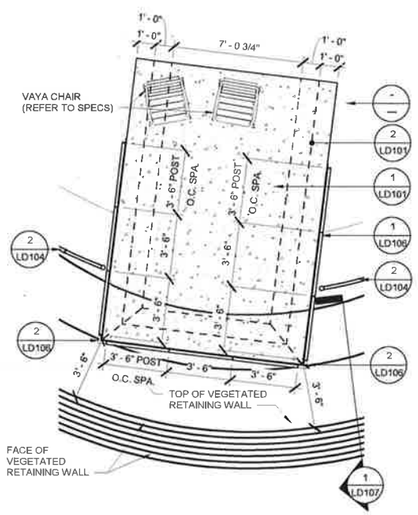
Berger Partnership Project Number: 2015.4815.02
Plotted: 2/7/2019 9:30:33 AM File name: C:\Users\matim\Documents\Totem Lake Park-PH1_matim@bergerpartnership.com.rvt



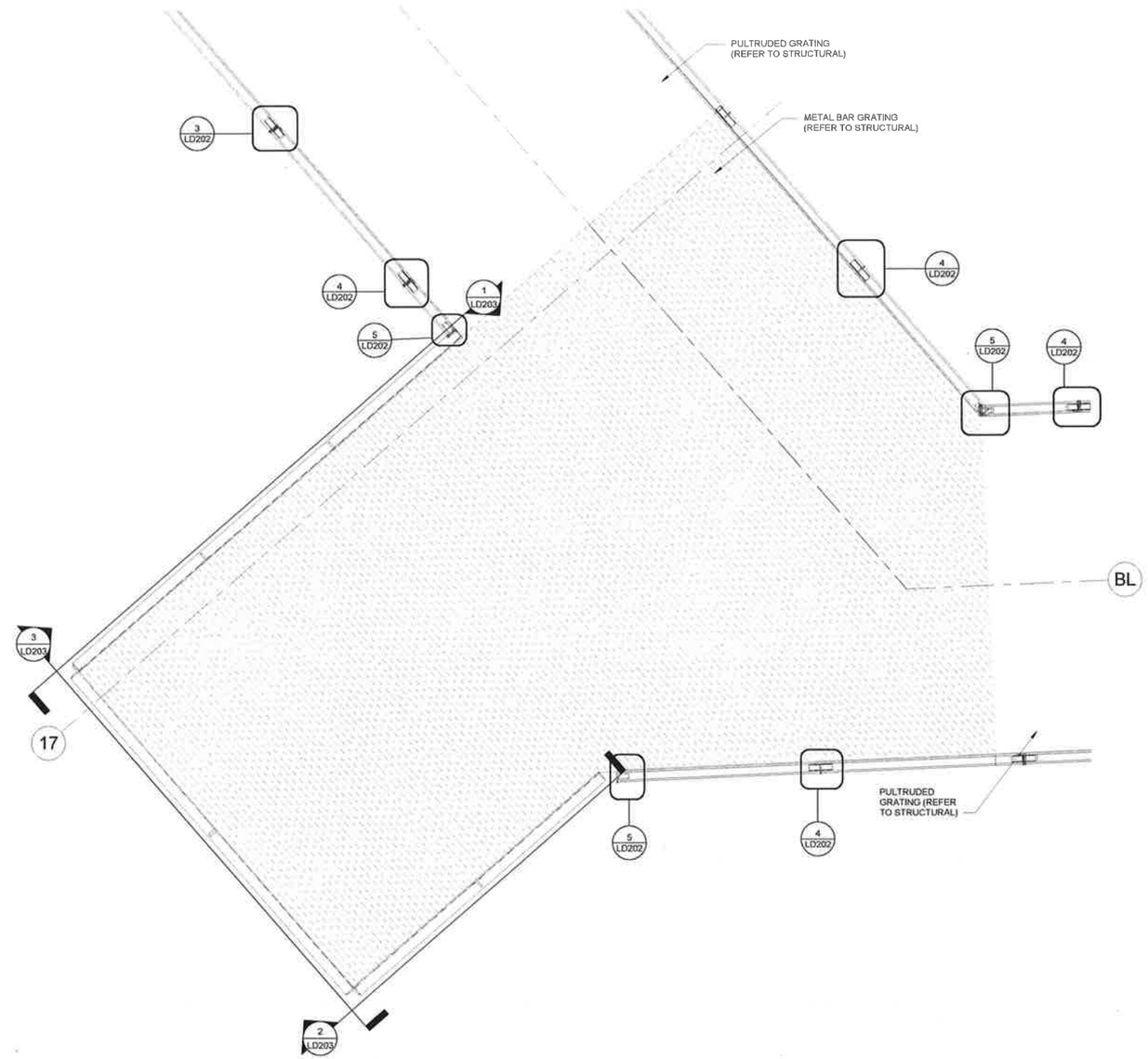
1 NORTH ABUTMENT PLAN
1/4" = 1'-0"



2 SOUTH ABUTMENT PLAN
1/4" = 1'-0"



3 OVERLOOK ENLARGEMENT
1/4" = 1'-0"



5 BOARDWALK OVERLOOK
ENLARGEMENT
1/2" = 1'-0"

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REVISIONS

Δ	DESCRIPTION	DATE

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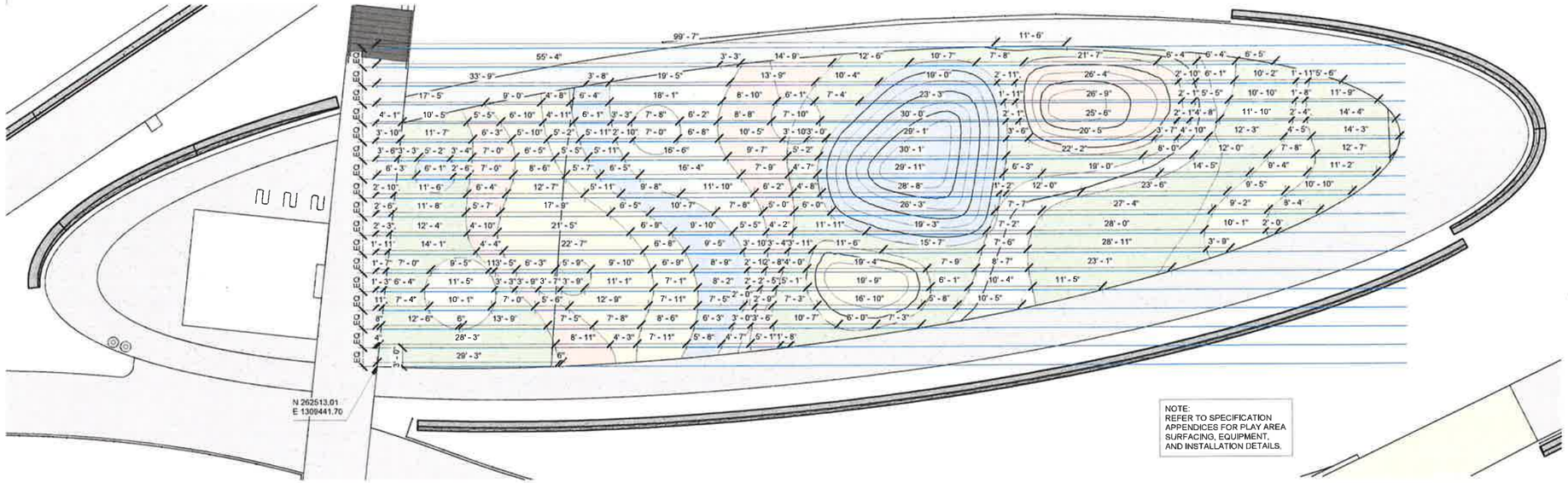
MM / AM

SHEET NAME
LANDSCAPE
ENLARGEMENTS

SHEET NUMBER
L401



NOTE:
REFER TO SPECIFICATION APPENDICES FOR PLAY AREA SURFACING, EQUIPMENT, AND INSTALLATION DETAILS.

1 PLAY AREA ENLARGEMENT - LAYOUT
1" = 10'-0"

NORTH

0 10' 20'
SCALE: 1"=10'-0"

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Totem Lake Park Phase 1

City of Kirkland

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STATE OF WASHINGTON
ANDY MITTON
No. 882 EXP. 6/30/2020
LANDSCAPE ARCHITECT

SET TYPE
100% Design Submittal

SET ISSUE DATE
02/08/2019

REVISIONS

Δ	DESCRIPTION	DATE

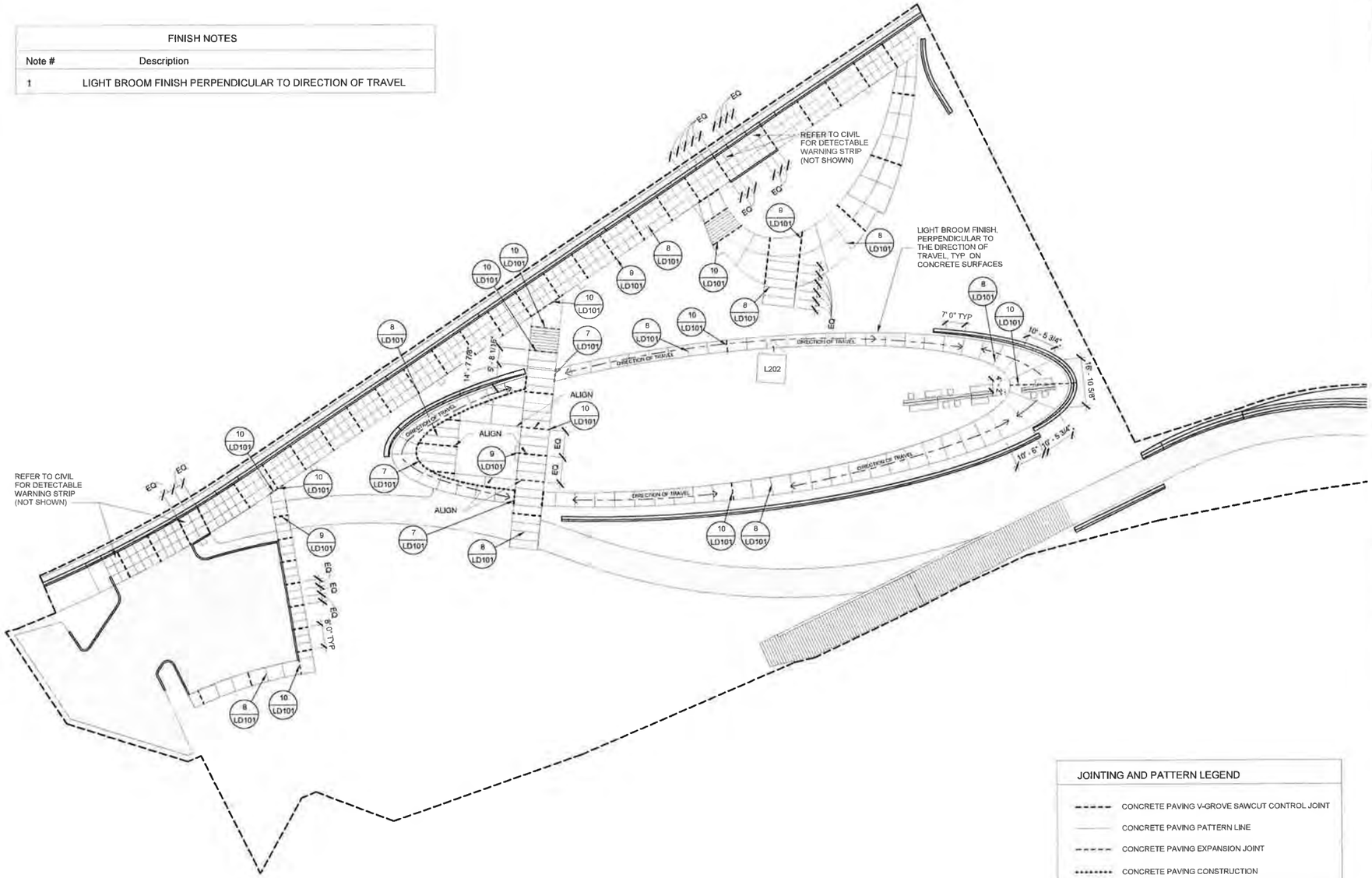
DRAWN/CHECKED
Author / Checker

SHEET NAME
PLAY AREA ENLARGEMENTS

SHEET NUMBER
L402

Berger Partnership Project Number: 2015.4875.02 Printed: 2/7/2019 9:31:12 AM Filename: C:\Users\matim\Documents\Totem Lake Park-PH1_matim@bergerpartnership.com.rvt

FINISH NOTES	
Note #	Description
1	LIGHT BROOM FINISH PERPENDICULAR TO DIRECTION OF TRAVEL



1 PAVING JOINT & PATTERN PLAN
1" = 20'-0"

JOINTING AND PATTERN LEGEND
CONCRETE PAVING V-GROVE SAWCUT CONTROL JOINT
CONCRETE PAVING PATTERN LINE
CONCRETE PAVING EXPANSION JOINT
CONCRETE PAVING CONSTRUCTION

NORTH

0 20' 40'
SCALE: 1"=20'-0"

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Totem Lake Park Phase 1

City of Kirkland

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STATE OF WASHINGTON
ANDY MITTON
NO. 892 EXP. 6/30/2020
LANDSCAPE ARCHITECT

SET TYPE
100% Design Submittal

SET ISSUE DATE
02/08/2019

REVISIONS

Δ	DESCRIPTION	DATE

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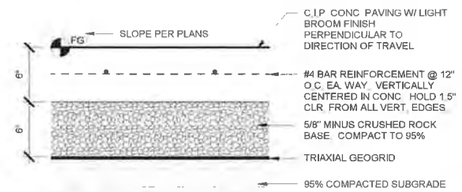
MM / AM

SHEET NAME
PAVING JOINTING & PATTERN DETAIL PLAN

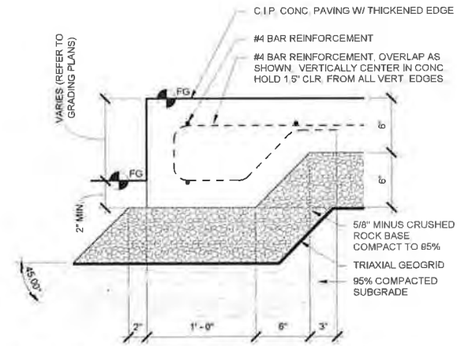
SHEET NUMBER
L403

Berger Partnership Project Number: 2015487.02
Plotted: 2/7/2019 9:31:23 AM
Filename: C:\Users\mattm\Documents\Totem Lake Park-PH1_mattm@bergerpartnership.com.rvt

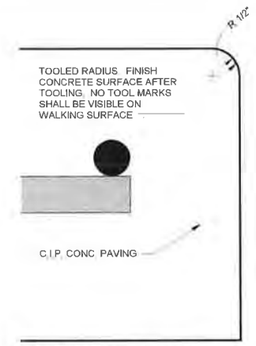
NOTES:
1. MAXIMUM SLOPE IN DIRECTION OF TRAVEL SHALL BE LESS THAN OR EQ. TO 4.9% UNLESS NOTED OTHERWISE
2. MIN. CROSS SLOPE (PERPENDICULAR TO DIRECTION OF TRAVEL) SHALL BE 1%; MAX. CROSS SLOPE SHALL BE LESS THAN OR EQUAL TO 2%
3. MEET ALL ADJACENT PAVING SURFACES IN FLUSH CONDITION UNLESS NOTED OTHERWISE



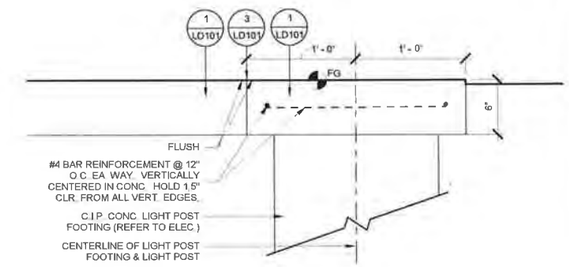
1 CONCRETE PAVING
1 1/2" = 1'-0"



2 CONCRETE PAVING THICKENED EDGE
1 1/2" = 1'-0"

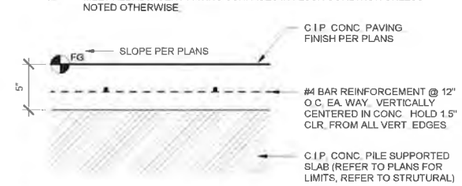


3 CONCRETE PAVING EDGE CONDITION
12" = 1'-0"

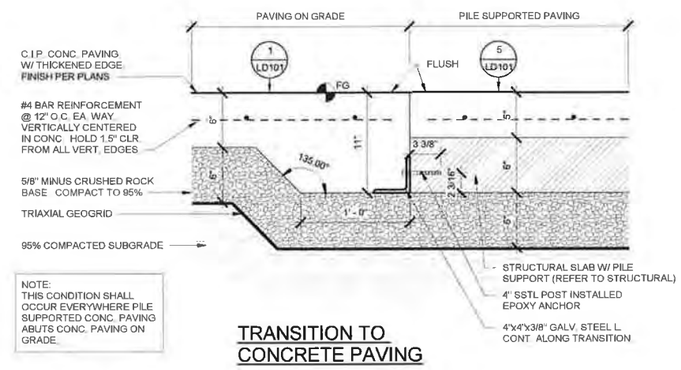


4 CONCRETE PAVING ABOVE LIGHT POST FOOTING
1 1/2" = 1'-0"

NOTES:
1. MAXIMUM SLOPE IN DIRECTION OF TRAVEL SHALL BE LESS THAN OR EQ. TO 4.9% UNLESS NOTED OTHERWISE
2. MIN. CROSS SLOPE (PERPENDICULAR TO DIRECTION OF TRAVEL) SHALL BE 1%; MAX. CROSS SLOPE SHALL BE LESS THAN OR EQUAL TO 2%
3. MEET ALL ADJACENT PAVING SURFACES IN FLUSH CONDITION UNLESS NOTED OTHERWISE.



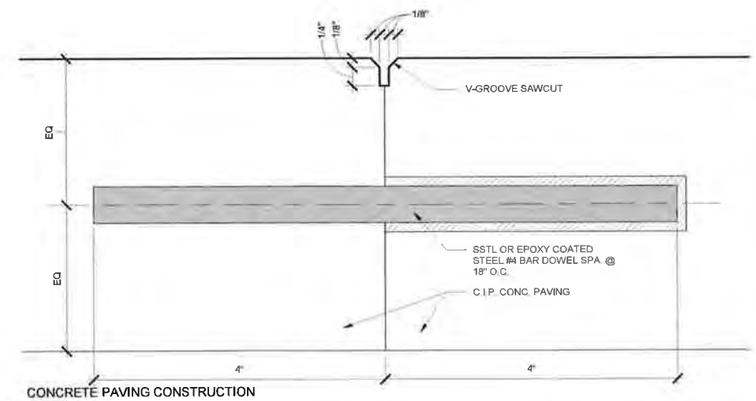
5 CONCRETE PAVING ON STRUCTURE
1 1/2" = 1'-0"



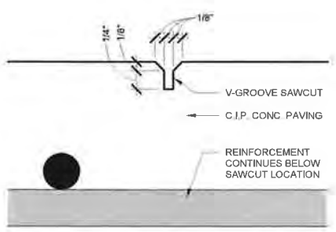
NOTE:
THIS CONDITION SHALL OCCUR EVERYWHERE PILE SUPPORTED CONC. PAVING ABUTS CONC. PAVING ON GRADE.

TRANSITION TO CONCRETE PAVING

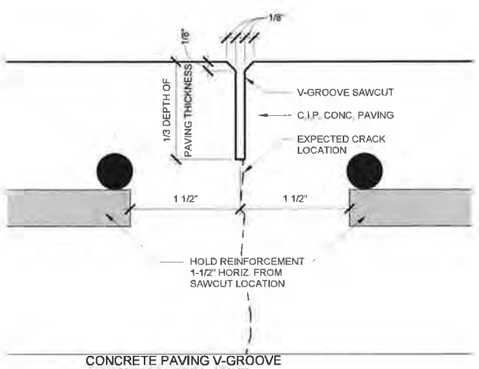
6 PAVING TRANSITIONS - ON STRUCTURE TO ON GRADE
1 1/2" = 1'-0"



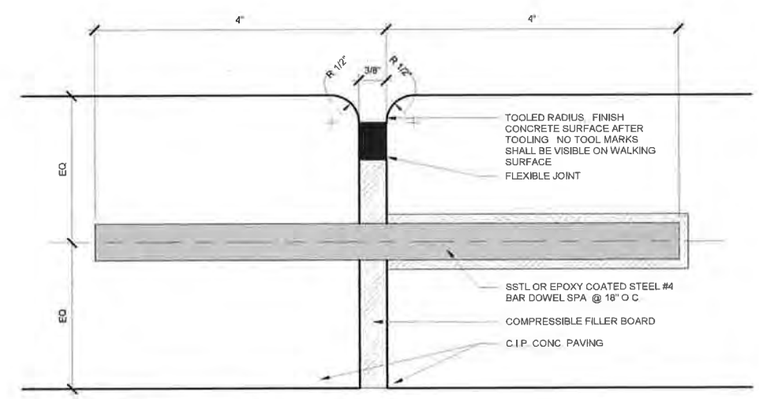
7 CONCRETE PAVING CONSTRUCTION JOINT
12" = 1'-0"



8 CONCRETE PAVING PATTERN LINE
12" = 1'-0"



9 CONCRETE PAVING V-GROOVE SAWCUT CONTROL JOINT
12" = 1'-0"



10 CONCRETE PAVING EXPANSION JOINT
12" = 1'-0"

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Totem Lake Park Phase 1
City of Kirkland
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STATE OF WASHINGTON ANDY MITTON NO. 882 EXP. 6/30/2020 LANDSCAPE ARCHITECT

SET TYPE
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SET ISSUE DATE
02/08/2019

REVISIONS:

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MM / AM

SHEET NAME
LANDSCAPE PAVING DETAILS

SHEET NUMBER
LD101

Berger Partnership Project Number: 2015-6875.02
Plotted: 2/7/2019 9:43:04 AM
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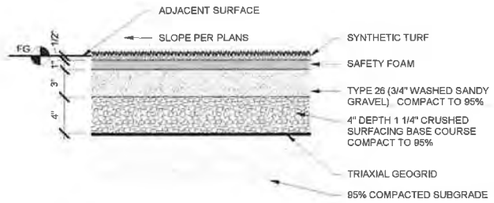
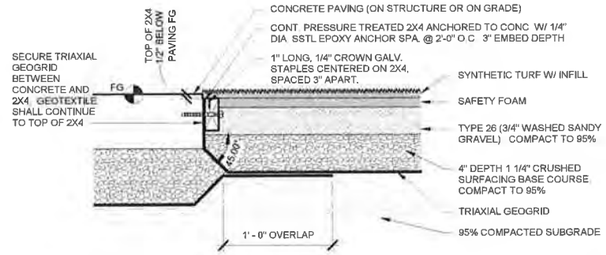
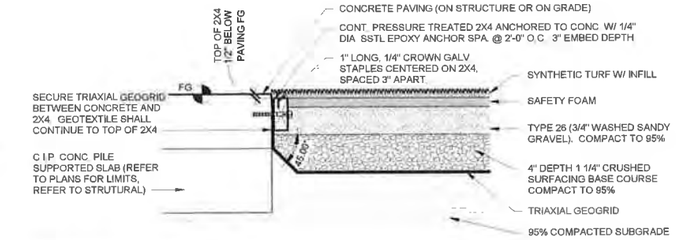


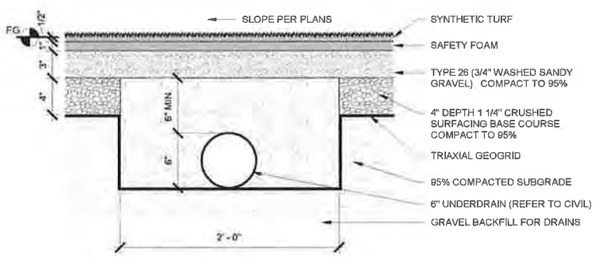
1 SYNTHETIC TURF
1 1/2" = 1'-0"



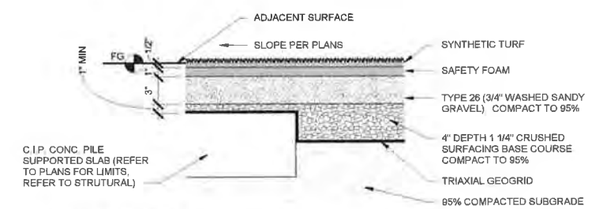
2 SYNTHETIC TURF @ CONCRETE PAVING
1 1/2" = 1'-0"



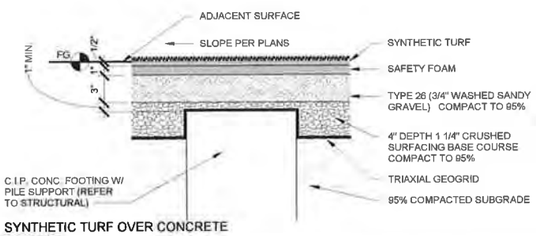
3 SYNTHETIC TURF @ CONCRETE PAVING ON STRUCTURE
1 1/2" = 1'-0"



4 SYNTHETIC TURF @ FRENCH DRAIN
1 1/2" = 1'-0"

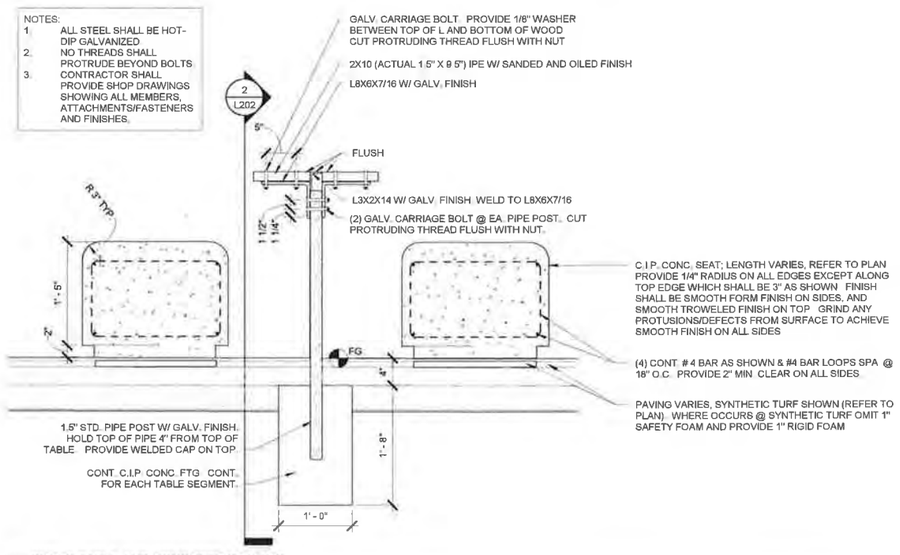


5 SYNTHETIC TURF OVER CONCRETE PAVING ON STRUCTURE
1 1/2" = 1'-0"



6 SYNTHETIC TURF OVER CONCRETE FOOTING
1 1/2" = 1'-0"

NOTES:
1. ALL STEEL SHALL BE HOT-DIP GALVANIZED.
2. NO THREADS SHALL PROTRUDE BEYOND BOLTS.
3. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS SHOWING ALL MEMBERS, ATTACHMENTS/FASTENERS AND FINISHES.



7 PICNIC TABLE AND CONCRETE SEATING
1" = 1'-0"

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SET TYPE
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SET ISSUE DATE
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REVISIONS

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DRAWN/CHECKED
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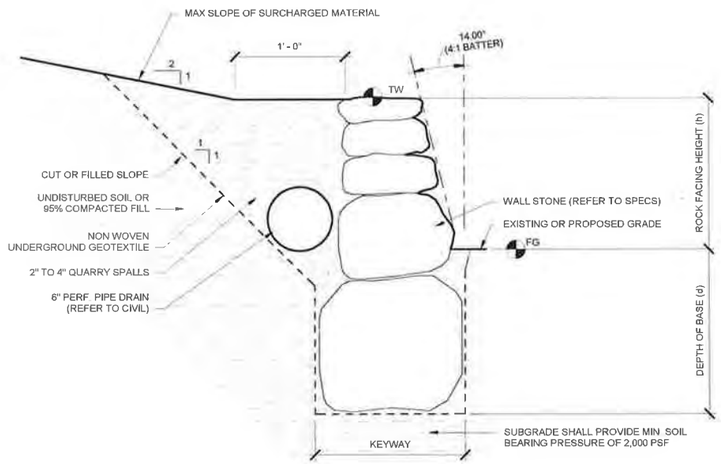
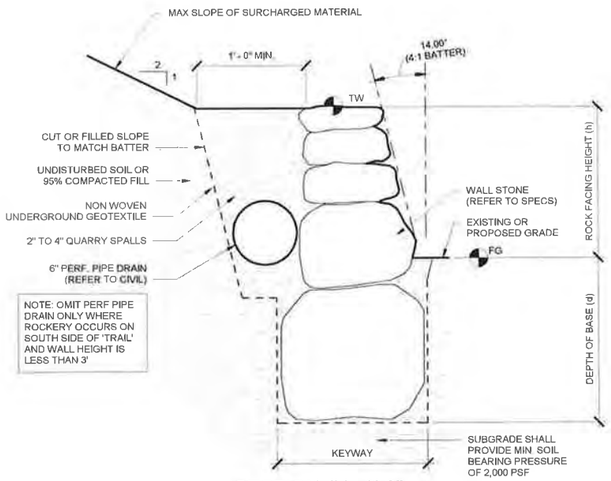
SHEET NAME
PLAY AREA DETAILS

SHEET NUMBER
LD102

Berger Partnership Project Number: 2015.4875.02 Plotted: 2/7/2019 9:31:46 AM Filename: C:\Users\matim\Documents\Totem Lake Park-PH1_matim@bergerpartnership.com.rvt

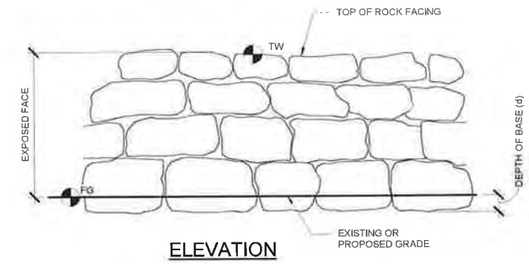


SECTION 'h' >3'-0"



SECTION 'h' <3'-0"

1 ROCKERY RETAINING WALL
1 1/2" = 1'-0"



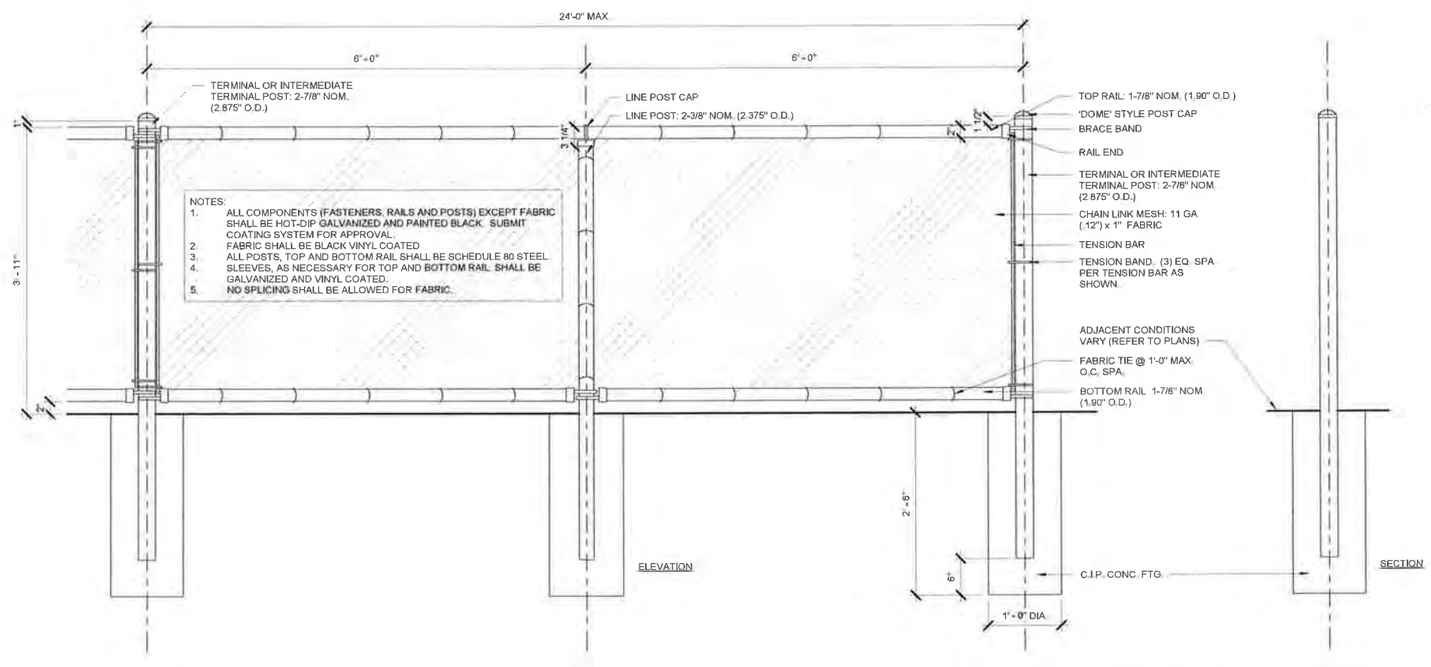
ELEVATION

DESIGN PARAMETERS

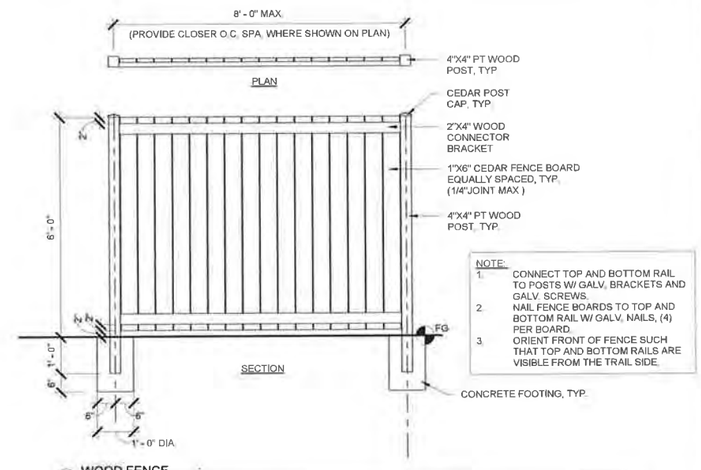
(h)	(d)	SIZE(BASE)	SIZE(TOP)
2 FEET	18 INCHES	2-MAN	1-MAN
4 FEET	18 INCHES	3-MAN	2-MAN
6 FEET	18 INCHES	4-MAN	2-MAN
8 FEET	18 INCHES	5-MAN	2-MAN

ROCK SIZES

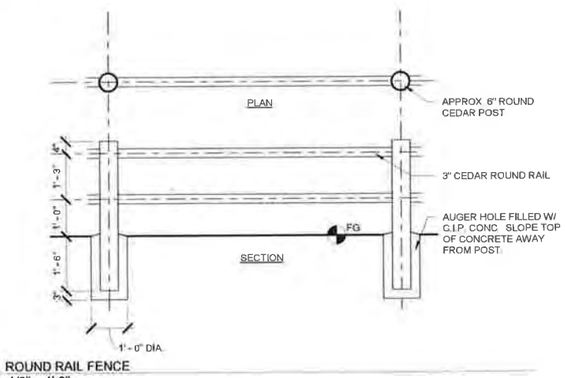
SIZE	APPROX. WEIGHT	MIN. APPROX. DIMENSIONS	APPROX.VOLUME)
1-MAN ROCK	200-400 LBS.	12 INCHES	2 CF
2-MAN ROCK	500-800 LBS.	13 INCHES	4 CF
3-MAN ROCK	900-1200 LBS.	16 INCHES	6.6 CF
4-MAN ROCK	1300-2000 LBS.	18 INCHES	12.5 CF
5-MAN ROCK	2000-4000 LBS.	24 INCHES	18.5 CF
6-MAN ROCK	4100-6000 LBS.	30 INCHES	31 CF



2 CHAIN LINK FENCE
1" = 1'-0"



3 WOOD FENCE
1/2" = 1'-0"



4 ROUND RAIL FENCE
1/2" = 1'-0"

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Totem Lake Park Phase 1

City of Kirkland

12031 Totem Lake Way, Kirkland, WA 98034

STATE OF WASHINGTON
ANDY MITTON
NO. 882 EXP. 6/30/2020
LANDSCAPE ARCHITECT

SET TYPE
100% Design Submittal

SET ISSUE DATE
02/08/2019

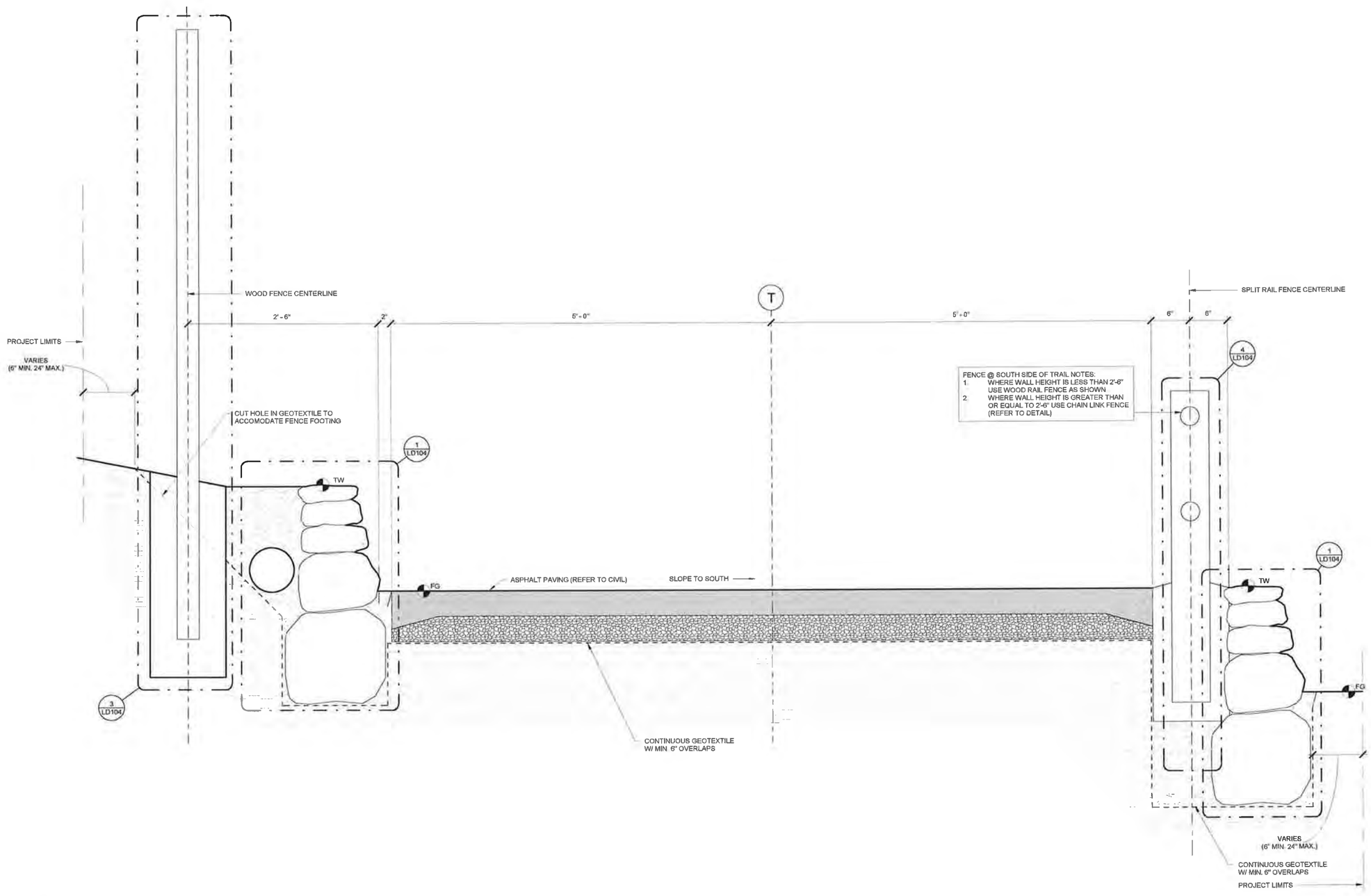
REVISIONS:

Δ	DESCRIPTION	DATE

DRAWN/CHECKED
MM / AM

SHEET NAME
WALL & FENCE DETAILS

SHEET NUMBER
LD104



1 TRAIL TYPICAL SECTION
1 1/2" = 1'-0"

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REVISIONS

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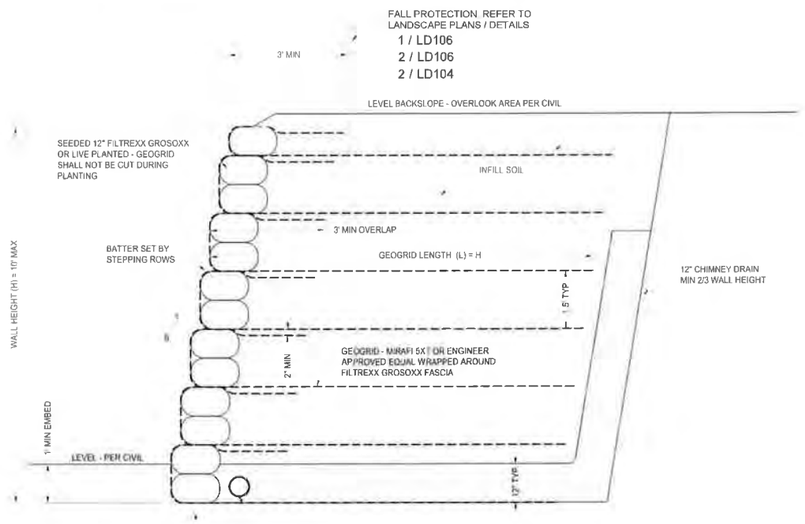
DRAWN/CHECKED
MM / AM

SHEET NAME
TRAIL TYPICAL DETAIL

SHEET NUMBER
LD105

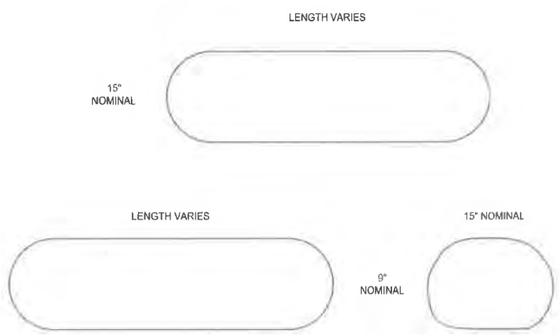
Berger Partnership Project Number: 2015.4675.02
Plotted: 2/7/2019 9:32:16 AM
Filename: C:\Users\matmi\Documents\Totem Lake Park-PH1_matmi@bergerpartnership.com.rvt



6" DIA PERFORATED PVC PIPE WITH 6" COVER WITH 2" BEDDING OF 1" WASHED ROCK AND MIN 1% SLOPE TO APPROVED OUTLET

GEOTECHNICAL ENGINEER APPROVED FOUNDATION SOILS MUST BE APPROVED PRIOR TO PLACING WALL COMPONENTS - OVEREXCAVATION, COMPACTION, OR OTHER METHODS TO PROVIDE A FIRM AND STABLE BASE MAY BE REQUIRED

CROSS-SECTION: REINFORCED SLOPE
NO SCALE



NOTE: GROSOXX ARE 12-INCH DIAMETER TUBES THAT DEFORM TO NOMINALLY 9-INCHES TALL AND 15-INCHES WIDE

GREENLOXX 12" DIA GROSOXX MODULE DIMENSION DETAIL
NO SCALE

DESIGN NOTES:
THE FOLLOWING DESIGN VALUES WERE USED
INTERNAL ANGLE OF FRICTION FOR REINFORCED SOIL = 34 DEGREES
UNIT WEIGHT OF SOIL = 125LB/CU FT
MAXIMUM HEIGHT = 10' MAXIMUM
BATTER OF WALL = 1H 6V
BACKFILL SLOPE = LEVEL
COURSES BURIED = 1' EMBEDMENT

1 CONTRACTOR TO VERIFY ALL LOCATIONS ELEVATIONS AND DIMENSIONS

2 FOR BIDDING PURPOSES, THE DESIGN WALL HEIGHT SHALL INCLUDE BOTH THE ABOVE GRADE DIMENSIONS SHOWN ON THE CIVIL PLANS AND THE BELOW GRADE EMBEDDED PORTION OF THE WALL INDICATED HEREIN

GENERAL NOTES

DRAINAGE AGGREGATE
1 DRAINAGE LAYER MATERIALS INCLUDING THE CHIMNEY DRAIN, SHALL BE 2-INCH WASHED CRUSH ROCK MATERIAL AND FREE OF ORGANICS WITH LESS THAN 5% FINES (SILT AND CLAY PARTICLES PASSING THE #200 SIEVE MEASURED ON THE MINUS #4 SIEVE SIZE) (WSDOT 9-03 9(2))

INFILL SOIL (REINFORCED AND RETAINED SOIL ZONE)
1 REINFORCED SOIL SHALL BE FREE OF DEBRIS AND CONSIST OF GRANULAR ONSITE SAND OR IMPORTED SOIL THE MAXIMUM PARTICLE SIZE SHALL BE 4 INCHES THERE SHALL BE LESS THAN 20% BY WEIGHT OF PARTICLES GREATER THAN 1-1/2 INCHES AND AT LEAST 25% RETAINED ON THE NO 4 SIEVE

2 THE INFILL SOIL SHALL BE PLACED IN MAXIMUM 8-INCH LIFTS AND COMPACTED TO AT LEAST 95% OF THE MODIFIED PROCTOR MAXIMUM DENSITY AS DEFINED BY ASTM D-1557

EXCAVATION
1. WHEN NEEDED EXCAVATE TO LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS TAKE PRECAUTIONS TO MINIMIZE OVER-EXCAVATION OVER-EXCAVATION SHALL BE BACKFILLED WITH APPROVED COMPACTED STRUCTURAL FILL

EXCAVATION BASE PREPARATION

1 INSPECT EXCAVATION BASE PRIOR TO PLACEMENT OF REINFORCED FILL MATERIAL

2 IN AREAS WHERE SOFT DISTURBED OR OTHERWISE UNSUITABLE SOILS ARE ENCOUNTERED WITHIN THE ZONE OF THE WALL LOADING IN THE EXCAVATIONS, SUCH UNSUITABLE SOILS SHALL BE OVER-EXCAVATED TO THE DEPTHS AND EXTENTS REQUIRED BY THE GEOTECHNICAL ENGINEER, AND REPLACED WITH STRUCTURAL FILL COMPACTED TO A MINIMUM 95% OF THE MODIFIED PROCTOR MAXIMUM DENSITY AS DEFINED BY ASTM D 1557

GEOGRID INSTALLATION
1 GEOGRID SHALL BE ORIENTED WITH THE HIGHEST STRENGTH AXIS PERPENDICULAR TO THE SLOPE FACE VERIFY ORIENTATION (ROLL DIRECTION) OF GEOGRID REINFORCEMENT

2 INSTALL GEOGRID TO SLOPE HEIGHT, HORIZONTAL LOCATION, AND EXTENT AS SHOWN ON THE DRAWINGS

3 LAY THE GEOGRID HORIZONTALLY ON COMPACTED BACKFILL AS THE STRUCTURAL FILL IS BEING CONSTRUCTED PLACE TURF REINFORCEMENT MAT ON GRID AT SLOPE FACE PULL GEOGRID AND MAT TAUT AND WRAP THE GEOGRID OVER THE FACE OF THE FILL PER DETAIL

4 GEOGRID SHALL BE CONTINUOUS THROUGHOUT THEIR EMBEDMENT LENGTHS SPLICED CONNECTIONS BETWEEN SHORTER PIECES WILL NOT BE ALLOWED

5 DO NOT OPERATE TRACKED CONSTRUCTION EQUIPMENT DIRECTLY UPON GEOGRID PROVIDE A MINIMUM FILL THICKNESS OF 6 INCHES PRIOR TO OPERATION OF TRACKED EQUIPMENT OVER GEOGRID KEEP TRACKED VEHICLE TURNING TO MINIMUM TO PREVENT TRACKS FROM DISPLACING THE FILL AND DAMAGING GEOGRID

6 RUBBER-TIRED EQUIPMENT MAY PASS OVER GEOGRID AT LOW SPEEDS LESS THAN 10 MPH IF PERMITTED BY THE MANUFACTURER AVOID SUDDEN BRAKING AND SHARP TURNING

7 CHANGES TO GEOGRID LAYOUT, INCLUDING, BUT NOT LIMITED TO, LENGTH, SOIL REINFORCEMENT TYPE (STRENGTH) OR ELEVATION MAY BE MADE SUBJECT TO APPROVAL OF THE ENGINEER

8 HAND CUT GEOGRID FOR FALL PROTECTION INSTALLATION DO NOT AUGER THROUGH GEOGRID

FILL PLACEMENT OVER GEOGRID
1 REINFORCED FILL MATERIAL SHALL BE PLACED IN MAXIMUM 8-INCH LOOSE LIFTS ON THE GEOSYNTHETIC REINFORCEMENT

2 THE GEOGRID SHALL BE PRETENSIONED BY HAND TO REMOVE WRINKLES TENSIONING IS USUALLY FACILITATED BY THE USE OF STEEL STAKES APPLY CONSTANT TENSION TO EACH SECTION OF GEOGRID UNTIL SOIL FILL HAS BEEN PLACED SOIL FILL SHALL BE PLACED SPREAD, AND COMPACTED IN SUCH A MANNER THAT PREVENTS THE DEVELOPMENT OF WRINKLES AND/OR MOVEMENT OF THE GEOGRID

3 ONLY HAND-OPERATED COMPACTION EQUIPMENT SHALL BE ALLOWED WITHIN 3 FEET OF THE SLOPE FACE

4 IF POSSIBLE SOIL FILL SHALL BE PLACED FROM THE SLOPE FACE OUTWARD TO ENSURE THAT THE GEOGRID REMAINS TAUT SOIL SHALL BE PLACED IN UNIFORM LIFTS

5 COMPACT GEOGRID REINFORCED BACKFILL TO A MINIMUM OF 95% STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D1557; AT A MOISTURE CONTENT FROM 3% BELOW TO 3% ABOVE OPTIMUM

6 COMPACT GEOGRID REINFORCED BACKFILL IN ALL AREAS TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS INCLUDING ALL SLOPED AREAS

7 AT THE END OF EACH DAY'S OPERATION SLOPE THE LAST LIFT OF REINFORCED BACKFILL AWAY FROM THE SLOPE FACE TO RAPIDLY DIRECT RUNOFF AWAY FROM THE SLOPE FACE DO NOT ALLOW SURFACE RUNOFF FROM ADJACENT AREAS TO ENTER THE CONSTRUCTION SITE

8 SURFACE DRAINAGE DURING AND AFTER CONSTRUCTION OF THE REINFORCED WALL SHALL BE PROVIDED TO MINIMIZE WATER INFILTRATION IN THE REINFORCED SOIL ZONE

INSPECTIONS
1 FULL-TIME INSPECTION OF THE REINFORCED WALL CONSTRUCTION, INCLUDING FOUNDATION SOIL PREPARATION, GEOGRID PLACEMENT, AND DRAINAGE, BY THE GEOTECHNICAL ENGINEER IS REQUIRED

1 VEGETATED RETAINING WALL DETAIL
12" = 1'-0"

GREENLOXX MSE WALL
TOTEM LAKE PARK
KIRKLAND, WASHINGTON

DRAWN BY	EIN
CHECKED BY	JPL
DATE	6/18
PROJECT NO	170126E001
SHEET	1

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Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

STATE OF WASHINGTON ANDY MITTON NO 892 EXP. 6/30/20 LANDSCAPE ARCHITECT

SET TYPE:
100% Design Submittal

SET ISSUE DATE
02/08/2019

REVISIONS
Δ DESCRIPTION DATE

DRAWN/CHECKED
MM / AM

SHEET NAME:
GEOTECHNICAL WALL DETAIL

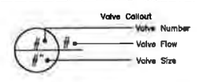
SHEET NUMBER
LD107

170126 Totem Lk Pk \ 170126 Fill Slope.dwg LAYOUT: E001 F1 Fill Slope
Plotted: 2/7/2019 11:10:54 AM Filename: C:\Users\matim\Documents\Totem Lake Park PH1_matim@bergerpartnership.com.rvt
Berger Partnership Project Number: 20154875.02

IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	PSI
T	HUNTER MP CORNER PROS-12-PRS40-CV SHRUB ROTATOR, 12" (30.48 CM) POP-UP WITH FACTORY INSTALLED CHECK VALVE, PRESSURE REGULATED TO 40 PSI (2.76 BAR), MP ROTATOR NOZZLE. T=TURQUOISE ADJ ARC 45-105 ON PRS40 BODY.	40
LST RST SST	HUNTER MP STRIP PROS-12-PRS40-CV SHRUB ROTATOR, 12" (30.48 CM) POP-UP WITH FACTORY INSTALLED CHECK VALVE, PRESSURE REGULATED TO 40 PSI (2.76 BAR), MP ROTATOR NOZZLE. LST=IVORY LEFT STRIP, SST=BROWN SIDE STRIP, RST=COPPER RIGHT STRIP, ON PRS40 BODY.	40
M L O	HUNTER MP1000 PROS-12-PRS40-CV SHRUB ROTATOR, 12" (30.48 CM) POP-UP WITH CHECK VALVE, PRESSURE REGULATED TO 40 PSI (2.76 BAR), MP ROTATOR NOZZLE. M=MAROON ADJ ARC 90 TO 210, L=LIGHT BLUE 210 TO 270 ARC, O=OLIVE 360 ARC ON PRS40 BODY.	40
K G R	HUNTER MP2000 PROS-12-PRS40-CV SHRUB ROTATOR, 12" (30.48 CM) POP-UP WITH CHECK VALVE, PRESSURE REGULATED TO 40 PSI (2.76 BAR), MP ROTATOR NOZZLE. K=BLACK ADJ ARC 90-210, G=GREEN ADJ ARC 210-270, R=RED 360 ARC ON PRS40 BODY.	40
ADJ 360	HUNTER MP800SR PROS-12-PRS40-CV SHRUB ROTATOR, 12.0" POP-UP WITH CHECK VALVE, PRESSURE REGULATED TO 40 PSI (2.76 BAR), MP ROTATOR NOZZLE ON PRS40 BODY. OR = ORANGE ADJ ARC 90 TO 210.	40
M L O	HUNTER MP815 PROS-12-PRS40-CV SHRUB ROTATOR, 12" POP-UP WITH CHECK VALVE, PRESSURE REGULATED TO 40 PSI, MP ROTATOR NOZZLE. M=MAROON AND GRAY ADJ ARC 90 TO 210, L=LIGHT BLUE AND GRAY 210 TO 270 ARC, O=OLIVE AND GRAY 360 ARC ON PRS40 BODY.	40

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
	WEATHERMATIC 8200CR-XPR BRASS REMOTE CONTROL VALVE WITH PRESSURE REGULATOR
	HUNTER HQ-44LRC QUICK COUPLER VALVE, YELLOW RUBBER LOCKING COVER, RED BRASS AND STAINLESS STEEL, WITH 1" NPT INLET, 2-PIECE BODY.
	MATCO-NORCA 759 BRASS SHUT OFF BALL VALVE, 1/2" TO 4". TWO PIECE BODY, BLOW-OUT PROOF STEM, CHROME PLATED SOLID BRASS BALL, THREADED, WITH PTFE SEATS. SAME SIZE AS MAINLINE PIPE.
MV	WEATHERMATIC 8200CR-XPR 1" BRASS REMOTE CONTROL VALVE WITH PRESSURE REGULATOR
	1" WILKENS 600 SERIES PRESSURE REDUCING VALVE PRESSURE LIMITED TO 69.57 PSI SET TO 90 P.S.I.
BF	FEBCO 850U 1" DOUBLE CHECK BACKFLOW PREVENTION WITH UNION END BALL VALVE, 1/2" TO 2".
C	CALSENSE ET3000E SERIES CONTROLLER CONTROLLER SHALL BE 16 STATION CALSENSE ET3000E SERIES WITH LR (INTERNAL LOCAL RADIO MODEM) AND RRE (ENHANCED RADIO REMOTE RECEIVER BOARD) COMPONENTS. THE CONTROLLER SHALL BE HOUSED IN A FACTORY PRE-ASSEMBLED, UL-LISTED, WEATHER PROOF, LOCKABLE, STAINLESS STEEL ENCLOSURE (BY CALSENSE) SUITABLE FOR WALL MOUNTING (SSE-R).
FS	1" CALSENSE FLOW SENSOR FM-1B
M	WATER METER 3/4"
	IRRIGATION LATERAL LINE: PVC SCHEDULE 40
	IRRIGATION MAINLINE: PVC SCHEDULE 40
	PIPE SLEEVE: PVC SCHEDULE 40



VALVE SCHEDULE

NUMBER	MODEL	SIZE	TYPE	GPM	PSI	PSI @ POC	PRECIP
1	WEATHERMATIC 8200CR-XPR	1"	SHRUB ROTARY	18.13	48.50		0.23 in/h
2	WEATHERMATIC 8200CR-XPR	1"	SHRUB ROTARY	18.54	46.61		0.29 in/h
3	WEATHERMATIC 8200CR-XPR	1"	SHRUB ROTARY	16.28	43.50		0.26 in/h
4	WEATHERMATIC 8200CR-XPR	1"	SHRUB ROTARY	18.25	48.54		0.29 in/h
5	WEATHERMATIC 8200CR-XPR	1"	SHRUB ROTARY	13.66	44.55		0.66 in/h
6	WEATHERMATIC 8200CR-XPR	1-1/4"	SHRUB ROTARY	10.44	43.27		0.43 in/h
7	WEATHERMATIC 8200CR-XPR	1"	SHRUB ROTARY	3.96	42.61		0.50 in/h
8	WEATHERMATIC 8200CR-XPR	1"	SHRUB ROTARY	7.48	42.19		0.42 in/h
9	WEATHERMATIC 8200CR-XPR	1"	SHRUB ROTARY	9.03	42.70		0.31 in/h
10	WEATHERMATIC 8200CR-XPR	1"	SHRUB ROTARY	13.29	46.32		0.33 in/h
11	WEATHERMATIC 8200CR-XPR	1"	SHRUB ROTARY	14.04	47.22		0.32 in/h
12	WEATHERMATIC 8200CR-XPR	1"	SHRUB ROTARY	14.71	45.83		0.32 in/h

IRRIGATION NOTES

1. PROVIDE AND INSTALL ALL IRRIGATION IN CONFORMANCE WITH THE CITY OF KIRKLAND STANDARDS. IN THE EVENT OF CONFLICT BETWEEN NOTES OR DETAILS AND THESE DOCUMENTS, THE STANDARDS SHALL TAKE PRECEDENCE.
2. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES AND APPROPRIATE SAFETY REGULATIONS.
3. DRAWING IS SCHEMATIC. ACTUAL LOCATIONS MAY VARY DUE TO UTILITIES OR EXISTING CONDITIONS. CONTRACTOR IS RESPONSIBLE FOR LOCATING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
4. EXISTING STATIC P.S.I AT IRRIGATION METER IS 108 P.S.I. PRIOR TO INSTALLATION OF IRRIGATION SYSTEM, CONTRACTOR SHALL FIELD VERIFY EXISTING P.S.I. NOTIFY OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES BETWEEN THE DESIGN P.S.I. PRIOR TO PROCEEDING W/ WORK.
5. LOCATE QUICK COUPLING VALVE & AUTOMATIC CONTROL VALVES AT POINT OF EASY ACCESS. OWNER'S REPRESENTATIVE TO REVIEW & APPROVE FINAL LOCATION OF ALL QUICK COUPLERS & AUTOMATIC CONTROL VALVES PRIOR TO INSTALLATION.
6. HEAD LOCATION MUST BE ADJUSTED IN THE FIELD TO COMPLY W/ EXISTING SITE CONDITIONS AND PLANT MATERIALS. ADJUST SPRAY PATTERN FOR MAXIMUM COVERAGE AND MINIMUM OVERSPRAY.
7. ALL SHRUB AREA POP-UP SPRAY HEADS TO BE 6" HEIGHT. ALL TURF AREA POP-UPS TO BE 4" IN HEIGHT. (UNLESS OTHERWISE SPECIFIED ON PLAN)
8. CONTRACTOR SHALL COORDINATE IRRIGATION SLEEVING W/ PAVING WORK AS REQUIRED.
9. ALL IRRIGATION SLEEVES SHALL BE TWICE THE DIAMETER OF THE INSERT PIPE(S). SLEEVES SHALL NOT EXCEED 6" DIAMETER.
10. IRRIGATION CONTRACTOR TO PROVIDE AND INSTALL ALL REQUIRED PLUMBING SLEEVES WHERE NECESSARY. ALL IRRIGATION SLEEVING TO BE STAKED IN THE FIELD & LOCATED ON DIMENSIONED "AS-BUILT" DRAWING TO ALLOW FUTURE LOCATION & USE.
11. AIR BLOW IRRIGATION SYSTEM THROUGH QUICK COUPLERS TO WINTERIZE IRRIGATION SYSTEM.
12. PIPES TO SHARE TRENCHES WHERE POSSIBLE. SEPARATE COMMON PIPING BY 6" MIN.
13. WHERE PIPE SIZES ARE NOT SHOWN ON THE PLAN, PIPE SHALL BE SIZED TO THE NEXT LARGEST PIPE SIZE SHOWN UPSTREAM ON THE PLAN.
14. WHEN TRENCHING OCCURS AROUND TREES TO REMAIN, THE TREE ROOTS SHALL NOT BE CUT, BUT THE PIPE SHALL BE TUNNELED UNDER OR AROUND THE ROOTS BY CAREFUL HAND-DIGGING & TO AVOID INJURY TO THE ROOTS.
15. GENERAL CONTRACTOR TO PROVIDE AND INSTALL ALL CONDUIT TO CLOCK LOCATION.
16. GENERAL CONTRACTOR TO PROVIDE POWER SOURCE FOR CLOCK. (VERIFY LOCATION PRIOR TO BEGINNING WORK)

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Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

STATE OF WASHINGTON JASON M. ANDERSON 22000 LANDSCAPE ARCHITECT

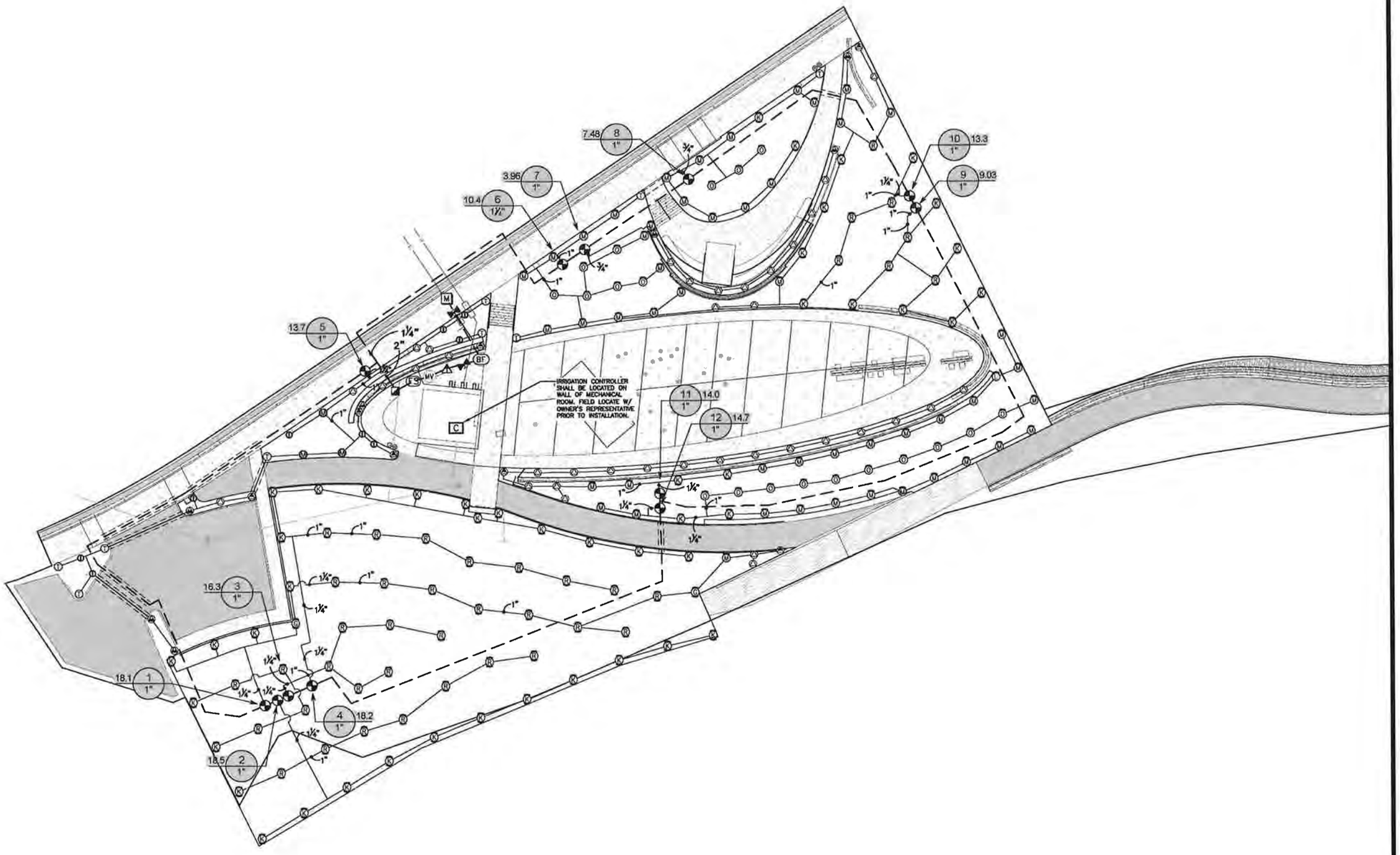
100% Design Submittal

02/08/2019

DRAWN/CHECKED
JA

SHEET NAME:
IRRIGATION NOTES & SCHEDULE

SHEET NUMBER
IR001



1 IRRIGATION PLAN - PARK
1" = 20'-0"

NORTH

0 20' 40'
SCALE 1"=20'-0"

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Totem Lake Park Phase 1

City of Kirkland

12031 Totem Lake Way, Kirkland, WA 98034

STATE OF WASHINGTON
JASON M ANDERSON
LANDSCAPE ARCHITECT

SET TYPE:
100% Design Submittal

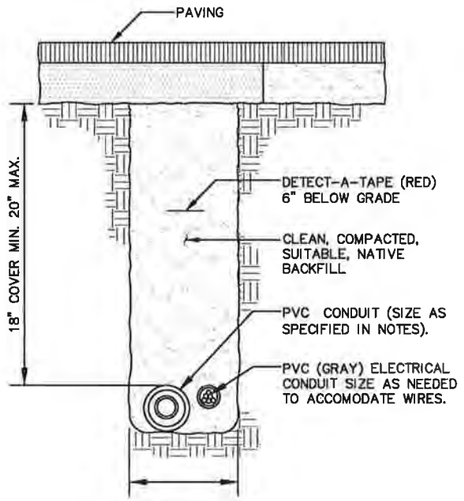
SET ISSUE DATE:
02/08/2019

REVISIONS:

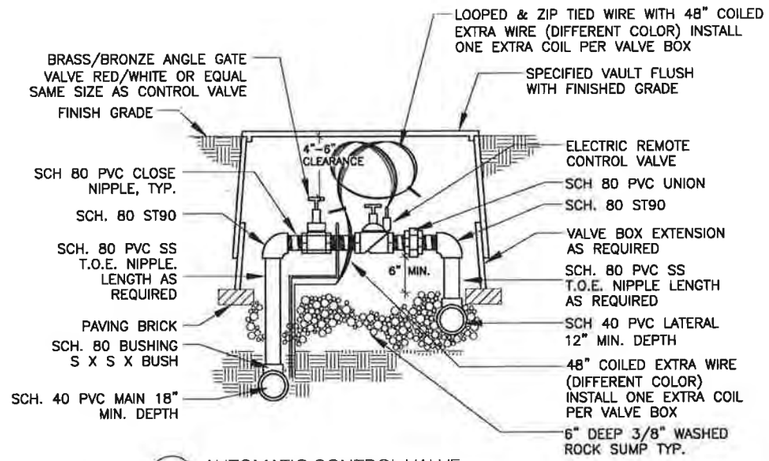
DRAWN/CHECKED
JA

SHEET NAME
IRRIGATION PLAN - PARK

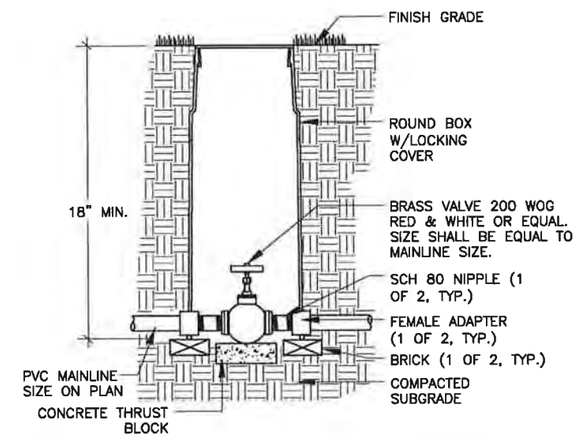
SHEET NUMBER
IR101



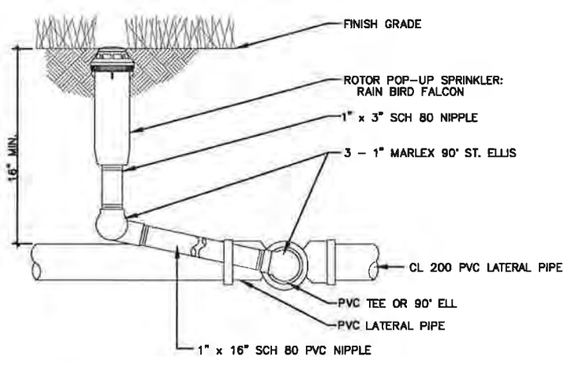
1 TRENCHING UNDER ASPHALT
SCALE NTS



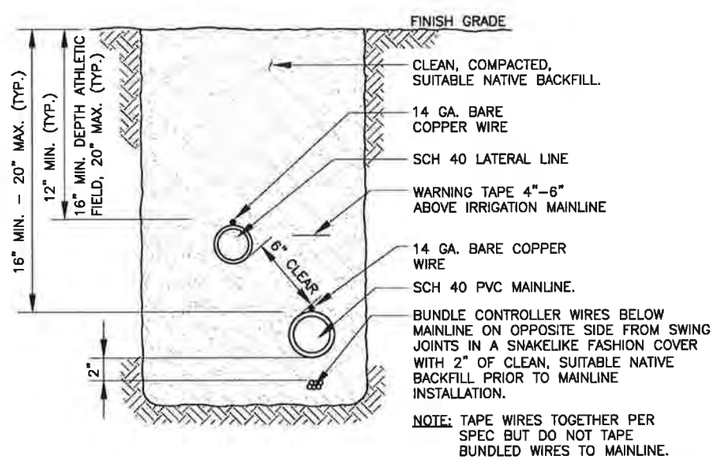
2 AUTOMATIC CONTROL VALVE
SCALE: NTS



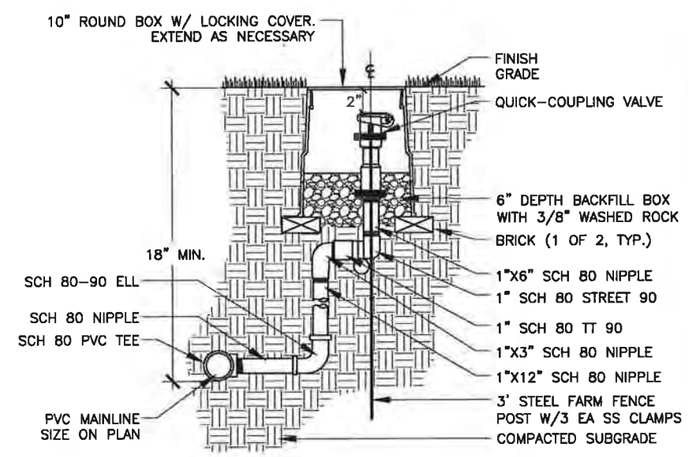
3 AUTOMATIC CONTROL VALVE
SCALE: NTS



4 ROTOR HEAD
SCALE: NTS



5 IRRIGATION TRENCHING
SCALE: NTS



6 QUICK COUPLER VALVE
SCALE: NTS

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RENTON, WA 98059-8819
ph. (425) 881-2426
cll. (206) 335-7719
www.design2426.com

Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

STATE OF WASHINGTON
JASON M ANDERSON
LANDSCAPE ARCHITECT

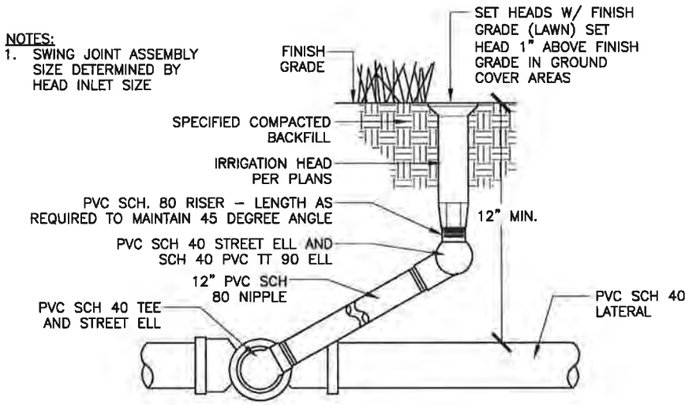
100% Design Submittal
02/08/2019

DRAWN/CHECKED
JA

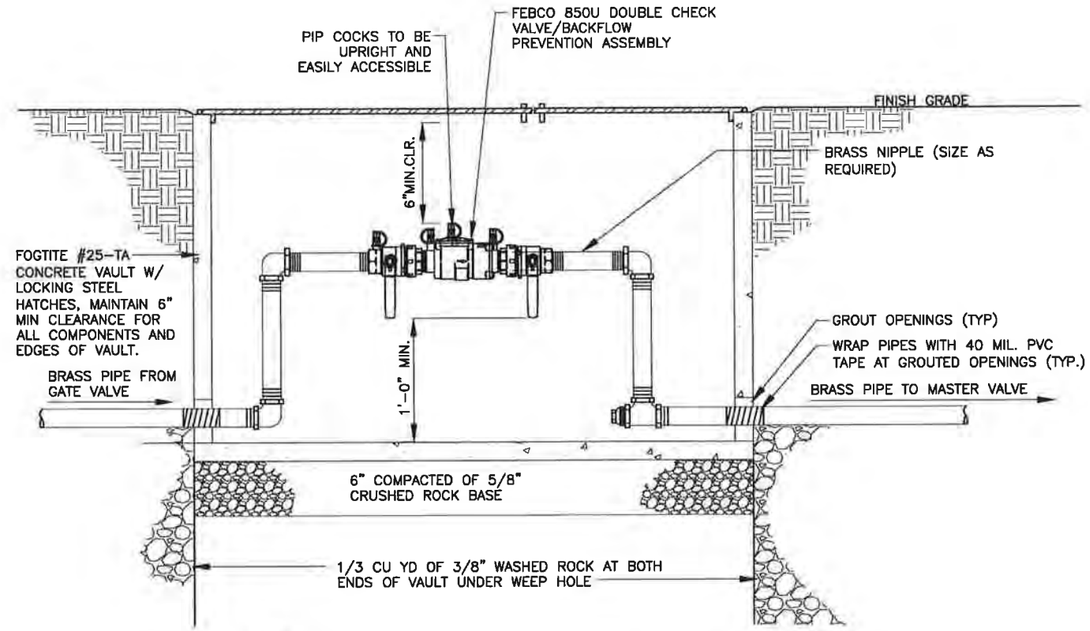
SHEET NAME
IRRIGATION DETAILS

ID100

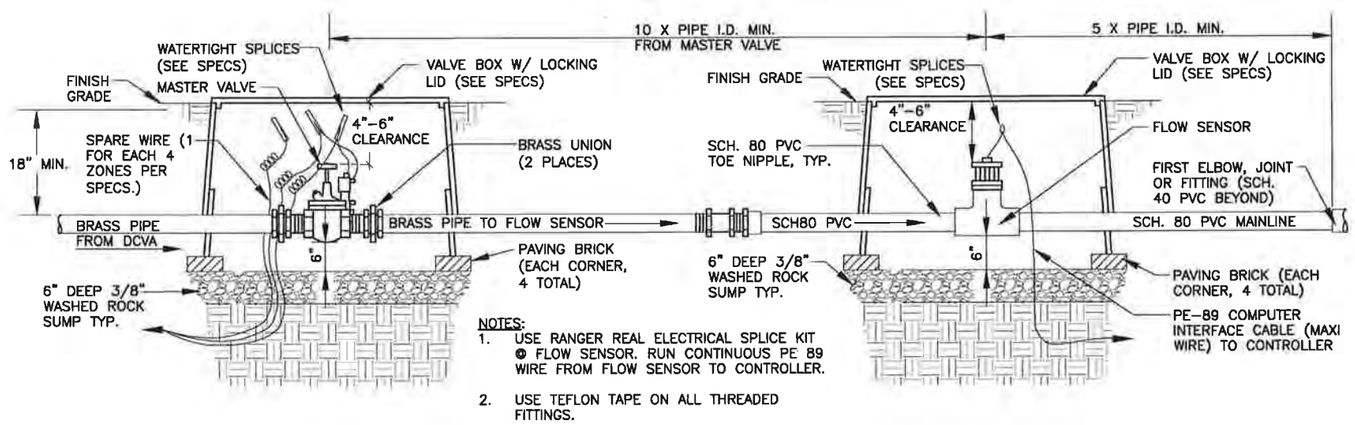
NOTES:
1. SWING JOINT ASSEMBLY SIZE DETERMINED BY HEAD INLET SIZE



1 SPRAY HEAD
SCALE NTS



2 DOUBLE CHECK VALVE ASSEMBLY
SCALE: NTS



NOTES:
1. USE RANGER REAL ELECTRICAL SPLICE KIT @ FLOW SENSOR. RUN CONTINUOUS PE 89 WIRE FROM FLOW SENSOR TO CONTROLLER.
2. USE TEFLON TAPE ON ALL THREADED FITTINGS.

3 MASTER VALVE & FLOW SENSOR
SCALE NTS

PARTNERSHIP berger
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JASON M. ANDERSON
LANDSCAPE ARCHITECT

SET TYPE:
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SET ISSUE DATE:
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REVISIONS:

DRAWN/REVIEWED:
JA

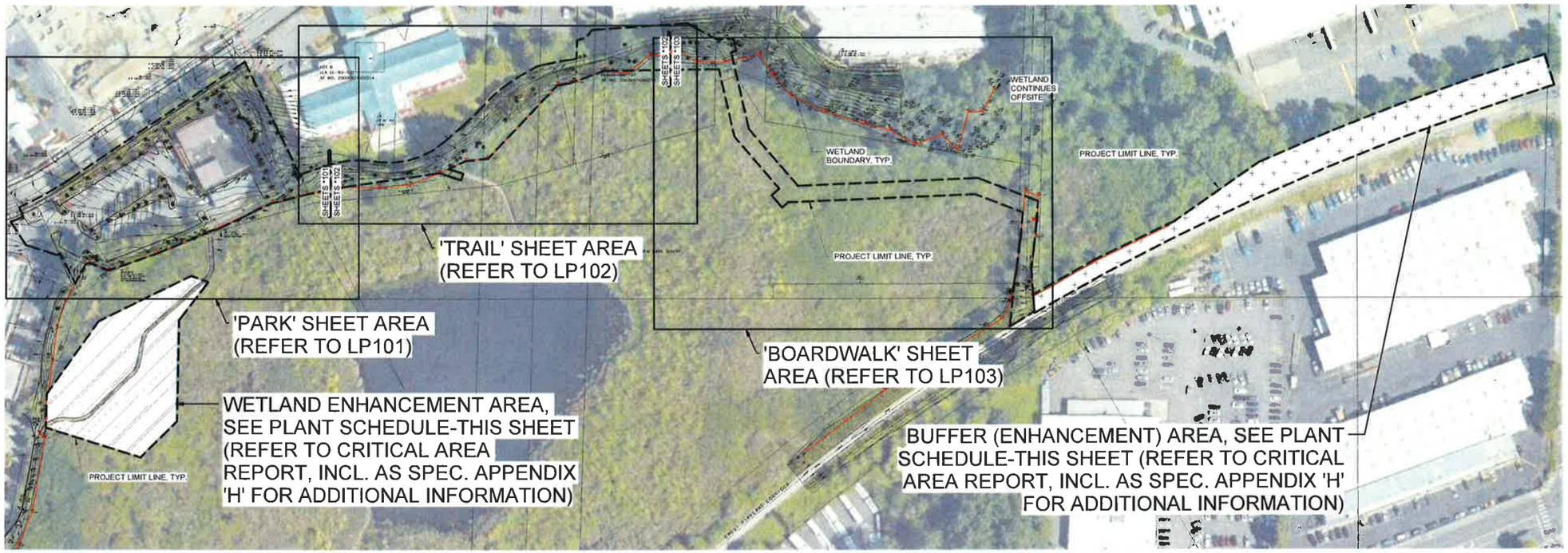
SHEET NAME:
IRRIGATION DETAILS

SHEET NUMBER:
ID101

BUFFER/WETLAND MITIGATION/RESTORATION & PLANTING GENERAL NOTES	
NOTE #	DESCRIPTION
1	ALL LAWN, HYDROSEEDED, AND PLANTED AREAS EXCEPT FOR WETLAND AREAS SHALL BE IRRIGATED, NO IRRIGATION IS REQUIRED IN THE WETLAND, REFER TO IRRIGATION PLANS.
3	ALL PLANTED AREAS SHOWN IN 'PARK AREA, SHEET LP101 SHALL RECEIVE IMPORT TOPSOIL. REFER TO SPECIFICATIONS FOR SOIL TYPE AND PREPARATION REQUIREMENTS. REFER TO CIVIL FOR SOIL REQUIRMEMENTS FOR STORMWATER AREAS.
4	MULCH ALL PLANTING AREAS. REFER TO SPECIFICATIONS FOR MULCH TYPE AND DEPTH.
5	ALL PLANT MATERIAL MUST BE REVIEWED IN THE FIELD, AND APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO PLANTING.
6	THE CONTRACTOR SHALL STAKE ALL TREE LOCATIONS IN THE FIELD PRIOR TO PLANTING. TREE LOCATIONS ARE SUBJECT TO MODIFICATION BY LANDSCAPE ARCHITECT.
7	ALL TREE LOCATIONS MUST BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO PLANTING
8	STAKE ALL DECIDUOUS TREES. REFER TO DETAIL(S).
9	GUY ALL CONIFEROUS TREES. REFER TO DETAIL(S).

BUFFER/WETLAND MITIGATION/RESTORATION & PLANTING GENERAL NOTES	
NOTE #	DESCRIPTION
10	ALL PLANTS SHAL BE LAID OUT IN THE FIELD PER THE PLANS. LAYOUT SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO PLANTING. IF NO SPECIFIC LAYOUT IS PROVIDED PLANTS SHALL BE LAID OUT USING TRIANGULAR SPACING AT THE DISTANCE INDICATED AND SHALL BE RANDOMLY ARRANGED SUCH THAT THE MAXIMUM NUMBER OF AN GIVEN SPECIES IN A GROUP IS 3.
11	PLANT QUANTITIES SHOWN ON PLANS TAKE PRECEDENCE OVER PLANT QUANTITIES PROVIDED IN PLANT SCHEDULE.
12	IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ADEQUATE PLANTING TO MEET SPACING REQUIREMENTS AND PLANT LAYOUT SHOWN.
13	ALL PLANTING AREA FINISH GRADES (TOP OF MULCH) SHALL BE 1/2" BELOW ADJACENT PAVED SURFACES UNLESS NOTED OR DIRECTED OTHERWISE.
14	TIMING OF PROCUREMENT, AND INSTALLATION, OF LIVESTAKES SHALL COMPLY WITH THE CRITICAL AREA PLAN AND SUPPLIER RECOMMENDATIONS.
15	SEED SOURCE MUST BE AS LOCAL AS POSSIBLE.

BUFFER/WETLAND MITIGATION/RESTORATION & PLANTING GENERAL NOTES	
NOTE #	DESCRIPTION
16	CONTAINER PLANTS MUST BE NURSERY PROPOGATED UNLESS TRANSPLANTED FROM ON-SITE AREAS APPROVED FOR DISTURBANCE.
17	EXISTING TREE PROTECTION MEASURES SHALL TAKE PRECEDENCE OVER SOIL PREPARATION AND PLANTING REQUIREMENTS. NOTIFY LANDSCAPE ARCHITECT OF ANY DISCREPANCIES IMMEDIATELY. WHERE A DISCREPANCY EXISTS, SOIL PREPARATION AND PLANTING WITHIN TREE PROTECTION MEASURES SHALL BE ONLY AS APPROVED OR DIRECTED BY THE LANDSCAPE ARCHITECT.
18	REFER TO LP101 FOR PLANTING SCHEDULE FOR PLANTING SHOWN ON 'PARK', 'TRAIL', AND BOARDWALK PLANTING SHEETS (LP101, LP102, LP103) INCLUDING BUFFER ENHANCMENT PLANTING SHOWN ON LP101.
19	REFER TO LP001 FOR PLANTING SCHEDULE FOR ADDITIONAL BUFFER ENHANCMENT/RESTORATION.
20	REFER TO LP001 FOR PLANTING SCHEUDLE FOR WETLAND ENHANCMENT.
21	REFER TO CRITICAL AREA PLAN FOR PLANTING DETAILS, AND ADDITIONAL INFORMATION FOR BUFFER ENHANCMENT, BUFFER RESTORATION, AND WETLAND ENHANCMENT AREAS SHOWN ON LP001.
22	REFER TO CRITICAL AREA PLAN FOR BUFFER RESTORATION AND WETLAND RESTORATION REQUIREMENTS.



1 OVERALL PLANTING AND MITIGATION PLAN
1" = 80'-0"

NORTH 0 60' 160' SCALE: 1"=80'-0"

PLANT SCHEDULE: WETLAND ENHANCEMENT (27,262 SF)

BOTANICAL NAME	COMMON NAME	TYPE/SIZE	SPACING	QUANTITY
CORNUS SERICEA	REDOSIER DOGWOOD	1" DIA. LIVE STAKES	5' O.C.	210
PHYSOCARPUS CAPITATUS	PACIFIC NINEBARK	1 GAL. CONTAINER	5' O.C.	210
RUBUS SPECTABILIS	SALMONBERRY	1 GAL. CONTAINER	5' O.C.	209
SALIX LUCIDA SPP. LASIANDRA	PACIFIC WILLOW	1" DIA. LIVE STAKES	5' O.C.	210
SALIX SITCHENSIS	SITKA WILLOW	1" DIA. LIVE STAKES	5' O.C.	210
SCIRPUS MICROCARPUS	SMALL FRUITED BULRUSH	10" PLUGS	2.5' O.C.	3778
SPIRAEA DOUGLASII	DOUGLAS SPIRAEA	1 GAL. CONTAINER	5' O.C.	210

PLANT SCHEDULE: BUFFER AREAS

BOTANICAL NAME	COMMON NAME	TYPE/SIZE	SPACING	BUFFER ENHANCEMENT (24,094 SF) QUANTITY	BUFFER RESTORATION (2,404 SF) (REFER TO CRITICAL AREA REPORT FOR LOCATIONS) QUANTITY
ACER CIRCINATUM	VINE MAPLE	1 GAL. CONTAINER	6' O.C.	129	13
GAULTHERIA SHALLON	SALAL	1 GAL. CONTAINER	6' O.C.	129	13
OEMLERIA CERASIFORMIS	INDIAN PLUM	1 GAL. CONTAINER	6' O.C.	128	12
POLYSTICHUM MUNITUM	SWORD FERN	1 GAL. CONTAINER	6' O.C.	128	13
ROSA NUTKANA	NOOTKA ROSE	1 GAL. CONTAINER	6' O.C.	129	13
SYMPHORICARPOS ALBUS	SNOWBERRY	1 GAL. CONTAINER	6' O.C.	129	13

BUFFER HYDROSEED (REFER TO CRITICAL AREA REPORT FOR LOCATIONS)
APPLY 25 LBS.PER ACRE

BOTANICAL NAME	COMMON NAME	% BY WEIGHT RATE
AGROSTIS TENUIS	COLONIAL BENTGRASS	15%
FESTUCA RUBRA	RED FESCUE	20%
LOLIUM PERNENNE	PERENNIAL RYE GRASS	15%
LUPINUS POLYPHYLLUS	LARGE-LEAVED LUPINE	25%
TRIFOLIUM PRATENSE	RED CLOVER	25%

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STATE OF WASHINGTON ANDY MITTON NO 882 EXP 6/30/2020 LANDSCAPE ARCHITECT

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SET ISSUE DATE
02/08/2019

REVISIONS

Δ	DESCRIPTION	DATE
1	Permit Response	2019/06/20

DRAWN/CHECKED
Author / Checker

SHEET NAME
OVERALL PLANTING & MITIGATION PLAN

SHEET NUMBER
LP001

TREE PLANTING SCHEDULE					
sym	Count	Species	Common Name	Size and Spacing	Comments
	29	Acer circinatum	Vine maple	5 GAL., PER PLAN	3 STEM MIN.
	30	Amelanchier alnifolia	Serviceberry	6' HT. MIN.	
	6	Fagus sylvatica	European Beech	10-15' HT, 50' O.C. (OR AS SHOWN)	
	16	Malus fusca	Pacific Crabapple	5 GAL., PER PLAN	
	7	Pseudotsuga menziesii	Douglas Fir	10-12' HT. @ 18' O.C.	
	5	Quercus garryana	Garry Oak	8-10' HT. @ 18' O.C. (OR AS SHOWN)	
	20	Rhamnus purshiana	Cascara	6' HT. MIN.	
	10	Thuja plicata	Western Red Cedar	10-12' HT. @ 18' O.C.	
	123				

SHRUB PLANTING SCHEDULE				
Sym	Count	Species	Common Name	Size and Spacing
	2	Arctostaphylos Columbiana 'Oregon Hybrid'	Hairy Manzanita	5 GAL @ 6' O.C.
	33	Cornus sericea	Redtwig Dogwood	1 GAL. @ 3' O.C.
	8	Holodiscus discolor	Oceanspray	2 GAL. @ 6' O.C.
	118	Mahonia nervosa	Low Oregon Grape	1 GAL. @ 3' O.C.
	31	Oemleria cerasiformis	Indian Plum - East Edge	2 GAL. @ 6' O.C.
	20	Physocarpus capitatus	Pacific Ninebark	1 GAL. @ 3' O.C.
	130	Prunus Laurocerasus 'Mt. Vernon'	Dwarf English Laurel	2 GAL @ 3' O.C.

SHRUB PLANTING SCHEDULE				
Sym	Count	Species	Common Name	Size and Spacing
	9	Ribes sangenium	Red Flowering Currant	2 GAL. @ 6' O.C.
	183	Rosa Nutkana	Nootka Rose	1 GAL. @ 3' O.C.
	27	Rubus Spectabilis	Salmonberry	2 GAL. @ 6' O.C.
	11	Salix Purpurea	Blue Artic Willow	5 GAL, 6' O.C.
	162	Symphoricarpus albus	Snowberry	1 GAL. @ 3' O.C.
	20	Taxus breviolia	Pacific Yew	2 GAL. @ 6' O.C.

GROUNDCOVER PLANTING SCHEDULE				
Sym	Count	Species	Common Name	Size and Spacing
	34	Athyrium Filix-Femina	Lady Fern	1 GAL. @ 3' O.C.
	135	Calamagrostis Acuitiflora 'Karl Foerster'	Feather Reed Grass 'Karl Foerster'	3 GAL, 3' O.C.
	145	Carex obnupta	Slough Sledge	1 GAL. @ 3' O.C.
	196	Deschampsia cespitosa	Pacific Hairgrass	Fountain Grass
	196	Fescue roemeri	Roemer's Fescue	
	206	Fragaria chiloensis	Beach Strawberry	1 GAL. @ 3' O. C. (OR AS SHOWN)
	244	Gaultheria Shallon	Salal	1 GAL. @ 3' O.C.
	29	Iris Douglasiana	Oregon Iris	1 GAL. @ 3' O.C.
	115	Juncus Effusus	Common Rush	1 GAL. @ 3' O.C.
	131	Juncus Ensifolius	Swordleaf Rush	1 GAL. @ 3' O.C.
	18	Lonicera involucrata	Twinberry	1 GAL. @ 3' O.C.
	60	Mahonia aquifolium	Tall Oregon Grape	2 GAL. @ 6' O.C.
	31	Mimulus guttatus	Monkey Flower	1 GAL. @ 3' O.C.
	295	Pennisetum alopecuroides 'Hamelin'	Dwarf Fountain Grass	2 GAL @ 2' O.C.
	308	Polystichum Munitum	Sword Fern	1 GAL. @ 3' O.C.
	118	Scirpus microcarpus	Small Fruited Bulrush	1 GAL. @ 3' O.C.

Existing Tree Legend

- EXISTING CONIFER TREE 6" CAL OR GREATER TO BE RETAINED
- EXISTING DECIDUOUS TREE 6" CAL OR GREATER TO BE RETAINED
- E1 TREE INVENTORY NUMBER (REFER TO ARBORIST REPORT for E1-E120, FOR NUMBERS E121 & HIGHER, FIELD VERIFY)

1 PLANTING PLAN - PARK
1" = 20'-0"

berger PARTNERSHIP
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Seattle, WA 98101
206 325 6977
bergerpartnership.com

Totem Lake Park Phase 1

City of Kirkland

12031 Totem Lake Way, Kirkland, WA 98034

STATE OF WASHINGTON ANDY MITTON No 882 EXP. 6/30/2020 LANDSCAPE ARCHITECT

SET TYPE
100% Design Submittal

SET ISSUE DATE
02/08/2019

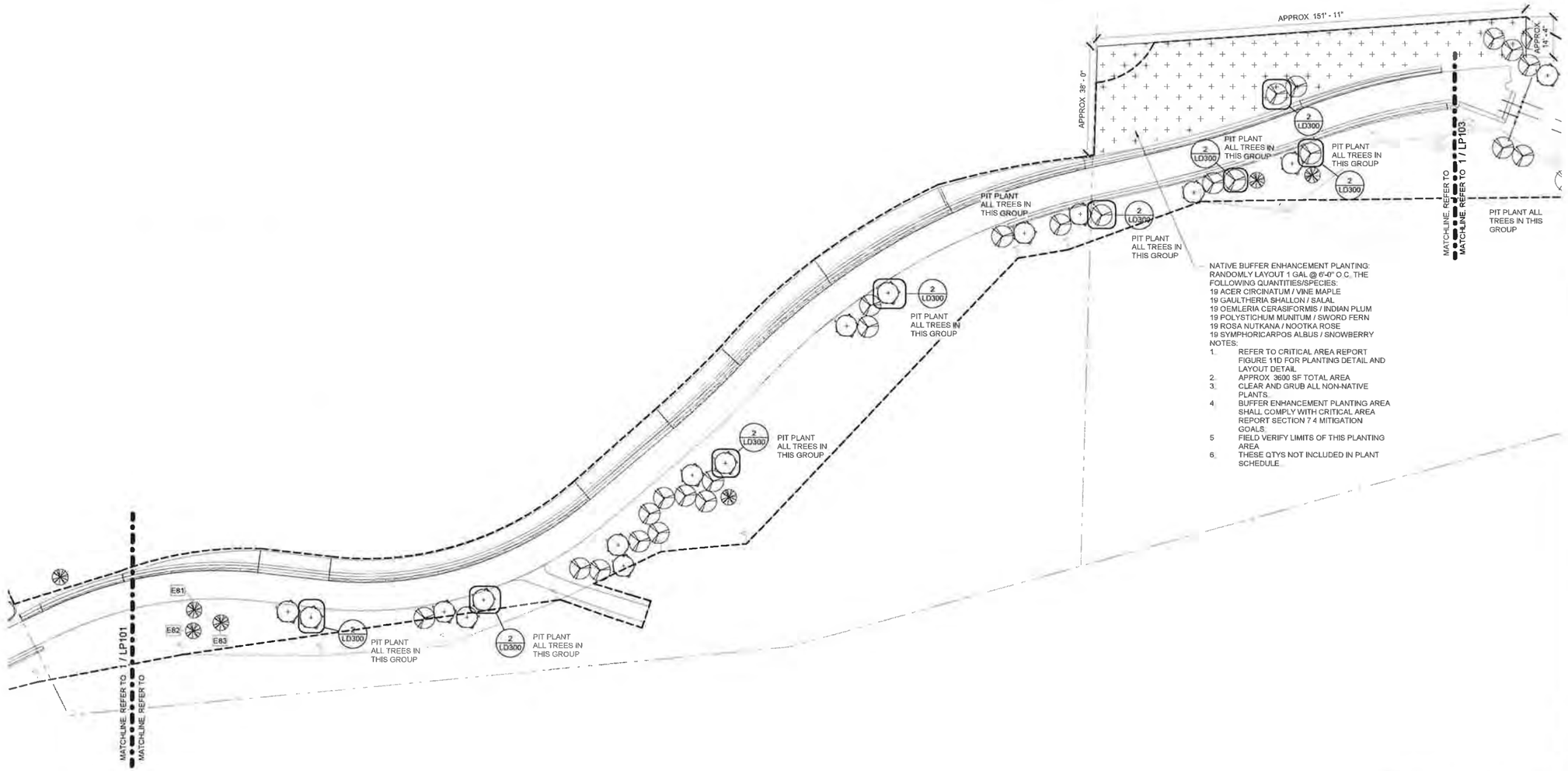
REVISIONS

Δ	DESCRIPTION	DATE
1	Permit Response	2019/06/20

DRAWN/CHECKED
MM / AM

SHEET NAME
PLANTING PLAN - PARK

SHEET NUMBER
LP101



1 PLANTING PLAN - TRAIL
1" = 20'-0"

NORTH
0 20' 40'
SCALE 1"=20'-0"

Existing Tree Legend

- EXISTING CONIFER TREE 6" CAL OR GREATER TO BE RETAINED
- EXISTING DECIDUOUS TREE 6" CAL. OR GREATER TO BE RETAINED
- E1 TREE INVENTORY NUMBER (REFER TO ARBORIST REPORT for E1-E120. FOR NUMBERS E121 & HIGHER, FIELD VERIFY)

TREE LEGEND - TRAIL & BOARDWALK

Symbol	Species	Common Name
	Amelanchier alnifolia	Serviceberry
	Rhamnus purshiana	Cascara

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REVISIONS

Δ	DESCRIPTION	DATE

DRAWN/CHECKED
MM / AM

SHEET NAME
PLANTING PLAN - TRAIL

SHEET NUMBER
LP102

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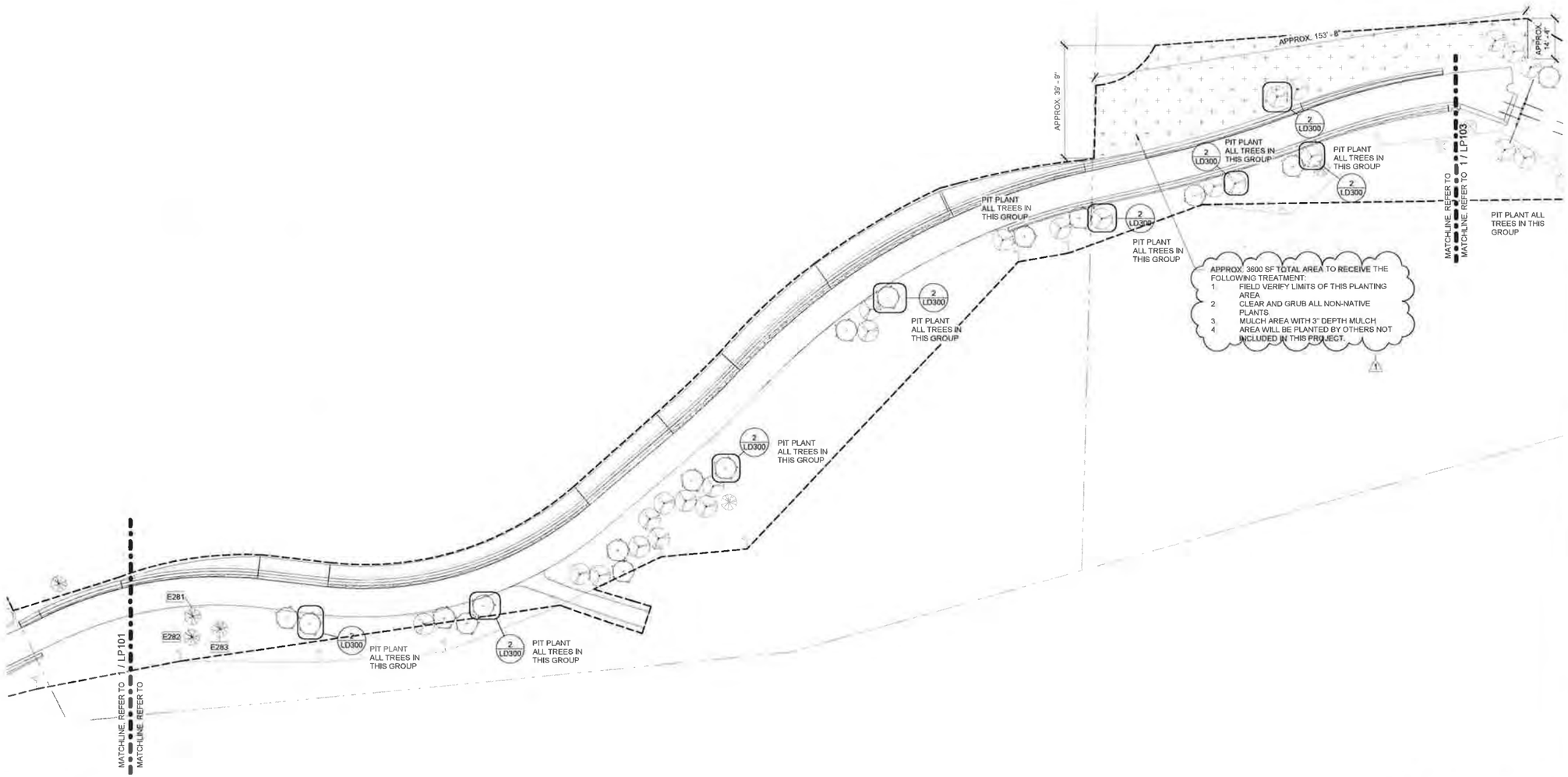
Berger Partnership Project Number: 2015-4875.02



1 PLANTING PLAN - TRAIL
1" = 20'-0"

NORTH 0 20' 40'
SCALE 1"=20'-0"

Existing Tree Legend	
	EXISTING CONIFER TREE 6" CAL OR GREATER TO BE RETAINED
	EXISTING DECIDUOUS TREE 6" CAL OR GREATER TO BE RETAINED
E1	TREE INVENTORY NUMBER (REFER TO ARBORIST REPORT for E1-E120. FOR NUMBERS E121 & HIGHER, FIELD VERIFY)

TREE LEGEND - TRAIL & BOARDWALK		
Symbol	Species	Common Name
	Amelanchier alnifolia	Serviceberry
	Rhamnus purshiana	Cascara

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STATE OF WASHINGTON ANDY MITTON LANDSCAPE ARCHITECT AD 882 EXP. 6/30/2020

SET TYPE
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SET ISSUE DATE
02/08/2019

REVISIONS

Δ	DESCRIPTION	DATE
1	Permit Response	2019/05/16

DRAWN/CHECKED
MM / AM

SHEET NAME
PLANTING PLAN - TRAIL

SHEET NUMBER
LP102

Berger Partnership Project Number: 2015-487.5.02
Plotted: 5/15/2019 3:54:45 PM
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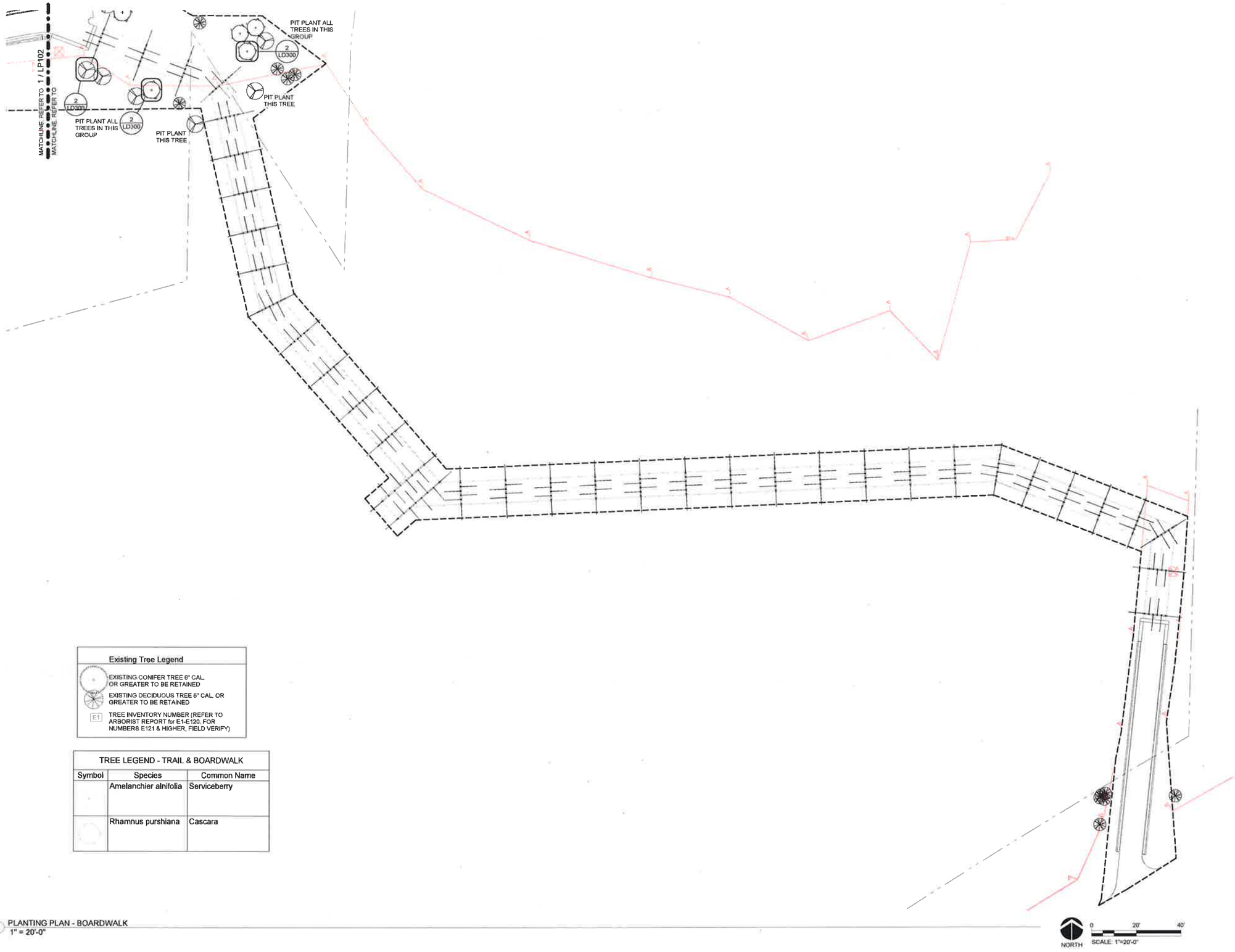

Existing Tree Legend	
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	EXISTING DECIDUOUS TREE 6" CAL. OR GREATER TO BE RETAINED
E1	TREE INVENTORY NUMBER (REFER TO ARBORIST REPORT for E1-E120. FOR NUMBERS E121 & HIGHER, FIELD VERIFY)

TREE LEGEND - TRAIL & BOARDWALK		
Symbol	Species	Common Name
	Amelanchier alnifolia	Serviceberry
	Rhamnus purshiana	Cascara

1 PLANTING PLAN - BOARDWALK
1" = 20'-0"

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REVISIONS:

Δ	DESCRIPTION	DATE

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SHEET NAME:
PLANTING PLAN - BOARDWALK

SHEET NUMBER
LP103

Berger Partnership Project Number: 2015.4875.02
Plotted: 2/7/2019 9:33:57 AM
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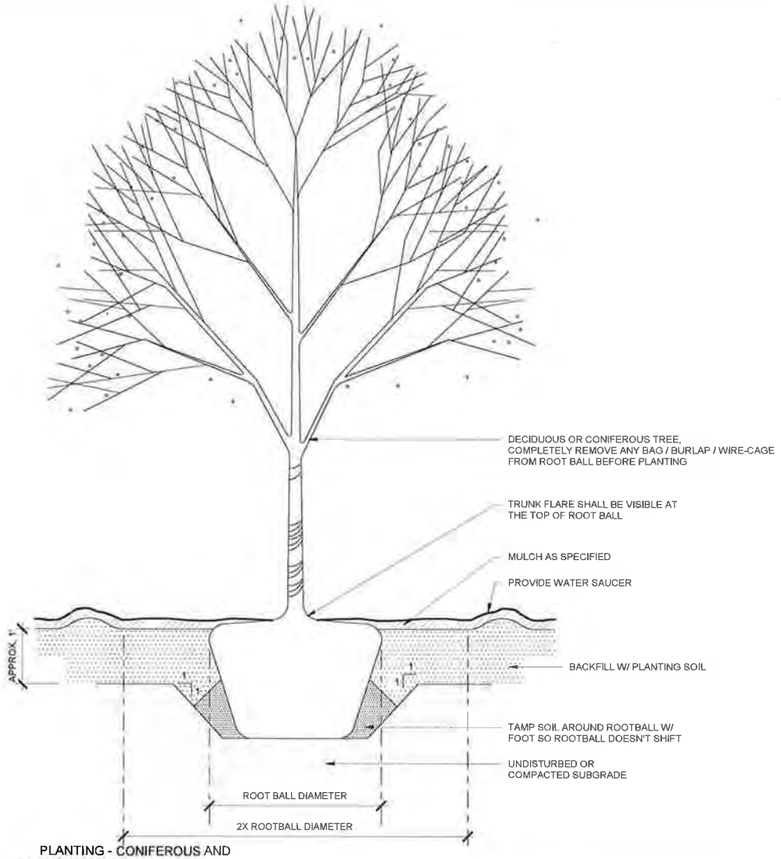
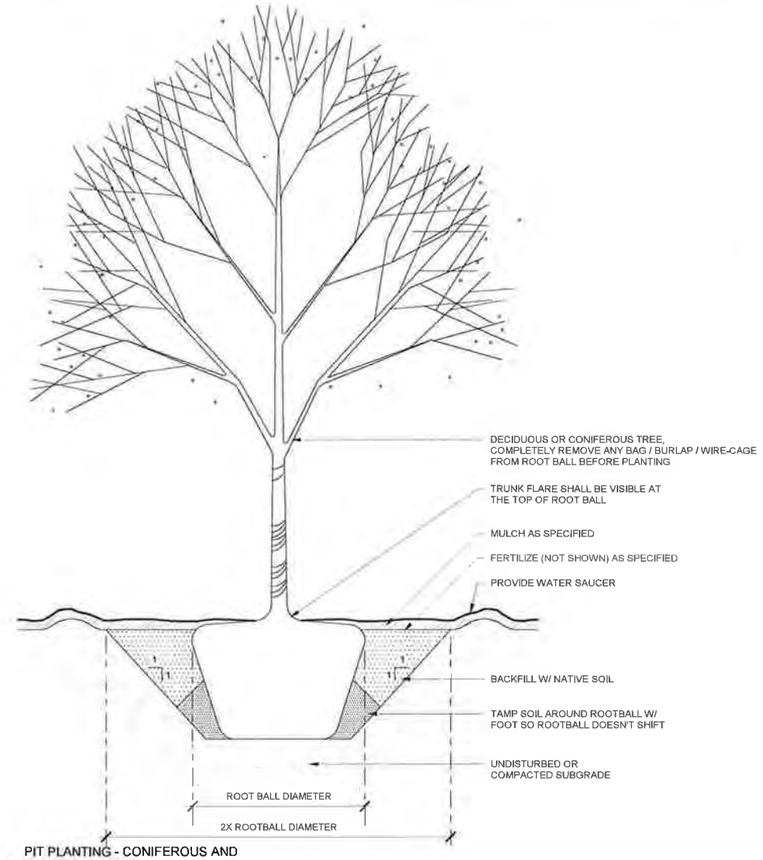
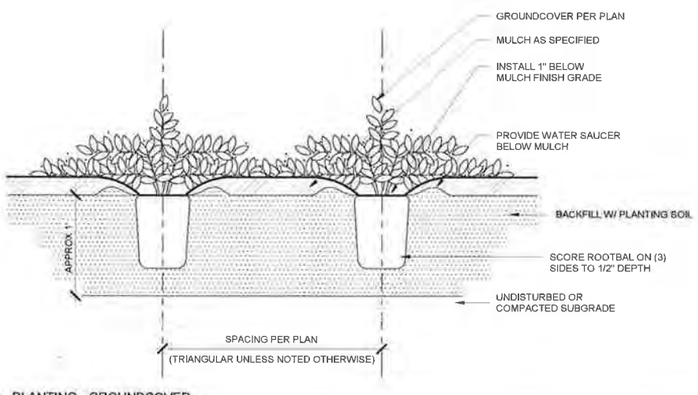


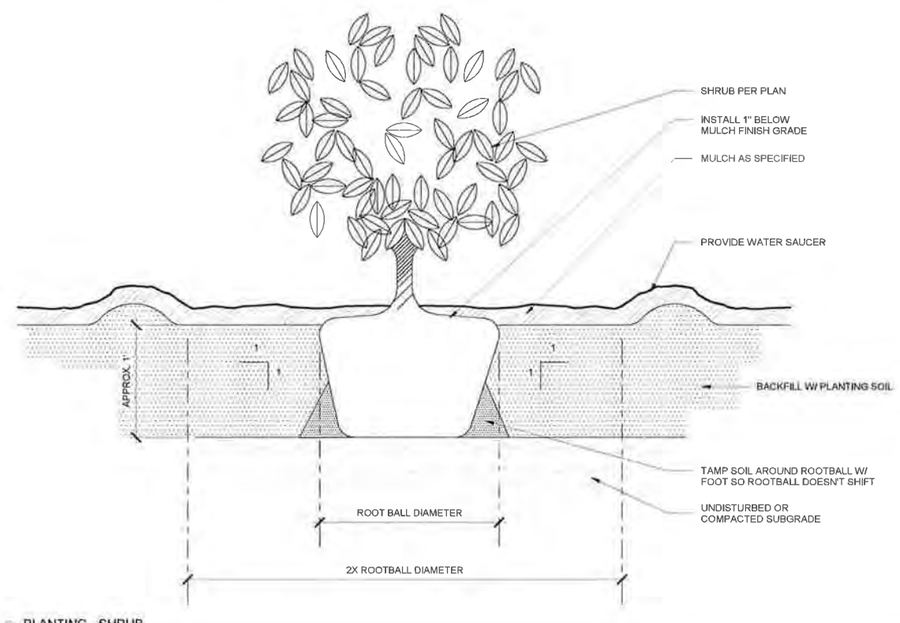
1 PLANTING - CONIFEROUS AND DECIDUOUS TREE
3/4" = 1'-0"



2 PIT PLANTING - CONIFEROUS AND DECIDUOUS TREE
3/4" = 1'-0"



3 PLANTING - GROUNDCOVER
1 1/2" = 1'-0"



4 PLANTING - SHRUB
1 1/2" = 1'-0"

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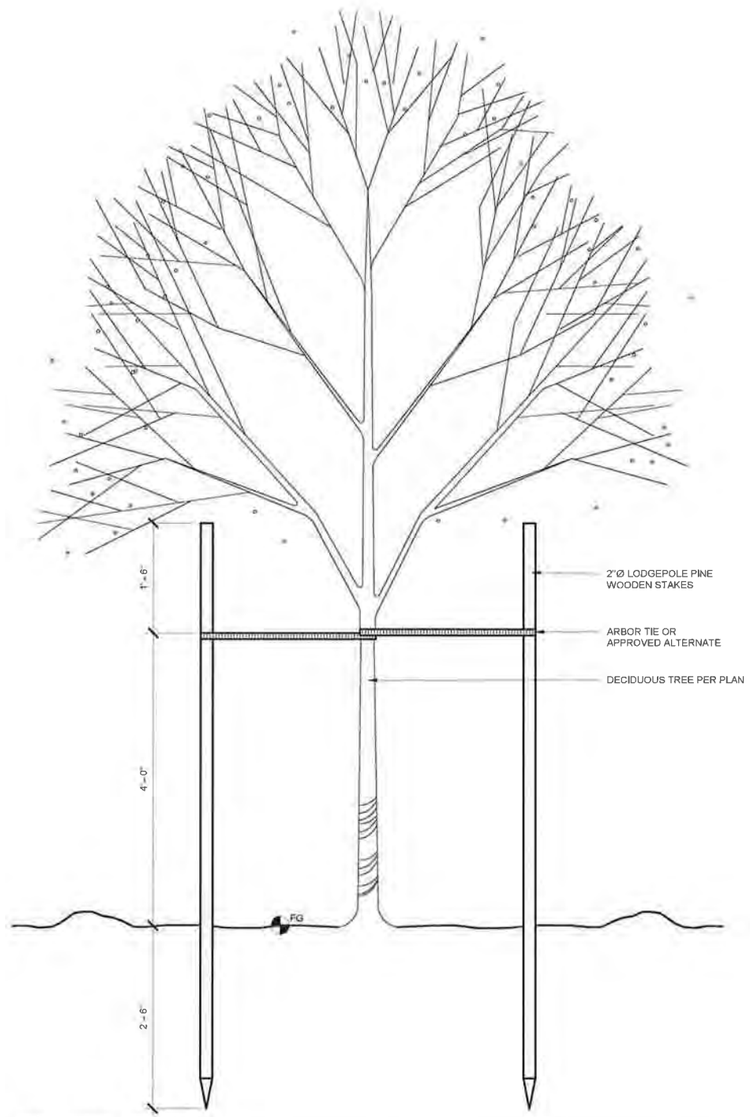
MM / AM

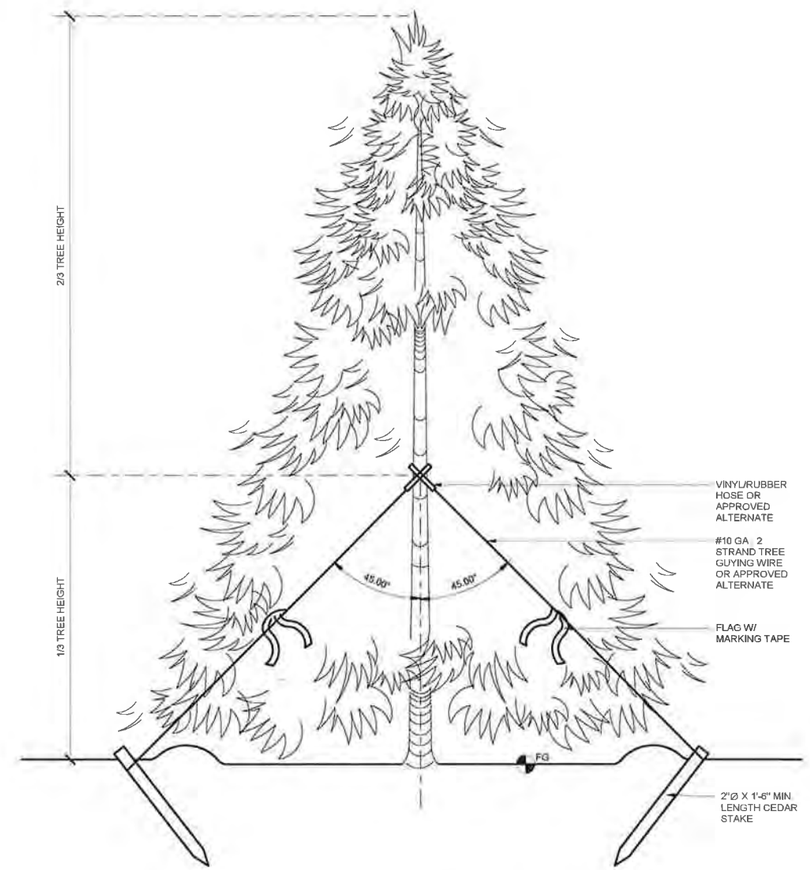
SHEET NAME
PLANTING DETAILS

SHEET NUMBER
LD300

Berger Partnership Project Number: 20154875.02 Plotted: 2/7/2019 9:32:51 AM Filename: C:\Users\mattm\Documents\Totem Lake Park-PH1_mattm@bergerpartnership.com.rvt



1 TREE STAKING - DECIDUOUS
1" = 1'-0"



2 TREE GUYING - CONIFER
1" = 1'-0"

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REVISIONS:

Δ	DESCRIPTION	DATE

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MM / AM

SHEET NAME
PLANTING DETAILS

SHEET NUMBER
LD301

Berger Partnership Project Number: 2015.4875.02
Plotted: 2/7/2019 9:32:55 AM
File name: C:\Users\matmit\Documents\Totem Lake Park-PH1_matmit@bergerpartnership.com.rvt

APPENDIX C

BUILDING AS-BUILTS

City of Kirkland

VICINITY MAP

LOT C OF THE SHORT PLAT OF TOTEM LAKE SOUTH
S.6. 77-4-14, A.F. NO. 7704210659,
RECORDS OF KING COUNTY, WASHINGTON.

LEGAL DESCRIPTION

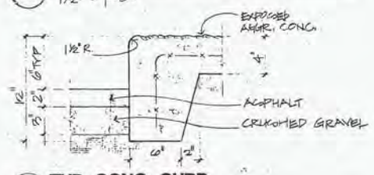
ZONING	PLANNED AREA 6
FIRE ZONE	II
OCCUPANCY	A-~~2~~ B
CONSTR. TYPE	TYPE ~~V~~ B - 1 HOUR
BUILDING AREA	4980 SF
PARKING REQ'D	1 SPACE PER 180 SF = 28
	MINUS 10% JOINT USE
	ALLOWABLE REDUCTION = 20
· PARKING PROVIDED	54 SPACES
LOT AREA	40,000 SF±

PROJECT NOTES

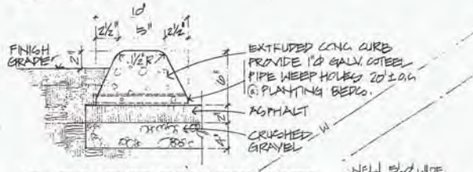
INDEX OF DRAWINGS

1. SITE PLAN
2. EXISTING CONSTRUCTION / DEMOLITION PLAN
3. FLOOR PLAN / NEW CONSTRUCTION
4. FLOOR PLAN - STRUCTURAL NOTATIONS
5. BUILDING ELEVATIONS & SECTIONS
6. DETAILS - SHEET OMITTED - ADDENDUM ATTACHED
7. DETAILS
8. ELECTRICAL PLAN

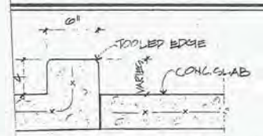
A TYP. EXPANSION JOINT
1½" = 1'-0"



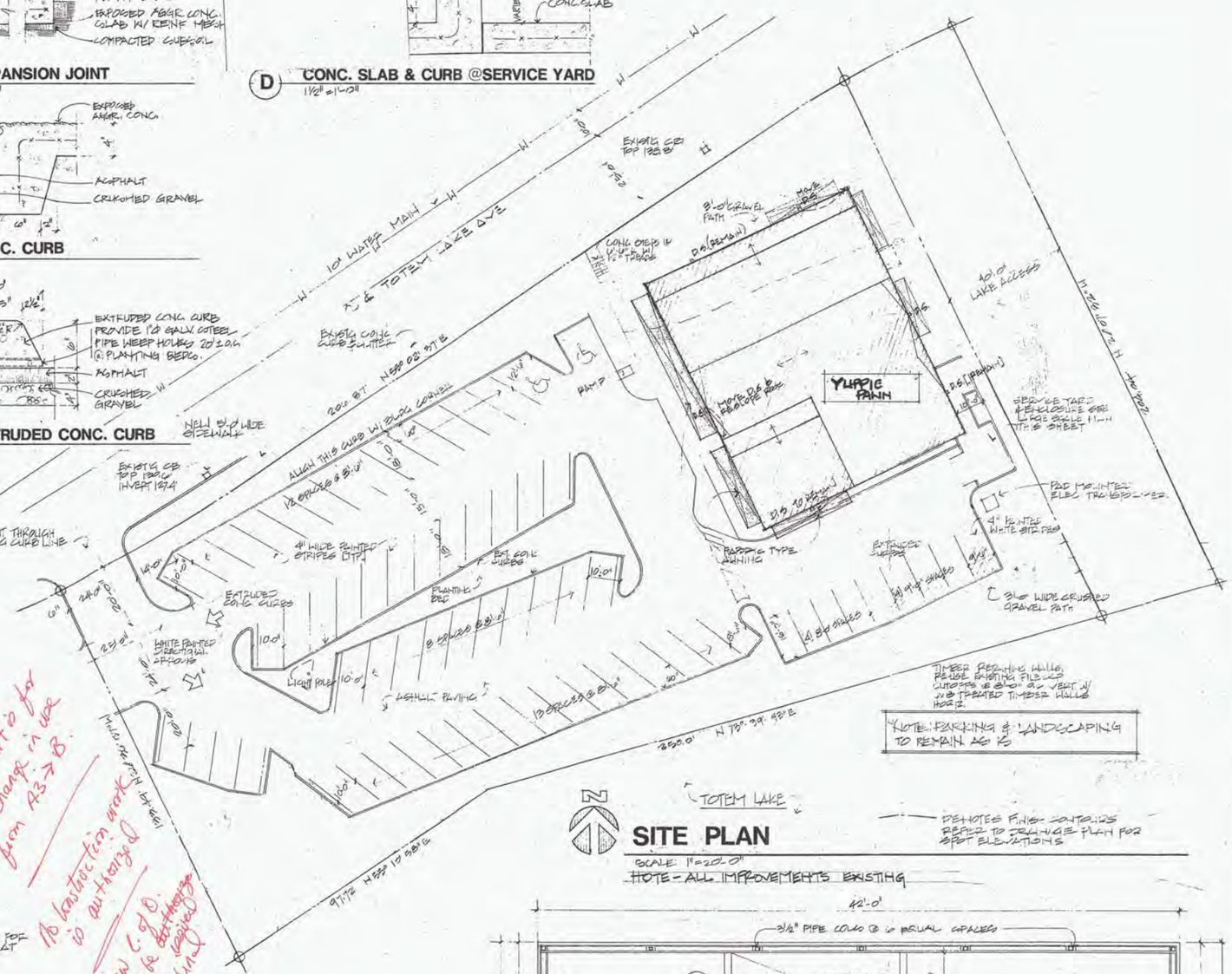
B TYP. CONC. CURB
1½" = 1'-0"



C TYP. EXTRUDED CONC. CURB
1½" = 1'-0"



D CONC. SLAB & CURB @ SERVICE YARD
1½" = 1'-0"



SITE PLAN

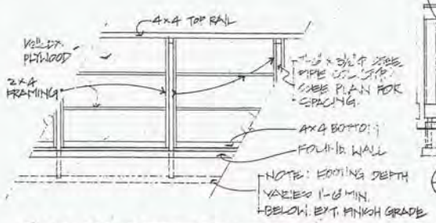
SCALE: 1" = 20'-0"
NOTE - ALL IMPROVEMENTS EXISTING

This permit is for a change in use from A3 → B.

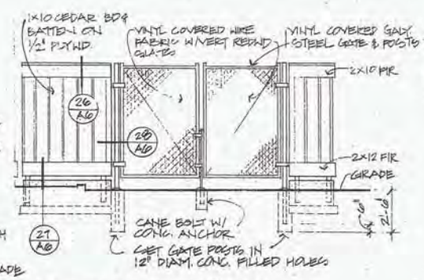
No construction work is authorized.

A new C.of O. will be issued at final inspection.

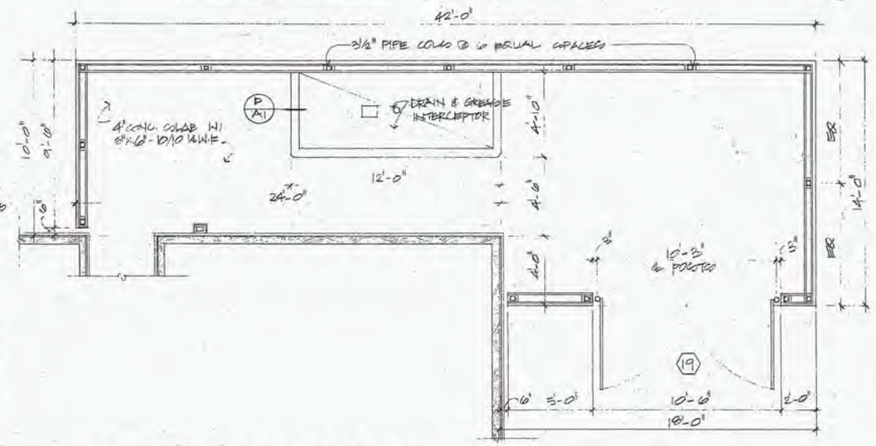
REFER TO STRUCTURAL DRAWINGS FOR SPECIAL PILING CONDITIONS FOUND AT THIS SITE.



PARTIAL INTERIOR ELEVATION
1/4" = 1'-0"



EXTERIOR ELEVATION
1/4" = 1'-0"

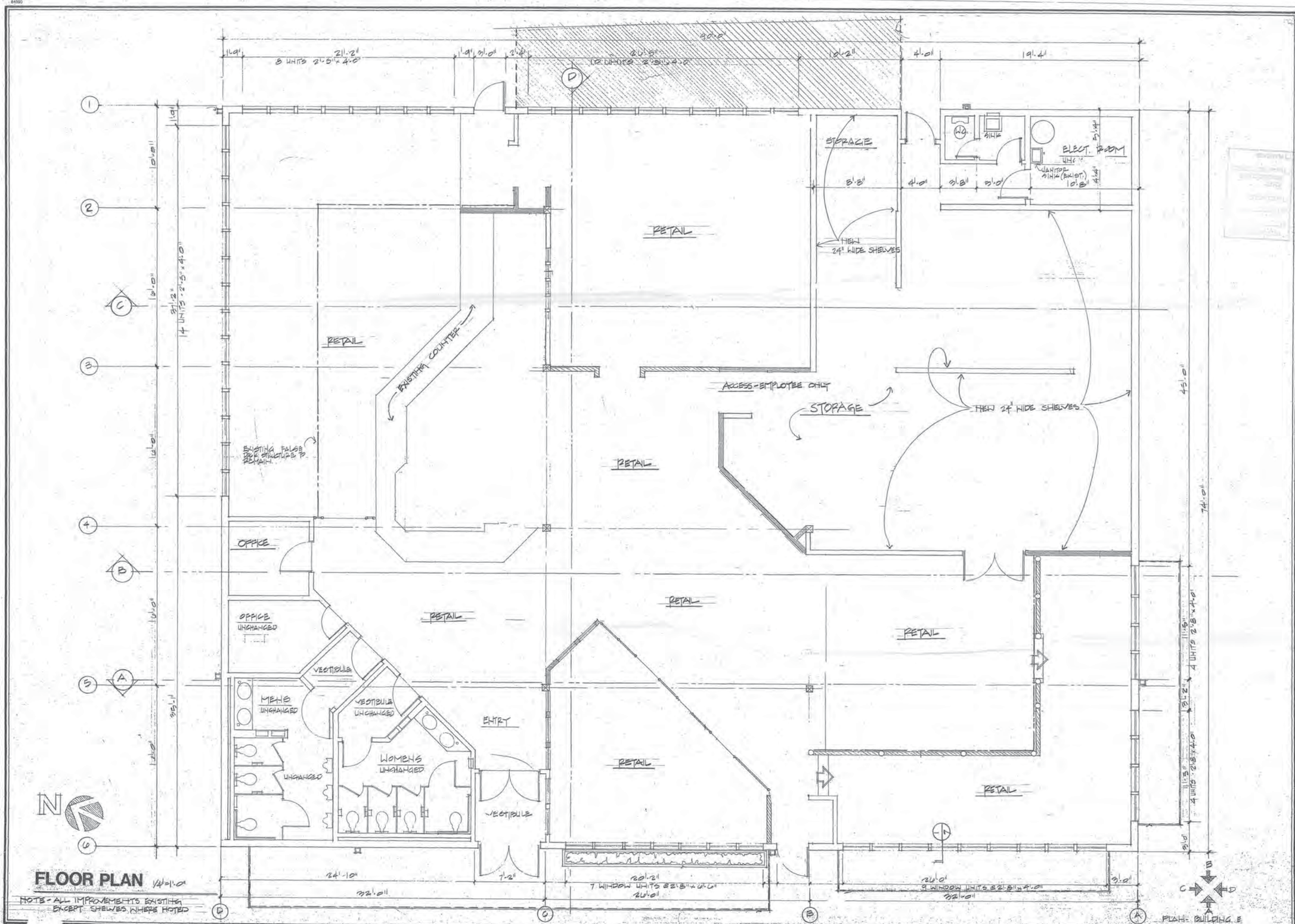


SERVICE YARD & ENCLOSURE
1/4" = 1'-0"

REVISIONS

YUPPIE PAWN SHOP

1 OF 2



FLOOR PLAN 1/4"=1'-0"

NOTE - ALL IMPROVEMENTS EXISTING EXCEPT SHELVES WHERE NOTED

REVISIONS

TUPPIE PAINT SHOP

2 OF 2

CITY OF KIRKLAND
APPROVED FOR SUBMITTAL

Initials / Date

Building BJK / 1/4/05

Planning SMI-21-05

Public Works ____ / ____

☐ EXPRESS / ☒ FAST TRACK

☐ APPROVED	☐ APPROVED	☐ APPROVED
☐ APPROVED SUBJECT TO CORRECTIONS NOTED	☐ APPROVED SUBJECT TO CORRECTIONS NOTED	☐ APPROVED SUBJECT TO CORRECTIONS NOTED
☐ MUST ROUTE	☐ MUST ROUTE	☐ MUST ROUTE
DATE _____	DATE _____	DATE _____
BY _____	BY _____	BY _____
PLANNING DEPT.	PUBLIC WORKS DEPT.	BUILDING DEPT.

CITY OF KIRKLAND
BUILDING DEPARTMENT

PERMIT # BLD05-00063
ADDRESS 12931 NE TOTEM LAKE WAY
PLANS FOR TENANT IMPROVEMENT - COMMERCIAL
PROJECT YUPPIE PAWN SHOP(TI)
OWNER ROSARITA LLC
DATE SUBMITTED 01/21/2005
DATE APPROVED 2-8-05
APPROVED BY Tom Rolfing

BLD

Office

APPENDIX **D**

TREE RISK REPORTS

City of Kirkland

Symbiosis Tree Care

Kurt Fickeisen
13024 37th Ave. NE
Seattle, WA 98125
(206) 841-3158
kurtfick@gmail.com

Matt Martenson
Berger Partnership
1721 8th Avenue N
Seattle, WA 98109

February 15, 2019

Dear Mr. Martenson,

Plans call for a new significant pedestrian corridor which will connect to the Cross-Kirkland Corridor. Mature trees are part of landscaping north of the existing corridor. The planned corridor is composed of two sections

- Property at 12031 NE Totem Lake Way in Kirkland Washington (KC Parcel #692840-0032) is north of Totem Lake and contains a retail store, and vehicle parking (Figure-1)
- King County (KC) Conservation District (KC Parcel #866372-0060) surrounds Totem Lake and connects to a forested wetland north of the Cross-Kirkland Corridor (Figure-2)

The pathway begins adjacent to a wetland near the southeast corner of 12031-property and travels eastward. Once reaching a location south of property at 12411 NE Totem Lake Way the new trail will cross a wetland devoid of trees and joins the existing corridor.

. A previous report provided information on tree species and condition assessments.

In February of 2019 Kurt Fickeisen from Symbiosis Tree Care returned to properties outlined in Figure-1 and Figure-2 to mark trees with visible tags and perform a visual tree risk assessment on many trees within the Cross-Kirkland Corridor that is infrequently used at this time.

This letter contains a report that describes tree identification procedures an provides visual tree risk assessments on within the planned corridor. Please see Assumptions and Limitations for this report (Assumptions and Limitations).

Summary

14 trees within the planned trail route represent high risks based on planned use of the corridor. Removal of these high-risk trees is recommended. Retained trees will require monitoring since many represent moderate risks.

Observations

Trees were originally identified by the order of inspection and numbered from 1 to 120.

Subsequently metal tree tags were placed on trees at approximately 5-feet above grade in a manor where tags could be viewed while walking on existing trails or pathways

- **Trees are numbered from 201 to 300 and 463 to 482**

Tree Risk

Using an International Society of Arboriculture Basic Tree Risk Assessment protocol XX trees were evaluated for risk based on visual observations.

Evaluated trees begin southwest of the office building at 12031 Totem Lake Way and travel eastward until reaching a wetland and lake south of 12233 Totem Lake Way. The planned corridor crosses the wetland and lake and encounters a grove of trees close to the existing Cross-Kirkland Corridor (Figure-1, Figure-2)

Pedestrians and bicyclists will be frequently present along the corridor based on future use plans.

56 individual tree risk assessments forms for inspected trees are provided in four spreadsheets (Figure-3A to Figure-3D)

The following trees represent high risks

- No. 280, black cottonwood *(Populus trichocarpa)*
- No. 289, black cottonwood
- No. 295, red alder *(Alnus rubra)*
- No. 464, black cottonwood
- No. 467 to No. 469, black cottonwoods
- No. 471 to No. 473, black cottonwoods
- No. 475, red alder
- No. 476, willow *(Salix* Sp.*)*
- No. 480 to 481, red alders

The largest group of high-risk trees are numbered 467 to 469 and are in close proximity to the elevated pathway crossing the wetland and creek.

Conclusion

Those trees that represent high risks should be removed prior to completion of the planned trail route. While other moderate risk trees may be retained, these trees will require periodic inspection since future tree or tree trunk failures could disrupt use of the corridor.

If you have questions about the contents of this report contact Symbiosis Tree Care.

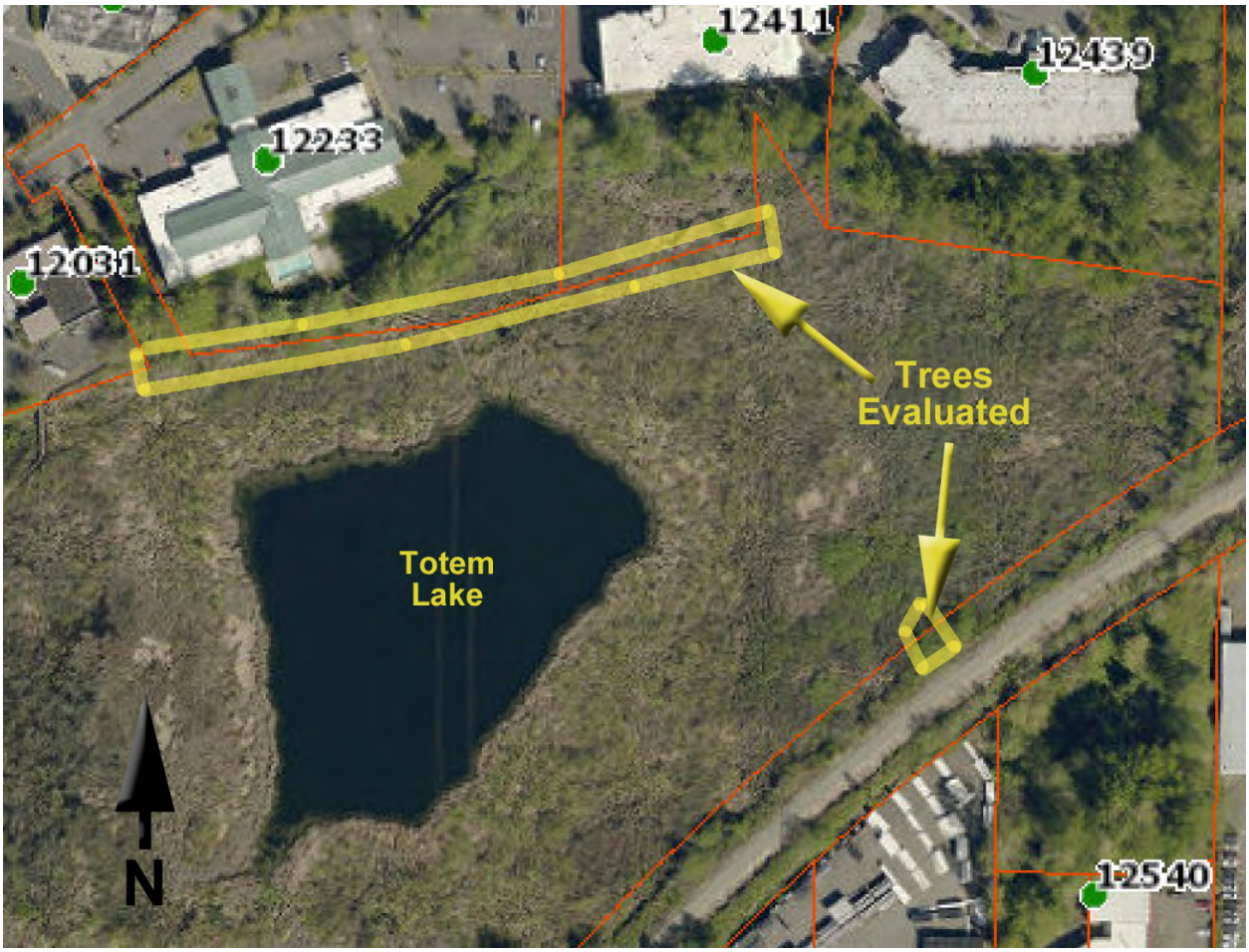
Sincerely

Kurt Fickeisen
International Society of Arboriculture™ (ISA) Certified Arborist # RM-451A
ISA Tree Risk Assessment Qualified
American Society of Consulting Arborists Registered Consulting Arborists© # 472

Figure-1

King County iMAP Aerial Image

Figure-2



King County iMAP Aerial Image

Figure-3A

Tree #	Species	Tree Part	Condition of concern	Failure Chance	Impact	Failure & Impact	Consequences	Risk Rating
241	Red Alder	Trunk	Stem Failure	Possible	High	Somewhat Likely	Significant	Moderate
242	Red Alder	Trunk	Stem Failure	Possible	High	Somewhat Likely	Significant	Moderate
242	Black Cottonwood	Trunk	Stem Failure	Possible	High	Somewhat Likely	Significant	Moderate
244	Black Cottonwood	Trunk	Stem Failure	Possible	High	Somewhat Likely	Significant	Moderate
245	Black Cottonwood	Trunk	Stem Failure	Possible	High	Somewhat Likely	Significant	Moderate
246	Black Cottonwood	Trunk	Stem Failure	Possible	High	Somewhat Likely	Significant	Moderate
247	Black Cottonwood	Trunk	Stem Failure	Possible	High	Somewhat Likely	Significant	Moderate
248	Douglas fir	Trunk	Stem Failure	Improbable	High	Unlikely	Significant	Low
249	Douglas fir	Trunk	Stem Failure	Improbable	High	Unlikely	Significant	Low
280	Black Cottonwood	Trunk	Stem Failure	Probable	High	Likely	Significant	High
281	Big Leaf Maple	Trunk	Stem Failure	Improbable	High	Unlikely	Significant	Low
282	Douglas fir	Trunk	Stem Failure	Improbable	High	Unlikely	Significant	Low
283	Big Leaf Maple	Trunk	Stem Failure	Improbable	High	Unlikely	Significant	Low
284	Willow	Trunk	Stem Failure	Possible	High	Somewhat Likely	Significant	Moderate
285	Willow	Trunk	Stem Failure	Possible	High	Somewhat Likely	Significant	Moderate
286	Black Cottonwood	Trunk	Stem Failure	Possible	High	Somewhat Likely	Significant	Moderate
287	Black Cottonwood	Trunk	Stem Failure	Possible	High	Somewhat Likely	Significant	Moderate
288	Black Cottonwood	Trunk	Stem Failure	Possible	High	Somewhat Likely	Significant	Moderate
289	Black Cottonwood	Trunk	Stem Failure	Probable	High	Likely	Significant	High
290	Black Cottonwood	Trunk	Stem Failure	Possible	High	Somewhat Likely	Significant	Moderate
291	Black Cottonwood	Trunk	Stem Failure	Possible	High	Somewhat Likely	Significant	Moderate

Figure-3B

Tree #	Species	Tree Part	Condition of concern	Failure Chance	Impact	Failure & Impact	Consequences	Risk Rating
292	Black Cottonwood	Trunk	Stem Failure	Improbable	High	Unlikely	Significant	Low
293	Red Pine	Trunk	Stem Failure	Improbable	High	Unlikely	Significant	Low
294	Willow	Trunk	Stem Failure	Improbable	High	Unlikely	Significant	Low
295	Red Alder	Trunk	Stem Failure	Probable	High	Likely	Significant	High
296	Red Alder	Trunk	Stem Failure	Improbable	High	Unlikely	Significant	Low
297	Red Alder	Trunk	Stem Failure	Possible	High	Somewhat Likely	Significant	Moderate
298	Willow	Trunk	Stem Failure	Possible	High	Somewhat Likely	Significant	Moderate
299	Willow	Trunk	Stem Failure	Possible	High	Somewhat Likely	Significant	Moderate
300	Red Alder	Trunk	Stem Failure	Improbable	High	Unlikely	Significant	Low

Figure-3C

Tree #	Species	Tree Part	Condition of concern	Failure Chance	Impact	Failure & Impact	Consequences	Risk Rating
462	Red alder	Trunk	Stem Failure	Possible	High	Somewhat Likely	Significant	Moderate
463	Black Cottonwood	Trunk	Stem Failure	Possible	High	Somewhat Likely	Significant	Moderate
464	Black Cottonwood	Trunk	Stem Failure	Probable	High	Likely	Significant	High
467	Black Cottonwood	Trunk	Stem Failure	Probable	High	Likely	Significant	High
468	Black Cottonwood	Trunk	Stem Failure	Probable	High	Likely	Significant	High
469	Black Cottonwood	Trunk	Stem Failure	Probable	High	Likely	Significant	High
470	Big Leaf Maple	Trunk	Stem Failure	Improbable	High	Unlikely	Significant	Low
471	Black Cottonwood	Trunk	Stem Failure	Probable	High	Likely	Significant	High
472	Black Cottonwood	Trunk	Stem Failure	Probable	High	Likely	Significant	High
473	Black Cottonwood	Trunk	Stem Failure	Probable	High	Likely	Significant	High

Figure-3D

Tree #	Species	Tree Part	Condition of concern	Failure Chance	Impact	Failure & Impact	Consequences	Risk Rating
475	Red Alder	Trunk	Stem Failure	Probable	High	Likely	Significant	High
476	Willow	Trunk	Stem Failure	Probable	High	Likely	Significant	High
477	Red Alder	Trunk	Stem Failure	Possible	High	Somewhat Likely	Significant	Moderate
480	Red Alder	Trunk	Stem Failure	Probable	High	Likely	Significant	High
481	Red Alder	Trunk	Stem Failure	Probable	High	Likely	Significant	High
482	Hawthorn	Trunk	Stem Failure	Possible	High	Somewhat Likely	Significant	Moderate

Assumptions and Limitations

ASSUMPTIONS AND LIMITING CONDITIONS

Kurt Fickeisen
International Society of Arboriculture (ISA) Certified Arborist #RM 451A
ISA Tree Risk Assessment Qualification
American Society of Consulting Arborists Registered Consulting Arborist #472
Owner Symbiosis Tree Care LLC

1. Any legal description provided to the consultant is assumed to be correct. Any titles and ownerships to any property are assumed to be good and marketable. No responsibility is assumed for matters legal in character.
2. All existing liens, encumbrances, and assessments, if any, have been disregarded (unless otherwise noted), and the trees are evaluated as though free and clear, under responsible ownership and competent management. It is assumed that no violations of applicable governmental regulations have occurred.
3. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible, however, Symbiosis Tree Care can neither guarantee nor be responsible for the accuracy of information.
4. Symbiosis Tree Care shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services as described in our fee schedule and contract of engagement.
5. Loss or alteration of any part of this report invalidates the entire report.
6. This report shall be used for its intended purpose only and by the parties to whom it is addressed. Possession of this report does not include the right of publication.
7. Neither all or any part of the contents of this report, nor copy thereof, shall be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales, or other media, without the prior expressed written or verbal consent of Symbiosis Tree Care.
8. This report and any values expressed herein represent the opinion of Symbiosis Tree Care. Our fee is in no way contingent upon any specified value, a result or occurrence of a subsequent event, nor upon any finding to be reported.
9. Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys.
10. Unless expressed otherwise: 1) information contained in this report covers only those items that were examined and reflects the condition of those items at the time of inspection, and 2) the inspection is limited to visual examination of accessible items without dissection, excavation, probing, or coring.
11. There is no warranty or guarantee, expressed or implied that problems or deficiencies of the tree or other plant or property in question may not arise in the future.
12. The right is reserved to adjust tree valuations, if additional relevant information is made available.

Symbiosis Tree Care

Kurt Fickeisen
13024 37th Ave. NE
Seattle, WA 98125
(206) 841-3158
kurtfick@gmail.com

Matt Martenson
Berger Partnership
1721 8th Avenue N
Seattle, WA 98109

March 14, 2019

Dear Mr. Martenson,

This report has been revised to reflect tree identification numbers installed on February 6, 2019

Plans call for rerouting the Cross-Kirkland Corridor. Mature trees are part of landscaping north of the existing corridor. The planned corridor is composed of two sections

- Property at 12031 NE Totem Lake Way in Kirkland Washington (KC Parcel #692840-0032) is north of Totem Lake and contains a retail store, and vehicle parking (Figure-1)
- King County (KC) Conservation District (KC Parcel #866372-0060) surrounds Totem Lake and connects to a forested wetland north of the Cross-Kirkland Corridor (Figure-2)

The pathway begins adjacent to a wetland near the southeast corner of 12031-property and travels eastward. Once reaching a location south of property at 12411 NE Totem Lake Way the new trail will cross a wetland devoid of trees and joins the existing corridor.

Since trees are present in these locations, Kurt Fickeisen from Symbiosis Tree Care came to the property and evaluated 120 trees on and around the property between December 4th and 6th of 2017 (Figure-1, Figure-2).

Based on comments from the City of Kirkland provided in 2018, the report was revised and includes all trees within the corridor. Please see Assumptions Limiting Conditions for this report on the last page.

Summary

Plans call for rerouting the Cross-Kirkland Corridor through an area where mature trees are present. The area includes trees adjacent to 12031 NE Totem Lake Way and King County Parcel #866372-0060. 119 trees with diameters over 6-inches grow within this area.

At least one tree located on Totem Lake Way and north of the current building should be removed. Other trees in this area may be preserved if tree protection is possible.

On the eastern side of the building, trees within the KC Conservation District should be considered for preservation, but those near the building or where new pathway placement is required should be considered for removal.

Trees Along Totem Lake Way

Tree inspection starts on the northwest corner of the property and travels eastward along Totem Lake Way. Once reaching the KC Conservation District inspection travels southward and then westward along the 12031-property border. The last tree grouping inspected is those adjacent to the existing parking lot. **Figure-1A provides a map of these trees** (Figure-1A).

A file with information on all trees over 6-inches diameter is provided in a spreadsheet (Figure-3A to Figure-3C). This spreadsheet provides information on tree: species, size, vigor, condition, and comments. Photos of trees are also provided (Photo-1 to Photo-10).

Fifteen trees are located parallel to Totem Lake Way. The majority are red maples *(Acer rubrum)*, but a black cottonwood *(Populus trichocarpa)* is planted adjacent to the street. In addition, ornamental plum/cherries *(Prunus* Sp.*)* are present along with small diameter Douglas firs *(Pseudotsuga menziesii)*.

Most trees have been pruned to provide street and sidewalk clearance, however the red maple numbered 8 has been pruned to provide building clearance

- Tree-208 may not classify as a street tree due to sidewalk setback
- Tree-215 is east of a paved trail on KC Conservation District property

Tree roots may conflict with the existing sidewalk and curb since the canopy overhangs the sidewalk. In addition, tree 205 and 212 are near utility boxes.

Three additional trees numbered 216 to 218 are north of the building but are set back from the street and sidewalk. One is a pacific madrone *(Arbutus menziesii)*. The remaining two are red pines *(Pinus resinosa)*.

- A minor amount of pruning has been performed on pine trees to provide building clearance

Trees North of the 12031 Building

Some trees north of the 12031 building are on the property, but others are within the KC Conservation District or on property containing a motel. Information on tree characteristics is provided in two spreadsheets (Figure-3A, Figure-3B). Additional information is provided below by tree number.

<u>Numbers 219 to 221</u> consist of two red pines and one Deodar cedar *(Cedrus deodar)*. The trees are on the 12031 property and located on or adjacent to a deck attached to the building. While both pines show signs of good vigor and condition. The Deodar is shaded by adjacent trees (Photo-3)

- All three trees are near building structures

<u>Numbers 222 to 229</u> consist of Lombardy poplars *(Populus nigra)* and are marked in Photo-3. All eight poplars are near the 12031 building

<u>Numbers 230 to 234</u> are north of a paved walkway on the KC Conservation District. Trees consist of black cottonwoods and a columnar variety of beach tree *(Fagus sylvatica)*.

<u>Numbers 235 to 240</u> are red pines south of the Lombardy poplar group and adjacent to the 12031 building (Photo-4). All are near the 12031 building.

Numbers 241 to 250 are adjacent to the KC Conservation District property and two paved and connected trails. Trees in this group consist of red alders *(Alnus rubra)*, black cottonwoods, Douglas firs *(Pseudotsuga menziesii)*, and a red maple.

All trees are in fair condition currently however

- Tree 243 leans northward towards the trail
- Trees numbered 248 to 250 are at the edge of an area with visible wetlands

The black cottonwood, number 247, is marked in Photo-5 along with a tree east of inspected trees in this report (Photo-5).

Site conditions may impact long term health and stability of tree 248 and 249 since Douglas fir trees prefer well drained soils (Photo-6).

Trees South and Southwest of 12031 Pavement

Trees in this set form a grouping south and west of paved parking and act as a buffer between the wetland and an adjacent property (Photo-7 to Photo-9). Tree characteristics are provided in Figure-3C (Figure-3C). Additional information is provided below by tree number.

Number 251 is a mature red maple growing in a peninsula of soil. Pavement surrounded the soil bed and tree root growth has fractured pavement under the canopy.

Numbers 252 to 255 are young red alders located between a wetland and pavement. The trees appear in fair condition

- Small diameter western red cedars *(Thuja plicata)* grow under alder canopies

Numbers 256 to 259 are mature red maples located between the wetland and pavement. All trees have codominant growth patterns and northern sections of tree canopies overhang paved parking. While there are no visible signs of root growth under pavement, the area is a likely location for significant tree root growth.

- Small diameter western red cedars grow under the canopy of red maples 56 to 58

Numbers 260 to 263 are primarily black cottonwoods, but one red maple is part of this group. All trees are mature and near pavement. While the maple contains a single trunk at grade level, cottonwoods consists of individual trunks joined at root crown level

- Based on proximity of structural roots to pavement, root-pavement conflicts are likely to be present

Planting Strip Trees

Planting strip trees are directly west of the structure on the 12031 property. All are mature trees with small statures and are surrounded by pavement under at least 50-percent of the canopy.

Numbers 264 to 266 consist of two flowering cherry trees and one Alaska red cedar *(Chamaecyparis nootkatensis)*. All are directly west of the property building and surrounded by pavement.

Numbers 267 to 268 consist of one flowering cherry and one red maple. Both trunks are near the northern edge of the parking lot.

Numbers 269 to 279 consist primarily of crabapple trees, but three flowering cherries are part of the group. All trees are in a planting bed between parking spaces (Photo-10)

- Three members of this group contain numerous stump sprouts

Trees Within King County Conservation District

Trees along the conservation pathway starts adjacent to a wetland near the southeast corner of the 12031 property. The pathway travels eastward and eventually reaching a location south of 12411 NE Totem Lake Way.

Plans call for a new pathway to cross a wetland devoid of trees and joins the Cross Kirkland Corridor in a treed segment of land. 41 trees were evaluated in this section (Figure-2 to Figure-2C).

Trees North of the Wetland

Figure-3D and Figure-3E lists trees north of the wetland in a spreadsheet (Figure-3D, Figure-3E). 34 trees have diameters greater than 6-inches.

Trees 280 to 293 are west of overhead community power lines (Photo-11, Photo-12). Tree species present consist of black cottonwoods *(Populus trichocarpa)*, big leaf maples *(Acer macrophyllum)*, Douglas firs *(Pseudotsuga menziesii)* and native willows *(Salix* Sp.*)*.

All trees show signs of fair vigor. While tree structure is fair in many trees the following trees show signs of poor structure

- Willow: 284, 85
- Black cottonwood: 287, 288, 290

Most large diameter roots do not appear to interfere with the existing trail.

Trees 294 to 297 are under or near overhead community power lines. All trees show signs of fair vigor. While tree vigor is fair, the following trees show signs of poor structure

- Willow: 294
- Red alder: 296

Most large diameter roots do not appear to interfere with the existing trail.

Trees 298 to 463 are east of overhead community power lines. All trees show signs of fair vigor (Photo-13).

While tree structure is fair in some trees, the following show signs of poor structure

- Willow: 298, 103
- Red alder: 299, 300

Most large diameter roots do not appear to interfere with the existing trail.

Trees 464 to 473 primarily consist of mature black cottonwoods with heights near or over 100-feet (Photo-14). In this case tree information is provided in two spreadsheets (Figure-3D, Figure-3E).

While tree vigor and structure is fair, the following trees show signs of poor structure

- Black cottonwoods 106, 111
    - As an example, trunk decay is present near grade level on the northern side of Tree-111 (Photo-15)

In this case the current pathway travels within 5-feet of most trees and significant structural roots are present.

Trees South of the Wetland

Figure-3E lists trees south of the wetland in a spreadsheet (Figure-3E. Seven trees have diameters greater than 6-inches.

Trees 475 to 482 consist of red alders, willows, and one black hawthorn *(Crataegus douglasii)* previously tagged with marker number 305 (Photo-16).

All show signs of fair vigor and structure except for one willow (Tree-115). The willow shows signs of poor structure due to decay at grade level

- In many cases new red alder sprouts are emerging from new fill soil

Discussion

Trees along Totem Lake Way

Most trees in this group are near the sidewalk and street. While most are acceptable in parking strip locations, the black cottonwood (Tree-1) is not approved by most municipalities for planting strip location

- If road, sidewalk, utility box, and soil excavation work is not part of upcoming development, tree protection is possible

Remaining trees in this group are set back from the street and building. These include

- Tree-208
- Tree-216 to Tree-218

All have been pruned for building clearance and roots do not appear in close proximity to the building.

These trees can be protected during construction if the future building footprint construction does not come within 5-feet of trunks and root pruning is performed if conflicts are present.

Trees North of the 12031 Building

A significant number of these trees are near the existing building, but other trees are east or south of the walkway traveling through the KC Conservation District.

Based on proximity to existing structures **retention of the following trees is not recommended**

- Red pines numbered 219-220 and 35-40
- Deodar cedar numbered 221
- Lombardy poplar numbered 222 -229

If no construction or construction related impact takes place east or south of the conservation district walkway and within 18-feet of the trunk of the red maple (#50) then trees can be retained, however additional monitoring is recommended.

Trees South and Southeast of 12031 Pavement

Most trees in this group are near existing pavement. Based on root buckling observed adjacent to the red maple numbered 251, retention should not be considered unless no pavement excavation is planned during construction.

On the other hand, preservation of red alders numbered 252 to 255 along with small diameter western red cedars south of paved surfaces and under alder and maple canopies should be considered.

Planting Strip Trees

All trees in this group are near infrastructure that will be impacted by future construction. Based on space requirements for common construction equipment and material storage, trees in the planting strip should not be retained.

Trees Within King County Conservation District

Currently trail use is occasional, however use will increase once development on 12031 property take place and the trail connects to the existing Cross Kirkland Corridor.

Trees North of the Wetland

A risk assessment of trees showing signs of poor structure should be considered. While removal of poor structure trees is an option, tree removal will reduce shade provided by trees and the woodland environment that trail users may desire.

Between Tree-280 and Tree-465 conflicts between structural roots and the existing trail are present but minor

- In most cases root pruning should be considered as opposed to tree removal prior to trail surface improvements.

East of Tree-465 the trail enters a tree grove primarily consisting of mature cottonwoods until reaching the wetland. Due to the presence of a mature tree groves with signs of fair vigor and structure, **root pruning is not recommended**.

Options for trail improvement/installation include

- Establishing an elevated trail supported by post and pier anchors
- Installation of a gravel or coble base layer at grade and use of permeable asphalt for human travel

Trees South of the Wetland

Except for willow numbered 476, all trees evaluated in this group have diameters of 10-inches or less

- Both willows and red alders are short lived trees and are known to regenerate from undamaged stumps

Design plans for future trail in this location are unknown, but soil addition is likely to be required based on construction techniques employed on the adjacent Cross Kirkland Corridor.

While a trail supported by a post and pier system is an option, trunks and canopies of most trees in this group conflict with a future pedestrian trail. In this case tree removal and root sprout regeneration is an option to consider.

Conclusion

Trees Along NE Totem Lake Way

Preservation of the following trees should be considered if protection during construction is possible

- Street trees along Totem Lake Way, and or north of the existing building
- The grove of alders numbered 252 to 255 and adjacent small diameter western red cedars

Removal of other inspected trees is recommended.

Trees Within King County Conservation District

Trees north of the wetland and showing signs of poor structure should be considered for either removal or additional assessment. In areas where trees grow in individual clusters root pruning is recommended. Once the trail enters the mature grove of trees alternatives should be considered prior to trail installation.

Trees south of the wetland appear to conflict with new trail establishment. Based on species most can be cut to grade level and allowed to regenerate from stump sprouts.

Tree Risk

A Level-1 Tree Risk Assessment is provided in a separate report titled

- 11-26-2018 BP Totem Lake 12031 Property Letter

Recommendations

If existing sidewalks will be retained and tree protection fencing is installed during construction, then street trees preservation is possible.

Preservation of the red maple (#208), the pacific madrone (#216) and red pines (#217-218) should be considered if tree canopies do not conflict with construction plans and protection fencing is installed during construction.

All trees east of the trail and on KC Conservation District Property should be retained and monitored.

Preservation of red alders (#252 to #255) and small diameter western red cedars is possible if protection fencing is installed during construction

- Small diameter western red cedars should receive additional protection during removal of adjacent red maples

Tree Protection Fencing

When installing protection fencing the material should be located at distance from the trunk equivalent to the radial spread listed in Figure-3A to Figure-3F

If distances for protection fencing are not possible an International Society of Arboriculture Certified Arborist can evaluate root growth patterns and provide protection fencing alternatives.

- Retained sidewalk can be used to mark protection fencing locations
- General diagrams for tree protection fencing are provided (Figure-4A, Figure-4B)

Removal of the following trees should be considered

- Black cottonwood: 287, 288, 290, 466, 471
- Red alder: 296, 299, 100
- Willows: 284, 285, 294, 298, 463
- All species south of the wetland

The City of Kirkland or King County may require additional assessment prior to removal. As an alternative, retention and monitoring should be considered.

Root Pruning

Between Tree-80 and Tree-105 tree roots over 2-inches diameter conflicting with the trail should be exposed and cut with reciprocating saws such as a, “sawzall”.

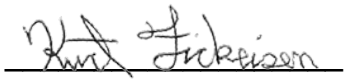
Root Bridging

Between Tree-106 and Tree-113 new trails should avoid damage to existing roots over 2-inches diameter. This may require placing the trail on a post and pier support or use of gravel and permeable asphalt

- While two options are provided in this report, there are additional strategies for infrastructure installation that mitigate root damage

If you have questions about the contents of this report contact Symbiosis Tree Care.

Sincerely



Kurt Fickeisen
International Society of Arboriculture™ (ISA) Certified Arborist # RM-451A
ISA Tree Risk Assessment Qualified
American Society of Consulting Arborists Registered Consulting Arborists© # 472

asca AMERICAN SOCIETY of CONSULTING ARBORISTS

Figure-1

King County iMAP 2015 Aerial Image

FIGURE 1A

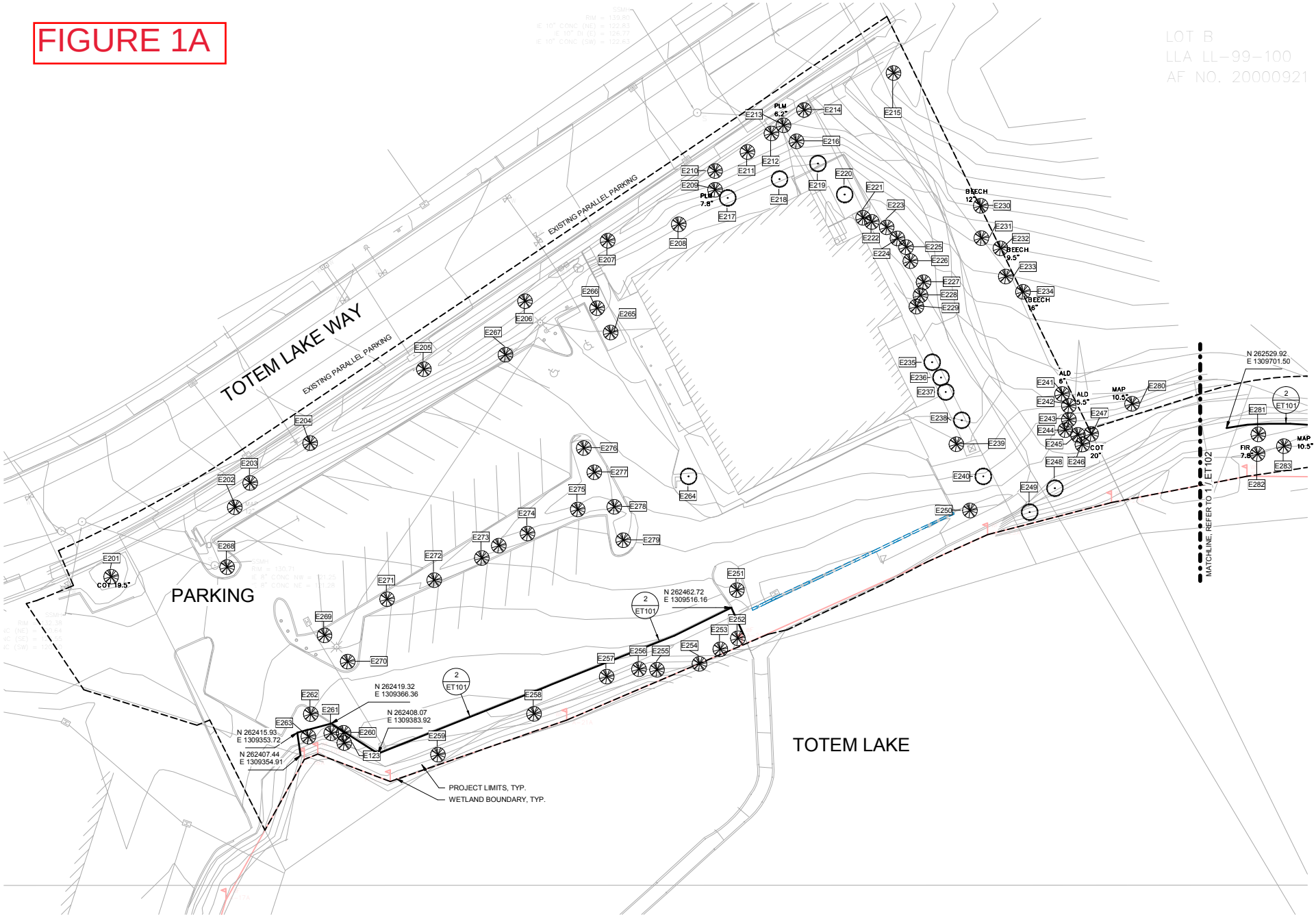

LOT B
LLA LL-99-100
AF NO. 20000921
TOTEM LAKE WAY
EXISTING PARALLEL PARKING
EXISTING PARALLEL PARKING
PARKING
TOTEM LAKE
MATCHLINE, REFER TO 1 / ET 102
N 262529.92
E 1309701.50
N 262462.72
E 1309516.16
N 262419.32
E 1309366.36
N 262408.07
E 1309383.92
N 262415.93
E 1309353.72
N 262407.44
E 1309354.91
PROJECT LIMITS, TYP.
WETLAND BOUNDARY, TYP.
COT 19.5"
PLM 6.2"
PLM 7.8"
BEECH 12"
BEECH 9.5"
BEECH 16"
ALD 6"
ALD 5.5"
MAP 10.5"
COT 20"
FIR 7.8"
MAP 10.5"

Figure-2

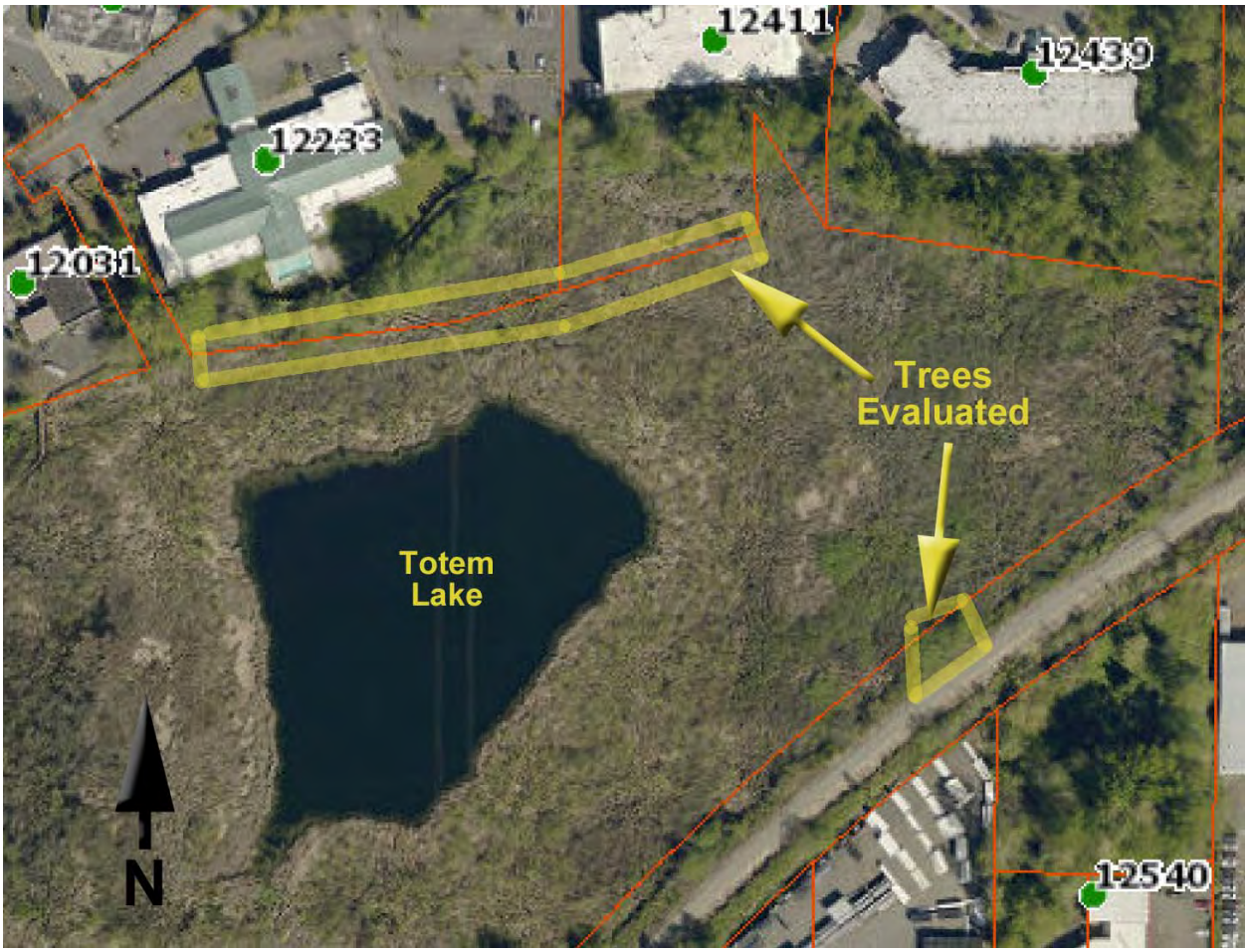


FIGURE 2A

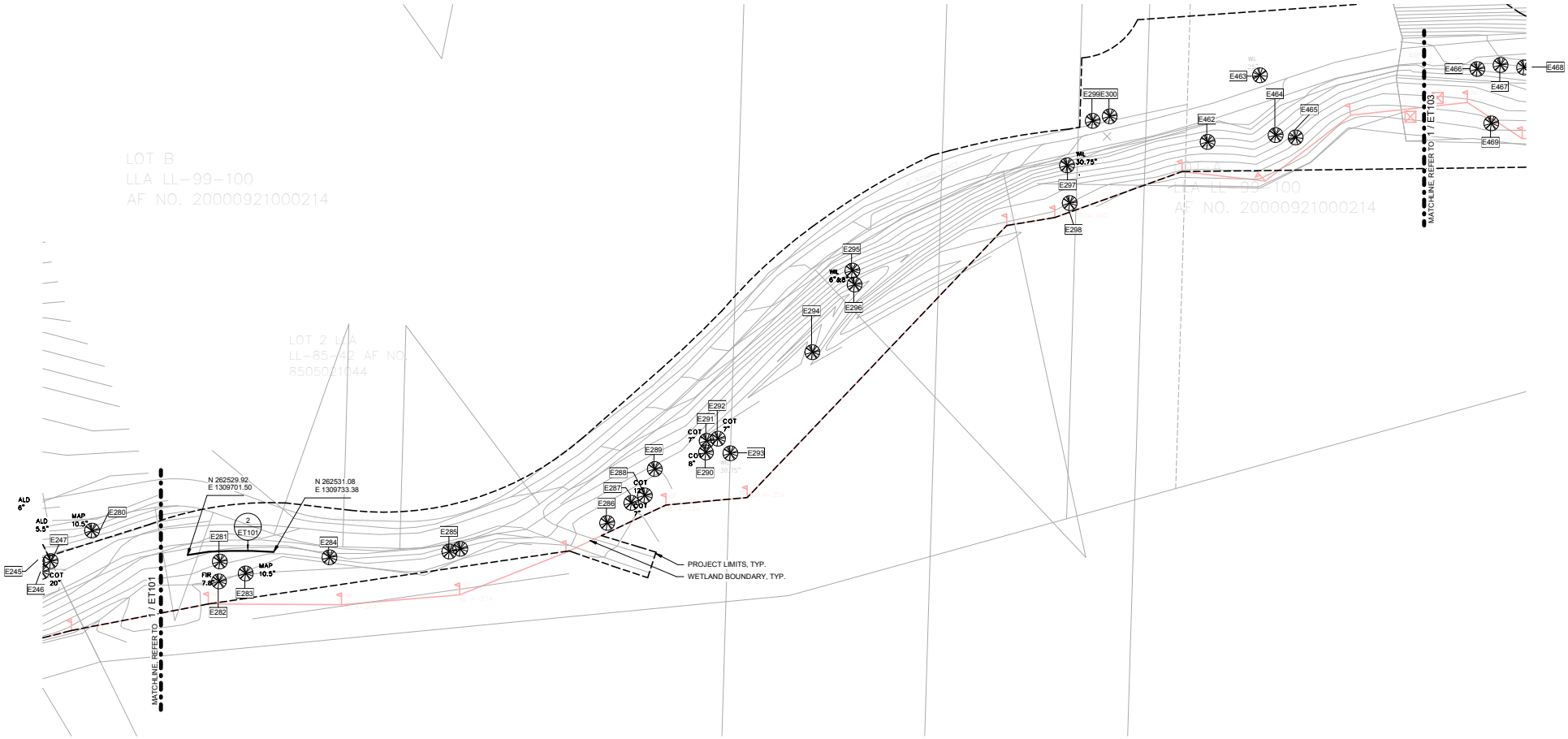

LOT B
LLA LL-99-100
AF NO. 20000921000214
LOT 2 LLA
LL-85-42 AF NO.
8505021044
LLA LL-99-100
AF NO. 20000921000214
N 262529.92
E 1309701.50
N 262531.08
E 1309733.38
2
ET101
ALD
6"
ALD
5.5"
MAP
10.5"
E280
E247
E245
E246
COT
20"
E281
FIR
7.8"
E282
E283
MAP
10.5"
E284
E285
E286
E287
E288
COT
12"
COT
7"
E289
E290
COT
8"
COT
7"
E291
COT
7"
E292
E293
E294
E295
WIL
6"&8"
E296
E297
E298
WIL
30.75"
E290E300
E462
E463
E464
E465
E466
E467
E468
E469
PROJECT LIMITS, TYP.
WETLAND BOUNDARY, TYP.
MATCHLINE REFER TO 1 / ET101
MATCHLINE REFER TO 1 / ET103

FIGURE 2B

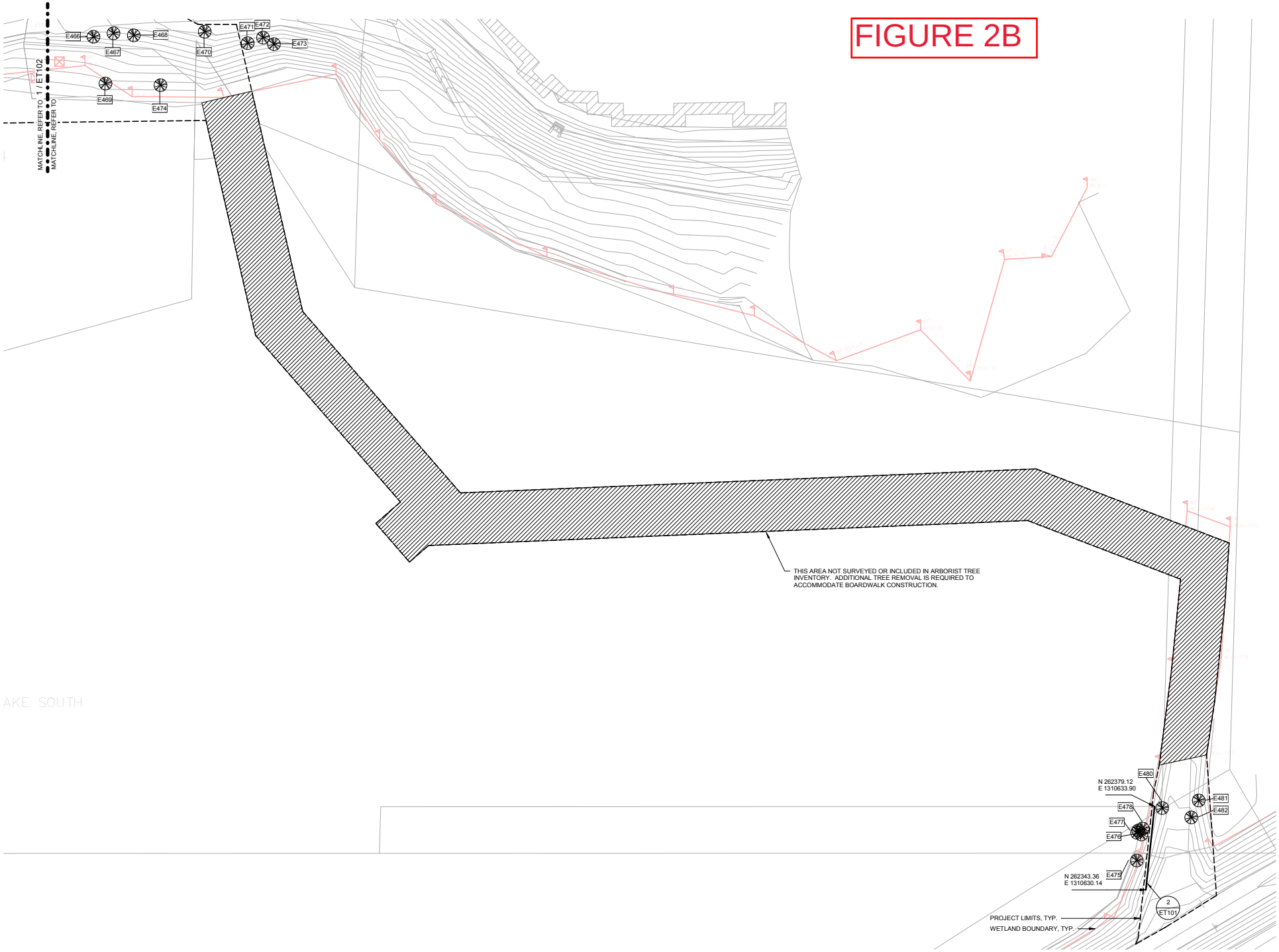

MATCHLINE, REFER TO 1 / ET102
MATCHLINE, REFER TO
E466
E467
E468
E469
E470
E471
E472
E473
E474
THIS AREA NOT SURVEYED OR INCLUDED IN ARBORIST TREE INVENTORY. ADDITIONAL TREE REMOVAL IS REQUIRED TO ACCOMMODATE BOARDWALK CONSTRUCTION.
AKE SOUTH
E480
N 262379.12
E 1310633.90
E481
E482
E478
E477
E476
E479
N 262343.36
E 1310630.14
2
ET101
PROJECT LIMITS, TYP.
WETLAND BOUNDARY, TYP.

Figure-3A

Tree #	Species	dbh (in.)	Height (ft.)	Radial Spread (ft.)	Vigor	Structure	Comments / Defects
201	Black Cottonwood	19.5	48	21	Fair	Fair/Poor	Street tree, declining due to asphalt over structural roots, elevated over street
202	Red Maple	13	35	16	Fair	Fair	Street tree. Elevated over street
203	Red Maple	10	31	13	Fair	Poor	Street tree, codominant, elevated over street
204	Red Maple	7	24	10	Poor	Poor	Street tree, declining condition
205	Red Maple	14	36	16	Fair	Fair	Street tree, adjacent to utility box, elevated over street
206	Red Maple	11.5	34	14	Fair	Poor	Street tree, fracture at grade level, elevated over street
207	Red Maple	14	38	17	Fair	Fair	Street tree, adjacent to stairway, elevated over street
208	Red Maple	15.5	49	16	Fair	Fair	Pruned for building clearance
209	Plum/Cherry	7.8	15	10	Good	Fair	Street tree, epicormic growth, elevated over street
210	Red Maple	8.8	36	11	Fair	Poor	Street tree, fracture in trunk, elevated over street
211	Plum/Cherry	7.5	15	7	Good	Fair	Street tree, epicormic growth, elevated over street
212	Red Maple	17	41	15	Good	Fair	Street tree, adjacent to utility box, elevated over street
213	Plum/Cherry	6.2	10	14	Good	Fair	Street tree, codominant, shaded by adjacent trees
214	Red Maple	9.25	25	10	Fair	Fair	Street tree, adjacent to NE property corner
215	Red Maple	9,25	25	10	Fair	Fair	Street tree, near property border and sidewalk
216	Pacific Madrone	7.8	29	10	Fair	Fair	Two trunks (5-in and 6-in)
217	Red pine	11.5	49	10	Good	Good	Building clearance required
218	Red pine	10.5	49	10	Good	Good	Building clearance required
219	Red pine	11.5	49	10	Good	Good	Building clearance required
220	Red pine	13.5	49	10	Good	Good	Building clearance required
221	Deodar Cedar	10.25	45	6	Fair	Poor	Blocks deck gateway, leans to west
222	Lombardy Poplar	18.75	70	10	Fair	Fair	North end of 8 poplar group, 5-feet from building
223	Lombardy Poplar	12	65	7	Fair	Fair	5-feet from building
224	Lombardy Poplar	8	65	6	Fair	Poor	5-feet from building
225	Lombardy Poplar	9.5	65	5	Fair	Poor	5-feet from building
226	Lombardy Poplar	9	65	5	Fair	Poor	5-feet from building
227	Lombardy Poplar	8.5	65	6	Fair	Poor	5-feet from building
228	Lombardy Poplar	12	70	9	Fair	Poor	5-feet from building
229	Lombardy Poplar	29.5	70	13	Fair	Fair	South end of 8 poplar group, 5-feet from building
230	Columnar Beech	12	40	8	Good	Fair	Elevation pruning near grade
231	Black Cottonwood	14.3	75	18	Fair	Fair- Poor	Codominant at grade
232	Columnar Beech	9.5	33	8	Good	Fair	Elevation pruning near grade
233	Black Cottonwood	11.5	70	16	Good	Fair	No visible pruning
234	Columnar Beech	16	50	12	Good	Fair- Poor	Elevation pruning near grade, Codominant at 5-feet
235	Red pine	10.25	40	8	Good	Fair	North end of 6 pine group
236	Red pine	8	35	8	Fair	Fair	

Figure-3B

Tree #	Species	dbh (in.)	Height (ft.)	Radial Spread (ft.)	Vigor	Structure	Comments / Defects
237	Red pine	10.75	35	7	Fair	Fair	
238	Red pine	13	40	18	Fair	Fair	
239	Red pine	6	20	5	Fair	Poor	Suppressed, near utility box
240	Red pine	13.25	35	10	Good	Fair	South end of 6 pine group
241	Red Alder	6	20	10	Fair	Poor	Leans to north
242	Red Alder	5.5	20	10	Fair	Poor	Leans to north
243	Black Cottonwood	21	110	19	Fair	Fair	Leans to north
244	Black Cottonwood	20	110	18	Fair	Fair	Leans to southwest
245	Black Cottonwood	20	80	16	Fair	Fair	Leans to south
246	Black Cottonwood	20	110	15	Fair	Fair	
247	Black Cottonwood	20	110	16	Fair	Fair	Leans to south
248	Douglas fir	7.25	30	10	Fair	Fair	Edge of wetland
249	Douglas fir	6	30	10	Fair	Fair	Edge of wetland
250	Red Maple	18	35	18	Fair	Fair	Edge of wetland and stream
251	Red Maple	14	35	17	Good	Poor	Between wetland and parking lot. Roots heaving pavement
252	Red Alder	6	30	10	Fair	Fair	Close to wetland
253	Red Alder	6	30	10	Fair	Fair	Close to wetland
254	Red Alder	6	30	10	Fair	Fair	Close to wetland
255	Red Alder	6	30	10	Fair	Fair	Close to wetland
256	Red Maple	16.5	49	21	Fair	Fair	8-feet from pavement, codominant at 5-feet
257	Red Maple	23.5	49	23	Fair	Fair	Codominant at 5-feet
258	Red Maple	24	49	22	Fair	Fair	Codominant at 5-feet
259	Red Maple	24	49	23	Fair	Fair	Codominant at grade
260	Black Cottonwood	20.5	55	25	Fair	Fair	6 separate trunks joined near grade level, pavement heaving due to roots
261	Red Maple	11	49	11	Fair	Fair	Adjacent to pavement
262	Red Maple	17	49	20	Fair	Fair	Codominant above grade, adjacent to pavement
263	Red Maple	8.25	15	10	Fair	Fair	Adjacent to pavement
264	Alaska cedar	9.5	33	6	Fair	Fair	Root flare covered with pavement
265	Plum/Cherry	6.8	10	6	Fair	Poor	Pruned with topping cuts
266	Plum/Cherry	6.8	10	6	Fair	Poor	Pruned with topping cuts
267	Plum/Cherry	7.25	10	7	Fair	Fair	Trunk 3-feet north of parking lot
268	Red Maple	8	20	10	Poor	Poor	Stump sprout
269	Crabapple	5.8	10	7	Fair	Poor	Planting strip tree, western end, stump sprouts
270	Crabapple	6.5	24	9	Fair	Poor	Planting strip tree, western end, stump sprouts
271	Crabapple	6.8	24	10	Fair	Fair	Planting strip tree
272	Crabapple	6.25	24	9	Fair	Fair	Planting strip tree
273	Plum/Cherry	7.6	15	9	Fair	Poor	Planting strip tree, codominant at grade
274	Crabapple	7.8	24	10	Fair	Fair	Planting strip tree
275	Crabapple	6.4	20	8	Fair	Fair	Planting strip tree
276	Crabapple	5.8	20	8	Fair	Fair	Planting strip tree, eastern end
277	Plum/Cherry	5.5	18	9	Fair	Fair	Planting strip tree, eastern end
278	Plum/Cherry	5.8	18	9	Fair	Fair	Planting strip tree, eastern end
279	Crabapple	6	18	9	Fair	Poor	Planting strip tree, eastern end, stump sprouts
280	Black Cottonwood	31	110	25	Fair	Fair	North of pathway and south of building
281	Big Leaf Maple	10.5	50	10	Fair	Fair	South of pathway
282	Douglas Fir	7.8	50	8	Fair	Fair	South of pathway

Figure-3C

Tree #	Species	dbh (in.)	Height (ft.)	Radial Spread (ft.)	Vigor	Structure	Comments / Defects
283	Big Leaf Maple	10.5	50	15	Fair	Fair	South of pathway
284	Willow	24	65	12	Fair	Poor	Trunk removed near grade level
285	Willow	12&15	65	12	Fair	Poor	Trunks joined at root crown, previous trunk removal
286	Black Cottonwood	12	65	12	Fair	Fair	South of pathway
287	Black Cottonwood	7	30	15	Fair	Poor	Leans to south
288	Black Cottonwood	12	30	15	Fair	Poor	Leans to south
289	Black Cottonwood	34	110	30	Fair	Fair	Dominant tree of group
290	Black Cottonwood	8	35	10	Fair	Poor	Leans to east
291	Black Cottonwood	7	35	10	Fair	Fair	Vertical growth
292	Black Cottonwood	7	35	10	Fair	Fair	Vertical growth, tree is south of #293
293	Red pine	5.5	20	6	Fair	Fair	West of overhead power lines
294	Willow	6&8	30	15	Fair	Poor	Trunks are 3-feet apart and grow out of wetland
295	Red Alder	12	30	15	Fair	Fair	Grows under power lines
296	Red Alder	6	10	15	Fair	Poor	Downslope from #295
297	Red Alder	10.5	30	15	Fair	Fair	Grows under power lines
298	Willow	30.75	30	15	Fair	Poor	Decay visible in lower trunks
299	Red Alder	9.5	30	15	Fair	Poor	Located north of pathway
300	Red Alder	6	25	10	Fair	Poor	Located north of pathway
462	Red Alder	12	30	10	Fair	Fair	Located south of pathway. Leans to southwest
463	Willow	25	40	20	Fair	Poor	North of pathway
464	Black Cottonwood	21	101	20	Fair	Fair	Codominant above grade, adjacent to pathway
465	Red Alder	9	30	10	Fair	Fair	Leans to southeast and away from #464
466	Black Cottonwood	8	40	25	Fair	Poor	Leans to east and away from #467
467	Black Cottonwood	35	110	30	Fair	Fair	Part of mature grove
468	Black Cottonwood	35	110	30	Fair	Fair	Part of mature grove, 30-feet south of trail
469	Black Cottonwood	41	110	35	Fair	Fair	Part of mature grove, codominant at grade
470	Big Leaf Maple	9.5	30	10	Fair	Fair	Root crown against paved trail
471	Black Cottonwood	16	110	15	Fair	Poor	Decay at grade level
472	Black Cottonwood	18	110	20	Fair	Fair	6-feet south of paved trail
473	Black Cottonwood	20	110	30	Fair	Fair	Canopy leans to east
474	Black Cottonwood	20	110		Fair	Fair	
475	Red Alder	12	40	10	Fair	Fair	
476	Willow	21	40	20	Fair	Poor	Three codominant trunks at grade, signs of decay
477	Red Alder	6	20	8	Fair	Fair	
478	Red Alder	12	30	10	Fair	Fair	
480	Red Alder	8	30	8	Fair	Fair	
481	Red Alder	12	30	10	Fair	Fair	
482	Hawthorn	7	30	10	Fair	Fair	Tag #305 also observed on trunk

Figure-4A

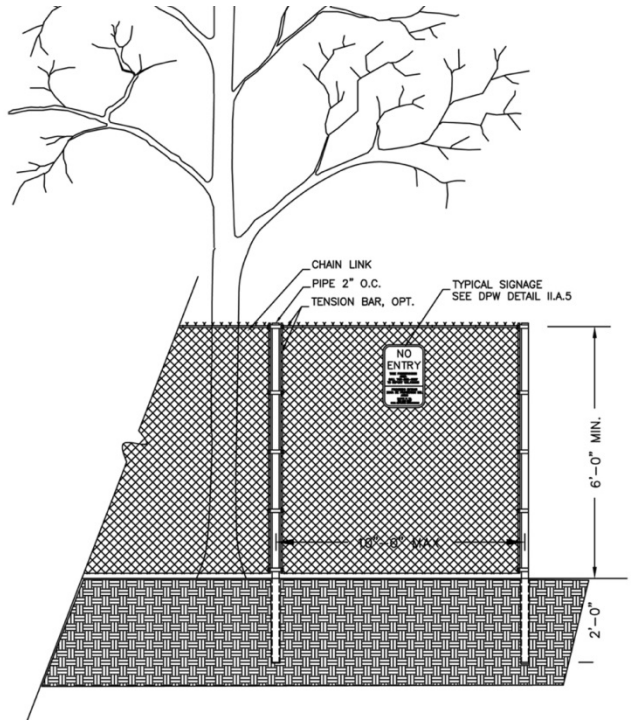


Figure-4B

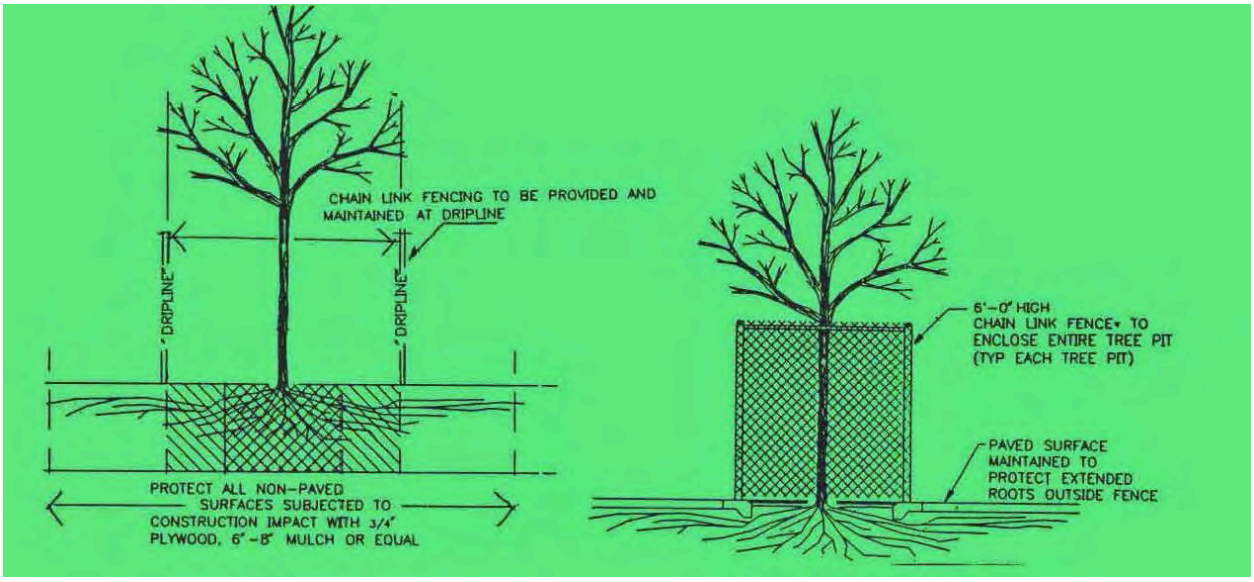


Photo-1

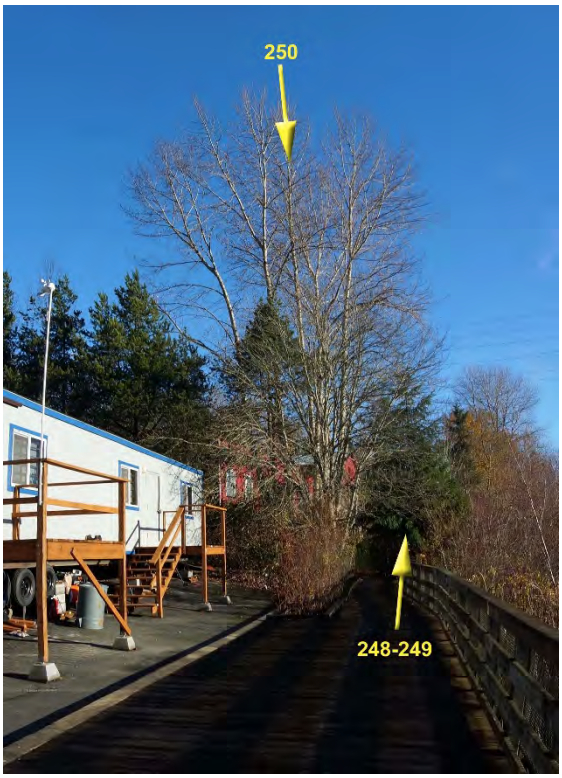
Photo-2

Photo-3

Photo 5

Photo-4

Photo-6



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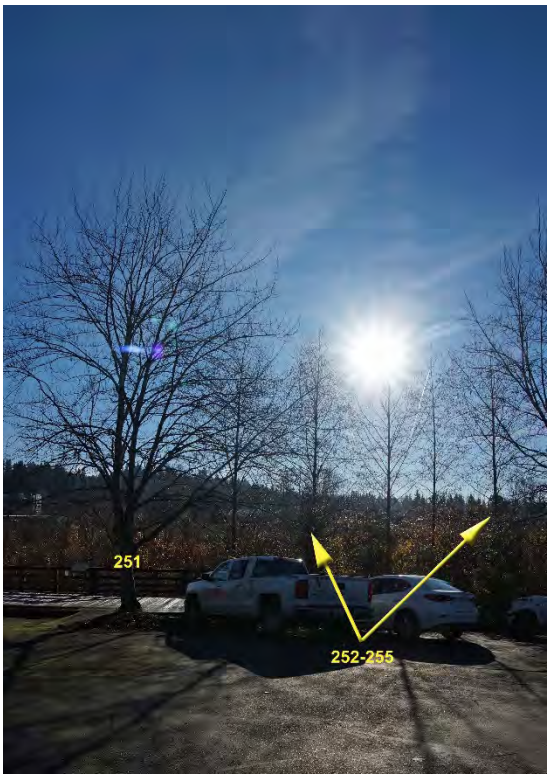

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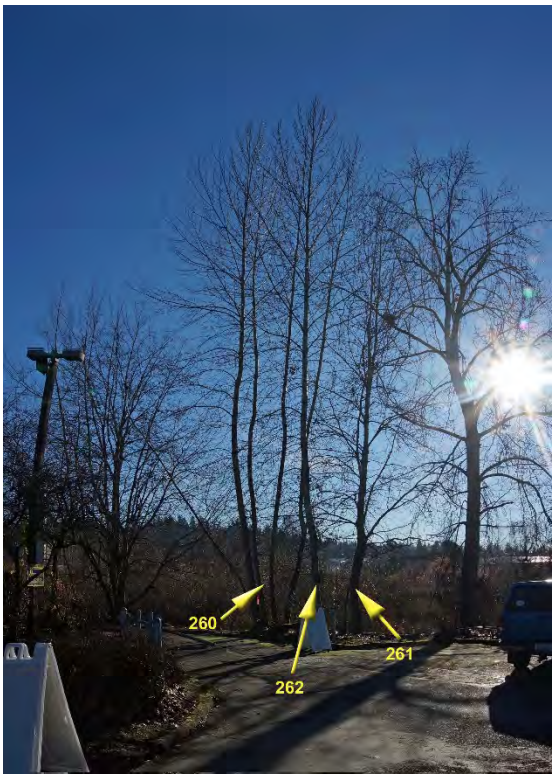
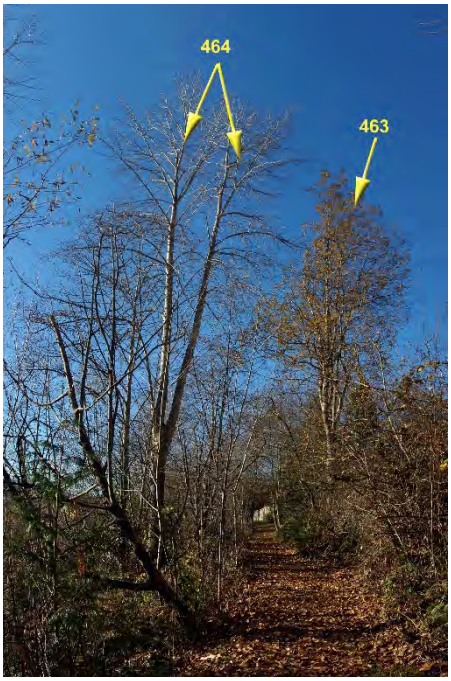


Photo-8

Photo-10

Photo-11

Photo-13



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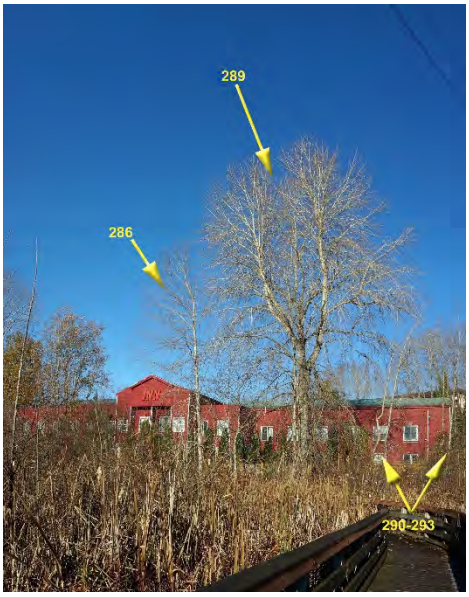

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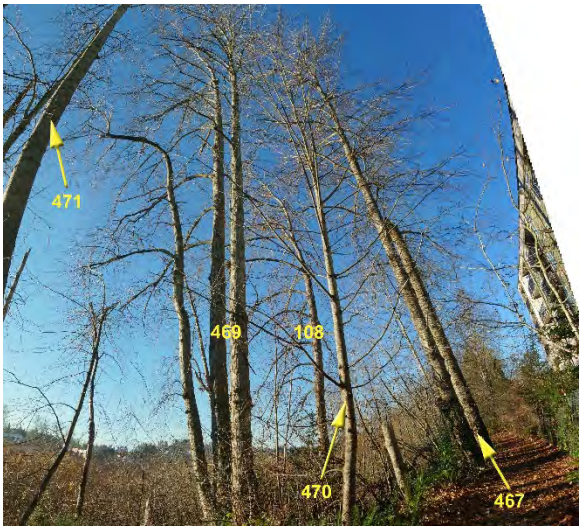


Photo-15

Assumptions and Limitations

ASSUMPTIONS AND LIMITING CONDITIONS

Kurt Fickeisen
International Society of Arboriculture (ISA) Certified Arborist #RM 451A
ISA Tree Risk Assessment Qualification
American Society of Consulting Arborists Registered Consulting Arborist #472
Owner Symbiosis Tree Care LLC

1. Any legal description provided to the consultant is assumed to be correct. Any titles and ownerships to any property are assumed to be good and marketable. No responsibility is assumed for matters legal in character.
2. All existing liens, encumbrances, and assessments, if any, have been disregarded (unless otherwise noted), and the trees are evaluated as though free and clear, under responsible ownership and competent management. It is assumed that no violations of applicable governmental regulations have occurred.
3. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible, however, Symbiosis Tree Care can neither guarantee nor be responsible for the accuracy of information.
4. Symbiosis Tree Care shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services as described in our fee schedule and contract of engagement.
5. Loss or alteration of any part of this report invalidates the entire report.
6. This report shall be used for its intended purpose only and by the parties to whom it is addressed. Possession of this report does not include the right of publication.
7. Neither all or any part of the contents of this report, nor copy thereof, shall be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales, or other media, without the prior expressed written or verbal consent of Symbiosis Tree Care.
8. This report and any values expressed herein represent the opinion of Symbiosis Tree Care. Our fee is in no way contingent upon any specified value, a result or occurrence of a subsequent event, nor upon any finding to be reported.
9. Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys.
10. Unless expressed otherwise: 1) information contained in this report covers only those items that were examined and reflects the condition of those items at the time of inspection, and 2) the inspection is limited to visual examination of accessible items without dissection, excavation, probing, or coring.
11. There is no warranty or guarantee, expressed or implied that problems or deficiencies of the tree or other plant or property in question may not arise in the future.
12. The right is reserved to adjust tree valuations, if additional relevant information is made available.

APPENDIX **E**

GEOTECHNICAL REPORTS

City of Kirkland

associated
earth sciences
incorporated

Subsurface Exploration, Geologic Hazard, and Geotechnical Engineering Report

TOTEM LAKE PARK

Kirkland, Washington

Prepared For:

BERGER PARTNERSHIP PS

Project No. 170126E001
September 28, 2017

Associated Earth Sciences, Inc.
911 5th Avenue
Kirkland, WA 98033
P (425) 827 7701
F (425) 827 5424

September 28, 2017
Project No. 170126E001

Berger Partnership PS
1721 8th Avenue North
Seattle, Washington 98109

Attention: Mr. Andy Mitton

Subject: Subsurface Exploration, Geologic Hazard, and Geotechnical Engineering Report
Totem Lake Park
Kirkland, Washington

Dear Mr. Mitton:

We are pleased to present the enclosed copies of the above-referenced report. This report summarizes the results of our subsurface exploration, geologic hazard, and geotechnical engineering studies, and offers recommendations for the design and development of the proposed project. Our recommendations are preliminary in that definite site improvement locations and construction details have not been finalized at the time of this report.

We have enjoyed working with you on this study and are confident that the recommendations presented in this report will aid in the successful completion of your project. If you should have any questions, or if we can be of additional help to you, please do not hesitate to call.

Sincerely,
ASSOCIATED EARTH SCIENCES, INC.
Kirkland, Washington

Bruce L. Blyton, P.E.
Senior Principal Engineer

BLB/ms - 170126E001-5 - Projects\20170126\KE\WP

SUBSURFACE EXPLORATION, GEOLOGIC HAZARD, AND GEOTECHNICAL ENGINEERING REPORT

TOTEM LAKE PARK

Kirkland, Washington

Prepared for:
Berger Partnership PS
1721 8th Avenue North
Seattle, Washington 98109

Prepared by:
Associated Earth Sciences, Inc.
911 5th Avenue
Kirkland, Washington 98033
425-827-7701
Fax: 425-827-5424

September 28, 2017
Project No. 170126E001

I. PROJECT AND SITE CONDITIONS

1.0 INTRODUCTION

This report presents the results of our subsurface exploration, geologic hazard, and geotechnical engineering study for the subject project. Our recommendations are preliminary in that construction details have not been finalized at the time of this report. The location of the subject site is shown on the "Vicinity Map," Figure 1. The approximate locations of the explorations accomplished for this study are presented on the "Site and Exploration Plan," Figure 2, and on the "Partial Site and Exploration Plan," Figure 3. In the event that any changes in the nature or design of the proposed project are planned, the conclusions and recommendations contained in this report should be reviewed and modified, or verified, as necessary.

1.1 Purpose and Scope

The purpose of this study was to provide subsurface data to be used in the design and development of the subject project. Our study included a review of available geologic literature, including previous explorations completed by others, drilling five exploration borings, the completion of a series of hand probes, and performing geologic studies to assess the type, thickness, distribution, and physical properties of the subsurface sediments and shallow ground water conditions. Geotechnical engineering studies were also conducted to assess the type of suitable foundation, allowable foundation soil bearing pressures, anticipated foundation settlements, basement/retaining wall lateral pressures, floor support recommendations, and drainage considerations. This report summarizes our current fieldwork and development recommendations based on our present understanding of the project.

1.2 Authorization

Authorization to proceed with this study was granted by Mr. Andy Mitton of Berger Partnership PS. Our study was accomplished in general accordance with our scope of work letter dated March 27, 2017. This report has been prepared for the exclusive use of Berger Partnership PS and its agents for specific application to this project. Within the limitations of scope, schedule, and budget, our services have been performed in accordance with generally accepted geotechnical engineering and engineering geology practices in effect in this area at the time our report was prepared. No other warranty, express or implied, is made. Our observations, findings, and opinions are a means to identify and reduce the inherent risks to the owner.

2.0 PROJECT AND SITE DESCRIPTION

The subject site encompasses 12307 and 12031 NE Totem Lake Way in Kirkland, Washington (King County Parcel Nos. 8663270060 and 6928400032), and consists of a largely undeveloped parcel with an approximate area of 17 acres, and an existing commercial parcel of roughly 1½ acres. The commercial parcel is currently occupied by an existing structure and parking areas, and the largely undeveloped parcel includes Totem Lake, surrounding wetland areas (delineated by others), and existing paved pathways and wooden boardwalks.

It our understanding that current plans include the construction of a new wooden boardwalk across wetland areas at the northeastern portion of the site to connect the existing pathway system to the nearby Cross Kirkland Corridor, and that foundation support for this boardwalk is currently planned to be derived by Diamond Piers®. Site improvements at the existing commercial parcel, after the demolition of existing structures and pavements, include cast-in-place concrete retaining walls, concrete and asphalt pavement, a pre-manufactured restroom building, play equipment, and safety surfacing.

3.0 SITE EXPLORATION

The site exploration was conducted on June 2, 2017 and July 7, 2017, and consisted of five exploration borings and a geologic and geologic hazard reconnaissance to gain information about the site. A series of hand probes were subsequently completed to provide supplemental information to the exploration borings. The various types of materials and sediments encountered in the explorations, as well as the depths where characteristics of these materials changed, are indicated on the exploration boring logs presented in the Appendix. The depths indicated on the logs where conditions changed may represent gradational variations between sediment types in the field. If changes occurred between sample intervals in our borings, they were interpreted. The locations of the exploration borings are shown on the "Site and Exploration Plan," Figure 2. The conclusions and recommendations presented in this report are based on the exploration borings completed for this study. The number, locations, and depths of the explorations were completed within site and budgetary constraints. Because of the nature of exploratory work below ground, interpolation of subsurface conditions between field explorations is necessary. It should be noted that differing subsurface conditions may sometimes be present due to the random nature of deposition and the alteration of topography by past grading and/or filling. The nature and extent of any variations between the field explorations may not become fully evident until construction. If variations are observed at that time, it may be necessary to re-evaluate specific recommendations in this report and make appropriate changes.

3.1 Exploration Borings

The borings were completed on the subject site using trailer-mounted or hand-portable drilling equipment, each advancing a hollow-stem auger. During the drilling process, samples were obtained at generally 2.5- or 5-foot intervals. The borings were continuously observed and logged by representatives from our firm. The exploration logs presented in the Appendix are based on the field logs, drilling action, and inspection of the samples secured.

Disturbed but representative samples were obtained by using the Standard Penetration Test (SPT) procedure in accordance with *American Society for Testing and Materials* (ASTM) D-1586. This test and sampling method consists of driving a standard, 2-inch outside-diameter, split-barrel sampler a distance of 18 inches into the soil with a 140-pound hammer free-falling a distance of 30 inches. The number of blows for each 6-inch interval is recorded, and the number of blows required to drive the sampler the final 12 inches is known as the Standard Penetration Resistance ("N") or blow count. If a total of 50 blows are recorded at or before the end of one 6-inch interval, the blow count is recorded as the number of blows for the corresponding number of inches of penetration. The resistance, or N-value, provides a measure of the relative density of granular soils or the relative consistency of cohesive soils. These values are plotted on the attached boring logs.

The samples obtained from the split-barrel sampler were classified in the field and representative portions placed in watertight containers. The samples were then transported to our laboratory for further visual classification and geotechnical laboratory testing, as necessary.

The various types of soil and ground water elevations, as well as the depths where soil and ground water characteristics changed, are indicated on the exploration boring logs presented in the Appendix of this report. Our explorations and reconnaissance were approximately located by measuring from known site features.

3.2 Monitoring Well

Exploration boring EB-1W was completed as a 2-inch-diameter monitoring well with 10 feet of machine-slotted Schedule 40 polyvinyl chloride (PVC) well screen and a flush-mount monument. The sand pack materials consisted of 10/20 Colorado Silica Sand. The well was sealed with a combination of bentonite chips and concrete. Well construction details are presented on the boring log in the Appendix. Hand-water-level data was collected after well development was completed, on July 31, 2017.

4.0 SUBSURFACE CONDITIONS

Subsurface conditions at the project site were inferred from the field explorations accomplished for this study, visual reconnaissance of the site, and review of applicable geologic literature. As shown on the field logs, the exploration borings generally encountered fill overlying wetland/peat deposits and older in-place sediments. The following section presents more detailed subsurface information organized from the youngest to the oldest sediment types.

4.1 Stratigraphy

Fill

Exploration borings EB-1W and EB-2 through EB-5, encountered fill material that extended to roughly 5 to 12 feet below the ground surface. The fill encountered generally consisted of loose to medium dense, silty fine to medium sand with a variable amount of organic material and gravel. Fill is also expected in unexplored areas of the site, such as the area surrounding and under the existing structure foundations, in existing utility trenches, and at previously graded or landscaped areas. Due to their variable density and content, the existing fill soils are not suitable for foundation support.

Wetland Deposits/Peat

Underlying the fill, exploration borings EB-1W and EB-2 through EB-5, encountered soils generally consisting of peat or organic silt or silty fine sand with occasional rootlets. We interpret these sediments to be representative of recent wetland deposits. These deposits were generally very loose to loose/soft and extended beyond the depth explored of 18 feet below the ground surface at exploration boring EB-5, and to approximately 9.5 to 24.5 feet below the ground surface at the locations of EB-1W and EB-2 through EB-4. Due to the organic soils encountered in this deposit, including peat and organic silt, we expect that this deposit is subject to continued settlement due to decomposition and consolidation in response to surface (fill) loads and is not considered suitable for direct support of foundations or hardscape surfaces without remedial preparation.

Vashon Recessional Outwash

Below the existing peat, exploration boring EB-4 encountered medium dense to dense medium to coarse sand, with varying amounts of silt and gravel, extending below the depth explored of 21.5 feet below the ground surface. These native sediments are interpreted to likely represent Vashon recessional outwash deposits. Recessional outwash sediments were deposited by meltwater streams flowing from the receding Vashon glacier approximately

10,000 years ago. This unit is generally suitable for support of light to moderately loaded foundations and for pavement subbase when properly compacted as discussed in this report.

Pre-Fraser Non-Glacial Deposits

Below the existing wetland deposits/peat, exploration borings EB-1W, EB-2 and EB-3 encountered very stiff to hard sandy silt or very dense gravelly sand which extended below the maximum depths explored of 31.5 to 41.5 feet below the ground surface. This soil was interpreted to represent non-glacial deposits placed prior to the Vashon Stade of the Fraser Glaciation and subsequently compacted by the weight of the overlying glacial ice. The very stiff to hard/very dense material is generally considered suitable for support of light to heavily loaded foundations when in an intact, undisturbed condition.

4.2 Geologic Mapping/Previous Explorations

Review of the regional geologic map titled *Geologic Map of the City of Kirkland Washington*, by K.A. Troost and A.P. Wisher (2010) indicates that the area of the subject site is underlain by peat deposits (Qp) with Vashon recessional Lake Bretz deposits (Qvrlb), Vashon recessional outwash (Qvr), and pre-Fraser-age deposits (Qpf) mapped nearby. An overprint of modified land (fill) is indicated across the subject site and immediate vicinity. Our interpretation of the sediments described in the referenced exploration logs is in general agreement with the published geologic mapping of the site and vicinity.

Also, the logs of explorations previously completed in 1978 by Earth Consultants at the subject site suggest conditions similar to that encountered in our explorations. The locations of the Earth Consultants borings are shown on the "Site and Exploration Plan," Figure 2, and the Earth Consultants exploration logs are included in the Appendix.

4.3 Hydrology

Ground water was encountered within exploration borings EB-1W and EB-2 through EB-5, between 8 and 18 feet below the ground surface. The measurement taken in EB-1W on July 31, 2017 indicated a piezometric water level of 7.5 feet below the ground surface. We expect ground water across much of the site to lie within the underlying wetland/peat deposits and recessional outwash, and roughly corresponds to the water level in Totem Lake. It should be noted that the occurrence and level of ground water seepage at the site may vary in response to such factors as changes in season, amount of precipitation, and site use.

4.4 Hand Probes

Where accessible, a series of hand probes were completed using an 8-foot-long, ½-inch-diameter steel probe to supplement the information collected from exploration borings

EB-4 and EB-5. In summary, probe depths ranged up to the length of the 8-foot steel probe near the limits of accessibility, and were shallower near to the area of EB-4 or the Cross Kirkland Corridor. The locations and depths of the probes are shown on Figure 3.

Although probe depths less than 2 feet were observed in the relative upland area surrounding the location of exploration boring EB-4, these probes should not be construed as indicators of shallow, dense native soil. Based on the subsurface conditions encountered in exploration borings EB-4 and EB-5, the deeper probes observed in close proximity to the shallow probes, the "modified land" (fill) mapped across the site, and the topography surrounding EB-4, we interpret the shallower probes to likely indicate the presence of medium dense fill material, like that encountered in EB-4, overlying loose/soft, wetland/peat deposits.

II. GEOLOGIC HAZARDS AND MITIGATIONS

The following discussion of potential geologic hazards is based on the geologic, slope, and shallow ground water conditions, as observed and discussed herein.

5.0 SEISMIC HAZARDS AND MITIGATION

Earthquakes occur in the Puget Lowland with great regularity. The vast majority of these events are small, and are usually not felt by people. However, large earthquakes do occur, as evidenced by the 1949, 7.2-magnitude event; the 1965, 6.5-magnitude event; and the 2001, 6.8-magnitude event. The 1949 earthquake appears to have been the largest in this region during recorded history and was centered in the Olympia area. Evaluation of earthquake return rates indicates that an earthquake of the magnitude between 5.5 and 6.0 is likely within a given 20- to 40-year period.

Generally, there are four types of potential geologic hazards associated with large seismic events: 1) surficial ground rupture, 2) seismically induced landslides, 3) liquefaction, and 4) ground motion. The potential for each of these hazards to adversely impact the proposed project is discussed below.

5.1 Surficial Ground Rupture

The nearest known fault trace to the project site is splay of the South Whidbey Island Fault Zone (SWIFZ), located approximately 1 mile to the northeast of the subject site. A recent study by the U.S. Geological Survey (USGS) (Sherrod et al., 2005, *Holocene Fault Scarps and Shallow Magnetic Anomalies Along the Southern Whidbey Island Fault Zone Near Woodinville, Washington*, Open-File Report 2005-1136, March 2005) indicates that "strong" evidence of prehistoric earthquake activity has been observed along associated fault strands thought to be part of the SWIFZ. The study suggests as many as nine earthquake events along the SWIFZ may have occurred within the last 16,400 years. The recognition of this fault splay is relatively new, and data pertaining to it are limited, with the studies still ongoing. The recurrence interval of movement along this fault system is still unknown, although it is hypothesized to be in excess of 1,000 years. Due to the suspected long recurrence interval, it is our opinion that the potential for damage to the proposed structure by surficial ground rupture is considered to be low. No mitigations other than complying with appropriate codes and standards are recommended.

5.2 Seismically Induced Landslides

The on-site, natural sediments are not sensitive to landsliding given the topographic conditions at the site. No evidence of landslide activity causing distress to existing structures was

observed. Given the subsurface and topographic conditions within and adjacent to the proposed development area and the apparent lack of historical landslide activity, it is our opinion that the risk of damage to the proposed project by landsliding under either static or seismic conditions is low. This opinion is dependent upon site grading and construction practices being completed in accordance with the geotechnical recommendations presented in this report.

5.3 Liquefaction

Liquefaction is a condition where loose, saturated, typically sandy soils lose shear strength when subjected to high-intensity cyclic loads, such as occur during earthquakes. The resulting reduction in strength can cause differential foundation settlements and slope failures. Loose, saturated, fine-grained sands that cannot dissipate the buildup of pore water pressure are the predominant type of sediments subject to liquefaction.

The saturated portions of the fill or silt/sand portions of the wetland deposits encountered in our explorations have the potential to liquefy during a seismic event. However, the underlying Vashon recessional outwash or pre-Fraser-age sediments are not likely to liquefy due to their dense condition.

As discussed in Section 10.0, “Foundations,” a deep foundation system is recommended to transmit the foundation loads into the deeper, non-liquefiable bearing sediments. This will mitigate liquefaction-induced vertical settlement risks to the proposed structures.

Based on our field observations and document review, it is our opinion that the area surrounding the property is likely underlain by liquefiable soils, and that areas of soil may be displaced laterally during a seismic event. The recommended pipe pile foundations embedded into dense, non-liquefiable material will provide some lateral resistance and mitigation to liquefaction damage. However, there is no economically feasible mitigation, in our opinion, for these relatively small structures supported on relatively deep piling to fully resist all movement. The owner must accept the potential risk of ground deformation/lateral spread and associated deflection/damage to the proposed structures.

5.4 Ground Motion

Structural design should follow 2015 *International Building Code* (IBC) standards using Site Class “F” as defined in Table 20.3-1 of *American Society of Civil Engineers* (ASCE) *7 – Minimum Design Loads for Buildings and Other Structures*.

6.0 EROSION HAZARDS AND MITIGATION

A properly developed, constructed, and maintained erosion control plan consistent with local standards and best management erosion control practices will be required for this project. It will be necessary to make adjustments and provide additional measures to the Temporary Erosion and Sedimentation Control (TESC) plan in order to improve its effectiveness. Ultimately, the success of the TESC plan depends on a proactive approach to project planning and contractor implementation and maintenance.

The erosion hazard of the site soils is low to moderate, depending primarily on slope and runoff velocity. Maintaining cover measures atop disturbed ground provides significant reduction to the potential generation of turbid runoff and sediment transport. During the local wet season (October 1st through March 31st), exposed soil should not remain uncovered for more than 2 days, unless it is actively being worked. Ground-cover measures can include erosion control matting, plastic sheeting, straw mulch, crushed rock, recycled concrete, or mature hydroseed.

6.1 Erosion Hazard Mitigation

To mitigate the erosion hazards and potential for off-site sediment transport, we recommend the following:

1. All TESC measures for the work area should be installed prior to any activity.

2. During the wetter months of the year, or when large storm events are predicted during the summer months, the work area should be stabilized so that if showers occur, the work area can receive the rainfall without excessive erosion or sediment transport.

3. All disturbed areas should be revegetated as soon as possible. If it is outside of the growing season, the disturbed areas should be covered with mulch.

4. Under no circumstances should concentrated discharges be allowed to flow over the top of steep slopes.

5. Soils that are to be reused around the site should be stored in such a manner as to reduce erosion from the stockpile. Protective measures may include, but are not limited to, covering with plastic sheeting, the use of low stockpiles in flat areas, or the use of straw bales/silt fences around pile perimeters.

III. DESIGN RECOMMENDATIONS

7.0 INTRODUCTION

Our exploration indicates that, from a geotechnical standpoint, the parcel is suitable for the proposed project provided the risks discussed are accepted and the recommendations contained herein are properly followed. The foundation-bearing stratum is generally moderately deep, ranging from roughly 10 to 23 feet or more below present surface grade. Due to the depth of the bearing soils, a driven pipe pile-supported foundation is recommended for the structures to mitigate the risk of post-construction settlement, under both static and dynamic (seismic liquefaction) conditions.

Due to the continued decomposition and consolidation of the peat deposits encountered in our exploration borings, we recommend that accommodations be made to allow for differential settlement between the pile-supported areas and non-pile-supported areas. The degree of long-term settlement due to this decomposition and consolidation of the underlying peat may vary considerably; however, our recent experience at another site adjacent to Totem Lake Park suggests approximate long-term settlement of 6 to 9 inches over a 36-year period. The above-mentioned accommodations allowing for differential settlement between pile-supported and non-pile-supported areas may include extending deep foundation elements out beyond the perimeter of the structures to include surrounding improvements or hardscapes, or flexible connections of the utilities. Also, the use of Diamond Piers® for foundation support of the boardwalk is not recommended due to the continued decomposition and consolidation of the underlying peat deposits.

According to Section 5.2 of the *2016 King County Surface Water Design Manual* (adopted by the City of Kirkland), the bottom surface of infiltration facilities *"must be in native soil"* and *"be at least 3 feet above the seasonal high groundwater level and have at least 3 feet of permeable soil beneath"*. Due to the shallow ground water seepage observed in the exploration borings (7.5 feet in EB-1W on July 31, 2017) and the presence of existing fill (7 to 12 feet in depth at exploration borings EB-1W, EB-2 and EB-3), along with low-permeability wetland deposits, including peat and silt, it is the opinion of Associated Earth Sciences, Inc. (AESI) that shallow on-site storm water infiltration is not feasible due to existing fill, lateral flow, high fines content, and shallow hydraulic restrictive layers. Storm water infiltration facilities are not recommended at the project site.

We recommend that fills to raise grades be limited to less than one foot in thickness. Should significant fills (greater than one foot) be planned, we anticipate that additional post-construction consolidation of the underlying peat and associated surface settlement is likely under the load of the fill. Should fills be planned under settlement-sensitive structures, we are available to provide situation-specific recommendations to mitigate settlement risk,

such as the preload or surcharging of structural fills, or the use of lightweight fill materials, if needed.

8.0 SITE PREPARATION

Site preparation for the proposed improvements should include removal of all trees, brush, debris, and any other deleterious material from the area of the planned building footprint. Excavation for much of the foundation is anticipated to be minimal. We recommend that any organic topsoil should be stripped from the entire planned building footprint.
The sediments encountered in the exploration borings contained a variable percentage of fine-grained material, which makes them moisture-sensitive and subject to disturbance when wet. The contractor must use care during site preparation and excavation operations so that the underlying soils are not softened. If disturbance occurs, the softened soils should be removed and the area brought to grade with structural fill. Due to potential wet subgrade conditions, we recommend that the building footprint area be graded smooth and sloped to drain. The building footprint should then be blanketed with a minimum of 6 inches of clean, crushed, 2-inch rock (railroad ballast). Following placement of the crushed rock, a pipe pile foundation may be installed. AESI can provide field design recommendations for these areas, if needed.

8.1 Temporary Cut Slopes

In our opinion, stable, temporary construction slopes should be the responsibility of the contractor and should be determined during construction. For planning purposes, we anticipate that temporary, unsupported cut slopes in unsaturated (dewatered) existing fill, where encountered, or loose wetland deposits, can be planned at a maximum slope of 1.5H:1V (Horizontal:Vertical). Flatter, temporary cut slopes will be needed if drainage is not installed prior to excavation and ground water seepage is encountered. As is typical with earthwork operations, some sloughing and raveling may occur, and cut slopes may have to be adjusted in the field. In addition, WISHA/OSHA regulations should be followed at all times. Permanent, unsupported cut or structural fill slopes should not exceed a gradient of 2H:1V.

9.0 STRUCTURAL FILL

Structural fill may be necessary to establish desired grades or to backfill around foundations and utilities. All references to structural fill in this report refer to subgrade preparation, fill type, placement, and compaction of materials, as discussed in this section. If a percentage of compaction is specified under another section of this report, the value given in that section should be used. As stated above, should significant fills (greater than 1 foot) be planned, we anticipate that additional post-construction consolidation of the underlying peat and associated

surface settlement is likely under the load of the fill. Should fills be planned under settlement-sensitive structures, we are available to provide situation-specific recommendations to mitigate settlement risk, such as the preload or surcharging of structural fills, or the use of lightweight fill materials, if needed.

After overexcavation/stripping has been performed to the satisfaction of the geotechnical engineer/engineering geologist, the upper 12 inches of exposed ground should be recompacted to a firm and unyielding condition. If the subgrade contains too much moisture, adequate recompaction may be difficult or impossible to obtain and should probably not be attempted. In lieu of recompaction, the area to receive fill should be blanketed with washed rock or quarry spalls to act as a capillary break between the new fill and the wet subgrade. Where the exposed ground remains soft and further overexcavation is impractical, placement of an engineering stabilization fabric may be necessary to prevent contamination of the free-draining layer by silt migration from below.

After stripping and subgrade preparation of the exposed ground is approved, or a free-draining rock course is laid, structural fill may be placed to attain desired grades. Structural fill is defined as non-organic soil, acceptable to the geotechnical engineer, placed in maximum 8-inch loose lifts, with each lift being compacted to 95 percent of the modified Proctor maximum density using ASTM D-1557 as the standard.

The contractor should note that any proposed fill soils must be evaluated by AESI prior to their use in fills. This would require that we have a sample of the material at least 3 business days in advance to perform a Proctor test and determine its field compaction standard. Soils in which the amount of fine-grained material (smaller than the No. 200 sieve) is greater than approximately 5 percent (measured on the minus No. 4 sieve size) should be considered moisture-sensitive. Use of moisture-sensitive soils in structural fills should be limited to favorable dry weather conditions. The on-site soils contained variable amounts of silt and are considered moisture-sensitive, and we expect that this material may be difficult to compact to structural fill specifications, particularly during and following wet weather. Therefore, we recommend that a select, import material consisting of a clean, free-draining gravel and/or sand be used. Free-draining fill consists of non-organic soil with the amount of fine-grained material limited to 5 percent by weight when measured on the minus No. 4 sieve fraction.

A representative from our firm should inspect the stripped subgrade and be present during placement of structural fill to observe the work and perform a representative number of in-place density tests. In this way, the adequacy of the earthwork may be evaluated as filling progresses and any problem areas may be corrected at that time. It is important to understand that taking random compaction tests on a part-time basis will not assure uniformity or acceptable performance of a fill. As such, we are available to aid the owner in developing a suitable monitoring and testing frequency.

10.0 FOUNDATIONS

We recommend the use of steel pipe piles for the planned structures. Recommendations for pipe pile foundations are included in this section. For preliminary estimating purposes, pile lengths in the 15- to 30-foot range may be assumed. Actual pile lengths may differ significantly from the estimated range depending on local variations in soil conditions, pile size, and driving equipment used. Pile lengths can best be determined by driving a series of test piles.

10.1 Pipe Pile Foundations

Pipe piles should consist of 3-, 4-, or 6-inch-diameter pipe, depending on the required structural loads. Two-inch-diameter piles may be considered for accessory structures, such as retaining walls, or where the installation of larger piles is precluded due to access constraints, such as for the proposed boardwalk. The piles should be galvanized steel pipe, driven with a suitable hammer to the refusal criteria shown in Table 1. The following table provides required minimum hammer weights, refusal criteria, and allowable loads for pipe piles.

Table 1
Pipe Pile Design Parameters

Pipe Diameter (inches)	Wall Thickness	Minimum Hammer Size (pounds)	Refusal Criterion* (seconds)	Allowable Axial Compressive Load** (kips)
2	Schedule 80	90	60	4
3	Schedule 40	400	25	10
4	Schedule 40	650	20	20
6	Schedule 40	1,500	15	30

* Refusal is defined as less than 1 inch of penetration in "X" seconds under constant driving.
** Allowable load to be verified by load tests in accordance with ASTM D-1143 "quick load test."

Anticipated settlement of pile-supported foundations should be less than ½ inch. Pile installation must be observed by AESI to verify that the design bearing capacity of the piles has been attained and that construction conforms to the recommendations contained herein. The City of Kirkland may also require such inspections.

Lateral resistance can be derived from passive soil resistance against the buried portion of the foundation (i.e., the grade beam) or from the installation of batter piles. A passive equivalent fluid of 200 pounds per cubic foot (pcf) can be used to account for lateral resistance. Lateral resistance for batter piles should be taken as the horizontal component of the axial pile load. Batter piles are typically installed at 1H:4V inclination.

Pile Inspections

The actual total length of each pile may be adjusted in the field based on required capacity and conditions encountered during driving. Since completion of the pile takes place below ground, the judgment and experience of the geotechnical engineer or their field representative must be used as a basis for determining the required penetration and acceptability of each pile. Consequently, use of the presented pile capacities in the design requires that the installation of all piles be observed by a qualified geotechnical engineer or engineering geologist from our firm, who can interpret and collect the installation data and examine the contractor's operations. AESI, acting as the owner's field representative, would determine the required lengths of the piles and keep records of pertinent installation data. A final summary report would then be distributed following completion of pile installation.

Load testing should be performed to verify that the design bearing capacity of the piles has been attained. Because of the variation in the soil types and their densities, we recommend that AESI monitor the load-testing program. A common pile load-testing program would consist of one or more 200-percent verification tests of the design bearing capacity of the pile in the soil. Verification test piles are usually loaded in 25-percent increments that are held for 2 minutes up to the final load of 200-percent design load. The 200-percent load is commonly held for 20 minutes and creep-measured. The load is then reduced by 25-percent increments to evaluate the effect of elasticity in the pile to overall displacement.

11.0 LATERAL WALL PRESSURES

All backfill behind retaining walls or around foundation units should be placed as per our recommendations for structural fill and as described in this section of the report. Horizontally backfilled retaining walls that are free to yield laterally at least 0.1 percent of their height may be designed using an equivalent fluid equal to 35 pcf. Fully restrained, horizontally backfilled, rigid walls that cannot yield should be designed for an equivalent fluid of 50 pcf. If roadways, parking areas, or other areas subject to vehicular traffic are adjacent to retaining walls, a surcharge equivalent to 2 feet of soil should be added to the wall height in determining lateral design forces. Retaining walls that retain sloping backfill at a maximum angle of 2H:1V should be designed using an equivalent fluid pressure of 55 pcf for yielding conditions or 75 pcf for fully restrained conditions.

In accordance with the 2015 IBC, retaining wall design should include seismic design parameters. Based on the site soils and assumed wall backfill materials, we recommend a seismic surcharge pressure in addition to the equivalent fluid pressures presented above. A rectangular pressure distribution of 5H and 10H pounds per square foot (psf) (where H is the height of the wall in feet) should be included in design for "active" and "at-rest" loading

conditions, respectively. The resultant of the rectangular seismic surcharge should be applied at the midpoint of the walls.

The lateral pressures presented above are based on the conditions of a uniform horizontal backfill consisting of the on-site, natural, glacial sediments or imported sand and gravel compacted to 90 percent of ASTM D-1557. A higher degree of compaction is not recommended, as this will increase the pressure acting on the wall.

Footing drains must be provided for all retaining walls, as discussed under the "Drainage Considerations" section of this report. It is imperative that proper drainage be provided so that hydrostatic pressures do not develop against the walls. This would involve installation of a minimum, 1-foot-wide blanket drain to within 1 foot of the ground surface using imported, washed gravel against the walls placed to be continuous with the footing drain.

11.1 Passive Resistance and Friction Factors

Retaining wall grade beams/keyways cast directly against undisturbed dense soils in a trench may be designed for passive resistance against lateral translation using an allowable equivalent fluid equal to 200 pcf. The passive equivalent fluid pressure diagram begins at the top of the grade beam; however, total lateral resistance should be summed only over the depth of the actual key. Since the structure will be pile-supported, we do not recommend using base friction for resistance to lateral loads.

12.0 PAVEMENT/FLOOR SUPPORT

As discussed earlier in this report, existing site soils are considered to be settlement-prone, and floor slabs should be designed as structural slabs and supported on pile foundations to mitigate slab settlement. Where potential post-construction settlement can be tolerated, site soils can be used to support slabs-on-grade, sidewalks, or other similar structures contingent upon remedial preparation and understanding of uncertainties in settlement performance. Slabs, pavement, or segmented paving stones to be supported on grade should be supported on a 2-foot-thick structural fill mat. All fill beneath slabs, paving stones or pavement must be compacted to at least 95 percent of ASTM D-1557. A geotextile separation fabric, such as Mirafi 500X or approved equivalent, should be used between the structural fill and the underlying soil subgrade. A pavement section consisting of 2½ inches of asphaltic concrete pavement (ACP) underlain by 4 inches of 1¼-inch crushed surfacing base course is the recommended minimum in areas of planned passenger car driving and parking.

Interior slabs where control of moisture migration through the slab is needed should be cast atop a minimum of 4 inches of clean washed crushed rock or pea gravel to act as a capillary break. Areas of subgrade that are disturbed (loosened) during construction should be

compacted to a non-yielding condition prior to placement of capillary break material. It should also be protected from dampness by an impervious moisture barrier at least 10 mils thick. The impervious barrier should be placed between the capillary break material and the concrete slab.

13.0 DRAINAGE CONSIDERATIONS

All retaining and perimeter foundation walls should be provided with a drain at the base of the footing elevation. Drains should consist of rigid, perforated, PVC pipe surrounded by washed pea gravel. The level of the perforations in the pipe should be set at or slightly below the bottom of the footing grade beam, and the drains should be constructed with sufficient gradient to allow gravity discharge away from the building. In addition, all retaining walls should be lined with a minimum, 12-inch-thick, washed gravel blanket that extends to within 1 foot of the surface and is continuous with the foundation drain. Roof and surface runoff should not discharge into the foundation drain system, but should be handled by a separate, rigid, tightline drain. In planning, exterior grades adjacent to walls should be sloped downward away from the structure to achieve surface drainage. All collected runoff must be tightlined to a City-approved location.

14.0 PROJECT DESIGN AND CONSTRUCTION MONITORING

Our recommendations are preliminary in that definite structure locations and construction details have not been finalized at the time of this report. We are available to provide additional geotechnical consultation as the project design develops and possibly changes from that upon which this report is based. If significant changes in grading are made, we recommend that AESI perform a geotechnical review of the plans prior to final design completion. In this way, our earthwork and foundation recommendations may be properly interpreted and implemented in the design.

We are also available to provide geotechnical engineering and monitoring services during construction. The integrity of the foundations depends on proper site preparation and construction procedures. In addition, engineering decisions may have to be made in the field in the event that variations in subsurface conditions become apparent. Construction monitoring services are not part of this current scope of work. If these services are desired, please let us know, and we will prepare a proposal.

We have enjoyed working with you on this study and are confident that these recommendations will aid in the successful completion of your project. If you should have any questions or require further assistance, please do not hesitate to call.

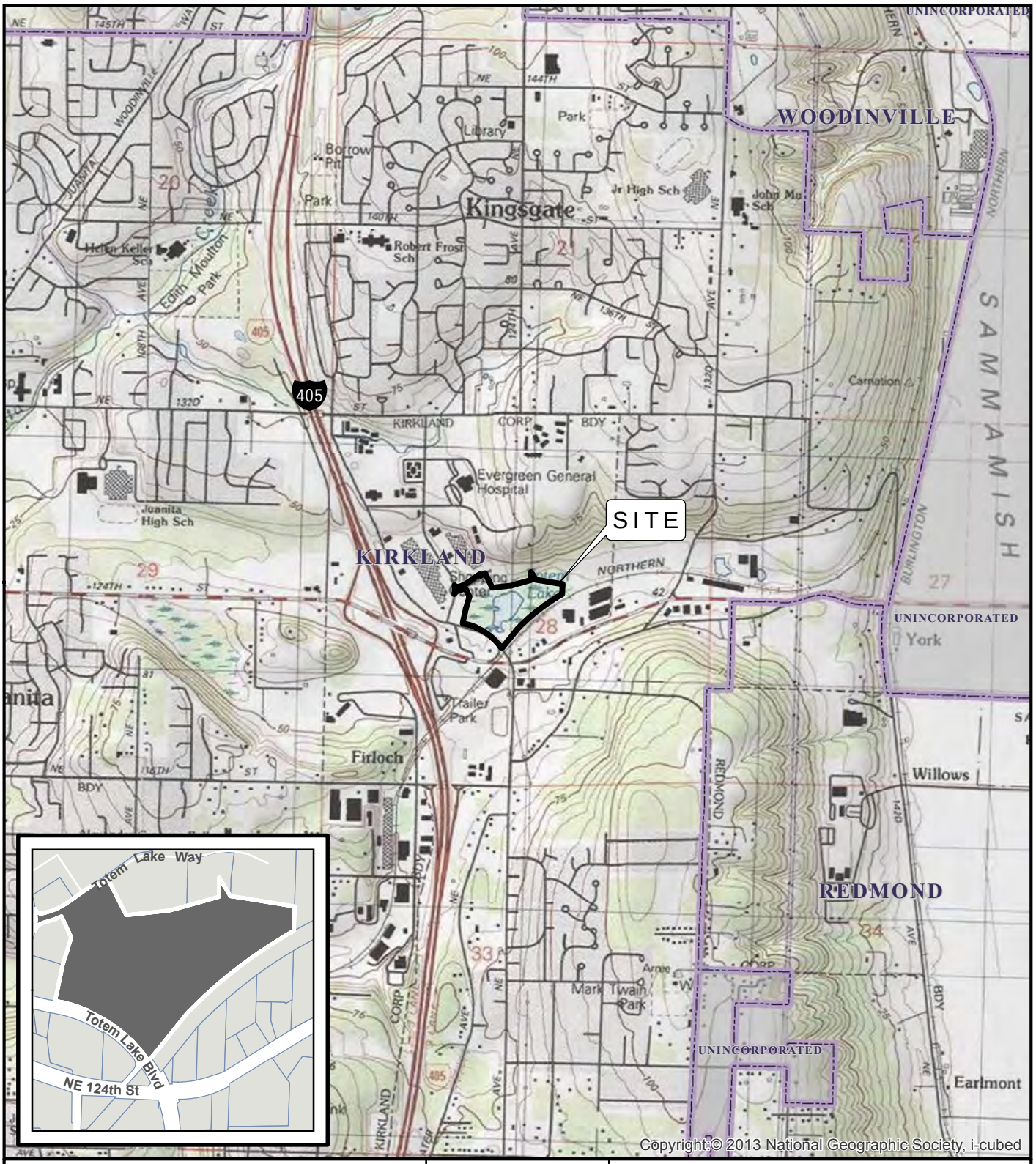
Sincerely,
ASSOCIATED EARTH SCIENCES, INC.
Kirkland, Washington

BRUCE L. BLYTON
STATE OF WASHINGTON
26890
REGISTERED
PROFESSIONAL ENGINEER
9/28/17

Jeffrey P. Laub, L.G., L.E.G.
Senior Project Engineering Geologist

Bruce L. Blyton, P.E.
Senior Principal Engineer

Attachments:	Figure 1:	Vicinity Map
	Figure 2:	Site and Exploration Plan
	Figure 3:	Partial Site and Exploration Plan
	Appendix:	Exploration Logs (AESI and Earth Consultants)



DATA SOURCES / REFERENCES:
USGS: 24K SERIES TOPOGRAPHIC MAPS
KING CO: STREETS, CITY LIMITS, PARCELS 02/17

LOCATIONS AND DISTANCES SHOWN ARE APPROXIMATE

N

0 1000 2000
FEET

NOTE: BLACK AND WHITE REPRODUCTION OF THIS COLOR ORIGINAL MAY REDUCE ITS EFFECTIVENESS AND LEAD TO INCORRECT INTERPRETATION

associated earth sciences incorporated

VICINITY MAP

TOTEM LAKE PARK
KIRKLAND, WASHINGTON

PROJ NO.	DATE:	FIGURE:
170126E001	8/17	1

Document Path: G:\GIS_Projects\aTemplates\aVM_Template\VM_MXD\170126E001 F1 VM_TotemLake.mxd

N

0 60 120
FEET

LEGEND:

- EB — EXPLORATION BORING
- EB — MONITORING WELL
- B — BORING BY OTHERS - EARTH CONSULTANTS, INC (1978)
- PLANNED BOARDWALK ALIGNMENT

CONTOUR INTERVAL = N/A

NOTE: LOCATION AND DISTANCES SHOWN ARE APPROXIMATE.

NOTES:
1. BASE MAP REFERENCE: BERGER PARTNERSHIP, UNTITLED SHEET RECEIVED VIA EMAIL 8/16/2017

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SITE AND EXPLORATION PLAN

TOTEM LAKE PARK
KIRKLAND, WASHINGTON

PROJ NO.	DATE:	FIGURE:
170126E001	8/17	2

170126 Totem Lk Pk \ 170126E001 F2 S-E Plan.cdr

LEGEND:

- 8 — PROBE AND DEPTH (FT)
- EB — EXPLORATION BORING
- PLANNED BOARDWALK ALIGNMENT

CONTOUR INTERVAL = N/A

NOTE: LOCATION AND DISTANCES SHOWN ARE APPROXIMATE.

NOTES:
1. BASE MAP REFERENCE: BERGER PARTNERSHIP, UNTITLED SHEET RECEIVED VIA EMAIL 8/16/2017

BLACK AND WHITE REPRODUCTION OF THIS COLOR ORIGINAL MAY REDUCE ITS EFFECTIVENESS AND LEAD TO INCORRECT INTERPRETATION.

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PARTIAL SITE AND EXPLORATION PLAN

TOTEM LAKE PARK
KIRKLAND, WASHINGTON

PROJ NO.	DATE:	FIGURE:
170126E001	8/17	3

170126 Totem Lk Pk \ 170126E001 F3 P-S Plan.cdr

APPENDIX

Coarse-Grained Soils - More than 50% (1) Retained on No. 200 Sieve	Gravels - More than 50% (1) of Coarse Fraction Retained on No. 4 Sieve	≤5% Fines (5)	GW	Well-graded gravel and gravel with sand, little to no fines
			GP	Poorly-graded gravel and gravel with sand, little to no fines
		≥12% Fines (5)	GM	Silty gravel and silty gravel with sand
			GC	Clayey gravel and clayey gravel with sand
	Sands - 50% (1) or More of Coarse Fraction Passes No. 4 Sieve	≤5% Fines (5)	SW	Well-graded sand and sand with gravel, little to no fines
			SP	Poorly-graded sand and sand with gravel, little to no fines
		≥12% Fines (5)	SM	Silty sand and silty sand with gravel
			SC	Clayey sand and clayey sand with gravel
Fine-Grained Soils - 50% (1) or More Passes No. 200 Sieve	Silts and Clays Liquid Limit Less than 50		ML	Silt, sandy silt, gravelly silt, silt with sand or gravel
			CL	Clay of low to medium plasticity; silty, sandy, or gravelly clay, lean clay
			OL	Organic clay or silt of low plasticity
	Silts and Clays Liquid Limit 50 or More		MH	Elastic silt, clayey silt, silt with micaceous or diatomaceous fine sand or silt
			CH	Clay of high plasticity, sandy or gravelly clay, fat clay with sand or gravel
			OH	Organic clay or silt of medium to high plasticity
Highly Organic Soils			PT	Peat, muck and other highly organic soils

Terms Describing Relative Density and Consistency

Coarse-Grained Soils

Density	SPT(2) blows/foot
Very Loose	0 to 4
Loose	4 to 10
Medium Dense	10 to 30
Dense	30 to 50
Very Dense	>50

Fine-Grained Soils

Consistency	SPT(2) blows/foot
Very Soft	0 to 2
Soft	2 to 4
Medium Stiff	4 to 8
Stiff	8 to 15
Very Stiff	15 to 30
Hard	>30

Test Symbols

G = Grain Size
M = Moisture Content
A = Atterberg Limits
C = Chemical
DD = Dry Density
K = Permeability

Component Definitions

Descriptive Term	Size Range and Sieve Number
Boulders	Larger than 12"
Cobbles	3" to 12"
Gravel	3" to No. 4 (4.75 mm)
Coarse Gravel	3" to 3/4"
Fine Gravel	3/4" to No. 4 (4.75 mm)
Sand	No. 4 (4.75 mm) to No. 200 (0.075 mm)
Coarse Sand	No. 4 (4.75 mm) to No. 10 (2.00 mm)
Medium Sand	No. 10 (2.00 mm) to No. 40 (0.425 mm)
Fine Sand	No. 40 (0.425 mm) to No. 200 (0.075 mm)
Silt and Clay	Smaller than No. 200 (0.075 mm)

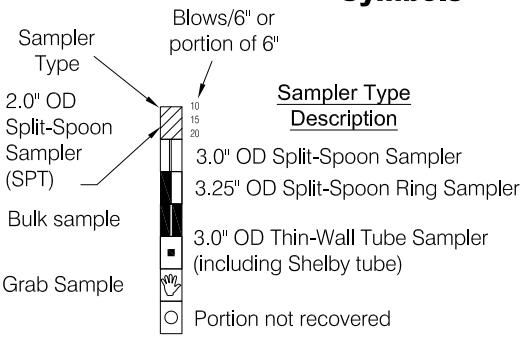
(3) Estimated Percentage

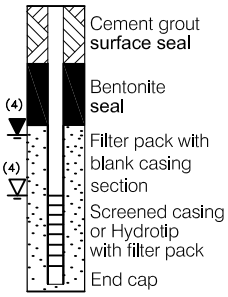
Component	Percentage by Weight
Trace	<5
Some	5 to <12
Modifier (silty, sandy, gravelly)	12 to <30
Very *modifier* (silty, sandy, gravelly)	30 to <50

Moisture Content

Dry - Absence of moisture, dusty, dry to the touch
Slightly Moist - Perceptible moisture
Moist - Damp but no visible water
Very Moist - Water visible but not free draining
Wet - Visible free water, usually from below water table

Symbols





(1) Percentage by dry weight
(2) (SPT) Standard Penetration Test (ASTM D-1586)
(3) In General Accordance with Standard Practice for Description and Identification of Soils (ASTM D-2488)
(4) Depth of ground water
▼ ATD = At time of drilling
▽ Static water level (date)
(5) Combined USCS symbols used for fines between 5% and 12%

Classifications of soils in this report are based on visual field and/or laboratory observations, which include density/consistency, moisture condition, grain size, and plasticity estimates and should not be construed to imply field or laboratory testing unless presented herein. Visual-manual and/or laboratory classification methods of ASTM D-2487 and D-2488 were used as an identification guide for the Unified Soil Classification System.

associated earth sciences incorporated

Geologic & Monitoring Well Construction Log

Project Number	Well Number	Sheet
170126E001	EB-1W	1 of 1

Project Name: Totem Lake Park
Elevation (Top of Well Casing):
Water Level Elevation:
Drilling/Equipment: Boretec / Trailer-Rig
Hammer Weight/Drop: 140# / 30"

Location: Kirkland, WA
Surface Elevation (ft): N/A
Date Start/Finish: 6/2/17,6/2/17
Hole Diameter (in): 6 inches

Depth (ft)	Water Level	WELL CONSTRUCTION	ST	Blows/ 6"	Graphic Symbol	DESCRIPTION
		Flush mount monument 12-inch diameter cement surface seal 0 to 1.5 feet				**Asphalt - 2 inches**
						Crushed Rock
						Fill
		Bentonite seal 1.5 to 17 feet		11 13 12		Drill cuttings observed contain abundant cobbles. Moist, brown and gray, silty, fine to medium SAND, some gravel (SM). Poor recovery.
5		2-inch I.D. PVC casing with threaded connectors and o-rings: 0 to 20 feet		5 5 8		Moist, light gray and brown, very silty, fine SAND, trace gravel, trace organics (SM).
	▽			3 4 8		**Wetland Deposits** Moist, light gray and blue, SILT, some fine sand (ML).
10				6 11 17		**Pre-Fraser Nonglacial Sediments** Moist, light gray and blue, SILT, some fine sand (ML).
				6 17 31		As above.
15	▼			13 28 32		Very moist and wet, light gray, silty, fine to medium SAND; massive (SM). Water on drill rods; driller noted heaving sands.
		10/20 sand 17 to 31.5 feet		14 50/6"		Very moist and wet, gray, fine to medium SAND, trace silt, trace gravel (SP).
20				50/6"		Wet, light gray, fine to medium SAND, trace silt, trace gravel (SP).
		2-inch I.D. PVC well screen: 0.010-inch slot width, 20 to 30 feet				
25				22 40 50/4"		Wet, light gray, gravelly, fine to coarse SAND, trace to some silt; massive (SW).
30		End cap		22 40 50/3"		Wet, light gray, gravelly, fine to coarse SAND, some silt; massive (SM). Driller noted heaving sands and could not advance drill.
		Well tag # BJZ663				Boring terminated at 31.5 feet. Well completed at 30 feet on 6/2/17.
35						

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture
▽ Water Level (7/31/17)
▼ Water Level at time of drilling (ATD)

Logged by: TG
Approved by: JHS

associated earth sciences incorporated

Exploration Log

Project Number	Exploration Number	Sheet
170126E001	EB-2	1 of 1

Project Name	Totem Lake Park	Ground Surface Elevation (ft)	
Location	Kirkland, WA	Datum	N/A
Driller/Equipment	Boretec / Trailer-Rig	Date Start/Finish	6/2/17,6/2/17
Hammer Weight/Drop	140# / 30"	Hole Diameter (in)	6 inches

Depth (ft)	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Water Level	Blows/6"	Blows/Foot (10 20 30 40)	Other Tests
				Asphalt - 3.5 inches					
				Crushed Rock					
				Fill					
		S-1		Moist, gray and brown, silty, fine SAND, trace gravel, trace organics (SM).			2 2 2	▲4	
5		S-2		As above.			2 2 2	▲4	
		S-3		As above.			1 2 1	▲3	
				Wetland Deposits					
10		S-4		Very moist, light gray, very silty, fine SAND (SM). Low recovery.			3 3 3	▲6	
				Peat		▼			
		S-5		Wet, dark brown and gray, very silty, fine SAND, some organics (PT/SM).			3 2 2	▲4	
15		S-6		Very moist, dark brown, highly organic (PT).			1 1 1	▲2	
		S-7		As above.			2 2 2	▲4	
				Wetland Deposits					
20		S-8		Very moist, gray and brown, silty, fine SAND, trace organics (SM).			2 2 4	▲6	
		S-9		Wet, light gray, very silty, fine SAND, some organics, trace gravel (SM/PT). Driller noted harder drilling.			4 11 10	▲21	
				Pre-Fraser Nonglacial Sediments					
25		S-10		Wet, light gray, silty, fine to coarse SAND, some gravel (SM).			22 50/6"	▲50/6"	
				Gravelly drill action.					
30		S-11		As above.			50/6"	▲50/6"	
35		S-12		Wet, light gray, gravelly, fine to coarse SAND, trace silt (SW). Driller noted heaving sands, could not advance drill.			50/6"	▲50/6"	
				Bottom of exploration boring at 35.5 feet					

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

Water Level ()

Water Level at time of drilling (ATD)

Logged by: TG

Approved by: JHS

associated earth sciences incorporated

Exploration Log

Project Number	Exploration Number	Sheet
170126E001	EB-3	1 of 2

Project Name	Totem Lake Park	Ground Surface Elevation (ft)	
Location	Kirkland, WA	Datum	N/A
Driller/Equipment	Boretec / Trailer-Rig	Date Start/Finish	6/2/17,6/2/17
Hammer Weight/Drop	140# / 30"	Hole Diameter (in)	6 inches

Depth (ft)	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Water Level	Blows/6"	Blows/Foot (10 20 30 40)	Other Tests
				Asphalt - 3.5 inches					
				Crushed Rock					
				Fill					
		S-1		Moist, gray and brown, silty, fine SAND, trace gravel, trace organics (SM). Low recovery.			3 1 2	▲3	
5		S-2		Moist and very moist, dark brown and gray, very silty, fine SAND, some organics, trace gravel; organic-rich (SM). Low recovery.			1 2 2	▲4	
		S-3		Moist, light to dark brown, silty, fine SAND, some organics, trace gravel; organic-rich (SM). Low recovery.			1 1 2	▲3	
10		S-4		Moist and very moist, gray, very silty, fine SAND, trace organics, trace gravel (SM). Low recovery.			1 1 2	▲3	
				Peat					
		S-5		Moist, dark brown, very silty, fine SAND, some organics, trace gravel (PT/SM).			2 3 3	▲6	
15		S-6		As above.			2 2 2	▲4	
		S-7		As above. Very moist, light gray, sandy, SILT, some organics; zones of peat (PT/ML). Water on drill rods at 18 feet.		▼	2 3 3	▲6	
20		S-8		Moist, light gray, sandy, SILT, some organics; massive (PT/ML).			3 4 7	▲11	
				Pre-Fraser Nonglacial Sediments					
		S-9		Wet, gray, gravelly, fine to coarse SAND, some silt; silt layers (~3" thick) (SM).			21 33 50/5"	▲83/11"	
25		S-10		Wet, gray, gravelly, fine to coarse SAND, some silt (SM). Hard drilling.			32 50/6"	▲50/6"	
30		S-11		As above.			14 27 30	▲57	
35		S-12		As above.			49 50/3"	▲50/3"	

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

Water Level ()

Water Level at time of drilling (ATD)

Logged by: TG

Approved by: JHS

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Exploration Log

Project Number	Exploration Number	Sheet
170126E001	EB-3	2 of 2

Project Name	Totem Lake Park	Ground Surface Elevation (ft)	
Location	Kirkland, WA	Datum	N/A
Driller/Equipment	Boretec / Trailer-Rig	Date Start/Finish	6/2/17,6/2/17
Hammer Weight/Drop	140# / 30"	Hole Diameter (in)	6 inches

Depth (ft)	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Water Level	Blows/6"	Blows/Foot (10 20 30 40)	Other Tests
		S-13		Wet, gray, SILT, some fine sand, trace gravel (SM/ML).			18 30 41	▲71	
				Bottom of exploration boring at 41.5 feet					
45									
50									
55									
60									
65									
70									
75									

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

Water Level ()

Water Level at time of drilling (ATD)

Logged by: TG

Approved by: JHS

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Exploration Log

Project Number	Exploration Number	Sheet
170126E001	EB-4	1 of 1

Project Name	Totem Lake Park	Ground Surface Elevation (ft)	
Location	Kirkland, WA	Datum	N/A
Driller/Equipment	CN Drilling / Hand Acker	Date Start/Finish	7/7/17,7/7/17
Hammer Weight/Drop	140# / 30"	Hole Diameter (in)	6 inches

Depth (ft)	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Water Level	Blows/6"	Blows/Foot (10 20 30 40)	Other Tests
		S-1		**Fill** Dry, tan to brown, silty, fine to medium SAND, some gravel (SM). Organics and rootlets at 0.5 feet			7 8 20	▲28	
		S-2		Dry to slightly moist, brown and gray, silty, SAND (well graded), some gravel (SM).			12 13 15	▲28	
5		S-3		Moist, brown to gray, SILT, some gravel, trace fine sand (ML).			2 1 1	▲2	
		S-4		**Peat** Moist, dark brown, highly organic soil (PT).			1 1 1	▲2	
10		S-5		**Vashon Recessional Outwash** Wet, gray, medium to coarse SAND, trace silt, trace gravel (broken) (SM).		▼	6 11 12	▲23	
		S-6		Wet, gray, medium to coarse SAND, some gravel, trace silt; roughly stratified K(SM).			6 7 8	▲15	
15				No recovery; driller notes heaving sands in auger.			4 11 12	▲23	
20		S-7		Wet, gray and tan, medium to coarse SAND, some gravel, trace to some silt (SM).			15 16 17	▲33	
25				Bottom of exploration boring at 21.5 feet Caving at 15 feet.					
30									
35									

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

Water Level ()

Water Level at time of drilling (ATD)

Logged by: BCY

Approved by: JHS

associated earth sciences incorporated

Exploration Log

Project Number	Exploration Number	Sheet
170126E001	EB-5	1 of 1

Project Name	Totem Lake Park	Ground Surface Elevation (ft)	
Location	Kirkland, WA	Datum	N/A
Driller/Equipment	CN Drilling / Hand Acker	Date Start/Finish	7/7/17,7/7/17
Hammer Weight/Drop	140# / 30"	Hole Diameter (in)	6 inches

Depth (ft)	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Water Level	Blows/6"	Blows/Foot (10 20 30 40)	Other Tests
		S-1		**Fill** Dry, brown and tan, silty, fine to medium SAND, some gravel (SM). Organics and rootlets at 0.5 feet			9 12 16	▲28	
		S-2		Dry, brown and tan, silty, medium SAND, trace to some gravel (SM).			5 5 5	▲10	
5		S-3		**Wetland Deposits** Moist, gray and brown, SILT, some fine sand, contains rootlets (ML).			1 1 1	▲2	
		S-4		Wet, gray, mottled brown, SILT, trace to some medium sand, contains rootlets (ML).		▼	2 1 1	▲2	
10		S-5		As above; driller notes heave in auger.			1 1	▲2	
		S-6		**Peat** Moist, dark brown, highly organic soil (PT). No recovery; driller notes heave.			1 1 1 1	▲2	
15		S-7		Moist, dark brown, highly organic soil (PT). Driller notes full refusal due to heave.			3 2 2	▲4	
20				Bottom of exploration boring at 18 feet Caving at 10 feet.					
25									
30									
35									

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample
- M - Moisture
- Water Level ()
- Water Level at time of drilling (ATD)

Logged by: BCY
Approved by: JHS

BORING NO. 1

ELEVATION 128±

Graph	US CS	Soil Description	Depth (ft.)	Sample	(N) Blows/ Ft.	Wn (%)
	ML SM	Brown to tan-gray, gravelly sandy SILT to silty gravelly SAND with scattered organics, moist, dense.			33	
			5		40	
			9/22			
	Pt	Brown PEAT, wet, soft.	10		5	
	SP	Blue SAND, wet, dense becoming very dense.	15		31	
					50/6"	

Boring terminated at 20 feet on 9/22/78.

Driving Energy: 140 lb. Weight Dropping 30 inches

W. O. No. E-742

Earth Consultants

PLATE 3

BORING NO. 2

ELEVATION 128±

Graph	US CS	Soil Description	Depth (ft.)	Sample	(N) Blows/ Ft.	Wn (%)
	SM	Brown to gray-brown, gravelly silty SAND, moist, medium dense becoming loose beneath 6 feet. (fill)	5		14	
					11	
			10		10	
	Pt	Brown PEAT, soft, wet.				
	SM ML	Blue, silty fine SAND to sandy SILT with a layer of brown organic silt at 14 feet, moist, dense to hard.	15		20/6"	
			20		36	

Boring terminated at 20.5 feet on 9/25/78.
No groundwater observed at time of drilling.

Driving Energy: 140 lb. Weight Dropping 30 inches

W. O. No. E-742

Earth Consultants

BORING NO. 3

ELEVATION 138±

Graph	US CS	Soil Description	Depth (ft.)	Sample	(N) Blows/ Ft.	Wn (%)
	SM	Brown to blue, very dense silty SAND with some gravel and organics, moist, becoming loose and wet below 6 feet.	5		60	
			10		4	
			15		8	
	Pt	Brown PEAT, soft, wet.	20		9 7	
	SM SP	Blue, medium dense to dense silty SAND with some thin layers of peat above 25 feet and some gravelly lenses, wet.	25		21	
		(5 feet heave at 33.5 feet)	30		74	

Boring terminated at 33.5 feet on 9/25/78.

Driving Energy: 140 lb. Weight Dropping 30 inches

W. O. No. E-742

Earth Consultants

PLATE 5

associated
earth sciences
incorporated

Technical Memorandum

Date:	November 20, 2017	**Project Manager:**	Jeffrey P. Laub, L.G., L.E.G.
To:	Berger Partnership PS 1721 8th Avenue North Seattle, Washington 98109	**Principal in Charge:**	Bruce L. Blyton, P.E.
Attn:	Mr. Andy Mitton	**Project Name:**	Totem Lake Park
Address:	andym@bergerpartnership.com	**Project No:**	170126E001
Subject:	Seismic Site Class		

We are pleased to present the following supplemental geotechnical information for the Totem Lake Park project in Kirkland, Washington. We are familiar with the project through our participation to date, which includes subsurface exploration; the issuance of our "Subsurface Exploration, Geologic Hazard, and Geotechnical Engineering Report" for the project, dated September 28, 2017; and subsequent design-phase consultation. Recommendations in this memo are based on subsurface data from our September 28, 2017 report and are supplemental to the recommendations contained therein.

In our September 28, 2017 report, we recommended that structural design follow 2015 *International Building Code* (IBC) standards using seismic Site Class "F" as defined in Table 20.3 1 of *American Society of Civil Engineers (ASCE) 7 – Minimum Design Loads for Buildings and Other Structures*. This recommendation is based on the peat deposits encountered in the explorations documented in our report. We understand that a designation of Site Class "F" prompts a "site-specific ground motion evaluation" requirement for the project.

We understand that structures proposed as part of the Totem Lake Park improvements project include low site walls and a one-story restroom structure. For these relatively small structures, it is our opinion that a reasonable design approach would be to use parameters for Site Class "E" in lieu of the site-specific seismic study, with the understanding that peat deposits underlie the site. As described in our report, a driven pipe pile-supported foundation is recommended for the structures to mitigate the risk of post-construction settlement, under both static and dynamic (seismic-liquefaction) conditions. This includes the proposed restroom and would be the recommended foundation approach whether the Site Class is "E" or "F."

We trust that this memorandum will meet your current project needs. If you should have any questions or if we can be of additional help to you, please do not hesitate to call.

JPL/ms - 170126E001-6 - Projects\20170126\KE\WP

December 6, 2018
Project No. 170126E001

Berger Partnership PS
1721 8th Avenue North
Seattle, Washington 98109

Attention: Mr. Andy Mitton

Subject: Geotechnical Addendum
Existing Foundation Observations and Dewatering Considerations
Totem Lake Park
Kirkland, Washington

Dear Mr. Mitton:

As requested, Associated Earth Sciences, Inc. (AESI) presents additional information regarding the proposed demolition of the existing "Yuppie Pawn" building as well as dewatering considerations for utility excavations at the project site. We have previously prepared a "Subsurface Exploration, Geologic Hazard, and Geotechnical Engineering Report," dated September 28, 2017, for the subject project.

In our September 28, 2017 report, we documented subsurface conditions and groundwater conditions encountered in our explorations. To supplement our previous work and provide information that the contractor can utilize during the demolition of the existing Yuppie Pawn building onsite, we were requested to observe the foundations along the outside of the building by way of exploration pits completed by a mini-track excavator subcontracted to our firm. The explorations were completed on November 19, 2018. We have also been requested to provide recommendations for dewatering (if necessary) for a proposed utility excavation onsite.

The following paragraphs document our observations and provide an update to the recommendations presented in our September 28, 2017 report.

Building Foundation Observations and Considerations

Existing foundation observations for our study were based on one large exploration pit dug on November 19, 2018, along the southwest margin of the existing Yuppie Pawn building. The exploration pit was advanced to a total depth of 4 feet by Northwest Excavating and Trucking (NWET), using a rubber-tracked mini trackhoe with an approximately 2-foot-wide toothed bucket. Soils encountered in the excavation consisted of fill soils (soils not naturally placed) to an approximate depth of 3.75 feet below the ground surface. This fill consisted of loose to medium dense sand with varying amounts of silt, gravel, and cobbles. Sediments encountered below the fill consisted of organic-rich peat soils. These conditions are similar to that encountered in our previous explorations at the subject site.

The exploration pit permitted observation of the bottom of the existing building's foundation, which we observed to be supported by an approximately 12-inch-diameter creosote-treated timber pile (see Photo 1). Additional digging along the southwest margin of the building exposed a second timber pile inward of the building's outer foundation. We measured a distance of approximately 10 feet between the timber piles.

It should be noted that our observations were limited in nature due to utilities, construction trailers, and other physical and budgetary constraints, and our recommendations are based upon these limited observations. We anticipate that timber piles are also present at each corner of the existing building's foundation and beneath grade beams which support load bearing walls. Based on our previous exploration onsite and our experience with timber pile installation, we anticipate that the depth of the timber piles to be on the order of 15 to 30 feet, depending on their respective locations around the building.

After demolition of the building and grade beams, the timber piling can either be extracted or cut off and abandoned. For the removal option, a hydraulic vibratory extractor mounted to a large trackhoe is normally used. The remaining holes may experience some collapse/caving as the piles are extracted and should be backfilled immediately with pea gravel or controlled density fill. Backfilling the holes in a timely manner is crucial to the removal process as excess collapse/caving of soft sediments into the holes can produce areas of soft subgrade which can lead to settlement over time.

Alternatively, the existing timber piles can be cut off (usually 2 to 3 feet below final grade) in place and filled over the top of them. This approach is recommended where new structures/utilities will not conflict with the remaining portions of the pile shafts and where differential settlement of soil surrounding the abandoned piles will not be a concern.

Dewatering Considerations

In preparation of this report, we were provided with a site plan titled, "Utility Plan - Park" prepared by CH2M. Project plans call for the removal of an existing manhole and replacement with a new precast manhole, which will require an excavation of approximately 10 feet below existing grade. Our previous exploration included installation and development of a groundwater monitoring well (EB-1W) near to the existing manhole. Groundwater seepage was encountered within exploration boring EB-1W at 15 feet below the ground surface at the time of drilling on June 2, 2017. The measurement taken in EB-1W on July 31, 2017, indicated a piezometric water level of 7.5 feet below the ground surface. We expect groundwater across much of the site to lie within the underlying wetland/peat deposits and recessional outwash, and roughly corresponds to the water level in Totem Lake. It should be noted that the occurrence and level of groundwater seepage at the site may vary in response to such factors as changes in season, amount of precipitation, and site use. Our June 2017 explorations were completed during the dry season and groundwater elevations are likely to be higher (closer to existing grade) during the wet season. Based on previous explorations and groundwater level monitoring, it is our opinion that the proposed excavation for the manhole removal and replacement will encounter groundwater seepage and that dewatering system may be needed.

The quantity and duration of flow from an excavation that encounters groundwater depends on a number of factors including topography, size and depth of the excavation, proximity to surface water features, soil grain size, lateral extent of the water-bearing zone or aquifer, and season. Water levels inside the excavation for manhole removal and replacement should be drawn down to at least 2 feet below the base of the excavation. This drawdown is intended, in part, to avoid heaving or flowing soils during construction. It should be noted that dewatering the wetland sediments and/or peat sediments as encountered near the proposed manhole replacement has the potential to cause localized settlement of surrounding features as the water is extracted. An excavation dewatering plan was beyond the scope of this current study and is typically contractor-designed to align with their means and methods of construction. AESI is available to provide review or consultation services in support of a proposed dewatering plan.

If you should have any questions concerning this letter, please do not hesitate to call our office.

Sincerely,
ASSOCIATED EARTH SCIENCES, INC.
Kirkland, Washington

Tyler Gilsdorf, G.I.T., CESCL
Senior Staff Geologist

BRUCE L. BLYTON
STATE OF WASHINGTON
26590
REGISTERED
PROFESSIONAL ENGINEER
12/6/18

Jeffrey P. Laub, L.G., L.E.G.
Senior Project Engineering Geologist

Bruce L. Blyton, P.E.
Senior Principal Engineer

Attachments: Photo 1: Foundations Observed

Photo 1: Creosote treated timber pile observed in excavation near building foundation

March 11, 2019
Project No. 170126E001

Berger Partnership PS
1721 8th Avenue North
Seattle, Washington 98109

Attention: Mr. Andy Mitton

Subject: Geotechnical Addendum
Pavement Subgrade Improvement
and Updated Groundwater Information
Totem Lake Park
Kirkland, Washington

Dear Mr. Mitton:

As requested, Associated Earth Sciences, Inc. (AESI) presents additional information regarding the proposed Totem Lake Park project. We have previously prepared a "Subsurface Exploration, Geologic Hazard, and Geotechnical Engineering Report," dated September 28, 2017, and a "Geotechnical Addendum - Existing Foundation Observations and Dewatering Considerations," dated December 6, 2018, and have provided ongoing design-phase consultation for the subject project.

In our September 28, 2017 report, we documented subsurface conditions and groundwater conditions encountered in our explorations. To supplement our previous work and provide information that the contractor can utilize during construction, we completed a recent, wet-season groundwater measurement in our previously installed monitoring well. We have also been requested to provide recommendations for the improvement of subgrade conditions for proposed surfacing, such as concrete and asphalt pavements, and playground turf areas.

The following paragraphs document our observations and provide an update to the recommendations presented in our September 28, 2017 report.

Pavement Subgrade Improvement

In our September 28, 2017 report, we stated that, where potential post-construction settlement can be tolerated, site soils can be used to support slabs-on-grade, sidewalks, or other similar structures contingent upon remedial preparation and understanding of uncertainties in settlement performance. We recommended that slabs, pavement, or segmented paving stones to be supported on grade be supported on a 2-foot-thick structural fill mat compacted to at least 95 percent of ASTM D-1557, and that a geotextile separation fabric, such as Mirafi 500X or approved equivalent, be used between the structural fill and the underlying soil subgrade.

During discussions with the project design team, we were requested to provide recommendations for subgrade improvement which would reduce the thickness of the structural fill mat below proposed surfacing, such as concrete and asphalt pavements, and playground turf areas. With the addition of triaxial geogrid, such as Tensar TriAx TX130S or approved equivalent, between the structural fill and the underlying soil subgrade, the previously recommended 24 inches of structural fill below these surfaces may be reduced to 16 inches.

Updated Groundwater Information

Our previous exploration included installation and development of a groundwater monitoring well (EB-1W). Groundwater seepage was encountered within exploration boring EB-1W at 15 feet below the ground surface at the time of drilling on June 2, 2017. The measurement taken in EB-1W on July 31, 2017, indicated a piezometric water level of 7.5 feet below the ground surface. In our September 28, 2017 report, we stated that the occurrence and level of groundwater seepage at the site may vary in response to such factors as changes in season, amount of precipitation, and site use. Our June 2017 explorations were completed during the dry season and groundwater elevations are likely to be higher (closer to existing grade) during the wet season. We returned to the subject site on February 7, 2019, to measure a wet-season groundwater level in EB-1W. The measurement taken in EB-1W on February 7, 2019, indicated a piezometric water level of 5.8 feet below the ground surface, approximately 1.7 feet higher than that measured on July 31, 2017. We recommend that proposed excavations for the subject project, including for utilities, be completed during the dry season to reduce the degree of dewatering which may be needed.

Based on review of their topographic survey, the surface elevation at EB-1W is approximately 130 to 131 feet. We recommend that the elevation of EB-1W be surveyed to provide discrete elevation data associated with the above-mentioned measured groundwater depths. Based on our recent groundwater measurement, we anticipate that the proposed underdrains for the proposed bioretention cells, currently planned with a pipe invert elevation of 124.75 feet, may

collect minor groundwater seepage flows during the wet season. Given the silty soils encountered during our previous explorations, we anticipate the discharge associated with collected groundwater to be low, as compared with that associated with collected and routed stormwater flows.

If you should have any questions concerning this letter, please do not hesitate to call our office.

Sincerely,
ASSOCIATED EARTH SCIENCES, INC.
Kirkland, Washington

BRUCE L. BLYTON
STATE OF WASHINGTON
REGISTERED
PROFESSIONAL ENGINEER
3/11/19

Jeffrey P. Laub, L.G., L.E.G.
Senior Engineering Geologist

Bruce L. Blyton, P.E.
Senior Principal Engineer

APPENDIX **F**

STORMWATER TIR

City of Kirkland

F I N A L

Totem Lake Park Phase 1 Technical Information Report

Prepared for

City of Kirkland

May 2019

1100 112th Avenue NE, Suite 500

Bellevue, WA 98004

Contents

Figures

Tables

Appendixes

Abbreviations

AESI	Associated Earth Sciences, Inc.
BMP	best management practice
CKC	Cross Kirkland Corridor
CSWPPP	Construction Stormwater Pollution Prevention Plan
Ecology	Washington State Department of Ecology
ESC	erosion and sedimentation control
EvC	Everett Gravelly Sandy Loam
GIS	geographic information system
H/V	horizontal/vertical
I-405	Interstate 405
KCSWDM	King County Surface Water Design Manual
NRCS	Natural Resources Conservation Service
PGIS	pollution generating impervious surface
SK	Seattle Muck
SMMWW	Stormwater Management Manual for Western Washington
SWPPP	Stormwater Pollution Prevention Plan
SWPPS	Stormwater Pollution Prevention and Spill Control
TIR	Technical Information Report
WWHM	Western Washington Hydrology Model

SECTION 1

1 Project Overview

Totem Lake is an open water and wetland complex near the intersection of Totem Lake Boulevard and 120th Ave NE in Kirkland, Washington. The lake is within the Juanita Creek Basin and adjacent to the Totem Lake (Category II) wetland. Due to its proximity to the Cross Kirkland Corridor (CKC), Totem Lake Mall, and the Evergreen Hospital, Totem Lake represents a prime opportunity to maintain environmental resources and provide a park facility that offers recreational opportunities, access to nature, and nonmotorized transportation connections. Redevelopment of the Totem Lake area is a top priority of the Kirkland City Council.

This TIR has been developed for the project's 100-percent design phase and is intended to establish the layout for a park on the existing commercial site, and advance design concepts for boardwalk connections around Totem Lake to the CKC. Additionally, a draft Technical Information Report (TIR) worksheet is included as Figure 1-1 and will continue to be updated as the design of the project progress.

The proposed project improvements represent the first phase of implementation of the *Totem Lake Park Master Plan (City of Kirkland 2013)*, which was adopted by the City of Kirkland in December 2013. The proposed project includes redeveloping an existing commercial parcel with a new park, as well as improving an existing paved trail and constructing a new boardwalk to connect the trail to the nearby CKC. The project vicinity and extent of improvements around Totem Lake are shown on Figure 1-2.

1.1 Existing Site Conditions

The project is located on two separate parcels. One parcel is approximately 18 acres and comprises Totem Lake, surrounding wetland areas, and existing paved pathways and wooden boardwalks. The other parcel is approximately 1.5 acres and comprises a portion of Totem Lake Way and an existing commercial development. The project site is divided into two separate areas or basins within these two parcels, as described below and as shown on Figure 1-3; total area of the project site is approximately 1.53 acres:

- **Park—**The project site includes approximately 1.21 acres of the existing commercial parcel that will be redeveloped as a park. This portion of the project site is bordered by Totem Lake Way to the north, Totem Lake to the south, and adjacent developments to the east and west. The site slopes down from Totem Lake Way to the building and parking lot at approximately 30-percent, then slopes south toward the lake at approximately 5-percent. Stormwater runoff on the commercial parcel is collected in a private drainage system that discharges through an outfall to Totem Lake at the south of the site.
- **Trail and boardwalk—**The project site also includes an existing asphalt paved trail of approximately 0.08 acre and an additional area of 0.24 acre of wetland and buffer of proposed boardwalk and additional trail area. The trail extends east from the commercial site bordering the north of the lake. Its width varies but is approximately on average 6 feet. The longitudinal slope of the trail also varies with slopes up to 5-percent. The area south of the trail slopes down to the lake at approximately 40 percent. Runoff from the existing trail sheet flows down the slope to the lake. The proposed boardwalk will connect the trail to the CKC; most of this area consists of wetland within the ordinary high-water elevation of the lake.

TECHNICAL INFORMATION REPORT (TIR) WORKSHEET

Part 1 PROJECT OWNER AND PROJECT ENGINEER

Project Owner: City of Kirkland Parks & Recreation

Phone: 425.587.3300

Address: 123 5th Ave Kirkland, WA 98033

Project Engineer: Jesse Williams

Company: CH2M

Phone: (425) 454-8744

Part 2 PROJECT LOCATION AND DESCRIPTION

Project Name: Totem Lake Park Development

DPER Permit #: N/A

Location Township: T26N

Range: R05E

Section: 28

Site Address: 12307 and 12031 NE Totem Lake Way, Kirkland, WA

Part 3 TYPE OF PERMIT APPLICATION

- ☐ Landuse (e.g.,Subdivision / Short Subd. / UPD)
- ☐ Building (e.g.,M/F / Commercial / SFR)
- ☐ Clearing and Grading
- ☐ Right-of-Way Use
- ☑ Other COK Permits

Part 4 OTHER REVIEWS AND PERMITS

- ☐ DFW HPA
- ☐ COE 404
- ☐ DOE Dam Safety
- ☐ FEMA Floodplain
- ☑ COE Wetlands
- ☐ Other _____
- ☐ Shoreline Management
- ☑ Structural Rockery/Vault/_____
- ☐ ESA Section 7

Part 5 PLAN AND REPORT INFORMATION

Technical Information Report

Type of Drainage Review (check one):

- ☑ Full
- ☐ Targeted
- ☐ Simplified
- ☐ Large Project
- ☐ Directed

Date (include revision dates): See TIR report

Date of Final:

Site Improvement Plan (Engr. Plans)

Plan Type (check one):

- ☑ Full
- ☐ Modified
- ☐ Simplified

Date (include revision dates): See TIR report

Date of Final:

Part 6 SWDM ADJUSTMENT APPROVALS

Type (circle one): Standard / Experimental / Blanket

Description: (include conditions in TIR Section 2)

N/A

Approved Adjustment No. _____ Date of Approval: _____

Figure 1-1. TIR Worksheet

TECHNICAL INFORMATION REPORT (TIR) WORKSHEET

Part 7 MONITORING REQUIREMENTS

Monitoring Required: Yes / (No)

Start Date: _____

Completion Date: _____

Describe: _____

Re: KCSWDM Adjustment No. _____

Part 8 SITE COMMUNITY AND DRAINAGE BASIN

Community Plan : _____

Special District Overlays: _____

Drainage Basin: Juanita Creek Basin

Stormwater Requirements: _____

Part 9 ONSITE AND ADJACENT SENSITIVE AREAS

- ☐ River/Stream _____
- ☑ Lake _____
- ☑ Wetlands _____
- ☐ Closed Depression _____
- ☑ Floodplain _____
- ☐ Other _____
- ☐ Steep Slope _____
- ☐ Erosion Hazard _____
- ☐ Landslide Hazard _____
- ☐ Coal Mine Hazard _____
- ☐ Seismic Hazard _____
- ☐ Habitat Protection _____
- ☐ _____

Part 10 SOILS

Soil Type	Slopes	Erosion Potential
Pavement	0-5%	None
Water - Lake	0%	None
Seattle Muck	0-5%	Low
Everett very gravely sandy loam	5-15%	Low

- ☑ High Groundwater Table (within 5 feet)
- ☐ Other _____
- ☐ Sole Source Aquifer
- ☐ Seeps/Springs

☐ Additional Sheets Attached

Figure 1-1. TIR Worksheet

TECHNICAL INFORMATION REPORT (TIR) WORKSHEET

Part 11 DRAINAGE DESIGN LIMITATIONS	
REFERENCE	LIMITATION / SITE CONSTRAINT
☐ Core 2 – Offsite Analysis	
☐ Sensitive/Critical Areas	
☐ SEPA	
☐ LID Infeasibility	
☐ Other	
☐	
☐ Additional Sheets Attached	

Part 12 TIR SUMMARY SHEET (provide one TIR Summary Sheet per Threshold Discharge Area)	
Threshold Discharge Area: (name or description)	Park, Trail and Boardwalk
Core Requirements (all 8 apply):	
Discharge at Natural Location	Number of Natural Discharge Locations: 1
Offsite Analysis	Level: (1) / 2 / 3 dated: August 16, 2017
Flow Control (include facility summary sheet)	Level: 1 / (2) / 3 or Exemption Number _____ Flow Control BMPs Bioretention Cells (2)
Conveyance System	Spill containment located at: Flow control structure
Erosion and Sediment Control / Construction Stormwater Pollution Prevention	CSWPP/CESCL/ESC Site Supervisor: _____ Contact Phone: TBD (Contractor) After Hours Phone: TBD (Contractor)
Maintenance and Operation	Responsibility (circle one): Private / (Public) If Private, Maintenance Log Required: Yes / No
Financial Guarantees and Liability	Provided: Yes / (No)
Water Quality (include facility summary sheet)	Type (circle one): (Basic) / Sens. Lake / Enhanced Basic / Bog or Exemption No. _____ Landscape Management Plan: Yes / (No)
Special Requirements (as applicable):	
Area Specific Drainage Requirements	Type: CDA / SDO / MDP / BP / LMP / Shared Fac. / (None) Name: _____
Floodplain/Floodway Delineation	Type (circle one): Major / Minor / Exemption / (None) 100-year Base Flood Elevation (or range): _____ Datum:
Flood Protection Facilities	Describe:

Figure 1-1. TIR Worksheet

TECHNICAL INFORMATION REPORT (TIR) WORKSHEET

Part 12 TIR SUMMARY SHEET (provide one TIR Summary Sheet per Threshold Discharge Area)	
Source Control (commercial / industrial land use)	Describe land use: Describe any structural controls:
Oil Control	High-use Site: Yes / No Treatment BMP: _____ Maintenance Agreement: Yes / No with whom? _____
Other Drainage Structures	
Describe:	

Part 13 EROSION AND SEDIMENT CONTROL REQUIREMENTS		
MINIMUM ESC REQUIREMENTS DURING CONSTRUCTION		MINIMUM ESC REQUIREMENTS AFTER CONSTRUCTION
☑ Clearing Limits		☑ Stabilize exposed surfaces
☑ Cover Measures		☑ Remove and restore Temporary ESC Facilities
☑ Perimeter Protection		☑ Clean and remove all silt and debris, ensure operation of Permanent Facilities, restore operation of Flow Control BMP Facilities as necessary
☑ Traffic Area Stabilization		☑ Flag limits of SAO and open space preservation areas
☑ Sediment Retention		☐ Other _____
☑ Surface Water Collection		
☑ Dewatering Control		
☑ Dust Control		
☑ Flow Control		
☑ Protection of Flow Control BMP Facilities (existing and proposed)		
☑ Maintain BMPs / Manage Project		

Part 14 STORMWATER FACILITY DESCRIPTIONS (Note: Include Facility Summary and Sketch)				
Flow Control	Type/Description		Water Quality	Type/Description
☐ Detention	_____		☐ Vegetated Flowpath	_____
☐ Infiltration	_____		☐ Wetpool	_____
☐ Regional Facility	_____		☐ Filtration	_____
☐ Shared Facility	_____		☐ Oil Control	_____
☑ Flow Control BMPs	Bioretention Cells (2)		☐ Spill Control	_____
☐ Other	_____		☑ Flow Control BMPs	Bioretention Cells (2)
			☐ Other	_____

Figure 1-1. TIR Worksheet

TECHNICAL INFORMATION REPORT (TIR) WORKSHEET

Part 15 EASEMENTS/TRACTS		Part 16 STRUCTURAL ANALYSIS
☐ Drainage Easement		☐ Cast in Place Vault
☐ Covenant		☑ Retaining Wall
☐ Native Growth Protection Covenant		☐ Rockery > 4' High
☐ Tract		☐ Structural on Steep Slope
☐ Other _____		☐ Other _____

Part 17 SIGNATURE OF PROFESSIONAL ENGINEER
I, or a civil engineer under my supervision, have visited the site. Actual site conditions as observed were incorporated into this worksheet and the attached Technical Information Report. To the best of my knowledge the information provided here is accurate.
_____
Signed/Date

Figure 1-1. TIR Worksheet

Figure 1-2. Site Location

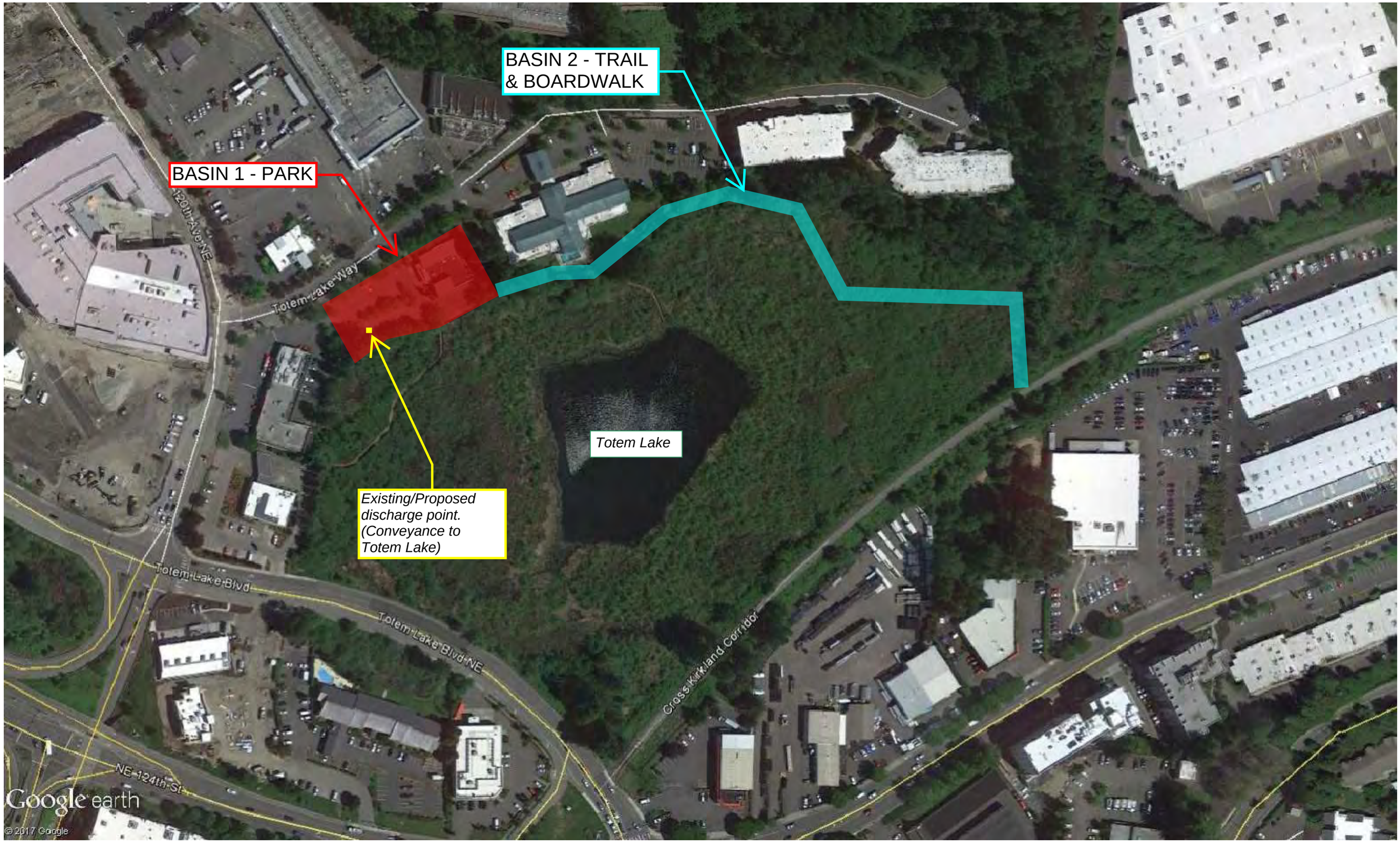


Figure 1-3. Drainage Basins, Subbasins, and Site Characteristics

The parcels that contain the project site are located within the larger Totem Lake Basin. The Totem Lake Basin is a major tributary of Juanita Creek, originating from Totem Lake and flowing through culverts under main roads, including Interstate 405 (I-405), through a series of wetlands and commercial and residential areas, before flowing down a steep drainage system to Juanita Creek. Additional information of downstream conditions is provided in Section 3, Offsite Analysis.

The Totem Lake wetland is approximately 18 acres and its tributary area is approximately 665 acres. The wetland receives water from 80 percent of the drainage basin above I-405, making it a critical natural component of the watershed (City of Kirkland, 2015). The CKC collects and transports most of the basin's runoff to Totem Lake.

1.2 Existing Utilities

Following are existing utilities along Totem Lake Way, bordering the north side of commercial site:

- Sanitary sewer, owned by Northshore Utility District
- Potable water main, owned by Northshore Utility District
- Underground power, owned by Puget Sound Energy
- Underground gas, owned by Puget Sound Energy
- Underground communication lines, ownership unknown at this time
- Storm sewer, owned by City of Kirkland

The existing utilities under adjacent roadway and existing sidewalk within Totem Lake Way will be protected so that they can remain in place. Utility services to the existing building on the commercial site will be abandoned within the project limits. The existing water and sewer service connections will be reused as described in Section 5.3. Totem Lake Way drains to an outfall located at the southwest corner of the commercial site. The outfall will be protected to remain in the current location.

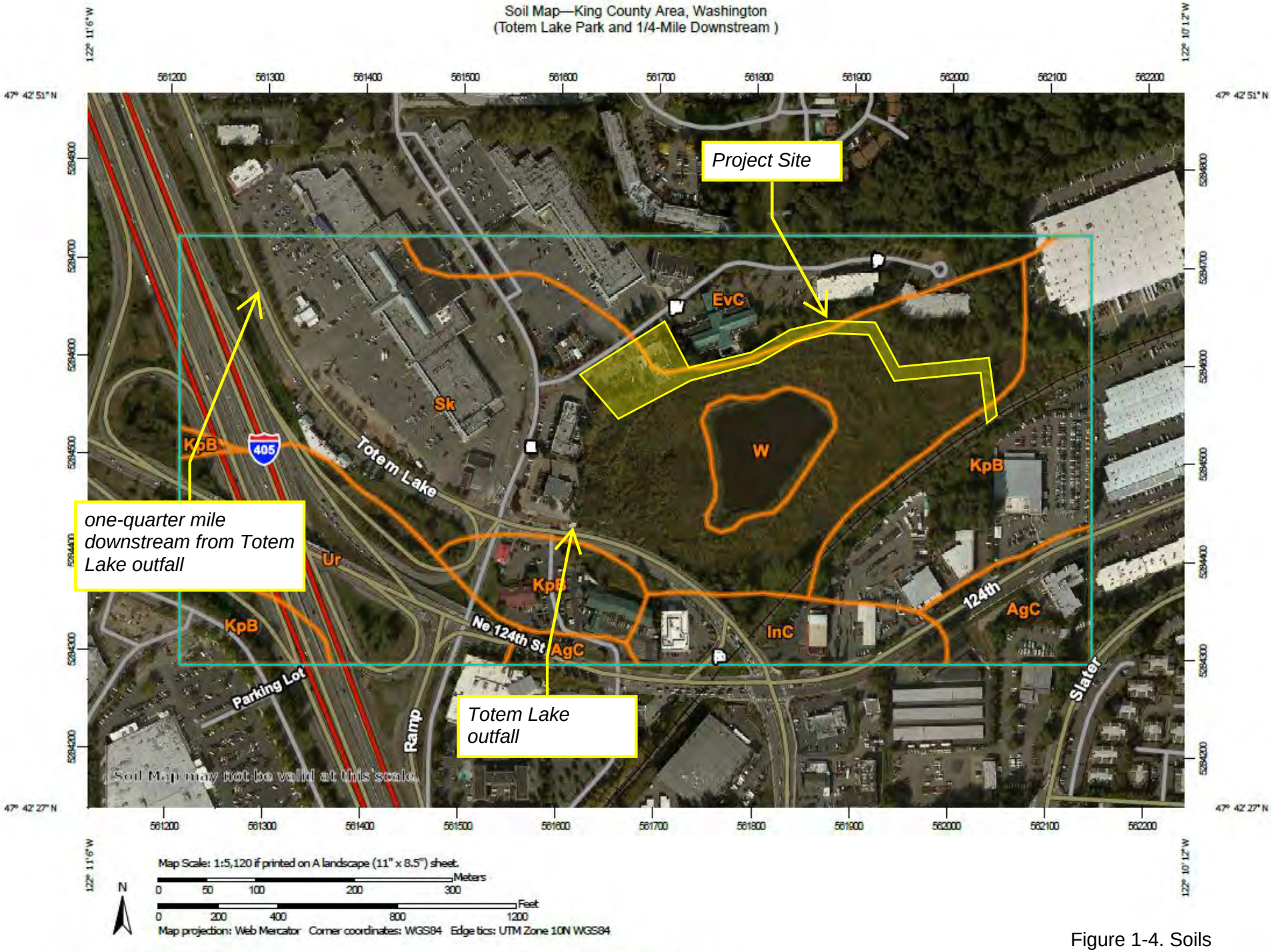
1.3 Soils

A Natural Resources Conservation Service soil survey was printed of the site and one-quarter mile downstream area. This is shown on Figure 1-4; the legends and land cover summary of this survey are attached in Appendix B. The soil map shows that most of the site is in SK (Seattle Muck), while the eastern portion is with soil Everett (EvC). Seattle Muck is a hydrological group D soil and Everett is a hydrological group A soil.

A geotechnical investigation was conducted by Associated Earth Sciences, Inc. (AESI) during June and July 2017 to determine the soil composition and feasibility of constructing and adding stormwater facilities at the site. Exploration borings contained fill material extending to approximately 5 to 12 feet below the ground surface. Beneath the fill, the soil generally comprises peat and wetland soils, then glacially deposited sand, and very dense and stiff gravelly sand.

Due to the soil composition, including presence of fill, permeability of wetland deposits, and groundwater level, AESI (2017) concluded that onsite stormwater infiltration is infeasible. Section 5.2 of the *King County Surface Water Design Manual* (KCSWDM; King County, 2016) instructs that the bottom surface of infiltration facilities "must be in native soil" and "be at least 3 feet above the seasonal high groundwater level and have at least 3 feet of permeable soil beneath", leading AESI to draw the above conclusion.

Soil Map—King County Area, Washington
(Totem Lake Park and 1/4-Mile Downstream)



Map Scale: 1:5,120 if printed on A landscape (11" x 8.5") sheet.

Meters: 0 50 100 200 300

Feet: 0 200 400 800 1200

N

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

Figure 1-4. Soils

1.4 Proposed Conditions

The proposed improvements are summarized below and shown in detail on the design drawings in Appendix A; area calculations of existing and proposed conditions are provided in Table 1-1. Additionally, Figure 1-5 shows the proposed land cover in comparison to existing.

- **Park—**The existing commercial development described in Section 1.1, including the building and asphalt parking lot, will be removed and replaced with a new park. The 1.21 acre park will include new paved pathways, a restroom facility, play areas, an updated parking lot, and native vegetation restoration for the remainder of landscape areas. New water service connections and meters will be provided for irrigation and the restroom. The existing sewer service will be capped, abandoned, and replaced with a new service for the park restroom facilities. Stormwater runoff will be collected in a new conveyance system, treated in two newly constructed bioretention cells, and discharged through an existing storm drainage system to outfall to Totem Lake. The proposed stormwater system will include facilities to satisfy the KCSWDM core requirements as discussed in Section 2 of this report.
- **Trail and boardwalk—**The project site also includes an approximately 0.32-acre area of improvements to the existing paved trail and proposed boardwalk. Improvements to the trail include removing, replacing, and widening the existing trail. This new 10-foot-wide trail will account for 0.13 acre of impervious surface. Collecting runoff from this new and existing asphalt pavement is infeasible and instead will sheet-flow down to the lake. Approximately 0.16 acre of wetland and buffer will be overlaid with an open-grated boardwalk. Most of this proposed pervious area (0.13 acre) is within the ordinary high-water elevation of the lake. Runoff from the boardwalk will pass through open space in the decking and drain down to the water and soil below. An additional 0.03 acre of asphalt-paved trail will be added at the end of the proposed boardwalk to connect to the CKC. Runoff from this area will also sheet flow to Totem Lake. The stormwater from the 0.19 acres of area that are sheet flowing to Totem Lake will be substituted (per KCSWDM 1.2.3.2.E, Mitigation of Target Surfaces that Bypass Facility) by runoff from an equivalent area of Totem Lake Way, which will be collected and conveyed to the bioretention cells.
- **Totem Lake Way –** In addition to the 0.19 acres of Totem Lake Way that will be collected as a swap of the trail and boardwalk area, 0.36 acres will be collected from Totem Lake Way and conveyed to the bioretention cells. City of Kirkland staff determined that 0.55 acres from Totem Lake Way can be conveyed to this facility. Of this additional 0.36 acres, 0.14 acres will be detained and treated while the remaining 0.22 acres will be treated for water quality only; this is the maximum amount feasible for flow control given site and sizing constraints. Refer to Section 4 for more information on the modeling used to determine the amount of additional area that could be detained and treated.

Table 1-1. Existing and Proposed Land Cover Summary

Land Cover	Park (acres)	Trail and Boardwalk (acres)	Totem Lake Way (acres)	Total (acres)
Existing Conditions				
Impervious (non-PGIS)	0.25	0.08	--	0.33
Pervious	0.44	0.24	--	0.68
Impervious (PGIS)	0.52	--	0.55	1.07
TOTAL	**1.21**	**0.32**	**0.55**	**2.08**

Proposed Conditions				
New and replaced impervious (non-PGIS)	0.50	0.32	--	0.82
Pervious (lawn or landscaping)	0.65	--	--	0.65
New and replaced impervious (PGIS)	0.06	--	0.55	0.61
TOTAL	**1.21**	**0.32**	**0.55**	**2.08**

SECTION 2

2 Conditions and Requirements Summary

This TIR is intended to fulfill the requirement of a full drainage review by demonstrating compliance with all nine core requirements and all five special requirements as specified in the 2016 KCSWDM as well as City of Kirkland's Policy D-10 Addendum to the 2016 KCSWDM. The stormwater design will adhere to the requirements in the following codes and standards:

- City of Kirkland Municipal Code, Chapter 90
- 2016 KCSWDM core requirements:
  - **Core Requirement 1: Discharge at the Natural Location—**There are no exemptions to this requirement; therefore, it will apply to this project. All stormwater runoff from the project under proposed conditions will be discharged through existing infrastructure to an existing outlet location (Totem Lake) and not diverted to or away from any other downstream areas.
  - **Core Requirement 2: Offsite Analysis—**A Level 1 downstream analysis was performed. Further detail may be found in Section 3 of this TIR.
  - **Core Requirement 3: Flow Control—**The proposed bioretention cells will mitigate the flow quantity impacts of stormwater runoff from the site as detailed in Section 4 of this report.
  - **Core Requirement 4: Conveyance System—**A new conveyance system was designed as part of the Totem Lake Park project. The conveyance system will be designed to meet the 25-year conveyance standard with backwater analysis. The new catch basins and storm drains will convey runoff to the proposed bioretention cells, which will then tie into existing outflows into Totem Lake on the south of the project site.
  - **Core Requirement 5: Erosion and Sediment Control—**There are no exemptions for this requirement; therefore, it will apply to this project. Erosion and sedimentation control (ESC) plans will be included with construction plans, and a Construction Stormwater Pollution Prevention Plan (CSWPPP) will be prepared for the project.
  - **Core Requirement 6: Maintenance and Operations—**There are no exemptions for this requirement; therefore, it will apply to this project. Maintenance and operations for the site stormwater conveyance and bioretention cells used on this project will be entirely owned, operated, and maintained by the City of Kirkland. Maintenance will follow City of Kirkland Standard Operating Procedures. Sample operations and maintenance information is provided for permitting purposes.
  - **Core Requirement 7: Financial Guarantees and Liability—** Financial Guarantees and Liability are the responsibility of the City of Kirkland.
  - **Core Requirement 8: Water Quality—**The project will be exempt from enhanced water quality treatment requirements because there will be less than 5,000 square feet of new plus replaced impervious surface area. The project was evaluated to the basic water quality treatment standard. Water quality measures in the form of two bioretention cells were provided to collect stormwater runoff from the new parking lot onsite as well as from Totem Lake Way.
  - **Core Requirement 9: Flow Control Best Management Practices—**The new park will have two bioretention cells and a pervious boardwalk designed to meet the standards of KCSWDM Appendix C and subsequent sections of this report.

- 2016 KCSWDM special requirements:
  - **Special Requirement 1: Other Adopted Requirements—**Because the proposed project is located in Kirkland, the following City of Kirkland Storm Drainage Policies apply:
    - **Policy D-3: Targeted and Full Drainage Review Requirements—**The project will create more than 2,000 square feet of new plus replaced impervious surface and is, therefore, subject to a full drainage review by the City of Kirkland Development Services.
    - **Policy D-8: Soil Information for Stormwater Development Requirements—**A soil report has been completed for this site to demonstrate the infeasibility of full dispersion and the feasibility of the selected best management practice (BMP)—bioretention cells and a pervious surfaced boardwalk (AESI 2017).
    - **Policy D-10: Addendum to the 2016 KCSWDM—**The project will follow the design criteria in the KCSWDM.
    - **Policy D-12: Construction Stormwater Pollution Prevention Plan—**A draft CSWPPP will be completed and submitted to the City of Kirkland for this project. The contractor will finalize and modify the plan.
    - **Policy D-13: Wetland Hydrology Study Guidelines—**Part of the project is located within the Totem Lake wetland and its buffer. Mitigation will be considered per Kirkland City Code, Chapter 90.
  - **Special Requirement 2: Flood Hazard Area Delineation—**Type 3 Severe Flooding Problem is not applicable to this project because other projects (past and future) have addressed Totem Lake's drainage issues.
  - **Special Requirement 3: Flood Protection Facilities—**This project does not rely on or modify any flood protection facilities and will be exempt from this requirement.
  - **Special Requirement 4: Source Control—**This project is a public park development within City-owned property and does not require a commercial building or commercial site development permit; therefore, it is exempt from this requirement.
  - **Special Requirement 5: Oil Control—**This project does not include any high-use site characteristics and is therefore exempt from this requirement.

SECTION 3

3 Offsite Analysis

A Level 1 downstream analysis was performed in accordance with KCSWDM Core Requirement 2 (King County, 2016) to identify and evaluate any potential offsite flooding, erosion, and water quality problems that could be aggravated by the proposed project. The Level 1 downstream analysis is composed of four tasks, defined below. A fifth task addressing mitigation of existing and potential flooding hazards may be added for Level 2 and 3 analyses. Since no existing or potential drainage or water quality problems were identified in the study area that would require mitigation, a Level 1 analysis was completed for this project and is described in this section of the report.

3.1 Task 1: Study Area Definition and Maps

According to KCSWDM Section 2.3.1.1 and City of Kirkland Policy D-10, the extent of the full downstream analysis will be completed up to a point where the project site constitutes less than 15 percent of the total tributary drainage area and no less than 0.25 mile downstream of the project site, except for informational review under Task 2, which will extend to a point 1 mile downstream. The study area also will extend upstream as necessary to encompass the offsite drainage area tributary to the project site and to a distance sufficient to preclude any backwater effects from the proposed project.

For this project, the project site is defined as the areas and locations within the larger Totem Lake site that are subject to proposed development. As described in Section 1 of this TIR, the proposed development includes the existing commercial development, trail, and new boardwalk connections around Totem Lake. No offsite drainage areas serve as tributary to these areas constituting the project site that would be subject to backwater effects from the proposed project. The project site also consists of less than 15 percent of the total area tributary to the larger Totem Lake site, and therefore, the full downstream analysis is completed to a point 0.25 mile downstream of the project site. The larger Totem Lake site and associated wetlands and critical areas are analyzed separately in critical areas reports and wetland hydrology studies associated with this project and are not included in the study area.

The beginning point of the downstream study area is the outfall from the southwest corner of the larger Totem Lake site, which is understood to be the confluence of runoff from the project site described above. Stormwater drains from the site outfall through a series of culverts on the north side of Totem Lake Boulevard. The culvert system crosses under Totem Lake Boulevard approximately 1,000 feet downstream and discharges to an unnamed drainage channel between Totem Lake Boulevard and I-405. The channel drains to the northwest to a point 0.25 mile downstream, which defines the endpoint of the full downstream analysis.

From the point 0.25 mile downstream, the channel continues to drain to the northwest between Totem Lake Boulevard and I-405. The channel drains through culverts under I-405 and discharges to a tributary of Juanita Creek. Water flows west in the tributary to a point 1 mile downstream approximately at the east property boundary of Juanita High School, which defines the endpoint of the informational review required for Task 2. The drainage tributary continues to flow west past the 1 mile downstream point and drains into Juanita Creek, which flows southwest and ultimately discharges to Lake Washington. A map of the study area was prepared using a U.S. Geological Survey topographic base map (Appendix C). Task 2: Resource Review

Per KCSWDM Section 2.3.1.1 and City of Kirkland Policy D-10, an informational review will be conducted and extend 1 mile downstream of the project site. The following information was reviewed as part of the analysis:

- **Basin plans—**No adopted basin plans have been developed for the larger Juanita Creek Basin as of the date of this TIR. The following documents were reviewed for general information about the Juanita Creek Basin.
  - ***Stormwater Retrofit Analysis and Recommendations for Juanita Creek Basin in the Lake Washington Watershed* (King County, 2012)—**This study identifies recommended actions to improve water quality and hydrologic conditions in the Juanita Creek Basin. However, no adopted recommendations or actions within the study area are noted.
  - ***Juanita Creek Watershed Report* (City of Kirkland, 2017)—**The City of Kirkland summarizes the current conditions of the watershed and recently completed restoration projects. No future restoration activities within the study area are noted.
- **FEMA maps—**FEMA Flood Insurance Rate Maps were reviewed to determine whether parts of the study area exist within a floodplain. No parts of the study area as defined in Task 1 are noted as being mapped within a floodplain. The surrounding area of Totem Lake, including the project site, lies within a Special Flood Hazard Area Zone A, with no base flood elevation determined.
- **Offsite analysis reports—**Other offsite analysis reports were not available for review at the time of this study.
- **Sensitive areas—**The study area was reviewed for sensitive areas on the King County iMap and City of Kirkland geographic information system (GIS) maps. The drainage tributary downstream of I-405 notably flows through a wetland area, beyond the point 0.25 mile downstream of the project site. Sensitive areas around Totem Lake are analyzed under separate reports associated with this project.
- **Drainage complaints—**The following drainage complaints were noted, as provided by City of Kirkland Public Works Department. Further discussion of drainage complaints is provided in Task 4 and Appendix C presents the map depicting the locations of the drainage complaints relative to the study area. These complaints were recorded prior to a culvert improvement project constructed in 2013, which addressed drainage issues associated with capacity constraints and flooding.
  - **SW-05-13 (12636 Totem Lake Boulevard)—**"Standing water in parking lot when it rains – system not draining properly." (02-24-2005)
  - **SW-06-129 (11217 NE 128th Street)—**"They were worried about the creek flooding the out down at the lower units during the record wet November we had in 2006. The water came within inches of the units. We advised them to use sandbags." (11-09-2006)
  - **SW-07-62 (11313 NE 128th Street—**"Beaver dam causing problem for flow." (07-06-2007)
- **Drainage problems—**No existing drainage problems are noted within the study area. The City of Kirkland's available engineering records were reviewed to identify any recent projects or improvements in the downstream flow path related to past drainage issues. The following project is noted as a recent improvements:
  - **Record drawing 3592, CIP CSD-0075, JOB NO. 02-13-PW, *Totem Lake Twin 42-Inch Culvert Replacement* (February 2013)—**This project improved sections of the culvert system along Totem Lake Boulevard with a box culvert between points approximately 0 to 360 feet downstream and 630 to 1,000 feet downstream. The culvert improvements are expected to have addressed previously reported drainage issues at the time of the project. The ordinary high-water mark indicated on the plans is well below the indicated adjacent roadway elevations.
- **Soils survey—**The Natural Resources Conservation Service (NRCS) Web Soil Survey tool (NRCS, 2017) was used to identify soil conditions within the study area. Most of the area between the site outfall to the point 0.25 mile downstream consists of Sk soils (Seattle Muck, Type D), and the majority of

the remaining study area to the point 1 mile downstream consists of EvC soils (Everett Gravelly Sandy Loam, Type A/B).

- **Wetlands inventory—**As noted in review of sensitive areas information, the drainage tributary downstream of I-405 flows through a wetland area, beyond the point 0. 25 mile downstream of the project site. No other wetlands are noted in the study area. Totem Lake wetlands, including areas within the project site, are addressed in separate critical areas studies performed as part of this project.
- **Migrating river studies—**No migrating rivers or streams were noted in the study area.
- **Washington State Department of Ecology (Ecology) 303(d) listings—**The Ecology 303(d) list was reviewed to identify any water quality issues within the extents of the downstream analysis. No water quality issues in the study area were noted in 303(d) listings.
- **Designated water-quality problems—**No designated water-quality problems were identified within the study area at the time of this review. The City of Kirkland has rated water quality, streamside vegetation and erosion, and stream flows for Juanita Creek as poor to moderate. However, no specific issues or adopted mitigation plans were identified within the study area. The City of Kirkland addresses water-quality problems through educational programs and source control as described in Policy D-10 Section 1.2.2.1.
- **Adopted stormwater compliance plans—**Apart from the requirements of the 2016 KCSWDM and Policy D-10, no adopted stormwater compliance plans were noted in the study area or larger Juanita Creek Basin.

3.2 Task 3: Field Inspection

A field visit was conducted on August 16, 2017, to observe project site surface conditions and downstream drainage features within the study area up to the 0.25-mile downstream point. The weather at the time was partly cloudy, and the most recent recorded rainfall before the field visit occurred on August 13, 2017. The following field observations were noted:

- No reported problems were identified under Task 2 to investigate up to 0.25 mile downstream of the site.
- No observed existing and/or potential issues of flooding, erosion, or water quality issues were identified within the study area at the time of the field visit.
- The drainage culverts and channels, improved in 2013 per record drawing 3592 reviewed in Task 2, appeared to be functioning as designed, and no constrictions or capacity issues were observed.
- The study area topography is relatively flat. Surface conditions above the drainage culverts were largely impervious, and the surface condition of the drainage channel was observed to include tall grass and native vegetation.
- Some culvert outfalls and/or inlets on the north side of Totem Lake Boulevard were located within a construction site and not available for inspection at the time of the field visit.

Photographs from the field visit are included in Appendix C.

3.3 Task 4: Drainage System Description and Problem Descriptions

A general description of the drainage system in the study area is provided in Task 1. Following are the drainage system components from the site outfall to the point 0.25 mile downstream (refer to the study area map and drainage system table in Appendix C):

- **Totem Lake Boulevard drainage culverts—**Several culverts were recently constructed between the project site and a point 1,000 feet downstream of it. These approximately comprise the following:
  - 360 feet of a 3-foot by 8-foot box culvert sloped at 0.2 percent
  - 270 feet of a 5-foot-diameter corrugated metal pipe culvert sloped at 0.5 percent
  - 370 feet of a 3-foot by 8-foot box culvert sloped at 0.2 percent

  The 3-foot by 8-foot box culverts were installed in 2013 Kirkland's record drawing 3592 to address drainage problems with the prior culvert system. The system was observed to be functioning as designed during the field visit, and there were no observed constrictions, capacity issues, or erosion associated with the culverts.
- **Totem Lake Boulevard drainage channel—**The culverts described above discharge to a drainage channel on the south side of the roadway. The channel drains to a point 0.25 mile downstream from the project site. The channel was improved in 2013 to address drainage problems associated with the prior channel as indicated in Kirkland's record drawing 3592. The improved portions of the channel include a 4-foot-wide bottom area with 2:1 side slopes. The channel was observed to be covered with grass vegetation. The channel was observed to be functioning as designed during the field visit, and no constrictions, capacity issues, or signs of erosion were observed in the channel.

Three drainage complaints were noted in Task 2. These drainage complaints were located beyond the 0.25-mile downstream point but within 1 mile downstream. The following drainage complaints do not indicate problems that could potentially be aggravated by the proposed development:

- **SW-05-13—**The complaint reported standing water in the parking lot of a private development adjacent to the study area in 2005. The parking lot conveyance system appears to connect to the culvert system within the 0. 25-mile downstream flow path from the project site per GIS information available on the City of Kirkland's website. Since the complaint was filed in 2005 and the culvert system was improved in 2013, the backwater issues associated with the culvert system are expected to have been resolved. This complaint does not indicate an existing or potential drainage issue that would require mitigation from this project.
- **SW-06-129—**The complaint reported flooding concerns adjacent to the drainage tributary to Juanita Creek in 2006. The flooding concern appears to be the result of a one-time severe weather event since it was filed only once. The proposed development is anticipated to reduce stormwater volumes through required implementation of low-impact development BMPs per Core Requirement 8, as well as peak-flow reduction through required flow control per Core Requirement 3. Therefore, the project is not anticipated to aggravate potential flooding concerns in the downstream tributary to Juanita Creek.
- **SW-07-62—**The complaint reported flow issues associated with a beaver dam in 2007. The complaint appears to have been a one-time and does not appear to be a consistently reported issue, and the complaint did not indicate any issues associated with flooding. This complaint does not indicate a drainage issue that would be aggravated by the project.

Task 2 indicates that runoff from the drainage area tributary to Juanita Creek flows through a wetland area. This wetland area is beyond the point 0.25 mile, but within 1 mile downstream. Since the project site is within the larger Totem Lake site including associated wetland areas, the project is expected to address potential impacts to wetland hydrology at the project site, and additional mitigation will not be required for downstream wetland areas.

SECTION 4

4 Flow Control, Low-Impact Development, and Water Quality Facility Analysis and Design

4.1 Existing Site Hydrology

Surface water runoff from the commercial site generally drains from north to south and is collected in an existing storm drain catch basin near the southwest corner of the site. The existing catch basin connects to an existing 24-inch storm drain, which discharges to Totem Lake. Runoff from the existing trail sheet flows down to Totem Lake. Surface runoff from Totem Lake Way, adjacent to the commercial site, drains to a separate storm system that also outfalls to Totem Lake via a separate outlet west of the existing catch basin. The outfall for the roadway is located within the project site and will be protected to remain during construction activities.

According to the geotechnical investigation performed by AESI (2017) as described in Section 1, groundwater was found in multiple exploration borings between 8 and 18 feet below the ground surface, with perched groundwater conditions present above wetland/peat deposits. The level and occurrence of groundwater seepage is expected to change due to factors including changes in season, precipitation, and site use.

4.2 Developed Site Hydrology

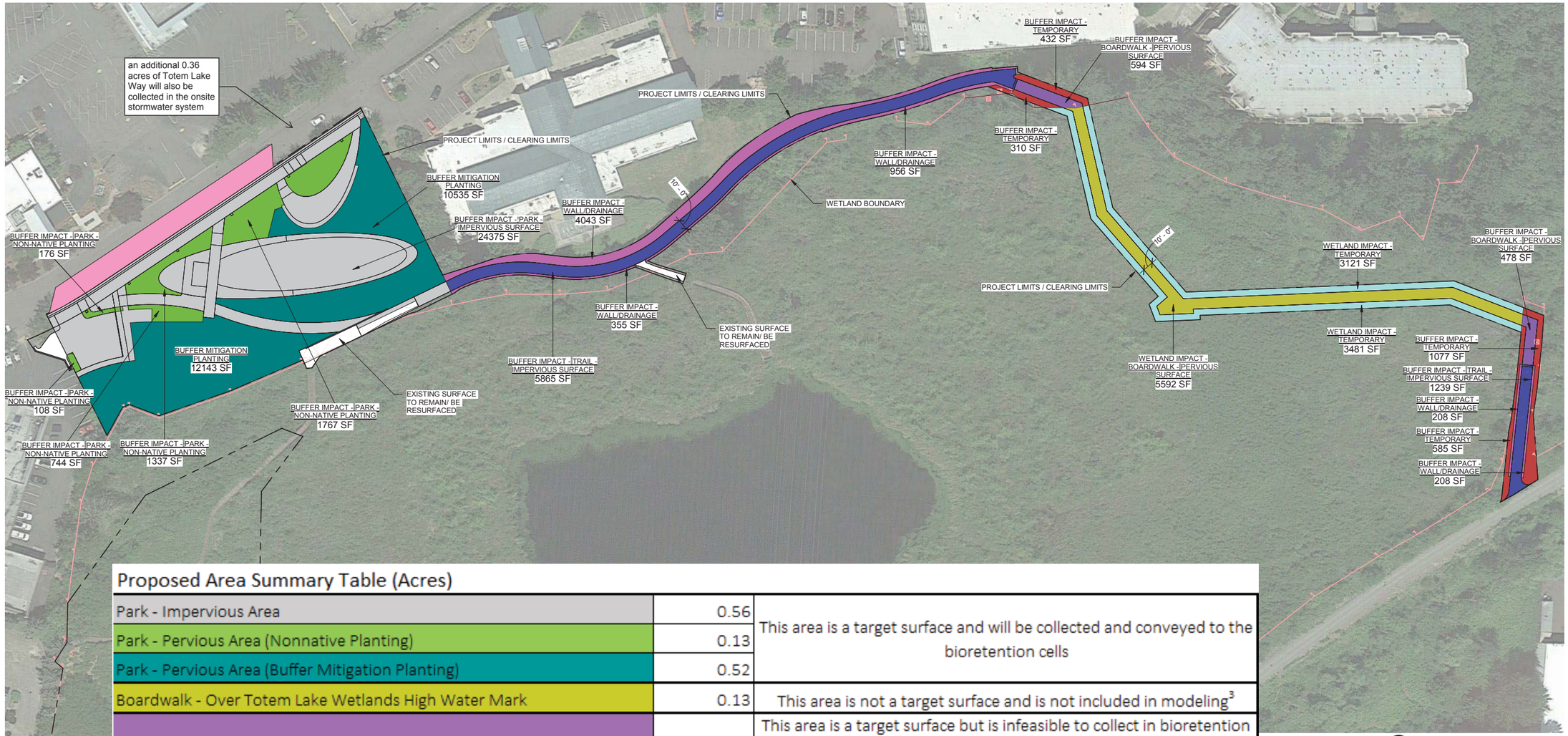
The proposed development will include a new conveyance system to collect runoff from the parking lot and other impervious surfaces in the northern portion of the commercial site. Two catch basins will also be added along Totem Lake Way to collect runoff from approximately 0.19 acres of road as a substitute for the 0.19 acres of trail and boardwalk target surfaces that will sheet flow into Totem Lake per KCSWDM 1.2.3.2.E, Mitigation of Target Surfaces that Bypass Facility. Additional catch basins will be added to convey the additional 0.36 acres of Totem Lake Way. These have not yet been designed. This stormwater will be conveyed to the two bioretention cells on the south side of the park site. The treated and overflow runoff will then discharge to Totem Lake via the existing site outfall in a manner that satisfies the conditions and requirements described in Section 2 of this report. Stormwater that falls on the trail and boardwalk is infeasible to collect for mitigation and will generally sheet flow down to Totem Lake. Table 1-1 in Section 1 summarizes proposed project site landcover conditions, and Figure 4-1 shows the proposed land cover conditions and modeling assumptions. Predeveloped conditions, which were also used in modeling, may be found in Figure 4-2. Also, Figure 1-3 in Section 1 depicts the basins within the project site, and Drawing C401 in Appendix A presents proposed stormwater facilities in the park.

4.3 Performance Standards

The following subsections describe the performance standards to be used for flow control, water quality, and conveyance.

4.3.1 Flow Control Facilities

The following performance standards will be met to satisfy Core Requirement 3 per the KCSWDM (2016) according to calculations provided in Appendix D:



Proposed Area Summary Table (Acres)

Park - Impervious Area	0.56	This area is a target surface and will be collected and conveyed to the bioretention cells
Park - Pervious Area (Nonnative Planting)	0.13	
Park - Pervious Area (Buffer Mitigation Planting)	0.52	
Boardwalk - Over Totem Lake Wetlands High Water Mark	0.13	This area is not a target surface and is not included in modeling[3]
Boardwalk - Over Totem Lake Wetlands Buffer Zone[1]	0.03	This area is a target surface but is infeasible to collect in bioretention cells. It will sheet flow to Totem Lake, and an equivalent area of Totem Lake Way will be collected in bioretention cells as a substitution[2]
Trail	0.16	
Totem Lake Way	0.19	This area will be captured and conveyed to bioretention cells in place of "Trail - New Asphalt" and "Boardwalk - Over Totem Lake Wetlands Buffer Zone"[2]

Notes

[1] Modeled as 50% impervious and 50% grass per KCSWDM Table 1.2.9.A (Open grid decking over pervious area credit)

[2] KCSWM Section 1.2.3.2.E (Mitigation of Target Surfaces that Bypass Facility)

[3] KCSWM Section 1.2.9.1.A (Target Surfaces)

NORTH

0 50' 100'

SCALE: 1"=50'-0"

PROPOSED AREAS

- BUFFER IMPACT - BOARDWALK - PERVIOUS SURFACE
- BUFFER IMPACT - PARK - IMPERVIOUS SURFACE
- BUFFER IMPACT - PARK - NON-NATIVE PLANTING
- BUFFER IMPACT - TEMPORARY
- BUFFER IMPACT - TRAIL - IMPERVIOUS SURFACE
- BUFFER IMPACT - WALL/DRAINAGE
- BUFFER MITIGATION PLANTING
- WETLAND IMPACT - BOARDWALK - PERVIOUS SURFACE
- WETLAND IMPACT - TEMPORARY

berger PARTNERSHIP
1927 Post Alley, Ste. 2
Seattle, WA 98101
206.325.6877
bergerpartnership.com

Totem Lake Park Phase 1

City of Kirkland

12031 Totem Lake Way, Kirkland, WA 98034

SET TYPE:
90% Design Submittal
DRAFT

SET ISSUE DATE:
12/14/2018

REVISIONS:

Δ	DESCRIPTION	DATE

Figure 4-1

Berger Partnership Project Number: 20154875.02
Plotted: 10/12/2018 11:27:51 AM
Filename: C:\Users\mattm\Documents\Totem Lake Park-PH1_mattm@bergerpartnership.com.rvt

Park - Pervious Area
Boardwalk - Above Totem Lake Wetlands High Water Mark
Trail and Boardwalk - Pervious Areas to become trail and boardwalk

Predeveloped Land Cover Summary

Predeveloped Area Summary Table (Acres)

Park - Pervious Area	1.21	All of the Park, Trail and Boardwalk areas are modeled as SAT Forest in the Predeveloped condition
Trail and Boardwalk - Pervious Areas to become trail and boardwalk	0.19	This area is a target surface but is infeasible to collect in bioretention cells. It will sheet flow to Totem Lake, and an equivalent area of Totem Lake Way will be collected in bioretention cells as a substitution[1]
Boardwalk - Over Totem Lake Wetlands High Water Mark	0.13	This area is not a target surface and is not included in modeling[2]

Notes

[1] KCSWM Section 1.2.3.2.E (Mitigation of Target Surfaces that Bypass Facility)

[2] KCSWM Section 1.2.9.1.A (Target Surfaces)

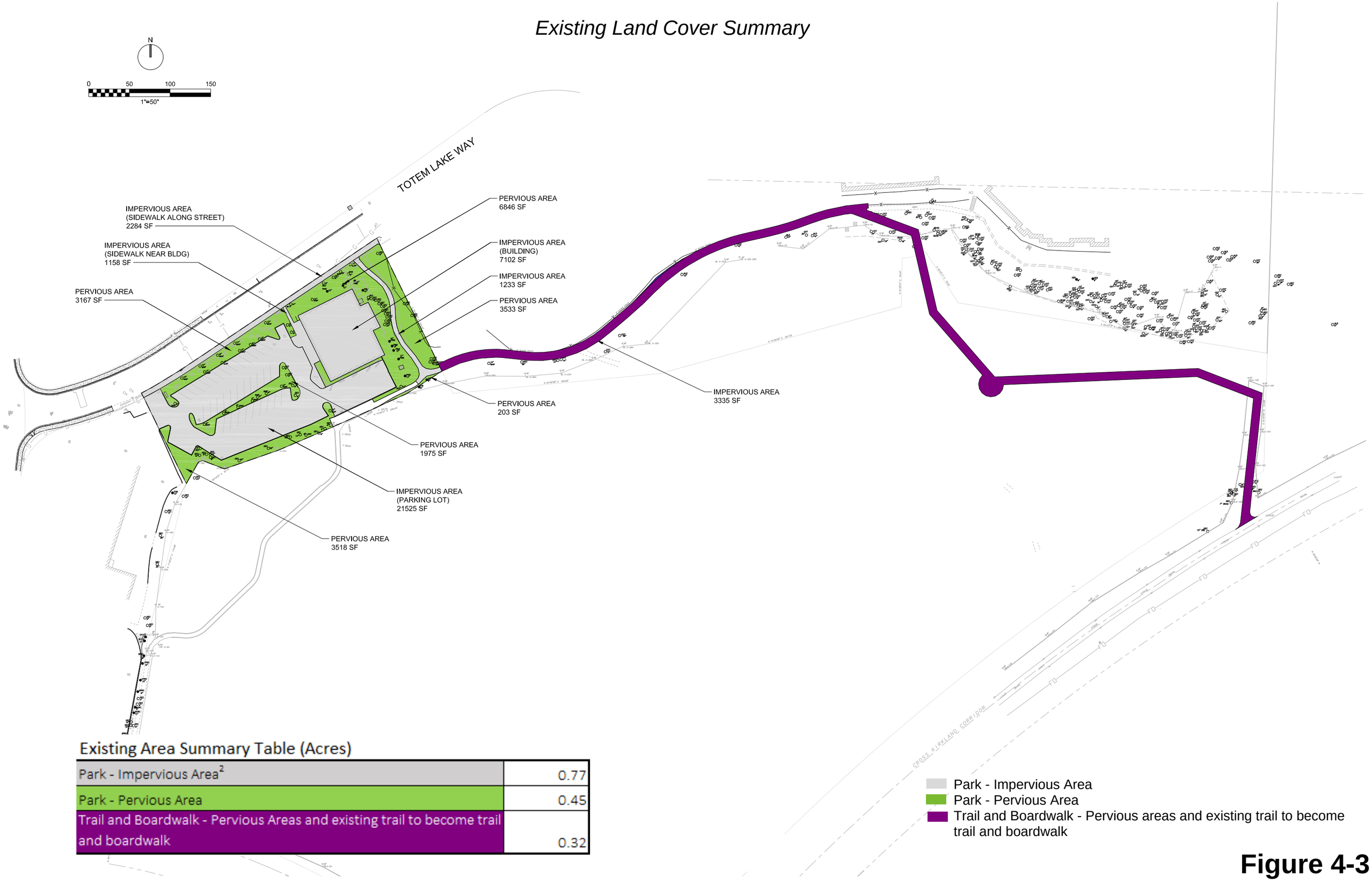
Figure 4-2

- The project will meet the standards of conservation flow control areas as described in Section 1.2.3 of the KCSWDM, per the 2017 City of Kirkland Flow Control Map. Criteria and modeling assumptions used to demonstrate compliance include the following:
  - Developed project hydrology will match discharge durations to predeveloped conditions for the range of predeveloped discharge rates from 50 percent of the 2-year peak flow up to the full 50-year peak flow.
  - Developed project hydrology will also match peak discharge rates to predeveloped peak discharge rates for the 2- and 10-year return periods.
  - The predeveloped condition will be modeled as forested land cover, consistent with historical site conditions.
  - The predeveloped soil condition will be modeled as saturated wetland soils, consistent with wetland deposits found in geotechnical borings and NRCS soil mapping as discussed in Section 1.
- The runoff from the trail and boardwalk will drain directly to Totem Lake via sheet flow; it infeasible to collect in the proposed drainage system. Rather, KCSWDM Section 1.2.3.2.E was followed for Mitigation of Target Surfaces that Bypass Facility:
  1. The point of convergence for runoff discharged from the trail and boardwalk areas and from the bioretention cells are Totem Lake, which is well within a quarter mile of the project site discharge.
  2. The increase in existing site conditions 100-year peak discharge from the bypassed area is less than 0.1 cubic feet per second. This was determined with a WWHM 2012 Model of 0.19 acres of impervious surface, modeled with 15-minute timesteps.
  3. The target bypassed areas are entirely non-pollution generating impervious surfaces. As such, their drainage will not create a significant adverse impact to downstream drainage systems, salmonid habitat, or properties. See also the Wetland Report (Jacobs, 2018) and number 5 below.
  4. There are no water quality requirements applicable to the bypassed target areas. However, the compensatory mitigation area described below will be conveyed to the bioretention cells and therefore will be treated.
  5. An equivalent area of Totem Lake Way, which currently drains to Totem Lake, will be substituted for the trail and boardwalk area as compensatory mitigation. Stormwater from this area of Totem Lake Way is currently not mitigated. It will be captured and conveyed to the proposed onsite bioretention cells, which have been designed to accommodate this flow. This has the additional benefit of treating more pollution-generating impervious surface, thus increasing overall water quality to Totem Lake.
- The project will evaluate potential impacts to wetland hydrology caused by changes in rate, duration, and quantity of stormwater discharged from the project site to the wetland areas around Totem Lake. The evaluation will be conducted in accordance to Reference 5 of the KCSWDM. An additional Wetland Report will be completed detailing this wetland hydrology study and results; the existing conditions used in this Wetland Study may be found in Figure 4-3.

4.3.2 Flow Control Best Management Practices

Per Core Requirement 9 described in Section 1.2.9 of the KCSWDM, the project will use flow control BMPs to the maximum extent feasible. The proposed park contains two biorentention cells, as seen in design drawings in Appendix A.

Existing Land Cover Summary



Existing Area Summary Table (Acres)

Park - Impervious Area[2]	0.77
Park - Pervious Area	0.45
Trail and Boardwalk - Pervious Areas and existing trail to become trail and boardwalk	0.32

Figure 4-3

Because the site is larger than 22,000 square feet and smaller than 5 acres, Large Lot BMP requirements were met per KCSWDM 1.2.9.2.2. Full dispersion, full infiltration, and limited infiltration are all infeasible at the site. Therefore, the two proposed bioretention cells were used to meet this criterion. The overall park, boardwalk, and trail area is 1.53 acres, of which 0.89 acres (or 58%) is impervious. Per KCSWDM, the Flow Control BMPs are required to be applied to 30% of the impervious site area, or 0.27 acres. As the site is inside the UGA (Rainfall region SeaTac 1.0 and less) with till soils, bioretention volume must be provided based on 0.6 inches of equivalent storage depth, or 590 cubic feet for the 0.27 acres of impervious area. As the bioretention cells have a bottom area of more than 3,200 square feet and a storage depth of 1 foot, they exceed this requirement.

In addition to treating the stormwater runoff, these cells will slow the rate of water flow to Totem Lake. The contributory area to the bioretention cell can be modeled according to Table 1.2.9.A in the KCSWDM. Additionally, the proposed boardwalk will be open-grated, allowing rainfall through to the wetland and buffer area below; this strategy is considered a flow control BMP: “open grid decking over pervious area” and has been modeled as such per Table 1.2.9.A as described in Section 4.4 of this report.

Reduced impervious surface credit and native growth retention credit are not required to be evaluated per Policy D-10.

4.4 Flow Control System

Modeling has been performed for the site using the 2012 Western Washington Hydrology Model (Appendix E includes additional information). Land cover assumptions for modeling are displayed below in Table 4-1 and are consistent with subbasins shown on Figure 1-3. The following assumptions were made regarding modeling:

- Targeted predeveloped site conditions are modeled as historical forested land cover with saturated wetland soils, consistent with wetland soil layers encountered in geotechnical investigations and NRCS soil mapping.
- Proposed site conditions are modeled as saturated wetland soils, which is considered the best representation of hydrologic conditions of the site due to composition of soils (fill over saturated wetland soils) and hydrologic proximity to Totem Lake.
- The Park Basin is assumed to be collected and conveyed to a bioretention cell sized to meet performance standards of Core Requirement 3.
- The Trail & Boardwalk Basin is modeled as an equivalent area of Totem Lake Way as described in section 4.3.1 of this report. Therefore, it is modeled as discharging into the bioretention cells with the same point of compliance as the Park Basin. The modeling credit from the proposed decking over pervious area was maintained in the basin.
- The Trail & Boardwalk Basin also includes the additional 0.36 acres of Totem Lake Way that will be conveyed to the bioretention cells. 0.14 of these additional acres are modeled as C, Forest, MOD in the predeveloped condition, as they will be mitigated by the bioretention cells. The extra 0.22 acres is shown as ROADS MOD in the predeveloped condition. The bioretention cells are not sized to mitigate these 0.22 acres, though they will be conveyed to the existing storm drain with the rest of the onsite stormwater.
- The dimensions used for modeling of the bioretention cell are shown in Table 4-2.
- The two connected bioretention cells are assumed to be modeled as one rectangular cell. The width of this cell was approximated by taking averages shown on design drawings based on bottom area contours.

- The length of the bioretention cell was calculated by taking the combined available bottom area of the cells divided by the approximate width described above.
- The grading slope of the cells varies between 2.5 and 3.0 horizontal/vertical (H/V) around the bioretention cells. The bioretention facilities have the preferred 3:1 slope per COK pre-approved plan for the long slope adjacent to the parking lot but have a modified 2.5:1 slope for the shorter slopes to maximize ponding area. The slopes are planted with a high density of plants, and an erosion control blanket will be added to the 2.5:1 slopes to reduce the chance of erosion of sloughing during plant establishment. Therefore, three sides of the bioretention cell were modeled with a 2.5:1 H/V slope, and a one side was modeled as 2.75:1 slope.
- The depths of the sand and soil layers were determined based on KCSWDM Appendix C guidelines for bioretention cells
- The gravel depth was determined based on available existing soil depth above groundwater.
- Proposed boardwalk within ordinary high-water mark is excluded from modeling.
- Proposed boardwalk surfaces not over the high-water area is open grid decking over pervious area. This is considered as a flow control BMP used to meet the performance standards of Core Requirement 9 and was modeled as 50-percent impervious and 50-percent lawn per KCSWDM Table 1.2.9.A. Since this area in infeasible to collect, it will drain to Totem Lake. As a substitute, runoff from an equivalent area of Totem Lake Way will be collected and conveyed to the proposed onsite bioretention cells per KCSWDM Section 1.2.3.2.E, Mitigation of Target Surfaces that Bypass Facility.

Table 4-1. Modeling Area Summary

Model Landcover Type	Description	Included in Model (acre)	Excluded from Model (acre)	Explanation
Predeveloped Condition				
SAT Forest	**Park, Boardwalk, and Trail** - Pervious Area	1.40	--	The entire park, trail, and boardwalk area are modeled as SAT Forest for the existing condition
--	**Boardwalk** - Area to become Boardwalk Above Totem Lake Wetlands High Water Mark	--	0.13	This area is not a target surface and is not included in modeling[3]
C Forest MOD	**Totem Lake Way** - Additional Area	0.14	--	This area is outside of the site, but will be collected and mitigated in bioretention cells
Roads MOD		0.22	--	This area is outside of the site, but will be collected and conveyed to bioretention cells. As impervious area, it will not count towards mitigation.
	Predeveloped Total Area Modeled	**1.76**		
Proposed/Mitigated Condition				
Roads MOD	**Park** - Impervious Area (PGIS)	0.06	--	This area will be collected and conveyed to the bioretention cells
Sidewalks MOD	**Park** - Impervious Area (NPGIS)	0.50	--	
SAT Lawn	**Park** - Pervious Area	0.54	--	
Bioretention Cells	**Park –** Combined Bioretention Area	0.11	--	This area is the footprint of the combined bioretention cells (at top of water storage elevation). It is included in the modeling as the bioretention cells themselves, but not as contributing area
--	**Boardwalk** - Above Totem Lake Wetlands High Water Mark	--	0.13	This area is not a target surface and is not included in modeling[3]
Sidewalks MOD	**Trail**	--	0.16	This area is a target surface, but is infeasible to collect in onsite bioretention cells. It will flow to Totem Lake, and an equivalent area of Totem Lake way will be collected in bioretention cells as a substitution[2]
50% Sidewalks MOD and 50% SAT Lawn[1]	**Boardwalk** - Above Totem Lake Wetlands Buffer Zone	--	0.03	
Combination of SAT Lawn and Sidewalks MOD, based on Trail and Basin (highlighted above)	**Totem Lake Way** - Area Swap	0.19	--	This area will be captured and conveyed in bioretention cells in place of "Trail" and "Boardwalk - Above Totem Lake Wetlands Buffer Zone"[2]
Roads MOD	**Totem Lake Way** - Additional Area	0.36	--	This area will be captured and conveyed to onsite bioretention cells in addition to all onsite stormwater
	Proposed/Mitigated Total Area Modeled	**1.76**		

[1] KCSWDM Table 1.2.9.A (Open grid decking over pervious area credit)
[2] KCSWM Section 1.2.3.2.E (Mitigation of Target Surfaces that Bypass Facility)
[3] KCSWM Section 1.2.9.1.A (Target Surfaces)

KCSWM King County Storm Water Design Manual

Table 4-2. Modeling: Bioretention Cell Sizing Summary

Dimension Label	Value
Bioretention width (feet)	14.0
Bioretention length (feet)	236.7
Freeboard (feet)	0.5
Front and back side slope (H/V)	2.5
Left side slope (H/V)	2.75
Right side slope (H/V)	2.5
Mulch layer depth (feet)	0.25
SMMWW 12 in/hr bioretention soil depth (feet)	1.50
Soil infiltration safety factor (Ksat)	4
Gravel layer depth (feet)	1.75
Underdrain diameter (feet)	0.5
Underdrain Offset (inches)	3
Orifice diameter (inches)	1-7/16

H/V horizontal/vertical
SMMWW Stormwater Management Manual for Western Washington

4.5 Water Quality System

The proposed project contains less than 5,000 square feet of new plus replaced pollution-generating impervious surface and, thus, will not be required to provide water quality treatment per Core Requirement 8 as described in Section 1.2.8 of the KCSWDM. However, the stormwater runoff from the parking lot and from Totem Lake Way will discharge to the bioretention facilities before discharging to Totem Lake and will be treated. The bioretention facilities treat 0.55 acres of Totem Lake Way; of this area, 0.19 acres are an area swap for the trail and boardwalk. Of the remaining 0.36 acres, 0.22 will simply be treated for water quality, while 0.14 will also be detained for flow control.

SECTION 5

5 Conveyance System Analysis and Design

This section describes assumptions and site conditions to justify the conveyance design.

5.1 Existing Storm Drains

The existing stormwater facilities collect and convey water from Totem Lake Park into Totem Lake via a catch basin on the southwest side of the park site. This catch basin will be replaced. Currently, no stormwater facilities are located on the trail or boardwalk sections of the site, because this runoff sheet flows into Totem Lake, the natural discharge location for this site.

5.2 Proposed Storm Drains

The project's stormwater conveyance facilities will consist primarily of catch basins, underdrain, storm drains, and stormwater facilities used to meet performance requirements listed in Section 4 of this report. The capacity of the new and existing storm drains will be analyzed using uniform flow methods according to KCSWDM Section 4.2.1.2.

Per Core Requirement 4 described in Section 1.2.4 of the KCSWDM, the new storm drain system proposed in Totem Lake Park will collect and convey the full 25-year peak flow from the site, including any conveyance system overflows above the 25-year peak flow. Stormwater from the site and from a portion of Totem Lake Way will be conveyed into the proposed bioretention cells and ultimately to an existing storm drain on the southwest side of the park, which discharges to the natural location for the project site, Totem Lake. The new storm drain system will include new catch basins, 8-inch and 12-inch storm drain pipes, and 6-inch underdrain pipes, as seen on drawing C401 in Appendix A. These pipes have been designed with the capacity to convey, at minimum, the 25-year peak flow, assuming developed conditions for onsite tributary areas and existing conditions for any offsite contributing areas.

Uniform flow conditions will be used to initially size pipes for capacity. Final pipe sizes will be verified using simple backwater analysis. Excel spreadsheets were used in both analyses with the following assumptions:

- **Pipe material—**Smooth wall pipe (PVC and DI) with Manning's n = 0.014 (uniform)
- **Minimum pipe diameter—**8 inches, with underdrains at 6 inches
- **Minimum cover—**2 feet; if lower cover is needed; class 5 reinforced concrete pipe or ductile iron pipe
- **Minimum velocity—**3 feet per second
- **Match crowns—**At junctions with changes in pipe diameter where possible

Conveyance Calculations and Backwater Analysis are in Appendix F. The project will be designed to use drainage structures from the City of Kirkland's Standard Plans. In general, Type 1 catch basins will be used. The maximum pipe diameter for Type 1 catch basins is 15 inches, and a maximum of 5 vertical feet will be allowed between the finished grade and the pipe invert.

5.3 Utilities

As noted in Section 1.2 of this TIR, existing storm drains, sanitary sewer, potable water, power, gas, and telephone utilities are located in the park site. Most of these utilities will remain protected in place, with exceptions for the storm drains (noted above) and water and sanitary sewer lines (noted below).

Two new water lines will connect into existing water main under Totem Lake Way for irrigation service and domestic water service for the restrooms. A new sanitary sewer service will also connect to the park's restroom building. These will convey to a new manhole, and the existing sewer service on the park site will be capped and abandoned, as seen on Drawing C301 in Appendix A.

6 Special Reports and Studies

The following report has been prepared for the project at this time:

- *Subsurface Exploration, Geologic Hazard, and Geotechnical Engineering Report, Totem Lake Park, Kirkland, WA* (AESI, 2017)

The following additional reports are currently being prepared, or will be prepared, as part of project design and permitting:

- Critical Areas Report
- Wetland Hydrology Study

SECTION 7

7 Other Permits

The following permits or approvals are expected for this project:

- Ecology General Construction Stormwater Permit, Notice of Intent
- City of Kirkland Land Surface Modification Permit

SECTION 8

8 Construction Stormwater Pollution Prevention Analysis and Design

8.1 Erosion and Sedimentation Control Plan Analysis and Design

An ESC plan will be developed for the final contract plans in accordance with the City of Kirkland Amendment to the KCSWDM and KCSWDM Appendix D. ESC plans are shown on Drawings C201, C202, and C203 in Appendix A.

To avoid erosion and the transport of sediment off site, the contractor will implement temporary control measures during the project's construction phase. During construction, stormwater runoff will be conveyed in the existing conveyance systems, which are primarily storm drains. ESC measures will be needed to prevent runoff from causing erosion and discharging sediment into the existing drainage system during and after construction. Appropriate ESC measures will be needed for construction activities on existing storm drain systems. The contractor will be responsible for phasing ESC measures so that they are coordinated with staging construction activities. Additionally, the contractor will be responsible for inspecting and maintaining temporary controls during construction, including removing accumulated sediment, and for removing the controls and remaining accumulated sediment at the end of construction.

The project will follow the requirements listed in the National Pollutant Discharge Elimination System General Construction Stormwater Permit. The contractor will prepare a CSWPPP satisfying both the KCSWDM and the the City of Kirkland Policy D-12, Construction Storm Water Pollution Prevention Plan. The CSWPPP will be updated as site conditions change.

Permanent measures will be implemented where needed to stabilize disturbed soils at project completion. In accordance with Section 2.3.1.3, City of Kirkland Policies G-7, D-2, and D-3.

8.2 Erosion and Sedimentation Control Measures

The following ESC measures will be provided, as further detailed on ESC plan sheets on Drawings C201, C202 and C203 in Appendix A:

- **Clearing limits** – Clearing limits will be delineated on the construction plans. A silt fence and compost socks will be installed down slope of any fill slopes to prevent offsite sediment migration.
- **Cover measures** – The contractor will provide temporary and permanent cover measures where needed to protect disturbed areas. Mulching will be used in accordance with the KCSWDM's Appendix D to provide immediate, temporary protection from erosion and to enhance plant growth. Nets and blankets may be used according to KCSWDM Appendix D to provide additional protection and to hold seed and mulch in place on slopes. Disturbed areas will be seeded as a permanent cover measure to reduce erosion.
- **Perimeter protection** – To reduce the transport of sediment off site, the contractor will provide catch basin filters, site fence, and street sweeping as indicated on the final construction drawings and as needed.

- **Traffic area stabilization** – Stabilized construction entrances will be installed at all construction vehicle access locations.
- **Sediment retention** – Catch basin filters (inlet protection) will provide sediment retention at the locations shown on the final construction drawings.
- **Surface water collection** – Surface water control will be provided by using the existing and new drainage conveyance systems. The surrounding area will be protected with silt fences as shown on Drawing C-201 in Appendix A.
- **Dewatering control** – Groundwater is not expected to be encountered during construction, because the site sits at the top of a steep slope, and the soils in the area have high infiltration capacity. If groundwater is encountered during construction, then it may be pumped to an onsite sediment trap or to a catchment created by sandbags with an overflow into a catch basin containing a catch basin insert.
- **Dust control** – If necessary, the contractor will use water according to KCSWDM Section 3.8 to prevent wind transport of soil. Exposed soils will be sprayed until wet and resprayed as needed. When using water for dust control, the contractor will spray exposed soils until they are wet, but runoff should not be generated by spraying. Oil will not be used for dust control. At the contractor's option, a tackifier may be used with approval from the Engineer and the City of Kirkland.
- **Flow control** – Portable storage tanks are proposed during construction at the southwest portion of the site and will provide sediment retention and possible flow control as needed (see Drawing C-201 in Appendix A). Construction activities will remove and permanently reduce the amount of impervious surface area on the site. Excessive runoff during construction is not anticipated, because the site will be mostly pervious.
- **ESC implementation** –Site development activities relative to ESC concerns will be coordinated and appropriately timed, and protective measures will be inspected, maintained, and updated in a timely fashion. The project will be phased to consider seasonal work limits to the maximum degree practicable. BMPs will be inspected, monitored, and repaired as needed. The site will be inspected and monitored, and the contractor will maintain, update, and implement the CSWPPP in accordance with the Construction Stormwater General Permit and King County requirements. The contractor also will designate a certified ESC lead and provide give his or her name, address, and telephone number to the City of Kirkland before construction begins. The certified ESC lead will be present on site or on-call at all times.

  The certified ESC lead will inspect the site at least once a month during the dry season, weekly during the wet season, and within 24 hours of each runoff-producing storm. If the City of Kirkland requires a written record of maintenance activities, a standard ESC maintenance report will be used as a written record of all maintenance. The proposed ESC measures for the project will be further detailed in the final contract plans.

8.3 Minimum Erosion and Sedimentation Control Requirements After Construction

Before obtaining final construction approval, the following conditions must be met:

- All disturbed site areas should be vegetated or otherwise permanently stabilized. At a minimum, disturbed areas will be seeded and mulched to provide a high likelihood that sufficient cover will develop shortly after final approval. If seeded during the dry season, then the seeded area will be irrigated as necessary to maintain the sprouted vegetation until the start of the wet season.

- Temporary ESC measures such as silt fences, pipe slope drains, construction entrances, and storm drain inlet protection will be removed.
- All permanent surface water facilities, including catch basins, manholes, pipes, ditches, and channels, will be cleaned of silt and debris.

8.4 Stormwater Pollution Prevention and Spill Control Plan

The contractor will be required to prepare a project CSWPPP in accordance with Policy D-12. Because the project involves ground disturbance of 1 acre or more, the CSWPPP will be prepared in accordance with City of Kirkland requirements.

SECTION 9

9 Bond Quantities, Facility Summaries, and Declaration of Covenant

This section is not applicable; this is a City of Kirkland Public Works Department project to be entirely owned and maintained by the City of Kirkland. As such, a bond quantities worksheet and declaration of covenant are not required for this project. Drawings of the onsite flow control and water quality facilities, the bioretention cells and open-grid decking of the boardwalk, may be found in Appendix A.

SECTION 10

10 Operations and Maintenance Manual

As this is a City of Kirkland Public Works Department project, the City of Kirkland will assume all systems operations and maintenance. Recommended preventative Operations and Maintenance Procedures from KCSWDM 2016 for the Bioretention Cells are below. Appendix G contains maintenance solutions based on obstructions or other problems for the control structure, catch basins and manholes, conveyance piping, and the bioretention cells. City of Kirkland Standards shall supersede these procedures where applicable.

10.1 Maintenance Restrictions

The size, placement, and design of the bioretention cell as depicted by the flow control BMP site plan and design details must be maintained and may not be changed without written approval either from the King County Water and Land Resources Division or through a future development permit from King County.

Plant materials may be changed to suit tastes, but chemical fertilizers and pesticides must not be used.

10.2 Inspection Frequency and Maintenance Guidelines

- Bioretention cells must be inspected annually for physical defects and sediment accumulation.
- After major storm events, the system should be checked to see that the overflow system is working properly, and sedimentation is not occurring at the inlet. If erosion channels or bare spots are evident, they should be stabilized with soil, plant material, mulch, or landscape rock. Sediment deposits should be carefully removed, and the sediment source eliminated.
- A supplemental watering program may be needed the first year to ensure the long-term survival of the bioretention cells' vegetation.
- Chemical fertilizers and pesticides must not be used.
- Mulch may be added, and additional compost should be worked into the soil over time.
- Plant materials may be changed to suit tastes.
- Vegetation should be maintained as follows:
    - replace all dead vegetation as soon as possible;
    - remove fallen leaves and debris as needed;
    - remove all noxious vegetation when discovered;
    - manually weed without herbicides or pesticides;
    - to protect infiltration performance, do not compact soils in the bioretention cell with heavy maintenance equipment and/or excessive foot traffic;
    - during drought conditions, use mulch to prevent excess solar damage and water loss.

10.3 Recording Requirement

These bioretention flow control BMP maintenance and operation instructions must be recorded as an attachment to the required declaration of covenant and grant of easement per Requirement 3 of Section C.1.3.4 of the King County Surface Water Design Manual. The intent of these instructions is to explain to future property owners, the purpose of the BMP and how it must be maintained and operated. These instructions are intended to be a minimum; the King County Department of Permitting and Environmental Services (DPER) may require additional instructions based on site-specific conditions. See King County's Surface Water Design Manual website for additional information and updates.

10.4 Quantities

Below is a table of the types and quantities of facilities that will need to be maintained on the site.

Table 10-1. Facility Quantities Summary

Onsite Facility	Quantities
Type 1 Catch Basins	7
Type 1L Catch Basins	1
Length of 6" UD Pipe	340 LF
Length of 6" PVC Subsurface Drain Pipe (French Drains)	470 LF
Length of 8" SD Pipe	110 LF
Length of 12" SD Pipe	310 LF
Bioretention Bottom Area (Top of BSM)	3,260 SF
6" Storm Drain Cleanouts	6
Control Structures	1
Overflow Structures	1

SECTION 11

11 Works Cited

Associated Earth Sciences, Inc. (AESI). 2017. *Subsurface Exploration, Geologic Hazard, and Geotechnical Engineering Report; Totem Lake Park; Kirkland, Washington*. September 28.

City of Kirkland. 2013 Totem Lake Park Master Plan. December. Available at https://www.kirklandwa.gov/depart/parks/Park_Planning/Park_Planning Development/Totem_Lake_Park_Master_Plan.htm

City of Kirkland. 2013. CIP CSD-0075, Job No. 02-13-PW; Totem Lake Twin 42-inch Culvert Replacement. Record Drawing 3592. February.

City of Kirkland. 2015. *Totem Lake/Juanita Creek Basin Stormwater Retrofit Conceptual Design; Final Project Report for Ecology Grant G1400024*. July 15.

City of Kirkland, 2017. *Juanita Creek Watershed Report*. Available at https://www.kirklandwa.gov/depart/Public_Works/Utilities/Storm___Surface_Water/Protecting_Creeks___Watersheds/Juanita_Creek_Watershed.htm.

King County. 2012. *Stormwater Retrofit Analysis and Recommendations for Juanita Creek Basin in the Lake Washington Watershed*. Available at https://www.kingcounty.gov/services/environment/watersheds/cedar-river-lake-wa/documents/juanita-creek-stormwater-retrofit.aspx. August.

King County. 2016. *King County, Washington, Surface Water Design Manual*. Available at https://www.kingcounty.gov/services/environment/water-and-land/stormwater/documents/surface-water-design-manual.aspx. King County, Department of Natural Resources and Parks, Seattle, Washington. April 24.

Natural Resources Conservation Service (NRCS). 2017. Web Soil Survey Tool. Available at https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm. Last update July 21, 2017.

Appendix A
Design Drawings

Appendix B
Soil Survey Legends and Summary

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: King County Area, Washington
Survey Area Data: Version 13, Sep 7, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 31, 2013—Oct 6, 2013

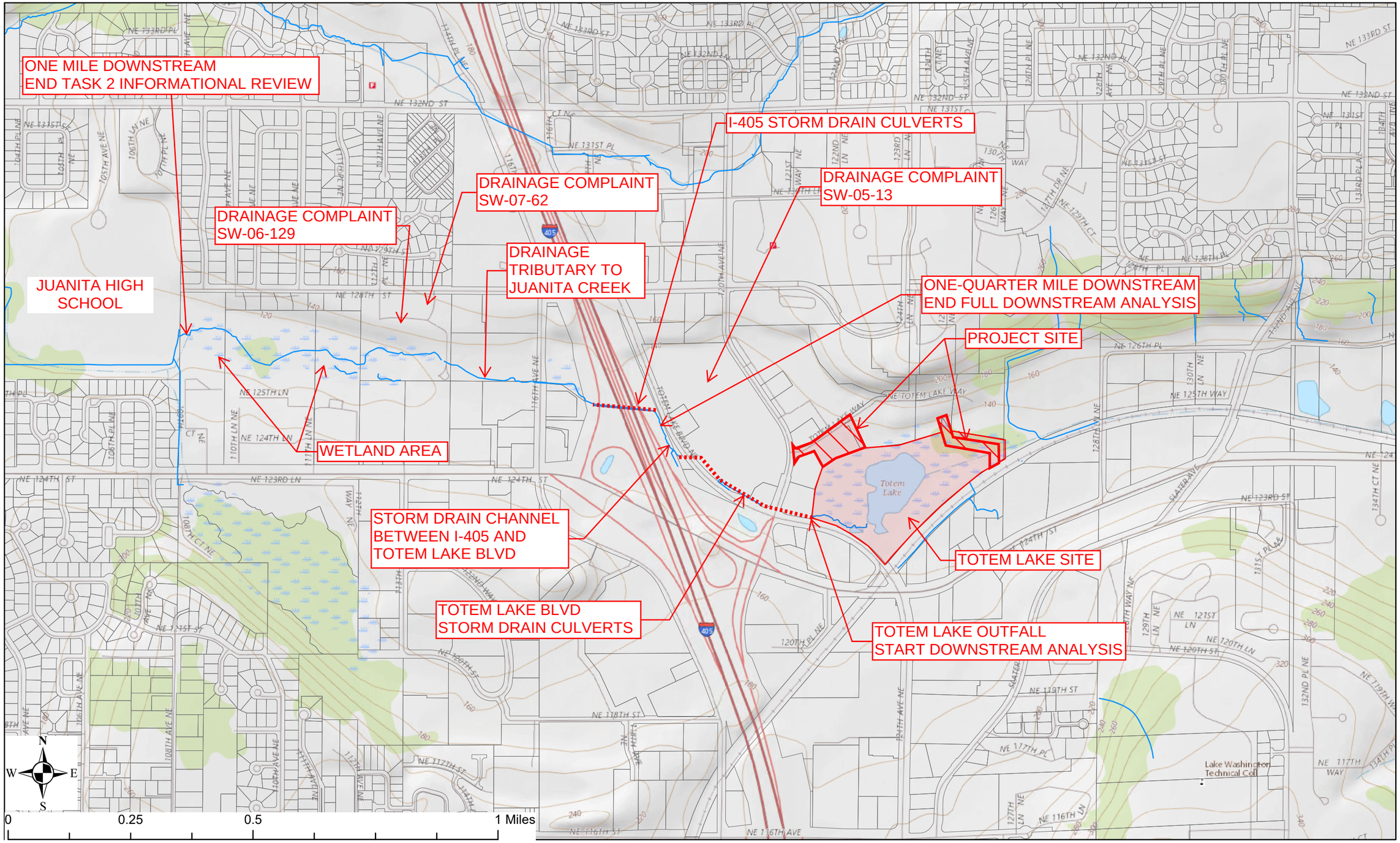
The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AgC	Alderwood gravelly sandy loam, 8 to 15 percent slopes	5.1	5.0%
EvC	Everett very gravelly sandy loam, 8 to 15 percent slopes	12.0	11.9%
InC	Indianola loamy sand, 5 to 15 percent slopes	5.1	5.1%
KpB	Kitsap silt loam, 2 to 8 percent slopes	19.4	19.2%
Sk	Seattle muck	45.0	44.5%
Ur	Urban land	11.3	11.1%
W	Water	3.3	3.3%
Totals for Area of Interest		**101.2**	**100.0%**

Appendix C
Supplemental Offsite Analysis Materials

APPENDIX B - STUDY AREA MAP



OFF-SITE ANALYSIS DRAINAGE SYSTEM TABLE
KING COUNTY SURFACE WATER DESIGN MANUAL, CORE REQUIREMENT #2

Basin:	JUANITA CREEK WATERSHED	Subbasin Name:	ONE QUARTER MILE DOWNSTREAM OF TOTEM LAKE	Subbasin Number:		Date	08/28/2017

Symbol	Drainage Component Type, Name, and Size	Drainage Component Description	Slope	Distance from site discharge	Existing Problems	Potential Problems	Observations of field inspector, resource reviewer, or resident
see map	Type: sheet flow, swale, stream, channel, pipe, pond, flow control/wq BMP; Size: diameter, surface area	drainage basin, vegetation, cover, depth, type of sensitive area, volume	%	¼ ml = 1,320 ft.	constrictions, under capacity, ponding, overtopping, flooding, habitat or organism destruction, scouring, bank sloughing, sedimentation, incision, other erosion		tributary area, likelihood of problem, overflow pathways, potential impacts
SEE MAP	TOTEM LAKE BLVD CULVERT SYSTEM	SERIES OF BOX AND PIPE CULVERTS	APPROX 0.2% - 0.5%	0 - 1,000 FT	NONE NOTED OR OBSERVED	NONE NOTED OR OBSERVED	SYSTEM UPGRADED IN 2013, AND APPEARS TO FUNCTION AS DESIGNED
SEE MAP	TOTEM LAKE BLVD DRAINAGE CHANNEL	GRASS-LINED DRAINAGE CHANNEL	APPROX 0.0% - 0.1%	1,000 - 1,320 FT	NONE NOTED OR OBSERVED	NONE NOTED OR OBSERVED	SYSTEM UPGRADED IN 2013, AND APPEARS TO FUNCTION AS DESIGNED

PHOTO 1 - SITE OUTFALL TO CULVERT

PHOTO 2 - DRAINAGE CHANNEL BETWEEN TOTEM LAKE BOULEVARD AND I-405

Appendix D
Flow Control BMP Calculations

Totem Lake Park Phase 1

PN: 694933CH

Created 10/3/18 by Anna Leenay, updated 10/24/2018

QC 10/17/2018 by Raymond Chung

Purpose: confirm conformance to KCSWDM Minimum Requirement #9, Flow Control BMPs

1.2.9.2.C Demonstrating compliance with LID performance standard is not required (Less than 5 acres)

1.2.9.2. Individual Lot BMP Requirements

Site is >22,000 sf and less than 5 acres: site is a Large Lot

1.2.9.2.2 Large Lot BMP Requirements (in following order)

1. Feasibility and applicability of full dispersion must be evaluated

Not Feasible

2. Full infiltration of roof runoff

Not Feasible/Applicable

3. All target impervious surfaces not mitigated by 1 or 2 must by mitigated to MEF by following list

a. Full infiltration (C.2.2 or 5.2)

Not Feasible

b. Limited infiltration (Appendix C or C.2.3)

Not Feasible

c. Bioretention

i. Inside UGS (rainfall SeaTac 1.0 and less) with till soils --> bioretention volume based on 0.6 inches of equivalent storage depth

Flow Control BMP requirement for areas tributary to bioretention will be met with bioretention

d. Permeable pavement

Not implemented: BMP requirement is met with bioretention

4. All target impervious surfaces not mitigated by 1, 2, 3, must be mitigated to MEF using basic dispersion (Appendix C, C.2.4)

Target impervious surfaces will be mitigated by #3; see #5 below

Additionally, basic dispersion will be employed to the Maximum Extent Feasible per KCSWDM C.2.9.5, open-grid decking over pervious surface, for the boardwalk, which is unable to be conveyed to the bioretention cells

5. BMPs must be implemented at minimum for impervious area amounts:

Projects resulting in impervious surface coverage of site at 45-65% on buildable portion of the site/lot, flow control BMPs must be applied to 50% of target impervious surfaces reduced by 1.5% for each 1% of impervious surface coverage above 45%

	AREA (acres)	PERCENTAGE
SITE pervious:	0.81	53%
SITE impervious:	0.72	47%
SITE total:	1.53	

Impervious coverage of 47% results in requirement of FCBMPs applying to 47% of target impervious surfaces

Target impervious areas to be mititgated (proposed conditions): 0.34 acres = 14,713 sf

Equivalent storage depth = 0.6 inches = 0.05 ft for bioretention inside UGS rainfall per 1.2.9.2.D.3

Minimum required biorention storage volume: 0.05 ft depth x target impervious area = 736 cubic feet

Bioretention storage volume provided: ~3,760 cubic feet > 736 cubic feet

Appendix E
Stormwater Modeling Materials

WWHM2012

PROJECT REPORT

General Model Information

Project Name:	BioretentionCell_FC7
Site Name:	Totem Lake Park
Site Address:	12031 Totem Lake Way
City:	Kirkland
Report Date:	1/14/2019
Gage:	Seatac
Data Start:	1948/10/01
Data End:	2009/09/30
Timestep:	15 Minute
Precip Scale:	0.000 (adjusted)
Version Date:	2018/10/10
Version:	4.2.16

POC Thresholds

Low Flow Threshold for POC1:	50 Percent of the 2 Year
High Flow Threshold for POC1:	50 Year

Landuse Basin Data
Predeveloped Land Use

Basin Park

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
SAT, Forest, Mod	1.21
Pervious Total	1.21
Impervious Land Use	acre
Impervious Total	0
Basin Total	1.21

Element Flows To:

Surface	Interflow	Groundwater

Basin Trail and Boardwalk Area

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
SAT, Forest, Mod	0.19
C, Forest, Mod	0.14
Pervious Total	0.33
Impervious Land Use	acre
ROADS MOD	0.22
Impervious Total	0.22
Basin Total	0.55

Element Flows To:

Surface	Interflow	Groundwater

Mitigated Land Use

Basin Park

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
SAT, Lawn, Mod	0.54
Pervious Total	0.54
Impervious Land Use	acre
ROADS MOD	0.06
SIDEWALKS MOD	0.5
Impervious Total	0.56
Basin Total	1.1

Element Flows To:

Surface	Interflow	Groundwater
Surface est Combined	Surface est Combined	

Basin Trail and Boardwalk - Totem Lake Way Swap

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
SAT, Lawn, Mod	0.01
Pervious Total	0.01
Impervious Land Use	acre
ROADS MOD	0.36
SIDEWALKS MOD	0.18
Impervious Total	0.54
Basin Total	0.55

Element Flows To:

Surface	Interflow	Groundwater
Surface est Combined	Surface est Combined	

Routing Elements
Predeveloped Routing

Mitigated Routing

Bioretention - East/West Combined

Bottom Length:	236.70 ft.
Bottom Width:	14.00 ft.
Material thickness of first layer:	0.25
Material type for first layer:	Sand
Material thickness of second layer:	1.5
Material type for second layer:	SMMWW 12 in/hr
Material thickness of third layer:	1.75
Material type for third layer:	GRAVEL
Underdrain used	
Underdrain Diameter (feet):	0.5
Orifice Diameter (in.):	1.4375
Offset (in.):	3
Flow Through Underdrain (ac-ft.):	191.25
Total Outflow (ac-ft.):	191.507
Percent Through Underdrain:	99.87
Discharge Structure	
Riser Height:	1 ft.
Riser Diameter:	30 in.
Element Flows To:	
Outlet 1	Outlet 2

Bioretention Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
124.25	0.1889	0.0000	0.0000	0.0000
124.30	0.1876	0.0017	0.0000	0.0000
124.36	0.1857	0.0034	0.0000	0.0000
124.41	0.1838	0.0052	0.0000	0.0000
124.47	0.1820	0.0070	0.0000	0.0000
124.52	0.1801	0.0091	0.0000	0.0000
124.58	0.1782	0.0112	0.0000	0.0000
124.63	0.1764	0.0134	0.0000	0.0000
124.69	0.1745	0.0156	0.0000	0.0000
124.74	0.1726	0.0179	0.0000	0.0000
124.80	0.1708	0.0202	0.0000	0.0000
124.85	0.1689	0.0226	0.0000	0.0000
124.91	0.1671	0.0250	0.0000	0.0000
124.96	0.1653	0.0274	0.0000	0.0000
125.02	0.1634	0.0299	0.0000	0.0000
125.07	0.1616	0.0324	0.0000	0.0000
125.13	0.1597	0.0350	0.0000	0.0000
125.18	0.1579	0.0376	0.0000	0.0000
125.24	0.1561	0.0402	0.0016	0.0000
125.29	0.1543	0.0429	0.0023	0.0000
125.35	0.1525	0.0457	0.0061	0.0000
125.40	0.1506	0.0485	0.0080	0.0000
125.46	0.1488	0.0513	0.0108	0.0000
125.51	0.1470	0.0542	0.0122	0.0000
125.57	0.1452	0.0571	0.0144	0.0000
125.62	0.1434	0.0600	0.0155	0.0000
125.68	0.1416	0.0630	0.0172	0.0000
125.73	0.1398	0.0661	0.0181	0.0000
125.79	0.1380	0.0692	0.0197	0.0000

125.84	0.1363	0.0723	0.0204	0.0000
125.90	0.1345	0.0755	0.0218	0.0000
125.95	0.1327	0.0787	0.0225	0.0000
126.01	0.1309	0.0817	0.0237	0.0000
126.06	0.1292	0.0847	0.0244	0.0000
126.12	0.1274	0.0877	0.0255	0.0000
126.17	0.1256	0.0908	0.0261	0.0000
126.23	0.1239	0.0939	0.0272	0.0000
126.28	0.1221	0.0971	0.0277	0.0000
126.34	0.1204	0.1003	0.0288	0.0000
126.39	0.1186	0.1036	0.0293	0.0000
126.45	0.1169	0.1068	0.0302	0.0000
126.50	0.1151	0.1102	0.0307	0.0000
126.56	0.1134	0.1136	0.0309	0.0000
126.61	0.1116	0.1170	0.0317	0.0000
126.67	0.1099	0.1204	0.0330	0.0000
126.72	0.1082	0.1239	0.0349	0.0000
126.78	0.1065	0.1275	0.0370	0.0000
126.83	0.1047	0.1310	0.0391	0.0000
126.89	0.1030	0.1347	0.0412	0.0000
126.94	0.1013	0.1383	0.0432	0.0000
127.00	0.0996	0.1420	0.0452	0.0000
127.05	0.0979	0.1458	0.0471	0.0000
127.11	0.0962	0.1496	0.0489	0.0000
127.16	0.0945	0.1534	0.0506	0.0000
127.22	0.0928	0.1573	0.0523	0.0000
127.27	0.0911	0.1612	0.0540	0.0000
127.33	0.0894	0.1651	0.0556	0.0000
127.38	0.0878	0.1691	0.0571	0.0000
127.44	0.0861	0.1732	0.0587	0.0000
127.49	0.0844	0.1773	0.0601	0.0000
127.55	0.0827	0.1814	0.0616	0.0000
127.60	0.0811	0.1856	0.0630	0.0000
127.66	0.0794	0.1898	0.0644	0.0000
127.71	0.0777	0.1940	0.0658	0.0000
127.75	0.0761	0.1970	0.1011	0.0000

Bioretention Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	To Amended(cfs)	Infilt(cfs)
3.5000	0.1889	0.1970	0.0000	0.1779	0.0000
3.5549	0.1908	0.2075	0.0000	0.1779	0.0000
3.6099	0.1927	0.2180	0.0000	0.2561	0.0000
3.6648	0.1946	0.2287	0.0000	0.2938	0.0000
3.7198	0.1965	0.2394	0.0000	0.3022	0.0000
3.7747	0.1984	0.2502	0.0000	0.3106	0.0000
3.8297	0.2003	0.2612	0.0000	0.3191	0.0000
3.8846	0.2022	0.2723	0.0000	0.3275	0.0000
3.9396	0.2041	0.2834	0.0000	0.3359	0.0000
3.9945	0.2061	0.2947	0.0000	0.3443	0.0000
4.0495	0.2080	0.3061	0.0000	0.3528	0.0000
4.1044	0.2099	0.3176	0.0000	0.3612	0.0000
4.1593	0.2118	0.3291	0.0000	0.3696	0.0000
4.2143	0.2138	0.3408	0.0000	0.3781	0.0000
4.2692	0.2157	0.3526	0.0000	0.3865	0.0000
4.3242	0.2177	0.3645	0.0000	0.3949	0.0000
4.3791	0.2196	0.3765	0.0000	0.4034	0.0000
4.4341	0.2215	0.3887	0.0000	0.4118	0.0000
4.4890	0.2235	0.4009	0.0000	0.4202	0.0000

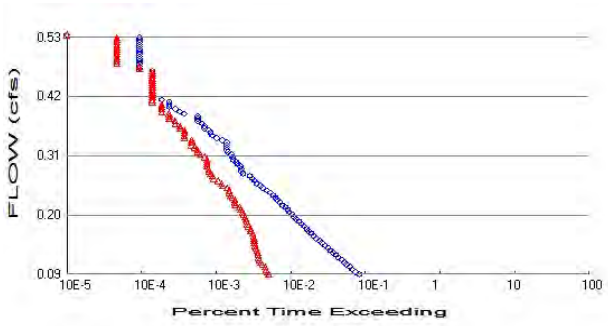
4.5440	0.2254	0.4132	0.2445	0.4286	0.0000
4.5989	0.2274	0.4257	0.8244	0.4371	0.0000
4.6538	0.2294	0.4382	1.5977	0.4455	0.0000
4.7088	0.2313	0.4509	2.5212	0.4539	0.0000
4.7637	0.2333	0.4636	3.5679	0.4624	0.0000
4.8187	0.2353	0.4765	4.7159	0.4708	0.0000
4.8736	0.2373	0.4895	5.9450	0.4792	0.0000
4.9286	0.2392	0.5026	7.2351	0.4876	0.0000
4.9835	0.2412	0.5158	8.5658	0.4961	0.0000
5.0000	0.2418	0.5198	9.9162	0.4986	0.0000

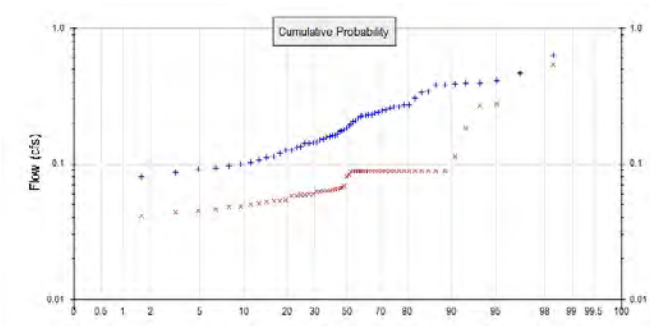
Surface est Combined

Element Flows To:

Outlet 1	Outlet 2
	Bioretention - East/West Combined

Analysis Results
POC 1





+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1
Total Pervious Area: 1.54
Total Impervious Area: 0.22

Mitigated Landuse Totals for POC #1
Total Pervious Area: 0.55
Total Impervious Area: 1.1

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	**Flow(cfs)**
2 year	0.187082
5 year	0.283379
10 year	0.353705
25 year	0.449607
50 year	0.525994
100 year	0.606524

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	**Flow(cfs)**
2 year	0.073233
5 year	0.116332
10 year	0.154302
25 year	0.215339
50 year	0.271949
100 year	0.339655

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #1

Year	**Predeveloped**	**Mitigated**
1949	0.195	0.064
1950	0.394	0.089
1951	0.386	0.268
1952	0.143	0.052
1953	0.091	0.058
1954	0.226	0.065
1955	0.273	0.089
1956	0.250	0.089
1957	0.143	0.089
1958	0.141	0.083

1959	0.160	0.080
1960	0.258	0.089
1961	0.247	0.067
1962	0.070	0.041
1963	0.161	0.063
1964	0.204	0.063
1965	0.340	0.088
1966	0.111	0.050
1967	0.395	0.089
1968	0.151	0.060
1969	0.229	0.065
1970	0.131	0.059
1971	0.165	0.069
1972	0.382	0.089
1973	0.172	0.058
1974	0.151	0.059
1975	0.225	0.089
1976	0.226	0.063
1977	0.126	0.048
1978	0.120	0.065
1979	0.145	0.045
1980	0.159	0.089
1981	0.107	0.054
1982	0.238	0.088
1983	0.127	0.089
1984	0.228	0.051
1985	0.097	0.062
1986	0.093	0.089
1987	0.208	0.089
1988	0.086	0.053
1989	0.133	0.046
1990	0.265	0.089
1991	0.412	0.182
1992	0.100	0.053
1993	0.102	0.060
1994	0.080	0.037
1995	0.176	0.089
1996	0.382	0.275
1997	0.305	0.089
1998	0.183	0.062
1999	0.272	0.089
2000	0.238	0.087
2001	0.113	0.043
2002	0.155	0.089
2003	0.177	0.048
2004	0.191	0.466
2005	0.218	0.088
2006	0.265	0.088
2007	0.630	0.113
2008	0.467	0.536
2009	0.335	0.089

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	0.6297	0.5357
2	0.4671	0.4657
3	0.4120	0.2748

4	0.3947	0.2678
5	0.3936	0.1821
6	0.3856	0.1129
7	0.3821	0.0891
8	0.3815	0.0891
9	0.3398	0.0891
10	0.3345	0.0890
11	0.3047	0.0888
12	0.2729	0.0888
13	0.2718	0.0888
14	0.2655	0.0887
15	0.2649	0.0887
16	0.2585	0.0887
17	0.2499	0.0887
18	0.2475	0.0886
19	0.2385	0.0886
20	0.2375	0.0886
21	0.2286	0.0886
22	0.2285	0.0886
23	0.2261	0.0885
24	0.2258	0.0885
25	0.2246	0.0885
26	0.2180	0.0885
27	0.2079	0.0885
28	0.2040	0.0884
29	0.1954	0.0873
30	0.1905	0.0830
31	0.1832	0.0804
32	0.1772	0.0687
33	0.1763	0.0670
34	0.1722	0.0654
35	0.1645	0.0650
36	0.1605	0.0648
37	0.1603	0.0639
38	0.1586	0.0630
39	0.1554	0.0630
40	0.1514	0.0629
41	0.1509	0.0621
42	0.1445	0.0620
43	0.1431	0.0598
44	0.1425	0.0597
45	0.1411	0.0589
46	0.1330	0.0586
47	0.1312	0.0579
48	0.1266	0.0578
49	0.1263	0.0543
50	0.1201	0.0534
51	0.1131	0.0531
52	0.1109	0.0522
53	0.1066	0.0513
54	0.1021	0.0501
55	0.1001	0.0480
56	0.0968	0.0480
57	0.0932	0.0463
58	0.0915	0.0449
59	0.0864	0.0433
60	0.0802	0.0412
61	0.0704	0.0372

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0935	1771	108	6	Pass
0.0979	1593	103	6	Pass
0.1023	1436	100	6	Pass
0.1066	1334	97	7	Pass
0.1110	1205	89	7	Pass
0.1154	1106	84	7	Pass
0.1198	1030	81	7	Pass
0.1241	925	79	8	Pass
0.1285	860	78	9	Pass
0.1329	797	78	9	Pass
0.1372	728	75	10	Pass
0.1416	673	73	10	Pass
0.1460	619	71	11	Pass
0.1503	562	69	12	Pass
0.1547	523	69	13	Pass
0.1591	472	69	14	Pass
0.1634	434	68	15	Pass
0.1678	403	66	16	Pass
0.1722	370	62	16	Pass
0.1765	349	62	17	Pass
0.1809	323	58	17	Pass
0.1853	298	56	18	Pass
0.1896	276	55	19	Pass
0.1940	252	54	21	Pass
0.1984	237	52	21	Pass
0.2027	223	50	22	Pass
0.2071	207	48	23	Pass
0.2115	195	45	23	Pass
0.2159	182	44	24	Pass
0.2202	164	38	23	Pass
0.2246	154	38	24	Pass
0.2290	140	38	27	Pass
0.2333	133	35	26	Pass
0.2377	124	33	26	Pass
0.2421	114	32	28	Pass
0.2464	104	32	30	Pass
0.2508	89	30	33	Pass
0.2552	84	26	30	Pass
0.2595	74	25	33	Pass
0.2639	70	23	32	Pass
0.2683	65	20	30	Pass
0.2726	60	19	31	Pass
0.2770	49	18	36	Pass
0.2814	47	17	36	Pass
0.2857	46	17	36	Pass
0.2901	45	16	35	Pass
0.2945	41	16	39	Pass
0.2988	40	16	40	Pass
0.3032	36	16	44	Pass
0.3076	35	15	42	Pass
0.3120	34	13	38	Pass
0.3163	31	12	38	Pass
0.3207	30	12	40	Pass

0.3251	30	11	36	Pass
0.3294	30	10	33	Pass
0.3338	30	10	33	Pass
0.3382	26	10	38	Pass
0.3425	22	8	36	Pass
0.3469	19	8	42	Pass
0.3513	18	8	44	Pass
0.3556	17	8	47	Pass
0.3600	15	7	46	Pass
0.3644	15	7	46	Pass
0.3687	14	6	42	Pass
0.3731	12	6	50	Pass
0.3775	12	5	41	Pass
0.3818	12	5	41	Pass
0.3862	8	5	62	Pass
0.3906	7	4	57	Pass
0.3949	6	4	66	Pass
0.3993	5	4	80	Pass
0.4037	5	4	80	Pass
0.4081	5	3	60	Pass
0.4124	4	3	75	Pass
0.4168	3	3	100	Pass
0.4212	3	3	100	Pass
0.4255	3	3	100	Pass
0.4299	3	3	100	Pass
0.4343	3	3	100	Pass
0.4386	3	3	100	Pass
0.4430	3	3	100	Pass
0.4474	3	3	100	Pass
0.4517	3	3	100	Pass
0.4561	3	3	100	Pass
0.4605	3	3	100	Pass
0.4648	3	3	100	Pass
0.4692	2	2	100	Pass
0.4736	2	2	100	Pass
0.4779	2	1	50	Pass
0.4823	2	1	50	Pass
0.4867	2	1	50	Pass
0.4910	2	1	50	Pass
0.4954	2	1	50	Pass
0.4998	2	1	50	Pass
0.5042	2	1	50	Pass
0.5085	2	1	50	Pass
0.5129	2	1	50	Pass
0.5173	2	1	50	Pass
0.5216	2	1	50	Pass
0.5260	2	1	50	Pass

Water Quality

Water Quality BMP Flow and Volume for POC #1

On-line facility volume:	0 acre-feet
On-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.
Off-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
est Combined POC	☐	174.27			☐	0.00			
Total Volume Infiltrated		174.27	0.00	0.00		0.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Failed

Model Default Modifications

Total of 0 changes have been made.

PERLND Changes

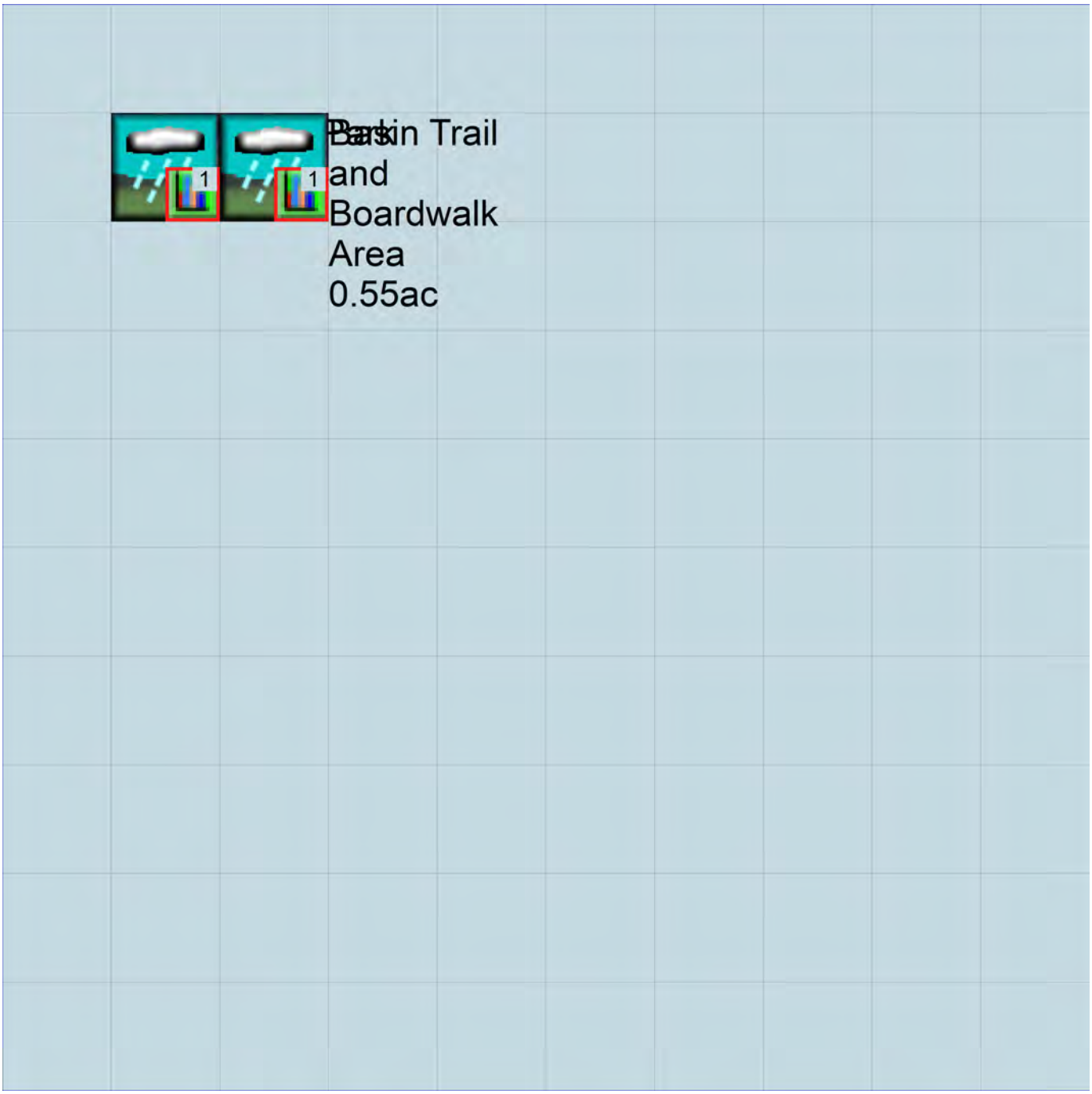
No PERLND changes have been made.

IMPLND Changes

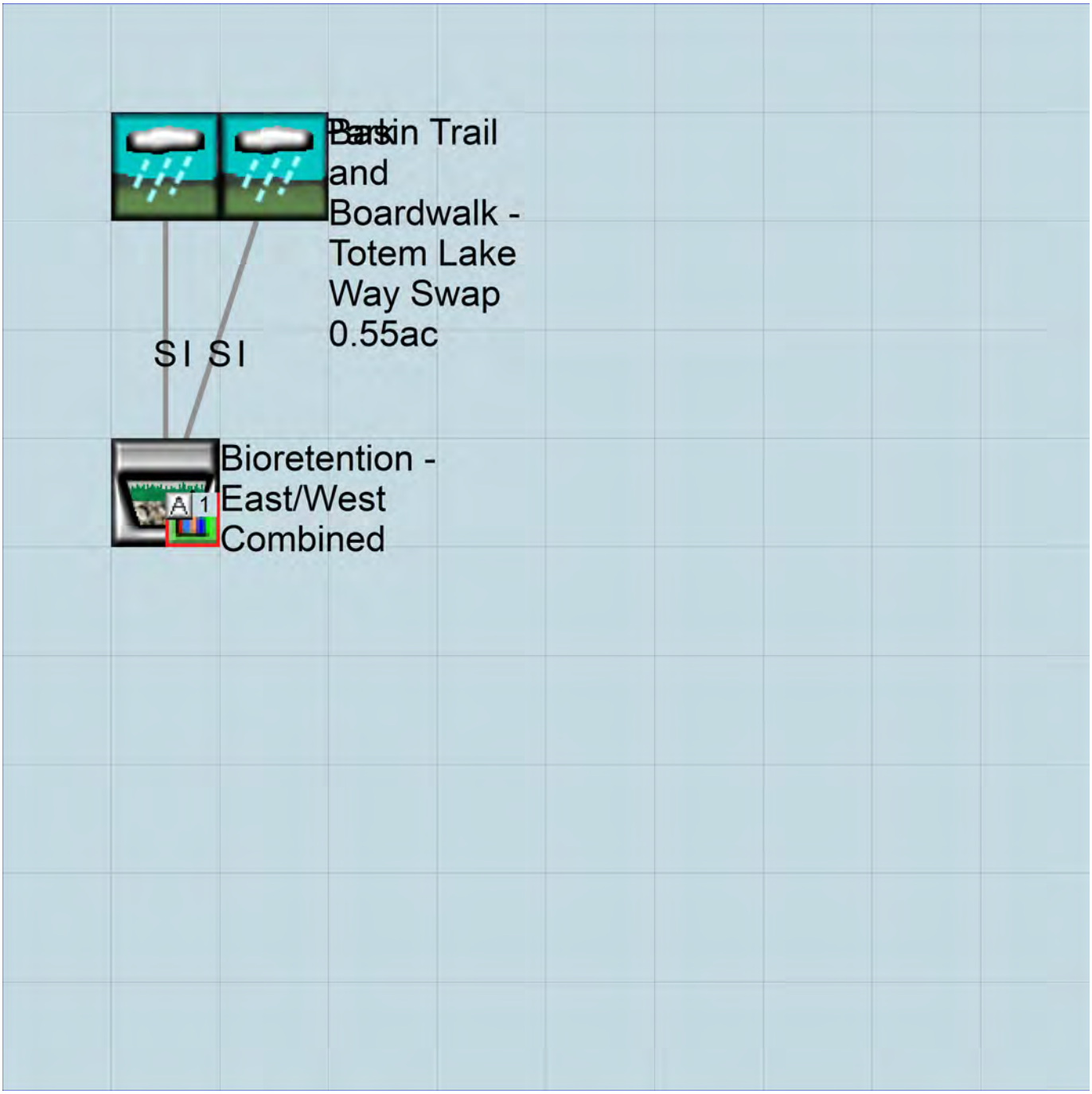
No IMPLND changes have been made.

Appendix

Predeveloped Schematic



Mitigated Schematic



Predeveloped UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1948 10 01        END    2009 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                    UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                               ***
WDM        26   BioretentionCell_FC7.wdm
MESSU      25   PreBioretentionCell_FC7.MES
           27   PreBioretentionCell_FC7.L61
           28   PreBioretentionCell_FC7.L62
           30   POCBioretentionCell_FC71.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:15
      PERLND      20
      PERLND      11
      IMPLND       2
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title---------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Basin Park                 MAX                    1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #         K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                           in  out           ***
   20     SAT, Forest, Mod        1    1    1    1   27    0
   11     C, Forest, Mod          1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   20         0    0    1    0    0    0    0    0    0    0    0    0
   11         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags **************************** PIVL  PYR
```

```
    # -   # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   20         0    0    4    0    0    0    0    0    0    0    0    0    1    9
   11         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -   # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   20         0    0    0    0    0    0    0    0    0    0    0
   11         0    0    0    0    0    0    0    0    0    0    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -   # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   20              0         4         2       100      0.01       0.5     0.996
   11              0       4.5      0.08       400       0.1       0.5     0.996
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -   # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   20              0         0        10         2         0         0       0.7
   11              0         0         2         2         0         0         0
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                                  ***
    # -   #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   20            0.2         3       0.5         1       0.7       0.8
   11            0.2       0.5      0.35         6       0.5       0.7
  END PWAT-PARM4

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
               ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -   # ***  CEPS      SURS       UZS      IFWS       LZS      AGWS      GWVS
   20              0         0         0         0       4.2         1         0
   11              0         0         0         0       2.5         1         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -   #                    User  t-series Engl Metr ***
                                      in  out           ***
    2      ROADS/MOD              1    1    1   27    0
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************ Active Sections ****************************
    # -   # ATMP SNOW IWAT  SLD  IWG IQAL   ***
    2         0    0    1    0    0    0
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -   # ATMP SNOW IWAT  SLD  IWG IQAL    *********
    2         0    0    4    0    0    0    1    9
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -   # CSNO RTOP  VRS  VNN RTLI     ***
    2         0    0    0    0    0
  END IWAT-PARM1

  IWAT-PARM2
```

```
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
    2            400      0.05       0.1      0.08
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
    2               0         0
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
    2               0         0
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK   ***
<Name>   #                  <-factor->     <Name>   #   Tbl#   ***
Basin Park***
PERLND  20                        1.21     COPY   501     12
PERLND  20                        1.21     COPY   501     13
Basin Trail and Boardwalk Area***
PERLND  20                        0.19     COPY   501     12
PERLND  20                        0.19     COPY   501     13
PERLND  11                        0.14     COPY   501     12
PERLND  11                        0.14     COPY   501     13
IMPLND   2                        0.22     COPY   501     15

******Routing******
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN    1 1   48.4        DISPLY   1     INPUT  TIMSER 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                ***
    # -  #<-----------------><---> User T-series  Engl Metr LKFG            ***
                                       in  out                               ***
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ******************* PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                   ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
            FG FG FG FG  possible  exit  *** possible  exit      possible  exit
             *  *  *  *    *  *  *  *  *       *  *  *  *  *         ***
  END HYDR-PARM1
```

```
  HYDR-PARM2
    # -  #    FTABNO       LEN     DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><-------->       ***
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                          ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
          *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><--->
  END HYDR-INIT
END RCHRES

SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1              PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1              IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    0.76           PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    0.76           IMPLND   1 999 EXTNL  PETINP

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
COPY   501 OUTPUT MEAN   1 1      48.4      WDM    501 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>            <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK       12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   12

  MASS-LINK       13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   13

  MASS-LINK       15
IMPLND     IWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   15


END MASS-LINK

END RUN
```

Mitigated UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1948 10 01        END    2009 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                    UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                               ***
WDM        26   BioretentionCell_FC7.wdm
MESSU      25   MitBioretentionCell_FC7.MES
           27   MitBioretentionCell_FC7.L61
           28   MitBioretentionCell_FC7.L62
           30   POCBioretentionCell_FC71.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:15
      PERLND      26
      IMPLND       2
      IMPLND       9
      GENER        2
      RCHRES       1
      RCHRES       2
      COPY         1
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title---------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Surface est Combined        MAX                    1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
    2        24
  END OPCODE
  PARM
    #    #         K ***
    2             0.
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                           in  out           ***
   26     SAT, Lawn, Mod          1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   26         0    0    1    0    0    0    0    0    0    0    0    0
```

```
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ***************************** PIVL  PYR
    # -   # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   26         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -   # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   26         0    0    0    0    0    0    0    0    0    0    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -   # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   26             0         4         1       100      0.01       0.5     0.996
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -   # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   26              0         0        10         2         0         0      0.35
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                                  ***
    # -   #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   26            0.1         3       0.5         1       0.7       0.4
  END PWAT-PARM4

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
               ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -   # ***  CEPS      SURS       UZS      IFWS       LZS      AGWS      GWVS
   26              0         0         0         0       4.2         1         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -   #                     User  t-series Engl Metr ***
                                       in  out           ***
    2      ROADS/MOD              1    1    1   27    0
    9      SIDEWALKS/MOD          1    1    1   27    0
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -   # ATMP SNOW IWAT  SLD  IWG IQAL   ***
    2         0    0    1    0    0    0
    9         0    0    1    0    0    0
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -   # ATMP SNOW IWAT  SLD  IWG IQAL    *********
    2         0    0    4    0    0    0    1    9
    9         0    0    4    0    0    0    1    9
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -   # CSNO RTOP  VRS  VNN RTLI     ***
    2         0    0    0    0    0
    9         0    0    0    0    0
  END IWAT-PARM1
```

```
  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -   # ***  LSUR     SLSUR      NSUR     RETSC
    2            400      0.05       0.1      0.08
    9            400      0.05       0.1      0.08
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -   # ***PETMAX    PETMIN
    2              0         0
    9              0         0
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -   # ***  RETS      SURS
    2              0         0
    9              0         0
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                  <--Area-->     <-Target->   MBLK    ***
<Name>   #                  <-factor->     <Name>   #   Tbl#    ***
Basin Park***
PERLND  26                       0.54      RCHRES   1      2
PERLND  26                       0.54      RCHRES   1      3
IMPLND   2                       0.06      RCHRES   1      5
IMPLND   9                        0.5      RCHRES   1      5
Basin Trail and Boardwalk - Totem Lake Way Swap***
PERLND  26                       0.01      RCHRES   1      2
PERLND  26                       0.01      RCHRES   1      3
IMPLND   2                       0.36      RCHRES   1      5
IMPLND   9                       0.18      RCHRES   1      5

******Routing******
PERLND  26                       0.54      COPY     1     12
IMPLND   2                       0.06      COPY     1     15
IMPLND   9                        0.5      COPY     1     15
PERLND  26                       0.54      COPY     1     13
PERLND  26                       0.01      COPY     1     12
IMPLND   2                       0.36      COPY     1     15
IMPLND   9                       0.18      COPY     1     15
PERLND  26                       0.01      COPY     1     13
RCHRES   1                          1      RCHRES   2      8
RCHRES   2                          1      COPY   501     16
RCHRES   1                          1      COPY   501     17
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   48.4        DISPLY   1     INPUT  TIMSER 1
GENER    2 OUTPUT TIMSER      .0011111     RCHRES   1     EXTNL  OUTDGT 1



<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                ***
    # -   #<------------------><---> User T-series  Engl Metr LKFG          ***
                                          in  out                            ***
    1     Surface est Comb-008    3    1    1    1   28    0    1
```

```
    2     Bioretention - E-007    1    1    1    1   28    0    1
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
    1         1    0    0    0    0    0    0    0    0    0
    2         1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ******************* PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
    1         4    0    0    0    0    0    0    0    0    0    1    9
    2         4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                        ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
            FG FG FG FG  possible  exit  *** possible  exit      possible  exit
             *  *  *  *    *  *  *  *  *       *  *  *  *  *        ***
    1        0  1  0  0    4  5  6  0  0       0  1  0  0  0       2  1  2  2  2
    2        0  1  0  0    4  0  0  0  0       0  0  0  0  0       2  2  2  2  2
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN      DELTH      STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><-------->       ***
    1              1      0.01       0.0    124.25       0.0       0.0
    2              2      0.04       0.0    124.25       0.5       0.0
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                           ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
          *** ac-ft     for each possible exit        for each possible exit
  <------><-------->    <---><---><---><---><---> *** <---><---><---><---><--->
    1            0        4.0  5.0  6.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
    2            0        4.0  0.0  0.0  0.0  0.0       0.0  0.0  0.0  0.0  0.0
  END HYDR-INIT
END RCHRES

SPEC-ACTIONS
*** User-Defined Variable Quantity Lines
***                          addr
***                         <------>
*** kwd  varnam optyp  opn  vari  s1 s2 s3 tp multiply  lc ls ac as agfn ***
  <****> <----> <----> <-> <----><-><-><-><-><--------> <><-> <><-> <--> ***
  UVQUAN vol2   RCHRES   2 VOL              4
  UVQUAN v2m2   GLOBAL     WORKSP  1        3
  UVQUAN vpo2   GLOBAL     WORKSP  2        3
  UVQUAN v2d2   GENER    2 K       1        3
*** User-Defined Target Variable Names
***                  addr or                      addr or
***                 <------>                     <------>
*** kwd   varnam ct  vari  s1 s2 s3  frac oper     vari  s1 s2 s3  frac oper
  <****>  <----><-> <----><-><-><-> <---> <-->    <----><-><-><-> <---> <-->
  UVNAME  v2m2    1 WORKSP  1         1.0 QUAN
  UVNAME  vpo2    1 WORKSP  2         1.0 QUAN
  UVNAME  v2d2    1 K       1         1.0 QUAN
*** opt foplop dcdts  yr mo dy hr mn d t   vnam  s1 s2 s3 ac quantity  tc  ts rp
  <****><-><--><><-><--> <> <> <> <><><>  <----><-><-><-><-><--------> <> <-><->
  GENER   2                              v2m2            =  8674.22
*** Compute remaining available pore space
  GENER   2                              vpo2            =  v2m2
  GENER   2                              vpo2           -=  vol2
*** Check to see if VPORA goes negative; if so set VPORA = 0.0
IF (vpo2 < 0.0) THEN
  GENER   2                              vpo2            =  0.0
```

```
END IF
*** Infiltration volume
  GENER   2                                   v2d2            =  vpo2
END SPEC-ACTIONS
FTABLES
  FTABLE      2
   65    4
      Depth      Area    Volume  Outflow1 Velocity  Travel Time***
       (ft)   (acres) (acre-ft)   (cfs)   (ft/sec)    (Minutes)***
  0.000000  0.188928  0.000000  0.000000
  0.054945  0.187608  0.001690  0.000000
  0.109890  0.185725  0.003417  0.000000
  0.164835  0.183845  0.005180  0.000000
  0.219780  0.181970  0.006980  0.000000
  0.274725  0.180097  0.009079  0.000000
  0.329670  0.178229  0.011221  0.000000
  0.384615  0.176364  0.013405  0.000000
  0.439560  0.174502  0.015631  0.000000
  0.494505  0.172645  0.017900  0.000000
  0.549451  0.170791  0.020210  0.000000
  0.604396  0.168940  0.022564  0.000000
  0.659341  0.167093  0.024960  0.000000
  0.714286  0.165250  0.027398  0.000000
  0.769231  0.163411  0.029880  0.000000
  0.824176  0.161575  0.032404  0.000000
  0.879121  0.159743  0.034971  0.000000
  0.934066  0.157914  0.037582  0.000000
  0.989011  0.156089  0.040235  0.001563
  1.043956  0.154268  0.042932  0.002345
  1.098901  0.152450  0.045672  0.006120
  1.153846  0.150636  0.048456  0.008007
  1.208791  0.148826  0.051283  0.010821
  1.263736  0.147019  0.054154  0.012228
  1.318681  0.145216  0.057068  0.014387
  1.373626  0.143416  0.060026  0.015467
  1.428571  0.141620  0.063028  0.017241
  1.483516  0.139828  0.066074  0.018129
  1.538462  0.138040  0.069165  0.019663
  1.593407  0.136255  0.072299  0.020430
  1.648352  0.134473  0.075477  0.021801
  1.703297  0.132696  0.078700  0.022487
  1.758242  0.130922  0.081665  0.023739
  1.813187  0.129151  0.084671  0.024365
  1.868132  0.127385  0.087717  0.025525
  1.923077  0.125621  0.090804  0.026105
  1.978022  0.123862  0.093931  0.027191
  2.032967  0.122106  0.097099  0.027734
  2.087912  0.120354  0.100308  0.028759
  2.142857  0.118605  0.103557  0.029271
  2.197802  0.116861  0.106848  0.030244
  2.252747  0.115119  0.110180  0.030660
  2.307692  0.113382  0.113553  0.030868
  2.362637  0.111648  0.116967  0.031660
  2.417582  0.109917  0.120423  0.032973
  2.472527  0.108191  0.123920  0.034858
  2.527473  0.106468  0.127458  0.036953
  2.582418  0.104748  0.131038  0.039087
  2.637363  0.103032  0.134660  0.041186
  2.692308  0.101320  0.138323  0.043221
  2.747253  0.099612  0.142028  0.045183
  2.802198  0.097907  0.145775  0.047071
  2.857143  0.096206  0.149564  0.048891
  2.912088  0.094508  0.153395  0.050646
  2.967033  0.092814  0.157269  0.052344
  3.021978  0.091124  0.161184  0.053989
  3.076923  0.089437  0.165142  0.055586
  3.131868  0.087754  0.169142  0.057139
  3.186813  0.086074  0.173185  0.058652
  3.241758  0.084399  0.177270  0.060129
  3.296703  0.082727  0.181398  0.061572
```

```
  3.351648  0.081058  0.185569  0.062987
  3.406593  0.079393  0.189783  0.064376
  3.461538  0.077732  0.194039  0.065754
  3.500000  0.076074  0.199133  0.101092
  END FTABLE  2
  FTABLE      1
   29    6
     Depth      Area    Volume  Outflow1  Outflow2  outflow 3 Velocity  Travel
Time***
      (ft)   (acres) (acre-ft)   (cfs)      (cfs)     (cfs)   (ft/sec)
(Minutes)***
  0.000000  0.076074  0.000000  0.000000  0.000000  0.000000
  0.054945  0.190818  0.010433  0.000000  0.177879  0.000000
  0.109890  0.192711  0.020969  0.000000  0.256067  0.000000
  0.164835  0.194607  0.031610  0.000000  0.293768  0.000000
  0.219780  0.196508  0.042355  0.000000  0.302197  0.000000
  0.274725  0.198412  0.053204  0.000000  0.310627  0.000000
  0.329670  0.200319  0.064158  0.000000  0.319056  0.000000
  0.384615  0.202230  0.075217  0.000000  0.327486  0.000000
  0.439560  0.204145  0.086381  0.000000  0.335915  0.000000
  0.494505  0.206064  0.097651  0.000000  0.344345  0.000000
  0.549451  0.207986  0.109026  0.000000  0.352774  0.000000
  0.604396  0.209912  0.120507  0.000000  0.361204  0.000000
  0.659341  0.211841  0.132093  0.000000  0.369633  0.000000
  0.714286  0.213774  0.143786  0.000000  0.378063  0.000000
  0.769231  0.215711  0.155585  0.000000  0.386492  0.000000
  0.824176  0.217651  0.167490  0.000000  0.394922  0.000000
  0.879121  0.219595  0.179503  0.000000  0.403351  0.000000
  0.934066  0.221542  0.191622  0.000000  0.411781  0.000000
  0.989011  0.223494  0.203848  0.000000  0.420210  0.000000
  1.043956  0.225448  0.216182  0.244487  0.428640  0.000000
  1.098901  0.227407  0.228623  0.824413  0.437069  0.000000
  1.153846  0.229369  0.241172  1.597680  0.445499  0.000000
  1.208791  0.231335  0.253828  2.521179  0.453928  0.000000
  1.263736  0.233304  0.266593  3.567871  0.462358  0.000000
  1.318681  0.235277  0.279466  4.715888  0.470787  0.000000
  1.373626  0.237254  0.292448  5.944976  0.479217  0.000000
  1.428571  0.239234  0.305538  7.235071  0.487646  0.000000
  1.483516  0.241218  0.318737  8.565753  0.496076  0.000000
  1.500000  0.241814  0.322718  9.916159  0.498605  0.000000
  END FTABLE  1
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1              PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1              IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    0.76           PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    0.76           IMPLND   1 999 EXTNL  PETINP
WDM      2 PREC     ENGL    1              RCHRES   1     EXTNL  PREC
WDM      1 EVAP     ENGL    0.5            RCHRES   1     EXTNL  POTEV
WDM      1 EVAP     ENGL    0.76           RCHRES   2     EXTNL  POTEV

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
RCHRES   2 HYDR   RO     1 1        1      WDM   1000 FLOW     ENGL      REPL
RCHRES   2 HYDR   STAGE  1 1        1      WDM   1001 STAG     ENGL      REPL
RCHRES   1 HYDR   STAGE  1 1        1      WDM   1002 STAG     ENGL      REPL
RCHRES   1 HYDR   O      1 1        1      WDM   1003 FLOW     ENGL      REPL
COPY     1 OUTPUT MEAN   1 1     48.4      WDM    701 FLOW     ENGL      REPL
COPY   501 OUTPUT MEAN   1 1     48.4      WDM    801 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>            <Name> # #<-factor->     <Name>                <Name> # #***
```

```
  MASS-LINK        2
PERLND     PWATER SURO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK    2

  MASS-LINK        3
PERLND     PWATER IFWO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK    3

  MASS-LINK        5
IMPLND     IWATER SURO       0.083333      RCHRES         INFLOW IVOL
  END MASS-LINK    5

  MASS-LINK        8
RCHRES     OFLOW  OVOL   2                 RCHRES         INFLOW IVOL
  END MASS-LINK    8

  MASS-LINK       12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   12

  MASS-LINK       13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   13

  MASS-LINK       15
IMPLND     IWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   15

  MASS-LINK       16
RCHRES     ROFLOW                          COPY           INPUT  MEAN
  END MASS-LINK   16

  MASS-LINK       17
RCHRES     OFLOW  OVOL   1                 COPY           INPUT  MEAN
  END MASS-LINK   17


END MASS-LINK

END RUN
```

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Appendix F
Conveyance Calculations

Conveyance Pipe Calculations for Totem Lake 90% Design
Goal: To determine inverts and rims for stormwater conveyance piping
Created 11/5/18 by Anna Leenay using modified sheet by Raymond Chung
Last updated 2/5/19

LOCATION		AREA												HYDROLOGY, Tc AND, PEAK FLOW RATE.								
From	To	Total Imprevious	Total Pervious	Length	Impervious Area	Impervious Area	Impervious C	Pervious Area	Pervious Area	Pervious C	Subtotal CA	Other CA	Sum CA	K	T0	Tr	Tc	Tc	I	Q	Q Other	Q sum
ID#	ID#	Ac	Ac	(ft)	SF	Ac		SF	Ac						min	min	min	min	in/hr	cfs	cfs	cfs
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Area	CB B	0.56	0.00	288	24645	0.56	0.90	0	0.00	0.25	0.51		0.51	20.00	1.70	0.00	1.70	6.30	2.45	1.25	0.15	1.40
CB B	CB A	0.00	0.00	0	0	0.00	0.90	0	0.00	0.25	0.00		0.51	50.00	1.70	0.06	1.76	6.30	2.45	1.25		1.40
CB A	CB E	0.05	0.00	73	2359	0.05	0.90	0	0.00	0.25	0.05		0.56	50.00	1.76	0.29	2.06	6.30	2.45	1.37		1.52
CB E	Outfall	0.00	0.00	0	0	0.00	0.90	0	0.00	0.25	0.00		0.56	50.00	2.06	0.10	2.15	6.30	2.45	1.37		1.52
Area	CB D	0.03	0.06	80	1374	0.03	0.90	2493	0.06	0.25	0.04		0.04	11.62	0.81	0.00	0.81	6.30	2.45	0.10		0.10
CB D	Outfall	0.00	0.00	0	0	0.00	0.90	0	0.00	0.25	0.00		0.04	50.00	0.81	0.08	0.90	6.30	2.45	0.10		0.10
Area	CB C	0.06	0.04	71	2595	0.06	0.90	1608	0.04	0.25	0.06		0.06	15.03	0.56	0.00	0.56	6.30	2.45	0.15		0.15
CB C	Road CB	0.00	0.00	0	0	0.00	0.90	0	0.00	0.25	0.00		0.06	50.00	0.56	0.05	0.60	6.30	2.45	0.15		0.15
Area	CB F	0.00	0.18	177	0	0.00	0.90	8037	0.18	0.25	0.05		0.05	7.00	2.98	0.00	2.98	6.30	2.45	0.11		0.11
CB F	CB-G	0.00	0.01	43	0	0.00	0.90	231	0.01	0.25	0.00		0.05	50.00	2.98	0.08	3.06	6.30	2.45	0.12		0.12
CB-G	Outfall	0.05	0.00	0	2194	0.05	0.90	0	0.00	0.25	0.05		0.09	50.00	3.06	0.04	3.09	6.30	2.45	0.23	0.51	0.74
Flow Control	Ext SD	1.11	0.65	40	48333	1.11	0.90	28433	0.65	0.25	1.16		1.16	15.18	0.44	0.31	0.75	6.30	2.45	2.85		2.85
Area	Playground	0.23	0.00	163	10115	0.23	0.90	0	0.00	0.25	0.21		0.21	20.00	0.96	0.00	0.96	6.30	2.45	0.51		0.51
Playground	CB G	0.00	0.00	0	0	0.00	0.90	0	0.00	0.25	0.00		0.21	50.00	0.96	0.14	1.10	6.30	2.45	0.51		0.51
Area	Overflow	1.11	0.65	320	48333	1.11	0.90	28433	0.65	0.25	1.16		1.16	15.18	2.48	0.00	2.48	6.30	2.45	2.85		2.85
Overflow	EX SD	0.00	0.00	0	0	0.00	0.90	0	0.00	0.25	0.00		1.16	50.00	2.48	0.09	2.58	6.30	2.45	2.85		2.85

LOCATION		RIM ELEVATIONS		INVERT ELEVATIONS		SLOPE	OTHER CHARACTERISTICS										REMARKS		
From	To	U/S Finished Grade	D/S Finished Grade	Inlet, U/S	Outlet, D/S	Slope	Velocity	Length of Pipe	Mannings	Diam of Pipe	Q Full	V Full	U/S Rim- Invert	D/S Rim- Invert	U/S Cover	D/S Cover	Rational/ SBUH	Pipe Material	Structure Type "To"
ID#	ID#	(ft)	(ft)	ft	ft	ft/ft	fps	(ft)	(n=)	(in)	(cfs)	(fps)	ft	ft	ft	ft			
1	2	24	25	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
Area	CB B		134.32		131.30	n/a				12.00				3.02		1.85	Rational		CB Type 1
CB B	CB A	134.32	132.88	131.30	128.50	0.06	12.20	47.00	0.01	12.00	8.10	10.31	3.02	4.38	1.85	3.21	Rational	DISSP	CB Type 1
CB A	CB E	132.88	132.24	128.50	128.00	0.01	4.14	73.00	0.01	12.00	2.75	3.50	4.38	4.24	3.21	3.07	Rational	DI	CB Type 1L
CB E	Outfall	132.24	129.80	128.00	127.75	0.01	4.72	28.00	0.01	12.00	3.13	3.99	4.24	2.05	3.07	0.88	Rational	DI	CB Type 1
Area	CB D		133.90		128.90	n/a				8.00				5.00		4.23	Rational		CB Type 1
CB D	Outfall	133.90	129.80	128.90	127.75	0.03	8.27	42.00	0.01	8.00	2.84	8.14	5.00	2.05	4.23	1.28	Rational	PVC	CB Type 1
Area	CB C		140.00		135.90	n/a				8.00				4.10		3.33	Rational	PVC	CB Type 1
CB C	Road CB	140.00	139.17	135.90	135.75	0.01	5.18	14.00	0.01	8.00	1.16	3.34	4.10	3.42	3.33	2.65	Rational	PVC	CB Type 1
Area	CB F		135.60		130.60	n/a				8.00				5.00		4.23	Rational		CB Type 1
CB F	CB-G	135.60	134.10	130.60	129.10	0.03	9.34	43.00	0.01	8.00	2.10	6.02	5.00	5.00	4.23	4.23	Rational	PVC	CB Type 1
CB-G	Outfall	134.10	129.80	129.10	127.75	0.05	11.62	25.00	0.01	8.00	2.61	7.49	5.00	2.05	4.23	1.28	Rational	PVC	CB Type 1
Flow Control	Ext SD	132.50	129.25	124.50	124.00	0.01	1.84	34.00	0.01	12.00	4.02	5.12	8.00	5.25	6.83	4.08	Rational	PVC	CB Type 1
Area	Playground		132.34		129.40	n/a			0.01	6.00				2.94		2.36	Rational	PVC	Cleanout
Playground	CB G	132.34	134.10	129.40	129.10	0.01	4.44	38.00	0.01	6.00	0.46	2.36	2.94	5.00	2.36	4.42	Rational	PVC	CB Type 1
Area	Overflow		128.75		124.50	n/a			0.01	12.00				4.25		3.08	Rational	PVC	CB Type 1
Overflow	EX SD	128.75	129.25	124.50	124.00	0.01	6.06	34.00	0.01	12.00	4.02	5.12	4.25	5.25	3.08	4.08	Rational	PVC	CB Type 1

Notes:
Calculations per King County Surface Water Design Manual Section 3.2.1, Rational Method

STORM PIPE DESIGN COMPUTATIONS - 100 YEAR CONVEYANCE (BACKWATER ANALYSIS)
Project: Totem Lake
Date: 11/6/18 by ABL
Last Updated: 2/5/19

To	From	Length	Dia.	Manning's	D/S	Inlet Elev	Barrel Area	Barrel Velocity	Barrel Velocity	TW Elev	Friction Slope	Friction Loss	Entrance HGL Elev	Entr. Loss Coeff.1	Entr Head Loss	Exit Head Loss	Outlet Control Elevation	Submerged/ Unsubmerged	Slope	Inlet HW/D2	Inlet Control Elevation	Inlet or Outlet Control	Approach Velocity	Bend Angle	Bend Loss Coef.3	Bend Head Loss	Q3	Q1	Junction Head Loss	HW Elev	Ground Elev	Difference
ID	ID	FT	IN	" n "	FT	FT	FT^2	FPS	FT	FT		FT	FT		FT	FT	FT		ft/ft		FT		FT	Deg		FT				FT	FT	FT
		2	3	4	5	6	7	8	9	10		11	12		13	14	15				16		17			18			19	20		
Outfall	CB E	28	12	0.014	127.75	128.00	0.79	1.74	0.05	128.75	0.00	0.05	128.80	0.50	0.02	0.05	128.87	Submerged	0.01	0.79	128.79	Outlet	0.05	0.00	0.04	0.00	0.00	1.37	0.00	128.84	132.24	-3.40
CB E	CB A	73	12	0.014	128.00	128.50	0.79	1.74	0.05	128.82	0.00	0.12	128.95	0.50	0.02	0.05	129.02	Unsubmerged	0.01	0.03	128.53	Outlet	0.04	0.00	0.04	0.00	0.00	1.37	0.00	129.03	132.88	-3.85
CB A	CB B	47	12	0.014	128.50	131.30	0.79	1.59	0.04	128.98	0.00	0.07	129.04	0.50	0.02	0.04	129.10	Unsubmerged	0.02	0.02	131.32	Inlet	0.00	0.00	0.04	0.00	0.00	1.25	0.00	131.33	134.32	-2.99
CB B	Area																															
Outfall	CB D	42	8	0.014	127.75	130.43	0.35	0.30	0.00	128.75	0.00	0.00	128.75	0.50	0.00	0.00	128.76	Submerged	0.06	0.00	130.43	Inlet	0.00	0.00	0.04	0.00	0.00	0.10	0.00	128.90	133.90	-5.00
CB D	Area																															
Road CB	CB C	14	8	0.014	135.75	135.90	0.35	0.44	0.00	136.42	0.00	0.00	136.42	0.50	0.00	0.00	136.42	Unsubmerged	0.01	0.00	135.90	Outlet	0.00	0.00	0.04	0.00	0.00	0.15	0.00	136.42	140.00	-3.58
CB C	Area																															
Outfall	CB-G	25	8	0.014	127.75	129.10	0.35	2.12	0.07	128.75	0.00	0.11	128.86	0.50	0.03	0.07	128.96	Submerged	0.05	0.91	129.71	Inlet	0.00	0.00	0.04	0.00	0.00	0.74	0.00	129.71	134.10	-4.39
CB-G	CB F	43	8	0.014	129.10	130.60	0.35	0.33	0.00	129.71	0.00	0.00	129.71	0.50	0.00	0.00	129.72	Unsubmerged	0.03	0.00	130.60	Inlet	0.00	0.00	0.04	0.00	0.51	0.12	0.00	130.60	135.60	-5.00
CB F	Area																															
Ext SD	Flow Control	34	12	0.014	124.00	124.50	0.79	4.16	0.27	125.00	0.01	0.33	125.33	0.50	0.13	0.27	125.73	Submerged	0.01	0.17	124.67	Outlet	0.07	0.00	0.04	0.01	0.00	3.26	0.00	125.50	132.50	-7.00
CB G	Playground Connect	38	6	0.014	129.10	129.40	0.20	2.60	0.11	129.71	0.01	0.36	130.07	3.50	0.37	0.11	130.54	Submerged	n/a	1.21	130.01	Outlet	0.00	0.00	0.04	0.00	0.00	0.51	0.00	130.55	132.34	-1.79
Playground Connect	Area																															
EX SD	Overflow	34	12	0.014	124.00	124.50	0.79	2.08	0.07	125.00	0.00	0.08	125.08	0.50	0.03	0.07	125.18	Unsubmerged	0.01	0.04	124.54	Outlet	0.00	0.00	0.04	0.00	0.00	1.63	0.00	125.56	128.75	-3.19
Overflow	Area																															

Notes:
Calculations per King County Surface Water Design Manual Section 3.2.1, Rational Method

Appendix G
Operations and Maintenance Recommended Procedures, from KCSWDM

NO. 4 – CONTROL STRUCTURE/FLOW RESTRICTOR

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
Structure	Trash and debris	Trash or debris of more than ½ cubic foot which is located immediately in front of the structure opening or is blocking capacity of the structure by more than 10%.	No Trash or debris blocking or potentially blocking entrance to structure.
		Trash or debris in the structure that exceeds $^1/_3$ the depth from the bottom of basin to invert the lowest pipe into or out of the basin.	No trash or debris in the structure.
		Deposits of garbage exceeding 1 cubic foot in volume.	No condition present which would attract or support the breeding of insects or rodents.
	Sediment	Sediment exceeds 60% of the depth from the bottom of the structure to the invert of the lowest pipe into or out of the structure or the bottom of the FROP-T section or is within 6 inches of the invert of the lowest pipe into or out of the structure or the bottom of the FROP-T section.	Sump of structure contains no sediment.
	Damage to frame and/or top slab	Corner of frame extends more than ¾ inch past curb face into the street (If applicable).	Frame is even with curb.
		Top slab has holes larger than 2 square inches or cracks wider than ¼ inch.	Top slab is free of holes and cracks.
		Frame not sitting flush on top slab, i.e., separation of more than ¾ inch of the frame from the top slab.	Frame is sitting flush on top slab.
	Cracks in walls or bottom	Cracks wider than ½ inch and longer than 3 feet, any evidence of soil particles entering structure through cracks, or maintenance person judges that structure is unsound.	Structure is sealed and structurally sound.
		Cracks wider than ½ inch and longer than 1 foot at the joint of any inlet/outlet pipe or any evidence of soil particles entering structure through cracks.	No cracks more than $^1/_4$ inch wide at the joint of inlet/outlet pipe.
	Settlement/ misalignment	Structure has settled more than 1 inch or has rotated more than 2 inches out of alignment.	Basin replaced or repaired to design standards.
	Damaged pipe joints	Cracks wider than ½-inch at the joint of the inlet/outlet pipes or any evidence of soil entering the structure at the joint of the inlet/outlet pipes.	No cracks more than ¼-inch wide at the joint of inlet/outlet pipes.
	Contaminants and pollution	Any evidence of contaminants or pollution such as oil, gasoline, concrete slurries or paint.	Materials removed and disposed of according to applicable regulations. Source control BMPs implemented if appropriate. No contaminants present other than a surface oil film.
	Ladder rungs missing or unsafe	Ladder is unsafe due to missing rungs, misalignment, rust, cracks, or sharp edges.	Ladder meets design standards and allows maintenance person safe access.
FROP-T Section	Damage	T section is not securely attached to structure wall and outlet pipe structure should support at least 1,000 lbs of up or down pressure.	T section securely attached to wall and outlet pipe.
		Structure is not in upright position (allow up to 10% from plumb).	Structure in correct position.
		Connections to outlet pipe are not watertight or show signs of deteriorated grout.	Connections to outlet pipe are water tight; structure repaired or replaced and works as designed.
		Any holes—other than designed holes—in the structure.	Structure has no holes other than designed holes.

NO. 4 – CONTROL STRUCTURE/FLOW RESTRICTOR

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
Cleanout Gate	Damaged or missing	Cleanout gate is missing.	Replace cleanout gate.
		Cleanout gate is not watertight.	Gate is watertight and works as designed.
		Gate cannot be moved up and down by one maintenance person.	Gate moves up and down easily and is watertight.
		Chain/rod leading to gate is missing or damaged.	Chain is in place and works as designed.
Orifice Plate	Damaged or missing	Control device is not working properly due to missing, out of place, or bent orifice plate.	Plate is in place and works as designed.
	Obstructions	Any trash, debris, sediment, or vegetation blocking the plate.	Plate is free of all obstructions and works as designed.
Overflow Pipe	Obstructions	Any trash or debris blocking (or having the potential of blocking) the overflow pipe.	Pipe is free of all obstructions and works as designed.
	Deformed or damaged lip	Lip of overflow pipe is bent or deformed.	Overflow pipe does not allow overflow at an elevation lower than design
Inlet/Outlet Pipe	Sediment accumulation	Sediment filling 20% or more of the pipe.	Inlet/outlet pipes clear of sediment.
	Trash and debris	Trash and debris accumulated in inlet/outlet pipes (includes floatables and non-floatables).	No trash or debris in pipes.
	Damaged	Cracks wider than ½-inch at the joint of the inlet/outlet pipes or any evidence of soil entering at the joints of the inlet/outlet pipes.	No cracks more than ¼-inch wide at the joint of the inlet/outlet pipe.
Metal Grates (If Applicable)	Unsafe grate opening	Grate with opening wider than $^{7}/_{8}$ inch.	Grate opening meets design standards.
	Trash and debris	Trash and debris that is blocking more than 20% of grate surface.	Grate free of trash and debris. footnote to guidelines for disposal
	Damaged or missing	Grate missing or broken member(s) of the grate.	Grate is in place and meets design standards.
Manhole Cover/Lid	Cover/lid not in place	Cover/lid is missing or only partially in place. **Any open structure requires urgent maintenance**.	Cover/lid protects opening to structure.
	Locking mechanism Not Working	Mechanism cannot be opened by one maintenance person with proper tools. Bolts cannot be seated. Self-locking cover/lid does not work.	Mechanism opens with proper tools.
	Cover/lid difficult to Remove	One maintenance person cannot remove cover/lid after applying 80 lbs. of lift.	Cover/lid can be removed and reinstalled by one maintenance person.

NO. 5 – CATCH BASINS AND MANHOLES

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
Structure	Sediment	Sediment exceeds 60% of the depth from the bottom of the catch basin to the invert of the lowest pipe into or out of the catch basin or is within 6 inches of the invert of the lowest pipe into or out of the catch basin.	Sump of catch basin contains no sediment.
	Trash and debris	Trash or debris of more than ½ cubic foot which is located immediately in front of the catch basin opening or is blocking capacity of the catch basin by more than 10%.	No Trash or debris blocking or potentially blocking entrance to catch basin.
		Trash or debris in the catch basin that exceeds $^1/_3$ the depth from the bottom of basin to invert the lowest pipe into or out of the basin.	No trash or debris in the catch basin.
		Dead animals or vegetation that could generate odors that could cause complaints or dangerous gases (e.g., methane).	No dead animals or vegetation present within catch basin.
		Deposits of garbage exceeding 1 cubic foot in volume.	No condition present which would attract or support the breeding of insects or rodents.
	Damage to frame and/or top slab	Corner of frame extends more than ¾ inch past curb face into the street (If applicable).	Frame is even with curb.
		Top slab has holes larger than 2 square inches or cracks wider than ¼ inch.	Top slab is free of holes and cracks.
		Frame not sitting flush on top slab, i.e., separation of more than ¾ inch of the frame from the top slab.	Frame is sitting flush on top slab.
	Cracks in walls or bottom	Cracks wider than ½ inch and longer than 3 feet, any evidence of soil particles entering catch basin through cracks, or maintenance person judges that catch basin is unsound.	Catch basin is sealed and is structurally sound.
		Cracks wider than ½ inch and longer than 1 foot at the joint of any inlet/outlet pipe or any evidence of soil particles entering catch basin through cracks.	No cracks more than $^1/_4$ inch wide at the joint of inlet/outlet pipe.
	Settlement/ misalignment	Catch basin has settled more than 1 inch or has rotated more than 2 inches out of alignment.	Basin replaced or repaired to design standards.
	Damaged pipe joints	Cracks wider than ½-inch at the joint of the inlet/outlet pipes or any evidence of soil entering the catch basin at the joint of the inlet/outlet pipes.	No cracks more than ¼-inch wide at the joint of inlet/outlet pipes.
	Contaminants and pollution	Any evidence of contaminants or pollution such as oil, gasoline, concrete slurries or paint.	Materials removed and disposed of according to applicable regulations. Source control BMPs implemented if appropriate. No contaminants present other than a surface oil film.
Inlet/Outlet Pipe	Sediment accumulation	Sediment filling 20% or more of the pipe.	Inlet/outlet pipes clear of sediment.
	Trash and debris	Trash and debris accumulated in inlet/outlet pipes (includes floatables and non-floatables).	No trash or debris in pipes.
	Damaged	Cracks wider than ½-inch at the joint of the inlet/outlet pipes or any evidence of soil entering at the joints of the inlet/outlet pipes.	No cracks more than ¼-inch wide at the joint of the inlet/outlet pipe.

NO. 5 – CATCH BASINS AND MANHOLES

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
Metal Grates (Catch Basins)	Unsafe grate opening	Grate with opening wider than $^{7}/_{8}$ inch.	Grate opening meets design standards.
	Trash and debris	Trash and debris that is blocking more than 20% of grate surface.	Grate free of trash and debris. footnote to guidelines for disposal
	Damaged or missing	Grate missing or broken member(s) of the grate. **Any open structure requires urgent maintenance**.	Grate is in place and meets design standards.
Manhole Cover/Lid	Cover/lid not in place	Cover/lid is missing or only partially in place. **Any open structure requires urgent maintenance**.	Cover/lid protects opening to structure.
	Locking mechanism Not Working	Mechanism cannot be opened by one maintenance person with proper tools. Bolts cannot be seated. Self-locking cover/lid does not work.	Mechanism opens with proper tools.
	Cover/lid difficult to Remove	One maintenance person cannot remove cover/lid after applying 80 lbs. of lift.	Cover/lid can be removed and reinstalled by one maintenance person.

NO. 6 – CONVEYANCE PIPES AND DITCHES

Maintenance Component	Defect or Problem	Conditions When Maintenance is Needed	Results Expected When Maintenance is Performed
Pipes	Sediment & debris accumulation	Accumulated sediment or debris that exceeds 20% of the diameter of the pipe.	Water flows freely through pipes.
	Vegetation/roots	Vegetation/roots that reduce free movement of water through pipes.	Water flows freely through pipes.
	Contaminants and pollution	Any evidence of contaminants or pollution such as oil, gasoline, concrete slurries or paint.	Materials removed and disposed of according to applicable regulations. Source control BMPs implemented if appropriate. No contaminants present other than a surface oil film.
	Damage to protective coating or corrosion	Protective coating is damaged; rust or corrosion is weakening the structural integrity of any part of pipe.	Pipe repaired or replaced.
	Damaged	Any dent that decreases the cross section area of pipe by more than 20% or is determined to have weakened structural integrity of the pipe.	Pipe repaired or replaced.
Ditches	Trash and debris	Trash and debris exceeds 1 cubic foot per 1,000 square feet of ditch and slopes.	Trash and debris cleared from ditches.
	Sediment accumulation	Accumulated sediment that exceeds 20% of the design depth.	Ditch cleaned/flushed of all sediment and debris so that it matches design.
	Noxious weeds	Any noxious or nuisance vegetation which may constitute a hazard to County personnel or the public.	Noxious and nuisance vegetation removed according to applicable regulations. No danger of noxious vegetation where County personnel or the public might normally be.
	Contaminants and pollution	Any evidence of contaminants or pollution such as oil, gasoline, concrete slurries or paint.	Materials removed and disposed of according to applicable regulations. Source control BMPs implemented if appropriate. No contaminants present other than a surface oil film.
	Vegetation	Vegetation that reduces free movement of water through ditches.	Water flows freely through ditches.
	Erosion damage to slopes	Any erosion observed on a ditch slope.	Slopes are not eroding.
	Rock lining out of place or missing (If Applicable)	One layer or less of rock exists above native soil area 5 square feet or more, any exposed native soil.	Replace rocks to design standards.

NO. 31 – BIORETENTION BMP

Maintenance Component	Defect or Problem	Conditions When Maintenance is Needed	Results Expected When Maintenance is Performed
Preventative	Vegetation	Vegetation to be watered and pruned as needed and mulch applied to a minimum of 2 inches to maintain healthy growth.	Healthy vegetation growth with full coverage as designed.
Bioretention Area	Trash and debris	Trash and debris in the bioretention area; leaf drop in the fall season.	No trash or debris In the bioretention area.
	Sediment accumulation	Sediment accumulation in the bioretention area interfering with infiltration.	Water in the bioretention infiltrates as designed.
	Ponding	Standing water in the bioretention area for more than two days.	Standing water infiltrates at the desired rate.
	Inflow	Inflow not getting into bioretention; debris/sediment blockage at inlet features; native soil is exposed or other signs of erosion damage is present.	Unobstructed and properly routed inflow into bioretention area; inlet is stabilized and appropriately armored.
	Overflow outlet	Overflow water not controlled by outlet features; native soil is exposed or other signs of erosion damage is present.	Outlet features control overflow; overflow is stabilized and appropriately armored.
	Underdrain	Underdrain is not flowing when bioretention area has been infiltrating water.	Underdrain flows freely when water is present.
Vegetation	Plant health	Plants not thriving across at least 80% of the entire design vegetated area within the BMP; overly dense vegetation requiring pruning.	Healthy water tolerant plants in bioretention area, plants thriving across at least 80% of the entire design vegetated area within the facility.
	Plant species	Plants not water tolerant species.	Plants are water tolerant.
	Weeds	Weeds growing in bioretention area.	No weeds in bioretention area.
	Watering	Planting schedule requires frequent watering (approx. weekly Year 1, bimonthly Years 2 and 3) for new facilities, and as needed for established plantings or dry periods	Plants are established and thriving
	Pest Control	Signs of pests, such as wilting or chewed leaves or bark, spotting or other indicators; extended ponding period encouraging mosquitoes	Plant community is pest-free when following an approved Integrated Pest Management plan; bioretention functioning normally and ponding controlled as needed for pest control
Containment Berm and Earthen Slopes	Erosion;	Erosion occurring at earthen slopes or containment berm side slope.	Erosion on the containment berm and side slopes has been repaired and the cause of the erosion corrected.
	Voids created by nuisance animals (e.g., rodents) or tree roots	Voids affecting berm integrity or creating leaky pond condition	Voids have been repaired; facility is free of nuisance animals following an approved Integrated Pest Management plan.
	Settlement	Any part of the containment berm top has less than 6 inches of freeboard from the maximum pond level to the top of the berm.	A minimum of 6 inches freeboard from the maximum pond level to the top of the berm.
Amended Soil	Soil nutrients	Soil not providing plant nutrients.	Soil providing plant nutrients.
	Bare spots	Bare spots on soil in bioretention area.	No bare spots, bioretention area covered with vegetation or mulch mixed into the underlying soil.
	Compaction	Poor infiltration due to soil compaction in the bioretention area.	No soil compaction in the bioretention area.
Inspection	Frequency	Annually and after large storms, and as needed seasonally for pruning, plant maintenance, pest control and to control leaf drop, evergreen needles etc.	Bioretention facility is functioning normally; plant community is thriving and pest-free.

APPENDIX **G**

STORMWATER POLLUTION PREVENTION PLAN

City of Kirkland

Last Updated: August 2018

CITY OF KIRKLAND - DRAFT - CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN (CSWPPP)

Project Name	Totem Lake Park Phase 1
City of Kirkland Permit #	Click here to enter text.
Date of Submittal	Click here to enter text.

TABLE OF CONTENTS

List of Appendices

PROJECT & CSWPPP INFORMATION

Project

Project name	Totem Lake Park Phase 1
Site address	Totem Lake Boulevard and 120th Avenue NE
Parcel number	6928400032, 8663270060, 2826059027

Applicant contact

Permittee/Owner	City of Kirkland
Developer	Click here to enter text.
Operator/Contractor	Click here to enter text.
Permit #	Click here to enter text.
Address	Click here to enter text.
Phone number	Click here to enter text.

Certified Erosion and Sediment Control Lead (CESCL)

Name	Click here to enter text.
Organization	Click here to enter text.
Contact Phone Number	Click here to enter text.

SWPPP Prepared By

Name	Mark Lee
Organization	Jacobs Engineering
Contact Phone Number	425-233-3231

Project Construction Dates

Activity/Phase	60% Design Level
Start Date	Click here to enter text.
End Date	Click here to enter text.

SWPPP Preparation Date – 08/02/2018

NOTE: Bring the contact information for the CSWPPP Supervisor and the contractor information to the pre-conference.

PROJECT INFORMATION

Description of Site Development:

The project involves the development of 1.53 total acres, summarized in the list below:

- New park consisting of parking lot (5 vehicles), water features, bioretention cells, and landscaped and planting area. The park includes a small building for bathroom facilities.
- Extension of asphalt trail along the north end of the wetlands.
- Boardwalk crossing over a section of wetland area.
- Small stretch of impervious trail on the south edge of the wetland area connecting to the boardwalk.

The park is located on the north side of the Totem Lake Park, outside of the wetland limits. The construction will be within the wetland buffers. Due to the saturated wetland soils, contractor should anticipate challenging conditions in and near wetland areas, where soft soils will be encountered. Part of the trail/board walk will be within the wetland. It is anticipated that wetland soils will not be walkable or drivable, and temporary floatation platform or similar temporary facilities will be needed for access.

Description of Construction Activities:

Construction activities will include site preparation; installation of temporary sedimentation and erosion control measures; clear and grubbing; placement of asphalt and subbase, excavation, pipe installation; building and water tank construction, boardwalk construction, landscaping, and revegetation of disturbed areas.

Overall construction will take place in the proposed sequence as follows:

1. Install ESC measures onsite.
2. Demolish of the existing building and asphalt parking lot.
3. Clear and Grub the existing vegetated areas.
4. General grading and excavation of the park portion.
5. Install utilities including water, sewer, storm, and power.
6. Construct concrete platform, retaining wall, and asphalt parking and trails,
7. Construct park restroom building.
8. Construct boardwalk:
    a. Construction of concrete abutment outside of wetlands at end(s) of the boardwalk.
    b. Clear vegetation by hand along path of the boardwalk, remaining within 12 feet of the boardwalk center alignment. Leave soil, roots, and emergent plants in place.
    c. Lay plywood or other sheet usable as a work surface on already installed pipe pilings.

d. Manually drive a group of 2" diameter piles using power/hand tools approximately 20 feet from the concrete abutment or previous piles whichever is closer.
e. Construct framing and decking in 20 foot segments.
f. Remove work surface from under constructed framing and decking.
g. Repeat steps b through f.

9. Construct Totem Lake Way street front improvements.
10. Stabilize and vegetate all disturbed area, and remove ESC measures. No materials may be left within the wetland.

Due to the saturated wetland soils, contractor should anticipate challenging conditions in all wetland areas which may require floatation for working surfaces and equipment. The wetland soils will not support construction equipment. If the proposed boardwalk is at or near water inundated zone, step 8c will be refer to a work surface with floatation rather than plywood.

Critical Areas (wetlands, streams, high erosion risk, steep or difficult to stabilize slopes): There are no known critical aquifer recharge areas, geologic hazard areas, habitat conservation areas, or other critical areas within the project site or that will be affected by stormwater from the site. Adjacent wetlands would be affected by stormwater discharge from the site.

List of known impairments for 303(d) listed or Total Maximum Daily Load (TMDL) for the receiving waterbody: The Water Resources Inventory Area (WRIA) catalogues Washington's list of 303(d) impaired waters. The project site is within the WRIA Area 8. More specifically, the site lies within the Juanita Creek basin of the Cedar-Sammamish watershed. Downstream of the project site within this sub-watershed appears the following listing on the State's 303(d) for the following components:

- Category 5, Bacteria, Listing ID 13127
- Category 5, Bacteria, Listing ID 13143
- Category 5, Bacteria, Listing ID 74352
- Category 5, Dissolved Oxygen, Listing ID 12675
- Category 5, Dissolved Oxygen, Listing ID 12686
- Category 5, Dissolved Oxygen, Listing ID 78042
- Category 5, Temperature, Listing ID 4810
- Category 5, Temperature, Listing ID 7027

This project is not anticipated to affect the watershed system related to dissolved oxygen, bacteria, or temperature in any adverse way.

PURPOSE OF THE CSWPPP

This template is a tool for use by developers with project proposals located within the City of Kirkland (COK) for complying with Core Requirement #5 of the 2016 King County Stormwater Design Manual (KCSWDM) and Drainage Policy D-12 of the COK Pre-approved Plans. These rules require the submittal of Construction Stormwater Pollution Prevention Plan (CSWPPP) for review and approval by Kirkland staff.

The CSWPPP contains two parts; the Erosion and Sediment Control (ESC) Plan (required for all projects) and the Stormwater Pollution Prevention and Spill Plan (SWPPP, required for projects of 1 acre or more). Both plans include drawings and reports.

PART A Erosion and Sediment Control (ESC) Measures

The implementation of this ESC plan and the construction, maintenance, replacement, and upgrading of these ESC facilities is the responsibility of the Permittee/Contractor until all construction is approved.

Attach the ESC plan in Appendix A.

1. CLEARING LIMITS (Reference KCSWDM D.2.1.1, p. D-11 for additional information)

Prior to any site clearing or grading, areas to remain undisturbed during project construction shall be delineated on the project's ESC plan and physically marked on the project site. The purpose of clearing limits is to prevent disturbance of those areas of the project site that are not designated for clearing or grading.

Design & Installation

Use the following space to specify how clearing limits are to be delineated, and instructions on their installation.

Prior to beginning land disturbing activities, including clearing, demolition, and grading, the contractor shall clearly mark all clearing limits and sensitive areas that are to be preserved within the construction. Natural vegetation and native topsoil shall be retained in an undisturbed state to the maximum extent possible.

Construction fence will be installed on the East, North, and West limits of the project area. This fencing will restrict clearing to approved limits and limit construction traffic to desginated constructin entrances and roads. Silt fence will be placed to mark work zone at the South edge of the site, between the project area and adjacent sidewalk and wetland as shown on the Site Map (Appendix A). Hi-vis fencing will be installed at the limits of clearing along the proposed boardwalk construction in wetland area. No clearing, grubbing, or any demolition activities shall take place outside marked construction limits. Disturbance of wetland areas between boardwalk pile locations should be avoided as possible. The Site Map in Appendix A illustrates the construction limits.

Maintenance

Use the following space to specify maintenance requirements for the clearing limits measures.

If the fence has been damaged or is no longer clearly visible, it shall be repaired or replaced immediately and visibility restored. Sediment must be removed when the sediment buildup behind the silt fence reaches 6 inches high. To avoid potential erosion and sediment control issues that may cause a violation of the permits, the Certified Erosion and Sediment Control Lead (CESCL) will promptly initiate the implementation of one or more of the alternative BMPs listed in the King County Surface Water Design Manual (KCSWDM) after the first sign that existing BMPs are ineffective or failing.

2. COVER MEASURES (Reference KCSWDM D.2.1.2, p. D-12 and COK Pre-Approved Plans CK-E.05, .06 & .10 for additional information)

Temporary and permanent cover measures shall be provided to protect all disturbed areas, including the faces of cut and fill slopes. The purpose of covering exposed soils is to prevent erosion, thus reducing reliance on less effective methods that remove sediment after it is entrained in runoff.

- ☒ Surface Roughening (D.2.1.2.1, p. D-13)
- ☒ Mulching (D.2.1.2.2, p. D-16)
- ☒ Nets and Blankets (D.2.1.2.3, p. D-18)
- ☒ Plastic Covering (D.2.1.2.4, p. D-20)
- ☒ Straw Wattles (D.2.1.2.5, p. D-21)
- ☒ Temporary and Permanent Seeding (D.2.1.2.6, p. D-24)
- ☒ Sodding (D.2.1.2.7, p. D-28)
- ☐ Polyacrylamide for Soil Erosion Protection (D.2.1.2.8, p. D-29)
- ☐ Compost Blankets (D.2.1.2.9, p. D-31)

Design & Installation

Use the following space to specify the design and installation of cover measures.

Grading shall be accomplished in such a way that worked soils shall be exposed, graded, and hydroseeded or sodded in phases to limit the amount of time soils are exposed to weather. Additionally, major construction activities shall be scheduled in the dry season (May 1 through September 30) when the least amount of average rainfall is expected. Generally, exposed soils shall be stabilized with the application of effective BMPs to prevent erosion throughout the life of the project.

In general, cut and fill slopes will be stabilized as soon as possible and soil stockpiles will be temporarily covered with plastic sheeting. All stockpiled soils shall be stabilized from erosion, protected, and where possible, be located away from storm drain inlets, waterways, and drainage channels.

Maintenance

Use the following space to specify maintenance requirements for the cover measures.

All cover measures will be inspected and maintained daily and immediately after storm events greater than 0.10 inch of rainfall occur in a 24-hour period. Any areas experiencing erosion will be re-seeded and mulched and/or protected with a net or blanket. All tears or damages must be replaced or repaired.

3. PERIMETER PROTECTION (Reference KCSWDM D.2.1.3, p. D-33 and COK Pre-Approved Plan CK-E.03 for additional information)

Perimeter protection to filter sediment from sheetwash shall be located downslope of all disturbed areas and shall be installed prior to upslope grading. The purpose of perimeter protection is to reduce the amount of sediment transported beyond the disturbed areas of the construction site.

- ☒ Silt Fence (D.2.1.3.1, p. D-33)
- ☐ Brush Barrier (D.2.1.3.2, p. D-36)
- ☐ Vegetated Strip (D.2.1.3.3, p. D-37)
- ☐ Triangular Silt Dike (D.2.1.3.4, p. D-37)
- ☐ Compost Berms (D.2.1.3.5, p. D-38)
- ☒ Compost Socks (D.2.1.3.6, p. D-40)

Design & Installation

Use the following space to specify the design and installation of perimeter protection.

Silt fence (BMP #) will be placed at the South edge of the site, reducing the transport of coarse sediment from the construction area to the adjacent sidewalk and wetland. Silt fence will also be installed between the concrete abutments at either end of the boardwalk and the adjacent wetland.

Compost socks (BMP #) will be installed between the existing parking lot/restaurant structure and Totem Lake Blvd. They will be installed parallel to the slope, perpendicular to sheet flow from the site down to Totem Lake Blvd. Compost socks will also be installed along the downstream gradient of the proposed trail and boardwalk. Silt fencing and compost socks both reduce transport of sediment by providing a temporary physical barrier to sediment-laden water. They are shown on the Site Map (Appendix A).

Maintenance

Use the following space to specify maintenance requirements for the perimeter protection.

All installations will be inspected and maintained daily and immediately after storm events greater than 0.10 inch of rainfall occur in a 24-hour period. Any damages shall be repaired immediately. Sediment build-up behind the silt fence must be removed when the sediment is 6 inches high. If filter fabric has deteriorated, it shall be replaced.

When the compost socks are no longer needed, the socks shall be cut open and the compost dispersed to be incorporated into the soil or left on top of the soil for final seeding to occur. The mesh material must be properly disposed. Sediment build-up must be removed when the sediment accumulations are within 3 inches of the top of the sock.

4. TRAFFIC AREA STABILIZATION (Reference KCSWDM D.2.1.4, p. D-41 and COK Pre-Approved Plans CK-E.01 & .02 for additional information)

Unsurfaced entrances, roads, and parking areas used by construction traffic shall be stabilized to minimize erosion and tracking of sediment off site. The purpose of traffic area stabilization is to reduce the amount of sediment transported off site by construction vehicles and to reduce the erosion of areas disturbed by vehicle traffic.

- ☒ Stabilized Construction Entrance (D.2.1.4.1, p. D-42)
- ☒ Construction Road/Parking Area Stabilization (D.2.1.4.2, p. D-44)
- ☐ Wheel Wash (D.2.1.4.3, p. D-45)

Design & Installation

Use the following space to specify the design and installation of traffic area stabilization measures.

The single construction entrance will be stabilized to reduce the amount of sediment transported onto paved roads by motor vehicles or runoff. Specifically, a geotextile shall be placed on top of the subgrade, and a 12-inch layer quarry spalls will be placed on top of the geotextile. This will be the first step in the clearing and grading process. An HMA curb will be installed on the downstream end of the construction entrance to prevent runoff from leaving the project site.

All construction roads and parking areas will be stabilized for construction traffic usage. Fencing will be installed to limit access to these roads and parking areas.

Maintenance

Use the following space to specify maintenance requirements for the traffic area stabilization measures.

Quarry spalls shall be added or replaced if the pad is no longer in accordance with the specifications. If the entrance is not preventing sediment from being tracked onto pavement, then alternative measures to keep the streets free of sediment shall be used. This may include street sweeping, an increase in the dimensions of the entrance, or the installation of a wheel wash. Any sediment that is tracked onto pavement shall be removed immediately by sweeping. Any quarry spalls that are loosened from the pad and end up on the roadway shall be removed immediately.

5. SEDIMENT RETENTION (Reference KCSWDM D.2.1.5, p. D-47 and COK Pre-Approved Plans CK-E.08, .09, .09A & .11 for additional information)

Surface water collected from disturbed areas of the site shall be routed through a sediment pond or trap prior to release from the site. The purpose of sediment retention facilities is to remove sediment from runoff generated from disturbed areas.

☐ Sediment Trap (D.2.1.5.1, p. D-48)
☐ Sediment Pond (D.2.1.5.2, p. D-50)
☒ Storm Drain Inlet Protection (D.2.1.5.3, p. D-53)

Monitoring and Sampling Requirements (4.0)

Monitoring includes visual inspection, sampling for water quality parameters of concern, and documentation of the inspection and sampling findings in a site log book. A site log book will be maintained for all on-site construction activities and will include:

- A record of the implementation of the SWPPP and other permit requirements
- Site inspections
- Stormwater sampling data

The site log book must be maintained on-site within reasonable access to the site and be made available upon request to Ecology or the local jurisdiction.

For convenience, the inspection form included in this SWPPP include the required information for the site log book. This SWPPP may function as the site log book if desired, or the forms may be separated and included in a separate site log book. However, if separated, the site log book must be maintained on-site or within reasonable access to the site and be made available upon request.

Numeric effluent limits may be required for certain discharges to 303(d) listed waterbodies. See CSWGP Special Condition S8.

Site Inspection (4.1)

Site inspections will be conducted at least once every calendar week and within 24 hours following any discharge from the site. For sites that are temporarily stabilized and inactive, the required frequency is reduced to once per calendar month.

The discharge point(s) are indicated on the Site Map (see Appendix A) and in accordance with the applicable requirements of the CSWGP.

Stormwater Quality Sampling (4.2)

Turbidity Sampling (4.2.1)

Requirements include calibrated turbidity meter or transparency tube to sample site discharges for compliance with the CSWGP. Sampling will be conducted at all discharge points at least once per calendar week.

Method for sampling turbidity:

Table 8 – Turbidity Sampling Method

☐	Turbidity Meter/Turbidimeter (required for disturbances 5 acres or greater in size)
☒	Transparency Tube (option for disturbances less than 1 acre and up to 5 acres in size)

Turbidity sampling and monitoring will be conducted during the entire construction phase of the project. Samples will be collected daily at the downstream end of the project area. If there is no flow leaving the work area, the attempt to sample will be recorded in the site log book and reported to Clark County in the monthly Discharge Monitoring Report (DMR) as "No Discharge". Samples will be analyzed for turbidity using the EPA 180.1 analytical method.

The benchmark for turbidity value is 25 nephelometric turbidity units (NTU). If the discharge's turbidity is 26 to 249 NTU, the following steps will be conducted:

1. Review the SWPPP for compliance with Special Condition S9. Make appropriate revisions within 7 days of the date the discharge exceeded the benchmark.
2. Immediately begin the process to fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible. Address the problems within 10 days of the date the discharge exceeded the benchmark. If installation of necessary treatment BMPs is not feasible within 10 days, Ecology may approve additional time when the Permittee requests an extension within the initial 10-day response period.
3. Document BMP implementation and maintenance in the site log book.

If the turbidity exceeds 250 NTU at any time, the following steps will be conducted:

1. Telephone or submit an electronic report to the applicable Ecology Region's Environmental Report Tracking System (ERTS) within 24 hours. https://www.ecology.wa.gov/About-us/Get-involved/Report-an-environmental-issue
    - Central Region (Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, Yakima): (509) 575-2490
    - Eastern Region (Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman): (509) 329-3400
    - Northwest Region (King, Kitsap, Island, San Juan, Skagit, Snohomish, Whatcom): (425) 649-7000
    - Southwest Region (Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Lewis, Mason, Pacific, Pierce, Skamania, Thurston, Wahkiakum,): (360) 407-6300
2. Immediately begin the process to fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible. Address the problems within 10 days of the date the discharge exceeded the benchmark. If installation of necessary treatment BMPs is not feasible within 10 days, Ecology may approve additional time when the Permittee requests an extension within the initial 10-day response period
3. Document BMP implementation and maintenance in the site log book.

4. Continue to sample discharges daily until one of the following is true:
    - Turbidity is 25 NTU (or lower).
    - Transparency is 33 cm (or greater).
    - Compliance with the water quality limit for turbidity is achieved.
        - 1 - 5 NTU over background turbidity, if background is less than 50 NTU
        - 1% - 10% over background turbidity, if background is 50 NTU or greater

The discharge stops or is eliminated.

Design & Installation

Use the following space to specify the design and installation of sediment retention measures. Include 2- and 10-year peak flows for the developed conditions. Paste calculations on next page under 'Sizing'.

Storm drain inlet protection will be installed to prevent coarse sediment from entering storm drainage systems. However, the first priority is to keep all paved surfaces clean of sediment and separate from entering storm drains until treatment can be provided.

Temporary sediment settling tanks will be installed in the Southwest corner of the construction site. Runoff will be directed to a low point on the site with ditches, and pumped to the tanks where sediment will settle out and the water can be discharged to the existing outfall or sanitary sewer system.

Maintenance

Use the following space to specify maintenance requirements for the clearing limits measures.

Inlets shall be inspected weekly at a minimum and daily during storm events. Inlet protection devices shall be cleaned or removed and replaced when sediment has filled one-third of the available storage space.

Water captured in the sediment settling tanks will be sampled for turbidity before discharges. Sediment buildup shall be removed from the tank and be disposed off-site when it reaches 12 inches in depth.

Sizing

In the space below, upload an image of the report from WWHM stating the 2- and 10-year peak flows. The WWHM output is included in Appendix H.

Return Period	Flow(cfs)
2 year	0.211032
5 year	0.271115
10 year	0.313327

In the space below, upload calculations showing the sizing requirements.

Sediment Trap sizing per KCSWDM D.2.1.5.1

The surface area of a typical sediment trap = 2 x 0.211/0.00096 = 440 SF.

6. SURFACE WATER COLLECTION (Reference KCSWDM D.2.1.6, p. D-59 and COK Pre-Approved Plan CK-E.07 for additional information)

All surface water from disturbed areas shall be intercepted, conveyed to a sediment pond or trap, and discharged downslope of any disturbed areas. The purpose of surface water control is to collect and convey surface water so that erosion is minimized, and runoff from disturbed areas is treated by a sediment pond or trap.

- ☐ Interceptor Dike and Swale (D.2.1.6.1, p. D-60)
- ☐ Pipe Slope Drains (D.2.1.6.2, p. D-62)
- ☐ Subsurface Drains (D.2.1.6.3, p. D-63)
- ☒ Ditches (D.2.1.6.4, p. D-64)
- ☐ Outlet Protection (D.2.1.6.5, p. D-66)
- ☐ Level Spreader (D.2.1.6.6, p. D-66)

Design & Installation

Use the following space to specify the design and installation of surface water collection measures.

Ditches will be constructed on site to collect and convey surface water runoff to a low point on-site. From this low point water will be pumped to a temporary settling tank(s) or proprietary filtration system to be treated before discharge.

Maintenance

Use the following space to specify maintenance requirements for the surface water collection measures.

Any sediment deposition of more than 0.5 feet shall be removed so that the channel is restored to its design capacity. If the channel capacity is insufficient for the design flow, it must be determined whether the problem is local or the channel is under-designed. If the problem is local, the channel capacity must be increased through construction of a berm(s) or by excavation. If the problem is under-design, the design engineer shall be notified and the channel redesigned to a more conservative standard to be approved by King County. The channel shall be examined for signs of scouring and erosion of the bed and banks. If scouring or erosion has occurred, affected areas shall be protected by riprap or an erosion control blanket or net.

7. DEWATERING CONTROL (Reference KCSWDM D.2.1.7, p. D-68 for additional information)

The purpose of dewatering control is to prevent the untreated discharge of sediment-laden water from dewatering of utilities, excavated areas, foundations, etc.

- ☐ Infiltration (D.2.1.7.1.a, p. D-68)
- ☒ Vehicle transport offsite (D.2.1.7.1.b, p. D-68)
- ☒ Approved discharge to sanitary sewer (D.2.1.7.1.c, p. D-68)
- ☐ Sedimentation bags for small volumes of localized dewatering (D.2.1.7.1.d, p. D-68)

Design & Installation

Use the following space to specify the design and installation of dewatering control measures. If not applicable, include language from geotechnical report stating that no groundwater will be present on site. Note if there are contaminated soils on site.

Because the project site is adjacent to a wetland, it is expected that some dewatering may be necessary. Infiltration is not feasible due to the soil conditions and potential high groundwater level. Foundation and trench dewatering water, which have characteristics similar to stormwater runoff at the site, will be pumped from a sump to a temporary sediment settling tank(s) or filtration system prior to discharge. Clean, non-turbid dewatering water will be discharged to the existing outfall to Totem Lake. Turbid water may be discharged to existing sanitary sewer system (with Lakehaven and King County WTD approval) or treated prior to discharge to the storm drains.

Maintenance

Use the following space to specify maintenance requirements for the dewatering control measures.

All pumps used in dewatering shall be repaired immediately if needed. Temporary sediment settling tanks shall be maintained as specified in Element 5. Filtration systems, if used, must be maintained to ensure proper function.

8. DUST CONTROL (Reference KCSWDM D.2.1.8, p. D-69 for additional information)

Preventative measures to minimize the wind transport of soil shall be taken when a traffic hazard may be created or when sediment transported by wind is likely to be deposited in water resources or adjacent properties. The purpose of dust control is to prevent wind transport of dust from exposed soil surfaces onto roadways, drainage ways, and surface waters.

☒ Water
☐ Other from Table D.2.1.8.A (Specify: Click here to enter text.)

Design & Installation

Use the following space to specify the design and installation of dust control measures.

Dust control shall be implemented when exposed soils are dry to the point that wind transport is possible and roadways, drainage ways, or surface waters are likely to be impacted. Dust control measures may consist of chemical, structural, or mechanical methods. When using water for dust control, the exposed soils shall be sprayed until wet, but runoff shall not be generated by spraying.

Maintenance

Use the following space to specify maintenance requirements for the dust control measures.

N/A

9. FLOW CONTROL (Reference KCSWDM D.2.1.9, p. D-71 for additional information)

Surface water from disturbed areas must be routed through the project's onsite flow control facility or other provisions must be made to prevent increases in the existing site conditions 2-year and 10-year runoff peaks discharging from the project site during construction. The purpose of surface water flow control is to mitigate increases in runoff peaks that occur during construction as a result of clearing vegetation, compacting the soil, and adding impervious surface. Such increases can cause or aggravate downstream flooding and erosion.

Design & Installation

Use the following space to specify the design and installation of flow control measures. Include 2- and 10-year peak flows for the developed conditions. Paste calculations on next page under 'Sizing'.

Surface water flow control shall be installed or otherwise provided prior to any clearing and/or grading of the site, except that required to construct the surface water flow control facilities.

Flow control facilities could be sediment trap(s) or sediment settling tanks. Permanent flow control facilities may not be used for temporary use during cosntruction. The discharge rate of water from the flow control facilities will be controlled to avoid erosion and flooding downstream of the discharge point. The natural hydroperiod of the project adjacent wetland is unlikely to be affected because the project site is significantly smaller than the contributory area of the wetland. Outlet flows will be controlled such that peak discharge from the project site during construction are not greater than the existing site conditions 2-year peak flow; flow frequencies for Totem Lake listed below.

Accounting for the worst case scenario, in which the entire project site is classified as impervious surface during construction, the temporary stormwater detention facilities must total 0.079 acre-ft of storage. This means that two 40ft by 10ft temporary settling tanks will be adequate storage. The WWHM run used for sizing can be found in Appendix H.

Maintenance

Use the following space to specify maintenance requirements for the flow control measures.

Sediment will be removed before the depth of sediment has accumulated more than 12 inches.

Flow Frequency

Flow(cfs)	0501 15m	0801 15m
2 Year =	0.2653	0.2110
10 Year =	0.3851	0.3133

10. CONTROL OF POLLUTANTS

The requirements for this section are covered in the Stormwater Pollution Prevention and Spill (SWPPS) Plan, beginning on p. 22 of this document.

11. PROTECT EXISTING AND PROPOSED FLOW CONTROL BMPs (Reference KCSWDM D.2.1.10, p. D-71 for additional information)

Protection measures shall be applied/installed and maintained so as to prevent adverse impacts to existing flow control BMPs and areas of proposed flow control BMPs for the project. The purpose of protecting existing and proposed flow control BMP areas is to avoid sedimentation and soil compaction that would adversely affect infiltration, and also avoid contamination by other pollutants.

Design & InstallationN

Use the following space to specify the design and installation of flow control BMP protection measures.

There is no known existing flow control BMPs on the project site.

Maintenance

Use the following space to specify maintenance requirements for the flow control BMP protection measures.

N/A

12. MAINTAIN PROTECTIVE BMPs (Reference KCSWDM D.2.1.11, p. D-72 for additional information)

The purpose of maintaining protective BMPs is to provide continuous erosion and sediment control protection throughout the life of the project, and avoid sedimentation, soil compaction and contamination by other pollutants that would adversely affect infiltration and surface runoff.

Maintenance

Use the following space to specify maintenance requirements for the protective BMPs.

Protection measures shall be monitored per Section D.2.4.4 of the KCSWDM at a minimum, and promptly maintained to fully functioning condition as necessary to assure continued performance of their intended function. The following measures will be used:

1. Maintain and repair all temporary and permanent erosion and sediment control BMPs as needed to assure continued performance of their intended function in accordance with BMP specifications.

2. Remove all temporary erosion and sediment control BMPs prior to final construction approval, or within 30 days after achieving final site stabilization or after the temporary BMPs are no longer needed.

3. Provide protection to all BMPs installed for the permanent control of stormwater from sediment and compaction. All BMPs that are to remain in place following completion of construction shall be examined and placed in full operating conditions. If sediment enters the BMPs during construction, it shall be removed and the BMP shall be returned to the conditions specified in the construction documents or as required for full BMP replacement.

4. Remove or stabilize trapped sediment on site. Permanently stabilize disturbed soil resulting from removal of BMPs or vegetation.

13. MANAGE THE PROJECT (Reference KCSWDM D.2.1.12, p. D-72 for additional information)

Coordination and timing of site development activities relative to ESC concerns (Section D.2.4), and timely inspection, maintenance and update of protective measures (Section D.2.3) are necessary to effectively manage the project and assure the success of protective ESC and SWPPS design and implementation.

Projects shall assign a qualified CSWPPP Supervisor (Section D.2.3.1) to be the primary contact for ESC and SWPPS issues and reporting, coordination with subcontractors and implementation of the CSWPPP as a whole.

Measures to Use:

1. Phase development projects to the maximum degree practicable and take into account seasonal work limits.
2. Inspection and monitoring – Inspect, maintain, and repair all BMPs as needed to assure continued performance of their intended function. Conduct site inspections and monitoring in accordance with the Construction Stormwater General Permit and King County requirements.
3. Maintaining an updated CSWPPP – Maintain, update, and implement the CSWPPP in accordance with the Construction Stormwater General Permit and King County requirements.
4. Projects that disturb one or more acres must have, site inspections conducted by a Certified Erosion and Sediment Control Lead (CESCL) (see Section D.2.3.1). Project sites less than one acre (not part of a larger common plan of development or sale) may have a person without CESCL certification conduct inspections. By the initiation of construction, the CSWPPP must identify the CESCL or inspector, who shall be present on-site or on-call at all times.

The CESCL or inspector (project sites less than one acre) must have the skills to assess the:

- Site conditions and construction activities that could impact the quality of stormwater.
- Effectiveness of erosion and sediment control measures used to control the quality of stormwater discharges.
- The CESCL or inspector must examine stormwater visually for the presence of suspended sediment, turbidity, discoloration, and oil sheen. They must evaluate the effectiveness of BMPs and determine if it is necessary to install, maintain, or repair BMPs to improve the quality of stormwater discharges.

Based on the results of the inspection, construction site operators must correct the problems identified by:

- Reviewing the CSWPPP for compliance with all elements and making appropriate revisions within 7 days of the inspection.
- Immediately beginning the process of fully implementing and maintaining appropriate source control and/or treatment BMPs as soon as possible, addressing the problems not later than within 10 days of the inspection. If installation of necessary treatment BMPs is not feasible within 10 days, the construction site operator may request an extension within the initial 10-day response period.
- Documenting BMP implementation and maintenance in the site log book (applies only to sites that have coverage under the Construction Stormwater General Permit).

- The CESCL or inspector must inspect all areas disturbed by construction activities, all BMPs, and all stormwater discharge points at least once every calendar week and within 24 hours of any discharge from the site. (For purposes of this condition, individual discharge events that last more than one day do not require daily inspections. For example, if a stormwater pond discharges continuously over the course of a week, only one inspection is required that week.) The CESCL or inspector may reduce the inspection frequency for temporary stabilized, inactive sites to once every calendar month.

PART B STORMWATER POLLUTION PREVENTION AND SPILL (SWPPS) MEASURES

(Reference KCSWDM D.2.2, p. D-74 for additional information)

The purpose of stormwater pollution prevention and spill control is to prevent, reduce, or eliminate the discharge of pollutants to onsite or adjacent stormwater systems or watercourses from construction-related activities such as materials delivery and storage, onsite equipment fueling and maintenance, demolition of existing buildings and disposition of demolition materials and other waste, and concrete handling, washout and disposal.

The implementation of this SWPPS plan and the construction, maintenance, replacement, and upgrading of the SWPPS facilities is the responsibility of the Permittee/Contractor until all construction is approved.

In the following section, attach the SWPPS plan. See COK General Policy G-7 for plan submittal requirements. The level of detail should be similar to that of COK Pre-Approved Plan CK-E.04.

CONCRETE HANDLING (Reference D.2.2.1, p. D-75 for additional information)

Concrete work can generate process water and slurry that contain fine particles and high pH, both of which can violate water quality standards in the receiving water. Concrete spillage or concrete discharge to surface waters of the State is prohibited. Use this BMP to minimize and eliminate concrete, concrete process water, and concrete slurry from entering waters of the state.

Procedures

Describe the management practices to be employed to prevent concrete washwater from discharging offsite. Specifically identify where you will place unused concrete and how you will prevent washwater or slurry from discharging into storm drain.

The following measures will be used to prevent concrete washwater from discharging offsite:

Assure that washout of concrete trucks, chutes, pumps, and internals is performed at an approved offsite location. Do not wash out concrete trucks onto the ground, or into storm drains, open ditches, streets, or streams.

Return unused concrete remaining in the truck and pump to the originating batch plant for recycling. Do not dump excess concrete on site.

Wash off hand tools including, but not limited to, screeds, shovels, rakes, floats, and trowels into formed areas only. Wash equipment difficult to move, such as concrete pavers in areas that do not directly drain to natural or constructed stormwater conveyances.

If any washdown is done on-site, contain washwater and leftover product in a lined container when no formed areas are available. Dispose of contained concrete in a manner that does not violate ground water or surface water quality standards. Always use forms or solid barriers for concrete pours, such as pilings, within 15-feet of surface waters.

CONCRETE WASHOUT AREA (Reference D.2.2.2, p. D-76 for additional information)

Prevent or reduce the discharge of pollutants to stormwater from concrete waste by conducting washout off-site, or performing on-site washout in a designated area to prevent pollutants from entering surface waters or ground water.

Design and Installation Specifications

If concrete washout is performed on-site, specify the design and installation of the washout containment area(s). Specifically describe the type, size and location on site, and how you will prevent washwater or slurry from discharging into storm drain.

Perform washout of concrete trucks at an approved off-site location. Do not wash out concrete trucks onto the ground, or into storm drains, open ditches, streets, or streams. Do not allow excess concrete to be dumped on-site.

In the event that concrete washout happens on-site, use prefabricated containers resistant to damage and protect against spills and leaks. Locate washout area at least 50 feet from sensitive areas such as storm drains, open ditches, or water bodies, including wetlands.

Maintenance

Prescribe inspection and maintenance schedules and procedures to be conducted on the washout containment area(s). Specifically explain how you will ensure that containers ***don't overtop or leak.***

Inspect and verify that concrete washout BMPs are in place prior to the commencement of concrete work. During periods of concrete work, inspect daily to verify continued performance. Ensure that condition and capacity are acceptable, and check for leaks.

SAWCUTTING AND SURFACING POLLUTION PREVENTION (Reference D.2.2.3, p. D-81 for additional information)

☐ Check this box if this section is not applicable to the project.

Sawcutting and surfacing operations generate slurry and process water that contains fine particles and high pH (concrete cutting), both of which can violate the water quality standards in the receiving water. Concrete spillage or concrete discharge to surface waters of the State is prohibited. Use this BMP to minimize and eliminate process water and slurry created through sawcutting or surfacing from entering waters of the State.

Procedures

Specify the management practices to be employed to prevent sawcutting and surfacing pollution from discharging offsite. Specifically describe how you will prevent slurry, cuttings or process water from discharging into storm drain.

The following steps will be taken to ensure that slurry, cuttings, or process water are not discharged into waters of the State:

1. Vacuum slurry and cuttings during cutting and surfacing operations. The vaccuumed slurry and cuttings will be disposed offsite at an appropriate disposal site.

2. Slurry and cuttings shall not remain on permanent concrete or asphalt pavement overnight.

3. Slurry and cuttings shall not drain to any natural or constructed drainage conveyance including stormwater systems. If required, catch basins will be temporarily blocked.

4. Dispose of collected slurry and cuttings offsite in a manner that does not violate ground water or surface water quality standards.

5. Do not allow process water generated during hydro-demolition, surface roughening or similar operations to drain to any natural or constructed drainage conveyance including stormwater systems. Dispose process water offsite in a manner that does not violate ground water or surface water quality standards.

6. Handle and dispose cleaning waste material and demolition debris offsite in a manner that does not cause contamination of water. Dispose of sweeping material from a pick-up sweeper at an appropriate disposal site.

MATERIAL DELIVERY, STORAGE AND CONTAINMENT (Reference D.2.2.4, p. D-82 for additional information)

☐ Check this box if this section is not applicable to the project.

Prevent, reduce, or eliminate the discharge of pollutants to the stormwater system or watercourses from material delivery and storage. Minimize the storage of hazardous materials on-site, store materials in a designated area, and install secondary containment.

Design and Installation Specifications

Specify the design and installation of measures to protect prevent hazardous materials from discharging offsite. *Specifically describe the type, size and location on site of secondary containment and/or cover measures.*

Material storage will take place in the construction staging area on the North edge of the project site.

Material Safety Data Sheets (MSDS) should be supplied for all materials stored. Chemicals should be kept in their original labeled containers. Hazardous material storage on-site will be minimized, and hazardous materials will be handled as infrequently as possible.

During wet weather season, hazardous materials will be stored in a covered area.

Chemicals, drums, or bagged materials will be placed on pallets to avoid direct contact with the ground. Drums kept uncovered will be stored with a domed plastic cover to reduce ponding of rainwater on the lids to reduce corrosion.

Horse troughs will be used as secondary containment for hazardous materials being stored on-site.

CONSTRUCTION STORMWATER CHEMICAL TREATMENT (Reference D.2.2.5, p. D-84 for additional information)

☒ Check this box if this section is not applicable to the project.

This BMP applies when using stormwater chemicals in batch treatment or flow-through treatment. Chemical treatment can reliably provide exceptional reductions of turbidity and associated pollutants. Chemical treatment may be required to meet turbidity stormwater discharge requirements, especially when construction is to proceed through the wet season.

Design and Installation Specifications

Specify the design and installation of the chemical treatment system(s) to be employed at the site.

It is not anticipated that chemical treatment of construction stormwater will be taking place on this project.

Maintenance

Prescribe inspection and maintenance schedules and procedures to be conducted on the chemical treatment systems.

N/A

Sizing

In the space below, upload an image of the report from WWHM stating the 2- and 10-year peak flows.

N/A

In the space below, upload calculations showing the sizing requirements.

N/A

CONSTRUCTION STORMWATER FILTRATION (Reference D.2.2.6, p. D-90 for additional information)

☐ Check this box if filtration will not be used on this project.

Filtration removes sediment from runoff originating from disturbed areas of the site.

Design and Installation Specifications

Specify the design and installation of the filtration system(s) to be employed at the site. Specifically describe the type, size and location on site of stormwater filtration

A temporary sediment settling tank will be used to filter on-site runoff originating from disturbed areas of the site. See Element 5 of the ESC plan for details.

Maintenance Standards

Prescribe inspection and maintenance schedules and procedures to be conducted on the filtration system(s).

See Element 5 of the ESC plan for details.

HIGH pH NEUTRALIZATION USING CO_2 (Reference D.2.2.7, p. D-93 for additional information)

☒ Check this box if CO_2 sparging will not be used on this project.

When pH levels in stormwater rise above 8.5 it is necessary to lower the pH levels to the acceptable range of 6.5 to 8.5, this process is called pH neutralization. pH neutralization involves the use of solid or compressed carbon dioxide gas in water requiring neutralization. Neutralized stormwater may be discharged to surface waters under the General Construction NPDES permit.

Design and Installation Specifications

Specify the design and installation of the CO_2 sparging system to be employed at the site. Specifically describe the type, capacity and location on-site of the sparging system.

N/A

Maintenance Standards

Prescribe inspection and maintenance schedules and procedures to be conducted on the filtration system(s).

N/A

pH CONTROL FOR HIGH pH WATER (Reference D.2.2.8, p. D-96 for additional information)

When pH levels in stormwater rise above 8.5 it is necessary to lower the pH levels to the acceptable range of 6.5 to 8.5, this process is called pH neutralization. Stormwater with pH levels exceeding water quality standards may be treated by infiltration, dispersion in vegetation or compost, pumping to a sanitary sewer, disposal at a permitted concrete batch plant with pH neutralization capabilities, or carbon dioxide sparging (see previous page).

- ☐ Infiltration
- ☐ Dispersion
- ☐ Sanitary Sewer Disposal
- ☐ Concrete Batch Plant Disposal

Design and Installation Specifications

Specify the design and installation of the pH control system(s) to be employed at the site.

It is not anticipated that pH control for high pH water will be necessary on this project site.

Maintenance Standards

Prescribe inspection and maintenance schedules and procedures to be conducted on the pH control system(s).

N/A

USE OF HIGH pH SOIL AMENDMENTS ON CONSTRUCTION SITES (Reference D.2.2.9, p. D-97 and COK Policy D-16 for additional information)

☒ Check this box if high pH soil amendments will not be used on this site.

Soil amendments used for stability purposes (as described on page D-97) are often high pH and require approval from City of Kirkland before use. Please use the following space to describe how the project will meet the conditions of COK Policy D-16 and Section D.2.2.9.

N/A

MAINTAIN PROTECTIVE BMPs (Reference D.2.2.10, p. D-106 for additional information)

Pollutant protection measures shall be maintained to assure continued performance of their intended function. Reporting and documentation shall be kept current and made available to City of Kirkland as indicated.

Maintenance

Describe the procedures required to maintain all pollutant control BMPs.

1. Maintain and repair all pollutant control BMPs as needed to assure continued performance of their intended function in accordance with BMP specifications.

2. Maintain and repair storage locations for equipment and materials associated with BMP processes. Conduct materials disposal in compliance with County regulatory requirements.

3. As required, provide current reporting and performance documentation at an accessible location for the site inspector and other DPER staff.

4. Remove all temporary pollutant control BMPs prior to final construction approval, or within 30 days after achieving final site stabilization or after the temporary BMPs are no longer needed.

MANAGE THE PROJECT (Reference D.2.2.1.1, p. D-107 for additional information)

SWPPS requirements shall be implemented and managed as part of the overall CSWPPP. Concrete construction and its impacts are primary among pollutant concerns on site development projects. Fueling operations and materials containment of treatment chemicals and other project materials are also typical pollutant concerns. Operations that produce these and other pollutants are often conducted by subcontractors and their laborers, yet may require specific protective measures, documentation and reporting. Protective measures and BMPs need to be made available prior to construction and suitable oversight provided to assure inspection, monitoring and documentation requirements are met.

Projects shall assign a qualified CSWPPP Supervisor (Section D.2.3.1) to be the primary contact for SWPPS and ESC issues and reporting, coordination with subcontractors and implementation of the CSWPPP as a whole.

Measures to Use:

1. Phase development projects to the maximum degree practicable and take into account seasonal work limits.
2. Inspection and monitoring – Inspect, maintain, and repair all BMPs as needed to assure continued performance of their intended function. Conduct site inspections and monitoring in accordance with the Construction Stormwater General Permit and King County requirements. Coordinate with subcontractors and laborers to assure the CSWPPP measures are followed.
3. Documentation and reporting: – Inspect, maintain, and repair all BMPs as needed to assure continued performance of their intended function. Document site inspections and monitoring in accordance with the Construction Stormwater General Permit, specific BMP conditions and King County requirements. Log sheets provided in Reference Section 8 may be used if appropriate. Follow reporting requirements and provide documentation as requested to COK staff.
4. Maintaining an updated CSWPPP – Maintain, update, and implement the CSWPPP in accordance with the Construction Stormwater General Permit and King County requirements. Obtain approval for specific CSWPPP measures (e.g., chemical treatments of stormwater) well in advance of need. Coordinate CSWPPP updates with the site inspector (see Section D.2.4.1).

Appendixes

A. Site Map

B. BMP Detail

BMPs can be found in Appendix D of the King County Surface Water Design Manual, found on the King County stormwater documents website at:

https://www.kingcounty.gov/services/environment/water-and-land/stormwater/documents/surface-water-design-manual.aspx

C. Correspondence

There is no correspondence expected between Ecology, the EPA, or other governmental agencies.

D. Site Inspection Form

E. Construction Stormwater General Permit (CSWGP)

Download the CSWGP:

https://www.ecology.wa.gov/Regulations-Permits/Permits-certifications/Stormwater-general-permits/Construction-stormwater-permit

F. 303(d) List Waterbodies / TMDL Waterbodies Information

Map attached.

G. Contaminated Site Information

There are no known contaminated sites within the project area.

H. Engineering Calculations

See Attached.

Appendix A
Site Maps

EROSION/SEDIMENTATION CONTROL - PLAN NOTES

1. THE APPROVED CONSTRUCTION SEQUENCE SHALL BE AS FOLLOWS:
   a. CONDUCT PRE-CONSTRUCTION MEETING.
   b. FLAG OR FENCE CLEARING LIMITS.
   c. POST SIGN WITH NAME AND PHONE NUMBER OF TESC SUPERVISOR.
   d. INSTALL CATCH BASIN PROTECTION IF REQUIRED.
   e. GRADE AND INSTALL CONSTRUCTION ENTRANCE(S).
   f. INSTALL PERIMETER PROTECTION (SILT FENCE, BRUSH BARRIER, ETC.).
   g. CONSTRUCT SEDIMENT PONDS AND TRAPS.
   h. GRADE AND STABILIZE CONSTRUCTION ROADS.
   i. CONSTRUCT SURFACE WATER CONTROLS (INTERCEPTOR DIKES, PIPE SLOPE DRAINS, ETC.) SIMULTANEOUSLY WITH CLEARING AND GRADING FOR PROJECT DEVELOPMENT.
   j. MAINTAIN EROSION CONTROL MEASURE IN ACCORDANCE WITH CITY OF KIRKLAND STANDARDS AND MANUFACTURER'S RECOMMENDATIONS.
   k. RELOCATE EROSION CONTROL MEASURES OR INSTALL NEW MEASURES SO THAT AS SITE CONDITIONS CHANGE, THE EROSION AND SEDIMENT CONTROL IS ALWAYS IN ACCORDANCE WITH THE CITY TESC MINIMUM REQUIREMENTS.
   l. COVER ALL AREAS WITHIN THE SPECIFIED TIME FRAME WITH STRAW, WOOD FIBER MULCH, COMPOST, PLASTIC SHEETING, CRUSHED ROCK OR EQUIVALENT.
   m. STABILIZE ALL AREAS THAT REACH FINAL GRADE WITHIN 7 DAYS.
   n. SEED OR SOD ANY AREAS TO REMAIN UNWORKED FOR MORE THAN 30 DAYS.
   o. UPON COMPLETION OF THE PROJECT, ALL DISTURBED AREAS MUST BE STABILIZED AND BEST MANAGEMENT PRACTICES REMOVED IF APPROPRIATE.

2. CONTRACTOR IS RESPONSIBLE FOR KEEPING STREETS CLEAN AND FREE OF CONTAMINANTS AT ALL TIMES AND FOR PREVENTING AN ILLICIT DISCHARGE (KMC 15.52) INTO THE MUNICIPAL STORM DRAIN SYSTEM. IF YOUR CONSTRUCTION PROJECT CAUSES AN ILLICIT DISCHARGE TO THE MUNICIPAL STORM DRAIN SYSTEM, THE CITY OF KIRKLAND STORM MAINTENANCE DIVISION WILL BE CALLED AT (425) 587-3900 TO CLEAN THE PUBLIC STORM SYSTEM, AND OTHER AFFECTED PUBLIC INFRASTRUCTURE. THE CONTRACTOR(S), PROPERTY OWNER, AND ANY OTHER RESPONSIBLE PARTY MAY BE CHARGED ALL COSTS ASSOCIATED WITH THE CLEAN-UP AND MAY ALSO BE ASSESSED MONETARY PENALTIES (KMC 1.12.200). THE MINIMUM PENALTY IS $250. A FINAL INSPECTION OF YOUR PROJECT WILL NOT BE GRANTED UNTIL ALL COSTS ASSOCIATED WITH THE CLEAN-UP, AND PENALTIES, ARE PAID TO THE CITY OF KIRKLAND.

3. CONSTRUCTION DEWATERING DISCHARGES SHALL ALWAYS MEET WATER QUALITY GUIDELINES LISTED IN COK POLICY E-1. SPECIFICALLY, DISCHARGES TO THE PUBLIC STORMWATER DRAINAGE SYSTEM MUST BE BELOW 25NTU, AND NOT CONSIDERED AN ILLICIT DISCHARGE (PER KMC 15.52.090).
   TEMPORARY DISCHARGES TO SANITARY SEWER REQUIRE PRIOR AUTHORIZATION AND PERMIT FROM KING COUNTY INDUSTRIAL WASTE PROGRAM (206-263-3000) AND NOTIFICATION TO THE PUBLIC WORKS CONSTRUCTION INSPECTOR.

4. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH CITY OF KIRKLAND STANDARDS, SPECIFICATIONS, AND GENERAL POLICIES.

5. THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THIS PLAN SHALL BE SET BY SURVEY AND CLEARLY FLAGGED IN THE FIELD BY A CLEARING CONTROL FENCE PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE OR REMOVAL OF ANY GROUND COVER BEYOND THE FLAGGED EROSION - PLAN NOTES (CONTINUED) CLEARING LIMITS SHALL BE PERMITTED. THE FLAGGING SHALL BE MAINTAINED BY THE PERMITTEE/CONTRACTOR FOR THE DURATION OF CONSTRUCTION.

6. APPROVAL OF THIS EROSION/SEDIMENTATION CONTROL (ESC) PLAN DOES NOT CONSTITUTE AN APPROVAL OF PERMANENT ROAD OR DRAINAGE DESIGN (E.G., SIZE AND LOCATION OF ROADS, PIPES, RESTRICTORS, CHANNELS, RETENTION FACILITIES, UTILITIES, ETC.).

7. THE IMPLEMENTATION OF THIS ESC PLAN AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE PERMITTEE/CONTRACTOR UNTIL ALL CONSTRUCTION IS APPROVED.

8. A COPY OF THE APPROVED ESC PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.

9. THE ESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED PRIOR TO OR IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES IN SUCH A MANNER AS TO ENSURE THAT SEDIMENT-LADEN WATER DOES NOT ENTER THE DRAINAGE SYSTEM OR VIOLATE APPLICABLE WATER STANDARDS. WHEREVER POSSIBLE, MAINTAIN NATURAL VEGETATION FOR SILT CONTROL.

10. THE ESC FACILITIES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DETAILS ON THE APPROVED PLANS. LOCATIONS MAY BE MOVED TO SUIT FIELD CONDITIONS, SUBJECT TO APPROVAL BY THE ENGINEER AND THE CITY OF KIRKLAND INSPECTOR.

11. THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED (E.G., ADDITIONAL SUMPS, RELOCATION OF DITCHES AND SILT FENCES, ETC.) AS NEEDED FOR UNEXPECTED STORM EVENTS. ADDITIONALLY, MORE ESC FACILITIES MAY BE REQUIRED TO ENSURE COMPLETE SILTATION CONTROL. THEREFORE, DURING THE COURSE OF CONSTRUCTION IT SHALL BE THE OBLIGATION AND RESPONSIBILITY OF THE CONTRACTOR TO ADDRESS ANY NEW CONDITIONS THAT MAY BE CREATED BY HIS ACTIVITIES AND TO PROVIDE ADDITIONAL FACILITIES OVER AND ABOVE THE MINIMUM REQUIREMENTS AS MAY BE NEEDED.

12. THE ESC FACILITIES SHALL BE INSPECTED BY THE PERMITTEE/CONTRACTOR DAILY DURING NON-RAINFALL PERIODS, EVERY HOUR (DAYLIGHT) DURING A RAINFALL EVENT, AND AT THE END OF EVERY RAINFALL, AND MAINTAINED AS NECESSARY TO ENSURE THEIR CONTINUED FUNCTIONING. IN ADDITION, TEMPORARY SILTATION PONDS AND ALL TEMPORARY SILTATION CONTROLS SHALL BE MAINTAINED IN A SATISFACTORY CONDITION UNTIL SUCH TIME THAT CLEARING AND/OR CONSTRUCTION IS COMPLETED, PERMANENT DRAINAGE FACILITIES ARE OPERATIONAL, AND THE POTENTIAL FOR EROSION HAS PASSED. WRITTEN RECORDS SHALL BE KEPT DOCUMENTING THE REVIEWS OF THE ESC FACILITIES, AND A COPY OF THESE RECORDS SHALL BE PROVIDED TO THE CITY OF KIRKLAND AT THE CLOSE OF THE PROJECT.

13. THE ESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN 48 HOURS FOLLOWING A STORM EVENT.

14. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES, SUCH AS WASH PADS, MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.

15. ALL DENUDED SOILS MUST BE STABILIZED WITH AN APPROVED TESC METHOD (E.G. SEEDING, MULCHING, PLASTIC COVERING, CRUSHED ROCK) WITHIN THE FOLLOWING TIMELINES:
   • MAY 1 TO SEPTEMBER 30 - SOILS MUST BE STABILIZED WITHIN 7 DAYS OF GRADING.
   • OCTOBER 1 TO APRIL 30 - SOILS MUST BE STABILIZED WITHIN 2 DAYS OF GRADING.
   • STABILIZE SOILS AT THE END OF THE WORKDAY PRIOR TO A WEEKEND, HOLIDAY, OR PREDICTED RAIN EVENT.

16. WHERE SEEDING FOR TEMPORARY EROSION CONTROL IS REQUIRED, FAST GERMINATING GRASSES SHALL BE APPLIED AT AN APPROPRIATE RATE (EXAMPLE: ANNUAL OR PERENNIAL RYE APPLIED AT APPROXIMATELY 80 POUNDS PER ACRE).

17. WHERE STRAW MULCH IS REQUIRED FOR TEMPORARY EROSION CONTROL, IT SHALL BE APPLIED AT A MINIMUM THICKNESS OF 2".

18. CLEARING LIMITS SHALL BE DELINEATED WITH A CLEARING CONTROL FENCE. THE CLEARING CONTROL FENCE SHALL CONSIST OF A 6-FT. HIGH CHAIN LINK FENCE ADJACENT THE DRIP LINE OF TREES TO BE SAVED, WETLAND OR STREAM BUFFERS, AND SENSITIVE SLOPES. CLEARING CONTROL FENCES ALONG WETLAND OR STREAM BUFFERS OR UPSLOPE OF SENSITIVE SLOPES SHALL BE ACCOMPANIED BY AN EROSION CONTROL FENCE. IF APPROVED BY THE CITY, A FOUR-FOOT HIGH ORANGE MESH CLEARING CONTROL FENCE MAY BE USED TO DELINEATE CLEARING LIMITS IN ALL OTHER AREAS.

19. OFF-SITE STREETS MUST BE KEPT CLEAN AT ALL TIMES. IF DIRT IS DEPOSITED ON THE PUBLIC STREET SYSTEM, THE STREET SHALL BE IMMEDIATELY CLEANED WITH POWER SWEEPER OR OTHER EQUIPMENT. ALL VEHICLES SHALL LEAVE THE SITE BY WAY OF THE CONSTRUCTION ENTRANCE AND SHALL BE CLEANED OF ALL DIRT THAT WOULD BE DEPOSITED ON THE PUBLIC STREETS.

20. ROCK FOR EROSION PROTECTION OF ROADWAY DITCHES, WHERE REQUIRED, MUST BE OF SOUND QUARRY ROCK, PLACED TO A DEPTH OF 1' AND MUST MEET THE FOLLOWING SPECIFICATIONS: 4"-8" ROCK/40%-70% PASSING; 2"-4" ROCK/30%-40% PASSING; AND 1"-2" ROCK/10%-20% PASSING. RECYCLED CONCRETE SHALL NOT BE USED FOR EROSION PROTECTION, INCLUDING CONSTRUCTION ENTRANCE OR TEMPORARY STABILIZATION ELSEWHERE ON THE SITE.

21. IF ANY PART(S) OF THE CLEARING LIMIT BOUNDARY OR TEMPORARY EROSION/SEDIMENTATION CONTROL PLAN IS/ARE DAMAGED, IT SHALL BE REPAIRED IMMEDIATELY.

22. ALL PROPERTIES ADJACENT TO THE PROJECT SHALL BE PROTECTED FROM SEDIMENT DEPOSITION AND RUNOFF.

23. AT NO TIME SHALL MORE THAN 1' OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED IMMEDIATELY FOLLOWING REMOVAL OF EROSION CONTROL BMPS. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT-LADEN WATER INTO THE DOWNSTREAM SYSTEM.

24. ANY PERMANENT RETENTION/DETENTION FACILITY USED AS A TEMPORARY SETTLING BASIN SHALL BE MODIFIED WITH THE NECESSARY EROSION CONTROL MEASURES AND SHALL PROVIDE ADEQUATE STORAGE CAPACITY. IF THE PERMANENT FACILITY IS TO FUNCTION ULTIMATELY AS AN INFILTRATION OR DISPERSION SYSTEM, THE FACILITY SHALL NOT BE USED AS A TEMPORARY SETTLING BASIN. NO UNDERGROUND DETENTION TANK, DETENTION VAULT, OR SYSTEM WHICH BACKS UNDER OR INTO A POND SHALL BE USED AS A TEMPORARY SETTLING BASIN.

25. THE WASHED GRAVEL BACKFILL ADJACENT TO THE FILTER FABRIC FENCE SHALL BE REPLACED AND THE FILTER FABRIC CLEANED IF IT IS NONFUNCTIONAL BY EXCESSIVE SILT ACCUMULATION AS DETERMINED BY THE CITY OF KIRKLAND. ALSO, ALL INTERCEPTOR SWALES SHALL BE CLEANED IF SILT ACCUMULATION EXCEEDS ONE-QUARTER DEPTH.

26. PRIOR TO THE OCTOBER 1 OF EACH YEAR (THE BEGINNING OF THE WET SEASON), ALL DISTURBED AREAS SHALL BE REVIEWED TO IDENTIFY WHICH ONES CAN BE SEEDED IN PREPARATION FOR THE WINTER RAINS. THE IDENTIFIED DISTURBED AREA SHALL BE SEEDED WITHIN ONE WEEK AFTER OCTOBER 1. A SITE PLAN DEPICTING THE AREAS TO BE SEEDED AND THE AREAS TO REMAIN UNCOVERED SHALL BE SUBMITTED TO THE PUBLIC WORKS CONSTRUCTION INSPECTOR. THE INSPECTOR CAN REQUIRE SEEDING OF ADDITIONAL AREAS IN ORDER TO PROTECT SURFACE WATERS, ADJACENT PROPERTIES, OR DRAINAGE FACILITIES.

27. ANY CATCH BASINS COLLECTING RUNOFF FROM THE SITE, WHETHER THEY ARE ON OR OFF THE SITE, SHALL HAVE ADEQUATE PROTECTION FROM SEDIMENT. CATCH BASINS DIRECTLY DOWNSTREAM OF THE CONSTRUCTION ENTRANCE OR ANY OTHER CATCH BASIN AS DETERMINED BY THE CITY INSPECTOR SHALL BE PROTECTED WITH A "STORM DRAIN PROTECTION INSERT" OR EQUIVALENT.

28. DO NOT FLUSH CONCRETE BY-PRODUCTS OR TRUCKS NEAR OR INTO THE STORM DRAINAGE SYSTEM. IF EXPOSED AGGREGATE IS FLUSHED INTO THE STORM SYSTEM, IT COULD MEAN RE-CLEANING THE ENTIRE DOWNSTREAM STORM SYSTEM, OR POSSIBLY RE-LAYING THE STORM LINE.

29. RECYCLED CONCRETE SHALL NOT BE STOCKPILED ON SITE. USE OR REUSE OF RECYCLED CONCRETE ON THE SITE IS PROHIBITED.

NORTHSHORE UTILITY DISTRICT GENERAL NOTES

SMALL PROJECTS SERVICE SEWER AND WATER GENERAL NOTES:

1. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH THE SMALL PROJECT SERVICE SPECIFICATIONS AND THE STANDARD DETAILS OF NORTHSHORE UTILITY DISTRICT.

UTILITY LOCATES:

2. THE APPROXIMATE LOCATIONS OF EXISTING UTILITIES ARE SHOWN ON PLANS AND PROFILES FOR CONVENIENCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF UTILITY LOCATIONS SHOWN AND FOR DISCOVERY OF POSSIBLE ADDITIONAL UTILITIES NOT SHOWN ON PLANS.
3. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE LOCATED, BY APPROPRIATE UTILITY DISTRICTS OR COMPANIES, ALL UNDERGROUND UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
4. FOR UTILITY LOCATES IN KING COUNTY, CALL 1-800-424-5555 PRIOR TO DIGGING.

PRE-CON:

5. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD AT NORTHSHORE UTILITY DISTRICT'S OFFICE OR ONSITE PRIOR TO THE START OF CONSTRUCTION. DISTRICT STAFF WILL NOTIFY THE APPROPRIATE AGENCIES OR REPRESENTATIVES.

SURVEYING:

6. PRIOR TO CONSTRUCTION, LOT CORNERS, EASEMENTS AND PRIVATE ACCESS TRACTS SHALL BE STAKED.
7. HORIZONTAL CONTROL DATA SHALL BE NAD '83/'91. VERTICAL CONTROL SHALL BE NAVD-88 DATUM.
8. AT THE CONCLUSION OF CONSTRUCTION, THE DEVELOPER'S REGISTERED PROFESSIONAL SURVEYOR SHALL PREPARE A DRAWING BASED ON THE SURVEYED LOCATION OF ALL APPURTENANCES INSTALLED, INCLUDING BUT NOT LIMITED TO, MANHOLES, CLEANOUTS, WATER METERS AND WATER SERVICE LINES.

CONSTRUCTION:

9. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE SMALL PROJECT SERVICE SPECIFICATIONS AND THE STANDARD DETAILS OF NORTHSHORE UTILITY DISTRICT.

MATERIALS:

10. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE SMALL PROJECT SERVICE SPECIFICATIONS AND THE STANDARD DETAILS OF NORTHSHORE UTILITY DISTRICT.

PLACEMENT:

11. SEWER AND WATER SERVICE LOCATIONS SHALL BE AS SHOWN ON THE PLANS OR AS OTHERWISE APPROVED BY NORTHSHORE UTILITY DISTRICT.

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ch2m

Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

SET TYPE:
90% Design Submittal

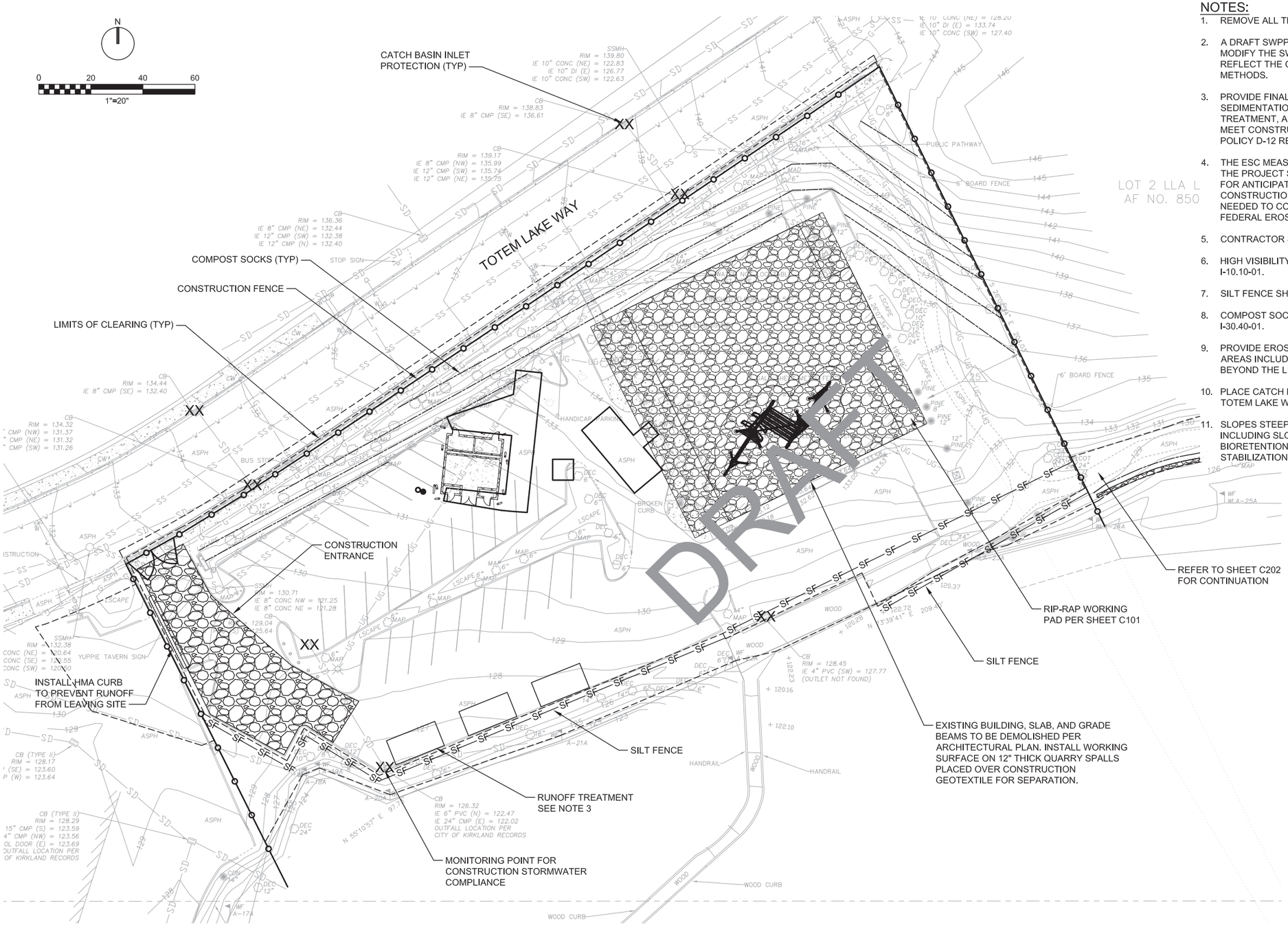
SET ISSUE DATE:
12/14/2018

REVISIONS:

DRAWN/CHECKED:
DRW / CHK

SHEET NAME:
CIVIL GENERAL NOTES

SHEET NUMBER:
C001



NOTES:

1. REMOVE ALL TREES WITHIN CLEARING LIMIT.
2. A DRAFT SWPPP HAS BEEN PREPARED. CONTRACTOR SHALL MODIFY THE SWPPP AND THE ESC PLANS AS NEEDED TO REFLECT THE CONSTRUCTION SEQUENCE, MEANS AND METHODS.
3. PROVIDE FINAL SWPPP, CONSTRUCTION EROSION AND SEDIMENTATION CONTROL LEAD, COVER MEASURES, RUNOFF TREATMENT, AND ALL OTHER MEASURES AS NECESSARY TO MEET CONSTRUCTION GENERAL PERMIT AND CITY OF KIRKLAND POLICY D-12 REQUIREMENTS.
4. THE ESC MEASURES SHOWN ON THIS PLAN AND DESCRIBED IN THE PROJECT SPECIFICATIONS ARE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, UPGRADE THESE MEASURES AS NEEDED TO COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL EROSION AND SEDIMENT CONTROL REGULATIONS.
5. CONTRACTOR SHALL DESIGN TEMPORARY SHORING.
6. HIGH VISIBILITY FENCE SHALL BE PER WSDOT STANDARD PLAN I-10.10-01.
7. SILT FENCE SHALL BE PER WSDOT STANDARD PLAN I-30.10-02.
8. COMPOST SOCKS SHALL BE PER WSDOT STANDARD PLAN I-30.40-01.
9. PROVIDE EROSION CONTROL MEASURES FOR ALL DISTURBED AREAS INCLUDING STAGING, ACCESS, AND PARKING AREAS BEYOND THE LIMITS SHOWN ON THIS PLAN.
10. PLACE CATCH BASIN INSERT IN NEXT DOWNSTREAM INLET IN TOTEM LAKE WAY.
11. SLOPES STEEPER THAN 4:1 (HORIZONTAL:VERTICAL), NOT INCLUDING SLOPES BELOW THE WATER STORAGE AREA IN THE BIORETENTION CELLS, SHALL BE STABILIZED PER SLOPE STABILIZATION DETAIL 1 ON CD101.

LEGEND:

- LIMITS OF CLEARING
- TEMPORARY CONSTRUCTION FENCE
- COMPOST SOCKS
- XX CATCH BASIN INSERT

CESC PLAN

1" = 20'

NOTES TO REVIEWER:

1. UTILITY IMPROVEMENTS, RELOCATIONS, OR EXTENSIONS FOR ADJACENT PROJECT(S) ARE NOT DEPICTED HERE.

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Totem Lake Park Phase 1

City of Kirkland

12031 Totem Lake Way, Kirkland, WA 98034

SET TYPE:
90% Design Submittal

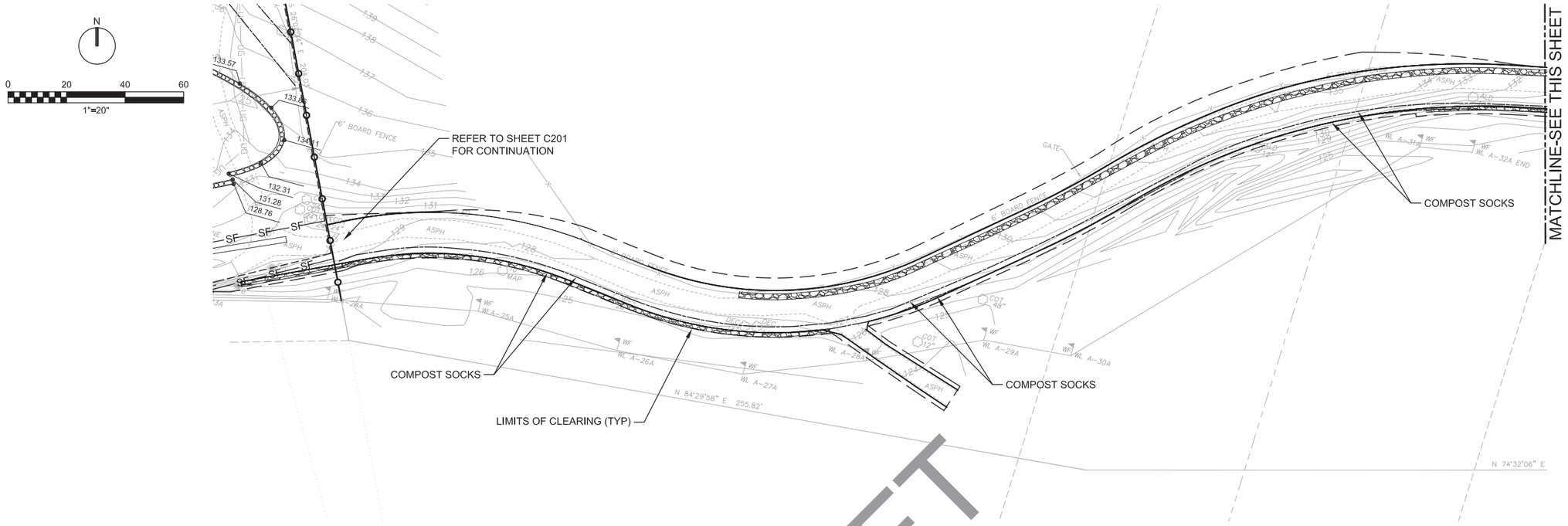
SET ISSUE DATE:
12/14/2018

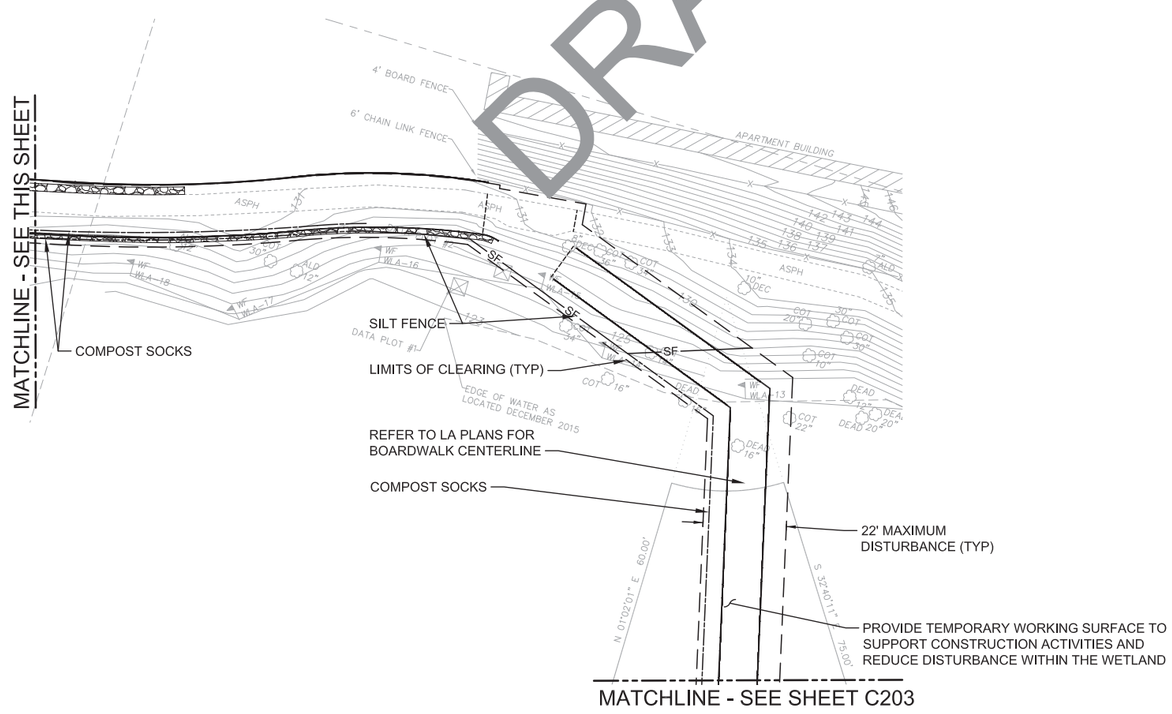
REVISIONS:

DRAWN/CHECKED:
DRW / CHK

SHEET NAME:
CESC PLAN - PARK

SHEET NUMBER:
C201





CESC PLAN

1" = 20'

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9. PROVIDE EROSION CONTROL MEASURES FOR ALL DISTURBED AREAS INCLUDING STAGING, ACCESS, AND PARKING AREAS BEYOND THE LIMITS SHOWN ON THIS PLAN.
10. PLACE CATCH BASIN INSERT IN NEXT DOWNSTREAM INLET IN TOTEM LAKE WAY.
11. REFER TO SHEET L203 FOR A DESCRIPTION OF ALLOWABLE IMPACTS.
12. SLOPES STEEPER THAN 4:1 (HORIZONTAL:VERTICAL), NOT INCLUDING SLOPES BELOW THE WATER STORAGE AREA IN THE BIORETENTION CELLS, SHALL BE STABILIZED PER SLOPE STABILIZATION DETAIL 1 ON SHEET CD101.

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bergerpartnership.com

ch2m

Totem Lake Park Phase 1

City of Kirkland

12031 Totem Lake Way, Kirkland, WA 98034

SET TYPE:
90% Design Submittal

SET ISSUE DATE:
12/14/2018

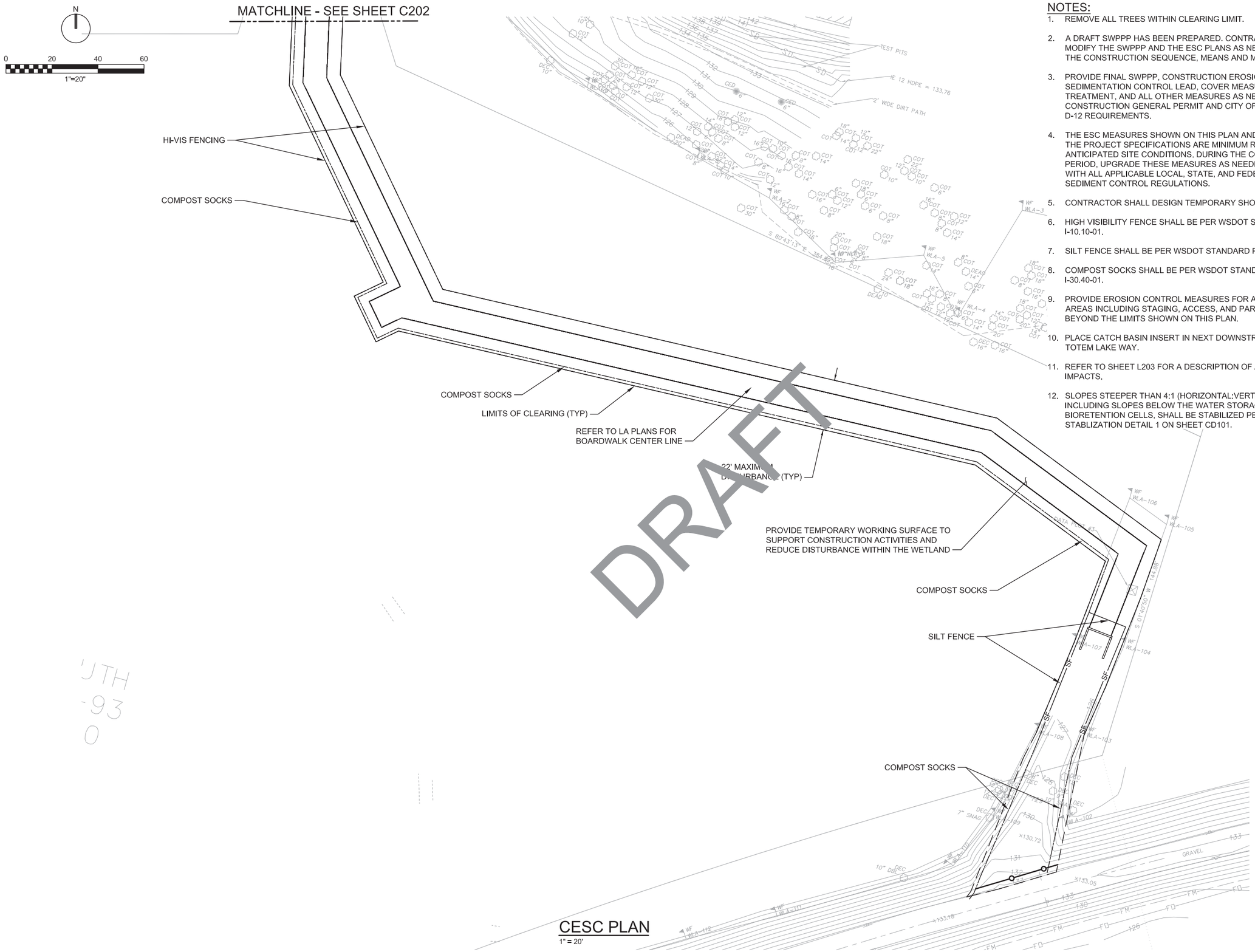
REVISIONS:

DRAWN/CHECKED:
DRW / CHK

SHEET NAME:
CESC PLAN - TRAIL

SHEET NUMBER:
C202

Berger Partnership Project Number: XXXXXXXX.XX Revised: 12.10.2018 4:25 PM By: Luehrs, Teresa/CCG File name: c:\pw_workdir\dms003\ch2mhill_tluehrs\dms97542\c202_694933.dwg



CESC PLAN

1" = 20'

NOTES:

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10. PLACE CATCH BASIN INSERT IN NEXT DOWNSTREAM INLET IN TOTEM LAKE WAY.
11. REFER TO SHEET L203 FOR A DESCRIPTION OF ALLOWABLE IMPACTS.
12. SLOPES STEEPER THAN 4:1 (HORIZONTAL:VERTICAL), NOT INCLUDING SLOPES BELOW THE WATER STORAGE AREA IN THE BIORETENTION CELLS, SHALL BE STABILIZED PER SLOPE STABLIZATION DETAIL 1 ON SHEET CD101.

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Totem Lake Park Phase 1

City of Kirkland

12031 Totem Lake Way, Kirkland, WA 98034

SET TYPE:
90% Design Submittal

SET ISSUE DATE:
12/14/2018

REVISIONS:

DRAWN/CHECKED:
DRW / CHK

SHEET NAME:
CESC PLAN - BOARDWALK

SHEET NUMBER:
C203

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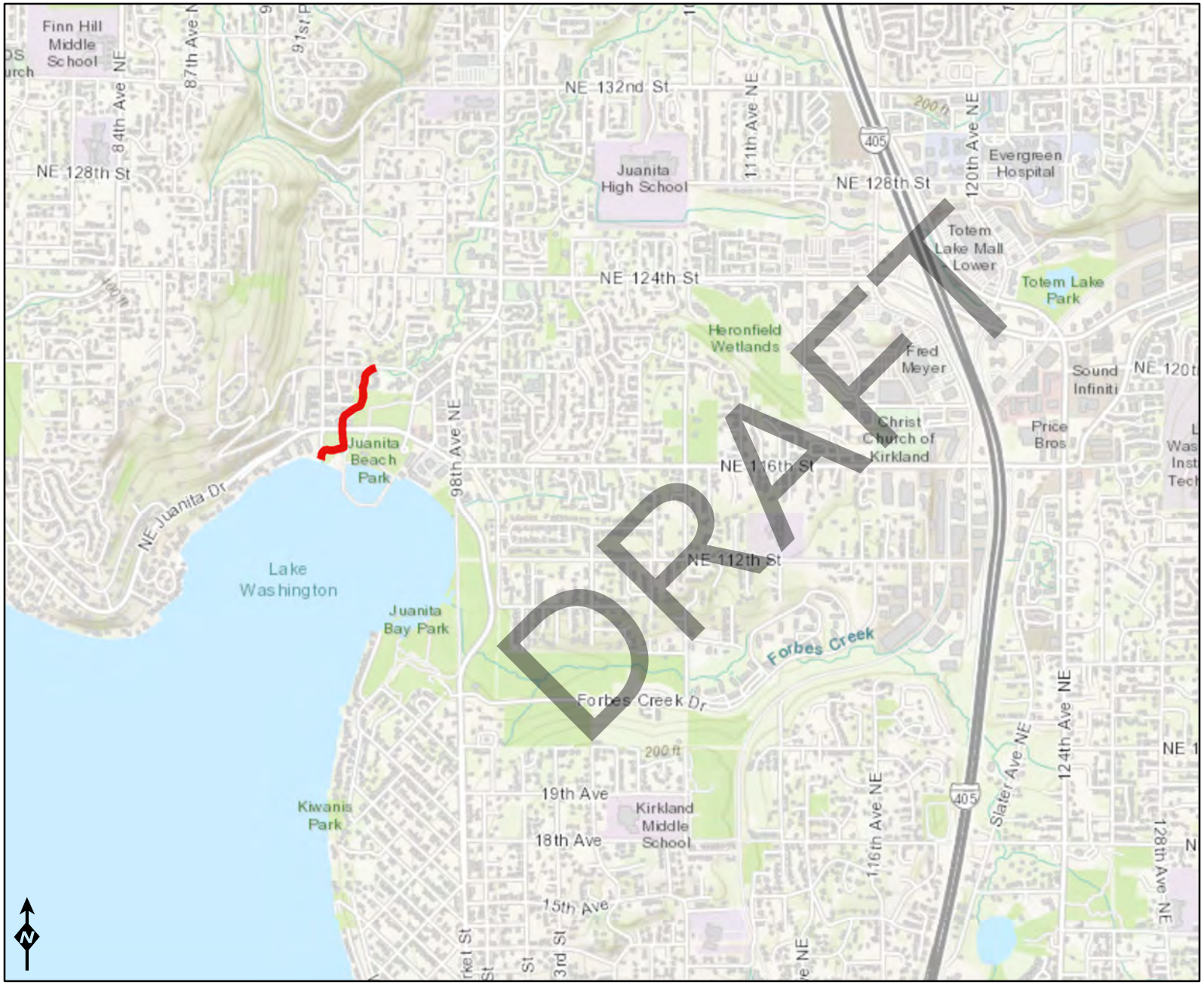
APPENDIX F

August 1, 2018

Totem Lake Park Bacteria Listing# 13127



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

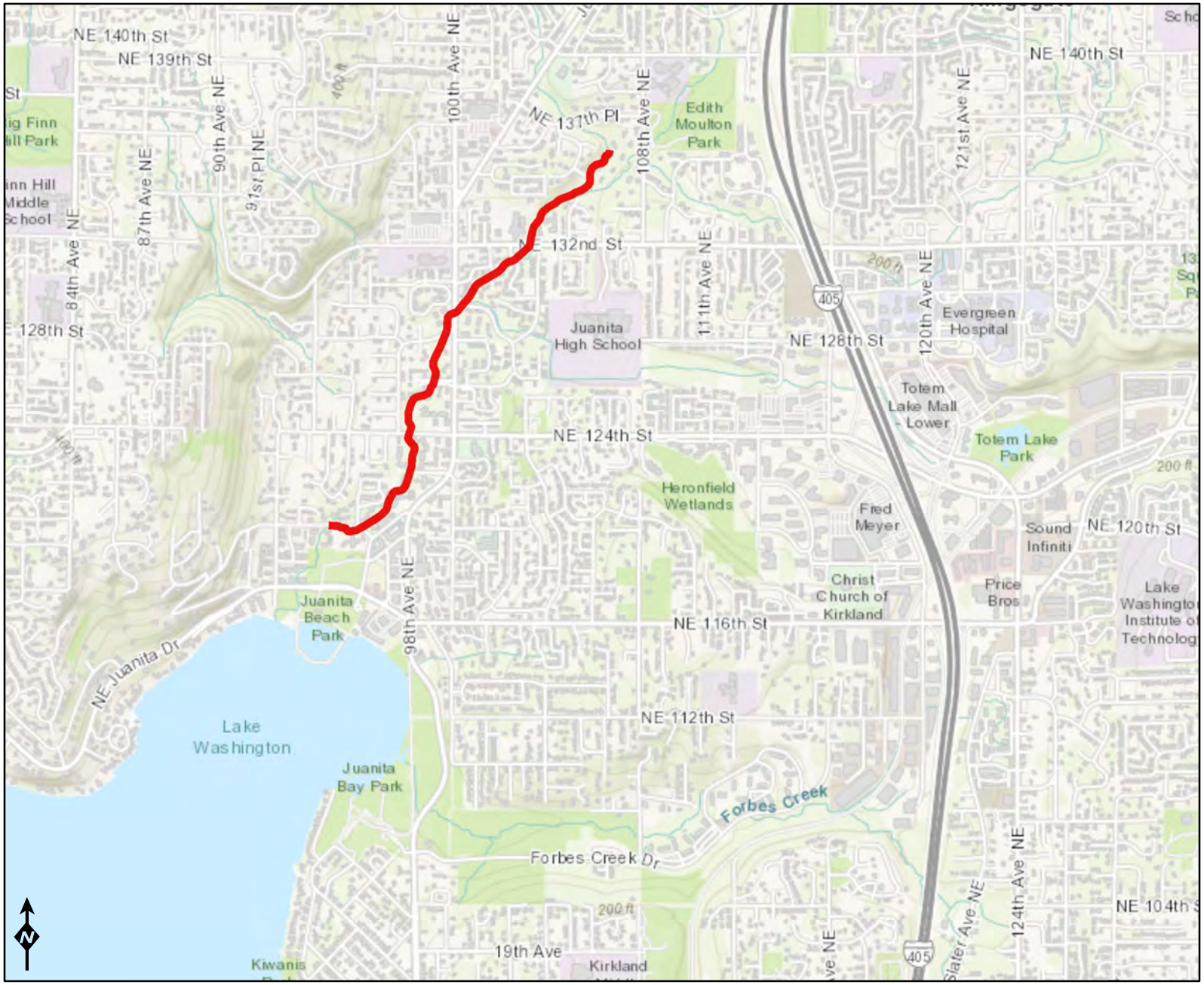
Miles 0 0.25 0.5 1

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

August 6, 2018

Totem Lake Park Bacteria Listing# 13143



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

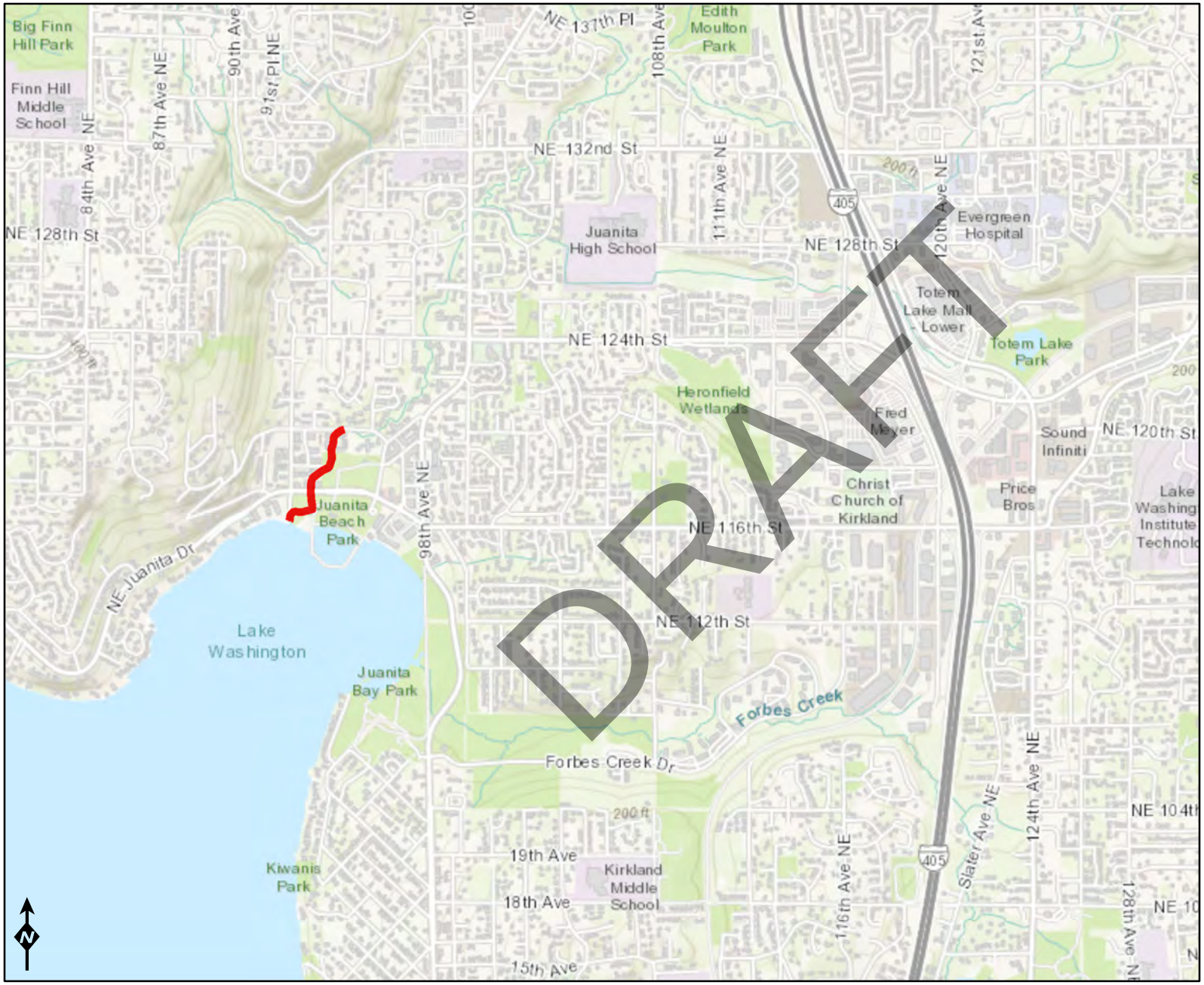
Miles 0 0.25 0.5 1

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

August 1, 2018

Totem Lake Park Dissolved Oxygen Listing #12675



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

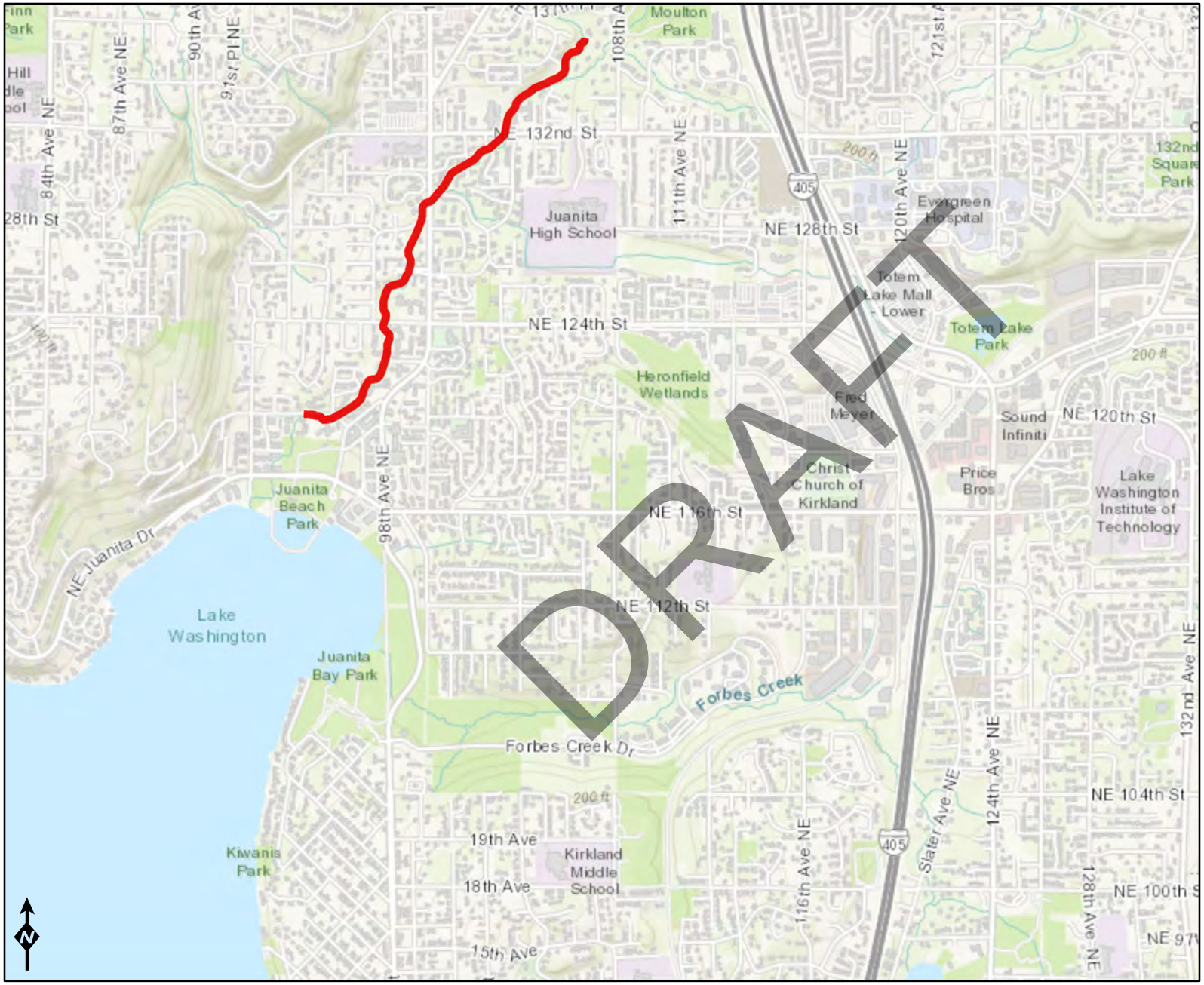
Miles 0 0.25 0.5 1

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

August 1, 2018

Totem Lake Park Dissolved Oxygen Listing# 12686



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

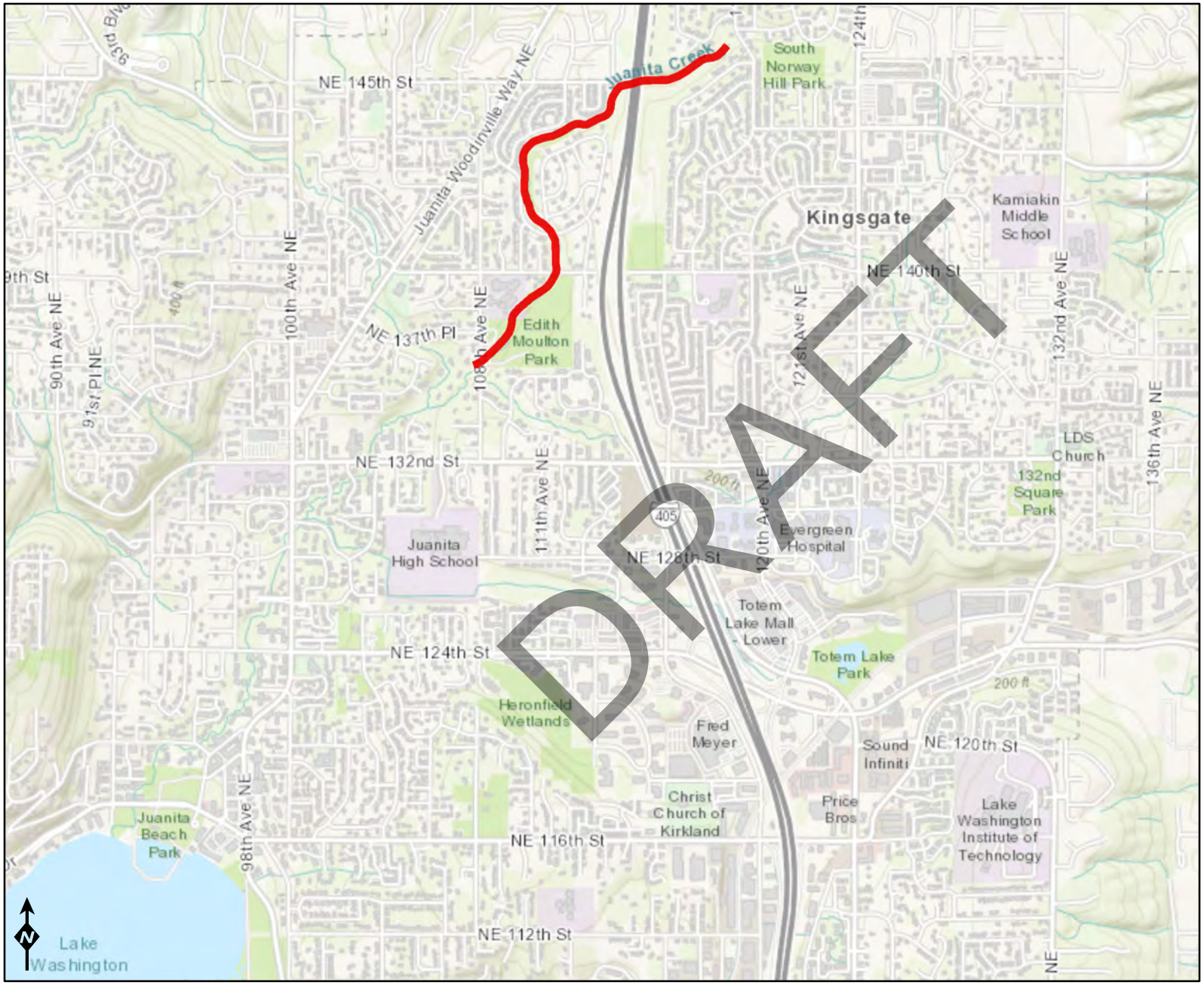
Miles 0 0.25 0.5 1

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

August 1, 2018

Totem Lake Park Dissolved Oxygen Listing# 78042



Assessed Waters/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Miles 0 0.25 0.5 1

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap

DEPARTMENT OF ECOLOGY State of Washington

APPENDIX H

WWHM2012
PROJECT REPORT

Project Name: TLP_ESC
Site Name: Totem Lake Park
Site Address:
City :
Report Date: 8/2/2018
Gage : Seatac
Data Start : 1948/10/01
Data End : 2009/09/30
Precip Scale: 1.00
Version Date: 2018/03/02
Version : 4.2.14

Low Flow Threshold for POC 1 : 50 Percent of the 2 Year

High Flow Threshold for POC 1: 50 year

PREDEVELOPED LAND USE

Name : Basin Park
Bypass: No

GroundWater: No

Pervious Land Use	acre
SAT, Lawn, Flat	.69
Pervious Total	**0.69**

Impervious Land Use	acre
ROADS FLAT	0.52
Impervious Total	**0.52**
Basin Total	**1.21**

Element Flows To:

Surface	Interflow	Groundwater

MITIGATED LAND USE

Name : Basin Park
Bypass: No

GroundWater: No

Pervious Land Use	acre
SAT, Lawn, Flat	.69
Pervious Total	0.69

Impervious Land Use	acre
ROADS FLAT	0.52
Impervious Total	0.52
Basin Total	1.21

Element Flows To:
Surface Interflow Groundwater

ANALYSIS RESULTS

Stream Protection Duration

Predeveloped Landuse Totals for POC #1
Total Pervious Area:0.69
Total Impervious Area:0.52

Mitigated Landuse Totals for POC #1
Total Pervious Area:0.69
Total Impervious Area:0.52

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	0.211032
5 year	0.271115
10 year	0.313327
25 year	0.369549
50 year	0.413597
100 year	0.459558

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	0.211032
5 year	0.271115
10 year	0.313327
25 year	0.369549
50 year	0.413597
100 year	0.459558

Stream Protection Duration
Annual Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1949	0.268	0.268
1950	0.295	0.295
1951	0.252	0.252
1952	0.146	0.146
1953	0.154	0.154
1954	0.186	0.186
1955	0.203	0.203
1956	0.188	0.188
1957	0.208	0.208
1958	0.165	0.165
1959	0.169	0.169
1960	0.193	0.193
1961	0.182	0.182
1962	0.152	0.152
1963	0.175	0.175
1964	0.168	0.168
1965	0.243	0.243
1966	0.149	0.149
1967	0.314	0.314
1968	0.276	0.276
1969	0.202	0.202
1970	0.191	0.191
1971	0.220	0.220
1972	0.303	0.303
1973	0.140	0.140
1974	0.202	0.202
1975	0.232	0.232
1976	0.174	0.174
1977	0.169	0.169
1978	0.206	0.206
1979	0.282	0.282
1980	0.253	0.253
1981	0.207	0.207
1982	0.292	0.292
1983	0.238	0.238
1984	0.191	0.191
1985	0.207	0.207
1986	0.195	0.195
1987	0.276	0.276
1988	0.168	0.168
1989	0.210	0.210
1990	0.460	0.460
1991	0.297	0.297
1992	0.154	0.154
1993	0.133	0.133
1994	0.140	0.140
1995	0.184	0.184
1996	0.266	0.266
1997	0.234	0.234
1998	0.193	0.193
1999	0.394	0.394
2000	0.203	0.203

2001	0.215	0.215
2002	0.251	0.251
2003	0.206	0.206
2004	0.369	0.369
2005	0.175	0.175
2006	0.194	0.194
2007	0.434	0.434
2008	0.323	0.323
2009	0.257	0.257

Stream Protection Duration
Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	0.4603	0.4603
2	0.4341	0.4341
3	0.3938	0.3938
4	0.3685	0.3685
5	0.3229	0.3229
6	0.3142	0.3142
7	0.3031	0.3031
8	0.2974	0.2974
9	0.2949	0.2949
10	0.2923	0.2923
11	0.2823	0.2823
12	0.2764	0.2764
13	0.2755	0.2755
14	0.2679	0.2679
15	0.2659	0.2659
16	0.2567	0.2567
17	0.2534	0.2534
18	0.2520	0.2520
19	0.2514	0.2514
20	0.2434	0.2434
21	0.2378	0.2378
22	0.2345	0.2345
23	0.2315	0.2315
24	0.2204	0.2204
25	0.2153	0.2153
26	0.2101	0.2101
27	0.2076	0.2076
28	0.2074	0.2074
29	0.2073	0.2073
30	0.2065	0.2065
31	0.2063	0.2063
32	0.2033	0.2033
33	0.2032	0.2032
34	0.2020	0.2020
35	0.2015	0.2015
36	0.1955	0.1955
37	0.1936	0.1936
38	0.1931	0.1931
39	0.1925	0.1925
40	0.1911	0.1911
41	0.1910	0.1910
42	0.1879	0.1879
43	0.1863	0.1863

44	0.1838	0.1838
45	0.1819	0.1819
46	0.1753	0.1753
47	0.1751	0.1751
48	0.1742	0.1742
49	0.1686	0.1686
50	0.1685	0.1685
51	0.1683	0.1683
52	0.1677	0.1677
53	0.1653	0.1653
54	0.1541	0.1541
55	0.1540	0.1540
56	0.1520	0.1520
57	0.1492	0.1492
58	0.1463	0.1463
59	0.1401	0.1401
60	0.1400	0.1400
61	0.1329	0.1329

Stream Protection Duration
POC #1
The Facility PASSED

The Facility PASSED.

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.1055	2098	2098	100	Pass
0.1086	1932	1932	100	Pass
0.1117	1776	1776	100	Pass
0.1149	1628	1628	100	Pass
0.1180	1497	1497	100	Pass
0.1211	1352	1352	100	Pass
0.1242	1259	1259	100	Pass
0.1273	1171	1171	100	Pass
0.1304	1072	1072	100	Pass
0.1335	996	996	100	Pass
0.1366	908	908	100	Pass
0.1397	847	847	100	Pass
0.1429	787	787	100	Pass
0.1460	721	721	100	Pass
0.1491	649	649	100	Pass
0.1522	613	613	100	Pass
0.1553	573	573	100	Pass
0.1584	537	537	100	Pass
0.1615	504	504	100	Pass
0.1646	474	474	100	Pass
0.1678	448	448	100	Pass
0.1709	416	416	100	Pass
0.1740	387	387	100	Pass
0.1771	355	355	100	Pass
0.1802	333	333	100	Pass
0.1833	314	314	100	Pass
0.1864	283	283	100	Pass
0.1895	259	259	100	Pass
0.1927	236	236	100	Pass
0.1958	213	213	100	Pass

0.1989	200	200	100	Pass
0.2020	187	187	100	Pass
0.2051	170	170	100	Pass
0.2082	152	152	100	Pass
0.2113	147	147	100	Pass
0.2144	140	140	100	Pass
0.2175	134	134	100	Pass
0.2207	124	124	100	Pass
0.2238	120	120	100	Pass
0.2269	115	115	100	Pass
0.2300	109	109	100	Pass
0.2331	104	104	100	Pass
0.2362	98	98	100	Pass
0.2393	95	95	100	Pass
0.2424	91	91	100	Pass
0.2456	84	84	100	Pass
0.2487	77	77	100	Pass
0.2518	71	71	100	Pass
0.2549	59	59	100	Pass
0.2580	53	53	100	Pass
0.2611	50	50	100	Pass
0.2642	47	47	100	Pass
0.2673	43	43	100	Pass
0.2704	38	38	100	Pass
0.2736	36	36	100	Pass
0.2767	32	32	100	Pass
0.2798	30	30	100	Pass
0.2829	30	30	100	Pass
0.2860	27	27	100	Pass
0.2891	24	24	100	Pass
0.2922	24	24	100	Pass
0.2953	22	22	100	Pass
0.2985	18	18	100	Pass
0.3016	18	18	100	Pass
0.3047	16	16	100	Pass
0.3078	15	15	100	Pass
0.3109	15	15	100	Pass
0.3140	14	14	100	Pass
0.3171	13	13	100	Pass
0.3202	13	13	100	Pass
0.3234	12	12	100	Pass
0.3265	12	12	100	Pass
0.3296	11	11	100	Pass
0.3327	9	9	100	Pass
0.3358	9	9	100	Pass
0.3389	9	9	100	Pass
0.3420	9	9	100	Pass
0.3451	8	8	100	Pass
0.3482	8	8	100	Pass
0.3514	6	6	100	Pass
0.3545	6	6	100	Pass
0.3576	6	6	100	Pass
0.3607	4	4	100	Pass
0.3638	4	4	100	Pass
0.3669	4	4	100	Pass
0.3700	3	3	100	Pass
0.3731	3	3	100	Pass

0.3763	3	3	100	Pass
0.3794	3	3	100	Pass
0.3825	3	3	100	Pass
0.3856	3	3	100	Pass
0.3887	3	3	100	Pass
0.3918	3	3	100	Pass
0.3949	2	2	100	Pass
0.3980	2	2	100	Pass
0.4011	2	2	100	Pass
0.4043	2	2	100	Pass
0.4074	2	2	100	Pass
0.4105	2	2	100	Pass
0.4136	2	2	100	Pass

Water Quality BMP Flow and Volume for POC #1
On-line facility volume: 0 **acre-feet**
On-line facility target flow: 0 **cfs.**
Adjusted for 15 min: 0 **cfs.**
Off-line facility target flow: 0 **cfs.**
Adjusted for 15 min: 0 **cfs.**

LID Report

LID Technique	Used for Treatment?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft.)	Cumulative Infiltration Volume Credit	Percent Volume Infiltrated	Percent Water Quality Treated	Comment
Total Volume Infiltrated		0.00	0.00	0.00		0.00	0.00	0% No Treat. Credit

Compliance with LID Standard 8
Duration Analysis Result = Passed

Perlnd and Implnd Changes

No changes have been made.

WWHM2012
PROJECT REPORT

Project Name: PondSizing
Site Name:
Site Address:
City :
Report Date: 8/6/2018
Gage : Seatac
Data Start : 1948/10/01 00:00
Data End : 2009/09/30 00:00
Precip Scale: 1.00
Version Date: 2018/07/12
Version : 4.2.15

Low Flow Threshold for POC 1 : 50 Percent of the 2 Year

High Flow Threshold for POC 1: 10 year

PREDEVELOPED LAND USE

Name : Basin 1
Bypass: No

GroundWater: No

Pervious Land Use	acre
SAT, Lawn, Flat	.44
Pervious Total	0.44

Impervious Land Use	acre
ROADS MOD	0.52
ROOF TOPS FLAT	0.16
SIDEWALKS MOD	0.09
Impervious Total	0.77
Basin Total	1.21

Element Flows To:

Surface	Interflow	Groundwater

MITIGATED LAND USE

Name : Basin 1
Bypass: No

GroundWater: No

Pervious Land Use	acre
Pervious Total	0

Impervious Land Use	acre
ROADS FLAT	0.69
ROADS MOD	0.1
SIDEWALKS MOD	0.42
Impervious Total	1.21
Basin Total	1.21

Element Flows To:

Surface	Interflow	Groundwater
Trapezoidal Pond 1	Trapezoidal Pond 1	

Name : Trapezoidal Pond 1
Bottom Length: 33.76 ft.
Bottom Width: 16.88 ft.
Depth: 4 ft.
Volume at riser head: 0.0790 acre-feet.
Side slope 1: 3 To 1
Side slope 2: 3 To 1
Side slope 3: 3 To 1
Side slope 4: 3 To 1
Discharge Structure
Riser Height: 3 ft.
Riser Diameter: 18 in.
Notch Type: Rectangular
Notch Width: 0.057 ft.
Notch Height: 1.350 ft.
Orifice 1 Diameter: 2.199 in. **Elevation:** 0 ft.

Element Flows To:

Outlet 1	Outlet 2

Pond Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.013	0.000	0.000	0.000
0.0444	0.013	0.000	0.027	0.000
0.0889	0.013	0.001	0.039	0.000
0.1333	0.014	0.001	0.047	0.000
0.1778	0.014	0.002	0.055	0.000
0.2222	0.014	0.003	0.061	0.000

0.2667	0.015	0.003	0.067	0.000
0.3111	0.015	0.004	0.073	0.000
0.3556	0.015	0.005	0.078	0.000
0.4000	0.016	0.005	0.083	0.000
0.4444	0.016	0.006	0.087	0.000
0.4889	0.016	0.007	0.091	0.000
0.5333	0.017	0.008	0.095	0.000
0.5778	0.017	0.008	0.099	0.000
0.6222	0.017	0.009	0.103	0.000
0.6667	0.018	0.010	0.107	0.000
0.7111	0.018	0.011	0.110	0.000
0.7556	0.018	0.012	0.114	0.000
0.8000	0.019	0.012	0.117	0.000
0.8444	0.019	0.013	0.120	0.000
0.8889	0.019	0.014	0.123	0.000
0.9333	0.020	0.015	0.126	0.000
0.9778	0.020	0.016	0.129	0.000
1.0222	0.021	0.017	0.132	0.000
1.0667	0.021	0.018	0.135	0.000
1.1111	0.021	0.019	0.138	0.000
1.1556	0.022	0.020	0.141	0.000
1.2000	0.022	0.021	0.143	0.000
1.2444	0.023	0.022	0.146	0.000
1.2889	0.023	0.023	0.149	0.000
1.3333	0.023	0.024	0.151	0.000
1.3778	0.024	0.025	0.154	0.000
1.4222	0.024	0.026	0.156	0.000
1.4667	0.025	0.027	0.158	0.000
1.5111	0.025	0.028	0.161	0.000
1.5556	0.025	0.029	0.163	0.000
1.6000	0.026	0.031	0.166	0.000
1.6444	0.026	0.032	0.168	0.000
1.6889	0.027	0.033	0.172	0.000
1.7333	0.027	0.034	0.177	0.000
1.7778	0.028	0.035	0.183	0.000
1.8222	0.028	0.037	0.190	0.000
1.8667	0.029	0.038	0.197	0.000
1.9111	0.029	0.039	0.205	0.000
1.9556	0.029	0.041	0.213	0.000
2.0000	0.030	0.042	0.222	0.000
2.0444	0.030	0.043	0.230	0.000
2.0889	0.031	0.045	0.240	0.000
2.1333	0.031	0.046	0.249	0.000
2.1778	0.032	0.047	0.258	0.000
2.2222	0.032	0.049	0.268	0.000
2.2667	0.033	0.050	0.278	0.000
2.3111	0.033	0.052	0.288	0.000
2.3556	0.034	0.053	0.298	0.000
2.4000	0.034	0.055	0.308	0.000
2.4444	0.035	0.056	0.318	0.000
2.4889	0.035	0.058	0.328	0.000
2.5333	0.036	0.060	0.338	0.000
2.5778	0.036	0.061	0.348	0.000
2.6222	0.037	0.063	0.359	0.000
2.6667	0.037	0.064	0.369	0.000
2.7111	0.038	0.066	0.382	0.000
2.7556	0.038	0.068	0.394	0.000

2.8000	0.039	0.070	0.406	0.000
2.8444	0.039	0.071	0.419	0.000
2.8889	0.040	0.073	0.432	0.000
2.9333	0.040	0.075	0.445	0.000
2.9778	0.041	0.077	0.458	0.000
3.0222	0.041	0.079	0.519	0.000
3.0667	0.042	0.080	0.741	0.000
3.1111	0.042	0.082	1.057	0.000
3.1556	0.043	0.084	1.441	0.000
3.2000	0.043	0.086	1.877	0.000
3.2444	0.044	0.088	2.351	0.000
3.2889	0.045	0.090	2.850	0.000
3.3333	0.045	0.092	3.360	0.000
3.3778	0.046	0.094	3.865	0.000
3.4222	0.046	0.096	4.352	0.000
3.4667	0.047	0.098	4.808	0.000
3.5111	0.047	0.100	5.221	0.000
3.5556	0.048	0.103	5.583	0.000
3.6000	0.048	0.105	5.888	0.000
3.6444	0.049	0.107	6.138	0.000
3.6889	0.050	0.109	6.339	0.000
3.7333	0.050	0.111	6.505	0.000
3.7778	0.051	0.114	6.743	0.000
3.8222	0.051	0.116	6.920	0.000
3.8667	0.052	0.118	7.093	0.000
3.9111	0.053	0.121	7.262	0.000
3.9556	0.053	0.123	7.426	0.000
4.0000	0.054	0.125	7.587	0.000
4.0444	0.054	0.128	7.744	0.000

ANALYSIS RESULTS

Stream Protection Duration

Predeveloped Landuse Totals for POC #1
Total Pervious Area:0.44
Total Impervious Area:0.77

Mitigated Landuse Totals for POC #1
Total Pervious Area:0
Total Impervious Area:1.21

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	0.337181
5 year	0.426789
10 year	0.487769
25 year	0.566969
50 year	0.627654
100 year	0.689866

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	0.201069
5 year	0.268626
10 year	0.319559
25 year	0.391343
50 year	0.450486
100 year	0.514732

Stream Protection Duration
Annual Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1949	0.429	0.244
1950	0.443	0.212
1951	0.311	0.225
1952	0.216	0.166
1953	0.259	0.164
1954	0.279	0.161
1955	0.316	0.236
1956	0.291	0.189
1957	0.319	0.259
1958	0.272	0.174
1959	0.296	0.158
1960	0.301	0.239
1961	0.279	0.165
1962	0.241	0.149
1963	0.289	0.150
1964	0.285	0.181
1965	0.344	0.161
1966	0.237	0.159
1967	0.406	0.221
1968	0.501	0.199
1969	0.303	0.176
1970	0.307	0.169
1971	0.368	0.167
1972	0.392	0.280
1973	0.239	0.162
1974	0.342	0.154
1975	0.369	0.248
1976	0.285	0.156
1977	0.277	0.159
1978	0.396	0.270
1979	0.487	0.176
1980	0.489	0.221
1981	0.323	0.204
1982	0.461	0.322
1983	0.381	0.257
1984	0.253	0.149
1985	0.311	0.192
1986	0.284	0.273
1987	0.435	0.263
1988	0.271	0.158
1989	0.431	0.150
1990	0.606	0.431
1991	0.476	0.363

1992	0.242	0.182
1993	0.293	0.138
1994	0.261	0.143
1995	0.292	0.170
1996	0.387	0.269
1997	0.324	0.235
1998	0.312	0.161
1999	0.662	0.319
2000	0.315	0.225
2001	0.379	0.160
2002	0.386	0.274
2003	0.389	0.160
2004	0.639	0.575
2005	0.258	0.257
2006	0.265	0.161
2007	0.601	0.409
2008	0.455	0.438
2009	0.462	0.273

Stream Protection Duration
Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	0.6624	0.5750
2	0.6394	0.4377
3	0.6058	0.4314
4	0.6011	0.4090
5	0.5009	0.3626
6	0.4890	0.3222
7	0.4871	0.3189
8	0.4765	0.2800
9	0.4617	0.2743
10	0.4612	0.2732
11	0.4555	0.2730
12	0.4430	0.2701
13	0.4345	0.2686
14	0.4309	0.2630
15	0.4288	0.2586
16	0.4058	0.2573
17	0.3957	0.2567
18	0.3921	0.2478
19	0.3887	0.2440
20	0.3870	0.2393
21	0.3865	0.2364
22	0.3812	0.2353
23	0.3789	0.2250
24	0.3693	0.2247
25	0.3680	0.2212
26	0.3438	0.2206
27	0.3422	0.2119
28	0.3239	0.2040
29	0.3229	0.1992
30	0.3189	0.1920
31	0.3161	0.1891
32	0.3146	0.1815
33	0.3123	0.1807
34	0.3115	0.1762

35	0.3107	0.1760
36	0.3075	0.1737
37	0.3027	0.1696
38	0.3011	0.1690
39	0.2961	0.1672
40	0.2929	0.1657
41	0.2918	0.1652
42	0.2908	0.1644
43	0.2894	0.1625
44	0.2855	0.1608
45	0.2846	0.1608
46	0.2843	0.1607
47	0.2792	0.1605
48	0.2788	0.1604
49	0.2767	0.1597
50	0.2716	0.1594
51	0.2713	0.1591
52	0.2654	0.1579
53	0.2611	0.1579
54	0.2592	0.1564
55	0.2577	0.1539
56	0.2528	0.1502
57	0.2421	0.1500
58	0.2414	0.1495
59	0.2387	0.1493
60	0.2366	0.1428
61	0.2161	0.1377

Stream Protection Duration
POC #1
The Facility PASSED

The Facility PASSED.

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.1686	1607	1285	79	Pass
0.1718	1528	1184	77	Pass
0.1750	1419	1065	75	Pass
0.1783	1337	1011	75	Pass
0.1815	1261	961	76	Pass
0.1847	1197	906	75	Pass
0.1879	1117	849	76	Pass
0.1912	1039	771	74	Pass
0.1944	983	726	73	Pass
0.1976	930	689	74	Pass
0.2008	870	648	74	Pass
0.2041	806	601	74	Pass
0.2073	751	564	75	Pass
0.2105	714	532	74	Pass
0.2137	663	492	74	Pass
0.2170	616	464	75	Pass
0.2202	587	428	72	Pass
0.2234	559	400	71	Pass
0.2266	534	382	71	Pass
0.2298	510	363	71	Pass
0.2331	489	331	67	Pass

0.2363	475	315	66	Pass
0.2395	452	300	66	Pass
0.2427	425	289	68	Pass
0.2460	409	275	67	Pass
0.2492	374	257	68	Pass
0.2524	357	239	66	Pass
0.2556	342	228	66	Pass
0.2589	328	217	66	Pass
0.2621	313	200	63	Pass
0.2653	303	192	63	Pass
0.2685	287	187	65	Pass
0.2718	277	176	63	Pass
0.2750	260	169	65	Pass
0.2782	244	163	66	Pass
0.2814	236	159	67	Pass
0.2847	226	155	68	Pass
0.2879	209	152	72	Pass
0.2911	194	147	75	Pass
0.2943	186	145	77	Pass
0.2976	177	143	80	Pass
0.3008	170	140	82	Pass
0.3040	159	138	86	Pass
0.3072	152	134	88	Pass
0.3104	143	129	90	Pass
0.3137	136	127	93	Pass
0.3169	134	125	93	Pass
0.3201	122	115	94	Pass
0.3233	119	113	94	Pass
0.3266	115	110	95	Pass
0.3298	111	109	98	Pass
0.3330	107	105	98	Pass
0.3362	104	101	97	Pass
0.3395	101	98	97	Pass
0.3427	96	96	100	Pass
0.3459	93	96	103	Pass
0.3491	87	91	104	Pass
0.3524	85	90	105	Pass
0.3556	83	85	102	Pass
0.3588	83	79	95	Pass
0.3620	79	71	89	Pass
0.3653	78	70	89	Pass
0.3685	71	69	97	Pass
0.3717	67	64	95	Pass
0.3749	65	63	96	Pass
0.3782	60	57	95	Pass
0.3814	58	55	94	Pass
0.3846	55	52	94	Pass
0.3878	52	48	92	Pass
0.3910	48	45	93	Pass
0.3943	44	43	97	Pass
0.3975	41	41	100	Pass
0.4007	39	39	100	Pass
0.4039	38	34	89	Pass
0.4072	35	27	77	Pass
0.4104	35	23	65	Pass
0.4136	35	21	60	Pass
0.4168	34	19	55	Pass

0.4201	33	15	45	Pass
0.4233	31	15	48	Pass
0.4265	30	14	46	Pass
0.4297	27	14	51	Pass
0.4330	26	13	50	Pass
0.4362	24	11	45	Pass
0.4394	23	9	39	Pass
0.4426	22	8	36	Pass
0.4459	21	8	38	Pass
0.4491	21	6	28	Pass
0.4523	21	6	28	Pass
0.4555	19	6	31	Pass
0.4588	18	6	33	Pass
0.4620	18	6	33	Pass
0.4652	16	5	31	Pass
0.4684	16	5	31	Pass
0.4716	16	4	25	Pass
0.4749	16	4	25	Pass
0.4781	15	4	26	Pass
0.4813	15	4	26	Pass
0.4845	15	4	26	Pass
0.4878	15	4	26	Pass

Water Quality BMP Flow and Volume for POC #1
On-line facility volume: 0 **acre-feet**
On-line facility target flow: 0 **cfs.**
Adjusted for 15 min: 0 **cfs.**
Off-line facility target flow: 0 **cfs.**
Adjusted for 15 min: 0 **cfs.**

LID Report

LID Technique	Used for Treatment?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft.)	Cumulative Infiltration Volume	Percent Water Quality	Volume Infiltrated	Percent Volume Treated	Comment
Trapezoidal Pond 1 POC	N	174.24				N	0.00		
Total Volume Infiltrated		174.24	0.00	0.00	0.00	0.00	0.00	0%	No Treat. Credit

Compliance with LID Standard 8
Duration Analysis Result = Failed

Perlnd and Implnd Changes

No changes have been made.

APPENDIX **H**

CRITICAL AREAS REPORT

WITH MITIGATION PLANS

City of Kirkland

Draft

TOTEM LAKE PARK DEVELOPMENT – PHASE 1

Critical Areas Report and Conceptual Mitigation Plan

Prepared for

City of Kirkland

June 2019

ESA

Draft

TOTEM LAKE PARK DEVELOPMENT – PHASE 1

Critical Areas Report and Conceptual Mitigation Plan

Prepared for
City of Kirkland

ESA Project Number D170506.00

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TABLE OF CONTENTS

List of Tables

Appendices

List of Figures

1.0 PROJECT AUTHORIZATION AND SCOPE OF WORK

At the request of the City of Kirkland (City), Environmental Science Associates, Inc. (ESA) delineated wetland boundaries and prepared this technical report for Phase I of the Totem Lake Park Development located in Kirkland, Washington. This report describes the identification and delineation of wetlands on the Phase I study area, as well as a discussion of regulatory implications associated with construction of the proposed project. A conceptual mitigation plan is also included. The purpose of the report is to provide sufficient information to the City and permit agencies about existing wetland functions and potential impacts to facilitate a determination of the permit and mitigation requirements for the proposed project. ESA's scope of work was limited to wetlands within the project site. Other types of critical areas regulated by the City of Kirkland such as geologic hazard areas are not addressed in this report.

2.0 STUDY AREA AND PROJECT DESCRIPTION

The study area is located within Totem Lake Park, in the northeast portion of the City of Kirkland (Section 28, Township 26N, Range 5E) (Figure 1). It is located within the Juanita Creek basin on the east side of Interstate 405. Totem Lake Park is generally bordered by residential developments to the north and commercial developments to the west, south, and east. Interstate 405 lies approximately 0.2 miles to the west and the Cross Kirkland Corridor Trail (CKC Trail) extends along the southeastern perimeter of the Park.

Totem Lake Park covers 17 acres originally part of the Totem Lake Mall property. In 1973, the mall's developer donated the land to the King Conservation District (KCD) and the site is currently co-managed by KCD and the City. The City is proposing improvements to Totem Lake Park under a Master Plan. The overall plan aims to integrate the natural setting of Totem Lake with the surrounding urban area. Master Plan elements include but are not limited to: implementation of a trail/boardwalk to form a loop with existing pathways, improved pedestrian and bicyclists connections to the surrounding commercial and residential properties, a new restroom building, limited ADA parking, play area, pedestrian seating and picnic areas, opportunities for public art, and enhancement of the storm drainage and ecological functions of the wetland and surrounding area. There will also be frontage improvements associated with development of the site. The City will implement additional elements from the Master Plan over time as funding becomes available.

This project is Phase 1 of the Master Plan and would construct an approximately 720 linear-foot boardwalk on the eastern and northern portion of the property. The boardwalk will provide a connection between the CKC Trail and the existing foot path on the north side of the park. The proposed boardwalk will have a width of 10 feet and decking will consist of open grating that will allow approximately 25% light penetration. A 43-inch high cable railing will be installed on both sides of the boardwalk. Each railing has an approximate width of 1.5 inches resulting in the boardwalk having a total width of 10.3 feet (Figure 2).

The boardwalk height above the water level will vary throughout the alignment averaging 8 feet above the water surface with the lowest elevations occurring at the boardwalk termini, where the trail transitions to pavement. Estimated elevation over the water level in these areas are 1.3 feet at the northern extent and 5.2 feet at the southern extent. Moving over the lake, inward from these transition areas, the boardwalk gently slopes upward reaching a maximum height of 9.2 feet above the water level (Figure 3). Footings for portions of the boardwalk within the wetland will be 2-inch diameter steel pipe pilings. No mechanized clearing, disturbance of wetland soils, or excavation will occur. Construction of the boardwalk will occur in a sequenced manner using built portions as construction access; all construction equipment will be kept above water levels during the entirety of construction. The boardwalk will occupy approximately 5,592 square feet of Totem Lake Park and will be constructed with open grating to minimize impacts to wetland functions. Removal of existing vegetation will be limited to the maximum extent possible.

Other improvements under Phase 1 include the creation of a play area on the north side of the park (in the former 1.2-acre Yuppie Pawn space). To accommodate the play area, the vacant Yuppie Pawn building will be demolished and replaced with a restroom. The proposed play area will be approximately 31,300 square feet and will include play features such as play structures/equipment and a turf field. Stormwater improvements will also be installed to collect and discharge all stormwater onsite.

Improvements to the existing asphalt path (Totem Lake Path) on the north side of the lake will also occur under Phase 1. The path will be widened to 10-feet and resurfaced to meet standards for accessible design (i.e., ADA standards). In addition to the widening of the path, the area will be graded and a retaining wall will be installed the length of the path. The wall will be backfilled with rocks to facilitate drainage.

Table 1-1 is a summary of elements associated with the Phase 1 park improvements.

TABLE 1-1
SUMMARY OF PHASE 1 PROJECT ELEMENTS

Project Element	Description
Boardwalk connection between CKC Trail and existing asphalt	Length: 720 linear feet Width: 10 feet Area: 7,200 square feet* Decking: Open grate Handrail: Yes; metal panel railing at 43 inches height Foundation: 2” Steel pipe pilings
Widening of existing asphalt path	Width 10 feet ADA access: Yes
Play area and restroom	Area: 31,300 square feet Elements: play structures, synthetic turf area, grass lawn area, native plantings

*5,500 SF cover the wetland. The remaining 1,608 SF are in the wetland buffer. See Table 6-2 and Figures 7 & 9 for more details

3.0 METHODS

Two levels of investigation were conducted for the analysis of wetlands in the project vicinity: a review of existing information and an on-site investigation.

3.1 Review of Existing Information

A review of existing literature, maps, and other materials was conducted to identify wetlands or site characteristics indicative of wetlands within the project area. These sources can only indicate the likelihood of the presence of wetlands; actual wetland determinations must be based upon data obtained from field investigations.

Several documents were reviewed:

- *Soil Survey of King County, Washington* (USDA Soil Conservation Service, 1973);
- Existing wetland mapping from the National Wetland Inventory (USFWS, 2018);
- *Hydric Soils of the State of Washington* (Natural Resources Conservation Service, 1995);
- *Web Soil Survey* (Natural Resources Conservation Service, 2017);
- Priority Habitats and Species data (WDFW, 2018);
- Rare plant and vegetation community mapping (WDNR, 2015);
- King County iMAP Interactive Mapping Tool (King County, 2018)
- City of Kirkland Sensitive Area Maps (City of Kirkland, 2017);
- Project information provided by the project landscape architect, The Berger Partnership; and
- Totem Lake Park Master Plan – Wetland & Stream Reconnaissance Memorandum (The Watershed Company, 2013).
- Totem Lake Park Master Plan – Environmental Permitting Summary (The Watershed Company, 2013).

3.2 On-site Investigation

3.2.1 Determining the Presence of Wetlands and Delineating Wetland Boundaries

The characteristics of an area that result in its classification as "wetland" are defined by federal and state agencies, as described in Appendix A. Numerous federal, state, and local regulations govern development and other activities in or near wetlands; at each level, there are typically several agencies charged with such powers (Ecology, 1994). Specific regulatory implications concerning the subject property are summarized later in this report.

Methods defined in Regional Supplements to the U.S. Army Corps of Engineers (Corps) 1987 Wetlands Delineation Manual (Corps, 2010) were used to determine the presence and extent of wetlands in the study area. The methodology is based upon three essential characteristics of wetlands: (1) hydrophytic vegetation; (2) hydric soils; and (3) wetland hydrology. Field indicators of these three characteristics must all be present in order to determine that an area is a wetland (unless problem areas or atypical situations are encountered).

The "routine on-site determination method" was used to determine the wetland boundaries. The routine method is used for areas equal to or less than 5 acres in size, or for larger areas with relatively homogeneous vegetative, soil, and hydrologic properties.

Formal data plots were established where information regarding each of the three wetland parameters (vegetation, soils, and hydrology) was recorded. This information was used to distinguish wetlands from non-wetlands. If wetlands were determined to be present on the subject property, the wetland boundaries were delineated. Wetland boundaries were identified with sequentially numbered colored flagging imprinted with the words WETLAND DELINEATION or pink colored pin flags. Data plot locations were also marked with colored flagging.

The methods used to assess wetland characteristics are described in greater detail in Appendix A. Please note that common plant names are used throughout this text; the scientific names are presented in Appendix B.

3.2.2 Classifying Wetlands

Two classification systems are commonly used to describe wetlands. The hydrogeomorphic (HGM) system describes wetlands in terms of their position in the landscape and the movement of water in the wetland (Brinson, 1993). The U.S. Fish and Wildlife Service classification system (Cowardin et al., 1979) describes wetlands in terms of their vegetation communities; these include, for example, emergent, scrub-shrub, and forested community types.

3.2.3 Assessing Wetland Functions

Wetland and streams in the City of Kirkland are regulated under the Kirkland Zoning Code (KZC), Chapter 90 – *Critical Areas*. Per KZC 90.55.1, wetland functions, and required wetland buffers, are assessed based on the 2014 Department of Ecology (Ecology) Washington State Wetland Rating System for Western Washington (Hruby, 2014). Although this system is designed to rate wetlands, it is based on whether a particular wetland performs a particular function and the relative level to which the function is performed. An assessment of wetland functions is inherent in the rating system. This system was developed by Ecology to differentiate wetlands based on their sensitivity to disturbance, their significance, their rarity, our ability to replace them, and the beneficial functions they provide to society.

Appendix C provides additional information about the Department of Ecology's rating system wetland categories and the completed rating forms for the project.

4.0 REVIEW OF EXISTING INFORMATION

4.1 Soils

The Natural Resources Conservation Service (NRCS) mapping of soils in the vicinity of Totem Lake Park is shown on Figure 4. The majority of the site is mapped as Seattle muck, a hydric organic soil. Two other hydric soil types are mapped in the vicinity of the proposed project: Kitsap silt loam 2 to 8 percent slopes and Everett very gravelly sandy loam, 8 to 15 percent slopes (NRCS, 2018).

4.2 Wetlands and Streams

The National Wetland Inventory (NWI) identifies a large wetland within Totem Lake Park (the Totem Lake Wetland). NWI maps this wetland as containing emergent, scrub-shrub, forested, and open water elements. Additionally, three small wetlands are mapped in the project vicinity; one on the southwest side of Totem Lake Blvd NE and two on the southeast side of the CKC Trail (Figure 5). These three smaller wetlands are outside of the Phase 1 project area. Other large wetland complexes are mapped approximately 0.3 miles to the west within the Juanita Creek basin.

In addition to the Totem Lake Wetland, the City of Kirkland Sensitive Areas map (2017) shows one stream exiting Totem Lake near the southwest corner, and eventually flowing into Juanita Creek. The majority of this stream is piped from the outlet at Totem Lake to the western side of Interstate 405. An additional stream is mapped as being piped into the wetland from a small wetland feature and ditch on the southern side of the CKC Trail (Figure 5).

A previous wetland reconnaissance investigation identified three wetlands and one stream (Watershed Company, 2013a). The memo also identified restoration opportunities at Totem Lake Park. Information from this memo has been incorporated into this report.

5.0 RESULTS OF FIELD INVESTIGATION

The following sections describe the results of the wetland field investigations conducted by ESA biologists Ilon Logan and Jessica Redman on January 5, 2016, and Jessica Redman and Christina Hersum on June 19, 2017. Field efforts were focused on areas of the park where improvements are proposed and did not include the southern corner of the wetland or the southeast side of the CKC Trail where the previously mentioned stream is located.

5.1 Wetland Delineation

ESA identified one wetland (Wetland A) within the study area during field investigations (Figure 6). Six data plots were established within relatively uniform areas of vegetation on the site. Data plots (DPs) 1 through 4 were established during the January 5, 2016 site visit. DPs 5 and 6 were established during the June 19, 2017 site visit. The results of the functional assessment for Wetland A are presented in Appendix

C, and data sheets for the data plots are provided in Appendix D. Wetland boundaries were flagged by ESA and subsequently surveyed by KPFF, Inc.

Overview: Wetland A is a depressional palustrine scrub-shrub and palustrine emergent (PSS/PEM) wetland, approximately 18 acres in size. Totem Lake, an open water feature in the center of Wetland A, is approximately 3 acres and supports a narrow aquatic bed fringe around its edge. DPs 1, 4, and 5 are representative of Wetland A, while plots 2, 3, and 6 characterize the adjacent upland.

Vegetation: The majority of Wetland A is a mixture of PSS and PEM plant communities. PSS communities are dominated by willow, red-osier dogwood, and Douglas spirea. PEM communities in the wetland are dominated by common cattail with slough sedge and skunk cabbage present to a lesser extent. A narrow forested area on the northern edge of the wetland is dominated by red alder with an understory of restoration plantings including Sitka spruce and western redcedar. Aquatic bed vegetation in the lake includes pond weed and yellow pond lily.

Soils: Soils observed at DP-1 were a very dark grayish brown (10YR 3/2) clay loam in the A (upper) horizon, zero through eight inches below the surface. No redoximorphic features were present in the A horizon. The B horizon (lower) contained a gray (10YR 6/1) sandy loam with 40 percent yellowish brown (10YR 5/8) redoximorphic concentrations in the matrix. The B horizon included soils between eight and eighteen inches below the surface. Soils in DP-1 meet hydric soil criteria F3 (depleted matrix).

Soils at DP-4 and DP-5 were inundated at the time of the site visits. However, hydric soil conditions are likely to occur due to periodic inundation during the growing season, the dominance of hydrophytic vegetation, and best professional judgment.

Hydrology: Sources of hydrology to Wetland A include a high groundwater table, precipitation, multiple stormwater inputs, and a seasonal stream on the southern side of the CKC Trail. The outlet of the Wetland A is a partially blocked culvert on its west side, east of 120th Avenue NE and Totem Lake Boulevard NE.

DP-1 was established in the northern portion of the site along the current pedestrian trail. Soils were moist in the lower layers of the plot and the water table was at eighteen inches. As mentioned above, the delineation occurred in early January and out of the growing season. This data plot did not meet wetland hydrology indicators but based on professional judgment, it is likely that soils would be saturated during the growing season, meeting indicator A3. Evidence of this includes the presence of surface ponding approximately ten feet south of the plot, moist soils in the lower layers of the plot, and the presence of wetland soils and hydrophytic vegetation.

DP-4 was established on the east side of the small berm at the southeast corner of the wetland. DP-4 had frozen surface water present that was approximately twelve inches deep meeting wetland hydrology indicator A1 (surface water).

DP-5 was established on the west side of the wetland, near an existing boardwalk. Soils were saturated to the surface and the water table was present at approximately eleven inches.

Wetland Functions and Classifications: Using Ecology's *Washington State Wetland Rating System for Western Washington* (Hruby, 2014), Wetland A received an overall score of 22 points, which qualifies it as a Category II wetland. The wetland scored a moderate to high score (7 points) for water quality improvements. The wetland's constricted outlet, large cover of vegetation, organic soils, and large area of seasonal ponding all aid in the trapping and filtering of sediments. Wetland A scored a high score (8 points) for hydrologic functions, primarily due to the high depth of storage and constricted outlet than can assist in slowing down and retaining flows during flooding events.

The wetland also scored a moderate to high score (7 points) for habitat function. This is largely due to the diversity in plant communities and hydroperiods. The wetland also contains several special characteristics such as downed wood, snags, structures for egg-laying amphibians, and areas for beaver denning. However, the surrounding landscape has a low potential to support these habitat functions due to the urban nature of the project vicinity.

5.2 Wetland Buffer Requirements

Per KZC Chapter 90, the City establishes buffer standards for wetlands based on the wetland category and habitat points. Per KZC 90.55.1, a Category II wetland with six habitat points requires a standard buffer width of 165 feet. The wetland buffer is shown on Figure 6.

The City's consultant, The Watershed Company, also rated the onsite wetland and also scored the wetland as a Category II wetland. However, their scoring resulted in six, instead of seven habitat points. Per KZC 90.55.1, Category II wetlands with six to seven habitat points require a 165-foot buffer and therefore, the discrepancies have no effect on the buffer width. Both rating forms are included in Appendix C for reference.

5.3 Upland and Surrounding Area

Due to the highly developed landscape, upland habitat in the vicinity is highly degraded and buffers are limited for the majority of Wetland A (Figure 6). The north side of the wetland has a narrow upland fringe consisting of deciduous and coniferous trees. Adjacent to this narrow, forested area is a paved pedestrian path and multistory residential developments. The western and southwestern edges of the wetland extend adjacent to the hardscape leaving little buffer between the wetland and retaining walls, sidewalks, and/or roads. The southwest side of the wetland is immediately adjacent to the railroad grade CKC Trail and characterized by railroad fill and little vegetation. The northeast portion of Wetland A contains a connection to a forested corridor along a steep slope. The intact and mature forest along the slope provides some habitat function to wildlife in the area. Beside a few other parks in the vicinity (i.e., within one mile) of Totem Lake Park, the remainder of the surrounding area is developed, leaving these parks the primary resource for habitat and/or stopovers for wildlife in the project vicinity.

5.4 Species of Local Importance

An active heron rookery was observed near the former Yuppie Pawn site during the June 19, 2017 site visit. Several young herons were observed in a large black cottonwood tree. The great blue heron is

considered a species of local importance by the City of Kirkland under KZC 90.95(8). This designation may limit tree removal and construction in the vicinity of the rookery during times of nesting and fledging (approximately March through July). However, heron often do not return to the same nest in subsequent years and it is recommended that additional surveys of this tree and others in the study area occur prior to construction to determine the presence or absence of breeding great blue heron.

6.0 PROJECT IMPACTS, MITIGATION SEQUENCING, AND REGULATORY IMPLICATIONS

The proposed improvements at Totem Lake Park may result in direct and indirect wetland and buffer impacts. This section describes the sequence of mitigation taken during project design, the nature of the unavoidable impacts, and potential regulatory implications for the project.

6.1 Mitigation Sequencing and Analysis

The City's critical areas regulations require the incorporation of mitigation sequencing during project development to evaluate and implementing opportunities to avoid, minimize, eliminate, or compensate for impacts to critical areas while still meeting the objectives of the project. KZC 90.145 outlines the six steps, in order of preference, that must be taken when an alteration to a critical area is proposed. The mitigation steps required by KZC 90.145.2 are listed below, followed by a discussion (in italic text) of how the project has or will meet each step.

A. Avoiding the impact altogether by not taking a certain action or parts of actions;

   The project design includes the following measures to avoid impacts to wetlands and their buffers:

   - *The proposed boardwalk alignment is centered on an existing upland berm in the southeastern portion of the project area (where the boardwalk will connect with the CKC Trail). By taking advantage of this upland feature that extends within Wetland A, the project will reduce overall wetland impacts.*
   - *The proposed boardwalk alignment in the northern portion of the project area (where the boardwalk will connect with the existing Totem Lake Path) was positioned to avoid the removal of large trees and snags.*

B. Minimizing impacts by limiting the degree or magnitude of the action and its implementation;

   Per KZC 90.40.6.c, public trails in a wetlands and wetland buffers should not exceed five feet in width. The proposed trail improvements would result in a trail with an average width of 10-feet. However, it was concluded that a 10-foot-wide trail is the minimum necessary width to meet the City's goal of the project being part of a regional transportation improvement effort. An effort that will improve pedestrian and bicyclist connections to the surrounding residential and commercial developments as outlined in the Totem Lake Master Plan.

In 2018, to support the goals and visions of the Master Plan, the City adopted the Totem Lake Urban Center Enhancement and Multimodal Network Plan (Alta, 2018). This document includes several recommendations to "create a livable, walkable, and bikeable district that is a residential and commercial destination for Kirkland residents and visitors from across the region." One recommendation to achieve this vision includes establishing a continuous and interconnected walking and biking network to be able to safely and conveniently reach destinations within Totem Lake. The recommended width for pedestrian and bicycle shared use trails in the Totem Lake Urban Center is 12 feet. After analyzing anticipated impacts of trail widths ranging from eight to twelve feet, the City decided that a trail width of 10-feet would minimize impacts to critical areas, while still providing a travel area sufficient enough for continuous and safe connections throughout the Totem Lake Urban Center. Trail widths less than ten feet would likely disrupt the flow of bicyclists entering the narrow boardwalk from the wider offsite trails as well as be too narrow to provide a safe route for both pedestrians and bicyclists; while trail widths larger than ten feet would result in additional and unnecessary impacts to critical areas.

To further minimize the degree or magnitude of unavoidable impacts to wetland and their buffers, the project design includes the following measures:

- *Within wetland areas, the project proposes to mount the boardwalk on 2-inch diameter steel pipe pile foundations, which minimizes disturbance to sediment, hydrology, and circulation, resulting in no adverse alteration to aquatic functions.*
- *Construction of the boardwalk will occur in a sequenced manner using built portions as construction access and all construction equipment will be kept above water levels during the entirety of construction.*
- *Boardwalk framing and decking materials have been selected for the ability to be installed with small equipment (or by hand) to avoid impacts.*
- *The proposed decking of the boardwalk has been selected for the ability to allow light penetration, which will allow sunlight to reach existing vegetation under the boardwalk and preserve wetland functions. The grated decking will allow 25% of light to penetrate the ground surface.*
- *Any vegetation that requires clearing for boardwalk construction will be cut by hand and flush to the water surface and/or to the least extent possible.*
- *Boardwalk decking and pervious materials have been proposed for the trail alignment within the buffer to the extent feasible.*
- *Appropriate best management practices (BMPs) will be employed to reduce sedimentation and erosion and to minimize the chance of contaminant spills during project construction as described in Section 6.3.*

C. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;

The project design includes the following measures to rectify any proposed impacts:

- *The proposed boardwalk will consist of open decking approximately 6 feet above the water surface that will allow 25% light penetration. Because of these design features, it is anticipated that any vegetation that will need to be cut during boardwalk construction will continue to grow post-construction.*
- *Areas of unavoidable wetland buffer impacts caused by construction will be restored and revegetated with native plants, post-construction.*
- *Stormwater improvements proposed at the play area will treat stormwater runoff in bioretention cells which will reduce the peak flow and duration to the wetland as well as improve the water quality of the runoff to the wetland*.

D. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action;

This project proposes mitigation for permanent indirect impacts to the wetland and permanent direct impacts to the wetland buffer through wetland and buffer enhancements as detailed in Section 7.0 and the forthcoming Final Mitigation Plan. These enhancements will be protected over time through maintenance activities and ensuring boundaries are clear to prevent human disturbance.

E. Compensating for the impact by replacing or providing substitute resources or environments; and/or

The project proposes mitigation for unavoidable wetland and wetland buffer impacts through buffer enhancements as detailed in Section 7.0 and the forthcoming Final Mitigation Plan. Temporary impacts due to construction will be restored and revegetated with native plants, post-construction.

F. Monitoring the impact and the compensation projects and taking appropriate corrective measures.

The proposed mitigation plan includes a 5-year Monitoring and Maintenance Plan for all proposed mitigation per KZC 90.160 (See Section 7.5 and 7.6).

6.1.1 Standard Mitigation Measures

Standard mitigation measures as outlined in KZC 90.155 will be implemented onsite, as needed, to further reduce the risk of impacts to critical areas. These measures are summarized in Table 6-1.

TABLE 6-1
STANDARD MITIGATION MEASURES

Disturbance	Measures Taken to Minimize Impacts
Lights	The only proposed lighting will be near the restroom and will be placed so light is downcast and directed away from the wetland and wetland buffer.
Noise	Noise generating activities will occur only during the day and therefore not affect species roosting or other nocturnal activities. Post-construction, the project is not expected to generate additional noise and therefore, no long-term mitigation measures are necessary.
Toxic Runoff	No toxic substances, outside of approved herbicides to control non-native species, will be used within 150 feet of the wetland. All runoff from the play area will be collected in the onsite stormwater bioretention facilities. No direct discharge of untreated stormwater to the wetland will occur.
Stormwater Runoff	All runoff from the play area will be collected in the onsite stormwater bioretention facilities. No direct discharge of untreated stormwater to the wetland will occur.
Change in Water Regime	The proposed project will not result in a change in water regime and therefore, no long-term mitigation measures are necessary.
Pets and Human Disturbance	During construction, silt fencing will be installed along the edge of the wetland to minimize any adverse impacts to the wetland. Post-construction, permanent fence and signage will be installed along the edge of the buffer, per KZC 90.190
Dust	Best management practices to control fugitive dust will be implemented as needed, including spraying exposed soil and storage areas with water during dry periods. Post construction, the project will result in landscaped areas and play areas that will not generate dust and therefore, no long-term mitigation measures are necessary.

6.1.2 Construction BMPs

Appropriate BMPs will be used for pollution, sediment, and erosion control during construction. Erosion and sediment control measures may include mulching, matting, and netting: filter fabric fencing; quarry rock entrance mats; sediment traps and ponds; and surface water interceptor swales and ditches. Significant long-term water quality impacts are not expected if erosion control BMPs, stormwater treatment facilities, and spill containment measures are properly implemented, monitored, and maintained during construction. A Temporary Erosion and Sediment Control (TESC) plan has been prepared and implemented to minimize and control pollution and erosion from stormwater. The project will adhere to a Spill Prevention Control and Countermeasure (SPCC) plan developed specifically for construction.

6.2 Wetland and Buffer Impacts

The proposed boardwalk will extend approximately 720 linear feet from the existing Totem Lake Path, south across the edge of Wetland A, and then connect with the existing CKC Trail at its southern extent. Construction of the boardwalk will result in indirect impacts to Wetland A, and direct and indirect impacts to its buffer as summarized in Table 6-2 and described in the following sections. All anticipated

impacts are shown in Figure 7. Detail of the park, trail, and boardwalk based on 100% design are shown in Figure 8.

TABLE 6-2
SUMMARY OF IMPACTS

Project Component	Indirect Wetland Impact (square feet)	Temporary Wetland Impact (square feet)	Direct Buffer Impact (square feet)	Indirect Buffer Impact (square feet)	Temporary Buffer Impact (square feet)
Boardwalk	5,592		0	0	
Approach ramp and boardwalk abutment (north end)	0		0	594	742
Approach ramp and boardwalk abutment (south end)	0		0	478	1,662
Paving the transition area from path to boardwalk (south end) including retaining wall and backfill	0		1,655	0	
Widening of asphalt path (including retaining wall and backfill)*	0		11,218	0	
Impervious surface at play area*	0		24,375	0	
Non-native plantings (grass) at play area	0		5,755	0	
Clearing of vegetation for boardwalk construction		6,603			
Totals	**5,592**	**6,603**	**43,003**	**1,072**	**2,404**

*Calculations include all impervious surface areas post-construction, including areas covered with impervious surface pre-construction.

The construction of the bioretention stormwater facilities will also occur within the former Yuppie Pawn site and in the buffer of Wetland A (Figure 8a). However, the entirety of the bioretention area will be planted with multi-structural native vegetation and will result in a functional lift to the site and therefore, will offset the impacts in this area, and be considered buffer enhancement. Details are included in Section 7.

The majority of this area is currently an asphalt parking lot and will have less impervious surface post-construction than in its current state. In total, the amount of impervious surface at the former Yuppie Pawn site pre- and post-construction will be reduced from 36,934 SF (0.9 acre) to 23,874 SF (0.6 acre), a difference of 13,060 SF (0.3 acre).

6.2.1 Wetland Impacts

Once complete, the park, boardwalk and trail improvements will cover approximately 49,667 SF of wetland and wetland buffer (Figure 7 and Table 6-2). As noted above in Section 6.1, the boardwalk will be mounted on pipe pile foundations and will be placed in a sequenced manner to avoid direct impacts to the wetland. This includes adverse changes in water quality, hydrologic function, or habitat function of the wetland.

The boardwalk will average approximately 8 feet above the wetland, which may result in indirect impacts to the wetland due to the shading of vegetation (Table 6-2). In areas where the boardwalk is higher, long-term shading impacts are anticipated to be minimal and vegetation is expected to return within one growing season of boardwalk construction. In addition, the proposed decking will allow 25% light penetration, which will further reduce the impact of shading overall.

One dead, deciduous tree will be removed from the wetland near the northern extent of the boardwalk, where it transitions from the wetland into the wetland buffer. The tree will be cut approximately one foot above existing grade and roots will remain. The removed trunks will be used as a habitat feature and will remain onsite within the wetland or wetland buffer.

To accommodate boardwalk construction, vegetation will be cleared in a maximum 22-foot-wide corridor along the boardwalk alignment. Vegetation will be cut by hand and flush to the water surface Temporary impacts to wetland vegetation may occur where existing vegetation needs to be trimmed for boardwalk construction (Figure 7 and Table 6-2). These temporary impacts are limited to six feet on either side of the boardwalk. It is expected that vegetation damaged during construction would regrow in the following growing season and changes in the plant community between pre- to post-construction are not anticipated. The City will revisit the site during the next growing season and assess that these temporary impacts have returned to a healthy state. If the plantings are not returning, the City will provide recommendations on how to remediate the areas.

6.2.2 Buffer Impacts

Trail and Boardwalk Impacts

The proposed project will result in permanent wetland buffer impacts where the boardwalk will tie into the existing Totem Lake Path at its northern terminus, and where the alignment travels the upland berm and ties into the CKC Trail at its southern terminus (Figure 8b). The boardwalk alignment and footprint is designed to avoid existing vegetation in the wetland buffer to the extent possible. Installation of the approach ramps at either end of the boardwalk and the portion of the alignment along the upland berm will require some vegetation removal. Vegetation that will be impacted in these areas consists of native shrubs and trees, primarily young red alder and red-osier dogwood, and Himalayan blackberry. Larger trees in these areas will be retained.

Installation of the approach ramps at either end of the boardwalk and the boardwalk alignment along the upland berm will impact wetland buffer at the northern and southern ends (Figure 7 and Table 6-2). The approach ramps will be constructed of the same materials as the overwater portion of the boardwalk and will result in shading impacts to the wetland buffer. Additional temporary impacts will occur during construction at the northern and southern termini of the boardwalk. However, these areas will be restored, post-construction, through the planting of native trees and shrubs.

In addition to shading impacts, wetland buffer adjacent to the southern ramp will be permanently impacted by new asphalt paving and two concrete abutments associated with the transition from existing path to boardwalk. Similar to the asphalt trail to the north, a retaining wall will be installed on either side of this portion of the trail, and backfilled with rocks at the southern end. Finally, permanent buffer impacts will occur through widening and repaving the existing asphalt path to the north, as well as

installing the retaining wall and fill rocks. (Table 6-2 and Figures 7 and 8c). Similar to the area of the detention ponds, because this area will be graded to such an extent as to support the new ADA trail, this entire area is being included in buffer calculations even though portions of it are currently covered with impervious surface.

Three black cottonwood trees will be removed from the buffer near the northern portion of Wetland A. These trees are known to be prone to disease and could create hazardous situations and injuries. The City has proposed removal of these trees to prevent injuries to pedestrians and damage to the boardwalk. The City will replace these trees with species that do not grow as large, to reduce the risk of pedestrians being struck by large limbs.

Play Area Impacts

Development of the play area, associated parking and landscaping will also result in permanent impacts to the buffer of Wetland A. The majority of these impacts are areas of impervious surface including the play area, restroom, walking paths and parking. The remaining permanent impacts are areas of the proposed play field that will be planted with non-native grasses (Table 6-2 and Figures 7 and 8d).

The remaining area of the former Yuppie Pawn site will be planted with multi-structural native vegetation, and therefore, are not calculated as buffer impact areas, but as buffer enhancement areas. (Table 6-2 and Figure 7). More detail of the buffer enhancement area can be found in Section 7.2

Additional Buffer Impacts

A maximum of 96 significant trees (greater than 6-inches in diameter at breast height per KZC 5.10.855) will be removed from the buffer of Wetland A. Sixty-eight of these trees are within the former Yuppie Pawn site. The trees will be removed due to one or more of the following reasons: poor health, conflict with proposed grading, or impacts associated with the demolition of the vacant Yuppie Pawn building. The majority of the trees proposed for removal along the trail have been recommended for removal by the project's arborist (See tree plans and arborist reports in Appendix E). Several of these include non-native red maple street trees and ornamental plum and cherry trees (STC, 2017). The boardwalk and trail improvements were designed to largely avoid significant tree removal. Other vegetation that will be impacted in these areas consists of native shrubs and small trees, primarily young red alder and red-osier dogwood.

All tree removal will follow requirements in KZC 95.30 – Tree Retention Associated with Development Activities, and KZC 90.135 – Trees in Critical Areas and Critical Area Buffer. Trees may be girdled when necessary to manage regrowth in close proximity to the trail, boardwalk, and park. Removed trees will be used as habitat features onsite to the extent possible. Trees removed from the buffer will be replaced with one to three native trees per KZC 90.135.1 as determined by the City's Planning Official. Currently 188 trees are being proposed to replace the 96 trees that are being removed, or a replacement ratio of 1.96:1 (replacement : removal ratio).

Temporary buffer impacts may also result from construction activities and equipment staging. As mentioned above, buffers at the northern and southern termini of the boardwalk will be temporarily impacted during construction (Table 6-2, Section 7, and Figure 7). If additional temporary wetland buffer

impacts occur as the result of construction activities and equipment staging, the buffer will be returned to at least its pre-construction condition through the planting of native trees and shrubs after park construction.

6.3 Regulatory Implications

Wetlands are regulated by Corps, Ecology, and the City of Kirkland. At a federal level, the Corps regulates wetlands and streams (i.e., defined as waters of the U.S.) under the Clean Water Act, and projects that propose the excavation or fill of these features require a Section 404 permit. Wetlands are also regulated under Section 401 of the Clean Water Act, which is administered by Ecology. Ecology must issue a Water Quality Certification (WQC) for the project and ensure that the project is consistent with the Federal Coastal Zone Management Act (CZMA). The WQC and CZMA consistency determination are triggered by the Section 404 permit.

The footings for portions of the boardwalk within Wetland A will be 2-inch diameter pipe pilings. Placement of these pilings will not impair the flow and circulation of the waterbody or result in the adverse alteration of aquatic functions. No excavation, disturbance of wetland soils, or mechanized clearing will occur. Construction of the boardwalk will occur in a sequenced manner using built portions as construction access and all construction equipment will be kept above water levels during the entirety of construction. The Corps was consulted for the proposed project and concluded that the boardwalk materials are not be considered fill and thus no Section 404 permit under the Clean Water Act is required for project construction (Corps correspondence, December 2017).

The Washington Department of Fish and Wildlife (WDFW) also regulates activities in state waters such as streams and lakes. Specifically, they must review, condition, and approve or deny "any construction activity that will use, divert, obstruct, or change the bed or flow of State waters." Any project that requires in-stream or in-lake work would require a Hydraulic Project Approval (HPA) from WDFW. Thus, construction of the proposed boardwalk will require an HPA.

At a local level, wetland and buffer impacts are regulated by the City of Kirkland and the proposed project will require review and approval according to KZC Chapter 90—Critical Areas. The proposed park and boardwalk are not an allowed use of the wetland and wetland buffer according to KZC 90.40.6. However, per the City Planning Department, the proposed impacts may be permitted under a Public Agency and Public Utility Exception (KZC 90.45). Per 90.45.3, the project must meet four specific decisional criteria for the exception to be approved. These criteria are listed below, followed by a discussion (in italic text) of how the proposed project meets each criterion. Based on the following justification, the project appears to be eligible for the Public Agency and Public Utility Exception.

a) There is no other practical alternative to the proposed project with less impact on the critical areas of buffer;

   The project has been designed to avoid critical areas to the extent possible, while still meeting the goals of the Totem Lake Master Plan. The boardwalk and trail design have applied the appropriate mitigation sequencing to ensure that long-term adverse effects to critical areas are minimized and avoided to the extent possible as discussed in Section 6.1.

The proposed mitigation discussed in Section 7.0 will ensure that no loss of ecological functions will occur post-construction, due to unavoidable, indirect impacts to the wetland and wetland buffer.

b) Strict application of this chapter would unreasonably restrict or prohibit the ability to provide public utilities or public agency services to the public;

Strict application of KZC Chapter 90 would prohibit the construction of a trail through the onsite wetland and wetland buffer, resulting in the City's Department of Parks and Community Service's inability to fulfill the goals of the Totem Lake Master Plan and part of the adopted City of Kirkland's Comprehensive Plan.

c) The proposal minimizes impacts to the critical area or buffer through mitigation sequencing, and through type and location of mitigation, pursuant to KZC 90.145 and 90.150 if applicable, including such installation measures as locating facilities in previously disturbed areas, boring rather than trenching, and using pervious or other low impact materials; and

The proposed project minimizes impacts to critical areas and buffers through mitigation sequencing and minimization measures per KZC 90.145 as discussed in Sections 6.1 and 6.2 of this report, respectively.

d) The proposal protects and/or enhances critical area and buffer functions and values, consistent with the best available science and with the objective of no net loss of critical area functions and values.

As mentioned above, the project has been designed to avoid critical areas to the extent possible, while still meeting the goals of the Totem Lake Master Plan. No direct wetland impacts are proposed. To ensure a no net loss of function, the project will mitigate for all direct and indirect buffer functions and all indirect wetland functions. Portions of the wetland and wetland buffer chosen for enhancement will be ecologically functioning at a higher level, when compared to current conditions. The conceptual mitigation plan detailed in Section 7.0 has been designed using the best available science guidance in Wetland Mitigation in Washington State Part 1: Agency Policies and Guidelines (Ecology et al., 2006).

7.0 CONCEPTUAL MITIGATION PLAN

The following section describes a conceptual mitigation approach to compensation for impacts to wetlands as required by step "E" in the City's mitigation sequence (described previously in Section 6.1) and KZC 90.145.6 – *Mitigation Plan Standards*.

7.1 Compensatory Wetland Mitigation Requirements and Approach

The City Planning Department has determined that the indirect impacts to Wetland A due to shading will result in a loss of wetland function, and that compensatory mitigation would be required.

Mitigation approaches for indirect wetland impacts typically focus on improving the water quality, hydrologic, and wildlife habitat functions of a given wetland. For Wetland A, the installation of the boardwalk is not anticipated to change the water quality and hydrologic functions of the wetland. However, habitat functions of the wetland are currently compromised by the highly urbanized location and thus compensatory mitigation should focus on providing a lift to the habitat functions of the wetland.

Approaches to mitigation that will provide a habitat functional lift include:

- Removing invasive vegetation and refuse from the wetland; and
- Enhancement of wetland through the planting of native trees and shrubs, primarily in areas where invasive vegetation has been removed.

Per KMZ 90.150.2, solely enhancing a wetland to mitigate for direct impacts to a Category II wetland must occur at a 12:1 (mitigation-to-impact) ratio. However, the City's critical areas regulations do not provide specific guidance or impact to mitigation ratios for indirect impacts to wetlands due to the shading of vegetation. Therefore, the City Planning Department has recommended that ratios be determined using guidance based on best available science in *Wetland Mitigation in Washington State Part 1: Agency Policies and Guidelines* (Ecology et al., 2006). According to the guidance, standard mitigation ratios may be reduced when impacts to wetlands are either not permanent (long-term temporary) or if the impact may convert the wetland from one vegetation class to another. The recommended ratios for the two circumstances are one-quarter and one-half of the recommended ratio for direct impacts, respectively.

Long-Term Temporary Impacts

Long-term temporary impacts refer to ecological functions that can be replaced in less than two years (Ecology et al., 2006). Minor temporal loss of ecological function of emergent wetland communities is anticipated due to the permanent shading of the boardwalk. However, this functional loss is not anticipated to be permanent due to the amount of light that will penetrate the boardwalk as well as the height of the boardwalk. We anticipate that wetland functions will fully return to pre-construction levels within two growing seasons and therefore propose that emergent communities being shaded by the boardwalk are mitigated at a 3:1 ratio, or one-quarter of the 12:1 recommended ratio.

Wetland Conversion Impacts

Wetland conversion impacts refer to the loss of functions due to the conversion of a wetland from one type of vegetation class to another (Ecology et al., 2006). In areas where the boardwalk will cover scrub-shrub communities, the cutting of existing vegetation during construction of the boardwalk, as well as the subsequent shading from the boardwalk, may convert these communities into emergent communities, and therefore may retain a lower ecological function post-construction. To mitigate for the loss of functions

due to the possible conversion of wetland areas that are PSS-dominant, to PEM-dominant communities, we propose that all scrub-shrub communities being shaded by the boardwalk are mitigated at a 6:1 ratio, or one-half of the recommended 12:1 ratio.

The indirect impacts anticipated by the project were divided into these two types of impacts based on their vegetative class, and the appropriate reduced mitigation ratio applied as summarized in Table 6-3 and Figure 9. A total of 25,713 SF of wetland enhancement is proposed for the 5,592 SF of indirect impacts to Wetland A.

TABLE 6-3
PROPOSED MITIGATION FOR INDIRECT IMPACTS TO WETLAND A

Type of Impact	Area of Impact (SF)	Proposed Mitigation Ratio	Proposed Mitigation (SF)
Temporary loss of function to PEM community due to shading	2,613	3:1	7,839
Conversion of PSS community to PEM community due to shading	2,979	6:1	17,874
Totals	5,592		25,713

Wetland enhancement will occur in the western portion of Wetland A, primarily along the existing boardwalk. This area of wetland contains extensive patches of reed canarygrass and some Himalayan blackberry, mixed with native shrubs. This portion of the site (mitigation Opportunity Area "HI") was also determined by the City to be a highly suitable site for mitigation opportunities (Watershed Company, 2018). To mitigate for the loss of functions due to boardwalk shading, 27,262 SF, or an additional 1,549 SF than required, will be enhanced through the following techniques:

- Selectively remove non-native, invasive species with a focus on selected areas of reed canarygrass;
- Enhancement of wetland through the planting of native shrubs and emergent species, primarily in areas where invasive vegetation has been removed, with a focus on species that will outcompete reed canarygrass; and
- Installation of habitat features (snags, logs, woody debris piles, bird and bat boxes, etc.) that will provide refuge for wildlife and increase species diversity.

Selected areas where reed canarygrass is dominant will be located in the field. Plants will be cut by hand, as close to the surface of the ground as possible. After plants are removed, approximately four inches of natural wood chip mulch will be placed over the surface. Mulch will be anchored by jute matting and subsequently planted with a mix of container plants and live stakes. Candidate plant species include wet-adapted, quick-growing species that will shade out or outcompete reed canarygrass. Wetland mitigation details can be found in Figure 11a.

Additionally, as mentioned above, temporary impacts to wetland vegetation may occur where existing vegetation needs to be trimmed for boardwalk construction. These temporary impacts are limited to six

feet on either side of the boardwalk, and total 6,603 SF (Table 6-2, Figure 7). It is expected that vegetation damaged during construction would regrow in the following growing season and changes in the plant community between pre- to post-construction are not anticipated. If vegetation does not re-sprout during the next growing season, the City will provide recommendations on how to remediate the areas.

7.2 Wetland Buffer Mitigation Requirements and Approach

A total of 44,075 SF of direct and indirect impacts to the buffer are anticipated (Table 6-2 and Figure 7). The project will result in a total of 46,772 SF of buffer mitigation, or 2,697 SF more than the 1:1 mitigation ratio required by KZC 90.150. The project will mitigate for buffer impacts, in-kind and onsite.

To mitigate for the majority of these impacts, 22,677 SF of native trees, shrubs, and woody groundcover will be installed at the proposed play area (Figure 10), in the area of temporary buffer impacts (Figure 7 and Table 6-2). The majority of this area is currently asphalt and landscaped trees. Post-construction, buffer mitigation will provide a functional lift by increasing the availability and quality of habitat in a largely urban environment.

An additional 24,094 SF of buffer mitigation will occur along the northwest side of the CKC Trail in an additional area that was determined to be suitable for mitigation opportunities by the City (Watershed Company, 2018). This area (Mitigation Opportunity Area "G"), is approximately 0.5 acre in size, and is currently dominated by a mix of reed canarygrass and Himalayan blackberry. Buffer mitigation detail can be found in Figure 11b.

To mitigate for the loss of functions due to direct and indirect impacts to wetland buffer, a minimum of 46,772 SF of the buffer will be enhanced through the following techniques:

- Removing invasive vegetation and refuse from the wetland buffer;
- Enhancement of wetland buffer through the planting of native trees and shrubs, primarily in areas where invasive vegetation has been removed; and
- Installation of habitat features (snags, logs, woody debris piles, bird and bat boxes, etc.) that will provide refuge for wildlife and increase species diversity.

Additionally, the remaining 2,404 SF of temporary buffer impacts due to the installation of the approach ramps at either end of the boardwalk will be restored using the same native plant palette as the mitigation being performed along the CKC trail. The proposed plant schedule can be found in Figure 11c.

To further ensure the project results in a lift in ecological function, all tree removal will follow requirements in KZC 90.135 – Trees in Critical Areas and Critical Area Buffer. Removed trees will be used as habitat features onsite to the extent possible. Trees removed from the buffer will be replaced with one to three native trees per KZC 90.135.1 and as determined by the City's Planning Official. Currently 188 trees are being proposed to replace the 96 trees that are being removed, or a replacement ratio of 1.96:1 (replacement : removal ratio).

Mitigation will comply with requirements in KMZ 90.145 and will include the following:

- Per general mitigation timing requirements in KMZ 90.145.5.a(1), mitigation will be completed immediately following or concurrent with construction, and prior to use or final inspection of the project.
- Per KMZ 90.145.6.b(2), the seed source for all plants installed at the mitigation site will be as local as possible and will be nursery propagated.
- Per KMZ 90.145.6.b(3), installed plant materials may be supported only when necessary. When deemed necessary, stakes shall follow the International Society of Arboriculture standards and must be removed as soon as the plant can support itself.
- Per KZC 90.145.6.b(5), erosion control measures have been designed hat comply with the City's Public Works Pre-Approved Plans and will be included in the final bid documents.
- Per KZC 90.145.6.b(7), all planted areas will have a temporary, above ground sprinkler system, set to automatic timers, that will be removed in the final year of monitoring (See Section 7.5). The exception to this is the park area which will have a permanent sprinkler system.

Additionally, a mitigation monitoring and maintenance plan, per KZC 90.160, has been developed to ensure wetland and wetland buffer mitigation successfully replaces lost functions and area.

7.3 Mitigation Goals, Objectives, and Performance Standards

The overall goal of wetland and associated buffer mitigation is to replace the habitats and functions lost or altered as a result of the Project, and meet the City's goal of no net loss of wetland function per KZC. Because the installation of the boardwalk is not anticipated to change the water quality and hydrologic functions of the wetland, mitigation goals focus on restoring lost or already limited habitat functions.

7.4 Mitigation Goals

Specific mitigation goals include the following:

- Enhance approximately 27,262 SF of Category II wetland (Wetland A) through the removal of invasive species, primarily reed canarygrass, and planting native trees and shrubs.
- Enhance approximately 46,772 SF of wetland buffer through the planting of native trees and shrubs. 22,678 SF of this enhancement will occur at the park site. The remaining 24,094 SF will occur along the CKC Trail.
- Ensure that the 6,603 SF of temporary wetland impacts have returned to healthy, native vegetation within one growing season of being trimmed for the boardwalk construction.

- Enhance approximately 2,404 SF of temporarily impacted buffer caused by the construction of the approach ramps at each end of the boardwalk. Enhancement will include the planting of native trees and shrubs.

7.4.1 Objectives and Performance Standards

Objective 1: Install native shrub and tree species in the wetland mitigation area to enhance habitat structure and species diversity.

Performance Standard 1a: Year 1 – A minimum of five native woody shrub species will be planted within the wetland mitigation areas.

Performance Standard 1b: Year 1 – 100 percent survival of installed native woody species within 1 year of mitigation installation in all areas.

Performance Standard 1c: Year 1 – At least 20 percent coverage of native plant species in the wetland mitigation area (installed and desirable).

Performance Standard 1d: Year 2 – 80 percent survival of installed native woody species within 1 year of mitigation installation areas.

Performance Standard 1e: Year 3 – At least 50 percent coverage of native plant species in the wetland mitigation area (installed and desirable). Cover will be estimated using sub-samples (e.g., plots, line-intercept transects) that cover a minimum of 20 percent of the planting areas.

Performance Standard 1f: Year 5 – At least 80 percent coverage of native plant species in the wetland mitigation area (installed and desirable).

Objective 2: Install native tree, shrub, and groundcover in the buffer mitigation areas to enhance habitat structure and species diversity.

Performance Standard 1a: Year 1 – 100 percent survival of installed native woody species within 1 year of mitigation installation in all areas.

Performance Standard 1b: Year 2 – 80 percent survival of installed native woody species

Performance Standard 1c: Year 3 – At least 50 percent coverage by woody native plant species in all areas (installed and desirable volunteer). Survival will be estimated using sub-samples (e.g., plots, line-intercept transects) that cover a minimum of 20 percent of the planting areas.

Performance Standard 1d: Year 5 – At least 80 percent coverage by woody native plant species in all areas (installed and desirable volunteer).

Performance Standard 1e: Year 5 – Two out of three strata (trees, shrubs, woody groundcover) must compose at least 20 percent of aerial cover.

Performance Standard 1f: Year 5 – At least three native species should each be making up a minimum of 10 percent coverage.

Objective 3: Remove non-native, invasive vegetation in wetland and wetland buffer mitigation areas.

Performance Standard 3a: All Years – Species on King County's Noxious Weed List will not exceed 10 percent aerial cover in all planting areas of the wetland and wetland buffer mitigation sites throughout the 5-year monitoring period, with the exception of reed canarygrass which shall not exceed 20 percent cover where pre-existing monocultures occurred in the wetland enhancement area.

Performance Standard 3b: All Years – There should be no presence of knot weed in all planting areas of the wetland and wetland buffer mitigation sites throughout the 5-year monitoring period.

7.5 Monitoring Plan

Construction monitoring will ensure that clearing limits are maintained as described in the construction documents and plans, and that sediment control devices such as silt fences, are in working order. As mentioned above, erosion control measures have been designed hat comply with the City's Public Works Pre-Approved Plans and will be included in the final bid documents.

Mitigation monitoring will also be conducted. The main objective for mitigation monitoring is to document the level of success in meeting the Project's performance standards. The proposed wetland and buffer enhancement mitigation will be monitored for 5 years per KZC 90.160. The following describes the monitoring approach for Years 1 through 5.

7.5.1 Schedule

An initial stem count of the installed vegetation will be conducted following construction (an as-built count). Monitoring of mitigation areas will continue annually for 5-years post-construction. A qualified biologist or landscape designer will conduct the monitoring. The as-built plan will be used as the basis for monitoring of plant survival. Monitoring will begin the first full growing season after construction is complete and the plants have been installed.

7.5.2 Data Collection

Shrub and tree cover will be evaluated quantitatively and qualitatively one year after construction, as well as in Years 2, 3, and 5. Two site visits (one in the spring and one in the fall) will occur during Years 1 and 2. If performance standards are met for the first two years then only one site visit will occur for the remaining 3 years of monitoring. The following information will be recorded during each of the monitoring site visits:

- Survival rates of installed vegetation during plant warranty period based on sub-sample of the mitigation area (e.g., plots, line-intercept transects).

- General plant health assessment and plant aerial coverage from established sampling points and transects (e.g., line-intercept).
- Presence of undesirable plants (weedy and/or non-native species) with estimated percent cover.
- Photo documentation of site conditions from established photo points.
- Impacts to the wetland buffer from human use (e.g., dumping of debris).
- Signs of wildlife use.

7.5.3 Reporting

Monitoring reports will be prepared by a qualified biologist or landscape designer for review and approval by regulatory agencies during monitoring Years 1, 2, 3, and 5. The reports will compare the performance standards described in the mitigation plan to the field observations during monitoring, and will recommend species replacements or other maintenance activities, if necessary (see *Maintenance* section below). Reports will present data collected during the site visits and document success in meeting specific performance standards. Photographs will illustrate and document site conditions. Monitoring reports will be submitted by the end of each monitoring year to the City's Public Works Department.

7.6 Maintenance

Maintenance of the mitigation area will begin after completion of the Project and continue, as needed, for 5 years. After the initial planting acceptance by the project biologist, the landscaping contractor will be responsible for plant survival for a period of 1 year. The City will provide maintenance, as necessary. Maintenance could include, but may not be limited to, the following:

- Irrigate during dry periods.
- Remove non-native or invasive plant species.
- Add soil amendments and/or mulch.
- Install fencing around woody plants to prevent animal damage.
- Construct fencing to prevent vandalism or damage caused by humans.
- Install supplemental plantings as needed.

Based on monitoring results, the City will implement required maintenance and will determine how corrective measures will be addressed (e.g., which department[s] will provide funding) should they be necessary.

7.7 Contingency

If any portion of the mitigation is not successful, a contingency plan will be implemented. Such plans are prepared on a case-by-case basis to remedy any aspects of the mitigation that do not meet the performance standards. The plan, if required, would be developed in cooperation with the regulating

agencies. Additionally, vegetation trimmed in the wetland during boardwalk construction is expected to regrow during the following growing season. If vegetation does not re-sprout during the next growing season, the City will assess and replant as needed.

7.8 Site Protection

The wetland and buffer mitigation areas are under a protective covenant through the Parks and Public Works Department that precludes future use of these areas (except for the purposes of enhancing or restoring the mitigation associated with this Project).

A split rail fence will be constructed along the southern edges of the buffer enhancement area near the park's play area to discourage access to the location. Critical area signs will be posted on the split rail fence at intervals of approximately 100 feet.

8.0 FINAL MITIGATION PLAN

Detailed design of the mitigation plan will not proceed until the City's planning department has approved the initial mitigation concept. Once the mitigation concept is approved, a detailed mitigation design will be prepared along with a Final Wetland Mitigation Plan. The Final Wetland Mitigation Plan will:

- Finalize wetland and buffer impacts based on final design details for the boardwalk, trail, and park;
- Field verify and survey Mitigation Opportunity Areas G and HI, as needed;
- Identify mitigation requirements for all the affected wetlands and buffers and identify specific goals and objectives for the mitigation;
- Include detailed landscape design documents for the proposed mitigation construction.

The final mitigation plan will be completed and submitted to the City prior to the issuance of permits for the project.

9.0 LIMITATIONS

Within the limitations of schedule, budget, scope-of-work, and seasonal constraints, we warrant that this study was conducted in accordance with generally accepted environmental science practices, including the technical guidelines and criteria in effect at the time this study was performed, as outlined in the Methods section. The results and conclusions of this report represent the authors' best professional judgment, based upon information provided by the project proponent in addition to that obtained during the course of this study. No other warranty, expressed or implied, is made.

10.0 REFERNCES

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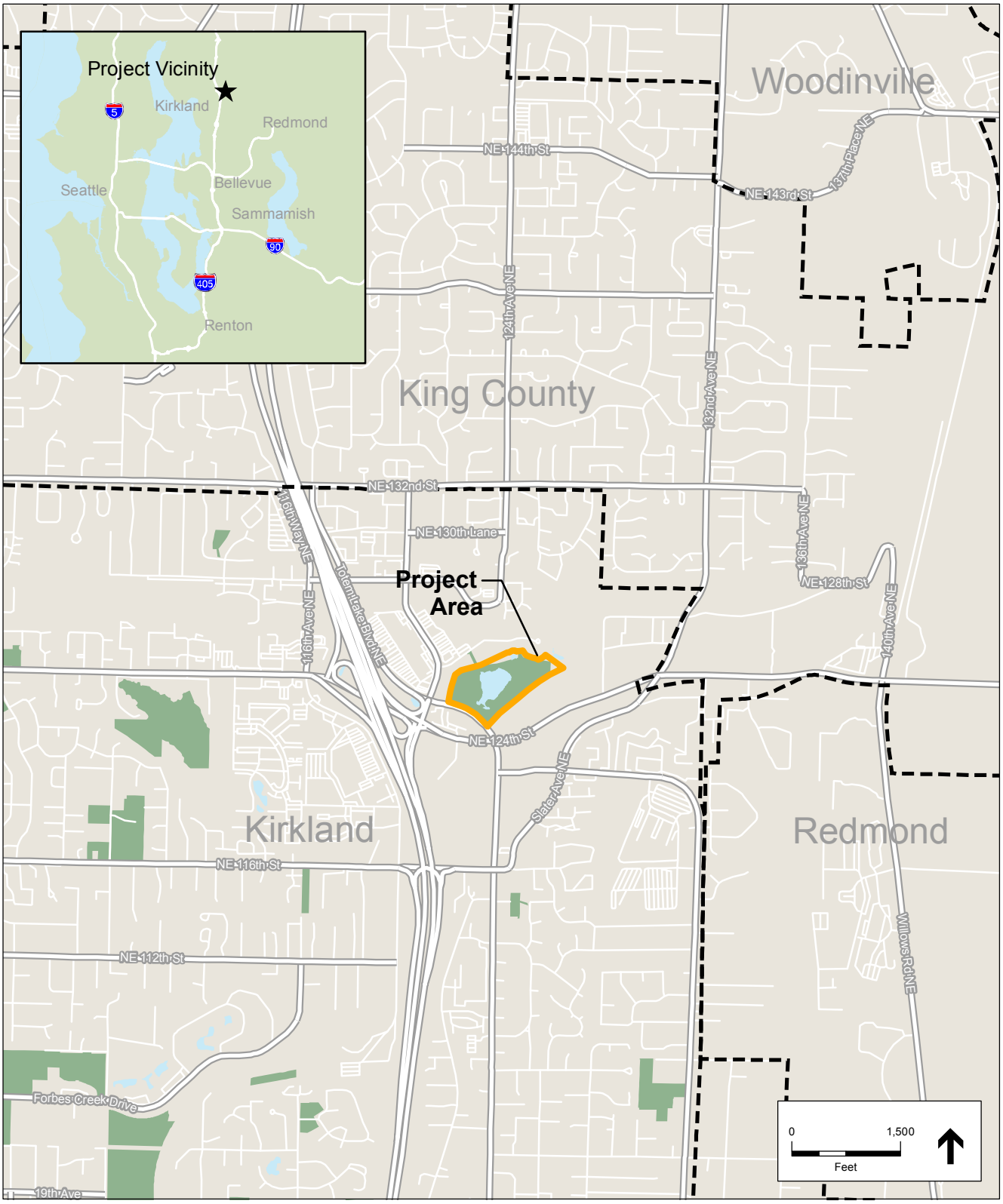

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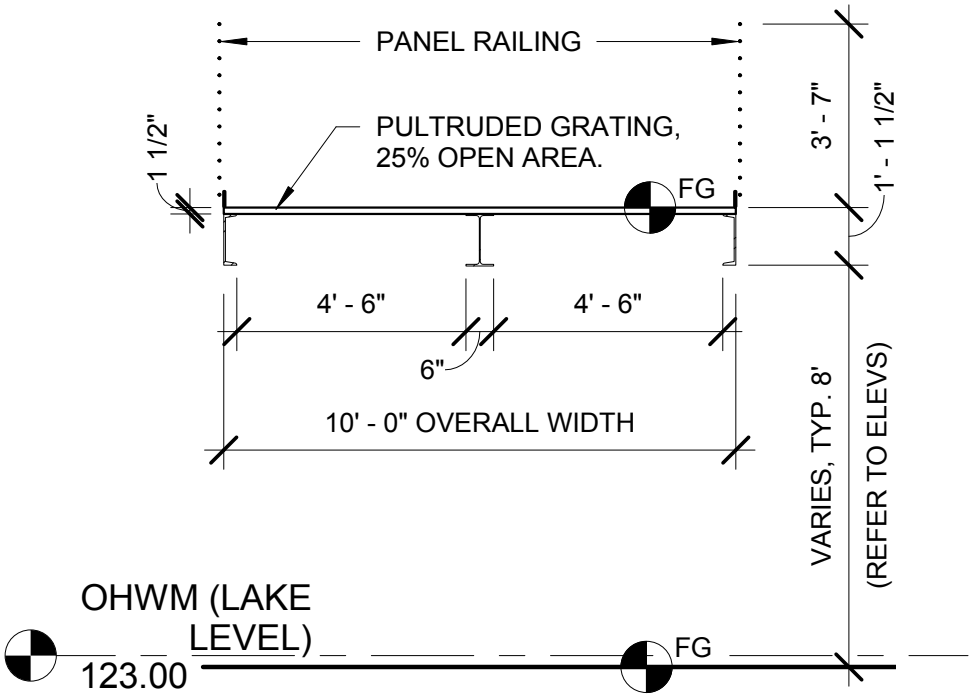
SOURCE:
ESA 2016; OSM 2016; City of Kirland 2015.

Totem Lake Park Phase I . 150616

Figure 1

Project Vicinity

NOTES:
1. THIS DETAIL FOR REFERENCED ONLY.
2. REFER TO STRUTURAL FOR BOARDWALK GRATING AND STRUCTURE DETAILS.
3. REFER TO LANDSCAPE FOR BOARDWALK GUARDRAIL DETAILS.



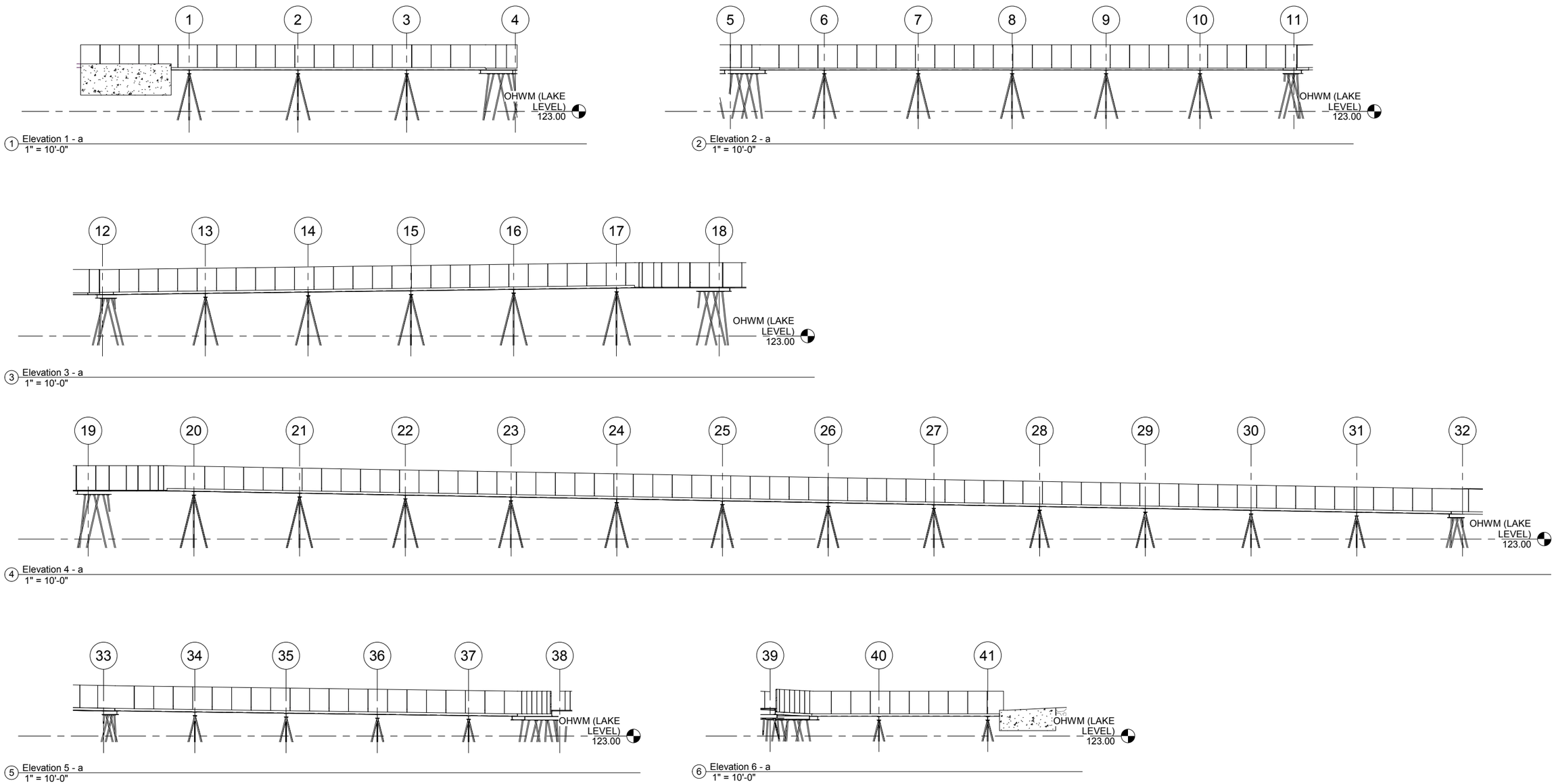
SOURCE: ESA, 2018

Totem Lake Park

Figure 2

Typical Boardwalk Section

ESA



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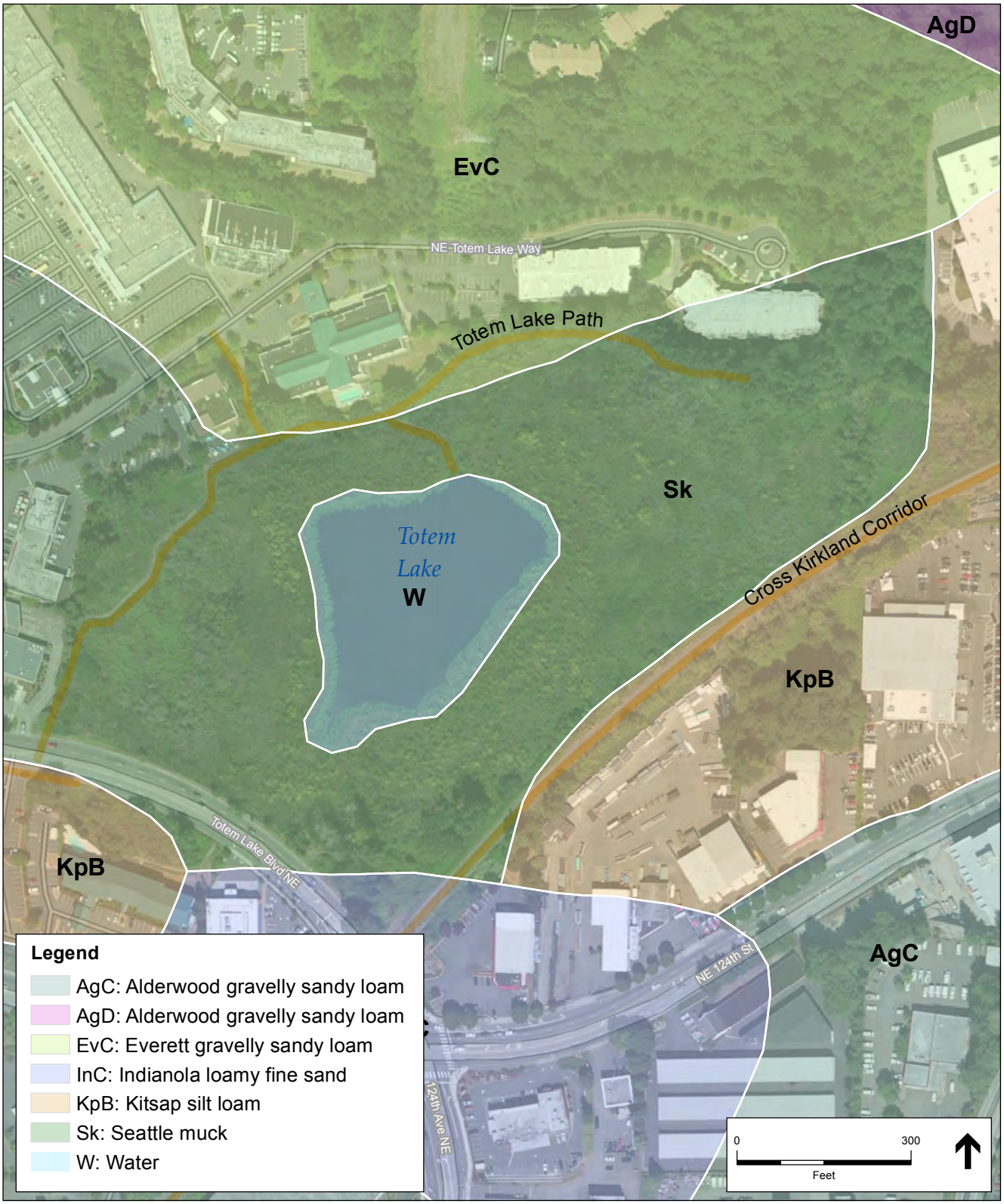
SOURCE: Berger, 2018

ESA

Totem Lake Park

Figure 3

Boardwalk Elevations



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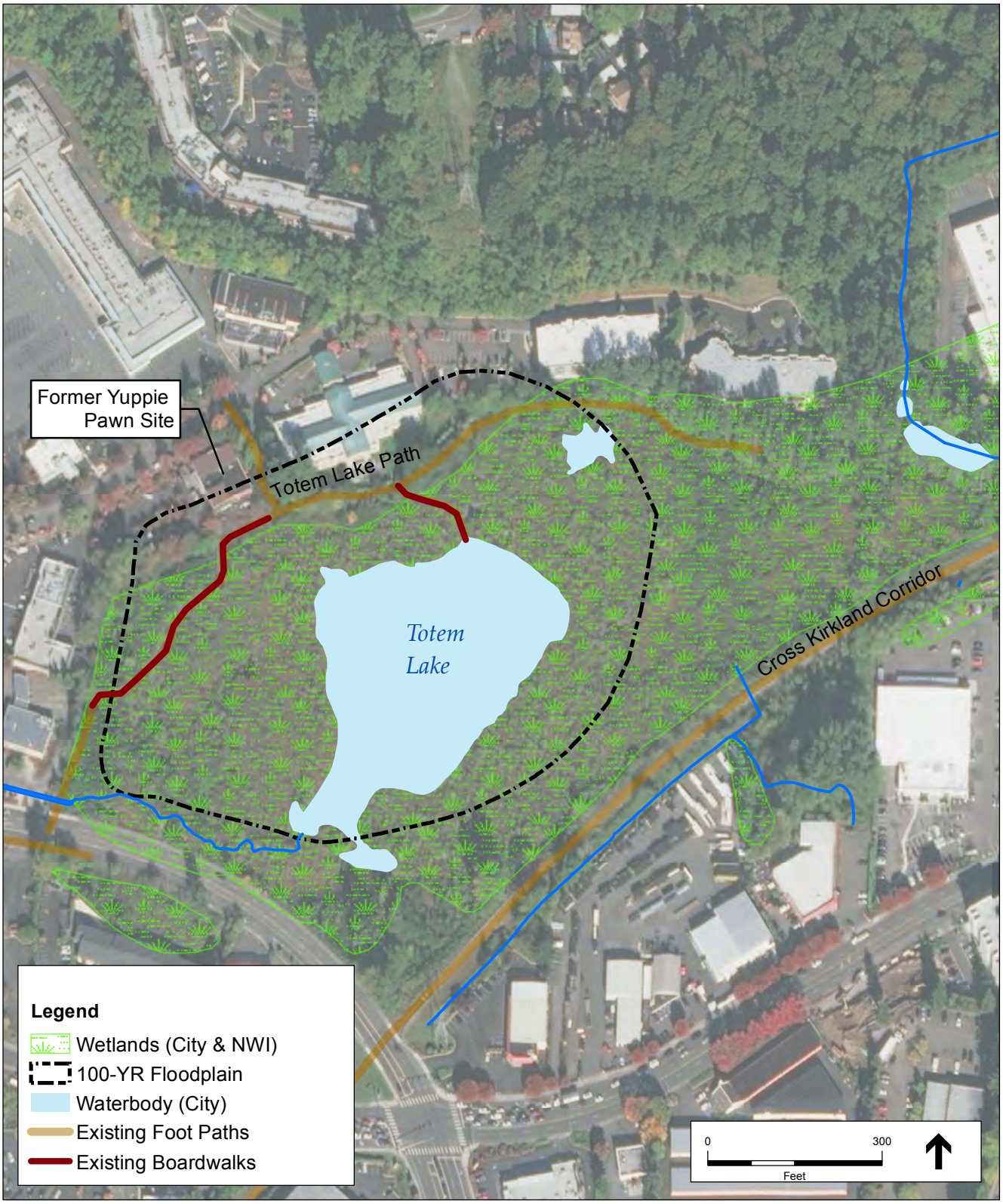
SOURCE:
ESA 2016; NAIP 2013;
SURRGO 2007.

Totem Lake Park Phase I . 150616

Figure 4

NRCS Mapped Soils



SOURCE:
ESA 2016; City of Kirkland 2015; NAIP 2013.

Totem Lake Park Phase I . 150616

Figure 5

Existing and Mapped Features

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Totem Lake Park Permitting Phase 2

Figure 6

Wetland Delineation and Proposed Porject

ESA

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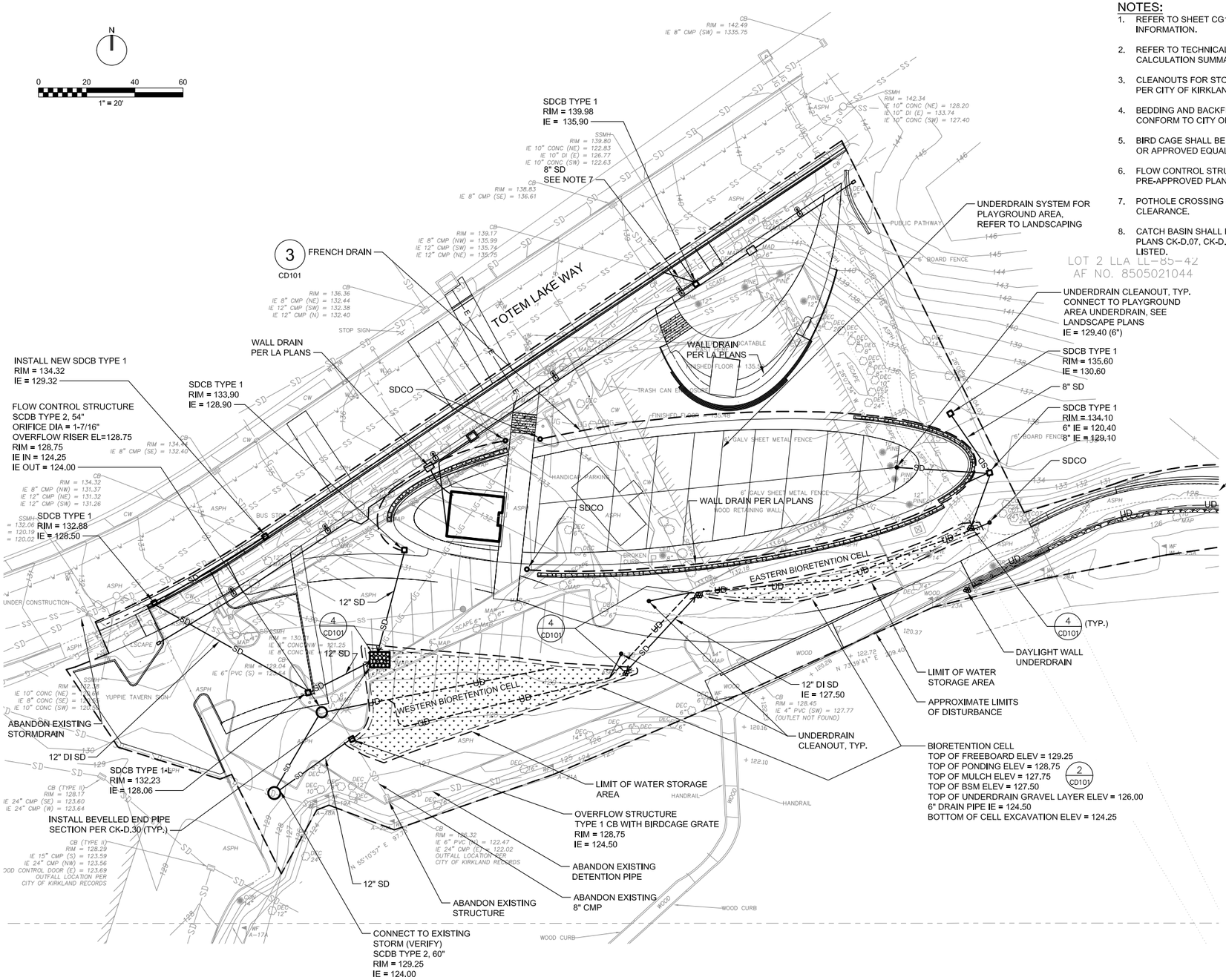
SOURCE: Berger, 2019

ESA

Totem Lake Park

Figure 7

Project Impacts



NOTES:

1. REFER TO SHEET CG101 FOR PAVING AND GRADING INFORMATION.
2. REFER TO TECHNICAL INFORMATION REPORT FOR DETENTION CALCULATION SUMMARY.
3. CLEANOUTS FOR STORM DRAIN AND UNDERDRAIN SHALL BE PER CITY OF KIRKLAND PRE-APPROVED PLAN CK-D.05B.
4. BEDDING AND BACKFILL FOR STORM DRAIN PIPE SHALL CONFORM TO CITY OF KIRKLAND PRE-APPROVED PLAN CK-D.02.
5. BIRD CAGE SHALL BE ATWOOD FABRICATING TYPE 1 BIRD CAGE OR APPROVED EQUAL.
6. FLOW CONTROL STRUCTURE SHALL BE PER CITY OF KIRKLAND PRE-APPROVED PLAN CK-D.10.
7. POTHOLE CROSSING WITH EXISTING UTILITIES, VERIFY CLEARANCE.
8. CATCH BASIN SHALL BE PER CITY OF KIRKLAND PRE-APPROVED PLANS CK-D.07, CK-D.08, AND CK-D.09, DEPENDING ON TYPE LISTED.

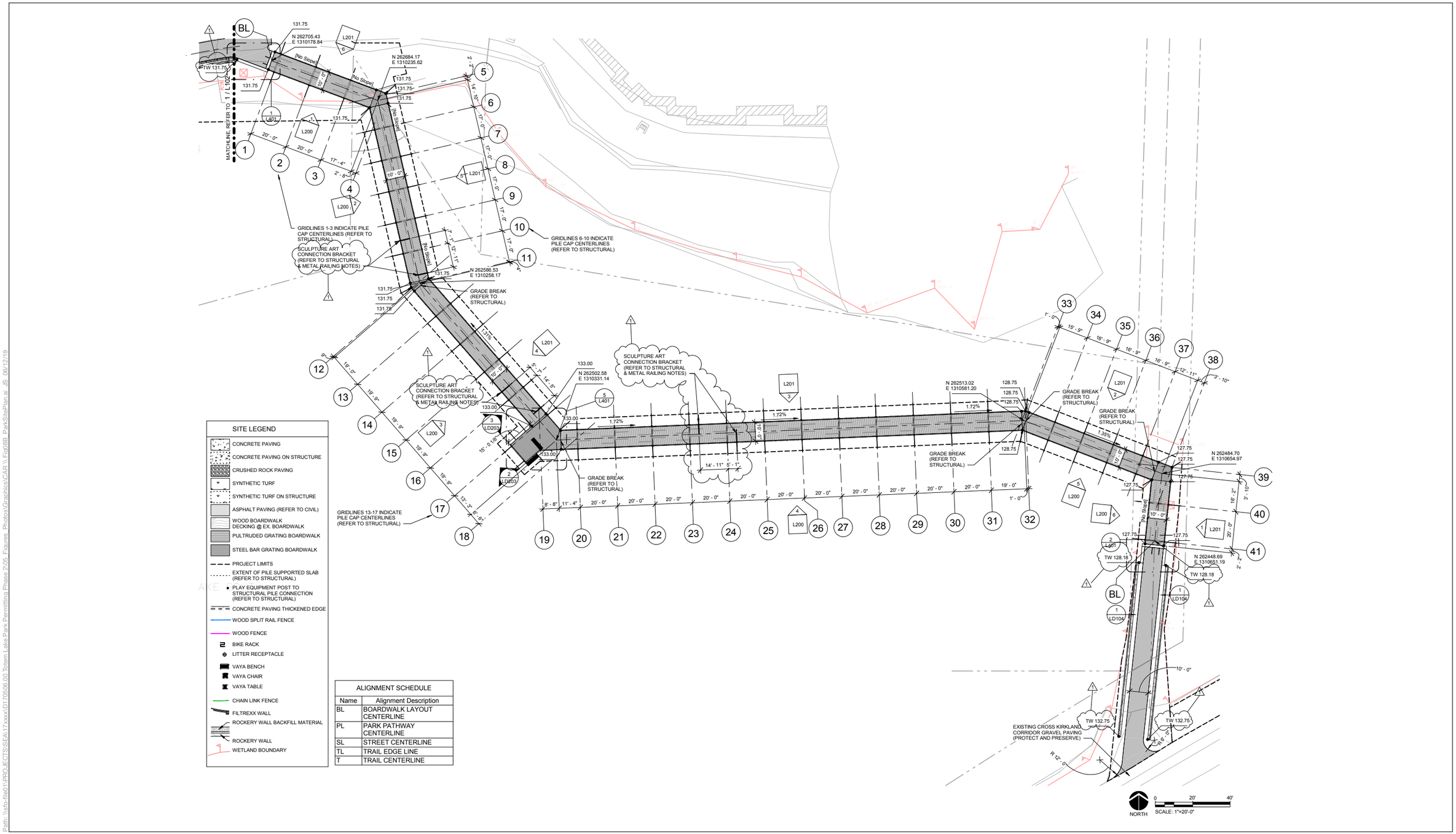
SOURCE: Berger, 2019

Totem Lake Park

Figure 8a

Stormwater Facilities at Park Site (100% Design)

ESA



ALIGNMENT SCHEDULE	
Name	Alignment Description
BL	BOARDWALK LAYOUT CENTERLINE
PL	PARK PATHWAY CENTERLINE
SL	STREET CENTERLINE
TL	TRAIL EDGE LINE
T	TRAIL CENTERLINE

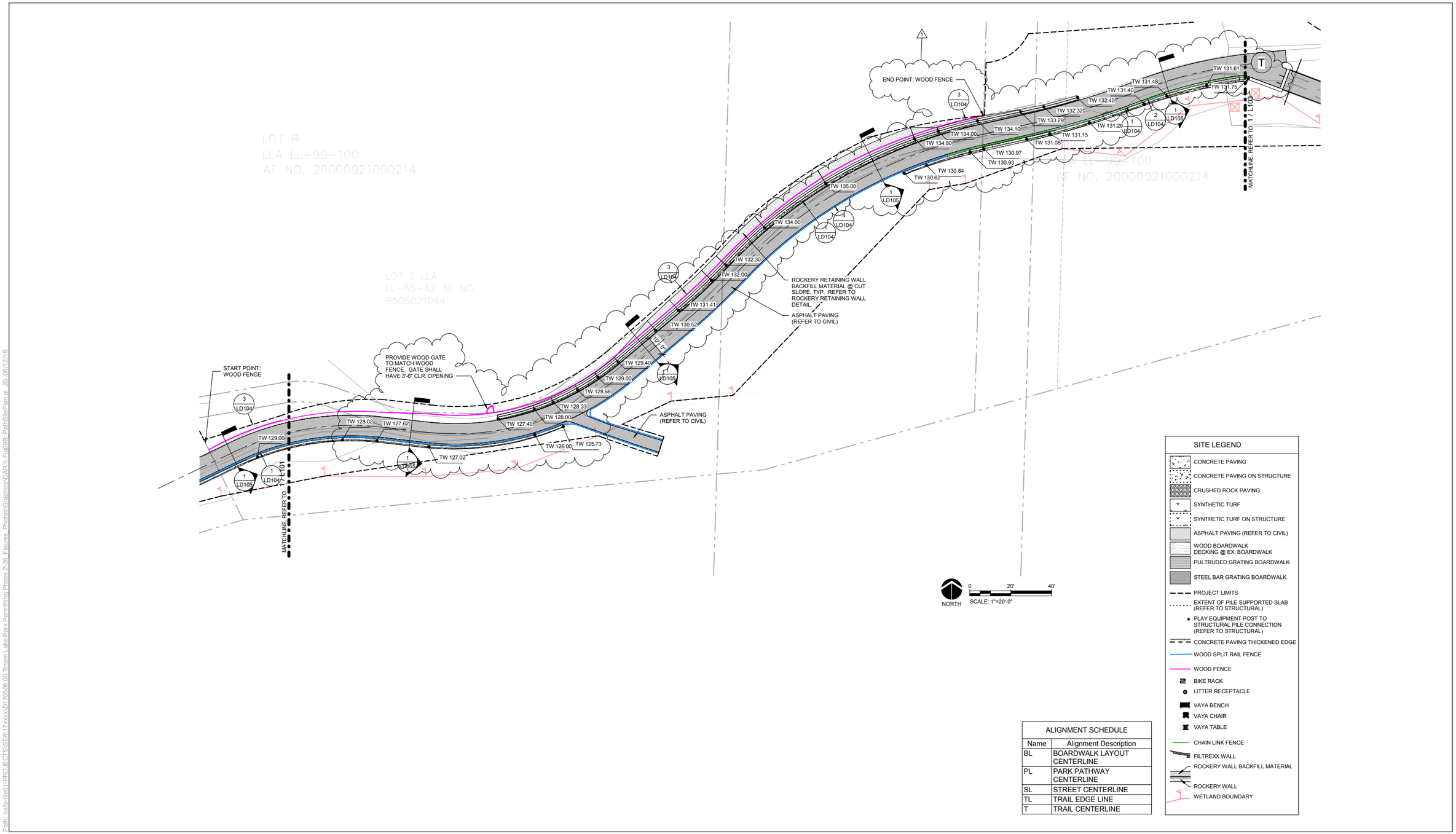
SOURCE: Berger, 2019

Totem Lake Park

Figure 8b

Boardwalk Site Plan (100% Design)

ESA



ALIGNMENT SCHEDULE

Name	Alignment Description
BL	BOARDWALK LAYOUT CENTERLINE
PL	PARK PATHWAY CENTERLINE
SL	STREET CENTERLINE
TL	TRAIL EDGE LINE
T	TRAIL CENTERLINE

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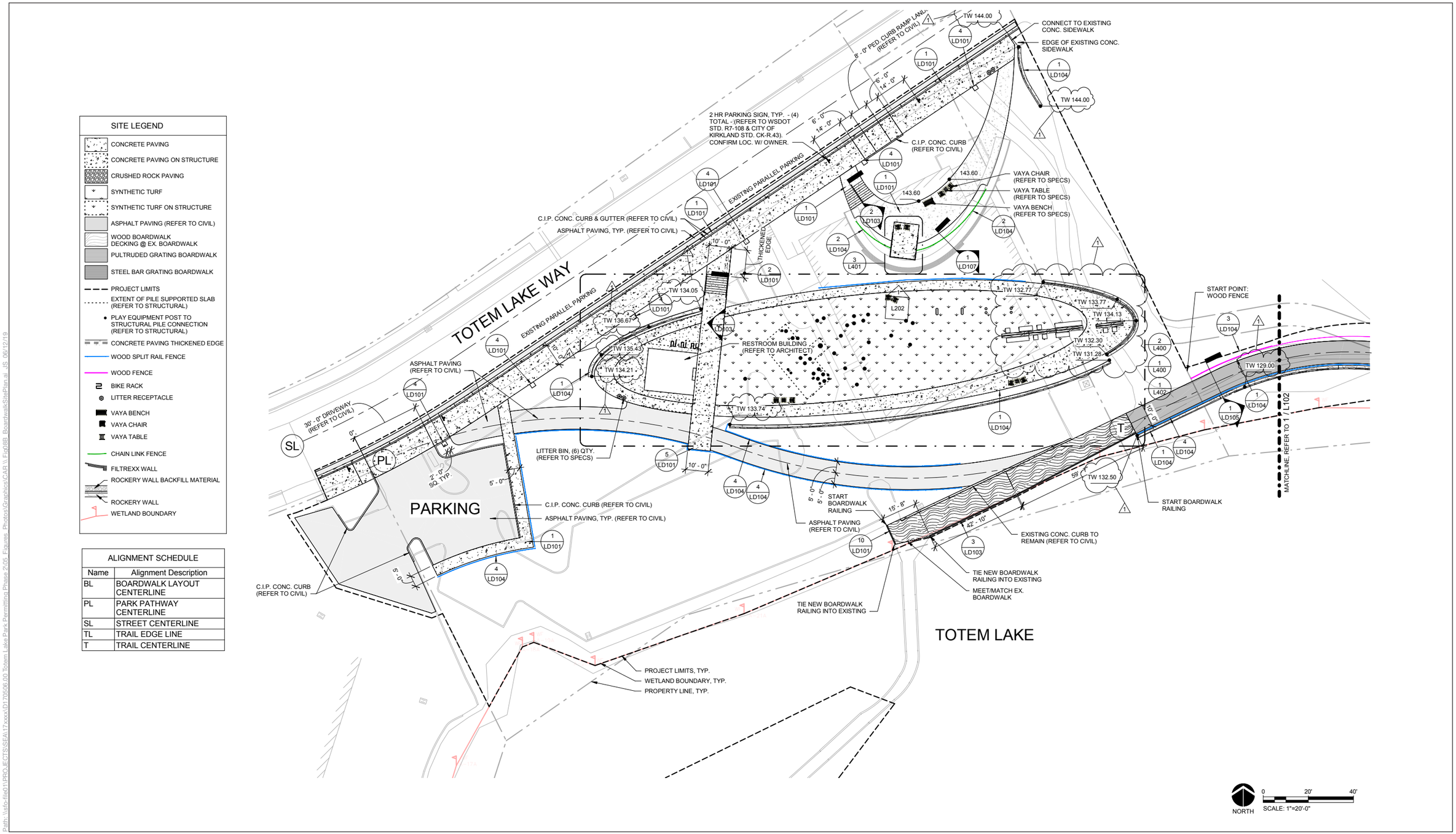
SOURCE: Berger, 2019

ESA

Totem Lake Park

Figure 8c

Totem Lake Path Site (100% Design)



ALIGNMENT SCHEDULE	
Name	Alignment Description
BL	BOARDWALK LAYOUT CENTERLINE
PL	PARK PATHWAY CENTERLINE
SL	STREET CENTERLINE
TL	TRAIL EDGE LINE
T	TRAIL CENTERLINE

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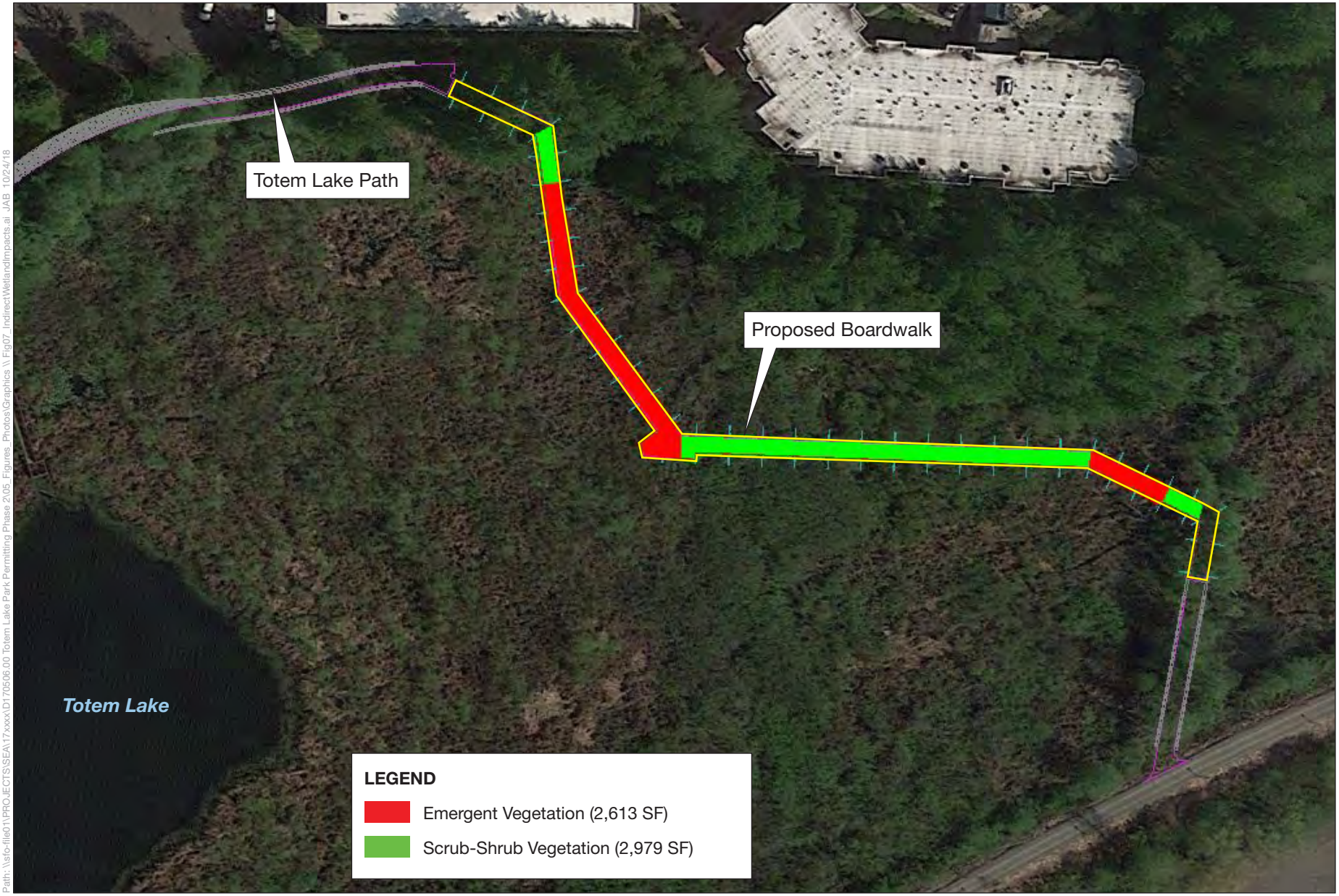
SOURCE: Berger, 2019

ESA

Totem Lake Park

Figure 8d

Park Site Plan (100% Design)



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SOURCE: Google Earth, 2018; ESA 2018.

Totem Lake Park

Figure 9

Indirect Wetland Impacts

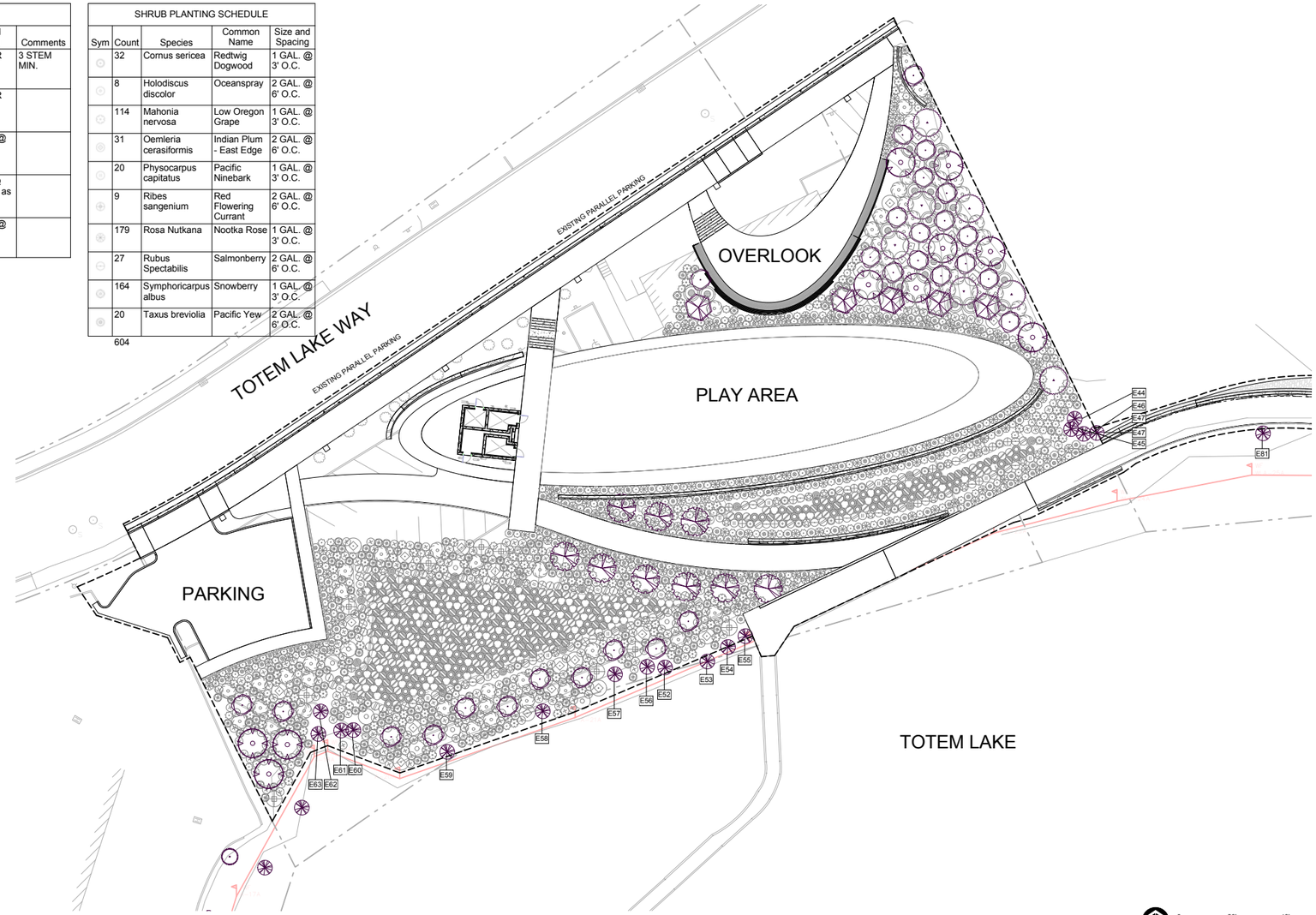
ESA

TREE PLANTING SCHEDULE					
Symbol	Count	Species	Common Name	Size and Spacing	Comments
	28	Acer Circinatum	Vine maple	5 GAL, PER PLAN	3 STEM MIN.
	9	Malus fusca	Pacific Crabapple	5 GAL, PER PLAN	
	7	Pseudotsuga Menziesii	Douglas Fir	10-12' HT. @ 18' O.C.	
	5	Quercus garryana	Garry Oak	8-10' HT. @ 18' O.C. (or as shown)	
	10	Thuja Plicata	Western Red Cedar	10-12' HT. @ 18' O.C.	
	59				

SHRUB PLANTING SCHEDULE				
Sym	Count	Species	Common Name	Size and Spacing
	32	Cornus sericea	Redtwig Dogwood	1 GAL. @ 3' O.C.
	8	Holodiscus discolor	Oceanspray	2 GAL. @ 6' O.C.
	114	Mahonia nervosa	Low Oregon Grape	1 GAL. @ 3' O.C.
	31	Oemleria cerasiformis	Indian Plum - East Edge	2 GAL. @ 6' O.C.
	20	Physocarpus capitatus	Pacific Ninebark	1 GAL. @ 3' O.C.
	9	Ribes sangenium	Red Flowering Currant	2 GAL. @ 6' O.C.
	179	Rosa Nutkana	Nootka Rose	1 GAL. @ 3' O.C.
	27	Rubus Spectabilis	Salmonberry	2 GAL. @ 6' O.C.
	164	Symphoricarpus albus	Snowberry	1 GAL. @ 3' O.C.
	20	Taxus breviolia	Pacific Yew	2 GAL. @ 6' O.C.
	604			

GROUNDCOVER PLANTING SCHEDULE				
Sym	Count	Species	Common Name	Size and Spacing
	34	Athyrium Filix-Femina	Lady Fern	1 GAL. @ 3' O.C.
	145	Carex obnupta	Slough Sledge	1 GAL. @ 3' O.C.
	163	Fragaria chiloensis	Beach Strawberry	1 GAL. @ 3' O.C.
	245	Gaultheria Shallon	Salal	1 GAL. @ 3' O.C.
	29	Iris Douglasiana	Oregon Iris	1 GAL. @ 3' O.C.
	115	Juncus Effusus	Common Rush	1 GAL. @ 3' O.C.
	131	Juncus Ensifolius	Swordleaf Rush	1 GAL. @ 3' O.C.
	18	Lonicera involucrata	Twinberry	1 GAL. @ 3' O.C.
	60	Mahonia aquifolium	Tall Oregon Grape	2 GAL. @ 6' O.C.
	31	Mimulus guttatus	Monkey Flower	1 GAL. @ 3' O.C.
	252	Polystichum Munitum	Sword Fern	1 GAL. @ 3' O.C.
	118	Scirpus microcarpus	Small Fruited Bulrush	1 GAL. @ 3' O.C.
	1341			

Existing Tree Legend
EXISTING CONIFER TREE TO BE RETAINED
EXISTING DECIDUOUS TREE TO BE RETAINED
E1 TREE INVENTORY NUMBER (REFER TO ARBORIST REPORT)



1 PLANTING PLAN - PARK
1" = 20'-0"

NORTH
0 20' 40'
SCALE: 1"=20'-0"

BUFFER MITIGATION PLANTING GENERAL NOTES	
NOTE #	DESCRIPTION
1	ALL NEWLY PLANTED AND LAWN AREAS SHALL BE IRRIGATED. REFER TO IRRIGATION PLANS.
3	ALL PLANTED AREAS SHALL RECEIVE IMPORT TOPSOIL. REFER TO SPECIFICATIONS FOR SOIL TYPE AND PREPARATION REQUIREMENTS..
4	MULCH ALL PLANTING AREAS. REFER TO SPECIFICATIONS FOR MULCH TYPE AND DEPTH.
5	ALL PLANT MATERIAL MUST BE REVIEWED IN THE FIELD, AND APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO PLANTING.

BUFFER MITIGATION PLANTING GENERAL NOTES	
NOTE #	DESCRIPTION
6	THE CONTRACTOR SHALL STAKE ALL TREE LOCATIONS IN THE FIELD PRIOR TO PLANTING. TREE LOCATIONS ARE SUBJECT TO MODIFICATION BY LANDSCAPE ARCHITECT.
7	ALL TREE LOCATIONS MUST BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO PLANTING
8	STAKE ALL DECIDUOUS TREES. REFER TO DETAIL(S).
9	GUY ALL CONIFEROUS TREES. REFER TO DETAIL(S).
10	ALL PLANTS SHAL BE LAID OUT IN THE FIELD PER THE PLANS. LAYOUT SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO PLANTING.

BUFFER MITIGATION PLANTING GENERAL NOTES	
NOTE #	DESCRIPTION
11	PLANT QUANTITIES SHOWN ON PLANS TAKE PRECEDENT OVER PLANT QUANTITIES PROVIDED IN PLANT SCHEDULE.
12	IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ADEQUATE PLANTING TO MEET SPACING REQUIREMENTS AND PLANT LAYOUT SHOWN.
13	ALL PLANTING AREA FINISH GRADES (TOP OF MULCH) SHALL BE 1" BELOW ADJACENT PAVED SURFACES UNLESS NOTED OR DIRECTED OTHERWISE.
15	IF SEED IS UTILIZED, SEED SOURCE MUST BE AS LOCAL AS POSSIBLE.

BUFFER MITIGATION PLANTING GENERAL NOTES	
NOTE #	DESCRIPTION
16	PLANTS MUST BE NURSERY PROPOGATED UNLESS TRANSPLANTED FROM ON-SITE AREAS APPROVED FOR DISTURBANCE.
17	REFER TO PLANTING PLANS FOR NON MITIGATION PLANTING AND LAWN AREAS.
18	EXISTING TREE PROTECTION MEASURES SHALL TAKE PRECEDENCE OVER SOIL PREPARATION AND PLANTING REQUIREMENTS. NOTIFY LANDSCAPE ARCHITECT OF ANY DISCREPANCIES IMMEDIATELY. WHERE A DISCREPANCY EXISTS, SOIL PREPARATION AND PLANTING WITHIN TREE PROTECTION MEASURES SHALL BE ONLY AS APPROVED OR DIRECTED BY THE LANDSCAPE ARCHITECT.

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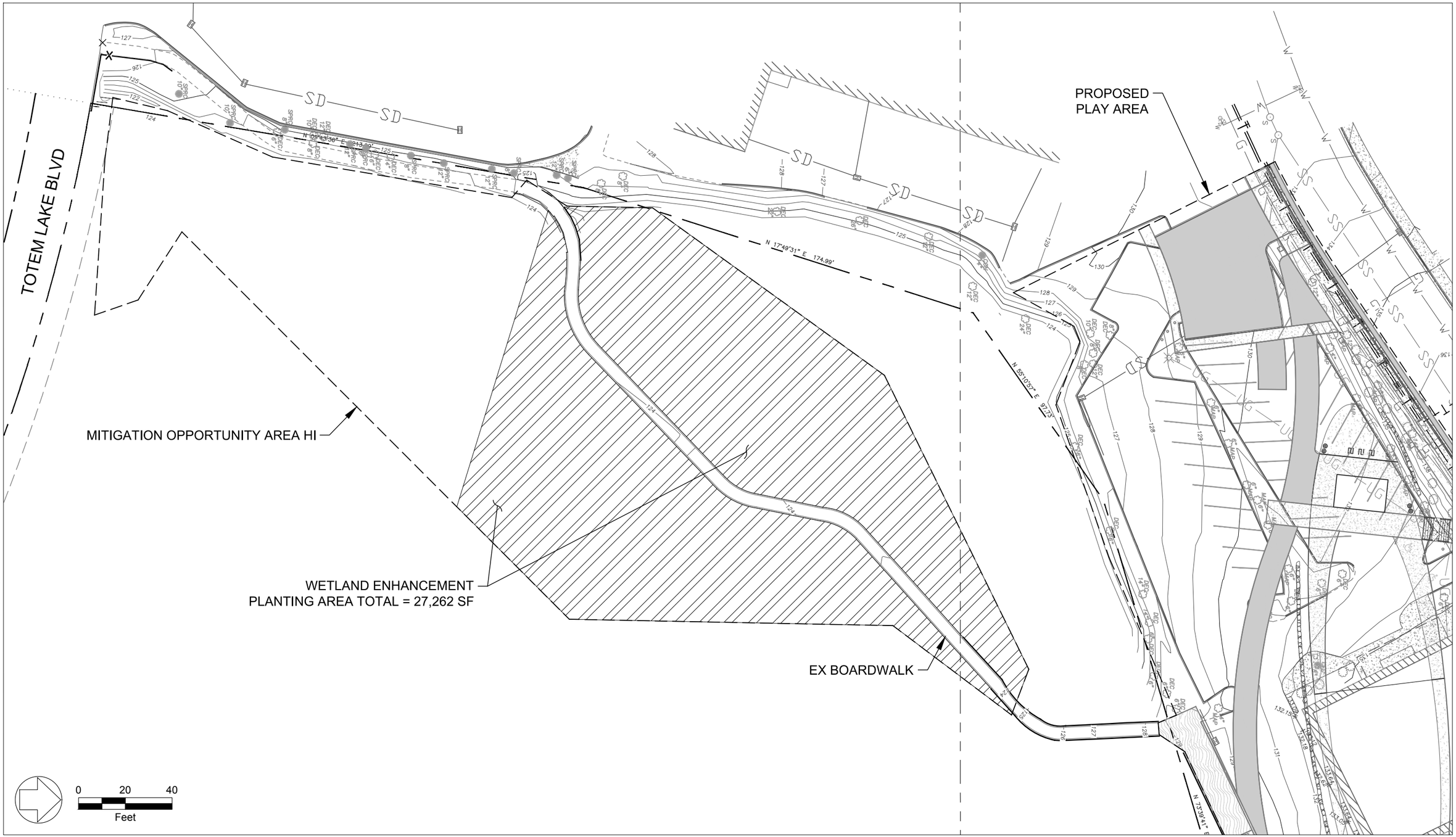
SOURCE: Berger, 2018

ESA

Totem Lake Park

Figure 10

Mitigation Planting at Park Site



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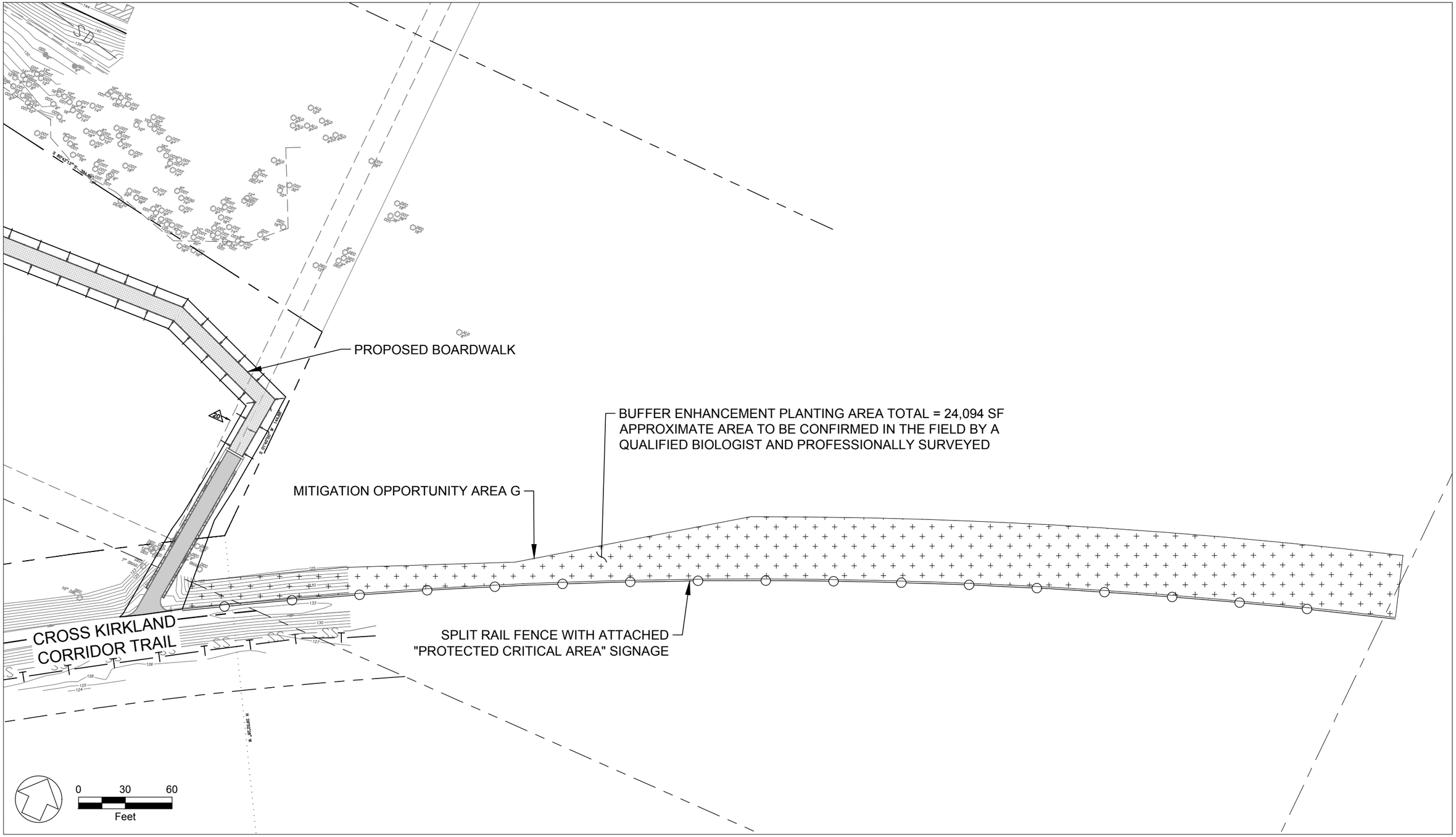
Totem Lake Park Permitting Phase 2

Figure 11a

WETLAND MITIGATION PLANTING PLAN

ESA



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Totem Lake Park Permitting Phase 2

Figure 11b

BUFFER MITIGATION PLANTING PLAN

ESA

PLANT SCHEDULE: WETLAND ENHANCEMENT (27,262 SF)

BOTANICAL NAME	COMMON NAME	TYPE/SIZE	SPACING	QUANTITY
CORNUS SERICEA	REDOSIER DOGWOOD	1" DIA. LIVE STAKES	5' O.C.	210
PHYSOCARPUS CAPITATUS	PACIFIC NINEBARK	1 GAL. CONTAINER	5' O.C.	210
RUBUS SPECTABILIS	SALMONBERRY	1 GAL. CONTAINER	5' O.C.	209
SALIX LUCIDA SPP. LASIANDRA	PACIFIC WILLOW	1" DIA. LIVE STAKES	5' O.C.	210
SALIX SITCHENSIS	SITKA WILLOW	1" DIA. LIVE STAKES	5' O.C.	210
SCIRPUS MICROCARPUS	SMALL FRUITED BULRUSH	10" PLUGS	2.5' O.C.	3778
SPIRAEA DOUGLASII	DOUGLAS SPIRAEA	1 GAL. CONTAINER	5' O.C.	210

PLANT SCHEDULE: BUFFER AREAS

BOTANICAL NAME	COMMON NAME	TYPE/SIZE	SPACING	BUFFER ENHANCEMENT (24,094 SF) QUANTITY	BUFFER RESTORATION (2,404 SF) QUANTITY
ACER CIRCINATUM	VINE MAPLE	1 GAL. CONTAINER	6' O.C.	129	13
GAULTHERIA SHALLON	SALAL	1 GAL. CONTAINER	6' O.C.	129	13
OEMLERIA CERASIFORMIS	INDIAN PLUM	1 GAL. CONTAINER	6' O.C.	128	12
POLYSTICHUM MUNITUM	SWORD FERN	1 GAL. CONTAINER	6' O.C.	128	13
ROSA NUTKANA	NOOTKA ROSE	1 GAL. CONTAINER	6' O.C.	129	13
SYMPHORICARPOS ALBUS	SNOWBERRY	1 GAL. CONTAINER	6' O.C.	129	13

NOTE: BUFFER RESTORATION PLANTING IS FOR TEMPORARY IMPACT AREAS (NOT SHOWN ON PLANS).

BUFFER HYDROSEED

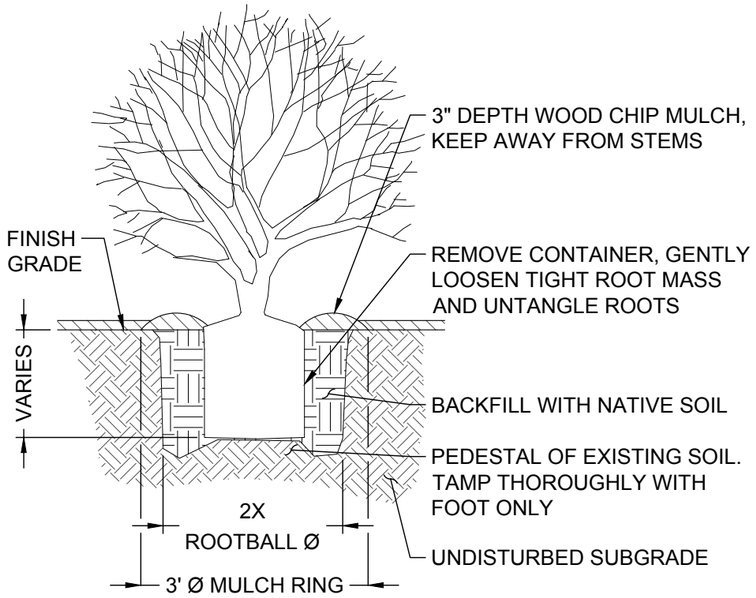
BOTANICAL NAME	COMMON NAME	% BY WEIGHT	RATE
AGROSTIS TENUIS	COLONIAL BENTGRASS	15%	APPLY 25 LBS. PER ACRE
FESTUCA RUBRA	RED FESCUE	20%	
LOLIUM PERNENNE	PERENNIAL RYE GRASS	15%	
LUPINUS POLYPHYLLUS	LARGE-LEAVED LUPINE	25%	
TRIFOLIUM PRATENSE	RED CLOVER	25%	

Totem Lake Park Permitting Phase 2

Figure 11c

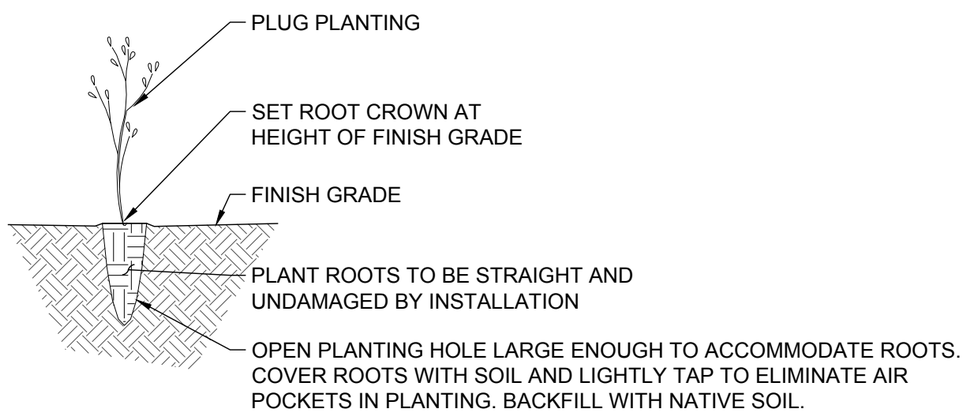
MITIGATION PLANTING SCHEDULES

ESA



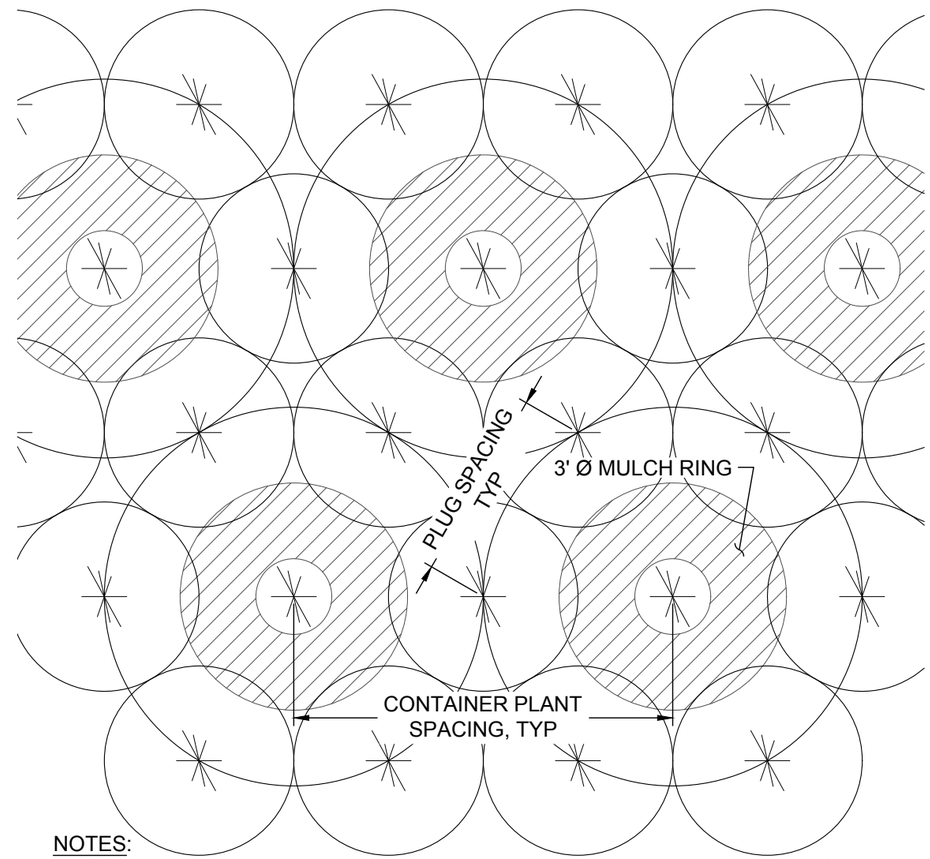
1 / - CONTAINER PLANTING NOT TO SCALE

DETAIL



2 / - PLUG PLANTING NOT TO SCALE

DETAIL



NOTES:
1. RESTORATION PLANTING LAYOUT IS CONCEPTUAL AND INTENDED TO SHOW GROUPINGS OF SIMILAR SPECIES OF PLANTS.
3. GROUP EACH SPECIES IN CLUSTERS OF 3, 5, 7, OR 9.
4. PLANT LAYOUT AND TRIANGULAR SPACING MAY BE ADJUSTED TO MEET FIELD CONDITIONS WITH THE ACCEPTANCE OF THE PROJECT REPRESENTATIVE.

3 / - TYPICAL PLANTING LAYOUT NOT TO SCALE

DETAIL

MITIGATION PLANTING NOTES

PARKING

1. CONTRACTOR SHALL KEEP ALL NEARBY WALKING PATHS CLEAR AT ALL TIMES AND SHALL NOT PARK OR STORE VEHICLES ALONG THE 'ESPLANADE' ADJACENT TO THE MITIGATION SITE. CONTRACTOR MAY CROSS THE ESPLANADE WITH CAUTION AND PARK ON THE DRIVEWAY WEST OF THE SITE, CLEAR OF THE ESPLANADE.

CLEARING AND TREE PROTECTION

2. USING HAND-HELD EQUIPMENT, REMOVE ALL INVASIVE SPECIES FROM THE MITIGATION AREA PRIOR TO INSTALLATION USING METHODS APPROVED BY THE STATE OF WASHINGTON NOXIOUS WEED CONTROL BOARD. SPECIFIC SPECIES TO BE REMOVED INCLUDE KNOTWEED (POLYGONUM SPP.), HIMALAYAN BLACKBERRY (RUBUS ARMENIACUS), AND REED CANARYGRASS (PHALARIS ARUNDINACEA).
3. SELECTED AREAS WHERE REED CANARYGRASS IS DOMINANT WILL BE LOCATED IN THE FIELD. PLANTS WILL BE CUT BY HAND, AS CLOSE TO THE SURFACE OF THE GROUND AS POSSIBLE. AFTER PLANTS ARE REMOVED, APPROXIMATELY FOUR INCHES OF NATURAL WOOD CHIP MULCH WILL BE PLACED OVER THE SURFACE. MULCH WILL BE ANCHORED BY JUTE MATTING AND SUBSEQUENTLY PLANTED.
4. PRESERVE AND PROTECT ALL EXISTING WETLANDS, TREES AND VEGETATION NOT DESIGNATED FOR REMOVAL. PROVIDE, ERECT AND MAINTAIN TEMPORARY FENCING TO PREVENT ACCESS TO EXISTING WETLANDS OR WETLAND BUFFERS BY ANY VEHICLES.
5. DO NOT DRIVE OR PARK ANY VEHICLES OR EQUIPMENT, STORE MATERIALS, STOCKPILE SOIL OR GRAVEL, OR DISPOSE OF ANY CONSTRUCTION OR WASTE MATERIAL WITHIN EXISTING WETLANDS OR WETLAND BUFFER OR NEAR NEWLY INSTALLED PLANTS. RESTRICT FOOT TRAFFIC WITHIN PROTECTED AREAS.

PLANTING

6. SEED SOURCE MUST BE AS LOCAL AS POSSIBLE, AND PLANTS MUST BE NURSERY PROPAGATED UNLESS TRANSPLANTED FROM ON-SITE AREAS APPROVED FOR DISTURBANCE.
7. CUTTINGS ARE LIVE PLANT MATERIAL WITHOUT A PREVIOUSLY DEVELOPED ROOT SYSTEM. SOURCE PLANTS FOR CUTTINGS SHALL BE DORMANT WHEN CUTTINGS ARE TAKEN AND ALL CUTS SHALL BE MADE WITH A SHARP INSTRUMENT. CUTTINGS MAY BE COLLECTED. IF CUTTINGS ARE COLLECTED, THE REQUIREMENT TO BE NURSERY GROWN OR HELD IN NURSERY CONDITIONS DOES NOT APPLY. WRITTEN PERMISSION SHALL BE OBTAINED FROM PROPERTY OWNERS AND PROVIDED TO THE ENGINEER BEFORE CUTTINGS ARE COLLECTED. THE CONTRACTOR SHALL COLLECT CUTTINGS IN ACCORDANCE WITH APPLICABLE SENSITIVE AREA ORDINANCES.
8. LIVE STAKE CUTTINGS SHALL HAVE A STRAIGHT TOP CUT IMMEDIATELY ABOVE A BUD. THE LOWER, ROOTING END SHALL BE CUT AT AN APPROXIMATE 45-DEGREE ANGLE. LIVE STAKES ARE CUT FROM ONE TO TWO YEAR OLD WOOD. LIVE STAKE CUTTINGS SHALL BE CUT AND INSTALLED WITH THE BARK INTACT WITH NO BRANCHES OR STEMS ATTACHED, AND BE 1 INCH IN DIAMETER.
9. PLANTING AREAS SHOULD BE STAKED IN THE FIELD FOR ACCEPTANCE BY THE ENGINEER PRIOR TO INSTALLATION.
10. PRIOR TO PLANTING, PLACE ALL PLANTS AS INDICATED ON THE PLANS, OR MARK EACH LOCATION WITH WOOD STAKES OR COLOR WIRE FLAGS MARKED WITH THE FIRST TWO LETTERS OF BOTH PLANT GENUS AND SPECIES (E.G. PH CA FOR PHYSOCARPUS CAPITATUS). NO PLANTING HOLES SHALL BE DUG OR BACKFILLED WITHOUT PRIOR APPROVAL OF ENGINEER. NOTIFY ENGINEER A MINIMUM OF 72 HOURS BEFORE PLANTING TO ALLOW AMPLE TIME TO ADJUST PLANT LOCATIONS. PROVIDE EXTRA STAKES OR FLAGS SUFFICIENT TO MARK LOCATIONS OF PLANTS NOT LOCATED ON PLAN.
11. PLANT MATERIALS MAY BE SUPPORTED WITH MATERIAL (E.G. STAKES, GUY WIRES) ONLY WHEN NECESSARY. STAKING AND TIES SHALL FOLLOW THE INTERNATIONAL SOCIETY OF ARBORICULTURE STANDARDS. WHERE SUPPORT IS NECESSARY, STAKES, GUY WIRES, OR OTHER MEASURES MUST BE REMOVED AS SOON AS THE PLANT CAN SUPPORT ITSELF, USUALLY AFTER THE FIRST GROWING SEASON.
12. ALL PLANTED AREAS OF THE MITIGATION PROJECT SHALL HAVE A TEMPORARY, ABOVE GROUND SPRINKLER SYSTEM SET TO AUTOMATIC TIMERS. TEMPORARY SPRINKLER SYSTEMS SHALL BE REMOVED IN THE FINAL YEAR OF MONITORING ONCE VEGETATION IS WELL ESTABLISHED. WHEN PUBLIC OR PRIVATE WATER IS NOT AVAILABLE, A PLAN FOR RELIABLE WATERING BY TRUCK OR HAND SHALL BE INCLUDED.

FENCING AND SIGNAGE

13. INSTALL PERMANENT SPLIT RAIL FENCING ALONG THE EDGES OF CRITICAL AREAS AS SHOWN ON PLANS AND ATTACH PERMANENT SIGNS TO THE FENCE. BOTH FENCING AND SIGNAGE ARE TO BE AS SPECIFIED IN KZC 90.190.

MONITORING - PERFORMANCE STANDARDS

14. PERCENT SURVIVAL OF INSTALLED SHRUBS AND TREES:
    - 100 PERCENT SURVIVAL MEASURED BEFORE THE END OF YEAR 1 (TO DETERMINE 1 YEAR PLANT GUARANTEE)
    - AT LEAST 80 PERCENT SURVIVAL AT THE END OF YEAR 2
    - PERCENT COVER OF NATIVE TREES AND SHRUBS (INSTALLED AND VOLUNTEER) WITHIN WETLAND AND BUFFER ENHANCEMENT AREAS:
    - 20 PERCENT COVER IN YEAR 1
    - 50 PERCENT COVER IN YEAR 3
    - 80 PERCENT COVER IN YEAR 5
15. PERCENT COVER OF NON-NATIVES WITHIN WETLAND AND BUFFER ENHANCEMENT AREAS:

    SPECIES ON KING COUNTY'S NOXIOUS WEED LIST WILL NOT EXCEED 10 PERCENT AERIAL COVER IN ALL PLANTING AREAS OF THE WETLAND AND WETLAND BUFFER MITIGATION SITES THROUGHOUT THE 5-YEAR MONITORING PERIOD, WITH THE EXCEPTION OF REED CANARYGRASS WHICH SHALL NOT EXCEED 20 PERCENT COVER WHERE PRE-EXISTING MONOCULTURES OCCURRED IN THE WETLAND ENHANCEMENT AREA.

    THERE SHOULD BE NO PRESENCE OF KNOT WEED IN ALL PLANTING AREAS OF THE WETLAND AND WETLAND BUFFER MITIGATION SITES THROUGHOUT THE 5-YEAR MONITORING PERIOD.

(NOTES CONTINUED ON NEXT SHEET)

MITIGATION PLANTING NOTES - CONTINUED FROM PREVIOUS SHEET

MONITORING - SCHEDULE

16. AN INITIAL STEM COUNT OF PLANTED MATERIAL WILL OCCUR FOLLOWING INSTALLATION OF MITIGATION PLANTINGS, WHICH WILL BE USED TO DETERMINE PERCENT SURVIVAL IN YEARS 1 AND 2. AN AS-BUILT REPORT WILL BE PREPARED TO DESCRIBE THE SITE CONDITIONS POST-ENHANCEMENT, INCLUDING NUMBER AND KIND OF INSTALLED NATIVE TREES AND SHRUBS AND APPROXIMATE PERCENT COVER OF NON-NATIVE SPECIES. PRELIMINARY DATA OUTLINED IN THIS REPORT WILL BE REFERENCED FOR COMPARISON IN SUBSEQUENT MONITORING REPORTS.

17. MONITORING OF MITIGATION AREAS WILL OCCUR ONCE 30 DAYS AFTER PLANTING (STEM COUNT AND AS-BUILT PREPARATION), ONCE EARLY IN THE GROWING SEASON OF THE FIRST FULL GROWING SEASON FOLLOWING PLANTING (YEAR 1), ONCE AT THE END OF THE FIRST FULL GROWING SEASON (YEAR 1), AND ANNUALLY FOR FOUR YEARS THEREAFTER (YEARS 2-5). PERMANENT SAMPLING POINTS AND PHOTO POINTS WILL BE ESTABLISHED BY THE MONITORING BIOLOGIST DURING THE INITIAL SITE VISIT. A QUALIFIED BIOLOGIST OR LANDSCAPE DESIGNER WORKING FOR OR CONTRACTED BY THE APPLICANT WILL CONDUCT ALL SUBSEQUENT MONITORING AND REPORTING.

MONITORING - DATA COLLECTION

18. TOTAL INSTALLED PLANT COUNTS AND PERCENT SURVIVAL WILL BE CONDUCTED DURING YEAR 1 AND 2. PERCENT COVER FOR INSTALLED SHRUB AND TREES WILL BE EVALUATED IN YEARS 1 THROUGH 5 USING APPROPRIATE MONITORING METHODOLOGY ESTABLISHED DURING YEAR 0. THE FOLLOWING INFORMATION WILL BE RECORDED DURING MONITORING SITE VISITS:

    - OVERALL AERIAL COVERAGE OF TREES, SHRUBS, AND HERBACEOUS SPECIES IN MONITORING PLOTS/TRANSECTS
    - DOCUMENTATION OF ANY NON-NATIVE SPECIES AND RECOMMENDATIONS FOR CONTROL
    - QUALITATIVE SITE HEALTH
    - PHOTO DOCUMENTATION OF SITE CONDITIONS
    - IMPACTS TO THE WETLAND/BUFFER FROM HUMAN USE; AND
    - SIGNS OF WILDLIFE USE OF THE AREA.

MONITORING - REPORTING

19. MONITORING REPORTS WILL BE PREPARED AND SUBMITTED TO THE CITY OF KIRKLAND AFTER EACH MONITORING YEAR BY A QUALIFIED BIOLOGIST, AND WILL CONTAIN THE INFORMATION MENTIONED ABOVE, AS WELL AS PHOTOS TAKEN FROM ESTABLISHED PHOTO POINTS, DOCUMENTATION OF AREAS WHICH DO NOT MEET PERFORMANCE STANDARDS, AND RECOMMENDED CORRECTIVE ACTIONS.

MAINTENANCE

20. MAINTENANCE OF THE MITIGATION AREA WILL BEGIN AFTER COMPLETION OF THE PROJECT AND WILL CONTINUE AS NEEDED FOR UP TO FIVE YEARS. AFTER THE INITIAL PLANTING ACCEPTANCE BY THE ENGINEER, THE LANDSCAPING CONTRACTOR WILL BE RESPONSIBLE FOR PLANT SURVIVAL FOR A PERIOD OF ONE YEAR. AFTER THAT, THE CITY OF KIRKLAND MAINTENANCE CREW WILL PERFORM MAINTENANCE. DURING YEAR 1, EVERY FAILED PLANT MUST BE REPLACED WITHIN THE FIRST YEAR FOLLOWING INSTALLATION AND ACCEPTANCE. MAINTENANCE ACTIVITIES COULD INCLUDE, BUT MAY NOT BE LIMITED TO:

    - INSTALLING SUPPLEMENTAL PLANTINGS, AS NEEDED
    - USE OF HERBICIDE ACCORDING TO BEST MANAGEMENT PRACTICES TO CONTROL INVASIVE SPECIES
    - WATERING OR PROVIDING IRRIGATION DURING UNSEASONABLY DRY PERIODS OR WHEN THE SOILS ARE UNUSUALLY DRY
    - INVASIVE SPECIES CONTROL IN THE MITIGATION AREA AND MAINTAINING MULCH AT A 1 INCH DEPTH
    - PROVIDING FENCING AROUND GROUND PLANTS OR SHRUBS TO PREVENT ANIMAL DAMAGE; AND
    - PROVIDING FENCING TO PREVENT VANDALISM OR DAMAGE CAUSED BY HUMANS

CONTINGENCY

21. IF ANY PORTION OF THE MITIGATION IS NOT SUCCESSFUL, A CONTINGENCY PLAN WILL BE IMPLEMENTED. SUCH PLANS ARE DEVELOPED ON A CASE-BY-CASE BASIS TO REMEDY ASPECTS OF MITIGATION THAT DO NOT MEET STATED SITE GOALS. THE CONTINGENCY PLAN WOULD BE DEVELOPED IN COOPERATION WITH THE CITY OF KIRKLAND.

22. APPLY BUFFER HYDROSEED MIX ONLY IN AREAS WHERE MITIGATION PLANTING HAS NOT BEEN LOCATED BUT HAS BEEN IMPACTED DURING PLANTING WORK.

North side of Wetland A looking south.

Forested portion of wetland in northeast corner.

Southeast side of Wetland A; looking northwest from Cross Kirkland Corridor.

Upland berm; looking north from Cross Kirkland Corridor.

Large area of reed canarygrass along existing boardwalk; looking northeast.

Southern wetland buffer dominated by Himalayan blackberry; looking southeast.

Appendix A:
Methods Used to Evaluate Wetland Characteristics

Wetland Definition

Wetlands are formally defined by the U.S. Army Corps of Engineers (Corps) (Federal Register 1982), the Environmental Protection Agency (EPA) (Federal Register 1988), the Washington Shoreline Management Act (SMA) of 1971 (Ecology, 1991) and the Washington State Growth Management Act (GMA) (Ecology, 1992) as

> *… those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas* (Federal Register, 1982, 1986).

In addition, the SMA and the GMA definitions add:

> *Wetlands do not include those artificial wetlands intentionally created from non-wetland site, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990 that were unintentionally created as a result of the construction of a road, street, or highway. Wetlands may include those artificially created wetlands intentionally created from non-wetland areas to mitigate the conversion of wetlands.*

ESA used the methods defined in Regional Supplement to the U.S. Army Corps of Engineers 1987 Wetlands Delineation Manual (Corps, 2008) to determine the presence and extent of wetlands in the study area. The methodology is based upon three essential characteristics of wetlands: (1) hydrophytic vegetation; (2) hydric soils; and (3) wetland hydrology. Field indicators of these three characteristics must all be present in order to determine that an area is a wetland (unless problem areas or atypical situations are encountered).

The methodology outlined in the manuals is based upon three essential characteristics of wetlands: (1) hydrophytic vegetation; (2) hydric soils; and (3) wetland hydrology. Field indicators of these three characteristics must all be present in order to determine that an area is a wetland (unless problem areas or atypical situations are encountered). These characteristics are discussed below.

Vegetation

Plants must be specially adapted for life under saturated or anaerobic conditions to grow in wetlands. The U.S. Fish and Wildlife Service (USFWS) has determined the estimated probability of each plant species' occurrence in wetlands and has accordingly assigned a "wetland indicator status" (WIS) to each species (USFWS, 1988, 1993). Plants are categorized as obligate (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), upland (UPL), not listed (NL), or no indicator status (NI). Definitions for each indicator status are listed below.

Species with an indicator status of OBL, FACW, or FAC are considered adapted for life in saturated or anaerobic soil conditions. Such species are referred to as "hydrophytic" vegetation.

Key to Wetland Indicator Status codes – Northwest Region (Source: USFWS, 1988, 1993):

OBL	Obligate: species that almost always occur wetlands under natural conditions (est. probability >99%).
FACW	Facultative wetland: species that usually occur in wetlands (est. probability 67 to 99%), but are occasionally found in non-wetlands.
FAC	Facultative: Species that are equally likely to occur in wetlands or non-wetlands (est. probability 34 to 66%).
FACU	Facultative upland: species that usually occur in non-wetlands (est. probability 67 to 99%), but are occasionally found in wetlands.
UPL	Upland: species that almost always occur in non-wetlands under normal conditions (est. probability >99%).
NL	Not listed: species that are not listed by USFWS (1988, 1993) and are presumed to be upland species.
NI	No indicator: species for which insufficient information is available to determine status, or which were not evaluated by USFWS.

Areas of relatively homogeneous vegetative composition can be characterized by "dominant" species. The indicator status of the dominant species within each vegetative stratum is used to determine if the plant community may be characterized as hydrophytic. The vegetation of an area is considered to be hydrophytic if more than 50% of the dominant species have an indicator status of OBL, FACW, or FAC. The Regional Supplements provide additional tests for evaluating the presence of hydrophytic vegetation communities including the prevalence index, morphological adaptations, and wetland non-vascular plants. The Supplements also address difficult situations where hydrophytic vegetation indicators are not present but hydric soils and wetland hydrology are observed.

Soils

Hydric soils are indicative of wetlands. Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile (Federal Register, 1994). The Natural Resources Conservation Service (NRCS), in cooperation with the National Technical Committee for Hydric Soils, has compiled lists of hydric soils (NRCS, 1995). These lists identify soil series mapped by the NRCS that meet hydric soil criteria. It is common, however, for a map unit of non-wetland (non-hydric) soil to have inclusions of hydric soil, and vice versa. Therefore, field examination of soil conditions is important to determine if hydric soil conditions exist.

The NRCS has developed a guide for identifying field indicators of hydric soils (NRCS, 2010). This list of hydric soil indicators is considered to be dynamic; revisions are anticipated to occur on a regular basis as a result of ongoing studies of hydric soils. In general, anaerobic conditions create certain characteristics in hydric soils, collectively known as "redoximorphic features,"

that can be observed in the field (Vepraskas, 1999). Redoximorphic features include high organic content, accumulation of sulfidic material (rotten egg odor), greenish- or bluish-gray color (gley formation), spots or blotches of different color interspersed with the dominant or matrix color (mottling), and dark soil colors (low soil chroma) (NRCS, 2010; Vepraskas, 1999). Soil colors are described both by common color name (for example, "dark brown") and by a numerical description of their hue, value, and chroma (for example, 10YR 2/2) as identified on a Munsell soil color chart (Munsell Color, 2000). Soil color is determined from a moist soil sample.

The Regional Supplements provide methods for difficult situations where hydric soil indicators are not observed, but indicators of hydrophytic vegetation and wetland hydrology are present.

Hydrology

Water must be present in order for wetlands to exist; however, it need not be present throughout the entire year. Wetland hydrology is considered to be present when there is permanent or periodic inundation or soil saturation at or near the soil surface for more than 12.5% of the growing season (typically two weeks in lowland Pacific Northwest areas). Areas that are inundated or saturated for between 5% and 12.5% of the growing season in most years may or may not be wetlands. Areas inundated or saturated for less than 5% of the growing season are non-wetlands (Ecology, 1997).

Indicators of wetland hydrology include observation of ponding or soil saturation, water marks, drift lines, drainage patterns, sediment deposits, oxidized rhizospheres, water-stained leaves, and local soil survey data. Where positive indicators of wetland hydrology are observed, it is assumed that wetland hydrology occurs for a sufficient period of the growing season to meet the wetland criteria, as described by Ecology (1997). The Regional Supplements provide methods for evaluating situations in wetlands that periodically lack indicators of wetland hydrology but where hydric soils and hydrophytic vegetation are present.

Appendix B:
Common and Scientific Names of Plants and Animals Identified During Site Visit

TABLE 1: PLANT SPECIES LIST FOR THE TOTEM LAKE PARK DEVELOPMENT – PHASE 1 IDENTIFIED ON JANUARY 5, 2016

COMMON NAME	SCIENTIFIC NAME	WETLAND INDICATOR STATUS*
Trees		
big-leaf maple	*Acer macrophyllum*	FACU
black cottonwood	*Populus trichocarpa (Populus balsamifera ssp. trichocarpa)*	FAC
Douglas fir	*Pseudotsuga menziesii*	FACU
red alder	*Alnus rubra*	FAC
Sitka spruce	*Picea sitchensis*	FAC
western hemlock	*Tsuga heterophylla*	FACU
western red cedar	*Thuja plicata*	FAC
red maple	*Acer rubrum*	FAC
Plum/cheery species	*Prunus sp.*	FACU
Shrubs		
clustered wild rose	*Rosa pisocarpa*	FAC
common snowberry	*Symphoricarpos albus*	FACU
Douglas' spiraea	*Spiraea douglasii*	FACW
Himalayan blackberry	*Rubus discolor (Rubus armenicus)*	FAC
Nootka rose	*Rosa nutkana*	FAC
Pacific willow	*Salix lasiandra (Salix lucida ssp. lasiandra)*	FACW
poison oak	*Rhus diversiloba (Toxicodendron diversilobum)*	NL
red-osier dogwood (western red osier)	*Cornus sericea*	FACW
salmonberry	*Rubus spectabilis*	FAC
Scot's broom	*Cytisus scoparius*	NL
Scouler willow	*Salix scouleriana*	FAC
vine maple	*Acer circinatum*	FAC
Herbs		
bracken fern	*Pteridium aquilinum*	FACU
common cattail	*Typha latifolia*	OBL
common dandelion	*Taraxacum officinale*	FACU
creeping buttercup	*Ranunculus repens*	FACW
curly dock	*Rumex crispus*	FAC
duckweed	*Lemna minor*	OBL

COMMON NAME	SCIENTIFIC NAME	WETLAND INDICATOR STATUS*
English ivy	*Hedera helix*	NL
field horsetail	*Equisetum arvense*	FAC
hardstem bulrush	*Scirpus acutus*	OBL
lady fern	*Athyrium filix-femina*	FAC
Piggyback plant	*Tolmiea menziesii*	FAC
pondweed	*Potamogeton spp.*	OBL
purple loosestrife	*Lythrum salicaria*	OBL
climbing nightshade	*Solanum dulcamara*	FACU
reed canarygrass	*Phalaris arundinacea*	FACW
skunk cabbage	*Lysichitum americanum (Lysichiton americanus)*	OBL
slough sedge	*Carex obnupta*	OBL
small-fruited bulrush	*Scirpus microcarpus*	OBL
soft rush	*Juncus effusus*	FACW

*Key to Wetland Indicator Status codes – Northwest Region (Source: USFWS, 1988, 1993):

OBL Obligate: species that almost always occur wetlands under natural conditions (est. probability >99%).

FACW Facultative wetland: species that usually occur in wetlands (est. probability 67 to 99%), but are occasionally found in non-wetlands.

FAC Facultative: Species that are equally likely to occur in wetlands or non-wetlands (est. probability 34 to 66%).

FACU Facultative upland: species that usually occur in non-wetlands (est. probability 67 to 99%), but are occasionally found in wetlands.

UPL Upland: species that almost always occur in non-wetlands under normal conditions (est. probability >99%).

NL Not listed: species that are not listed by USFWS (1988, 1993) and are presumed to be upland species.

NI No indicator: species for which insufficient information is available to determine status, or which were not evaluated by USFWS.

TABLE 2: ANIMAL SPECIES LIST FOR THE TOTEM LAKE PARK DEVELOPMENT – PHASE 1 IDENTIFIED ON JANUARY 5, 2016

COMMON NAME	SCIENTIFIC NAME
Avian Species	
mallard duck	*Anas platyrhynchos*
Canada goose	*Branta canadensis*
common bushtit	*Psaltriparus minimus*
great blue heron	*Ardea herodias*
Red winged blackbird	*Ageliaius phoeniceus*
American crow	*Corvus brachyrhynchos*
Amphibian Species	
Northwestern salamander	*Ambystoma gracile*

Appendix C:
Washington State Wetland Rating System and Rating Forms

Washington State Wetland Rating System

The observed wetlands were rated using the Washington State Department of Ecology's *Wetland Rating System for Western Washington* (Hruby, 2004). This system was developed by Ecology to differentiate wetlands based on their sensitivity to disturbance, their significance, their rarity, our ability to replace them, and the beneficial functions they provide to society. Wetlands are categorized using the Ecology rating system according to the following criteria:

Category I wetlands represent a unique or rare wetland type; or are more sensitive to disturbance; or are relatively undisturbed and contain ecological attributes that are impossible to replace within a human lifetime.

Category II wetlands are difficult, though not impossible, to replace, and provide high levels of some functions.

Category III wetlands have a moderate level of function. They have been disturbed in some ways, and are often less diverse or more isolated from other natural resources in the landscape than Category II wetlands.

Category IV wetlands have the lowest levels of functions and are often heavily disturbed.

In 2014, Ecology updated the rating system (Hruby, 2014). However, wetland ratings performed prior to January 1, 2015 using the 2004 rating system are still considered valid (Ecology, 2015).

Appendix E:
Arborist Reports and Tree Plans

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A -- Totem Lake Date of site visit: 1/5/2016

Rated by J. Redman Trained by Ecology? ☑ Yes ☐ No Date of training Mar-15

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map ArcGIS Aerial Basemap

OVERALL WETLAND CATEGORY II (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

- ____ **Category I** - Total score = 23 - 27
- X **Category II** - Total score = 20 - 22
- ____ **Category III** - Total score = 16 - 19
- ____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	List appropriate rating (H, M, L)			
Site Potential	H	M	H	
Landscape Potential	M	H	L	
Value	M	H	H	**Total**
Score Based on Ratings	7	8	7	**22**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	
None of the above	X

Wetland name or number __A_____

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	Figure 1
Hydroperiods	D 1.4, H 1.2	Figure 2
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	Figure 2
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	Figure 3
Map of the contributing basin	D 4.3, D 5.3	Figure 4
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	Figure 5
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	Figure 6
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	NA

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number __A_____

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
If your wetland can be classified as a Freshwater Tidal Fringe use the forms for ***Riverine*** *wetlands. If it is Saltwater Tidal Fringe it is an* ***Estuarine*** *wetland and is not scored. This method* ***cannot*** *be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
If your wetland can be classified as a Flats wetland, use the form for ***Depressional*** *wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
☐ The wetland is on a slope (*slope can be very gradual*),
☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
☐ The water leaves the wetland **without being impounded.**

☑ NO - go to 5 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☑ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:

Wetland name or number A

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. ☐ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch.	points = 3 points = 2 points = 1 points = 1	2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*).	Yes = 4 No = 0	4
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area Wetland has persistent, ungrazed, plants > ½ of area Wetland has persistent, ungrazed plants > $^{1}/_{10}$ of area Wetland has persistent, ungrazed plants < $^{1}/_{10}$ of area	points = 5 points = 3 points = 1 points = 0	3
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland Area seasonally ponded is > ¼ total area of wetland Area seasonally ponded is < ¼ total area of wetland	points = 4 points = 2 points = 0	4
Total for D 1	Add the points in the boxes above	**13**

Rating of Site Potential If score is: ☑ **12 - 16 = H** ☐ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source	Yes = 1 No = 0	0
Total for D 2	Add the points in the boxes above	**2**

Rating of Landscape Potential If score is: ☐ **3 or 4 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	Yes = 1 No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)?	Yes = 2 No = 0	0
Total for D 3	Add the points in the boxes above	**1**

Rating of Value If score is: ☐ **2 - 4 = H** ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number __A_____

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		2
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*		5
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
☐ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
☐ The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*		3
☐ The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
☐ Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	**10**

Rating of Site Potential If score is: ☐**12 - 16 = H** ☑**6 - 11 = M** ☐**0 - 5 = L** *Record the rating on the first page*

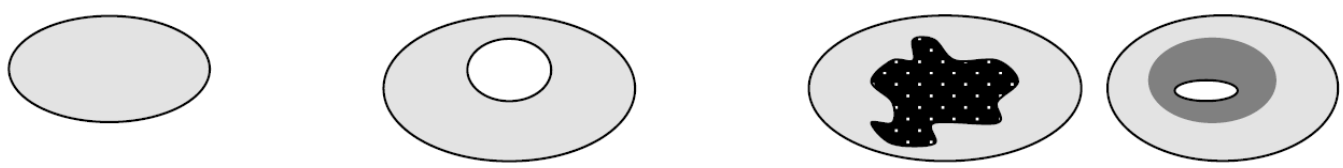
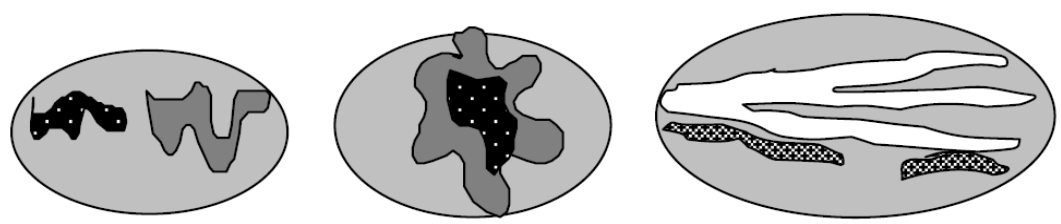
D 5.0. Does the landscape have the potential to support hydrologic function of the site?		
D 5.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	1
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	1
Total for D 5	Add the points in the boxes above	**3**

Rating of Landscape Potential If score is: ☑**3 = H** ☐**1 or 2 = M** ☐**0 = L** *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*		2
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
☐ • Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
☐ Flooding from groundwater is an issue in the sub-basin.	points = 1	
☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	**2**

Rating of Value If score is: ☑ **2 - 4 = H** ☐**1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number __A_____

These questions apply to wetlands of all HGM classes. **HABITAT FUNCTIONS** - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☑ Aquatic bed — 4 structures or more: points = 4 ☑ Emergent — 3 structures: points = 2 ☑ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points - 1 ☑ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if*: ☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	4
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☑ Permanently flooded or inundated — 4 or more types present: points = 3 ☑ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated — 2 types present: points = 1 ☑ Saturated only — 1 types present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☑ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	3
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3 points 	2

Wetland name or number A

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☑ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☑ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☑ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☑ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	5
Total for H 1 Add the points in the boxes above	**15**

Rating of Site Potential If Score is: ☑ **15 - 18 = H** ☐ **7 - 14 = M** ☐ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 8 % undisturbed habitat + (0 % moderate & low intensity land uses / 2) = 8% If total accessible habitat is: > $^{1}/_{3}$ (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 13 % undisturbed habitat + (0 % moderate & low intensity land uses / 2) = 13% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	1
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	-2
Total for H 2 Add the points in the boxes above	**-1**

Rating of Landscape Potential If Score is: ☐ **4 - 6 = H** ☐ **1 - 3 = M** ☑ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☑ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) with in 100m points = 1 Site does not meet any of the criteria above points = 0	2

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE****: This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☑ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number __A_____

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina* , see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 2.2** ☑ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☐ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☑ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☑ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☐ Yes - Go to **SC 3.3** ☑ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☑ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☐ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐ Yes = **Is a Category I bog** ☐ No = **Is not a bog**	

Wetland name or number A

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

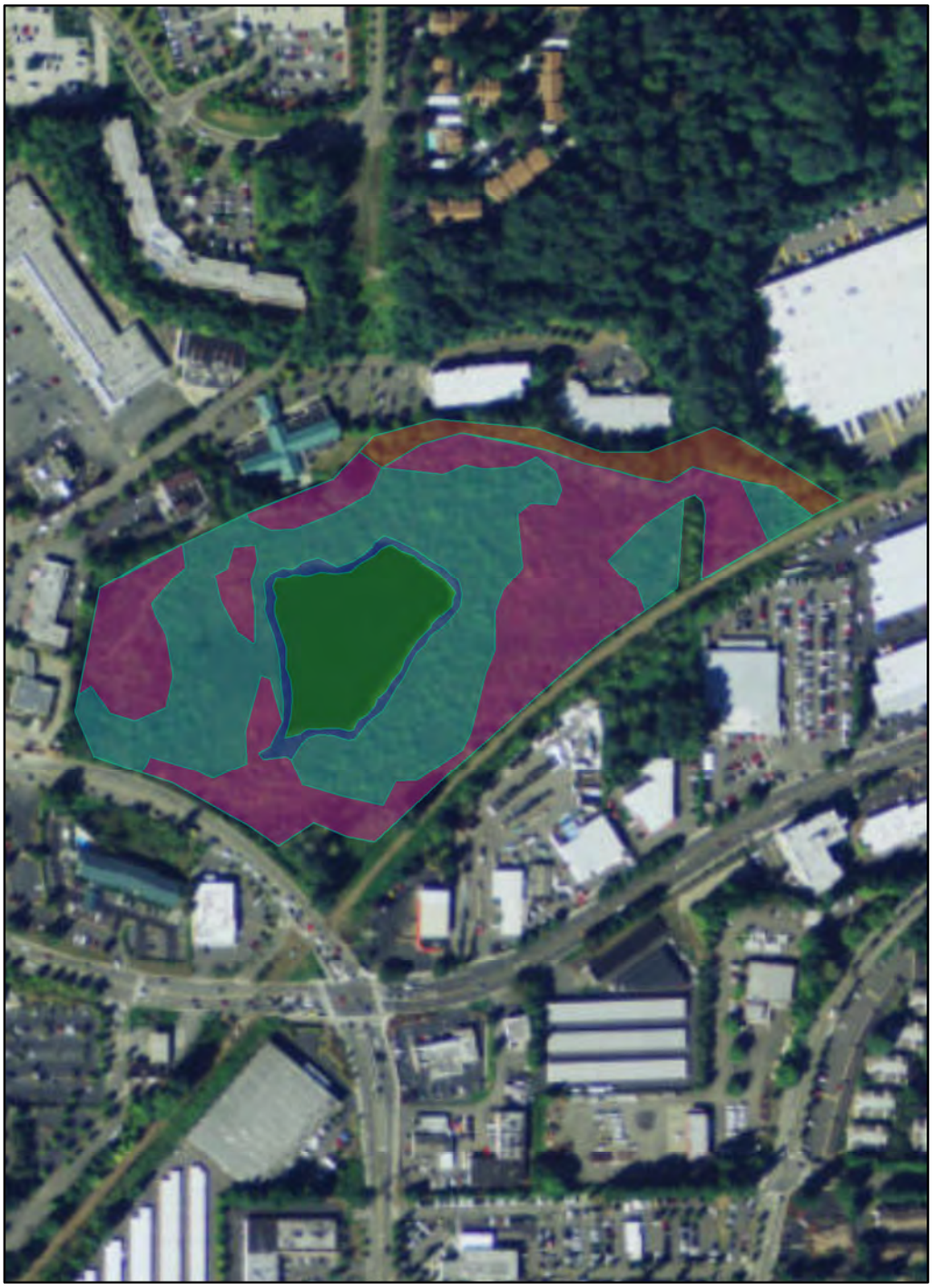


Figure 1: Cowardin Plant Classes (D 1.3, H1.1, H1.4)
Red = PFO; Blue = PSS; Green = PEM; Purple = Aquatic Bed

Figure 2: Hydroperiods (D 1.4, H 1.2)
Blue = Permanently flooded, Green = Seasonally saturated, Red = Saturated, Purple = Seasonally flowing stream

Figure 3: Area within 150 feet of buffer (D 2.2, D 5.2)

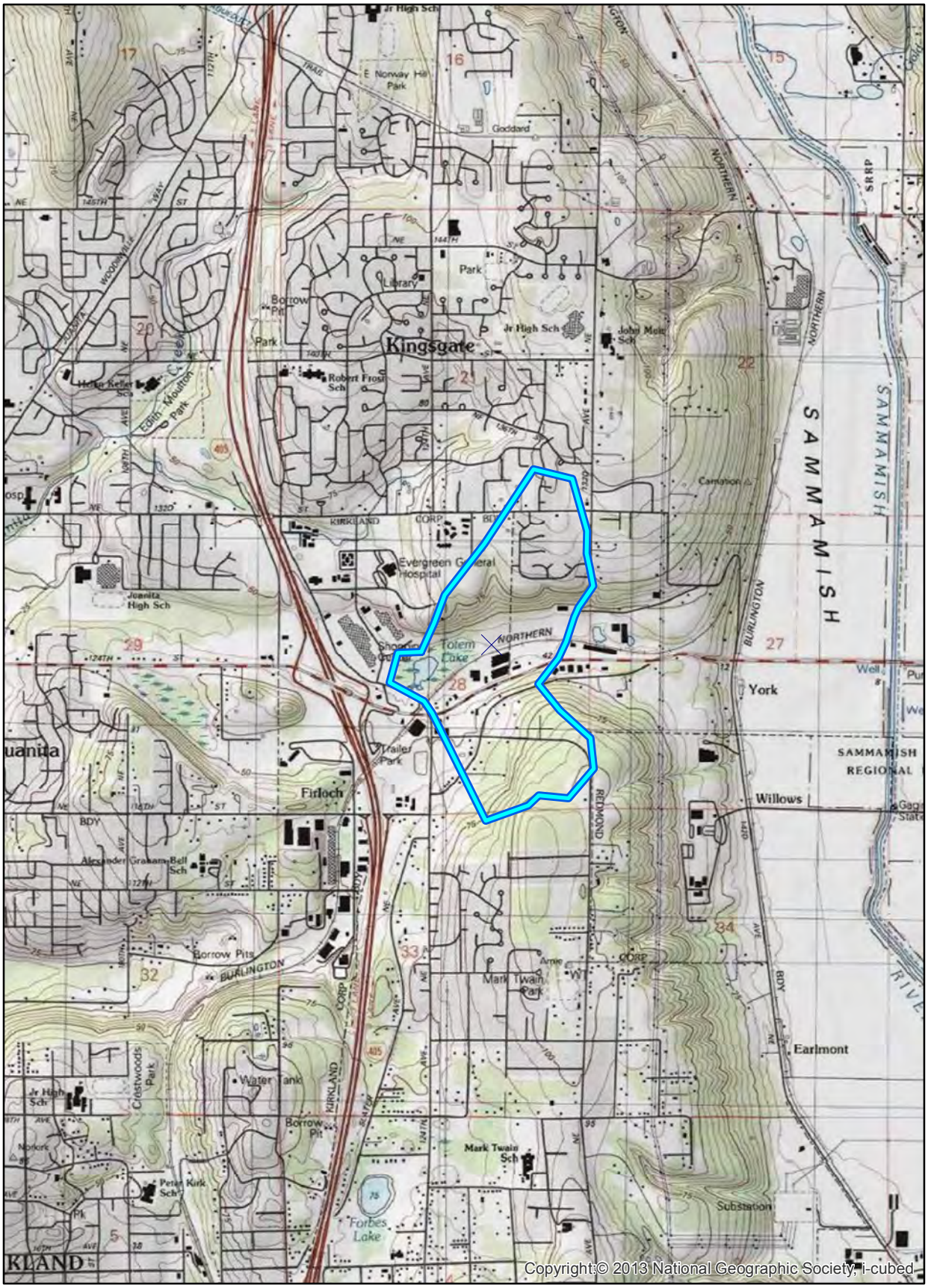


Figure 4: Map of Contributing Basin (D 4.3, D 5.3)

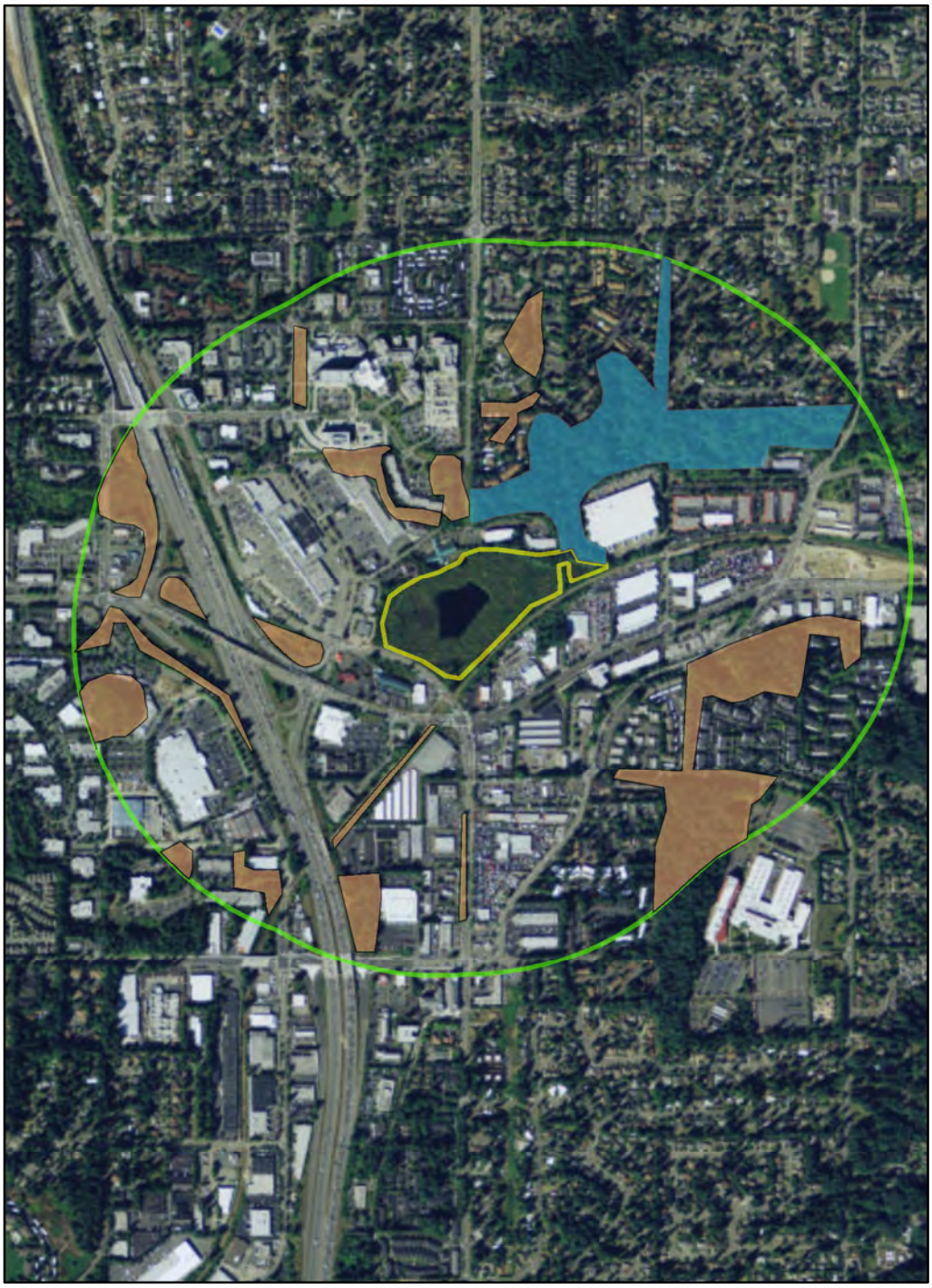


Figure 5: 1 km Polygon (H 2.1, H 2.2, H2.3)
Blue = Accessible Habitat, Orange = Undisturbed Habitat

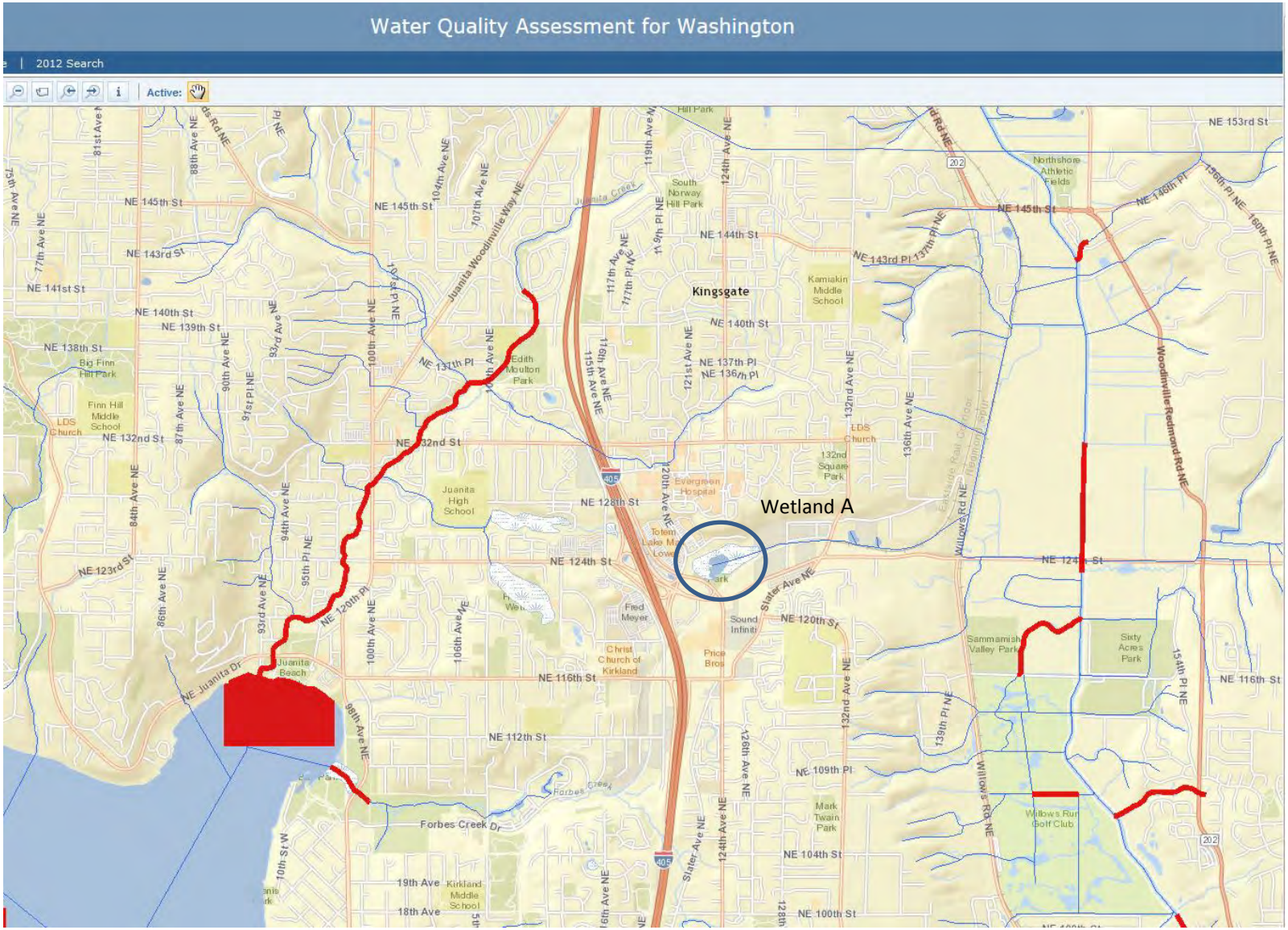


Figure 6: Map of 303(d) listed waters in basin (D3.1, D 3.2)

RATING SUMMARY – Western Washington

Name of wetland: Totem Lake Date of site visit: 4/26/2017

Rated by: Kahlo, R Trained by Ecology? ☒Y ☐N Date of training: 09/2014

HGM Class used for rating: Depressional Wetland has multiple HGM classes? ☐Y ☒N

NOTE: **Form is not complete without the figures requested** *(figures can be combined)*.
Source of base aerial photo/map: King County iMAP

OVERALL WETLAND CATEGORY (based on functions ☒ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

- ☐ **Category I** – Total score = 23 - 27
- ☒ **Category II** – Total score = 20 - 22
- ☐ **Category III** – Total score = 16 - 19
- ☐ **Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H **M** L	H **M** L	H **M** L	
Landscape Potential	**H** M L	**H** M L	H M **L**	
Value	H **M** L	**H** M L	**H** M L	**TOTAL**
Score Based on Ratings	7	8	6	21

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	**I** **II**
Wetland of High Conservation Value	**I**
Bog	**I**
Mature Forest	**I**
Old Growth Forest	**I**
Coastal Lagoon	**I** **II**
Interdunal	**I** **II** **III** **IV**
None of the above	☒

Wetland name or number: Totem Lake

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	1
Hydroperiods	D 1.4, H 1.2	2
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	2
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	2
Map of the contributing basin	D 4.3, D 5.3	3
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	4
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	6

Wetland name or number: Totem Lake

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   ☒NO – go to 2 ☐**YES** – the wetland class is **Tidal Fringe** – go to 1.1

   1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

   NO – Saltwater Tidal Fringe (Estuarine) **YES – Freshwater Tidal Fringe**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

   ☒NO – go to 3 ☐**YES** – The wetland class is **Flats**
   *If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   ☐The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ☐At least 30% of the open water area is deeper than 6.6 ft (2 m).

   ☒NO – go to 4 ☐**YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
   ☐The wetland is on a slope (*slope can be very gradual*),
   ☐The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   ☐The water leaves the wetland **without being impounded**.

   ☒NO – go to 5 ☐**YES –** The wetland class is **Slope**

   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
   ☐The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ☐The overbank flooding occurs at least once every 2 years.

Wetland name or number: Totem Lake

☒NO – go to 6 ☐**YES** – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐NO – go to 7 ☒**YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐NO – go to 8 ☐**YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number: Totem Lake

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*. Yes = 4 No = 0	4
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > 1/2 of area points = 3 Wetland has persistent, ungrazed plants > 1/10 of area points = 1 Wetland has persistent, ungrazed plants < 1/10 of area points = 0	3
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland **(mostly permanently ponded)** points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0	2
Total for D 1 Add the points in the boxes above	11

Rating of Site Potential If score is: ☐**12-16 = H** ☒**6-11 = M** ☐**0-5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source: Waterfowl_____ Yes = 1 No = 0	1
Total for D 2 Add the points in the boxes above	3

Rating of Landscape Potential If score is: ☒**3 or 4 = H** ☐**1 or 2 = M** ☐**0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)? Yes = 2 No = 0	0
Total for D 3 Add the points in the boxes above	1

Rating of Value If score is: ☐**2-4 = H** ☒**1 = M** ☐**0 = L** *Record the rating on the first page*

Wetland name or number: Totem Lake

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?	
D 4.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression with no surface water leaving it (no outlet) points = 4 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet points = 2 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch points = 1 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 0	2
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 The wetland is a "headwater" wetland points = 3 Wetland is flat but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft (6 in) points = 0	5
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of the unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 The area of the basin is more than 100 times the area of the unit points = 0 Entire wetland is in the Flats class points = 5	3
Total for D 4 Add the points in the boxes above	10

Rating of Site Potential If score is: ☐**12-16 = H** ☒**6-11 = M** ☐**0-5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?	
D 5.1. Does the wetland receive stormwater discharges? Yes = 1 No = 0	1
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff? Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)? Yes = 1 No = 0	1
Total for D 5 Add the points in the boxes above	3

Rating of Landscape Potential If score is: ☒**3 = H** ☐**1 or 2 = M** ☐**0 = L** *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?	
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.* The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds): • Flooding occurs in a sub-basin that is immediately down-gradient of unit. points = 2 • Surface flooding problems are in a sub-basin farther down-gradient. points = 1 Flooding from groundwater is an issue in the sub-basin. points = 1 The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. *Explain why*_____ points = 0 There are no problems with flooding downstream of the wetland. points = 0	2
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	2
Total for D 6 Add the points in the boxes above	4

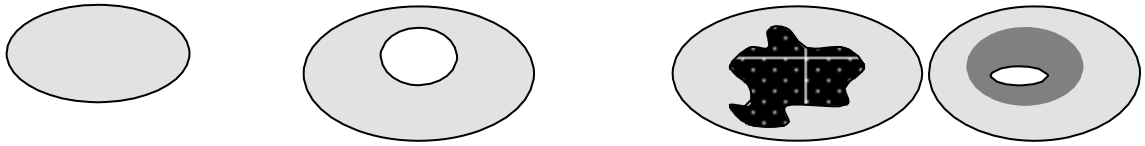
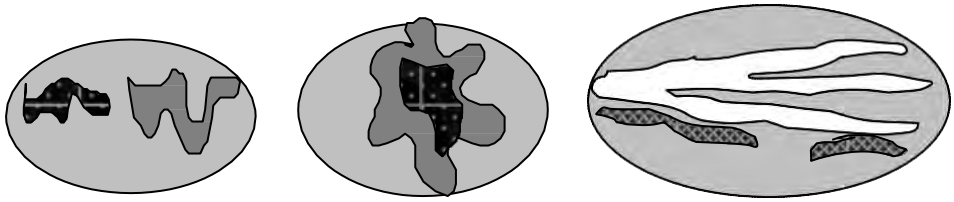
Rating of Value If score is: ☒**2-4 = H** ☐**1 = M** ☐**0 = L** *Record the rating on the first page*

Wetland name or number: Totem Lake

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ☒ Aquatic bed — 4 structures or more: points = 4 ☒ Emergent — 3 structures: points = 2 ☒ Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points = 1 ☒ Forested (areas where trees have > 30% cover) — 1 structure: points = 0 *If the unit has a Forested class, check if:* ☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	4
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ☒ Permanently flooded or inundated — 4 or more types present: points = 3 ☒ Seasonally flooded or inundated — 3 types present: points = 2 ☐ Occasionally flooded or inundated **(less than 10% or 1/4-acre; steep banks)** — 2 types present: points = 1 ☐ Saturated only **(less than 10% or 1/4-acre; steep fill-slope banks)** — 1 type present: points = 0 ☐ Permanently flowing stream or river in, or adjacent to, the wetland ☐ Seasonally flowing stream in, or adjacent to, the wetland ☐ **Lake Fringe wetland (does not meet definition of a shoreline lake)** — **2 points** ☐ **Freshwater tidal wetland** — **2 points**	1
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 < 5 species — points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points — **Low** = 1 point — **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3points 	3

Wetland name or number: Totem Lake

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☒ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). ☒ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☒ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* ☒ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ☒ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	5
Total for H 1 Add the points in the boxes above	14

Rating of Site Potential If score is: ☐**15-18 = H** ☒**7-14 = M** ☐**0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat: **4 +** [(% moderate and low intensity land uses)/2]: **0= 4%** If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20-33% of 1 km Polygon points = 2 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat: **7 +** [(% moderate and low intensity land uses)/2]: **0 = 7%** Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10-50% and in 1-3 patches points = 2 Undisturbed habitat 10-50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	0
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (- 2) ≤ 50% of 1 km Polygon is high intensity points = 0	-2
Total for H 2 Add the points in the boxes above	-2

Rating of Landscape Potential If score is: ☐**4-6 = H** ☐**1-3 = M** ☒**< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: points = 2 ☒ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 Site does not meet any of the criteria above points = 0	2

Rating of Value If score is: ☒**2 = H** ☐**1 = M** ☐**0 = L** *Record the rating on the first page*

Wetland name or number: Totem Lake

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

☐ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

☐ **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi- layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

☐ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

☒ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

☒ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

☐ **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

☒ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number: Totem Lake

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐Yes –Go to **SC 1.1** ☒No= **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐Yes = **Category I** ☐No - Go to **SC 1.2**	**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un- mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐Yes = **Category I** ☐No= **Category II**	**Cat. I** **Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐Yes **–** Go to **SC 2.2** ☒No **–** Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐Yes **= Category** I ☐No **= Not a WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐Yes **– Contact WNHP/WDNR and go to SC 2.4** ☐No **= Not a WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐Yes **= Category I** ☐No **= Not a WHCV**	**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☒Yes – Go to **SC 3.3** ☒No – Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐Yes – Go to **SC 3.3** ☐No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐Yes = **Is a Category I bog** ☒No – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? ☐Yes = **Is a Category I bog** ☒No **= Is not a bog**	**Cat. I**

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.*** ☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. ☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). ☐Yes = **Category I** ☒No = **Not a forested wetland for this section**	**Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks ☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* ☐Yes – Go to **SC 5.1** ☒No = **Not a wetland in a coastal lagoon** SC 5.1. Does the wetland meet all of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un- mowed grassland. ☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2) ☐Yes = **Category I** ☐No = **Category II**	**Cat. I** **Cat. II**
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: ☐ Long Beach Peninsula: Lands west of SR 103 ☐ Grayland-Westport: Lands west of SR 105 ☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109 ☐Yes – Go to **SC 6.1** ☒No = **not an interdunal wetland for rating** SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? ☐Yes = **Category I** ☐No – Go to **SC 6.2** SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? ☐Yes = **Category II** ☐No – Go to **SC 6.3** SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? ☐Yes = **Category III** ☐No = **Category IV**	**Cat I** **Cat. II** **Cat. III** **Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	NA

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Appendix [ ] — ECY 2014 Wetland Rating Form: Depressional figures

Figure 1. Cowardin plant classes - D1.3, H1.1, H1.4

Figure 2. Hydrology: hydroperiods, outlets, and 150ft buffer - D1.1, D1.4, D4.1, H1.2, D2.2, D5.2

Figure 3. Contributing upland basin to wetland area - D4.3, D5.3

Figure 4. Accessible and undisturbed habitat 1km from wetland edge - H2.1, H2.2, H2.3

Figure 5. Screen-capture of 303(d) listed waters in basin - D3.1, D3.2

Figure 6. Screen-capture of TMDL list for WRIA - D3.3

Resources and Links:

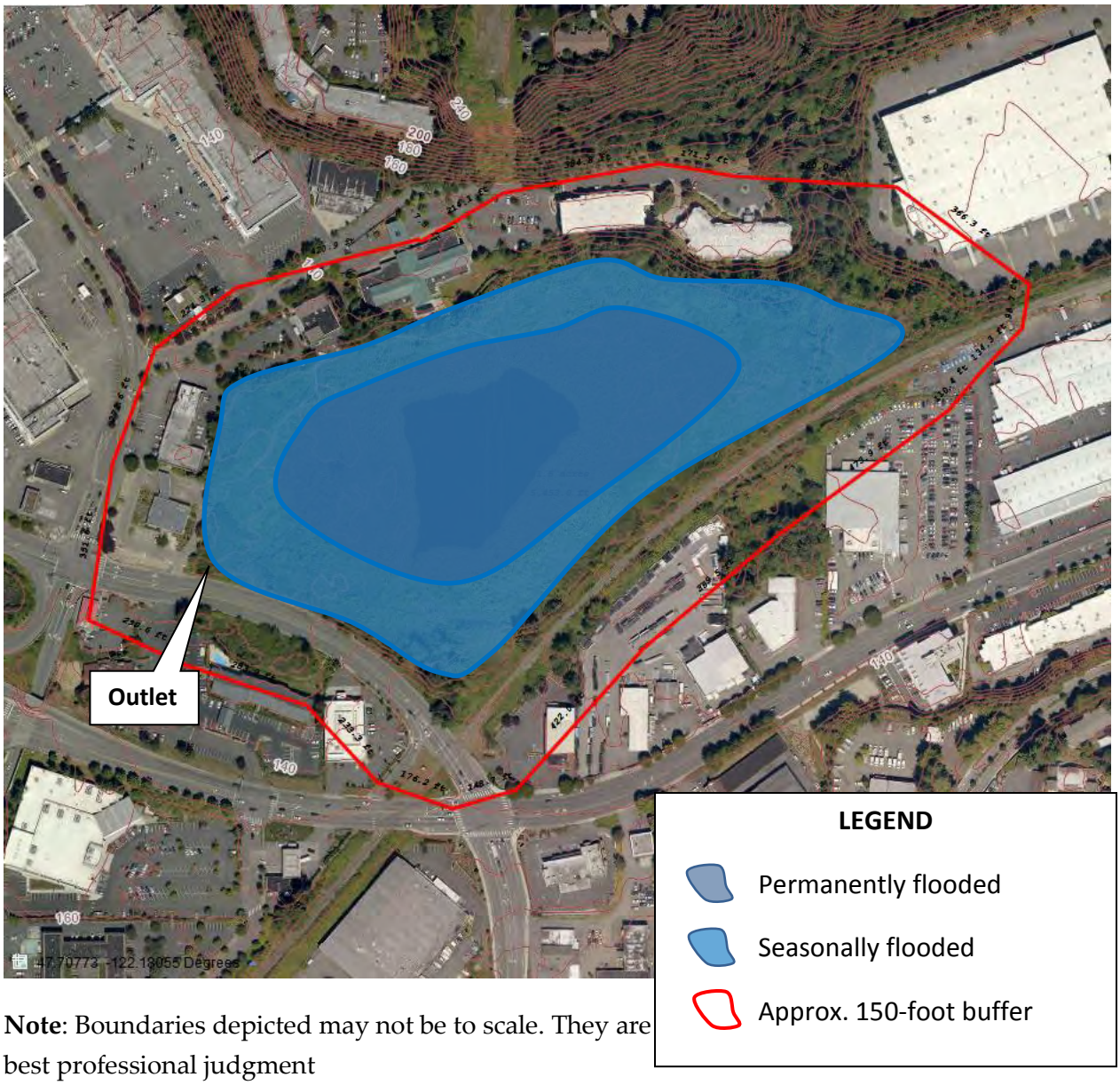
City of Kirkland GIS
King County i-Map
Google Earth
ECY 303(d) list
TMDL list

Figure 1. Cowardin plant classes - D1.3, H1.1, H1.4

Note: Boundaries depicted may not be to scale. They are sketches based on available data and best professional judgment.

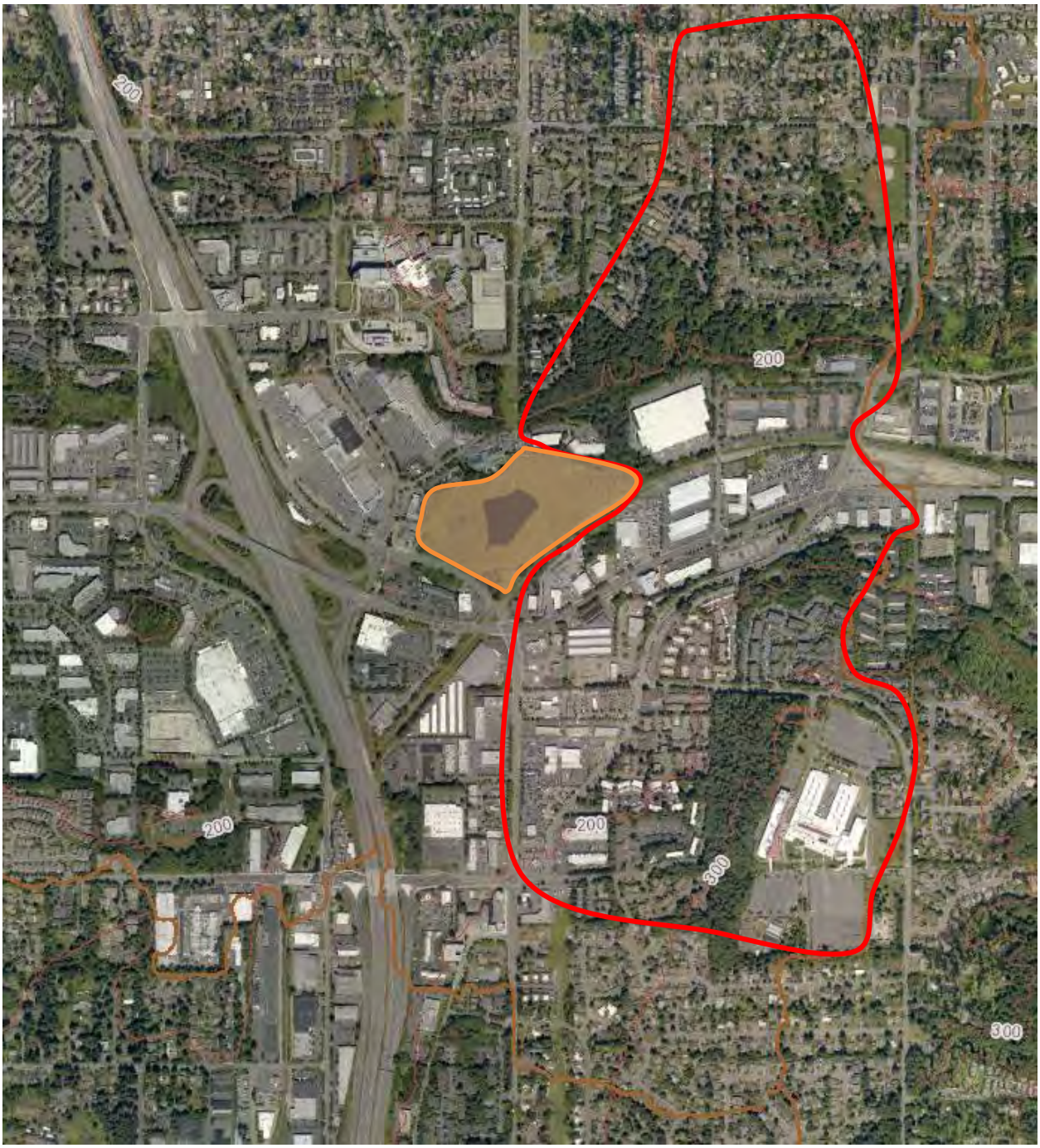
- Open Water
- Aquatic Bed
- Scrub Shrub
- Emergent
- Forested

Figure 2. Hydrology: hydroperiods, outlets, and 150ft buffer - D1.1, D1.4, D4.1, H1.2, D2.2, D5.2



Note: Boundaries depicted may not be to scale. They are best professional judgment

Figure 3. Contributing upland basin to wetland area - D4.3, D5.3



Note: Boundaries depicted may not be to scale. They are sketches based on available data and best professional judgment.

Figure 4. Accessible and undisturbed habitat 1km from wetland edge - H2.1, H2.2, H2.3

LEGEND

Wetland unit

Approx. basin boundary

Note: Boundaries depicted may not be to scale. best professional judgment.

LEGEND

- Accessible (and undisturbed) habitat
- Moderate/low intensity land use
- Relatively undisturbed
- Wetland units
- Approx. 1-km buffer

Figure 5. Screen-capture of 303(d) listed waters in basin - D3.1, D3.2

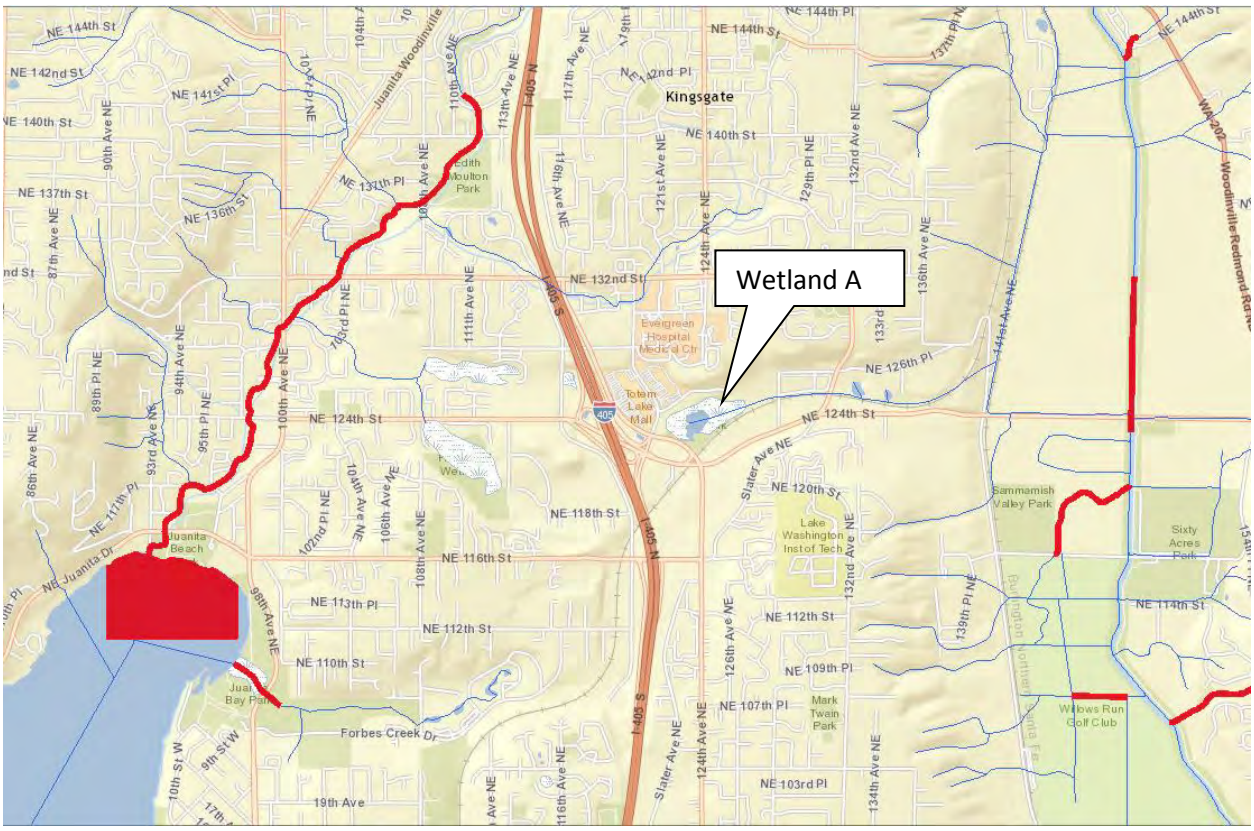


Figure 6. Screen-capture of TMDL list for WRIA in which unit is found - D3.3

Water Quality Improvement Projects (TMDLs)

WATER QUALITY IMPROVEMENT PROJECTS (TMDLs)

Overview of the process
Project Catalog
- by WRIA
- by County

Funding Opportunities
Project Development Priority Lists
Related Information
TMDL Contacts

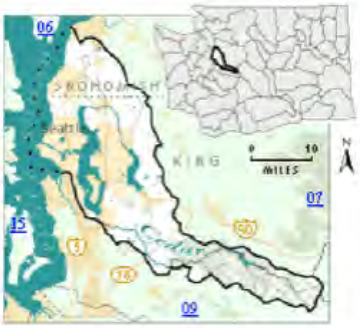
RELATED ECOLOGY PROGRAMS

Water Quality

Water Quality Improvement > Water Quality Improvement Projects by WRIA > WRIA 8: Cedar-Sammamish

WRIA 8: Cedar-Sammamish

The following table lists overview information for water quality improvement projects (including total maximum daily loads, or TMDLs) for this water resource inventory area (WRIA). Please use links (where available) for more information on a project.



Counties
- King
- Snohomish

Waterbody Name	Pollutants	Status**	TMDL Lead
Ballinger Lake	Total Phosphorus	Approved by EPA	Tricia Shoblom 425-649-7288
Bear-Evans Creek Basin	Fecal Coliform	Approved by EPA	Joan Nolan 425-649-4425
	Dissolved Oxygen Temperature	Approved by EPA	
Cottage Lake	Total Phosphorus	Approved by EPA Has an implementation plan	Tricia Shoblom 425-649-7288
Issaquah Creek Basin	Fecal Coliform	Approved by EPA	Joan Nolan 425-649-4425
Little Bear Creek Tributaries: Trout Stream, Great Dane Creek, Cutthroat Creek	Fecal Coliform	Approved by EPA	Ralph Svricek 425-649-7036
North Creek	Fecal Coliform	Approved by EPA Has an implementation plan	Ralph Svricek 425-649-7036
Pipers Creek	Fecal Coliform	Approved by EPA	Joan Nolan 425-649-4425
Swamp Creek	Fecal Coliform	Approved by EPA Has an implementation plan	Ralph Svricek 425-649-7036

** ***Status*** *will be listed as one of the following: Approved by EPA, Under Development or Implementation*

For more information about WRIA 8:
- Waterbodies in WRIA 8 - using the Water Quality Assessment Query Tool
- Watershed Information for WRIA 8

Appendix D:
Wetland Determination Data Sheets

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: TOTEM LAKE PARK City/County: KIRKLAND Sampling Date: 1/5/16

Applicant/Owner: CITY OF KIRKLAND State: _____ Sampling Point: DP-1

Investigator(s): IL & JR Section, Township, Range: S28 T26N R5E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): A Lat: 47°42'39.82 Long: 122°10'33.79 Datum: _____

Soil Map Unit Name: SEATTLE MUCK NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5m)	Absolute % Cover	Dominant Species?	Indicator Status
1. POBA	40	Y	FAC
2. SALU	20	Y	FACW
3.			
4.			
30 12	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3m)			
1. THPL (planted)	10		
2. ABGR (planted)	5		
3. Rosa nutkana	5		
4. POBA	30	Y	FAC
5. RUSP	20	Y	FAC
SALU → 20 Y	90	= Total Cover	FACW
Herb Stratum (Plot size: 1m)			
1. 45 18			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
		= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	
% Bare Ground in Herb Stratum _____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: DP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	100						← Clay loam / Roots extensive
8-18	10YR 6/1	60	10YR 5/8	40		M		← Sandy loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ☑ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches):

Water Table Present? Yes ☑ No ☑ Depth (inches): 18

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches):

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Soils moist in lower layer, likely saturated in growing season. Surface ponding present 10' of DP.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: TOTEM LAKE PARK City/County: KIRKLAND Sampling Date: 1/5/16

Applicant/Owner: CITY OF KIRKLAND State: WA Sampling Point: DP-2

Investigator(s): IL & JR Section, Township, Range: S28 T26N R5E

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): A Lat: 47° 42' 39.82 Long: 122° 10' 33.79 Datum: _____

Soil Map Unit Name: SEATTLE MUCK NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐
Hydric Soil Present?	Yes ☐	No ☑
Wetland Hydrology Present?	Yes ☐	No ☑

Is the Sampled Area within a Wetland? Yes ☐ No ☑

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5m)	Absolute % Cover	Dominant Species?	Indicator Status
1. POBA	30	Y	FAC
2.			
3.			
4.			
15 16	30	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3m)			
1. RONU	5		
2. THPL (planted)	20	Y	FAC
3. PISI (planted)	10	Y	FAC
4. RUAR	3		
5. RUSP	5		
SYAL 13 9.2 3	46	= Total Cover	
Herb Stratum (Plot size: 1m)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
		= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: DP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/2	100	—				Loam	
16-18	10YR 5/1	95	10YR 5/8	5	C	M	CL LOAM	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: TOTEM LAKE PARK City/County: KIRKLAND Sampling Date: 1/5/16

Applicant/Owner: CITY OF KIRKLAND State: WA Sampling Point: DP-3

Investigator(s): JR & IL Section, Township, Range: S28 T26N R5E

Landform (hillslope, terrace, etc.): FLAT, ON BERM Local relief (concave, convex, none): ____ Slope (%): 0

Subregion (LRR): A Lat: 47°42'39.82 Long: 122°10'33.79 Datum: ____

Soil Map Unit Name: SEATTLE MUCK NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐ No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5m)	Absolute % Cover	Dominant Species?	Indicator Status
1. ALRU	60	Y	FAC
2.			
3.			
4.			
	____ = Total Cover		

Sapling/Shrub Stratum (Plot size: 3m)	Absolute % Cover	Dominant Species?	Indicator Status
1. COSE	30	Y	FAC
2. CRDO	5		FAC
3. ALRU	5		FAC
4. HEHE	15	Y	FACU
5.			
21.5 11	55 = Total Cover		

Herb Stratum (Plot size: 1m)	Absolute % Cover	Dominant Species?	Indicator Status
1. POMU	5	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	____ = Total Cover		

Woody Vine Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	100	x 3 = 300
FACU species	20	x 4 = 80
UPL species		x 5 =
Column Totals:	120 (A)	380 (B)

Prevalence Index = B/A = 3.2

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

SOIL

Sampling Point: DP-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR3/2	100	—				SANDY	FILL W/ GRAVELS
4-18	2.5Y5/2	100	—				SILO	W/ ORGANICS ; ROOTS

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: TOTEM LAKE PARK City/County: KIRKLAND Sampling Date: 1/5/16

Applicant/Owner: CITY OF KIRKLAND State: WA Sampling Point: DP-4

Investigator(s): IL, JR Section, Township, Range: S28 T26N R5E

Landform (hillslope, terrace, etc.): BASE OF BERM Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): A Lat: 47°42'39.82 Long: 122°10'33.79 Datum: _____

Soil Map Unit Name: SEATTLE MUCK NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5M)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		

Sapling/Shrub Stratum (Plot size: 3M)	Absolute % Cover	Dominant Species?	Indicator Status
1. COSE	30	Y	FACW
2.			
3.			
4.			
5.			
	30 = Total Cover		

Herb Stratum (Plot size: 1M)	Absolute % Cover	Dominant Species?	Indicator Status
1. TYLA	60	Y	OBL
2. SPDO	20	Y	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80 = Total Cover		

Woody Vine Stratum (Plot size: L10 16)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: DP-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☑ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks: SURFACE WATER FROZEN AT TIME OF SITE VISIT. ASSUMING HYDRIC SOILS BASED ON VEG, HYDROLOGY, NRCS MAPS, AND SOILS OBSERVED AT OTHER AREAS OF THE SITE

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches): ~12"
Water Table Present?	Yes ☐	No ☐	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes ☐	No ☐	Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Totem Lake Park City/County: Kirkland/ Sampling Date: 6/19/2017
Applicant/Owner: City of Kirkland State: WA Sampling Point: DP-5
Investigator(s): JR, CH Section, Township, Range: S28/T26N/R5E
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): A Lat: 47 42' 39.82 Long: 122 10' 33.79 Datum: _____
Soil Map Unit Name: Seattle Muck NWI classification: PEM/PSS
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?**	**Yes**	☒	**No** ☐
Hydric Soil Present?	Yes	☒	No	☐				
Wetland Hydrology Present?	Yes	☒	No	☐				

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 5m)	Absolute % Cover	Dominant Species?	Indicator Status
1. _	_____	____	____
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
50% = _____, 20% = _____	_____	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3m)			
1. *Poulus balsamifera*	5	yes	FAC
2. *Solanum dulcamara*	3	yes	FAC
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
50% = 4, 20% = 1.6	8	= Total Cover	
Herb Stratum (Plot size: 1 m radius)			
1. *Phalaris arundinacea*	85	yes	FACW
2. *Equisetum hyemale*	trace	____	____
3. *Galium aparine*	2	____	____
4. _____	_____	____	____
5. _____	_____	____	____
6. _____	_____	____	____
7. _____	_____	____	____
8. _____	_____	____	____
9. _____	_____	____	____
10. _____	_____	____	____
11. _____	_____	____	____
50% = 42.5, 20% = 17.4	87	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1. _____	_____	____	____
2. _____	_____	____	____
50% = _____, 20% = _____	_____	= Total Cover	

% Bare Ground in Herb Stratum 13

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: Totem Lake Park

SOIL

Sampling Point: DP-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/1	100					sandy loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: cobbles

Depth (inches): 8"

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: redox likely present; soild are too wet and too dark

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):	
Water Table Present?	Yes	☒	No	☐	Depth (inches):	11"
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: Totem Lake Park City/County: Kirkland/ ____ Sampling Date: 6/19/2017
Applicant/Owner: City of Kirkland State: WA Sampling Point: DP-6
Investigator(s): JR, CH Section, Township, Range: S28/T26N/R5E
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): A Lat: 47 42' 39.82 Long: 122 10' 33.79 Datum: ____
Soil Map Unit Name: Seattle Muck NWI classification: PEM/PSS
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?**	**Yes**	☐	**No** ☒
Hydric Soil Present?	Yes	☐	No	☐				
Wetland Hydrology Present?	Yes	☐	No	☐				

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 5m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix sitchensis*	30	yes	FACW
2. *Picea sitchensis*	20	yes	FAC
3. ____	____	____	____
4. ____	____	____	____
50% = 25, 20% = 10	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3m)			
1. *Salix scouleriana*	15	yes	FAC
2. *Rubus armeniacus*	5	yes	FAC
3. ____	____	____	____
4. ____	____	____	____
5. ____	____	____	____
50% = 10, 20% = 4	20	= Total Cover	
Herb Stratum (Plot size: 1 m radius)			
1. *Phalaris arundinacea*	20	yes	FACW
2. *Equisetum hyemale*	25	yes	FACW
3. *Ranunculus repens*	2	____	____
4. ____	____	____	____
5. ____	____	____	____
6. ____	____	____	____
7. ____	____	____	____
8. ____	____	____	____
9. ____	____	____	____
10. ____	____	____	____
11. ____	____	____	____
50% = 23.5, 20% = 9.4	47	= Total Cover	
Woody Vine Stratum (Plot size: ____)			
1. ____	____	____	____
2. ____	____	____	____
50% = ____, 20% = ____	____	= Total Cover	

% Bare Ground in Herb Stratum 13

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	6	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species	____	x4 =	____
UPL species	____	x5 =	____
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: Totem Lake Park

SOIL

Sampling Point: DP-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-1								duff and mulch
1-8	10YR 3/2	100					sandy loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: cobbles/fill

Depth (inches): 8"

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches): ____
Water Table Present?	Yes	☐	No	☒	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches): ____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: dry throughout

Appendix E:
Arborist Reports and Tree Plans

Symbiosis Tree Care

Kurt Fickeisen
13024 37th Ave. NE
Seattle, WA 98125
(206) 841-3158
kurtfick@gmail.com

Matt Martenson
Berger Partnership
1721 8th Avenue N
Seattle, WA 98109

December 13, 2017

Dear Mr. Martenson,

Property at 12031 NE Totem Lake Way in Kirkland Washington (KC Parcel #692840-0032) is north of Totem Lake and contains a retail store, and vehicle parking. Mature trees are part of landscaping on the property. King County (KC) Conservation District (KC Parcel #866372-0060) that surrounds Totem Lake is both south and east of the property. In addition property containing a motel (KC Parcel #866372-0010) is to the east.

Plans call for developing the 12031 property. Since mature trees are present, a tree inventory and an analysis of trees suitable for retention was requested.

On December 4th to 6th 2017 Kurt Fickeisen from Symbiosis Tree Care came to the property and evaluated trees on and around the property (Figure-1).

This letter contains a report that provides a tree inventory, information on tree condition, and a list of trees suitable for retention. Please see Assumptions Limiting Conditions for this report on the last page.

Summary

Plans call for developing property at 12031 NE Totem Lake Way in Kirkland Washington. 79 trees with diameters over 6-inches grow on the property.

At least one tree located on Totem Lake Way and north of the current building should be removed. Other trees in this area may be preserved if tree protection is possible.

On the eastern side of the building trees within the KC Conservation should be considered for preservation, but trees in close proximity to the building should be removed.

South of paved parking trees with canopies extending over parking should be considered for removal if excavation under tree canopies is required.

All trees within the parking lot and south of the existing building should be removed.

Observations

Tree inspection starts on the northwest corner of the property and travels eastward along Totem Lake Way. Once reaching the KC Conservation District inspection travels southward and then westward along the 12031 property border. The last tree grouping inspected is those adjacent to the existing parking lot. **Figure-2 provides a map of tree inventory** (Figure-2).

Trees along Totem Lake Way

A file with information on all trees over 6-inches diameter is provided in a spreadsheet (Figure-3A). This spreadsheet provides information on tree: species, size, vigor, condition, and comments. Photos of trees are also provided (Photo-1 – Photo-3).

Fifteen trees are located parallel to Totem Lake Way. The majority are red maples *(Acer rubrum)*, but a black cottonwood *(Populus trichocarpa)* is planted adjacent to the street. In addition ornamental plum/cherries *(Prunus* Sp.*)* are present along with small diameter Douglas firs *(Pseudotsuga menziesii)*.

Most trees have been pruned to provide street and sidewalk clearance, however the red maple numbered 8 has been pruned to provide building clearance

- Tree-8 may not classify as a street tree due to sidewalk setback
- Tree-15 is east of a paved trail on KC Conservation District property

Tree roots may conflict with the existing sidewalk and curb since the canopy overhangs the sidewalk. In addition tree 5 and 12 are in close proximity to utility boxes.

Three additional trees numbered 16 to 18 are north of the building but are set back from the street and sidewalk. One is a pacific madrone *(Arbutus menziesii)*. The remaining two are red pines *(Pinus resinosa)*.

- A minor amount of pruning has been performed on pine trees to provide building clearance

Trees North of the 12031 Building

Some trees north of the 12031 building are on the property, but others are within the KC Conservation District or on property containing a motel. Information on tree characteristics is provided in two spreadsheets (Figure-3A, Figure-3B). Additional information is provided below by tree number.

<u>Numbers 19 to 21</u> consist of two red pines and one Deodar cedar *(Cedrus deodar)*. The trees are on the 12031 property and located on or adjacent to a deck attached to the building. While both pines show signs of good vigor and condition the Deodar is shaded by adjacent trees (Photo-3)

- All three trees are in close proximity to building structures

Numbers 22 to 29 consist of Lombardy poplars *(Populus nigra)* and are marked in Photo-3. All eight poplars are in close proximity to the 12031 building

Numbers 30 to 34 are north of a paved walkway on the KC Conservation District. Trees consist of black cottonwoods and a columnar variety of beach tree *(Fagus sylvatica)*.

Numbers 35 to 40 are red pines south of the Lombardy poplar group and adjacent to the 12031 building (Photo-4). All are in close proximity to the 12031 building.

Numbers 41 to 50 are adjacent to the KC Conservation District property and two paved and connected trails. Trees in this group consist of red alders *(Alnus rubra)*, black cottonwoods, Douglas firs *(Pseudotsuga menziesii)*, and a red maple.

All trees are in fair condition at this time however

- Tree 43 leans northward towards the trail
- Trees numbered 48 to 50 are at the edge of an area with visible wetlands

Site conditions may impact long term health and stability of tree 48 and 49 since Douglas fir trees prefer well drained soils (Photo-6).

The black cottonwood, number 47, is marked in Photo-5 along with a tree east of inspected trees in this report (Photo-5).

Trees South and Southeast of 12031 Pavement

Trees in this set form a grouping south and west of paved parking and act as a buffer between the wetland and an adjacent property (Photo-7 to Photo-9). Tree characteristics are provided in a spreadsheet (Figure-3C). Additional information is provided below by tree number.

Number 51 is a mature red maple growing in a peninsula of soil. Pavement surrounded the soil bed and tree root growth has fractured pavement under the canopy.

Numbers 52 to 55 are young red alders located between a wetland and pavement. The trees appear in fair condition

- Small diameter western red cedars *(Thuja plicata)* grow under alder canopies

Numbers 56 to 59 are mature red maples located between the wetland and pavement. All trees have codominant growth patterns and northern sections of tree canopies overhang paved parking. While there are no visible signs of root growth under pavement, the area is a likely location for significant tree root growth.

- Small diameter western red cedars grow under the canopy of red maples 56 to 58

Numbers 60 to 63 are primarily red maples, but one black cottonwood is part of this group. All trees are mature and in close proximity to pavement. While maples contain single trunks at grade level, the cottonwood consists of five individual trunks joined at root crown level

- Based on proximity of structural roots to pavement, root-pavement conflicts are likely to be present

Planting Strip Trees

Planting strip trees are directly west of the structure on the 12031 property. All are mature trees with small statures and are surrounded by pavement under at least 50-percent of the canopy (Photo-8). All have been pruned to provide clearance for vehicles and pedestrians. Tree characteristics are provided in a spreadsheet (Figure-3C). Additional information is provided below by tree number.

Numbers 64 to 66 consist of two flowering cherry trees and one Alaska red cedar *(Chamaecyparis nootkatensis)*. All are directly west of the property building and entirely surrounded by pavement.

Numbers 67 to 68 consist of one flowering cherry and one red maple. Both trunks are in close proximity to the northern edge of the parking lot.

Numbers 69 to 79 consist primarily of crabapple trees, but three flowering cherries are part of the group. All trees are located in a planting bed between parking spaces (Photo-9). Three members of this group contain numerous stump sprouts.

Discussion

Trees along Totem Lake Way

Most trees in this group are in close proximity to the sidewalk and street. While most are acceptable in parking strip locations, the black cottonwood (Tree-1) is not approved by most municipalities for planting strip location

- If road, sidewalk, utility box, and soil excavation work is not part of upcoming development, tree protection is possible

Remaining trees in this group are set back from the street and building. These include

- Tree-8
- Tree-16 to Tree-18

All have been pruned for building clearance and roots do not appear in close proximity to the building.

These trees can be protected during construction if the future building footprint construction does not come within 5-feet of trunks and root pruning is performed if conflicts are present.

Trees North of the 12031 Building

A significant number of these trees are in close proximity to the existing building, but other trees are east or south of the walkway traveling through the KC Conservation District.

Based on proximity to existing structures **retention of the following trees is not recommended**

- Red pines numbered 19-20 and 35-40
- Deodar cedar numbered 21
- Lombardy poplar numbered 22 -29

If no construction or construction related impact takes place east or south of the conservation district walkway and within 18-feet of the trunk of the red maple (#50) then trees can be retained, however additional monitoring is recommended.

Trees South and Southeast of 12031 Pavement

Most trees in this group are in close proximity to existing pavement. Based on root buckling observed adjacent to the red maple numbered 51, retention should not be considered unless no pavement excavation is planned during construction.

On the other hand preservation of red alders numbered 52 to 55 along with small diameter western red cedars south of paved surfaces and under alder and maple canopies should be considered.

Planting Strip Trees

All trees in this group are in close proximity to infrastructure that will be impacted by future construction. Based on space requirements for common construction equipment and material storage, trees in the planting strip should not be retained.

Conclusion

Retention of trees east of the KC Conservation District walkway is recommended. Preservation of the following trees should be considered if protection during construction is possible

- Street trees along Totem Lake Way, and or north of the existing building
- The grove of alders numbered 52 to 55 and adjacent small diameter western red cedars

Removal of other inspected trees is recommended.

Recommendations

The black cottonwood (#1) is the only street tree where removal is recommended in all cases.

If existing sidewalks will be retained and tree protection fencing is installed during construction, then street trees preservation is possible.

Preservation of the red maple (#8), the pacific madrone (#16) and red pines (#17-18) should be considered if tree canopies do not conflict with construction plans and protection fencing is installed during construction.

All trees east of the trail and on KC Conservation District Property should be retained and monitored.

Preservation of red alders (#52 to #55) and small diameter western red cedars is possible if protection fencing is installed during construction

- Small diameter western red cedars should receive additional protection during removal of adjacent red maples.

Tree Protection Fencing

When installing protection fencing the material should be located at distance from the trunk equivalent to the radial spread listed in all segments of Figure-3.

If distances for protection fencing are not possible an International Society of Arboriculture Certified Arborist can evaluate root growth patterns and provide protection fencing alternatives.

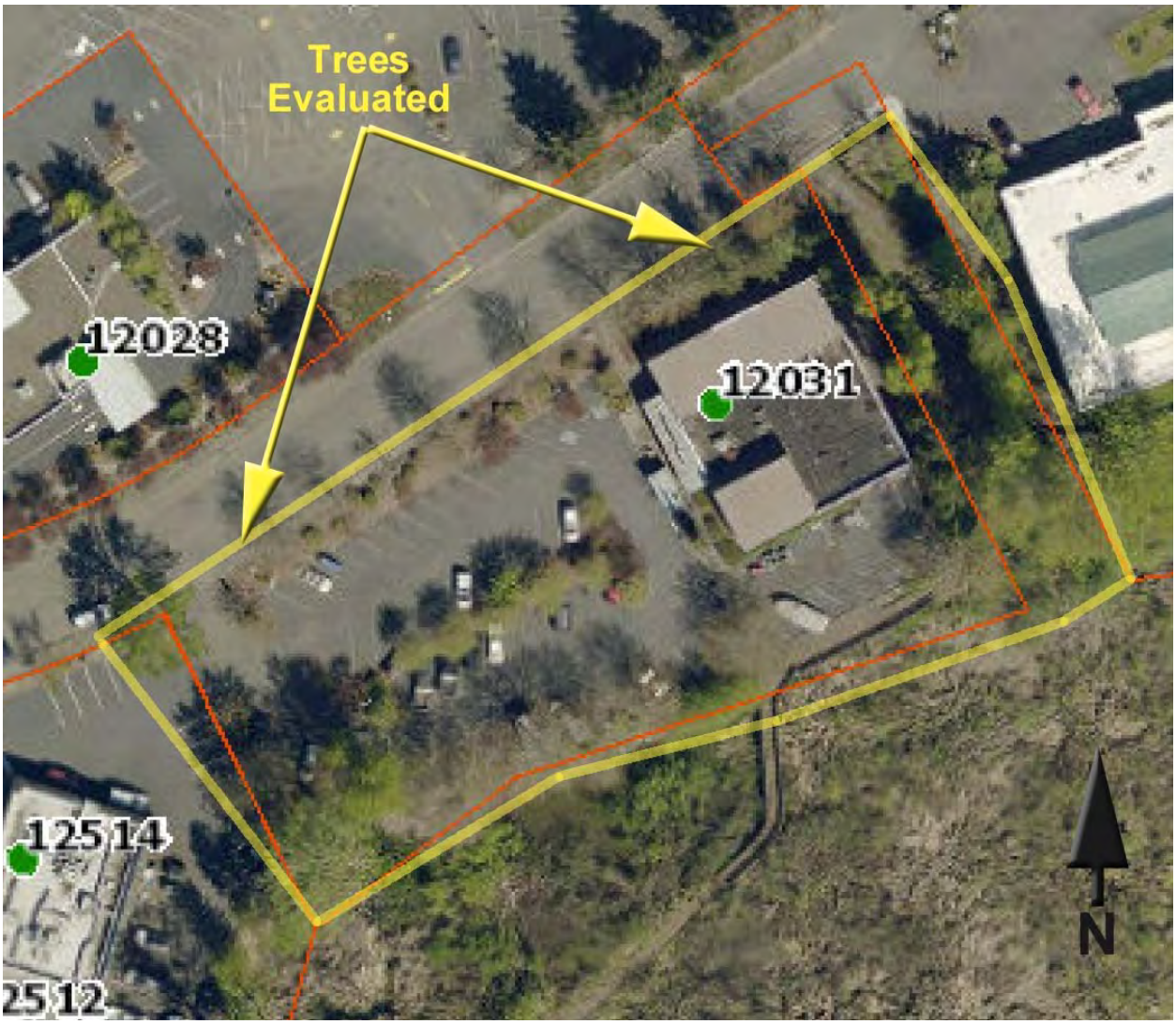
- Retained sidewalk can be used to mark protection fencing locations
- General diagrams for tree protection fencing are provided (Figure-4A, Figure-4B)

If you have questions about the contents of this report contact Symbiosis Tree Care.

Sincerely

Kurt Fickeisen
International Society of Arboriculture™ (ISA) Certified Arborist # RM-451A
ISA Tree Risk Assessment Qualified
American Society of Consulting Arborists Registered Consulting Arborists© # 472

Figure-1



King County iMAP 2015 Aerial Image

Figure-2

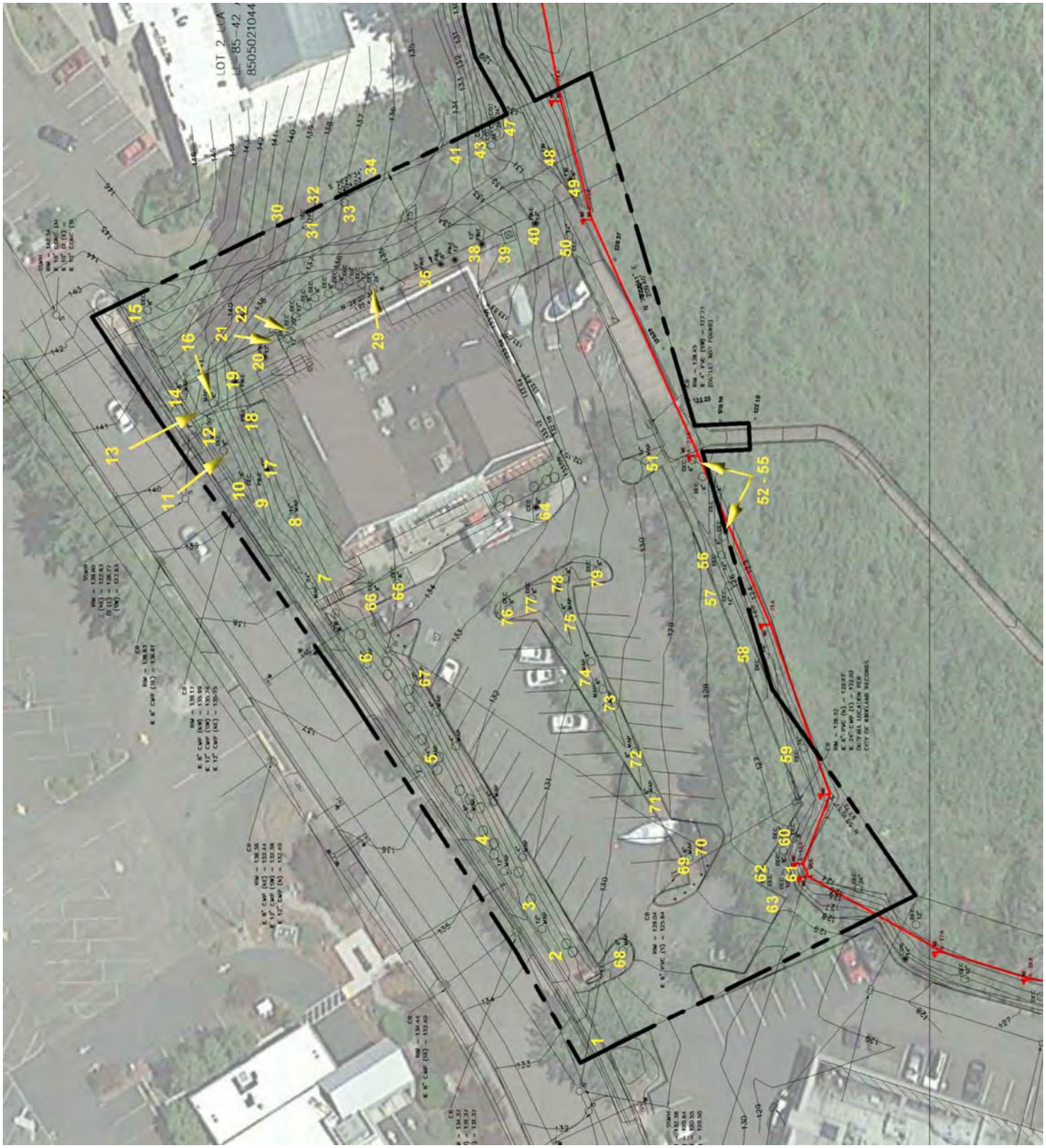


Figure-3A

Tree #	Species	dbh (in.)	Height (ft.)	Radial Spread (ft.)	Vigor	Structure	Comments / Defects
1	Black Cottonwood	19.5	48	21	Fair	Fair/Poor	Street tree, declining due to asphalt over structural roots, elevated over street
2	Red Maple	13	35	16	Fair	Fair	Street tree. Elevated over street
3	Red Maple	10	31	13	Fair	Poor	Street tree, codominant, elevated over street
4	Red Maple	7	24	10	Poor	Poor	Street tree, declining condition
5	Red Maple	14	36	16	Fair	Fair	Street tree, adjacent to utility box, elevated over street
6	Red Maple	11.5	34	14	Fair	Poor	Street tree, fracture at grade level, elevated over street
7	Red Maple	14	38	17	Fair	Fair	Street tree, adjacent to stairway, elevated over street
8	Red Maple	15.5	49	16	Fair	Fair	Pruned for building clearance
9	Plum/Cherry	7.8	15	10	Good	Fair	Street tree, epicormic growth, elevated over street
10	Red Maple	8.8	36	11	Fair	Poor	Street tree, fracture in trunk, elevated over street
11	Plum/Cherry	7.5	15	7	Good	Fair	Street tree, epicormic growth, elevated over street
12	Red Maple	17	41	15	Good	Fair	Street tree, adjacent to utility box, elevated over street
13	Plum/Cherry	6.2	10	14	Good	Fair	Street tree, codominant, shaded by adjacent trees
14	Red Maple	9.25	25	10	Fair	Fair	Street tree, adjacent to NE property corner
15	Red Maple	9,25	25	10	Fair	Fair	Street tree, near property border and sidewalk
16	Pacific Madrone	6	29	10	Fair	Fair	Shaded by adjacent trees
17	Red pine	11.5	49	10	Good	Good	Building clearance required
18	Red pine	10.5	49	10	Good	Good	Building clearance required
19	Red pine	11.5	49	10	Good	Good	Building clearance required
20	Red pine	13.5	49	10	Good	Good	Building clearance required
21	Deodar Cedar	10.25	45	6	Fair	Poor	Blocks deck gateway, leans to west
22	Lombardy Poplar	18.75	70	10	Fair	Fair	North end of 8 poplar group, 5-feet from building
23	Lombardy Poplar	12	65	7	Fair	Fair	5-feet from building
24	Lombardy Poplar	8	65	6	Fair	Poor	5-feet from building
25	Lombardy Poplar	9.5	65	5	Fair	Poor	5-feet from building
26	Lombardy Poplar	9	65	5	Fair	Poor	5-feet from building
27	Lombardy Poplar	8.5	65	6	Fair	Poor	5-feet from building
28	Lombardy Poplar	12	70	9	Fair	Poor	5-feet from building
29	Lombardy Poplar	29.5	70	13	Fair	Fair	South end of 8 poplar group, 5-feet from building

Figure-3B

Tree #	Species	dbh (in.)	Height (ft.)	Radial Spread (ft.)	Vigor	Structure	Comments / Defects
30	Columnar Beech	12	40	8	Good	Fair	Elevation pruning near grade
31	Black Cottonwood	14.3	75	18	Fair	Fair-Poor	Codominant at grade
32	Columnar Beech	9.5	33	8	Good	Fair	Elevation pruning near grade
33	Black Cottonwood	11.5	70	16	Good	Fair	No visible pruning
34	Columnar Beech	16	50	12	Good	Fair-Poor	Elevation pruning near grade, Codominant at 5-feet
35	Red pine	10.25	40	8	Good	Fair	North end of 6 pine group
36	Red pine	8	35	8	Fair	Fair	
37	Red pine	10.75	35	7	Fair	Fair	
38	Red pine	13	40	18	Fair	Fair	
39	Red pine	6	20	5	Fair	Poor	Suppressed, near utility box
40	Red pine	13.25	35	10	Good	Fair	South end of 6 pine group
41	Red Alder	6	20	10	Fair	Poor	Leans to north
42	Red Alder	5.5	20	10	Fair	Poor	Leans to north
43	Black Cottonwood	21	110	19	Fair	Fair	Leans to north
44	Black Cottonwood	20	110	18	Fair	Fair	Leans to southwest
45	Black Cottonwood	20	80	16	Fair	Fair	Leans to south
46	Black Cottonwood	20	110	15	Fair	Fair	
47	Black Cottonwood	20	110	16	Fair	Fair	Leans to south
48	Douglas fir	7.25	30	10	Fair	Fair	Edge of wetland
49	Douglas fir	6	30	10	Fair	Fair	Edge of wetland
50	Red Maple	18	35	18	Fair	Fair	Edge of wetland and stream

Figure-3C

Tree #	Species	dbh (in.)	Height (ft.)	Radial Spread (ft.)	Vigor	Structure	Comments / Defects
51	Red Maple	14	35	17	Good	Fair	Between wetland and parking lot. Roots heaving pavement
52	Red Alder	6	30	10	Fair	Fair	Close to wetland
53	Red Alder	6	30	10	Fair	Fair	Close to wetland
54	Red Alder	6	30	10	Fair	Fair	Close to wetland
55	Red Alder	6	30	10	Fair	Fair	Close to wetland
56	Red Maple	16.5	49	21	Fair	Fair	8-feet from pavement, codominant at 5-feet
57	Red Maple	23.5	49	23	Fair	Fair- Poor	Codominant at 5-feet
58	Red Maple	24	49	22	Fair	Fair- Poor	Codominant at 5-feet
59	Red Maple	24	49	23	Fair	Poor	Codominant at grade
60	Black Cottonwood	20.5	55	25	Fair	Fair	6 separate trunks joined near grade level, pavement heaving due to roots
61	Red Maple	11	49	11	Fair	Fair	Adjacent to pavement
62	Red Maple	17	49	20	Fair	Fair	Codominant above grade, adjacent to pavement
63	Red Maple	8.25	15	10	Fair	Fair	Adjacent to pavement
64	Alaska cedar	9.5	33	6	Fair	Fair	Root flare covered with pavement
65	Plum/Cherry	6.8	10	6	Fair	Poor	Pruned with topping cuts
66	Plum/Cherry	6.8	10	6	Fair	Poor	Pruned with topping cuts
67	Plum/Cherry	7.25	10	7	Fair	Fair	Trunk 3-feet north of parking lot
68	Red Maple	8	20	10	Poor	Poor	Stump sprout
69	Crabapple	5.8	10	7	Fair	Poor	Planting strip tree, western end, stump sprouts
70	Crabapple	6.5	24	9	Fair	Poor	Planting strip tree, western end, stump sprouts
71	Crabapple	6.8	24	10	Fair	Fair	Planting strip tree
72	Crabapple	6.25	24	9	Fair	Fair	Planting strip tree
73	Plum/Cherry	7.6	15	9	Fair	Poor	Planting strip tree, codominant at grade
74	Crabapple	7.8	24	10	Fair	Fair	Planting strip tree
75	Crabapple	6.4	20	8	Fair	Fair	Planting strip tree
76	Crabapple	5.8	20	8	Fair	Fair	Planting strip tree, eastern end
77	Plum/Cherry	5.5	18	9	Fair	Fair	Planting strip tree, eastern end
78	Plum/Cherry	5.8	18	9	Fair	Fair	Planting strip tree, eastern end
79	Crabapple	6	18	9	Fair	Poor	Planting strip tree, eastern end, stump sprouts

Figure-4A

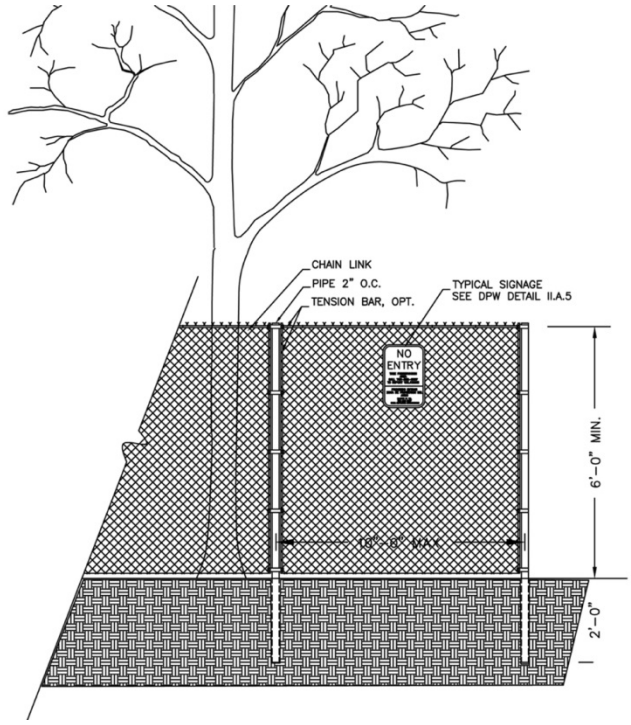


Figure-4B

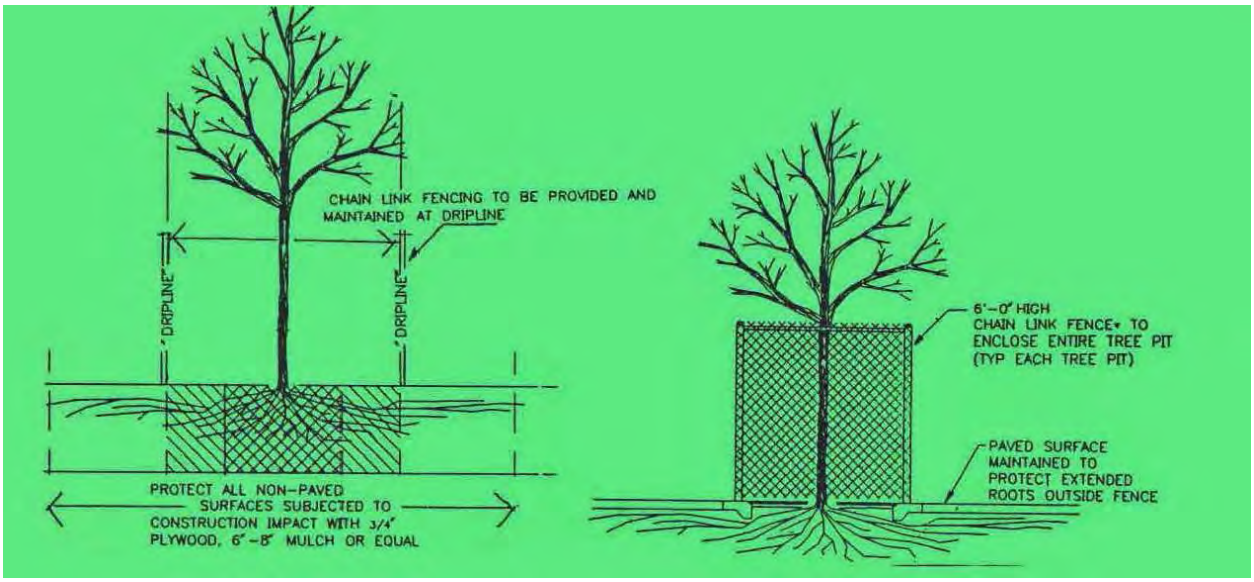


Photo-1

Photo-2

Photo-3

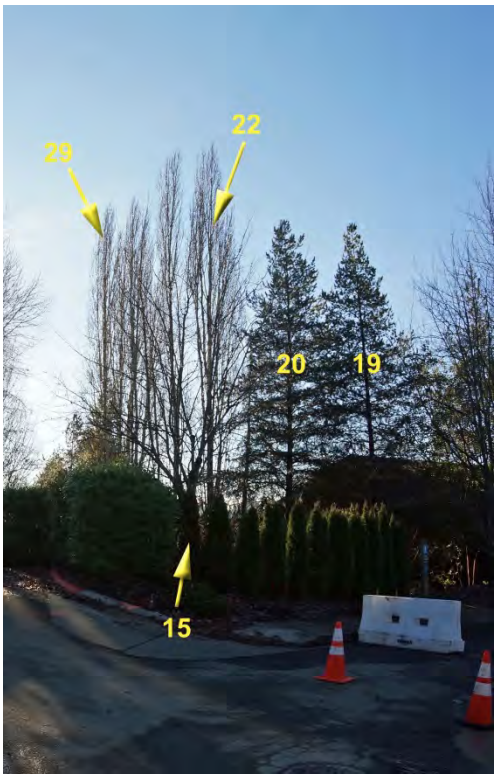


Photo 5

Photo-4

Photo-6

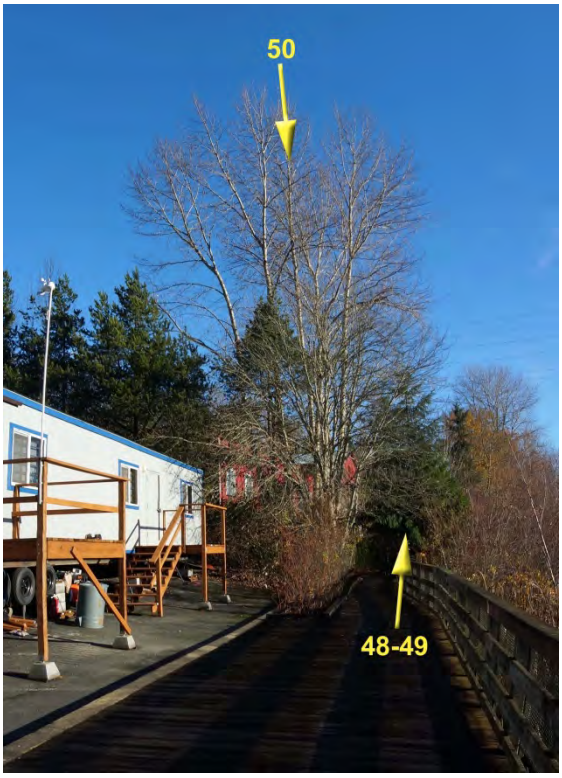


Photo-7

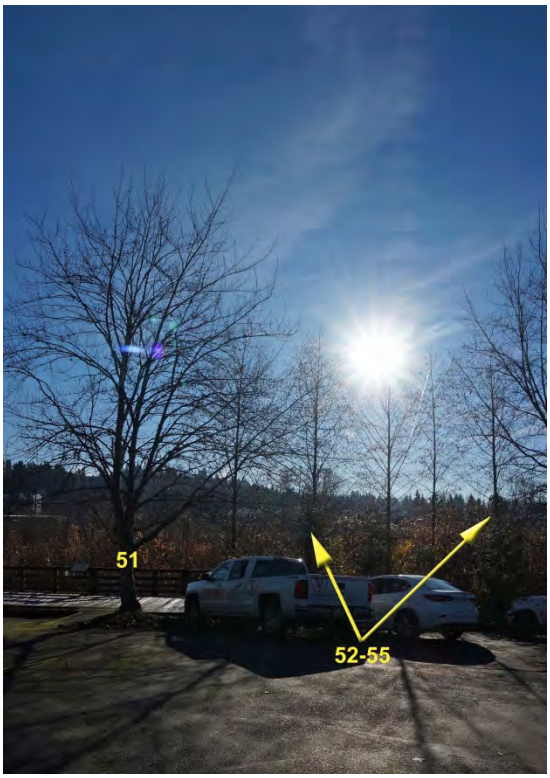


Photo-9

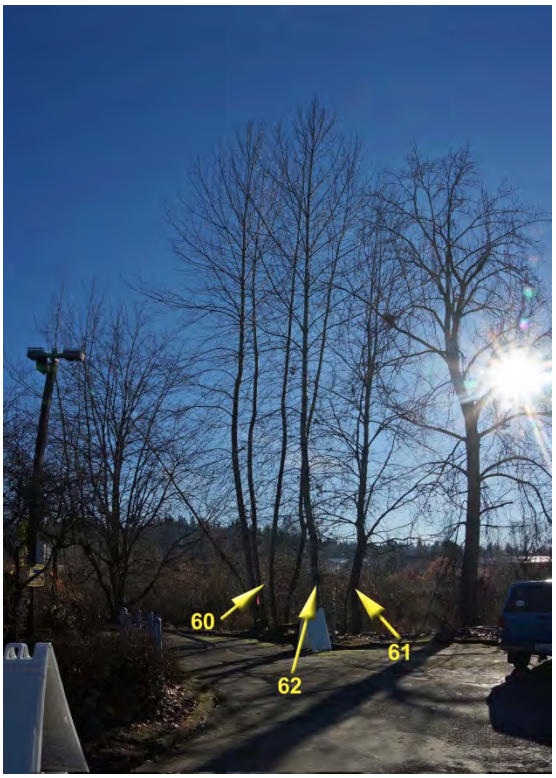


Photo-8

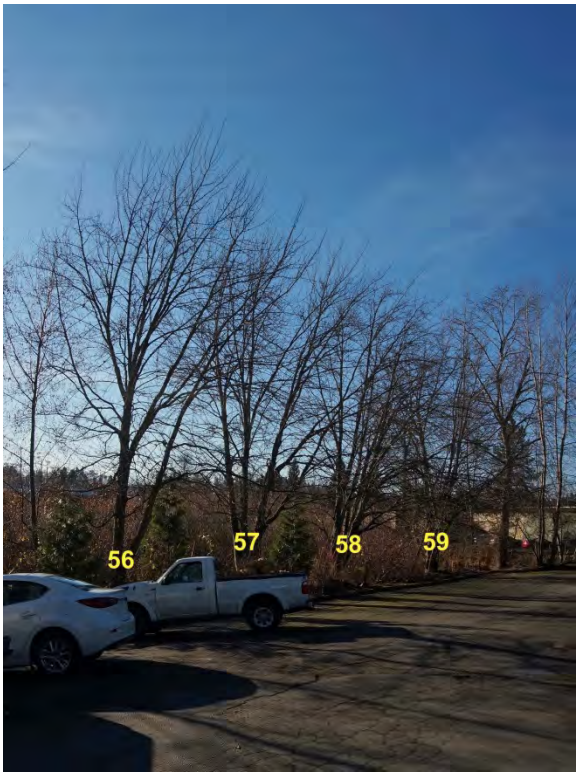


Photo-9

ASSUMPTIONS AND LIMITING CONDITIONS

Kurt Fickeisen
International Society of Arboriculture (ISA) Certified Arborist #RM 451A
ISA Tree Risk Assessment Qualification
American Society of Consulting Arborists Registered Consulting Arborist #472
Owner Symbiosis Tree Care LLC

1. Any legal description provided to the consultant is assumed to be correct. Any titles and ownerships to any property are assumed to be good and marketable. No responsibility is assumed for matters legal in character.
2. All existing liens, encumbrances, and assessments, if any, have been disregarded (unless otherwise noted), and the trees are evaluated as though free and clear, under responsible ownership and competent management. It is assumed that no violations of applicable governmental regulations have occurred.
3. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible, however, Symbiosis Tree Care can neither guarantee nor be responsible for the accuracy of information.
4. Symbiosis Tree Care shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services as described in our fee schedule and contract of engagement.
5. Loss or alteration of any part of this report invalidates the entire report.
6. This report shall be used for its intended purpose only and by the parties to whom it is addressed. Possession of this report does not include the right of publication.
7. Neither all or any part of the contents of this report, nor copy thereof, shall be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales, or other media, without the prior expressed written or verbal consent of Symbiosis Tree Care.
8. This report and any values expressed herein represent the opinion of Symbiosis Tree Care. Our fee is in no way contingent upon any specified value, a result or occurrence of a subsequent event, nor upon any finding to be reported.
9. Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys.
10. Unless expressed otherwise: 1) information contained in this report covers only those items that were examined and reflects the condition of those items at the time of inspection, and 2) the inspection is limited to visual examination of accessible items without dissection, excavation, probing, or coring.
11. There is no warranty or guarantee, expressed or implied that problems or deficiencies of the tree or other plant or property in question may not arise in the future.
12. The right is reserved to adjust tree valuations, if additional relevant information is made available.

Symbiosis Tree Care

Kurt Fickeisen
13024 37th Ave. NE
Seattle, WA 98125
(206) 841-3158
kurtfick@gmail.com

Matt Martenson
Berger Partnership
1721 8th Avenue N
Seattle, WA 98109

December 13, 2017

Dear Mr. Martenson,

Property at 12031 NE Totem Lake Way in Kirkland Washington (KC Parcel #692840-0032) is north of Totem Lake and contains a retail store. Mature trees are part of landscaping on the property and are present in King County (KC) Conservation District (KC Parcel #866372-0060) that surrounds Totem Lake

Plans call for developing the 12031 property and improving and expanding a community trail north and east of Totem Lake. This trail will travel eastward, cross the wetland, and connect to the existing Cross Kirkland Corridor Trail. Since mature trees are adjacent to the expanded trail location, evaluating tree condition and developing protection plans prior to the start of work was required.

On December 6th and 7th 2017 Kurt Fickeisen from Symbiosis Tree Care evaluated trees adjacent to the pathway (Figure-1). This letter contains a report that provides information on tree condition, and a guide for mitigating conflicts during trail installation. Please see Assumptions and Limitations for this report (Assumptions and Limitations).

Summary

An existing trail east of property at 12031 NE Totem Lake Way in Kirkland Washington will be improved and expanded to connect with the Cross Kirkland Corridor Trail. While trees grow in clusters east of the 12031 property, trees become a grove east of power lines crossing the area. The final segment of trees grows on a peninsula of land extending northward from the Cross Kirkland Corridor into a wetland.

North of the wetland removal or additional assessment of trees with signs of poor structure is recommended. In addition root pruning may take place where trees grow in clusters, but alternative methods of trail installation should be considered once trees enter a grove.

South of the wetland trees should be removed, retained at root crown level and allowed to grow from stump sprouts.

Observations

The pathway assessment starts adjacent to a wetland near the southeast corner of the 12031 property. The pathway travels eastward. Once reaching a location south of 12411 NE Totem Lake Way the trail will cross a wetland devoid of trees and joins the Cross Kirkland Corridor in a treed segment of land. Assessed trees are present in these two locations. 41 trees were evaluated along the pathway.

Trees North of the Wetland

Figure-2A marks trees north of the wetland (Figure-2A). 34 trees have diameters greater than 6-inches.

Trees 80 to 93 are west of overhead community power lines (Photo-1, Photo-2). Tree species present consist of black cottonwoods *(Populus trichocarpa)*, big leaf maples *(Acer macrophyllum)*, Douglas firs *(Pseudotsuga menziesii)* and native willows *(Salix* Sp.*)*.

Information on all trees over 6-inches diameter is provided in a spreadsheet (Figure-3A). This spreadsheet provides tree: species, size, vigor, condition, and comments.

All trees show signs of fair vigor. While tree structure is fair in many trees the following trees show signs of poor structure

- Willow: 84, 85
- Black cottonwood: 87, 88, 90

Most large diameter roots do not appear to interfere with the existing trail.

Trees 94 to 97 are under or in close proximity to overhead community power lines. All trees show signs of fair vigor. While tree vigor is fair, the following trees show signs of poor structure

- Willow: 94
- Red alder: 96

Most large diameter roots do not appear to interfere with the existing trail.

Trees 98 to 103 are east of overhead community power lines. All trees show signs of fair vigor (Photo-3).

While tree structure is fair in some trees, the following show signs of poor structure

- Willow: 98, 103
- Red alder: 99, 100

Most large diameter roots do not appear to interfere with the existing trail.

Trees 104 to 113 primarily consist of mature black cottonwoods with heights near or over 100-feet (Photo-4). In this case tree information is provided in two spreadsheets (Figure-3A, Figure-3B).

While tree vigor and structure is fair in many trees the following trees show signs of poor structure

- Black cottonwoods 106, 111
    - As an example trunk decay is present near grade level on the northern side of Tree-111 (Photo-5)

In this case the current pathway travels within 5-feet of most trees and significant structural roots are present.

Trees South of the Wetland

Figure-2B marks trees south of the wetland (Figure-2B). Seven trees have diameters greater than 6-inches.

Trees 114 to 120 consist of red alders, willows, and one black hawthorn *(Crataegus douglasii)* tagged with the marker number 305. Information on all trees over 6-inches diameter is provided in a spreadsheet (Figure-3B).

All trees in this group show signs of fair vigor and structure with the exception of a willow (Tree-115). The willow shows signs of poor structure.

All trees are north of the Cross Kirkland Corridor. Installation of the trail involved addition of fill soil. In many cases nearby new red alder sprouts are emerging from the borders of new fill soil.

Discussion

At this time trail use is occasional. Trail use will increase once development on 12031 property take place, the trail surface is improved, and the trail connects to the Cross Kirkland Corridor.

Trees North of the Wetland

A risk assessment of trees showing signs of poor structure should be considered. While removal of poor structure trees is an option, tree removal will reduce shade provided by trees and the woodland environment that trail users may desire.

Between Tree-80 and Tree-105 conflicts between structural roots and the existing trail are present but minor

- In most cases root pruning should be considered as opposed to tree removal prior to trail surface improvements.

East of Tree-105 the trail enters a tree grove primarily consisting of mature cottonwoods until reaching the wetland. Due to the presence of a mature trees grove with signs of fair vigor and structure, **root pruning is not recommended**.

Options for trail improvement/installation include

- Establishing an elevated trail supported by post and pier anchors
- Installation of a gravel or coble base layer at grade and use of permeable asphalt for human travel

Trees South of the Wetland

With the exception of the willow numbered 115 all trees evaluated in this group have diameters of 10-inches or less

- Both willows and red alders are short lived trees and are known to regenerate from undamaged stumps

Design plans for the future trail in this location are unknown, but soil addition is likely to be required based on construction techniques employed on the adjacent Cross Kirkland Corridor.

While a trail supported by a post and pier system is an option, trunks and canopies of most trees in this group conflict with a future pedestrian trail. In this case tree removal and root sprout regeneration is an option to consider.

Conclusion

Trees north of the wetland and showing signs of poor structure should be considered for either removal or additional assessment. In areas where trees grow in individual clusters root pruning is recommended. Once the trail enters the mature grove of trees alternatives should be considered prior to trail installation.

Trees south of the wetland appear to conflict with new trail establishment. Based on species most can be cut to grade level and allowed to regenerate from stump sprouts.

Recommendations

Removal of the following trees should be considered

- Black cottonwood: 87, 88, 90, 106, 111
- Red alder: 96, 99, 100
- Willows: 84, 85, 94, 98, 103
- All species south of the wetland

The City of Kirkland or King County may require additional assessment prior to removal. As an alternative, retention and monitoring should be considered.

Root Pruning

Between Tree-80 and Tree-105 tree roots over 2-inches diameter conflicting with the trail should be exposed and cut with reciprocating saws such as a, “sawzall”.

Root Bridging

Between Tree-106 and Tree-113 new trails should avoid damage to existing roots over 2-inches diameter. This may require placing the trail on a post and pier support or use of gravel and permeable asphalt

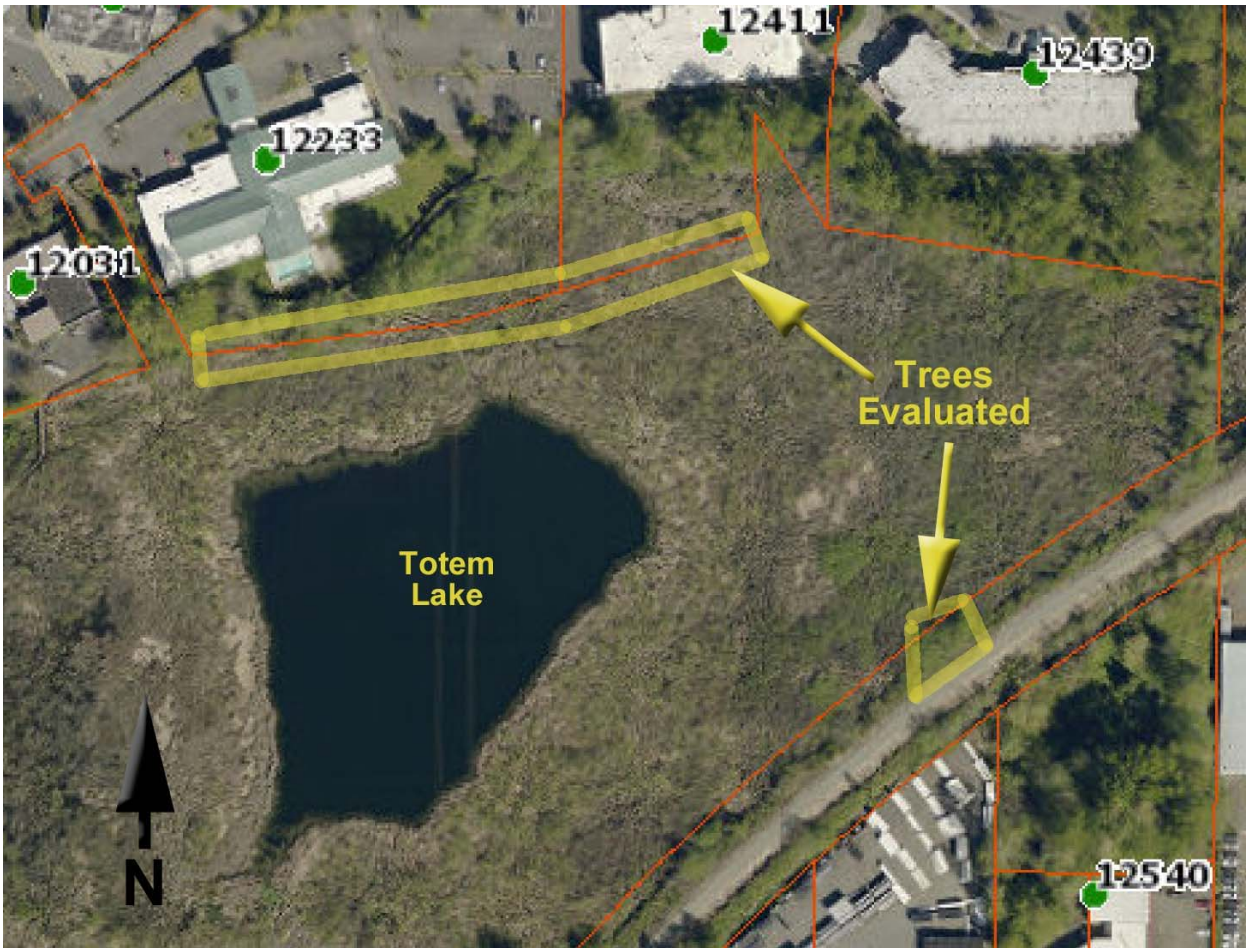
- While two options are provided in this report, there are additional strategies for infrastructure installation that mitigate root damage

If you have questions about the contents of this report contact Symbiosis Tree Care.

Sincerely

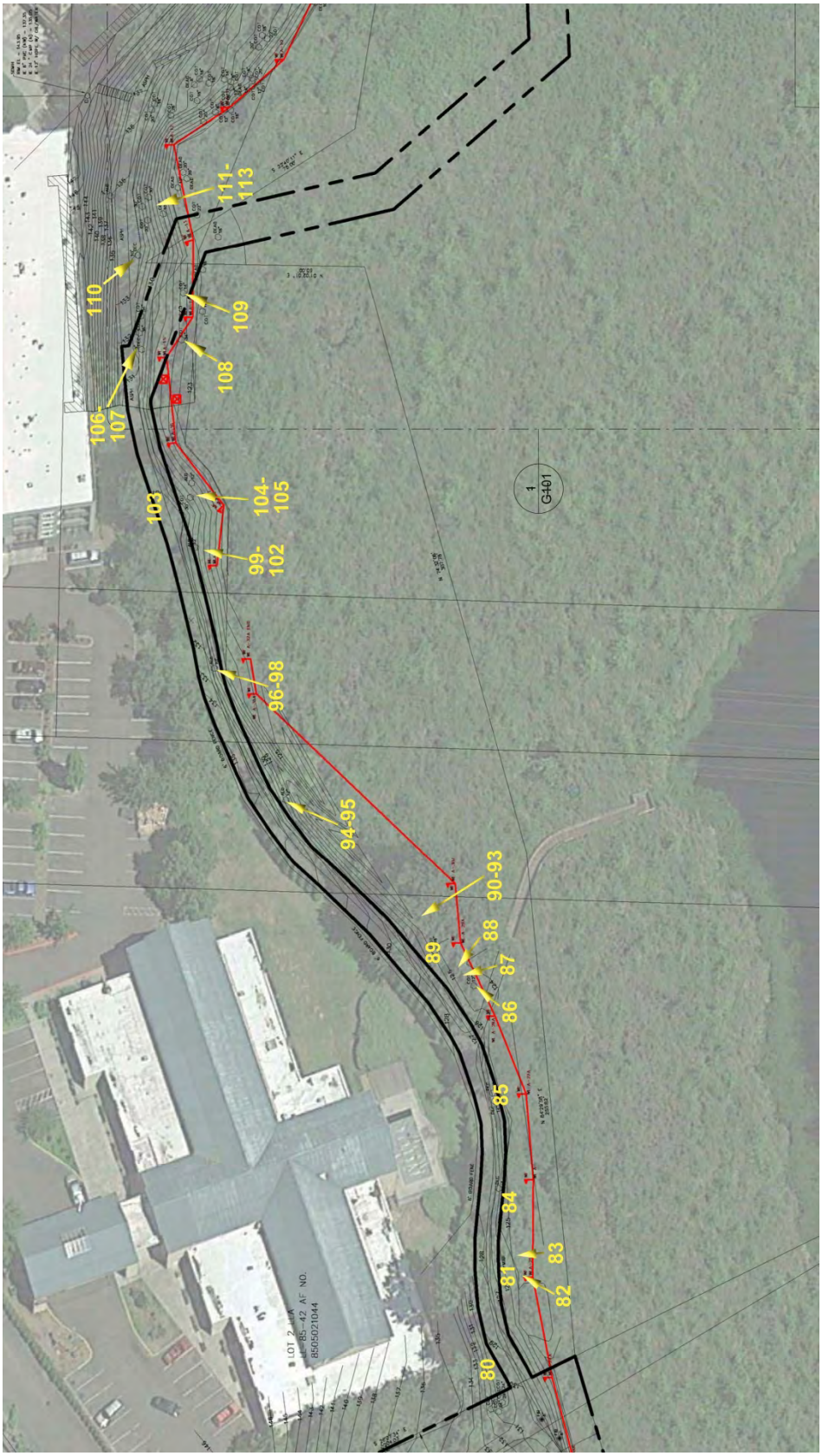
Kurt Fickeisen
International Society of Arboriculture™ (ISA) Certified Arborist # RM-451A
ISA Tree Risk Assessment Qualified
American Society of Consulting Arborists Registered Consulting Arborists© # 472

Figure-1



King County iMAP 2015 Aerial Image

Figure-2A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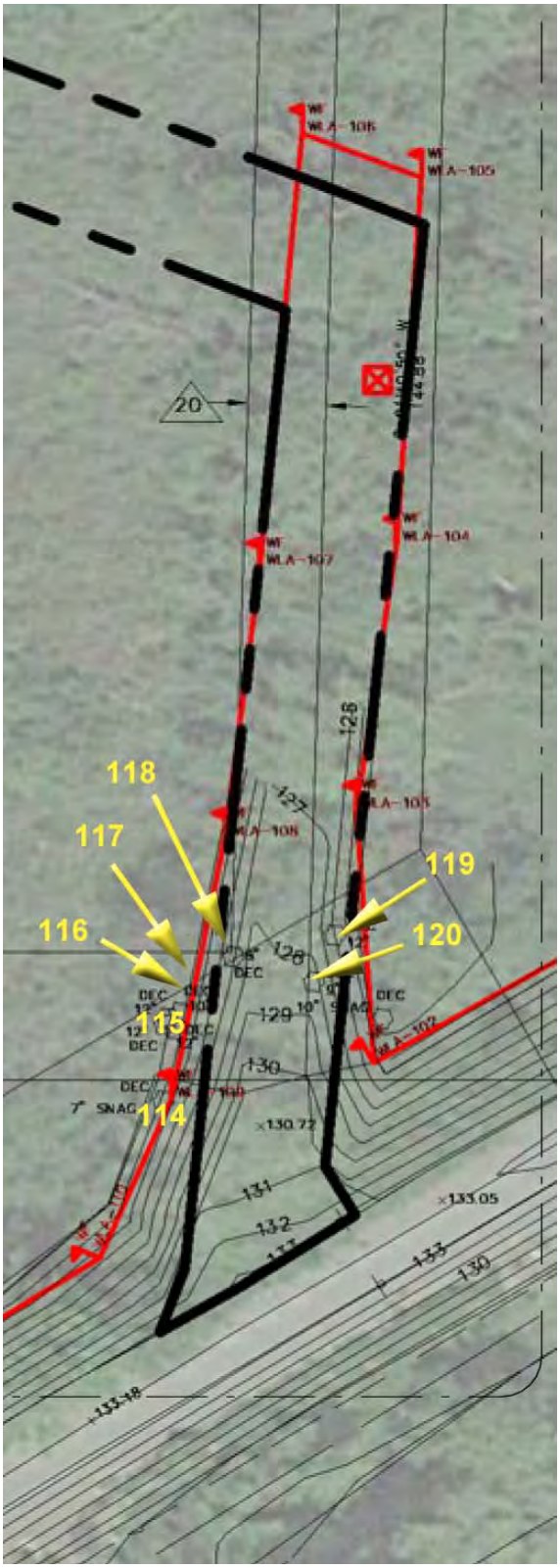
111-113
G401

Figure-2B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130.72
133.18
7" SNAG
DEC

Figure-3A

Tree #	Species	dbh (in.)	Height (ft.)	Radial Spread (ft.)	Vigor	Structure	Comments / Defects
80	Black Cottonwood	31	110	25	Fair	Fair	North of pathway and south of building
81	Big Leaf Maple	10.5	50	10	Fair	Fair	South of pathway
82	Douglas Fir	7.8	50	8	Fair	Fair	South of pathway
83	Big Leaf Maple	10.5	50	15	Fair	Fair	South of pathway
84	Willow	24	65	12	Fair	Poor	Trunk removed near grade level
85	Willow	12&15	65	12	Fair	Poor	Trunks joined at root crown, previous trunk removal
86	Black Cottonwood	12	65	12	Fair	Fair	South of pathway
87	Black Cottonwood	7	30	15	Fair	Poor	Leans to south
88	Black Cottonwood	12	30	15	Fair	Poor	Leans to south
89	Black Cottonwood	34	110	30	Fair	Fair	Dominant tree of group
90	Black Cottonwood	8	35	10	Fair	Poor	Leans to east
91	Black Cottonwood	7	35	10	Fair	Fair	Vertical growth
92	Black Cottonwood	7	35	10	Fair	Fair	Vertical growth, south of #93
93	Red pine	5.5	20	6	Fair	Fair	West of overhead power lines
94	Willow	6&8	30	15	Fair	Poor	Trunks are 3-feet apart and grow out of wetland
95	Red Alder	12	30	15	Fair	Fair	Grows under power lines
96	Red Alder	6	10	15	Fair	Poor	Downslope from #95
97	Red Alder	10.5	30	15	Fair	Fair	Grows under power lines
98	Willow	30.75	30	15	Fair	Poor	Decay visible in lower trunks
99	Red Alder	9.5	30	15	Fair	Poor	Located north of pathway
100	Red Alder	6	25	10	Fair	Poor	Located north of pathway
101	Red Alder	12	30	10	Fair	Fair	Located south of pathway. Leans to southwest
102	Red Alder	7.5	30	10	Fair	Fair	3-feet east of #101. vertical growth
103	Willow	25	40	20	Fair	Poor	North of pathway
104	Black Cottonwood	21	101	20	Fair	Fair	Codominant above grade, adjacent to pathway
105	Red Alder	9	30	10	Fair	Fair	Leans to southeast and away from #104
106	Black Cottonwood	8	40	25	Fair	Poor	Leans to east and away from #107
107	Black Cottonwood	35	110	30	Fair	Fair	Part of mature grove
108	Black Cottonwood	35	110	30	Fair	Fair	Part of mature grove, 30-feet south of trail
109	Black Cottonwood	41	110	35	Fair	Fair	Part of mature grove, codominant at grade

Figure-3B

Tree #	Species	dbh (in.)	Height (ft.)	Radial Spread (ft.)	Vigor	Structure	Comments / Defects
110	Big Leaf Maple	9.5	30	10	Fair	Fair	Root crown against paved trail
111	Black Cottonwood	16	110	15	Fair	Poor	Decay at grade level
112	Black Cottonwood	18	110	20	Fair	Fair	6-feet south of paved trail
113	Black Cottonwood	20	110	30	Fair	Fair	Canopy leans to east
114	Red Alder	12	40	10	Fair	Fair	
115	Willow	21	40	20	Fair	Poor	Three codominant trunks at grade, signs of decay
116	Red Alder	6	20	8	Fair	Fair	
117	Willow	12	30	10	Fair	Fair	
118	Red Alder	8	30	8	Fair	Fair	
119	Red Alder	12	30	10	Fair	Fair	
120	Hawthorn	7	30	10	Fair	Fair	Tagged with number 305

Photo-1

Photo-2

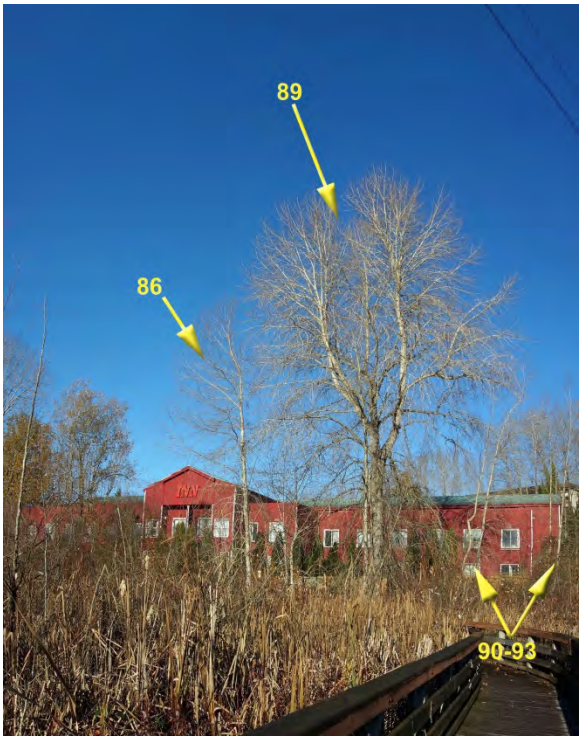

Photo-3

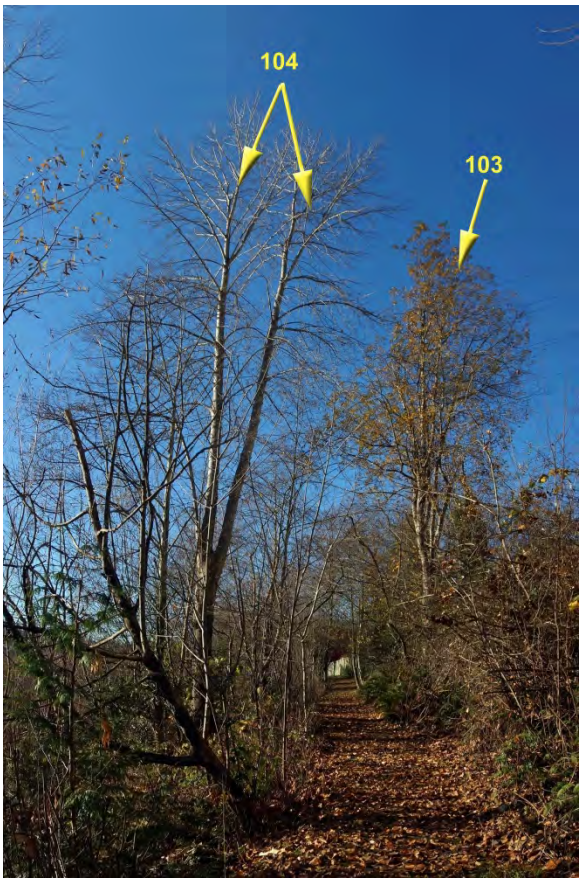

Photo-4

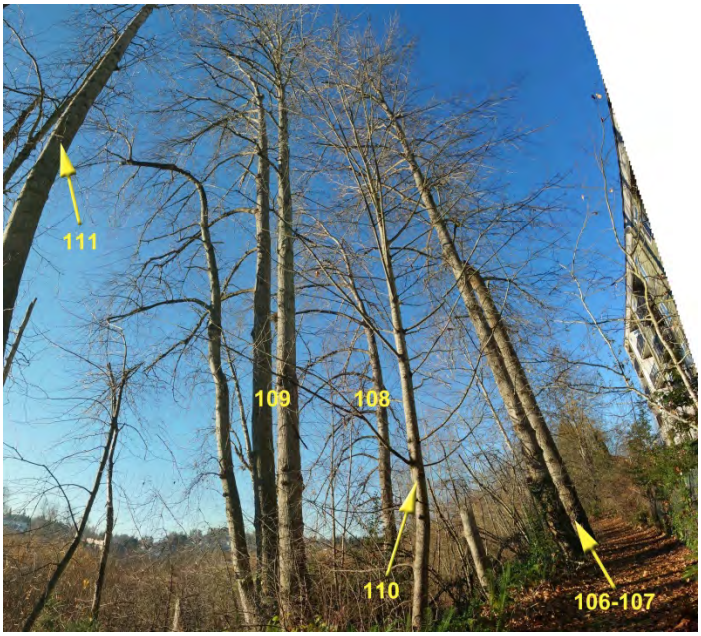

Photo-5

Photo-6

Assumptions and Limitations

ASSUMPTIONS AND LIMITING CONDITIONS

Kurt Fickeisen
International Society of Arboriculture (ISA) Certified Arborist #RM 451A
ISA Tree Risk Assessment Qualification
American Society of Consulting Arborists Registered Consulting Arborist #472
Owner Symbiosis Tree Care LLC

1. Any legal description provided to the consultant is assumed to be correct. Any titles and ownerships to any property are assumed to be good and marketable. No responsibility is assumed for matters legal in character.
2. All existing liens, encumbrances, and assessments, if any, have been disregarded (unless otherwise noted), and the trees are evaluated as though free and clear, under responsible ownership and competent management. It is assumed that no violations of applicable governmental regulations have occurred.
3. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible, however, Symbiosis Tree Care can neither guarantee nor be responsible for the accuracy of information.
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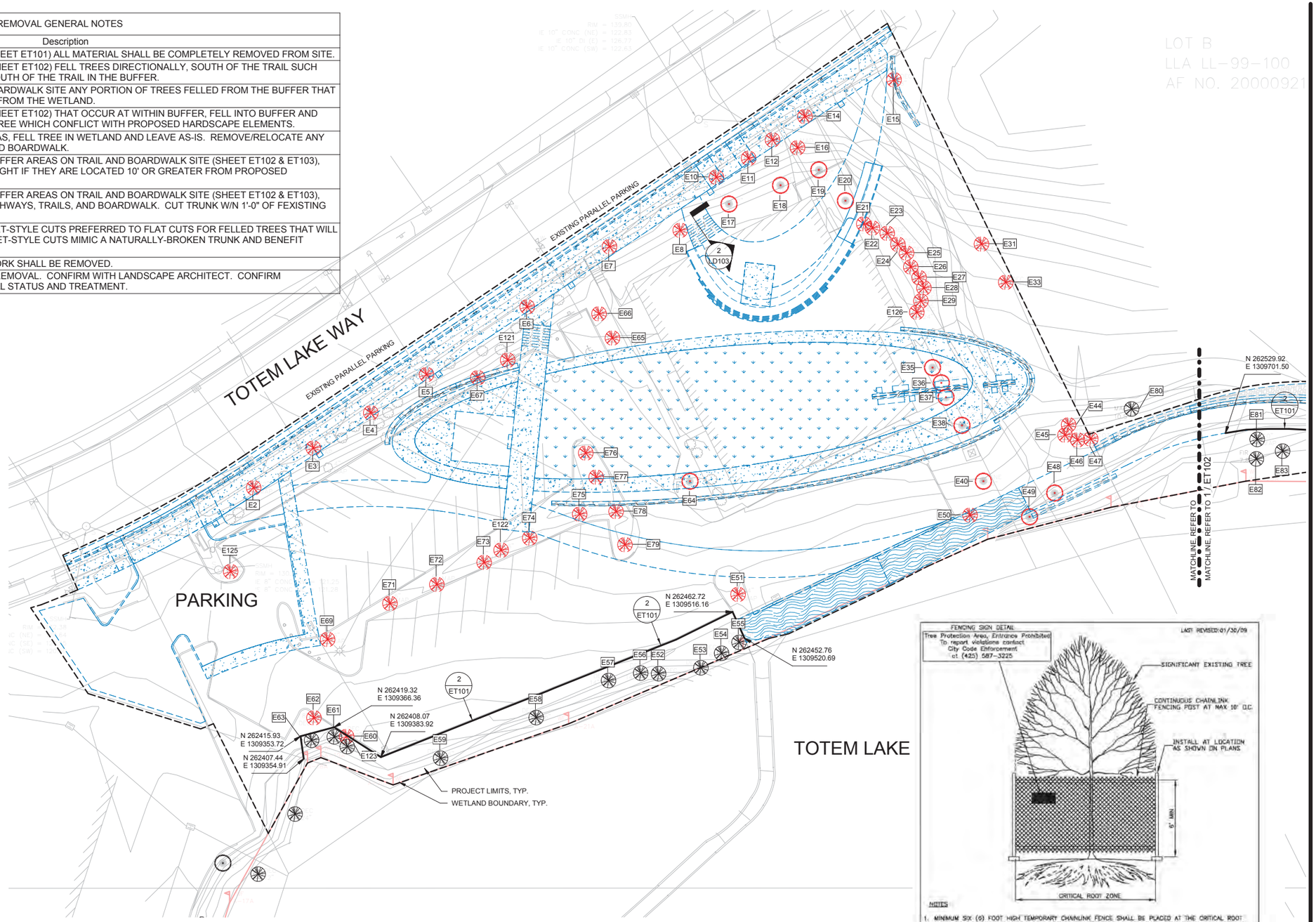
12. The right is reserved to adjust tree valuations, if additional relevant information is made available.

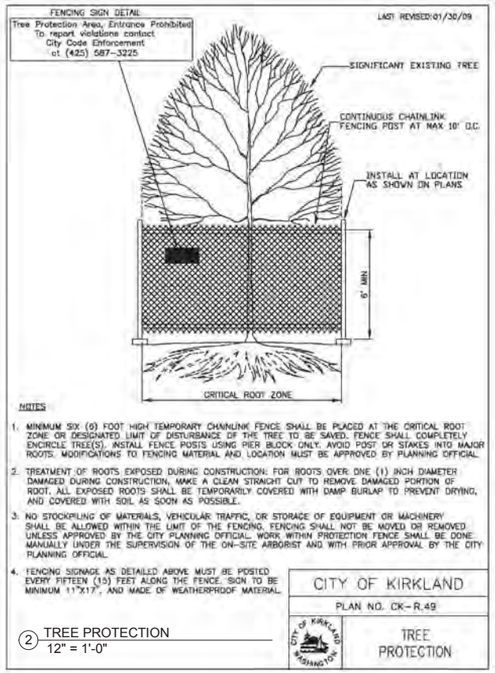
TREE REMOVAL GENERAL NOTES	
Note #	Description
1	FOR ALL TREES REMOVED ON PARK SITE (SHEET ET101) ALL MATERIAL SHALL BE COMPLETELY REMOVED FROM SITE.
2	FOR ALL TREES REMOVED ON TRAIL SITE (SHEET ET102) FELL TREES DIRECTIONALLY, SOUTH OF THE TRAIL SUCH THAT THE MAJORITY OF THE TREE LANDS SOUTH OF THE TRAIL IN THE BUFFER.
3	FOR ALL TREES REMOVED ON TRAIL AND BOARDWALK SITE ANY PORTION OF TREES FELLED FROM THE BUFFER THAT LAND IN THE WETLAND SHALL BE REMOVED FROM THE WETLAND.
4	FOR ALL TREES REMOVED ON TRAIL SITE (SHEET ET102) THAT OCCUR AT WITHIN BUFFER, FELL INTO BUFFER AND LEAVE. RELOCATE ANY PORTIONS OF THE TREE WHICH CONFLICT WITH PROPOSED HARDSCAPE ELEMENTS.
5	FOR ALL TREES REMOVED IN WETLAND AREAS, FELL TREE IN WETLAND AND LEAVE AS-IS. REMOVE/RELOCATE ANY PORTIONS WHICH CONFLICT WITH PROPOSED BOARDWALK.
6	FOR ALL TREES FELLED IN WETLAND AND BUFFER AREAS ON TRAIL AND BOARDWALK SITE (SHEET ET102 & ET103), TREES MAY BE SNAGGED AT 8' MAXIMUM HEIGHT IF THEY ARE LOCATED 10' OR GREATER FROM PROPOSED PATHWAYS, TRAILS, AND BOARDWALK.
7	FOR ALL TREES FELLED IN WETLAND AND BUFFER AREAS ON TRAIL AND BOARDWALK SITE (SHEET ET102 & ET103), LOCATED 10' OR LESS FROM PROPOSED PATHWAYS, TRAILS, AND BOARDWALK. CUT TRUNK W/N 1'-0" OF FEXISTING GRADE.
8	FOR ALL SNAGGED TREES, JAGGED, BAYONET-STYLE CUTS PREFERRED TO FLAT CUTS FOR FELLED TREES THAT WILL BE LEFT IN THE BUFFER (AS SNAGS). BAYONET-STYLE CUTS MIMIC A NATURALLY-BROKEN TRUNK AND BENEFIT HABITAT CONDITIONS.
9	NO TREES OR SHRUBS OUTSIDE LIMIT OF WORK SHALL BE REMOVED.
10	TAG ALL TREES TO BE REMOVED PRIOR TO REMOVAL. CONFIRM WITH LANDSCAPE ARCHITECT. CONFIRM REMOVAL/RETAIN STATUS, FELLING/REMOVAL STATUS AND TREATMENT.

Existing Tree Legend

- EXISTING CONIFER TREE 6" CAL. OR GREATER TO BE RETAINED
- EXISTING DECIDUOUS TREE 6" CAL. OR GREATER TO BE RETAINED
- E1 — TREE INVENTORY NUMBER (REFER TO ARBORIST REPORT for E1-E120. FOR NUMBERS E121 & HIGHER, FIELD VERIFY)
- EXISTING CONIFER TREE 6" CAL. OR GREATER TO BE REMOVED
- EXISTING DECIDUOUS 6" CAL. OR GREATER TREE TO BE REMOVED
- EXISTING SHRUB TO BE REMOVED
- EXISTING TREE LESS THAN 6" CAL. TO BE REMOVED
- TREE PROTECTION FENCING
- 1 — WETLAND BOUNDARY LINE



1 SITE PLAN - EXISTING TREES - PARK
1" = 20'-0"



2 TREE PROTECTION
12" = 1'-0"

PARTNERSHIP berger
1927 Post Alley, Ste. 2
Seattle, WA 98101
206.325.6877
bergerpartnership.com

Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

STATE OF WASHINGTON
ANDY MITTON
NO. 882 EXP. 6/30/2020
LANDSCAPE ARCHITECT

SET TYPE:
10% Design Submittal

SET ISSUE DATE:
02/08/2019

REVISIONS:

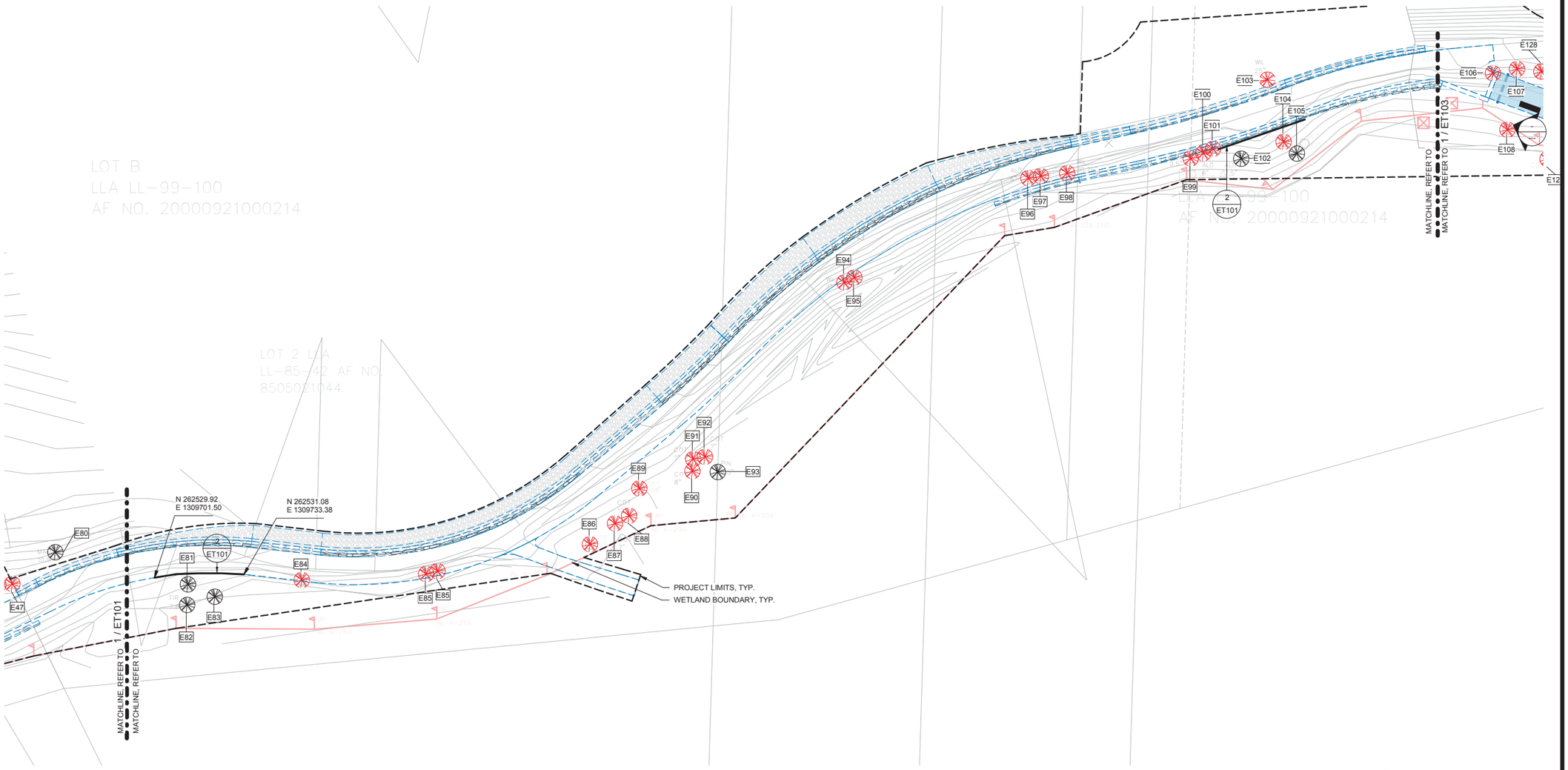
Δ	DESCRIPTION	DATE

DRAWN/CHECKED:
MM / AM

SHEET NAME:
EXISTING TREE PLAN - PARK

SHEET NUMBER:
ET101

Berger Partnership Project Number: 20154875.02
Plotted: 2/7/2019 9:42:37 AM
Filename: C:\Users\mattm\Documents\Totem Lake Park-PH1_mattm@bergerpartnership.com.rvt



1 SITE PLAN - EXISTING TREES - TRAIL
1" = 20'-0"

Existing Tree Legend

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- EXISTING DECIDUOUS TREE 6" CAL. OR GREATER TO BE RETAINED
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- TREE PROTECTION FENCING
- WETLAND BOUNDARY LINE

TREE REMOVAL GENERAL NOTES

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3	FOR ALL TREES REMOVED ON TRAIL AND BOARDWALK SITE ANY PORTION OF TREES FELLED FROM THE BUFFER THAT LAND IN THE WETLAND SHALL BE REMOVED FROM THE WETLAND.
4	FOR ALL TREES REMOVED ON TRAIL SITE (SHEET ET102) THAT OCCUR AT WITHIN BUFFER, FELL INTO BUFFER AND LEAVE. RELOCATE ANY PORTIONS OF THE TREE WHICH CONFLICT WITH PROPOSED HARDSCAPE ELEMENTS.
5	FOR ALL TREES REMOVED IN WETLAND AREAS, FELL TREE IN WETLAND AND LEAVE AS-IS. REMOVE/RELOCATE ANY PORTIONS WHICH CONFLICT WITH PROPOSED BOARDWALK.
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PARTNERSHIP berger
1927 Post Alley, Ste. 2
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Totem Lake Park Phase 1
City of Kirkland
12031 Totem Lake Way, Kirkland, WA 98034

STATE OF WASHINGTON
ANDY MITTON
NO. 882 EXP. 6/30/2020
LANDSCAPE ARCHITECT

SET TYPE:
10% Design Submittal

SET ISSUE DATE:
02/08/2019

REVISIONS:

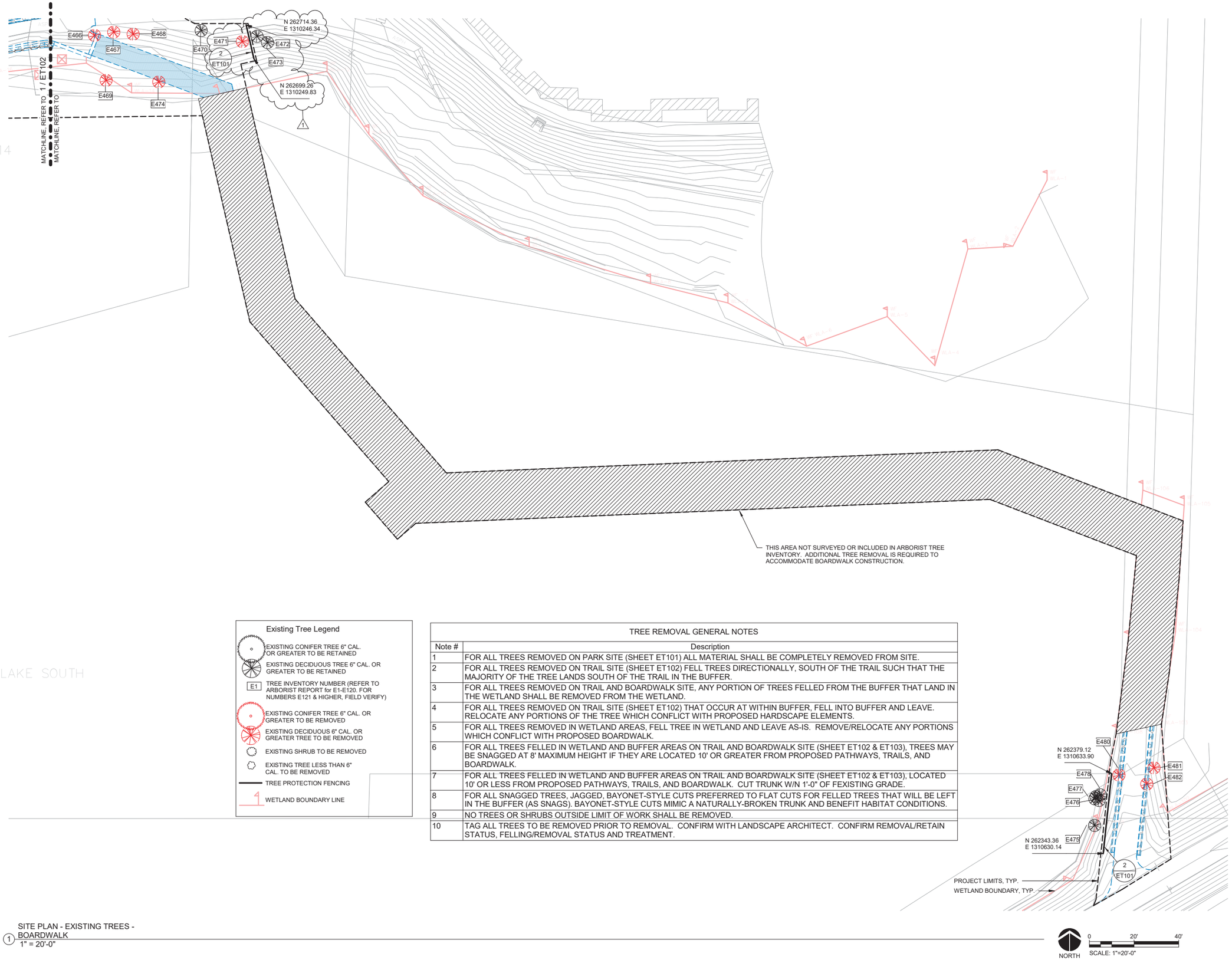
Δ	DESCRIPTION	DATE

DRAWN/CHECKED:
MM / AM

SHEET NAME:
EXISTING TREE PLAN - TRAIL

SHEET NUMBER:
ET102

Berger Partnership Project Number: 20154875.02
Plotted: 2/7/2019 9:42:46 AM
Filename: C:\Users\mattm\Documents\Totem Lake Park-PH1_mattm@bergerpartnership.com.rvt



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- WETLAND BOUNDARY LINE

TREE REMOVAL GENERAL NOTES

Note #	Description
1	FOR ALL TREES REMOVED ON PARK SITE (SHEET ET101) ALL MATERIAL SHALL BE COMPLETELY REMOVED FROM SITE.
2	FOR ALL TREES REMOVED ON TRAIL SITE (SHEET ET102) FELL TREES DIRECTIONALLY, SOUTH OF THE TRAIL SUCH THAT THE MAJORITY OF THE TREE LANDS SOUTH OF THE TRAIL IN THE BUFFER.
3	FOR ALL TREES REMOVED ON TRAIL AND BOARDWALK SITE, ANY PORTION OF TREES FELLED FROM THE BUFFER THAT LAND IN THE WETLAND SHALL BE REMOVED FROM THE WETLAND.
4	FOR ALL TREES REMOVED ON TRAIL SITE (SHEET ET102) THAT OCCUR AT WITHIN BUFFER, FELL INTO BUFFER AND LEAVE. RELOCATE ANY PORTIONS OF THE TREE WHICH CONFLICT WITH PROPOSED HARDSCAPE ELEMENTS.
5	FOR ALL TREES REMOVED IN WETLAND AREAS, FELL TREE IN WETLAND AND LEAVE AS-IS. REMOVE/RELOCATE ANY PORTIONS WHICH CONFLICT WITH PROPOSED BOARDWALK.
6	FOR ALL TREES FELLED IN WETLAND AND BUFFER AREAS ON TRAIL AND BOARDWALK SITE (SHEET ET102 & ET103), TREES MAY BE SNAGGED AT 8' MAXIMUM HEIGHT IF THEY ARE LOCATED 10' OR GREATER FROM PROPOSED PATHWAYS, TRAILS, AND BOARDWALK.
7	FOR ALL TREES FELLED IN WETLAND AND BUFFER AREAS ON TRAIL AND BOARDWALK SITE (SHEET ET102 & ET103), LOCATED 10' OR LESS FROM PROPOSED PATHWAYS, TRAILS, AND BOARDWALK. CUT TRUNK W/N 1'-0" OF FEXISTING GRADE.
8	FOR ALL SNAGGED TREES, JAGGED, BAYONET-STYLE CUTS PREFERRED TO FLAT CUTS FOR FELLED TREES THAT WILL BE LEFT IN THE BUFFER (AS SNAGS). BAYONET-STYLE CUTS MIMIC A NATURALLY-BROKEN TRUNK AND BENEFIT HABITAT CONDITIONS.
9	NO TREES OR SHRUBS OUTSIDE LIMIT OF WORK SHALL BE REMOVED.
10	TAG ALL TREES TO BE REMOVED PRIOR TO REMOVAL. CONFIRM WITH LANDSCAPE ARCHITECT. CONFIRM REMOVAL/RETAIN STATUS, FELLING/REMOVAL STATUS AND TREATMENT.

1 SITE PLAN - EXISTING TREES - BOARDWALK
1" = 20'-0"

berger PARTNERSHIP
1927 Post Alley, Ste. 2
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Totem Lake Park Phase 1

City of Kirkland

12031 Totem Lake Way, Kirkland, WA 98034

STATE OF WASHINGTON
ANDY MITTON
NO. 882 EXP. 6/30/2020
LANDSCAPE ARCHITECT

SET TYPE:
100% Design Submittal

SET ISSUE DATE:
02/08/2019

REVISIONS:

Δ	DESCRIPTION	DATE
1	Permit Response	2019/05/16

DRAWN/CHECKED:
MM / AM

SHEET NAME:
EXISTING TREE PLAN - BOARDWALK

SHEET NUMBER:
ET103

APPENDIX I

FEMA HABITAT ASSESSMENT

City of Kirkland

TOTEM LAKE PARK DEVELOPMENT – PHASE 1

Puget Sound BiOp Floodplain Habitat Assessment

Prepared for

City of Kirkland

February 2019

ESA

TOTEM LAKE PARK DEVELOPMENT – PHASE 1

Puget Sound BiOp Floodplain Habitat Assessment

Prepared for
City of Kirkland

ESA Project Number D170506.00

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TABLE OF CONTENTS

List of Figures

1.0 INTRODUCTION

At the request of the City of Kirkland (City), Environmental Science Associates has prepared this Federal Emergency Management Agency (FEMA) Floodplain Habitat Assessment for the Phase 1 of the Totem Lake Park Development (Project). The National Marine Fisheries Service's (NMFS) Biological Opinion (BiOp) on the implementation of the National Flood Insurance Program (NFIP) in Puget Sound (dated September 22, 2008) requires local communities that do not have BiOp-complaint floodplain management ordinances to require and review a Habitat Assessment (HA) before approving a floodplain permit, in order demonstrate project compliance with the Endangered Species Act (ESA). Development of this HA is also a requirement per Kirkland Zoning Code (KZC) 21.56.055 to obtain a permit for construction or development within the special flood hazard area. This HA has been developed using the guidance of the FEMA Puget Sound BiOp Floodplain Habitat Assessment Worksheet (FEMA, 2017) and FEMA's Floodplain Habitat Assessment and Mitigation: Regional Guidance Manual (FEMA, 2013).

2.0 PROJECT AREA DESCRIPTION

The proposed park improvements are located within Totem Lake Park, in the northeast portion of the City of Kirkland, King County, Washington (Section 28, Township 26N, Range 5E) (Figure 1). The project is located within the Juanita Creek basin, east of Interstate 405. Totem Lake Park is generally bordered by residential developments to the north and commercial developments to the west, south, and east. Interstate 405 lies approximately 0.2 miles to the west and the Cross Kirkland Corridor Trail (CKC Trail) extends along the southeastern perimeter of the Park. The majority of the proposed park developments will occur on one City-owned parcel (King County Tax Parcel 6928400032) and one parcel owned by the King Conservation District (King County Tax Parcel 8663270060). Some limited trail improvements will require a temporary easement on two privately owned parcels to the north (King County Tax Parcels 8663270010 and 1542000000). The entire project area is within the Lake Washington Watershed in Water Resource Inventory Area (WRIA) 8. Several wetlands and streams are mapped as occurring with the project area (Figure 2) and are detailed in Section 5.1.

3.0 PROJECT DESCRIPTION

The City is proposing improvements to Totem Lake Park under a Master Plan. The overall plan aims to integrate the natural setting of Totem Lake with the surrounding urban area. Master Plan elements applicable to Totem Lake Park include but are not limited to: implementation of a trail/boardwalk to form a loop with existing pathways, improved pedestrian and bicyclists connections to the surrounding commercial and residential properties, a new restroom building, limited ADA parking, play area, pedestrian seating and picnic areas, opportunities for public art, and enhancement of the storm drainage and ecological functions of the wetland and surrounding area. There will also be frontage improvements associated with development of the site. The City will implement additional elements from the Master Plan over time as funding becomes available.

This project is Phase 1 of the Master Plan and would construct an approximately 720 linear-foot boardwalk on the eastern and northern portion of the property. The boardwalk will provide a connection between the CKC Trail and the existing foot path on the north side of the park. The majority of the proposed boardwalk had been designed to be outside of the floodplain, except where necessary to connect to the asphalt path (Figure 3). The proposed boardwalk will have a width of 10 feet and decking will consist of open grating that will allow approximately 25% light penetration. A 43-inch high cable railing will be installed on both sides of the boardwalk. Each railing has an approximate width of 1.5 inches resulting in the boardwalk having a total width of 10.3 feet.

The boardwalk height above the water level will vary throughout the alignment averaging 8 feet above the water surface with the lowest elevations occurring at the boardwalk termini, where the trail transitions to pavement. Estimated elevation over the lake water level is 1.3 feet at the northern extent of the trail and 5.2 feet at the southern extent. Moving waterward over the lake from these transition areas, the boardwalk gently slopes upward reaching a maximum height of 9.2 feet above the water level. Footings for portions of the boardwalk within the wetland will be 2-inch diameter steel pipe pilings. No mechanized clearing, disturbance, or excavation of wetland soils will occur. Construction of the boardwalk will occur in a sequenced manner moving waterward from the shoreline by using built portions as construction access. No construction equipment will enter the wetland or wetted portions of the lake over the entirety of construction. The total area of boardwalk is approximately 5,592 square feet, all of which is located above the OHWM of Totem Lake. The boardwalk will be constructed with open grating to minimize impacts to wetland functions. Removal of existing vegetation will be minimized to the extent possible and all cleared trees will remain in the wetland or wetland buffer to be used as habitat logs.

Other project improvements under Phase 1 include the creation of a play area on the north side of the park (in the former 1.2-acre Yuppie Pawn space). In order to accommodate the play area and an associated new restroom, the vacant Yuppie Pawn building will be demolished. The proposed play area will be approximately 31,300 square feet and will include play features such as play structures/equipment and a turf field. The remainder of the site will be planted with native vegetation. There will be a 28,332 square foot (SF) (0.65-acre) net decrease in impervious surface at the park site. Additionally, all remaining impervious surface at the park will be non-pollution generating.

Stormwater improvements will also be installed to collect and discharge all stormwater onsite through the construction of bioretention stormwater facilities within the former Yuppie Pawn space. Proposed stormwater improvements at the play area will treat stormwater runoff in bioretention cells which will reduce the peak flow and duration to the wetland as well as improve the water quality of the runoff to the wetland.

Improvements to the existing asphalt path (Totem Lake Path) on the north side of the lake will also occur under Phase 1. The path will be widened to 10-feet within its current alignment and resurfaced to meet standards for accessible design (i.e., ADA standards). In addition to the widening of the path, the area will be graded and a retaining wall will be installed the length of the path. The wall will be backfilled with rocks to facilitate drainage. The widening of the existing path and installation of retaining walls and backfill will result in a net increase of 7,608 SF (0.17) of impervious surface, the majority of which is in the floodplain, and all non-pollution generating.

Table 1-1 is a summary of elements associated with the Phase 1 park improvements. 100% design of these features are detailed in Figures 4a through 4e.

TABLE 1
SUMMARY OF PHASE 1 PROJECT ELEMENTS

Project Element	Description
Boardwalk connection between CKC Trail and existing asphalt	Length: 720 linear feet Width: 10 feet Area: 5,592 square feet Decking: Open grate Handrail: Yes; metal panel railing at 43 inches height Foundation: 2" Steel pipe pilings
Widening of existing asphalt path	Width 10 feet ADA access: Yes Change in Impervious Surface: +7,608 SF
Play area and restroom	Area: 31,300 square feet Elements: play structures, synthetic turf area, grass lawn area, native plantings Change in Impervious Surface: -28,332 SF

4.0 ACTION AREA

FEMA defines the Action Area as all areas, within the Special Flood Hazard Area (SFHA), that could be impacted by the proposal, including indirect effects and effects of interrelated and interdependent actions (FEMA, 2017). The Action Area for this habitat assessment is the entire Totem Lake 100-year floodplain (Figure 2 and 3). The majority of the Action Area is within the boundary of Wetland A, with the exception of portions in the northern and northwestern extent of the floodplain, which are currently developed with commercial and residential uses. Some forested areas also occur within these areas and are dominated by a mixture of deciduous and coniferous trees. No streams are mapped as occurring within the Action Area.

5.0 HABITAT DESCRIPTION

5.1 Background Information

The National Wetland Inventory (NWI) identifies a large wetland within Totem Lake Park (the Totem Lake Wetland). NWI maps this wetland as containing emergent, scrub-shrub, forested, and open water elements. Totem Lake is the open water element of the larger wetland at the site. Additionally, three small wetlands are mapped in the project vicinity; one on the southwest side of Totem Lake Blvd NE and two on the southeast side of the CKC Trail (Figure 2). These three smaller wetlands are outside of the Phase 1 project area. Other large wetland complexes are mapped approximately 0.3 miles to the west within the Juanita Creek basin.

In addition to the Totem Lake Wetland, the City of Kirkland Sensitive Areas map (2018) shows one stream exiting Totem Lake near the southwest corner, and eventually flowing into Juanita Creek. The majority of this stream is piped from the outlet at Totem Lake to the western side of Interstate 405. An additional stream is mapped as being piped into the wetland from a small wetland feature and ditch on the southern side of the CKC Trail (Figure 2).

The State of Washington Department of Ecology (Ecology) maps an additional unnamed stream flowing into Totem Lake from the east along the northwest side of the CKC Trail (Figure 2). This stream is on Ecology's 303(d) list for dissolved oxygen. Several stormwater outfalls are also mapped by Ecology as being located with Totem Lake. No stream typing is provided by the City or Ecology for these streams.

5.2 Protected Species Identification

Both NMFS and USFWS provide listings of threatened and endangered species under their jurisdiction. The proposed project occurs within the general range of several ESA listed species. The current listings from NMFS indicates the potential presence of two federally-listed salmon species within the project vicinity, including the Puget Sound Evolutionary Significant Unit (ESU) of Chinook salmon (*Oncorhynchus tshawytscha*), as well as with one species under the jurisdiction of the USFWS, the Puget Sound Distinct Population Segment (DPS) of steelhead (*O. mykiss*) (Table 2).

TABLE 1 LISTED SPECIES POTENTIALLY PRESENT IN THE PROJECT VICINITY

Common Name	Scientific Name	ESA Status*	Jurisdiction	Critical Habitat in Action Area?
Coastal-Puget Sound DPS Bull Trout	*Salvelinus confluentus*	Threatened	USFWS	No
Puget Sound Chinook Salmon Evolutionarily Significant Unit (ESU)	*Oncorhynchus tshawytscha*	Threatened	NMFS	No
Puget Sound Steelhead DPS	*O. mykiss*	Threatened	NMFS	No
Marbled Murrelet	*Brachyramphus marmoratus*	Threatened	USFWS	No
Streaked Horned Lark	*Eremophilia alpestris strigata*	Threatened	USFWS	No
Yellow-billed Cuckoo	*Coccyzus americanus*	Threatened	USFWS	No
North American Wolverine	*Gulo gulo luscus*	Proposed Threatened	USFWS	No

* **Threatened**: Species are likely to become endangered within the foreseeable future.

The USFWS, through the IPaC website, provides a site-specific species list for the project area (Table 2 and Attachment 1). In addition to bull trout, the IPaC report includes four threatened wildlife species; marbled murrelet (*Brachyramphus marmoratus*), streaked horned lark (*Eremophila alpestris strigata*) and yellow-billed cuckoo (*Coccyzus americanus*), as well as a proposed threatened species North American wolverine (*Gulo gulo luscus*). With the unlikely exception of bull trout, the other species identified in the IPaC report, were either not historically distributed within the Action Area or the Action Area does not

contain suitable habitat features to support the species. The project will have no effect on these species, for the reasons described in the following paragraphs.

Nesting habitat for marbled murrelet consist of large coniferous older forest stands. Suitable habitat, defined by USFWS (2012) as conifer-dominated stands greater than 5 acres with trees > 15-inch-diameter at breast height (dbh), that contain nesting platforms (meeting criteria of minimum of 4 inches wide and minimum of 33 feet above the ground), is not present within the Action Area. Although marbled murrelets may use the marine waters of Puget Sound for foraging, the Sound is located over 0.5 miles away from the project site and is not within line of site.

A key attribute of streaked horned lark habitat is open (i.e., flat, treeless) landscapes of 300 acres or more, such as the type of habitat present within airports (USFWS, 2013). Such habitat is entirely lacking within the Action Area.

Yellow-billed cuckoos are extremely rare in Washington State and if breeding still occurs in the state, it is likely limited to an extremely small number of breeding pairs (single digits). Furthermore, yellow billed cuckoo breed in large blocks of riparian habitats (particularly woodlands containing cottonwoods and willows) (Erhlich et al., 1988). Such habitat is entirely lacking within the Action Area.

The North American wolverine is found in remote, dense, and mature forests free from human activity (e.g., Cascade Mountains), not highly urbanized sites such as the Action Area.

In summary, marbled murrelet, streaked horned lark, yellow-billed cuckoo, and North American wolverine are not likely to occur on the site due to a lack of suitable habitat for these species. Therefore, these species or their designated critical habitats (where applicable) will not be affected by the project and these species are not addressed further in this BA.

Listed fish species in the project vicinity were determined through a review of species information provided by NMFS (Attachment 2), and on habitat information provided by Washington Department of Fish and Wildlife (WDFW 2019a; WDFW 2019b).

Chinook salmon, steelhead, and bull trout may all occur in the marine waters of Puget Sound in various life history forms throughout the year; however, use of Totem Lake by these species has not been documented (WDFW 2019a; WDFW 2019b). The nearest stream that provides habitat for ESA-listed salmonids is a reach of Juanita Creek, approximately 1.4 miles downstream. There is no designated critical habitat for any ESA-listed fish species within the Action Area. The closest designated critical habitat for Puget Sound Chinook salmon (NMFS, 2005) and Coastal-Puget Sound bull trout (USFWS, 2010) is in Lake Washington, over two miles downstream of the Action Area, while the closest designated critical habitat for Puget Sound steelhead is in the mainstem Cedar River, over 15 miles away from the Action Area.

No aquatic or terrestrial ESA listed species are documented as using the Action Area. Furthermore, no critical habitat mapped within the Action Area for any ESA listed species.

5.3 Site Visit

5.3.1 Wetlands

Field investigations were conducted by biologists Ilon Logan and Jessica Redman on January 5, 2016, and Jessica Redman and Christina Hersum on June 19, 2017. Field efforts were focused on areas of the park where improvements are proposed and did not include the southern corner of the wetland or the southeast side of the CKC Trail where the previously mentioned stream is located. One wetland (Wetland A) was delineated during these field efforts. According to FEMA floodplain mapping, the majority of the park and asphalt path improvements occur within the 100-year floodplain, as well as the northern extents of the proposed boardwalk (Figure 3).

Wetland A is located in the majority of the Action Area and is a depressional palustrine scrub-shrub and palustrine emergent (PSS/PEM) wetland, approximately 18 acres in size. Totem Lake, an open water feature in the center of Wetland A, is approximately 3 acres and supports a narrow aquatic bed fringe around its edge. The majority of Wetland A is a mixture of PSS and PEM plant communities. PSS communities are dominated by willow, red-osier dogwood, and Douglas spirea. PEM communities in the wetland are dominated by common cattail with slough sedge and skunk cabbage present to a lesser extent. A narrow forested area on the northern edge of the wetland is dominated by red alder with an understory of restoration plantings including Sitka spruce and western redcedar. Aquatic bed vegetation in the lake includes pond weed and yellow pond lily. Outside of the emergent and scrub-shrub vegetation, additional habitat features (Standing snags, downed wood, etc.) are limited.

Sources of hydrology to Wetland A include a high groundwater table, precipitation, multiple stormwater inputs, and the seasonal stream on the southeast side of the CKC Trail. The outlet of the Wetland A is a partially blocked culvert on its west side, east of 120th Avenue NE and Totem Lake Boulevard NE.

5.3.2 Streams

During the January 2016 site visit, no connection between Wetland A and the mapped stream to the southeast of the site was observed, and according to a previous study, this stream instead flows southwesterly into a ditch for some length before it is presumably piped again (Watershed Company, 2013). The downstream portion of the ditch is largely dominated by Himalayan blackberry and no suitable salmonid habitat was observed in the ditch.

Although a stream is mapped in the western portion of the site, no defined stream channel was observed during reconnaissance of this area. In this area, at the outlet of Wetland A, a partially blocked culvert east of 120th Avenue NE and Totem Lake Boulevard NE was observed. During the January 2018 site visit, the area was characterized by standing water several feet deep, choked with cattails and refuse, which does not represent suitable salmonid habitat.

Additionally, no defined stream channel was observed entering Totem Lake from the east as mapped by Ecology. According to City mapping, this stream instead originates along the hillside to the northwest, and flows north to south before entering a ditch along the north side of the CKC, and eventually flows into the Sammamish River. Based on site observations, the ditch does not contain suitable salmonid habitat.

5.3.3 Uplands

Within the Action Area, the north side of the wetland has a narrow upland fringe consisting of native deciduous and native coniferous trees. Conditions of the remainder of the SFHA within upland areas of the Action Area are largely developed and degraded. Adjacent to this narrow, forested area is a paved pedestrian path and multistory residential developments. Himalayan blackberry is present along several portions of the asphalt path. Additional existing developments within the Action Area include existing boardwalks and the southwestern portion of the former Yuppie Pawn site, which is currently dominated by non-native landscaped trees, a paved parking lot, and a derelict building. The outfall at Totem Lake Boulevard is also the confluence of runoff from these developed areas. The western and southwestern edges of the wetland extend adjacent to the hardscape leaving little buffer between the wetland and a retaining wall at the former Yuppie Pawn site. The majority of the upland portion of the Action Area is already developed and provides little habitat for terrestrial species or a corridor connection to the wetland, and as mentioned above, does not represent suitable habitat for the ESA listed terrestrial species mentioned above.

6.0 HABITAT NARRATIVE

According to the FEMA floodplain habitat assessment guidance (FEMA 2013) the habitat narrative must include an analysis of several habitat elements that address the habitat factors required by the BiOp to assist jurisdictions in considering impacts to aquatic impacts and ESA listed fish species as a result of the project. A brief discussion of each habitat variable and its presence in the Action Area is below.

6.1 Primary Constituent Elements (PCEs)

Primary Constituent Elements (PCEs) are specific elements of physical or biological features that provide for a species' life-history processes and are essential to the conservation of the species and used to define the presence or absence of critical habitat. Within freshwater sites, examples of these include freshwater spawning sites, freshwater rearing sites, and freshwater migration corridors. None of these sites occur within the Action Area, and the nearest stream the provides habitat for ESA-listed salmonids is in Juanita Creek, approximately 1.4 miles downstream. No defined stream channels were observed within the Action Area during the site visits. Additionally, waters upstream and downstream of the Action Area are largely piped and likely would not provide for migration corridors. Furthermore, aquatic portions of the Action Area are primarily shallow waters dominated by mucky soils that would likely not provide rearing or spawning habitat. It is anticipated that the project will have no effect of PCE's for ESA-listed salmonids as no critical habitat is within the Action Area.

6.2 Water Quality and Quantity

An unnamed stream is mapped by Ecology flowing into Totem Lake from the east and is on Ecology's 303(d) list for dissolved oxygen (Ecology, 2019). As mentioned above, a stream channel was not observed here during the site visit. However, several stormwater outfalls are also mapped by Ecology in this location, indicating the mapped feature is likely a culvert input. The ditched portion of this feature, approximately 1,000 feet upstream of the wetland, is on Ecology's 303(d) list for dissolved oxygen and

bacteria. Though higher levels of dissolved oxygen are often synonymous with higher water temperatures, temperatures recorded in Totem Lake have likely not exceeded water quality criteria frequently enough to be placed on Ecology's 303(d) list. The water quality standard for temperature in Totem Lake is 16°C (highest 7-day average of the daily maximum temperature).

Surface water runoff from the developed portion of the Action Area generally drains from north to south and is collected in an existing storm drain catch basin near the southwest corner of the former Yuppie Pawn site. The existing catch basin connects to an existing 24-inch storm drain, which discharges to Totem Lake. Runoff from the existing trail sheet flows down to Totem Lake, and rainfall over the proposed boardwalk area falls directly onto the water and/or wetland areas. Surface runoff from Totem Lake Way, adjacent to a commercial site, drains to a separate storm system that also outfalls to Totem Lake via a separate outlet west of the existing catch basin. In 2014, the City resolved local flooding issues by replacing three segments of existing culverts, including the outlet of the lake. The culvert improvements have addressed previously reported drainage issues at the time of the project. According to the City, the ordinary high-water mark indicated on the plans is well below the indicated adjacent roadway elevations (CH2M, 2018).

No flow levels were recorded as a part of this assessment, however, the aquatic portion of the Action Area is inundated throughout the year. Inundation was observed in both the summer and winter site visits. It is likely that water levels are slightly lower during summer months and during drought conditions, but these minor changes in water elevation are likely negligible on the overall system.

According to a geotechnical investigation performed by AESI (2017), groundwater was found in multiple exploration borings between 8 and 18 feet below the ground surface, with perched groundwater conditions present above wetland/peat deposits. The level and occurrence of groundwater seepage is expected to change due to factors including changes in season, precipitation, and site use.

Development within a floodplain that involves the addition of impervious surfaces can degrade water quality and negatively affect the flow regime of the adjacent waterbody. However, park improvements are reducing the reducing net impervious surface in the park by 20,724 SF (0.48 acre) while providing some additional floodplain storage not present today. Improvements along the existing asphalt path will result in a slight increase of impervious surface. However, all new impervious surfaces will be non-pollution generating and most of the new trail will overlay existing asphalt path.

Ground disturbance and other activities during construction have potential to result in short-term impacts to water quality within the adjacent wetland area. However, with the implementation of temporary erosion and sediment control (TESC) plan and other construction related best management practices, the proposed action is anticipated to result in no effects to habitat with respect to water quality and quantity.

6.3 Stream Substrate

No stream channels were observed in the Action Area. Aquatic portions of the Action Area are primarily shallow waters dominated by mucky soils that would likely not provide rearing or spawning habitat. However, the proposed project is not anticipated to cause increased rates of aggradation of fine or coarse sediments that would affect those habitats, if present. The proposed action involves limited in-water work.

Footings for portions of the boardwalk within the wetland will be 2-inch diameter steel pipe pilings. Installation of these features will not alter substrate size or distribution. No mechanized clearing, disturbance of wetland soils, or excavation will occur. Construction of the boardwalk will occur in a sequenced manner using built portions as construction access; all construction equipment will be kept above water levels during the entirety of construction. Additionally, the implementation of the TESC plan and BMPs will further ensure that the project has no effect on stream/lake substrates.

6.4 Floodplain Connectivity

The mapped floodplain of Totem Lake is isolated and does not contain a connection to any streams, side-channels, or tributaries. The proposed park improvements would not change or have an effect on the existing floodplain connectivity and therefore, would not result in habitat isolation.

6.5 Refugia for ESA-listed Species from High Velocity Flows

No ESA-listed species are present within the Action Area. Additionally, there is no floodplain refugia within the Action Area and therefore, the project will have no effect on the location, extent, or quality of habitat available to ESA-listed fish species from high velocity flows.

6.6 Riparian Vegetative Community

No stream channels are present within the Action Area. The aquatic portion of the Action Area is primarily the open water portion of Totem Lake and Wetland A, which is dominated by a scrub-shrub vegetative community. Some larger trees occur along the existing asphalt path but these would provide little opportunity for large woody debris (LWD) recruitment. Additionally, no stream channels occur within the Action Area where LWD recruitment would be beneficial for the creation of fish habitat. Furthermore, the majority of the proposed tree removal occurs at the former Yuppie Pawn site and will have little effect on the aquatic portion of the Action Area. Trees that are removed will be left onsite in the wetland and wetland buffer to provide a functional lift for the habitat of Wetland A.

7.0 CONSTRUCTION PROCESS

The project is scheduled to start the first quarter of 2019 and be completed by the fourth quarter of 2019. Construction is estimated to be approximately nine months and will adhere to all permit conditions.

7.1 Boardwalk Construction

The only in-water work proposed by the project will be the construction of the boardwalk, the majority of which will be constructed outside of the Action Area. As mentioned above, footings for portions of the boardwalk within the wetland will be 2-inch diameter steel pipe pilings. No mechanized clearing, disturbance of wetland soils, or excavation will occur. Construction of the boardwalk will occur in a sequenced manner using built portions as construction access; all construction equipment will be kept above

water levels during the entirety of construction. The boardwalk will be constructed with open grating to minimize impacts to wetland functions. Removal of existing vegetation will be minimized to the extent possible and all cleared trees will remain in the wetland or wetland buffer to be used as habitat logs.

7.2 Play Area Construction

Within the former Yuppie Pawn site, the entire site within the limits of work will be cleared of existing vegetation, hardscape, and structures, with the exception of trees located along the southern, wetland edge of the site. The vegetation removal consists primarily of non-native ornamental planting areas. The majority of the site clearing work is for pavement and structure clearing. Approximately 1,300 cubic yards (CY) of material will be placed as fill and approximately 1,900 CY of material will be cut from existing areas; the balance of cut and fill is approximately 600 CY cut material. Over 90% of the site will be graded to some degree.

No wastewater will be treated on site; however, the site will feature stormwater treatments. Methods used to install utilities include open trenching for below grade utilities, and placement of utilities, such as transformers, on concrete pads on grade.

Two primary methods of construction will be used for the construction of play structures. All structures sensitive to settlement, including a built-in-place Restroom Building, Play Structures, and Site Stairs, will be built on place on below grade driven steel pile system. All other structures, mostly limited to paving, but also include some site walls, fences, and lighting, will be constructed on a prepared subgrade using traditional construction techniques. No shoreline modification is proposed. Equipment used for site construction includes: pile driving equipment, excavators, concrete trucks, dump trucks, bulldozers, small grading machines such as bobcats, and ordinary powered handheld tools.

Mobilization and staging plans will be developed by the contractor onsite. Occasional use of Totem Lake Way Right-of-Way and the Cross Kirkland Corridor shared use path will be necessary to construction activities. Construction will obstruct vehicles currently exiting the adjacent property to the west which currently use a driveway on the park site off their property. Therefore, a temporary driveway will be provided on the private property to maintain vehicular exiting throughout construction.

7.3 Trail Construction

An area defined by project limit line to the North, a 2- to 6-foot offset from the proposed trail edge to the South, and the West and East ends of the trail will be completely cleared of all vegetation with the exception of an area north of the trail at the east end. Vegetation occurring within all other areas of the trail site within the limit of work will be preserved except for removal of hazard trees. Hazard tree removal will be mitigated on site with new tree plantings, planted with the existing planting at a ratio of 2 new trees for every 1 tree removed.

The entire cleared area will be graded to some degree. The asphalt trail is a widening of an existing trail. In order to widen the existing trail, the new trail will be cut into the existing slope on the north and south sides of the path at varying locations. The cut slopes will be retained by a rockery retaining wall. No fill

soil will be placed. However, the cut slopes are laid back beyond the slope of the rockery wall. The space between the rockery wall and the cut slope will be filled with imported 2 – to 4-inch quarry spall rock material. No wastewater will be treated on site. The only utilities occurring on the trail site are wall underdrain pipes which outlet into the landscape on the South edge of the trail.

All The trail and fencing will be constructed on a prepared subgrade using traditional construction techniques. No shoreline modification is proposed. Equipment used for site construction includes: small scale excavators, small grading machines such as bobcats, and ordinary powered handheld tools.

The Contractor is expected to mobilize and stage on the play area site immediately to the west of the trail site. The trail site may be used for construction access to the Boardwalk site. Similar to park construction, occasional use of Totem Lake Way Right-of-Way will be necessary for construction activities.

7.4 Protection Measures and Best Management Practices

To avoid erosion and the transport of sediment off site, the contractor will implement temporary control measures during the project's construction phase. During construction, stormwater runoff will be conveyed in the existing conveyance systems, which are primarily storm drains. Erosion and sediment control (ESC) measures will be needed to prevent runoff from causing erosion and discharging sediment into the existing drainage system during and after construction. Appropriate ESC measures will be needed for construction activities on existing storm drain systems. The contractor will be responsible for phasing ESC measures so that they are coordinated with staging construction activities. Additionally, the contractor will be responsible for inspecting and maintaining temporary controls during construction, including removing accumulated sediment, and for removing the controls and remaining accumulated sediment at the end of construction.

The following ESC measures will be provided:

Clearing limits – Clearing limits will be delineated on the construction plans. A silt fence and compost socks will be installed down slope of any fill slopes to prevent offsite sediment migration.

Cover measures – The contractor will provide temporary and permanent cover measures where needed to protect disturbed areas. Mulching will be used in accordance with the King County Surface Water Design Manual (KCSWDM) Appendix D to provide immediate, temporary protection from erosion and to enhance plant growth. Nets and blankets may be used according to KCSWDM Appendix D to provide additional protection and to hold seed and mulch in place on slopes (King County, 2016). Disturbed areas will be seeded as a permanent cover measure to reduce erosion.

Perimeter protection – To reduce the transport of sediment off site, the contractor will provide catch basin filters, site fence, and street sweeping as indicated on the final construction drawings and as needed.

Traffic area stabilization – Stabilized construction entrances will be installed at all construction vehicle access locations.

Sediment retention – Catch basin filters (inlet protection) will provide sediment retention at the locations shown on the final construction drawings.

Surface water collection – Surface water control will be provided by using the existing and new drainage conveyance systems. The surrounding area will be protected with silt fences.

Dewatering control – Groundwater is not expected to be encountered during construction. If groundwater is encountered during construction, then it may be pumped to an onsite sediment trap or to a catchment created by sandbags with an overflow into a catch basin containing a catch basin insert.

Dust control – If necessary, the contractor will use water according to KCSWDM Section 3.8 to prevent wind transport of soil. Exposed soils will be sprayed until wet and resprayed as needed. When using water for dust control, the contractor will spray exposed soils until they are wet, but runoff should not be generated by spraying. Oil will not be used for dust control. At the contractor's option, a tackifier may be used with approval from the Engineer and the City of Kirkland.

Flow control – Portable storage tanks are proposed during construction at the southwest portion of the site and will provide sediment retention and possible flow control as needed. Construction activities will remove and permanently reduce the amount of impervious surface area on the site. Excessive runoff during construction is not anticipated, because the site will be mostly pervious.

ESC implementation –Site development activities relative to ESC concerns will be coordinated and appropriately timed, and protective measures will be inspected, maintained, and updated in a timely fashion. The project will be phased to consider seasonal work limits to the maximum degree practicable. BMPs will be inspected, monitored, and repaired as needed. The site will be inspected and monitored, and the contractor will maintain, update, and implement the Construction Stormwater Pollution Prevention Plan (CSWPPP) in accordance with the Construction Stormwater General Permit and King County requirements. The contractor also will designate a certified ESC lead and provide give his or her name, address, and telephone number to the City of Kirkland before construction begins. The certified ESC lead will be present on site or on-call at all times.

The certified ESC lead will inspect the site at least once a month during the dry season, weekly during the wet season, and within 24 hours of each runoff-producing storm.

8.0 EFFECTS ANALYSIS

8.1 Direct Effects

Park improvements will result in a net decrease of 20,724 SF (0.48 acre) of impervious surfaces, primarily at the play area. All new impervious surfaces due to the widening of the asphalt path will be non-pollution generating and mostly overlay the existing asphalt path. Stormwater improvements will also be installed to collect and discharge all stormwater onsite through the construction of bioretention stormwater facilities within the former Yuppie Pawn space. Proposed stormwater improvements at the play area will treat stormwater runoff in bioretention cells which will reduce the peak flow and duration to the wetland as well as improve the water quality of the runoff to the wetland. No streams occur within

the Action Area. Additionally, there are no habitats used by ESA-listed species within the Action Area, and therefore, the project will result in ***no direct effects*** to listed species or their habitats.

8.2 Indirect Effects

The project will result in ***no indirect effects*** to ESA-listed species. No habitats used by ESA-listed species occur within the Action Area and no potential for suitable habitat formation is anticipated due to the level of development in the vicinity of the project. Proposed improvements do not include activities such as bank armoring or channel straightening that could potentially impact areas downstream of the Action Area. Additionally, no effects to the variables discussed above are anticipated within the project site and therefore, it is anticipated that areas downstream of the Action Area will also not be effected. The project will not result in any changes to development patterns or rates.

8.3 Interrelated and Interdependent Actions

No interrelated or interdependent actions will occur that would negatively impact ESA-listed species as a result of the project. Development during other phases of the Totem Lake Master Plan may be considered interrelated actions. However, these additional phases of the Totem Lake Master Plan will likely undergo independent effects analyses to determine possible effects on ESA-listed species and no effects are anticipated due to the lack of habitat. Additionally, there is no other action or project that will have an independent use or effect as a result of the proposed action and therefore, the proposed action will have no interdependent effects.

8.4 Cumulative Effects

The project, in conjunction with other current actions or reasonably foreseeable future actions, would not impact ESA-listed species. The site does not support ESA-listed species, and due to the level of development in the vicinity of the project, no potential for suitable habitat formation is anticipated in the foreseeable future.

9.0 REFERENCES

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steelhead (*O. mykiss*) in Washington, Oregon, and Idaho; Final Rule. September 2, 2005. Federal Register 70(170):52630–52858.

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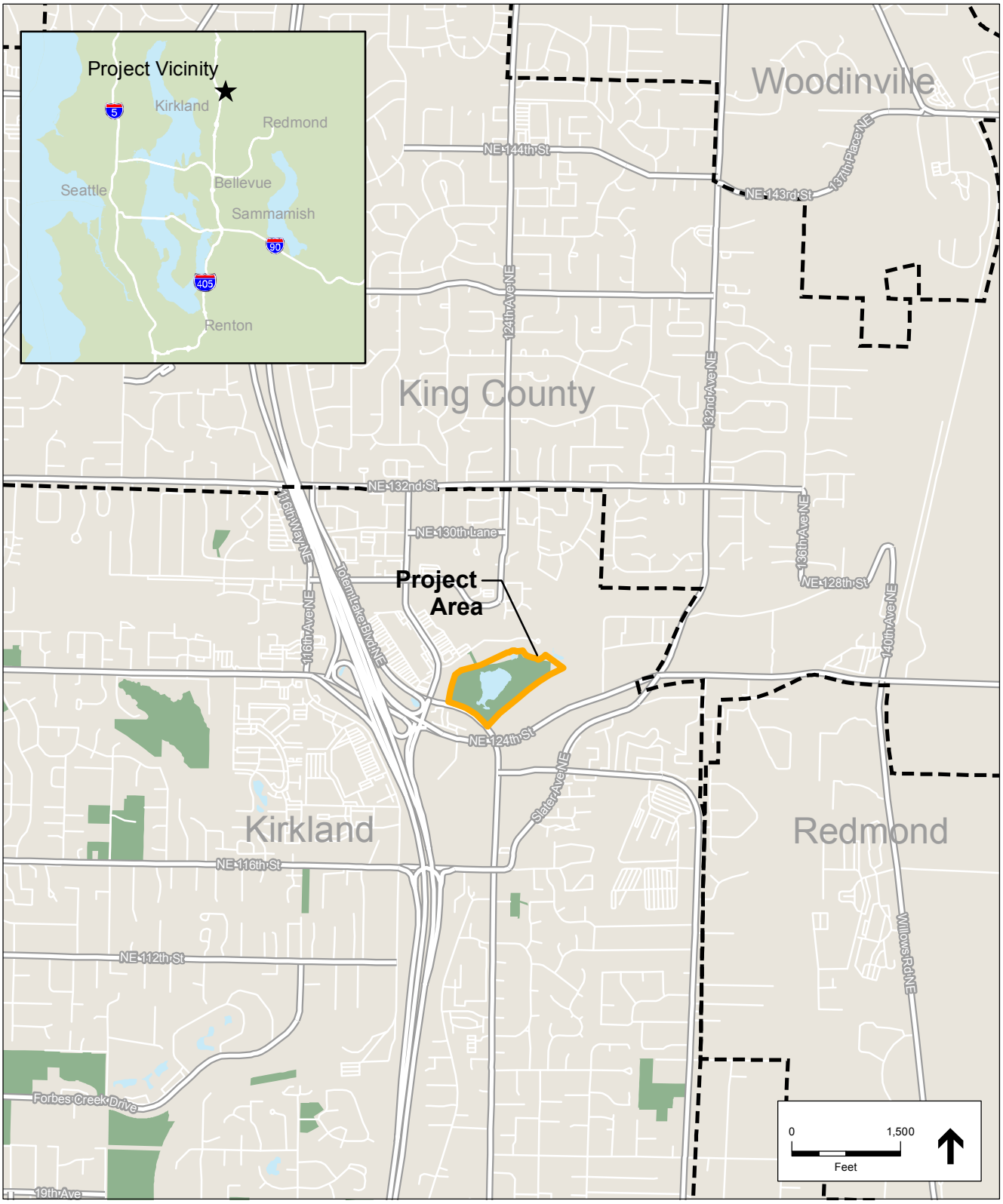
Figures



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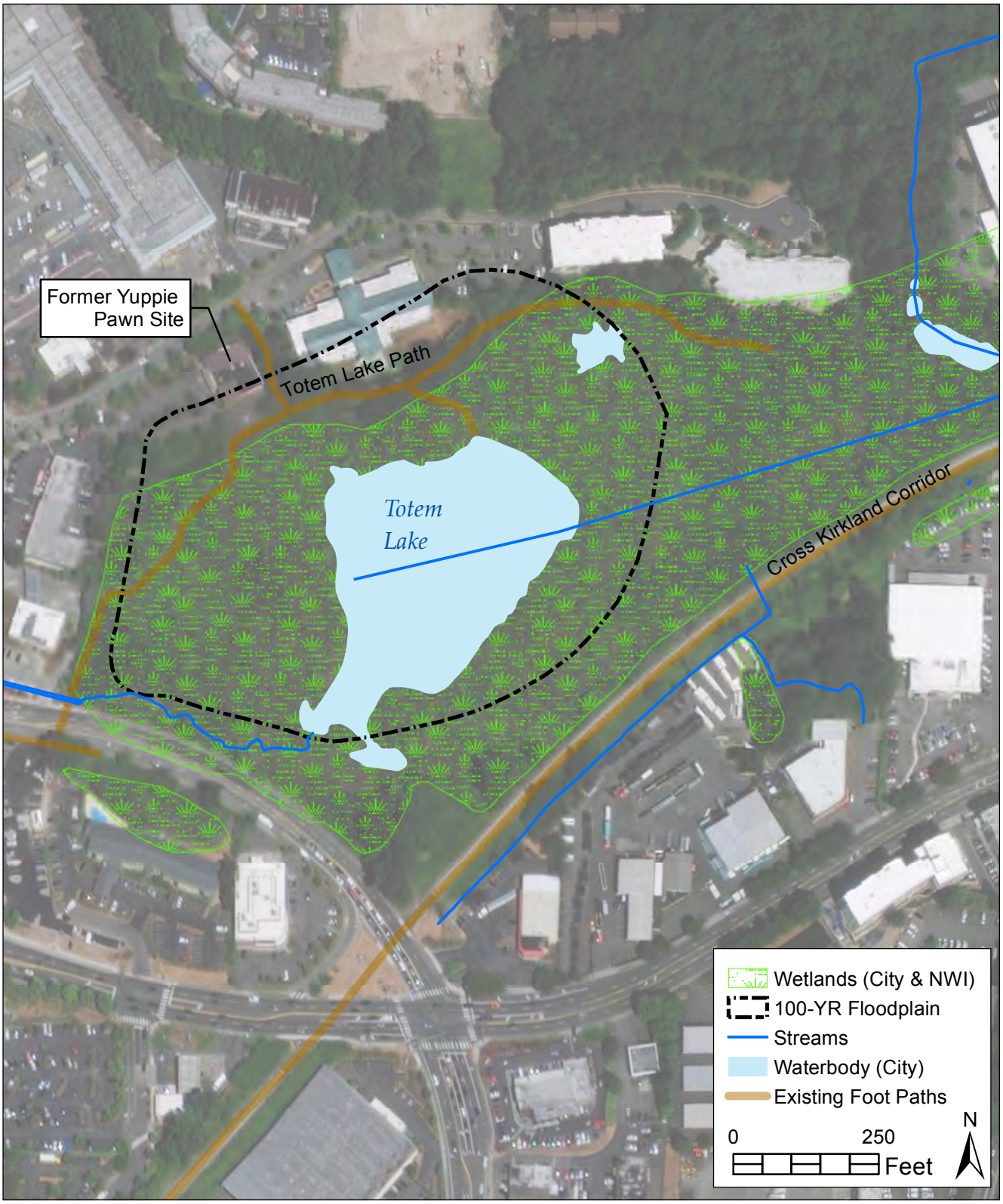
SOURCE:
ESA 2016; OSM 2016; City of Kirland 2015.

Totem Lake Park Phase I . 150616

Figure 1

Project Vicinity



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SOURCE:
ESA 2016; City of Kirkland 2015; NAIP 2013.

Totem Lake Park Phase I . 150616

Figure 2

Existing and Mapped Features

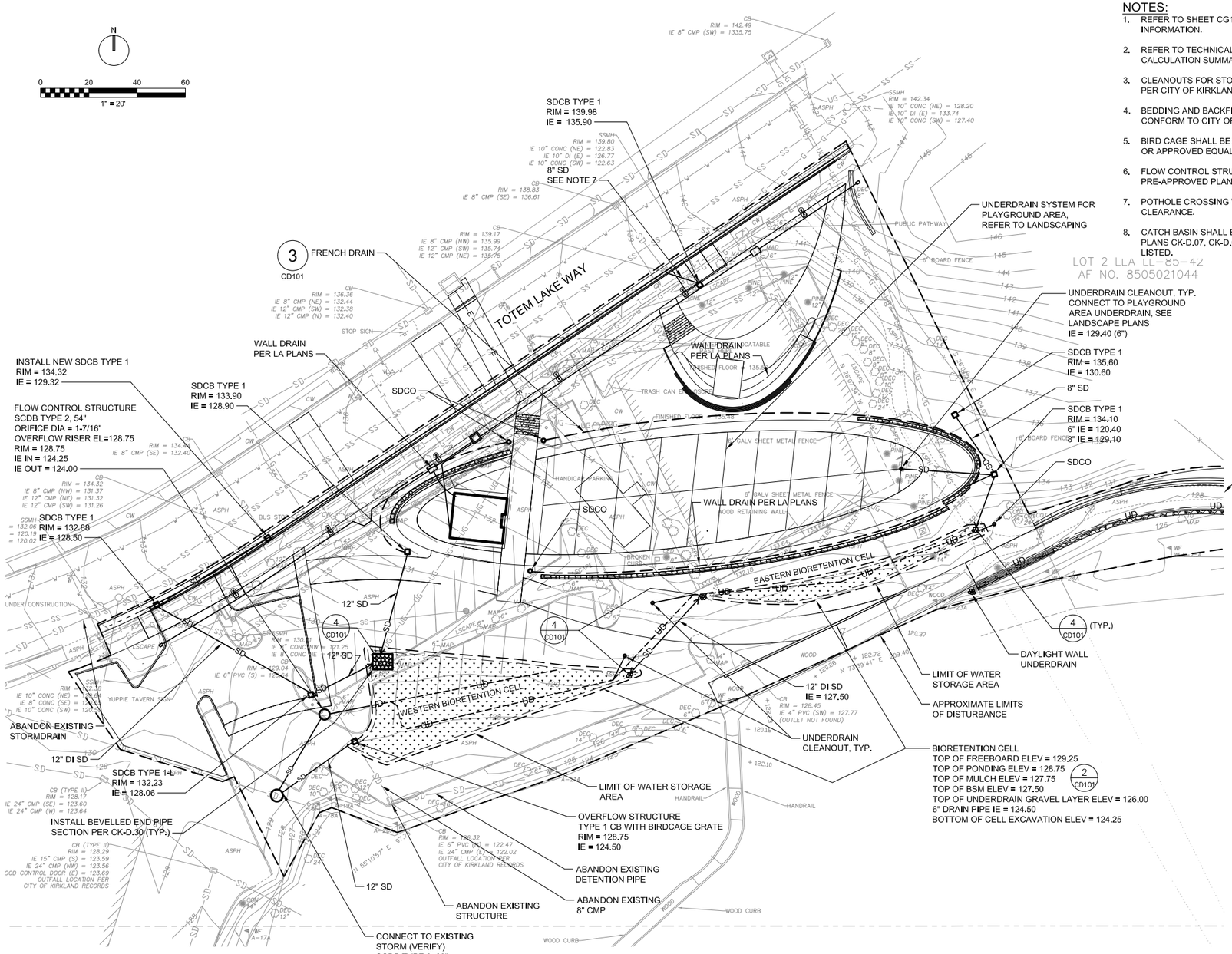
ESA

DWG: U:\PROJECTS\SEA\17xxxx\D170506.00 Totem Lake Park Permitting Phase 2\08_CAD\Dwgs\WORKING\Kusakabe\Wetland Figure.dwg USER: Riku Kusakabe PLOT DATE: 1/30/2019 11:49:05 AM

Totem Lake Park Permitting Phase 2

Figure 3
Mapped Floodplain/Action Area & Proposed Project

ESA



NOTES:

1. REFER TO SHEET CG101 FOR PAVING AND GRADING INFORMATION.
2. REFER TO TECHNICAL INFORMATION REPORT FOR DETENTION CALCULATION SUMMARY.
3. CLEANOUTS FOR STORM DRAIN AND UNDERDRAIN SHALL BE PER CITY OF KIRKLAND PRE-APPROVED PLAN CK-D.05B.
4. BEDDING AND BACKFILL FOR STORM DRAIN PIPE SHALL CONFORM TO CITY OF KIRKLAND PRE-APPROVED PLAN CK-D.02.
5. BIRD CAGE SHALL BE ATWOOD FABRICATING TYPE 1 BIRD CAGE OR APPROVED EQUAL.
6. FLOW CONTROL STRUCTURE SHALL BE PER CITY OF KIRKLAND PRE-APPROVED PLAN CK-D.10.
7. POTHOLE CROSSING WITH EXISTING UTILITIES, VERIFY CLEARANCE.
8. CATCH BASIN SHALL BE PER CITY OF KIRKLAND PRE-APPROVED PLANS CK-D.07, CK-D.08, AND CK-D.09, DEPENDING ON TYPE LISTED.

DRAINAGE PLAN

1" = 20'

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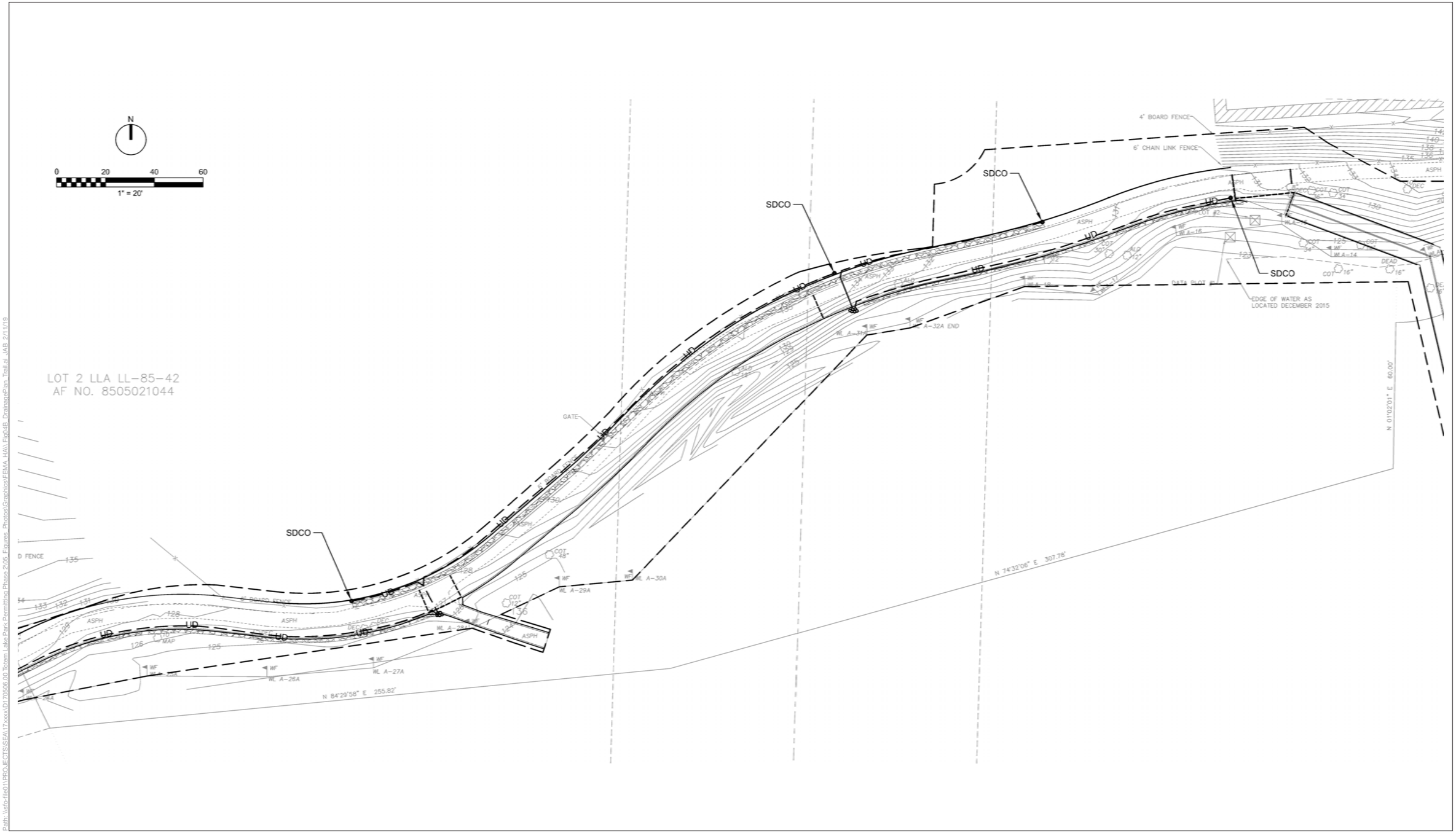
SOURCE: Berger, 2019

ESA

Totem Lake Park

Figure 4A

Drainage Plan — Park



SOURCE: Berger, 2019

Totem Lake Park

Figure 4B

Drainage Plan — Trail

ESA

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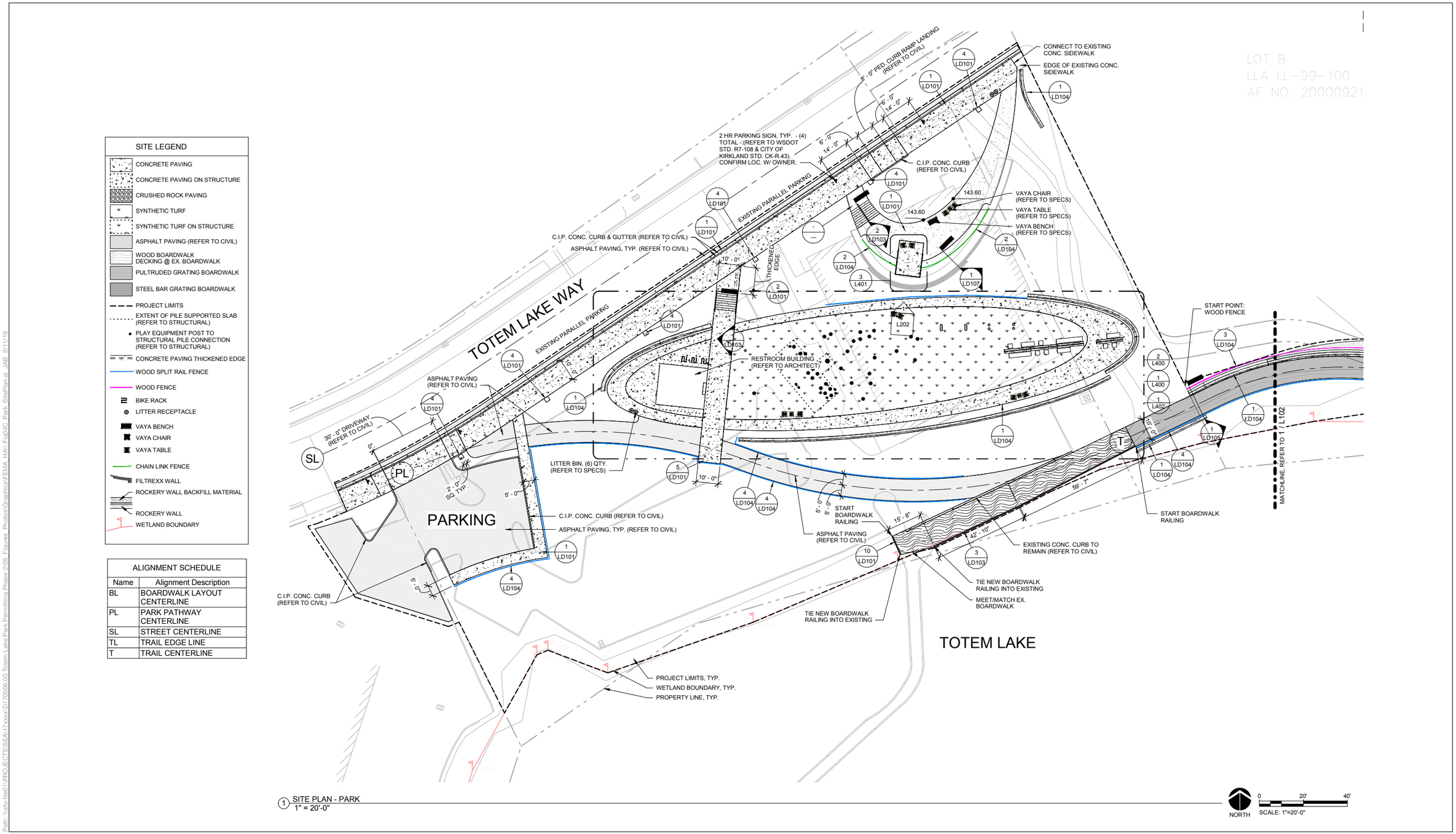

ALIGNMENT SCHEDULE	
Name	Alignment Description
BL	BOARDWALK LAYOUT CENTERLINE
PL	PARK PATHWAY CENTERLINE
SL	STREET CENTERLINE
TL	TRAIL EDGE LINE
T	TRAIL CENTERLINE

1 SITE PLAN - PARK
1" = 20'-0"

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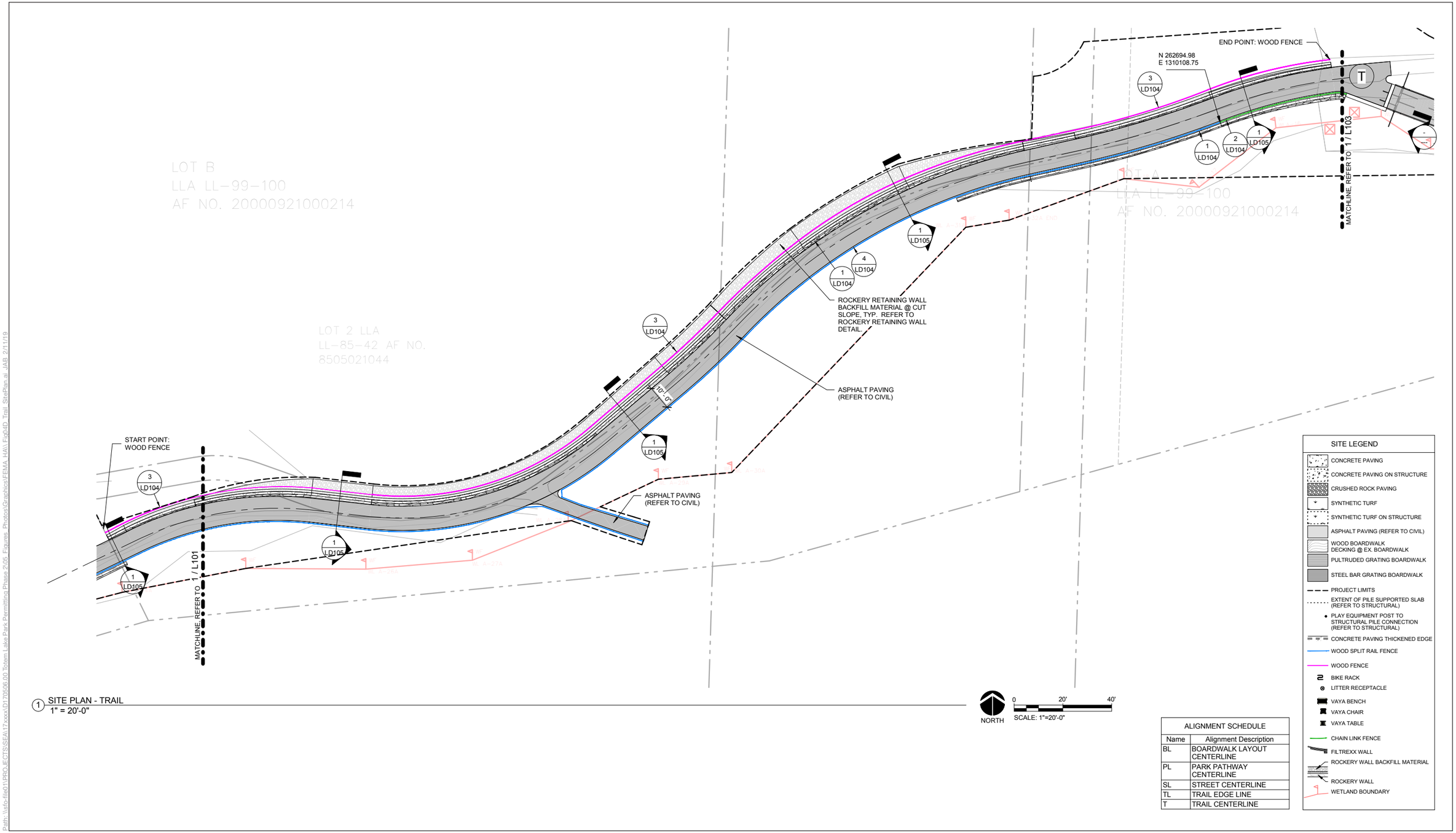
SOURCE: Berger, 2019

ESA

Totem Lake Park

Figure 4C

Park Site Plan (100% Design)



1 SITE PLAN - TRAIL
1" = 20'-0"

ALIGNMENT SCHEDULE	
Name	Alignment Description
BL	BOARDWALK LAYOUT CENTERLINE
PL	PARK PATHWAY CENTERLINE
SL	STREET CENTERLINE
TL	TRAIL EDGE LINE
T	TRAIL CENTERLINE

Path: \\sfo-file01\PROJECTS\SEA\17xxxx\D170506.00 Totem Lake Park Permitting Phase 2\05_Figures_Photos\Graphics\FEMA_HA\Fig04D_Trail_SitePlan.ai JAB 2/11/19

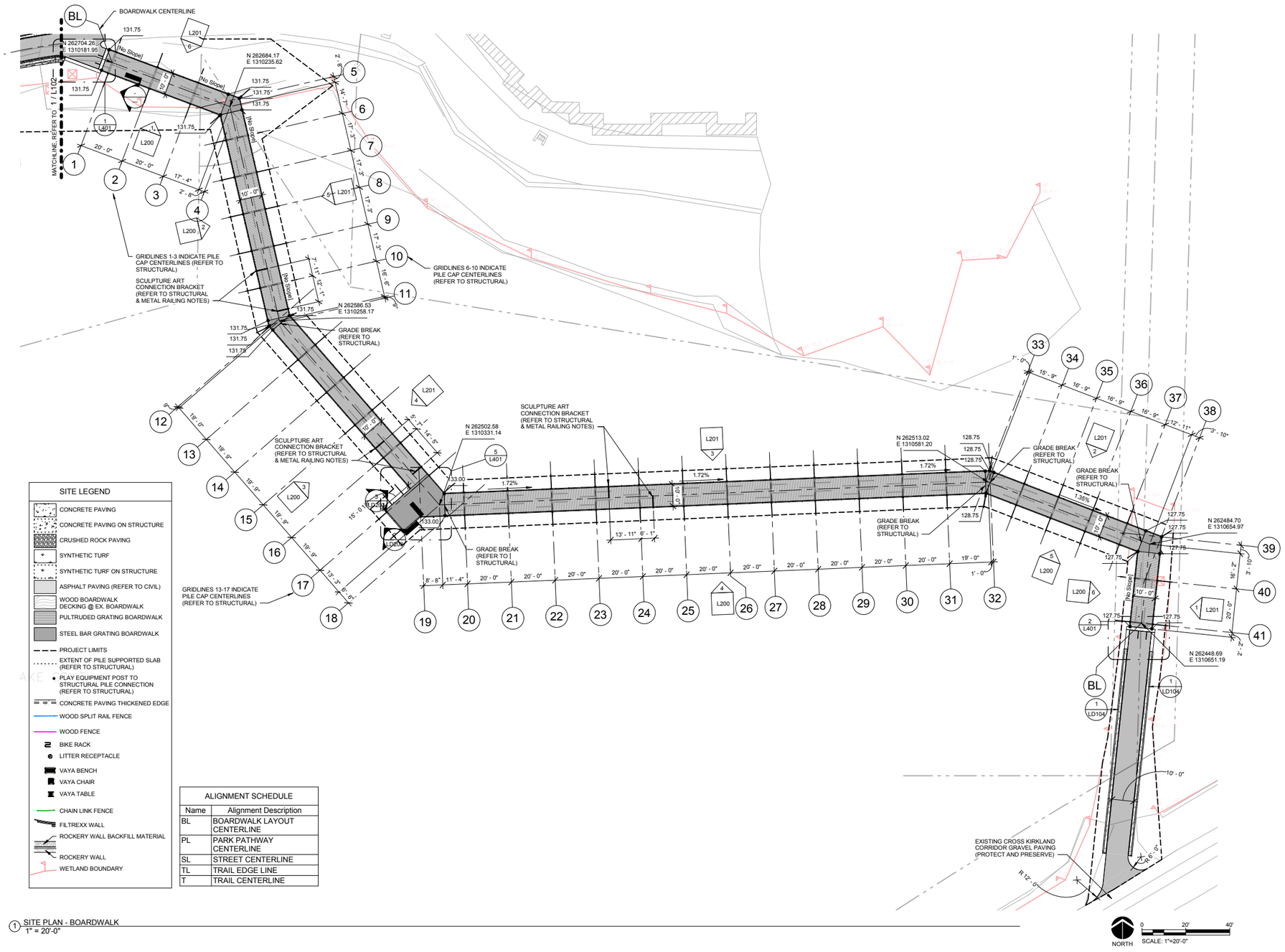
SOURCE: Berger, 2019

ESA

Totem Lake Park

Figure 4D

Trail Site Plan (100% Design)



SITE LEGEND

- CONCRETE PAVING
- CONCRETE PAVING ON STRUCTURE
- CRUSHED ROCK PAVING
- SYNTHETIC TURF
- SYNTHETIC TURF ON STRUCTURE
- ASPHALT PAVING (REFER TO CIVIL)
- WOOD BOARDWALK DECKING @ EX. BOARDWALK
- PULTRUDED GRATING BOARDWALK
- STEEL BAR GRATING BOARDWALK
- PROJECT LIMITS
- EXTENT OF PILE SUPPORTED SLAB (REFER TO STRUCTURAL)
- PLAY EQUIPMENT POST TO STRUCTURAL PILE CONNECTION (REFER TO STRUCTURAL)
- CONCRETE PAVING THICKENED EDGE
- WOOD SPLIT RAIL FENCE
- WOOD FENCE
- BIKE RACK
- LITTER RECEPTACLE
- VAYA BENCH
- VAYA CHAIR
- VAYA TABLE
- CHAIN LINK FENCE
- FILTREXX WALL
- ROCKERY WALL BACKFILL MATERIAL
- ROCKERY WALL
- WETLAND BOUNDARY

ALIGNMENT SCHEDULE

Name	Alignment Description
BL	BOARDWALK LAYOUT CENTERLINE
PL	PARK PATHWAY CENTERLINE
SL	STREET CENTERLINE
TL	TRAIL EDGE LINE
T	TRAIL CENTERLINE

1 SITE PLAN - BOARDWALK
1" = 20'-0"

Path: \\sfo-file01\PROJECTS\SEA\17xxxx\D170506.00 Totem Lake Park Permitting Phase 2\05 Figures Photos\Graphics\FEMA HA\ Fig04E_Boardwalk SitePlan.ai JAB 2/11/19

SOURCE: Berger, 2019

ESA

Totem Lake Park

Figure 4E

Boardwalk Site Plan (100% Design)

Attachment 1

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Washington Fish And Wildlife Office
510 Desmond Drive Se, Suite 102
Lacey, WA 98503-1263
Phone: (360) 753-9440 Fax: (360) 753-9405
http://www.fws.gov/wafwo/

In Reply Refer To: January 29, 2019
Consultation Code: 01EWFW00-2019-SLI-0355
Event Code: 01EWFW00-2019-E-00736
Project Name: Totem Lake Park Development -- Phase 1

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated and proposed critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. The species list is currently compiled at the county level. Additional information is available from the Washington Department of Fish and Wildlife, Priority Habitats and Species website: http://wdfw.wa.gov/mapping/phs/ or at our office website: http://www.fws.gov/wafwo/species_new.html. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether or not the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species, and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:
http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.). You may visit our website at http://www.fws.gov/pacific/eagle/for information on disturbance or take of the species and information on how to get a permit and what current guidelines and regulations are. Some projects affecting these species may require development of an eagle conservation plan: (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Also be aware that all marine mammals are protected under the Marine Mammal Protection Act (MMPA). The MMPA prohibits, with certain exceptions, the "take" of marine mammals in U.S. waters and by U.S. citizens on the high seas. The importation of marine mammals and marine mammal products into the U.S. is also prohibited. More information can be found on the MMPA website: http://www.nmfs.noaa.gov/pr/laws/mmpa/.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Related website:
National Marine Fisheries Service: http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Washington Fish And Wildlife Office
510 Desmond Drive Se, Suite 102
Lacey, WA 98503-1263
(360) 753-9440

Project Summary

Consultation Code: 01EWFW00-2019-SLI-0355

Event Code: 01EWFW00-2019-E-00736

Project Name: Totem Lake Park Development -- Phase 1

Project Type: TRANSPORTATION

Project Description: Construction of a boardwalk, path, and play filed at Totem Lake Park

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/47.71125589983922N122.17590280729542W

Counties: King, WA

Endangered Species Act Species

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
North American Wolverine *Gulo gulo luscus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5123	Proposed Threatened

Birds

NAME	STATUS
Marbled Murrelet *Brachyramphus marmoratus* Population: U.S.A. (CA, OR, WA) There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4467	Threatened
Streaked Horned Lark *Eremophila alpestris strigata* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7268	Threatened
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **proposed** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Fishes

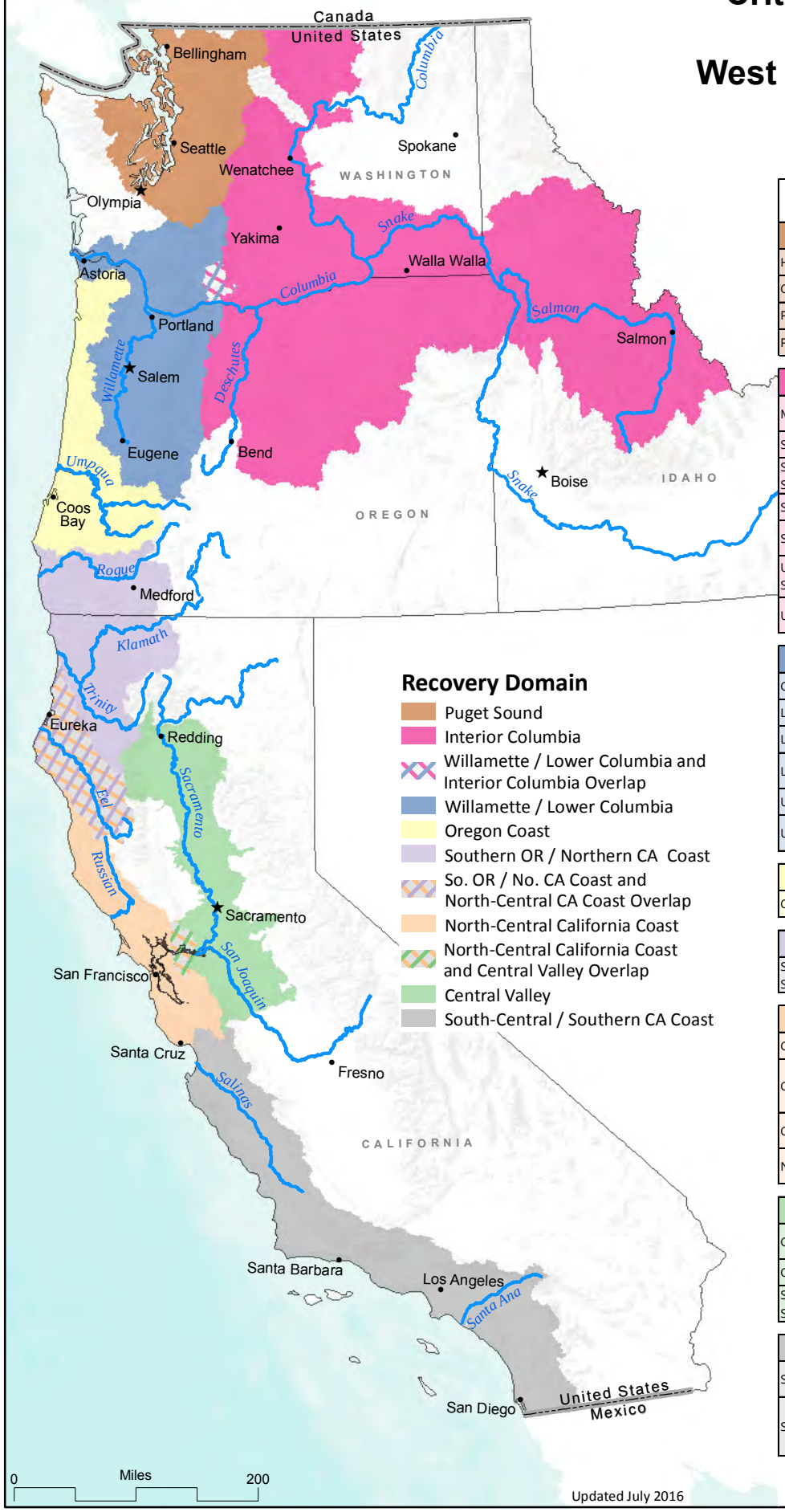
NAME	STATUS
Bull Trout *Salvelinus confluentus* Population: U.S.A., conterminous, lower 48 states There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8212	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Attachment 2

Status of ESA Listings & Critical Habitat Designations for West Coast Salmon & Steelhead



Updated July 2016

Evolutionarily Significant Unit / Distinct Population Segment	ESA Status	Date of ESA Listing	Date of CH Designation
Puget Sound Recovery Domain			
Hood Canal Summer-run Chum Salmon	T	3/25/1999	9/2/2005
Ozette Lake Sockeye Salmon	T	3/25/1999	9/2/2005
Puget Sound Chinook Salmon	T	3/24/1999	9/2/2005
Puget Sound Steelhead	T	5/11/2007	2/24/2016
Interior Columbia Recovery Domain			
Middle Columbia River Steelhead	T	3/25/1999 1/5/2006	9/2/2005
Snake River Fall-run Chinook Salmon	T	4/22/1992	12/28/1993
Snake River Spring / Summer-run Chinook Salmon	T	4/22/1992	10/25/1999
Snake River Sockeye Salmon	E	11/20/1991	12/28/1993
Snake River Steelhead	T	8/18/1997 1/5/2006	9/2/2005
Upper Columbia River Spring-run Chinook Salmon	E	3/24/1999	9/2/2005
Upper Columbia River Steelhead	T	8/18/1997 1/5/2006	9/2/2005
Willamette / Lower Columbia Recovery Domain			
Columbia River Chum Salmon	T	3/25/1999	9/2/2005
Lower Columbia River Chinook Salmon	T	3/24/1999	9/2/2005
Lower Columbia River Coho Salmon	T	6/28/2005	2/24/2016
Lower Columbia River Steelhead	T	3/19/1998 1/5/2006	9/2/2005
Upper Willamette River Chinook Salmon	T	3/24/1999	9/2/2005
Upper Willamette River Steelhead	T	3/25/1999 1/5/2006	9/2/2005
Oregon Coast Recovery Domain			
Oregon Coast Coho Salmon	T	2/11/2008	2/11/2008
Southern Oregon / Northern California Coast Recovery Domain			
Southern OR / Northern CA Coasts Coho Salmon	T	5/6/1997	5/5/1999
North-Central California Coast Recovery Domain			
California Coastal Chinook Salmon	T	9/16/1999	9/2/2005
Central California Coast Coho Salmon	E	10/31/1996 (T) 6/28/2005 (E) 4/2/2012 (RE)	5/5/1999
Central California Coast Steelhead	T	8/18/1997 1/5/2006	9/2/2005
Northern California Steelhead	T	6/7/2000 1/5/2006	9/2/2005
Central Valley Recovery Domain			
California Central Valley Steelhead	T	3/19/1998 1/5/2006	9/2/2005
Central Valley Spring-run Chinook Salmon	T	9/16/1999	9/2/2005
Sacramento River Winter-run Chinook Salmon	E	11/5/1990 (T) 1/4/1994 (E)	6/16/1993
South-Central / Southern California Coast Recovery Domain			
South-Central California Coast Steelhead	T	8/18/1997 1/5/2006	9/2/2005
Southern California Steelhead	E	8/18/1997 5/1/2002 (RE) 1/5/2006	9/2/2005

ESA = Endangered Species Act, CH = Critical Habitat, RE = Range Extension
E = Endangered, T = Threatened,

Critical Habitat Rules Cited

- 2/24/2016 (81 FR 9252) Final Critical Habitat Designation for Puget Sound Steelhead and Lower Columbia River Coho Salmon
- 2/11/2008 (73 FR 7816) Final Critical Habitat Designation for Oregon Coast Coho Salmon
- 9/2/2005 (70 FR 52630) Final Critical Habitat Designation for 12 ESU's of Salmon and Steelhead in WA, OR, and ID
- 9/2/2005 (70 FR 52488) Final Critical Habitat Designation for 7 ESU's of Salmon and Steelhead in CA
- 10/25/1999 (64 FR 57399) Revised Critical Habitat Designation for Snake River Spring/Summer-run Chinook Salmon
- 5/5/1999 (64 FR 24049) Final Critical Habitat Designation for Central CA Coast and Southern OR/Northern CA Coast Coho Salmon
- 12/28/1993 (58 FR 68543) Final Critical Habitat Designation for Snake River Chinook and Sockeye Salmon
- 6/16/1993 (58 FR 33212) Final Critical Habitat Designation for Sacramento River Winter-run Chinook Salmon

ESA Listing Rules Cited

- 4/2/2012 (77 FR 19552) Final Range Extension for Endangered Central California Coast Coho Salmon
- 2/11/2008 (73 FR 7816) Final ESA Listing for Oregon Coast Coho Salmon
- 5/11/2007 (72 FR 26722) Final ESA Listing for Puget Sound Steelhead
- 1/5/2006 (71 FR 5248) Final Listing Determinations for 10 Distinct Population Segments of West Coast Steelhead
- 6/28/2005 (70 FR 37160) Final ESA Listing for 16 ESU's of West Coast Salmon
- 5/1/2002 (67 FR 21586) Range Extension for Endangered Steelhead in Southern California
- 6/7/2000 (65 FR 36074) Final ESA Listing for Northern California Steelhead
- 9/16/1999 (64 FR 50394) Final ESA Listing for Two Chinook Salmon ESUs in California
- 3/25/1999 (64 FR 14508) Final ESA Listing for Hood River Canal Summer-run and Columbia River Chum Salmon
- 3/25/1999 (64 FR 14517) Final ESA Listing for Middle Columbia River and Upper Willamette River Steelhead
- 3/25/1999 (64 FR 14528) Final ESA Listing for Ozette Lake Sockeye Salmon
- 3/24/1999 (64 FR 14308) Final ESA Listing for 4 ESU's of Chinook Salmon
- 3/19/1998 (63 FR 13347) Final ESA Listing for Lower Columbia River and Central Valley Steelhead
- 8/18/1997 (62 FR 43937) Final ESA Listing for 5 ESU's of Steelhead
- 5/6/1997 (62 FR 24588) Final ESA Listing for Southern Oregon / Northern California Coast Coho Salmon
- 10/31/1996 (61 FR 56138) Final ESA Listing for Central California Coast Coho Salmon
- 1/4/1994 (59 FR 222) Final ESA Listing for Sacramento River Winter-run Chinook Salmon
- 4/22/1992 (57 FR 14653) Final ESA Listing for Snake River Spring/summer-run and Snake River Fall Chinook Salmon
- 11/20/1991 (56 FR 58619) Final ESA Listing for Snake River Sockeye Salmon
- 11/5/1990 (55 FR 46515) Final ESA Listing for Sacramento River Winter-run Chinook Salmon

APPENDIX J

STRUCTURAL ENGINEERING CALCULATIONS

BOARDWALK & SITE

City of Kirkland

Structural Calculations For

Totem Lake Park

Totem Lake, WA 98034

BLAZE BRESKO
STATE OF WASHINGTON
31728
STRUCTURAL ENGINEER
PROFESSIONAL ENGINEER

Prepared for: The Berger Partnership

Job #: 00586-2015-04-02

STRUCTURAL ENGINEERING

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USGS Design Maps Summary Report

User-Specified Input

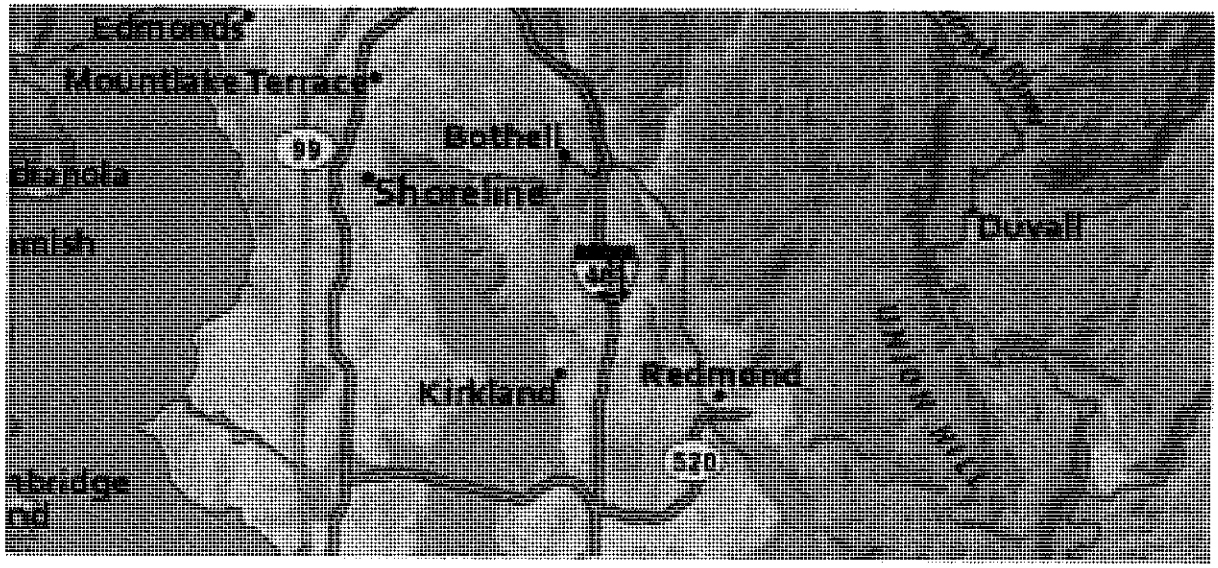
Report Title Totem Lake Boardwalk
Tue October 3, 2017 22:09:28 UTC

Building Code Reference Document ASCE 7-10 Standard
(which utilizes USGS hazard data available in 2008)

Site Coordinates 47.7145°N, 122.18094°W

Site Soil Classification Site Class E - "Soft Clay Soil"

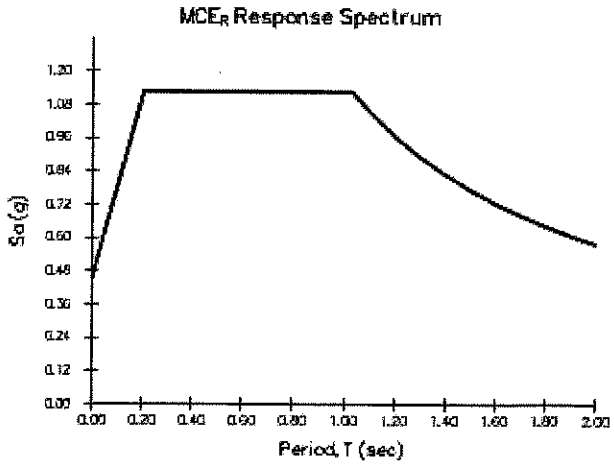
Risk Category I/II/III

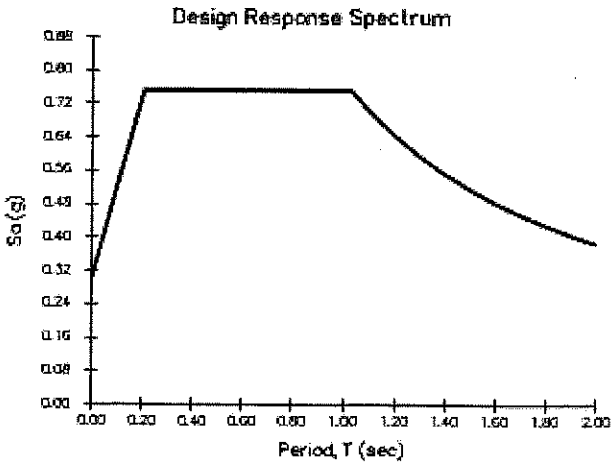


USGS-Provided Output

S_S =	1.254 g	S_{MS} =	1.129 g	S_{DS} =	0.752 g
S_1 =	0.483 g	S_{M1} =	1.160 g	S_{D1} =	0.774 g

For information on how the SS and S1 values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the "2009 NEHRP" building code reference document.

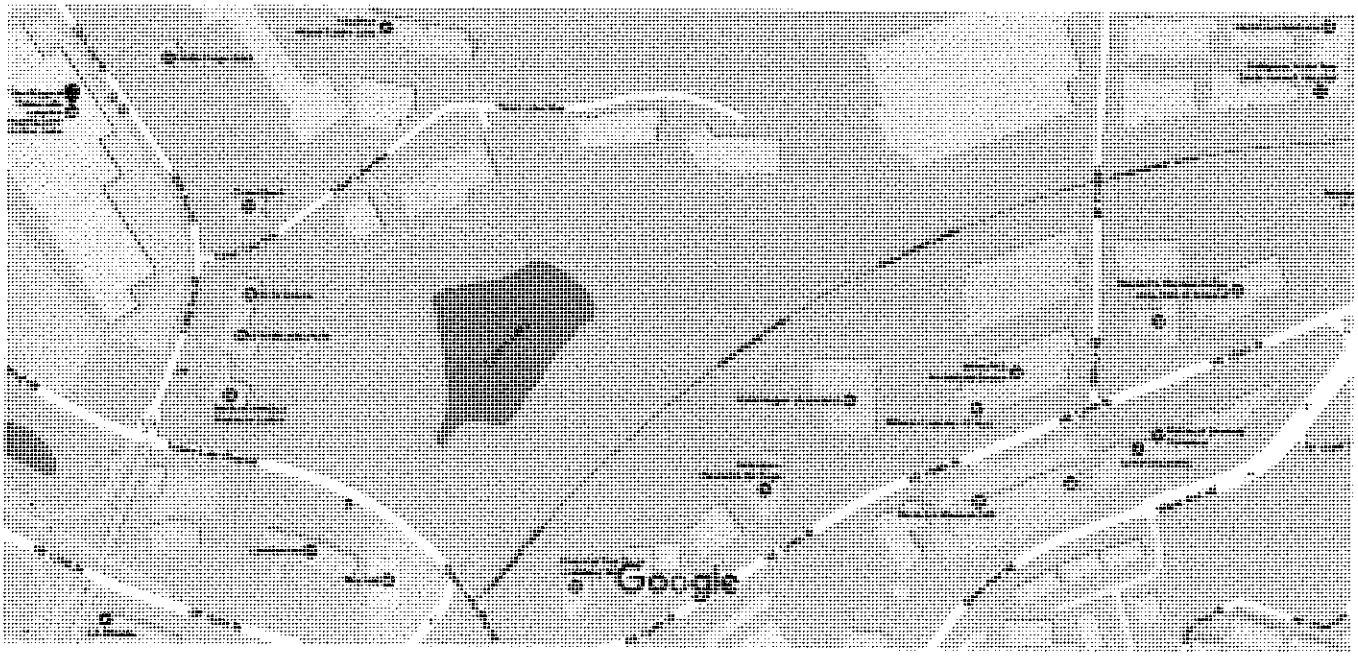




For PGA_M, T_L, C_{RS}, and C_{R1} values, please view the detailed report.

CR-1

Google Maps The Village at Totem Lake



Map data ©2017 Google 200 ft

Kzt = 1.00
V = 110 mph
Exposure B

CR-2

Criteria Sheet

Codes:

Structural:	IBC 2015	
	ASCE 7-10	Address line 1
Wood:	NDS 2015	Address line 2
Steel:	AISC 14th ed.	Address line 3
Concrete:	ACI 318-14	
Masonry:	ACI 530-13	Location: (Lat, Long)

Occupancy Category

Risk Category: II ASCE 7 Table 1.5-1

Seismic Load Summary:

Analysis Procedure: Equivalent Lateral Force Procedure

Lateral System: Ordinary Steel Cantilevered Columns

R:	1.25		C_d= 1.25
Base Shear V =	1.8	k	Ω_o= 1.25
S_S=	1.254		S_1= 0.483
S_{DS}=	0.75		S_{D1}= 0.77
C_s=	0.602		I_E= 1.0

Wind Load Summary:

I_w= 1.00	V= 110
Exposure = B	K_{ZT}= 1.00

Dead Loads:

Boardwalk

Decking	3	psf
Boardwalk Framing	12	psf
Guardrail Weights	4	psf
Misc.	1	psf
		psf
	20	psf
Use	20	psf

Live Loads:

Snow	25	psf
Walkway	100	psf

Soils:

Allowable Bearing NA - Pile Supporte psf

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Project:	Totem Lake Park	Date:	11/10/2017
	kirkland, WA	Project #:	
		Design:	GFJ
		Sheet:	3

Seismic Design

ASCE 7-10 Seismic Analysis
Equivalent Lateral Force Procedure

Risk Category	II	I, II, or III, or IV per Table 1.5-1
Site Class	E	per soils report
		(D assumed, without soils report)

Ω_o	1.25		
S_S	1.254		2% in 50 yr, Latitude & Longitude lookup
S_1	0.483		2% in 50 yr, Latitude & Longitude lookup
h_n	8	ft	
R	1.25		Ordinary Steel Cantilevered Columns
I_e	1.0		Table 1.5-2
C_d	1.25		
Ct	0.02		Table 12.8-2
x	0.75		Table 12.8-2
T	0.10	(sec)	Eq. 12.8-7
T_0	0.21	(sec)	
T_S	1.03	(sec)	
k	1.000		
Fa	0.90		Table 11.4-1
Fv	2.40		Table 11.4-2
S_{MS}	1.13		Eq. 11.4-1
S_{M1}	1.16		Eq. 11.4-2
S_{DS}	0.75		Eq. 11.4-3
S_{D1}	0.77		Eq. 11.4-4
Cs	0.602		Eq. 12.8-2
	6.498		Eq. 12.8-3 need not exceed, $T < T_L$
	0.010		Eq. 12.8-5 or 12.8-6 minimum
Cs, design	0.602		
Bldg. Weight	3.0	k	
$V = C_S W$	1.8	k	Eq. 12.8-1, Strength Level Base Shear
$V = C_{Sasd} W$	1	k	Eq. 12.8-1 Allowable Stress Base Shear

$T_a = C_t h_n^x$ Eq. 12.8.7

$S_{MS} = F_a S_S$ Eq. 11.4-1
$S_{M1} = F_v S_1$ Eq. 11.4-2
$S_{DS} = {}^2/_3\, S_{MS}$ Eq. 11.4-3
$S_{D1} = {}^2/_3\, S_{M1}$ Eq. 11.4-4

$C_S = \frac{S_{DS}}{(R/I_e)}$ Eq. 12.8-2
$C_S = \frac{S_{D1}}{T(R/I_e)}$ Eq. 12.8-3
$C_S = \frac{S_{D1} T_L}{T^2 (R/I_e)}$ Eq. 12.8-4
$C_S \geq 0.044 S_{DS} I_e$ Eq. 12.8-5
$C_S \geq 0.01$ Eq. 12.8-5

$C_{VX} = w_x h_x^k / \sum_{i=1}^{n} w_x h_i^k$ Eq. 12.8-12

$F_{px} = {}^{\sum_{i=x}^{n} F_i}/_{\sum_{i=x}^{n} w_i}\, w_{px}$ Eq. 12.10-1
$F_{px} \geq 0.2 S_{DS} I_e w_{px}$ Eq. 12.10-2
$F_{px} \leq 0.4 S_{DS} I_e w_{px}$ Eq. 12.10-3

Vertical Distribution
ASD ρ= 1.3

Level	hx (ft)	Wx	hx^k (ft)	$Wxhx^k$	Cvx (%)	Story Shear ASD Fx (k)	Diaphragm Force (ρ not included) ΣV (k)	Fpx (k)	γ=Fpx/Fx
			0.0	0.0	0.000	0.0	0.0	0.0	0.00
			0.0	0.0	0.000	0.0	0.0	0.0	0.00
			0.0	0.0	0.000	0.0	0.0	0.0	0.00
Roof	1.0	1	1.0	1.0	0.032	0.0	0.0	0.0	1.00
3	20.0	1	20.0	20.0	0.645	1.1	1.1	0.4	0.40
2	10.0	1	10.0	10.0	0.323	0.5	1.6	0.4	0.79
	Σ	3.0		31.0		1.6			

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kirkland, WA
Date: 11/10/2017
Project #:
Design: GFJ
Sheet: 4

Wind Design

ASCE 7-10 Method 2 - Analytical Procedure

Wind Coefficients

Exposure	B	
V=	110	mph
K_d=	0.85	Table 26.6-1
I_w=	1	Table 1.5-2
G=	0.85	26.9.4

Location and Building Dimensions

Calculate Kzt?	no	
Kzt	1	
Roof Angle	0	degrees
Ground to top of roof	8	ft
Bottom of roof to top of roof	1	ft
(mean roof height) h	7.5	ft

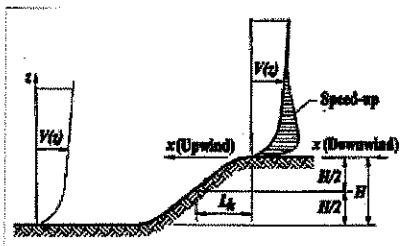
Pressure Coefficients from Figure 27.4-1:

Bldg Face	C_p
Windward Wall	0.8
Leeward Wall	-0.5
Windward Roof	0
Leeward Roof	-0.7

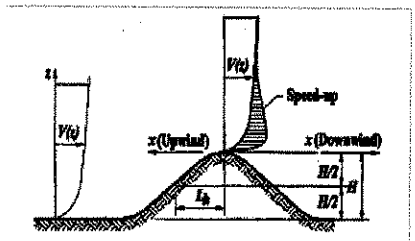
*Note= Cp values are conservative worst case values

Pressures:

Ht	K_z	q_z	$P_{ww\ walls}$	$P_{lwwalls}$	Strength P_{walls} (psf)	Allowable P_{walls} (psf)
0-15	0.57	15.01	10.21	6.38	**16.58**	**9.95**
15-20	0.62	16.32	11.10	6.38	**17.48**	**10.49**
20-25	0.66	17.38	11.82	6.38	**18.20**	**10.92**
25-30	0.7	18.43	12.53	6.38	**18.91**	**11.35**
30-40	0.76	20.01	13.61	6.38	**19.99**	**11.99**
41-50	0.81	21.33	14.50	6.38	**20.88**	**12.53**
			$P_{ww\ roof}$	$P_{lw\ roof}$	P_{roof} (psf)	P_{roof} (psf)
			0.00	8.93	**8.93**	**5.36**



ESCARPMENT



2-D RIDGE OR 3-D AXISYMMETRICAL HILL

$K_{zt} = (1 + K_1 K_2 K_3)^2$

K_1 = Per Figure

$K_2 = (1 - |x|/\mu L_h)$

$K_3 = e^{-\gamma z/L_h}$

$K_{zt} = 1$, If H/Lh ≤ 0.2

PER FIGURE 26.8-1

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kirkland, WA

Date: 11/10/2017

Project #:

Design: GFJ

Sheet: 5

Lateral Analysis (Boardwalk)

$S_S = 1.254$, $F_a = 0.90$, $S_{MS} = 1.128$, $S_{DS} = 0.752$

$S_1 = 0.483$, $F_V = 2.40$, $S_{M1} = 1.159$, $S_{D1} = 0.773$

Site Class "E", Risk Category II

R = 1.25 (Ordinary Cantilevered Steel Column System)

↳ Allowed for Site Class "E", Footnote "i" due to height + weight.

Seismic:

$$C_S = \frac{S_{DS}}{(R/I_e)} = \frac{(0.752)}{(1.25/1.00)} = \underline{\underline{0.602}} \leftarrow \text{governs}$$

$$C_{S\,max} = \frac{S_{D1}}{T\,(R/I_e)} = \frac{(0.773)}{(0.10)(1.25/1.00)} = 6.16$$

$$C_{S\,min} = 0.044 S_{DS} I_e = 0.033$$

$V_{Base} = C_S \cdot W$

$C_S = 0.602$

$W = (20\,psf)(16' \times 20') = 4000\,lbs$ ← Trib To Each Pile Cap

(Service) $V_{Base} = (0.602)(4{,}000) = 2.41K$

(ASD) $V_{Base}(ASD) = (0.7)(2.41) = \underline{\underline{1.68\,K}}$ (Ea Direction)

Wind:

Projected Sail Area (Perp. To Boardwalk)

(Service) $V = (20')(4.5)(0.65)(16\,psf) = 936\,lbs$ (Service Level)

(ASD) $V_{Base} = (0.6)(936\,lbs) = \underline{\underline{562\,lbs}}$ (ASD) (Perp.)

$\boxed{\text{Seismic Governs}}$

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SWENSON SAY FAGÉT

PROJECT: Totem Lake Park, Kirkland, WA

DATE: 12/1/18

PROJ. #:

DESIGN: GFJ

SHEET: L-1

Lateral Design (Boardwalk)

V_{Base} = 1.68K (ASD) Ea Pile Cap.

* Use Battered Piles To Resist Forces *

Use Horiz component of Battered Piles 2"ϕ

= (Sin(14°))(4,000 lbs) = 0.967 K/pile

Use (2) 2"ϕ Battered Piles In Ea Direction

↳ = (2)(0.967 K/pile) = 1.93K > 1.68K OK ✓

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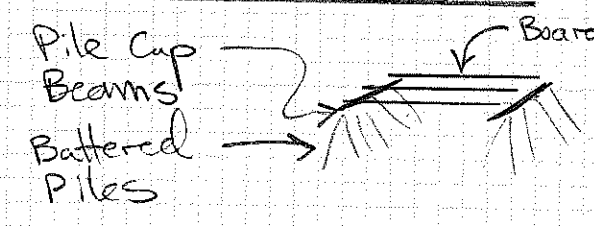
Lateral Design (Boardwalk Beam)

Design Theory:



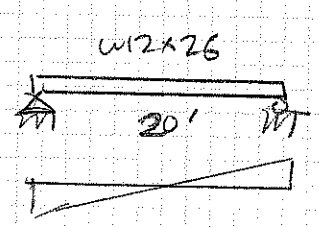
Since the grating used does not have the ability to act as a structural diaphragm, we are checking the boardwalk beams + connections in weak-axis bending to transfer seismic forces.

Check Center Beam:

Span = 20'

$w = (1680\ lbs)(1/2)(1/10') = 84\ plf$

Trib Area



Weak Axis Bending (Seismic Only)

$R_a = 0.84K$ $\quad V_n/\Omega = 61.3K$

$V_a = 0.84K$ $\quad M_n/\Omega = 20.4K'$

$M_a = 4.20K'$ $\quad \Delta = \ = 0.60'' \ l/398$

Use W12x26

Check Biaxial Flexure (Combined)

$P_r/P_c < 0.2$, use eqn $\frac{P_r}{2P_c}\left(\frac{M_{rx}}{M_{cx}} + \frac{M_{ry}}{M_{cy}}\right) \leq 1.0$

$\left(\frac{4.20}{20.4} + \frac{30.0}{75.9}\right) = 0.601 < 1.00$ ✓

Use W12x26

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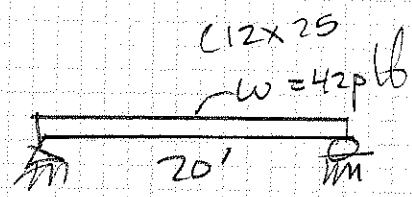
Lateral Design Continued (Boardwalk Beams)

Check Edge Beam:

span = 20'

$w = (1680)(1/4)(1/10') = 42 plf$



Weak Axis Bending

$R_a = 0.42K$ $\quad V_n/\Omega = 27.4K$

$V_a = 0.42$ $\quad M_n/\Omega = 9.53 K\text{-}ft$

$M_a = 2.10 K'$ $\quad \Delta = 1.17 \; l/205$

Use C12x25

Check Biaxial Flexure (Combined)

$P_r/P_c < 0.2$ Use Eqn $\frac{P_r}{2P_c}\left(\frac{M_{rx}}{M_{cx}} + \frac{M_{ry}}{M_{cy}}\right) \leq 1.00$

$\left(\frac{2.10}{9.53} + \frac{15.00}{37.8}\right) = 0.62 < 1.00$ OK ✓

Use C12x25

Check Connection @ Beam Ends:

Use (1) 5/8"ϕ A307 Bolt To Pile Cap Beam

$\frac{P_n}{\Omega} = 4.14K/Bolt >> 840lbs$ or $420lbs$ OK ✓

(Seismic out-of-plane reaction)

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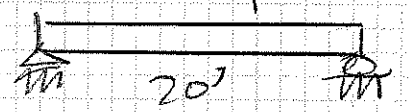
Boardwalk Gravity

Live Load = 100 psf
DL = 20 psf
Snow = 25 psf

Grating Shall Be Pultruded T25115 1 1/2" Depth Grating (Safe-T-Span)

Typical Rim Beam

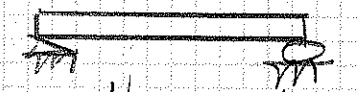
Span = 20'
$w = (10'/4)(120\,psf) = 300\,plf$



$R = 3.00K/3.75\ \ Vn/\Omega = 79\ K$
$Va = 3.00K/3.75\ \ Mn/\Omega = 28.3K'$
$Ma = 15.00K'/23.4'\ \ \Delta = 0.23''/1043$
Use C12x30

Center Beam

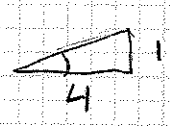
Span = 20'
$w = (10/2)(120\,psf) = 600\,plf$ (Unbraced 20')



$R = 6.00K/7.5\ \ Vn/\Omega = 64K$
$Va = 6.00K/7.5\ \ Mn/\Omega = 53.3K'$
$Ma = 30.0K'/46.8'\ \ \Delta = 0.31''/767$
W12x30 $0.89''$ 1.1

Pile Spacing

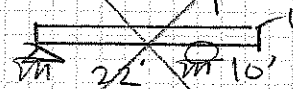
Total Reaction @ 20'
$= (120\,psf)(10')(20') = 24.00K$
2"ϕ Pile Capacity = 4K
Use (6) 2"ϕ Pipe Piles @ 20'-0" O.C.



$\tan\theta = \frac{opp}{adj}$
$\theta = 14°$
Vertical Component
$= (\cos(14°))(4K) = 3.88K$
For Battered Piles
Total Support Capacity
↳ $(6)(3.88K) = 23.28K$
OK ✓

Cantilevered Edge Beam @ Look-out

Span = 22' + 10'
$w = (2.5)(120\,psf) = 300\,plf$



$R_1 =$ $\quad Vn/\Omega =$
$R_2 =$ $\quad Mn/\Omega =$
$Va =$ $\quad \Delta =$
$Ma =$ $\quad$ Use

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SSF STRUCTURAL ENGINEERING

PROJECT: Totem Lake Park, Kirkland, WA
DATE: 12/1/18
PROJ. #:
DESIGN: GFJ
SHEET: G-7

Spray Park Slab Design + Pile Spacing

DL = (8/12)(150) (self-wt)
+ (5/12)(150) (Topping Slab) = 162 psf → Use 200psf

LL = 100 psf

Total = 300 psf (ASD)

Use 4" ϕ Schedule 40 Pipe Piles w/ 20kips Capacity

Spacing = $\sqrt{\frac{20{,}000\text{lbs}}{(300\text{psf})}}$ = 8.16' OC

Use 4" ϕ Schedule 40 @ 8'-0" OC Ea Way

Slab Design: (Two-Way Slab Design)

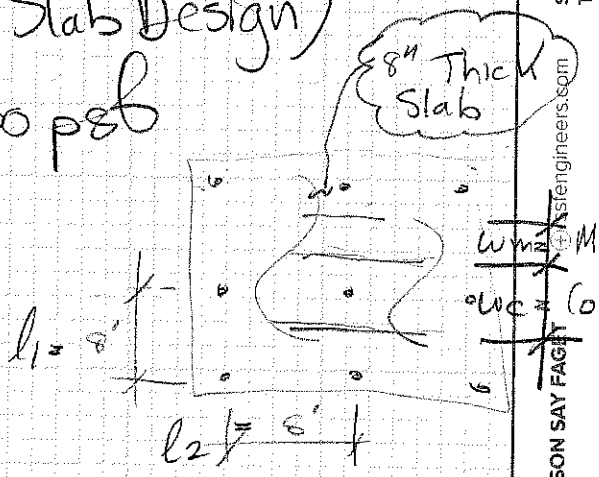
q_u = (1.2)(200) + (1.6)(100) = 400 psf

l_1 = 8' (length in Span direction)

l_2 = 8' (Perp. to L1)

w_c = 8'/2 = 4'

w_m = 8' − 8/2 = 4', l_n = 8'



Flexure:

$M_o = \frac{q_u l_2 l_n^2}{8} = \frac{(400)(8')(8)^2}{8} = 25.60$ K-ft

$M_m = 0.35\ M_o = (0.35)(25.60) = 8.96$ K-ft

$M_{cM} = 0.60\ M_m = (0.60)(8.96\text{K-ft}) = 5.40$ K-ft (Col. Strip Moment Mid)

$M_{mM} = M_m - M_{cM} = 3.58$ K-ft (Mid Strip Positive Moment Midspan)

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Sorum Park Slab Design Continued:

Flexure:

Col. Strip Neg Moment @ Interior Supp

$M_c = 0.65 M_o = (0.65)(25.60) = 16.64$ K-ft

$M_{cc} = (0.75)(M_c) = (0.75)(16.64 \text{ K-ft}) = 12.48$ K-ft (−)

$M_{mc} = M_c - M_{cc} = 4.16$ K-ft (−) (Neg Moment @ Middle Strip Interior Supp)

Check Slab For Worst Case Positive Moment @ Mid Span

$f'_c = 4$ ksi $b_w = 96''$ $M_u = 5.40$ K-ft

$F_y = 60$ ksi $d = 4''$ $A_s = (0.31 \text{ in}^2/\text{ft})(8') = 2.48 \text{ in}^2$

$$a = \frac{A_s F_y}{0.85 f'_c b_w} = \frac{(2.48 \text{ in}^2)(60 \text{ ksi})}{(0.85)(4 \text{ ksi})(96)} = 0.46 \text{ in}$$

$$\phi M_n = \phi A_s F_y (d - a/2) = \left(63.10 \frac{\text{K-in}}{\text{ft}}\right)\left(\frac{8'}{12}\right) = 42.07 \text{ K-ft} \gg M_u$$

Use 8" slab w/ #5 @ 12" OC Centered

$$A_{s\,min} = \frac{200 b d}{F_y} = 1.28 \text{ in}^2 < 2.48 \text{ in}^2 \checkmark$$

$$A_{s\,min} = \frac{3\sqrt{f'_c}\, b d}{F_y} = 1.21 \text{ in}^2 < 2.48 \text{ in}^2 \checkmark$$

Check Slab For Worst Case Negative Moment @ Support:

$f'_c = 4$ ksi $b_w = 96''$ $M_u = 12.48$ K-ft

$F_y = 60$ ksi $d = 4''$ $A_s = (0.31 \text{ in}^2/\text{ft})(8') = 2.48 \text{ in}^2$

$a = 0.46$ in

$\phi M_n = 42.07$ K-ft $\gg M_u = 12.48$ K-ft ✓

Use 8" Slab w/ #5 @ 12" OC Centered

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Spray Park Slab Design Continued:

Check Flexural Shear @ Support:

$x = \frac{l_1}{2} - \left(d + \frac{c_1}{2}\right) = 3.41\ ft$

$V_u = q_u l_2 x = (400psf)(8')(3.41') = \underline{10.91K}$

$\phi V_c = 2\phi d l_2 \lambda \sqrt{f'c}$

$= (2)(0.75)(4)(96)(1.0)(\sqrt{4000}) = \underline{36.43K} > V_u$ OK

$\boxed{8''\ \text{Slab OK}}$

Check Punching Shear:

$b = c + d = (6'' + 4'') = 0.83\ ft$

$V_u = q_u (l_1 l_2 - b^2) = \underline{25.32K}$

$b_o = 4b = (4)(0.83') = 3.32\ ft$

$\phi V_c = 4\phi b_o d \lambda \sqrt{f'c}$

$= (4)(0.75)(40)(4)(1.0)(\sqrt{4000}) = \underline{30.35K} > V_u$ OK

$\boxed{8''\ \text{Slab OK}}$

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Concrete Stair on Grade Design

$w_{DL} = (6/12)(150) = 75\,psf$

$w_{LL} = 100\,psf$

$w_u = (1.2)(75) + (1.6)(100) = 250\,psf$

Check One-Way Slab Design:

$w_u = (250\,psf)(1'\,trib) = 250\,plf$

$l_n = 9.5'$

Try #4 @ 12"OC Ea Way Centered

$A_s = 0.20\,in^2$

$f'_c = 3\,ksi$, $F_y = 60\,ksi$

$b_w = 12''$

$d = 3''$

$a = \dfrac{A_s F_y}{0.85 f'_c b_w} = 0.39\,in$

$M_u = w_u l_n^2/11 = 24.61\,k\text{-}in$

$\phi M_n = \phi A_s F_y (d - a/2) = 30.3\,k\text{-}in > M_u$ OK ✓

$A_s\ min = \dfrac{200\,b_w d}{F_y} = 0.12\,in^2/ft$ ✓

$A_s\ min = \dfrac{3\sqrt{f'_c}\,b_w d}{F_y} = 0.098\,in^2/ft$ ✓

$\rho = \dfrac{A_s}{bd} = 0.0055$ ✓ $\rho_t = 0.319(\beta_1)\left(\dfrac{f'_c}{F_y}\right) = 0.0135$

↳ Tension controlled OK → Ductile Failure

$V_u = 1.15\,w_u l_n/2 = 1.36\,k$

$\phi V_c = \phi 2\sqrt{f'_c}\,b_w d = 2.96\,k > V_u$ OK ✓

$\dfrac{\phi V_c}{2} > V_u$ → No Shear Steel Req'd!

[Use 6" Slab w/ #4 @ 12"OC Ea Way]

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PROJECT Totem Lake Park, Kirkland, WA

DATE 12/1/18

PROJ. # GFT

DESIGN G-5

SHEET

Concrete Stair on Grade Design Cont'd

Check Grade Beam Design + Pile Spacing:

$w_u = (250\,psf)(10'/2) = 1250\,plf$ (LRFD)

$l_n = 4'$ (pile Spacing) See Below

$M_u = w_u l_n^2/11 = 21.82\,K\text{-}in$

$b_w = 8''$, $A_s = (2)\#4 = 0.40\,in^2$

$d = 12'' - 3.25'' = 8.75''$

$f'_c = 3000\,psi$

$F_y = 60{,}000\,psi$

$a = \frac{A_s F_y}{0.85 f'_c b_w} = 1.17\,in$

Tension Controlled

$\rho = \frac{A_s}{bd} = 0.0057$

$\rho_t = 0.319(\beta_1)\left(\frac{f'_c}{F_y}\right) = 0.0135$ ✓

$\phi M_n = \phi A_s F_y (d - a/2) = 176\,K\text{-}in > M_u$ OKV

$A_s\,min = 200\,b_w d/F_y = 0.233\,in^2$ ✓

$= 3\sqrt{f'_c}\,b_w d/F_y = 0.192\,in^2$ ✓

$V_u = 1.15\,w_u l_n/2 = 2.88\,K$

$\phi V_c = \phi 2\sqrt{f'_c}\,b_w d = 5.75\,K$ $\quad \phi V_c/2 > V_u \rightarrow$ No Shear Steel Req'd

Use 8" wide x 12" Deep Conc. Grade Beam w/ (2) #4 cont Bot.

Pile Spacing:

$w_a = (75 + 100)(10'/2) = 875\,plf$ (allowable)(ASD)

Pile Capacity 2" ϕ Schedule 80 = 4000 lbs

Spacing $= \frac{4000}{875} = 4.57'$ OC

Use 2" ϕ Schedule 80 Pipe Piles @ 4'-0" OC

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SSF STRUCTURAL ENGINEERING

PROJECT: Totem Lake Park, Kirkland, WA

DATE: 12/1/18

PROJ. #: GFJ

DESIGN: 6-6

SHEET

Pipe Pile Capacity Check :

$F_y = 35$ Ksi
$E = 29{,}000$ Ksi

	2" ϕ Pipe (Sch 80)	3" ϕ Pipe (Sch 80)	4" ϕ Pipe (Sch 80)
D/t =	11.7	12.5	14.3
λ_r =	91	91	91
A_g =	1.40 in²	2.83 in²	4.14 in²
h =	15'	15'	15'
r =	0.771 in	1.14 in	1.48 in
K =	1.00	1.00	1.00
$\frac{Kl}{r}$ =	233 >	158 >	122 <
$4.71\sqrt{\frac{E}{F_y}}$ =	136	136	136
F_e =	5,272 psi	11,465 psi	19,229 psi
F_{cr} =	4,623 psi	10,054 psi	16,338 psi
$\frac{P_n}{\Omega}$ =	3,876 lbs	17,038 lbs	40,502 lbs

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STRUCTURAL ENGINEERING

PROJECT: Totem Lake Park, Kirkland, WA

DATE: 12/1/18

PROJ. #: GFJ

DESIGN: G-7

SHEET

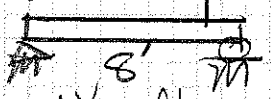
Wood Boardwalk Gravity

Live Load = 100 psf
DL = 20 psf
Snow = 25 psf

Typical Infill Purlin framing

Span = 8'

$w = (16/12)(120\,psf) = 160\,plf$



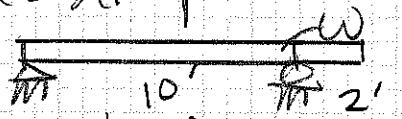
R = 0.64K fb = 718 psi
M = 1.28K' fv = 56 psi
Δ = 0.115" l/837

Use P.T. 2x10 @ 16" o.c.

Typical Purlin Support Beam

Span = 10'

$w = (8')(120\,psf) = 960\,plf$



R_1 = 2.30K fb = 899 psi
R_2 = 3.45K fv = 78 psi
M = 5.53K' Δ = 0.18" l/459

Use (2) P.T. 4x12

New Wood Piling

Reaction = (3.45K)(2) = 7.0K

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APPENDIX **K**

STRUCTURAL ENGINEERING CALCULATIONS

RESTROOM BUILDING

City of Kirkland

STRUCTURAL CALCULATIONS

Totem Lake Park
Phase 1
Kirkland, WA 98034

INNOVA Job No. 17-116

Prepared for:
Kirkland Parks and Community Services Department
123 5th Avenue
Kirkland, WA 98033
(425) 587-3874

November 29, 2017

Prepared by:
Paul McCormick P.E., S.E.

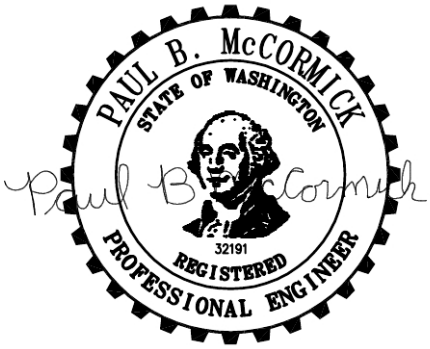

TABLE OF CONTENTS

This package includes the following:

Section:

Project: Totem Lake
Subject:
With/To:
Address:
Date: 11-27-18

Project No.: 17-116
Phone:
Email/Fax:
Pages Including Cover:
By: S. Hall

☐ Page ___ of ___
☐ Calculations
☐ Memorandum
☐ Meeting Minutes
☐ Phone Memo

INNOVA architects
950 Pacific Avenue, Suite 450
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253-572-4903

GRAVITY DESIGN

STRUCTURE AND FOUNDATION

INNOVA Architects
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Tacoma, WA 98402
253-572-4903

JOB TITLE	Totem Lake		
JOB NO.	17-116	SHEET NO.	
CALCULATED BY	SGH	DATE	7/6/18
CHECKED BY		DATE	

Roof Design Loads

Items	Description	Multiple	psf (max)	psf (min)
Roofing	Metal, copper, or tin sheets		1.5	1.0
Deck	3/4" plywood/OSB		2.7	2.3
Framing	Steel roof beams & girders		5.0	3.0
Insulation	None		0.0	0.0
Ceiling	5/8" plywood/OSB		2.2	1.8
Sprinklers	None		0.0	0.0
Mech & Elec	Mech. & Elec.		2.0	0.0
Misc.	5/8" plywood/OSB → DECKING		2.2	1.8
		Actual Dead Load	○ 15.6	○ 9.9
		Use this DL instead	◉ 16.0	◉ 12.0
		Live Load	10.0	0.0
		Snow Load	25.0	0.0
		Wind (zone 2 - 100sf)	10.0	-14.1
ASD Loading		Dead + Snow Load	41.0	-
		Dead + 0.75(Wind + Snow) Load	42.3	-
		0.6*Dead + Wind Load	-	-6.9
LRFD Loading		1.2D + 1.6 S + 0.8W	67.2	-
		1.2D + 1.6W + 0.5S	47.7	-
		0.9D + 1.6W	-	-11.8

Roof Live Load Reduction Roof angle 0.00 / 12 0.0 deg

0 to 200 sf: 10.0 psf
200 to 600 sf: 24 - 0.02Area, but not less than 12 psf
over 600 sf: 12.0 psf

300.0 sf: 18.0 psf
400.0 sf: 16.0 psf
500.0 sf: 14.0 psf
User Input: 2000.0 sf: 12.0 psf

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Project Title: Totem Lake
Engineer: SGH
Project Descr:
Project ID: 17-116

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Steel Beam

File = p:\2017\17-116 Totem Lake Splash Pad (Berger)\Engineering Calcs\Struct\totem-lake-enercalc.ec6
ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.14.12.31

Lic. # : KW-06010241
Licensee : INNOVA Architects Inc

Description : Roof Beam

CODE REFERENCES

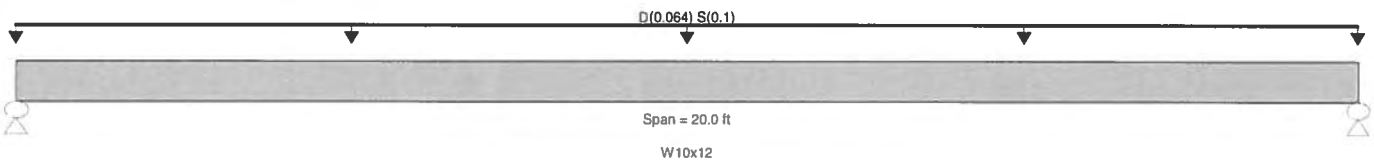
Calculations per AISC 360-10, IBC 2012, ASCE 7-10
Load Combination Set : ASCE 7-10

IBC 2015 OK

Material Properties

Analysis Method : Allowable Strength Design
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling
Bending Axis : Major Axis Bending
Load Combination ASCE 7-10

Fy : Steel Yield : 50.0 ksi
E: Modulus : 29,000.0 ksi



NOTE: W10 X 17 USED

Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0160, S = 0.0250 ksf, Tributary Width = 4.0 ft, (Gravity)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.282 : 1	Maximum Shear Stress Ratio =	0.047 : 1
Section used for this span	W10x12	Section used for this span	W10x12
Ma : Applied	8.803 k-ft	Va : Applied	1.761 k
Mn / Omega : Allowable	31.207 k-ft	Vn/Omega : Allowable	37.506 k
Load Combination	+D+S+H	Load Combination	+D+S+H
Location of maximum on span	10.000ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.233 in	Ratio =	1,031
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.409 in	Ratio =	586
Max Upward Total Deflection	0.000 in	Ratio =	0 <240

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios		Summary of Moment Values							Summary of Shear Values		
Segment Length	Span #	M	V	Mmax +	Mmax -	Ma - Max	Mnx	Mnx/Omega	Cb	Rm	Va Max	Vnx	Vnx/Omega
+D+H													
Dsgn. L = 20.00 ft	1	0.122	0.020	3.80		3.80	52.12	31.21	1.00	1.00	0.76	56.26	37.51
+D+L+H													
Dsgn. L = 20.00 ft	1	0.122	0.020	3.80		3.80	52.12	31.21	1.00	1.00	0.76	56.26	37.51
+D+Lr+H													
Dsgn. L = 20.00 ft	1	0.122	0.020	3.80		3.80	52.12	31.21	1.00	1.00	0.76	56.26	37.51
+D+S+H													
Dsgn. L = 20.00 ft	1	0.282	0.047	8.80		8.80	52.12	31.21	1.00	1.00	1.76	56.26	37.51
+D+0.750Lr+0.750L+H													
Dsgn. L = 20.00 ft	1	0.122	0.020	3.80		3.80	52.12	31.21	1.00	1.00	0.76	56.26	37.51
+D+0.750L+0.750S+H													
Dsgn. L = 20.00 ft	1	0.242	0.040	7.55		7.55	52.12	31.21	1.00	1.00	1.51	56.26	37.51
+D+0.60W+H													
Dsgn. L = 20.00 ft	1	0.122	0.020	3.80		3.80	52.12	31.21	1.00	1.00	0.76	56.26	37.51
+D+0.70E+H													
Dsgn. L = 20.00 ft	1	0.122	0.020	3.80		3.80	52.12	31.21	1.00	1.00	0.76	56.26	37.51
+D+0.750Lr+0.750L+0.450W+H													
Dsgn. L = 20.00 ft	1	0.122	0.020	3.80		3.80	52.12	31.21	1.00	1.00	0.76	56.26	37.51
+D+0.750L+0.750S+0.450W+H													
Dsgn. L = 20.00 ft	1	0.242	0.040	7.55		7.55	52.12	31.21	1.00	1.00	1.51	56.26	37.51
+D+0.750L+0.750S+0.5250E+H													
Dsgn. L = 20.00 ft	1	0.242	0.040	7.55		7.55	52.12	31.21	1.00	1.00	1.51	56.26	37.51
+0.60D+0.60W+0.60H													
Dsgn. L = 20.00 ft	1	0.073	0.012	2.28		2.28	52.12	31.21	1.00	1.00	0.46	56.26	37.51

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Project Title: Totem Lake
Engineer: SGH
Project Descr:

Project ID: 17-116

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Steel Beam

File = p:\2017\17-116 Totem Lake Splash Pad (Berger)\Engineering Calcs\Struct\totem-lake-enercalc.ec6
ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.14.12.31

Lic. # : KW-06010241 **Licensee : INNOVA Architects Inc**

Description : Roof Beam

Load Combination / Segment Length	Span #	Max Stress Ratios M	Max Stress Ratios V	Summary of Moment Values Mmax +	Mmax -	Ma - Max	Mnx	Mnx/Omega	Cb	Rm	Summary of Shear Values Va Max	Vnx	Vnx/Omega
+0.60D+0.70E+0.60H													
Dsgn. L = 20.00 ft	1	0.073	0.012	2.28		2.28	52.12	31.21	1.00	1.00	0.46	56.26	37.51

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S+H	1	0.4095	10.100		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	1.761	1.761
Overall MINimum	0.456	0.456
+D+H	0.761	0.761
+D+L+H	0.761	0.761
+D+Lr+H	0.761	0.761
+D+S+H	1.761	1.761
+D+0.750Lr+0.750L+H	0.761	0.761
+D+0.750L+0.750S+H	1.511	1.511
+D+0.60W+H	0.761	0.761
+D+0.70E+H	0.761	0.761
+D+0.750Lr+0.750L+0.450W+H	0.761	0.761
+D+0.750L+0.750S+0.450W+H	1.511	1.511
+D+0.750L+0.750S+0.5250E+H	1.511	1.511
+0.60D+0.60W+0.60H	0.456	0.456
+0.60D+0.70E+0.60H	0.456	0.456
D Only	0.761	0.761
Lr Only		
L Only		
S Only	1.000	1.000
W Only		
E Only		
H Only		

Steel Section Properties : W10x12

Depth	=	9.870 in	I xx	=	53.80 in^4	J	=	0.055 in^4
Web Thick	=	0.190 in	S xx		10.90 in^3	Cw	=	50.90 in^6
Flange Width	=	3.960 in	R xx	=	3.900 in			
Flange Thick	=	0.210 in	Zx	=	12.600 in^3			
Area	=	3.540 in^2	I yy	=	2.180 in^4			
Weight	=	12.050 plf	S yy	=	1.100 in^3	Wno	=	9.560 in^2
Kdesign	=	0.510 in	R yy	=	0.785 in	Sw	=	1.990 in^4
K1	=	0.563 in	Zy	=	1.740 in^3	Qf	=	1.910 in^3
rts	=	0.983 in	rT	=	0.960 in	Qw	=	6.140 in^3
Ycg	=	4.935 in						

INNOVA Architects
950 Pacific Avenue, Suite 450
Tacoma, WA 98402
(253) 572-4903

Project Title: Totem Lake
Engineer: SGH
Project Descr:
Project ID: 17-116

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Steel Beam

File = p:\2017\17-116 Totem Lake Splash Pad (Berger)\Engineering Calcs\Struct\totem-lake-enercalc.ec6
ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.14.12.31

Lic. # : KW-06010241
Licensee : INNOVA Architects Inc

Description : Roof Transfer Beam

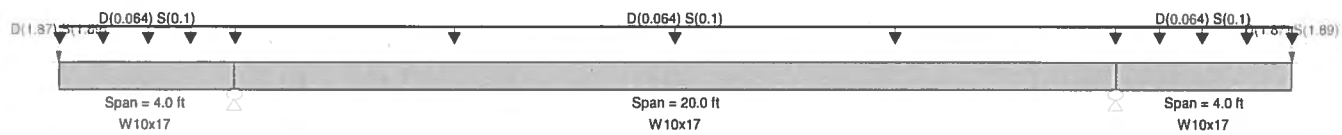
CODE REFERENCES

Calculations per AISC 360-10, IBC 2012, ASCE 7-10
Load Combination Set : ASCE 7-10 IBC 2015 CSL

Material Properties

Analysis Method : Allowable Strength Design
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling
Bending Axis : Major Axis Bending
Load Combination ASCE 7-10

Fy : Steel Yield : 50.0 ksi
E: Modulus : 29,000.0 ksi



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Load for Span Number 1
Uniform Load : D = 0.0160, S = 0.0250 ksf, Tributary Width = 4.0 ft, (Gravity)
Point Load : D = 1.870, S = 1.890 k @ 0.0 ft, (Side Beam)
Load for Span Number 2
Uniform Load : D = 0.0160, S = 0.0250 ksf, Tributary Width = 4.0 ft, (Gravity)
Load for Span Number 3
Uniform Load : D = 0.0160, S = 0.0250 ksf, Tributary Width = 4.0 ft, (Gravity)
Point Load : D = 1.870, S = 1.890 k @ 4.0 ft, (Side Beam)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.353 : 1	Maximum Shear Stress Ratio =	0.092 : 1
Section used for this span	W10x17	Section used for this span	W10x17
Ma : Applied	16.488 k-ft	Va : Applied	4.484 k
Mn / Omega : Allowable	46.657 k-ft	Vn/Omega : Allowable	48.480 k
Load Combination	+D+S+H	Load Combination	+D+S+H
Location of maximum on span	20.000ft	Location of maximum on span	20.000 ft
Span # where maximum occurs	Span # 2	Span # where maximum occurs	Span # 2

Maximum Deflection

Max Downward Transient Deflection	0.178 in	Ratio =	538
Max Upward Transient Deflection	-0.157 in	Ratio =	1,526
Max Downward Total Deflection	0.367 in	Ratio =	261
Max Upward Total Deflection	-0.335 in	Ratio =	716

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios		Summary of Moment Values							Summary of Shear Values		
Segment Length	Span #	M	V	Mmax +	Mmax -	Ma - Max	Mnx	Mnx/Omega	Cb	Rm	Va Max	Vnx	Vnx/Omega
+D+H													
Dsgn. L = 4.00 ft	1	0.174	0.045		-8.13	8.13	77.92	46.66	1.00	1.00	2.19	72.72	48.48
Dsgn. L = 20.00 ft	2	0.174	0.045	-0.00	-8.13	8.13	77.92	46.66	1.00	1.00	2.19	72.72	48.48
Dsgn. L = 4.00 ft	3	0.174	0.045		-8.13	8.13	77.92	46.66	1.00	1.00	2.19	72.72	48.48
+D+L+H													
Dsgn. L = 4.00 ft	1	0.174	0.045		-8.13	8.13	77.92	46.66	1.00	1.00	2.19	72.72	48.48
Dsgn. L = 20.00 ft	2	0.174	0.045	-0.00	-8.13	8.13	77.92	46.66	1.00	1.00	2.19	72.72	48.48
Dsgn. L = 4.00 ft	3	0.174	0.045		-8.13	8.13	77.92	46.66	1.00	1.00	2.19	72.72	48.48
+D+Lr+H													
Dsgn. L = 4.00 ft	1	0.174	0.045		-8.13	8.13	77.92	46.66	1.00	1.00	2.19	72.72	48.48
Dsgn. L = 20.00 ft	2	0.174	0.045	-0.00	-8.13	8.13	77.92	46.66	1.00	1.00	2.19	72.72	48.48
Dsgn. L = 4.00 ft	3	0.174	0.045		-8.13	8.13	77.92	46.66	1.00	1.00	2.19	72.72	48.48
+D+S+H													
Dsgn. L = 4.00 ft	1	0.353	0.092		-16.49	16.49	77.92	46.66	1.00	1.00	4.48	72.72	48.48
Dsgn. L = 20.00 ft	2	0.353	0.092	-0.00	-16.49	16.49	77.92	46.66	1.00	1.00	4.48	72.72	48.48
Dsgn. L = 4.00 ft	3	0.353	0.092		-16.49	16.49	77.92	46.66	1.00	1.00	4.48	72.72	48.48
+D+0.750Lr+0.750L+H													

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Steel Beam

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ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.14.12.31

Lic. # : KW-06010241 — Licensee : INNOVA Architects Inc

Description : Roof Transfer Beam

Load Combination / Segment Length	Span #	Max Stress Ratios M	Max Stress Ratios V	Summary of Moment Values Mmax +	Mmax -	Ma - Max	Mnx	Mnx/Omega	Cb	Rm	Summary of Shear Values Va Max	Vnx	Vnx/Omega
Dsgn. L = 4.00 ft	1	0.174	0.045		-8.13	8.13	77.92	46.66	1.00	1.00	2.19	72.72	48.48
Dsgn. L = 20.00 ft	2	0.174	0.045	-0.00	-8.13	8.13	77.92	46.66	1.00	1.00	2.19	72.72	48.48
Dsgn. L = 4.00 ft	3	0.174	0.045		-8.13	8.13	77.92	46.66	1.00	1.00	2.19	72.72	48.48
+D+0.750L+0.750S+H													
Dsgn. L = 4.00 ft	1	0.309	0.081		-14.40	14.40	77.92	46.66	1.00	1.00	3.91	72.72	48.48
Dsgn. L = 20.00 ft	2	0.309	0.081	-0.00	-14.40	14.40	77.92	46.66	1.00	1.00	3.91	72.72	48.48
Dsgn. L = 4.00 ft	3	0.309	0.081		-14.40	14.40	77.92	46.66	1.00	1.00	3.91	72.72	48.48
+D+0.60W+H													
Dsgn. L = 4.00 ft	1	0.174	0.045		-8.13	8.13	77.92	46.66	1.00	1.00	2.19	72.72	48.48
Dsgn. L = 20.00 ft	2	0.174	0.045	-0.00	-8.13	8.13	77.92	46.66	1.00	1.00	2.19	72.72	48.48
Dsgn. L = 4.00 ft	3	0.174	0.045		-8.13	8.13	77.92	46.66	1.00	1.00	2.19	72.72	48.48
+D+0.70E+H													
Dsgn. L = 4.00 ft	1	0.174	0.045		-8.13	8.13	77.92	46.66	1.00	1.00	2.19	72.72	48.48
Dsgn. L = 20.00 ft	2	0.174	0.045	-0.00	-8.13	8.13	77.92	46.66	1.00	1.00	2.19	72.72	48.48
Dsgn. L = 4.00 ft	3	0.174	0.045		-8.13	8.13	77.92	46.66	1.00	1.00	2.19	72.72	48.48
+D+0.750Lr+0.750L+0.450W+H													
Dsgn. L = 4.00 ft	1	0.174	0.045		-8.13	8.13	77.92	46.66	1.00	1.00	2.19	72.72	48.48
Dsgn. L = 20.00 ft	2	0.174	0.045	-0.00	-8.13	8.13	77.92	46.66	1.00	1.00	2.19	72.72	48.48
Dsgn. L = 4.00 ft	3	0.174	0.045		-8.13	8.13	77.92	46.66	1.00	1.00	2.19	72.72	48.48
+D+0.750L+0.750S+0.450W+H													
Dsgn. L = 4.00 ft	1	0.309	0.081		-14.40	14.40	77.92	46.66	1.00	1.00	3.91	72.72	48.48
Dsgn. L = 20.00 ft	2	0.309	0.081	-0.00	-14.40	14.40	77.92	46.66	1.00	1.00	3.91	72.72	48.48
Dsgn. L = 4.00 ft	3	0.309	0.081		-14.40	14.40	77.92	46.66	1.00	1.00	3.91	72.72	48.48
+D+0.750L+0.750S+0.5250E+H													
Dsgn. L = 4.00 ft	1	0.309	0.081		-14.40	14.40	77.92	46.66	1.00	1.00	3.91	72.72	48.48
Dsgn. L = 20.00 ft	2	0.309	0.081	-0.00	-14.40	14.40	77.92	46.66	1.00	1.00	3.91	72.72	48.48
Dsgn. L = 4.00 ft	3	0.309	0.081		-14.40	14.40	77.92	46.66	1.00	1.00	3.91	72.72	48.48
+0.60D+0.60W+0.60H													
Dsgn. L = 4.00 ft	1	0.105	0.027		-4.88	4.88	77.92	46.66	1.00	1.00	1.32	72.72	48.48
Dsgn. L = 20.00 ft	2	0.105	0.027	-0.00	-4.88	4.88	77.92	46.66	1.00	1.00	1.32	72.72	48.48
Dsgn. L = 4.00 ft	3	0.105	0.027		-4.88	4.88	77.92	46.66	1.00	1.00	1.32	72.72	48.48
+0.60D+0.70E+0.60H													
Dsgn. L = 4.00 ft	1	0.105	0.027		-4.88	4.88	77.92	46.66	1.00	1.00	1.32	72.72	48.48
Dsgn. L = 20.00 ft	2	0.105	0.027	-0.00	-4.88	4.88	77.92	46.66	1.00	1.00	1.32	72.72	48.48
Dsgn. L = 4.00 ft	3	0.105	0.027		-4.88	4.88	77.92	46.66	1.00	1.00	1.32	72.72	48.48

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S+H	1	0.3674	0.000		0.0000	0.000
	2	0.0000	0.000	+D+S+H	-0.3351	10.127
+D+S+H	3	0.3662	4.000		0.0000	10.127

Vertical Reactions

Support notation : Far left is #1 — Values in KIPS

Load Combination	Support 1	Support 2	Support 3	Support 4
Overall MAXimum		6.294	6.294	
Overall MINimum		1.802	1.802	
+D+H		3.004	3.004	
+D+L+H		3.004	3.004	
+D+Lr+H		3.004	3.004	
+D+S+H		6.294	6.294	
+D+0.750Lr+0.750L+H		3.004	3.004	
+D+0.750L+0.750S+H		5.471	5.471	
+D+0.60W+H		3.004	3.004	
+D+0.70E+H		3.004	3.004	
+D+0.750Lr+0.750L+0.450W+H		3.004	3.004	
+D+0.750L+0.750S+0.450W+H		5.471	5.471	
+D+0.750L+0.750S+0.5250E+H		5.471	5.471	
+0.60D+0.60W+0.60H		1.802	1.802	
+0.60D+0.70E+0.60H		1.802	1.802	
D Only		3.004	3.004	
Lr Only				
L Only				
S Only		3.290	3.290	
W Only				
E Only				
H Only				

Steel Beam

File = p:\2017\17-116 Totem Lake Splash Pad (Berger)\Engineering Calcs\Struct\totem-lake-enercalc.ec6
ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.14.12.31

Lic. # : KW-06010241 Licensee : INNOVA Architects Inc

Description : Roof Transfer Beam

Steel Section Properties : W10x17

Depth	=	10.100	in	I xx	=	81.90	in^4	J	=	0.156 in^4
Web Thick	=	0.240	in	S xx		16.20	in^3	Cw	=	85.10 in^6
Flange Width	=	4.010	in	R xx	=	4.050	in			
Flange Thick	=	0.330	in	Zx	=	18.700	in^3			
Area	=	4.990	in^2	I yy	=	3.560	in^4			
Weight	=	16.986	plf	S yy	=	1.780	in^3	Wno	=	9.790 in^2
Kdesign	=	0.630	in	R yy	=	0.845	in	Sw	=	3.240 in^4
K1	=	0.563	in	Zy	=	2.800	in^3	Qf	=	3.040 in^3
rts	=	1.040	in	rT	=	1.010	in	Qw	=	9.140 in^3
Ycg	=	5.050	in							

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950 Pacific Avenue, Suite 450
Tacoma, WA 98402
(253) 572-4903

Project Title: Totem Lake
Engineer: SGH
Project Descr:
Project ID: 17-116

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Steel Beam

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ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.14.12.31

Lic. # : KW-06010241 Licensee : INNOVA Architects Inc

Description : Roof Beam

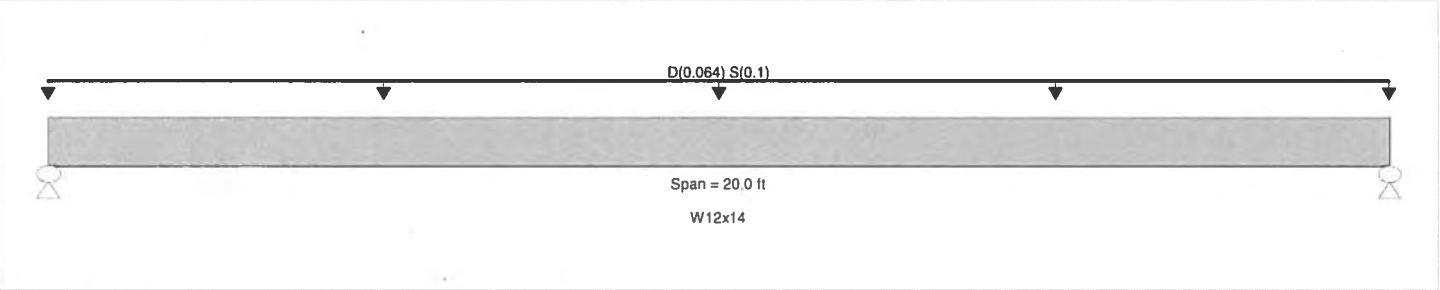
CODE REFERENCES

Calculations per AISC 360-10, IBC 2012, ASCE 7-10
Load Combination Set : ASCE 7-10 IBC 2015 OK

Material Properties

Analysis Method : Allowable Strength Design
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling
Bending Axis : Major Axis Bending
Load Combination ASCE 7-10

Fy : Steel Yield : 50.0 ksi
E: Modulus : 29,000.0 ksi



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0160, S = 0.0250 ksf, Tributary Width = 4.0 ft, (Gravity)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.205 : 1	Maximum Shear Stress Ratio =	0.042 : 1
Section used for this span	W12x14	Section used for this span	W12x14
Ma : Applied	8.908 k-ft	Va : Applied	1.782 k
Mn / Omega : Allowable	43.413 k-ft	Vn/Omega : Allowable	42.754 k
Load Combination	+D+S+H	Load Combination	+D+S+H
Location of maximum on span	10.000ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.141 in	Ratio =	1,699
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.252 in	Ratio =	954
Max Upward Total Deflection	0.000 in	Ratio =	0 <240

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios		Summary of Moment Values							Summary of Shear Values		
Segment Length	Span #	M	V	Mmax +	Mmax -	Ma - Max	Mnx	Mnx/Omega	Cb	Rm	Va Max	Vnx	Vnx/Omega
+D+H													
Dsgn. L = 20.00 ft	1	0.090	0.018	3.91		3.91	72.50	43.41	1.00	1.00	0.78	71.40	42.75
+D+L+H													
Dsgn. L = 20.00 ft	1	0.090	0.018	3.91		3.91	72.50	43.41	1.00	1.00	0.78	71.40	42.75
+D+Lr+H													
Dsgn. L = 20.00 ft	1	0.090	0.018	3.91		3.91	72.50	43.41	1.00	1.00	0.78	71.40	42.75
+D+S+H													
Dsgn. L = 20.00 ft	1	0.205	0.042	8.91		8.91	72.50	43.41	1.00	1.00	1.78	71.40	42.75
+D+0.750Lr+0.750L+H													
Dsgn. L = 20.00 ft	1	0.090	0.018	3.91		3.91	72.50	43.41	1.00	1.00	0.78	71.40	42.75
+D+0.750L+0.750S+H													
Dsgn. L = 20.00 ft	1	0.176	0.036	7.66		7.66	72.50	43.41	1.00	1.00	1.53	71.40	42.75
+D+0.60W+H													
Dsgn. L = 20.00 ft	1	0.090	0.018	3.91		3.91	72.50	43.41	1.00	1.00	0.78	71.40	42.75
+D+0.70E+H													
Dsgn. L = 20.00 ft	1	0.090	0.018	3.91		3.91	72.50	43.41	1.00	1.00	0.78	71.40	42.75
+D+0.750Lr+0.750L+0.450W+H													
Dsgn. L = 20.00 ft	1	0.090	0.018	3.91		3.91	72.50	43.41	1.00	1.00	0.78	71.40	42.75
+D+0.750L+0.750S+0.450W+H													
Dsgn. L = 20.00 ft	1	0.176	0.036	7.66		7.66	72.50	43.41	1.00	1.00	1.53	71.40	42.75
+D+0.750L+0.750S+0.5250E+H													
Dsgn. L = 20.00 ft	1	0.176	0.036	7.66		7.66	72.50	43.41	1.00	1.00	1.53	71.40	42.75
+0.60D+0.60W+0.60H													
Dsgn. L = 20.00 ft	1	0.054	0.011	2.34		2.34	72.50	43.41	1.00	1.00	0.47	71.40	42.75

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Steel Beam

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Lic. # : KW-06010241 **Licensee : INNOVA Architects Inc**

Description : Roof Beam

Load Combination / Segment Length	Span #	Max Stress Ratios M	Max Stress Ratios V	Summary of Moment Values Mmax +	Mmax -	Ma - Max	Mnx	Mnx/Omega	Cb	Rm	Summary of Shear Values Va Max	Vnx	Vnx/Omega
+0.60D+0.70E+0.60H													
Dsgn. L = 20.00 ft	1	0.054	0.011	2.34		2.34	72.50	43.41	1.00	1.00	0.47	71.40	42.75

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S+H	1	0.2516	10.100		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	1.782	1.782
Overall MINimum	0.469	0.469
+D+H	0.782	0.782
+D+L+H	0.782	0.782
+D+Lr+H	0.782	0.782
+D+S+H	1.782	1.782
+D+0.750Lr+0.750L+H	0.782	0.782
+D+0.750L+0.750S+H	1.532	1.532
+D+0.60W+H	0.782	0.782
+D+0.70E+H	0.782	0.782
+D+0.750Lr+0.750L+0.450W+H	0.782	0.782
+D+0.750L+0.750S+0.450W+H	1.532	1.532
+D+0.750L+0.750S+0.5250E+H	1.532	1.532
+0.60D+0.60W+0.60H	0.469	0.469
+0.60D+0.70E+0.60H	0.469	0.469
D Only	0.782	0.782
Lr Only		
L Only		
S Only	1.000	1.000
W Only		
E Only		
H Only		

Steel Section Properties : W12x14

Depth	=	11.900 in	I xx	=	88.60 in^4	J	=	0.070 in^4
Web Thick	=	0.200 in	S xx		14.90 in^3	Cw	=	80.40 in^6
Flange Width	=	3.970 in	R xx	=	4.620 in			
Flange Thick	=	0.225 in	Zx	=	17.400 in^3			
Area	=	4.160 in^2	I yy	=	2.360 in^4			
Weight	=	14.161 plf	S yy	=	1.190 in^3	Wno	=	11.600 in^2
Kdesign	=	0.525 in	R yy	=	0.753 in	Sw	=	2.590 in^4
K1	=	0.563 in	Zy	=	1.900 in^3	Qf	=	2.480 in^3
rts	=	0.962 in	rT	=	0.950 in	Qw	=	8.490 in^3
Ycg	=	5.950 in						

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Project Descr:
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Steel Beam

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Lic. # : KW-06010241 Licensee : INNOVA Architects Inc

Description : Roof Edge Channel Beam

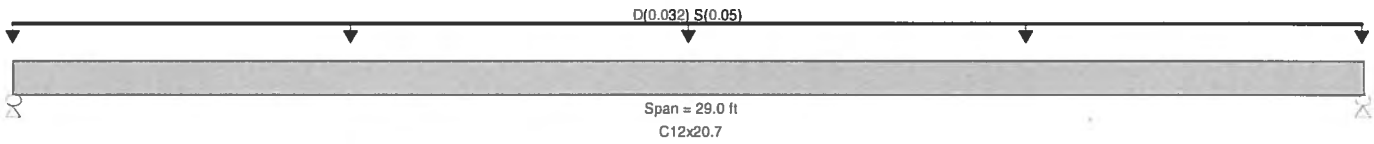
CODE REFERENCES

Calculations per AISC 360-10, IBC 2012, ASCE 7-10
Load Combination Set : ASCE 7-10 IBC 2015 OK

Material Properties

Analysis Method : Allowable Strength Design
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling
Bending Axis : Major Axis Bending
Load Combination : ASCE 7-10

Fy : Steel Yield : 36.0 ksi
E: Modulus : 29,000.0 ksi



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0160, S = 0.0250 ksf, Tributary Width = 2.0 ft, (Gravity)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.235 : 1	Maximum Shear Stress Ratio =	0.034 : 1
Section used for this span	C12x20.7	Section used for this span	C12x20.7
Ma : Applied	10.796 k-ft	Va : Applied	1.489 k
Mn / Omega : Allowable	45.988 k-ft	Vn/Omega : Allowable	43.769 k
Load Combination	+D+S+H	Load Combination	+D+S+H
Location of maximum on span	14.500ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.214 in	Ratio =	1,623
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.440 in	Ratio =	790
Max Upward Total Deflection	0.000 in	Ratio =	0 <240

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios		Summary of Moment Values							Summary of Shear Values		
Segment Length	Span #	M	V	Mmax +	Mmax -	Ma - Max	Mnx	Mnx/Omega	Cb	Rm	Va Max	Vnx	Vnx/Omega
+D+H													
Dsgn. L = 29.00 ft	1	0.120	0.017	5.54		5.54	76.80	45.99	1.00	1.00	0.76	73.09	43.77
+D+L+H													
Dsgn. L = 29.00 ft	1	0.120	0.017	5.54		5.54	76.80	45.99	1.00	1.00	0.76	73.09	43.77
+D+Lr+H													
Dsgn. L = 29.00 ft	1	0.120	0.017	5.54		5.54	76.80	45.99	1.00	1.00	0.76	73.09	43.77
+D+S+H													
Dsgn. L = 29.00 ft	1	0.235	0.034	10.80		10.80	76.80	45.99	1.00	1.00	1.49	73.09	43.77
+D+0.750Lr+0.750L+H													
Dsgn. L = 29.00 ft	1	0.120	0.017	5.54		5.54	76.80	45.99	1.00	1.00	0.76	73.09	43.77
+D+0.750L+0.750S+H													
Dsgn. L = 29.00 ft	1	0.206	0.030	9.48		9.48	76.80	45.99	1.00	1.00	1.31	73.09	43.77
+D+0.60W+H													
Dsgn. L = 29.00 ft	1	0.120	0.017	5.54		5.54	76.80	45.99	1.00	1.00	0.76	73.09	43.77
+D+0.70E+H													
Dsgn. L = 29.00 ft	1	0.120	0.017	5.54		5.54	76.80	45.99	1.00	1.00	0.76	73.09	43.77
+D+0.750Lr+0.750L+0.450W+H													
Dsgn. L = 29.00 ft	1	0.120	0.017	5.54		5.54	76.80	45.99	1.00	1.00	0.76	73.09	43.77
+D+0.750L+0.750S+0.450W+H													
Dsgn. L = 29.00 ft	1	0.206	0.030	9.48		9.48	76.80	45.99	1.00	1.00	1.31	73.09	43.77
+D+0.750L+0.750S+0.5250E+H													
Dsgn. L = 29.00 ft	1	0.206	0.030	9.48		9.48	76.80	45.99	1.00	1.00	1.31	73.09	43.77
+0.60D+0.60W+0.60H													
Dsgn. L = 29.00 ft	1	0.072	0.010	3.32		3.32	76.80	45.99	1.00	1.00	0.46	73.09	43.77

INNOVA Architects
950 Pacific Avenue, Suite 450
Tacoma, WA 98402
(253) 572-4903

Project Title: Totem Lake
Engineer: SGH
Project Descr:
Project ID: 17-116

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Steel Beam

File = p:\2017\17-116 Totem Lake Splash Pad (Berger)\Engineering Calcs\Struct\totem-lake-enercalc.ec6
ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.14.12.31

Lic. # : KW-06010241 Licensee : INNOVA Architects Inc

Description : Roof Edge Channel Beam

Load Combination / Segment Length	Span #	Max Stress Ratios M	Max Stress Ratios V	Summary of Moment Values Mmax +	Mmax -	Ma - Max	Mnx	Mnx/Omega	Cb	Rm	Summary of Shear Values Va Max	Vnx	Vnx/Omega
+0.60D+0.70E+0.60H													
Dsgn. L = 29.00 ft	1	0.072	0.010	3.32		3.32	76.80	45.99	1.00	1.00	0.46	73.09	43.77

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S+H	1	0.4404	14.645		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	1.489	1.489
Overall MINimum	0.458	0.458
+D+H	0.764	0.764
+D+L+H	0.764	0.764
+D+Lr+H	0.764	0.764
+D+S+H	1.489	1.489
+D+0.750Lr+0.750L+H	0.764	0.764
+D+0.750L+0.750S+H	1.308	1.308
+D+0.60W+H	0.764	0.764
+D+0.70E+H	0.764	0.764
+D+0.750Lr+0.750L+0.450W+H	0.764	0.764
+D+0.750L+0.750S+0.450W+H	1.308	1.308
+D+0.750L+0.750S+0.5250E+H	1.308	1.308
+0.60D+0.60W+0.60H	0.458	0.458
+0.60D+0.70E+0.60H	0.458	0.458
D Only	0.764	0.764
Lr Only		
L Only		
S Only	0.725	0.725
W Only		
E Only		
H Only		

Steel Section Properties : C12x20.7

Depth	=	12.000 in	I xx	=	129.00 in^4	J	=	0.369 in^4
Web Thick	=	0.282 in	S xx		21.50 in^3	Cw	=	112.00 in^6
Flange Width	=	2.940 in	R xx	=	4.610 in	Ro	=	4.930 in
Flange Thick	=	0.501 in	Zx	=	25.600 in^3	H	=	0.899 in
Area	=	6.080 in^2	I yy	=	3.860 in^4			
Weight	=	20.700 plf	S yy	=	1.720 in^3	Wno	=	10.300 in^2
Kdesign	=	1.130 in	R yy	=	0.797 in	Sw	=	4.610 in^4
			Zy	=	3.470 in^3	Qf	=	7.830 in^3
rts	=	0.983 in				Qw	=	12.900 in^3
Ycg	=	6.000 in				Wn2	=	5.810
Xcg	=	0.698 in				Sw2	=	3.140
Xp	=	0.253 in				Sw3	=	1.570
Eo	=	0.870 in						

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Steel Beam

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ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.14.12.31

Lic. # : KW-06010241 Licensee : INNOVA Architects Inc

Description : Roof Side Channel Beam

CODE REFERENCES

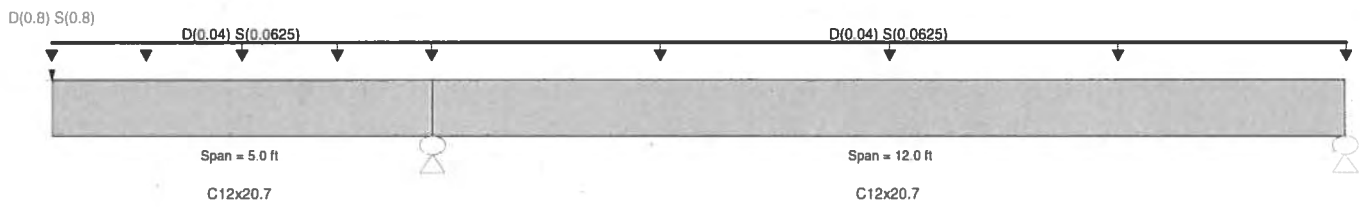
Calculations per AISC 360-10, IBC 2012, ASCE 7-10
Load Combination Set : ASCE 7-10

IBC 2015 OK

Material Properties

Analysis Method : Allowable Strength Design
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling
Bending Axis : Major Axis Bending
Load Combination : ASCE 7-10

Fy : Steel Yield : 36.0 ksi
E: Modulus : 29,000.0 ksi



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Load for Span Number 1
Uniform Load : D = 0.0160, S = 0.0250 ksf, Tributary Width = 2.50 ft, (Gravity)
Point Load : D = 0.80, S = 0.80 k @ 0.0 ft, (Edge Beam)
Load for Span Number 2
Uniform Load : D = 0.0160, S = 0.0250 ksf, Tributary Width = 2.50 ft, (Gravity)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.207 : 1	Maximum Shear Stress Ratio =	0.051 : 1
Section used for this span	C12x20.7	Section used for this span	C12x20.7
Ma : Applied	9.540 k-ft	Va : Applied	2.216 k
Mn / Omega : Allowable	45.988 k-ft	Vn/Omega : Allowable	43.769 k
Load Combination	+D+S+H	Load Combination	+D+S+H
Location of maximum on span	5.000ft	Location of maximum on span	5.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.052 in	Ratio =	2,328
Max Upward Transient Deflection	-0.013 in	Ratio =	10,839
Max Downward Total Deflection	0.103 in	Ratio =	1164
Max Upward Total Deflection	-0.027 in	Ratio =	5397

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios		Summary of Moment Values							Summary of Shear Values		
Segment Length	Span #	M	V	Mmax +	Mmax -	Ma - Max	Mnx	Mnx/Omega	Cb	Rm	Va Max	Vnx	Vnx/Omega
+D+H													
Dsgn. L = 5.00 ft	1	0.103	0.025		-4.76	4.76	76.80	45.99	1.00	1.00	1.10	73.09	43.77
Dsgn. L = 12.00 ft	2	0.103	0.017		-4.76	4.76	76.80	45.99	1.00	1.00	0.76	73.09	43.77
+D+L+H													
Dsgn. L = 5.00 ft	1	0.103	0.025		-4.76	4.76	76.80	45.99	1.00	1.00	1.10	73.09	43.77
Dsgn. L = 12.00 ft	2	0.103	0.017		-4.76	4.76	76.80	45.99	1.00	1.00	0.76	73.09	43.77
+D+Lr+H													
Dsgn. L = 5.00 ft	1	0.103	0.025		-4.76	4.76	76.80	45.99	1.00	1.00	1.10	73.09	43.77
Dsgn. L = 12.00 ft	2	0.103	0.017		-4.76	4.76	76.80	45.99	1.00	1.00	0.76	73.09	43.77
+D+S+H													
Dsgn. L = 5.00 ft	1	0.207	0.051		-9.54	9.54	76.80	45.99	1.00	1.00	2.22	73.09	43.77
Dsgn. L = 12.00 ft	2	0.207	0.035		-9.54	9.54	76.80	45.99	1.00	1.00	1.53	73.09	43.77
+D+0.750Lr+0.750L+H													
Dsgn. L = 5.00 ft	1	0.103	0.025		-4.76	4.76	76.80	45.99	1.00	1.00	1.10	73.09	43.77
Dsgn. L = 12.00 ft	2	0.103	0.017		-4.76	4.76	76.80	45.99	1.00	1.00	0.76	73.09	43.77
+D+0.750L+0.750S+H													
Dsgn. L = 5.00 ft	1	0.181	0.044		-8.34	8.34	76.80	45.99	1.00	1.00	1.94	73.09	43.77
Dsgn. L = 12.00 ft	2	0.181	0.031		-8.34	8.34	76.80	45.99	1.00	1.00	1.34	73.09	43.77
+D+0.60W+H													
Dsgn. L = 5.00 ft	1	0.103	0.025		-4.76	4.76	76.80	45.99	1.00	1.00	1.10	73.09	43.77

INNOVA Architects
950 Pacific Avenue, Suite 450
Tacoma, WA 98402
(253) 572-4903

Project Title: Totem Lake
Engineer: SGH
Project Descr:

Project ID: 17-116

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Steel Beam

File = p:\2017\17-116 Totem Lake Splash Pad (Berger)\Engineering Calcs\Struct\totem-lake-enercalc.ec6
ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.14.12.31

Lic. # : KW-06010241 Licensee : INNOVA Architects Inc

Description : Roof Side Channel Beam

Load Combination / Segment Length	Span #	Max Stress Ratios M	Max Stress Ratios V	Summary of Moment Values Mmax +	Mmax -	Ma - Max	Mnx	Mnx/Omega	Cb	Rm	Summary of Shear Values Va Max	Vnx	Vnx/Omega
Dsgn. L = 12.00 ft	2	0.103	0.017		-4.76	4.76	76.80	45.99	1.00	1.00	0.76	73.09	43.77
+D+0.70E+H													
Dsgn. L = 5.00 ft	1	0.103	0.025		-4.76	4.76	76.80	45.99	1.00	1.00	1.10	73.09	43.77
Dsgn. L = 12.00 ft	2	0.103	0.017		-4.76	4.76	76.80	45.99	1.00	1.00	0.76	73.09	43.77
+D+0.750Lr+0.750L+0.450W+H													
Dsgn. L = 5.00 ft	1	0.103	0.025		-4.76	4.76	76.80	45.99	1.00	1.00	1.10	73.09	43.77
Dsgn. L = 12.00 ft	2	0.103	0.017		-4.76	4.76	76.80	45.99	1.00	1.00	0.76	73.09	43.77
+D+0.750L+0.750S+0.450W+H													
Dsgn. L = 5.00 ft	1	0.181	0.044		-8.34	8.34	76.80	45.99	1.00	1.00	1.94	73.09	43.77
Dsgn. L = 12.00 ft	2	0.181	0.031		-8.34	8.34	76.80	45.99	1.00	1.00	1.34	73.09	43.77
+D+0.750L+0.750S+0.5250E+H													
Dsgn. L = 5.00 ft	1	0.181	0.044		-8.34	8.34	76.80	45.99	1.00	1.00	1.94	73.09	43.77
Dsgn. L = 12.00 ft	2	0.181	0.031		-8.34	8.34	76.80	45.99	1.00	1.00	1.34	73.09	43.77
+0.60D+0.60W+0.60H													
Dsgn. L = 5.00 ft	1	0.062	0.015		-2.86	2.86	76.80	45.99	1.00	1.00	0.66	73.09	43.77
Dsgn. L = 12.00 ft	2	0.062	0.010		-2.86	2.86	76.80	45.99	1.00	1.00	0.46	73.09	43.77
+0.60D+0.70E+0.60H													
Dsgn. L = 5.00 ft	1	0.062	0.015		-2.86	2.86	76.80	45.99	1.00	1.00	0.66	73.09	43.77
Dsgn. L = 12.00 ft	2	0.062	0.010		-2.86	2.86	76.80	45.99	1.00	1.00	0.46	73.09	43.77

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S+H	1	0.1031	0.000		0.0000	0.000
	2	0.0000	0.000	+D+S+H	-0.0267	4.523

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3
Overall MAXimum		3.750	-0.056
Overall MINimum		1.119	-0.019
+D+H		1.864	-0.032
+D+L+H		1.864	-0.032
+D+Lr+H		1.864	-0.032
+D+S+H		3.750	-0.056
+D+0.750Lr+0.750L+H		1.864	-0.032
+D+0.750L+0.750S+H		3.279	-0.050
+D+0.60W+H		1.864	-0.032
+D+0.70E+H		1.864	-0.032
+D+0.750Lr+0.750L+0.450W+H		1.864	-0.032
+D+0.750L+0.750S+0.450W+H		3.279	-0.050
+D+0.750L+0.750S+0.5250E+H		3.279	-0.050
+0.60D+0.60W+0.60H		1.119	-0.019
+0.60D+0.70E+0.60H		1.119	-0.019
D Only		1.864	-0.032
Lr Only			
L Only			
S Only		1.886	-0.023
W Only			
E Only			
H Only			

INNOVA Architects
950 Pacific Avenue, Suite 450
Tacoma, WA 98402
(253) 572-4903

Project Title: Totem Lake
Engineer: SGH
Project Descr:

Project ID: 17-116

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Steel Beam

File = p:\2017\17-116 Totem Lake Splash Pad (Berger)\Engineering Calcs\Struct\totem-lake-enercalc.ec6
ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.14.12.31

Lic. # : KW-06010241 Licensee : INNOVA Architects Inc

Description : Roof Side Channel Beam

Steel Section Properties : C12x20.7

Depth	=	12.000	in	I xx	=	129.00	in^4	J	=	0.369	in^4
Web Thick	=	0.282	in	S xx		21.50	in^3	Cw	=	112.00	in^6
Flange Width	=	2.940	in	R xx	=	4.610	in	Ro	=	4.930	in
Flange Thick	=	0.501	in	Zx	=	25.600	in^3	H	=	0.899	in
Area	=	6.080	in^2	I yy	=	3.860	in^4				
Weight	=	20.700	plf	S yy	=	1.720	in^3	Wno	=	10.300	in^2
Kdesign	=	1.130	in	R yy	=	0.797	in	Sw	=	4.610	in^4
				Zy	=	3.470	in^3	Qf	=	7.830	in^3
rts	=	0.983	in					Qw	=	12.900	in^3
Ycg	=	6.000	in					Wn2	=	5.810	
Xcg	=	0.698	in					Sw2	=	3.140	
Xp	=	0.253	in					Sw3	=	1.570	
Eo	=	0.870	in								

INNOVA Architects
950 Pacific Avenue, Suite 450
Tacoma, WA 98402
(253) 572-4903

Project Title: Totem Lake
Engineer: SGH
Project Descr:

Project ID: 17-116

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Steel Beam

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ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.14.12.31

Lic. # : KW-06010241 Licensee : INNOVA Architects Inc

Description : Roof Transfer Beam

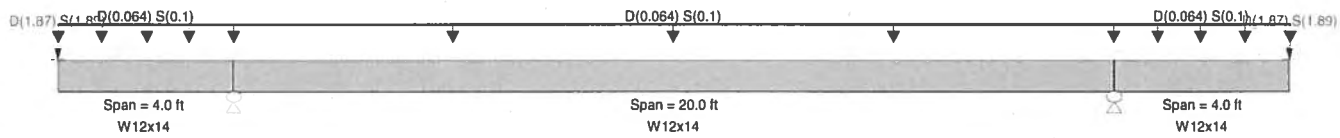
CODE REFERENCES

Calculations per AISC 360-10, IBC 2012, ASCE 7-10
Load Combination Set : ASCE 7-10 IBC 2015 OK

Material Properties

Analysis Method : Allowable Strength Design
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling
Bending Axis : Major Axis Bending
Load Combination : ASCE 7-10

Fy : Steel Yield : 50.0 ksi
E: Modulus : 29,000.0 ksi



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Load for Span Number 1
Uniform Load : D = 0.0160, S = 0.0250 ksf, Tributary Width = 4.0 ft, (Gravity)
Point Load : D = 1.870, S = 1.890 k @ 0.0 ft, (Side Beam)
Load for Span Number 2
Uniform Load : D = 0.0160, S = 0.0250 ksf, Tributary Width = 4.0 ft, (Gravity)
Load for Span Number 3
Uniform Load : D = 0.0160, S = 0.0250 ksf, Tributary Width = 4.0 ft, (Gravity)
Point Load : D = 1.870, S = 1.890 k @ 4.0 ft, (Side Beam)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.379 : 1	Maximum Shear Stress Ratio =	0.105 : 1
Section used for this span	W12x14	Section used for this span	W12x14
Ma : Applied	16.465 k-ft	Va : Applied	4.473 k
Mn / Omega : Allowable	43.413 k-ft	Vn/Omega : Allowable	42.754 k
Load Combination	+D+S+H	Load Combination	+D+S+H
Location of maximum on span	4.000ft	Location of maximum on span	4.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.165 in	Ratio =	582
Max Upward Transient Deflection	-0.145 in	Ratio =	1,651
Max Downward Total Deflection	0.342 in	Ratio =	281
Max Upward Total Deflection	-0.313 in	Ratio =	767

Maximum Forces & Stresses for Load Combinations

Load Combination		Max Stress Ratios		Summary of Moment Values							Summary of Shear Values		
Segment Length	Span #	M	V	Mmax +	Mmax -	Ma - Max	Mnx	Mnx/Omega	Cb	Rm	Va Max	Vnx	Vnx/Omega
+D+H													
Dsgn. L = 4.00 ft	1	0.187	0.051		-8.11	8.11	72.50	43.41	1.00	1.00	2.18	71.40	42.75
Dsgn. L = 20.00 ft	2	0.187	0.051	-0.00	-8.11	8.11	72.50	43.41	1.00	1.00	2.18	71.40	42.75
Dsgn. L = 4.00 ft	3	0.187	0.051		-8.11	8.11	72.50	43.41	1.00	1.00	2.18	71.40	42.75
+D+L+H													
Dsgn. L = 4.00 ft	1	0.187	0.051		-8.11	8.11	72.50	43.41	1.00	1.00	2.18	71.40	42.75
Dsgn. L = 20.00 ft	2	0.187	0.051	-0.00	-8.11	8.11	72.50	43.41	1.00	1.00	2.18	71.40	42.75
Dsgn. L = 4.00 ft	3	0.187	0.051		-8.11	8.11	72.50	43.41	1.00	1.00	2.18	71.40	42.75
+D+Lr+H													
Dsgn. L = 4.00 ft	1	0.187	0.051		-8.11	8.11	72.50	43.41	1.00	1.00	2.18	71.40	42.75
Dsgn. L = 20.00 ft	2	0.187	0.051	-0.00	-8.11	8.11	72.50	43.41	1.00	1.00	2.18	71.40	42.75
Dsgn. L = 4.00 ft	3	0.187	0.051		-8.11	8.11	72.50	43.41	1.00	1.00	2.18	71.40	42.75
+D+S+H													
Dsgn. L = 4.00 ft	1	0.379	0.105		-16.47	16.47	72.50	43.41	1.00	1.00	4.47	71.40	42.75
Dsgn. L = 20.00 ft	2	0.379	0.105	-0.00	-16.47	16.47	72.50	43.41	1.00	1.00	4.47	71.40	42.75
Dsgn. L = 4.00 ft	3	0.379	0.105		-16.47	16.47	72.50	43.41	1.00	1.00	4.47	71.40	42.75
+D+0.750Lr+0.750L+H													

Steel Beam

File = p:\2017\17-116 Totem Lake Splash Pad (Berger)\Engineering Calcs\Struct\totem-lake-enercalc.ec6
ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.14.12.31

Lic. # : KW-06010241 **Licensee : INNOVA Architects Inc**

Description : Roof Transfer Beam

Load Combination / Segment Length	Span #	Max Stress Ratios M	Max Stress Ratios V	Summary of Moment Values Mmax +	Mmax -	Ma - Max	Mnx	Mnx/Omega	Cb	Rm	Summary of Shear Values Va Max	Vnx	Vnx/Omega
Dsgn. L = 4.00 ft	1	0.187	0.051		-8.11	8.11	72.50	43.41	1.00	1.00	2.18	71.40	42.75
Dsgn. L = 20.00 ft	2	0.187	0.051	-0.00	-8.11	8.11	72.50	43.41	1.00	1.00	2.18	71.40	42.75
Dsgn. L = 4.00 ft	3	0.187	0.051		-8.11	8.11	72.50	43.41	1.00	1.00	2.18	71.40	42.75
+D+0.750L+0.750S+H													
Dsgn. L = 4.00 ft	1	0.331	0.091		-14.38	14.38	72.50	43.41	1.00	1.00	3.90	71.40	42.75
Dsgn. L = 20.00 ft	2	0.331	0.091	-0.00	-14.38	14.38	72.50	43.41	1.00	1.00	3.90	71.40	42.75
Dsgn. L = 4.00 ft	3	0.331	0.091		-14.38	14.38	72.50	43.41	1.00	1.00	3.90	71.40	42.75
+D+0.60W+H													
Dsgn. L = 4.00 ft	1	0.187	0.051		-8.11	8.11	72.50	43.41	1.00	1.00	2.18	71.40	42.75
Dsgn. L = 20.00 ft	2	0.187	0.051	-0.00	-8.11	8.11	72.50	43.41	1.00	1.00	2.18	71.40	42.75
Dsgn. L = 4.00 ft	3	0.187	0.051		-8.11	8.11	72.50	43.41	1.00	1.00	2.18	71.40	42.75
+D+0.70E+H													
Dsgn. L = 4.00 ft	1	0.187	0.051		-8.11	8.11	72.50	43.41	1.00	1.00	2.18	71.40	42.75
Dsgn. L = 20.00 ft	2	0.187	0.051	-0.00	-8.11	8.11	72.50	43.41	1.00	1.00	2.18	71.40	42.75
Dsgn. L = 4.00 ft	3	0.187	0.051		-8.11	8.11	72.50	43.41	1.00	1.00	2.18	71.40	42.75
+D+0.750Lr+0.750L+0.450W+H													
Dsgn. L = 4.00 ft	1	0.187	0.051		-8.11	8.11	72.50	43.41	1.00	1.00	2.18	71.40	42.75
Dsgn. L = 20.00 ft	2	0.187	0.051	-0.00	-8.11	8.11	72.50	43.41	1.00	1.00	2.18	71.40	42.75
Dsgn. L = 4.00 ft	3	0.187	0.051		-8.11	8.11	72.50	43.41	1.00	1.00	2.18	71.40	42.75
+D+0.750L+0.750S+0.450W+H													
Dsgn. L = 4.00 ft	1	0.331	0.091		-14.38	14.38	72.50	43.41	1.00	1.00	3.90	71.40	42.75
Dsgn. L = 20.00 ft	2	0.331	0.091	-0.00	-14.38	14.38	72.50	43.41	1.00	1.00	3.90	71.40	42.75
Dsgn. L = 4.00 ft	3	0.331	0.091		-14.38	14.38	72.50	43.41	1.00	1.00	3.90	71.40	42.75
+D+0.750L+0.750S+0.5250E+H													
Dsgn. L = 4.00 ft	1	0.331	0.091		-14.38	14.38	72.50	43.41	1.00	1.00	3.90	71.40	42.75
Dsgn. L = 20.00 ft	2	0.331	0.091	-0.00	-14.38	14.38	72.50	43.41	1.00	1.00	3.90	71.40	42.75
Dsgn. L = 4.00 ft	3	0.331	0.091		-14.38	14.38	72.50	43.41	1.00	1.00	3.90	71.40	42.75
+0.60D+0.60W+0.60H													
Dsgn. L = 4.00 ft	1	0.112	0.031		-4.86	4.86	72.50	43.41	1.00	1.00	1.31	71.40	42.75
Dsgn. L = 20.00 ft	2	0.112	0.031	-0.00	-4.86	4.86	72.50	43.41	1.00	1.00	1.31	71.40	42.75
Dsgn. L = 4.00 ft	3	0.112	0.031		-4.86	4.86	72.50	43.41	1.00	1.00	1.31	71.40	42.75
+0.60D+0.70E+0.60H													
Dsgn. L = 4.00 ft	1	0.112	0.031		-4.86	4.86	72.50	43.41	1.00	1.00	1.31	71.40	42.75
Dsgn. L = 20.00 ft	2	0.112	0.031	-0.00	-4.86	4.86	72.50	43.41	1.00	1.00	1.31	71.40	42.75
Dsgn. L = 4.00 ft	3	0.112	0.031		-4.86	4.86	72.50	43.41	1.00	1.00	1.31	71.40	42.75

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S+H	1	0.3415	0.000		0.0000	0.000
	2	0.0000	0.000	+D+S+H	-0.3131	10.127
+D+S+H	3	0.3404	4.000		0.0000	10.127

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2	Support 3	Support 4
Overall MAXimum		6.254	6.254	
Overall MINimum		1.779	1.779	
+D+H		2.964	2.964	
+D+L+H		2.964	2.964	
+D+Lr+H		2.964	2.964	
+D+S+H		6.254	6.254	
+D+0.750Lr+0.750L+H		2.964	2.964	
+D+0.750L+0.750S+H		5.432	5.432	
+D+0.60W+H		2.964	2.964	
+D+0.70E+H		2.964	2.964	
+D+0.750Lr+0.750L+0.450W+H		2.964	2.964	
+D+0.750L+0.750S+0.450W+H		5.432	5.432	
+D+0.750L+0.750S+0.5250E+H		5.432	5.432	
+0.60D+0.60W+0.60H		1.779	1.779	
+0.60D+0.70E+0.60H		1.779	1.779	
D Only		2.964	2.964	
Lr Only				
L Only				
S Only		3.290	3.290	
W Only				
E Only				
H Only				

Steel Beam

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ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.14.12.31

Lic. # : KW-06010241 Licensee : INNOVA Architects Inc

Description : Roof Transfer Beam

Steel Section Properties : W12x14

Depth	=	11.900	in	I xx	=	88.60	in^4	J	=	0.070 in^4
Web Thick	=	0.200	in	S xx		14.90	in^3	Cw	=	80.40 in^6
Flange Width	=	3.970	in	R xx	=	4.620	in			
Flange Thick	=	0.225	in	Zx	=	17.400	in^3			
Area	=	4.160	in^2	I yy	=	2.360	in^4			
Weight	=	14.161	plf	S yy	=	1.190	in^3	Wno	=	11.600 in^2
Kdesign	=	0.525	in	R yy	=	0.753	in	Sw	=	2.590 in^4
K1	=	0.563	in	Zy	=	1.900	in^3	Qf	=	2.480 in^3
rts	=	0.962	in	rT	=	0.950	in	Qw	=	8.490 in^3
Ycg	=	5.950	in							

INNOVA Architects
950 Pacific Avenue, Suite 450
Tacoma, WA 98402
(253) 572-4903

Project Title: Totem Lake
Engineer: SGH
Project Descr:

Project ID: 17-116

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Steel Beam

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ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.14.12.31

Lic. # : KW-06010241 — Licensee : INNOVA Architects Inc

Description : Edge Cantilever

CODE REFERENCES

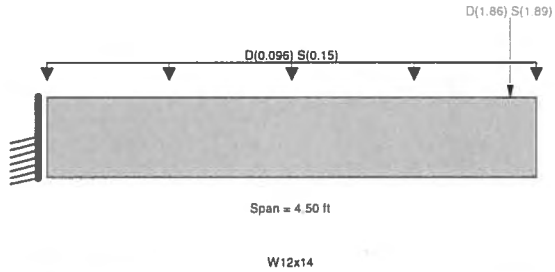
Calculations per AISC 360-10, IBC 2012, ASCE 7-10
Load Combination Set : ASCE 7-10

IBC 2015 OK

Material Properties

Analysis Method : Allowable Strength Design
Beam Bracing : Beam is Fully Braced against lateral-torsional buckling
Bending Axis : Major Axis Bending
Load Combination : ASCE 7-10

Fy : Steel Yield : 50.0 ksi
E: Modulus : 29,000.0 ksi



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loading
Uniform Load : D = 0.0160, S = 0.0250 ksf, Tributary Width = 6.0 ft, (Gravity)
Point Load : D = 1.860, S = 1.890 k @ 4.250 ft, (Side Beam)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.428 : 1	Maximum Shear Stress Ratio =	0.115 : 1
Section used for this span	W12x14	Section used for this span	W12x14
Ma : Applied	18.572 k-ft	Va : Applied	4.921 k
Mn / Omega : Allowable	43.413 k-ft	Vn/Omega : Allowable	42.754 k
Load Combination	+D+S+H	Load Combination	+D+S+H
Location of maximum on span	0.000ft	Location of maximum on span	0.000 ft
Span # where maximum occurs	Span # 1	Span # where maximum occurs	Span # 1

Maximum Deflection

Max Downward Transient Deflection	0.040 in	Ratio =	2,671
Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Max Downward Total Deflection	0.079 in	Ratio =	1369
Max Upward Total Deflection	0.000 in	Ratio =	0 <240

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Max Stress Ratios M	Max Stress Ratios V	Summary of Moment Values Mmax +	Mmax -	Ma - Max	Mnx	Mnx/Omega	Cb	Rm	Summary of Shear Values Va Max	Vnx	Vnx/Omega
+D+H													
Dsgn. L = 4.50 ft	1	0.208	0.055		-9.02	9.02	72.50	43.41	1.00	1.00	2.36	71.40	42.75
+D+L+H													
Dsgn. L = 4.50 ft	1	0.208	0.055		-9.02	9.02	72.50	43.41	1.00	1.00	2.36	71.40	42.75
+D+Lr+H													
Dsgn. L = 4.50 ft	1	0.208	0.055		-9.02	9.02	72.50	43.41	1.00	1.00	2.36	71.40	42.75
+D+S+H													
Dsgn. L = 4.50 ft	1	0.428	0.115		-18.57	18.57	72.50	43.41	1.00	1.00	4.92	71.40	42.75
+D+0.750Lr+0.750L+H													
Dsgn. L = 4.50 ft	1	0.208	0.055		-9.02	9.02	72.50	43.41	1.00	1.00	2.36	71.40	42.75
+D+0.750L+0.750S+H													
Dsgn. L = 4.50 ft	1	0.373	0.100		-16.18	16.18	72.50	43.41	1.00	1.00	4.28	71.40	42.75
+D+0.60W+H													
Dsgn. L = 4.50 ft	1	0.208	0.055		-9.02	9.02	72.50	43.41	1.00	1.00	2.36	71.40	42.75
+D+0.70E+H													
Dsgn. L = 4.50 ft	1	0.208	0.055		-9.02	9.02	72.50	43.41	1.00	1.00	2.36	71.40	42.75
+D+0.750Lr+0.750L+0.450W+H													
Dsgn. L = 4.50 ft	1	0.208	0.055		-9.02	9.02	72.50	43.41	1.00	1.00	2.36	71.40	42.75
+D+0.750L+0.750S+0.450W+H													
Dsgn. L = 4.50 ft	1	0.373	0.100		-16.18	16.18	72.50	43.41	1.00	1.00	4.28	71.40	42.75
+D+0.750L+0.750S+0.5250E+H													
Dsgn. L = 4.50 ft	1	0.373	0.100		-16.18	16.18	72.50	43.41	1.00	1.00	4.28	71.40	42.75
+0.60D+0.60W+0.60H													

INNOVA Architects
950 Pacific Avenue, Suite 450
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Project Title: Totem Lake
Engineer: SGH
Project Descr:
Project ID: 17-116

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Steel Beam

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ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.14.12.31

Lic. # : KW-06010241 **Licensee : INNOVA Architects Inc**

Description : Edge Cantilever

Load Combination / Segment Length	Span #	Max Stress Ratios M	Max Stress Ratios V	Mmax +	Mmax -	Ma - Max	Mnx	Mnx/Omega	Cb	Rm	Summary of Shear Values Va Max	Vnx	Vnx/Omega
Dsgn. L = 4.50 ft +0.60D+0.70E+0.60H	1	0.125	0.033		-5.41	5.41	72.50	43.41	1.00	1.00	1.41	71.40	42.75
Dsgn. L = 4.50 ft	1	0.125	0.033		-5.41	5.41	72.50	43.41	1.00	1.00	1.41	71.40	42.75

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+S+H	1	0.0789	4.500		0.0000	0.000

Vertical Reactions

Support notation : Far left is #1 Values in KIPS

Load Combination	Support 1	Support 2
Overall MAXimum	4.921	
Overall MINimum	1.413	
+D+H	2.356	
+D+L+H	2.356	
+D+Lr+H	2.356	
+D+S+H	4.921	
+D+0.750Lr+0.750L+H	2.356	
+D+0.750L+0.750S+H	4.279	
+D+0.60W+H	2.356	
+D+0.70E+H	2.356	
+D+0.750Lr+0.750L+0.450W+H	2.356	
+D+0.750L+0.750S+0.450W+H	4.279	
+D+0.750L+0.750S+0.5250E+H	4.279	
+0.60D+0.60W+0.60H	1.413	
+0.60D+0.70E+0.60H	1.413	
D Only	2.356	
Lr Only		
L Only		
S Only	2.565	
W Only		
E Only		
H Only		

Steel Section Properties : W12x14

Depth	=	11.900 in	I xx	=	88.60 in^4	J	=	0.070 in^4
Web Thick	=	0.200 in	S xx		14.90 in^3	Cw	=	80.40 in^6
Flange Width	=	3.970 in	R xx	=	4.620 in			
Flange Thick	=	0.225 in	Zx	=	17.400 in^3			
Area	=	4.160 in^2	I yy	=	2.360 in^4			
Weight	=	14.161 plf	S yy	=	1.190 in^3	Wno	=	11.600 in^2
Kdesign	=	0.525 in	R yy	=	0.753 in	Sw	=	2.590 in^4
K1	=	0.563 in	Zy	=	1.900 in^3	Qf	=	2.480 in^3
rts	=	0.962 in	rT	=	0.950 in	Qw	=	8.490 in^3
Ycg	=	5.950 in						

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Project Title: Totem Lake
Engineer: SGH
Project Descr:
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Masonry Beam

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Lic. # : KW-06010241
Licensee : INNOVA Architects Inc

Description : Lintels

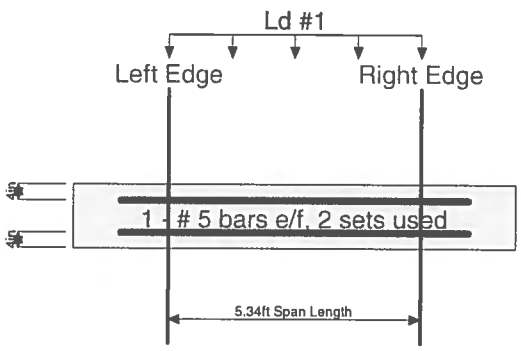
Code References

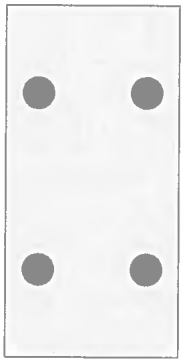
Calculations per ACI 530-11, IBC 2012, CBC 2013, ASCE 7-10
Load Combinations Used : ASCE 7-10

IBC 2015 OK

General Information

f'm	1,500.0 psi	Clear Span	5.340 ft	Rebar Size	5
Fs	24,000.0 psi	Beam Depth	1.340 ft	# Bars E/F	1
Em = f'm *	750.0	Thickness	8 in	Top Clear	4.0 in
Wall Wt Mult	1.0	End Fixity	Pin-Pin	Btm Clear	4.0 in
Block Type	Normal Wt	Equiv. Solid Thick	7.60 in	# Bar Sets	2
Lateral Wind Load	19.0 psf	Wall Weight	84.0 psf	Bar Spacing	5.0 in
Lateral Wall Weight Seismic Factor	0.540	E	1,125.0 ksi		
Calculate vertical beam weight ?	No	n	25.778		





Uniform Loads

	Start X	End X	Dead Load	L : Floor Live	Lr : Roof Live	S : Snow	W : Wind	E : Earthquake
#1	ft	5.340 ft	0.0640			0.10		k/ft
#2	ft	ft						k/ft
#3	ft	ft						k/ft
#4	ft	ft						k/ft

DESIGN SUMMARY

Design OK

Maximum Stress Ratios...	Vertical	Lateral	Combined
fb/Fb	0.04969	0.02304	**0.05478** : 1.00
fv/Fv	0.1091	0.02890	**0.1129** : 1.00

Minimum Mn = 1.3 * Fcr * S = 3.560 k-ft

Maximum Moment	Actual	Allowable k-ft
Vertical Loads for Load Combination : +D+S+H	0.5846 k-ft	11.763 k-ft
Lateral Loads for Load Combination : +D+0.70E+H	0.1516 k-ft	6.579

Maximum Shear	Actual	Allowable
Vertical Loads for Load Combination : +D+S+H	4.754 psi	43.571 psi
Lateral Loads for Load Combination : +D+0.70E+H	1.119 psi	38.730 psi

Vertical Strength

As	0.620 in^2
rho	0.006731
np	0.1735
k : ((np)^2+2np)^.5-np	0.4406
j = 1 - k/3	0.8531
M:mas=Fb k j b d^2/2	11.763 k-ft
M:Stl = Fs As j d	12.779 k-ft

Lateral Strength (Checking lateral bending for span)

As	0.620 in^2
rho	0.006108
np	0.1575
k : (np^2+2np)^.5-np	0.4254
j = 1 - k/3	0.8582
M:mas=Fb k j b d^2/2	6.579 k-ft
M:Stl = Fs As j d	6.718 k-ft

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Project Descr:

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Masonry Beam

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Lic. # : KW-06010241
Licensee : INNOVA Architects Inc

Description : Lintels

Detailed Load Combination Results

Load Combination	Vertical				Lateral			
	Mmax k-ft	Mallow k-ft	fv : Vert psi	Fv : Vert psi	Mactual k-ft	Mallow k-ft	fv psi	Fv psi
+D+H	0.23	11.76	1.86	43.57	0.00	6.58	0.00	38.73
+D+L+H	0.23	11.76	1.86	43.57	0.00	6.58	0.00	38.73
+D+Lr+H	0.23	11.76	1.86	43.57	0.00	6.58	0.00	38.73
+D+S+H	0.58	11.76	4.75	43.57	0.00	6.58	0.00	38.73
+D+0.750Lr+0.750L+H	0.23	11.76	1.86	43.57	0.00	6.58	0.00	38.73
+D+0.750L+0.750S+H	0.50	11.76	4.03	43.57	0.00	6.58	0.00	38.73
+D+0.60W+H	0.23	11.76	1.86	43.57	0.05	6.58	0.40	38.73
+D-0.60W+H	0.23	11.76	1.86	43.57	0.05	6.58	0.40	38.73
+D+0.70E+H	0.23	11.76	1.86	43.57	0.15	6.58	1.12	38.73
+D-0.70E+H	0.23	11.76	1.86	43.57	0.15	6.58	1.12	38.73
+D+0.750Lr+0.750L+0.450W+H	0.23	11.76	1.86	43.57	0.04	6.58	0.30	38.73
+D+0.750Lr+0.750L-0.450W+H	0.23	11.76	1.86	43.57	0.04	6.58	0.30	38.73
+D+0.750L+0.750S+0.450W+H	0.50	11.76	4.03	43.57	0.04	6.58	0.30	38.73
+D+0.750L+0.750S-0.450W+H	0.50	11.76	4.03	43.57	0.04	6.58	0.30	38.73
+D+0.750L+0.750S+0.5250E+H	0.50	11.76	4.03	43.57	0.11	6.58	0.84	38.73
+D+0.750L+0.750S-0.5250E+H	0.50	11.76	4.03	43.57	0.11	6.58	0.84	38.73
+0.60D+0.60W+0.60H	0.14	11.76	1.11	43.57	0.05	6.58	0.40	38.73
+0.60D-0.60W+0.60H	0.14	11.76	1.11	43.57	0.05	6.58	0.40	38.73
+0.60D+0.70E+0.60H	0.14	11.76	1.11	43.57	0.15	6.58	1.12	38.73
+0.60D-0.70E+0.60H	0.14	11.76	1.11	43.57	0.15	6.58	1.12	38.73

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Project Title: Totem Lake
Engineer: SGH
Project Descr:
Project ID: 17-116

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Wood Shear Wall

File = p:\2017\17-116 Totem Lake Splash Pad (Berger)\Engineering Calcs\Struct\totem-lake-enercalc.ec6
ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.14.12.31

Lic. # : KW-06010241 **Licensee : INNOVA Architects Inc**

Description : Grid 2 Shear Wall Above CMU

IBC 2015 OK

General Information

Calculations per 2012 NDS, IBC 2012, CBC 2013, ASCE 7-10

Total Wall Length	6.0 ft
Number of Storys	1
Story #1 Height	3.0 ft

Framing & Chord Material :

Wood Species : Douglas Fir - Larch
Wood Grade : No.2

Fc - Prll	1,350.0 psi	Ft - Tension	575.0 psi
Fc - Perp	625.0 psi	E	1,600.0 ksi
		Specific Gravity	).4999

SDC : Seismic Design Category : F

Sheathing

Main Sheathing

SDPWS 2008 Construction Table : 4.3A

Wood Structural Panels, Struct I, 15/32" Thk, 1-1/2" Mi

Nominal Seismic Shear Capacities (plf) :

6" Spac.	680	3" Spac.	1330
4" Spac.	1020	2" Spac.	1740

Nominal Wind Shear Capacities (plf) :

6" Spac.	950	3" Spac.	1860
4" Spac.	1430	2" Spac.	2435

Chord Data

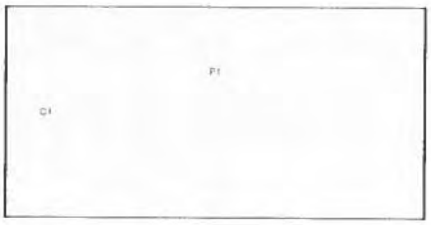
Chord Member Size for each level : See Chord Summary Tables for number of Chords required at each panel end.

Level 1 Chord Size : 2x4 Chord Cf : 1.0 Chord Area = 5.250 in^2 Max. Allow Stress Ratio : 1.0 : 1

All chords treated as fully braced about both axes

Opening ID	Dist to Left Edge	Opening Width	Dist to Bottom	Opening Height
				ft
				ft
				ft
				ft
				ft
				ft
				ft
				ft
				ft
				ft
				ft

Story 1



Applied Distributed Vertical Loads

Load Location (ft)			Load Magnitude (klf)					
Start Location	End Location	Height of Application	Dead	Roof Live	Live	Snow	Wind	Seismic
0.0	6.0	3.0	0.0640	0.0	0.0	0.10	0.0	0.0
0.0	6.0	3.0	0.0140	0.0	0.0	0.0	0.0	0.0

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950 Pacific Avenue, Suite 450
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(253) 572-4903

Project Title: Totem Lake
Engineer: SGH
Project Descr:
Project ID: 17-116

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Wood Shear Wall

File = p:\2017\17-116 Totem Lake Splash Pad (Berger)\Engineering Calcs\Struct\totem-lake-enercalc.ec6
ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.14.12.31

Lic. # : KW-06010241
Licensee : INNOVA Architects Inc

Description : Grid 2 Shear Wall Above CMU

Applied Concentrated Lateral Loads

Load "Y" Location (ft)	Load Magnitude (kips) Dead	Roof Live	Live	Snow	Wind	Seismic
3.0	0.0	0.0	0.0	0.0	0.0	2.030

Shear Panel Summary

Panel ID	Level #	Max Shear (kips)	Load Comb	# Sides Used	Shear Summary & Attachment Actual (plf)	Allow	Status	Attachment	Height/Width Ratio Actual	Allow	Notes
P1	1	1.423	+D+0.70E	1	237.1	340.0	OK	Use 6" at panel edges & field	0.50	3.50	Ratio OK

Chord Naming Information : C : Item is a Chord L : Followed by level number # : Followed by chord number from left to right
WL : Indicates Chord is on left edge of wall WR : Indicates Chord is on right edge of wall

Shear Panel Detail by Panel ID

Panel ID / Load Combination	Story	Trib Wid (ft)	Trib %	Shear Forces V (kip)	Panel Width (ft)	v-max (plf)	Capacity Factors ASD	Aspect Side 1	Aspect Side 2	Spec Grav	Allowable Panel Shears (plf) @ Edge Spac (in) 6"	4"	3"	2"
P1	0													
+D+0.60W	0	6.00	1.000		6.00		0.50	1.00		1.000	475	715	930	1,218
+D+0.70E	0	6.00	1.000	1.4	6.00	237.1	0.50	1.00		1.000	340	510	665	870
+D+0.750Lr+0.750L+0.450W	0	6.00	1.000		6.00		0.50	1.00		1.000	475	715	930	1,218
+D+0.750L+0.750S+0.450W	0	6.00	1.000		6.00		0.50	1.00		1.000	475	715	930	1,218
+D+0.750L+0.750S+0.5250E	0	6.00	1.000	1.1	6.00	177.8	0.50	1.00		1.000	340	510	665	870
+0.60D+0.60W	0	6.00	1.000		6.00		0.50	1.00		1.000	475	715	930	1,218
+0.60D+0.70E	0	6.00	1.000	1.4	6.00	237.1	0.50	1.00		1.000	340	510	665	870

Chord Summary

Chord ID	Level #	Dist from Left (ft)	Force (kips)	Load Comb	CHORD DESIGN SUMMARY # Req'd @ Location	Member Size	Stress Ratio	Governs	Status
C1	1	0.000	0.8	+D+0.70E	1	2x4	0.11	Tension	OK
Comp Values :	Max. Comp :	0.8 k	Load Comb : +D+0.70E			Max fc =	145 psi	Allow F'c =	1,350 psi
Tens Values :	Max. Tens :	0.7 k	Load Comb : +0.60D+0.70E			Max ft =	130 psi	Allow F't =	575 psi
C2	1	6.000	0.8	+D+0.70E	1	2x4	0.11	Tension	OK
Comp Values :	Max. Comp :	0.8 k	Load Comb : +D+0.70E			Max fc =	145 psi	Allow F'c =	1,350 psi
Tens Values :	Max. Tens :	0.7 k	Load Comb : +0.60D+0.70E			Max ft =	130 psi	Allow F't =	575 psi

Chord Naming Information : C : Item is a Chord L : Followed by level number # : Followed by chord number from left to right
WL : Indicates Chord is on left edge of wall WR : Indicates Chord is on right edge of wall

HDU/DTT

Holdowns

This product is preferable to similar connectors because of a) easier installation, b) higher loads, c) lower installed cost, or a combination of these features.

HDU holdowns are pre-deflected during the manufacturing process, virtually eliminating deflection under load due to material stretch. They use Simpson Strong-Tie® Strong-Drive® SDS Heavy-Duty Connector screws which install easily, reduce fastener slip and provide a greater net section when compared to bolts.

The DTT tension ties are designed for lighter-duty holdown applications on single 2x posts. The DTT1Z is installed with nails or Simpson Strong-Tie Strong-Drive SD Connector screws and the DTT2Z installs easily with the Strong-Drive SDS Heavy-Duty Connector screws (included). The DTT1Z holdowns have been tested for use in designed shearwalls and prescriptive braced wall panels as well as prescriptive wood-deck applications (see p. 337 for deck applications).

For more information on holdown options, contact Simpson Strong-Tie.

HDU Special Features:

- Holdown designs virtually eliminate deflection due to material stretch
- Uses Strong-Drive SDS Heavy-Duty Connector screws which install easily, reduce fastener slip, and provide a greater net section area of the post compared to bolts
- Strong-Drive SDS Heavy-Duty Connector screws are supplied with the holdowns to ensure proper fasteners are used
- No stud bolts to countersink at openings

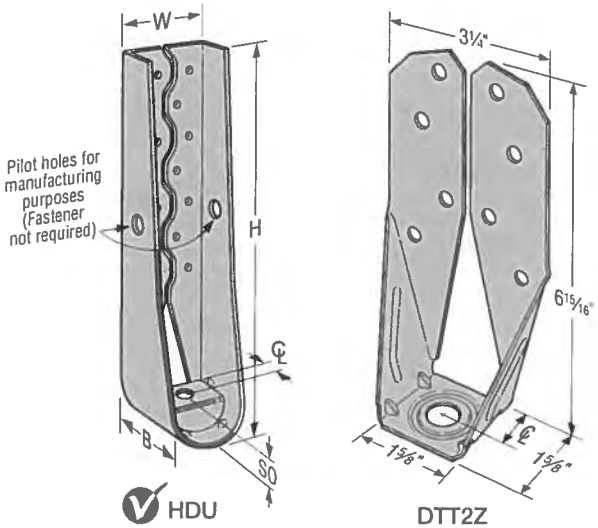
Material: See table

Finish: HDU — Galvanized; DTT1Z and DTT2Z — ZMAX® coating; DTT2SS — stainless steel

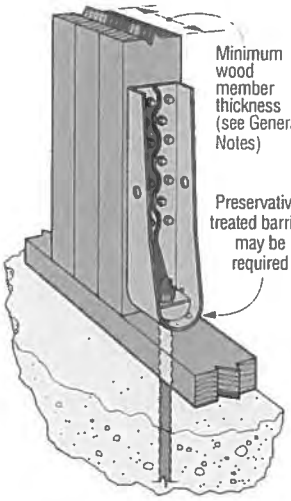
Installation:

- See General Notes on pp. 75–76
- The HDU requires no additional washer, the DTT requires a standard-cut washer (included with DTT2Z) be installed between the nut and the seat
- Strong-Drive SDS Heavy-Duty Connector screws install best with a low-speed high-torque drill with a ⅜" hex-head driver

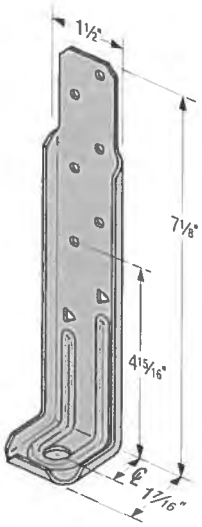
Codes: See p. 14 for Code Reference Key Chart



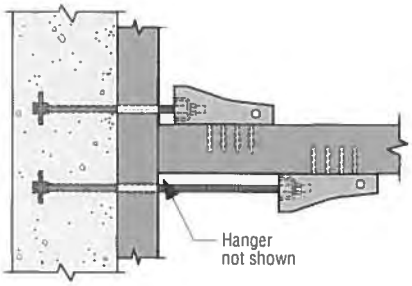
DTT2Z
U.S. Patent 8,555,580



Vertical HDU Installation



DTT1Z
U.S. Patent Pending



Horizontal HDU Offset Installation
(plan view)
See Holdown and Tension Tie General Notes.

HDU/DTT

SIMPSON Strong-Tie®

Holdowns (cont.)

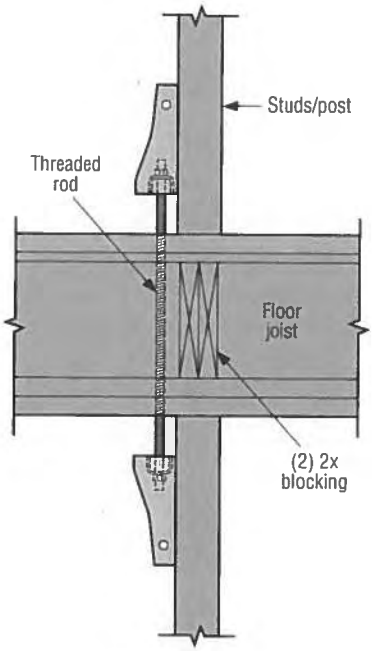
These products are available with additional corrosion protection. For more information, see p. 18.

OK

Model No.	Ga.	Dimensions (in.) W	H	B	℄	SO	Fasteners: Anchor Bolt Dia. (in.)	Wood Fasteners	Minimum Wood Member Thickness (in.)	Allowable Tension Loads (160)[1] DF/SP	SPF/HF	Deflection at Allowable Load (in.)	Code Ref.
DTT1Z	14	1½	7⅛	1⁷⁄₁₆	¾	³⁄₁₆	⅜	(6) SD #9 x 1½"	1½	840	840	0.170	IP2, L19, FL
								(6) 10d x 1½"		910	640	0.167	
								(8) 10d x 1½"		910	850	0.167	
SS DTT2Z	14	3¼	6¹⁵⁄₁₆	1⅝	1³⁄₁₆	³⁄₁₆	½	(8) ¼" x 1½" SDS	1½	1,825	1,800	0.105	I6, L8, FL
								(8) ¼" x 1½" SDS	3	2,145	1,835	0.128	
SS DTT2Z-SDS2.5								(8) ¼" x 2½" SDS	3	2,145	2,105	0.128	
HDU2-SDS2.5	14	3	8¹⁄₁₆	3¼	1⁵⁄₁₆	1⅜	⅝	(6) ¼" x 2½" SDS	3	3,075	2,215	0.088	
HDU4-SDS2.5	14	3	10¹⁵⁄₁₆	3¼	1⁵⁄₁₆	1⅜	⅝	(10) ¼" x 2½" SDS	3	4,565	3,285	0.114	
HDU5-SDS2.5	14	3	13³⁄₁₆	3¼	1⁵⁄₁₆	1⅜	⅝	(14) ¼" x 2½" SDS	3	5,645	4,065	0.115	
HDU8-SDS2.5	10	3	16⅝	3½	1⅜	1½	⅞	(20) ¼" x 2½" SDS	3	6,765	4,870	0.110	
									3½	6,970	5,020	0.116	
									4½	7,870	5,665	0.113	
HDU11-SDS2.5	10	3	22¼	3½	1⅜	1½	1	(30) ¼" x 2½" SDS	5½	9,335	6,865	0.137	
									7¼	11,175	8,045	0.137	
HDU14-SDS2.5	7	3	25¹⁄₁₆	3½	1⁹⁄₁₆	1⁹⁄₁₆	1	(36) ¼" x 2½" SDS	4x6[3,4]	10,770	7,755	0.122	170
									7¼[3]	14,390	10,435	0.177	I6, L8, FL
									5½[2,3]	14,445	10,350	0.172	

1. See pp. 75–76 for Holdown and Tension Tie General Notes.
2. Noted HDU14 allowable loads are based on a 5½" wide post (6x6 min.).
3. HDU14 requires heavy-hex anchor nut to achieve tabulated loads (supplied with holdown).
4. Loads are applicable to installation on either narrow or wide face of post.

T= 700lbs. < 840lbs.
OK



Typical HDU Tie Between Floors

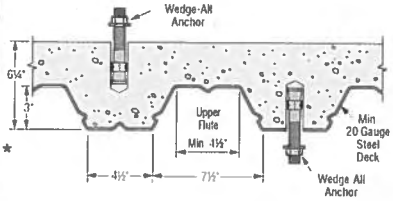
Wedge-All® Design Information — Concrete and Masonry

SIMPSON Strong-Tie®

Carbon-Steel Wedge-All® Allowable Tension Loads in Sand-Lightweight Concrete over Metal Deck

Size in. (mm)	Embed. Depth in. (mm)	Critical Edge Dist. in. (mm)	Critical Spacing in. (mm)	Tension Load (Install in Concrete) f'c ≥ 3,000 psi (20.7 MPa) Concrete			Tension Load (Install through Metal Deck) f'c ≥ 3,000 psi (20.7 MPa) Concrete			Install. Torque ft.-lb. (N-m)
				Ultimate lb. (kN)	Std. Dev. lb. (kN)	Allow. lb. (kN)	Ultimate lb. (kN)	Std. Dev. lb. (kN)	Allow. lb. (kN)	
¼ (6.4)	1½ (38)	3⅜ (86)	2¾ (70)	—	—	—	1,440 (6.4)	167 (0.7)	360 (1.6)	—
½ (12.7)	2¼ (57)	6¾ (171)	4⅛ (105)	3,880 (17.3)	228 (1.0)	970 (4.3)	3,860 (17.2)	564 (2.5)	965 (4.3)	60 (81.3)
⅝ (15.9)	2¾ (70)	8⅜ (213)	5 (127)	5,920 (26.3)	239 (1.1)	1,480 (6.6)	5,220 (23.2)	370 (1.6)	1,305 (5.8)	90 (122.0)
¾ (19.1)	3⅜ (>86)	10 (254)	6⅛ (156)	7,140 (31.8)	537 (2.4)	1,785 (7.9)	6,600 (29.4)	903 (4.0)	1,650 (7.3)	150 (203.4)

See notes 1–7 below.



Lightweight Concrete on Metal Deck

Carbon-Steel Wedge-All® Allowable Shear Loads in Sand-Lightweight Concrete over Metal Deck

Size in. (mm)	Embed. Depth in. (mm)	Critical Edge Dist. in. (mm)	Critical Spacing in. (mm)	Shear Load (Install in Concrete) f'c ≥ 3,000 psi (20.7 MPa) Concrete			Shear Load (Install through Metal Deck) f'c ≥ 3,000 psi (20.7 MPa) Concrete			Install. Torque ft.-lb. (N-m)
				Ultimate lb. (kN)	Std. Dev. lb. (kN)	Allow. lb. (kN)	Ultimate lb. (kN)	Std. Dev. lb. (kN)	Allow. lb. (kN)	
¼ (6.4)	1½ (38)	3⅜ (86)	2¾ (70)	—	—	—	1,660 (7.4)	627 (2.8)	415 (1.8)	—
½ (12.7)	2¼ (57)	6¾ (171)	4⅛ (105)	5,575 (24.8)	377 (1.7)	1,395 (6.2)	7,260 (32.3)	607 (2.7)	1,815 (8.1)	60 (81.3)
⅝ (15.9)	2¾ (70)	8⅜ (213)	5 (127)	8,900 (39.6)	742 (3.3)	2,225 (9.9)	8,560 (38.1)	114 (0.5)	2,140 (9.5)	90 (122.0)
¾ (19.1)	3⅜ (86)	10 (254)	6⅛ (156)	10,400 (46.3)	495 (2.2)	2,600 (11.6)	11,040 (49.1)	321 (1.4)	2,760 (12.3)	150 (203.4)

1. The allowable loads listed are based on a safety factor of 4.0.
2. Refer to allowable load-adjustment factors for edge distance on page 176.
3. 100% of the allowable load is permitted at critical spacing. Loads at reduced spacing have not been determined.
4. Drill bit diameter used in base material corresponds to nominal anchor diameter.
5. The minimum concrete thickness is 1½ times the embedment depth.
6. Metal deck must be minimum 20 gauge.
7. Anchors installed in the bottom flute of the steel deck must have a minimum allowable edge distance of 1½" from the inclined edge of the bottom flute.

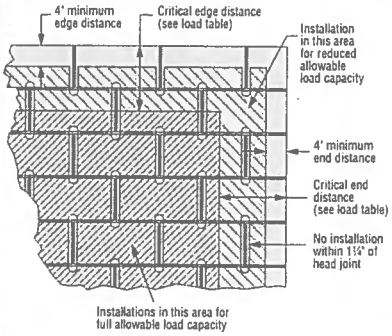
SIMILAR TO EMBED. A. BOLTS

1700(.5) = 850 lbs.

Carbon-Steel Wedge-All® Allowable Tension and Shear Loads in Grout-Filled CMU

Size in. (mm)	Embed. Depth in. (mm)	Critical Edge Dist. in. (mm)	Critical End Dist. in. (mm)	Critical Spacing in. (mm)	8" Grout-Filled CMU Allowable Load Based on CMU Strength: Tension Load			Shear Load			Install. Torque ft.-lb. (N-m)
					Ultimate lb. (kN)	Std. Dev. lb. (kN)	Allow. lb. (kN)	Ultimate lb. (kN)	Std. Dev. lb. (kN)	Allow. lb. (kN)	
Anchor Installed on the Face of the CMU Wall at Least 1¼ inch Away from Head Joint (See Figure)											
⅜ (9.5)	2⅝ (67)	10½ (267)	10½ (267)	10½ (267)	1,700 (7.6)	129 (0.6)	340 (1.5)	3,360 (14.9)	223 (1.0)	670 (3.0)	30 (40.7)
½ (12.7)	3½ (89)	14 (356)	14 (356)	14 (356)	2,120 (9.4)	129 (0.6)	425 (1.9)	5,360 (23.8)	617 (2.7)	1,070 (4.8)	35 (47.4)
⅝ (15.9)	4⅜ (111)	17½ (445)	17½ (445)	17½ (445)	3,120 (13.9)	342 (1.5)	625 (2.8)	8,180 (36.4)	513 (2.3)	1,635 (7.3)	55 (74.5)
¾ (19.1)	5¼ (133)	21 (533)	21 (533)	21 (533)	4,320 (19.2)	248 (1.1)	865 (3.8)	10,160 (45.2)	801 (3.6)	2,030 (9.0)	120 (162.6)

1. The tabulated allowable loads are based on a safety factor of 5.0 for installations under the IBC and IRC.
2. Listed loads may be applied to installations on the face of the CMU wall at least 1¼ inch away from headjoints.
3. Values for 8-inch wide concrete masonry units (CMU) with a minimum specified compressive strength of masonry, f'_m, at 28 days is 1,500 psi.
4. Embedment depth is measured from the outside face of the concrete masonry unit.
5. Drill bit diameter used in base material corresponds to nominal anchor diameter.
6. Allowable loads may be increased 33⅓% for short-term loading due to wind and seismic forces, where permitted by code.
7. Tension and shear loads for the Wedge-All® anchor may be combined using the parabolic interaction equation (n=⅔).
8. Refer to allowable load-adjustment factors for edge distance on page 176.



Shaded area = Placement for Full and Reduced Allowable Load Capacity in Grout-Filled CMU

T = 700 lbs < 850 lbs

OK

* See page 12 for an explanation of the load table icons.

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Project Title: Totem Lake
Engineer: SGH
Project Descr:
Project ID: 17-116

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Masonry Slender Wall

File = p:\2017\17-116 Totem Lake Splash Pad (Berger)\Engineering Calcs\Struct\totem-lake-enercalc.ec6
ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.14.12.31

Lic. # : KW-06010241
Licensee : INNOVA Architects Inc

Description : 8-inch CMU

Code References

Calculations per ACI 530-11, IBC 2012, CBC 2013, ASCE 7-10
Load Combinations Used : ASCE 7-10

IBC 2015 OK

General Information

Calculations per ACI 530-11, IBC 2012, CBC 2013, ASCE 7-10

Construction Type : Grouted Hollow Concrete Masonry

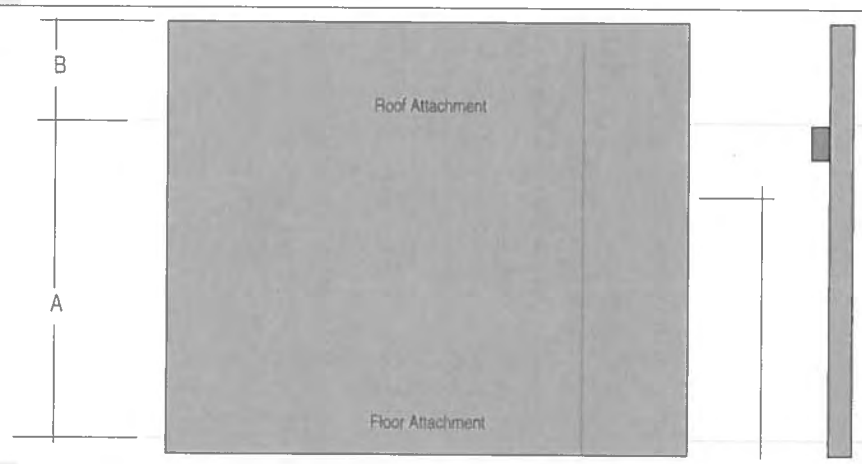
F'm	=	1.50 ksi	Nom. Wall Thickness	8 in	Temp Diff across thickness	=	deg F
Fy - Yield	=	60.0 ksi	Actual Thickness	7.625 in	Min Allow Out-of-plane Defl Ratio	=	0
Fr - Rupture	=	61.0 psi	Rebar "d" distance	5.0 in	Minimum Vertical Steel %	=	0.0020
Em = f'm *	=	900.0	Lower Level Rebar . . .				
Max % of ρ bal.	=	0.006833	Bar Size #	5			
Grout Density	=	140 pcf	Bar Spacing	24.0 in			
Block Weight		Normal Weight					
Wall Weight	=	61.0 psf					

Wall is grouted at rebar cells only

One-Story Wall Dimensions

A Clear Height = 8.50 ft
B Parapet height = ft

Wall Support Condition Top Free, Bottom Fix



Vertical Loads

Vertical Uniform Loads . . . (Applied per foot of Strip Width)		DL : Dead	Lr : Roof Live	Lf : Floor Live	S : Snow	W : Wind
Ledger Load	Eccentricity 2.0 in	0.0640			0.10	k/ft
Concentric Load						k/ft

Lateral Loads

Full area WIND load 19.0 psf
Fp = Wall Wt. * 0.5440 = 33.184 psf

Wall Weight Seismic Load Input Method : ASCE seismic factors entered
SDS Value per ASCE 12.11.1
S_{DS} = 1.360

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Tacoma, WA 98402
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Project Title: Totem Lake
Engineer: SGH
Project Descr:

Project ID: 17-116

Printed 7 NOV 2018, 9 29AM

Masonry Slender Wall

File = p:\2017\17-116 Totem Lake Splash Pad (Berger)\Engineering Calcs\Struct\totem-lake-enercalc.ec6
ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.14.12.31

Lic. # : KW-06010241
Licensee : INNOVA Architects Inc

Description : 8-inch CMU

DESIGN SUMMARY

Results reported for "Strip Width" of 12.0 in

	Governing Load Combination . . .	Actual Values . . .		Allowable Values . . .	
PASS	Moment Capacity Check +1.20D+0.50L+0.20S+E+1.60H	Maximum Bending Stress Ratio =	0.3736		
		Max Mu	-1.224 k-ft	Phi * Mn	3.276 k-ft
PASS	Service Deflection Check E Only	Actual Defl. Ratio L/	204	Allowable Defl. Ratio	150
		Max. Deflection	0.5006 in		
PASS	Axial Load Check +1.20D+0.50L+0.20S+E+1.60H	Max Pu / Ag	4.460 psi	Max. Allow. Defl.	0.680 in
		Location	0.1417 ft	0.2 * f'm	300.0 psi
PASS	Reinforcing Limit Check				
		Controlling As/bd	0.002583	As/bd0.006833 rho bal	0.006833
PASS	Minimum Moment Check +1.40D+1.60H	Mcracking	0.6129 k-ft	Minimum Phi Mn	3.639 k-ft

Maximum Reactions . . . *for Load Combination....*

Top Horizontal		0.0 k
Base Horizontal	E Only	0.2821 k
Vertical Reaction	+D+S+H	0.6825 k

Design Maximum Combinations - Moments

Load Combination	Axial Load Pu k	0.2*f'm*b*t k	Mcr k-ft	Mu k-ft	Phi	Moment Values Phi Mn k-ft	As in^2	As Ratio	0.6 * rho bal
+1.40D+1.60H at 0.00 to 0.28	0.000	18.720	0.47	0.02	0.90	3.28	0.155	0.0026	0.0068
+1.20D+0.50Lr+1.60L+1.60H at 0.00 to 0.28	0.000	18.720	0.47	0.01	0.90	3.28	0.155	0.0026	0.0068
+1.20D+1.60L+0.50S+1.60H at 0.00 to 0.28	0.000	18.720	0.47	0.02	0.90	3.28	0.155	0.0026	0.0068
+1.20D+1.60Lr+0.50L+1.60H at 0.00 to 0.28	0.000	18.720	0.47	0.01	0.90	3.28	0.155	0.0026	0.0068
+1.20D+1.60Lr+0.50W+1.60H at 0.00 to 0.28	0.000	18.720	0.47	0.36	0.90	3.28	0.155	0.0026	0.0068
+1.20D+0.50L+1.60S+1.60H at 0.00 to 0.28	0.000	18.720	0.47	0.04	0.90	3.28	0.155	0.0026	0.0068
+1.20D+1.60S+0.50W+1.60H at 0.00 to 0.28	0.000	18.720	0.47	0.39	0.90	3.28	0.155	0.0026	0.0068
+1.20D+0.50Lr+0.50L+W+1.60H at 0.00 to 0.	0.000	18.720	0.47	0.70	0.90	3.28	0.155	0.0026	0.0068
+1.20D+0.50L+0.50S+W+1.60H at 0.00 to 0.2	0.000	18.720	0.47	0.71	0.90	3.28	0.155	0.0026	0.0068
+1.20D+0.50L+0.20S+E+1.60H at 0.00 to 0.2	0.000	18.720	0.47	1.22	0.90	3.28	0.155	0.0026	0.0068
+0.90D+W+0.90H at 0.00 to 0.28	0.000	18.720	0.47	0.70	0.90	3.28	0.155	0.0026	0.0068
+0.90D+E+0.90H at 0.00 to 0.28	0.000	18.720	0.47	1.22	0.90	3.28	0.155	0.0026	0.0068

Design Maximum Combinations - Deflections

Load Combination	Axial Load Pu k	Moment Values Mcr k-ft	Mactual k-ft	Stiffness I gross in^4	I cracked in^4	I effective in^4	Deflections Deflection in	Defl. Ratio
+D+H at 8.22 to 8.50	0.081	0.47	0.01	353.60	54.50	54.500	0.009	11,860.0
+D+L+H at 8.22 to 8.50	0.081	0.47	0.01	353.60	54.50	54.500	0.009	11,860.0
+D+Lr+H at 8.22 to 8.50	0.081	0.47	0.01	353.60	54.50	54.500	0.009	11,860.0
+D+S+H at 8.22 to 8.50	0.181	0.47	0.03	353.60	54.96	54.959	0.022	4,668.7
+D+0.750Lr+0.750L+H at 8.22 to 8.50	0.081	0.47	0.01	353.60	54.50	54.500	0.009	11,860.0
+D+0.750L+0.750S+H at 8.22 to 8.50	0.156	0.47	0.02	353.60	54.84	54.844	0.019	5,496.5
+D+0.60W+H at 8.22 to 8.50	0.081	0.47	0.01	353.60	54.50	54.500	0.176	579.3
+D+0.70E+H at 8.22 to 8.50	0.082	0.47	0.01	353.60	54.50	54.501	0.350	291.5
+D+0.750Lr+0.750L+0.450W+H at 8.22 to 8.5	0.081	0.47	0.01	353.60	54.50	54.500	0.134	760.0
+D+0.750L+0.750S+0.450W+H at 8.22 to 8.50	0.156	0.47	0.02	353.60	54.84	54.844	0.143	711.5
+D+0.750L+0.750S+0.5250E+H at 8.22 to 8.5	0.156	0.47	0.02	353.60	54.84	54.844	0.273	373.8
+0.60D+0.60W+0.60H at 8.22 to 8.50	0.049	0.47	0.01	353.60	54.35	54.351	0.174	584.7
+0.60D+0.70E+0.60H at 8.22 to 8.50	0.049	0.47	0.01	353.60	54.35	54.352	0.350	291.4
D Only at 8.22 to 8.50	0.081	0.47	0.01	353.60	54.50	54.500	0.009	11,860.0
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0

Masonry Slender Wall

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Lic. # : KW-06010241 Licensee : INNOVA Architects Inc

Description : 8-inch CMU

Design Maximum Combinations - Deflections

Load Combination	Axial Load Pu k	Moment Values Mcr k-ft	Mactual k-ft	I gross in^4	Stiffness I cracked in^4	I effective in^4	Deflections Deflection in	Defl. Ratio
S Only at 8.22 to 8.50	0.100	0.47	0.02	353.60	54.59	54.586	0.014	7,473.7
W Only at 8.22 to 8.50	0.000	0.47	0.00	353.60	54.13	54.127	0.287	355.9
E Only at 8.22 to 8.50	0.001	0.47	0.00	353.60	54.13	54.132	0.501	203.8
	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.0

Reactions - Vertical & Horizontal

Load Combination	Base Horizontal	Top Horizontal	Vertical @ Wall Base
+D+H	0.0 k	0.00 k	0.583 k
+D+L+H	0.0 k	0.00 k	0.583 k
+D+Lr+H	0.0 k	0.00 k	0.583 k
+D+S+H	0.0 k	0.00 k	0.682 k
+D+0.750Lr+0.750L+H	0.0 k	0.00 k	0.583 k
+D+0.750L+0.750S+H	0.0 k	0.00 k	0.658 k
+D+0.60W+H	0.1 k	0.00 k	0.582 k
+D+0.70E+H	0.2 k	0.00 k	0.582 k
+D+0.750Lr+0.750L+0.450W+H	0.1 k	0.00 k	0.582 k
+D+0.750L+0.750S+0.450W+H	0.1 k	0.00 k	0.657 k
+D+0.750L+0.750S+0.5250E+H	0.1 k	0.00 k	0.658 k
+0.60D+0.60W+0.60H	0.1 k	0.00 k	0.350 k
+0.60D+0.70E+0.60H	0.2 k	0.00 k	0.350 k
D Only	0.0 k	0.00 k	0.583 k
Lr Only	0.0 k	0.00 k	0.000 k
L Only	0.0 k	0.00 k	0.000 k
S Only	0.0 k	0.00 k	0.100 k
W Only	0.2 k	0.00 k	0.000 k
E Only	0.3 k	0.00 k	0.000 k
H Only	0.0 k	0.00 k	0.000 k

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PROJECT : Totem Lake Shelter
CLIENT :
JOB NO. : 17-116 DATE : 11/7/2018

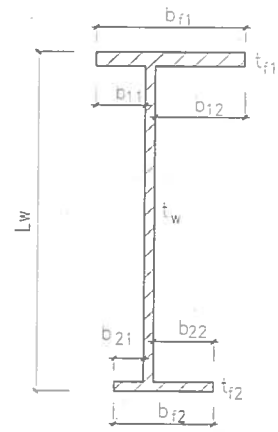
PAGE :
DESIGN BY : SGH
REVIEW BY :

Masonry Shear Wall Design Based on TMS 402-11 / 2012 IBC (both ASD and SD)

INPUT DATA & DESIGN SUMMARY

IBC 2015 OK

SPECIAL INSPECTION (0=NO, 1=YES)		1	Yes
(This option only for local jurisdiction amendments to the code, not part of TMS.)			
TYPE OF MASONRY (1=CMU, 2=BRICK)		1	CMU
MASONRY STRENGTH	f_m' =	1.5	ksi
REBAR YIELD STRESS	f_y =	60	ksi
ALLOWABLE 30% INCREASING ? (IBC 1605.3.2)			Yes
SEISMIC PERFORMANCE CATEGORY (C,D,E, 0=WIND, 5=GRAVITY)		E	Seismic E
SERVICE AXIAL LOAD	P =	1.5	kips, at middle of L_w
SERVICE SHEAR LOAD	V_x =	2	kips, (in-plane force)
SERVICE MOMENT LOAD	M_x =	17	ft-kips, (top flange, bf1, compression)
	M_y =	2.4	ft-kips, (out-of-plane, left b11 & b21, compression)
EFFECTIVE HEIGHT OF WALL	h_w =	8.5	ft
LENGTH OF SHEAR WALL	L_w =	8	ft, (within vertical control joints)



THE WALL DESIGN IS ADEQUATE.

THICKNESS OF WALL t_w = 8 in

REINFORCING OF WALL 2 # 5 at each ends, with 8 in center to edge.

A_{sh}, Horizontal 2 # 5 @ 24 in o.c.

A_{sv}, Vertical 2 # 5 @ 24 in o.c.

TOP FLANGE (COMPRESSION) b_{11} = 0 in , b_{12} = 0 in , b_{f1} = 8 in ,(TMS 1.9.4.2.3)

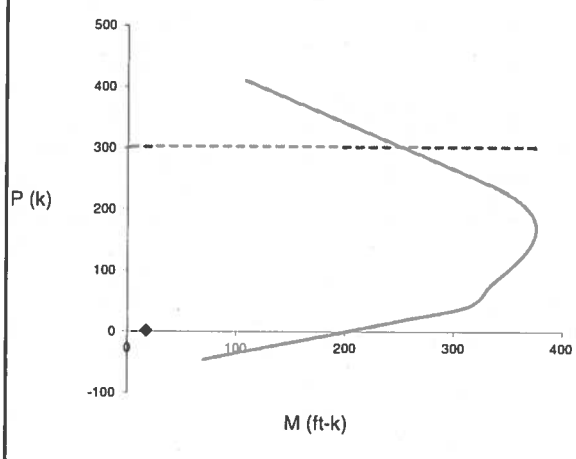
t_{f1} = 0 in , 2 # 5 @ 48 in o.c., Vertical

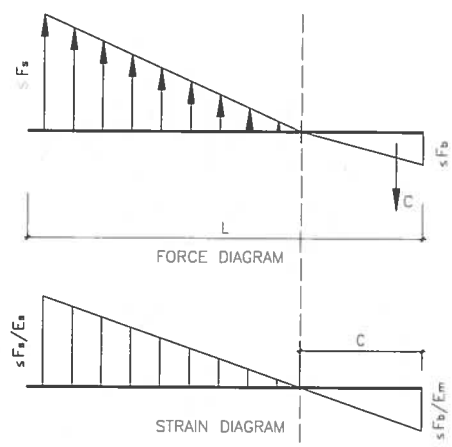
BOTTOM FLANGE b_{21} = 0 in , b_{22} = 0 in , b_{f2} = 8 in, (TMS 1.9.4.2.3)

t_{f2} = 0 in , 2 # 5 @ 48 in o.c., Vertical

ANALYSIS

CHECK FLEXURAL & AXIAL CAPACITY BY ALLOWABLE STRESS DESIGN (ASD)





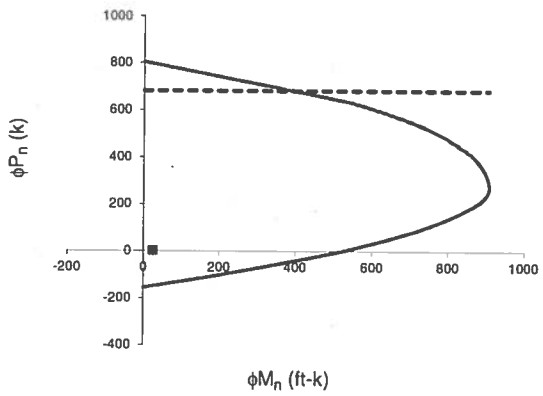
P (load) = 1.5 kips < P (allowable) = P_a = 302.021 kips

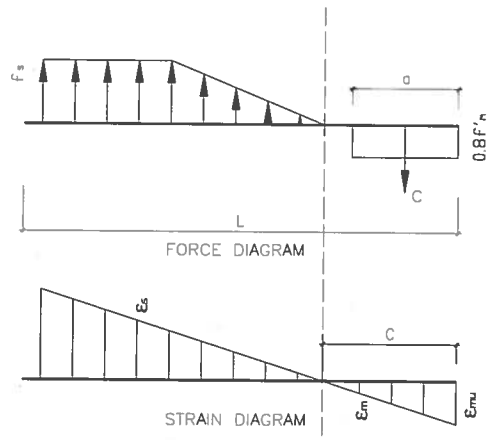
M (resultant) = $(M_x^2 + M_y^2)^{0.5}$ = 17.1686 ft-kips < M (allowable) = 204.711 ft-kips [Satisfactory]

Where	E_m =	1350 ksi, (TMS 1.8.2.2.1)	A_n =	744	in^2
	E_s =	29000 ksi, (TMS 1.8.2.1)	A_{st} =	2.89	in^2
	Scale Factor =	1.333 , (TMS 2.1.2.3)	$f_s \geq$	0	ksi, (TMS 2.3.3.3)
	F_b =	0.660 ksi, (TMS 2-18)	h / r =	46	, neglected conservatively flanges.
	F_s =	32.00 ksi, (TMS 2.3.3.1)	P_a =	302.021	kips, (TMS 2.3.4.2.1)

(cont'd)

CHECK FLEXURAL & AXIAL CAPACITY BY STRENGTH DESIGN (SD)





$P_u = 1.2\ P =$	1.8	kips	<	$\phi P_n =$	681.462	kips, (TMS 402 3.3.4.1.1)	
$M_u = (1/0.7)\ (M_x^2 + M_y^2)^{0.5} =$	24.5265	ft-kips	<	$\phi M_n =$	523.077	ft-kips, at P_u level.	
			[Satisfactory]				
Where $\varepsilon_{mu} =$	0.0025	, (TMS 3.3.2.c)		d =	96	in	
$\phi =$	0.9	, (TMS 3.1.4.1)		$f_m' =$	1.5	ksi	

CHECK SHEAR CAPACITY (ASD), (TMS 2.3.6)

$$F_v = MAX\left\{(SF)\left[\frac{1}{4}\left(4-1.75MIN\left(1\ ,\ \frac{M_T}{Vd}\right)\right)\sqrt{f'_m}+0.25\frac{P}{A_n}\right]+0.5\frac{A_v F_s d}{A_n s}\ ,\ (SF)\left[\frac{1}{2}\left(4-1.75MIN\left(1\ ,\ \frac{M_T}{Vd}\right)\right)\sqrt{f'_m}+0.25\frac{P}{A_n}\right]\right\}$$

= 83 psi > 1.5 f_v = 4 psi [Satisfactory]

(factor 1.5 from TMS 402 1.18.3.2.6.1.2)

$$F_{v,\ Maximum} = (SF)\,MIN\left[3\ ,\ MAX\left(2\ ,\ 2+\frac{4}{3}\left(1-\frac{M_T}{Vd}\right)\right)\right]\sqrt{f'_m} =$$ 103 psi > 1.5 f_v

[Satisfactory]

CHECK MINIMUM REINFORCEMENTS

$A_{sh,min} =$	0.137	in^2/ft	<	$A_{sh,actual} =$	0.310	in^2/ft	[Satisfactory]	(TMS 1.18.3.2.6)
$S_{sh,max} =$	24	in	>	$S_{sh,actual} =$	24	in	[Satisfactory]	(TMS 1.18.3.2.6)
$A_{sv,min} =$	0.064	in^2/ft	<	$A_{sv,actual} =$	0.310	in^2/ft	[Satisfactory]	(TMS 1.18.3.2.6)
$S_{sv,max} =$	24	in	>	$S_{sv,actual} =$	24	in	[Satisfactory]	(TMS 1.18.3.2.6)

CHECK MAXIMUM REINFORCEMENT PERCENTAGE

$$\rho_{max} = \frac{n f'_m}{2 f_y\left(n+\frac{f_y}{f'_m}\right)} =$$ 0.0044 > $\rho =$ 0.0008 [Satisfactory]

(TMS 402 2.3.4.4)

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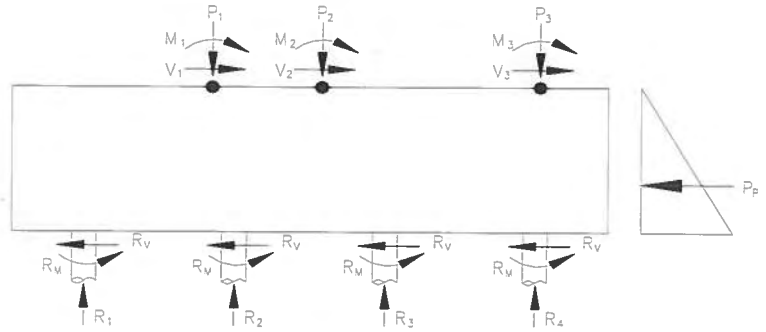
PROJECT : Totem Lake
CLIENT :
JOB NO. : 17-116 DATE : 11/7/2018

PAGE :
DESIGN BY : SGH
REVIEW BY :

Determination of Pile Cap Balanced Loads and Reactions

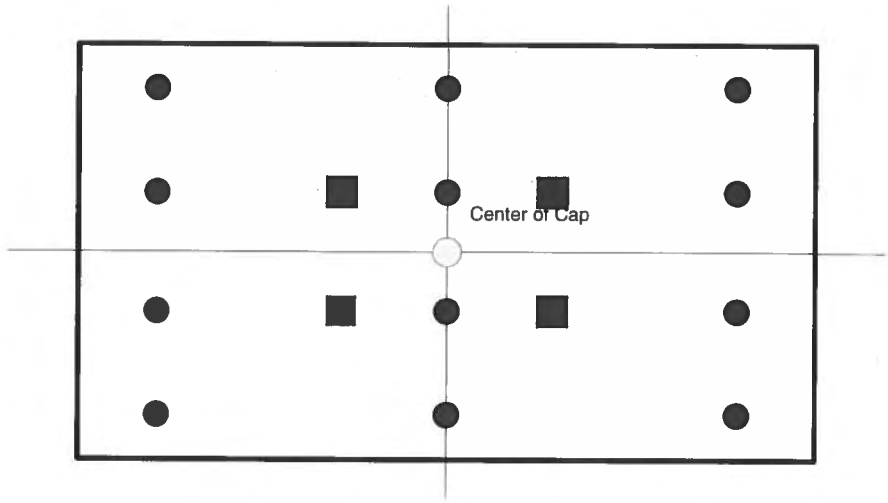
DESIGN CRITERIA

1. PILE TOP SHEAR, R_V, & MOMENT, R_M, RELATIONSHIP MUST BE FROM SOIL REPORT (R_V vs R_M) DIAGRAM. THEY ARE NON-LINEAR SET AND EQUAL AT ALL TOP OF PILES FOR RIGID PILE CAP. USING LINEAR SPRINGS TO MODEL THEM IS INADEQUATE.
2. PILE CAPS SHALL BE INTERCONNECTED BY TIES WITH Min(S_{DS}/10, 0.25) TIMES AXIAL VERT COLUMN LOADING. (IBC 1810.3.13). TO CONSIDER CONCRETE TENSION CREAKED, THE TIE BEAM SHOULD NOT BE LATERAL REACTION MEMBER.



INPUT DATA & DESIGN SUMMARY

NUMBER OF HORIZONTAL PILE ROWS		4	
NUMBER OF VERTICAL PILE ROWS		3	
PILES STAGGERED ?		No	
PILE DIAMETER	D =	6	in
PILE CLEAR DISTANCE	Clear =	24	in
EDGE DISTANCE	Edge =	24	in
PILE CAP HEIGHT	H =	18	in
PASSIVE SOIL PRESSURE	P_P =	200	pcf



PILE LOCATION TO CENTER OF PILE CAP AND VERTICAL REACTIONS

Pile	X (in)	Y (in)	R (kips)
1	-132	-132	26.0
2	-132	-48	26.0
3	-132	48	26.0
4	-132	132	26.0
5	0	-132	26.2
6	0	-48	26.2
7	0	48	26.2
8	0	132	26.2
9	132	-132	26.3
10	132	-48	26.3
11	132	48	26.3
12	132	132	26.3
Group Center	0	0	

INPUT POINT LOADS ON TOP OF CAP

LOAD	X (in)	Y (in)	P (k)	Vx (k)	Vy (k)	My (ft-k)	Mx (ft-k)
1	-48	-48	78.5	2			
2	-48	48	78.5	2			
3	48	48	78.5	2			
4	48	-48	78.5	2			
5							
6							
7							
8							
9							
10							

PILE CAP SIZE

X = 114 in
Y = 144 in
H = 18 in

TOTAL LOADS ON PILE CENTER OF CAP BOTTOM FACE

P 314.0 kips
V_x = 5.3 kips V_y = 0.0 kips
M_y = 13.4 ft-kips M_x = 0.0 ft-kips

$R_V = (V_x^2 + V_y^2)^{0.5}$ / No. = ***0.4*** kips $R_{M,x}$ = 0.0 ft-kips

R_M = ***0*** ft-kips, (from Soil Report per R_v above) $R_{M,y}$ = 0.0 ft-kips

DETERMINE MAXIMUM PILE VERTICAL REACTIONS

A = 12 piles I_x = 118368 piles-in^2 I_y = 139392 piles-in^2

R_{max} = ***26.3*** kips R_{min} = ***26.0*** kips

(The Bold Italic Red values are for pile and pile cap design.)

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Project Title: Totem Lake
Engineer: SGH
Project Descr:
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Concrete Beam

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ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.14.12.31

Lic. # : KW-06010241
Licensee : INNOVA Architects Inc

Description : Grade Beam-Pile Cap

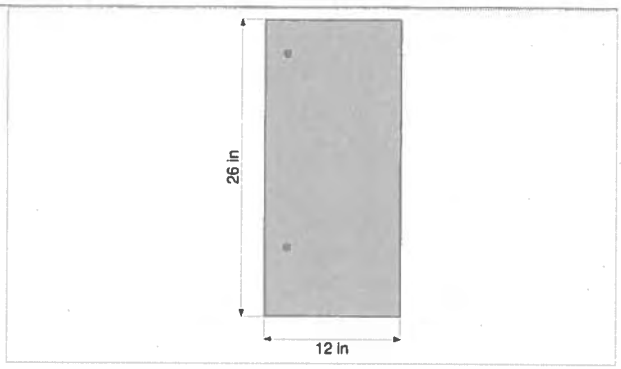
CODE REFERENCES

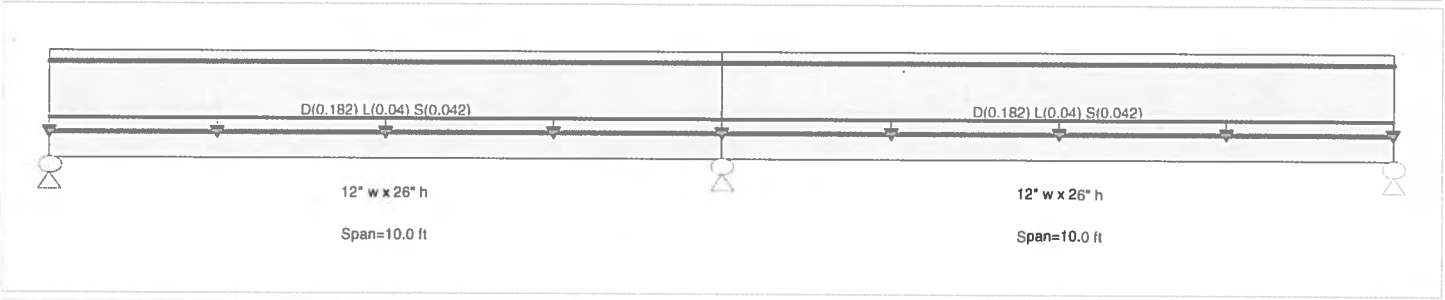
Calculations per ACI 318-11, IBC 2012, ASCE 7-10
Load Combination Set : ASCE 7-10 IBC 2015 OK

Material Properties

f'c	=	3.0 ksi	ϕ Phi Values	Flexure :	0.90
fr = f'c$^{1/2}$ * 7.50	=	410.792 psi		Shear :	0.750
ψ Density	=	145.0 pcf	β_1	=	0.850
λ LtWt Factor	=	1.0			
Elastic Modulus	=	3,122.0 ksi	Fy - Stirrups		60.0 ksi
fy - Main Rebar	=	60.0 ksi	E - Stirrups	=	29,000.0 ksi
E - Main Rebar	=	29,000.0 ksi	Stirrup Bar Size #	=	# 3
			Number of Resisting Legs Per Stirrup	=	2

Load Combination ASCE 7-10





Cross Section & Reinforcing Details

Rectangular Section, Width = 12.0 in, Height = 26.0 in
Span #1 Reinforcing....
1-#6 at 6.0 in from Bottom, from 0.0 to 11.0 ft in this span
1-#6 at 3.0 in from Top, from 0.0 to 11.0 ft in this span
Span #2 Reinforcing....
1-#6 at 6.0 in from Bottom, from 0.0 to 11.0 ft in this span
1-#6 at 3.0 in from Top, from 0.0 to 11.0 ft in this span

Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads
Load for Span Number 1
Uniform Load : D = 0.1820, L = 0.040, S = 0.0420 k/ft, Tributary Width = 1.0 ft, (Gravity)
Load for Span Number 2
Uniform Load : D = 0.1820, L = 0.040, S = 0.0420 k/ft, Tributary Width = 1.0 ft, (Gravity)

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	**0.161 : 1**	Maximum Deflection			
Section used for this span	**Typical Section**	Max Downward Transient Deflection	0.000 in	Ratio =	0 <360
Mu : Applied	-8.683 k-ft	Max Upward Transient Deflection	0.000 in	Ratio =	0 <360
Mn * Phi : Allowable	54.003 k-ft	Max Downward Total Deflection	0.000 in	Ratio =	999 <180
Load Combination	+1.40D+1.60H	Max Upward Total Deflection	0.000 in	Ratio =	999 <180
Location of maximum on span	0.000ft				
Span # where maximum occurs	Span # 2				

Cross Section Strength & Inertia

Top & Bottom references are for tension side of section

Cross Section	Bar Layout Description	Max Mu (k-ft) Bottom	Max Mu (k-ft) Top	Phi*Mn (k-ft) Bottom	Phi*Mn (k-ft) Top	Moment of Inertia (in^4) I gross	Icr - Bottom	Icr - Top
Section 1	1- #6 @ d=20",1- #6 @ d=3",	0.00	0.00	41.75	54.00	17,576.00	1,283.87	1,745.93
Section 2	1- #6 @ d=20",1- #6 @ d=3",	0.00	0.00	41.75	54.00	17,576.00	1,283.87	1,745.93

Vertical Reactions

Support notation : Far left is #1

Load Combination	Support 1	Support 2	Support 3
Overall MAXimum	2.091	6.971	2.091
Overall MINimum	0.150	0.500	0.150
+D+H	1.861	6.202	1.861
+D+L+H	2.011	6.702	2.011

Concrete Beam

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Description : Grade Beam-Pile Cap

Vertical Reactions

Support notation : Far left is #1

Load Combination	Support 1	Support 2	Support 3
+D+Lr+H	1.861	6.202	1.861
+D+S+H	2.018	6.727	2.018
+D+0.750Lr+0.750L+H	1.973	6.577	1.973
+D+0.750L+0.750S+H	2.091	6.971	2.091
+D+0.60W+H	1.861	6.202	1.861
+D+0.70E+H	1.861	6.202	1.861
+D+0.750Lr+0.750L+0.450W+H	1.973	6.577	1.973
+D+0.750L+0.750S+0.450W+H	2.091	6.971	2.091
+D+0.750L+0.750S+0.5250E+H	2.091	6.971	2.091
+0.60D+0.60W+0.60H	1.116	3.721	1.116
+0.60D+0.70E+0.60H	1.116	3.721	1.116
D Only	1.861	6.202	1.861
Lr Only			
L Only	0.150	0.500	0.150
S Only	0.158	0.525	0.158
W Only			
E Only			
H Only			

Shear Stirrup Requirements

Entire Beam Span Length : Vu < PhiVc/2, Req'd Vs = Not Reqd 11.4.6.1, use stirrups spaced at 0.000 in

Maximum Forces & Stresses for Load Combinations

Load Combination / Segment Length	Span #	Location (ft) in Span	Bending Stress Results (k-ft) Mu : Max	Phi*Mnx	Stress Ratio
MAXimum BENDING Envelope					
Span # 1	1	10.000	-8.48	54.00	0.16
Span # 2	2	10.000	-8.68	54.00	0.16
+1.40D+1.60H					
Span # 1	1	10.000	-8.48	54.00	0.16
Span # 2	2	10.000	-8.68	54.00	0.16
+1.20D+0.50Lr+1.60L+1.60H					
Span # 1	1	10.000	-8.05	54.00	0.15
Span # 2	2	10.000	-8.24	54.00	0.15
+1.20D+1.60L+0.50S+1.60H					
Span # 1	1	10.000	-8.30	54.00	0.15
Span # 2	2	10.000	-8.50	54.00	0.16
+1.20D+1.60Lr+0.50L+1.60H					
Span # 1	1	10.000	-7.51	54.00	0.14
Span # 2	2	10.000	-7.69	54.00	0.14
+1.20D+1.60Lr+0.50W+1.60H					
Span # 1	1	10.000	-7.27	54.00	0.13
Span # 2	2	10.000	-7.44	54.00	0.14
+1.20D+0.50L+1.60S+1.60H					
Span # 1	1	10.000	-8.33	54.00	0.15
Span # 2	2	10.000	-8.53	54.00	0.16
+1.20D+1.60S+0.50W+1.60H					
Span # 1	1	10.000	-8.09	54.00	0.15
Span # 2	2	10.000	-8.28	54.00	0.15
+1.20D+0.50Lr+0.50L+W+1.60H					
Span # 1	1	10.000	-7.51	54.00	0.14
Span # 2	2	10.000	-7.69	54.00	0.14
+1.20D+0.50L+0.50S+W+1.60H					
Span # 1	1	10.000	-7.77	54.00	0.14
Span # 2	2	10.000	-7.95	54.00	0.15
+1.20D+0.50L+0.20S+E+1.60H					
Span # 1	1	10.000	-7.61	54.00	0.14
Span # 2	2	10.000	-7.80	54.00	0.14
+0.90D+W+0.90H					
Span # 1	1	10.000	-5.45	54.00	0.10
Span # 2	2	10.000	-5.58	54.00	0.10
+0.90D+E+0.90H					
Span # 1	1	10.000	-5.45	54.00	0.10
Span # 2	2	10.000	-5.58	54.00	.0.10

Concrete Beam

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Description : Grade Beam-Pile Cap

Overall Maximum Deflections

Load Combination	Span	Max. "-" Defl	Location in Span	Load Combination	Max. "+" Defl	Location in Span
+D+0.750L+0.750S+0.5250E+H	1	0.0009	4.167		0.0000	0.000
+D+0.750L+0.750S+0.5250E+H	2	0.0009	5.833		0.0000	0.000

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Project Title: Totem Lake
Engineer: SGH
Project Descr:

Project ID: 17-116

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Steel Base Plate

File = p:\2017\17-116 Totem Lake Splash Pad (Berger)\Engineering Calcs\Struct\totem-lake-enercalc.ec6
ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.14.12.31

Lic. # : KW-06010241 Licensee : INNOVA Architects Inc

Description : Pipe Pile Cap Plate

Code References

Calculations per AISC Design Guide # 1, IBC 2012, CBC 2013, ASCE 7-10
Load Combination Set : ASCE 7-10

IBC 2015 OK

General Information

Material Properties

AISC Design Method Allowable Strength Design
Steel Plate Fy = 36.0 ksi
Concrete Support f'c = 3.0 ksi
Assumed Bearing Area : Full Bearing

Ω_c : ASD Safety Factor. 2.50
Allowable Bearing Fp per J8 2.550 ksi

Column & Plate

Column Properties

Steel Section : Pipe6 Std

Depth	6.625 in	Area	5.22 in^2
Width	6.625 in	Ixx	26.5 in^4
Flange Thickness	0.261 in	Iyy	26.5 in^4
Web Thickness	in		

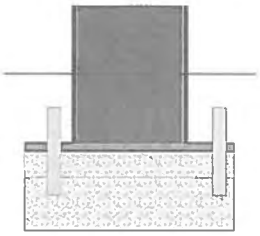
Plate Dimensions

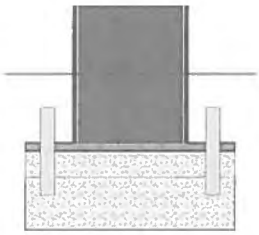
N : Length	12.0 in
B : Width	12.0 in
Thickness	0.50 in

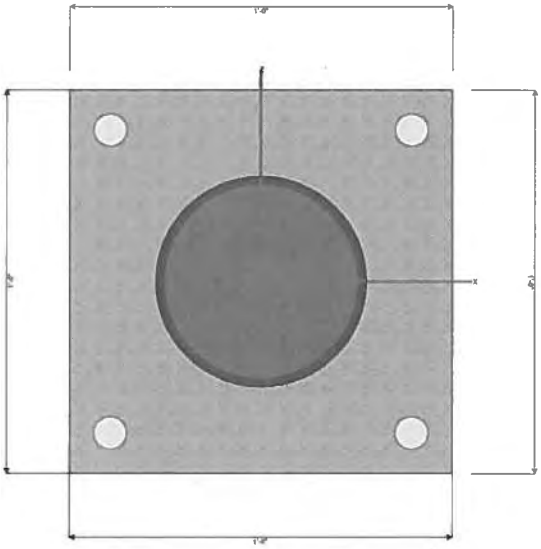
Support Dimensions

Width along "X"	12.0 in
Length along "Z'	12.0 in

Column assumed welded to base plate.



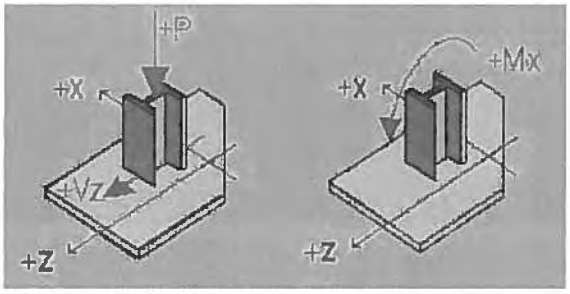




Applied Loads

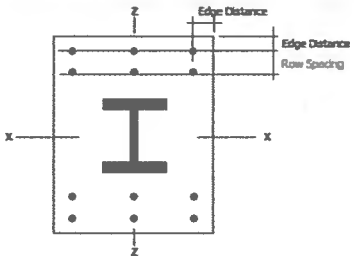
	P-Y	V-Z	M-X
D : Dead Load	k	k	k-ft
L : Live	30.0 k	k	k-ft
Lr : Roof Live	k	k	k-ft
S : Snow	k	k	k-ft
W : Wind	k	k	k-ft
E : Earthquake	k	k	k-ft
H : Lateral Earth	k	k	k-ft

" P " = Gravity load, "+" sign is downward.
"+" Moments create higher soil pressure at +Z edge.
"+" Shears push plate towards +Z edge.



Anchor Bolts

Anchor Bolt or Rod Description	1 1/2"	
Max of Tension or Pullout Capacity.....		k
Shear Capacity.....		k
Edge distance : bolt to plate.....	1.250	in
Number of Bolts in each Row.....	2.0	
Number of Bolt Rows.....	1.0	



Steel Base Plate

Description : Pipe Pile Cap Plate

GOVERNING DESIGN LOAD CASE SUMMARY

Plate Design Summary

Design Method	Allowable Strength Design
Governing Load Combination	+D+L+H
Governing Load Case Type	Axial Load Only
Design Plate Size	**1'-0" x 1'-0" x 0 -1/2"**
Pa : Axial Load	30.000 k
Ma : Moment	0.000 k-ft

Mu : Max. Moment	1.169	k-in
fb : Max. Bending Stress	18.704	ksi
Fb : Allowable :	21.557	ksi
Bending Stress Ratio	0.868	
Bending Stress OK		
fu : Max. Plate Bearing Stress	0.208	ksi
Fp : Allowable :	1.020	ksi
min(0.85*f'c*sqrt(A2/A1), 1.7* f'c)*Omega		
Bearing Stress Ratio	0.204	
Bearing Stress OK		

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Subject:
With/To:
Address:
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Project No.: 17-116
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☐ Page ___ of ___
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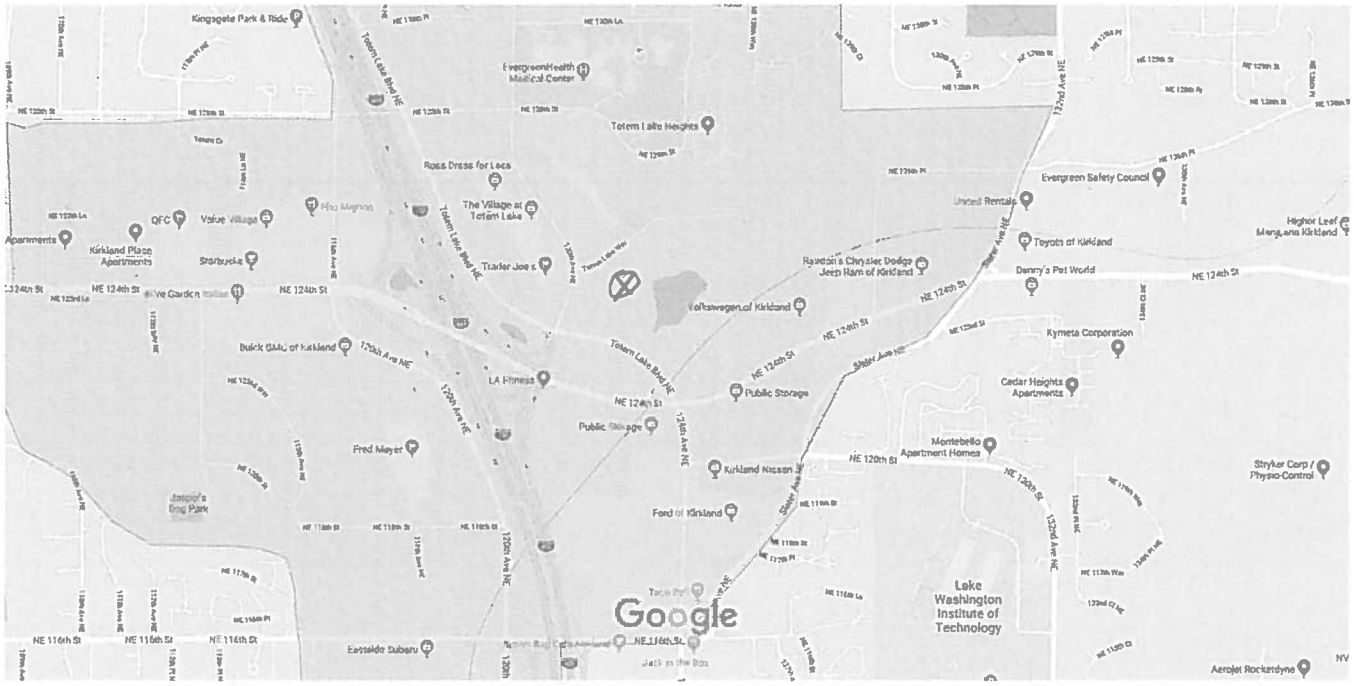
LATERAL DESIGN

BASE SHEAR, SHEARWALLS AND ROOF DIAPHRAGM

Google Maps Totem Lake



Map data ©2018 Google 500 ft

Latitude/Longitude (Below)

USGS Design Maps Summary Report

User-Specified Input

Building Code Reference Document ASCE 7-10 Standard
(which utilizes USGS hazard data available in 2008)

Site Coordinates 47.71°N, 122.18°W

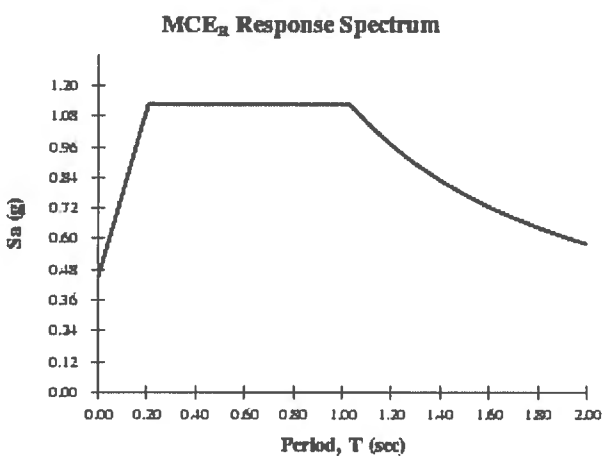
Site Soil Classification Site Class E – "Soft Clay Soil" — FOR REFERENCE ONLY — SITE CLASS "F" PER GEO-TECH REPORT.

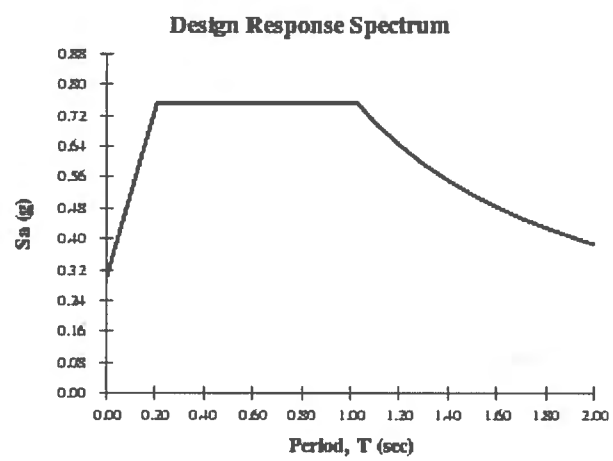
Risk Category I/II/III

USGS-Provided Output

S_S =	1.253 g	S_{MS} =	1.128 g	S_{DS} =	0.752 g
S_1 =	0.483 g	S_{M1} =	1.159 g	S_{D1} =	0.773 g

For information on how the SS and S1 values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the "2009 NEHRP" building code reference document.





For PGA_M, T_L, C_{RS}, and C_{R1} values, please view the detailed report.

USGS Design Maps Detailed Report

2012/2015 International Building Code (47.71°N, 122.18°W)

Site Class E – "Soft Clay Soil", Risk Category I/II/III

Section 1613.3.1 — Mapped acceleration parameters

Note: Ground motion values provided below are for the direction of maximum horizontal spectral response acceleration. They have been converted from corresponding geometric mean ground motions computed by the USGS by applying factors of 1.1 (to obtain S_S) and 1.3 (to obtain S_1). Maps in the 2012/2015 International Building Code are provided for Site Class B. Adjustments for other Site Classes are made, as needed, in Section 1613.3.3.

From Figure 1613.3.1(1) [1] S_S = 1.253 g

From Figure 1613.3.1(2) [2] S_1 = 0.483 g

Section 1613.3.2 — Site class definitions

The authority having jurisdiction (not the USGS), site-specific geotechnical data, and/or the default has classified the site as Site Class E, based on the site soil properties in accordance with Section 1613.

2010 ASCE-7 Standard – Table 20.3-1
SITE CLASS DEFINITIONS

Site Class	$\bar{v}_s$	$\bar{N}$ or $\bar{N}_{ch}$	$\bar{s}_u$
A. Hard Rock	>5,000 ft/s	N/A	N/A
B. Rock	2,500 to 5,000 ft/s	N/A	N/A
C. Very dense soil and soft rock	1,200 to 2,500 ft/s	>50	>2,000 psf
D. Stiff Soil	600 to 1,200 ft/s	15 to 50	1,000 to 2,000 psf
E. Soft clay soil	<600 ft/s	<15	<1,000 psf
	Any profile with more than 10 ft of soil having the characteristics: • Plasticity index PI > 20, • Moisture content w ≥ 40%, and • Undrained shear strength $\bar{s}_u$ < 500 psf		
F. Soils requiring site response analysis in accordance with Section 21.1	See Section 20.3.1		

For SI: 1ft/s = 0.3048 m/s 1lb/ft² = 0.0479 kN/m²

Section 1613.3.3 — Site coefficients and adjusted maximum considered earthquake spectral response acceleration parameters

TABLE 1613.3.3(1)
VALUES OF SITE COEFFICIENT F_a

Site Class	Mapped Spectral Response Acceleration at Short Period				
	$S_S \leq 0.25$	$S_S = 0.50$	$S_S = 0.75$	$S_S = 1.00$	$S_S \geq 1.25$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See Section 11.4.7 of ASCE 7				

Note: Use straight-line interpolation for intermediate values of S_S

For Site Class = E and S_S = 1.253 g, F_a = 0.900

TABLE 1613.3.3(2)
VALUES OF SITE COEFFICIENT F_v

Site Class	Mapped Spectral Response Acceleration at 1-s Period				
	$S_1 \leq 0.10$	$S_1 = 0.20$	$S_1 = 0.30$	$S_1 = 0.40$	$S_1 \geq 0.50$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.7	1.6	1.5	1.4	1.3
D	2.4	2.0	1.8	1.6	1.5
E	3.5	3.2	2.8	2.4	2.4
F	See Section 11.4.7 of ASCE 7				

Note: Use straight-line interpolation for intermediate values of S_1

For Site Class = E and S_1 = 0.483 g, F_v = 2.400

Equation (16-37): $S_{MS} = F_aS_S = 0.900 \times 1.253 = 1.128$ g

---

Equation (16-38): $S_{M1} = F_vS_1 = 2.400 \times 0.483 = 1.159$ g

---

Section 1613.3.4 — Design spectral response acceleration parameters

Equation (16-39): $S_{DS} = ⅔\ S_{MS} = ⅔ \times 1.128 = 0.752$ g

---

Equation (16-40): $S_{D1} = ⅔\ S_{M1} = ⅔ \times 1.159 = 0.773$ g

---

Section 1613.3.5 — Determination of seismic design category

TABLE 1613.3.5(1)
SEISMIC DESIGN CATEGORY BASED ON SHORT-PERIOD (0.2 second) RESPONSE ACCELERATION

VALUE OF S_{DS}	RISK CATEGORY		
	I or II	III	IV
$S_{DS} < 0.167g$	A	A	A
$0.167g \leq S_{DS} < 0.33g$	B	B	C
$0.33g \leq S_{DS} < 0.50g$	C	C	D
$0.50g \leq S_{DS}$	D	D	D

For Risk Category = I and S_{DS} = 0.752 g, Seismic Design Category = D

TABLE 1613.3.5(2)
SEISMIC DESIGN CATEGORY BASED ON 1-SECOND PERIOD RESPONSE ACCELERATION

VALUE OF S_{D1}	RISK CATEGORY		
	I or II	III	IV
$S_{D1} < 0.067g$	A	A	A
$0.067g \leq S_{D1} < 0.133g$	B	B	C
$0.133g \leq S_{D1} < 0.20g$	C	C	D
$0.20g \leq S_{D1}$	D	D	D

For Risk Category = I and S_{D1} = 0.773 g, Seismic Design Category = D

Note: When S_1 is greater than or equal to 0.75g, the Seismic Design Category is **E** for buildings in Risk Categories I, II, and III, and **F** for those in Risk Category IV, irrespective of the above.

Seismic Design Category ≡ "the more severe design category in accordance with Table 1613.3.5(1) or 1613.3.5(2)" = D

Note: See Section 1613.3.5.1 for alternative approaches to calculating Seismic Design Category.

References

1. *Figure 1613.3.1(1)*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/IBC-2012-Fig1613p3p1(1).pdf
2. *Figure 1613.3.1(2)*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/IBC-2012-Fig1613p3p1(2).pdf

Project: Totem Lake Project No.: 17-116
Subject:
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Date: 11-27-18 By: S. Hall

☐ Page ___ of ___
☐ Calculations
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Seismic Design Parameters

Per GeoTech report, Use Site Class F.

$F_a S_s = 1.5(0.9) = 1.35(1.5) = 2.03$

$F_v S_1 = 0.6(2.4) = 1.44(1.5) = 2.16$

$S_{DS} = 2/3(2.03) = 1.36$

$S_{D1} = 2/3(2.16) = 1.45$

$C_s = \dfrac{S_{DS}}{R/I}$

Steel Special Caut. Col. Sys.: $R_w = 2.5$
$\Omega = 1.25$

$C_s = \dfrac{1.36}{2.50/1.0} = 0.54$ ✓

Wood Sh. Walls: $R_w = 6.5$, $\Omega = 2.5$

OR

Sp. Reinf. CMU: $R_w = 5$, $\Omega = 2.5$ ✓

$C_s = \dfrac{1.36}{5/1.0} = 0.27$ ✓

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☐ Page ___ of ___
☐ Calculations
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Structure Loads

$Roof_{DL} = 16(28.67)(32) = 14.7^k$

$8''$ CMU $= [22(2) + 18.67(2) + 16.0 + 20.67 + 12](8)(60)$
$= 62.4^k$

$28''$ Deep Pile Cap $= 22(23.33)(2.33)(0.150)$
$= 180^k$

$Roof_{SL} = 25(28.67)(32) = 23.0^k$

Total Load to Piles:

$DL = 257^k$
$SL = 23.0^k$
$TL = 280^k$

$6''\phi$ Pile Capacite $= 30^k$ Each

$\#$ of Piles $= 280/30 = 9.4$ piles

$\Rightarrow$ For symmetry, use 12 Piles.

Load/Pile $= \frac{280}{12} = 23.3^k/\text{Pile}$ OK

Project: Totem Lake Project No.: 17-116
Subject:
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Date: 11-27-18 By: S. Hall

☐ Page ___ of ___
☐ Calculations
☐ Memorandum
☐ Meeting Minutes
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Roof Seismic Force to Columns:

$V_x = 0.54(15) = 8.1^k$

Roof Seismic Force to Sh. Walls:

$V_x = 0.27(15) = 4.0^k$

Seismic Force to Pile Cap:

$V_x = 0.27(14.7 + \frac{1}{2}(62.4)) = 12.4^k$

Passive Pressure = 200 psf

28" Deep Pile Cap:

$P = \frac{1}{2}(2.33)(200)(2.33)(23.33)$

$= 12.7^k > 12.4^k$ OK

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Project Title: Totem Lake
Engineer: SGH
Project Descr:
Project ID: 17-116

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IBC 2012 1609.6 Alternate All-Heights Wind

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ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.14.12.31

Lic. # : KW-06010241 — Licensee : INNOVA Architects Inc

Description : Wind Base Shear

IBC 2015 OK

Analytical Values

Calculations per IBC 2012 1609.6

User verified these IBC 2012 All-Heights Wind Method Limitations :

1609.6.1 (1) :	Total Height <= 75 ft with (Height / Least Width) <= 4 -or- Fundamental frequency >= 1 hertz
1609.6.1 (2) :	Not sensitive to dynamic effects
1609.6.1 (3) :	Site not affected by channeling/buffeting from upwind items
1609.6.1 (4) :	Simple diaphragm building per ASCE 7-05 Sec 26.2
1609.6.1 (5) :	Aware of ASCE 7 provisions for open buildings, multispan gable roofs, stepped roofs, sawtooth roofs, domed roofs, roofs with slopes > 45 deg, solid free standing walls & signs.
1609.6.4.1 :	Aware of need to check torsion per ASCE 7 Fig. 27.4-8

Analytical Values . . .

Exposure Category, ASCE 7-10 Sect 26.7.3	Exposure B
Mean Roof Height	15.0 ft
Topographic Factor per ASCE 7-10 Sec 26.8.2	
K1 = 0.250 K2 = 1.0 K3 =	1.0
Force Kzt to 1.0 per ASCE 7-10 26.8.2	Yes
Topographic Factor Kzt = (1+K1*K2*K3)^2 =	1.000
V : Basic Wind Speed per ASCE 7-10 26.5.1	110.0 mph

MWFRS Table per IBC 2012 1609.6.2, Section 1

Design Pressure P = 0.00256 V^2 K_z C_{net} K_{zt}

WINDWARD WALLS & PARAPETS

Kz based on ibc 2012 1609.6.4.2 Item 1

Height	Kz	WALLS Enclosed +Internal	WALLS Enclosed -Internal	WALLS Partially Enclosed +Internal	WALLS Partially Enclosed -Internal	PARAPETS psf Enclosed	PARAPETS psf Partially Enclosed
0 - 15 '	0.570	7.60	12.90	1.94	18.55	22.62	22.62
20'	0.620	8.26	14.03	2.11	20.18	24.60	24.60
25 '	0.660	8.80	14.94	2.25	21.48	26.19	26.19
30 '	0.700	9.33	15.84	2.39	22.79	27.78	27.78
40 '	0.760	10.13	17.20	2.59	24.74	30.16	30.16
50 '	0.810	10.80	18.33	2.76	26.37	32.14	32.14
60 '	0.850	11.33	19.24	2.90	27.67	33.73	33.73
70 '	0.890	11.86	20.14	3.03	28.97	35.32	35.32
80 '	0.930	12.40	21.05	3.17	30.27	36.90	36.90
90 '	0.960	12.80	21.72	3.27	31.25	38.09	38.09
100 '	0.990	13.20	22.40	3.38	32.22	39.28	39.28

LEEWARD & SIDEWALLS

Kz based on IBC 2012 1609.6.4.2 Item 2 — 0.570

	Enclosed +Internal	Enclosed -Internal	Partially Enclosed +Internal	Partially Enclosed -Internal
Leeward Wall	-9.01	-3.71	-14.67	1.94
Side Wall	-11.66	-6.18	-17.14	0.71
Parapet Wall : Leeward	*Both Directions*	-15.02	*Both Directions*	-15.02

W = 7.60 + 9.01 = 16.61 psf
= 12.90 + 3.71 = 16.61 psf

W = 16.61 (30')(6') = 2990 lbs. = 3.0k

EQ = 8.0k > W

⇒ Seismic Controls.

INNOVA Architects
950 Pacific Avenue, Suite 450
Tacoma, WA 98402
(253) 572-4903

Project Title: Totem Lake
Engineer: SGH
Project Descr:
Project ID: 17-116

Printed 6 JUL 2018, 1.57PM

IBC 2012 1609.6 Alternate All-Heights Wind

File = p:\2017\17-116 Totem Lake Splash Pad (Berger)\Engineering Calcs\Struct\totem-lake-enercalc.ec6
ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.14.12.31

Lic. # : KW-06010241 Licensee : INNOVA Architects Inc

Description : Wind Base Shear

MWFRS per IBC 2012 Table 1609.6.2 Section 1

Kz per IBC 2012 1609.6.4.2 Item 2 = 0.570

Design Pressure P = 0.00256 V^2 K_z C_{net} K_{zt} psf

WIND PERPENDICULAR TO RIDGE

		Enclosed		Partially Enclosed	
		+Internal	-Internal	+Internal	-Internal
Leeward Roof or Flat Roof		-11.66	-6.18	-6.54	-0.71
Windward Roof Slopes					
Slope < 2:12 (10 deg)	Condition 1	-19.26	-13.96	-24.91	-8.30
	Condition 2	-4.95	0.35	-10.60	6.01
Slope < 4:12 (18 deg)	Condition 1	-12.90	-7.42	-18.38	-1.94
	Condition 2	-0.88	4.42	-6.54	10.07
Slope < 5:12 (23 deg)	Condition 1	-10.25	-4.95	-15.90	0.71
	Condition 2	0.53	6.01	-5.12	11.49
Slope < 6:12 (27 deg)	Condition 1	-8.30	-2.83	-13.78	2.65
	Condition 2	1.06	6.54	-4.42	12.02
Slope < 7:12 (30 deg)	Condition 1	-6.54	-1.06	-12.02	-4.59
	Condition 2	1.24	6.54	-4.42	12.19
Slope < 9:12 (37 deg)	Condition 1	-4.77	0.71	-10.25	6.18
	Condition 2	2.47	7.77	-3.18	13.43
Slope < 12:12 (45 deg)		2.47	7.77	-3.18	13.43

WIND PARALLEL TO RIDGE

All slopes including Flat Roofs	-19.26	-13.96	-24.91	-8.30

Wall & Parapet Components & Cladding per IBC 2012 Table 1609.6.2, Section 4 & 5

Design Pressure P = 0.00256 V^2 K_z C_{net} K_{zt}

Description	*Continuity*	*Item Type*	Z, Ht. Above Ground Level, ft	Eff. Area ft^2	Kz		Enclosed	Partially Enclosed
Wall Out of Plane Force	No Discontinuity	Wall Elements, h<=60 ft	15	45.00	0.57	+ :	17.35	23.00
						- :	-18.93	-24.42

Project: Totem Lake
Job Number: 17-116
Date: 11/6/2018

ROOF DIAPHRAGM SHEAR FORCES

Cs = 0.540

NORTH - SOUTH ORIENTED WALLS

DESCRIPTION	LENGTH	WIDTH	WEIGHT (KIPS)
Roof	32	29	15
		TOTAL DEAD LOAD (KIPS)	15

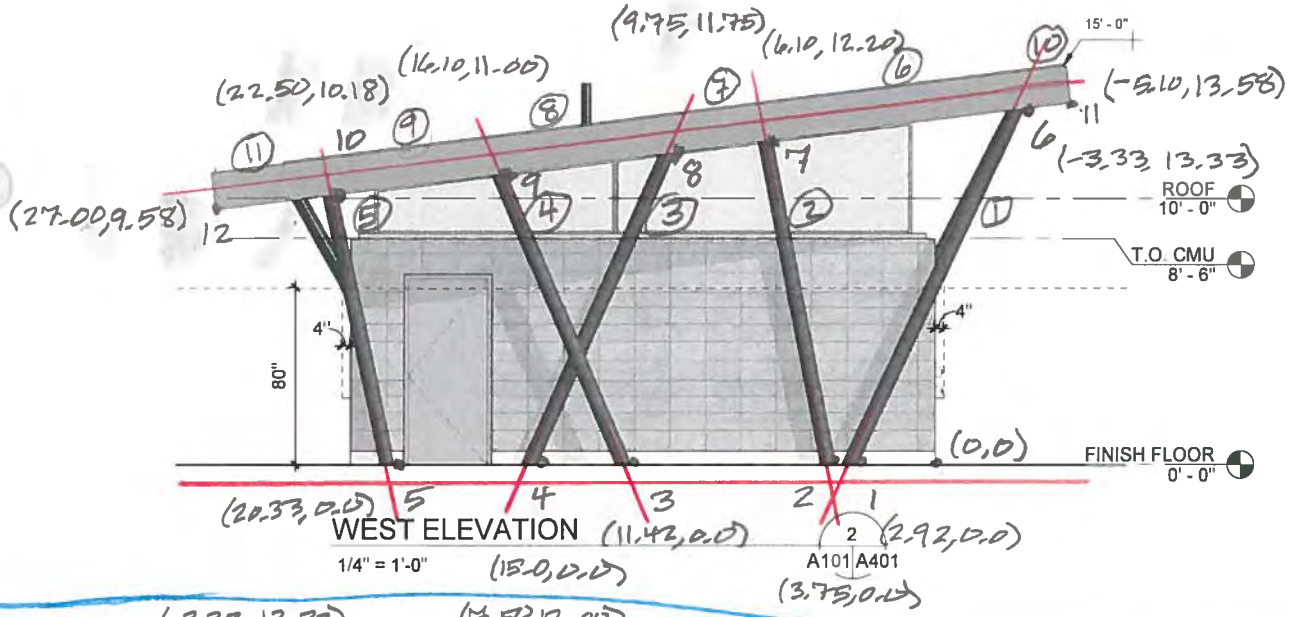
Shear Force: Cs x W = 8 Kips
Diaphragm Shear Force to Exterior Walls = 127 PLF

EAST - WEST ORIENTED WALLS

DESCRIPTION	LENGTH	WIDTH	WEIGHT (KIPS)
Roof	29	32	15
		TOTAL DEAD LOAD (KIPS)	15

Shear Force: Cs x W = 8 Kips
Diaphragm Shear Force to Exterior Walls = 141 PLF

DIAPHRAGM SHEAR CAPACITIES (NDS Table 4.2A):
5/16" Struct 1, 6d nails, 6" o.c., 2x Joists 296 PLF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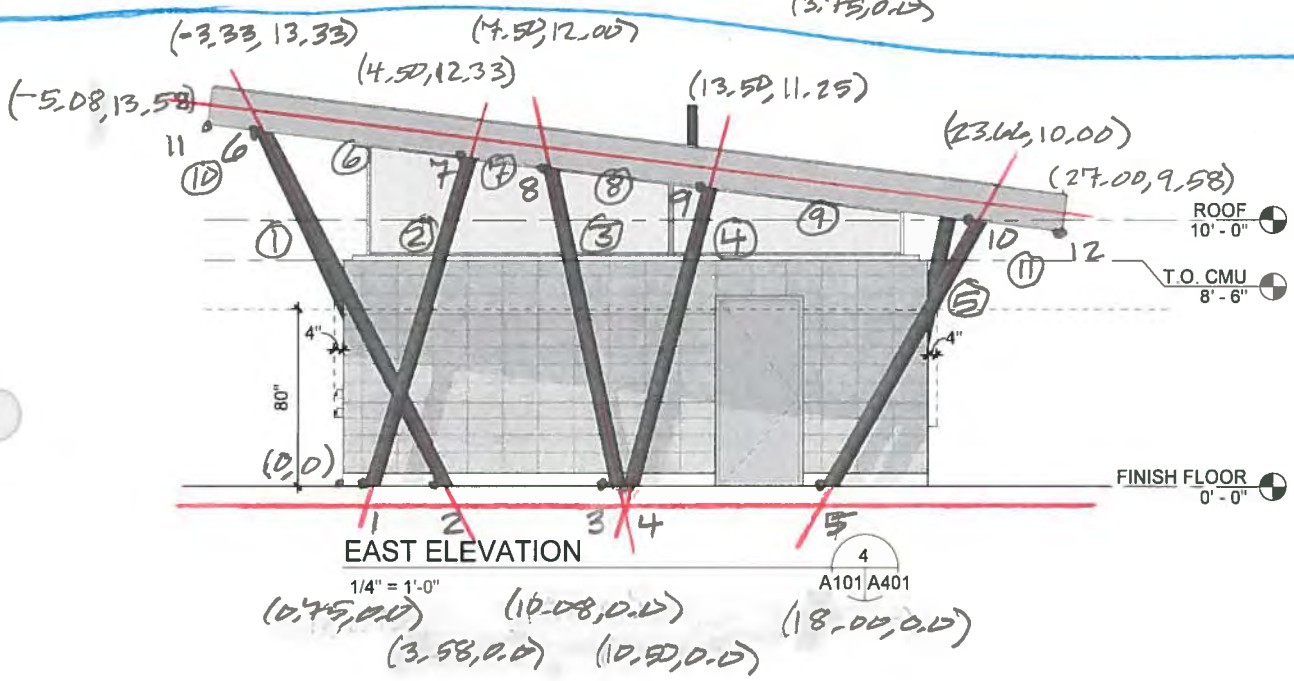
(6.10,12.20)
15' - 0"
(16.10,11.00)
(22.50,10.18)
(-5.10,13.58)
(-3.33,13.33)
(27.00,9.58)
ROOF
10' - 0"
T.O. CMU
8' - 6"
4"
80"
(0,0)
FINISH FLOOR
0' - 0"
(20.33,0.0)
(11.42,0.0)
(2.92,0.0)
(15.0,0.0)
(3.75,0.0)
WEST ELEVATION
1/4" = 1'-0"
2
A101 A401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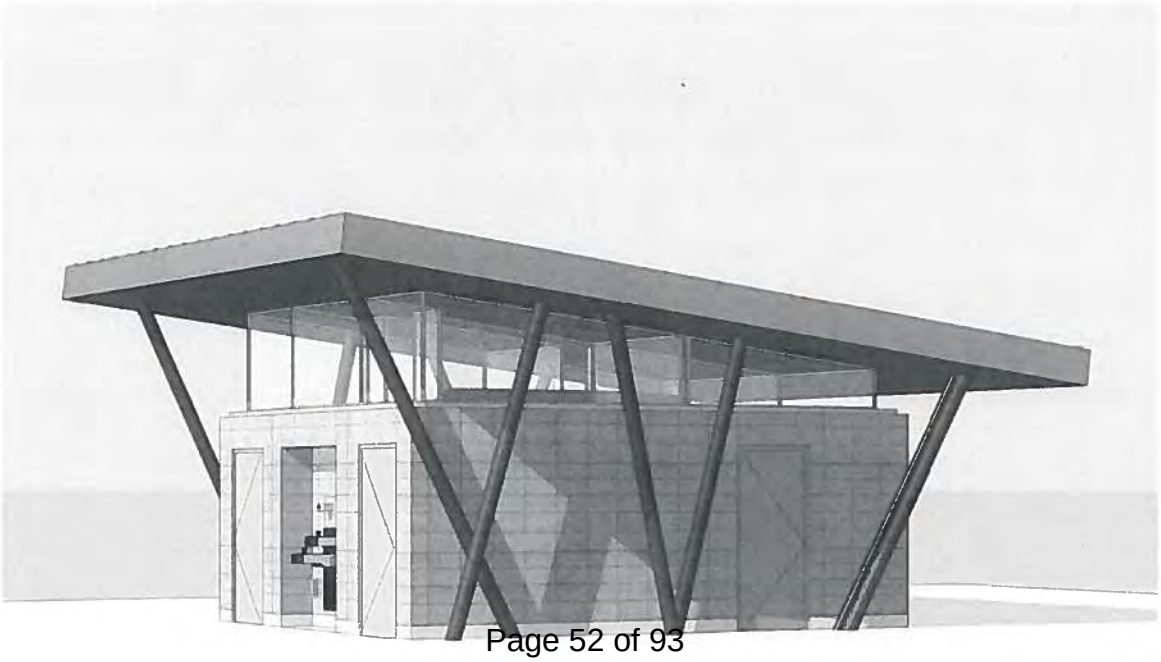
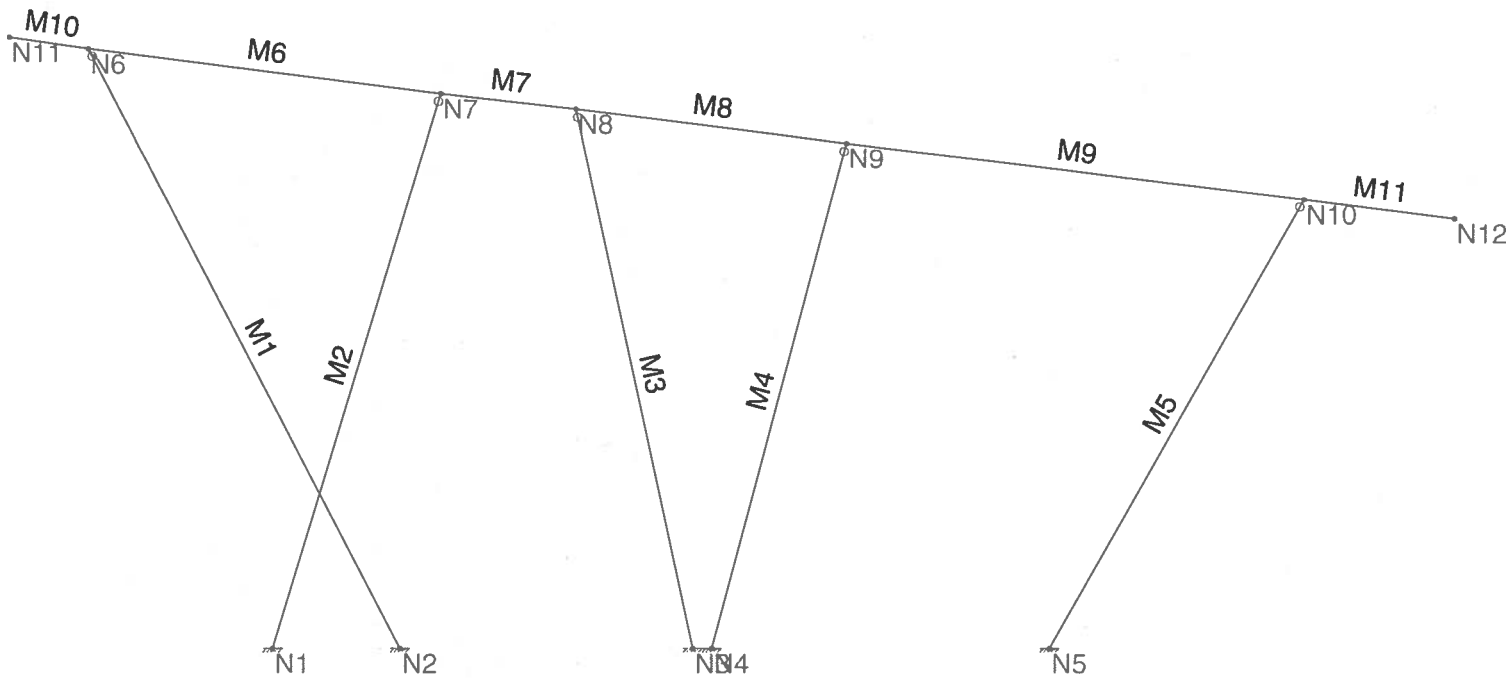
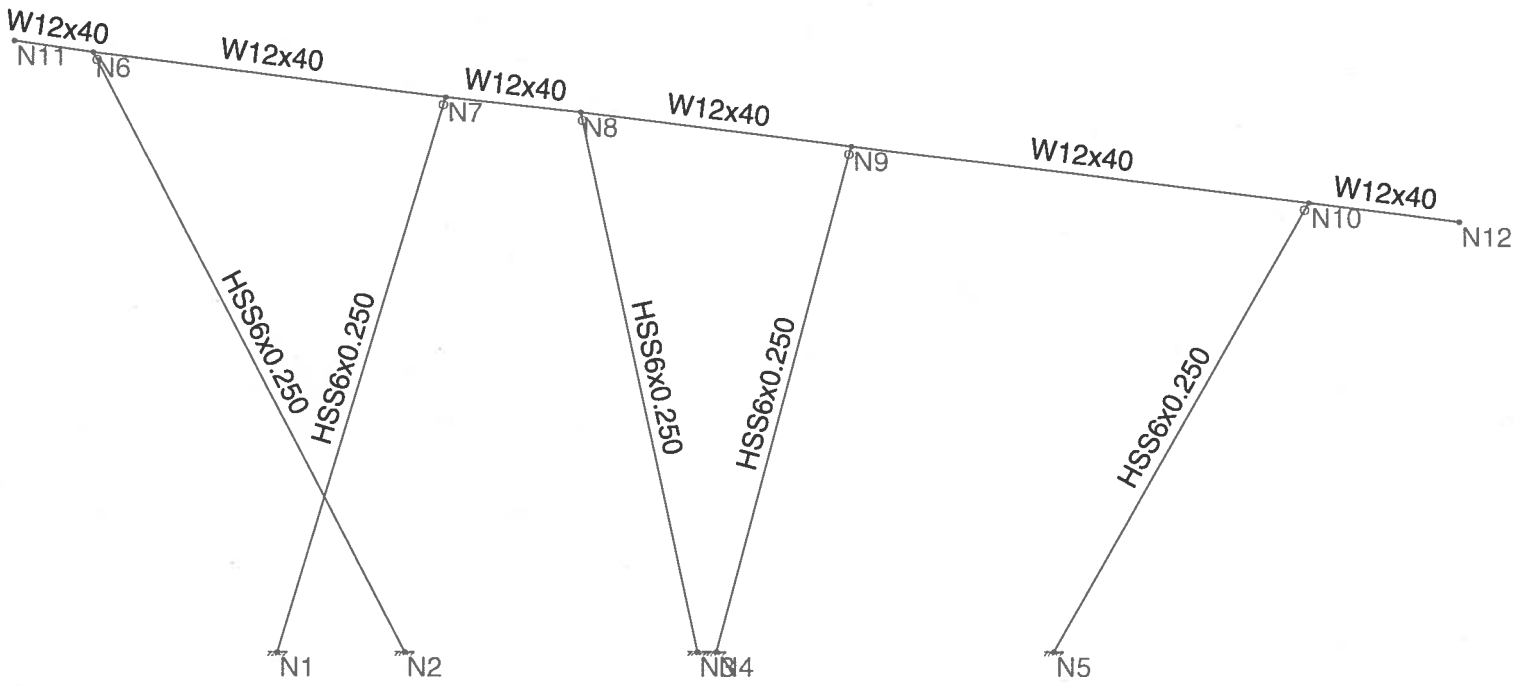
(7.50,12.00)
(4.50,12.33)
(-5.08,13.58)
(13.50,11.25)
(23.66,10.00)
(27.00,9.58)
ROOF
10' - 0"
T.O. CMU
8' - 6"
4"
80"
(0,0)
FINISH FLOOR
0' - 0"
EAST ELEVATION
1/4" = 1'-0"
4
A101 A401
(0.75,0.0)
(10.08,0.0)
(18.00,0.0)
(3.58,0.0)
(10.50,0.0)





INNOVA	Totem Lake Shelter East Frame	SK - 1
SGH		Nov 6, 2018 at 3:58 PM
17-116		east frame-NEW.r2d



INNOVA	Totem Lake Shelter East Frame	SK - 2
SGH		Nov 6, 2018 at 3:58 PM
17-116		east frame-NEW.r2d

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)
Cold Formed Steel Code	AISI S100-12: ASD
Wood Code	AWC NDS-12: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-11
Masonry Code	ACI 530-13: ASD
Aluminum Code	AA ADM1-10: ASD - Building
Number of Shear Regions	4
Region Spacing Increment (in)	4
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E5 F)	Density[k/ft^3]	Yield[ksi]
1	A36 Gr.36	29000	11154	.3	.65	.49	36
2	A572 Gr.50	29000	11154	.3	.65	.49	50
3	A992	29000	11154	.3	.65	.49	50
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46
6	A53 Gr.B	29000	11154	.3	.65	.49	35
7	A1085	29000	11154	.3	.65	.49	50

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	I (90,270) ...	I (0,180) [i...
1	Post	HSS6x0.250	Column	Pipe	A500 Gr.B RND	Typical	4.22	17.6	17.6
2	Beam	W12x40	Beam	Wide Flange	A572 Gr.50	Typical	11.7	44.1	307

Material Takeoff

	Material	Size	Pieces	Length[ft]	Weight[K]
1	Hot Rolled Steel				
2	A500 Gr.B RND	HSS6x0.250	5	63.3	1

Material Takeoff (Continued)

	Material	Size	Pieces	Length[ft]	Weight[K]
3	A572 Gr.50	W12x40	6	32.3	1.3
4	Total HR Steel		11	95.6	2.3

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Temp [F]
1	N1	.75	0	0
2	N2	3.58	0	0
3	N3	10.08	0	0
4	N4	10.5	0	0
5	N5	18	0	0
6	N6	-3.33	13.33	0
7	N7	4.5	12.34	0
8	N8	7.5	12	0
9	N9	13.5	11.25	0
10	N10	23.66	10	0
11	N11	-5.08	13.58	0
12	N12	27	9.58	0

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Rotation[k-ft/rad]	Footing
1	N1	Reaction	Reaction	Reaction	
2	N2	Reaction	Reaction	Reaction	
3	N3	Reaction	Reaction	Reaction	
4	N4	Reaction	Reaction	Reaction	
5	N5	Reaction	Reaction	Reaction	

Member Primary Data

	Label	I Joint	J Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N2	N6		Post	Column	Pipe	A500 Gr.B ...	Typical
2	M2	N1	N7		Post	Column	Pipe	A500 Gr.B ...	Typical
3	M3	N3	N8		Post	Column	Pipe	A500 Gr.B ...	Typical
4	M4	N4	N9		Post	Column	Pipe	A500 Gr.B ...	Typical
5	M5	N5	N10		Post	Column	Pipe	A500 Gr.B ...	Typical
6	M6	N6	N7		Beam	Beam	Wide Flange	A572 Gr.50	Typical
7	M7	N7	N8		Beam	Beam	Wide Flange	A572 Gr.50	Typical
8	M8	N8	N9		Beam	Beam	Wide Flange	A572 Gr.50	Typical
9	M9	N9	N10		Beam	Beam	Wide Flange	A572 Gr.50	Typical
10	M10	N11	N6		Beam	Beam	Wide Flange	A572 Gr.50	Typical
11	M11	N10	N12		Beam	Beam	Wide Flange	A572 Gr.50	Typical

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lb-out[ft]	Lb-in[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	K-out	K-in	Cb	Function
1	M1	Post	15.015			Lb out						Lateral
2	M2	Post	12.897			Lb out						Lateral
3	M3	Post	12.274			Lb out						Lateral
4	M4	Post	11.643			Lb out						Lateral
5	M5	Post	11.491			Lb out						Lateral
6	M6	Beam	7.892			Lb out						Lateral
7	M7	Beam	3.019			Lb out						Lateral
8	M8	Beam	6.047			Lb out						Lateral
9	M9	Beam	10.237			Lb out						Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[ft]	Lb-out[ft]	Lb-in[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	K-out	K-in	Cb	Function
10	M10	Beam	1.768			Lb out						Lateral
11	M11	Beam	3.366			Lb out						Lateral

Joint Loads and Enforced Displacements (BLC 3 : EQ)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft...
1	N6	L	X	.6
2	N7	L	X	.6
3	N8	L	X	.6
4	N9	L	X	.6
5	N10	L	X	.6

Member Distributed Loads (BLC 1 : Dead)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,...	End Location[ft,%]
1	M6	Y	-.256	-.256	0	0
2	M7	Y	-.256	-.256	0	0
3	M8	Y	-.256	-.256	0	0
4	M9	Y	-.256	-.256	0	0
5	M10	Y	-.256	-.256	0	0
6	M11	Y	-.256	-.256	0	0

Member Distributed Loads (BLC 2 : Snow)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,...	End Location[ft,%]
1	M6	Y	-.4	-.4	0	0
2	M7	Y	-.4	-.4	0	0
3	M8	Y	-.4	-.4	0	0
4	M9	Y	-.4	-.4	0	0
5	M10	Y	-.4	-.4	0	0
6	M11	Y	-.4	-.4	0	0

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Joint	Point	Distributed
1	Dead	None					6
2	Snow	None					6
3	EQ	None			5		

Load Combinations

	Description	Solve	PDelta	SRSS	BLCFa...		BLCFa...		BLCFa...		BLCFa...		BLCFa...		BLCFa...		BLCFa...		BLCFa...		BLCFa...		BLCFa...	
1	DL + SL	Yes	Y		1	1	2	1																
2	DL + EQ	Yes	Y		1	1	3	1																
3	DL + .75SL + ...	Yes	Y		1	1	2	.75	3	.75														
4	.6DL + EQ	Yes	Y		1	.6	3	1																

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Moment [k-ft]	LC
1	N1	max	-.143	1	-.422	1	.286	3
2		min	-1.348	2	-4.361	2	.182	1
3	N2	max	-.927	4	4.557	1	.234	3
4		min	-2.37	1	1.763	4	.138	1
5	N3	max	-1.379	4	9.719	3	.31	3

Envelope Joint Reactions (Continued)

	Joint		X [k]	LC	Y [k]	LC	Moment [k-ft]	LC
6		min	-2.108	3	6.338	4	.193	1
7	N4	max	1.169	1	4.451	1	.364	3
8		min	-.051	4	-.099	4	.234	1
9	N5	max	2.944	1	5.243	1	.421	3
10		min	.682	4	1.257	4	.279	1
11	Totals:	max	0	1	21.208	1		
12		min	-3	4	4.966	4		

Envelope Joint Displacements

	Joint		X [in]	LC	Y [in]	LC	Rotation [rad]	LC
1	N1	max	0	2	0	2	0	1
2		min	0	1	0	1	0	3
3	N2	max	0	1	0	4	0	1
4		min	0	4	0	1	0	3
5	N3	max	0	3	0	4	0	1
6		min	0	4	0	3	0	3
7	N4	max	0	4	0	4	0	1
8		min	0	1	0	1	0	3
9	N5	max	0	4	0	4	0	1
10		min	0	1	0	1	0	3
11	N6	max	.07	3	.026	3	-5.302e-4	1
12		min	.043	1	.012	1	-7.632e-4	3
13	N7	max	.066	3	-.008	4	1.655e-4	3
14		min	.041	1	-.014	3	7.367e-5	4
15	N8	max	.068	3	.001	4	9.056e-5	3
16		min	.043	1	-.002	1	5.664e-5	1
17	N9	max	.066	3	-.013	4	-2.676e-4	4
18		min	.042	1	-.022	3	-4.418e-4	3
19	N10	max	.065	3	-.03	4	9.667e-5	1
20		min	.041	1	-.045	3	-5.314e-5	4
21	N11	max	.073	3	.042	3	-5.181e-4	1
22		min	.045	1	.022	1	-7.53e-4	3
23	N12	max	.065	3	-.033	1	1.3e-5	1
24		min	.041	1	-.047	3	-7.273e-5	4

Envelope Member Section Deflections

	Member	Sec		x [in]	LC	y [in]	LC	L/y Ratio	LC
1	M1	1	max	0	1	0	1	NC	1
2			min	0	1	0	1	NC	1
3		2	max	0	4	-.004	1	NC	1
4			min	-.002	1	-.006	3	NC	1
5		3	max	-.002	4	-.014	1	NC	1
6			min	-.005	1	-.023	3	7723.001	3
7		4	max	-.003	4	-.028	1	6485.914	1
8			min	-.007	1	-.047	3	3816.207	3
9		5	max	-.004	4	-.044	1	4105.511	1
10			min	-.009	1	-.075	3	2415.617	3
11	M2	1	max	0	1	0	1	NC	1
12			min	0	1	0	1	NC	1
13		2	max	.002	2	-.004	1	NC	1
14			min	0	1	-.006	3	NC	1
15		3	max	.004	2	-.013	1	NC	1
16			min	0	1	-.021	3	7357.473	3
17		4	max	.005	2	-.027	1	5706.918	1

Envelope Member Section Deflections (Continued)

	Member	Sec		x [in]	LC	y [in]	LC	L/y Ratio	LC
18			min	0	1	-.043	3	3636.39	3
19		5	max	.007	2	-.043	1	3612.772	1
20			min	0	1	-.067	3	2302.022	3
21	M3	1	max	0	1	0	1	NC	1
22			min	0	1	0	1	NC	1
23		2	max	-.002	4	-.004	1	NC	1
24			min	-.004	3	-.006	3	NC	1
25		3	max	-.005	4	-.013	1	NC	1
26			min	-.007	3	-.021	3	7120.962	3
27		4	max	-.007	4	-.026	1	5665.671	1
28			min	-.011	3	-.042	3	3519.805	3
29		5	max	-.01	4	-.041	1	3586.801	1
30			min	-.015	3	-.066	3	2228.304	3
31	M4	1	max	0	1	0	1	NC	1
32			min	0	1	0	1	NC	1
33		2	max	0	4	-.004	1	NC	1
34			min	-.002	1	-.006	3	NC	1
35		3	max	0	4	-.014	1	9931.036	1
36			min	-.003	1	-.022	3	6402.702	3
37		4	max	0	4	-.028	1	4909.298	1
38			min	-.005	1	-.044	3	3165.105	3
39		5	max	0	4	-.045	1	3108.103	1
40			min	-.007	1	-.07	3	2003.845	3
41	M5	1	max	0	1	0	1	NC	1
42			min	0	1	0	1	NC	1
43		2	max	0	4	-.005	1	NC	1
44			min	-.002	1	-.007	3	NC	1
45		3	max	-.001	4	-.016	1	8444.894	1
46			min	-.004	1	-.025	3	5609.798	3
47		4	max	-.002	4	-.033	1	4174.755	1
48			min	-.006	1	-.05	3	2773.218	3
49		5	max	-.002	4	-.052	1	2643.093	1
50			min	-.008	1	-.079	3	1755.761	3
51	M6	1	max	.067	3	.035	3	4001.54	1
52			min	.041	1	.017	1	2340.429	3
53		2	max	.067	3	.019	2	8487.365	1
54			min	.042	1	.005	1	4257.712	3
55		3	max	.067	3	.007	4	NC	1
56			min	.042	1	-.005	1	NC	1
57		4	max	.067	3	0	4	NC	1
58			min	.042	1	-.008	1	NC	1
59		5	max	.067	3	-.002	4	NC	1
60			min	.042	1	-.007	1	NC	1
61	M7	1	max	.067	3	-.002	4	NC	2
62			min	.042	1	-.007	1	3853.695	1
63		2	max	.067	3	0	4	NC	2
64			min	.042	1	-.005	1	5261.705	1
65		3	max	.067	3	.002	4	NC	2
66			min	.042	1	-.002	1	8527.88	1
67		4	max	.067	3	.005	2	NC	1
68			min	.042	1	0	1	NC	1
69		5	max	.067	3	.007	2	NC	1
70			min	.043	1	.002	1	NC	1
71	M8	1	max	.067	3	.008	2	NC	1
72			min	.043	1	.003	1	NC	1
73		2	max	.068	3	.007	2	NC	1
74			min	.043	1	.002	1	NC	1

Envelope Member Section Deflections (Continued)

	Member	Sec		x [in]	LC	y [in]	LC	L/y Ratio	LC
75		3	max	.068	3	.003	4	NC	1
76			min	.043	1	-.002	1	NC	1
77		4	max	.068	3	-.002	4	NC	2
78			min	.043	1	-.007	1	5475.842	3
79		5	max	.068	3	-.007	4	NC	2
80			min	.044	1	-.014	3	3390.417	3
81	M9	1	max	.068	3	-.007	4	NC	1
82			min	.044	1	-.014	3	NC	1
83		2	max	.069	3	-.015	4	NC	1
84			min	.044	1	-.027	3	NC	1
85		3	max	.069	3	-.02	4	NC	1
86			min	.044	1	-.036	3	NC	1
87		4	max	.069	3	-.023	4	NC	1
88			min	.045	1	-.038	3	NC	1
89		5	max	.07	3	-.024	4	NC	1
90			min	.045	1	-.037	3	NC	1
91	M10	1	max	.066	3	.052	3	NC	1
92			min	.041	1	.029	1	NC	1
93		2	max	.066	3	.048	3	NC	1
94			min	.041	1	.026	1	NC	1
95		3	max	.066	3	.044	3	NC	1
96			min	.041	1	.023	1	NC	1
97		4	max	.066	3	.04	3	NC	1
98			min	.041	1	.021	1	NC	1
99		5	max	.066	3	.036	3	NC	1
100			min	.041	1	.018	1	NC	1
101	M11	1	max	.07	3	-.024	4	NC	1
102			min	.045	1	-.037	3	NC	1
103		2	max	.07	3	-.025	4	NC	1
104			min	.045	1	-.037	3	NC	1
105		3	max	.07	3	-.025	4	NC	1
106			min	.045	1	-.037	3	NC	1
107		4	max	.07	3	-.026	4	NC	1
108			min	.045	1	-.038	3	NC	1
109		5	max	.07	3	-.027	4	NC	1
110			min	.045	1	-.039	3	NC	1

Envelope Member Section Forces

	Member	Sec		Axial[k]	LC	Shear[k]	LC	Moment[k-ft]	LC
1	M1	1	max	5.136	1	.016	3	.234	3
2			min	1.992	4	.009	1	.138	1
3		2	max	5.136	1	.016	3	.176	3
4			min	1.992	4	.009	1	.103	1
5		3	max	5.136	1	.016	3	.117	3
6			min	1.992	4	.009	1	.069	1
7		4	max	5.136	1	.016	3	.059	3
8			min	1.992	4	.009	1	.034	1
9		5	max	5.136	1	.016	3	0	1
10			min	1.992	4	.009	1	0	1
11	M2	1	max	-.445	1	.022	3	.286	3
12			min	-4.564	2	.014	1	.182	1
13		2	max	-.445	1	.022	3	.214	3
14			min	-4.564	2	.014	1	.137	1
15		3	max	-.445	1	.022	3	.143	3
16			min	-4.564	2	.014	1	.091	1

Envelope Member Section Forces (Continued)

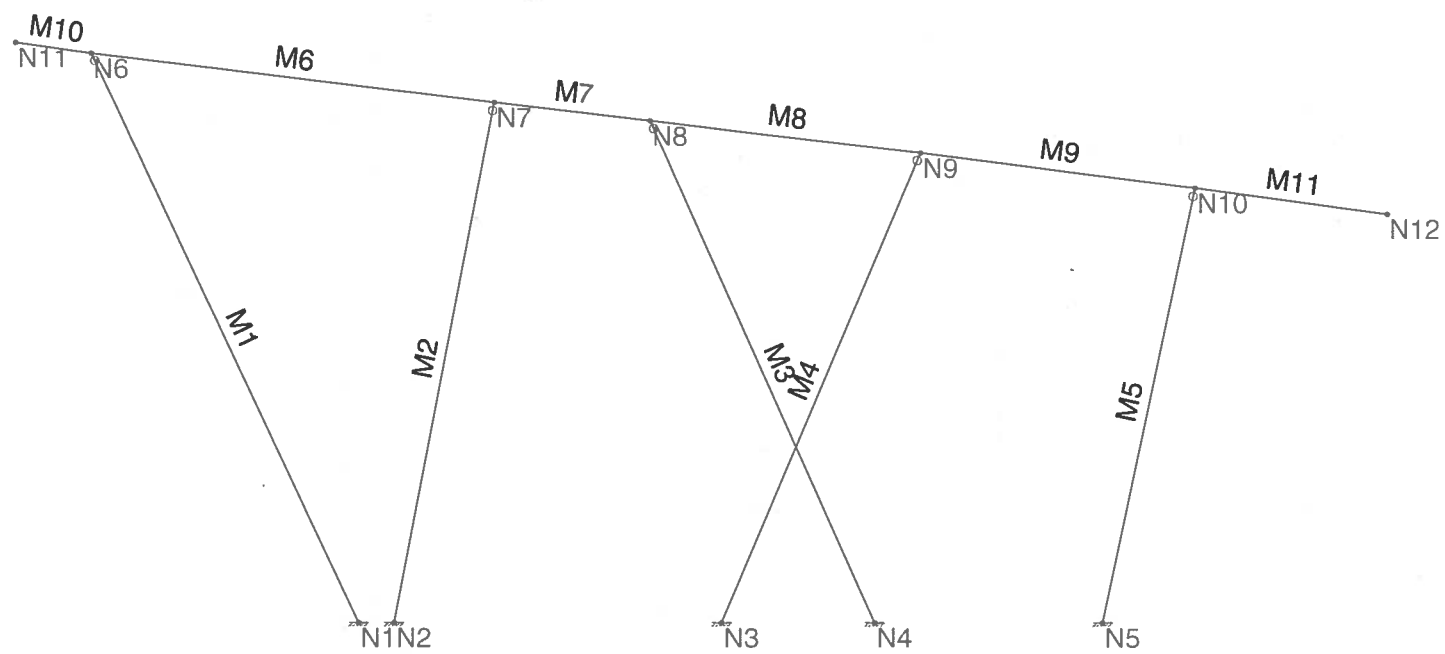
	Member	Sec		Axial[k]	LC	Shear[k]	LC	Moment[k-ft]	LC
17		4	max	-.445	1	.022	3	.071	3
18			min	-4.564	2	.014	1	.046	1
19		5	max	-.445	1	.022	3	0	1
20			min	-4.564	2	.014	1	0	1
21	M3	1	max	9.945	3	.025	3	.31	3
22			min	6.486	4	.016	1	.193	1
23		2	max	9.945	3	.025	3	.233	3
24			min	6.486	4	.016	1	.145	1
25		3	max	9.945	3	.025	3	.155	3
26			min	6.486	4	.016	1	.096	1
27		4	max	9.945	3	.025	3	.078	3
28			min	6.486	4	.016	1	.048	1
29		5	max	9.945	3	.025	3	0	1
30			min	6.486	4	.016	1	0	1
31	M4	1	max	4.602	1	.031	3	.364	3
32			min	-.109	4	.02	1	.234	1
33		2	max	4.602	1	.031	3	.273	3
34			min	-.109	4	.02	1	.176	1
35		3	max	4.602	1	.031	3	.182	3
36			min	-.109	4	.02	1	.117	1
37		4	max	4.602	1	.031	3	.091	3
38			min	-.109	4	.02	1	.059	1
39		5	max	4.602	1	.031	3	0	1
40			min	-.109	4	.02	1	0	1
41	M5	1	max	6.013	1	.037	3	.421	3
42			min	1.43	4	.024	1	.279	1
43		2	max	6.013	1	.037	3	.315	3
44			min	1.43	4	.024	1	.21	1
45		3	max	6.013	1	.037	3	.21	3
46			min	1.43	4	.024	1	.14	1
47		4	max	6.013	1	.037	3	.105	3
48			min	1.43	4	.024	1	.07	1
49		5	max	6.013	1	.037	3	0	1
50			min	1.43	4	.024	1	0	1
51	M6	1	max	-.511	4	3.144	3	1.015	1
52			min	-2.777	1	1.439	4	.238	4
53		2	max	-.473	4	2.056	3	-2.304	4
54			min	-2.615	1	1.138	4	-4.27	3
55		3	max	-.435	4	.967	3	-4.253	4
56			min	-2.453	1	.504	1	-7.252	3
57		4	max	-.397	4	.536	4	-5.608	4
58			min	-2.29	1	-.781	1	-8.087	3
59		5	max	-.359	4	.236	4	-2.96	1
60			min	-2.128	1	-2.065	1	-6.833	2
61	M7	1	max	-.593	4	-2.47	1	-2.96	1
62			min	-2.249	1	-4.745	3	-6.833	2
63		2	max	-.58	4	-2.962	1	-.909	1
64			min	-2.193	1	-5.162	3	-3.369	2
65		3	max	-.567	4	-3.454	1	1.512	1
66			min	-2.138	1	-5.579	3	.004	4
67		4	max	-.554	4	-3.946	1	5.387	3
68			min	-2.082	1	-5.996	3	3.321	4
69		5	max	-.541	4	-4.438	1	10.07	3
70			min	-2.026	1	-6.413	3	6.725	4
71	M8	1	max	-2.047	4	3.002	3	10.07	3
72			min	-4.546	3	1.618	4	6.725	4
73		2	max	-2.019	4	2.168	3	6.162	3

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[k]	LC	Shear[k]	LC	Moment[k-ft]	LC
74			min	-4.442	3	1.388	4	4.192	1
75		3	max	-1.99	4	1.334	3	3.514	3
76			min	-4.337	3	.692	1	2.403	1
77		4	max	-1.961	4	.927	4	2.127	3
78			min	-4.233	3	-.292	1	.953	4
79		5	max	-1.932	4	.697	4	3.286	1
80			min	-4.129	3	-1.276	1	-.274	4
81	M9	1	max	-1.374	4	3.293	1	3.286	1
82			min	-3.371	1	.669	4	-.274	4
83		2	max	-1.326	4	1.627	1	-1.487	4
84			min	-3.166	1	.279	4	-3.139	3
85		3	max	-1.278	4	-.039	1	-1.702	4
86			min	-2.961	1	-.117	2	-5.041	1
87		4	max	-1.23	4	-.501	4	-.919	4
88			min	-2.776	3	-1.705	1	-2.809	1
89		5	max	-1.182	4	-.891	4	3.688	1
90			min	-2.602	3	-3.372	1	.863	4
91	M10	1	max	0	1	0	3	0	1
92			min	0	1	0	4	0	1
93		2	max	.041	1	-.067	4	.063	1
94			min	.01	4	-.287	1	.015	4
95		3	max	.082	1	-.134	4	.254	1
96			min	.019	4	-.574	1	.059	4
97		4	max	.123	1	-.202	4	.571	1
98			min	.029	4	-.861	1	.134	4
99		5	max	.164	1	-.269	4	1.015	1
100			min	.038	4	-1.148	1	.238	4
101	M11	1	max	-.065	4	2.191	1	3.688	1
102			min	-.276	1	.513	4	.863	4
103		2	max	-.048	4	1.643	1	2.074	1
104			min	-.207	1	.385	4	.486	4
105		3	max	-.032	4	1.096	1	.922	1
106			min	-.138	1	.257	4	.216	4
107		4	max	-.016	4	.548	1	.23	1
108			min	-.069	1	.128	4	.054	4
109		5	max	0	1	0	1	0	1
110			min	0	1	0	3	0	1

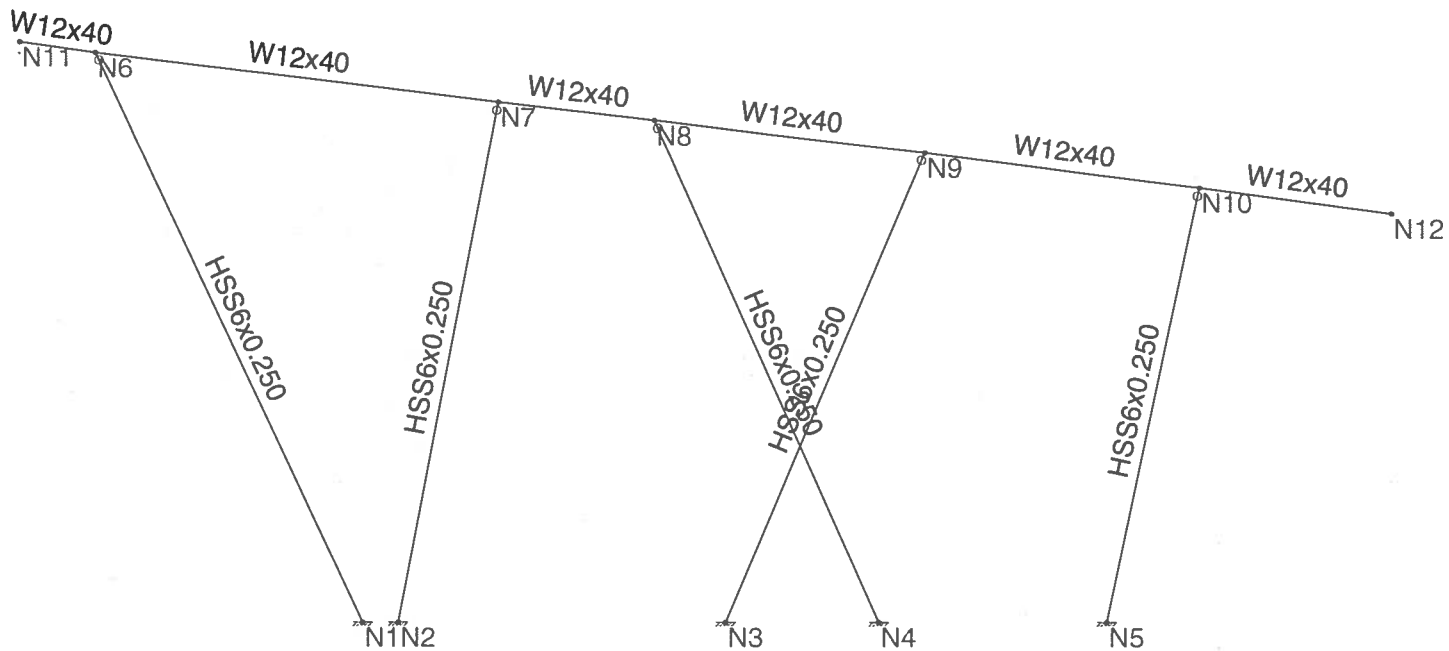
Envelope AISC 14th(360-10): ASD Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear ..	Loc[ft]	LC	Pnc/om [k]	Pnt/om [k]	Mn/om [k-ft]	Cb	Eqn
1	M1	HSS6x0.250	.078	0	1	.000	0	3	65.8	106.132	16.243	1.667	H1-1b*
2	M2	HSS6x0.250	.037	0	2	.001	0	3	74.585	106.132	16.243	1.667	H1-1b
3	M3	HSS6x0.250	.129	0	3	.001	0	3	77.107	106.132	16.243	1.667	H1-1b*
4	M4	HSS6x0.250	.058	0	1	.001	0	3	79.615	106.132	16.243	1.667	H1-1b*
5	M5	HSS6x0.250	.075	0	1	.001	0	3	80.213	106.132	16.243	1.667	H1-1b*
6	M6	W12x40	.060	5.673	3	.045	0	3	294.356	350.299	142.216	1.173	H1-1b
7	M7	W12x40	.073	3.019	3	.091	3.019	3	340.116	350.299	142.216	2.309	H1-1b
8	M8	W12x40	.077	0	3	.043	0	3	316.289	350.299	142.216	1.964	H1-1b
9	M9	W12x40	.040	5.012	1	.048	10.2...	1	261.406	350.299	142.216	1.255	H1-1b
10	M10	W12x40	.007	1.768	1	.016	1.768	1	345.281	350.299	142.216	2.326	H1-1b
11	M11	W12x40	.026	0	1	.031	0	1	338.221	350.299	142.216	2.326	H1-1b



Envelope Only Solution

INNOVA	Totem Lake Shelter West Frame	SK - 1
SGH		Nov 6, 2018 at 3:54 PM
17-116		west frame-NEW.r2d



Envelope Only Solution

INNOVA	Totem Lake Shelter West Frame	SK - 2
SGH		Nov 6, 2018 at 3:54 PM
17-116		west frame-NEW.r2d

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)
Cold Formed Steel Code	AISI S100-12: ASD
Wood Code	AWC NDS-12: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-11
Masonry Code	ACI 530-13: ASD
Aluminum Code	AA ADM1-10: ASD - Building
Number of Shear Regions	4
Region Spacing Increment (in)	4
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E5 F)	Density[k/ft^3]	Yield[ksi]
1	A36 Gr.36	29000	11154	.3	.65	.49	36
2	A572 Gr.50	29000	11154	.3	.65	.49	50
3	A992	29000	11154	.3	.65	.49	50
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46
6	A53 Gr.B	29000	11154	.3	.65	.49	35
7	A1085	29000	11154	.3	.65	.49	50

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	I (90,270) ...	I (0,180) [i...
1	Post	HSS6x0.250	Column	Pipe	A500 Gr.B RND	Typical	4.22	17.6	17.6
2	Beam	W12x40	Beam	Wide Flange	A572 Gr.50	Typical	11.7	44.1	307

Material Takeoff

	Material	Size	Pieces	Length[ft]	Weight[K]
1	Hot Rolled Steel				
2	A500 Gr.B RND	HSS6x0.250	5	62.4	1

Material Takeoff (Continued)

	Material	Size	Pieces	Length[ft]	Weight[K]
3	A572 Gr.50	W12x40	6	32.3	1.3
4	Total HR Steel		11	94.7	2.3

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Temp [F]
1	N1	2.92	0	0
2	N2	3.75	0	0
3	N3	11.42	0	0
4	N4	15	0	0
5	N5	20.33	0	0
6	N6	-3.33	13.33	0
7	N7	6.1	12.18	0
8	N8	9.75	11.75	0
9	N9	16.08	11	0
10	N10	22.5	10.18	0
11	N11	-5.1	13.58	0
12	N12	27	9.58	0

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Rotation[k-ft/rad]	Footing
1	N1	Reaction	Reaction	Reaction	
2	N2	Reaction	Reaction	Reaction	
3	N3	Reaction	Reaction	Reaction	
4	N4	Reaction	Reaction	Reaction	
5	N5	Reaction	Reaction	Reaction	

Member Primary Data

	Label	I Joint	J Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N1	N6		Post	Column	Pipe	A500 Gr.B ...	Typical
2	M2	N2	N7		Post	Column	Pipe	A500 Gr.B ...	Typical
3	M3	N4	N8		Post	Column	Pipe	A500 Gr.B ...	Typical
4	M4	N3	N9		Post	Column	Pipe	A500 Gr.B ...	Typical
5	M5	N5	N10		Post	Column	Pipe	A500 Gr.B ...	Typical
6	M6	N6	N7		Beam	Beam	Wide Flange	A572 Gr.50	Typical
7	M7	N7	N8		Beam	Beam	Wide Flange	A572 Gr.50	Typical
8	M8	N8	N9		Beam	Beam	Wide Flange	A572 Gr.50	Typical
9	M9	N9	N10		Beam	Beam	Wide Flange	A572 Gr.50	Typical
10	M10	N11	N6		Beam	Beam	Wide Flange	A572 Gr.50	Typical
11	M11	N10	N12		Beam	Beam	Wide Flange	A572 Gr.50	Typical

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lb-out[ft]	Lb-in[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	K-out	K-in	Cb	Function
1	M1	Post	14.722			Lb out						Lateral
2	M2	Post	12.405			Lb out						Lateral
3	M3	Post	12.87			Lb out						Lateral
4	M4	Post	11.946			Lb out						Lateral
5	M5	Post	10.409			Lb out						Lateral
6	M6	Beam	9.5			Lb out						Lateral
7	M7	Beam	3.675			Lb out						Lateral
8	M8	Beam	6.374			Lb out						Lateral
9	M9	Beam	6.472			Lb out						Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[ft]	Lb-out[ft]	Lb-in[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	K-out	K-in	Cb	Function
10	M10	Beam	1.788			Lb out						Lateral
11	M11	Beam	4.54			Lb out						Lateral

Joint Loads and Enforced Displacements (BLC 3 : EQ)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/ft...
1	N6	L	X	.6
2	N7	L	X	.6
3	N8	L	X	.6
4	N9	L	X	.6
5	N10	L	X	.6

Member Distributed Loads (BLC 1 : Dead)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,...	End Location[ft,%]
1	M6	Y	-.256	-.256	0	0
2	M7	Y	-.256	-.256	0	0
3	M8	Y	-.256	-.256	0	0
4	M9	Y	-.256	-.256	0	0
5	M10	Y	-.256	-.256	0	0
6	M11	Y	-.256	-.256	0	0

Member Distributed Loads (BLC 2 : Snow)

	Member Label	Direction	Start Magnitude[k/ft,F]	End Magnitude[k/ft,F]	Start Location[ft,...	End Location[ft,%]
1	M6	Y	-.4	-.4	0	0
2	M7	Y	-.4	-.4	0	0
3	M8	Y	-.4	-.4	0	0
4	M9	Y	-.4	-.4	0	0
5	M10	Y	-.4	-.4	0	0
6	M11	Y	-.4	-.4	0	0

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Joint	Point	Distributed
1	Dead	None					6
2	Snow	None					6
3	EQ	None			5		

Load Combinations

	Description	Solve	PDelta	SRSS	BLCFa...		BLCFa...		BLCFa...		BLCFa...		BLCFa...		BLCFa...		BLCFa...		BLCFa...		BLCFa...		BLCFa...	
1	DL + SL	Yes	Y		1	1	2	1																
2	DL + EQ	Yes	Y		1	1	3	1																
3	DL + .75SL + ...	Yes	Y		1	1	2	.75	3	.75														
4	.6DL + EQ	Yes	Y		1	.6	3	1																

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Moment [k-ft]	LC
1	N1	max	-.599	4	4.219	1	.104	4
2		min	-1.977	1	1.262	4	-.009	1
3	N2	max	.939	1	4.875	1	.132	2
4		min	-.293	4	-1.459	4	.016	1
5	N3	max	1.289	1	3.049	1	.149	2

Envelope Joint Reactions (Continued)

	Joint		X [k]	LC	Y [k]	LC	Moment [k-ft]	LC
6		min	-.459	4	-1.052	4	.027	1
7	N4	max	-1.479	1	5.577	3	.121	2
8		min	-2.498	3	3.309	1	0	1
9	N5	max	1.227	1	5.77	1	.195	2
10		min	.356	4	1.752	4	.032	1
11	Totals:	max	0	1	21.221	1		
12		min	-3	4	4.969	4		

Envelope Joint Displacements

	Joint		X [in]	LC	Y [in]	LC	Rotation [rad]	LC
1	N1	max	0	1	0	4	0	1
2		min	0	4	0	1	0	4
3	N2	max	0	4	0	4	0	1
4		min	0	1	0	1	0	2
5	N3	max	0	4	0	4	0	1
6		min	0	1	0	1	0	2
7	N4	max	0	3	0	1	0	1
8		min	0	1	0	3	0	2
9	N5	max	0	4	0	4	0	1
10		min	0	1	0	1	0	2
11	N6	max	.03	2	.011	4	-2.782e-4	1
12		min	.001	1	-.009	1	-4.002e-4	3
13	N7	max	.028	2	-.003	4	2.143e-4	3
14		min	.002	1	-.008	1	1.232e-4	4
15	N8	max	.029	2	.004	4	3.456e-6	4
16		min	.003	1	-.005	1	-1.027e-5	1
17	N9	max	.028	2	-.007	1	1.287e-5	1
18		min	.003	1	-.012	3	-1.208e-4	4
19	N10	max	.029	2	-.008	4	2.907e-5	4
20		min	.003	1	-.012	3	-2.198e-4	1
21	N11	max	.031	2	.017	4	-2.656e-4	1
22		min	.002	1	-.003	1	-3.896e-4	3
23	N12	max	.028	2	-.009	4	-1.893e-5	4
24		min	0	1	-.031	1	-4.248e-4	1

Envelope Member Section Deflections

	Member	Sec		x [in]	LC	y [in]	LC	L/y Ratio	LC
1	M1	1	max	0	1	0	1	NC	1
2			min	0	1	0	1	NC	1
3		2	max	0	4	0	1	NC	1
4			min	-.002	1	-.003	4	NC	1
5		3	max	-.001	4	0	1	NC	1
6			min	-.004	1	-.01	4	NC	1
7		4	max	-.002	4	.002	1	NC	1
8			min	-.006	1	-.02	4	8784.559	4
9		5	max	-.003	4	.003	1	NC	1
10			min	-.008	1	-.032	4	5560.59	4
11	M2	1	max	0	1	0	1	NC	1
12			min	0	1	0	1	NC	1
13		2	max	0	4	0	1	NC	1
14			min	-.002	1	-.002	2	NC	1
15		3	max	.001	4	-.001	1	NC	1
16			min	-.004	1	-.009	2	NC	1
17		4	max	.002	4	-.002	1	NC	1

Envelope Member Section Deflections (Continued)

	Member	Sec		x [in]	LC	y [in]	LC	L/y Ratio	LC
18			min	-.006	1	-.018	2	8182.248	2
19		5	max	.002	4	-.003	1	NC	1
20			min	-.008	1	-.029	2	5179.941	2
21	M3	1	max	0	1	0	1	NC	1
22			min	0	1	0	1	NC	1
23		2	max	-.001	1	0	1	NC	1
24			min	-.002	3	-.002	2	NC	1
25		3	max	-.003	1	0	1	NC	1
26			min	-.005	3	-.009	2	NC	1
27		4	max	-.004	1	0	1	NC	1
28			min	-.007	3	-.018	2	8636.683	2
29		5	max	-.006	1	0	1	NC	1
30			min	-.01	3	-.028	2	5467.473	2
31	M4	1	max	0	1	0	1	NC	1
32			min	0	1	0	1	NC	1
33		2	max	0	4	0	1	NC	1
34			min	-.001	1	-.003	2	NC	1
35		3	max	0	4	-.002	1	NC	1
36			min	-.002	1	-.009	2	NC	1
37		4	max	.001	4	-.003	1	NC	1
38			min	-.004	1	-.019	2	7529.168	2
39		5	max	.002	4	-.005	1	NC	1
40			min	-.005	1	-.03	2	4766.647	2
41	M5	1	max	0	1	0	1	NC	1
42			min	0	1	0	1	NC	1
43		2	max	0	4	0	1	NC	1
44			min	-.002	1	-.003	2	NC	1
45		3	max	-.001	4	-.002	1	NC	1
46			min	-.004	1	-.009	2	NC	1
47		4	max	-.002	4	-.003	1	NC	1
48			min	-.006	1	-.019	2	6598.232	2
49		5	max	-.002	4	-.005	1	NC	1
50			min	-.008	1	-.03	2	4177.86	2
51	M6	1	max	.029	2	.015	4	NC	1
52			min	.002	1	-.009	1	7901.736	4
53		2	max	.029	2	.007	4	NC	1
54			min	.002	1	-.016	1	NC	1
55		3	max	.029	2	0	4	NC	1
56			min	.003	1	-.018	1	9830.179	3
57		4	max	.029	2	-.001	4	NC	1
58			min	.003	1	-.014	1	NC	1
59		5	max	.029	2	0	4	NC	1
60			min	.003	1	-.008	1	NC	1
61	M7	1	max	.029	2	0	4	NC	1
62			min	.003	1	-.008	1	5716.618	3
63		2	max	.029	2	.002	4	NC	1
64			min	.003	1	-.006	1	8736.466	3
65		3	max	.029	2	.005	4	NC	1
66			min	.003	1	-.005	1	NC	1
67		4	max	.029	2	.007	4	NC	1
68			min	.003	1	-.005	1	NC	1
69		5	max	.029	2	.008	4	NC	1
70			min	.003	1	-.005	1	NC	1
71	M8	1	max	.029	2	.008	4	NC	1
72			min	.003	1	-.005	1	NC	1
73		2	max	.029	2	.006	4	NC	1
74			min	.003	1	-.006	1	NC	1

Envelope Member Section Deflections (Continued)

	Member	Sec		x [in]	LC	y [in]	LC	L/y Ratio	LC
75		3	max	.029	2	.002	4	NC	1
76			min	.003	1	-.006	1	NC	1
77		4	max	.029	2	-.003	4	NC	1
78			min	.004	1	-.006	1	8409.153	3
79		5	max	.029	2	-.006	1	NC	1
80			min	.004	1	-.009	3	6541.207	3
81	M9	1	max	.029	2	-.006	1	NC	1
82			min	.004	1	-.009	3	NC	1
83		2	max	.029	2	-.006	1	NC	1
84			min	.004	1	-.009	3	NC	1
85		3	max	.029	2	-.005	1	NC	1
86			min	.004	1	-.009	3	NC	1
87		4	max	.029	2	-.006	1	NC	1
88			min	.004	1	-.008	3	NC	1
89		5	max	.03	2	-.005	4	NC	1
90			min	.004	1	-.009	3	NC	1
91	M10	1	max	.028	2	.021	4	NC	1
92			min	.002	1	-.003	1	NC	1
93		2	max	.028	2	.02	4	NC	1
94			min	.002	1	-.004	1	NC	1
95		3	max	.028	2	.018	4	NC	2
96			min	.002	1	-.006	1	8003.457	1
97		4	max	.028	2	.017	4	NC	2
98			min	.002	1	-.007	1	5315.902	1
99		5	max	.028	2	.015	4	NC	2
100			min	.002	1	-.009	1	3958.411	1
101	M11	1	max	.03	2	-.005	4	NC	1
102			min	.004	1	-.009	3	NC	1
103		2	max	.03	2	-.004	4	NC	1
104			min	.004	1	-.012	1	NC	1
105		3	max	.03	2	-.005	4	NC	2
106			min	.004	1	-.018	1	5408.296	1
107		4	max	.03	2	-.005	4	NC	2
108			min	.004	1	-.024	1	3351.539	1
109		5	max	.03	2	-.005	4	NC	2
110			min	.004	1	-.03	1	2411.72	1

Envelope Member Section Forces

	Member	Sec		Axial[k]	LC	Shear[k]	LC	Moment[k-ft]	LC
1	M1	1	max	4.659	1	.007	4	.104	4
2			min	1.397	4	0	1	-.009	1
3		2	max	4.659	1	.007	4	.078	4
4			min	1.397	4	0	1	-.007	1
5		3	max	4.659	1	.007	4	.052	4
6			min	1.397	4	0	1	-.004	1
7		4	max	4.659	1	.007	4	.026	4
8			min	1.397	4	0	1	-.002	1
9		5	max	4.659	1	.007	4	0	1
10			min	1.397	4	0	1	0	1
11	M2	1	max	4.965	1	.011	2	.132	2
12			min	-1.489	4	.001	1	.016	1
13		2	max	4.965	1	.011	2	.099	2
14			min	-1.489	4	.001	1	.012	1
15		3	max	4.965	1	.011	2	.066	2
16			min	-1.489	4	.001	1	.008	1

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[k]	LC	Shear[k]	LC	Moment[k-ft]	LC
17		4	max	4.965	1	.011	2	.033	2
18			min	-1.489	4	.001	1	.004	1
19		5	max	4.965	1	.011	2	0	1
20			min	-1.489	4	.001	1	0	1
21	M3	1	max	6.111	3	.009	2	.121	2
22			min	3.624	1	0	1	0	1
23		2	max	6.111	3	.009	2	.09	2
24			min	3.624	1	0	1	0	1
25		3	max	6.111	3	.009	2	.06	2
26			min	3.624	1	0	1	0	1
27		4	max	6.111	3	.009	2	.03	2
28			min	3.624	1	0	1	0	1
29		5	max	6.111	3	.009	2	0	1
30			min	3.624	1	0	1	0	1
31	M4	1	max	3.31	1	.012	2	.149	2
32			min	-1.148	4	.002	1	.027	1
33		2	max	3.31	1	.012	2	.112	2
34			min	-1.148	4	.002	1	.02	1
35		3	max	3.31	1	.012	2	.075	2
36			min	-1.148	4	.002	1	.013	1
37		4	max	3.31	1	.012	2	.037	2
38			min	-1.148	4	.002	1	.007	1
39		5	max	3.31	1	.012	2	0	1
40			min	-1.148	4	.002	1	0	1
41	M5	1	max	5.899	1	.019	2	.195	2
42			min	1.788	4	.003	1	.032	1
43		2	max	5.899	1	.019	2	.146	2
44			min	1.788	4	.003	1	.024	1
45		3	max	5.899	1	.019	2	.098	2
46			min	1.788	4	.003	1	.016	1
47		4	max	5.899	1	.019	2	.049	2
48			min	1.788	4	.003	1	.008	1
49		5	max	5.899	1	.019	2	0	1
50			min	1.788	4	.003	1	0	1
51	M6	1	max	-.119	4	2.784	1	1.038	1
52			min	-2.332	1	.98	4	.243	4
53		2	max	-.075	4	1.296	3	-1.655	4
54			min	-2.143	1	.618	4	-3.754	3
55		3	max	-.03	4	.256	4	-2.694	4
56			min	-1.954	1	-.309	1	-5.275	3
57		4	max	.014	4	-.106	4	-2.271	1
58			min	-1.766	1	-1.855	1	-3.682	3
59		5	max	.058	4	-.468	4	3.972	1
60			min	-1.577	1	-3.402	1	-2.191	4
61	M7	1	max	.532	4	1.556	1	3.972	1
62			min	-1.228	1	-1.882	4	-2.191	4
63		2	max	.549	4	.957	1	2.817	1
64			min	-1.158	1	-2.022	4	-.397	4
65		3	max	.565	4	.359	1	2.631	3
66			min	-1.087	1	-2.162	4	1.525	4
67		4	max	.582	4	-.24	1	4.135	3
68			min	-1.017	1	-2.341	2	2.158	1
69		5	max	.598	4	-.838	1	6.172	2
70			min	-.946	1	-2.574	2	2.653	1
71	M8	1	max	-1.32	4	2.899	3	6.172	2
72			min	-2.875	3	1.828	4	2.653	1
73		2	max	-1.292	4	2.019	3	3.037	4

Envelope Member Section Forces (Continued)

	Member	Sec		Axial[k]	LC	Shear[k]	LC	Moment[k-ft]	LC
74			min	-2.771	3	1.235	1	-.142	1
75		3	max	-1.263	4	1.373	2	.706	4
76			min	-2.666	3	.197	1	-1.282	1
77		4	max	-1.234	4	1.099	4	-.769	1
78			min	-2.562	3	-.842	1	-1.446	3
79		5	max	-1.205	4	.855	4	1.4	1
80			min	-2.458	3	-1.88	1	-2.795	4
81	M9	1	max	-.94	4	1.287	1	1.4	1
82			min	-1.648	3	-.181	4	-2.795	4
83		2	max	-.909	4	.234	1	.169	1
84			min	-1.534	3	-.428	4	-2.303	4
85		3	max	-.877	4	-.674	4	.643	1
86			min	-1.42	3	-1.057	3	-1.411	4
87		4	max	-.846	4	-.921	4	2.82	1
88			min	-1.306	3	-1.949	3	-.12	4
89		5	max	-.814	4	-1.167	4	6.7	1
90			min	-1.192	3	-2.925	1	1.569	4
91	M10	1	max	0	1	0	3	0	1
92			min	0	1	0	4	0	1
93		2	max	.041	1	-.068	4	.065	1
94			min	.01	4	-.29	1	.015	4
95		3	max	.082	1	-.136	4	.259	1
96			min	.019	4	-.581	1	.061	4
97		4	max	.123	1	-.204	4	.584	1
98			min	.029	4	-.871	1	.137	4
99		5	max	.164	1	-.272	4	1.038	1
100			min	.038	4	-1.161	1	.243	4
101	M11	1	max	-.092	4	2.952	1	6.7	1
102			min	-.394	1	.691	4	1.569	4
103		2	max	-.069	4	2.214	1	3.769	1
104			min	-.295	1	.518	4	.883	4
105		3	max	-.046	4	1.476	1	1.675	1
106			min	-.197	1	.346	4	.392	4
107		4	max	-.023	4	.738	1	.419	1
108			min	-.098	1	.173	4	.098	4
109		5	max	0	1	0	4	0	1
110			min	0	1	0	1	0	1

Envelope AISC 14th(360-10): ASD Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear ..	Loc[ft]	LC	Pnc/om [k]	Pnt/om [k]	Mn/om [k-ft]	Cb	Eqn
1	M1	HSS6x0.250	.070	0	1	.000	0	4	67.023	106.132	16.243	1.667	H1-1b*
2	M2	HSS6x0.250	.065	0	1	.000	0	2	76.583	106.132	16.243	1.667	H1-1b*
3	M3	HSS6x0.250	.082	0	3	.000	0	2	74.698	106.132	16.243	1.667	H1-1b*
4	M4	HSS6x0.250	.042	0	1	.000	0	2	78.417	106.132	16.243	1.667	H1-1b*
5	M5	HSS6x0.250	.070	0	1	.001	0	2	84.346	106.132	16.243	1.667	H1-1b*
6	M6	W12x40	.039	4.651	3	.048	9.5	1	272.242	350.299	142.216	1.165	H1-1b
7	M7	W12x40	.044	3.675	2	.037	3.675	2	336.368	350.299	142.216	2.218	H1-1b
8	M8	W12x40	.047	0	3	.041	0	3	312.714	350.299	142.216	2.777	H1-1b
9	M9	W12x40	.048	6.472	1	.042	6.472	1	311.618	350.299	142.216	2.961	H1-1b
10	M10	W12x40	.008	1.788	1	.017	1.788	1	345.22	350.299	142.216	2.326	H1-1b
11	M11	W12x40	.048	0	1	.042	0	1	330.373	350.299	142.216	2.326	H1-1b

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Project Title: Totem Lake
Engineer: SGH
Project Descr:
Project ID: 17-116

Printed 7 NOV 2018, 3:27PM

Steel Column

File = p:\2017\17-116 Totem Lake Splash Pad (Berger)\Engineering Calcs\Struct\totem-lake-enercalc.ec6
ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.14.12.31

Lic. # : KW-06010241 Licensee : INNOVA Architects Inc

Description : Typical Column

Code References

Calculations per AISC 360-10, IBC 2012, CBC 2013, ASCE 7-10
Load Combinations Used : ASCE 7-10 IBC 2015 OK

General Information

Steel Section Name : **HSS 6x0.250**
Analysis Method : Allowable Strength
Steel Stress Grade
Fy : Steel Yield 42.0 ksi
E : Elastic Bending Modulus 29,000.0 ksi
Load Combination : ASCE 7-10

Overall Column Height 12.0 ft
Top & Bottom Fixity Top Free, Bottom Fixed
Brace condition for deflection (buckling) along columns :
X-X (width) axis :
Unbraced Length for X-X Axis buckling = 12.0 ft, K = 2.1
Y-Y (depth) axis :
Unbraced Length for Y-Y Axis buckling = 12.0 ft, K = 2.1

Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Column self weight included : 184.405 lbs * Dead Load Factor
AXIAL LOADS . . .
Gravity: Axial Load at 12.0 ft, D = 3.80, S = 5.90 k
BENDING LOADS . . .
EQ: Lat. Point Load at 12.0 ft creating Mx-x, E = 0.840 k

DESIGN SUMMARY

Bending & Shear Check Results

PASS Max. Axial+Bending Stress Ratio = **0.5809** : 1
Load Combination +D+0.750L+0.750S+0.5250E+H
Location of max.above base 0.0 ft
At maximum location values are . . .
Pa : Axial 8.409 k
Pn / Omega : Allowable 28.866 k
Ma-x : Applied -5.292 k-ft
Mn-x / Omega : Allowable 16.243 k-ft
Ma-y : Applied 0.0 k-ft
Mn-y / Omega : Allowable 16.243 k-ft

PASS Maximum Shear Stress Ratio = **0.01847** : 1
Load Combination +D+0.70E+H
Location of max.above base 0.0 ft
At maximum location values are . . .
Va : Applied 0.5880 k
Vn / Omega : Allowable 31.840 k

Maximum SERVICE Load Reactions . .
Top along X-X 0.0 k
Bottom along X-X 0.0 k
Top along Y-Y 0.0 k
Bottom along Y-Y 0.840 k

Maximum SERVICE Load Deflections . . .
Along Y-Y 1.630 in at 12.0 ft above base
for load combination : E Only
Along X-X 0.0 in at 0.0 ft above base
for load combination :

Load Combination Results

Load Combination	Maximum Axial + Bending Stress Ratios			Maximum Shear Ratios		
	Stress Ratio	Status	Location	Stress Ratio	Status	Location
+D+H	0.138	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+L+H	0.138	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+Lr+H	0.138	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+S+H	0.342	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750Lr+0.750L+H	0.138	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750L+0.750S+H	0.291	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.60W+H	0.138	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.70E+H	0.503	PASS	0.00 ft	0.018	PASS	0.00 ft
+D+0.750Lr+0.750L+0.450W+H	0.138	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750L+0.750S+0.450W+H	0.291	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750L+0.750S+0.5250E+H	0.581	PASS	0.00 ft	0.014	PASS	0.00 ft
+0.60D+0.60W+0.60H	0.083	PASS	0.00 ft	0.000	PASS	0.00 ft
+0.60D+0.70E+0.60H	0.476	PASS	0.00 ft	0.018	PASS	0.00 ft

Steel Column

File = p:\2017\17-116 Totem Lake Splash Pad (Berger)\Engineering Calcs\Struct\totem-lake-enercalc.ec6
ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.14.12.31

Lic. # : KW-06010241 Licensee : INNOVA Architects Inc

Description : Typical Column

Maximum Reactions

Note: Only non-zero reactions are listed.

Load Combination	X-X Axis Reaction @ Base	X-X Axis Reaction @ Top	Y-Y Axis Reaction @ Base	Y-Y Axis Reaction @ Top	Axial Reaction @ Base
+D+H	k			k	3.984 k
+D+L+H	k			k	3.984 k
+D+Lr+H	k			k	3.984 k
+D+S+H	k			k	9.884 k
+D+0.750Lr+0.750L+H	k			k	3.984 k
+D+0.750L+0.750S+H	k			k	8.409 k
+D+0.60W+H	k			k	3.984 k
+D+0.70E+H	k		-0.588	k	3.984 k
+D+0.750Lr+0.750L+0.450W+H	k			k	3.984 k
+D+0.750L+0.750S+0.450W+H	k			k	8.409 k
+D+0.750L+0.750S+0.5250E+H	k		-0.441	k	8.409 k
+0.60D+0.60W+0.60H	k			k	2.391 k
+0.60D+0.70E+0.60H	k		-0.588	k	2.391 k
D Only	k			k	3.984 k
Lr Only	k			k	k
L Only	k			k	k
S Only	k			k	5.900 k
W Only	k			k	k
E Only	k		-0.840	k	k
H Only	k			k	k

Maximum Deflections for Load Combinations

Load Combination	Max. X-X Deflection		Distance		Max. Y-Y Deflection		Distance	
+D+H	0.0000	in	0.000	ft	0.000	in	0.000	ft
+D+L+H	0.0000	in	0.000	ft	0.000	in	0.000	ft
+D+Lr+H	0.0000	in	0.000	ft	0.000	in	0.000	ft
+D+S+H	0.0000	in	0.000	ft	0.000	in	0.000	ft
+D+0.750Lr+0.750L+H	0.0000	in	0.000	ft	0.000	in	0.000	ft
+D+0.750L+0.750S+H	0.0000	in	0.000	ft	0.000	in	0.000	ft
+D+0.60W+H	0.0000	in	0.000	ft	0.000	in	0.000	ft
+D+0.70E+H	0.0000	in	0.000	ft	1.141	in	12.000	ft
+D+0.750Lr+0.750L+0.450W+H	0.0000	in	0.000	ft	0.000	in	0.000	ft
+D+0.750L+0.750S+0.450W+H	0.0000	in	0.000	ft	0.000	in	0.000	ft
+D+0.750L+0.750S+0.5250E+H	0.0000	in	0.000	ft	0.856	in	12.000	ft
+0.60D+0.60W+0.60H	0.0000	in	0.000	ft	0.000	in	0.000	ft
+0.60D+0.70E+0.60H	0.0000	in	0.000	ft	1.141	in	12.000	ft
D Only	0.0000	in	0.000	ft	0.000	in	0.000	ft
Lr Only	0.0000	in	0.000	ft	0.000	in	0.000	ft
L Only	0.0000	in	0.000	ft	0.000	in	0.000	ft
S Only	0.0000	in	0.000	ft	0.000	in	0.000	ft
W Only	0.0000	in	0.000	ft	0.000	in	0.000	ft
E Only	0.0000	in	0.000	ft	1.630	in	12.000	ft
H Only	0.0000	in	0.000	ft	0.000	in	0.000	ft

Steel Section Properties : HSS 6x0.250

INNOVA Architects
950 Pacific Avenue, Suite 450
Tacoma, WA 98402
(253) 572-4903

Project Title: Totem Lake
Engineer: SGH
Project Descr:

Project ID: 17-116

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Steel Column

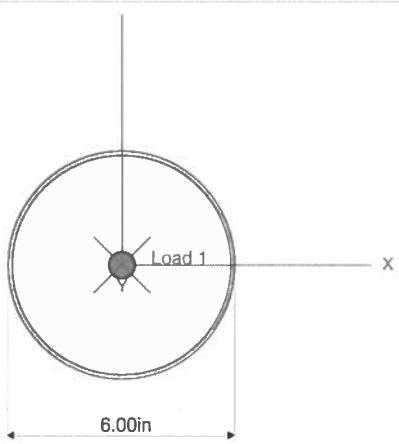
File = p:\2017\17-116 Totem Lake Splash Pad (Berger)\Engineering Calcs\Struct\totem-lake-enercalc.ec6
ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.14.12.31

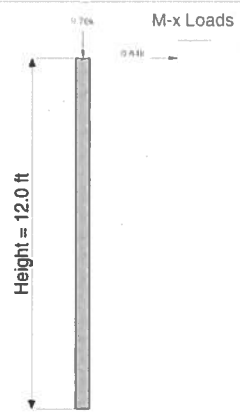
Lic. # : KW-06010241 Licensee : INNOVA Architects Inc

Description : Typical Column

Steel Section Properties : HSS 6x0.250

Depth	=	6.000 in	I xx	=	17.60 in^4	J	=	35.200 in^4
			S xx	=	5.86 in^3			
Diameter	=	6.000 in	R xx	=	2.040 in			
Wall Thick	=	0.250 in	Zx	=	7.750 in^3			
Area	=	4.220 in^2	I yy	=	17.600 in^4	C	=	11.700 in^3
Weight	=	15.367 plf	S yy	=	5.860 in^3			
			R yy	=	2.040 in			
Ycg	=	0.000 in						





Loads are total entered value. Arrows do not reflect absolute direction.

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Engineer: SGH
Project Descr:
Project ID: 17-116

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Steel Base Plate

File = p:\2017\17-116 Totem Lake Splash Pad (Berger)\Engineering Calcs\Struct\totem-lake-enercalc.ec6
ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.14.12.31

Lic. # : KW-06010241 Licensee : INNOVA Architects Inc

Description : Column Base Plate

Code References

Calculations per AISC Design Guide # 1, IBC 2012, CBC 2013, ASCE 7-10
Load Combination Set : ASCE 7-10 IBC 2015 OK

General Information

Material Properties

AISC Design Method Allowable Strength Design
Steel Plate Fy = 36.0 ksi
Concrete Support f'c = 3.0 ksi
Assumed Bearing Area : Full Bearing

Ω_c : ASD Safety Factor. 2.50
Allowable Bearing Fp per J8 3.825 ksi

Column & Plate

Column Properties

Steel Section : HSS 6x0.250

Depth	6 in	Area	4.22 in^2
Width	6 in	Ixx	in^4
Flange Thickness	0.233 in	Iyy	in^4
Web Thickness	in		

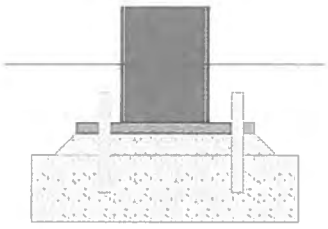
Plate Dimensions

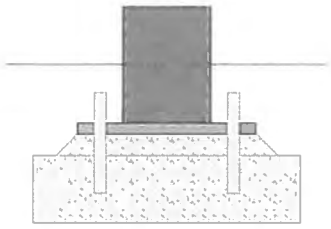
N : Length	12.0 in
B : Width	12.0 in
Thickness	0.750 in

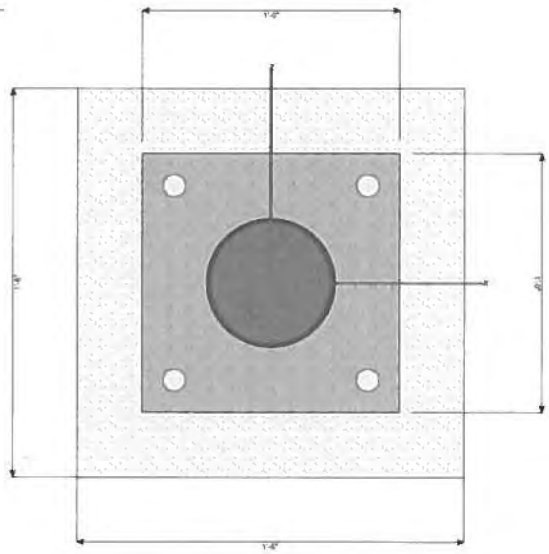
Column assumed welded to base plate.

Support Dimensions

Width along "X"	18.0 in
Length along "Z'	18.0 in



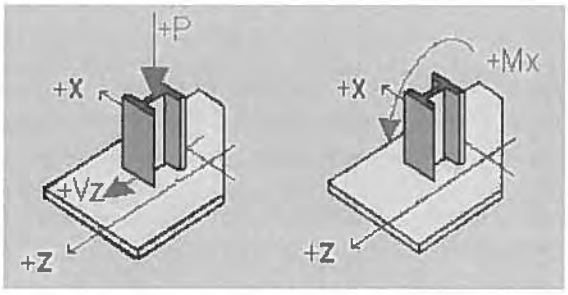




Applied Loads

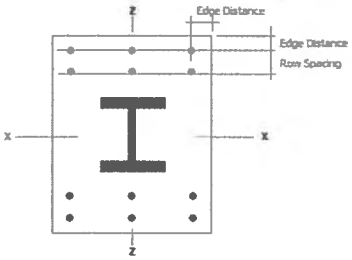
	P-Y	V-Z	M-X
D : Dead Load	2.60 k	k	k-ft
L : Live	k	k	k-ft
Lr : Roof Live	k	k	k-ft
S : Snow	3.40 k	k	k-ft
W : Wind	k	k	k-ft
E : Earthquake	k	k	10.0 k-ft
H : Lateral Earth	k	k	k-ft

" P " = Gravity load, "+" sign is downward.
"+" Moments create higher soil pressure at +Z edge.
"+" Shears push plate towards +Z edge.



Anchor Bolts

Anchor Bolt or Rod Description	3/4" Dia.
Max of Tension or Pullout Capacity.....	8.20 k
Shear Capacity.....	7.0 k
Edge distance : bolt to plate.....	1.50 in
Number of Bolts in each Row.....	2.0
Number of Bolt Rows.....	1.0



Steel Base Plate

Lic. # : KW-06010241 Licensee : INNOVA Architects Inc

Description : Column Base Plate

GOVERNING DESIGN LOAD CASE SUMMARY

Plate Design Summary

Design Method	Allowable Strength Design
Governing Load Combination	+D+0.70E+H
Governing Load Case Type	Axial + Moment, L/2 < Eccentricity, Tension on Bc
Design Plate Size	**1'-0" x 1'-0" x 0 -3/4"**
Pa : Axial Load	2.600 k
Ma : Moment	7.000 k-ft

Mu : Max. Moment	2.558 k-in
fb : Max. Bending Stress	18.189 ksi
Fb : Allowable :	21.557 ksi
Bending Stress Ratio	0.844
	Bending Stress OK
fu : Max. Plate Bearing Stress	1.530 ksi
Fp : Allowable :	1.530 ksi
min(0.85*f'c*sqrt(A2/A1), 1.7* f'c)*Omega	
Bearing Stress Ratio	1.000
	Bearing Stress OK
Tension in each Bolt	3.411
Allowable Bolt Tension	8.200
Tension Stress Ratio	0.416

Company:		Page:	1
Specifier:	SGH	Project:	Totem Lake
Address:		Sub-Project I Pos. No.:	17-116
Phone I Fax:	|	Date:	11/7/2018
E-Mail:			

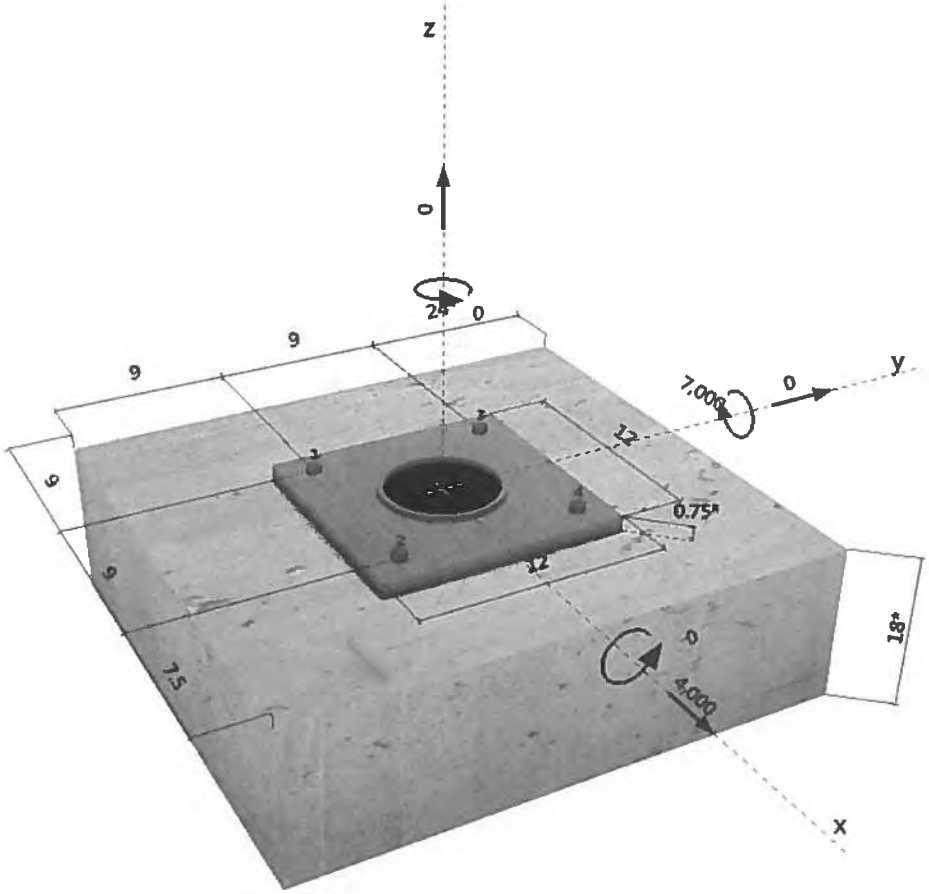
Specifier's comments: Column Anchors

1 Input data

Anchor type and diameter:	**Hex Head ASTM F 1554 GR. 36 3/4**
Effective embedment depth:	h_{ef} = 9.000 in.
Material:	ASTM F 1554
Proof:	Design method ACI 318-14 / CIP
Stand-off installation:	e_b = 0.000 in. (no stand-off); t = 0.750 in.
Anchor plate:	l_x x l_y x t = 12.000 in. x 12.000 in. x 0.750 in.; (Recommended plate thickness: not calculated
Profile:	Round HSS, Steel pipe (AISC); (L x W x T) = 6.000 in. x 6.000 in. x 0.250 in.
Base material:	cracked concrete, 3000, f_c' = 3,000 psi; h = 18.000 in.
Reinforcement:	tension: condition B, shear: condition B;
	edge reinforcement: >= No. 4 bar
Seismic loads (cat. C, D, E, or F)	Tension load: yes (17.2.3.4.3 (c))
	Shear load: yes (17.2.3.5.3 (b))

R - user is responsible to ensure a rigid base plate for the entered thickness with appropriate solutions (stiffeners,...)

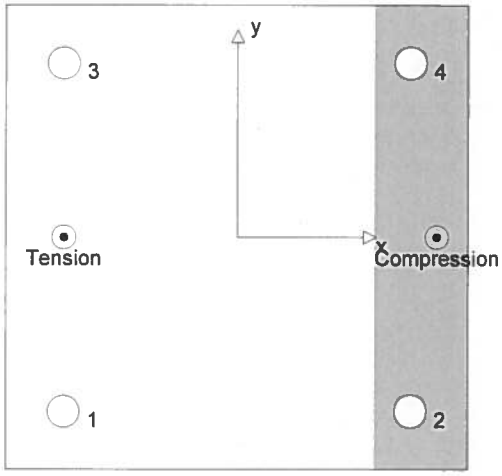
Geometry [in.] & Loading [lb, in.lb]



Company:		Page:	2
Specifier:	SGH	Project:	Totem Lake
Address:		Sub-Project I Pos. No.:	17-116
Phone I Fax:	|	Date:	11/7/2018
E-Mail:			

2 Load case/Resulting anchor forces

Load case: Design loads



Anchor reactions [lb]
Tension force: (+Tension, -Compression)

Anchor	Tension force	Shear force	Shear force x	Shear force y
1	361	1,000	1,000	0
2	0	1,000	1,000	0
3	361	1,000	1,000	0
4	0	1,000	1,000	0

max. concrete compressive strain:	0.01 [‰]
max. concrete compressive stress:	49 [psi]
resulting tension force in (x/y)=(-4.500/0.000):	723 [lb]
resulting compression force in (x/y)=(5.185/0.000):	723 [lb]

Anchor forces based on a rigid base plate assumption!

3 Tension load

	Load N_{ua} [lb]	Capacity ϕN_n [lb]	Utilization $\beta_N = N_{ua}/\phi N_n$	Status
Steel Strength*	361	14,529	3	OK
Pullout Strength*	361	8,240	5	OK
Concrete Breakout Strength**	723	16,304	5	OK
Concrete Side-Face Blowout, direction **	N/A	N/A	N/A	N/A

* anchor having the highest loading **anchor group (anchors in tension)

3.1 Steel Strength

$N_{sa} = A_{se,N} f_{uta}$ ACI 318-14 Eq. (17.4.1.2)
$\phi N_{sa} \geq N_{ua}$ ACI 318-14 Table 17.3.1.1

Variables

$A_{se,N}$ [in.^{2}]	f_{uta} [psi]
0.33	58,000

Calculations

N_{sa} [lb]
19,372

Results

N_{sa} [lb]	ϕ_{steel}	ϕN_{sa} [lb]	N_{ua} [lb]
19,372	0.750	14,529	361

Company:		Page:	3
Specifier:	SGH	Project:	Totem Lake
Address:		Sub-Project I Pos. No.:	17-116
Phone I Fax:	|	Date:	11/7/2018
E-Mail:			

3.2 Pullout Strength

$N_{pN} = \psi_{c,p} N_p$ ACI 318-14 Eq. (17.4.3.1)

$N_p = 8 A_{brg} f'_c$ ACI 318-14 Eq. (17.4.3.4)

$\phi N_{pN} \geq N_{ua}$ ACI 318-14 Table 17.3.1.1

Variables

$\psi_{c,p}$	A_{brg} [in.^{2}]	λ_a	f'_c [psi]
1.000	0.65	1.000	3,000

Calculations

N_p [lb]
15,696

Results

N_{pn} [lb]	$\phi_{concrete}$	$\phi_{seismic}$	$\phi_{nonductile}$	ϕN_{pn} [lb]	N_{ua} [lb]
15,696	0.700	0.750	1.000	8,240	361

3.3 Concrete Breakout Strength

$N_{cbg} = \left(\frac{A_{Nc}}{A_{Nc0}}\right) \psi_{ec,N} \psi_{ed,N} \psi_{c,N} \psi_{cp,N} N_b$ ACI 318-14 Eq. (17.4.2.1b)

$\phi N_{cbg} \geq N_{ua}$ ACI 318-14 Table 17.3.1.1

A_{Nc} see ACI 318-14, Section 17.4.2.1, Fig. R 17.4.2.1(b)

$A_{Nc0} = 9 h_{ef}^2$ ACI 318-14 Eq. (17.4.2.1c)

$\psi_{ec,N} = \left(\frac{1}{1 + \frac{2 e'_N}{3 h_{ef}}}\right) \leq 1.0$ ACI 318-14 Eq. (17.4.2.4)

$\psi_{ed,N} = 0.7 + 0.3 \left(\frac{c_{a,min}}{1.5 h_{ef}}\right) \leq 1.0$ ACI 318-14 Eq. (17.4.2.5b)

$\psi_{cp,N} = \text{MAX}\left(\frac{c_{a,min}}{c_{ac}}, \frac{1.5 h_{ef}}{c_{ac}}\right) \leq 1.0$ ACI 318-14 Eq. (17.4.2.7b)

$N_b = k_c \lambda_a \sqrt{f'_c} h_{ef}^{1.5}$ ACI 318-14 Eq. (17.4.2.2a)

Variables

h_{ef} [in.]	$e_{c1,N}$ [in.]	$e_{c2,N}$ [in.]	$c_{a,min}$ [in.]	$\psi_{c,N}$
9.000	0.000	0.000	9.000	1.000

c_{ac} [in.]	k_c	λ_a	f'_c [psi]
-	24	1.000	3,000

Calculations

A_{Nc} [in.^{2}]	A_{Nc0} [in.^{2}]	$\psi_{ec1,N}$	$\psi_{ec2,N}$	$\psi_{ed,N}$	$\psi_{cp,N}$	N_b [lb]
708.75	729.00	1.000	1.000	0.900	1.000	35,492

Results

N_{cbg} [lb]	$\phi_{concrete}$	$\phi_{seismic}$	$\phi_{nonductile}$	ϕN_{cbg} [lb]	N_{ua} [lb]
31,056	0.700	0.750	1.000	16,304	723

Company:		Page:	4
Specifier:	SGH	Project:	Totem Lake
Address:		Sub-Project I Pos. No.:	17-116
Phone I Fax:	|	Date:	11/7/2018
E-Mail:			

4 Shear load

	Load V_{ua} [lb]	Capacity ϕV_n [lb]	Utilization $\beta_V = V_{ua}/\phi V_n$	Status
Steel Strength*	1,000	7,555	14	OK
Steel failure (with lever arm)*	N/A	N/A	N/A	N/A
Pryout Strength**	4,000	54,602	8	OK
Concrete edge failure in direction x+**	4,000	10,393	39	OK

* anchor having the highest loading **anchor group (relevant anchors)

4.1 Steel Strength

$V_{sa} = 0.6\, A_{se,V}\, f_{uta}$ ACI 318-14 Eq. (17.5.1.2b)

$\phi\, V_{steel} \geq V_{ua}$ ACI 318-14 Table 17.3.1.1

Variables

$A_{se,V}$ [in.^{2}]	f_{uta} [psi]
0.33	58,000

Calculations

V_{sa} [lb]
11,623

Results

V_{sa} [lb]	ϕ_{steel}	$\phi\, V_{sa}$ [lb]	V_{ua} [lb]
11,623	0.650	7,555	1,000

4.2 Pryout Strength

$V_{cpg} = k_{cp} \left[\left(\frac{A_{Nc}}{A_{Nc0}} \right) \psi_{ec,N}\, \psi_{ed,N}\, \psi_{c,N}\, \psi_{cp,N}\, N_b \right]$ ACI 318-14 Eq. (17.5.3.1b)

$\phi\, V_{cpg} \geq V_{ua}$ ACI 318-14 Table 17.3.1.1

A_{Nc} see ACI 318-14, Section 17.4.2.1, Fig. R 17.4.2.1(b)

$A_{Nc0} = 9\, h_{ef}^2$ ACI 318-14 Eq. (17.4.2.1c)

$\psi_{ec,N} = \left(\frac{1}{1 + \frac{2\, e'_N}{3\, h_{ef}}} \right) \leq 1.0$ ACI 318-14 Eq. (17.4.2.4)

$\psi_{ed,N} = 0.7 + 0.3 \left(\frac{c_{a,min}}{1.5 h_{ef}} \right) \leq 1.0$ ACI 318-14 Eq. (17.4.2.5b)

$\psi_{cp,N} = \mathrm{MAX}\left(\frac{c_{a,min}}{c_{ac}}, \frac{1.5 h_{ef}}{c_{ac}} \right) \leq 1.0$ ACI 318-14 Eq. (17.4.2.7b)

$N_b = k_c\, \lambda_a \sqrt{f'_c}\, h_{ef}^{1.5}$ ACI 318-14 Eq. (17.4.2.2a)

Variables

k_{cp}	h_{ef} [in.]	$e_{c1,N}$ [in.]	$e_{c2,N}$ [in.]	$c_{a,min}$ [in.]
2	6.000	0.000	0.000	7.500

$\psi_{c,N}$	c_{ac} [in.]	k_c	λ_a	f'_c [psi]
1.000	-	24	1.000	3,000

Calculations

A_{Nc} [in.^{2}]	A_{Nc0} [in.^{2}]	$\psi_{ec1,N}$	$\psi_{ec2,N}$	$\psi_{ed,N}$	$\psi_{cp,N}$	N_b [lb]
688.50	324.00	1.000	1.000	0.950	1.000	19,320

Results

V_{cpg} [lb]	$\phi_{concrete}$	$\phi_{seismic}$	$\phi_{nonductile}$	$\phi\, V_{cpg}$ [lb]	V_{ua} [lb]
78,003	0.700	1.000	1.000	54,602	4,000

Company:		Page:	5
Specifier:	SGH	Project:	Totem Lake
Address:		Sub-Project I Pos. No.:	17-116
Phone I Fax:	|	Date:	11/7/2018
E-Mail:			

4.3 Concrete edge failure in direction x+

$V_{cbg} = \left(\frac{A_{Vc}}{A_{Vc0}}\right) \psi_{ec,V}\, \psi_{ed,V}\, \psi_{c,V}\, \psi_{h,V}\, \psi_{parallel,V}\, V_b$ — ACI 318-14 Eq. (17.5.2.1b)

$\phi\ V_{cbg} \geq V_{ua}$ — ACI 318-14 Table 17.3.1.1

A_{Vc} see ACI 318-14, Section 17.5.2.1, Fig. R 17.5.2.1(b)

$A_{Vc0} = 4.5\, c_{a1}^2$ — ACI 318-14 Eq. (17.5.2.1c)

$\psi_{ec,V} = \left(\frac{1}{1 + \frac{2e_V'}{3c_{a1}}}\right) \leq 1.0$ — ACI 318-14 Eq. (17.5.2.5)

$\psi_{ed,V} = 0.7 + 0.3\left(\frac{c_{a2}}{1.5c_{a1}}\right) \leq 1.0$ — ACI 318-14 Eq. (17.5.2.6b)

$\psi_{h,V} = \sqrt{\frac{1.5c_{a1}}{h_a}} \geq 1.0$ — ACI 318-14 Eq. (17.5.2.8)

$V_b = 9\, \lambda_a \sqrt{f_c'}\, c_{a1}^{1.5}$ — ACI 318-14 Eq. (17.5.2.2b)

Variables

c_{a1} [in.]	c_{a2} [in.]	e_{cV} [in.]	$\psi_{c,V}$	h_a [in.]
7.500	9.000	0.000	1.200	18.000

l_e [in.]	λ_a	d_a [in.]	f_c' [psi]	$\psi_{parallel,V}$
6.000	1.000	0.750	3,000	1.000

Calculations

A_{Vc} [in.^{2}]	A_{Vc0} [in.^{2}]	$\psi_{ec,V}$	$\psi_{ed,V}$	$\psi_{h,V}$	V_b [lb]
329.06	253.13	1.000	0.940	1.000	10,125

Results

V_{cbg} [lb]	$\phi_{concrete}$	$\phi_{seismic}$	$\phi_{nonductile}$	$\phi\ V_{cbg}$ [lb]	V_{ua} [lb]
14,847	0.700	1.000	1.000	10,393	4,000

5 Combined tension and shear loads

β_N	β_V	ζ	Utilization $\beta_{N,V}$ [%]	Status
0.044	0.385	5/3	21	OK

$\beta_{NV} = \beta_N^{\zeta} + \beta_V^{\zeta} <= 1$

Company:		Page:	6
Specifier:	SGH	Project:	Totem Lake
Address:		Sub-Project I Pos. No.:	17-116
Phone I Fax:	|	Date:	11/7/2018
E-Mail:			

6 Warnings

- The anchor design methods in PROFIS Anchor require rigid anchor plates per current regulations (ETAG 001/Annex C, EOTA TR029, etc.). This means load re-distribution on the anchors due to elastic deformations of the anchor plate are not considered - the anchor plate is assumed to be sufficiently stiff, in order not to be deformed when subjected to the design loading. PROFIS Anchor calculates the minimum required anchor plate thickness with FEM to limit the stress of the anchor plate based on the assumptions explained above. The proof if the rigid base plate assumption is valid is not carried out by PROFIS Anchor. Input data and results must be checked for agreement with the existing conditions and for plausibility!
- Condition A applies when supplementary reinforcement is used. The Φ factor is increased for non-steel Design Strengths except Pullout Strength and Pryout strength. Condition B applies when supplementary reinforcement is not used and for Pullout Strength and Pryout Strength. Refer to your local standard.
- Checking the transfer of loads into the base material and the shear resistance are required in accordance with ACI 318 or the relevant standard!
- An anchor design approach for structures assigned to Seismic Design Category C, D, E or F is given in ACI 318-14, Chapter 17, Section 17.2.3.4.3 (a) that requires the governing design strength of an anchor or group of anchors be limited by ductile steel failure. If this is NOT the case, the connection design (tension) shall satisfy the provisions of Section 17.2.3.4.3 (b), Section 17.2.3.4.3 (c), or Section 17.2.3.4.3 (d). The connection design (shear) shall satisfy the provisions of Section 17.2.3.5.3 (a), Section 17.2.3.5.3 (b), or Section 17.2.3.5.3 (c).
- Section 17.2.3.4.3 (b) / Section 17.2.3.5.3 (a) require the attachment the anchors are connecting to the structure be designed to undergo ductile yielding at a load level corresponding to anchor forces no greater than the controlling design strength. Section 17.2.3.4.3 (c) / Section 17.2.3.5.3 (b) waive the ductility requirements and require the anchors to be designed for the maximum tension / shear that can be transmitted to the anchors by a non-yielding attachment. Section 17.2.3.4.3 (d) / Section 17.2.3.5.3 (c) waive the ductility requirements and require the design strength of the anchors to equal or exceed the maximum tension / shear obtained from design load combinations that include E, with E increased by ω_0.

Fastening meets the design criteria!

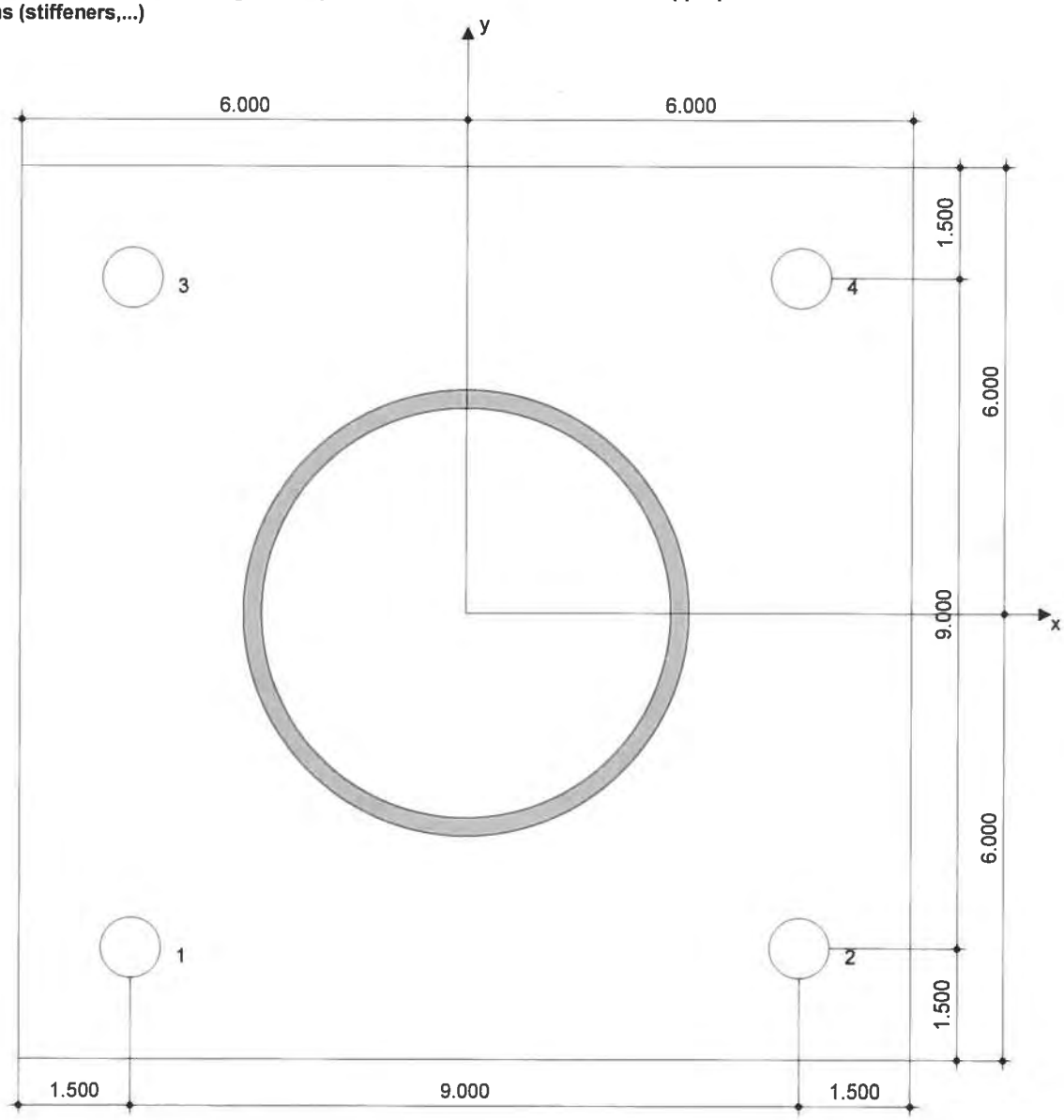
Company:		Page:	7
Specifier:	SGH	Project:	Totem Lake
Address:		Sub-Project I Pos. No.:	17-116
Phone I Fax:	|	Date:	11/7/2018
E-Mail:			

7 Installation data

Anchor plate, steel: -
Profile: Round HSS, Steel pipe (AISC); 6.000 x 6.000 x 0.250 in.
Hole diameter in the fixture: d_f = 0.813 in.
Plate thickness (input): 0.750 in.
Recommended plate thickness: not calculated

Anchor type and diameter: Hex Head ASTM F 1554 GR. 36 3/4
Installation torque: -
Hole diameter in the base material: - in.
Hole depth in the base material: 9.000 in.
Minimum thickness of the base material: 10.000 in.

R - user is responsible to ensure a rigid base plate for the entered thickness with appropriate solutions (stiffeners,...)



Coordinates Anchor in.

Anchor	x	y	c_{-x}	c_{+x}	c_{-y}	c_{+y}
1	-4.500	-4.500	9.000	16.500	9.000	33.000
2	4.500	-4.500	18.000	7.500	9.000	33.000
3	-4.500	4.500	9.000	16.500	18.000	24.000
4	4.500	4.500	18.000	7.500	18.000	24.000

8 Remarks; Your Cooperation Duties

- Any and all information and data contained in the Software concern solely the use of Hilti products and are based on the principles, formulas and security regulations in accordance with Hilti's technical directions and operating, mounting and assembly instructions, etc., that must be strictly complied with by the user. All figures contained therein are average figures, and therefore use-specific tests are to be conducted prior to using the relevant Hilti product. The results of the calculations carried out by means of the Software are based essentially on the data you put in. Therefore, you bear the sole responsibility for the absence of errors, the completeness and the relevance of the data to be put in by you. Moreover, you bear sole responsibility for having the results of the calculation checked and cleared by an expert, particularly with regard to compliance with applicable norms and permits, prior to using them for your specific facility. The Software serves only as an aid to interpret norms and permits without any guarantee as to the absence of errors, the correctness and the relevance of the results or suitability for a specific application.
- You must take all necessary and reasonable steps to prevent or limit damage caused by the Software. In particular, you must arrange for the regular backup of programs and data and, if applicable, carry out the updates of the Software offered by Hilti on a regular basis. If you do not use the AutoUpdate function of the Software, you must ensure that you are using the current and thus up-to-date version of the Software in each case by carrying out manual updates via the Hilti Website. Hilti will not be liable for consequences, such as the recovery of lost or damaged data or programs, arising from a culpable breach of duty by you.

Company:		Page:	1
Specifier:	SGH	Project:	Totem Lake
Address:		Sub-Project I Pos. No.:	17-116
Phone I Fax:	|	Date:	11/7/2018
E-Mail:			

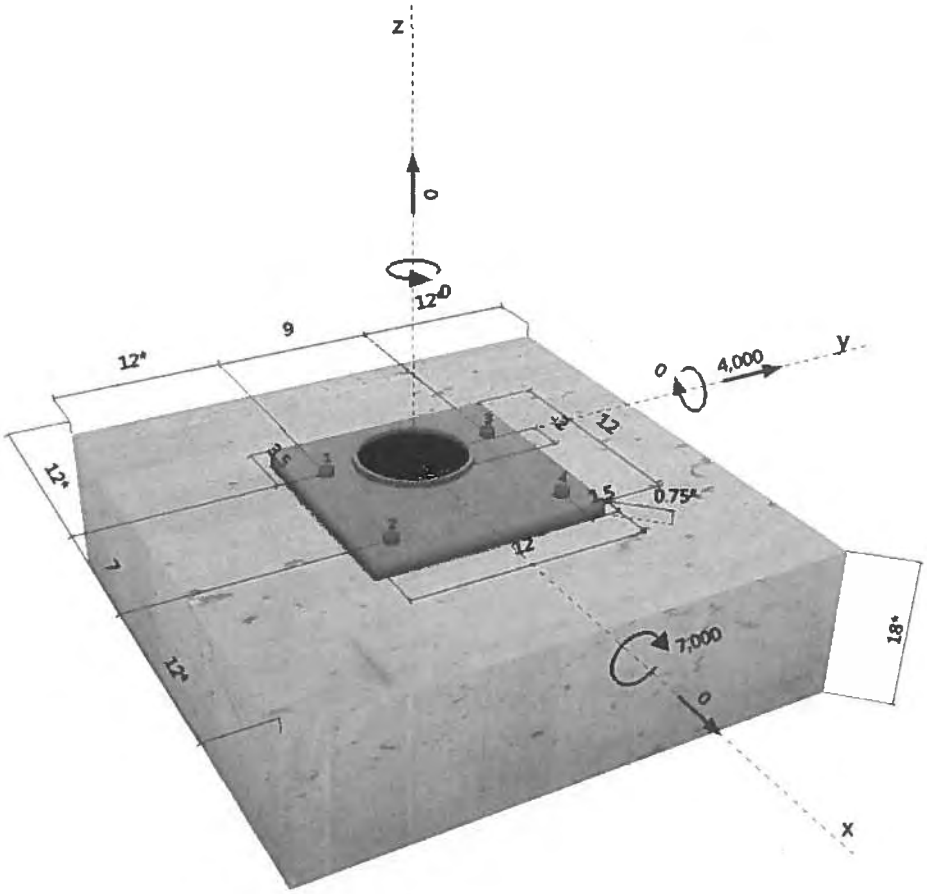
Specifier's comments: Column Anchors

1 Input data

Anchor type and diameter:	**Hex Head ASTM F 1554 GR. 36 3/4**
Effective embedment depth:	h_{ef} = 9.000 in.
Material:	ASTM F 1554
Proof:	Design method ACI 318-14 / CIP
Stand-off installation:	e_b = 0.000 in. (no stand-off); t = 0.750 in.
Anchor plate:	l_x x l_y x t = 12.000 in. x 12.000 in. x 0.750 in.; (Recommended plate thickness: not calculated
Profile:	Round HSS, Steel pipe (AISC); (L x W x T) = 6.000 in. x 6.000 in. x 0.250 in.
Base material:	cracked concrete, 3000, f_c' = 3,000 psi; h = 18.000 in.
Reinforcement:	tension: condition B, shear: condition B;
	edge reinforcement: >= No. 4 bar
Seismic loads (cat. C, D, E, or F)	Tension load: yes (17.2.3.4.3 (c))
	Shear load: yes (17.2.3.5.3 (b))

R - user is responsible to ensure a rigid base plate for the entered thickness with appropriate solutions (stiffeners,...)

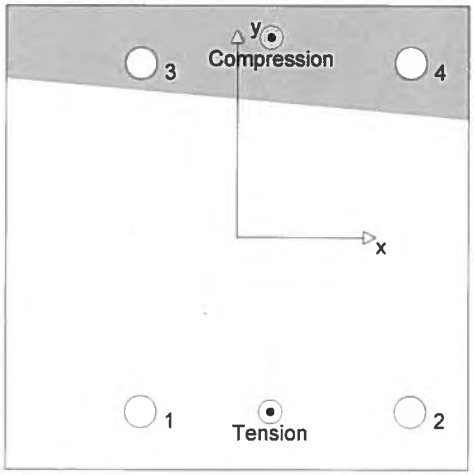
Geometry [in.] & Loading [lb, in.lb]



Company:		Page:	2
Specifier:	SGH	Project:	Totem Lake
Address:		Sub-Project I Pos. No.:	17-116
Phone I Fax:	|	Date:	11/7/2018
E-Mail:			

2 Load case/Resulting anchor forces

Load case: Design loads



Anchor reactions [lb]
Tension force: (+Tension, -Compression)

Anchor	Tension force	Shear force	Shear force x	Shear force y
1	376	1,387	-415	1,323
2	348	794	-415	677
3	0	1,387	415	1,323
4	0	794	415	677

max. concrete compressive strain:	0.01 [‰]
max. concrete compressive stress:	60 [psi]
resulting tension force in (x/y)=(0.865/-4.500):	724 [lb]
resulting compression force in (x/y)=(0.865/5.169):	724 [lb]

Anchor forces based on a rigid base plate assumption!

3 Tension load

	Load N_{ua} [lb]	Capacity ϕN_n [lb]	Utilization $\beta_N = N_{ua}/\phi N_n$	Status
Steel Strength*	376	14,529	3	OK
Pullout Strength*	376	8,240	5	OK
Concrete Breakout Strength**	724	19,945	4	OK
Concrete Side-Face Blowout, direction **	N/A	N/A	N/A	N/A

* anchor having the highest loading **anchor group (anchors in tension)

3.1 Steel Strength

$N_{sa} = A_{se,N} f_{uta}$ ACI 318-14 Eq. (17.4.1.2)
$\phi N_{sa} \geq N_{ua}$ ACI 318-14 Table 17.3.1.1

Variables

$A_{se,N}$ [in.^{2}]	f_{uta} [psi]
0.33	58,000

Calculations

N_{sa} [lb]
19,372

Results

N_{sa} [lb]	ϕ_{steel}	ϕN_{sa} [lb]	N_{ua} [lb]
19,372	0.750	14,529	376

Company:		Page:	3
Specifier:	SGH	Project:	Totem Lake
Address:		Sub-Project I Pos. No.:	17-116
Phone I Fax:	|	Date:	11/7/2018
E-Mail:			

3.2 Pullout Strength

$N_{pN} = \psi_{c,p} N_p$ ACI 318-14 Eq. (17.4.3.1)

$N_p = 8 A_{brg} f'_c$ ACI 318-14 Eq. (17.4.3.4)

$\phi N_{pN} \geq N_{ua}$ ACI 318-14 Table 17.3.1.1

Variables

$\psi_{c,p}$	A_{brg} [in.^{2}]	λ_a	f'_c [psi]
1.000	0.65	1.000	3,000

Calculations

N_p [lb]
15,696

Results

N_{pn} [lb]	$\phi_{concrete}$	$\phi_{seismic}$	$\phi_{nonductile}$	ϕN_{pn} [lb]	N_{ua} [lb]
15,696	0.700	0.750	1.000	8,240	376

3.3 Concrete Breakout Strength

$N_{cbg} = \left(\frac{A_{Nc}}{A_{Nc0}}\right) \psi_{ec,N} \psi_{ed,N} \psi_{c,N} \psi_{cp,N} N_b$ ACI 318-14 Eq. (17.4.2.1b)

$\phi N_{cbg} \geq N_{ua}$ ACI 318-14 Table 17.3.1.1

A_{Nc} see ACI 318-14, Section 17.4.2.1, Fig. R 17.4.2.1(b)

$A_{Nc0} = 9 h_{ef}^2$ ACI 318-14 Eq. (17.4.2.1c)

$\psi_{ec,N} = \left(\frac{1}{1 + \frac{2 e'_N}{3 h_{ef}}}\right) \leq 1.0$ ACI 318-14 Eq. (17.4.2.4)

$\psi_{ed,N} = 0.7 + 0.3 \left(\frac{c_{a,min}}{1.5 h_{ef}}\right) \leq 1.0$ ACI 318-14 Eq. (17.4.2.5b)

$\psi_{cp,N} = \text{MAX}\left(\frac{c_{a,min}}{c_{ac}}, \frac{1.5 h_{ef}}{c_{ac}}\right) \leq 1.0$ ACI 318-14 Eq. (17.4.2.7b)

$N_b = k_c \lambda_a \sqrt{f'_c} h_{ef}^{1.5}$ ACI 318-14 Eq. (17.4.2.2a)

Variables

h_{ef} [in.]	$e_{c1,N}$ [in.]	$e_{c2,N}$ [in.]	$c_{a,min}$ [in.]	$\psi_{c,N}$
8.000	0.135	0.000	12.000	1.000

c_{ac} [in.]	k_c	λ_a	f'_c [psi]
-	24	1.000	3,000

Calculations

A_{Nc} [in.^{2}]	A_{Nc0} [in.^{2}]	$\psi_{ec1,N}$	$\psi_{ec2,N}$	$\psi_{ed,N}$	$\psi_{cp,N}$	N_b [lb]
744.00	576.00	0.989	1.000	1.000	1.000	29,745

Results

N_{cbg} [lb]	$\phi_{concrete}$	$\phi_{seismic}$	$\phi_{nonductile}$	ϕN_{cbg} [lb]	N_{ua} [lb]
37,991	0.700	0.750	1.000	19,945	724

Company:		Page:	4
Specifier:	SGH	Project:	Totem Lake
Address:		Sub-Project I Pos. No.:	17-116
Phone I Fax:	|	Date:	11/7/2018
E-Mail:			

4 Shear load

	Load V_{ua} [lb]	Capacity ϕV_n [lb]	Utilization $\beta_V = V_{ua}/\phi V_n$	Status
Steel Strength*	1,387	7,555	19	OK
Steel failure (with lever arm)*	N/A	N/A	N/A	N/A
Pryout Strength**	4,000	59,167	7	OK
Concrete edge failure in direction y+**	4,085	12,567	33	OK

* anchor having the highest loading **anchor group (relevant anchors)

4.1 Steel Strength

$V_{sa} = 0.6\, A_{se,V}\, f_{uta}$ ACI 318-14 Eq. (17.5.1.2b)

$\phi\, V_{steel} \geq V_{ua}$ ACI 318-14 Table 17.3.1.1

Variables

$A_{se,V}$ [in.^{2}]	f_{uta} [psi]
0.33	58,000

Calculations

V_{sa} [lb]
11,623

Results

V_{sa} [lb]	ϕ_{steel}	$\phi\, V_{sa}$ [lb]	V_{ua} [lb]
11,623	0.650	7,555	1,387

4.2 Pryout Strength

$V_{cpg} = k_{cp} \left[\left(\frac{A_{Nc}}{A_{Nc0}} \right) \psi_{ec,N}\, \psi_{ed,N}\, \psi_{c,N}\, \psi_{cp,N}\, N_b \right]$ ACI 318-14 Eq. (17.5.3.1b)

$\phi\, V_{cpg} \geq V_{ua}$ ACI 318-14 Table 17.3.1.1

A_{Nc} see ACI 318-14, Section 17.4.2.1, Fig. R 17.4.2.1(b)

$A_{Nc0} = 9\, h_{ef}^2$ ACI 318-14 Eq. (17.4.2.1c)

$\psi_{ec,N} = \left(\frac{1}{1 + \frac{2\, e'_N}{3\, h_{ef}}} \right) \leq 1.0$ ACI 318-14 Eq. (17.4.2.4)

$\psi_{ed,N} = 0.7 + 0.3 \left(\frac{c_{a,min}}{1.5 h_{ef}} \right) \leq 1.0$ ACI 318-14 Eq. (17.4.2.5b)

$\psi_{cp,N} = \mathrm{MAX}\left(\frac{c_{a,min}}{c_{ac}}, \frac{1.5 h_{ef}}{c_{ac}} \right) \leq 1.0$ ACI 318-14 Eq. (17.4.2.7b)

$N_b = k_c\, \lambda_a \sqrt{f'_c}\, h_{ef}^{1.5}$ ACI 318-14 Eq. (17.4.2.2a)

Variables

k_{cp}	h_{ef} [in.]	$e_{c1,N}$ [in.]	$e_{c2,N}$ [in.]	$c_{a,min}$ [in.]
2	8.000	3.000	0.000	12.000

$\psi_{c,N}$	c_{ac} [in.]	k_c	λ_a	f'_c [psi]
1.000	-	24	1.000	3,000

Calculations

A_{Nc} [in.^{2}]	A_{Nc0} [in.^{2}]	$\psi_{ec1,N}$	$\psi_{ec2,N}$	$\psi_{ed,N}$	$\psi_{cp,N}$	N_b [lb]
1,023.00	576.00	0.800	1.000	1.000	1.000	29,745

Results

V_{cpg} [lb]	$\phi_{concrete}$	$\phi_{seismic}$	$\phi_{nonductile}$	$\phi\, V_{cpg}$ [lb]	V_{ua} [lb]
84,524	0.700	1.000	1.000	59,167	4,000

Company:		Page:	5
Specifier:	SGH	Project:	Totem Lake
Address:		Sub-Project I Pos. No.:	17-116
Phone I Fax:	|	Date:	11/7/2018
E-Mail:			

4.3 Concrete edge failure in direction y+

$V_{cbg} = \left(\frac{A_{Vc}}{A_{Vc0}}\right) \psi_{ec,V}\, \psi_{ed,V}\, \psi_{c,V}\, \psi_{h,V}\, \psi_{parallel,V}\, V_b$ — ACI 318-14 Eq. (17.5.2.1b)

$\phi\ V_{cbg} \geq V_{ua}$ — ACI 318-14 Table 17.3.1.1

A_{Vc} see ACI 318-14, Section 17.5.2.1, Fig. R 17.5.2.1(b)

$A_{Vc0} = 4.5\, c_{a1}^2$ — ACI 318-14 Eq. (17.5.2.1c)

$\psi_{ec,V} = \left(\frac{1}{1 + \frac{2e_v'}{3c_{a1}}}\right) \leq 1.0$ — ACI 318-14 Eq. (17.5.2.5)

$\psi_{ed,V} = 0.7 + 0.3\left(\frac{c_{a2}}{1.5c_{a1}}\right) \leq 1.0$ — ACI 318-14 Eq. (17.5.2.6b)

$\psi_{h,V} = \sqrt{\frac{1.5c_{a1}}{h_a}} \geq 1.0$ — ACI 318-14 Eq. (17.5.2.8)

$V_b = 9\, \lambda_a \sqrt{f_c'}\, c_{a1}^{1.5}$ — ACI 318-14 Eq. (17.5.2.2b)

Variables

c_{a1} [in.]	c_{a2} [in.]	e_{cV} [in.]	$\psi_{c,V}$	h_a [in.]
12.000	12.000	1.107	1.200	18.000

l_e [in.]	λ_a	d_a [in.]	f_c' [psi]	$\psi_{parallel,V}$
6.000	1.000	0.750	3,000	1.000

Calculations

A_{Vc} [in.^{2}]	A_{Vc0} [in.^{2}]	$\psi_{ec,V}$	$\psi_{ed,V}$	$\psi_{h,V}$	V_b [lb]
558.00	648.00	0.942	0.900	1.000	20,492

Results

V_{cbg} [lb]	$\phi_{concrete}$	$\phi_{seismic}$	$\phi_{nonductile}$	$\phi\ V_{cbg}$ [lb]	V_{ua} [lb]
17,953	0.700	1.000	1.000	12,567	4,085

5 Combined tension and shear loads

β_N	β_V	ζ	Utilization $\beta_{N,V}$ [%]	Status
0.046	0.325	5/3	16	OK

$\beta_{NV} = \beta_N^{\zeta} + \beta_V^{\zeta} <= 1$

Company:		Page:	6
Specifier:	SGH	Project:	Totem Lake
Address:		Sub-Project I Pos. No.:	17-116
Phone I Fax:	|	Date:	11/7/2018
E-Mail:			

6 Warnings

- The anchor design methods in PROFIS Anchor require rigid anchor plates per current regulations (ETAG 001/Annex C, EOTA TR029, etc.). This means load re-distribution on the anchors due to elastic deformations of the anchor plate are not considered - the anchor plate is assumed to be sufficiently stiff, in order not to be deformed when subjected to the design loading. PROFIS Anchor calculates the minimum required anchor plate thickness with FEM to limit the stress of the anchor plate based on the assumptions explained above. The proof if the rigid base plate assumption is valid is not carried out by PROFIS Anchor. Input data and results must be checked for agreement with the existing conditions and for plausibility!
- Condition A applies when supplementary reinforcement is used. The Φ factor is increased for non-steel Design Strengths except Pullout Strength and Pryout strength. Condition B applies when supplementary reinforcement is not used and for Pullout Strength and Pryout Strength. Refer to your local standard.
- Checking the transfer of loads into the base material and the shear resistance are required in accordance with ACI 318 or the relevant standard!
- An anchor design approach for structures assigned to Seismic Design Category C, D, E or F is given in ACI 318-14, Chapter 17, Section 17.2.3.4.3 (a) that requires the governing design strength of an anchor or group of anchors be limited by ductile steel failure. If this is NOT the case, the connection design (tension) shall satisfy the provisions of Section 17.2.3.4.3 (b), Section 17.2.3.4.3 (c), or Section 17.2.3.4.3 (d). The connection design (shear) shall satisfy the provisions of Section 17.2.3.5.3 (a), Section 17.2.3.5.3 (b), or Section 17.2.3.5.3 (c).
- Section 17.2.3.4.3 (b) / Section 17.2.3.5.3 (a) require the attachment the anchors are connecting to the structure be designed to undergo ductile yielding at a load level corresponding to anchor forces no greater than the controlling design strength. Section 17.2.3.4.3 (c) / Section 17.2.3.5.3 (b) waive the ductility requirements and require the anchors to be designed for the maximum tension / shear that can be transmitted to the anchors by a non-yielding attachment. Section 17.2.3.4.3 (d) / Section 17.2.3.5.3 (c) waive the ductility requirements and require the design strength of the anchors to equal or exceed the maximum tension / shear obtained from design load combinations that include E, with E increased by ω_0.

Fastening meets the design criteria!

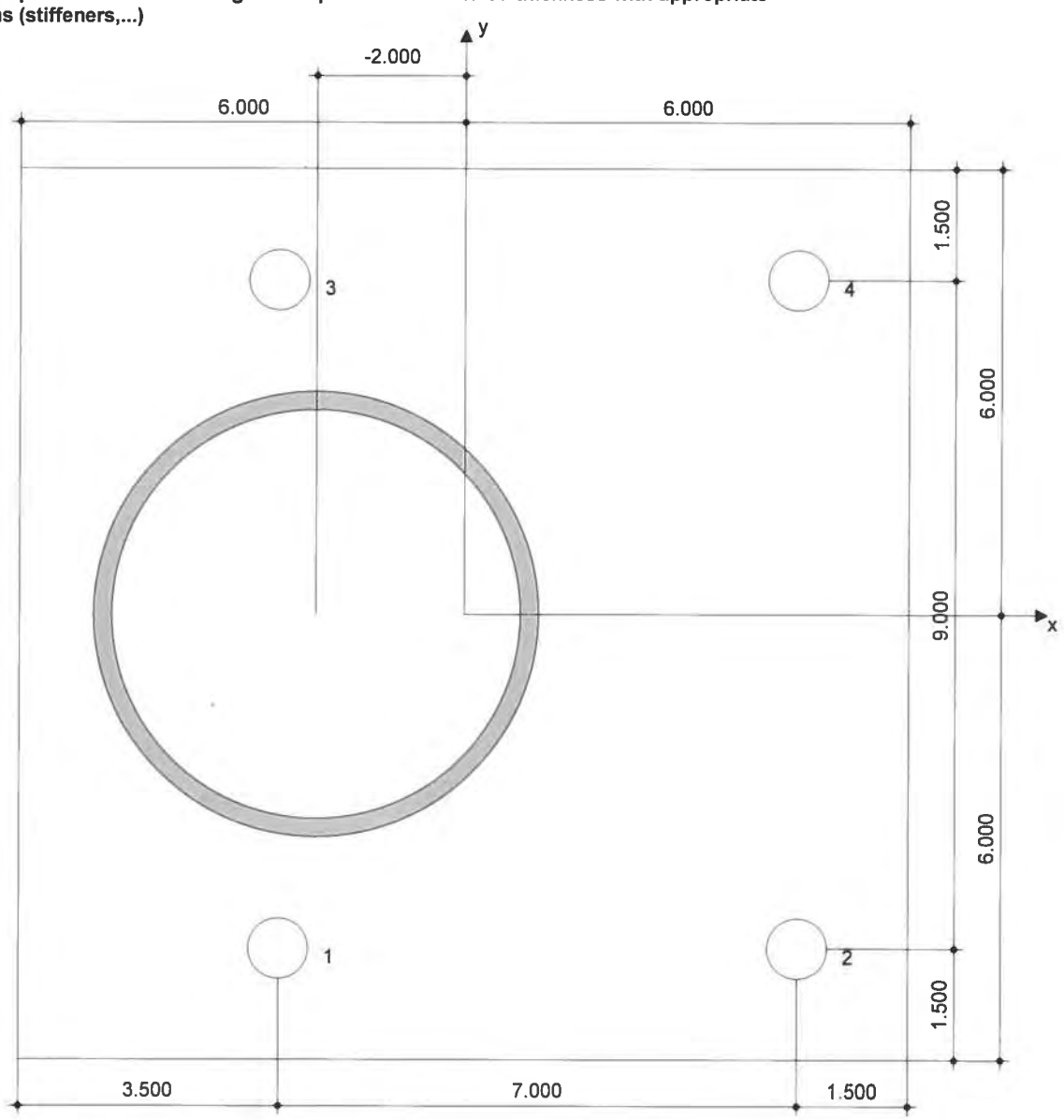
Company:		Page:	7
Specifier:	SGH	Project:	Totem Lake
Address:		Sub-Project I Pos. No.:	17-116
Phone I Fax:	|	Date:	11/7/2018
E-Mail:			

7 Installation data

Anchor plate, steel: -
Profile: Round HSS, Steel pipe (AISC); 6.000 x 6.000 x 0.250 in.
Hole diameter in the fixture: d_f = 0.813 in.
Plate thickness (input): 0.750 in.
Recommended plate thickness: not calculated

Anchor type and diameter: Hex Head ASTM F 1554 GR. 36 3/4
Installation torque: -
Hole diameter in the base material: - in.
Hole depth in the base material: 9.000 in.
Minimum thickness of the base material: 10.000 in.

R - user is responsible to ensure a rigid base plate for the entered thickness with appropriate solutions (stiffeners,...)



Coordinates Anchor in.

Anchor	x	y	c_{-x}	c_{+x}	c_{-y}	c_{+y}
1	-2.500	-4.500	12.000	19.000	12.000	21.000
2	4.500	-4.500	19.000	12.000	12.000	21.000
3	-2.500	4.500	12.000	19.000	21.000	12.000
4	4.500	4.500	19.000	12.000	21.000	12.000

Company:		Page:	8
Specifier:	SGH	Project:	Totem Lake
Address:		Sub-Project I Pos. No.:	17-116
Phone I Fax:	|	Date:	11/7/2018
E-Mail:			

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- You must take all necessary and reasonable steps to prevent or limit damage caused by the Software. In particular, you must arrange for the regular backup of programs and data and, if applicable, carry out the updates of the Software offered by Hilti on a regular basis. If you do not use the AutoUpdate function of the Software, you must ensure that you are using the current and thus up-to-date version of the Software in each case by carrying out manual updates via the Hilti Website. Hilti will not be liable for consequences, such as the recovery of lost or damaged data or programs, arising from a culpable breach of duty by you.

APPENDIX **L**

PLAY AREA EQUIPMENT

City of Kirkland

Totem Lake Park

Kirkland, WA

18-3649D

Sales Representative

Northwest Playground Equipment, Inc.

Equipment Manufacturer

PLAYWORLD
The world needs play.

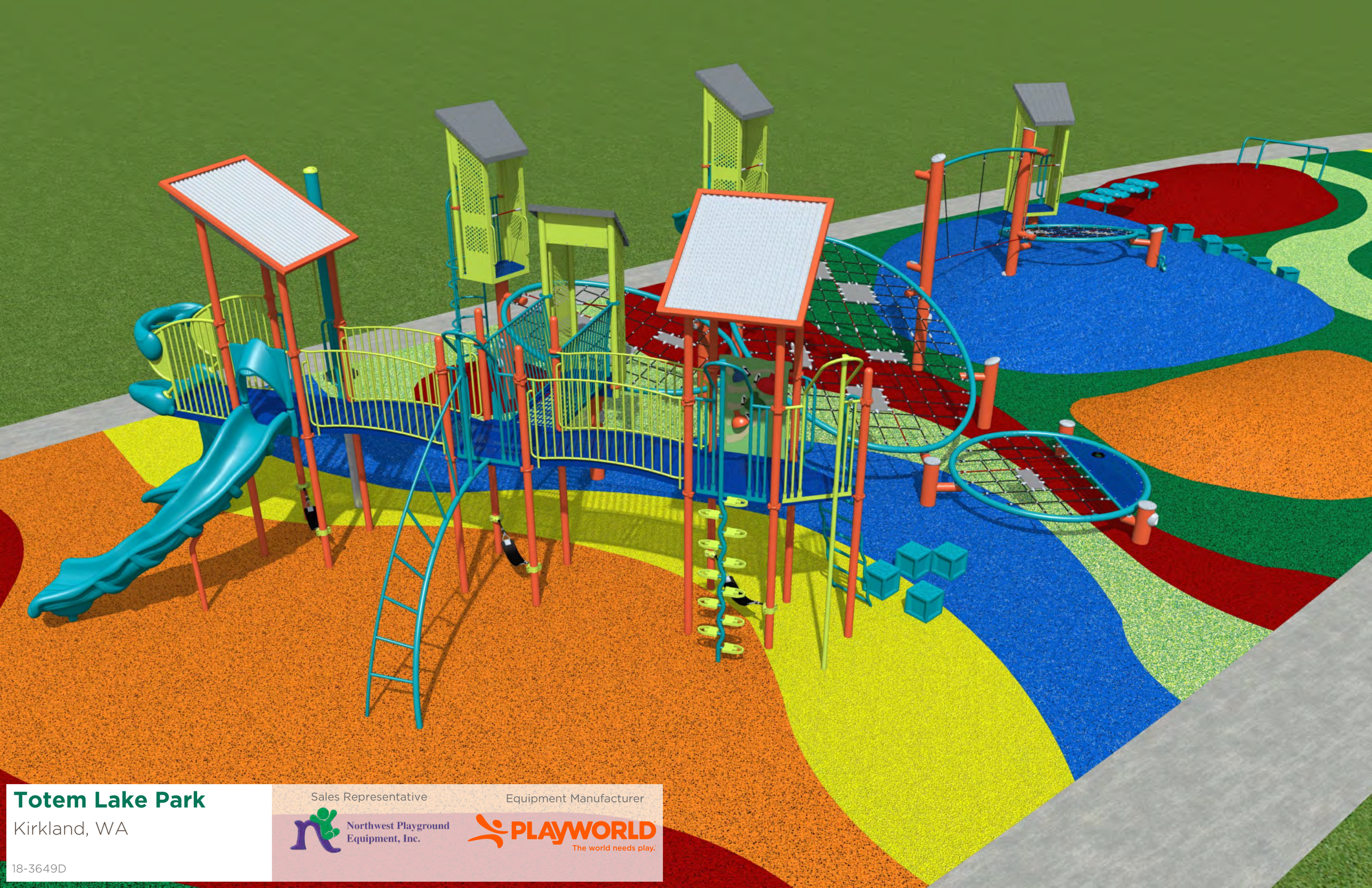
POST & COMPONENT
- Orange
- Chartreuse
- Teal

ROTOMOLD PLASTIC
- Teal
- Chartreuse

2-COLOR PLASTIC
- Lime-Sand

ECO-ARMOR
- Blue

ROPE , BOULDERS & SHADE
- Black



Totem Lake Park

Kirkland, WA

18-3649D

Sales Representative

Northwest Playground Equipment, Inc.

Equipment Manufacturer

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Equipment Manufacturer

PLAYWORLD
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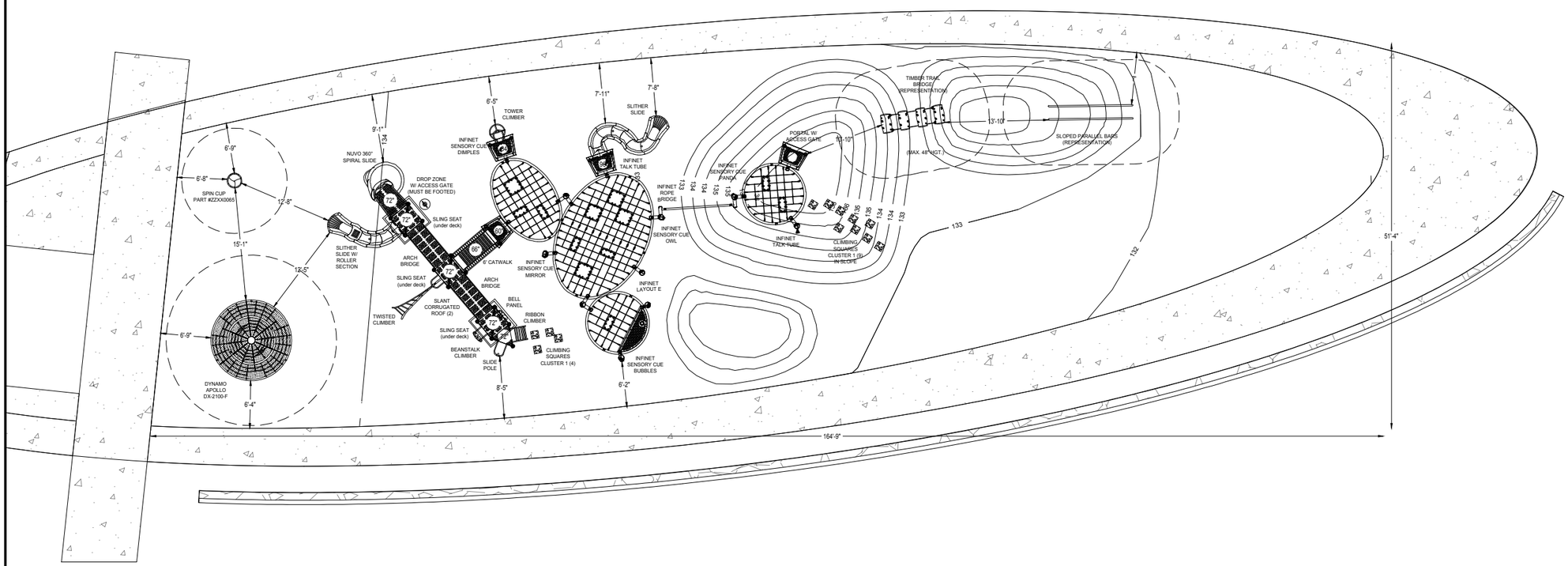
PLEASE NOTE:
THIS DESIGN FEATURES MULTIPLE BERMS WHICH EXTEND INTO THE USE ZONES OF EQUIPMENT. ANY SURFACE THAT IS WITHIN THE 6 FOOT SAFETY ZONE MUST BE COVERED WITH APPLICABLE SURFACING TO ADHERE TO SAFETY STANDARDS.



***PLAYGROUND SUPERVISION REQUIRED**

PLAYWORLD®

Northwest Playground Equipment, Inc.
345 NW Dogwood
P.O. Box 2410
Issaquah, WA 98027

EQUIPMENT SIZE:
64'-4" x 32'-10" x 16'-0"

USE ZONE:
164'-9" x 51'-4"

AREA: **6,344 SqFt.**

PERIMETER: **379 Ft.**

FALL HEIGHT:
8 Ft.

USER CAPACITY: **129**

AGE GROUP: **5-12**

ADA SCHEDULE

	Total Elevated Play Activities: 18		
	Total Ground-Level Play Activities: 13		
	Accessible Elevated Activities	Accessible Ground-Level Activities	Accessible Ground-Level Play Types
Required	9	6	3
Provided	15	7	4

✓ ASTM F1487-17
✓ CPSC #325

PROJECT NO: **18-3649D.NPE**

SCALE: **1/16"=1'-0"**

DRAWN BY: **D.ECKENSTINE**

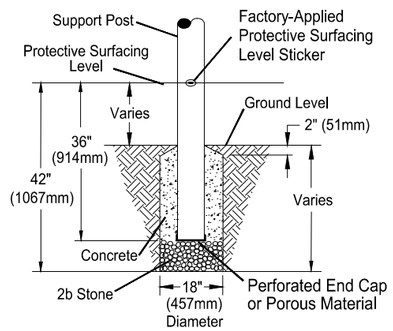
Paper Size **B**

DATE: **06-FEB-2019**

TOTEM LAKE PARK
KIRKLAND, WASHINGTON

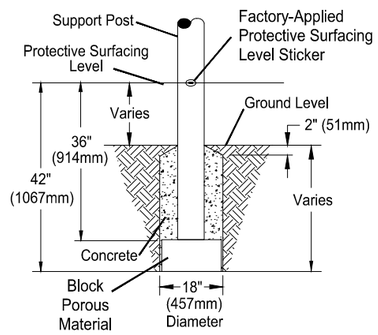
DETAIL 1

Support Post, Spiral Slide and RockBlocks Post Footing Detail



STONE OPTION

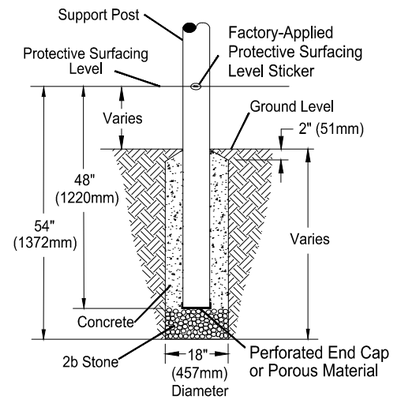
OR



BLOCK OPTION

DETAIL 2

GroundZerO, Cantilever and "T" Post Footing Detail



STONE OPTION

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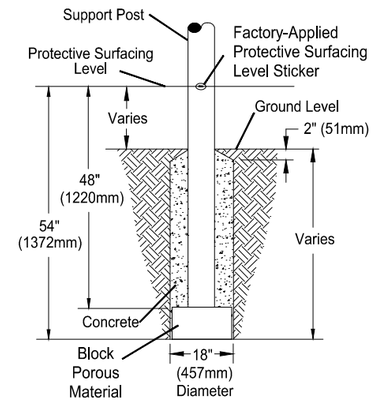
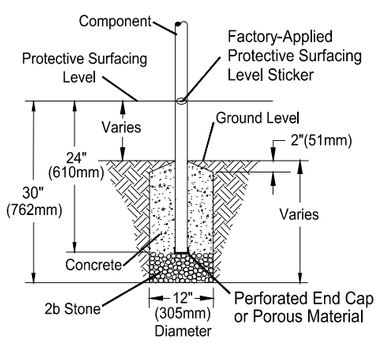


BLOCK OPTION

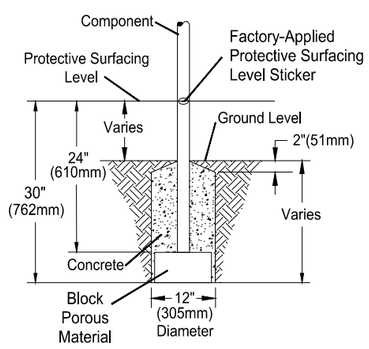
DETAIL 3

Component Footing Detail



STONE OPTION

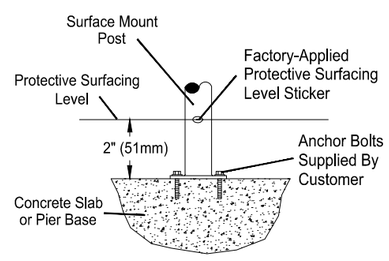
OR



BLOCK OPTION

DETAIL 4

Surface Mount Detail



INSTALLATION NOTES:

1) Paved surfaces, such as asphalt and concrete, are not acceptable for use under your structure.
2) It is the consumer's responsibility to check with local utilities prior to excavating footings for any underground utility lines that may exist within the installation area.
3) It is the consumer's responsibility to check local soil conditions and drainage within the site area. Inquire with local contractors for appropriate recommendations.
4) If the structure is to be installed across uneven terrain, maintain the support post mark for protective surfacing level at the lowest grade. Adjust other footings accordingly.
5) The base of footings must be below frost lines.
6) Do not encase the bottom of support posts in concrete. Place all posts directly on packed stone.
7) Assemble the entire structure before pouring concrete unless specifically instructed to do so in the individual component installation instructions.
8) Read completely the installation instructions provided with your structure prior to beginning construction.

SITE NOTES:

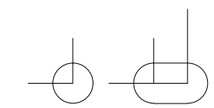
1) The site plan provided must be checked against the actual site area to ensure that placement of your structure meets required clearances.
2) The dimensions labeled are for location of footing holes, not exact placement of equipment. Assemble, plumb, and level equipment before pouring concrete.
3) There must be a minimum distance of 6' (1830mm) between any obstacle, sidewalk, etc., and your structure.
4) Slides must have a use zone that extends out from the lower exit section of the slide a distance that is at least 6' (1830mm) or equal to the vertical distance from the highest point of the sliding surface to the top of the protective surfacing, whichever is greater. The slide use zone should not extend greater than 8' (2438mm) from the end of the lower exit section.
5) The complete area, including the space under and around the equipment, must be covered with an impact attenuating material. See the 1997 publication, "Handbook for Public Playground Safety", published by the U.S. Consumer Product Safety Commission, for guidelines and recommendations on the type and depth of surfacing material. For a copy of the "Handbook for Public Playground Safety", write to: **U.S. Consumer Product Safety Commission Office of Information and Public Affairs Washington, D.C. 20207**
6) Supervise children as they play.

***PLAYGROUND SUPERVISION REQUIRED**

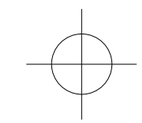
PLAYWORLD

PLAYWORLD SYSTEMS, INC.
1000 Buffalo Road
Lewisburg, PA
17837-9795 USA

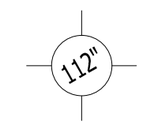
FOOTING LEGEND



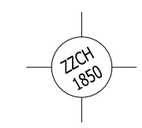
COMPONENT FOOTING (DETAIL 3)



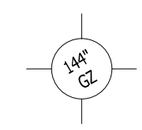
SPIRAL SLIDE CENTER POST FOOTING (DETAIL1)



SUPPORT POST FOOTING (DETAIL 1 or 4)
(112" INDICATES POST LENGTH)



CANTILEVER, "T" POST, AND COMPONENT POST FOOTING (DETAIL 2)
(ZZCH1850 INDICATES PART NUMBER)

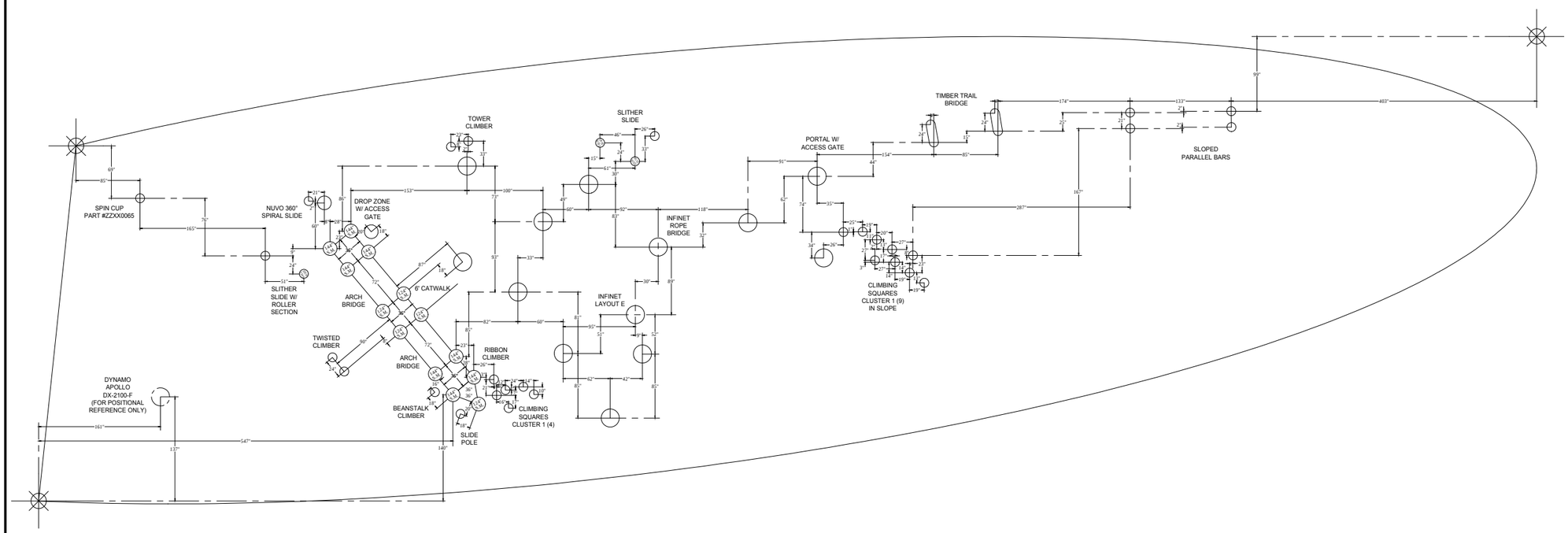


GROUND ZERO POST FOOTING (DETAIL 2)
(144" INDICATES POST LENGTH)

POST FOOTING DETAILS

PLAYMAKERS / CHALLENGERS

FOOTING DETAIL	SCALE: NOT TO SCALE
DRAWN BY: TECH SALES	Paper Size B
DATE: 28-JUNE-13	

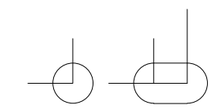


***PLAYGROUND SUPERVISION REQUIRED**

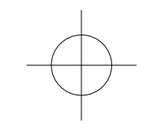
PLAYWORLD®

Northwest Playground Equipment, Inc.
345 NW Dogwood
P.O. Box 2410
Issaquah, WA 98027

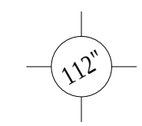
FOOTING LEGEND



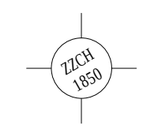
COMPONENT FOOTING (DETAIL 3)



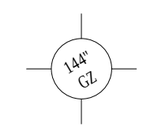
SPIRAL SLIDE CENTER POST FOOTING (DETAIL1)



SUPPORT POST FOOTING (DETAIL 1 or 4)
(112" INDICATES POST LENGTH)



CANTILEVER, "T" POST, AND COMPONENT POST FOOTING (DETAIL 2)
(ZZCH1850 INDICATES PART NUMBER)



GROUND ZERO POST FOOTING (DETAIL 2)
(144" INDICATES POST LENGTH)

TOTEM LAKE PARK
KIRKLAND, WASHINGTON

PROJECT NO:	SCALE:
18-3649D.NPE	NTS
DRAWN BY: D.ECKENSTINE	Paper Size
DATE: 06-FEB-2019	B

Totem Lake Park

Design Number: 18-3649D - Bill Of Material

Ref. No.	Part No.	Description	Quantity
	Decks & Kick Plates		
1	ZZCH0616	SQUARE COATED DECK ASSEMBLY	3
2	ZZCH0617	TRIANGULAR COATED DECK ASSEMBLY	1
3	ZZUN2290	COATED DECK TO DECK CONNECTION KIT	1
4	ZZUN6266	INFINET PORTAL	4
	Slides		
5	ZZCH2805	ENTRY SUPPORT BRACKET	2
6	ZZUN3208	SLITHER SLIDE 2.0 (RIGHT SECTION)	5
7	ZZUN3217	SLITHER SLIDE 2.0 (RIGHT 120° SECTION)	1
8	ZZUN3218	SLITHER SLIDE 2.0 (LEFT 120° SECTION)	1
9	ZZUN3219	SLITHER SLIDE ROLLER SECTION	1
	Activity Panels		
10	ZZCH4896	SLING SEAT	3
11	ZZUN6328	INFINET SENSORY CUE - DIMPLES	1
12	ZZUN6336	INFINET SENSORY CUE - PANDA	1
13	ZZUN6337	INFINET SENSORY CUE - OWL	1
14	ZZUN6348	INFINET SENSORY CUE - MIRROR	1
15	ZZUN6349	INFINET SENSORY CUE - BUBBLES	1
	Barriers		
16	ZZCH4288	ACCESS GATE	2
	Climbers		
17	ZZUN6307	INFINET SMALL NET	1
18	ZZUN6308	INFINET SMALL NET W/ TRANSFER AREA	1
19	ZZUN6309	INFINET MEDIUM NET	1
20	ZZUN6310	INFINET LARGE NET	1
21	ZZUN7097	CLIMBING SQUARES- CLUSTER 1	13
22	ZZUN7118	CLIMBING SQUARES- CORNER TO CORNER BRACKET	1
	Balance		
23	ZZUN7027	DROP ZONE (72in DECK)	1
	Bridges		
24	ZZCH6595	6ft ARCH BRIDGE	2
25	ZZCH7085	6ft CATWALK	1
	GroundZer0 Bridges		
26	ZZUN8478	SHORT FREE- STANDING TIMBER TRAIL BRIDGE	1
	Audible Activities		
27	ZZCH4588	BELL PANEL	1
28	ZZUN6316	INFINET TALK TUBE (NET POST TO NET POST)	1
	Roofs & Arches		
29	ZZCH9628	SLANT CORRUGATED ROOF	2
	Surf Mnt Posts		
30	ZZCH0048S	3.5in OD x 124in STEEL POST W/ CAP (SURFACE MOUNT)	5
31	ZZCH0239S	3.5in OD x 144in SWAGED STEEL POST (SURFACE MOUNT)	8
	Surf Mnt Slides		

Totem Lake Park

Design Number: 18-3649D - Bill Of Material

Ref. No.	Part No.	Description	Quantity
32	ZZCH3206S	SLITHER SLIDE 2.0 ENTRANCE & EXIT (SURFACE MOUNT)	2
33	ZZCH3537S	SLIDE- NUVO 360 SPIRAL SLIDE	1
34	ZZCH8090S	SLIDING POLE (72in DECK) (SURFACE MOUNT)	1
35	ZZUN3247S	SLITHER SLIDE 2.0 SUPPORT LEG 5ft-6in (SURFACE MOUNT)	1
36	ZZUN3249S	SLITHER SLIDE 2.0 SUPPORT LEG 3ft-6in (SURFACE MOUNT)	1
37	ZZUN3256S	SLITHER SLIDE 2.0 SUPPORT LEG 2ft-6in (SURFACE MOUNT)	1
	Surf Mnt Climbers		
38	ZZCH7160S	6ft TWISTED CLIMBER (SURFACE MOUNT)	1
39	ZZCH7169S	7ft TOWER CLIMBER (SURFACE MOUNT)	1
40	ZZCH8130S	BEANSTALK CLIMBER (72in DECK) (SURFACE MOUNT)	1
41	ZZCH8310S	RIBBON CLIMBER (72in DECK) (SURFACE MOUNT)	1
42	ZZUN6267S	INFINET POST W/ CAP FOR 24in NET (SM)	2
43	ZZUN6268S	INFINET DBL CONNECTION POST W/ CAP FOR 24in-36in NETS (SM)	1
44	ZZUN6277S	INFINET POST W/ CAP FOR 48in NET (SM)	1
45	ZZUN6280S	INFINET POST W/ CAP FOR 60in NET (SM)	1
46	ZZUN6286S	INFINET POST FOR 60in PORTAL (SM)	2
47	ZZUN6288S	INFINET POST W/ CAP FOR 72in NET (SM)	1
48	ZZUN6290S	INFINET DBL CONNECTION POST W/ CAP FOR 72in-84in NETS (SM)	1
49	ZZUN6297S	INFINET POST FOR 84in PORTAL (SM)	1
50	ZZUN6300S	INFINET POST FOR 96in PORTAL (SM)	1
51	ZZUN6306S	INFINET ROPE BRIDGE W/ 2 POSTS (SM)	1
	Additional Tool & Maintenance Kits		
52	ZZCHGUID	CHALLENGER GUIDELINES	1
53	ZZUN9910	SURFACING WARNING LABEL KIT	1
54	ZZUN9930	PIPE SYSTEMS MAINTENANCE KIT W/ AEROSOL	1

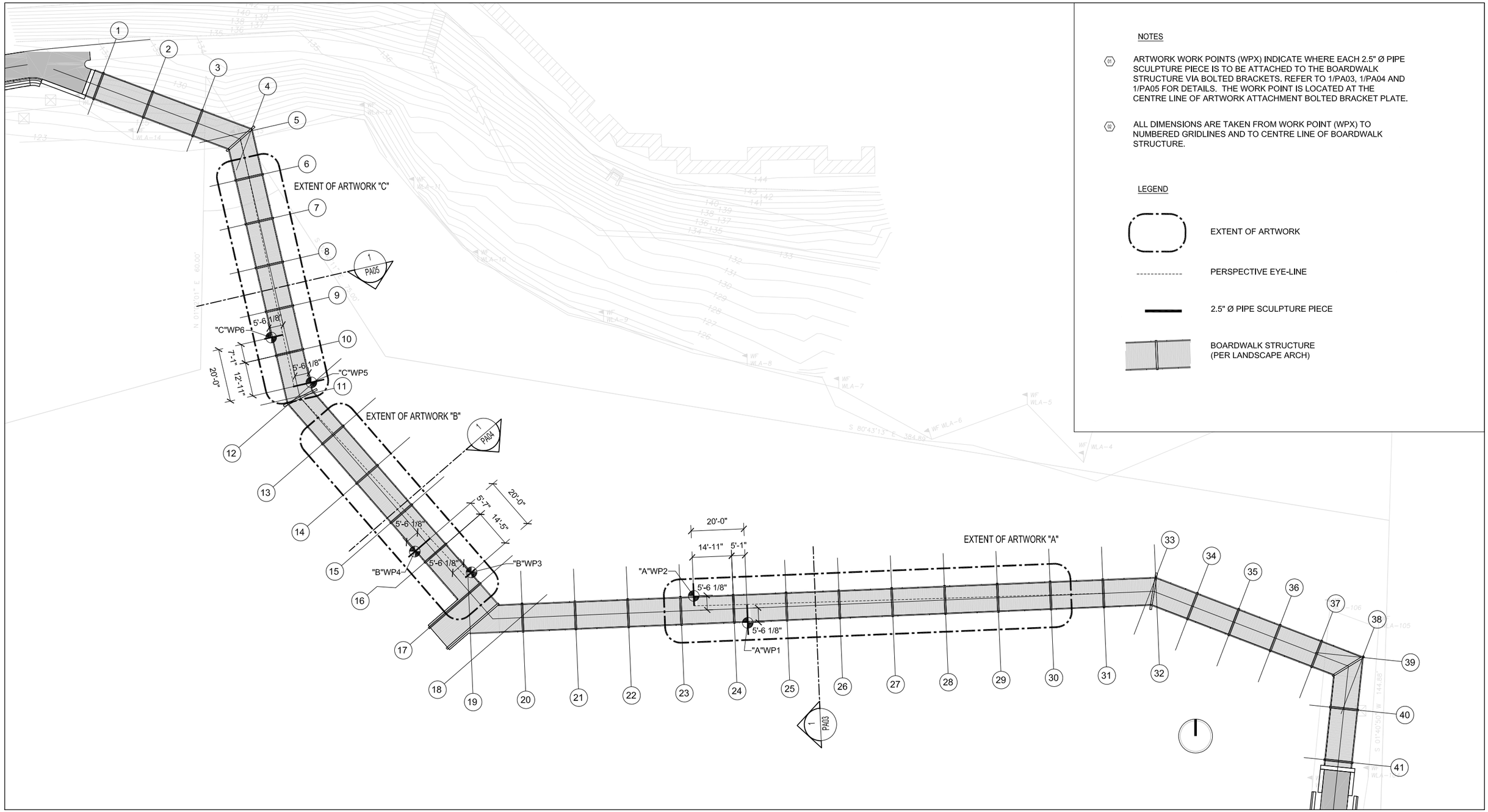
APPENDIX **M**

ART PLAN

City of Kirkland

1 PA01 **"TRACE" - PERSPECTIVE**
N.T.S.

2 PA01 **"TRACE" ALIGNED - PERSPECTIVES**
N.T.S.



NOTES

01 ARTWORK WORK POINTS (WPX) INDICATE WHERE EACH 2.5" Ø PIPE SCULPTURE PIECE IS TO BE ATTACHED TO THE BOARDWALK STRUCTURE VIA BOLTED BRACKETS. REFER TO 1/PA03, 1/PA04 AND 1/PA05 FOR DETAILS. THE WORK POINT IS LOCATED AT THE CENTRE LINE OF ARTWORK ATTACHMENT BOLTED BRACKET PLATE.

02 ALL DIMENSIONS ARE TAKEN FROM WORK POINT (WPX) TO NUMBERED GRIDLINES AND TO CENTRE LINE OF BOARDWALK STRUCTURE.

LEGEND

EXTENT OF ARTWORK

PERSPECTIVE EYE-LINE

2.5" Ø PIPE SCULPTURE PIECE

BOARDWALK STRUCTURE
(PER LANDSCAPE ARCH)

1 PA02 **"TRACE" - SITE PLAN**

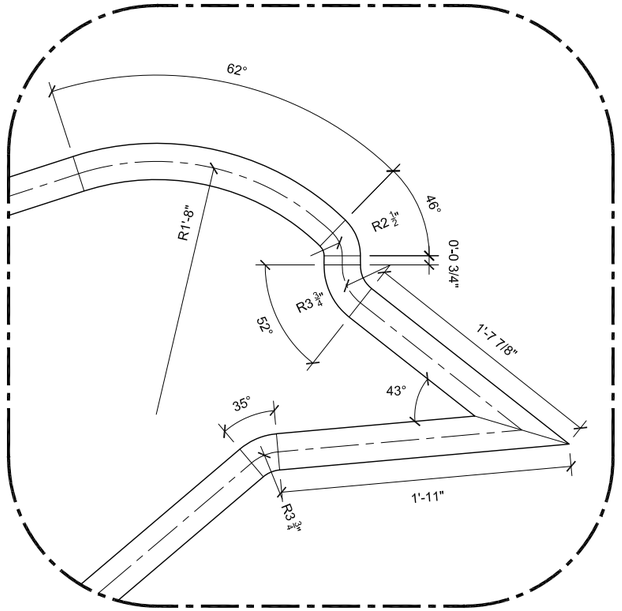
1"=35'

Jill Anholt Studio

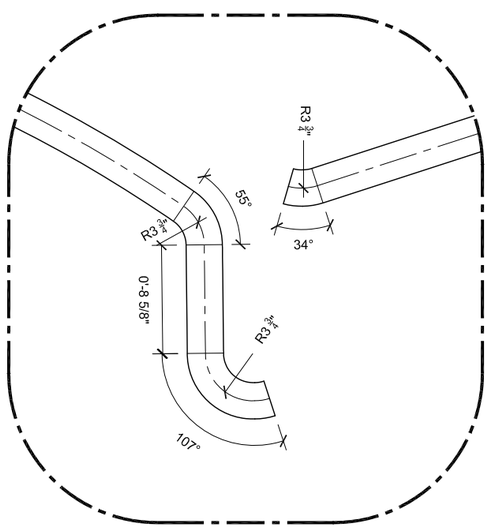
KIRKLAND TOTEM LAKE PARK:
"TRACE" ARTWORK DETAILS

PAUL STANLEY DIEDRICH
STATE OF WASHINGTON
21426
STRUCTURAL ENGINEER
PROFESSIONAL ENGINEER

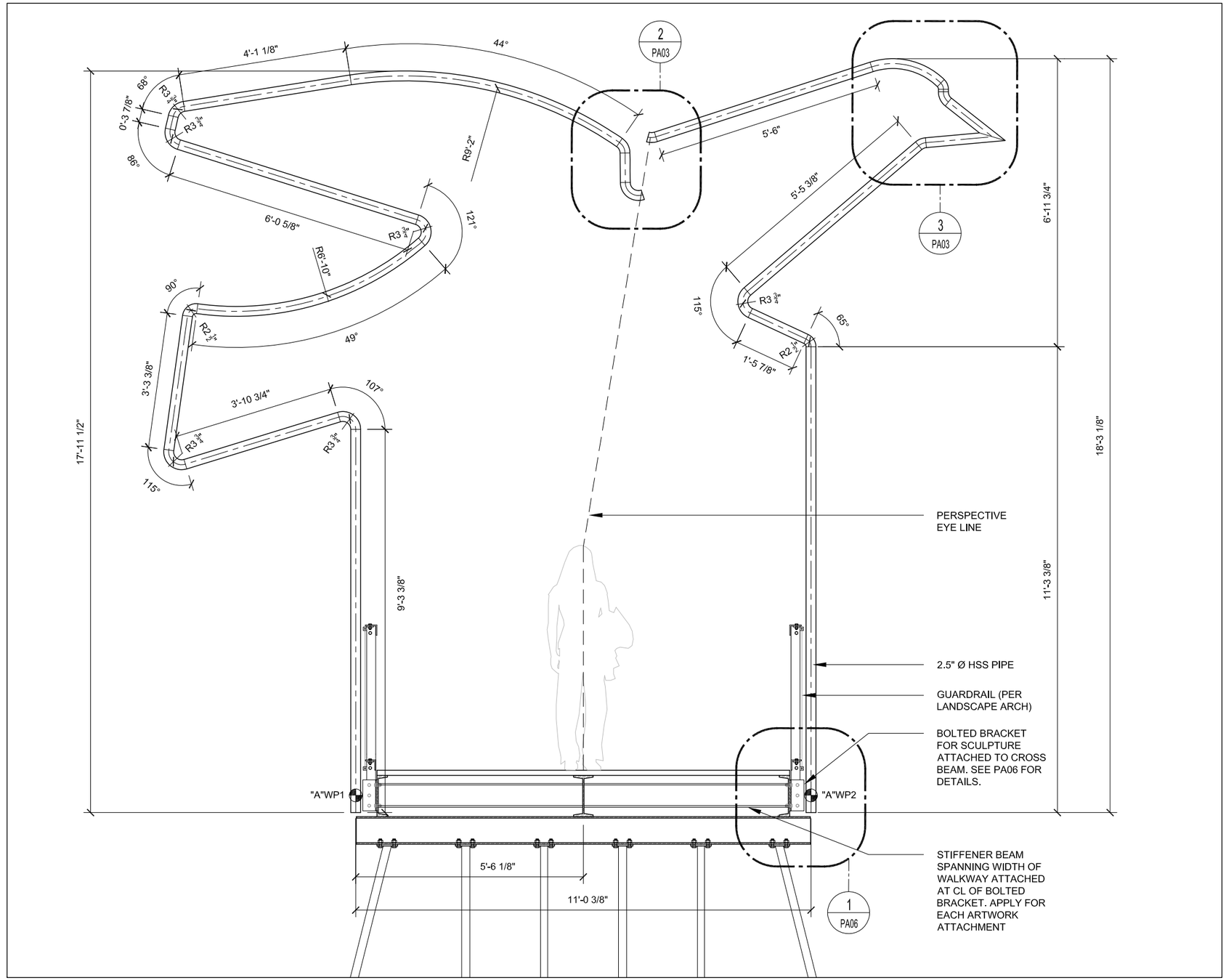
JUNE 10, 2019 **PA.02**



3 PA03 ELEVATION DETAIL
1"=1'-0"



2 PA03 ELEVATION DETAIL
1"=1'-0"

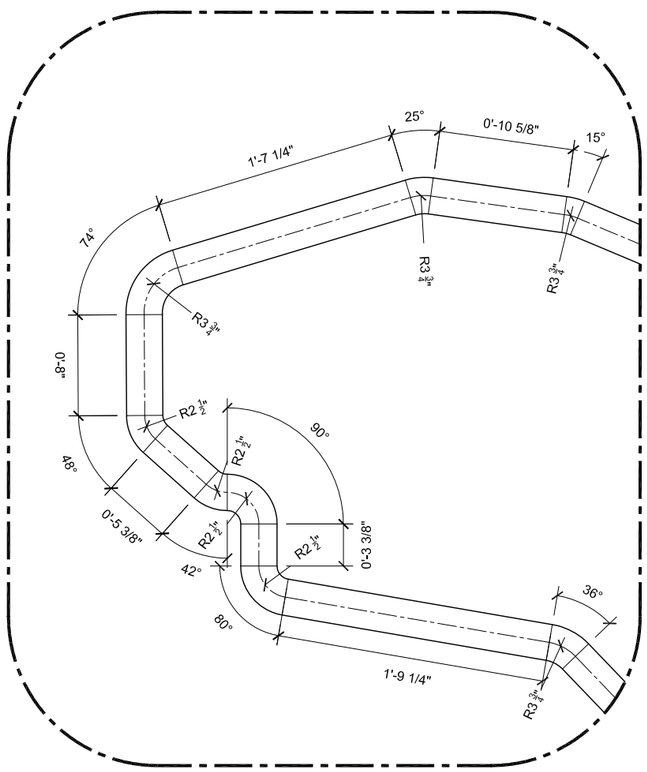


1 PA03 ARTWORK "A" - FRONT ELEVATION
3/8"=1'-0"

Jill Anholt Studio

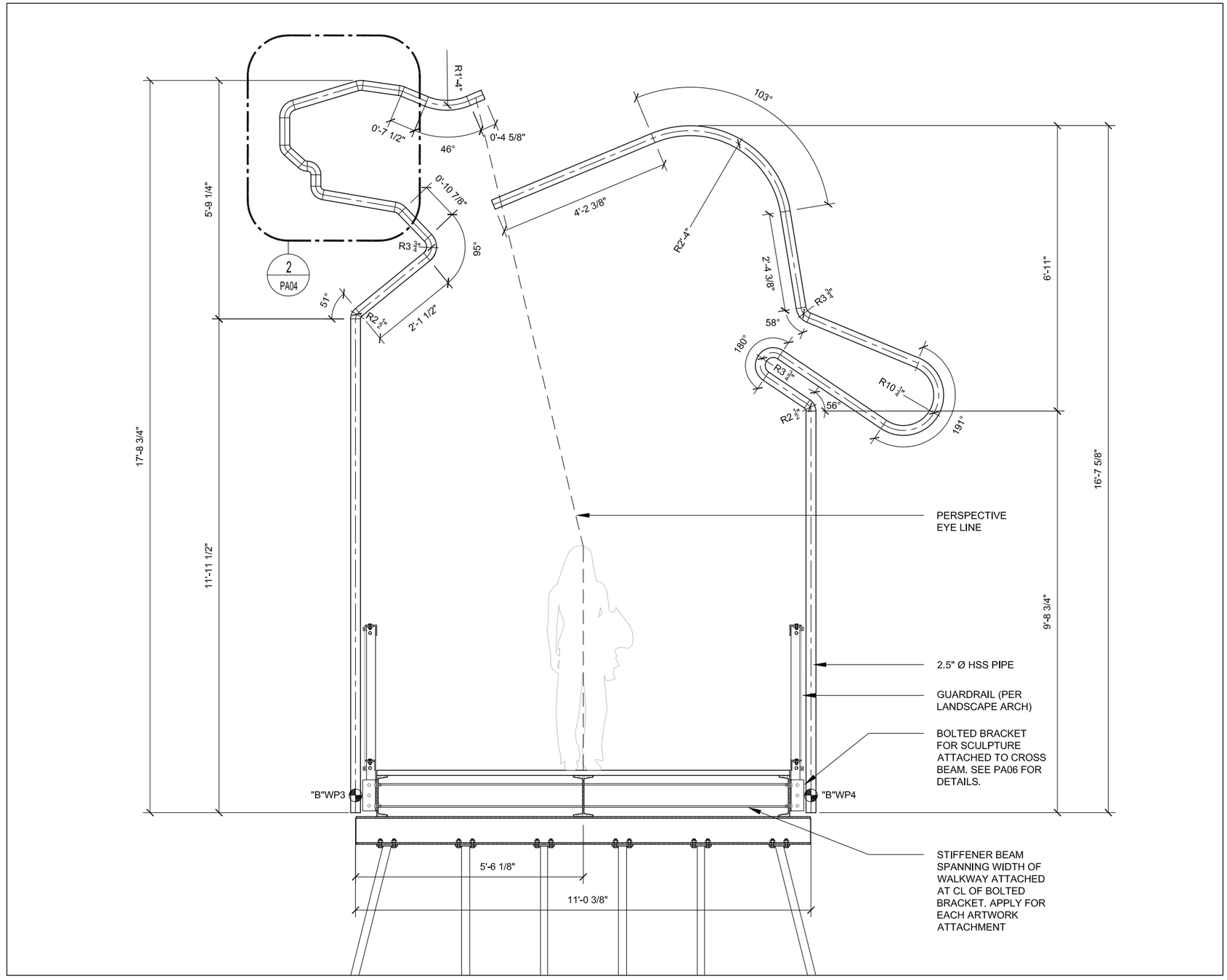
KIRKLAND TOTEM LAKE PARK:
"TRACE" ARTWORK DETAILS

JUNE 10, 2019 **PA.03**



2 PA04 ELEVATION DETAIL

1"=1'-0"



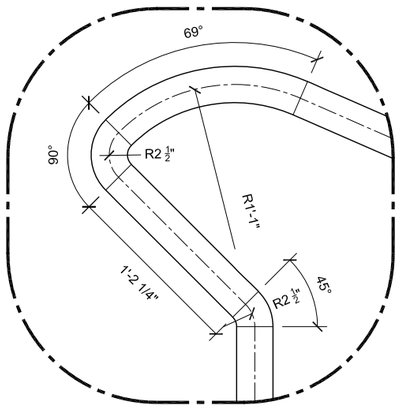
1 PA04 ARTWORK "B" - FRONT ELEVATION

3/8"=1'-0"

Jill Anholt Studio

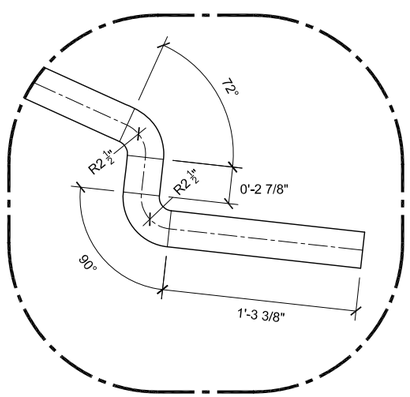
KIRKLAND TOTEM LAKE PARK:
"TRACE" ARTWORK DETAILS

JUNE 10, 2019 **PA.04**



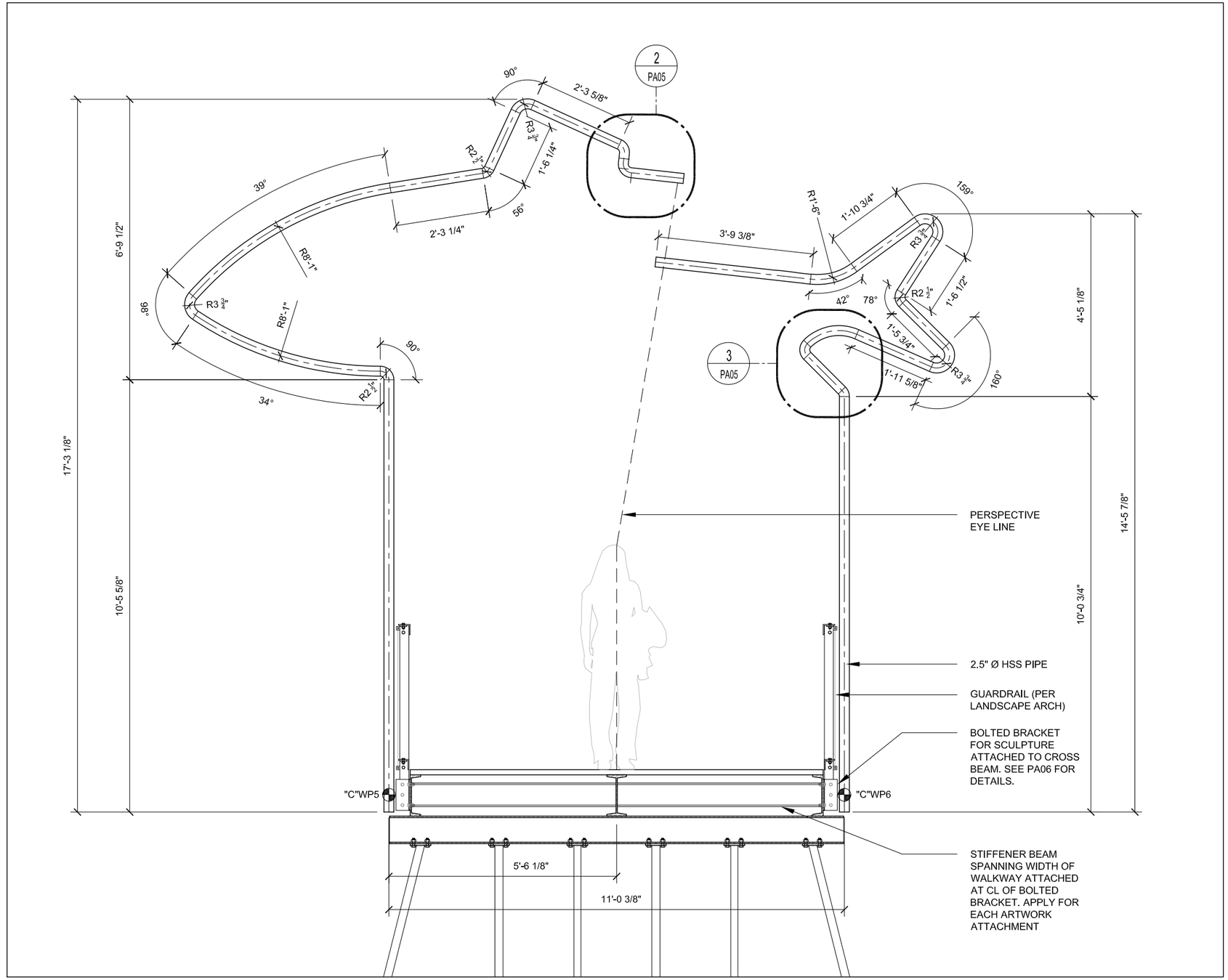
3 PA05 ELEVATION DETAIL

1"=1'-0"



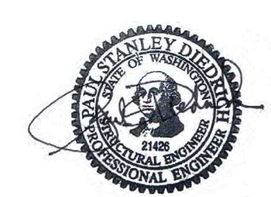
2 PA05 ELEVATION DETAIL

1"=1'-0"



1 PA05 ARTWORK "C" - FRONT ELEVATION

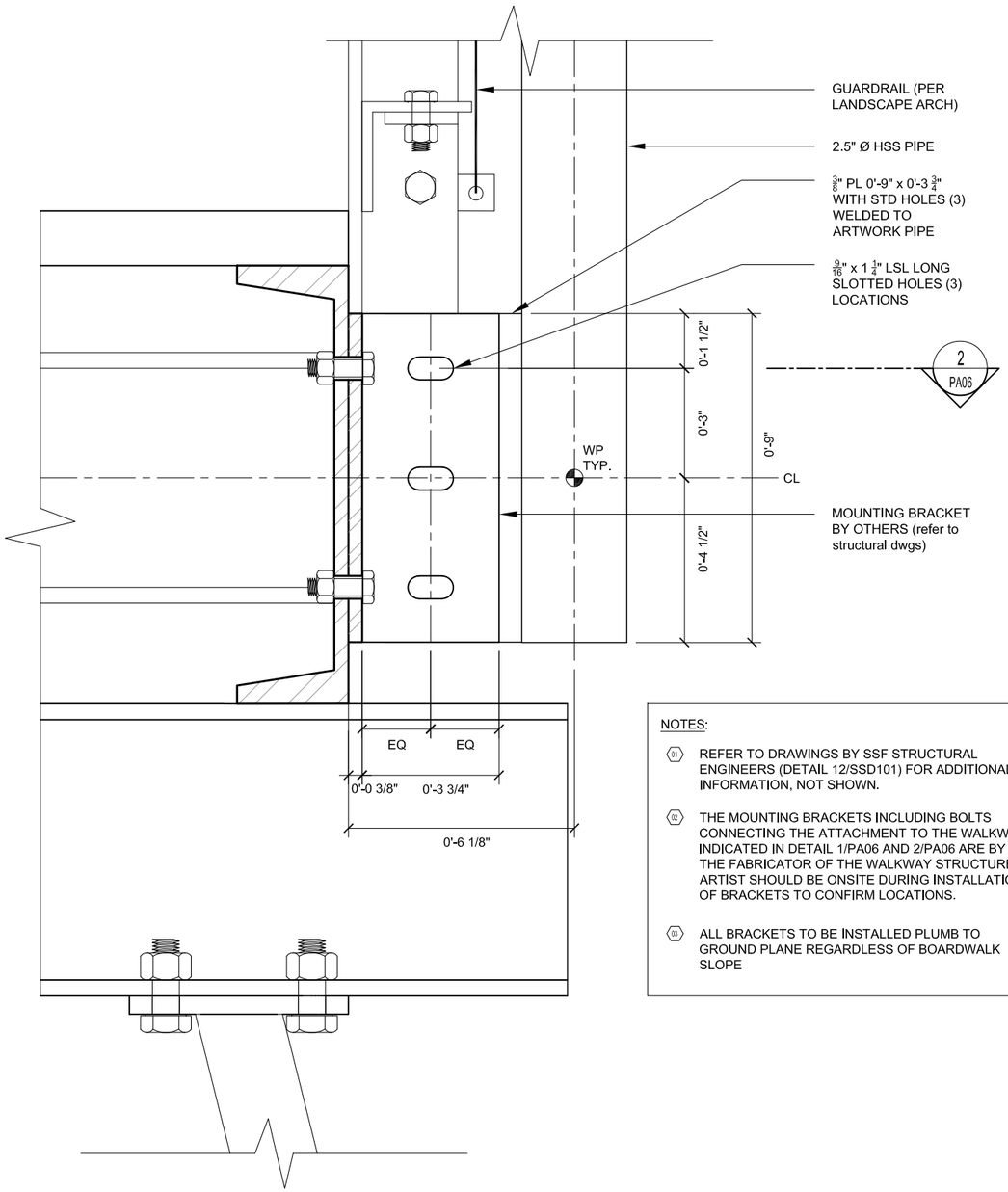
3/8"=1'-0"



Jill Anholt Studio

KIRKLAND TOTEM LAKE PARK:
"TRACE" ARTWORK DETAILS

JUNE 10, 2019 **PA.05**



NOTES:

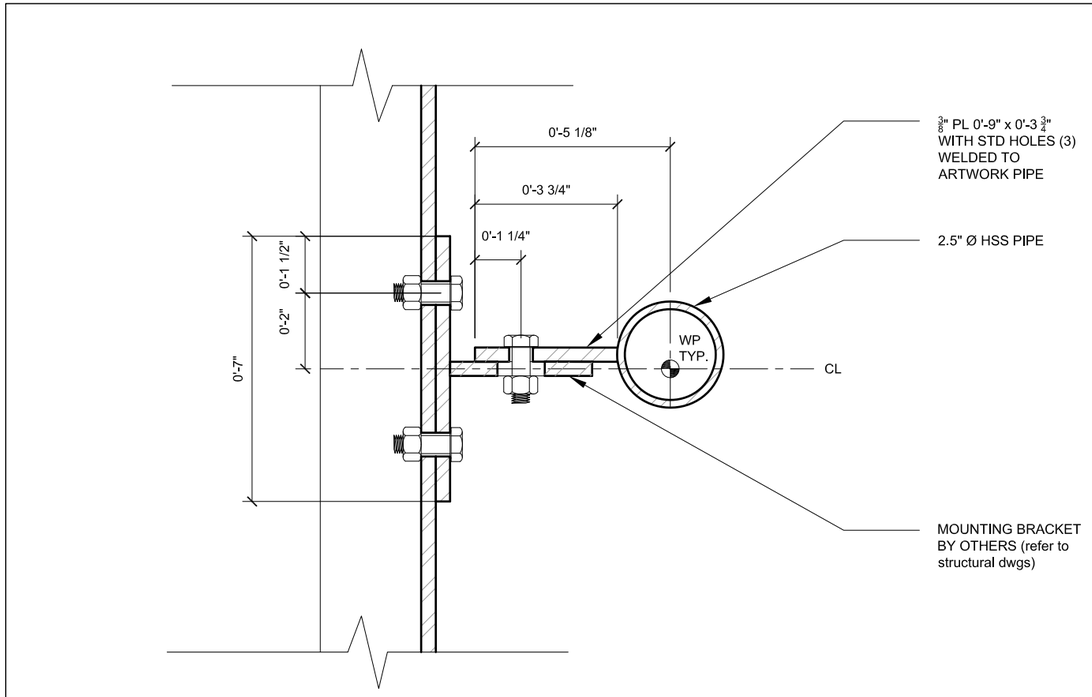
01 REFER TO DRAWINGS BY SSF STRUCTURAL ENGINEERS (DETAIL 12/SSD101) FOR ADDITIONAL INFORMATION, NOT SHOWN.

02 THE MOUNTING BRACKETS INCLUDING BOLTS CONNECTING THE ATTACHMENT TO THE WALKWAY INDICATED IN DETAIL 1/PA06 AND 2/PA06 ARE BY THE FABRICATOR OF THE WALKWAY STRUCTURE. ARTIST SHOULD BE ONSITE DURING INSTALLATION OF BRACKETS TO CONFIRM LOCATIONS.

03 ALL BRACKETS TO BE INSTALLED PLUMB TO GROUND PLANE REGARDLESS OF BOARDWALK SLOPE

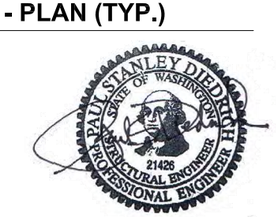
1 PA06 **MOUNTING DETAIL FOR JAS ARTWORK - SECTION (TYP.)**

3"=1'-0"



2 PA06 **MOUNTING DETAIL FOR JAS ARTWORK - PLAN (TYP.)**

3"=1'-0"



Jill Anholt Studio

KIRKLAND TOTEM LAKE PARK: "TRACE" ARTWORK DETAILS

JUNE 10, 2019 **PA.06**

APPENDIX **N**

YUPPIE PAWN SITE ASSESSMENT

City of Kirkland

HAZARDOUS MATERIALS REPORT

Tax Parcel 2724200525
12031 Northeast Totem Lake Way
Kirkland, Washington 98034

Submitted to:

O'Neill Service Group
17619 Northeast 67th Court, Suite 100
Redmond, Washington 98052

Prepared by:

Med-Tox Northwest
Post Office Box 1446
Auburn, WA 98071-1446
MTNW Project A-8570.53
Telephone: 253-351-0677

Jon A. Havelock

Jon A. Havelock, CSP, CHMM
AHERA BI # ABIR0907180004N15667 Exp. 09/07/2019

December 28, 2018

Table of Contents

Tables

Acronyms

AAS	atomic absorption spectroscopy
ACM	asbestos-containing materials
AHERA	Asbestos Hazard Emergency Response Act
ASHARA	Asbestos Schools Hazard Abatement Reauthorization Act
ASTM	American Society of Testing and Materials
CFC	chlorofluorocarbons
CFR	Code of Federal Regulation
DEHP	Di (2-ethylhexyl) phthalate
EPA	U.S. Environmental Protection Agency
GWB	gypsum wallboard
HBM	hazardous building materials
HVAC	heating, ventilation, and air conditioning
LBP	lead-based paint
mg/cm^2	milligrams per square centimeter
mg/kg	milligrams per kilogram
MTNW	Med-Tox Northwest
NVLAP	National Voluntary Laboratory Accreditation Program
OSHA	Occupational Safety and Health Administration
PCB	polychlorinated biphenyl
PLM	polarized light microscopy
ppm	parts per million
PSCAA	Puget Sound Clean Air Agency
SAT	Seattle Asbestos Test
SVF	sheet vinyl flooring
TCLP	toxicity characteristic leaching procedure
TSI	thermal system insulation
WAC	Washington Administration Code
WDOC	Washington Department of Commerce
WISHA	Washington Industrial Safety and Health Act
XRF	x-ray fluorescence
% wt.	percent in weight

Survey Summary

On November 14, 2018, Jon Havelock, Eric Jarvis and Jason Carlson of Med-Tox Northwest (MTNW) conducted a hazardous building materials (HBM) survey of the property located at 12031 Northeast Totem Lake Way in Kirkland, Washington. This work was conducted on behalf of O'Neill Service Group. The building was occupied at the time of the survey; however, at the request of property management, only limited destructive sampling was allowed.

This report identifies building materials that contain asbestos, estimates the quantity of asbestos-containing material (ACM) present and documents building materials that potentially contain lead-based paint (LBP), polychlorinated biphenyls (PCBs), and other hazardous materials that require removal or management as part of demolition activities. Washington Administrative Code (WAC) 296-155-775 requires identification of asbestos and hazardous materials and their hazards eliminated before demolition is started.

As required by WAC 296-62-077 and Puget Sound Clean Air Agency (PSCAA), building inspectors certified under the Asbestos Hazard Emergency Response Act (AHERA) and employed by MTNW conducted the asbestos portion of the survey. Copies of the inspector's AHERA Building Inspector certificate and Washington Department of Commerce (WDOC) LBP Inspector/Risk Assessor certificates are included in **Appendix A**.

No previous HBM surveys or as-built construction documents were available as part of the survey.

Building Information

Photographic documentation of the structure and the major systems described herein are provided in **Appendix B**.

General and Structural: Originally constructed in 1979 the structure at 12031 NE Totem Lake Way is approximately 7000 square feet (SF) in size. The building is currently occupied by two different companies which use their areas as office space. Prior to the current tenants, this building was used as a retail store.

There is one main floor to the building with the addition of a second tier wrap around storage area. The interior of the building is divided into three main areas; an entry way and two office spaces. The entryway consists of two restrooms, a custodial closet, and one office room.

Office 1 is composed of a main office area, a long meeting room, a back-office area, a conference room, a closet area, a bathroom, and an electrical room. Office 2 consisted of one open office space with a closet space in the SE corner.

The building is constructed on a concrete slab foundation, is wood-framed and finished with plywood siding on the bottom portion and silver rib-metal paneling on the upper portion. Exterior windows were vinyl-framed, and aluminum-framed with steel rebar stretching horizontally over the interior portion of the windows. Interior doors are hollow core wood and metal, exterior doors were metal and wood framed. The roof is a combination of a pitched roof and built up roof. The pitched roof sections of the building were finished with brown rib-metal paneling. The built-up roofing system was inaccessible during the time of the survey. The roof for the entrance overhang was finished with gray rib-metal paneling.

A 120 SF detached wood-framed shed is located east of the southeast section of the building. The shed was finished with the same plywood siding as the building. The roof was finished with multiple layers of asphalt roofing shingles. The interior walls and ceiling of the shed were finished with sprayed on yellow foam insulation.

Heating and Mechanical Systems: Heat for the building is provided by electric baseboards and central heating, ventilation, and air conditioning (HVAC) system. Pipes that were observed either had a polyethylene wrap or they were un-insulated.

Walls/Ceiling: Interior walls of the building were finished with a heavy textured gypsum wallboard (GWB) system, an orange peel textured GWB system, untextured GWB, lap wood siding, and vinyl sheet board. Bathroom walls were finished with ceramic wall tiles. In addition, walls were also finished with wood, brick, ceramic tile, and vinyl cove base. Ceilings of the building were finished with a heavy textured GWB system, an orange peel textured GWB system, untextured GWB, or horizontal wood planks.

Floor Systems: Floors of the building were primarily a concrete sub-floor, with wood sub-floor found in elevated areas of Office 1. Offices and the entry way were primarily finished with glued-down carpet. Office 1 and 2 also had parquet wood tiles, sheet vinyl tiles, sheet vinyl flooring (SVF), and ceramic tiles. Bathrooms floors were finished with ceramic tiles.

Asbestos Survey

The AHERA regulation, 40 Code of Federal Regulation (CFR) 763, is the primary governing regulation when performing asbestos surveys. This regulation was originally enacted for school buildings but has since been applied to public and commercial buildings by the Asbestos School Hazard Abatement Reauthorization Act (ASHARA) in 1994 and by the Occupational Safety and Health Administration's (OSHA) worker protection regulations in 1995, specifically 29 CFR 1926.1101(k).

PSCAA also requires compliance with AHERA's survey and sampling requirements. This applies to any renovation or demolition activities where suspect ACM may be disturbed. PSCAA is a local agency that receives statutory authority from the U.S. Environmental Protection Agency (EPA) to enforce environmental regulations.

AHERA divides suspect ACM into three categories; “surfacing materials” (i.e., sprayed fireproofing, popcorn ceiling texture, etc.), “thermal system insulation” (TSI) (i.e., pipe or building insulation, etc.), and “miscellaneous materials” (i.e., flooring material, roofing, construction mastics, etc.). The following sections summarize the potential ACMs identified for each of these three categories. For a complete listing of suspect materials sampled, see **Appendix C**. See **Appendix J** for drawings of asbestos and lead sample locations and material types.

The following sections summarize the potential ACMs identified by homogeneous material (HM) description as they relate to each of the AHERA categories and clarify location along with the number of samples collected for regulatory compliance.

Surfacing Materials

There were four surfacing materials observed in the building.

- Heavy Troweled Textured GWB system (HM-01). HM-01 was the identified on the walls throughout the building. Nine samples of HM-01 were collected between the two offices and entrance. After being analyzed for asbestos content HM-01 was determined to be negative for asbestos.
- Untextured GWB (HM-02). Untextured GWB was present in the entrance area and in Office 1. Five samples were collected between the two areas and analyzed for asbestos content; HM-02 was found to be negative for asbestos.
- Orange peel textured GWB system (HM-03). Orange peel textured GWB was present in the entrance area restrooms, entry way office, custodial closet, and in the conference room of Office 1. Seven samples of HM-03 were collected from seven different locations then analyzed for asbestos content. HM-03 was found to be negative for asbestos.
- Sprayed on yellow foam insulation (HM-26). HM-26 was observed on the walls and ceilings of the shed. Three samples of HM-26 were collected and analyzed for asbestos content; no asbestos detected.

Thermal System Insulation

There was one TSI material observed in the building.

- Pink wall insulation (HM-23). HM-23 was found in an exposed area of the wall inside the electrical room. Three samples were collected and analyzed for asbestos content; no asbestos was detected.

Miscellaneous Materials

- Wall laminate board with yellow mastic (HM-04). HM-04 was identified on the NW wall of the meeting room in Office 1. Two samples of HM-04 were collected and analyzed for asbestos content. HM-04 was determined to be negative for asbestos.

- Wall laminate board with orange mastic (HM-05). HM-05 was identified on the N wall of the meeting room hallway in Office 1. Two samples of HM-05 were collected and analyzed for asbestos content. HM-05 was determined to be negative for asbestos
- Wall laminate board with brown mastic (HM-06). HM-06 was found in the NW corner of the meeting room in Office 1 on the E wall. Two samples were collected and analyzed for asbestos content; no asbestos was detected.
- 3- x 3-inch brown wall tile with grout (HM-07). HM-07 was present in the men's and women's restroom. Two samples were collected and analyzed for asbestos content; this material was determined to be negative for asbestos.
- 3- x 3-inch brown wall with yellow and green mastic (HM-08). HM-08 was found in the men's restroom. Two samples were collected and analyzed for asbestos content; no asbestos was detected.
- 6- x 6-inch red floor tile with grout (HM-09). This material was present in Office 2, the electric room, and both the men's and women's restroom. Two samples were collected and analyzed for asbestos content; no asbestos was detected.
- Dark gray and red carpet with yellow mastic (HM-10). HM-10 was present in the entry way, Office 1, and Office 2. Three samples (one from each area) were collected and analyzed for asbestos content; HM-10 was found to be negative for asbestos.
- Blue and gray carpet with yellow mastic (HM-11). HM-11 was present in the entry way, Office 1, and Office 2. Three samples (one from each area) were collected and analyzed for asbestos content; HM-11 was found to be negative for asbestos.
- Parquet wood floor tile with white mastic and grout (HM-12). HM-12 was identified in the main office area of Office 1. Two samples were collected and analyzed for asbestos content; no asbestos was detected.
- Parquet wood floor tile with dark yellow mastic (HM-13**).** HM-13 was identified in Office 2. Two samples were collected and analyzed for asbestos content; no asbestos was detected.
- 12- x 12-inch green and yellow SVT with yellow mastic (HM-14**).** HM-14 was discovered in the main office of Office 1 under HM-10. Two samples were collected and analyzed for asbestos content; no asbestos was detected.
- 6- x 6-inch brown/white square pattern SVF with brown binder (HM-15). This material was observed in the electrical room hallway. Three samples were collected and analyzed for asbestos; no asbestos was detected.

- Brick wall base with white paint and grout (HM-16). This material was observed in the NW corner of the meeting room in Office 1. Two samples were collected and analyzed for asbestos; no asbestos was detected.
- Gray wall base grout with white paint (HM-17). This material was found in the conference room of Office 1. Two samples were collected and analyzed for asbestos content; no asbestos was detected.
- Black vinyl cove base with yellow mastic (HM-18). HM-18 was identified in the entry way office. Two samples were collected and analyzed for asbestos content; this material was determined to be negative for asbestos.
- Gray vinyl cove base with brown mastic (HM-19). HM-19 was identified in Office 2. Two samples were collected and analyzed for asbestos content; HM-19 was determined to be negative for asbestos.
- Tan cove base with yellow mastic (HM-20). HM-20 was identified in the SE bathroom of Office 1. Two samples were collected and analyzed for asbestos content; no asbestos was detected.
- Brown wall base sealant (HM-21). HM-21 found along the N wall of the meeting room hallway in Office 1. Two samples were collected and analyzed for asbestos content; no asbestos was detected.
- Exterior window caulking (HM-22). This material was observed on exterior window frames. Three samples were collected and analyzed for asbestos; this material was determined to be negative for asbestos.
- Wall VBP (HM-24). HM-24 was found under the GWB of the second level storage area. Three samples were collected and analyzed for asbestos content; no asbestos was detected.
- Asphalt roofing shingles and VBP (HM-25). The shed roof was covered by multiple layers of asphalt roof shingles with VBP over the plywood sheathing. Three samples were collected and analyzed for asbestos content; no asbestos was detected.

Table 1 summarizes ACM identified in the residence surveyed by MTNW.

Table 1. Summary of Asbestos-Containing Materials

Material	Location	Friable	Quantity*
There were no asbestos-containing materials identified at 8808.2.			

Note: This table is not to be used without the complete survey document including appendices for additional information.

Table 2 lists all suspect materials sampled that have been determined to be non-asbestos containing.

Table 2. Summary of Suspect Materials Determined Non-Asbestos Containing

Material Location	Material Description
Interior	Heavy Troweled Textured GWB system
Interior	Untextured GWB
Interior	Orange peel textured GWB system
Meeting room – Office 1	Wall laminate board with yellow mastic
Meeting room hallway – Office 1	Wall laminate board with orange mastic
Meeting room – Office 1	Wall laminate board with brown mastic
Restroom's	3- x 3-inch brown wall tile with grout
Men's restroom	3- x 3-inch brown wall with yellow and green mastic
Office 2, electric room, restrooms	6- x 6-inch red floor tile with grout
Interior	Dark gray and red carpet with yellow mastic
Interior	Blue and gray carpet with yellow mastic
Office 1	Parquet wood floor tile with white mastic and grout
Office 2	Parquet wood floor tile with dark yellow mastic
Main office – Office 1	12- x 12-inch green and yellow SVT with yellow mastic
Electrical room hallway	6- x 6-inch brown/white square pattern SVF with brown binder
Meeting room – Office 1	Brick wall base with white paint and grout
Conference room – Office 1	Gray wall base grout with white paint
Entry way - office	Black vinyl cove base with yellow mastic
Office 2	Gray vinyl cove base with brown mastic
Bathroom – Office 1	Tan cove base with yellow mastic
Meeting room hallway – Office 1	Brown wall base sealant
Exterior	Exterior window caulking
Electrical room	Pink wall insulation
Interior - second level storage area	Wall VBP
Shed - roof	Asphalt roofing shingles and VBP
Shed - interior	Sprayed on yellow foam insulation

Note: This table is not to be used without the complete survey document including appendices for additional information.

Lead-Based Paint Summary

Lead was commonly used in most paint products until 1978, when it was banned from residential paints at concentrations greater than 600 parts per million (ppm) and then reduced to 90 ppm in 2012; however, commercial applications with lead are still utilized and available. Lead is poisonous to the human body and presents a potential health hazard during any kind of disturbance (such as maintenance, including grinding,

welding, and cutting) and if improperly disposed, where lead can enter drinking water supplies.

EPA defines LBP as a concentration of 1.0 milligrams per square centimeter (mg/cm2) or greater by x-ray fluorescence (XRF) or 0.5 percent in weight (% wt.) or greater by total lead analysis; equivalent to 5,000 milligrams per kilogram (mg/kg). This EPA action level triggers requirements for protection of the environment, maintenance workers, and building occupants in child occupied facilities as defined by 40 CFR 745. Additionally, building components exceeding EPA lead levels may cause demolition waste streams to fail waste designation sampling performed for compliance with WAC 173-303 Dangerous Waste Regulations.

Washington Department of Occupational Safety and Health (DOSH) worker protection regulations have not defined a minimum concentration for regulating lead and has clarified that lead at any detectable concentration shall be considered regulated by WAC 296-155-176, Lead. Paint sample results can be expressed in mg/kg (same as ppm), % wt. or mg/cm2 by area depending on the type of analytical method used. Any positive result, regardless of the reporting method by the laboratory, will require compliance with WAC 296-155-176.

Lead in Painted Surfaces

Interior painted surfaces were tested for lead content using bulk sample collection and chemical analysis. A total of nine paint chip samples were collected. Analytical results are provided in **Table 3**.

Table 3. Summary of Bulk Paint Chip Sample Results

Sample Number	Location	Component	Substrate	Color	Result (ppm)
Totem Lake Retail					
8808.2-EJ-01Pb	Entry way; S wall	Wall	GWB	Beige	<94
8808.2-EJ-02Pb	Office 2; W wall	Wall	GWB	Green	<91
8808.2-EJ-03Pb	Custodial closet; S wall	Wall	GWB	White	<96
8808.2-EJ-04Pb	Entry way; W wall	Siding	Wood	Brown	<85
8808.2-EJ-05Pb	Entry way; N wall	Siding	Wood	Gray	<91
8808.2-EJ-06Pb	Entry way – 2nd level; N wall	Siding	Wood	Tan	<86
Exterior					
8808.2-EJ-07Pb	E Wall	Window	Wood	White	<82
8808.2-EJ-08Pb	W wall	Siding	Wood	Red	<88
8808.2-EJ-09Pb	Door frame	Trim	Wood	Dark Red	<89

ppm = parts per million. Note: This table is not to be used without the complete survey document including appendices for additional information.

Waste Designation Survey

Construction waste or demolition debris expected as a result of 8808.2 consists of most of the building materials due to limited recycling value for the type of construction. Due to no Pb, toxicity characteristic leaching procedure (TCLP) samples were not collected.

All nine samples analyzed were determined to contain lead less than the detection limit of the analytical method. Based on these results, the demolition waste from the building can be disposed of as general construction debris.

Other Hazardous Building Materials

Chlorofluorocarbons

MTNW inspected the building for cooling systems with potential chlorofluorocarbons (CFCs); none were observed.

PCB Light Ballasts and Fluorescent Light Tubes

Older fluorescent light ballasts have small capacitors that may contain high concentrations of PCBs. Nearly all ballasts manufactured before 1979 contain PCBs. All ballasts manufactured after July 1, 1978 that do not contain PCBs are required to be clearly marked "No PCBs". Unmarked ballasts or ballasts without a date code should be assumed to be PCB ballasts. PCBs are toxic chemicals according to the EPA. While there is only a small amount, about one ounce, of PCBs in each light ballast capacitor, there are a large number of ballasts in the United States. A "No PCB" label means there are less than 50 ppm PCBs; however, in the state of Washington, PCB in oils are regulated at 2 ppm (WAC 173-303-9904).

There were fluorescent light fixtures observed at 8808.2. Smoke detectors may be regulated as universal or hazardous waste and will require dismantling and special handling. **Table 4** provides a summary of these items in the building:

Table 4. Summary of Fluorescent Lights and Smoke Detectors

Location	4-foot, 4-bulb	4-foot, 2-bulb	4-foot, 1-bulb	Exit signs	Door closers	Smoke Detectors
Throughout	6	54	32	7	8	25
Total	**6**	**54**	**32**	**7**	**8**	**25**

Note: This table is not to be used without the complete survey document including appendices for additional information.

Typically, there is one ballast for every two-light tubes in a fluorescent light fixture; accordingly, there are approximately two ballasts in the light fixture requiring recycling or PCB hazardous waste disposal. There are also four four-foot tubes that will need to be recycled during demolition along individual 4-foot tubes.

PCB in Caulking and Paint

PCBs were used in paint and caulk formulations as drying oils (resins) and plasticizers or softening agents (liquids). Concrete surfaces and equipment, as well as marine or waterproofing applications may have painted surfaces containing PCBs.

PCBs were tested in representative caulking and paint on the exterior of 12031. **Table 6** below provides a summary of PCB sample results.

Table 6. Summary of PCB Sample Results.

Sample Number	Location	Material	Result (mg/kg*)
Totem Lake Retail			
8808.2-EJ-01PCB	Exterior north window	Window caulk	None Detected
8808.2-EJ-02PCB	West exterior wall	CMU	None Detected
8808.2-EJ-03PCB	Exterior north wall	Red paint	None Detected
8808.2-EJ-04PCB	Exterior door frame	Dark Red paint	None Detected

Note: Do not use this table without the complete survey document.

Mercury Containing Switches

Heating system thermostats were investigated for mercury containing systems. All the thermostats observed were electric.

Laboratory Analytical Methods

Asbestos-Containing Materials

Bulk samples were analyzed by Polarized Light Microscopy (PLM) dispersion staining EPA Method 600/R-93/116 and by 400 Point Count Analysis by Seattle Asbestos Test (SAT). SAT is accredited through the National Voluntary Laboratory Accreditation Program (NVLAP) of the U.S. Department of Commerce. This accreditation does not constitute endorsement, but rather a finding of laboratory competence. The NVLAP participant number for SAT is 200768-0 (certification copies are in **Appendix D**). Analytical results are in **Appendix E**.

Lead-Based Paint

Bulk paint chip samples were submitted to EMSL Analytical, Inc. for analysis using atomic absorption spectroscopy (AAS) to determine the presence and percentage of lead. Procedures for analyzing metals are found in the American Society of Testing and Materials (ASTM) D-3335-78 and EPA Method Manual SW-846, Method 6010. EMSL used SW 846-7000B, an equivalent analytical method.

Analytical results for paint chip results are provided in **Appendix F**. EMSL Analytical, Inc., laboratory certification is attached in **Appendix G**.

Sample and material location drawings are provided in **Appendix I**.

PCB

Bulk PCB samples were submitted to On-Site Environmental, Inc., for analysis using gas chromatography (GC) equipped with electron capture detectors (ECD). The samples were analyzed using EPA Method SW-846 8082A and the analytical results are provided in **Appendix H**. On-Site Environmental, Inc. laboratory certification is attached in **Appendix I**.

Sample and material location drawings are provided in **Appendix J**.

Comments and Recommendations

Asbestos-Containing Materials

MTNW recommends that this survey report be placed on-site during renovation and/or demolition and copies provided to the contractor(s) bidding and performing work. Washington Industrial Safety and Health Act (WISHA), OSHA and PSCAA require that the report be on-site and available for review during the entire project duration.

No materials containing asbestos content were found during the survey. The building was occupied at the time of the survey. A limited destructive investigation was conducted during the survey; however, additional destructive investigation will be required prior to demolition.

1. Electrical systems were not sampled due to power being live. Sample and verify that asbestos is not present prior to building demolition.
2. The doors to the structure did not appear to be fire doors with suspect asbestos content. Prior to any activity that will impact the doors, drill into the doors and door frames to determine if suspect fire protection is located inside.
3. Perform destructive investigation inside wall and ceiling cavities to verify suspect asbestos is not hidden or present prior to demolition.
4. Perform destructive investigation to verify if additional layers of flooring suspected of containing asbestos are not hidden or present prior to demolition.
5. If during demolition, pipe or pipe fitting insulation suspected of containing ACM is made visible, the material(s) must be sampled by an AHERA building inspector prior to being disturbed.

WAC 296-65 requires ACM be removed by trained and licensed contractors using certified asbestos abatement workers and supervisors (except for deregulated roofing sealants, mastics, and coatings). A 10-day prior notification is also required before abatement can begin. In addition, PSCAA requires notification and fees prior to beginning removal of friable ACM.

If additional destructive investigations uncover asbestos-containing materials, MTNW recommends third party oversight of asbestos abatement and renovation activities by an AHERA accredited building inspector to ensure regulatory compliance and completion of the additional destructive methods recommended herein.

Lead-Based Paint

Lead in painted surfaces were not detected in this building. All samples were analyzed to contain lead less than the detection of the analytical method and based on these results, the demolition waste from the building can be disposed of as general construction debris.

PCB

There were no PCB's detected in the bulk samples collected. MTNW recommends that the asbestos abatement contractor be tasked with dismantling light fixtures, collecting all lighting ballasts for proper disposal, and recycling the light tubes. Ballasts without "No-PCB" labels are considered PCB-containing and must be disposed as a hazardous waste. "No-PCB" and Di (2-ethylhexyl) phthalate (DEHP) ballasts may designate as Washington Dangerous Waste and should be sent to an EPA licensed facility for proper disposal.

Other Hazardous Building Materials

Smoke detectors should be collected and recycled/disposed of appropriately.

Limitations

A good faith effort has been made to identify ACM, LBP and other HBM in preparation for building demolition. This survey was performed for complete demolition of the building. Additional destructive investigation and sampling will be required depending on inaccessible building systems including mechanical spaces and/or mechanical/electrical system routing.

Sampling was performed consistent with the level of care and skill ordinarily exercised by professionals currently practicing under similar conditions in the area. No other warranty, expressed or implied, is made.

This report has been prepared for the exclusive use of O'Neill Service Group and it designates for this project only. The analyses, conclusions, and recommendations presented in this report are based on conditions encountered at the time of our survey and our experience and judgment. MTNW cannot be held responsible for interpretation by others of the data contained in this report; any use of this report shall include the entire document. This survey is not intended for use as abatement plans and/or specifications which MTNW recommends for regulatory compliance.

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Appendix A
AHERA Building Inspector and WDOC Lead Inspector/Risk Assessor Certificates

Certificate Of Completion

Asbestos Building Inspector Refresher Course

DOSH #:CA-015-06

Jon Havelock

ABIR0907180004N15667

Paul Semper

Principal Instructor

Michael W. Horner

Michael W. Horner
Training Director

9/7/2018	9/7/2018	9/7/2018	9/7/2019
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

NATEC International, Inc.

National Association of Training and Environmental Consulting

1100 Technology Circle- Suite A, Anaheim, CA 92805 • www.natecintl.com • 800-969-3228

Important Industry Contacts

CAL-OSHA: Ph# (916) 574-2993
(916) 483-0572 Fax Notification
Web: www.dir.ca.gov or calosha.com

CDPH/CLPPB: Ph# (510) 620-5600
Web: www.cdph.ca.gov/programs/CLPPB

SCAQMD: Ph# (909) 396-3739
Fax#(909) 396-3342

BAAQMD: Ph# (415) 749-4762

NATEC International, Inc.

National Association of Training and Environmental Consulting

Anaheim, CA • Oakland, CA • Fresno, CA • Sacramento, CA

Asbestos • Lead • Mold • HAZWOPER

P.O. Box 25205 Anaheim, CA 92825-5205

(714) 678-2750, (800) 969-3228, Fax (714) 678-2757

www.natecintl.com

NATEC International, Inc.

National Association of Training and Environmental Consulting

*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Jon Havelock

Holds Training Certification For
Asbestos Building Inspector Refresher Course

(Valid for 12 months)

Training Date 9/7/2018
Certificate No. ABIR0907180004N15667

Michael W. Horner
Training Director

STATE OF WASHINGTON

Department of Commerce

Lead-Based Paint Abatement Program

Jon A Havelock

Has fulfilled the certification requirements of
WAC 365-230
and has been certified to conduct lead-based paint activities as a
Risk Assessor New

Certification #	Issuance Date	Expiration Date
0241	01/23/2017	12/03/2019

Certificate of Completion

This is to certify that

Eric T. Jarvis

has satisfactorily completed
24 hours of training as an

AHERA Building Inspector

to comply with the training requirements of
TSCA Title II, 40 CFR 763 (AHERA)

EPA Provider # 1085

169779
Certificate Number

ARGUS PACIFIC
TRAINING • CONSULTING
A Terracon COMPANY

Oct 15 - 17, 2018 Expires in 1 year.
Date(s) of Training

Exam Score: 88%
If appropriate:

Instructor

ARGUS PACIFIC, INC / 21905 64th AVE W, SUITE 100 / MOUNTLAKE TERRACE, WASHINGTON 98043 / 206.285.3373 / ARGUSPACIFIC.COM

Certificate of Completion

This is to certify that

Jason S. Carlson

has satisfactorily completed
4 hours of refresher training as an

AHERA Building Inspector

to comply with the training requirements of
TSCA Title II, 40 CFR 763 (AHERA)

EPA Provider # 1085

169363
Certificate Number

ARGUS PACIFIC
TRAINING • CONSULTING
A Terracon COMPANY

Sep 12, 2018 Expires in 1 year.
Date(s) of Training

Exam Score: N/A
If appropriate:

Instructor

ARGUS PACIFIC, INC / 1900 WEST NICKERSON ST, SUITE 315 / SEATTLE, WASHINGTON 98119 / 206.285.3373 / ARGUSPACIFIC.COM

Appendix B
Building and Building System Photographic Documentation

Photo 1: West side of 8808.2 looking east.

Photo 2: Northwest corner of building looking east.

Photo 3: Northeast corner of building looking southwest. Wood deck patio area enclosed by a wood fence. Windows at 88008.2 have rebar over the windows internally for security purposes.

Photo 4: East side-south end of building looking west. A detached shed is located east of the building. The area is fenced off with the same metal siding that is found on the main structure.

Photo 5: Southwest corner of the building looking northeast.

Photo 6: View of entry area looking east. Office 1 is to the right and Office 2 straight ahead. To the left are the restrooms, janitors closet, and entry area office.

Photo 7: View of upper storage area in entry area facing west. The previous tenants built miniature store fronts along the upper level for decorative purposes.

Photo 8: Men's restroom looking northwest. The women's restroom is composed of the same building materials.

Photo 9: Office 1 – Main office area looking south.

Photo 10: Looking east into the long meeting room of Office 1 from the south end of the main office area.

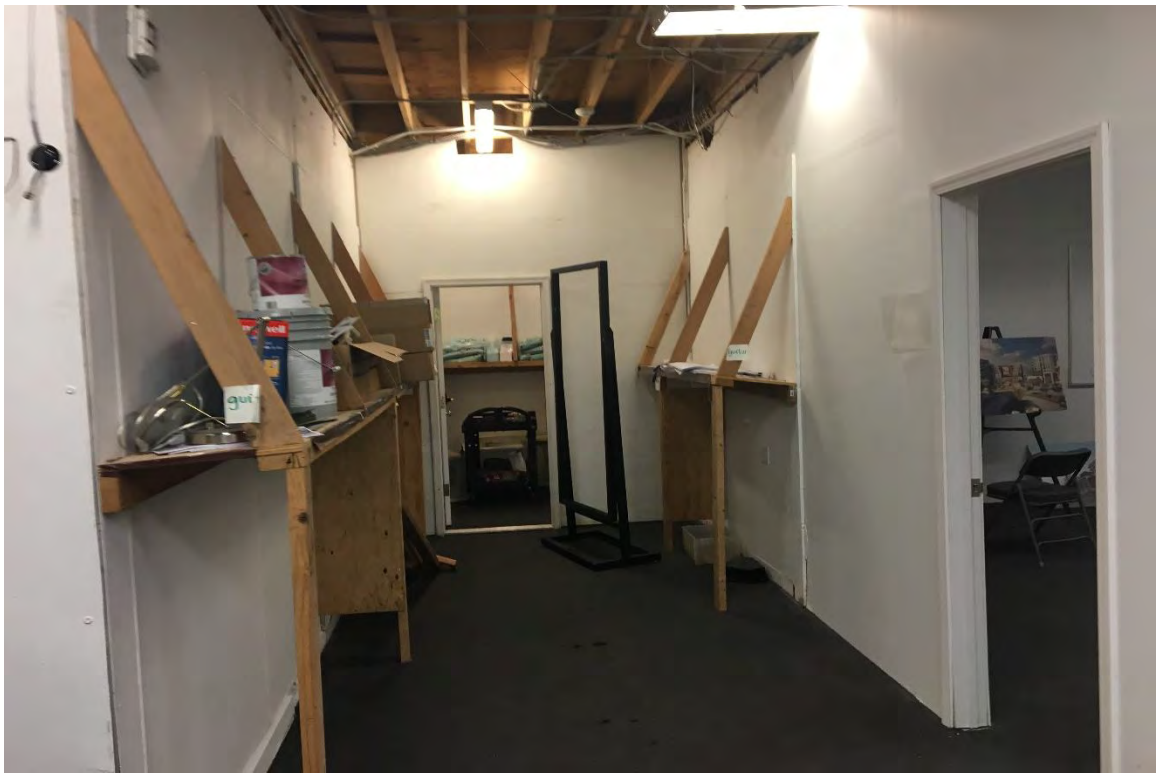

Photo 11: From the north end of the long meeting room looking east down the conference room hallway. To the right is the conference room, straight ahead is a storage closet.

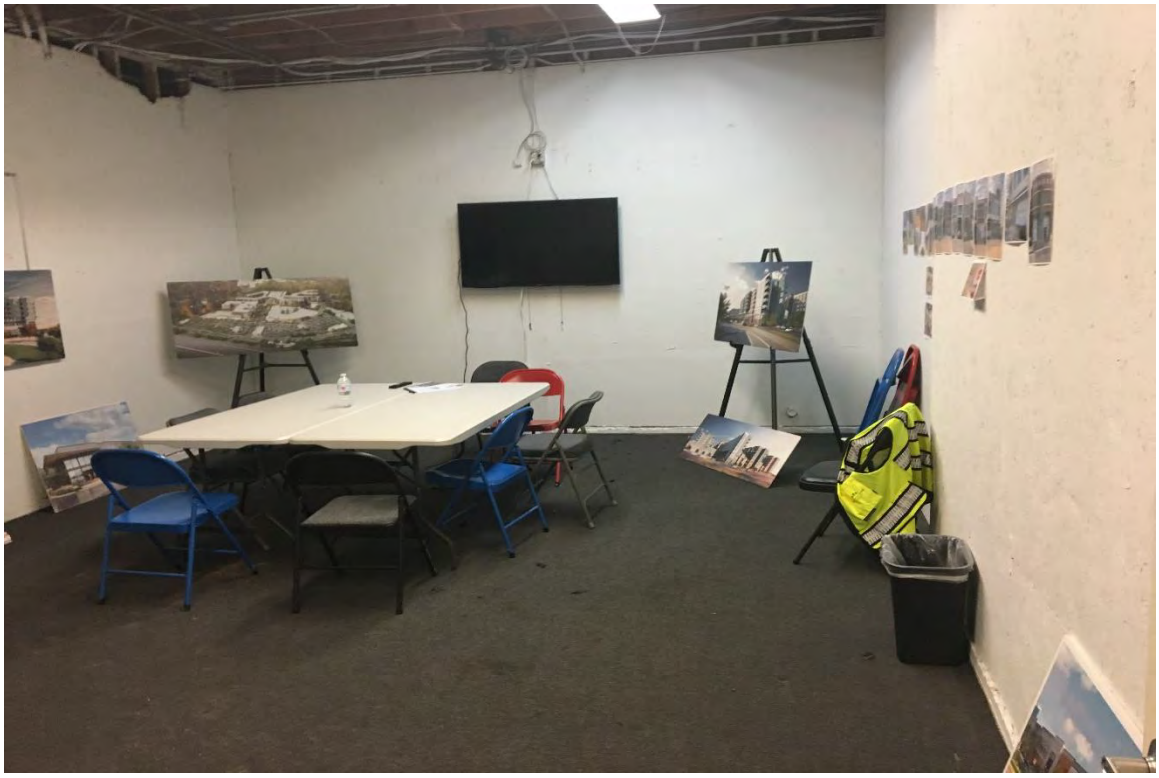

Photo 12: North end of conference room facing south.

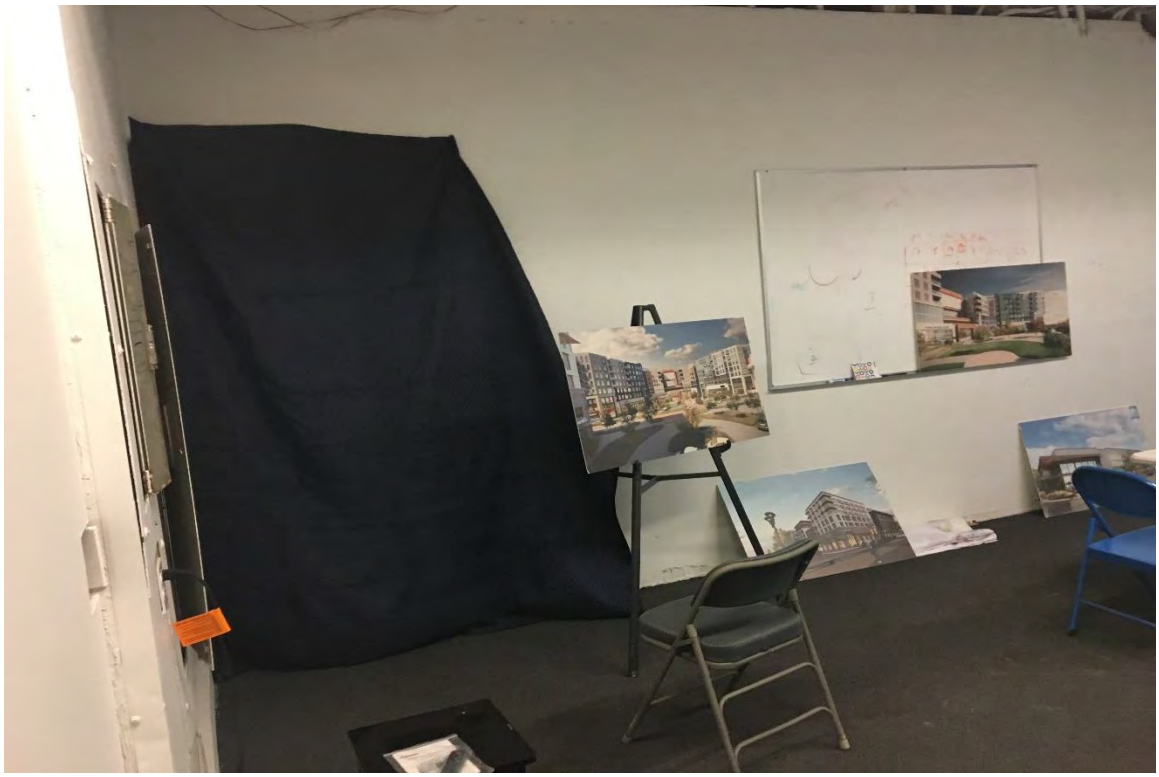

Photo 13. North end of conference room looking east. The blanket on the wall is used to cover the door way that leads to the electrical room and the exit for the storage shed.

Photo 14. North end of electric room hallway facing south towards the electrical room.

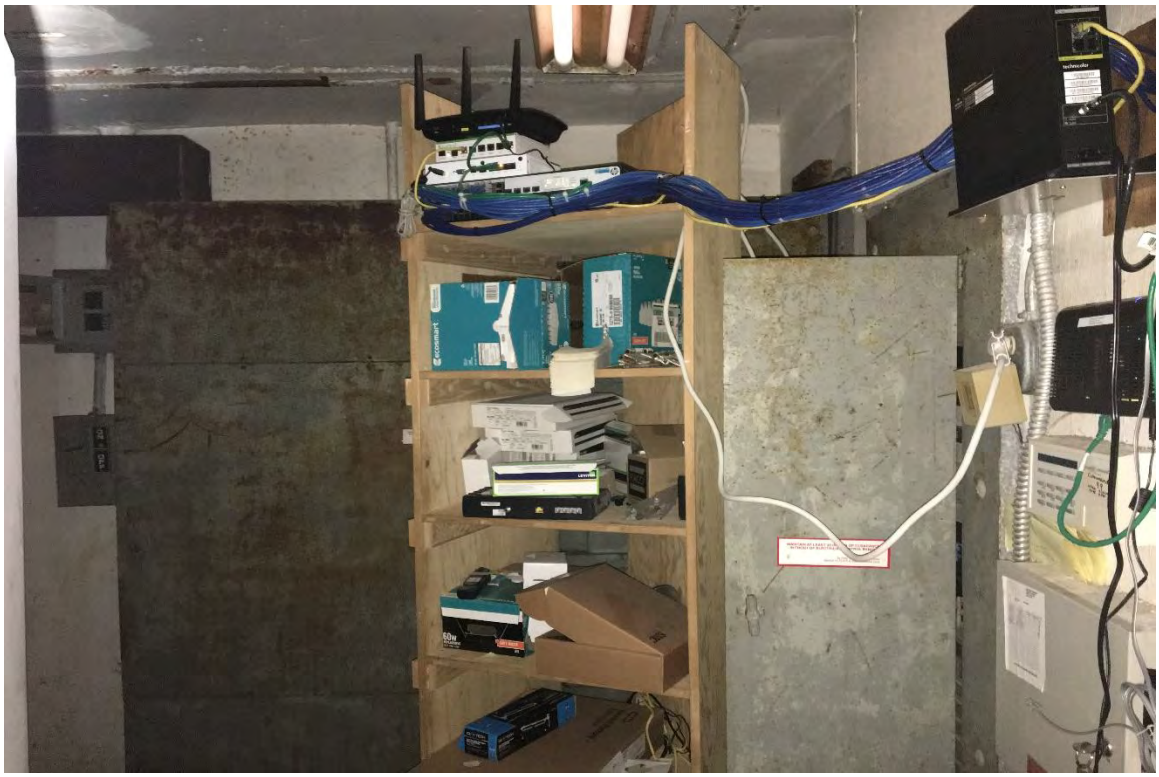

Photo 15. Electric room facing south.

Photo 16. Looking east from the door of the east office space in Office 1.

Photo 17. West side of Office 2 at entrance looking northeast.

Photo 18. West side of Office 2 at entrance looking southeast.

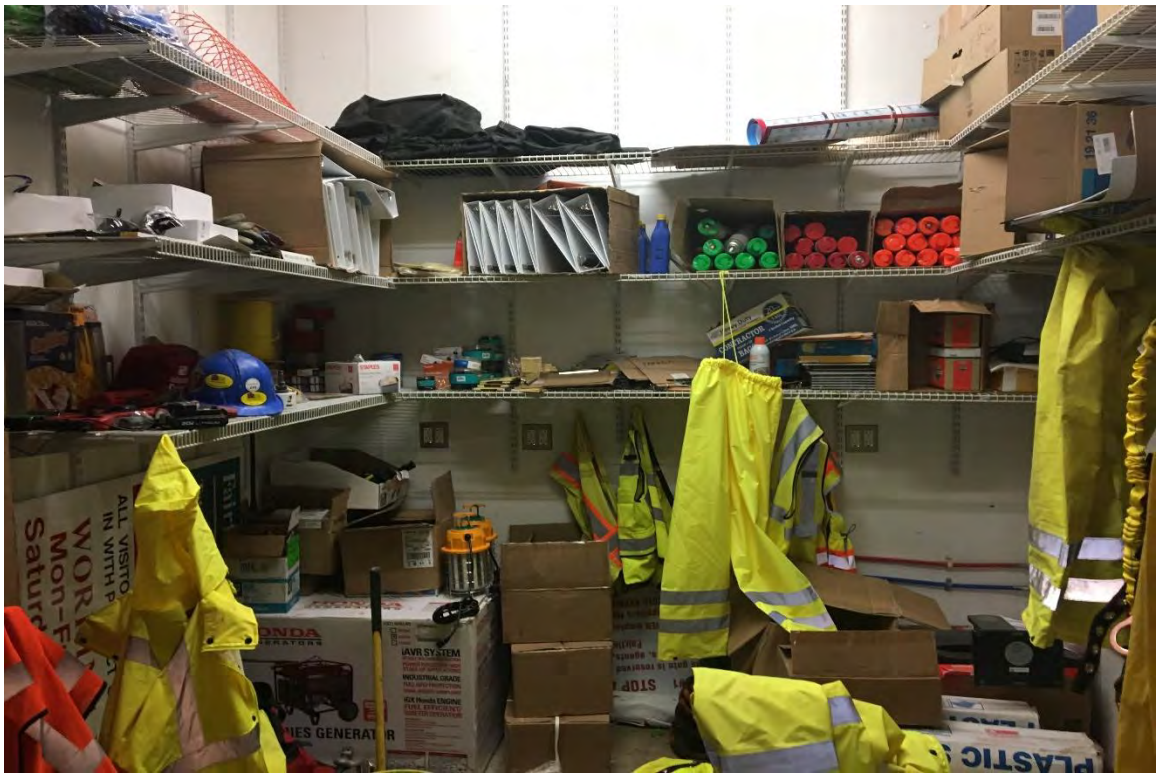

Photo 19. Southeast storage closet of Office 2.

Photo 20. North end top view of Office 2 from upper storage area facing south.

Photo 21. Upper storage area of entry way facing west.

Photo 22. Upper storage area northwest corner perimeter wall .

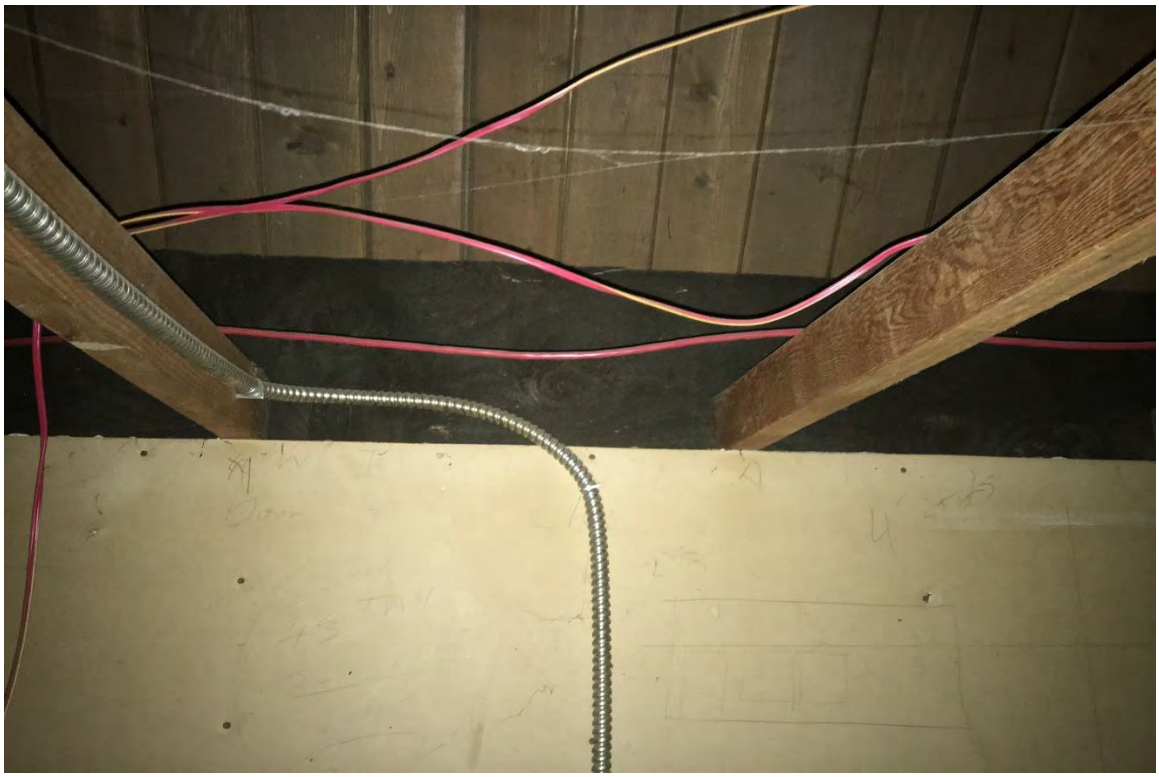

Photo 23. Storage area north wall above Office 2.

Photo 24. North of detached shed facing south.

Photo 25. South door of shed with yellow sprayed on foam insulation.

Photo 26. South door way of shed facing southeast. Yellow foam insulation covers the interior walls and ceiling of the shed.

Photo 27. South doorway of shed facing north.

Photo 28. Southeast corner of shed, floors of the shed are bare concrete.

Appendix C
Summary of Materials Sampled for Asbestos

Table C-1. Summary of Materials Sampled for Asbestos

Sample	Material	Location	AHERA Type	HM	Result
Totem Lake Retail					
8808.2-EJ-001	Heavy Troweled Textured GWB system	Entry Way; S wall, W side	Surfacing	01	None Detected
8808.2-EJ-002	Heavy Troweled Textured GWB system	Entry way; S wall, E side	Surfacing	01	None Detected
8808.2-EJ-003	Heavy Troweled Textured GWB system	Office 1 – E Side Main Office, S wall	Surfacing	01	None Detected
8808.2-EJ-004	Heavy Troweled Textured GWB system	Office 1 – Main Office; W wall, center	Surfacing	01	None Detected
8808.2-EJ-005	Heavy Troweled Textured GWB system	Office 1 – Main Office, NE corner	Surfacing	01	None Detected
8808.2-EJ-006	Heavy Troweled Textured GWB system	Office 1 – W Side Main Office, E wall	Surfacing	01	None Detected
8808.2-EJ-007	Heavy Troweled Textured GWB system	Office 2; E wall	Surfacing	01	None Detected
8808.2-EJ-008	Heavy Troweled Textured GWB system	Office 2; W wall, NW corner	Surfacing	01	None Detected
8808.2-EJ-009	Heavy Troweled Textured GWB system	Office 2; S wall, center	Surfacing	01	None Detected
8808.2-EJ-010	Untextured GWB system	Entry way; S Wall	Surfacing	02	None Detected
8808.2-EJ-011	Untextured GWB system	Entry way, SE corner	Surfacing	02	None Detected
8808.2-EJ-012	Untextured GWB system	Office 1 – Main Office; N wall, center	Surfacing	02	None Detected
8808.2-EJ-013	Untextured GWB system	Office 1 – Main Office, N wall, NE corner	Surfacing	02	None Detected
8808.2-EJ-014	Untextured GWB system	Office 1 – W side Main Office; S wall	Surfacing	02	None Detected
8808.2-EJ-015	Orange peel textured GWB system	Office 1 – Conference room; N wall	Surfacing	03	None Detected
8808.2-EJ-016	Orange peel textured GWB system	Women's restroom; SW corner	Surfacing	03	None Detected

Sample	Material	Location	AHERA Type	HM	Result
8808.2-EJ-017	Orange peel textured GWB system	Men's restroom; SW corner	Surfacing	03	None Detected
8808.2-EJ-018	Orange peel textured GWB system	Entry way Office; N wall	Surfacing	03	None Detected
8808.2-EJ-019	Orange peel textured GWB system	Entry way Office; SW corner	Surfacing	03	None Detected
8808.2-EJ-020	Orange peel textured GWB system	Custodial closet; E wall	Surfacing	03	None Detected
8808.2-EJ-021	Orange peel textured GWB system	Custodial closet; N wall	Surfacing	03	None Detected
8808.2-EJ-022	White Textured Plastic Wall Board with Yellow mastic	Meeting room; NW wall.	Misc.	04	None Detected
8808.2-EJ-023	White Textured Plastic Wall Board with Yellow mastic	Meeting room; NW wall.	Misc.	04	None Detected
8808.2-EJ-024	White Textured Plastic Wall Board with Orange mastic	Meeting room hallway; N wall	Misc.	05	None Detected
8808.2-EJ-025	White Textured Plastic Wall Board with Orange mastic	Meeting room hallway; N wall	Misc.	05	None Detected
8808.2-EJ-026	White Textured Plastic Wall Board with brown mastic	Meeting room; NW corner, E wall.	Misc.	06	None Detected
8808.2-EJ-027	White Textured Plastic Wall Board with brown mastic	Meeting room; NW corner, E wall.	Misc.	06	None Detected
8808.2-EJ-028	3-inch brown wall tile with grout	Men's Restroom; NW corner	Misc.	07	None Detected
8808.2-EJ-029	3-inch brown wall tile with grout	Men's restroom; N wall	Misc.	07	None Detected
8808.2-EJ-030	3-inch brown wall tile with yellow mastic and green mastic	Men's Restroom; NW corner	Misc.	08	None Detected
8808.2-EJ-031	3-inch brown wall tile with yellow mastic and green mastic	Men's restroom; N wall	Misc.	08	None Detected
8808.2-EJ-032	6-inch red floor tile with grout	Men's restroom	Misc.	09	None Detected
8808.2-EJ-033	6-inch red floor tile with grout	Office 2; S wall	Misc.	09	None Detected
8808.2-EJ-034	Dark gray and red carpet with yellow mastic	Office 2; E wall	Misc.	10	None Detected

Sample	Material	Location	AHERA Type	HM	Result
8808.2-EJ-035	Dark gray and red carpet with yellow mastic	Office 1; E wall	Misc.	10	None Detected
8808.2-EJ-036	Dark gray and red carpet with yellow mastic	Entry way, between restrooms	Misc.	10	None Detected
8808.2-EJ-037	Blue and gray carpet with yellow mastic	Office 2; E wall	Misc.	11	None Detected
8808.2-EJ-038	Blue and gray carpet with yellow mastic	Office 1 – Conference room, W wall	Misc.	11	None Detected
8808.2-EJ-039	Blue and gray carpet with yellow mastic	Entry way; NW corner	Misc.	11	None Detected
8808.2-EJ-040	Wood square floor tile with white mastic and grout	Office 1 – Main office; N wall, W of door	Misc.	12	None Detected
8808.2-EJ-041	Wood square floor tile with white mastic and grout	Office 1 – Main office; N wall, W of door	Misc.	12	None Detected
8808.2-EJ-042	Wood square floor tile with dark yellow mastic	Office 2; N wall	Misc.	13	None Detected
8808.2-EJ-043	Wood square floor tile with dark yellow mastic	Office 2; N wall	Misc.	13	None Detected
8808.2-EJ-044	12-inch green and yellow SVT with yellow mastic	Office 1 – Main office, W wall under dark gray and red carpet	Misc.	14	None Detected
8808.2-EJ-045	12-inch green and yellow SVT with yellow mastic	Office 1 – Main office, W wall under dark gray and red carpet	Misc.	14	None Detected
8808.2-EJ-046	6-inch brown and white square pattern SVF with brown binder	Electric room hallway	Misc.	15	None Detected
8808.2-EJ-047	6-inch brown and white square pattern SVF with brown binder	Electric room hallway	Misc.	15	None Detected
8808.2-EJ-048	6-inch brown and white square pattern SVF with brown binder	Electric room hallway	Misc.	15	None Detected
8808.2-EJ-049	Red brick with white paint wall base with grout	Office 1 – Meeting room; NW corner	Misc.	16	None Detected

Sample	Material	Location	AHERA Type	HM	Result
8808.2-EJ-050	Red brick with white paint wall base with grout	Office 1 – Meeting room; N wall	Misc.	16	None Detected
8808.2-EJ-051	Gray wall base grout with white paint	Office 1 – Conference room; S wall	Misc.	17	None Detected
8808.2-EJ-052	Gray wall base grout with white paint	Office 1 – Conference room; E wall	Misc.	17	None Detected
8808.2-EJ-053	Black vinyl cove base with yellow mastic	Entry way office; SW corner	Misc.	18	None Detected
8808.2-EJ-054	Black vinyl cove base with yellow mastic	Entry way office; S wall	Misc.	18	None Detected
8808.2-EJ-055	Gray vinyl cove base with brown mastic	Office 2; SE corner	Misc.	19	None Detected
8808.2-EJ-056	Gray vinyl cove base with brown mastic	Office 2; E wall	Misc.	19	None Detected
8808.2-EJ-057	Tan cove base with yellow mastic	SE restroom; N wall	Misc.	20	None Detected
8808.2-EJ-058	Tan cove base with yellow mastic	SE restroom; NW corner	Misc.	20	None Detected
8808.2-EJ-059	Brown wall base sealant	Office 1 – Meeting room hallway; N wall	Misc.	21	None Detected
8808.2-EJ-060	Brown wall base sealant	Office 1 – Meeting room hallway; N wall	Misc.	21	None Detected
8808.2-EJ-061	Exterior window caulking	E side of building	Misc.	22	None Detected
8808.2-EJ-062	Exterior window caulking	E side of building	Misc.	22	None Detected
8808.2-EJ-063	Exterior window caulking	W side of building	Misc.	22	None Detected
8808.2-EJ-064	Wall insulation	Electrical room; E wall	Misc.	23	None Detected
8808.2-EJ-065	Wall insulation	Electrical room; E wall	Misc.	23	None Detected
8808.2-EJ-066	Wall insulation	Electrical room; E wall	Misc.	23	None Detected
8808.2-EJ-067	Wall VBP	Entry way; W wall above entrance	Misc.	24	None Detected
8808.2-EJ-068	Wall VBP	Entry way; NW corner above restrooms	Misc.	24	None Detected
8808.2-EJ-069	Wall VBP	Entry way; W wall	Misc.	24	None Detected
8808.2-EJ-070	Asphalt roof shingles and VBP	Shed; N end	Misc.	25	None Detected
8808.2-EJ-071	Asphalt roof shingles and VBP	Shed; S end	Misc.	25	None Detected
8808.2-EJ-072	Asphalt roof shingles and VBP	Shed; W side	Misc.	25	None Detected

Sample	Material	Location	AHERA Type	HM	Result
8808.2-EJ-073	Sprayed on yellow insulation	Shed; Ceiling	Surfacing	26	None Detected
8808.2-EJ-074	Sprayed on yellow insulation	Shed; W wall	Surfacing	26	None Detected
8808.2-EJ-075	Sprayed on yellow insulation	Shed; S door	Surfacing	26	None Detected
8808.2-EJ-076	Orange peel textured GWB system	SE restroom; N wall	Surfacing	03	None Detected

CHR = Chrysotile asbestos, E = East, GWB = gypsum wallboard, HM = homogeneous material, Misc. = miscellaneous, N = north, S = south, SE = southeast, SVF = sheet vinyl flooring, SW = southwest, TSI = thermal system insulation, TVF = tile vinyl flooring, VBP = vapor barrier paper, W = west.

Appendix D
SAT National Voluntary Laboratory Accreditation Program Certificate

United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 200768-0

Seattle Asbestos Test, LLC

Lynnwood, WA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2018-10-01 through 2019-09-30

Effective Dates

For the National Voluntary Laboratory Accreditation Program

Appendix E
Analytical Reports- Asbestos

SEATTLE ASBESTOS TEST, LLC
19711 Scriber Lake Rd. Suite D, Lynnwood, WA 98036
Tel: (425) 673-9850, Fax: (425) 673-9810 Website: seattleasbestostest.com

BATCH # 201813507

CHAIN OF CUSTODY

Analysis Type: Bulk Analysis X Point Count 400 ___ Point Count 1000 ___ Point Count Gravimetric ___

Turn Around Time 5 Day Number of Samples 76 Client Job # **8808.2**

Client Name **Med-Tox Northwest**

Address **Post Office Box 1446** City **Auburn** State **WA** Zip **98071-1446**

Phone **253-351-0677** Fax **253-351-0688** Email **havelockj@medtoxnw.com**

Project Location 12031 Northeast Totem Lake Way, Kirkland WA Project Manager Jon Havelock

Sample Condition: Good_____ Damaged_____ Severe Damage(Spillage)_____

SEQ#	SAMPLE ID	SAMPLE DESCRIPTION	Lab ID	Comment	A/R
1	8808.2-EJ-001				
2	Through				
3	8808.2- EJ-076				
4					
5					
6					
7		SEE ATTACHED TABLE			
8					
9					
10					
11					
12					
13					
14					
15					

	Print	Signature	Company Name	Date	Time
Sampled by	**Eric Jarvis**		**Med-Tox Northwest**	11/14/18	1400
Relinquished by	**Eric Jarvis**		**Med-Tox Northwest**	11/20/18	1300
Delivered by					
Received by	Sherlan Ma		SAT	11/21	9:50
Analyzed by	Curtis Yee	Curtis Yee	SAT	11/26/18	9:45
Result reported by					

Seattle Asbestos Test warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted, and disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. Seattle Asbestos Test accepts no legal responsibility for the purpose for which the client uses test results. By signing on this form, the clients agree to relieve Seattle Asbestos Test of any liability that may arise from the test results. Late payment may be charged of interest, invoices goes to collection causes 17-25% of collection fee. NSF is $50.

Result Reporting method: Phone_____, Fax_____, Email X, Pick Up Report_____

Table C-1. Summary of Materials Sampled for Asbestos

Sample	Material	Location	AHERA Type	HM	Result
Totem Lake Retail					
8808.2-EJ-001	Heavy Troweled Textured GWB system	Entry Way; S wall, W side	Surfacing	01	
8808.2-EJ-002	Heavy Troweled Textured GWB system	Entry way; S wall, E side	Surfacing	01	
8808.2-EJ-003	Heavy Troweled Textured GWB system	Office 1 – E Side Main Office, S wall	Surfacing	01	
8808.2-EJ-004	Heavy Troweled Textured GWB system	Office 1 – Main Office; W wall, center	Surfacing	01	
8808.2-EJ-005	Heavy Troweled Textured GWB system	Office 1 – Main Office, NE corner	Surfacing	01	
8808.2-EJ-006	Heavy Troweled Textured GWB system	Office 1 – W Side Main Office, E wall	Surfacing	01	
8808.2-EJ-007	Heavy Troweled Textured GWB system	Office 2; E wall	Surfacing	01	
8808.2-EJ-008	Heavy Troweled Textured GWB system	Office 2; W wall, NW corner	Surfacing	01	
8808.2-EJ-009	Heavy Troweled Textured GWB system	Office 2; S wall, center	Surfacing	01	
8808.2-EJ-010	Untextured GWB system	Entry way; S Wall	Surfacing	02	
8808.2-EJ-011	Untextured GWB system	Entry way, SE corner	Surfacing	02	
8808.2-EJ-012	Untextured GWB system	Office 1 – Main Office; N wall, center	Surfacing	02	
8808.2-EJ-013	Untextured GWB system	Office 1 – Main Office, N wall, NE corner	Surfacing	02	
8808.2-EJ-014	Untextured GWB system	Office 1 – W side Main Office; S wall	Surfacing	02	
8808.2-EJ-015	Orange peel textured GWB system	Office 1 – Conference room; N wall	Surfacing	03	
8808.2-EJ-016	Orange peel textured GWB system	Women's restroom; SW corner	Surfacing	03	

Sample	Material	Location	AHERA Type	HM	Result
8808.2-EJ-017	Orange peel textured GWB system	Men's restroom; SW corner	Surfacing	03	
8808.2-EJ-018	Orange peel textured GWB system	Entry way Office; N wall	Surfacing	03	
8808.2-EJ-019	Orange peel textured GWB system	Entry way Office; SW corner	Surfacing	03	
8808.2-EJ-020	Orange peel textured GWB system	Custodial closet; E wall	Surfacing	03	
8808.2-EJ-021	Orange peel textured GWB system	Custodial closet; N wall	Surfacing	03	
8808.2-EJ-022	White Textured Plastic Wall Board with Yellow mastic	Meeting room; NW wall.	Misc.	04	
8808.2-EJ-023	White Textured Plastic Wall Board with Yellow mastic	Meeting room; NW wall.	Misc.	04	
8808.2-EJ-024	White Textured Plastic Wall Board with Orange mastic	Meeting room hallway; N wall	Misc.	05	
8808.2-EJ-025	White Textured Plastic Wall Board with Orange mastic	Meeting room hallway; N wall	Misc.	05	
8808.2-EJ-026	White Textured Plastic Wall Board with brown mastic	Meeting room; NW corner, E wall.	Misc.	06	
8808.2-EJ-027	White Textured Plastic Wall Board with brown mastic	Meeting room; NW corner, E wall.	Misc.	06	
8808.2-EJ-028	3-inch brown wall tile with grout	Men's Restroom; NW corner	Misc.	07	
8808.2-EJ-029	3-inch brown wall tile with grout	Men's restroom; N wall	Misc.	07	
8808.2-EJ-030	3-inch brown wall tile with yellow mastic and green mastic	Men's Restroom; NW corner	Misc.	08	
8808.2-EJ-031	3-inch brown wall tile with yellow mastic and green mastic	Men's restroom; N wall	Misc.	08	
8808.2-EJ-032	6-inch red floor tile with grout	Men's restroom	Misc.	09	
8808.2-EJ-033	6-inch red floor tile with grout	Office 2; S wall	Misc.	09	

Sample	Material	Location	AHERA Type	HM	Result
8808.2-EJ-034	Dark gray and red carpet with yellow mastic	Office 2; E wall	Misc.	10	
8808.2-EJ-035	Dark gray and red carpet with yellow mastic	Office 1; E wall	Misc.	10	
8808.2-EJ-036	Dark gray and red carpet with yellow mastic	Entry way, between restrooms	Misc.	10	
8808.2-EJ-037	Blue and gray carpet with yellow mastic	Office 2; E wall	Misc.	11	
8808.2-EJ-038	Blue and gray carpet with yellow mastic	Office 1 – Conference room, W wall	Misc.	11	
8808.2-EJ-039	Blue and gray carpet with yellow mastic	Entry way; NW corner	Misc.	11	
8808.2-EJ-040	Wood square floor tile with white mastic and grout	Office 1 – Main office; N wall, W of door	Misc.	12	
8808.2-EJ-041	Wood square floor tile with white mastic and grout	Office 1 – Main office; N wall, W of door	Misc.	12	
8808.2-EJ-042	Wood square floor tile with dark yellow mastic	Office 2; N wall	Misc.	13	
8808.2-EJ-043	Wood square floor tile with dark yellow mastic	Office 2; N wall	Misc.	13	
8808.2-EJ-044	12-inch green and yellow SVT with yellow mastic	Office 1 – Main office, W wall under dark gray and red carpet	Misc.	14	
8808.2-EJ-045	12-inch green and yellow SVT with yellow mastic	Office 1 – Main office, W wall under dark gray and red carpet	Misc.	14	
8808.2-EJ-046	6-inch brown and white square pattern SVF with brown binder	Electric room hallway	Misc.	15	
8808.2-EJ-047	6-inch brown and white square pattern SVF with brown binder	Electric room hallway	Misc.	15	

Sample	Material	Location	AHERA Type	HM	Result
8808.2-EJ-048	6-inch brown and white square pattern SVF with brown binder	Electric room hallway	Misc.	15	
8808.2-EJ-049	Red brick with white paint wall base with grout	Office 1 – Meeting room; NW corner	Misc.	16	
8808.2-EJ-050	Red brick with white paint wall base with grout	Office 1 – Meeting room; N wall	Misc.	16	
8808.2-EJ-051	Gray wall base grout with white paint	Office 1 – Conference room; S wall	Misc.	17	
8808.2-EJ-052	Gray wall base grout with white paint	Office 1 – Conference room; E wall	Misc.	17	
8808.2-EJ-053	Black vinyl cove base with yellow mastic	Entry way office; SW corner	Misc.	18	
8808.2-EJ-054	Black vinyl cove base with yellow mastic	Entry way office; S wall	Misc.	18	
8808.2-EJ-055	Gray vinyl cove base with brown mastic	Office 2; SE corner	Misc.	19	
8808.2-EJ-056	Gray vinyl cove base with brown mastic	Office 2; E wall	Misc.	19	
8808.2-EJ-057	Tan cove base with yellow mastic	SE restroom; N wall	Misc.	20	
8808.2-EJ-058	Tan cove base with yellow mastic	SE restroom; NW corner	Misc.	20	
8808.2-EJ-059	Brown wall base sealant	Office 1 – Meeting room hallway; N wall	Misc.	21	
8808.2-EJ-060	Brown wall base sealant	Office 1 – Meeting room hallway; N wall	Misc.	21	
8808.2-EJ-061	Exterior window caulking	E side of building	Misc.	22	
8808.2-EJ-062	Exterior window caulking	E side of building	Misc.	22	
8808.2-EJ-063	Exterior window caulking	W side of building	Misc.	22	
8808.2-EJ-064	Wall insulation	Electrical room; E wall	Misc.	23	
8808.2-EJ-065	Wall insulation	Electrical room; E wall	Misc.	23	
8808.2-EJ-066	Wall insulation	Electrical room; E wall	Misc.	23	
8808.2-EJ-067	Wall VBP	Entry way; W wall above entrance	Misc.	24	

Sample	Material	Location	AHERA Type	HM	Result
8808.2-EJ-068	Wall VBP	Entry way; NW corner above restrooms	Misc.	24	
8808.2-EJ-069	Wall VBP	Entry way; W wall	Misc.	24	
8808.2-EJ-070	Asphalt roof shingles and VBP	Shed; N end	Misc.	25	
8808.2-EJ-071	Asphalt roof shingles and VBP	Shed; S end	Misc.	25	
8808.2-EJ-072	Asphalt roof shingles and VBP	Shed; W side	Misc.	25	
8808.2-EJ-073	Sprayed on yellow insulation	Shed; Ceiling	Surfacing	26	
8808.2-EJ-074	Sprayed on yellow insulation	Shed; W wall	Surfacing	26	
8808.2-EJ-075	Sprayed on yellow insulation	Shed; S door	Surfacing	26	
8808.2-EJ-076	Orange peel textured GWB system	SE restroom; N wall	Surfacing	03	

CHR = Chrysotile asbestos, E = East, GWB = gypsum wallboard, HM = homogeneous material, Misc. = miscellaneous, N = north, S = south, SE = southeast, SVF = sheet vinyl flooring, SW = southwest, TSI = thermal system insulation, TVF = tile vinyl flooring, VBP = vapor barrier paper, W = west.

SEATTLE ASBESTOS TEST

Lynnwood Laboratory: 19701 Scriber Lake Road, Suite 103, Lynnwood, WA 98036, Tel: 425.673.9850, Fax: 425.673.9810, NVLAP Lab Code: 200768-0

ANALYTICAL LABORATORY REPORT

PLM by Method EPA/600/R-93/116

Attn.: Mr. Jon Havelock
Client: Med-Tox, Northwest
Address: PO Box 1446, Auburn, WA 98071-1446
Job#: 8808.2
Batch#: 201813507
Date Received: 11/21/2018
Samples Rec'd: 76
Date Analyzed: 11/26/2018
Samples Analyzed: 76
Project Loc.: 12031 Northeast Totem Lake Way, Kirkland, WA

Analyzed by: Carolyn Yeo

Reviewed by: Steve (Fanyao) Zhang, President

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-fibrous Components	%	Non-asbestos Fibers
1	8808.2-EJ-001	1	White sandy/brittle material with paint		**None detected**	Sand, Filler, Binder, Paint	3	Cellulose
		2	Off-white powdery material with paper		**None detected**	Binder, Filler	20	Cellulose
2	8808.2-EJ-002	1	White/tan sandy/brittle material with paint		**None detected**	Sand, Filler, Binder, Paint	3	Cellulose
		2	Trace white powdery material with paper		**None detected**	Binder, Filler	16	Cellulose
3	8808.2-EJ-003	1	White sandy/brittle material with paint		**None detected**	Sand, Filler, Binder, Paint	2	Cellulose
4	8808.2-EJ-004	1	Tan sandy/brittle material with paint		**None detected**	Sand, Filler, Binder, Paint	2	Cellulose
		2	Trace off-white chalky material with paper		**None detected**	Binder/filler, Gypsum/binder	24	Cellulose
5	8808.2-EJ-005	1	White powdery material with paint		**None detected**	Binder, Filler, Paint	3	Cellulose
6	8808.2-EJ-006	1	Tan sandy/brittle material with paint		**None detected**	Sand, Filler, Binder, Paint	2	Cellulose
		2	White chalky material with paper		**None detected**	Binder/filler, Gypsum/binder	27	Cellulose
7	8808.2-EJ-007	1	Tan sandy/brittle material with paint		**None detected**	Sand, Filler, Binder, Paint	3	Cellulose
		2	White powdery material with paint and paper		**None detected**	Binder, Filler, Paint	21	Cellulose
		3	Trace white chalky material with paper		**None detected**	Binder/filler, Gypsum/binder	29	Cellulose
8	8808.2-EJ-008	1	Tan sandy/brittle material with paint		**None detected**	Sand, Filler, Binder, Paint	2	Cellulose
9	8808.2-EJ-009	1	White powdery material with paint		**None detected**	Binder, Filler, Paint	3	Cellulose
		2	Brown wood debris		**None detected**	Wood debris	5	Cellulose
10	8808.2-EJ-010	1	White chalky material with paint and paper		**None detected**	Binder/filler, Gypsum/binder	30	Cellulose, Glass fibers
11	8808.2-EJ-011	1	Trace white powdery material with paint and paper		**None detected**	Binder, Filler, Paint	24	Cellulose
		2	White chalky material with paper		**None detected**	Binder/filler, Gypsum/binder	21	Cellulose, Glass fibers
12	8808.2-EJ-012	1	White powdery material with paint and paper		**None detected**	Binder, Filler, Paint	25	Cellulose

SEATTLE ASBESTOS TEST

Lynnwood Laboratory: 19701 Scriber Lake Road, Suite 103, Lynnwood, WA 98036, Tel: 425.673.9850, Fax: 425.673.9810, NVLAP Lab Code: 200768-0

ANALYTICAL LABORATORY REPORT

PLM by Method EPA/600/R-93/116

Attn.: Mr. Jon Havelock
Client: Med-Tox, Northwest
Address: PO Box 1446, Auburn, WA 98071-1446
Job#: 8808.2
Batch#: 201813507
Date Received: 11/21/2018
Samples Rec'd: 76
Date Analyzed: 11/26/2018
Samples Analyzed: 76
Project Loc.: 12031 Northeast Totem Lake Way, Kirkland, WA

Analyzed by: Carolyn Yeo

Reviewed by: Steve (Fanyao) Zhang, President

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-fibrous Components	%	Non-asbestos Fibers
12	8808.2-EJ-012	2	White chalky material with paper		**None detected**	Binder/filler, Gypsum/binder	27	Cellulose, Glass fibers
13	8808.2-EJ-013	1	White chalky material with paint and paper		**None detected**	Binder/filler, Gypsum/binder	30	Cellulose, Glass fibers
14	8808.2-EJ-014	1	White powdery material with paper		**None detected**	Binder, Filler	23	Cellulose
		2	White chalky material with paper		**None detected**	Binder/filler, Gypsum/binder	21	Cellulose, Glass fibers
15	8808.2-EJ-015	1	White powdery material with paint		**None detected**	Binder, Filler, Paint	2	Cellulose
		2	Trace white chalky material with paper		**None detected**	Binder/filler, Gypsum/binder	28	Cellulose
16	8808.2-EJ-016	1	White powdery material with paint and paper		**None detected**	Binder, Filler, Paint	22	Cellulose
		2	White chalky material with paper		**None detected**	Binder/filler, Gypsum/binder	23	Cellulose, Glass fibers
17	8808.2-EJ-017	1	White powdery material with paint and paper		**None detected**	Binder, Filler, Paint	26	Cellulose
		2	White chalky material with paper		**None detected**	Binder/filler, Gypsum/binder	21	Cellulose, Glass fibers
18	8808.2-EJ-018	1	White powdery material with paint and paper		**None detected**	Binder, Filler, Paint	23	Cellulose
		2	White chalky material with paper		**None detected**	Binder/filler, Gypsum/binder	25	Cellulose, Glass fibers
19	8808.2-EJ-019	1	White powdery material with paint and paper		**None detected**	Binder, Filler, Paint	28	Cellulose
		2	White chalky material with paper		**None detected**	Binder/filler, Gypsum/binder	22	Cellulose, Glass fibers
20	8808.2-EJ-020	1	White powdery material with paint and paper		**None detected**	Binder, Filler, Paint	24	Cellulose
		2	White chalky material with paper		**None detected**	Binder/filler, Gypsum/binder	29	Cellulose
21	8808.2-EJ-021	1	White powdery material with paint and paper		**None detected**	Binder, Filler, Paint	27	Cellulose
		2	White chalky material with paper		**None detected**	Binder/filler, Gypsum/binder	20	Cellulose
22	8808.2-EJ-022	1	White hard material with paint		**None detected**	Binder, Filler, Paint	34	Cellulose, Glass fibers
		2	Trace clear soft/elastic material with paint		**None detected**	Binder, Filler, Paint	2	Cellulose

SEATTLE ASBESTOS TEST

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ANALYTICAL LABORATORY REPORT

PLM by Method EPA/600/R-93/116

Attn.: Mr. Jon Havelock **Client:** Med-Tox, Northwest **Address:** PO Box 1446, Auburn, WA 98071-1446

Job#: 8808.2 **Batch#:** 201813507 **Date Received:** 11/21/2018

Samples Rec'd: 76 **Date Analyzed:** 11/26/2018 **Samples Analyzed:** 76

Project Loc.: 12031 Northeast Totem Lake Way, Kirkland, WA

Analyzed by: Carolyn Yeo Reviewed by: Steve (Fanyao) Zhang, President

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-fibrous Components	%	Non-asbestos Fibers
22	8808.2-EJ-022	3	Yellow mastic		**None detected**	Mastic/binder	3	Cellulose
23	8808.2-EJ-023	1	Yellow mastic		**None detected**	Mastic/binder	2	Cellulose
		2	Trace white brittle material		**None detected**	Binder, Filler	2	Cellulose
		3	Trace off-white chalky material with paper		**None detected**	Binder/filler, Gypsum/binder	15	Cellulose, Glass fibers
24	8808.2-EJ-024	1	Yellow mastic		**None detected**	Mastic/binder	3	Cellulose
		2	Brown fibrous material		**None detected**	Filler	77	Cellulose
25	8808.2-EJ-025	1	White hard material with paint		**None detected**	Binder, Filler, Paint	38	Cellulose, Glass fibers
		2	Yellow mastic		**None detected**	Mastic/binder	2	Cellulose
		3	Brown fibrous material		**None detected**	Filler	71	Cellulose
26	8808.2-EJ-026	1	Brown mastic		**None detected**	Mastic/binder	3	Cellulose
		2	Brown fibrous material		**None detected**	Filler	76	Cellulose
27	8808.2-EJ-027	1	Brown mastic		**None detected**	Mastic/binder	2	Cellulose
		2	Brown fibrous material		**None detected**	Filler	79	Cellulose
28	8808.2-EJ-028	1	Brown ceramic		**None detected**	Ceramic/binder		None detected
		2	Brown sandy/brittle material		**None detected**	Sand, Filler, Binder	3	Cellulose
		3	Yellow mastic		**None detected**	Mastic/binder	2	Cellulose
		4	Brown/green fibrous material		**None detected**	Filler	74	Cellulose
29	8808.2-EJ-029	1	Brown ceramic		**None detected**	Ceramic/binder		None detected
		2	Brown sandy/brittle material		**None detected**	Sand, Filler, Binder	2	Cellulose
		3	Yellow mastic		**None detected**	Mastic/binder	2	Cellulose
		4	Brown/green fibrous material		**None detected**	Filler	78	Cellulose
30	8808.2-EJ-030	1	Brown ceramic		**None detected**	Ceramic/binder		None detected
		2	White woven fibrous material		**None detected**	Filler	86	synthetic fibers
		3	Yellow mastic		**None detected**	Mastic/binder	3	Cellulose

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ANALYTICAL LABORATORY REPORT

PLM by Method EPA/600/R-93/116

Attn.: Mr. Jon Havelock
Client: Med-Tox, Northwest
Address: PO Box 1446, Auburn, WA 98071-1446
Job#: 8808.2
Batch#: 201813507
Date Received: 11/21/2018
Samples Rec'd: 76
Date Analyzed: 11/26/2018
Samples Analyzed: 76
Project Loc.: 12031 Northeast Totem Lake Way, Kirkland, WA

Analyzed by: Carolyn Yeo

Reviewed by: Steve (Fanyao) Zhang, President

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-fibrous Components	%	Non-asbestos Fibers
30	8808.2-EJ-030	4	Brown/green fibrous material		**None detected**	Filler	72	Cellulose
31	8808.2-EJ-031	1	Brown ceramic		**None detected**	Ceramic/binder		None detected
		2	Yellow mastic		**None detected**	Mastic/binder	3	Cellulose
		3	Brown/green fibrous material		**None detected**	Filler	75	Cellulose
32	8808.2-EJ-032	1	Red ceramic		**None detected**	Ceramic/binder		None detected
		2	Gray sandy/brittle material		**None detected**	Sand, Filler, Binder	2	Cellulose
33	8808.2-EJ-033	1	Red ceramic		**None detected**	Ceramic/binder		None detected
		2	Gray sandy/brittle material		**None detected**	Sand, Filler, Binder	3	Cellulose
34	8808.2-EJ-034	1	Multi-colored woven fibrous material		**None detected**	Filler	89	Synthetic fibers
		2	Off-white mastic		**None detected**	Mastic/binder	2	Cellulose
		3	Clear woven plastic		**None detected**	Plastic		None detected
		4	Yellow mastic		**None detected**	Mastic/binder	3	Cellulose
35	8808.2-EJ-035	1	Multi-colored woven fibrous material		**None detected**	Filler	87	Synthetic fibers
		2	Off-white mastic		**None detected**	Mastic/binder	3	Cellulose
		3	Clear woven plastic		**None detected**	Plastic		None detected
		4	Yellow mastic		**None detected**	Mastic/binder	3	Cellulose
36	8808.2-EJ-036	1	Multi-colored woven fibrous material		**None detected**	Filler	88	Synthetic fibers
		2	Off-white mastic		**None detected**	Mastic/binder	2	Cellulose
		3	Clear woven plastic		**None detected**	Plastic		None detected
		4	Yellow mastic		**None detected**	Mastic/binder	2	Cellulose
37	8808.2-EJ-037	1	Blue/gray woven fibrous material		**None detected**	Filler	85	Synthetic fibers
		2	Off-white mastic		**None detected**	Mastic/binder	3	Cellulose
		3	Clear woven plastic		**None detected**	Plastic		None detected

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ANALYTICAL LABORATORY REPORT

PLM by Method EPA/600/R-93/116

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Job#: 8808.2 **Batch#:** 201813507 **Date Received:** 11/21/2018

Samples Rec'd: 76 **Date Analyzed:** 11/26/2018 **Samples Analyzed:** 76

Project Loc.: 12031 Northeast Totem Lake Way, Kirkland, WA

Analyzed by: Carolyn Yeo Reviewed by: Steve (Fanyao) Zhang, President

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-fibrous Components	%	Non-asbestos Fibers
37	8808.2-EJ-037	4	Yellow mastic		None detected	Mastic/binder	2	Cellulose
38	8808.2-EJ-038	1	Blue/gray woven fibrous material		None detected	Filler	85	Synthetic fibers
		2	Off-white mastic		None detected	Mastic/binder	3	Cellulose
		3	Clear woven plastic		None detected	Plastic		None detected
		4	Yellow mastic		None detected	Mastic/binder	2	Cellulose
39	8808.2-EJ-039	1	Blue/gray woven fibrous material		None detected	Filler	84	Synthetic fibers
		2	Black/gray rubbery material		None detected	Rubber/binder	2	Cellulose
		3	Yellow mastic		None detected	Mastic/binder	3	Cellulose
40	8808.2-EJ-040	1	Brown wood block		None detected	Wood aggregates	5	Cellulose
		2	Yellow/white mastic		None detected	Mastic/binder	2	Cellulose
		3	Gray brittle material		None detected	Binder, Filler	3	Cellulose
41	8808.2-EJ-041	1	Brown wood block		None detected	Wood aggregates	6	Cellulose
		2	Yellow/white mastic		None detected	Mastic/binder	3	Cellulose
		3	Gray brittle material		None detected	Binder, Filler	2	Cellulose
42	8808.2-EJ-042	1	Brown wood block		None detected	Wood aggregates	7	Cellulose
		2	Yellow mastic		None detected	Mastic/binder	2	Cellulose
43	8808.2-EJ-043	1	Brown wood block		None detected	Wood aggregates	6	Cellulose
		2	Yellow mastic		None detected	Mastic/binder	3	Cellulose
44	8808.2-EJ-044	1	Yellow mastic		None detected	Mastic/binder	2	Cellulose
		2	White tile		None detected	Vinyl/binder, Mineral grains	2	Cellulose
		3	Yellow mastic		None detected	Mastic/binder	3	Cellulose
		4	Brown wood debris		None detected	Wood debris	5	Cellulose
45	8808.2-EJ-045	1	Yellow mastic		None detected	Mastic/binder	3	Cellulose
		2	Green/black tile		None detected	Vinyl/binder, Mineral grains	3	Cellulose

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ANALYTICAL LABORATORY REPORT

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Attn.: Mr. Jon Havelock
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Samples Analyzed: 76
Project Loc.: 12031 Northeast Totem Lake Way, Kirkland, WA

Analyzed by: Carolyn Yeo

Reviewed by: Steve (Fanyao) Zhang, President

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-fibrous Components	%	Non-asbestos Fibers
45	8808.2-EJ-045	3	Yellow mastic		**None detected**	Mastic/binder	2	Cellulose
		4	Trace white brittle material		**None detected**	Binder, Filler	3	Cellulose
		5	Brown wood debris		**None detected**	Wood debris	4	Cellulose
46	8808.2-EJ-046	1	Brown/tan sheet vinyl		**None detected**	Vinyl/binder		None detected
		2	Tan fibrous material with mastic		**None detected**	Binder/filler, Mastic/binder	64	Cellulose
		3	Gray brittle material		**None detected**	Binder, Filler	2	Cellulose
47	8808.2-EJ-047	1	Brown/tan sheet vinyl		**None detected**	Vinyl/binder		None detected
		2	Tan fibrous material with mastic		**None detected**	Binder/filler, Mastic/binder	68	Cellulose
		3	Gray brittle material with trace paint		**None detected**	Binder, Filler, Paint	3	Cellulose
48	8808.2-EJ-048	1	Brown/white sheet vinyl		**None detected**	Vinyl/binder		None detected
		2	Tan fibrous material with mastic		**None detected**	Binder/filler, Mastic/binder	63	Cellulose
		3	Gray brittle material		**None detected**	Binder, Filler	2	Cellulose
49	8808.2-EJ-049	1	Red sandy/brittle material with paint		**None detected**	Sand, Filler, Binder, Paint	3	Cellulose
		2	Gray sandy/brittle material		**None detected**	Sand, Filler, Binder	2	Cellulose
50	8808.2-EJ-050	1	Red sandy/brittle material with paint		**None detected**	Sand, Filler, Binder, Paint	2	Cellulose
		2	Gray sandy/brittle material		**None detected**	Sand, Filler, Binder	2	Cellulose
51	8808.2-EJ-051	1	Gray sandy/brittle material with paint		**None detected**	Sand, Binder, Filler, Paint	3	Cellulose
52	8808.2-EJ-052	1	Gray sandy/brittle material with paint		**None detected**	Sand, Binder, Filler, Paint	3	Cellulose
53	8808.2-EJ-053	1	Black rubbery material		**None detected**	Rubber/binder	2	Cellulose
		2	Yellow mastic with paint		**None detected**	Mastic/binder, Paint	2	Cellulose
		3	White brittle material with paint		**None detected**	Binder, Filler, Paint	3	Cellulose
54	8808.2-EJ-054	1	Black rubbery material		**None detected**	Rubber/binder	2	Cellulose
		2	Yellow mastic with paint		**None detected**	Mastic/binder, Paint	3	Cellulose

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PLM by Method EPA/600/R-93/116

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Job#: 8808.2
Batch#: 201813507
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Samples Analyzed: 76
Project Loc.: 12031 Northeast Totem Lake Way, Kirkland, WA

Analyzed by: Carolyn Yeo
Reviewed by: Steve (Fanyao) Zhang, President

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-fibrous Components	%	Non-asbestos Fibers
54	8808.2-EJ-054	3	White brittle material with paint		**None detected**	Binder, Filler, Paint	2	Cellulose
55	8808.2-EJ-055	1	Gray rubbery material		**None detected**	Rubber/binder	3	Cellulose
		2	Brown/yellow mastic		**None detected**	Mastic/binder	2	Cellulose
		3	Brown fibrous material		**None detected**	Filler	70	Cellulose
56	8808.2-EJ-056	1	Gray rubbery material		**None detected**	Rubber/binder	3	Cellulose
		2	Brown/yellow mastic		**None detected**	Mastic/binder	2	Cellulose
		3	Trace white powdery material with paper		**None detected**	Binder, Filler	25	Cellulose
		4	Trace white chalky material with paper		**None detected**	Binder/filler, Gypsum/binder	27	Cellulose
57	8808.2-EJ-057	1	Tan/pink rubbery material		**None detected**	Rubber/binder	3	Cellulose
		2	Yellow mastic		**None detected**	Mastic/binder	3	Cellulose
58	8808.2-EJ-058	1	Tan/pink rubbery material		**None detected**	Rubber/binder	2	Cellulose
		2	Yellow mastic		**None detected**	Mastic/binder	3	Cellulose
59	8808.2-EJ-059	1	Brown sandy/brittle material with paint		**None detected**	Sand, Filler, Binder, Paint	2	Cellulose
60	8808.2-EJ-060	1	Brown sandy/brittle material with paint		**None detected**	Sand, Filler, Binder, Paint	3	Cellulose
61	8808.2-EJ-061	1	Gray/clear soft/elastic material		**None detected**	Binder, Filler	2	Cellulose
62	8808.2-EJ-062	1	Gray/clear soft/elastic material with paint		**None detected**	Binder, Filler, Paint	2	Cellulose
		2	Brown wood debris		**None detected**	Wood debris	4	Cellulose
63	8808.2-EJ-063	1	White soft/elastic material with paint		**None detected**	Binder, Filler, Paint	3	Cellulose
64	8808.2-EJ-064	1	Tan paper		**None detected**	Filler	81	Cellulose
		2	Pink fibrous material		**None detected**	Filler	90	Glass fibers
65	8808.2-EJ-065	1	Tan paper		**None detected**	Filler	86	Cellulose
		2	Pink fibrous material		**None detected**	Filler	93	Glass fibers
66	8808.2-EJ-066	1	Pink/brown fibrous material		**None detected**	Filler	87	Glass fibers

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ANALYTICAL LABORATORY REPORT

PLM by Method EPA/600/R-93/116

Attn.: Mr. Jon Havelock
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Date Analyzed: 11/26/2018
Samples Analyzed: 76
Project Loc.: 12031 Northeast Totem Lake Way, Kirkland, WA

Analyzed by: Carolyn Yeo

Reviewed by: Steve (Fanyao) Zhang, President

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-fibrous Components	%	Non-asbestos Fibers
67	8808.2-EJ-067	1	Black asphaltic fibrous material		**None detected**	Asphalt/binder, Filler/binder	64	Cellulose
68	8808.2-EJ-068	1	Black asphaltic fibrous material		**None detected**	Asphalt/binder, Filler/binder	68	Cellulose
69	8808.2-EJ-069	1	Black asphaltic fibrous material		**None detected**	Asphalt/binder, Filler/binder	61	Cellulose
70	8808.2-EJ-070	1	Black asphaltic material with sand		**None detected**	Asphalt/binder, Sand	24	Glass fibers
		2	Trace black asphaltic material		**None detected**	Asphalt, Binder	2	Cellulose
		3	Black asphaltic material with sand		**None detected**	Asphalt/binder, Sand	27	Glass fibers
		4	Black asphaltic material		**None detected**	Asphalt, Binder	3	Cellulose
		5	Clear plastic		**None detected**	Plastic		None detected
		6	Black asphaltic fibrous material		**None detected**	Asphalt/binder, Filler/binder	63	Cellulose
71	8808.2-EJ-071	1	Black asphaltic material with sand		**None detected**	Asphalt/binder, Sand	21	Glass fibers
		2	Red paint		**None detected**	Filler, Paint	2	Cellulose
		3	Black asphaltic material		**None detected**	Asphalt, Binder	3	Cellulose
		4	Clear plastic		**None detected**	Plastic		None detected
		5	Black asphaltic fibrous material		**None detected**	Asphalt/binder, Filler/binder	65	Cellulose
		6	Trace brown wood debris		**None detected**	Wood debris	4	Cellulose
72	8808.2-EJ-072	1	Black asphaltic material with sand		**None detected**	Asphalt/binder, Sand	25	Glass fibers
		2	Black asphaltic material		**None detected**	Asphalt, Binder	2	Cellulose
		3	Clear plastic		**None detected**	Plastic		None detected
		4	Black asphaltic fibrous material		**None detected**	Asphalt/binder, Filler/binder	67	Cellulose
		5	Trace brown wood debris		**None detected**	Wood debris	5	Cellulose
73	8808.2-EJ-073	1	Yellow foamy material		**None detected**	Foam		None detected
		2	Yellow mastic		**None detected**	Mastic/binder	2	Cellulose
74	8808.2-EJ-074	1	Yellow foamy material		**None detected**	Foam		None detected
		2	Yellow mastic		**None detected**	Mastic/binder	3	Cellulose

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ANALYTICAL LABORATORY REPORT

PLM by Method EPA/600/R-93/116

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Client: Med-Tox, Northwest
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Samples Analyzed: 76
Project Loc.: 12031 Northeast Totem Lake Way, Kirkland, WA

Analyzed by: Carolyn Yeo

Reviewed by: Steve (Fanyao) Zhang, President

Lab ID	Client Sample ID	Layer	Description	%	**Asbestos Fibers**	Non-fibrous Components	%	Non-asbestos Fibers
75	8808.2-EJ-075	1	Yellow foamy material		**None detected**	Foam		None detected
		2	Yellow mastic		**None detected**	Mastic/binder	2	Cellulose
76	8808.2-EJ-076	1	White powdery material with paint		**None detected**	Binder, Filler, Paint	3	Cellulose

Appendix F
Analytical Report- Lead

EMSL Analytical, Inc.
6340 CastlePlace Dr., Indianapolis, IN 46250
Phone/Fax: (317) 803-2997 / (317) 803-3047
http://www.EMSL.com indianapolislab@emsl.com

EMSL Order:	161823205
CustomerID:	MEDT50
CustomerPO:	
ProjectID:	

Attn: **Jon A. Havelock**
Med-Tox Northwest
PO Box 1446
Auburn, WA 98071

Phone: (253) 351-0677
Fax: (253) 351-0688
Received: 11/21/18 10:00 AM
Collected: 11/14/2018

Project: **Totem Lake / 8808.2**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

Client Sample	*Description*	*Collected*	*Analyzed*	*Weight*	*RDL*	*Lead* **Concentration**
8808.2 - EJ - 01PB *161823205-0001*	Site: TOTEM LAKE RETAIL - ENTRY WAY; S WALL - WALL - GWB - BEIGE	11/14/2018	11/27/2018	0.213 g	94 ppm	<94 ppm
8808.2 - EJ - 02PB *161823205-0002*	Site: TOTEM LAKE RETAIL - OFFICE 2; W WALL - WALL - GWB - GREEN	11/14/2018	11/27/2018	0.2208 g	91 ppm	<91 ppm
8808.2 - EJ - 03PB *161823205-0003*	Site: TOTEM LAKE RETAIL - CUSTODIAL CLOSET; S WALL - WALL - GWB - WHITE	11/14/2018	11/27/2018	0.2082 g	96 ppm	<96 ppm
8808.2 - EJ - 04PB *161823205-0004*	Site: TOTEM LAKE RETAIL - ENTRY WAY; W WALL - SIDING - WOOD - BROWN	11/14/2018	11/27/2018	0.2353 g	85 ppm	<85 ppm
8808.2 - EJ - 05PB *161823205-0005*	Site: TOTEM LAKE RETAIL - ENTRY WAY; N WALL - SIDING - WOOD - GRAY	11/14/2018	11/27/2018	0.2194 g	91 ppm	<91 ppm
8808.2 - EJ - 06PB *161823205-0006*	Site: TOTEM LAKE RETAIL - ENTRY WAY - 2ND LEVEL; N WALL - SIDING - WOOD - TAN	11/14/2018	11/27/2018	0.2327 g	86 ppm	<86 ppm
8808.2 - EJ - 07PB *161823205-0007*	Site: EXTERIOR - E WALL - WINDOW - WOOD - WHITE	11/14/2018	11/27/2018	0.2449 g	82 ppm	<82 ppm
8808.2 - EJ - 08PB *161823205-0008*	Site: EXTERIOR - W WALL - SIDING - WOOD - RED	11/14/2018	11/27/2018	0.2276 g	88 ppm	<88 ppm
8808.2 - EJ - 09PB *161823205-0009*	Site: EXTERIOR - DOOR FRAME - TRIM - WOOD - DARK RED	11/14/2018	11/27/2018	0.2253 g	89 ppm	<89 ppm

Doug Wiegand, Laboratory Manager
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Analytical, Inc. Indianapolis, IN AIHA-LAP, LLC--ELLAP 157245, OH E10040

Initial report from 11/27/2018 14:35:50

Lead (Pb) Chain of Custody

EMSL Order ID *(Lab Use Only)*: 161823205

PHONE:
FAX:

Company: Med-Tox Northwest	**EMSL-Bill to:** ☐ Different ☒ Same If Bill to is Different note instructions in Comments**
Street: PO Box 1446	*Third Party Billing requires written authorization from third party*
City: Auburn **State/Province:** WA	**Zip/Postal Code:** 98071 **Country:** US
Report To (Name): Jon Havelock	**Telephone #:** 253-351-0677
Email Address: havelockj@medtoxnw.com; jarvise@medtoxnw.com	**Fax #:** 253-351-0688 **Purchase Order:**
Project Name/Number: Totem Lake / 8808.2	**Please Provide Results:** ☐ FAX ☒ E-mail ☐ Mail
U.S. State Samples Taken: WA	**CT Samples:** ☐ Commercial/Taxable ☐ Residential/Tax Exempt

Turnaround Time (TAT) Options* - Please Check

☐ 3 Hour ☐ 6 Hour ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 96 Hour ☒ 1 Week ☐ 2 Week

**Analysis completed in accordance with EMSL's Terms and Conditions located in the Price Guide*

Matrix	Method	Instrument	Reporting Limit	Check
Chips ☐ % by wt. ☐ mg/cm² ☒ ppm	SW846-7000B	Flame Atomic Absorption	0.01%	☒
Air	NIOSH 7082	Flame Atomic Absorption	4 µg/filter	☐
	NIOSH 7105	Graphite Furnace AA	0.03 µg/filter	☐
	NIOSH 7300 modified	ICP-AES/ICP-MS	0.5 µg/filter	☐
Wipe* ASTM ☐ non ASTM ☐ *if no box is checked, non-ASTM Wipe is assumed	SW846-7000B	Flame Atomic Absorption	10 µg/wipe	☐
	SW846-6010B or C	ICP-AES	1.0 µg/wipe	☐
	SW846-7000B/7010	Graphite Furnace AA	0.075 µg/wipe	☐
TCLP	SW846-1311/7000B/SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	SW846-1131/SW846-6010B or C	ICP-AES	0.1 mg/L (ppm)	☐
Soil	SW846-7000B	Flame Atomic Absorption	40 mg/kg (ppm)	☐
	SW846-7010	Graphite Furnace AA	0.3 mg/kg (ppm)	☐
	SW846-6010B or C	ICP-AES	2 mg/kg (ppm)	☐
Wastewater Unpreserved ☐ Preserved with HNO_3 pH < 2 ☐	SM3111B/SW846-7000B	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)	☐
	EPA 200.7	ICP-AES	0.020 mg/L (ppm)	☐
Drinking Water Unpreserved ☐ Preserved with HNO_3 pH < 2 ☐	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)	☐
	EPA 200.8	ICP-MS	0.001 mg/L (ppm)	☐
TSP/SPM Filter	40 CFR Part 50	ICP-AES	12 µg/filter	☐
	40 CFR Part 50	Graphite Furnace AA	3.6 µg/filter	☐
Other:				☐

Name of Sampler: Eric Jarvis **Signature of Sampler:**

Sample #	Location	Volume/Area	Date/Time Sampled
8808.2-EJ-01Pb	See attached Table		11-14-18 / 1500
Through			
8808.2-EJ-09Pb			

Client Sample #'s	-8808.2-EJ-01Pb to 09Pb			**Total # of Samples:**	9
Relinquished (Client):	[signature]	**Date:**	11/20/18	**Time:**	12:30
Received (Lab):	Carolyn McD	**Date:**	11.21.18	**Time:**	10:00 EFx
Comments:					

161823205

Table 3. Summary of Bulk Paint Chip Sample Results

Sample Number	Location	Component	Substrate	Color	Result (ppm)
Totem Lake Retail					
8808.2-EJ-01Pb	Entry way; S wall	Wall	GWB	Beige	
8808.2-EJ-02Pb	Office 2; W wall	Wall	GWB	Green	
8808.2-EJ-03Pb	Custodial closet; S wall	Wall	GWB	White	
8808.2-EJ-04Pb	Entry way; W wall	Siding	Wood	Brown	
8808.2-EJ-05Pb	Entry way; N wall	Siding	Wood	Gray	
8808.2-EJ-06Pb	Entry way – 2nd level; N wall	Siding	Wood	Tan	
Exterior					
8808.2-EJ-07Pb	E Wall	Window	Wood	White	
8808.2-EJ-08Pb	W wall	Siding	Wood	Red	
8808.2-EJ-09Pb	Door frame	Trim	Wood	Dark Red	

GWB = gypsum wallboard, ppm = parts per million. **Bolded values** – bulk paint chip samples with lead detected above the laboratory reporting limit have been bolded. The Washington Industrial Safety and Health Administration (WISHA) worker protection regulations have stated that lead at any detectable concentration shall be considered regulated (Washington Administrative Code [WAC] 296-155-176, Lead.

2 OF 2

Appendix G
EMSL Analytical, Inc. Laboratory Certifications

AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

6340 Castleplace Drive, Indianapolis, IN 46250

Laboratory ID: 157245

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

✓	**INDUSTRIAL HYGIENE**	Accreditation Expires: June 01, 2019
✓	**ENVIRONMENTAL LEAD**	Accreditation Expires: June 01, 2019
✓	**ENVIRONMENTAL MICROBIOLOGY**	Accreditation Expires: June 01, 2019
☐	**FOOD**	Accreditation Expires:
☐	**UNIQUE SCOPES**	Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

William Walsh, CIH
Chairperson, Analytical Accreditation Board

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 15: 03/30/2016

Date Issued: 05/31/2017

AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

EMSL Analytical, Inc.
6340 Castleplace Drive, Indianapolis, IN 46250

Laboratory ID: **157245**
Issue Date: 05/31/2017

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

The EPA recognizes the AIHA-LAP, LLC ELLAP program as meeting the requirements of the National Lead Laboratory Accreditation Program (NLLAP) established under Title X of the Residential Lead-Based Paint Hazard Reduction Act of 1992 and includes paint, soil and dust wipe analysis. Air and composited wipes analyses are not included as part of the NLLAP.

Environmental Lead Laboratory Accreditation Program (ELLAP)

Initial Accreditation Date: 09/01/2002

Field of Testing (FoT)	Technology sub-type/ Detector	Method	Method Description (*for internal methods only*)
Paint		EPA SW-846 3050B	
		EPA SW-846 3051A	
		EPA SW-846 7000B	
Soil		EPA SW-846 3050B	
		EPA SW-846 3051A	
		EPA SW-846 7000B	
Settled Dust by Wipe		EPA SW-846 3050B	
		EPA SW-846 3051A	
		EPA SW-846 7000B	
Airborne Dust		NIOSH 7082	

A complete listing of currently accredited Environmental Lead laboratories is available on the AIHA-LAP, LLC website at: http://www.aihaaccreditedlabs.org

Appendix H
Analytical Results – PCBs

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

November 28, 2018

Jon Havelock
MED-TOX
P.O. Box 1146
Auburn, WA 98071

Re: Analytical Data for Project 8808.2
Laboratory Reference No. 1811-194

Dear Jon:

Enclosed are the analytical results and associated quality control data for samples submitted on November 21, 2018.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: November 28, 2018
Samples Submitted: November 21, 2018
Laboratory Reference: 1811-194
Project: 8808.2

Case Narrative

Samples were collected on November 14, 2018 and received by the laboratory on November 21, 2018. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: November 28, 2018
Samples Submitted: November 21, 2018
Laboratory Reference: 1811-194
Project: 8808.2

PCBs EPA 8082A

Matrix: Solid
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**8808.2-EJ-01PCB**					
Laboratory ID:	11-194-01					
Aroclor 1016	**ND**	9.1	EPA 8082A	11-26-18	11-26-18	
Aroclor 1221	**ND**	9.1	EPA 8082A	11-26-18	11-26-18	
Aroclor 1232	**ND**	9.1	EPA 8082A	11-26-18	11-26-18	
Aroclor 1242	**ND**	9.1	EPA 8082A	11-26-18	11-26-18	
Aroclor 1248	**ND**	9.1	EPA 8082A	11-26-18	11-26-18	
Aroclor 1254	**ND**	9.1	EPA 8082A	11-26-18	11-26-18	
Aroclor 1260	**ND**	9.1	EPA 8082A	11-26-18	11-26-18	
Surrogate:	***Percent Recovery***	***Control Limits***				
DCB	***87***	***39-130***				
Client ID:	**8808.2-EJ-02PCB**					
Laboratory ID:	11-194-02					
Aroclor 1016	**ND**	1.5	EPA 8082A	11-26-18	11-26-18	
Aroclor 1221	**ND**	1.5	EPA 8082A	11-26-18	11-26-18	
Aroclor 1232	**ND**	1.5	EPA 8082A	11-26-18	11-26-18	
Aroclor 1242	**ND**	1.5	EPA 8082A	11-26-18	11-26-18	
Aroclor 1248	**ND**	1.5	EPA 8082A	11-26-18	11-26-18	
Aroclor 1254	**ND**	1.5	EPA 8082A	11-26-18	11-26-18	
Aroclor 1260	**ND**	1.5	EPA 8082A	11-26-18	11-26-18	
Surrogate:	***Percent Recovery***	***Control Limits***				
DCB	***92***	***39-130***				
Client ID:	**8808.2-EJ-03PCB**					
Laboratory ID:	11-194-03					
Aroclor 1016	**ND**	4.8	EPA 8082A	11-26-18	11-26-18	
Aroclor 1221	**ND**	4.8	EPA 8082A	11-26-18	11-26-18	
Aroclor 1232	**ND**	4.8	EPA 8082A	11-26-18	11-26-18	
Aroclor 1242	**ND**	4.8	EPA 8082A	11-26-18	11-26-18	
Aroclor 1248	**ND**	4.8	EPA 8082A	11-26-18	11-26-18	
Aroclor 1254	**ND**	4.8	EPA 8082A	11-26-18	11-26-18	
Aroclor 1260	**ND**	4.8	EPA 8082A	11-26-18	11-26-18	
Surrogate:	***Percent Recovery***	***Control Limits***				
DCB	***93***	***39-130***				

Date of Report: November 28, 2018
Samples Submitted: November 21, 2018
Laboratory Reference: 1811-194
Project: 8808.2

PCBs EPA 8082A

Matrix: Solid
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**8808.2-EJ-04PCB**					
Laboratory ID:	11-194-04					
Aroclor 1016	**ND**	6.7	EPA 8082A	11-26-18	11-26-18	
Aroclor 1221	**ND**	6.7	EPA 8082A	11-26-18	11-26-18	
Aroclor 1232	**ND**	6.7	EPA 8082A	11-26-18	11-26-18	
Aroclor 1242	**ND**	6.7	EPA 8082A	11-26-18	11-26-18	
Aroclor 1248	**ND**	6.7	EPA 8082A	11-26-18	11-26-18	
Aroclor 1254	**ND**	6.7	EPA 8082A	11-26-18	11-26-18	
Aroclor 1260	**ND**	6.7	EPA 8082A	11-26-18	11-26-18	
Surrogate:	***Percent Recovery***	***Control Limits***				
DCB	***93***	***39-130***				

Date of Report: November 28, 2018
Samples Submitted: November 21, 2018
Laboratory Reference: 1811-194
Project: 8808.2

PCBs EPA 8082A
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1126S1					
Aroclor 1016	**ND**	0.050	EPA 8082A	11-26-18	11-26-18	
Aroclor 1221	**ND**	0.050	EPA 8082A	11-26-18	11-26-18	
Aroclor 1232	**ND**	0.050	EPA 8082A	11-26-18	11-26-18	
Aroclor 1242	**ND**	0.050	EPA 8082A	11-26-18	11-26-18	
Aroclor 1248	**ND**	0.050	EPA 8082A	11-26-18	11-26-18	
Aroclor 1254	**ND**	0.050	EPA 8082A	11-26-18	11-26-18	
Aroclor 1260	**ND**	0.050	EPA 8082A	11-26-18	11-26-18	
Surrogate:	***Percent Recovery***	***Control Limits***				
DCB	***82***	***39-130***				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS											
Laboratory ID:	SB1126S1										
	SB	SBD	SB	SBD		SB	SBD				
Aroclor 1260	**0.349**	**0.349**	0.500	0.500	N/A	**70**	**70**	56-124	0	18	
Surrogate:											
DCB						***85***	***84***	***39-130***			

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1- Sample extract treated with a sulfuric acid/silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Chain of Custody

 DB

Company: MED-TOX NW
Project Number: 8808.2
Project Name: TOTEM LAKE
Project Manager: JON HAVELOCK
Sampled by: ERIC JARVIS

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days) (TPH analysis 5 Days)
☐ _____ (other)

Laboratory Number: 11-194

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	~~NWTPH-Dx (☐ Acid / SG Clean-up)~~ DB	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A					% Moisture
1	8808.2-EJ-01PCB	11/14/18	1400	SOLID	1				X						X												
2	-02PCB								X						X												
3	-03PCB								X						X												
4	-04PCB								X						X												

	Signature	Company	Date	Time
Relinquished	[signature]	MED-TOX NW	11/20/18	12:30
Received	[signature]	OSE	11/20/18	1000
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

Data Package: Standard ☐ Level III ☐ Level IV ☐

Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

Appendix I
OnSite Environmental Laboratory Accreditation

The State of Washington Department of Ecology

OnSite Environmental, Inc.
Redmond, WA

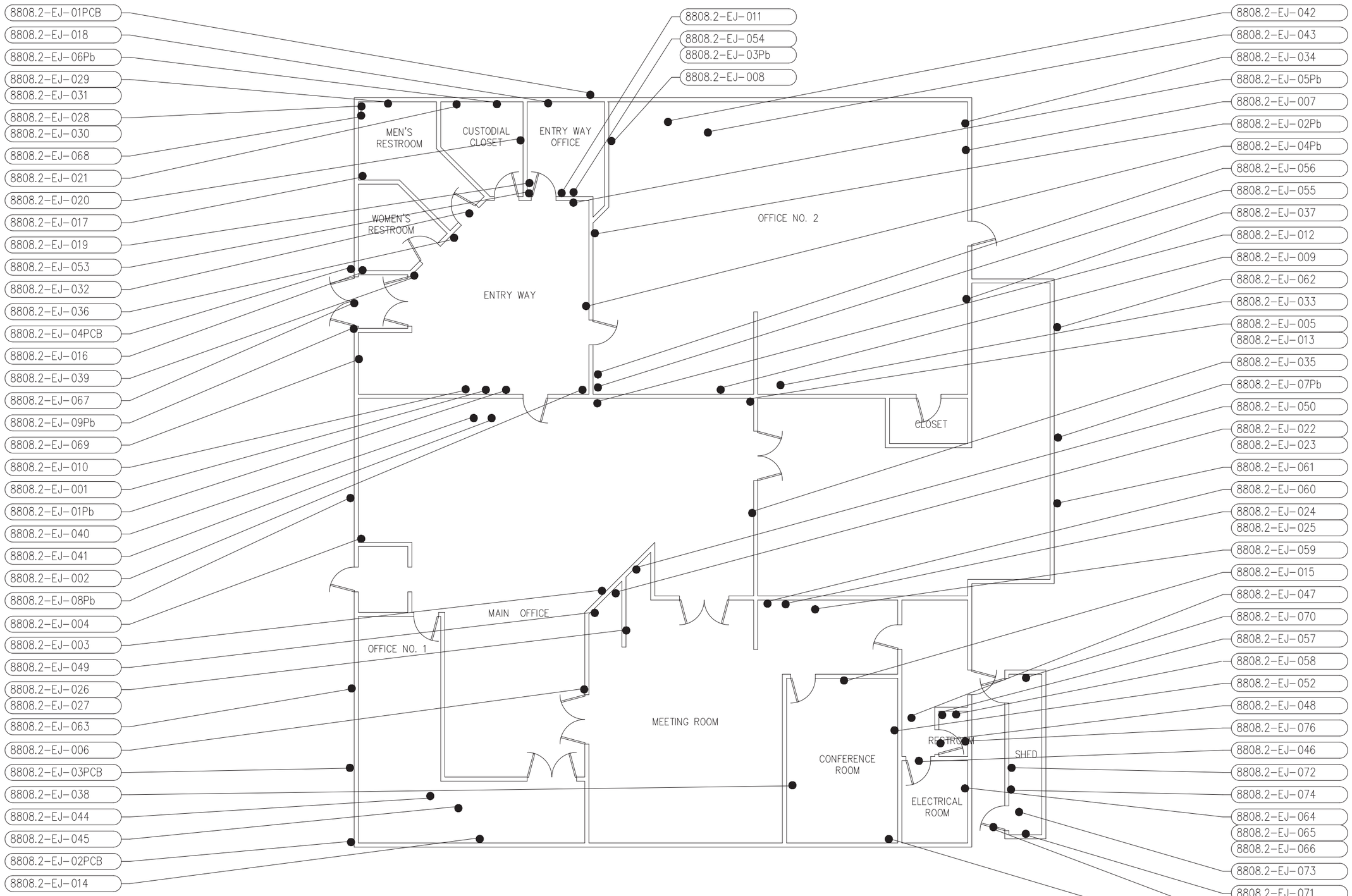
has complied with provisions set forth in Chapter 173-50 WAC and is hereby recognized by the Department of Ecology as an ACCREDITED LABORATORY for the analytical parameters listed on the accompanying Scope of Accreditation. This certificate is effective July 27, 2018 and shall expire July 26, 2019.

Witnessed under my hand on August 10, 2018

Rebecca Wood
Lab Accreditation Unit Supervisor

Laboratory ID
C591

Appendix J
Sample and Material Location Drawing



1ST FLOOR PLAN

SAMPLE LOCATIONS

SCALE: NTS

Symbol	Description	Date	Approved

Designed by: ERIC JARVIS
Date: 12/4/2018
Dwn by: JAL
Chk by: EJ
File Name: A.8808.2
Plot Date:
Plot Scale: AS NOTED
Drawing Number:

MED-TOX NORTHWEST
SAFE ENVIRONMENT OF AMERICA, INC.dba
OCCUPATIONAL ENVIRONMENTAL HEALTH SERVICES
1701 WEST VALLEY HIGHWAY N, SUITE #1
AUBURN, WASHINGTON 98001
(253) 351-0687 (253) 351-0688 (FAX)
http://www.medtoxnorthwest.com

PROJECT NUMBER: A.8808.2

PROJECT: TOTEM LAKE WAY

CLIENT: O'NEIL SERVICE GROUP

Sheet reference number

Sheet 1 OF 1

OSG O'Neill Service Group

December 14, 2018

City of Kirkland Public Works Department
123 Fifth Avenue
Kirkland, WA 98033

Attention: Brian Baker

Subject: Transmittal Letter
Phase I and Limited Phase II Environmental Site Assessment Final Report
12031 Totem Lake Way
Parcel Number 692840-0032
Kirkland, Washington 98034

Dear Mr. Baker,

Attached, please find our Phase I and Limited Phase II Environmental Site Assessment (ESA) for King County Parcel 692840-0032 located at 12031 Totem Lake Way (Subject Property). During the survey and research, our staff interviewed the current owner of the Subject Property and reviewed the Subject Property and its history. The report was completed according to the terms and conditions authorized by you. This report has been completed in general conformance with the ASTM Standard E 1527-13. An executive summary is provided; however, we recommend that the report be read in its entirety for a comprehensive understanding of the items contained therein.

This report is addressed to the City of Kirkland and such other persons as may be designated by City of Kirkland and their respective successors and assigns. There are no intended or unintended third-party beneficiaries to this report, except as expressly stated herein.

O'Neill Service Group (OSG) is an independent contractor, not an employee of either the issuer or the borrower, and its compensation was not based on the findings or recommendations made in the report or on the closing of any business transaction.

We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in §312.10 of 40 CFR 312 and we have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the Subject Property. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

We appreciate the opportunity to provide environmental consulting services to the City of Kirkland. Should you have any questions or require additional information, please do contact the undersigned.

Respectfully submitted,
O'Neill Service Group

Vance Atkins, LG, LHG
Project Manager

Dennis J. O'Neill, LHG, LEG
Principal Engineering Geologist/Hydrogeologist

REPORT
PHASE I AND LIMITED PHASE II
ENVIRONMENTAL SITE ASSESSMENT
12031 TOTEM LAKE WAY
PARCEL NO 692840-0032
KIRKLAND, WASHINGTON 98034

December 14, 2018

Prepared for:

City of Kirkland Public Works Department
123 Fifth Avenue
Kirkland, WA 98033

Attention: Mr. Brian Baker

PHASE I AND LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT
12031 TOTEM LAKE WAY
PARCEL NO 692840-0032
KIRKLAND, WASHINGTON 98034

Prepared by:

Vance Atkins, LG, LHG
Project Manager

Reviewed by:

Dennis O'Neill, LEG, LHG
Principal Engineering Geologist/Hydrogeologist

O'Neill Service Group
17619 NE 67th Ct, Suite 100
Redmond, WA 98052
T (425) 429-7800
F (425) 633-2284

December 14, 2018
OSG Job No.: 1956

TABLE OF CONTENTS

List of Appendices

Executive Summary

At the request of the City of Kirkland, O'Neill Service Group (OSG) has performed a Phase I and Limited Phase II Environmental Site Assessment (ESA) of the vacant property located at 12031 Totem Lake Way in Kirkland, Washington herein referred to as the Subject Property. The main objective of this ESA was to identify *recognized environmental conditions* associated with the Subject Property, defined in ASTM Practice E 1527-13 as the presence or likely presence of any hazardous substances or petroleum products that indicate an existing release, a past release, or a material threat of a release. This ESA also includes a preliminary evaluation of certain potential environmental conditions that are outside the scope of ASTM Practice E 1527-13.

The Subject Property includes one irregular-shaped parcel totaling approximately 1.6 acres. The Subject Property is currently being utilized as office space. The parcel consists of an approximately 7,000 square foot retail/commercial building, with associated asphalt-paved parking and landscaped areas. The property is currently used for office and parking space associated with construction activities at an adjacent parcel. There are currently no manufacturing or industrial operations conducted at the Subject Property.

Following our site visit and review of the historical documents associated with the Subject Property, no recognized environmental conditions (REC) were identified. However, based on conversations with the client, an assessment of soils exposed to treated timber piles supporting the building was requested. OSG collected selected soil samples adjacent to timber piles uncovered during a site geotechnical investigation. One soil sample collected during the assessment contained regulated concentrations of petroleum hydrocarbons and carcinogenic polynuclear aromatic hydrocarbons. Additional characterization and management of disturbed soils during construction Is recommended. No other RECs were identified through historic review, site interviews, or environmental database review.

Below is the Assessment Summary Table presenting our recommended actions for the Subject Property. OSG findings and opinions are presented in Section 9.0, and recommendations for further action or investigation are presented in Section 10.0.

ASSESSMENT SUMMARY TABLE			
Assessment Component	**Section(s)**	**Recommended Actions**	**Estimated Cost**
Historical Review	4.3	No Further Action	NA
Current Occupants / Operations	2.3, 5.0	No Further Action	NA
Hazardous Substances / Petroleum Products	5.2, 8.0	Management of potential cPAH-impacted fill soils	TBD
Waste Generation	5.3	No Further Action	NA
Storage Tanks	5.4	No Further Action	NA
PCBs	5.5	No Further Action	NA
Potential Off-site Sources	2.5, 4.1	No Further Action	NA
Regulatory Agency / Database Review	4.1	No Further Action	NA
Asbestos Containing Materials	7.1	No Further Action	NA
Radon	7.2	No Further Action	NA
Lead-Based Paint	7.3	No Further Action	NA
Lead in Drinking Water	7.4	No Further Action	NA

Key: NA - Not Applicable

1.0 INTRODUCTION

O'Neill Service Group (OSG) has completed a Phase I Environmental Site Assessment (ESA) and Limited Phase II ESA for the property located at 12031 Totem Lake Way in Kirkland, Washington. This work was conducted under contract to City of Kirkland and outlined in our Phase I and Limited Phase II ESA Proposal (Scope A), dated September 28, 2018. This study was conducted to assist the City of Kirkland with the plans to acquire the subject property as part of the future development of Totem Lake Park.

1.1 Purpose

The purpose of this ESA was to identify *recognized environmental conditions (RECs)* and certain environmental conditions outside the scope of ASTM Practice E 1527-13 about the property at the time of the property reconnaissance.

1.2 Scope-of-Services

This ESA was conducted utilizing a standard of good commercial and customary practice that was consistent with the ASTM Practice E 1527-13. Significant scope-of-work additions, deletions or deviations to ASTM Practice E 1527-13 are noted below or in the corresponding sections of this report. The scope-of-work for this assessment included an evaluation of the following:

- Physical characteristics of the Subject Property through a review of referenced sources for topographic, geologic, soils and hydrologic data.
- Subject Property history through a review of referenced sources such as land deeds, fire insurance maps, city directories, aerial photographs, prior reports, and interviews.
- Current Subject Property conditions, including observations and interviews regarding the following: the presence or absence of hazardous substances or petroleum products; generation, treatment, storage, or disposal of hazardous, regulated, or biomedical waste; equipment that utilizes oils which potentially contain PCBs; and storage tanks (aboveground and underground).
- Usage of surrounding area properties and the likelihood for releases of hazardous substances and petroleum products (if known and/or suspected) to migrate onto the Subject Property.
- Information in referenced environmental agency databases and local environmental records, within specified minimum search distances.
- Past ownership through a review of available prior reports and local municipal file review.

This Assessment also includes consideration of the following potential environmental conditions that are outside the scope of ASTM Practice E 1527-13: asbestos-containing materials (ACM), and Lead-Based Paint (LBP).

1.3 Assumptions, Limitations and Exceptions

This Phase I ESA has been prepared for the use of the City of Kirkland, in accordance with our Standard Conditions for Engagement and Authorization Letter and Agreement for Environmental Services approved and signed by the City of Kirkland, and with the limitations described below, all of which are integral parts of this report. A copy of the signed agreement is maintained at the OSG office in Redmond, Washington.

OSG has performed this Phase I ESA in general conformance with the scope and limitations of *ASTM Standard E 1527-13, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*. This Phase I ESA has been prepared to assess a parcel of commercial real estate with respect to the range of contaminants within the scope of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (42 U.S.C. §9601) and petroleum products. As such, this practice is intended to permit the City of Kirkland to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner, or bona fide prospective purchaser limitations on CERCLA liability: that is, the practices that constitute "all appropriate inquiry into the previous ownership and uses of the Subject Property consistent with good commercial or customary practice" as defined in 42 U.S.C. § 9601(35)(B).

In defining a standard of good commercial and customary practice for conducting an environmental site assessment of a parcel of property, the goal of the processes established by this practice is to identify *recognized environmental conditions*. The term recognized environmental conditions means the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include *de minimis conditions* that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate

governmental agencies. Conditions determined to be de minimis are not recognized environmental conditions.

The information reported was obtained through sources deemed reasonably ascertainable, as defined in ASTM Standard E 1527-13; a visual site survey of areas readily observable, easily accessible or made accessible by the Subject Property contact and interviews with owners, agents, occupants, or other appropriate persons involved with the Subject Property. Municipal information was obtained through review of reasonably ascertainable standard government record sources and interviews with the authorities having jurisdiction over the Subject Property. Findings, conclusions, and recommendations included in the report are based on our visual observations in the field, the municipal information reasonably obtained, information provided by the Client, and/or a review of readily available and supplied documents and drawings. OSG relies completely on the information, whether written, graphic, or verbal, provided by the Subject Property contact or as shown on any documents reviewed or received from the Subject Property contact, owner or agent, or municipal source, and assumes that information to be true and correct. Although there may have been some degree of overlap in the information provided by these various sources, OSG did not attempt to independently verify the accuracy or completeness of the information reviewed or received during the course of these environmental services.

The observations in this report are valid on the date of the assessment. Where access to portions of the Subject Property or to structures on the Subject Property was unavailable or limited, OSG renders no opinion as to the presence of hazardous substances or petroleum products in that portion of the Subject Property or structure. Inaccessible portions of the Subject Property are described below. In addition, OSG renders no opinion as to the presence of, or indirect evidence relating to, hazardous substances or petroleum products where direct observation of the interior walls, floor, or ceiling of a structure was obstructed by objects or coverings on or over these surfaces.

It is acknowledged that OSG judgments shall not be based on scientific or technical tests or procedures beyond the scope of the Services or beyond the time and budgetary constraints imposed by the Client. It is acknowledged further that OSG conclusions do not rest on pure science but on such considerations as economic feasibility and available alternatives. Client also acknowledges that, because geologic and soil formations are inherently random, variable, and indeterminate in nature, the Services and opinions provided under this Agreement with respect to such Services are not guaranteed to be a representation

of actual conditions on the Subject Property, which are also subject to change with time as a result of natural or man-made processes, including water permeation. In performing the Services, OSG shall use that degree of care and skill ordinarily exercised by environmental consultants or engineers performing similar services in the same or similar locality. The standard of care shall be determined solely at the time the Services are rendered and not according to standards utilized at a later date. The Services shall be rendered without any other warranty, expressed or implied, including, without limitation, the warranty of merchantability and the warranty of fitness for a particular purpose.

Client and OSG agree that to the fullest extent permitted by law, OSG shall not be liable to Client for any special, indirect or consequential damages whatsoever, whether caused by OSG negligence, errors, omissions, strict liability, breach of contract, breach of warranty or other cause or causes whatsoever.

The ASTM Standard E 1527-13 does not encompass analytical testing to evaluate asbestos containing materials, radon, lead-based paint, drinking water quality, indoor air quality, stored chemicals, debris, fill materials, surface water, or subsurface samples (soil and groundwater) as part of a Phase I ESA. Analytical testing performed at the Subject Property has been conducted in accordance with the Standard Conditions for Engagement and Authorization Letter and Agreement for Environmental Services and the client-specific Scope of Work. Unless otherwise specified herein, such testing involves screening methods intended to provide a broad and approximate evaluation of conditions at readily accessible portions of the Subject Property, limited by project constraints, and should not be construed as a comprehensive program designed to comply with a specific regulatory program. If a thorough and regulatory-compliant study is warranted based on the findings of the Phase I ESA, OSG will recommend the appropriate further investigation. In certain cases, quantitative laboratory testing is performed as part of the assessment and analyses have been conducted by an outside laboratory. OSG relies upon the data provided by the outside laboratory, and has not conducted an independent evaluation of the reliability of this data.

The assessment was conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession, and in accordance with generally accepted practices of other consultants currently practicing in the same locality under similar conditions. No other representation, expressed or implied, and no warranty or guarantee is included or intended. The report speaks only as of its date, in the absence of a specific written update of the report, signed and delivered by OSG.

Additional information that becomes available after our survey and draft submission concerning the Subject Property should be provided to OSG so that our conclusions may be revised and modified if necessary, at additional cost. This report has been prepared in accordance with our Standard Conditions for Engagement, which is an integral part of this report.

1.4 Special Terms and Conditions

This Phase I ESA has been prepared to assist the City of Kirkland in its proposed acquisition of Subject Property. This report can be relied upon by only the parties stated in the transmittal letter at the front of this report. OSG liability to a purchaser wishing to use this report is limited to the cost of the report. Amendments to OSG limitations as stated herein that may occur after issuance of the report are considered to be included in this report. Payment for the report is made by, and OSG contract and report extends to the City of Kirkland only, in accordance with our Agreement.

1.5 Data Gaps

Any data gaps identified herein, as defined by ASTM Practice E 1527-13 § 3.2.20, are not considered to have significantly affected the ability to identify recognized environmental conditions in connection with the Subject Property and do not alter the conclusions of this report.

2.0 SUBJECT PROPERTY DESCRIPTION

2.1 Ownership and Location

According to the King County Assessor's Office, the Subject Property is currently owned by the City of Kirkland.

The Subject Property is located at 12031 Totem Lake Way in Kirkland, King County, Washington. The Subject Property consists of one irregularly shaped parcel, identified by the King County Department of Assessments as Parcel Number 692840-0032 totaling 1.6 acres. The parcel consists of an approximately 7,000 square foot retail/commercial building, with associated asphalt-paved parking and landscaped areas. The building was constructed in 1979 and is in inhabitable condition. Figures are included as Appendix A. Figure 1 - Site Plan depicts the configuration of the Subject Property and adjoining properties. Figure 2 – Topographic Map depicts the location of the Subject Property on the Kirkland, Washington United States Geological Survey (USGS) 7.5 Minute Topographic Quadrangle. Figure 3 - Location Map depicts the location of the Subject Property and proximity to the neighboring properties on an aerial photo of Kirkland, Washington.

2.2 Subject Property Improvements

The parcel is developed with an approximately 7,000 square foot wood framed retail/commercial building, with associated asphalt-paved parking and landscaped areas. The building was constructed in 1979.

2.3 Current Use of the Subject Property

At the time of this assessment, the Subject Property was developed for commercial use. The on-site building was being utilized as construction engineering and management offices associated with property redevelopment on the parcels adjacent north of Totem Lake Way.

2.4 Municipal Services and Utilities

The Subject Property is serviced by the following municipal services and utilities, listed on Table 1, below:

TABLE 1 MUNICIPAL SERVICES AND UTILITIES	
Utility	**Provider/Source**
Water Supply	Available at NE Totem Lake Way. Drinking water purchased from Seattle Public Utilities (SPU) through Cascade Water Alliance in association of regional water districts and cities.
Sewage Disposal System	Sanitary Sewer connection available at NE Totem Lake Way.
Electrical Service	Available at NE Totem Lake Way. Puget Sound Energy (PSE)
Natural Gas Service	Available at NE Totem Lake Way. PSE

2.5 Adjoining Properties

Property use in the vicinity is primarily commercial and City-owned park. Adjoining properties are listed on Table 2, below.

TABLE 2 ADJOINING PROPERTIES	
North	The Subject Property is bordered on the north by Totem Lake Way, with commercial/retail development beyond. Currently under construction.
East	Adjacent to the east of the Subject Property is a 3.68-acre parcel developed with a hotel.
South	The Subject Property is bound to the south by Totem Lake owned by King County.
West	Adjacent to the west of the Subject Property is a 1.02-acre parcel developed with a restaurant.

3.0 USER PROVIDED INFORMATION

The following section summarizes information provided by City of Kirkland with regard to this Phase I ESA. A User Questionnaire was forwarded to the City personnel with knowledge of the Subject Property. The information requested in the User Questionnaire is intended to assist in gathering information that may be material to identifying recognized environmental conditions in connection with the Subject Property. The User Questionnaire and any additional documentation referenced below are presented in Appendix B.

3.1 Title Records

Title record information associated with the Subject Property has not been provided to OSG by City of Kirkland. A detailed discussion regarding review of information obtained from other sources is presented in Section 4.3.5 of this report.

3.2 Environmental Liens and Activity and Use Limitations

City of Kirkland has provided no information regarding environmental liens or activity and use limitations in connection with the Subject Property. A detailed discussion regarding environmental liens is presented in Section 4.3.7 of this report. A detailed discussion regarding activity and use limitations is presented in Sections 4.1.1 and 4.1.2 of this report.

3.3 Specialized Knowledge

City of Kirkland provided two geotechnical reports prepared by Earth Consultants, Inc. in 1978 and by Associated Earth Sciences, Inc. (AESI) in 2017. The Earth Consultants report documented the geotechnical investigation consisting of three borings in the footprint of the proposed retail building. Based on the site soil conditions, Earth Consultants recommended supporting the building foundation on pressure treated timber piles as one alternative due to site soil conditions.

AESI completed three soil boring on the Subject Property. One boring was completed as a monitoring well to document site water levels. Two additional borings were completed off the Subject Property for future boardwalk construction associated with Totem Lake park development.

OSG was not provided with or made aware of previous environmental assessments or other documentation that is material to recognized environmental conditions in connection with the Subject Property, except as presented in Section 4.5.8 of this report.

3.4 Commonly Known or Reasonably Ascertainable Information

No commonly known or reasonably ascertainable information was identified during this assessment.

3.5 Valuation Reduction for Environmental Issues

City of Kirkland has provided no information regarding valuation reduction for environmental issues in connection with the Subject Property.

3.6 Owner, Property Manager, and Occupant Information

City of Kirkland is the current property owner of the parcel. No other information was provided.

3.7 Reason for Performing Phase I ESA

City of Kirkland retained OSG to complete this Phase I ESA in connection with a property redevelopment and planning process.

4.0 RECORDS REVIEW

4.1 Standard Environmental Records

A review of standard environmental databases maintained by federal, state, and tribal offices was completed through Environmental Data Resources, Inc. (EDR) of Shelton, Connecticut. The databases were searched for properties with reported environmental conditions located within approximate minimum search distances as specified by ASTM Standard E 1527-13, by using geocoding information that identified the coordinates of the properties in the databases or by checking the street addresses of practically reviewable non-geocoded "orphan" properties within the same zip code. The database report is presented in Appendix C.

It should be noted that plotted locations of listed sites are not always accurate. With regard to listings that are determined or suspected to be inaccurate, based on information from other sources such as direct observation or consultation with individual's familiar with the property, OSG uses the best available data when evaluating the location of listed sites discussed below.

The following Table 3 provides a summary of the findings of the environmental database report. Specific properties identified within the database report are further discussed below.

TABLE 3
SUMMARY OF STANDARD ENVIRONMENTAL RECORD SOURCES

Report	Search Distance	Subject Property Listed	Sites Within the Search Distance
National Priorities List (NPL)	1 Mile		0
Delisted NPL Sites	0.5 Mile		0
Non-NPL Superfund Enterprise Management System (SEMS)	0.5 Mile		0
SEMS-Archive [CERCLIS No Further Remedial Action Planned (NFRAP)]	0.5 Mile		0
Resource Conservation and Recovery Information System (RCRIS) Generators	Property & Adjoining		0
RCRIS Treatment, Storage and Disposal (TSD) Facilities	0.5 Mile		0
Corrective Action Report (CORRACTS)	1 Mile		0
RCRA Generators List	0.25 mile		**4**
Federal Institutional and Engineering Control Sites	Property Only		0
State Institutional and Engineering Control Sites	Property Only		
Emergency Response Notification System (ERNS)	Property Only		0

TABLE 3 SUMMARY OF STANDARD ENVIRONMENTAL RECORD SOURCES			
Report	**Search Distance**	**Subject Property Listed**	**Sites Within the Search Distance**
Ecology Confirmed and Suspected Contaminated Sites (CSCS) Report	1 Mile		**12**
Ecology- and tribal - equivalent NPL	1 Mile		0
Ecology Database of Registered Underground Storage Tank (UST) Facilities	Property & Adjoining		0
Ecology Database of Leaking Underground Storage Tank (LUST) Facilities	0.5 Mile		**6**
Ecology Voluntary Cleanup Program (VCP) and Independent Cleanup Sites	0.5 Mile		**5**
Ecology Solid Waste Facility Database	0.5 Mile		1
Washington Brownfields	0.5 Mile		0

4.1.1 Federal Agency Database Records

National Priority List (NPL)

The NPL database, also known as the Superfund List, is a subset of CERCLIS and identifies sites that are ranked as high priority for remedial action under the Federal Superfund Act. Neither the Subject Property nor any sites located within one mile of the Subject Property were identified on the NPL.

Delisted National Priority List (NPL)

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425(e), sites may be deleted from the NPL where no further response is appropriate. Neither the Subject Property nor any sites located within ½ mile of the Subject Property were identified on the Delisted NPL database.

Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS)

CERCLIS contains data regarding potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies, and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation and Liability ACT (CERCLA). CERCLIS contains sites that are included on the National Priority List (NPL), as well as sites which are in the screening and assessment phase for possible inclusion on the NPL. Neither the Subject Property nor any sites located

within ½ mile of the Subject Property were identified on the CERCLIS database.

CERCLIS – No Further Remedial Action Planned (CERCLIS-NFRAP)

As of February 1995, CERCLIS sites designated as No Further Remedial Action Planned (NFRAP) have been removed from the CERCLIS list. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed without the need for the site to be placed on the NPL, or the contamination was not considered sufficient to warrant Federal Superfund action or NPL consideration. Neither the Subject Property nor any sites located within ½ mile of the Subject Property were identified on the CERCLIS-NFRAP database.

Resource Conservation and Recovery Act (RCRA) – Corrective Action Tracking System (CORRACTS)

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS). The database includes selective information regarding sites that generate, transport, store, treat, and/or dispose of hazardous waste as defined by RCRA. The RCRA-CORRACTS database identifies TSD facilities that have conducted, or are currently conducting, corrective action(s) as regulated under RCRA. Neither the Subject Property nor any sites located within one mile of the Subject Property were identified on the RCRA CORRACTS database.

RCRA non-CORRACTS Treatment, Storage and/or Disposal (TSD) Facilities

RCRA non-CORRACTS Treatment, Storage and/or Disposal (TSD) facilities are required to register hazardous waste activity under the Resource Conservation and Recovery Act (RCRA). Neither the Subject Property nor any sites located within ½ mile of the Subject Property were identified on the RCRA non-CORRACTS TSD database.

RCRA Hazardous Waste Generators

Hazardous waste generators tracked under the Resource Conservation and Recovery Act (RCRA) are classified as either Large Quantity Generators (LQGs), Small Quantity Generators (SQGs), or Conditionally Exempt Small Quantity Generators (CESQG). A RCRA-LQG is defined as a facility that generates over 1,000 kilograms (Kg) of hazardous waste, or over 1 Kg of acutely hazardous waste per

month. A RCRA-SQG is defined as a facility that generates between 100 Kg and 1,000 Kg of hazardous waste per month. A RCRA-CESQG is defined as a facility that generates less than 100 Kg of hazardous waste, or less than 1 Kg of acutely hazardous waste per month. The Subject Property was not identified on the RCRA Generator database. One Small Quantity Generator, and three Conditionally-Exempt Small Quantity Generators were identified on the RCRA Generator database. These listings are generally not under consideration as RECs unless their accompanying sites are also listed as having releases.

Federal Engineering Control / Institutional Control Registries

The completion of site cleanup activities may include the implementation of engineering controls or institutional controls as part of the response action. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use The Subject Property was not identified on Federal Engineering Control or Institutional Control Registries.

Emergency Response Notification System (ERNS)

ERNS is a national database used to collect information regarding reported releases of petroleum products and/or hazardous substances. The database contains information from spill reports submitted to Federal agencies, including the EPA, the U.S. Coast Guard, the National Response Center, and the U.S. Department of Transportation. A review of this database was conducted in order to determine whether any spills or incidents involving releases of hazardous substances or petroleum products have occurred at the Subject Property. The Subject Property was not identified on the ERNS database.

4.1.2 State and Tribal Agency Database Records

State and Tribal Equivalent NPL Sites and CERCLIS Sites

State and tribal equivalent NPL and CERCLIS databases were searched for sites located within one mile of the Subject Property. The Subject Property was not included on either list. Two equivalent NPL sites were found within one mile of the Subject Property, and twelve CERCLIS (CSCSL) sites were found within one mile of the Subject Property.

State and Tribal Landfill Sites and Solid Waste Disposal Sites

The state and tribal landfill and solid waste disposal site databases identify active or inactive landfill and transfer station facilities, as well as open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites. The Subject Property was not included on the list. One site located within ½ mile of the Subject Property was identified on state or tribal landfill and solid waste disposal site databases.

State and Tribal Leaking Storage Tank Sites

Leaking Storage Tank Sites are properties where releases of hazardous substances or petroleum products from underground storage tanks (USTs) and/or aboveground storage tanks (ASTs) have been identified and reported to state, tribal, or local agencies. The Subject Property was not included on the list. Six sites within ½ mile of the Subject Property were identified in state or tribal leaking storage tank databases.

State and Tribal Registered Storage Tanks

The Underground Storage Tank database contains registered USTs, which are regulated under Subtitle I of RCRA and documented by the Department of Ecology. The Subject Property was not included on the list. Two adjoining properties were identified on state or tribal registered storage tank databases.

State and Tribal Engineering Control / Institutional Control Registries

The completion of site cleanup activities may include the implementation of engineering controls or institutional controls as part of the response action. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls. The Subject Property was not identified on state or tribal Engineering Control or Institutional Control Registries. One property within ½ mile was included on the list.

State and Tribal Voluntary Cleanup Sites

The Subject Property was not identified on state or tribal Voluntary Cleanup Site databases. The Subject Property was not included on the list. Five Voluntary Cleanup Program (VCP) sits and ten Independent Cleanup (ICR) sites were located within ½ mile of the Subject Property.

State and Tribal Brownfield Sites

The Subject Property was not included on the list. One site located within ½ mile of the Subject Property was identified on state or tribal Brownfield Sites databases.

4.1.3 Local Regulatory Agency Records

Local offices consulted during the completion of this assessment included the City of Kirkland Planning and Public Works and Planning & Building Departments, as well as the City of Kirkland Fire Department. OSG requested agency information regarding the Subject Property via the City's online inquiries form. None of the three requested departments had significant documentation of past usage, ownership, building permits, or hazardous materials relating to the Subject Property. OSG did not identify documented adverse environmental conditions, violations, or complaints associated with the Subject Property.

4.1.4 Subject Site

EDR reports the standard environmental record sources required for review under ASTM Standard E1527-13 do not include listings for facilities on the subject property parcels.

4.1.5 Adjoining Properties

EDR reports the standard environmental record sources required for review under ASTM Standard E1527-13 do not include listings for properties adjoining the Subject Property. Although the EDR report lists several sites within 0.25 mile of the Subject Property, several of the listings are on multiple lists, or have multiple names for a single site. Additionally, geocoding of sites, particularly those with multiple addresses or large parcels, may be inaccurate. OSG reviewed the sites listed on the EDR report on the Washington Department of Ecology Toxics Cleanup database (https://fortress.wa.gov/ecy/neighborhood/). Four properties within 1/8 mile were identified. Table 4 summarizes the sites:

Table 4 Ecology Database Summaries		
Site Name	**Site Status**	**Address**
Totem Lake Dry Cleaners	Cleanup Started	12541 120th Ave NE
Totem Lake Chevron 91144	NFA	12500 Totem Lake Blvd NE
Brown Bear Car Wash 5495	Cleanup Started	12421 Totem Lake Blvd NE
Circle V Management Property	NFA	12632 120th Ave NE

Totem Lake Dry Cleaners: The site is part of the State Voluntary Cleanup Program. The original release was reported in 1998, as a release of halogenated solvents to soil and groundwater. A Cleanup Action Plan Report (GeoDesign, 2017) described multiple investigations and remedial actions taken at the site to remediate the solvent. The extent of solvent was found to be within the footprint of the former dry cleaner site, at the southeast corner of the Totem Lake shopping Center, which is north-northwest of the Subject Property. Investigations determined that the contamination did not migrate off-site. The Cleanup Action Plan provided a design for injection of reagents for chemical remediation of the remnant solvent. An opinion letter provided by the Department of Ecology (dated January 16, 2018) stated that, based on the proposed work plan, that a No Further Action determination for the site was likely after completion of remedial efforts and monitoring. A No Further Action has not yet been provided for the site. Based on the lack of evidence of off-site migration of contaminants from the site, OSG does not consider the Totem Lake Dry Cleaners site to constitute a REC at the Subject Property.

Totem Lake Chevron: The site is part of the State Voluntary Cleanup Program. The original release was reported in 2012, with documentation of the removal of a waste oil UST at the site. Additional UST removal and soil excavation took place in 2017. Three gasoline and one diesel fuel USTs were removed from the site, as well as a heating oil UST discovered on the north end of the site. Dispensers associated with the supply USTs were also removed. Approximately 300 cubic yards of petroleum-contaminated soil were removed from the site and disposed of at a licensed facility. Impacted groundwater was not reported. Based on the findings of the remedial action report, Ecology issued a No Furth Action determination in April, 2017 (Ecology, 2017). Based on the lack of evidence of off-site migration of contaminants and NFA determination, OSG does not consider the Totem Lake Chevron site to constitute a REC at the Subject Property.

Brown Bear Car Wash: The site is on the LUST list and was formerly a combined car wash and gas station. According to a Site Hazard Assessment completed by Ecology in 2013, the original petroleum release was discovered in 1990 during UST removal. Subsequent subsurface investigations and remediations removed 400 cubic yards of contaminated soil. Diesel range petroleum hydrocarbons

were remediated to below cleanup levels. Groundwater contamination was identified, and the site gradient was found to be to the north-northeast. Overall, contamination was located at the western end of the site, in the vicinity of the former USTs. Groundwater monitoring and remediation took place between 1995 and 1999. The most recent report available to the Ecology reviewers in 2005 noted that remnant gasoline-range petroleum contamination in groundwater was constrained to one well in the western (upgradient) portion of the site. Groundwater samples in all other monitoring wells on the site did not contain detectable concentrations of petroleum hydrocarbons. Ecology performed a Site Hazard Assessment based on the available data (Ecology, 2013). According to the assessment findings, the site was assigned a rating of '4' out of 5, or low risk of exposure to the environment and humans. Based on the lack of evidence of off-site migration of contaminants and low-risk Site Hazard Assessment determination, OSG does not consider the Brown Bear Car Wash site to constitute a REC at the Subject Property.

Circle V Management Property: Available online documentation for the site was limited. However, the cleanup site details summary available from Ecology documented that the original LUST release was reported in 1995. Ecology performed an assessment of the site in 2011 and prepared a No Further Action opinion in 2012 (Ecology, 2012). The No Further Action letter concluded that soil had been contaminated by a waste oil release. Groundwater was not affected. Per the documentation available to Ecology, soil remediation at the site met state cleanup levels. Based on the lack of evidence of off-site migration of contaminants and NFA determination, OSG does not consider the Circle V Management Property site to constitute a REC at the Subject Property.

4.1.6 Non-Adjoining Properties

EDR reports the standard environmental record sources required for review under ASTM Standard E1527-13 include listings of non-adjoining properties situated within the respective search distance including two Ecology CSCSL sites, two Ecology LUST sites (likely the above-discusses sites), three Ecology ICR sits, and two Ecology CSCSL NFA facilities. These facilities are situated in positions that appear hydrologically non-tributary of the Subject Property, based on the topography, and/or are at

such a distance from the Subject Property that it is unlikely the reported contamination would migrate to the Subject Property.

4.1.7 Tribal Records

EDR provides information on Indian UST, LUST, VCP, open dumps, and brownfields and EDR reports those records do not include listings for facilities on the Subject Property, adjoining properties, or non-adjoining properties situated within the requisite ASTM Standard E1527-13 search distances. Additionally, the Subject Property is not within the reservation boundaries of a federally recognized Indian tribe according to Ecology's "Tribal Land and Reservations" map.

4.2 Additional Environmental Record Sources

Included in the EDR report are additional federal and state environmental records not required for review under ASTM Standard E1527-13. The additional records are listed beginning on page 4 of the EDR report map findings summary. A review revealed 17 listings within the EDR-specified search distances. Most of the sites appear on what EDR brands as "Allsites" databases and includes Ecology's Facility/Site Identification Listing, which is a compendium of all sites under the jurisdiction of various agency programs. The "Allsites" sites appear to reside in locations that are sufficiently distant, and/or is inferred, based on topography, to be hydro-geologically cross/down gradient in relation to the Subject Property. Therefore, it is unlikely that possible contamination at these facilities have adversely impacted the Subject Property.

The EDR report may also include "EDR proprietary records" which are non-regulatory listings that EDR considers as "high risk historical records". The "high risk" records include automotive filling/service stations and dry cleaners that are typically listed in archived business directories. The EDR proprietary records are listed in the EDR report and are not required for review under ASTM Standard E 1527-13.

4.3 Orphan Sites

The EDR report includes a listing of "Orphan" sites that EDR is unable to map because of insufficient location information. Based on a review of facility address information provided by EDR, the two listed orphan sites appear to be located outside of the search distances in Practice ASTM Standard E1527-13, and do not appear to represent a significant environmental risk to the subject property.

4.4 Physical Setting

4.4.1 Regional Physiographic Conditions

The Subject Property is situated on a rolling upland, glacial till plain bound by the Puget Sound on the west and the Cascade Mountain foothills on the east. Locally, the Subject Property is situated near Totem Lake, a 'pothole' type lake. The Subject Property is situated on the northern side of the lake.

4.4.2 Topography

The Subject Property is located at an elevation of approximately 120 to 140 feet above mean sea level (amsl). The subject property slopes down slightly to the south, towards Totem Lake. Totem Lake is situated in an east-west trending channel formed during the most recent Pleistocene glaciation (Earth Consultants, Inc, 1978).

Shallow groundwater flow, as well as potential soil or groundwater contaminant migration, would be expected to be generally southerly, towards the lake (See Figure 2 - Location Map, which depicts the location of the Subject Property on the Kirkland, Washington USGS 7.5 Minute Topographic Quadrangle, 2014).

4.4.3 Geologic and Soil Conditions

According to the USGS' "Geologic Map of the Kirkland Quadrangle, Washington" (Minard, 1983) the geologic unit underlying the Subject Property are pre-glacial transitional beds. Transitional beds in the Subject Property vicinity are typically very dense/hard silts and clays that grade upward to fine sands. These deposits were placed during the interglacial period when the local environment was transitioning for a non-glacial to glacial environment. The Earth Consultants and AESI geotechnical reports interpreted site soils observed during their subsurface investigation as consisting of up to 19 feet of fill soils overlying two to four feet of peat. Dense sands were encountered below the peat.

The United States Department of Agriculture Natural Resource Conservation Service's Web Soil Survey was consulted for information relating to soils underlying the Subject Property. The survey, which typically addresses soil conditions from the ground surface to a depth of five feet, indicates the soil units underlying the Subject Property as a combination of Seattle Muck and Everett very gravelly sandy loam. Seattle Muck is described as a "very deep, very poorly drained organic soils formed in herbaceous and woody deposits in depressions in river valleys and glacial till plains. Slopes are 0 to 1 percent." Everett

very gravelly sandy loam is formed on ice-marginal glacial deposits (kames, eskers, moraines) and is described as a very deep, somewhat excessively drained soil.

4.4.4 Hydrogeology and Hydrology

Near-surface or perched groundwater typically occurs when an underlying soil layer of less permeability prevents the downward percolation of water. Water will build up above the less permeable soil, such as glacial till, and move laterally in the more permeable overlying soils. Wet or saturated soils may also be encountered at depth due to cleaner sand and gravel zones. Groundwater conditions should be expected to fluctuate due to season, amount of precipitation, and other on-site and off-site factors.

The reviewed geologic map and soil survey indicate that transitional beds underlies the Subject Property, although the site geotechnical investigation found shallow fill and peat soils overlying the denser glacial or pre-glacial soils. Groundwater was encountered in the geotechnical borings at an approximate elevation of 120 feet MSL (8 to 20 feet bgs). The monitoring well installed by AESI had a groundwater level of 16 feet bgs at time of drilling. Groundwater levels will likely fluctuate with season, precipitation patterns, and site utilization.

Although groundwater flow direction is difficult to predict without the installation of at least three monitoring wells that measure water levels over time, an estimate of possible near-surface groundwater flow direction is provided to help evaluate potential on-site and off-site contaminant impacts. Groundwater flow direction is the path along which dissolved contaminants might migrate if present in groundwater supplies. Typically, in this region, the near-surface groundwater flow direction generally follows topography. The Subject Property slopes toward the south in the direction of Totem Lake thus potential near-surface groundwater underlying the Subject Property may be to the south. Variations in the assumed flow direction may exist that would remain uncharacterized without performing a subsurface exploration program with groundwater monitoring wells, which is beyond the Phase I scope of work.

4.4.5 Drinking Water Supplies and Water Wells

The City of Kirkland provides drinking water to the subject property through the Cascade Water Alliance (CWA). The Cascade Water Alliance (CWA) purchases its water from the City of Seattle, which obtains its drinking water supply from the Cedar River and Tolt River watersheds in southeast and northeast portions of King County, respectively. Based on the separation distances, it is highly unlikely that the

possible contamination associated with the Subject Property would directly affect these drinking water supplies.

A review of water well reports on the Washington Department of Ecology's Well Log website did not reveal reports for drinking water wells located within approximately one-half-mile of the Subject Property.

4.5 Historical Use of the Subject Property and Adjoining Properties

Using historical aerial photographs, city directories, fire insurance maps, personal interviews and land title records, OSG attempted to assess the history of the Subject Property dating back to 1940 or first developed use. OSG identified historical vicinity records dating back to 1895, and documentation of site development dating back to 1980. The following Table 4 summarizes the historical use of the Subject Property and surrounding area.

TABLE 4
HISTORICAL USE SUMMARY

Period	Historical Uses		Source(s)
	Subject Property	Surrounding Area	
1895-1980	Unoccupied Lot	Primarily Undeveloped; limited residential/agricultural development. Commercial/urban development begins in late 1960s	Aerial Photographs Topographic Maps City Directories Municipal Records
1980 to Present	Developed with commercial building and associated paved parking and landscaping.	Commercial/urban development and arterial roadways	Aerial Photographs Topographic Maps City Directories Municipal Records Personal Interviews

4.5.1 Aerial Photographs

Historical aerial photographs may be used to evaluate changes in land use and to identify visible areas of potential environmental concern. A search for historical aerial photographs depicting the Subject Property and vicinity was conducted by Environmental Data Resources, Inc. (EDR). It should be noted that the scale of the available aerial photographs precludes the distinct identification of structures

and/or land uses on or in the vicinity of the Subject Property. Aerial photographs depicting the Subject Property were reviewed and are summarized below.

OSG retained Environmental Data Resources, Inc. (EDR) to provide aerial photographs of the Subject Property and immediate surrounding area. OSG additionally viewed online aerial photograph images via Google Earth. The reviewed aerial photographs and images are listed below. The EDR Aerial Photograph Decade Package is included in Appendix D.

Photograph Date	Source	Color or Black & White	Base Scale
1941	EDR	B&W	1”=500’
1944	EDR	B&W	1”=500’
1952	EDR	B&W	1”=500’
1965	EDR	B&W	1”=500’
1968	EDR	B&W	1”=500’
1973	EDR	B&W	1”=500’
1977	EDR	B&W	1”=500’
1980	EDR	B&W	1”=500’
1985	EDR	B&W	1”=500’
1990	EDR	B&W	1”=500’
2006	EDR	Color	1”=500’
2009	EDR	Color	1”=500’
2013	EDR	Color	1”=500’
2017	EDR	Color	1”=500’

In the review of the aerial photographs, observations are interpretative and limited to the area within approximately one-quarter-mile of the lease area. The scale of each photograph did not provide a clear image of specific site characteristics. However, we were able to discern the absence and presence of structures on the lease area, as well as developmental trends in the immediate subject area.

1941 - 1952

The 1941 and 1944 photographs are difficult to decipher due to clarity; however, it appears that the Subject Property is undeveloped and vacant. Totem Lake is present adjacent to the southeast. The Northern Pacific Railroad alignment is present adjacent southeast of Totem Lake. Surrounding properties appear to be primarily developed as agriculture and single-family residences. An apparent orchard is approximately 500 feet north of the Subject Property. A roughly east-west secondary road equivalent to the current Northeast 124th Street is present approximately 500 feet south of the Subject

Property. The Subject Property is partially graded and cleared in the 1952 aerial photograph. Surrounding land use is generally unchanged.

1965-1968

A 1965 and 1968 aerial photographs show that the Subject Property has mostly revegetated and remains undeveloped. Grading and clearing has occurred on the adjacent north parcels in 1965, and the parcels appear to be returned to agricultural use in 1968. A roadway along the current Interstate 405 has been constructed approximately 500 feet west of the subject property, and arterial roads to the south of the Subject Property have been improved. Apparent commercial-scale development is visible south of Northeast 124th Street in 1965 and 1968.

1973-1977

Conditions on the Subject Property appear to be similar to those depicted on the 1968 aerial photograph. The profile of Totem Lake has been modified, possibly from filling and dredging during local development activities. The adjacent north parcel has been graded and cleared, and the Totem Lake Mall development is visible in the 1973 photograph, with extension of the commercial structures in the 1977 photograph. Continued urban/commercial infilling is visible to the south and southwest of the Subject Property. The Interstate 405 alignment is improved to a four-lane highway in the 1977 photograph, with associated access road and arterial improvements.

1980, 1985 and 1990

The Subject Property is developed in its current configuration in the 1980 photograph. A commercial-scale structure is built at the east end of the Subject Property, with the remainder of the Property developed with paved parking. A commercial-scale structure is visible adjacent west of the Subject Property in the 1980 photograph, and a second commercial-scale structure is visible adjacent east of the Subject Property in the 1990 photograph. The adjacent north Totem Lake Mall area is substantially unchanged. Continued urban/commercial infilling is visible to the south and southwest of the Subject Property.

2006, 2009, 2013 and 2017

Aerial photographs dated 2006, 2009, 2013 and 2017 show the Subject Property and immediate surrounding area developed much as they appear today.

4.5.2 Sanborn Fire Insurance Maps

OSG retained EDR to conduct a search of available Sanborn Map Company fire insurance maps for the Subject Property. Sanborn maps, as they are commonly referred, typically detail building construction type and use, and may show underground and above ground storage tanks, chemical storage areas, and other recognized environmental conditions. The collection dates from 1866 and includes over 1.2 million Sanborn maps chronicling the history of approximately 12,000 American cities and towns. A search for historical fire insurance maps depicting the Subject Property and vicinity was conducted by EDR Sanborn Maps, Inc. The EDR Report indicated that coverage for the vicinity of the Subject Property was not available. The EDR Certified Sanborn Map Report is included in Appendix D.

4.5.3 Topographic Maps

Historical topographic maps provide information related to physical land configuration such as elevation, ground slope, surface water and other features. While most buildings in densely developed urban centers are not depicted, topographic maps typically show structures equal to or larger than the size of a single-family residence in rural areas. Other notable features such as woods, pipelines, municipal boundaries, and areas of filled land are often marked on topographic maps.

A search for historical topographic maps depicting the Subject Property and vicinity was conducted by Environmental Data Resources, Inc. (EDR). Historical topographic maps depicting the Subject Property were reviewed and are summarized below. Copies of the topographic maps are presented in Appendix D.

Date: **1895, Snohomish, WA**

Description: No structures are depicted on the Subject Property. Secondary roads are present south of the subject property within one-quarter mile. Several small, possibly single-family residential structures are shown approximately a one-half mile south of the Subject Property along a secondary road.

Date: **1897, Snohomish, WA**

Description: Conditions on the Subject Property and adjoining properties appear similar to those depicted in the 1895 map. The 1968 map depicts increased development in the surrounding area.

Date: **1950, Kirkland, WA**

Description: No development is depicted on the Subject Property. Totem Lake is depicted adjacent south, with on outlet stream flowing to the west. Northern Pacific Railroad is located southeast of Totem Lake and runs in a northeast-southwest alignment at that location. Secondary roads in the Subject Property vicinity have been improved and expanded, and residential-scale structures are depicted within one-quarter mile of the Subject Property.

Date: **1968, Kirkland, WA**

Description: No development is depicted on the Subject Property. Grading and development is depicted to the west of the Subject Property Roadways in the general area have been expanded and improved and the Interstate 405 alignment is depicted approximately 1,000 feet west of the Subject Property. Commercial-scale structures are depicted within one-half mile of the Subject Property, with increased commercial/urban development in the surrounding area.

Date: **1973, Kirkland, WA**

Description: No development is depicted on the Subject Property. The profile of Totem Lake has been modified, and the outlet stream is no longer depicted. The Totem Lake Mall development is depicted as a shaded polygon. The Interstate 405 alignment has been modified, with associated access roads and improvement to arterial streets.

Date: **2014, Kirkland, WA**

Description: No development is depicted on the Subject Property. The topographic map format does not depict area development types. The Burlington Northern Railroad alignment is no longer shown to the southeast of Totem Lake. Roadways in the general area have been expanded and improved.

4.5.4 Street Directories

Street directories are commercial publications containing names and addresses, and in many cases, occupations of the occupants of a particular community. The directories may also contain information pertaining to business processes conducted within a community. A search for historical street directories was conducted by Environmental Data Resources, Inc. (EDR). Historical street directories dating back to 1969 and reviewed on approximately five-year intervals are summarized below.

The Subject Property was not listed prior to 1982. From 1982 to 1992, the Subject Property was first listed as 'Sea Galley Restaurant.' The Subject Property was subsequently listed as the 'Cowboy Steakhouse & Saloon' on the 1992 through 2000 directories, and as 'Rosarita' in 2005. The 2010 and 2014 directories listed the Subject Property as 'Yuppie Pawn.' Surrounding property listings in the reviewed directories consisted primarily office/commercial listings. No commercial or industrial listings were found on the reviewed directories that would be considered to constitute a REC.

Copies of the street directories are presented in Appendix D.

4.5.5 Recorded Land Title Records

Land title records provide information on previous ownership of a property. Typically, deeds signifying transfer of a land parcel are recorded in county files and can be researched to determine the identity of past owners. A "chain of title" is a continuous record of ownership for a specific parcel. A chain of title was not provided for the Subject Property. However, a search for Environmental Liens and Activity and Use Limitations (discussed in Section 4.5.7 of this Assessment) indicated that the title of the Subject Property belongs to the City of Kirkland.

4.5.6 Property Tax Records

The property card for the Subject Property was obtained at the King County Assessor's Office. The property card identifies the owner as of 2014 as the City of Kirkland. Assessor's Office records indicate that the property consists of a 7,000 square foot retail building and parking. Prior ownership of the property was by 'Rosarita, LLC.' Copies of the property tax records are presented in Appendix E.

4.5.7 Environmental Liens and Activity and Use Limitations

A search for Environmental Liens and Activity and Use Limitations of the Subject Property was conducted by EDR; none were found. A copy of the Environmental Lien and Activity and Use Limitations report is presented in Appendix F.

4.5.8 Previous Environmental Reports

OSG was not provided with or made aware of previous environmental assessments or other documentation regarding environmental investigations performed for the Subject Property. OSG did not identify previous environmental reports for the Subject Property at local agencies or other sources contacted during this assessment.

4.5.9 Other Historical Records and Interviews

The User Questionnaire was sent to the City, but not returned at the time of this printing.

5.0 SUBJECT PROPERTY RECONNAISSANCE

5.1 On-Site Inspection Observations

Vance Atkins of OSG conducted a reconnaissance of the Subject Property on November 14, 2018. The purpose of the site reconnaissance was to evaluate current conditions on the Subject Property to look for recognized, controlled, and historic environmental conditions. The weather was mostly sunny and in the mid 50°s. Site visit photographs are included in Appendix G.

Table 5 summarizes OSG's observations of the Subject Property and project site. A discussion of the observed environmental concerns follows Table 5.

TABLE 5
SITE RECONNAISSANCE OBSERVATIONS

Environmental Concern	Observed by OSG?	
	Subject Property	Adjacent Properties
1. Above ground indications of underground storage tanks (USTs).	No	No
2. Above ground storage tanks of hazardous substances or petroleum.	No	No
3. Drums or other containers of hazardous substances or petroleum.	No	No
4. Surface staining on soil, pavement, or other surfaces that is indicative of a hazardous substance or petroleum release.	No	No
5. Strong, pungent, or noxious odors.	No	No
6. Stressed vegetation.	No	No
7. Pits, ponds, or lagoons used in connection with waste disposal or waste treatment.	No	No
8. Indication of fill including soil or solid waste.	No	No
9. Debris piles or illicit waste disposal including possible suspect asbestos-containing material waste.	No	No
10. Drains or sumps.	No	No
11. Equipment that may contain polychlorinated biphenyls (PCBs).	No	No
12. Wells including water wells, abandoned wells, monitoring wells, and dry wells.	**Yes**	No
13. Septic systems.	No	No
14. Possible lead-based paint that may be disturbed during demolition or construction.	**Unk** (See below)	No
15. Suspect asbestos-containing materials that may be disturbed during demolition or construction.	**Unk** (See below)	No
16. Other recognized environmental conditions that indicate a possible hazardous substance or petroleum release.	No	No

General Observations

The Property is currently developed with an approximately 7,000 square foot wood frame commercial building located at the eastern end of the parcel. The majority of the remainder of the Subject Property is occupied by paved parking and landscaped areas. The property is currently used as office space and occupied by construction management and engineering personnel associated with property redevelopment north of Totem Lake Way. A temporary office trailer is located south of the commercial building.

5.2 Adjacent Site and Vicinity Observations

Vance Atkins of OSG conducted a reconnaissance of the area surrounding the Subject Property on November 14, 2018. The purpose of this reconnaissance was to observe land use in the Subject Property vicinity and to evaluate the potential for nearby businesses or facilities to generate, use, or store hazardous substances that may affect the Subject Property. The off-site reconnaissance was generally non-intrusive with the adjoining properties observed from the Subject Property and public rights-of-way.

The adjoining properties are developed as noted in Section 3.5. OSG did not observe readily apparent recognized environmental conditions on parcels immediately adjoining the Subject Property, that in OSG's opinion, may adversely environmentally affect the Subject Property.

5.3 Methodology and Limiting Conditions

The Subject Property reconnaissance consisted of visual and/or physical observations of the Subject Property, adjoining properties as viewed from the Subject Property boundaries, and the surrounding area based on visual observations made from adjacent public thoroughfares. At the time of the survey, the weather was clear and approximately 50º Fahrenheit.

5.4 Hazardous Substances and Petroleum Products

5.4.1 Hazardous Substances and Petroleum Products

OSG did not observe staining, discoloration, odors, or other readily apparent indications of a hazardous substance or petroleum release in these areas. Hazardous material use and storage at the Subject Property was limited to small quantities of fuel and maintenance materials used for fueling construction equipment (power tools and off-road 4-wheelers). Fuel was stored in containers of less than five gallons

capacity and most hazardous materials were stored in a secure flammables cabinet. Housekeeping around other portions of the Subject Property appeared good and OSG did not observe readily apparent indications of hazardous substance or petroleum releases on the Subject Property.

5.4.2 Unidentified Substances Containers

OSG did not observe evidence of unidentified substances containers at the Subject Property.

5.5 Waste Generation, Storage, and Disposal

Non-regulated solid waste was not found improperly disposed of at the Subject Property. Commercial containers for solid waste and recycling were observed to the west of the Subject Property building.

5.6 Underground Storage Tanks (USTs) & Aboveground Storage Tanks (ASTs)

5.6.1 Existing Storage Tanks

OSG identified no evidence of current USTs or ASTs located at the Subject Property.

5.6.2 Former Storage Tanks

Based upon site reconnaissance, interviews, and a review of state and local records, OSG identified no evidence of former USTs or ASTs located at the Subject Property.

5.7 Oil-Containing Equipment and Polychlorinated Biphenyls (PCBs)

OSG did not observe any oil-containing equipment or evidence of PCBs at the Subject Property. Electrical service for the Property originates from underground power lines along Totem Lake Way. No transformers were observed. Based on these observations, it is unlikely that possible PCBs associated with the transformers have adversely environmentally affected the project site.

5.8 Monitoring Wells

A monitoring well cover was observed at the western portion of the Subject Property. Based on discussions with AESI personnel, the well was one of two installed as part of their 2017 geotechnical investigation. The well was not associated with groundwater quality monitoring or other uses.

5.9 Lead-Based Paint and Asbestos-Containing Building Materials

Lead-based paint and Asbestos-Containing Building Material (ACBM) surveys are not part of the Phase I ESA scope of work.

6.0 INTERVIEWS

The City of Kirkland identified Brian Baker, as a contact knowledgeable of the Subject Property history and development. The User Questionnaire was forwarded to City of Kirkland. The User Questionnaire and any accompanying documentation is presented in Appendix B.

TABLE 6
INTERVIEWS

Contact / Affiliation	Date of Communication	Years Associated with Subject Property	Telephone No.
Brian Baker, City of Kirkland	8/23/17	7	206-617-2119

Brian Baker of the City of Kirkland, the current Property owner, was interviewed on November 19, 2018. The City has owned the Property since February, 2014, and purchased it from the prior owner, Rosarita, LLC. The property was developed as a restaurant at that time. Mr. Baker was not aware of any hazardous materials use or releases at the Property. He did not report any USTs or ASTs currently or formerly in use at the Property. The residence was on public electricity, water, natural gas, and sanitary sewer. He reported that some filling and ground improvement had occurred at the Subject Property, based, in part, on geotechnical report recommendations prior to its development in 1979, and provided a copy of the geotechnical report for review (discussed in Section 3.3). No dumping or waste disposal had occurred at the Property.

7.0 CONDITIONS OUTSIDE THE SCOPE OF ASTM PRACTICE E 1527-13

The following sections address environmental issues or conditions at the Subject Property that parties may wish to assess in connection with commercial real estate that are outside the scope of ASTM Practice E 1527-13 (non-scope considerations).

7.1 Asbestos-Containing Material (ACM)

Asbestos is a term used to describe a group of six naturally occurring crystalline fiber minerals. Asbestos has excellent thermal stability, a high degree of tensile strength, and has been used extensively in the textile, insulation, and building industries, particularly as a component in fireproofing, decorative coatings, insulation materials, and as reinforcement for plaster binders in building products. Asbestos-containing building materials are generally classified as friable or non-friable. Friable materials are those which can be crumbled, pulverized, or reduced to powder by hand pressure, or by normal use or maintenance can be expected to emit asbestos fibers into the air. Non-friable ACM is a potential concern if it is damaged by maintenance work, demolition, or other activities, at which time it may be considered friable.

7.2 Lead-Based Paint (LBP)

Use of lead in household paint was banned by the U.S. Environmental Protection Agency (EPA) effective January 1, 1978. The EPA and the U.S. Department of Housing and Urban Development (HUD) consider lead-based paint as containing a lead concentration equal to or greater than 1.0 milligram per square centimeter (mg/cm^2) or 0.5% lead by weight, as defined by Title X of the 1992 Housing and Community Development Act.

Based on the construction date of the structure (1979), it was built as these products were phased out for construction use (1977 and 1978, respectively), although some remnant stock of these products was still utilized past that date. Med-Tox Northwest, a hazardous building materials consultant, conducted a survey and sampling of the building. Their report will be provided under separate cover.

8.0 LIMITED PHASE II ESA

Although treated wood piles do not typically meet the definition of a REC, OSG was requested to conduct an investigation to confirm the presence of piles, and assess soil conditions, if accessible.

8.1 Soil Sampling

On November 19, 2018, OSG was on site with AESI during their limited geotechnical investigation at the building structure. The purpose of the geotechnical investigation was to assess the presence of piles or other foundation structures at the building. OSG conducted soil sampling at the time of the investigation to assess soil impacts that may be associated with treated wood piles or filling. See Figure 2 for sampling locations.

8.1.1 Soil Sample Collection Methods

AESI's contractor excavated a test pit/trench along the southwestern side of the building to expose the building foundation.

Soil samples from the borings were collected from the excavation or from the excavator bucket. Each soil sample was logged by an OSG geologist for physical properties such as grain size, color, and moisture. After sample collection, a portion was placed into pre-cleaned laboratory prepared glass jars and vials with Teflon lids.

All samples were immediately placed into ice-filled coolers and delivered to Fremont Environmental Laboratory in Seattle, Washington under standard chain-of-custody procedures.

8.1.2 Analytical Methods

OSG collected selected soil samples for analysis by Fremont Analytical, a Washington Department of Ecology-accredited analytical laboratory for:

- Diesel and heavy oil-range petroleum hydrocarbons by Washington Method NWTPH-Dx
- Polyaromatic hydrocarbons by EPA Method 8270
- MTCA 5 metals (arsenic, cadmium, chromium, lead, mercury) be EPA Method 6020/7471

Analyses were performed in accordance with Fremont's in-house Quality Assurance/Quality Control Plans. Sample analyses were performed in compliance with EPA analytical methods and Ecology

guidelines. Samples were analyzed within specified holding times. Detection limits were within method requirements and no factors appeared to adversely affect data quality.

8.2 Results

8.2.1 Field Observations and Screening

Approximately four feet of sandy fill soils were observed, and one treated wood pile was exposed. A second pile was identified by probing under the building footprint, but not exposed. Native soils (silt with sand and peat) were encountered at approximately four feet. OSG collected one soil sample from fill soils adjacent to the pile (TP-1-2) and two samples from native soils adjacent to the pile and building footprint (TP-1-4 and TP-1-5). See Figure 2 for soil sample locations.

Soil samples were field screened for indications of petroleum contamination including strong petroleum related odors. No positive indications of contamination were encountered during field screening.

8.2.2 Analytical Results

Soil sample results are summarized in Table 7. The full analytical report is included in Appendix J.

Oil range petroleum and carcinogenic PAHs were detected in the shallow fill soil sample (TP-1-2). Carcinogenic PAH concentrations exceeded the MTCA Method A Cleanup level in that sample. Other PAHs were detected but did not exceed cleanup levels. Metals were detected, but within concentrations typical of local background conditions. Significant detections of petroleum, PAHs, or metals were not detected in the two native soil samples.

9.0 FINDINGS AND OPINIONS

OSG has performed this Phase I ESA of the Subject Property in conformance with the scope and limitations of ASTM Standard E 1527-13. Any exceptions to, or deletions from, this practice are described in Section 1.0 of this report. Based upon the aforementioned research, this assessment did not identify recognized environmental conditions (RECs) in connection with the Subject Property.

However, the presence of treated wood piles underlying the were of concern for potential impacts to fill soils that may require excavation as part of the property redevelopment. OSG collected representative samples at the building footprint as part of a geotechnical investigation of the existing building foundation and support.

cPAHs were identified in shallow fill soils adjacent to the treated wood piles. If the fill soils underlying the building footprint require disturbance as part of construction or ground improvement, they should be further characterized and profiled for off-site disposal at a licensed facility. If the piles are to be removed or cut off, they may be handled and disposed in accordance with the Departments of Ecology's guidance for treated wood (attached as Appendix K).

10.0 RECOMMENDATIONS

Based upon the findings of this investigation, OSG recommends that:

- cPAHs were identified in shallow fill soils adjacent to the treated wood piles. If the fill soils underlying the building footprint require disturbance as part of construction or ground improvement, they should be further characterized and profiled for off-site disposal at a licensed facility. If the piles are to be removed or cut off, they may be handled and disposed in accordance with the Departments of Ecology's guidance for treated wood.

11.0 REFERENCES

PHASE I ENVIRONMENTAL SITE ASSESSMENT REFERENCES

ASTM Designation E 1527-13 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.

Associated Earth Sciences, Inc., Subsurface Exploration, Geologic Hazard, and Geotechnical Engineering Report, Totem Lake Park, Kirkland, Washington, dated September 29, 2017.

Earth Consultants, Inc., Soil and Foundation Investigation, Proposed Sea Galley Restaurant, Totem Lake, Kirkland, Washington, dated October 17, 1978.

Environmental Data Resources, Inc., EDR Aerial Photograph report; Inquiry No. 5463995.8, dated October 25, 2018.

Environmental Data Resources, Inc., EDR Historical Topographic Map report; Inquiry No. 5463995.4, dated October 24, 2018.

Environmental Data Resources, Inc., The EDR Radius Report with GeoCheck®; Inquiry No. 5463995.2s, dated October 24, 2018.

Environmental Data Resources, Inc., The EDR-City Directory Abstract; Inquiry No. 5463995.5, dated October 29, 2018.

Environmental Data Resources, Inc., Certified Sanborn Report; Inquiry No. 5463995.3, dated October 24, 2018.

Environmental Data Resources, Inc., The EDR-Environmental Lien and AUL Search; Inquiry No. 5018368.2, dated December 10, 2018.

GeoDesign, 2017, Cleanup Action Plan, Former Totem Lake Dry Cleaners, dated November 17, 2017

USGS Topographic Map, Kirkland, Washington Quadrangle, 7.5-Minute Series, dated 2014.

Web Soil Survey, NRCS, U.S. Department of Agriculture, November 1, 2018, Online: http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

Washington Department of Ecology, No Further Action Determination associated with Leaking Underground Storage Tank Site: Circle V Management Property, dated May 2, 2012

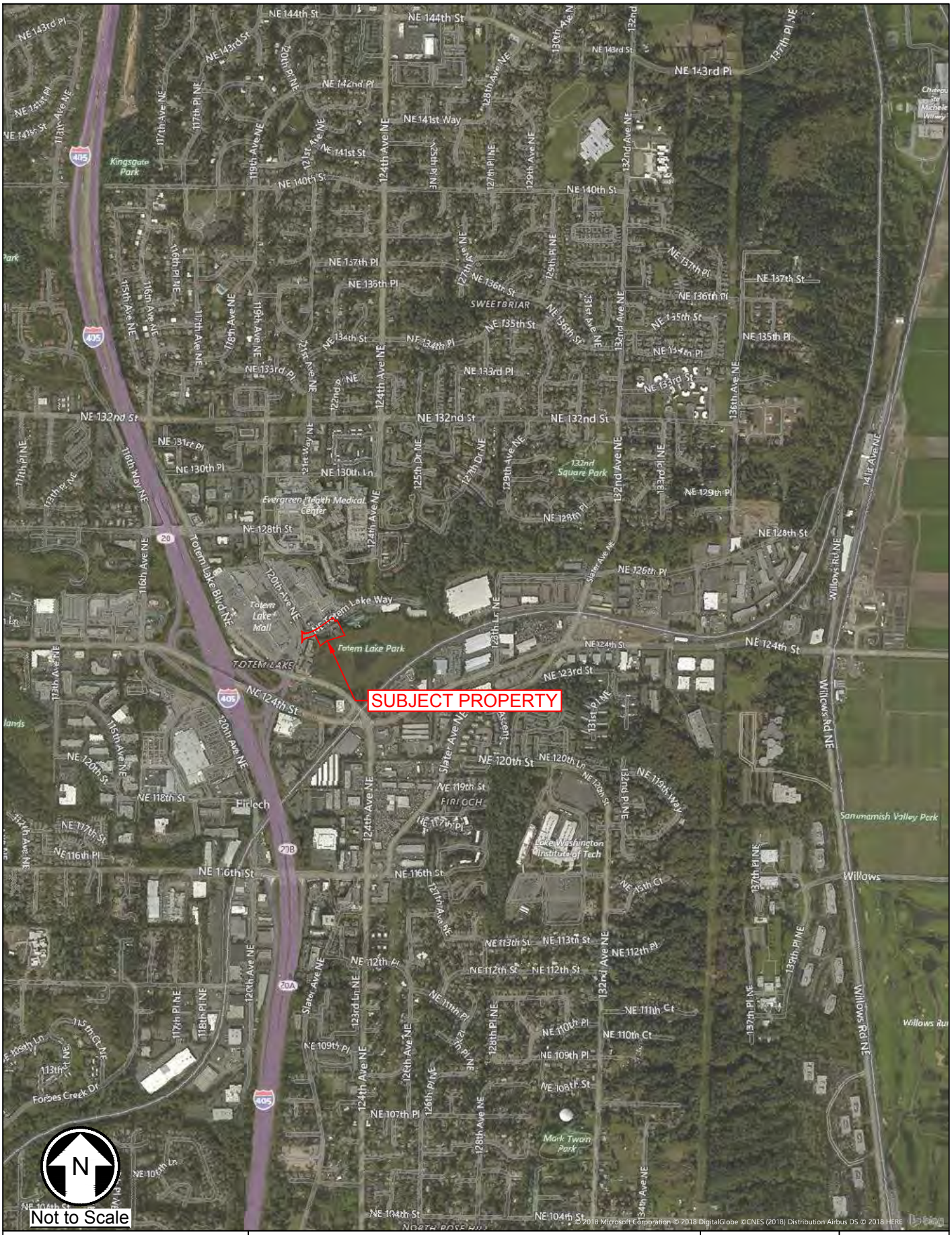
Washington Department of Ecology, Site Hazard Assessment, Brown Bear Car Wash 5495, dated December 10, 2013

Washington Department of Ecology, No Further Action at the Following Site: Totem Lake Chevron 91144, dated April 26, 2017

Washington Department of Ecology, Opinion on Proposed Cleanup of the Following Site: Totem Lake Drycleaners, dated January 16, 2018

APPENDIX A

FIGURES



OSG O'Neill Service Group	CITY OF KIRKLAND TOTEM LAKE PHASE I 12031 TOTEM LAKE WAY KIRKLAND, WASHINGTON	Drawn By: J. Stewart	FIGURE
		Reviewed By: V. Atkins	
		Approved By: V. Atkins	1
	SITE LOCATION PLAN	Date: December 2018	
		Project No.: 1956	

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LEGEND

TP1-2 SOIL SAMPLE LOCATIONS

EB-1W GEOTECHNICAL INVESTIGATION WELL

N

50 0 50 100

SCALE IN FEET

O'Neill Service Group

CITY OF KIRKLAND TOTEM LAKE PHASE I
12031 TOTEM LAKE WAY
KIRKLAND, WASHINGTON

SITE PLAN

Drawn By:	J. Stewart
Reviewed By:	V. Atkins
Approved By:	V. Atkins
Date:	December 2018
Project No.:	1956

FIGURE

2

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APPENDIX B

USER QUESTIONNAIRE

X3. USER QUESTIONNAIRE

INTRODUCTION

In order to qualify for one of the *Landowner Liability Protections (LLPs)*[187] offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001 (the "*Brownfields Amendments*"),[188] the *user* must conduct the following inquiries required by 40 CFR 312.25, 312.28, 312.29, 312.30, and 312.31. These inquiries must also be conducted by EPA Brownfield Assessment and Characterization grantees. The *user* should provide the following information to the *environmental professional*. Failure to conduct these inquiries could result in a determination that "*all appropriate inquiries*" is not complete.

(1.) Environmental liens that are filed or recorded against the *property* (40 CFR 312.25).
Did a search of *recorded land title records* (or judicial records where appropriate, see Note 1 below) identify any environmental liens filed or recorded against the *property* under federal, tribal, state or local law?

NOTE 1—In certain jurisdictions, federal, tribal, state, or local statutes, or regulations specify that environmental liens and AULs be filed in judicial records rather than in land title records. In such cases judicial records must be searched for environmental liens and AULs.

Unknown

(2.) Activity and use limitations that are in place on the *property* or that have been filed or recorded against the *property* (40 CFR 312.26(a)(1)(v) and vi)).
Did a search of *recorded land title records* (or judicial records where appropriate, see Note 1 above) identify any AULs, such as *engineering controls*, land use restrictions or *institutional controls* that are in place at the *property* and/or have been filed or recorded against the *property* under federal, tribal, state or local law?

Unknown

(3.) Specialized knowledge or experience of the person seeking to qualify for the LLP (40 CFR 312.28).
Do you have any specialized knowledge or experience related to the *property* or nearby properties? For example, are you involved in the same line of business as the current or former *occupants* of the *property* or an *adjoining property* so that you would have specialized knowledge of the chemicals and processes used by this type of business?

I have no prior knowledge of this property or if any chemicals were used on this site.

(4.) Relationship of the purchase price to the fair market value of the *property* if it were not contaminated (40 CFR 312.29).
Does the purchase price being paid for this *property* reasonably reflect the fair market value of the *property*? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the *property*?

The City paid fair market value and no known contamination existed on site at that time or currently

(5.) Commonly known or *reasonably ascertainable* information about the *property* (40 CFR 312.30).
Are you aware of commonly known or *reasonably ascertainable* information about the *property* that would help the *environmental professional* to identify conditions indicative of releases or threatened releases? For example,

(a.) Do you know the past uses of the *property*? Office space, restaurant
(b.) Do you know of specific chemicals that are present or once were present at the *property*? No
(c.) Do you know of spills or other chemical releases that have taken place at the *property*? No
(d.) Do you know of any environmental cleanups that have taken place at the *property*? No

(6.) The degree of obviousness of the presence or likely presence of contamination at the *property*, and the ability to detect the contamination by appropriate investigation (40 CFR 312.31).
Based on your knowledge and experience related to the *property* are there any *obvious* indicators that point to the presence or likely presence of releases at the *property*? I Have no documentation supporting the presence of contamination on this property.

[187] *Landowner Liability Protections*, or *LLPs*, is the term used to describe the three types of potential defenses to Superfund liability in EPA's *Interim Guidance Regarding Criteria Landowners Must Meet in Order to Qualify for Bona Fide Prospective Purchaser, Contiguous Property Owner, or Innocent Landowner Limitations on CERCLA Liability* ("*Common Elements*" Guide) issued on March 6, 2003.
[188] P.L. 107-118.

X3.1 In addition, certain information should be collected, if available, and provided to the *environmental professional* conducting the *Phase I Environmental Site Assessment*. This information is intended to assist the *environmental professional*, but is not necessarily required to qualify for one of the *LLPs*. The information includes:

(a) the reason why the Phase I is being performed,

(b) the type of *property* and type of *property* transaction, for example, sale, purchase, exchange, etc.,

(c) the complete and correct address for the *property* (a map or other documentation showing *property* location and boundaries is helpful),

APPENDIX C

REGULATORY DATABASE REPORT

Totem Lake Park Ph I
12031 NE TOTEM LAKE WAY
Kirkland, WA 98034

Inquiry Number: 5463995.2s
October 24, 2018

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

12031 NE TOTEM LAKE WAY
KIRKLAND, WA 98034

COORDINATES

Latitude (North):	47.7117510 - 47˚ 42' 42.30''
Longitude (West):	122.1779200 - 122˚ 10' 40.51''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	561666.0
UTM Y (Meters):	5284372.0
Elevation:	134 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	6005535 KIRKLAND, WA
Version Date:	2014

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20150825, 20150807
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
12031 NE TOTEM LAKE WAY
KIRKLAND, WA 98034

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	TOTEM LAKE MALL	12620 120TH AVE. NE	WA ICR	Lower	108, 0.020, WNW
A2	TOTEM LAKE MALL (TWO	12620 120TH AVE. NE	WA ICR	Lower	108, 0.020, WNW
B3	TOTEM LAKE CLEANERS	12541 120TH AVE NE	EDR Hist Cleaner	Lower	193, 0.037, SW
B4	TOTEM LAKE DRY CLEAN	12541 120TH AVE NE	WA CSCSL, WA VCP, WA ALLSITES, RCRA NonGen / NLR,...	Lower	193, 0.037, SW
A5	CIRCLE V MANAGEMENT	12632 120TH AVE. NE	WA ICR	Lower	212, 0.040, WNW
A6	CIRCLE V MANAGEMENT	12632 120TH AVE NE	WA UST, WA ALLSITES, WA CSCSL NFA	Lower	212, 0.040, WNW
A7	HC AUTO CARE INC TOT	12632 120TH AVE NE	RCRA NonGen / NLR, FINDS, ECHO	Lower	212, 0.040, WNW
B8	DAC CORP	12521 120TH NE	EDR Hist Cleaner	Lower	282, 0.053, SW
B9	HOLVE ENTERPRISES IN	12500 TOTEM LAKE BLV	EDR Hist Auto	Lower	310, 0.059, SW
B10	THE VILLAGE AT TOTEM	12500 120TH AVE NE -	WA ALLSITES	Lower	350, 0.066, SW
B11	LEE JANG JAE	12451-120TH AVE NE	EDR Hist Cleaner	Lower	362, 0.069, SW
B12	CHEVRON #9 1144	12500 TOTEM LAKE BLV	WA ICR	Lower	402, 0.076, SW
B13	TOTEM LAKE CHEVRON 9	12500 TOTEM LAKE BLV	WA UST, WA VCP, WA ALLSITES, WA CSCSL NFA, RCRA...	Lower	402, 0.076, SW
14	TOTEM LK TWIN-42 IN	120TH AVE NE AND TOT	WA ALLSITES	Lower	473, 0.090, SSW
15	TOTEM LAKE MALL	12600 TOTEM LAKE BLV	WA ALLSITES, WA ASBESTOS	Lower	567, 0.107, WNW
16	JEFFERSON HOUSE MEMO		WA ALLSITES	Higher	669, 0.127, NNE
17	(FORMER DENNYS RESTA	12106 NE 124TH ST	WA ALLSITES, WA ASBESTOS	Higher	696, 0.132, SSW
18	WA DOT TOTEM LAKE IN	I405 BETWEEN NE 118T	WA ALLSITES	Higher	702, 0.133, SW
C19	CAR WASH ENTERPRISES	12302 NE 124TH ST	WA HSL, WA CSCSL, WA LUST, WA UST, WA ALLSITES,...	Higher	779, 0.148, SSE
C20	RITE AID 5192	12421 TOTEM LAKE BLV	WA ALLSITES	Higher	779, 0.148, SSE
C21	RITE AID #5192	12421 TOTEM LAKE BLV	RCRA-CESQG	Higher	779, 0.148, SSE
C22	CAR WASH ENTERPRISES	12302 NE 124TH ST.	WA ICR	Higher	912, 0.173, South
D23	SHELL STATION 120565	12221 124TH AVENUE N	WA CSCSL, WA LUST, WA UST, WA ALLSITES, RCRA...	Higher	1024, 0.194, South
D24	TEXACO STATION CO-OP	12221 NE 124TH	WA ICR, WA SPILLS	Higher	1024, 0.194, South
E25	DISCOUNT TIRE PROPER	12410 NE 124TH ST	WA UST, WA ALLSITES	Higher	1037, 0.196, SSE
F26	EVERGREEN HOSPITAL M	12040 NE 128TH ST	RCRA-SQG, WA UST, WA ALLSITES, FINDS, ECHO, WA...	Higher	1055, 0.200, North
F27	SEATTLE CANCER CARE	12040 NE 128TH ST ST	WA ALLSITES, WA MANIFEST	Higher	1055, 0.200, North
F28	SEATTLE CANCER CARE	12040 NE 128TH ST ST	RCRA-CESQG	Higher	1055, 0.200, North
E29	RJB WHOLESALE INC	12418 NE 124TH ST	WA UST, WA ALLSITES	Higher	1077, 0.204, SE
G30	RUSSELL J BECK	12442 NE 124TH ST PO	WA UST, WA ALLSITES	Higher	1127, 0.213, SE
G31	WESCO AUTOBODY SUPPL	12532 NE 124TH ST	WA ALLSITES, RCRA NonGen / NLR, FINDS, ECHO	Higher	1153, 0.218, ESE
E32	EVERGREEN AUTO REBUI	12350 124TH AVE NE	RCRA-CESQG, WA ALLSITES, WA CSCSL NFA, FINDS,...	Higher	1183, 0.224, SSE
H33	THURMAN INDUSTRIES I	12626 NE 124TH ST	WA UST, WA ALLSITES	Lower	1240, 0.235, ESE
34	WANG MANAGEMENT CO	12421 124TH AVE NE	WA ALLSITES, RCRA NonGen / NLR, FINDS, ECHO	Higher	1252, 0.237, South
I35	QUAKER STATE MINIT L	12427 NE 124TH ST.	WA ICR	Higher	1259, 0.238, SE
I36	MINIT-LUBE 1067	12427 NE 124TH ST	WA UST, WA ALLSITES, WA CSCSL NFA	Higher	1259, 0.238, SE
H37	TOYOTA OF KIRKLAND	12612 NE 124TH ST	WA ALLSITES, RCRA NonGen / NLR, WA MANIFEST	Higher	1296, 0.245, ESE
J38	FRANCIS VILLAGE	12601 NE 124TH ST	WA ALLSITES	Higher	1414, 0.268, ESE
J39	CIRCUIT TECHNOLOGY I	12704 NE 124TH ST 25	WA ALLSITES	Higher	1463, 0.277, ESE

MAPPED SITES SUMMARY

Target Property Address:
12031 NE TOTEM LAKE WAY
KIRKLAND, WA 98034

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
40	OSBORNE SPERRY DENTA	11830 NE 128TH ST	WA ALLSITES, RCRA NonGen / NLR, FINDS, ECHO	Higher	1479, 0.280, NW
K41	HAVLIKS RADIATOR SVC	11851 124TH AVE NE	WA ALLSITES, RCRA NonGen / NLR, FINDS, ECHO, WA...	Higher	1491, 0.282, SSE
K42	NELSONS AUTOMOTIVE S	11821 124TH AVE NE	WA ALLSITES, RCRA NonGen / NLR, FINDS, ECHO	Higher	1491, 0.282, SSE
K43	MOSS DOCTORS	11923 124TH AVE NE	WA ALLSITES, WA SPILLS	Higher	1491, 0.282, SSE
K44	MACRO TECHNOLOGIES L	11815 124TH AVE NE	RCRA-LQG, WA ALLSITES, FINDS, ECHO, WA MANIFEST	Higher	1491, 0.282, SSE
45	LENNAR TOTEM LAKE AP	11811 NE 128TH ST	WA ALLSITES, WA NPDES	Higher	1531, 0.290, NW
46	FRED MEYER STORES IN	12221 120TH AVE NE	RCRA-LQG, WA CSCSL, WA LUST, WA UST, WA SWRCY, WA	Higher	1626, 0.308, SW
47	NE 120TH STREET ROAD	SLATER AVE AND 124TH	WA ALLSITES	Higher	1630, 0.309, SSE
48	SHERWIN WILLIAMS CO	12731 NE 124TH ST	WA ALLSITES, FINDS, ECHO, WA MANIFEST	Higher	1642, 0.311, ESE
L49	VERIZON KIRKLAND GAR	12055 SLATER AVE NE	WA ALLSITES	Higher	1660, 0.314, SE
L50	GTE VEHICLE CENTER	12055 SLATER AVE.	WA ICR	Higher	1660, 0.314, SE
L51	GTE VEHICLE CENTER	12055 SLATER AVE NE	WA CSCSL NFA	Higher	1660, 0.314, SE
L52	GTE VEHICLE CENTER	12055 SLATER AVE NE	WA INST CONTROL	Higher	1660, 0.314, SE
K53	TOTEM SQUARE LP	12063 124TH AVE NE	WA ALLSITES, RCRA NonGen / NLR, FINDS, ECHO	Higher	1672, 0.317, SSE
54	FRED MEYER FUEL CENT	12301 120TH AVE NE	WA ALLSITES	Higher	1720, 0.326, WSW
M55	EXXON 72428	12412 116TH AVE NE	WA HSL, WA CSCSL, WA LUST, WA VCP, WA ALLSITES, WA.	Lower	1721, 0.326, West
M56	EXXON #7 2428	12412 116TH NE	WA ICR	Lower	1721, 0.326, West
57	QUALITY FINISHING IN	12706 NE 124TH ST	WA ALLSITES	Higher	1806, 0.342, East
58	TOTEM LAKE AUTO SVC	11902 124TH AVE NE	WA ALLSITES, RCRA NonGen / NLR, FINDS, ECHO	Higher	1822, 0.345, SSE
N59	DAVES AUTO PAINTING	11947 124TH AVE NE	WA ALLSITES, RCRA NonGen / NLR, FINDS, ECHO, WA...	Higher	1840, 0.348, SSE
60	12528 NE 129TH COURT	12528 NE 129TH COURT	US BROWNFIELDS	Higher	1858, 0.352, NNE
N61	N GRAVERS INC	11943 124TH AVE NE	WA ALLSITES, RCRA NonGen / NLR, FINDS, ECHO	Higher	1870, 0.354, SSE
62	KIRKLAND PONTIAC	12335 120TH AVE NE	WA ALLSITES, RCRA NonGen / NLR, FINDS, ECHO	Higher	1877, 0.355, WSW
63	US CLEANERS	12547 116TH AVE NE	WA ALLSITES, RCRA NonGen / NLR, FINDS, ECHO, WA...	Lower	1938, 0.367, WNW
N64	GALLERIA REFINISHERS	11933 124TH AVE NE	WA ALLSITES, RCRA NonGen / NLR, FINDS, ECHO	Higher	1945, 0.368, SSE
65	ARCO 6031	11450 NE 124TH ST	WA CSCSL, WA LUST, WA VCP, WA ALLSITES, RCRA...	Higher	1963, 0.372, West
66	CIR QUICK INCORPORAT	12817 NE 126TH PL	WA ALLSITES, RCRA NonGen / NLR, FINDS, ECHO	Higher	1969, 0.373, ENE
O67	EAST URBAN AUTO SVC	11841 SLATER AVE	WA ALLSITES, RCRA NonGen / NLR, FINDS, ECHO	Higher	1976, 0.374, SE
N68	IMPORT CAR SVC INC	11926 124TH AVE NE	WA ALLSITES, RCRA NonGen / NLR, FINDS, ECHO	Higher	2056, 0.389, SSE
N69	BUCHAN BROS INVESTME	11924 124TH AVE NE	WA UST, WA ALLSITES	Higher	2060, 0.390, SSE
P70	NORTHWEST CONSTRUCTI	11831 120TH AVE NE	WA CSCSL, WA LUST, WA UST, WA ALLSITES	Higher	2091, 0.396, SSW
P71	EVERGREEN AUTO REBUI	11731 120TH AVE NE S	WA ALLSITES	Higher	2105, 0.399, SSW
72	WASHINGTON ELECTRIC	12815 NE 124TH	WA ALLSITES, RCRA NonGen / NLR, FINDS, ECHO	Higher	2137, 0.405, East
P73	EASTSIDE SPRAYING SE	11803 120TH AVE NE	WA ALLSITES, FINDS	Higher	2154, 0.408, SSW
74	SCOTTS LAWNSERVICE K	12910 NE 125TH WAY	WA ALLSITES	Higher	2154, 0.408, East
O75	CRITTER DOCTOR ANIMA	11828 SLATER AVE NE	WA ALLSITES	Higher	2157, 0.409, SE
76	KIRKLAND CHRYSLER PL	12828 NE 124TH ST	WA UST, WA ALLSITES, RCRA NonGen / NLR, FINDS,...	Lower	2180, 0.413, East
P77	SPECTRA LUX CORP	11825 120TH NE	WA ALLSITES, RCRA NonGen / NLR	Higher	2227, 0.422, SSW
Q78	PREMIUM TUNE N LUBE	11727 124TH AVE NE	WA UST, WA ICR, WA VCP, WA ALLSITES, WA CSCSL NFA,...	Higher	2249, 0.426, South

MAPPED SITES SUMMARY

Target Property Address:
12031 NE TOTEM LAKE WAY
KIRKLAND, WA 98034

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
R79	ROSETTA INPHARMATICS	12040 115TH AVE NE S	WA ALLSITES, RCRA NonGen / NLR, FINDS, ECHO, NY...	Higher	2259, 0.428, WSW
Q80	THOMASON FORD TOYOTA	11800 124TH AVE NE	WA UST, WA ALLSITES	Higher	2326, 0.441, SSE
81	HYUNDAI OF KIRKLAND	11651 SLATER AVE NE	WA ALLSITES	Higher	2339, 0.443, SSE
82	SAVERS RECYCLING, IN	12515 116TH AVE NE	WA SWRCY, WA SPILLS	Lower	2347, 0.445, West
S83	FOOD & DRUG ADMIN, O	11411 NE 124TH ST	WA ALLSITES, WA MANIFEST	Higher	2356, 0.446, West
84	NEXTEL PNW 2-3	11710 118TH AVE NE	WA ALLSITES, WA NPDES	Higher	2370, 0.449, SSW
R85	SKELETECH INC	12026 115TH AVE NE	WA ALLSITES, RCRA NonGen / NLR, FINDS, ECHO	Higher	2373, 0.449, WSW
R86	ROSETTA INPHARMATICS	12004 115TH AVE NE	WA ALLSITES, RCRA NonGen / NLR, FINDS, ECHO	Higher	2373, 0.449, WSW
S87	AMERITECH LASER INC	11410 NE 124TH ST 13	WA SWF/LF	Higher	2384, 0.452, West
88	LIFEBRIDGE	11725 NE 118TH ST	WA ALLSITES, WA ASBESTOS, WA NPDES	Higher	2451, 0.464, SW
T89	CLARKS WHEEL	12232 NE 116TH ST ST	WA ALLSITES	Higher	2522, 0.478, South
T90	ESCHEN AUTOMOTIVE IN	12232 NE 116TH ST ST	WA ALLSITES	Higher	2522, 0.478, South
91	AT&T WIRELESS JUANIT	11616 120TH AVE NE	WA ALLSITES, FINDS	Higher	2540, 0.481, SSW
T92	ULTRA ONE HOUR CLEAN	11613 124TH AVE NE	WA ALLSITES, RCRA NonGen / NLR, FINDS, ECHO, WA...	Higher	2544, 0.482, South
93	STEELFORM CONTRACTIN	12230 NE 116TH ST	WA UST, WA ALLSITES	Higher	2610, 0.494, South
94	I405 NE 116TH ST INT	INTERSECTION OF I405	WA ALLSITES, WA CSCSL NFA	Higher	2631, 0.498, South
95	CONOCOPHILLIPS 26031	12235 NE 116TH	WA CSCSL, WA LUST, WA VCP, WA ALLSITES, WA SPILLS,...	Higher	2834, 0.537, South
96	EASTSIDE PETROLEUM C	11520 120TH AVE NE	WA CSCSL, WA LUST, WA UST, WA ALLSITES, FINDS, WA...	Higher	2909, 0.551, SSW
97	MIRACLE DRY CLEANERS	13205 NE 124TH ST ST	WA CSCSL, WA ALLSITES, WA Inactive Drycleaners	Higher	3225, 0.611, East
98	GRAHAM STEEL CORP	13210 N E 124TH ST/P	WA CSCSL, WA LUST, WA UST, WA VCP, WA ALLSITES	Higher	3473, 0.658, East
99	WASTE MANAGEMENT SNO	13225 NE 126TH PL	WA CSCSL, WA VCP, WA ALLSITES, WA SPILLS	Higher	3632, 0.688, East

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ..... National Priority List
Proposed NPL ..... Proposed National Priority List Sites
NPL LIENS ..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ..... National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY ..... Federal Facility Site Information listing
SEMS ..... Superfund Enterprise Management System

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE ..... Superfund Enterprise Management System Archive

Federal RCRA CORRACTS facilities list

CORRACTS ..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ..... RCRA - Treatment, Storage and Disposal

Federal institutional controls / engineering controls registries

LUCIS ..... Land Use Control Information System
US ENG CONTROLS ..... Engineering Controls Sites List
US INST CONTROL ..... Sites with Institutional Controls

Federal ERNS list

ERNS ..... Emergency Response Notification System

State and tribal leaking storage tank lists

INDIAN LUST ..... Leaking Underground Storage Tanks on Indian Land

EXECUTIVE SUMMARY

State and tribal registered storage tank lists

FEMA UST ..... Underground Storage Tank Listing
WA AST ..... Aboveground Storage Tank Locations
INDIAN UST ..... Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

INDIAN VCP ..... Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

WA BROWNFIELDS ..... Brownfields Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Landfill / Solid Waste Disposal Sites

WA SWTIRE ..... Solid Waste Tire Facilities
INDIAN ODI ..... Report on the Status of Open Dumps on Indian Lands
DEBRIS REGION 9 ..... Torres Martinez Reservation Illegal Dump Site Locations
ODI ..... Open Dump Inventory
IHS OPEN DUMPS ..... Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL ..... Delisted National Clandestine Laboratory Register
WA CDL ..... Clandestine Drug Lab Contaminated Site List
WA HIST CDL ..... List of Sites Contaminated by Clandestine Drug Labs
US CDL ..... National Clandestine Laboratory Register

Local Land Records

LIENS 2 ..... CERCLA Lien Information

Records of Emergency Release Reports

HMIRS ..... Hazardous Materials Information Reporting System
WA SPILLS 90 ..... SPILLS 90 data from FirstSearch

Other Ascertainable Records

FUDS ..... Formerly Used Defense Sites
DOD ..... Department of Defense Sites
SCRD DRYCLEANERS ..... State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR ..... Financial Assurance Information
EPA WATCH LIST ..... EPA WATCH LIST
2020 COR ACTION ..... 2020 Corrective Action Program List
TSCA ..... Toxic Substances Control Act
TRIS ..... Toxic Chemical Release Inventory System
SSTS ..... Section 7 Tracking Systems
ROD ..... Records Of Decision
RMP ..... Risk Management Plans

EXECUTIVE SUMMARY

RAATS ..... RCRA Administrative Action Tracking System
PRP ..... Potentially Responsible Parties
PADS ..... PCB Activity Database System
ICIS ..... Integrated Compliance Information System
FTTS ..... FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS ..... Material Licensing Tracking System
COAL ASH DOE ..... Steam-Electric Plant Operation Data
COAL ASH EPA ..... Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER ..... PCB Transformer Registration Database
RADINFO ..... Radiation Information Database
HIST FTTS ..... FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS ..... Incident and Accident Data
CONSENT ..... Superfund (CERCLA) Consent Decrees
INDIAN RESERV ..... Indian Reservations
FUSRAP ..... Formerly Utilized Sites Remedial Action Program
UMTRA ..... Uranium Mill Tailings Sites
LEAD SMELTERS ..... Lead Smelter Sites
US AIRS ..... Aerometric Information Retrieval System Facility Subsystem
US MINES ..... Mines Master Index File
ABANDONED MINES ..... Abandoned Mines
UXO ..... Unexploded Ordnance Sites
DOCKET HWC ..... Hazardous Waste Compliance Docket Listing
FUELS PROGRAM ..... EPA Fuels Program Registered Listing
WA AIRS ..... Washington Emissions Data System
WA COAL ASH ..... Coal Ash Disposal Site Listing
WA DRYCLEANERS ..... Drycleaner List
WA UIC ..... Underground Injection Wells Listing

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP ..... EDR Proprietary Manufactured Gas Plants

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

WA RGA HWS ..... Recovered Government Archive State Hazardous Waste Facilities List
WA RGA LF ..... Recovered Government Archive Solid Waste Facilities List
WA RGA LUST ..... Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

STANDARD ENVIRONMENTAL RECORDS

Federal RCRA generators list

RCRA-SQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

A review of the RCRA-SQG list, as provided by EDR, and dated 03/01/2018 has revealed that there is 1 RCRA-SQG site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
EVERGREEN HOSPITAL M EPA ID:: WA0000345306	***12040 NE 128TH ST***	***N 1/8 - 1/4 (0.200 mi.)***	***F26***	***201***

RCRA-CESQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

A review of the RCRA-CESQG list, as provided by EDR, and dated 03/01/2018 has revealed that there are 3 RCRA-CESQG sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
RITE AID #5192 EPA ID:: WAH000039734	12421 TOTEM LAKE BLV	SSE 1/8 - 1/4 (0.148 mi.)	C21	161
SEATTLE CANCER CARE EPA ID:: WAH000042102	12040 NE 128TH ST ST	N 1/8 - 1/4 (0.200 mi.)	F28	329
EVERGREEN AUTO REBUI EPA ID:: WAD070392303	***12350 124TH AVE NE***	***SSE 1/8 - 1/4 (0.224 mi.)***	***E32***	***338***

State- and tribal - equivalent NPL

WA HSL: The Hazardous Sites List is a subset of the CSCSL Report. It includes sites which have been assessed and ranked using the Washington Ranking Method (WARM).

A review of the WA HSL list, as provided by EDR, and dated 08/22/2018 has revealed that there are 2 WA HSL sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CAR WASH ENTERPRISES Facility Type: Hazardous Sites List FSID Number: 83988889	***12302 NE 124TH ST***	***SSE 1/8 - 1/4 (0.148 mi.)***	***C19***	***143***

Facility Status: Cleanup Started

Lower Elevation	Address	Direction / Distance	Map ID	Page
EXXON 72428 Facility Type: Hazardous Sites List FSID Number: 85348955 Facility Status: Cleanup Started	***12412 116TH AVE NE***	***W 1/4 - 1/2 (0.326 mi.)***	***M55***	***478***

State- and tribal - equivalent CERCLIS

WA CSCSL: The State Hazardous Waste Sites records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. The data come from the Department of Ecology's Confirmed & Suspected Contaminated Sites List.

A review of the WA CSCSL list, as provided by EDR, and dated 07/16/2018 has revealed that there are 12 WA CSCSL sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CAR WASH ENTERPRISES Site Status: Cleanup Started Facility ID: 83988889 Clean Up Siteid: 6745	***12302 NE 124TH ST***	***SSE 1/8 - 1/4 (0.148 mi.)***	***C19***	***143***
SHELL STATION 120565 Site Status: Cleanup Started Facility ID: 41716978 Clean Up Siteid: 9061	***12221 124TH AVENUE N***	***S 1/8 - 1/4 (0.194 mi.)***	***D23***	***168***
FRED MEYER STORES IN Site Status: Cleanup Started Facility ID: 51971957 Clean Up Siteid: 9528	***12221 120TH AVE NE***	***SW 1/4 - 1/2 (0.308 mi.)***	***46***	***432***
ARCO 6031 Site Status: Cleanup Started Facility ID: 79226415 Clean Up Siteid: 10551	***11450 NE 124TH ST***	***W 1/4 - 1/2 (0.372 mi.)***	***65***	***514***
NORTHWEST CONSTRUCTI Site Status: Cleanup Started Facility ID: 37172442 Clean Up Siteid: 5968	***11831 120TH AVE NE***	***SSW 1/4 - 1/2 (0.396 mi.)***	***P70***	***557***
CONOCOPHILLIPS 26031 Site Status: Cleanup Started Facility ID: 32821675 Clean Up Siteid: 8727	***12235 NE 116TH***	***S 1/2 - 1 (0.537 mi.)***	***95***	***621***
EASTSIDE PETROLEUM C Site Status: Awaiting Cleanup Facility ID: 29783797 Clean Up Siteid: 12045	***11520 120TH AVE NE***	***SSW 1/2 - 1 (0.551 mi.)***	***96***	***631***
MIRACLE DRY CLEANERS	***13205 NE 124TH ST ST***	***E 1/2 - 1 (0.611 mi.)***	***97***	***636***

Site Status: Cleanup Started Facility ID: 4915 Clean Up Siteid: 11679				
GRAHAM STEEL CORP Site Status: Cleanup Started Facility ID: 37124273 Clean Up Siteid: 5967	***13210 N E 124TH ST/P***	***E 1/2 - 1 (0.658 mi.)***	***98***	***639***
WASTE MANAGEMENT SNO Site Status: Cleanup Started Facility ID: 36181742 Clean Up Siteid: 11817	***13225 NE 126TH PL***	***E 1/2 - 1 (0.688 mi.)***	***99***	***645***

Lower Elevation	Address	Direction / Distance	Map ID	Page
TOTEM LAKE DRY CLEAN Site Status: Cleanup Started Facility ID: 43136797 Clean Up Siteid: 394	***12541 120TH AVE NE***	***SW 0 - 1/8 (0.037 mi.)***	***B4***	***9***
EXXON 72428 Site Status: Cleanup Started Facility ID: 85348955 Clean Up Siteid: 10813	***12412 116TH AVE NE***	***W 1/4 - 1/2 (0.326 mi.)***	***M55***	***478***

State and tribal landfill and/or solid waste disposal site lists

WA SWF/LF: The Solid Waste Facilities/Landfill Sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data come from the Department of Ecology's Solid Waste Facilities Handbook.

A review of the WA SWF/LF list, as provided by EDR, has revealed that there is 1 WA SWF/LF site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
AMERITECH LASER INC Database: SWF/LF, Date of Government Version: 09/04/2018 Facility ID: 686	11410 NE 124TH ST 13	W 1/4 - 1/2 (0.452 mi.)	S87	606

State and tribal leaking storage tank lists

WA LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the Department of Ecology's Leaking Underground Storage Tanks Site List.

A review of the WA LUST list, as provided by EDR, has revealed that there are 6 WA LUST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CAR WASH ENTERPRISES Database: LUST, Date of Government Version: 08/10/2018	***12302 NE 124TH ST***	***SSE 1/8 - 1/4 (0.148 mi.)***	***C19***	***143***

Facility Status: Cleanup Started
Cleanup Site ID: 6745
Facility ID: 83988889

SHELL STATION 120565 ***12221 124TH AVENUE N*** ***S 1/8 - 1/4 (0.194 mi.)*** ***D23*** ***168***
Database: LUST, Date of Government Version: 08/10/2018
Facility Status: Cleanup Started
Cleanup Site ID: 9061
Facility ID: 41716978

FRED MEYER STORES IN ***12221 120TH AVE NE*** ***SW 1/4 - 1/2 (0.308 mi.)*** ***46*** ***432***
Database: LUST, Date of Government Version: 08/10/2018
Facility Status: Cleanup Started
Cleanup Site ID: 9528
Facility ID: 51971957

ARCO 6031 ***11450 NE 124TH ST*** ***W 1/4 - 1/2 (0.372 mi.)*** ***65*** ***514***
Database: LUST, Date of Government Version: 08/10/2018
Facility Status: Monitoring
Cleanup Site ID: 10551
Facility ID: 79226415

NORTHWEST CONSTRUCTI ***11831 120TH AVE NE*** ***SSW 1/4 - 1/2 (0.396 mi.)*** ***P70*** ***557***
Database: LUST, Date of Government Version: 08/10/2018
Facility Status: Cleanup Started
Cleanup Site ID: 5968
Facility ID: 37172442

Lower Elevation	Address	Direction / Distance	Map ID	Page
EXXON 72428	***12412 116TH AVE NE***	***W 1/4 - 1/2 (0.326 mi.)***	***M55***	***478***

Database: LUST, Date of Government Version: 08/10/2018
Facility Status: Cleanup Started
Cleanup Site ID: 10813
Facility ID: 85348955

State and tribal registered storage tank lists

WA UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Ecology's Statewide UST Site/Tank Report.

A review of the WA UST list, as provided by EDR, and dated 05/01/2018 has revealed that there are 10 WA UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CAR WASH ENTERPRISES	***12302 NE 124TH ST***	***SSE 1/8 - 1/4 (0.148 mi.)***	***C19***	***143***

Site Id: 6895
Facility ID: 83988889

SHELL STATION 120565 ***12221 124TH AVENUE N*** ***S 1/8 - 1/4 (0.194 mi.)*** ***D23*** ***168***
Site Id: 4419
Facility ID: 41716978

DISCOUNT TIRE PROPER ***12410 NE 124TH ST*** ***SSE 1/8 - 1/4 (0.196 mi.)*** ***E25*** ***199***
Site Id: 490630

Facility ID: 62752569				
EVERGREEN HOSPITAL M Site Id: 11668 Facility ID: 77233621	***12040 NE 128TH ST***	***N 1/8 - 1/4 (0.200 mi.)***	***F26***	***201***
RJB WHOLESALE INC Site Id: 10195 Facility ID: 32459291	***12418 NE 124TH ST***	***SE 1/8 - 1/4 (0.204 mi.)***	***E29***	***332***
RUSSELL J BECK Site Id: 8162 Facility ID: 11122758	***12442 NE 124TH ST PO***	***SE 1/8 - 1/4 (0.213 mi.)***	***G30***	***333***
MINIT-LUBE 1067 Site Id: 97536 Facility ID: 41585457	***12427 NE 124TH ST***	***SE 1/8 - 1/4 (0.238 mi.)***	***I36***	***367***

Lower Elevation	Address	Direction / Distance	Map ID	Page
CIRCLE V MANAGEMENT Site Id: 323998 Facility ID: 49465148	***12632 120TH AVE NE***	***WNW 0 - 1/8 (0.040 mi.)***	***A6***	***15***
TOTEM LAKE CHEVRON 9 Site Id: 5079 Facility ID: 43619955	***12500 TOTEM LAKE BLV***	***SW 0 - 1/8 (0.076 mi.)***	***B13***	***23***
THURMAN INDUSTRIES I Site Id: 4385 Facility ID: 96934556	***12626 NE 124TH ST***	***ESE 1/8 - 1/4 (0.235 mi.)***	***H33***	***364***

State and tribal institutional control / engineering control registries

WA INST CONTROL: Sites that have institutional controls.

A review of the WA INST CONTROL list, as provided by EDR, and dated 07/16/2018 has revealed that there is 1 WA INST CONTROL site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
GTE VEHICLE CENTER Facility Site ID: 2555 CS ID: 5147	12055 SLATER AVE NE	SE 1/4 - 1/2 (0.314 mi.)	L52	475

State and tribal voluntary cleanup sites

WA VCP: Sites that have entered either the Voluntary Cleanup Program or its predecessor Independent Remedial Action Program.

A review of the WA VCP list, as provided by EDR, and dated 07/16/2018 has revealed that there are 5 WA VCP sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ARCO 6031	***11450 NE 124TH ST***	***W 1/4 - 1/2 (0.372 mi.)***	***65***	***514***

Facility ID: 79226415 Cleanup Siteid: 10551				
PREMIUM TUNE N LUBE Facility ID: 14423498 Cleanup Siteid: 5567	***11727 124TH AVE NE***	***S 1/4 - 1/2 (0.426 mi.)***	***Q78***	***574***

Lower Elevation	Address	Direction / Distance	Map ID	Page
TOTEM LAKE DRY CLEAN Facility ID: 43136797 Cleanup Siteid: 394	***12541 120TH AVE NE***	***SW 0 - 1/8 (0.037 mi.)***	***B4***	***9***
TOTEM LAKE CHEVRON 9 Facility ID: 43619955 Cleanup Siteid: 6081	***12500 TOTEM LAKE BLV***	***SW 0 - 1/8 (0.076 mi.)***	***B13***	***23***
EXXON 72428 Facility ID: 85348955 Cleanup Siteid: 10813	***12412 116TH AVE NE***	***W 1/4 - 1/2 (0.326 mi.)***	***M55***	***478***

WA ICR: These are remedial action reports Ecology has received from either the owner or operator of the site. These actions have been conducted without department oversight or approval and are not under an order or decree.

A review of the WA ICR list, as provided by EDR, and dated 12/01/2002 has revealed that there are 10 WA ICR sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CAR WASH ENTERPRISES	12302 NE 124TH ST.	S 1/8 - 1/4 (0.173 mi.)	C22	164
TEXACO STATION CO-OP	***12221 NE 124TH***	***S 1/8 - 1/4 (0.194 mi.)***	***D24***	***197***
QUAKER STATE MINIT L	12427 NE 124TH ST.	SE 1/8 - 1/4 (0.238 mi.)	I35	367
GTE VEHICLE CENTER	12055 SLATER AVE.	SE 1/4 - 1/2 (0.314 mi.)	L50	474
PREMIUM TUNE N LUBE	***11727 124TH AVE NE***	***S 1/4 - 1/2 (0.426 mi.)***	***Q78***	***574***

Lower Elevation	Address	Direction / Distance	Map ID	Page
TOTEM LAKE MALL	12620 120TH AVE. NE	WNW 0 - 1/8 (0.020 mi.)	A1	8
TOTEM LAKE MALL (TWO	12620 120TH AVE. NE	WNW 0 - 1/8 (0.020 mi.)	A2	8
CIRCLE V MANAGEMENT	12632 120TH AVE. NE	WNW 0 - 1/8 (0.040 mi.)	A5	14
CHEVRON #9 1144	12500 TOTEM LAKE BLV	SW 0 - 1/8 (0.076 mi.)	B12	19
EXXON #7 2428	12412 116TH NE	W 1/4 - 1/2 (0.326 mi.)	M56	484

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: The EPA's listing of Brownfields properties from the Cleanups in My Community program, which provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

A review of the US BROWNFIELDS list, as provided by EDR, and dated 06/18/2018 has revealed that there

is 1 US BROWNFIELDS site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
12528 NE 129TH COURT ACRES property ID: 16066	12528 NE 129TH COURT	NNE 1/4 - 1/2 (0.352 mi.)	60	497

Local Lists of Landfill / Solid Waste Disposal Sites

WA SWRCY: A llisting of recycling center locations.

A review of the WA SWRCY list, as provided by EDR, and dated 07/24/2018 has revealed that there are 2 WA SWRCY sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
FRED MEYER STORES IN	***12221 120TH AVE NE***	***SW 1/4 - 1/2 (0.308 mi.)***	***46***	***432***

Lower Elevation	Address	Direction / Distance	Map ID	Page
SAVERS RECYCLING, IN	***12515 116TH AVE NE***	***W 1/4 - 1/2 (0.445 mi.)***	***82***	***589***

Local Lists of Hazardous waste / Contaminated Sites

Information on facilities and sites of interest to the Department of Ecology.

A review of the WA ALLSITES list, as provided by EDR, and dated 07/09/2018 has revealed that there are 73 WA ALLSITES sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
JEFFERSON HOUSE MEMO Facility Id: 13974		NNE 1/8 - 1/4 (0.127 mi.)	16	134
(FORMER DENNYS RESTA Facility Id: 23687	***12106 NE 124TH ST***	***SSW 1/8 - 1/4 (0.132 mi.)***	***17***	***134***
WA DOT TOTEM LAKE IN Facility Id: 21859	I405 BETWEEN NE 118T	SW 1/8 - 1/4 (0.133 mi.)	18	143
CAR WASH ENTERPRISES Facility Id: 83988889	***12302 NE 124TH ST***	***SSE 1/8 - 1/4 (0.148 mi.)***	***C19***	***143***
RITE AID 5192 Facility Id: 22463	12421 TOTEM LAKE BLV	SSE 1/8 - 1/4 (0.148 mi.)	C20	161
SHELL STATION 120565 Facility Id: 41716978	***12221 124TH AVENUE N***	***S 1/8 - 1/4 (0.194 mi.)***	***D23***	***168***
DISCOUNT TIRE PROPER Facility Id: 62752569	***12410 NE 124TH ST***	***SSE 1/8 - 1/4 (0.196 mi.)***	***E25***	***199***
EVERGREEN HOSPITAL M Facility Id: 77233621	***12040 NE 128TH ST***	***N 1/8 - 1/4 (0.200 mi.)***	***F26***	***201***
SEATTLE CANCER CARE Facility Id: 23717	***12040 NE 128TH ST ST***	***N 1/8 - 1/4 (0.200 mi.)***	***F27***	***319***
RJB WHOLESALE INC	***12418 NE 124TH ST***	***SE 1/8 - 1/4 (0.204 mi.)***	***E29***	***332***

Facility Id: 32459291				
RUSSELL J BECK Facility Id: 11122758	***12442 NE 124TH ST PO***	***SE 1/8 - 1/4 (0.213 mi.)***	***G30***	***333***
WESCO AUTOBODY SUPPL Facility Id: 18211813	***12532 NE 124TH ST***	***ESE 1/8 - 1/4 (0.218 mi.)***	***G31***	***334***
EVERGREEN AUTO REBUI Facility Id: 2396	***12350 124TH AVE NE***	***SSE 1/8 - 1/4 (0.224 mi.)***	***E32***	***338***
WANG MANAGEMENT CO Facility Id: 93747955	***12421 124TH AVE NE***	***S 1/8 - 1/4 (0.237 mi.)***	***34***	***365***
MINIT-LUBE 1067 Facility Id: 41585457	***12427 NE 124TH ST***	***SE 1/8 - 1/4 (0.238 mi.)***	***I36***	***367***
TOYOTA OF KIRKLAND Facility Id: 51838333	***12612 NE 124TH ST***	***ESE 1/8 - 1/4 (0.245 mi.)***	***H37***	***369***
FRANCIS VILLAGE Facility Id: 14624	12601 NE 124TH ST	ESE 1/4 - 1/2 (0.268 mi.)	J38	376
CIRCUIT TECHNOLOGY I Facility Id: 15877344	12704 NE 124TH ST 25	ESE 1/4 - 1/2 (0.277 mi.)	J39	377
OSBORNE SPERRY DENTA Facility Id: 41747993	***11830 NE 128TH ST***	***NW 1/4 - 1/2 (0.280 mi.)***	***40***	***378***
HAVLIKS RADIATOR SVC Facility Id: 93461187	***11851 124TH AVE NE***	***SSE 1/4 - 1/2 (0.282 mi.)***	***K41***	***380***
NELSONS AUTOMOTIVE S Facility Id: 71536249	***11821 124TH AVE NE***	***SSE 1/4 - 1/2 (0.282 mi.)***	***K42***	***384***
MOSS DOCTORS Facility Id: 3643838	***11923 124TH AVE NE***	***SSE 1/4 - 1/2 (0.282 mi.)***	***K43***	***386***
MACRO TECHNOLOGIES L Facility Id: 22945928	***11815 124TH AVE NE***	***SSE 1/4 - 1/2 (0.282 mi.)***	***K44***	***387***
LENNAR TOTEM LAKE AP Facility Id: 24439	***11811 NE 128TH ST***	***NW 1/4 - 1/2 (0.290 mi.)***	***45***	***432***
FRED MEYER STORES IN Facility Id: 92981559 Facility Id: 51971957	***12221 120TH AVE NE***	***SW 1/4 - 1/2 (0.308 mi.)***	***46***	***432***
NE 120TH STREET ROAD Facility Id: 7577	SLATER AVE AND 124TH	SSE 1/4 - 1/2 (0.309 mi.)	47	458
SHERWIN WILLIAMS CO Facility Id: 5205170	***12731 NE 124TH ST***	***ESE 1/4 - 1/2 (0.311 mi.)***	***48***	***459***
VERIZON KIRKLAND GAR Facility Id: 2555	12055 SLATER AVE NE	SE 1/4 - 1/2 (0.314 mi.)	L49	472
TOTEM SQUARE LP Facility Id: 47893677	***12063 124TH AVE NE***	***SSE 1/4 - 1/2 (0.317 mi.)***	***K53***	***476***
FRED MEYER FUEL CENT Facility Id: 9967	12301 120TH AVE NE	WSW 1/4 - 1/2 (0.326 mi.)	54	477
QUALITY FINISHING IN Facility Id: 96137858	12706 NE 124TH ST	E 1/4 - 1/2 (0.342 mi.)	57	488
TOTEM LAKE AUTO SVC Facility Id: 3564939	***11902 124TH AVE NE***	***SSE 1/4 - 1/2 (0.345 mi.)***	***58***	***489***
DAVES AUTO PAINTING	***11947 124TH AVE NE***	***SSE 1/4 - 1/2 (0.348 mi.)***	***N59***	***491***

Facility Id: 30929928				
N GRAVERS INC Facility Id: 19127197	***11943 124TH AVE NE***	***SSE 1/4 - 1/2 (0.354 mi.)***	***N61***	***500***
KIRKLAND PONTIAC Facility Id: 74772727	***12335 120TH AVE NE***	***WSW 1/4 - 1/2 (0.355 mi.)***	***62***	***502***
GALLERIA REFINISHERS Facility Id: 13286966	***11933 124TH AVE NE***	***SSE 1/4 - 1/2 (0.368 mi.)***	***N64***	***511***
ARCO 6031 Facility Id: 79226415	***11450 NE 124TH ST***	***W 1/4 - 1/2 (0.372 mi.)***	***65***	***514***
CIR QUICK INCORPORAT Facility Id: 54434341	***12817 NE 126TH PL***	***ENE 1/4 - 1/2 (0.373 mi.)***	***66***	***548***
EAST URBAN AUTO SVC Facility Id: 43348836	***11841 SLATER AVE***	***SE 1/4 - 1/2 (0.374 mi.)***	***O67***	***551***
IMPORT CAR SVC INC Facility Id: 79325544	***11926 124TH AVE NE***	***SSE 1/4 - 1/2 (0.389 mi.)***	***N68***	***554***
BUCHAN BROS INVESTME Facility Id: 25769269	***11924 124TH AVE NE***	***SSE 1/4 - 1/2 (0.390 mi.)***	***N69***	***556***
NORTHWEST CONSTRUCTI Facility Id: 37172442	***11831 120TH AVE NE***	***SSW 1/4 - 1/2 (0.396 mi.)***	***P70***	***557***
EVERGREEN AUTO REBUI Facility Id: 10830	11731 120TH AVE NE S	SSW 1/4 - 1/2 (0.399 mi.)	P71	563
WASHINGTON ELECTRIC Facility Id: 22666461	***12815 NE 124TH***	***E 1/4 - 1/2 (0.405 mi.)***	***72***	***563***
EASTSIDE SPRAYING SE Facility Id: 48426162	***11803 120TH AVE NE***	***SSW 1/4 - 1/2 (0.408 mi.)***	***P73***	***565***
SCOTTS LAWNSERVICE K Facility Id: 2177185	12910 NE 125TH WAY	E 1/4 - 1/2 (0.408 mi.)	74	566
CRITTER DOCTOR ANIMA Facility Id: 4660	11828 SLATER AVE NE	SE 1/4 - 1/2 (0.409 mi.)	O75	566
SPECTRA LUX CORP Facility Id: 63657721	***11825 120TH NE***	***SSW 1/4 - 1/2 (0.422 mi.)***	***P77***	***570***
PREMIUM TUNE N LUBE Facility Id: 14423498	***11727 124TH AVE NE***	***S 1/4 - 1/2 (0.426 mi.)***	***Q78***	***574***
ROSETTA INPHARMATICS Facility Id: 64917534	***12040 115TH AVE NE S***	***WSW 1/4 - 1/2 (0.428 mi.)***	***R79***	***579***
THOMASON FORD TOYOTA Facility Id: 35499432	***11800 124TH AVE NE***	***SSE 1/4 - 1/2 (0.441 mi.)***	***Q80***	***586***
HYUNDAI OF KIRKLAND Facility Id: 13216	11651 SLATER AVE NE	SSE 1/4 - 1/2 (0.443 mi.)	81	588
FOOD & DRUG ADMIN, O Facility Id: 22157	***11411 NE 124TH ST***	***W 1/4 - 1/2 (0.446 mi.)***	***S83***	***591***
NEXTEL PNW 2-3 Facility Id: 6714467	***11710 118TH AVE NE***	***SSW 1/4 - 1/2 (0.449 mi.)***	***84***	***600***
SKELETECH INC Facility Id: 71187283	***12026 115TH AVE NE***	***WSW 1/4 - 1/2 (0.449 mi.)***	***R85***	***601***
ROSETTA INPHARMATICS	***12004 115TH AVE NE***	***WSW 1/4 - 1/2 (0.449 mi.)***	***R86***	***603***

Facility Id: 65835863				
LIFEBRIDGE Facility Id: 21866	***11725 NE 118TH ST***	***SW 1/4 - 1/2 (0.464 mi.)***	***88***	***607***
CLARKS WHEEL Facility Id: 19979378	12232 NE 116TH ST ST	S 1/4 - 1/2 (0.478 mi.)	T89	611
ESCHEN AUTOMOTIVE IN Facility Id: 3592744	12232 NE 116TH ST ST	S 1/4 - 1/2 (0.478 mi.)	T90	612
AT&T WIRELESS JUANIT Facility Id: 5991947	***11616 120TH AVE NE***	***SSW 1/4 - 1/2 (0.481 mi.)***	***91***	***612***
ULTRA ONE HOUR CLEAN Facility Id: 72134819	***11613 124TH AVE NE***	***S 1/4 - 1/2 (0.482 mi.)***	***T92***	***613***
STEELFORM CONTRACTIN Facility Id: 21695439	***12230 NE 116TH ST***	***S 1/4 - 1/2 (0.494 mi.)***	***93***	***619***
I405 NE 116TH ST INT Facility Id: 14958	***INTERSECTION OF I405***	***S 1/4 - 1/2 (0.498 mi.)***	***94***	***620***

Lower Elevation	Address	Direction / Distance	Map ID	Page
TOTEM LAKE DRY CLEAN Facility Id: 43136797	***12541 120TH AVE NE***	***SW 0 - 1/8 (0.037 mi.)***	***B4***	***9***
CIRCLE V MANAGEMENT Facility Id: 49465148	***12632 120TH AVE NE***	***WNW 0 - 1/8 (0.040 mi.)***	***A6***	***15***
THE VILLAGE AT TOTEM Facility Id: 12683	12500 120TH AVE NE -	SW 0 - 1/8 (0.066 mi.)	B10	19
TOTEM LAKE CHEVRON 9 Facility Id: 43619955	***12500 TOTEM LAKE BLV***	***SW 0 - 1/8 (0.076 mi.)***	***B13***	***23***
TOTEM LK TWIN-42 IN Facility Id: 11004	120TH AVE NE AND TOT	SSW 0 - 1/8 (0.090 mi.)	14	128
TOTEM LAKE MALL Facility Id: 21126	***12600 TOTEM LAKE BLV***	***WNW 0 - 1/8 (0.107 mi.)***	***15***	***129***
THURMAN INDUSTRIES I Facility Id: 96934556	***12626 NE 124TH ST***	***ESE 1/8 - 1/4 (0.235 mi.)***	***H33***	***364***
EXXON 72428 Facility Id: 44568374 Facility Id: 85348955	***12412 116TH AVE NE***	***W 1/4 - 1/2 (0.326 mi.)***	***M55***	***478***
US CLEANERS Facility Id: 65991728	***12547 116TH AVE NE***	***WNW 1/4 - 1/2 (0.367 mi.)***	***63***	***505***
KIRKLAND CHRYSLER PL Facility Id: 31669993	***12828 NE 124TH ST***	***E 1/4 - 1/2 (0.413 mi.)***	***76***	***566***

WA CSCSL NFA: The data set contains information about sites previously on the Confirmed and Suspected Contaminated Sites list that have received a No Further Action (NFA) determination. Because it is necessary to maintain historical records of sites that have been investigated and cleaned up, sites are not deleted from the database when cleanup activities are completed. Instead a No Further Action code is entered based upon the type of NFA determination the site received.

A review of the WA CSCSL NFA list, as provided by EDR, and dated 07/16/2018 has revealed that there

are 7 WA CSCSL NFA sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
EVERGREEN AUTO REBUI Facility/Site Id: 2396 CS Id: 2777	***12350 124TH AVE NE***	***SSE 1/8 - 1/4 (0.224 mi.)***	***E32***	***338***
MINIT-LUBE 1067 Facility/Site Id: 41585457 CS Id: 9053	***12427 NE 124TH ST***	***SE 1/8 - 1/4 (0.238 mi.)***	***I36***	***367***
GTE VEHICLE CENTER Facility/Site Id: 2555 CS Id: 5147	12055 SLATER AVE NE	SE 1/4 - 1/2 (0.314 mi.)	L51	475
PREMIUM TUNE N LUBE Facility/Site Id: 14423498 CS Id: 5567	***11727 124TH AVE NE***	***S 1/4 - 1/2 (0.426 mi.)***	***Q78***	***574***
I405 NE 116TH ST INT Facility/Site Id: 14958 CS Id: 12234	***INTERSECTION OF I405***	***S 1/4 - 1/2 (0.498 mi.)***	***94***	***620***

Lower Elevation	Address	Direction / Distance	Map ID	Page
CIRCLE V MANAGEMENT Facility/Site Id: 49465148 CS Id: 9447	***12632 120TH AVE NE***	***WNW 0 - 1/8 (0.040 mi.)***	***A6***	***15***
TOTEM LAKE CHEVRON 9 Facility/Site Id: 43619955 CS Id: 6081	***12500 TOTEM LAKE BLV***	***SW 0 - 1/8 (0.076 mi.)***	***B13***	***23***

Other Ascertainable Records

RCRA NonGen / NLR: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 03/01/2018 has revealed that there are 8 RCRA NonGen / NLR sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CAR WASH ENTERPRISES EPA ID:: WAD988516290	***12302 NE 124TH ST***	***SSE 1/8 - 1/4 (0.148 mi.)***	***C19***	***143***
SHELL STATION 120565 EPA ID:: WAD988502779	***12221 124TH AVENUE N***	***S 1/8 - 1/4 (0.194 mi.)***	***D23***	***168***
WESCO AUTOBODY SUPPL EPA ID:: WA0000049692	***12532 NE 124TH ST***	***ESE 1/8 - 1/4 (0.218 mi.)***	***G31***	***334***
WANG MANAGEMENT CO EPA ID:: WAD982658304	***12421 124TH AVE NE***	***S 1/8 - 1/4 (0.237 mi.)***	***34***	***365***
TOYOTA OF KIRKLAND	***12612 NE 124TH ST***	***ESE 1/8 - 1/4 (0.245 mi.)***	***H37***	***369***

EPA ID:: WAR000008052

Lower Elevation	Address	Direction / Distance	Map ID	Page
TOTEM LAKE DRY CLEAN EPA ID:: WAD130612336	***12541 120TH AVE NE***	***SW 0 - 1/8 (0.037 mi.)***	***B4***	***9***
HC AUTO CARE INC TOT EPA ID:: WAD988489977	***12632 120TH AVE NE***	***WNW 0 - 1/8 (0.040 mi.)***	***A7***	***16***
TOTEM LAKE CHEVRON 9 EPA ID:: WAD988489506	***12500 TOTEM LAKE BLV***	***SW 0 - 1/8 (0.076 mi.)***	***B13***	***23***

WA Inactive Drycleaners: A listing of inactive drycleaner facility locations.

A review of the WA Inactive Drycleaners list, as provided by EDR, and dated 07/17/2018 has revealed that there is 1 WA Inactive Drycleaners site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
TOTEM LAKE DRY CLEAN EPA I: WAD130612336 Facility ID: 5070	***12541 120TH AVE NE***	***SW 0 - 1/8 (0.037 mi.)***	***B4***	***9***

WA MANIFEST: Hazardous waste manifest information.

A review of the WA MANIFEST list, as provided by EDR, and dated 12/31/2017 has revealed that there are 7 WA MANIFEST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CAR WASH ENTERPRISES Facility Site ID Number: 22463 Gen Status CD: SQG EPA ID: WAH000039734	***12302 NE 124TH ST***	***SSE 1/8 - 1/4 (0.148 mi.)***	***C19***	***143***
SHELL STATION 120565 Facility Site ID Number: 41716978 Gen Status CD: MQG Gen Status CD: LQG Gen Status CD: SQG Gen Status CD: XQG EPA ID: WAD988502779	***12221 124TH AVENUE N***	***S 1/8 - 1/4 (0.194 mi.)***	***D23***	***168***
EVERGREEN HOSPITAL M Facility Site ID Number: 77233621 Gen Status CD: SQG Gen Status CD: MQG EPA ID: WA0000345306	***12040 NE 128TH ST***	***N 1/8 - 1/4 (0.200 mi.)***	***F26***	***201***
SEATTLE CANCER CARE Facility Site ID Number: 23717 Gen Status CD: SQG EPA ID: WAH000042102	***12040 NE 128TH ST ST***	***N 1/8 - 1/4 (0.200 mi.)***	***F27***	***319***
EVERGREEN AUTO REBUI	***12350 124TH AVE NE***	***SSE 1/8 - 1/4 (0.224 mi.)***	***E32***	***338***

Facility Site ID Number: 2396
Gen Status CD: SQG
EPA ID: WAD070392303

TOYOTA OF KIRKLAND	***12612 NE 124TH ST***	***ESE 1/8 - 1/4 (0.245 mi.)***	***H37***	***369***

Facility Site ID Number: 51838333
Gen Status CD: SQG
EPA ID: WAR000008052

Lower Elevation	Address	Direction / Distance	Map ID	Page
TOTEM LAKE CHEVRON 9	***12500 TOTEM LAKE BLV***	***SW 0 - 1/8 (0.076 mi.)***	***B13***	***23***

Facility Site ID Number: 43619955
Gen Status CD: LQG
Gen Status CD: XQG
Gen Status CD: MQG
EPA ID: WAD988489506

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR Hist Auto: EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR Hist Auto list, as provided by EDR, has revealed that there is 1 EDR Hist Auto site within approximately 0.125 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
HOLVE ENTERPRISES IN	12500 TOTEM LAKE BLV	SW 0 - 1/8 (0.059 mi.)	B9	18

EDR Hist Cleaner: EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR Hist Cleaner list, as provided by EDR, has revealed that there are 3 EDR Hist Cleaner sites within approximately 0.125 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
TOTEM LAKE CLEANERS	12541 120TH AVE NE	SW 0 - 1/8 (0.037 mi.)	B3	8

EXECUTIVE SUMMARY

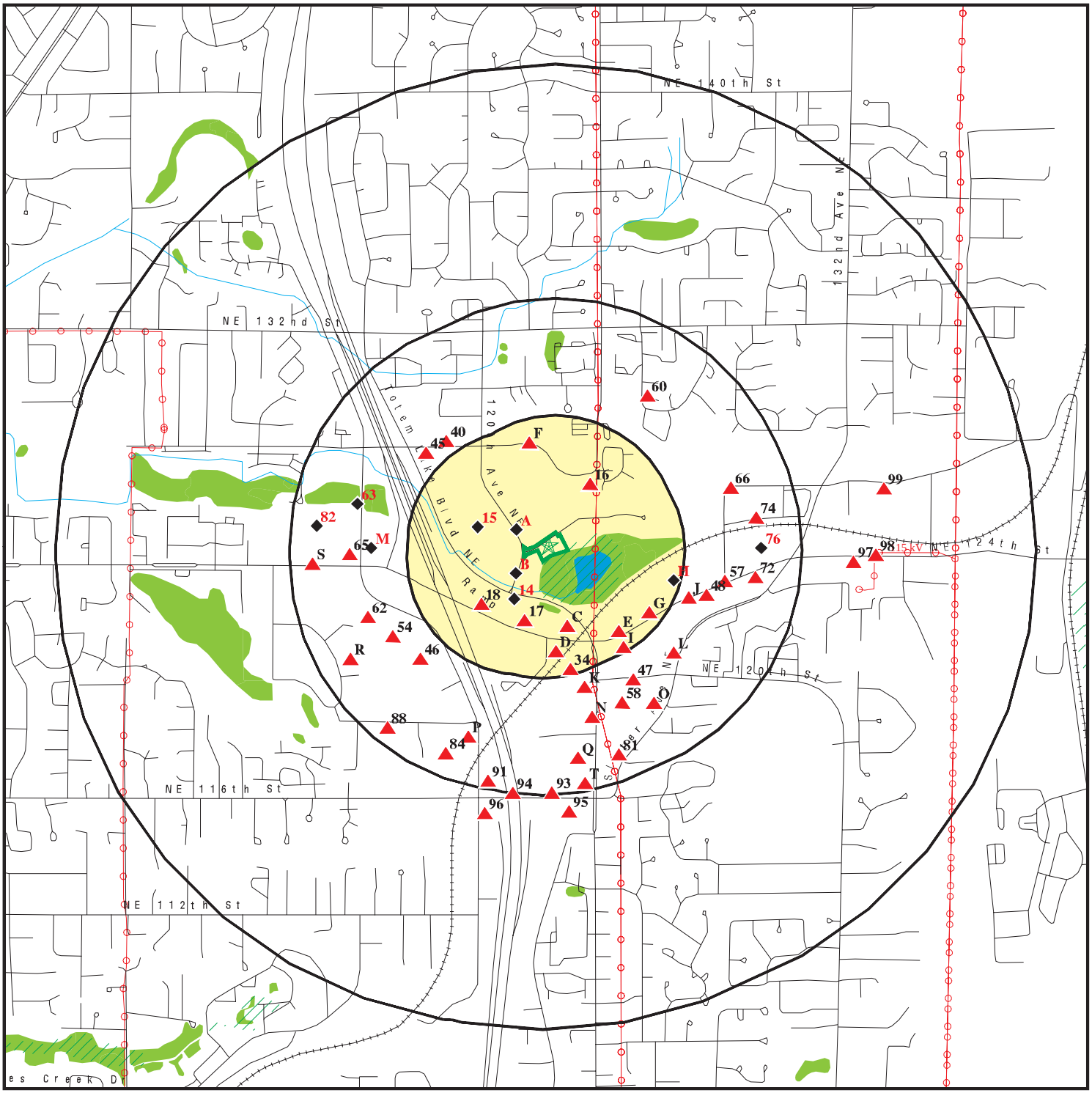
Lower Elevation	Address	Direction / Distance	Map ID	Page
DAC CORP	12521 120TH NE	SW 0 - 1/8 (0.053 mi.)	B8	18
LEE JANG JAE	12451-120TH AVE NE	SW 0 - 1/8 (0.069 mi.)	B11	19

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 2 records.

Site Name	Database(s)
KIRKLAND & KAMIAKIN JR. HIGHS	WA ICR
WEAVER PROPERTY	WA ICR

OVERVIEW MAP - 5463995.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA

Power transmission lines

100-year flood zone

500-year flood zone

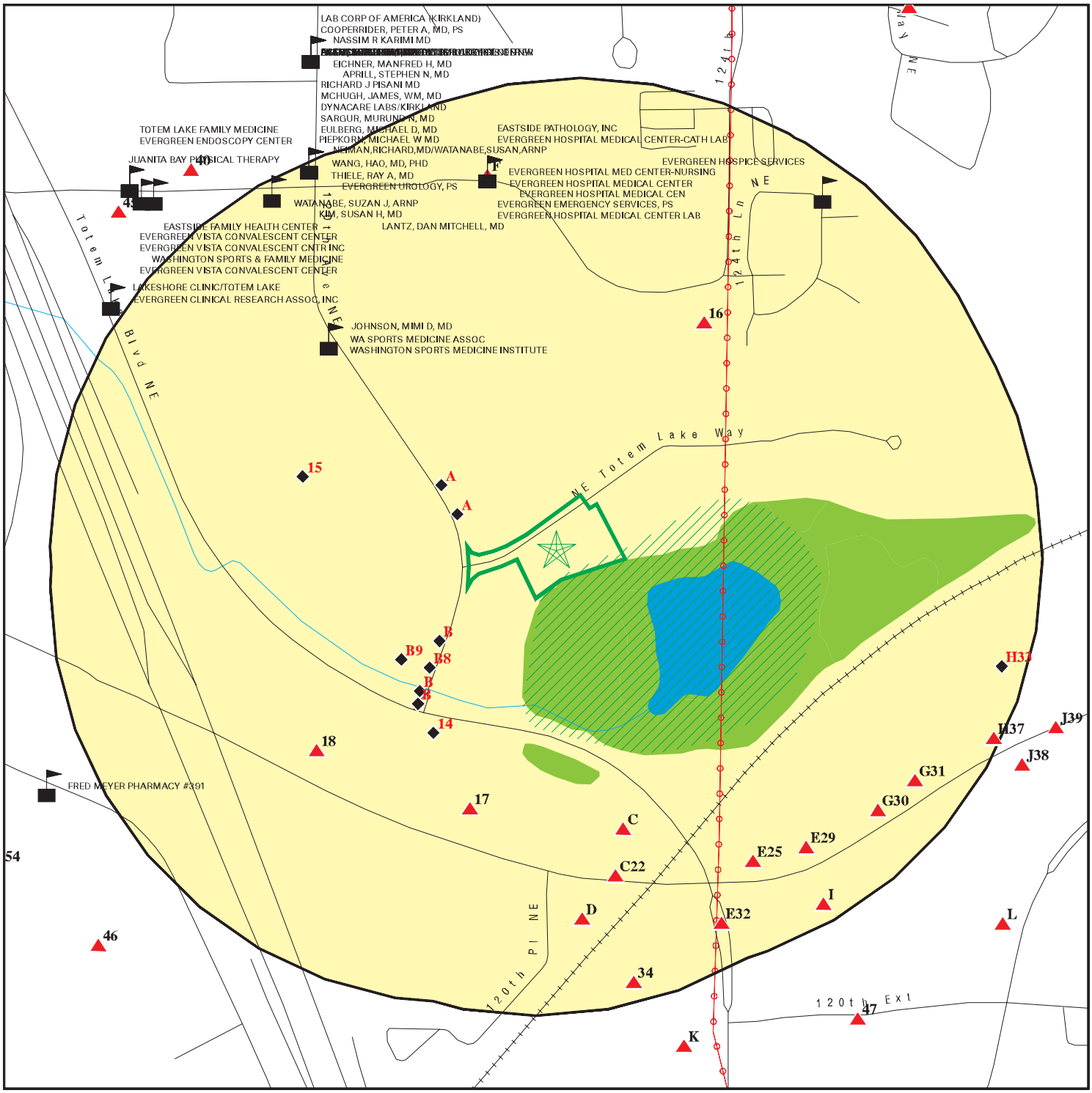
National Wetland Inventory

State Wetlands

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	Totem Lake Park Ph I	CLIENT:	O Neill Service Group
ADDRESS:	12031 NE TOTEM LAKE WAY Kirkland WA 98034	CONTACT:	Vance Atkins
		INQUIRY #:	5463995.2s
LAT/LONG:	47.711751 / 122.17792	DATE:	October 24, 2018 3:33 pm

DETAIL MAP - 5463995.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

Sensitive Receptors

National Priority List Sites

Dept. Defense Sites

0 1/16 1/8 1/4 Miles

Indian Reservations BIA

Power transmission lines

100-year flood zone

500-year flood zone

National Wetland Inventory

State Wetlands

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Totem Lake Park Ph I	CLIENT: O Neill Service Group
ADDRESS: 12031 NE TOTEM LAKE WAY Kirkland WA 98034	CONTACT: Vance Atkins
LAT/LONG: 47.711751 / 122.17792	INQUIRY #: 5463995.2s
	DATE: October 24, 2018 3:36 pm

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	0.001		0	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	1	NR	NR	NR	1
RCRA-CESQG	0.250		0	3	NR	NR	NR	3
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
WA HSL	1.000		0	1	1	0	NR	2
State- and tribal - equivalent CERCLIS								
WA CSCSL	1.000		1	2	4	5	NR	12
State and tribal landfill and/or solid waste disposal site lists								
WA SWF/LF	0.500		0	0	1	NR	NR	1
State and tribal leaking storage tank lists								
WA LUST	0.500		0	2	4	NR	NR	6

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
WA UST	0.250		2	8	NR	NR	NR	10
WA AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
WA PTAP	0.500		0	0	0	NR	NR	0
State and tribal institutional control / engineering control registries								
WA INST CONTROL	0.500		0	0	1	NR	NR	1
State and tribal voluntary cleanup sites								
WA VCP	0.500		2	0	3	NR	NR	5
WA ICR	0.500		4	3	3	NR	NR	10
INDIAN VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
WA BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	1	NR	NR	1
Local Lists of Landfill / Solid Waste Disposal Sites								
WA SWRCY	0.500		0	0	2	NR	NR	2
WA SWTIRE	0.500		0	0	0	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
WA ALLSITES	0.500		6	17	50	NR	NR	73
WA CDL	0.001		0	NR	NR	NR	NR	0
WA HIST CDL	0.001		0	NR	NR	NR	NR	0
WA CSCSL NFA	0.500		2	2	3	NR	NR	7
US CDL	0.001		0	NR	NR	NR	NR	0
Local Land Records								
LIENS 2	0.001		0	NR	NR	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
WA SPILLS	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
WA SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		3	5	NR	NR	NR	8
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	0.001		0	NR	NR	NR	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.001		0	NR	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
WA AIRS	0.001		0	NR	NR	NR	NR	0
WA ASBESTOS	0.001		0	NR	NR	NR	NR	0
WA COAL ASH	0.500		0	0	0	NR	NR	0
WA DRYCLEANERS	0.250		0	0	NR	NR	NR	0
WA Financial Assurance	0.001		0	NR	NR	NR	NR	0
WA Inactive Drycleaners	0.250		1	0	NR	NR	NR	1
WA MANIFEST	0.250		1	6	NR	NR	NR	7
NY MANIFEST	0.250		0	0	NR	NR	NR	0
WA NPDES	0.001		0	NR	NR	NR	NR	0
WA UIC	0.001		0	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
EDR Hist Auto	0.125		1	NR	NR	NR	NR	1
EDR Hist Cleaner	0.125		3	NR	NR	NR	NR	3
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
WA RGA HWS	0.001		0	NR	NR	NR	NR	0
WA RGA LF	0.001		0	NR	NR	NR	NR	0
WA RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		0	26	50	73	5	0	154

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1
WNW
< 1/8
0.020 mi.
108 ft.

TOTEM LAKE MALL
12620 120TH AVE. NE
KIRKLAND, WA 98034

WA ICR **S104485348**
N/A

Site 1 of 5 in cluster A

Relative:
Lower

Actual:
132 ft.

ICR:

Date Ecology Received Report:	12/08/98
Contaminants Found at Site:	Halogenated Solvents
Media Contaminated:	Groundwater, Soil

A2
WNW
< 1/8
0.020 mi.
108 ft.

TOTEM LAKE MALL (TWO REPORTS)
12620 120TH AVE. NE
KIRKLAND, WA 98034

WA ICR **S104485347**
N/A

Site 2 of 5 in cluster A

Relative:
Lower

Actual:
132 ft.

ICR:

Date Ecology Received Report:	10/06/98
Contaminants Found at Site:	Halogenated Solvents
Media Contaminated:	Groundwater, Soil

B3
SW
< 1/8
0.037 mi.
193 ft.

TOTEM LAKE CLEANERS
12541 120TH AVE NE
KIRKLAND, WA 98034

EDR Hist Cleaner **1018493735**
N/A

Site 1 of 8 in cluster B

Relative:
Lower

Actual:
132 ft.

EDR Hist Cleaner

Year:	Name:	Type:
1974	TOTEM LAKE CLEANERS	Coin-Operated Laundries And Cleaning
1975	TOTEM LAKE CLEANERS	Coin-Operated Laundries And Cleaning
1976	TOTEM LAKE CLEANERS	Coin-Operated Laundries And Cleaning
1977	TOTEM LAKE CLEANERS LAUNDRY*	Coin-Operated Laundries And Cleaning
1985	TOTEM LAKE CLEANERS	Drycleaning Plants, Except Rugs
1986	TOTEM LAKE CLEANERS	Drycleaning Plants, Except Rugs
1987	TOTEM LAKE CLEANERS	Drycleaning Plants, Except Rugs
1988	TOTEM LAKE CLEANERS	Drycleaning Plants, Except Rugs
1989	TOTEM LAKE CLEANERS	Drycleaning Plants, Except Rugs
1990	TOTEM LAKE CLEANERS	Drycleaning Plants, Except Rugs
1991	LEE JANG J	Drycleaning Plants, Except Rugs
1991	TOTEM LAKE CLEANERS	Drycleaning Plants, Except Rugs
1992	LEE JANG J	Drycleaning Plants, Except Rugs
1992	TOTEM LAKE CLEANERS	Drycleaning Plants, Except Rugs
1993	LEE JANG J	Drycleaning Plants, Except Rugs
1993	TOTEM LAKE CLEANERS	Drycleaning Plants, Except Rugs
1994	TOTEM LAKE CLEANERS	Drycleaning Plants, Except Rugs
1995	TOTEM LAKE CLEANERS	Drycleaning Plants, Except Rugs

B4 SW < 1/8 0.037 mi. 193 ft. | **TOTEM LAKE DRY CLEANERS**
12541 120TH AVE NE
KIRKLAND, WA 98034

Site 2 of 8 in cluster B

Relative: Lower

Actual: 132 ft.

WA CSCSL
WA VCP
WA ALLSITES
RCRA NonGen / NLR
FINDS
ECHO
WA Inactive Drycleaners

1000205631
WAD130612336

CSCSL:

Facility ID:	43136797
Region:	Northwest
Lat/Long:	47.712117255 / -122.17993803
Brownfield Status:	Not reported
Rank Status:	N
Clean Up Siteid:	394
Site Status:	Cleanup Started
PSI?:	Not reported
Contaminant Name:	Halogenated Organics
Ground Water:	Confirmed Above Cleanup Level
Surface Water:	Not reported
Soil:	Confirmed Above Cleanup Level
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Headquarters

VCP:

edr_fstat:	WA
edr_fzip:	98034
edr_fcnty:	KING
edr_zip:	Not reported
Facility ID:	43136797
VCP Status:	Not reported
VCP:	Yes
Ecology Status:	Not reported
NFA Type:	Not reported
Date NFA:	Not reported
Rank:	N
Cleanup Siteid:	394

ALLSITES:

Facility Name:	TOTEM LAKE DRY CLEANERS
Facility Id:	43136797

Interaction:	44248
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD130612336
Date Interaction:	1987-05-11 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.712110858999999
Longitude:	-122.17990291

Interaction:	121984

TOTEM LAKE DRY CLEANERS (Continued) **1000205631**

Interaction 1:	A
Interaction 2:	VOLCLNST
Ecology Program:	TOXICS
Program Data:	ISIS
Facility Alt.:	Totem Lake Dry Cleaners
Program ID:	NW3120
Date Interaction:	2016-01-22 00:00:00
Date Interaction 3:	Voluntary Cleanup Sites
Latitude:	47.712110858999999
Longitude:	-122.17990291

Interaction:	44249
Interaction 1:	I
Interaction 2:	VOLCLNST
Ecology Program:	TOXICS
Program Data:	ISIS
Facility Alt.:	Totem Lake Dry Cleaners
Program ID:	Not reported
Date Interaction:	1999-07-26 00:00:00
Date Interaction 3:	Voluntary Cleanup Sites
Latitude:	47.712110858999999
Longitude:	-122.17990291

RCRA NonGen / NLR:

Date form received by agency:	08/19/1996
Facility name:	TOTEM LAKE DRY CLEANERS
Facility address:	12541 120TH AVE NE KIRKLAND, WA 98034
EPA ID:	WAD130612336
Contact:	TOTEM LAKE DRY TOTEM LAKE DRY
Contact address:	12541 120TH AVE NE KIRKLAND, WA 98034-7501
Contact country:	US
Contact telephone:	000-000-0000
Contact email:	Not reported
EPA Region:	10
Land type:	Private
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	RON G
Owner/operator address:	13473 64TH PL NE KIRKLAND, WA 98034
Owner/operator country:	US
Owner/operator telephone:	425-821-1755
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	11/26/1996
Owner/Op end date:	Not reported

TOTEM LAKE DRY CLEANERS (Continued) **1000205631**

Owner/operator name: RON G
Owner/operator address: 13473 64TH PL NE
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 425-821-1755
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 11/26/1996
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 08/19/1996
Site name: TOTEM LAKE DRY CLEANERS
Classification: Not a generator, verified

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 02/27/1996
Evaluation: COMPLIANCE ASSISTANCE VISIT
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

FINDS:

Registry ID: 110005331444

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

TOTEM LAKE DRY CLEANERS (Continued) **1000205631**

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1000205631
Registry ID:	110005331444
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110005331444

INACTIVE DRYCLEANERS:

EPA I:	WAD130612336
FS Id:	5070
Facility ID:	5070
NAICS Code:	81232
Fed Waste Code Desc:	Not reported
State Waste Code Desc:	Not reported
TAX REG NBR:	Not reported
BUSINESS TYPE:	Not reported
MAIL NAME:	Not reported
MAIL LINE1:	Not reported
MAIL LINE2:	Not reported
MAIL CITY:	Not reported
MAIL STATE:	Not reported
MAIL ZIP:	Not reported
MAIL COUNTRY:	Not reported
LEGAL ORG NAME:	Not reported
LEGAL PERSON FIRST NAME:	Not reported
LEGAL PERSON MIDDLE INIT:	Not reported
LEGAL PERSON LAST NAME:	Not reported
LEGAL LINE1:	Not reported
LEGAL LINE2:	Not reported
LEGAL CITY:	Not reported
LEGAL STATE:	Not reported
LEGAL ZIP:	Not reported
LEGAL COUNTRY:	Not reported
LEGAL PHONE NBR:	Not reported
LEGAL EFFECTIVE DATE:	Not reported
LEGAL ORGANIZATION TYPE:	Not reported
LAND ORG NAME:	Not reported
LAND PERSON FIRST NAME:	Not reported
LAND PERSON MIDDLE INIT:	Not reported
LAND PERSON LAST NAME:	Not reported
LAND LINE1:	Not reported
LAND LINE2:	Not reported
LAND CITY:	Not reported
LAND STATE:	Not reported
LAND ZIP:	Not reported
LAND COUNTRY:	Not reported
LAND PHONE NBR:	Not reported

TOTEM LAKE DRY CLEANERS (Continued) **1000205631**

LAND ORGANIZATION TYPE:	Not reported
OPERATOR ORG NAME:	Not reported
OPERATOR PERSON FIRST NAME:	Not reported
OPERATOR PERSON MIDDLE INIT:	Not reported
OPERATOR PERSON LAST NAME:	Not reported
OPERATOR LINE1:	Not reported
OPERATOR LINE2:	Not reported
OPERATOR CITY:	Not reported
OPERATOR STATE:	Not reported
OPERATOR ZIP:	Not reported
OPERATOR COUNTRY:	Not reported
OPERATOR PHONE NBR:	Not reported
OPERATOR EFFECTIVE DATE:	Not reported
OPERATOR ORGANIZATION TYPE:	Not reported
SITE CONTACT FIRST NAME:	Not reported
SITE CONTACT MIDDLE INIT:	Not reported
SITE CONTACT LAST NAME:	Not reported
SITE CONTACT LINE1:	Not reported
SITE CONTACT LINE2:	Not reported
SITE CONTACT CITY:	Not reported
SITE CONTACT STATE:	Not reported
SITE CONTACT ZIP:	Not reported
SITE CONTACT COUNTRY:	Not reported
SITE CONTACT PHONE NBR:	Not reported
SITE CONTACT EMAIL:	Not reported
FORM CONTACT FIRST NAME:	Not reported
FORM CONTACT MIDDLE INIT:	Not reported
FORM CONTACT LAST NAME:	Not reported
FORM CONTACT LINE1:	Not reported
FORM CONTACT LINE2:	Not reported
FORM CONTACT CITY:	Not reported
FORM CONTACT STATE:	Not reported
FORM CONTACT ZIP:	Not reported
FORM CONTACT COUNTRY:	Not reported
FORM CONTACT PHONE NBR:	Not reported
FORM CONTACT EMAIL:	Not reported
GEN STATUS CD:	Not reported
MONTHLY GENERATION:	Not reported
BATCH GENERATION:	Not reported
ONE TIME GENERATION:	Not reported
TRANSPORTS OWN WASTE:	Not reported
TRANSPORTS OTHERS WASTE:	Not reported
RECYCLER ONSITE:	Not reported
TRANSFER FACILITY:	Not reported
PBR:	Not reported
TBG:	Not reported
MIXED RADIOACTIVE:	Not reported
IMPORTER:	Not reported
TSDR FACILITY:	Not reported
IMMEDIATE RECYCLER:	Not reported
GEN DANG FUEL:	Not reported
GEN MARKET TO BURNER:	Not reported
GEN OTHER MARKETERS:	Not reported
UTILITY BOILER BURNER:	Not reported
INDUSTRY BOILER BURNER:	Not reported
FURNACE BURNER:	Not reported
SMELTER DEFERRAL:	Not reported

TOTEM LAKE DRY CLEANERS (Continued) **1000205631**

SMALL QTY EXEMPTION:	Not reported
OTHER EXEMPTION:	Not reported
UW BATTERY GEN:	Not reported
UW THERMOSTATS GEN:	Not reported
UW MERCURY GEN:	Not reported
UW LAMPS GEN:	Not reported
UW BATTERY ACCUM:	Not reported
UW THERMOSTATS ACCUM:	Not reported
UW MERCURY ACCUM:	Not reported
UW LAMPS ACCUM:	Not reported
UW DESTINATION FACILITY:	Not reported
OFF SPEC UTILITY BOILER:	Not reported
OFF SPEC INDUSTRY BOILER:	Not reported
OFF SPEC FURNACE:	Not reported
USED OIL TRANSPORTER:	Not reported
USED OIL TRANSFER FACILITY:	Not reported
USED OIL PROCESSOR:	Not reported
USED OIL REREFINER:	Not reported
USED OIL FUEL MARKETER DIR SHIPMENTS:	Not reported
USED OIL FUEL MARKETER MEETS SPECS:	Not reported
ECO Int Type Code:	Not reported
Status Code:	Not reported
Start Date:	Not reported
End Date:	Not reported
NAICS DS:	Not reported
Program Name:	Not reported
FS SIC Code:	Not reported
SIC DS:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Comments:	Not reported

A5 **CIRCLE V MANAGEMENT PROPERTY** **WA ICR** **S104486341**
WNW **12632 120TH AVE. NE** **N/A**
< 1/8 **KIRKLAND, WA 98034**
0.040 mi.
212 ft. **Site 3 of 5 in cluster A**

Relative:
Lower

Actual:
133 ft.

ICR:

Date Ecology Received Report:	09/27/95
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Final cleanup report
Site Register Issue:	94-13
County Code:	17
Contact:	Not reported
Report Title:	Not reported

A6 WNW < 1/8 0.040 mi. 212 ft. | **CIRCLE V MANAGEMENT PROPERTY**
12632 120TH AVE NE
KIRKLAND, WA 98034

Site 4 of 5 in cluster A

WA UST **U003750321**
WA ALLSITES **N/A**
WA CSCSL NFA

Relative: Lower

Actual: 133 ft.

UST:

Facility ID:	49465148
Site Id:	323998
UBI:	Not reported
Phone Number:	Not reported
Decimal Latitude:	47.71177
Decimal Longitude:	-122.180415
Tank Name:	1
Tag Number:	Not reported
Tank Status:	Removed
Tank Status Date:	04/12/2001
Tank Install Date:	00/01/1900
Tank Closure Date:	Not reported
Capacity Range:	Not reported
Tank Permit Expiration Date:	Not reported
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Not reported
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

ALLSITES:

Facility Name:	HC AUTO CARE INC TOTEM LAKE
Facility Id:	49465148
Interaction:	48012
Interaction 1:	I
Interaction 2:	LUST
Ecology Program:	TOXICS
Program Data:	ISIS
Facility Alt.:	Not reported
Program ID:	323998
Date Interaction:	1995-09-27 00:00:00
Date Interaction 3:	LUST Facility
Latitude:	47.711764359999997
Longitude:	-122.180400105
Interaction:	48013

CIRCLE V MANAGEMENT PROPERTY (Continued) **U003750321**

Interaction 1:	A
Interaction 2:	UST
Ecology Program:	TOXICS
Program Data:	UST
Facility Alt.:	Not reported
Program ID:	323998
Date Interaction:	1995-11-20 00:00:00
Date Interaction 3:	Underground Storage Tank
Latitude:	47.711764359999997
Longitude:	-122.180400105

Interaction:	48011
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD988489977
Date Interaction:	1991-06-18 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.711764359999997
Longitude:	-122.180400105

CSCSL NFA:

Facility/Site Id:	49465148
CS Id:	9447
NFA Date:	05/02/2012
Rank:	Not reported
VCP:	No
Latitude:	47.71177
Longitude:	-122.180415

A7 **HC AUTO CARE INC TOTEM LAKE** **RCRA NonGen / NLR** **1000659328**
WNW **12632 120TH AVE NE** **FINDS** **WAD988489977**
< 1/8 **KIRKLAND, WA 98034** **ECHO**
0.040 mi.
212 ft. **Site 5 of 5 in cluster A**

Relative:
Lower

Actual:
133 ft.

RCRA NonGen / NLR:

Date form received by agency:	12/02/1997
Facility name:	HC AUTO CARE INC TOTEM LAKE
Facility address:	12632 120TH AVE NE KIRKLAND, WA 98034
EPA ID:	WAD988489977
Mailing address:	205 RAINIER AVE S RENTON, WA 98055-2002
Contact:	HC AUTO CARE IN HC AUTO CARE IN
Contact address:	205 RAINIER AVE S RENTON, WA 98055-2002
Contact country:	US
Contact telephone:	000-000-0000
Contact email:	Not reported
EPA Region:	10
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

HC AUTO CARE INC TOTEM LAKE (Continued) **1000659328**

Owner/Operator Summary:

Owner/operator name:	HC AUTO CARE IN H
Owner/operator address:	12632 120TH AVE NE KIRKLAND, WA 98034
Owner/operator country:	US
Owner/operator telephone:	000-000-0000
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	05/02/1996
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	12/02/1997
Site name:	HC AUTO CARE INC TOTEM LAKE
Classification:	Not a generator, verified
Violation Status:	No violations found

FINDS:

Registry ID: 110005363551

Environmental Interest/Information System

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HC AUTO CARE INC TOTEM LAKE (Continued) **1000659328**

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1000659328
Registry ID:	110005363551
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110005363551

B8 **DAC CORP** **EDR Hist Cleaner** **1018744077**
SW **12521 120TH NE** **N/A**
< 1/8 **KIRKLAND, WA 98033**
0.053 mi.
282 ft. **Site 3 of 8 in cluster B**

Relative: **Lower**

EDR Hist Cleaner

Actual: **132 ft.**

Year:	Name:	Type:
1978	DAC CORP	Coin-Operated Laundries And Cleaning
1979	DAC CORP	Coin-Operated Laundries And Cleaning
1980	DAC CORP	Coin-Operated Laundries And Cleaning
1982	DAC CORP	Drycleaning Plants, Except Rugs
1983	DAC CORP	Drycleaning Plants, Except Rugs

B9 **HOLVE ENTERPRISES INC** **EDR Hist Auto** **1020854966**
SW **12500 TOTEM LAKE BLVD NE** **N/A**
< 1/8 **KIRKLAND, WA 98034**
0.059 mi.
310 ft. **Site 4 of 8 in cluster B**

Relative: **Lower**

EDR Hist Auto

Actual: **132 ft.**

Year:	Name:	Type:
1991	HERB HOLVE	General Automotive Repair Shops
1992	HERB HOLVE	General Automotive Repair Shops
1993	HERB HOLVE	General Automotive Repair Shops
1998	HOLVE ENTERPRISES INC	Gasoline Service Stations
1999	HOLVE ENTERPRISES INC	Gasoline Service Stations
2006	HOLVE ENTERPRISES INC	Gasoline Service Stations
2007	HOLVE ENTERPRISES INC	Gasoline Service Stations
2008	HOLVE ENTERPRISES INC	Gasoline Service Stations
2009	HOLVE ENTERPRISES INC	Gasoline Service Stations
2010	HOLVE ENTERPRISES INC	Gasoline Service Stations
2011	HOLVE ENTERPRISES INC	Gasoline Service Stations
2012	HOLVE ENTERPRISES INC	Gasoline Service Stations

B10 SW < 1/8 0.066 mi. 350 ft. — **THE VILLAGE AT TOTEM LAKE**, **12500 120TH AVE NE - UPPER MALL 12600 TO**, **KIRKLAND, WA 98034** — **WA ALLSITES** — **S118820848** / **N/A**

Site 5 of 8 in cluster B

Relative: Lower
Actual: 132 ft.

ALLSITES:

Facility Name:	THE VILLAGE AT TOTEM LAKE
Facility Id:	12683
Interaction:	119025
Interaction 1:	A
Interaction 2:	CONSTSWGP
Ecology Program:	WATQUAL
Program Data:	PARIS
Facility Alt.:	The Village at Totem Lake
Program ID:	WAR304467
Date Interaction:	2016-07-27 00:00:00
Date Interaction 3:	Construction SW GP
Latitude:	47.713623368999997
Longitude:	-122.179585027

B11 SW < 1/8 0.069 mi. 362 ft. — **LEE JANG JAE**, **12451-120TH AVE NE**, **KIRKLAND, WA 98034** — **EDR Hist Cleaner** — **1020026201** / **N/A**

Site 6 of 8 in cluster B

Relative: Lower
Actual: 132 ft.

EDR Hist Cleaner

Year:	Name:	Type:
1989	LEE JANG JAE	Drycleaning Plants, Except Rugs

B12 SW < 1/8 0.076 mi. 402 ft. — **CHEVRON #9 1144**, **12500 TOTEM LAKE BLVD.**, **KIRKLAND, WA 98034** — **WA ICR** — **S104485280** / **N/A**

Site 7 of 8 in cluster B

Relative: Lower
Actual: 132 ft.

ICR:

Date Ecology Received Report:	11/17/98
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	98-11
County Code:	17
Contact:	Not reported
Report Title:	Not reported
Date Ecology Received Report:	10/21/99
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report

CHEVRON #9 1144 (Continued) **S104485280**

Site Register Issue:	98-19
County Code:	17
Contact:	Not reported
Report Title:	Not reported

Date Ecology Received Report:	03/12/92
Contaminants Found at Site:	Petroleum products, Non-halogenated organic compounds
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	92-20
County Code:	17
Contact:	Not reported
Report Title:	Not reported

Date Ecology Received Report:	03/30/92
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	92-21
County Code:	17
Contact:	Not reported
Report Title:	Not reported

Date Ecology Received Report:	10/07/92
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	92-37
County Code:	17
Contact:	Not reported
Report Title:	Not reported

Date Ecology Received Report:	02/10/93
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	92-49
County Code:	17
Contact:	Not reported
Report Title:	Not reported

Date Ecology Received Report:	10/12/93
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	93-23
County Code:	17

CHEVRON #9 1144 (Continued) **S104485280**

Contact:	Not reported
Report Title:	Not reported

Date Ecology Received Report:	06/16/94
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	93-30
County Code:	17
Contact:	Not reported
Report Title:	Not reported

Date Ecology Received Report:	10/19/94
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	93-43
County Code:	17
Contact:	Not reported
Report Title:	Not reported

Date Ecology Received Report:	02/15/01
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	98-42
County Code:	17
Contact:	Not reported
Report Title:	Ground Water Monitoring - December 2000

Date Ecology Received Report:	07/25/96
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	94-32
County Code:	17
Contact:	Not reported
Report Title:	Not reported

Date Ecology Received Report:	11/20/95
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	94-17
County Code:	17
Contact:	Not reported
Report Title:	Not reported

CHEVRON #9 1144 (Continued) **S104485280**

Date Ecology Received Report:	02/07/97
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	94-46
County Code:	17
Contact:	Not reported
Report Title:	Not reported

Date Ecology Received Report:	05/03/01
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	98-36
County Code:	17
Contact:	Not reported
Report Title:	Ground Water Monitoring and Sampling 3/13/01

Date Ecology Received Report:	07/19/01
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	98-39
County Code:	17
Contact:	Not reported
Report Title:	Enviro Investigation

Date Ecology Received Report:	02/04/02
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	98-45
County Code:	17
Contact:	Not reported
Report Title:	Ground Water Monitoring - June, September, December 2001

Date Ecology Received Report:	01/04/01
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	98-32
County Code:	17
Contact:	Not reported
Report Title:	Ground Water Monitoring and Sampling Report

Date Ecology Received Report:	04/01/02
Contaminants Found at Site:	Petroleum products

CHEVRON #9 1144 (Continued) **S104485280**

Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	98-47
County Code:	17
Contact:	Not reported
Report Title:	Environmental Investigation

B13
SW
< 1/8
0.076 mi.
402 ft.

Relative:
Lower

Actual:
132 ft.

TOTEM LAKE CHEVRON 91144
12500 TOTEM LAKE BLVD NE
KIRKLAND, WA 98034

Site 8 of 8 in cluster B

WA UST **1000659281**
WA VCP **WAD988489506**
WA ALLSITES
WA CSCSL NFA
RCRA NonGen / NLR
FINDS
ECHO
WA Financial Assurance
WA MANIFEST

UST:

Facility ID:	43619955
Site Id:	5079
UBI:	Not reported
Phone Number:	Not reported
Decimal Latitude:	47.7107592140864
Decimal Longitude:	-122.179969442924

Tank Name:	1
Tag Number:	A0706, A5661
Tank Status:	Removed
Tank Status Date:	08/06/1996
Tank Install Date:	00/31/1964
Tank Closure Date:	Not reported
Capacity Range:	Not reported
Tank Permit Expiration Date:	Not reported
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Single Wall Tank
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	1-1R
Tag Number:	A0706, A5661
Tank Status:	Removed

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Tank Status Date:	06/24/2015
Tank Install Date:	00/05/1990
Tank Closure Date:	07/27/2015
Capacity Range:	10,000 to 19,999 Gallons
Tank Permit Expiration Date:	09/30/2015
Tank Upgrade Date:	02/02/1998
Tank Spill Prevention:	Spill Bucket/Spill Box
Tank Overfill Prevention:	Automatic Shutoff (fill pipe)
Tank Material:	Fiberglass Reinforced Plastic
Tank Construction:	Double Wall Tank
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Corrosion Resistant
Tank Manifold:	Not reported
Tank Release Detection:	Interstitial Monitoring
Tank SFC Type:	Not reported
Pipe Material:	Fiberglass
Pipe Construction:	Single Wall Pipe
Pipe Primary Release Detection:	Automatic Line Leak Detector (ALLD)
Pipe Second Release Detection:	Annual Line Tightness Test (LTT)
Pipe Corrosion Protection:	Corrosion Resistant
Pipe Pumping System:	Pressurized System
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	2
Tag Number:	A0706, A5661
Tank Status:	Removed
Tank Status Date:	08/06/1996
Tank Install Date:	00/31/1964
Tank Closure Date:	Not reported
Capacity Range:	Not reported
Tank Permit Expiration Date:	Not reported
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Single Wall Tank
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	2-2R
Tag Number:	A0706, A5661
Tank Status:	Removed
Tank Status Date:	06/24/2015

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Tank Install Date:	00/05/1990
Tank Closure Date:	Not reported
Capacity Range:	10,000 to 19,999 Gallons
Tank Permit Expiration Date:	09/30/2015
Tank Upgrade Date:	02/02/1998
Tank Spill Prevention:	Spill Bucket/Spill Box
Tank Overfill Prevention:	Automatic Shutoff (fill pipe)
Tank Material:	Fiberglass Reinforced Plastic
Tank Construction:	Double Wall Tank
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Corrosion Resistant
Tank Manifold:	Not reported
Tank Release Detection:	Interstitial Monitoring
Tank SFC Type:	Not reported
Pipe Material:	Fiberglass
Pipe Construction:	Single Wall Pipe
Pipe Primary Release Detection:	Automatic Line Leak Detector (ALLD)
Pipe Second Release Detection:	Annual Line Tightness Test (LTT)
Pipe Corrosion Protection:	Corrosion Resistant
Pipe Pumping System:	Pressurized System
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	3
Tag Number:	A0706, A5661
Tank Status:	Removed
Tank Status Date:	08/06/1996
Tank Install Date:	00/31/1964
Tank Closure Date:	Not reported
Capacity Range:	Not reported
Tank Permit Expiration Date:	Not reported
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Single Wall Tank
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	3-3R
Tag Number:	A0706, A5661
Tank Status:	Removed
Tank Status Date:	06/24/2015
Tank Install Date:	00/05/1990

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Tank Closure Date:	07/27/2015
Capacity Range:	10,000 to 19,999 Gallons
Tank Permit Expiration Date:	09/30/2015
Tank Upgrade Date:	02/02/1998
Tank Spill Prevention:	Spill Bucket/Spill Box
Tank Overfill Prevention:	Automatic Shutoff (fill pipe)
Tank Material:	Fiberglass Reinforced Plastic
Tank Construction:	Double Wall Tank
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Corrosion Resistant
Tank Manifold:	Not reported
Tank Release Detection:	Interstitial Monitoring
Tank SFC Type:	Not reported
Pipe Material:	Fiberglass
Pipe Construction:	Single Wall Pipe
Pipe Primary Release Detection:	Automatic Line Leak Detector (ALLD)
Pipe Second Release Detection:	Annual Line Tightness Test (LTT)
Pipe Corrosion Protection:	Corrosion Resistant
Pipe Pumping System:	Pressurized System
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	4
Tag Number:	A0706, A5661
Tank Status:	Removed
Tank Status Date:	08/06/1996
Tank Install Date:	00/31/1964
Tank Closure Date:	Not reported
Capacity Range:	Not reported
Tank Permit Expiration Date:	Not reported
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Fiberglass Reinforced Plastic
Tank Construction:	Single Wall Tank
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	4-4R
Tag Number:	A0706, A5661
Tank Status:	Removed
Tank Status Date:	06/24/2015
Tank Install Date:	00/05/1990
Tank Closure Date:	07/27/2015

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Capacity Range:	5,000 to 9,999 Gallons
Tank Permit Expiration Date:	09/30/2015
Tank Upgrade Date:	02/02/1998
Tank Spill Prevention:	Spill Bucket/Spill Box
Tank Overfill Prevention:	Automatic Shutoff (fill pipe)
Tank Material:	Fiberglass Reinforced Plastic
Tank Construction:	Double Wall Tank
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Corrosion Resistant
Tank Manifold:	Not reported
Tank Release Detection:	Interstitial Monitoring
Tank SFC Type:	Not reported
Pipe Material:	Fiberglass
Pipe Construction:	Single Wall Pipe
Pipe Primary Release Detection:	Automatic Line Leak Detector (ALLD)
Pipe Second Release Detection:	Annual Line Tightness Test (LTT)
Pipe Corrosion Protection:	Corrosion Resistant
Pipe Pumping System:	Pressurized System
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	5
Tag Number:	A0706, A5661
Tank Status:	Removed
Tank Status Date:	08/06/1996
Tank Install Date:	00/31/1964
Tank Closure Date:	Not reported
Capacity Range:	111 TO 1,100 Gallons
Tank Permit Expiration Date:	Not reported
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Single Wall Tank
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	5-5R
Tag Number:	A0706, A5661
Tank Status:	Exempt - Removed
Tank Status Date:	06/24/2015
Tank Install Date:	00/31/1964
Tank Closure Date:	07/27/2015
Capacity Range:	Not reported

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Tank Permit Expiration Date:	07/29/1992
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Fiberglass Reinforced Plastic
Tank Construction:	Double Wall Tank
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Weekly Manual Gauging
Tank SFC Type:	Not reported
Pipe Material:	Steel
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Automatic Line Leak Detector (ALLD)
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	6
Tag Number:	A0706, A5661
Tank Status:	Removed
Tank Status Date:	08/06/1996
Tank Install Date:	00/31/1964
Tank Closure Date:	Not reported
Capacity Range:	Not reported
Tank Permit Expiration Date:	Not reported
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Single Wall Tank
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	6-6R
Tag Number:	A0706, A5661
Tank Status:	Removed
Tank Status Date:	06/04/2012
Tank Install Date:	00/05/1990
Tank Closure Date:	02/01/2002
Capacity Range:	Not reported
Tank Permit Expiration Date:	09/30/2012

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Tank Upgrade Date:	02/02/1998
Tank Spill Prevention:	Spill Bucket/Spill Box
Tank Overfill Prevention:	Ball Float Valve (vent line)
Tank Material:	Fiberglass Reinforced Plastic
Tank Construction:	Double Wall Tank
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Corrosion Resistant
Tank Manifold:	Not reported
Tank Release Detection:	Interstitial Monitoring
Tank SFC Type:	Not reported
Pipe Material:	Fiberglass
Pipe Construction:	Single Wall Pipe
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Corrosion Resistant
Pipe Pumping System:	Product Removed by Reclaimer
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

VCP:

edr_fstat:	WA
edr_fzip:	98034
edr_fcnty:	KING
edr_zip:	Not reported
Facility ID:	43619955
VCP Status:	Not reported
VCP:	Yes
Ecology Status:	Not reported
NFA Type:	Not reported
Date NFA:	4/26/2017
Rank:	Not reported
Cleanup Siteid:	6081

ALLSITES:

Facility Name:	TOTEM LAKE CHEVRON 91144
Facility Id:	43619955

Interaction:	44566
Interaction 1:	I
Interaction 2:	LUST
Ecology Program:	TOXICS
Program Data:	ISIS
Facility Alt.:	Not reported
Program ID:	5079
Date Interaction:	1990-03-27 00:00:00
Date Interaction 3:	LUST Facility
Latitude:	47.710753158000003
Longitude:	-122.179941304

Interaction:	44570
Interaction 1:	I
Interaction 2:	HWOTHER
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Program ID:	WAD988489506
Date Interaction:	2003-12-31 00:00:00
Date Interaction 3:	Haz Waste Management Acti
Latitude:	47.710753158000003
Longitude:	-122.179941304

Interaction:	44572
Interaction 1:	I
Interaction 2:	VOLCLNST
Ecology Program:	TOXICS
Program Data:	ISIS
Facility Alt.:	TOTEM LAKE CHEVRON 91144
Program ID:	NW1555
Date Interaction:	2006-02-06 00:00:00
Date Interaction 3:	Voluntary Cleanup Sites
Latitude:	47.710753158000003
Longitude:	-122.179941304

Interaction:	116777
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	TOTEM LAKE CHEVRON 91144
Program ID:	WAD988489506
Date Interaction:	2015-01-01 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.710753158000003
Longitude:	-122.179941304

Interaction:	44574
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	TOTEM LAKE CHEVRON 91144
Program ID:	WAD988489506
Date Interaction:	2008-12-31 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.710753158000003
Longitude:	-122.179941304

Interaction:	92576
Interaction 1:	I
Interaction 2:	HWP
Ecology Program:	HAZWASTE
Program Data:	HWPPRT
Facility Alt.:	TOTEM LAKE CHEVRON 91144
Program ID:	WAD988489506
Date Interaction:	2010-05-14 00:00:00
Date Interaction 3:	Hazardous Waste Planner
Latitude:	47.710753158000003
Longitude:	-122.179941304

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Interaction:	119429
Interaction 1:	I
Interaction 2:	VOLCLNST
Ecology Program:	TOXICS
Program Data:	ISIS
Facility Alt.:	Totem Lake Chevron 91144
Program ID:	NW3048
Date Interaction:	2016-02-11 00:00:00
Date Interaction 3:	Voluntary Cleanup Sites
Latitude:	47.710753158000003
Longitude:	-122.179941304

Interaction:	44569
Interaction 1:	I
Interaction 2:	UST
Ecology Program:	TOXICS
Program Data:	UST
Facility Alt.:	Not reported
Program ID:	5079
Date Interaction:	2000-03-20 00:00:00
Date Interaction 3:	Underground Storage Tank
Latitude:	47.710753158000003
Longitude:	-122.179941304

Interaction:	44568
Interaction 1:	I
Interaction 2:	TIER2
Ecology Program:	HAZWASTE
Program Data:	EPCRA
Facility Alt.:	Not reported
Program ID:	WAD988489506
Date Interaction:	1992-01-01 00:00:00
Date Interaction 3:	Emergency/Haz Chem Rpt TI
Latitude:	47.710753158000003
Longitude:	-122.179941304

Interaction:	44567
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD988489506
Date Interaction:	1991-05-30 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.710753158000003
Longitude:	-122.179941304

Interaction:	102127
Interaction 1:	I
Interaction 2:	LUST
Ecology Program:	TOXICS
Program Data:	ISIS

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Facility Alt.:	TOTEM LAKE CHEVRON 91144
Program ID:	5079
Date Interaction:	2012-07-13 00:00:00
Date Interaction 3:	LUST Facility
Latitude:	47.710753158000003
Longitude:	-122.179941304

Interaction:	44573
Interaction 1:	I
Interaction 2:	HWOTHER
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD988489506
Date Interaction:	2005-12-31 00:00:00
Date Interaction 3:	Haz Waste Management Acti
Latitude:	47.710753158000003
Longitude:	-122.179941304

Interaction:	44571
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD988489506
Date Interaction:	2004-12-31 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.710753158000003
Longitude:	-122.179941304

Interaction:	120872
Interaction 1:	A
Interaction 2:	HWOTHER
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	TOTEM LAKE CHEVRON 91144
Program ID:	WAD988489506
Date Interaction:	2016-12-31 00:00:00
Date Interaction 3:	Haz Waste Management Acti
Latitude:	47.710753158000003
Longitude:	-122.179941304

CSCSL NFA:

Facility/Site Id:	43619955
CS Id:	6081
NFA Date:	04/26/2017
Rank:	Not reported
VCP:	Yes
Latitude:	47.710759214
Longitude:	-122.17996944

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

RCRA NonGen / NLR:

Date form received by agency:	08/13/2015
Facility name:	TOTEM LAKE CHEVRON 91144
Facility address:	12500 TOTEM LAKE BLVD NE KIRKLAND, WA 98034
EPA ID:	WAD988489506
Mailing address:	PO BOX 6004 SAN RAMON, CA 94583-2324
Contact:	KATHY NORRIS
Contact address:	PO BOX 6004 SAN RAMON, CA 94583-2324
Contact country:	US
Contact telephone:	877-386-6044
Contact email:	NAWTDESK@CHEVRON.COM
EPA Region:	10
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	TOTEM LAKE CHEVRON
Owner/operator address:	PO BOX 6004 SAN RAMON, CA 94583
Owner/operator country:	US
Owner/operator telephone:	925-842-5931
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	03/06/2001
Owner/Op end date:	Not reported
Owner/operator name:	CHEVRON PRODUCTS CO
Owner/operator address:	12500 TOTEM LAKE BLVD NE KIRKLAND, WA 98034
Owner/operator country:	US
Owner/operator telephone:	425-821-1801
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	10/10/1996
Owner/Op end date:	Not reported
Owner/operator name:	KATHY NORRIS
Owner/operator address:	PO BOX 6004 SAN RAMON, CA 94583
Owner/operator country:	US
Owner/operator telephone:	877-386-6044
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	03/06/2001

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Owner/Op end date: Not reported

Owner/operator name: NA CHEVRON PRODUCT
Owner/operator address: 12500 TOTEM LAKE BLVD NE
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 425-821-1801
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 10/10/1996
Owner/Op end date: Not reported

Owner/operator name: TOTEM LAKE CHEVRON
Owner/operator address: PO BOX 6004
SAN RAMON, CA 94583
Owner/operator country: US
Owner/operator telephone: 877-386-6044
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: TOTEM LAKE CHEVRON
Owner/operator address: PO BOX 6004
SAN RAMON, CA 94583
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 03/06/2001
Owner/Op end date: Not reported

Owner/operator name: ALEX HOLVE
Owner/operator address: 12500 TOTEM LAKE BLVD NE
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 10/10/1996
Owner/Op end date: Not reported

Owner/operator name: CHEVRON PRODUCTS CO
Owner/operator address: PO BOX 6004
SAN RAMON, CA 94583

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Owner/operator country: US
Owner/operator telephone: 877-386-6044
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D018
. Waste name: BENZENE

Historical Generators:
Date form received by agency: 02/07/2014
Site name: TOTEM LAKE CHEVRON 91144
Classification: Small Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D018
. Waste name: BENZENE

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Date form received by agency: 02/21/2012
Site name: TOTEM LAKE CHEVRON 91144
Classification: Small Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D018
. Waste name: BENZENE

Date form received by agency: 02/11/2010
Site name: TOTEM LAKE CHEVRON 91144
Classification: Small Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D018
. Waste name: BENZENE

Date form received by agency: 12/31/2007
Site name: TOTEM LAKE CHEVRON 91144
Classification: Not a generator, verified

Date form received by agency: 12/31/2005
Site name: TOTEM LAKE CHEVRON 91144
Classification: Not a generator, verified

Date form received by agency: 12/31/2003
Site name: TOTEM LAKE CHEVRON 91144
Classification: Not a generator, verified

Violation Status: No violations found

FINDS:

Registry ID: 110005363221

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZARDOUS WASTE BIENNIAL REPORTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1000659281
Registry ID:	110005363221
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110005363221

WA Financial Assurance 1:

DOE Site ID:	5079
Financial Resp Type:	CHEVRON U.S.A. INC.
Inception Date:	04/23/2012
Expiration Date:	04/26/2014
Address 2:	Not reported
Policy Number:	409018069 131200009
Effective Date:	04/26/2013
Liability Limit Type:	Not reported
Compliance Method:	Not reported
Proof of Responsibility Document Flag:	Not reported
Retroactive Date:	Not reported
Latitude:	47.710759214
Longitude:	-122.17996944

WA MANIFEST:

Facility Site ID Number:	43619955
EPA ID:	WAD988489506
NAICS:	44711
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	2008
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	600029388
Business Type:	Not reported
Mail Name:	Chevron Products Co
Mail addr line1:	PO Box 6004
Mail city,st,zip:	San Ramon, CA 94583-2324
Mail country:	UNITED STATES
Legal org name:	Totem Lake Chevron
Legal org type:	Private
Legal addr line1:	PO Box 6004
Legal city,st,zip:	San Ramon, CA 94583-2324
Legal country:	UNITED STATES
Legal phone nbr:	(925)842-5931
Legal effective date:	03/06/2001
Land org name:	Chevron Products Co
Land org type:	Private
Land person name:	Not reported
Land addr line1:	PO Box 6004
Land city,st,zip:	San Ramon, CA 94583-2324
Land country:	UNITED STATES
Land phone nbr:	925-842-5931
Operator org name:	Chevron Products Co
Operator org type:	Private
Operator addr line1:	12500 Totem Lake Blvd NE
Operator city,st,zip:	Kirkland, WA 98034-7205
Operator country:	UNITED STATES
Operator phone nbr:	(425)821-1801
Operator effective date:	10/10/1996
Site contact name:	Station Manager
Site contact addr line1:	12500 Totem Lake Blvd NE
Site Contact City/State/ Zip:	Kirkland, WA 98034-7205
Site Contact Country:	UNITED STATES
Site Contact Phone #:	425-821-1801
Site Contact EMail:	NAWTDesk@chevron.com
Form Contact NAME:	Kathy L Norris-Slusher
Form Contact ADDR LINE1:	PO Box 6004
Form Contact City,ST,Zip:	San Ramon, CA 94583-2324
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(925)842-5931
Form Contact EMail:	NAWTDesk@chevron.com
Gen Status CD:	LQG
Monthly Generation:	False
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Waste Streams Generated:

Facility ID: 43619955
Data Year: 2008
Description: PUMPING UNDER GROUND STORAGE TANKS GAS & WATER
Mix: False
Reported Qty: 50 LB
Kilo Qty: 22.680000390096009
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2008
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 150 LB
Kilo Qty: 68.040001170288022
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2008
Description: SPILL BUCKET WATER CONTAMINATED WITH HYDROCARBONS & BENZENE
Mix: False
Reported Qty: 8262 LB
Kilo Qty: 3747.6432644594643
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2009
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 75 LB
Kilo Qty: 34.020000585144011
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2009
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 4131 LB
Kilo Qty: 1873.8216322297321
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2010

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 425 LB
Kilo Qty: 192.78000331581606
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2010
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 1377 LB
Kilo Qty: 624.60721074324408
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2011
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 235 LB
Kilo Qty: 106.596001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2011
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 668 LB
Kilo Qty: 303.004805
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2012
Description: Spill Pads/Dispenser Fuel Filters/Dispenser Hoses w/Gas
Mix: False
Reported Qty: 230 LB
Kilo Qty: 104.328001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2012
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 1385 LB
Kilo Qty: 628.236010
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2013
Description: NA3077, Hazardous Waste Solid, N.O.S. (Benzene DO18), 9, PGIII
Mix: False
Reported Qty: 235 LB

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Kilo Qty: 106.596001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2013
Description: UN1993, Waste Flammable Liquids, N.O.S. (Gasoline, Diesel Fuel), 3, PGII.
Mix: False
Reported Qty: 95 GAL
Kilo Qty: 359.602746
Density No: 8.34500000
Density Qty: PPG

Facility ID: 43619955
Data Year: 2014
Description: Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix: False
Reported Qty: 300 LB
Kilo Qty: 136.080002
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2014
Description: Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix: False
Reported Qty: 1377 LB
Kilo Qty: 624.607210
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2015
Description: Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix: False
Reported Qty: 514 LB
Kilo Qty: 233.150404
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2015
Description: Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix: False
Reported Qty: 918 LB
Kilo Qty: 416.404807
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 43619955
Data Year: 2008
Shipment sent data: 5/13/2008
Reported Qty: 50 LB
Kilo Qty: 22.680000390096

Facility ID: 43619955

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Data Year: 2008
Shipment sent data: 12/17/2008
Reported Qty: 90 LB
Kilo Qty: 40.8240007021728

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 6/11/2008
Reported Qty: 60 LB
Kilo Qty: 27.2160004681152

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/31/2008
Reported Qty: 3672 LB
Kilo Qty: 1665.61922864865

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/12/2008
Reported Qty: 4590 LB
Kilo Qty: 2082.02403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/9/2009
Reported Qty: 75 LB
Kilo Qty: 34.020000585144

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 12/10/2009
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/24/2009
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/9/2009
Reported Qty: 1377 LB
Kilo Qty: 624.607210743244

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 4/15/2009
Reported Qty: 1377 LB
Kilo Qty: 624.607210743244

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 2/27/2009
Reported Qty: 459 LB

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/9/2010
Reported Qty: 75 LB
Kilo Qty: 34.020000585144

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 10/20/2010
Reported Qty: 100 LB
Kilo Qty: 45.360000780192

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 4/12/2010
Reported Qty: 250 LB
Kilo Qty: 113.40000195048

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/27/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/30/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/13/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 135 LB
Kilo Qty: 61.2360010

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-05-13 00:00:00
Reported Qty: 100 LB
Kilo Qty: 45.3600007

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 209 LB
Kilo Qty: 94.8024016

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Waste Stream Comments:

Facility ID: 43619955
Data Year: 2008
Comments: GAS & WATER MIX

Facility ID: 43619955
Data Year: 2008
Comments: SPILL BUCKET WITH BENZENE

Facility ID: 43619955
Data Year: 2009
Comments: spill bucket

Facility ID: 43619955
Data Year: 2010
Comments: SPILL BUCKET

Facility ID: 43619955
Data Year: 2010
Comments: Monthly Scheduled Clean Up

Facility ID: 43619955
Data Year: 2011
Comments: Incineration

Facility ID: 43619955
Data Year: 2011
Comments: Incineration

Facility ID: 43619955
Data Year: 2013
Comments: absorbents/pad

Facility ID: 43619955
Data Year: 2014
Comments: absorbents/pad

Facility Site ID Number:	43619955
EPA ID:	WAD988489506
NAICS:	447110
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	2016
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	Not reported
Business Type:	Not reported
Mail Name:	Chevron Products Co
Mail addr line1:	PO Box 6004
Mail city,st,zip:	San Ramon, CA 94583-2324
Mail country:	UNITED STATES
Legal org name:	Totem Lake Chevron
Legal org type:	Private
Legal addr line1:	PO Box 6004
Legal city,st,zip:	San Ramon, CA 94583-2324
Legal country:	UNITED STATES
Legal phone nbr:	877-386-6044
Legal effective date:	03/06/2001
Land org name:	Chevron Products Co
Land org type:	Private
Land person name:	Not reported
Land addr line1:	PO Box 6004
Land city,st,zip:	San Ramon, CA 94583-2324
Land country:	UNITED STATES
Land phone nbr:	877-386-6044
Operator org name:	Chevron Products Co
Operator org type:	Private
Operator addr line1:	12500 Totem Lake Blvd NE
Operator city,st,zip:	Kirkland, WA 98034-7205
Operator country:	UNITED STATES
Operator phone nbr:	(425)821-1801
Operator effective date:	10/10/1996
Site contact name:	Station Manager
Site contact addr line1:	12500 Totem Lake Blvd NE
Site Contact City/State/ Zip:	Kirkland, WA 98034-7205
Site Contact Country:	UNITED STATES
Site Contact Phone #:	425-821-1801
Site Contact EMail:	NAWTDesk@chevron.com
Form Contact NAME:	Waste Desk
Form Contact ADDR LINE1:	PO Box 6004
Form Contact City,ST,Zip:	San Ramon, CA 94583-2324
Form Contact Country:	UNITED STATES
Form Contact Phone #:	877-386-6044
Form Contact EMail:	NAWTDesk@chevron.com
Gen Status CD:	XQG
Monthly Generation:	False
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Waste Streams Generated:

Facility ID:	43619955
Data Year:	2008
Description:	PUMPING UNDER GROUND STORAGE TANKS GAS & WATER
Mix:	False
Reported Qty:	50 LB
Kilo Qty:	22.680000390096009
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2008
Description:	RAGS/PADS CONTAMINATED WITH GASOLINE
Mix:	False
Reported Qty:	150 LB
Kilo Qty:	68.040001170288022
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2008
Description:	SPILL BUCKET WATER CONTAMINATED WITH HYDROCARBONS & BENZENE
Mix:	False
Reported Qty:	8262 LB
Kilo Qty:	3747.6432644594643
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2009
Description:	RAGS/PADS CONTAMINATED WITH GASOLINE
Mix:	False
Reported Qty:	75 LB
Kilo Qty:	34.020000585144011
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2009
Description:	spill bucket water contaminated with hydrocarbons and benzene
Mix:	False
Reported Qty:	4131 LB
Kilo Qty:	1873.8216322297321
Density No:	0
Density Qty:	Not reported

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Facility ID: 43619955
Data Year: 2010
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 425 LB
Kilo Qty: 192.78000331581606
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2010
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 1377 LB
Kilo Qty: 624.60721074324408
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2011
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 235 LB
Kilo Qty: 106.596001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2011
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 668 LB
Kilo Qty: 303.004805
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2012
Description: Spill Pads/Dispenser Fuel Filters/Dispenser Hoses w/Gas
Mix: False
Reported Qty: 230 LB
Kilo Qty: 104.328001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2012
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 1385 LB
Kilo Qty: 628.236010
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2013
Description: NA3077, Hazardous Waste Solid, N.O.S. (Benzene DO18), 9, PGIII

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Mix:	False
Reported Qty:	235 LB
Kilo Qty:	106.596001
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2013
Description:	UN1993, Waste Flammable Liquids, N.O.S. (Gasoline, Diesel Fuel), 3, PGII.
Mix:	False
Reported Qty:	95 GAL
Kilo Qty:	359.602746
Density No:	8.34500000
Density Qty:	PPG

Facility ID:	43619955
Data Year:	2014
Description:	Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix:	False
Reported Qty:	300 LB
Kilo Qty:	136.080002
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2014
Description:	Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix:	False
Reported Qty:	1377 LB
Kilo Qty:	624.607210
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2015
Description:	Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix:	False
Reported Qty:	514 LB
Kilo Qty:	233.150404
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2015
Description:	Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix:	False
Reported Qty:	918 LB
Kilo Qty:	416.404807
Density No:	0
Density Qty:	Not reported

Shipments Sent:

Facility ID:	43619955
Data Year:	2008
Shipment sent data:	5/13/2008
Reported Qty:	50 LB
Kilo Qty:	22.680000390096

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/17/2008
Reported Qty: 90 LB
Kilo Qty: 40.8240007021728

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 6/11/2008
Reported Qty: 60 LB
Kilo Qty: 27.2160004681152

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/31/2008
Reported Qty: 3672 LB
Kilo Qty: 1665.61922864865

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/12/2008
Reported Qty: 4590 LB
Kilo Qty: 2082.02403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/9/2009
Reported Qty: 75 LB
Kilo Qty: 34.020000585144

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 12/10/2009
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/24/2009
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/9/2009
Reported Qty: 1377 LB
Kilo Qty: 624.607210743244

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 4/15/2009
Reported Qty: 1377 LB
Kilo Qty: 624.607210743244

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 2/27/2009

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/9/2010
Reported Qty: 75 LB
Kilo Qty: 34.020000585144

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 10/20/2010
Reported Qty: 100 LB
Kilo Qty: 45.360000780192

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 4/12/2010
Reported Qty: 250 LB
Kilo Qty: 113.40000195048

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/27/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/30/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/13/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 135 LB
Kilo Qty: 61.2360010

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-05-13 00:00:00
Reported Qty: 100 LB
Kilo Qty: 45.3600007

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 209 LB
Kilo Qty: 94.8024016

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Waste Stream Comments:

Facility ID: 43619955
Data Year: 2008
Comments: GAS & WATER MIX

Facility ID: 43619955
Data Year: 2008
Comments: SPILL BUCKET WITH BENZENE

Facility ID: 43619955
Data Year: 2009
Comments: spill bucket

Facility ID: 43619955
Data Year: 2010
Comments: SPILL BUCKET

Facility ID: 43619955
Data Year: 2010
Comments: Monthly Scheduled Clean Up

Facility ID: 43619955
Data Year: 2011
Comments: Incineration

Facility ID: 43619955
Data Year: 2011
Comments: Incineration

Facility ID: 43619955
Data Year: 2013
Comments: absorbents/pad

Facility ID: 43619955
Data Year: 2014
Comments: absorbents/pad

Facility Site ID Number: 43619955
EPA ID: WAD988489506
NAICS: 447110
SWC Desc: Not reported
FWC Desc: D001,D018
Form Comm: Not reported
Data Year: 2015
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	Not reported
Business Type:	Not reported
Mail Name:	Chevron Products Co
Mail addr line1:	PO Box 6004
Mail city,st,zip:	San Ramon, CA 94583-2324
Mail country:	UNITED STATES
Legal org name:	Totem Lake Chevron
Legal org type:	Private
Legal addr line1:	PO Box 6004
Legal city,st,zip:	San Ramon, CA 94583-2324
Legal country:	UNITED STATES
Legal phone nbr:	877-386-6044
Legal effective date:	03/06/2001
Land org name:	Chevron Products Co
Land org type:	Private
Land person name:	Not reported
Land addr line1:	PO Box 6004
Land city,st,zip:	San Ramon, CA 94583-2324
Land country:	UNITED STATES
Land phone nbr:	877-386-6044
Operator org name:	Chevron Products Co
Operator org type:	Private
Operator addr line1:	12500 Totem Lake Blvd NE
Operator city,st,zip:	Kirkland, WA 98034-7205
Operator country:	UNITED STATES
Operator phone nbr:	(425)821-1801
Operator effective date:	10/10/1996
Site contact name:	Station Manager
Site contact addr line1:	12500 Totem Lake Blvd NE
Site Contact City/State/ Zip:	Kirkland, WA 98034-7205
Site Contact Country:	UNITED STATES
Site Contact Phone #:	425-821-1801
Site Contact EMail:	NAWTDesk@chevron.com
Form Contact NAME:	Waste Desk
Form Contact ADDR LINE1:	PO Box 6004
Form Contact City,ST,Zip:	San Ramon, CA 94583-2324
Form Contact Country:	UNITED STATES
Form Contact Phone #:	877-386-6044
Form Contact EMail:	NAWTDesk@chevron.com
Gen Status CD:	MQG
Monthly Generation:	False
Batch Generation:	True
One Time Generation:	False
Transport Own Waste:	False

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Waste Streams Generated:

Facility ID:	43619955
Data Year:	2008
Description:	PUMPING UNDER GROUND STORAGE TANKS GAS & WATER
Mix:	False
Reported Qty:	50 LB
Kilo Qty:	22.680000390096009
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2008
Description:	RAGS/PADS CONTAMINATED WITH GASOLINE
Mix:	False
Reported Qty:	150 LB
Kilo Qty:	68.040001170288022
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2008
Description:	SPILL BUCKET WATER CONTAMINATED WITH HYDROCARBONS & BENZENE
Mix:	False
Reported Qty:	8262 LB
Kilo Qty:	3747.6432644594643
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2009
Description:	RAGS/PADS CONTAMINATED WITH GASOLINE
Mix:	False
Reported Qty:	75 LB
Kilo Qty:	34.020000585144011
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2009
Description:	spill bucket water contaminated with hydrocarbons and benzene
Mix:	False
Reported Qty:	4131 LB
Kilo Qty:	1873.8216322297321
Density No:	0
Density Qty:	Not reported

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Facility ID: 43619955
Data Year: 2010
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 425 LB
Kilo Qty: 192.78000331581606
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2010
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 1377 LB
Kilo Qty: 624.60721074324408
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2011
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 235 LB
Kilo Qty: 106.596001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2011
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 668 LB
Kilo Qty: 303.004805
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2012
Description: Spill Pads/Dispenser Fuel Filters/Dispenser Hoses w/Gas
Mix: False
Reported Qty: 230 LB
Kilo Qty: 104.328001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2012
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 1385 LB
Kilo Qty: 628.236010
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2013
Description: NA3077, Hazardous Waste Solid, N.O.S. (Benzene DO18), 9, PGIII

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Mix:	False
Reported Qty:	235 LB
Kilo Qty:	106.596001
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2013
Description:	UN1993, Waste Flammable Liquids, N.O.S. (Gasoline, Diesel Fuel), 3, PGII.
Mix:	False
Reported Qty:	95 GAL
Kilo Qty:	359.602746
Density No:	8.34500000
Density Qty:	PPG

Facility ID:	43619955
Data Year:	2014
Description:	Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix:	False
Reported Qty:	300 LB
Kilo Qty:	136.080002
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2014
Description:	Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix:	False
Reported Qty:	1377 LB
Kilo Qty:	624.607210
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2015
Description:	Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix:	False
Reported Qty:	514 LB
Kilo Qty:	233.150404
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2015
Description:	Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix:	False
Reported Qty:	918 LB
Kilo Qty:	416.404807
Density No:	0
Density Qty:	Not reported

Shipments Sent:

Facility ID:	43619955
Data Year:	2008
Shipment sent data:	5/13/2008
Reported Qty:	50 LB
Kilo Qty:	22.680000390096

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/17/2008
Reported Qty: 90 LB
Kilo Qty: 40.8240007021728

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 6/11/2008
Reported Qty: 60 LB
Kilo Qty: 27.2160004681152

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/31/2008
Reported Qty: 3672 LB
Kilo Qty: 1665.61922864865

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/12/2008
Reported Qty: 4590 LB
Kilo Qty: 2082.02403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/9/2009
Reported Qty: 75 LB
Kilo Qty: 34.020000585144

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 12/10/2009
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/24/2009
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/9/2009
Reported Qty: 1377 LB
Kilo Qty: 624.607210743244

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 4/15/2009
Reported Qty: 1377 LB
Kilo Qty: 624.607210743244

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 2/27/2009

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/9/2010
Reported Qty: 75 LB
Kilo Qty: 34.020000585144

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 10/20/2010
Reported Qty: 100 LB
Kilo Qty: 45.360000780192

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 4/12/2010
Reported Qty: 250 LB
Kilo Qty: 113.40000195048

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/27/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/30/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/13/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 135 LB
Kilo Qty: 61.2360010

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-05-13 00:00:00
Reported Qty: 100 LB
Kilo Qty: 45.3600007

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 209 LB
Kilo Qty: 94.8024016

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Waste Stream Comments:

Facility ID: 43619955
Data Year: 2008
Comments: GAS & WATER MIX

Facility ID: 43619955
Data Year: 2008
Comments: SPILL BUCKET WITH BENZENE

Facility ID: 43619955
Data Year: 2009
Comments: spill bucket

Facility ID: 43619955
Data Year: 2010
Comments: SPILL BUCKET

Facility ID: 43619955
Data Year: 2010
Comments: Monthly Scheduled Clean Up

Facility ID: 43619955
Data Year: 2011
Comments: Incineration

Facility ID: 43619955
Data Year: 2011
Comments: Incineration

Facility ID: 43619955
Data Year: 2013
Comments: absorbents/pad

Facility ID: 43619955
Data Year: 2014
Comments: absorbents/pad

Facility Site ID Number: 43619955
EPA ID: WAD988489506
NAICS: 44711
SWC Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
Data Year: Not reported
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	600029388
Business Type:	Not reported
Mail Name:	Chevron Products Co
Mail addr line1:	PO Box 6004
Mail city,st,zip:	San Ramon, CA 94583-2324
Mail country:	UNITED STATES
Legal org name:	Totem Lake Chevron
Legal org type:	Private
Legal addr line1:	PO Box 6004
Legal city,st,zip:	San Ramon, CA 94583-2324
Legal country:	UNITED STATES
Legal phone nbr:	(925)842-5931
Legal effective date:	03/06/2001
Land org name:	Chevron Products Co
Land org type:	Private
Land person name:	Not reported
Land addr line1:	PO Box 6004
Land city,st,zip:	San Ramon, CA 94583-2324
Land country:	UNITED STATES
Land phone nbr:	925-842-5931
Operator org name:	Chevron Products Co
Operator org type:	Private
Operator addr line1:	12500 Totem Lake Blvd NE
Operator city,st,zip:	Kirkland, WA 98034-7205
Operator country:	UNITED STATES
Operator phone nbr:	(425)821-1801
Operator effective date:	10/10/1996
Site contact name:	Station Manager
Site contact addr line1:	12500 Totem Lake Blvd NE
Site Contact City/State/ Zip:	Kirkland, WA 98034-7205
Site Contact Country:	UNITED STATES
Site Contact Phone #:	425-821-1801
Site Contact EMail:	NAWTDesk@chevron.com
Form Contact NAME:	Kathy L Norris-Slusher
Form Contact ADDR LINE1:	PO Box 6004
Form Contact City,ST,Zip:	San Ramon, CA 94583-2324
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(925)842-5931
Form Contact EMail:	NAWTDesk@chevron.com
Gen Status CD:	XQG
Monthly Generation:	False
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Waste Streams Generated:

Facility ID:	43619955
Data Year:	2008
Description:	PUMPING UNDER GROUND STORAGE TANKS GAS & WATER
Mix:	False
Reported Qty:	50 LB
Kilo Qty:	22.680000390096009
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2008
Description:	RAGS/PADS CONTAMINATED WITH GASOLINE
Mix:	False
Reported Qty:	150 LB
Kilo Qty:	68.040001170288022
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2008
Description:	SPILL BUCKET WATER CONTAMINATED WITH HYDROCARBONS & BENZENE
Mix:	False
Reported Qty:	8262 LB
Kilo Qty:	3747.6432644594643
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2009
Description:	RAGS/PADS CONTAMINATED WITH GASOLINE
Mix:	False
Reported Qty:	75 LB
Kilo Qty:	34.020000585144011
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2009
Description:	spill bucket water contaminated with hydrocarbons and benzene
Mix:	False
Reported Qty:	4131 LB
Kilo Qty:	1873.8216322297321
Density No:	0
Density Qty:	Not reported

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Facility ID: 43619955
Data Year: 2010
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 425 LB
Kilo Qty: 192.78000331581606
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2010
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 1377 LB
Kilo Qty: 624.60721074324408
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2011
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 235 LB
Kilo Qty: 106.596001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2011
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 668 LB
Kilo Qty: 303.004805
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2012
Description: Spill Pads/Dispenser Fuel Filters/Dispenser Hoses w/Gas
Mix: False
Reported Qty: 230 LB
Kilo Qty: 104.328001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2012
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 1385 LB
Kilo Qty: 628.236010
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2013
Description: NA3077, Hazardous Waste Solid, N.O.S. (Benzene DO18), 9, PGIII

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Mix:	False
Reported Qty:	235 LB
Kilo Qty:	106.596001
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2013
Description:	UN1993, Waste Flammable Liquids, N.O.S. (Gasoline, Diesel Fuel), 3, PGII.
Mix:	False
Reported Qty:	95 GAL
Kilo Qty:	359.602746
Density No:	8.34500000
Density Qty:	PPG

Facility ID:	43619955
Data Year:	2014
Description:	Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix:	False
Reported Qty:	300 LB
Kilo Qty:	136.080002
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2014
Description:	Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix:	False
Reported Qty:	1377 LB
Kilo Qty:	624.607210
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2015
Description:	Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix:	False
Reported Qty:	514 LB
Kilo Qty:	233.150404
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2015
Description:	Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix:	False
Reported Qty:	918 LB
Kilo Qty:	416.404807
Density No:	0
Density Qty:	Not reported

Shipments Sent:

Facility ID:	43619955
Data Year:	2008
Shipment sent data:	5/13/2008
Reported Qty:	50 LB
Kilo Qty:	22.680000390096

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/17/2008
Reported Qty: 90 LB
Kilo Qty: 40.8240007021728

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 6/11/2008
Reported Qty: 60 LB
Kilo Qty: 27.2160004681152

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/31/2008
Reported Qty: 3672 LB
Kilo Qty: 1665.61922864865

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/12/2008
Reported Qty: 4590 LB
Kilo Qty: 2082.02403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/9/2009
Reported Qty: 75 LB
Kilo Qty: 34.020000585144

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 12/10/2009
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/24/2009
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/9/2009
Reported Qty: 1377 LB
Kilo Qty: 624.607210743244

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 4/15/2009
Reported Qty: 1377 LB
Kilo Qty: 624.607210743244

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 2/27/2009

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/9/2010
Reported Qty: 75 LB
Kilo Qty: 34.020000585144

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 10/20/2010
Reported Qty: 100 LB
Kilo Qty: 45.360000780192

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 4/12/2010
Reported Qty: 250 LB
Kilo Qty: 113.40000195048

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/27/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/30/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/13/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 135 LB
Kilo Qty: 61.2360010

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-05-13 00:00:00
Reported Qty: 100 LB
Kilo Qty: 45.3600007

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 209 LB
Kilo Qty: 94.8024016

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Waste Stream Comments:

Facility ID: 43619955
Data Year: 2008
Comments: GAS & WATER MIX

Facility ID: 43619955
Data Year: 2008
Comments: SPILL BUCKET WITH BENZENE

Facility ID: 43619955
Data Year: 2009
Comments: spill bucket

Facility ID: 43619955
Data Year: 2010
Comments: SPILL BUCKET

Facility ID: 43619955
Data Year: 2010
Comments: Monthly Scheduled Clean Up

Facility ID: 43619955
Data Year: 2011
Comments: Incineration

Facility ID: 43619955
Data Year: 2011
Comments: Incineration

Facility ID: 43619955
Data Year: 2013
Comments: absorbents/pad

Facility ID: 43619955
Data Year: 2014
Comments: absorbents/pad

Facility Site ID Number: 43619955
EPA ID: WAD988489506
NAICS: 44711
SWC Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
Data Year: Not reported
Permit by Rule: FALSE
Treatment by Generator: FALSE
Mixed radioactive waste: FALSE
Importer of hazardous waste: FALSE
Immediate recycler: FALSE
Treatment/Storage/Disposal/Recycling Facility: FALSE
Generator of dangerous fuel waste: FALSE
Generator marketing to burner: FALSE
Other marketers (i.e., blender, distributor, etc.): FALSE
Utility boiler burner: FALSE
Industry boiler burner: FALSE
Industrial Furnace: FALSE

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Smelter defferal:	FALSE
Universal waste - batteries - generate:	FALSE
Universal waste - thermostats - generate:	FALSE
Universal waste - mercury - generate:	FALSE
Universal waste - lamps - generate:	FALSE
Universal waste - batteries - accumulate:	FALSE
Universal waste - thermostats - accumulate:	FALSE
Universal waste - mercury - accumulate:	FALSE
Universal waste - lamps - accumulate:	FALSE
Destination Facility for Universal Waste:	FALSE
Off-specification used oil burner - utility boiler:	FALSE
Off-specification used oil burner - industrial boiler:	FALSE
Off-specification used oil burner - industrial furnace:	FALSE
Tax Reg #:	600029388
Business Type:	Not reported
Mail Name:	Chevron Products Co
Mail addr line1:	PO Box 6004
Mail city,st,zip:	San Ramon, CA 94583-2324
Mail country:	UNITED STATES
Legal org name:	Totem Lake Chevron
Legal org type:	Private
Legal addr line1:	PO Box 6004
Legal city,st,zip:	San Ramon, CA 94583-2324
Legal country:	UNITED STATES
Legal phone nbr:	(925)842-5931
Legal effective date:	03/06/2001
Land org name:	Chevron Products Co
Land org type:	Private
Land person name:	Not reported
Land addr line1:	PO Box 6004
Land city,st,zip:	San Ramon, CA 94583-2324
Land country:	UNITED STATES
Land phone nbr:	925-842-5931
Operator org name:	Chevron Products Co
Operator org type:	Private
Operator addr line1:	12500 Totem Lake Blvd NE
Operator city,st,zip:	Kirkland, WA 98034-7205
Operator country:	UNITED STATES
Operator phone nbr:	(425)821-1801
Operator effective date:	10/10/1996
Site contact name:	Station Manager
Site contact addr line1:	12500 Totem Lake Blvd NE
Site Contact City/State/ Zip:	Kirkland, WA 98034-7205
Site Contact Country:	UNITED STATES
Site Contact Phone #:	425-821-1801
Site Contact EMail:	Not reported
Form Contact NAME:	Kathy L Norris-Slusher
Form Contact ADDR LINE1:	PO Box 6004
Form Contact City,ST,Zip:	San Ramon, CA 94583-2324
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(925)842-5931
Form Contact EMail:	KNorris@chevron.com
Gen Status CD:	XQG
Monthly Generation:	FALSE
Batch Generation:	FALSE
One Time Generation:	FALSE
Transport Own Waste:	FALSE

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Tranports Other Waste: FALSE
Recycler Onsite: FALSE
Transfer Facility: FALSE
Other Exemption: Not reported
UW Battery Gen: FALSE
Used Oil Transporter: FALSE
Used Oil Transfer Facility: FALSE
Used Oil Processor: FALSE
Used Oil Refiner: FALSE
Used Oil Fuel Marketer Directs Shipments: FALSE
Used Oil Fuel Marketer Meets Specs: FALSE

Waste Streams Generated:

Facility ID: 43619955
Data Year: 2008
Description: PUMPING UNDER GROUND STORAGE TANKS GAS & WATER
Mix: False
Reported Qty: 50 LB
Kilo Qty: 22.680000390096009
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2008
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 150 LB
Kilo Qty: 68.040001170288022
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2008
Description: SPILL BUCKET WATER CONTAMINATED WITH HYDROCARBONS & BENZENE
Mix: False
Reported Qty: 8262 LB
Kilo Qty: 3747.6432644594643
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2009
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 75 LB
Kilo Qty: 34.020000585144011
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2009
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 4131 LB
Kilo Qty: 1873.8216322297321
Density No: 0
Density Qty: Not reported

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Facility ID: 43619955
Data Year: 2010
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 425 LB
Kilo Qty: 192.78000331581606
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2010
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 1377 LB
Kilo Qty: 624.60721074324408
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2011
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 235 LB
Kilo Qty: 106.596001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2011
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 668 LB
Kilo Qty: 303.004805
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2012
Description: Spill Pads/Dispenser Fuel Filters/Dispenser Hoses w/Gas
Mix: False
Reported Qty: 230 LB
Kilo Qty: 104.328001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2012
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 1385 LB
Kilo Qty: 628.236010
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2013
Description: NA3077, Hazardous Waste Solid, N.O.S. (Benzene DO18), 9, PGIII

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Mix:	False
Reported Qty:	235 LB
Kilo Qty:	106.596001
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2013
Description:	UN1993, Waste Flammable Liquids, N.O.S. (Gasoline, Diesel Fuel), 3, PGII.
Mix:	False
Reported Qty:	95 GAL
Kilo Qty:	359.602746
Density No:	8.34500000
Density Qty:	PPG

Facility ID:	43619955
Data Year:	2014
Description:	Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix:	False
Reported Qty:	300 LB
Kilo Qty:	136.080002
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2014
Description:	Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix:	False
Reported Qty:	1377 LB
Kilo Qty:	624.607210
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2015
Description:	Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix:	False
Reported Qty:	514 LB
Kilo Qty:	233.150404
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2015
Description:	Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix:	False
Reported Qty:	918 LB
Kilo Qty:	416.404807
Density No:	0
Density Qty:	Not reported

Shipments Sent:

Facility ID:	43619955
Data Year:	2008
Shipment sent data:	5/13/2008
Reported Qty:	50 LB
Kilo Qty:	22.680000390096

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/17/2008
Reported Qty: 90 LB
Kilo Qty: 40.8240007021728

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 6/11/2008
Reported Qty: 60 LB
Kilo Qty: 27.2160004681152

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/31/2008
Reported Qty: 3672 LB
Kilo Qty: 1665.61922864865

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/12/2008
Reported Qty: 4590 LB
Kilo Qty: 2082.02403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/9/2009
Reported Qty: 75 LB
Kilo Qty: 34.020000585144

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 12/10/2009
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/24/2009
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/9/2009
Reported Qty: 1377 LB
Kilo Qty: 624.607210743244

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 4/15/2009
Reported Qty: 1377 LB
Kilo Qty: 624.607210743244

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 2/27/2009

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/9/2010
Reported Qty: 75 LB
Kilo Qty: 34.020000585144

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 10/20/2010
Reported Qty: 100 LB
Kilo Qty: 45.360000780192

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 4/12/2010
Reported Qty: 250 LB
Kilo Qty: 113.40000195048

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/27/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/30/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/13/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 135 LB
Kilo Qty: 61.2360010

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-05-13 00:00:00
Reported Qty: 100 LB
Kilo Qty: 45.3600007

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 209 LB
Kilo Qty: 94.8024016

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Waste Stream Comments:

Facility ID: 43619955
Data Year: 2008
Comments: GAS & WATER MIX

Facility ID: 43619955
Data Year: 2008
Comments: SPILL BUCKET WITH BENZENE

Facility ID: 43619955
Data Year: 2009
Comments: spill bucket

Facility ID: 43619955
Data Year: 2010
Comments: SPILL BUCKET

Facility ID: 43619955
Data Year: 2010
Comments: Monthly Scheduled Clean Up

Facility ID: 43619955
Data Year: 2011
Comments: Incineration

Facility ID: 43619955
Data Year: 2011
Comments: Incineration

Facility ID: 43619955
Data Year: 2013
Comments: absorbents/pad

Facility ID: 43619955
Data Year: 2014
Comments: absorbents/pad

Facility Site ID Number:	43619955
EPA ID:	WAD988489506
NAICS:	44711
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	Not reported
Permit by Rule:	No
Treatment by Generator:	No
Mixed radioactive waste:	No
Importer of hazardous waste:	No
Immediate recycler:	No
Treatment/Storage/Disposal/Recycling Facility:	No
Generator of dangerous fuel waste:	No
Generator marketing to burner:	No
Other marketers (i.e., blender, distributor, etc.):	No
Utility boiler burner:	No
Industry boiler burner:	No
Industrial Furnace:	No

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Smelter defferal:	No
Universal waste - batteries - generate:	No
Universal waste - thermostats - generate:	No
Universal waste - mercury - generate:	No
Universal waste - lamps - generate:	No
Universal waste - batteries - accumulate:	No
Universal waste - thermostats - accumulate:	No
Universal waste - mercury - accumulate:	No
Universal waste - lamps - accumulate:	No
Destination Facility for Universal Waste:	No
Off-specification used oil burner - utility boiler:	No
Off-specification used oil burner - industrial boiler:	No
Off-specification used oil burner - industrial furnace:	No
Tax Reg #:	600029388
Business Type:	Not reported
Mail Name:	Chevron Products Co
Mail addr line1:	PO Box 6004
Mail city,st,zip:	San Ramon, CA 94583-2324
Mail country:	UNITED STATES
Legal org name:	Totem Lake Chevron
Legal org type:	Private
Legal addr line1:	PO Box 6004
Legal city,st,zip:	San Ramon, CA 94583-2324
Legal country:	UNITED STATES
Legal phone nbr:	(925)842-5931
Legal effective date:	03/06/2001
Land org name:	Chevron Products Co
Land org type:	Private
Land person name:	Not reported
Land addr line1:	PO Box 6004
Land city,st,zip:	San Ramon, CA 94583-2324
Land country:	UNITED STATES
Land phone nbr:	925-842-5931
Operator org name:	Chevron Products Co
Operator org type:	Private
Operator addr line1:	12500 Totem Lake Blvd NE
Operator city,st,zip:	Kirkland, WA 98034-7205
Operator country:	UNITED STATES
Operator phone nbr:	(425)821-1801
Operator effective date:	10/10/1996
Site contact name:	Station Manager
Site contact addr line1:	12500 Totem Lake Blvd NE
Site Contact City/State/ Zip:	Kirkland, WA 98034-7205
Site Contact Country:	UNITED STATES
Site Contact Phone #:	425-821-1801
Site Contact EMail:	Not reported
Form Contact NAME:	Diane C Aven
Form Contact ADDR LINE1:	PO Box 6004
Form Contact City,ST,Zip:	San Ramon, CA 94583-2324
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(925)842-3426
Form Contact EMail:	aven@chevron.com
Gen Status CD:	XQG
Monthly Generation:	No
Batch Generation:	No
One Time Generation:	No
Transport Own Waste:	No

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Tranports Other Waste: No
Recycler Onsite: No
Transfer Facility: No
Other Exemption: Not reported
UW Battery Gen: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Fuel Marketer Directs Shipments: No
Used Oil Fuel Marketer Meets Specs: No

Waste Streams Generated:

Facility ID: 43619955
Data Year: 2008
Description: PUMPING UNDER GROUND STORAGE TANKS GAS & WATER
Mix: False
Reported Qty: 50 LB
Kilo Qty: 22.680000390096009
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2008
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 150 LB
Kilo Qty: 68.040001170288022
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2008
Description: SPILL BUCKET WATER CONTAMINATED WITH HYDROCARBONS & BENZENE
Mix: False
Reported Qty: 8262 LB
Kilo Qty: 3747.6432644594643
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2009
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 75 LB
Kilo Qty: 34.020000585144011
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2009
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 4131 LB
Kilo Qty: 1873.8216322297321
Density No: 0
Density Qty: Not reported

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Facility ID: 43619955
Data Year: 2010
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 425 LB
Kilo Qty: 192.78000331581606
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2010
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 1377 LB
Kilo Qty: 624.60721074324408
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2011
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 235 LB
Kilo Qty: 106.596001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2011
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 668 LB
Kilo Qty: 303.004805
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2012
Description: Spill Pads/Dispenser Fuel Filters/Dispenser Hoses w/Gas
Mix: False
Reported Qty: 230 LB
Kilo Qty: 104.328001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2012
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 1385 LB
Kilo Qty: 628.236010
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2013
Description: NA3077, Hazardous Waste Solid, N.O.S. (Benzene DO18), 9, PGIII

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Mix:	False
Reported Qty:	235 LB
Kilo Qty:	106.596001
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2013
Description:	UN1993, Waste Flammable Liquids, N.O.S. (Gasoline, Diesel Fuel), 3, PGII.
Mix:	False
Reported Qty:	95 GAL
Kilo Qty:	359.602746
Density No:	8.34500000
Density Qty:	PPG

Facility ID:	43619955
Data Year:	2014
Description:	Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix:	False
Reported Qty:	300 LB
Kilo Qty:	136.080002
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2014
Description:	Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix:	False
Reported Qty:	1377 LB
Kilo Qty:	624.607210
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2015
Description:	Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix:	False
Reported Qty:	514 LB
Kilo Qty:	233.150404
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2015
Description:	Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix:	False
Reported Qty:	918 LB
Kilo Qty:	416.404807
Density No:	0
Density Qty:	Not reported

Shipments Sent:

Facility ID:	43619955
Data Year:	2008
Shipment sent data:	5/13/2008
Reported Qty:	50 LB
Kilo Qty:	22.680000390096

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/17/2008
Reported Qty: 90 LB
Kilo Qty: 40.8240007021728

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 6/11/2008
Reported Qty: 60 LB
Kilo Qty: 27.2160004681152

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/31/2008
Reported Qty: 3672 LB
Kilo Qty: 1665.61922864865

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/12/2008
Reported Qty: 4590 LB
Kilo Qty: 2082.02403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/9/2009
Reported Qty: 75 LB
Kilo Qty: 34.020000585144

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 12/10/2009
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/24/2009
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/9/2009
Reported Qty: 1377 LB
Kilo Qty: 624.607210743244

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 4/15/2009
Reported Qty: 1377 LB
Kilo Qty: 624.607210743244

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 2/27/2009

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/9/2010
Reported Qty: 75 LB
Kilo Qty: 34.020000585144

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 10/20/2010
Reported Qty: 100 LB
Kilo Qty: 45.360000780192

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 4/12/2010
Reported Qty: 250 LB
Kilo Qty: 113.40000195048

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/27/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/30/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/13/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 135 LB
Kilo Qty: 61.2360010

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-05-13 00:00:00
Reported Qty: 100 LB
Kilo Qty: 45.3600007

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 209 LB
Kilo Qty: 94.8024016

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Waste Stream Comments:

Facility ID: 43619955
Data Year: 2008
Comments: GAS & WATER MIX

Facility ID: 43619955
Data Year: 2008
Comments: SPILL BUCKET WITH BENZENE

Facility ID: 43619955
Data Year: 2009
Comments: spill bucket

Facility ID: 43619955
Data Year: 2010
Comments: SPILL BUCKET

Facility ID: 43619955
Data Year: 2010
Comments: Monthly Scheduled Clean Up

Facility ID: 43619955
Data Year: 2011
Comments: Incineration

Facility ID: 43619955
Data Year: 2011
Comments: Incineration

Facility ID: 43619955
Data Year: 2013
Comments: absorbents/pad

Facility ID: 43619955
Data Year: 2014
Comments: absorbents/pad

Facility Site ID Number: 43619955
EPA ID: WAD988489506
NAICS: 447110
SWC Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
Data Year: 2009
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	409018069
Business Type:	Not reported
Mail Name:	Chevron Products Co
Mail addr line1:	PO Box 6004
Mail city,st,zip:	San Ramon, CA 94583-2324
Mail country:	UNITED STATES
Legal org name:	Totem Lake Chevron
Legal org type:	Private
Legal addr line1:	PO Box 6004
Legal city,st,zip:	San Ramon, CA 94583-2324
Legal country:	UNITED STATES
Legal phone nbr:	(925)842-5931
Legal effective date:	03/06/2001
Land org name:	Chevron Products Co
Land org type:	Private
Land person name:	Not reported
Land addr line1:	PO Box 6004
Land city,st,zip:	San Ramon, CA 94583-2324
Land country:	UNITED STATES
Land phone nbr:	925-842-5931
Operator org name:	Chevron Products Co
Operator org type:	Private
Operator addr line1:	12500 Totem Lake Blvd NE
Operator city,st,zip:	Kirkland, WA 98034-7205
Operator country:	UNITED STATES
Operator phone nbr:	(425)821-1801
Operator effective date:	10/10/1996
Site contact name:	Station Manager
Site contact addr line1:	12500 Totem Lake Blvd NE
Site Contact City/State/ Zip:	Kirkland, WA 98034-7205
Site Contact Country:	UNITED STATES
Site Contact Phone #:	425-821-1801
Site Contact EMail:	NAWTDesk@chevron.com
Form Contact NAME:	Jocko Rodriguez
Form Contact ADDR LINE1:	PO Box 6004
Form Contact City,ST,Zip:	San Ramon, CA 94583-2324
Form Contact Country:	UNITED STATES
Form Contact Phone #:	925-842-3733
Form Contact EMail:	NAWTDesk@chevron.com
Gen Status CD:	MQG
Monthly Generation:	True
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Waste Streams Generated:

Facility ID:	43619955
Data Year:	2008
Description:	PUMPING UNDER GROUND STORAGE TANKS GAS & WATER
Mix:	False
Reported Qty:	50 LB
Kilo Qty:	22.680000390096009
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2008
Description:	RAGS/PADS CONTAMINATED WITH GASOLINE
Mix:	False
Reported Qty:	150 LB
Kilo Qty:	68.040001170288022
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2008
Description:	SPILL BUCKET WATER CONTAMINATED WITH HYDROCARBONS & BENZENE
Mix:	False
Reported Qty:	8262 LB
Kilo Qty:	3747.6432644594643
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2009
Description:	RAGS/PADS CONTAMINATED WITH GASOLINE
Mix:	False
Reported Qty:	75 LB
Kilo Qty:	34.020000585144011
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2009
Description:	spill bucket water contaminated with hydrocarbons and benzene
Mix:	False
Reported Qty:	4131 LB
Kilo Qty:	1873.8216322297321
Density No:	0
Density Qty:	Not reported

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Facility ID: 43619955
Data Year: 2010
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 425 LB
Kilo Qty: 192.78000331581606
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2010
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 1377 LB
Kilo Qty: 624.60721074324408
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2011
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 235 LB
Kilo Qty: 106.596001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2011
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 668 LB
Kilo Qty: 303.004805
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2012
Description: Spill Pads/Dispenser Fuel Filters/Dispenser Hoses w/Gas
Mix: False
Reported Qty: 230 LB
Kilo Qty: 104.328001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2012
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 1385 LB
Kilo Qty: 628.236010
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2013
Description: NA3077, Hazardous Waste Solid, N.O.S. (Benzene DO18), 9, PGIII

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Mix:	False
Reported Qty:	235 LB
Kilo Qty:	106.596001
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2013
Description:	UN1993, Waste Flammable Liquids, N.O.S. (Gasoline, Diesel Fuel), 3, PGII.
Mix:	False
Reported Qty:	95 GAL
Kilo Qty:	359.602746
Density No:	8.34500000
Density Qty:	PPG

Facility ID:	43619955
Data Year:	2014
Description:	Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix:	False
Reported Qty:	300 LB
Kilo Qty:	136.080002
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2014
Description:	Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix:	False
Reported Qty:	1377 LB
Kilo Qty:	624.607210
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2015
Description:	Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix:	False
Reported Qty:	514 LB
Kilo Qty:	233.150404
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2015
Description:	Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix:	False
Reported Qty:	918 LB
Kilo Qty:	416.404807
Density No:	0
Density Qty:	Not reported

Shipments Sent:

Facility ID:	43619955
Data Year:	2008
Shipment sent data:	5/13/2008
Reported Qty:	50 LB
Kilo Qty:	22.680000390096

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/17/2008
Reported Qty: 90 LB
Kilo Qty: 40.8240007021728

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 6/11/2008
Reported Qty: 60 LB
Kilo Qty: 27.2160004681152

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/31/2008
Reported Qty: 3672 LB
Kilo Qty: 1665.61922864865

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/12/2008
Reported Qty: 4590 LB
Kilo Qty: 2082.02403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/9/2009
Reported Qty: 75 LB
Kilo Qty: 34.020000585144

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 12/10/2009
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/24/2009
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/9/2009
Reported Qty: 1377 LB
Kilo Qty: 624.607210743244

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 4/15/2009
Reported Qty: 1377 LB
Kilo Qty: 624.607210743244

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 2/27/2009

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/9/2010
Reported Qty: 75 LB
Kilo Qty: 34.020000585144

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 10/20/2010
Reported Qty: 100 LB
Kilo Qty: 45.360000780192

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 4/12/2010
Reported Qty: 250 LB
Kilo Qty: 113.40000195048

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/27/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/30/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/13/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 135 LB
Kilo Qty: 61.2360010

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-05-13 00:00:00
Reported Qty: 100 LB
Kilo Qty: 45.3600007

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 209 LB
Kilo Qty: 94.8024016

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Waste Stream Comments:

Facility ID: 43619955
Data Year: 2008
Comments: GAS & WATER MIX

Facility ID: 43619955
Data Year: 2008
Comments: SPILL BUCKET WITH BENZENE

Facility ID: 43619955
Data Year: 2009
Comments: spill bucket

Facility ID: 43619955
Data Year: 2010
Comments: SPILL BUCKET

Facility ID: 43619955
Data Year: 2010
Comments: Monthly Scheduled Clean Up

Facility ID: 43619955
Data Year: 2011
Comments: Incineration

Facility ID: 43619955
Data Year: 2011
Comments: Incineration

Facility ID: 43619955
Data Year: 2013
Comments: absorbents/pad

Facility ID: 43619955
Data Year: 2014
Comments: absorbents/pad

Facility Site ID Number: 43619955
EPA ID: WAD988489506
NAICS: 447110
SWC Desc: Not reported
FWC Desc: D001 D018
Form Comm: Not reported
Data Year: 2010
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	409018069
Business Type:	Not reported
Mail Name:	Chevron Products Co
Mail addr line1:	PO Box 6004
Mail city,st,zip:	San Ramon, CA 94583-2324
Mail country:	UNITED STATES
Legal org name:	Totem Lake Chevron
Legal org type:	Private
Legal addr line1:	PO Box 6004
Legal city,st,zip:	San Ramon, CA 94583-2324
Legal country:	UNITED STATES
Legal phone nbr:	877-386-6044
Legal effective date:	03/06/2001
Land org name:	Chevron Products Co
Land org type:	Private
Land person name:	Not reported
Land addr line1:	PO Box 6004
Land city,st,zip:	San Ramon, CA 94583-2324
Land country:	UNITED STATES
Land phone nbr:	877-386-6044
Operator org name:	Chevron Products Co
Operator org type:	Private
Operator addr line1:	12500 Totem Lake Blvd NE
Operator city,st,zip:	Kirkland, WA 98034-7205
Operator country:	UNITED STATES
Operator phone nbr:	(425)821-1801
Operator effective date:	10/10/1996
Site contact name:	Station Manager
Site contact addr line1:	12500 Totem Lake Blvd NE
Site Contact City/State/ Zip:	Kirkland, WA 98034-7205
Site Contact Country:	UNITED STATES
Site Contact Phone #:	425-821-1801
Site Contact EMail:	NAWTDesk@chevron.com
Form Contact NAME:	Jocko Rodriguez
Form Contact ADDR LINE1:	PO Box 6004
Form Contact City,ST,Zip:	San Ramon, CA 94583-2324
Form Contact Country:	UNITED STATES
Form Contact Phone #:	877-386-6044
Form Contact EMail:	NAWTDesk@chevron.com
Gen Status CD:	MQG
Monthly Generation:	True
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Tranports Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Waste Streams Generated:

Facility ID: 43619955
Data Year: 2008
Description: PUMPING UNDER GROUND STORAGE TANKS GAS & WATER
Mix: False
Reported Qty: 50 LB
Kilo Qty: 22.680000390096009
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2008
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 150 LB
Kilo Qty: 68.040001170288022
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2008
Description: SPILL BUCKET WATER CONTAMINATED WITH HYDROCARBONS & BENZENE
Mix: False
Reported Qty: 8262 LB
Kilo Qty: 3747.6432644594643
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2009
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 75 LB
Kilo Qty: 34.020000585144011
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2009
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 4131 LB
Kilo Qty: 1873.8216322297321
Density No: 0
Density Qty: Not reported

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Facility ID: 43619955
Data Year: 2010
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 425 LB
Kilo Qty: 192.78000331581606
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2010
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 1377 LB
Kilo Qty: 624.60721074324408
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2011
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 235 LB
Kilo Qty: 106.596001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2011
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 668 LB
Kilo Qty: 303.004805
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2012
Description: Spill Pads/Dispenser Fuel Filters/Dispenser Hoses w/Gas
Mix: False
Reported Qty: 230 LB
Kilo Qty: 104.328001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2012
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 1385 LB
Kilo Qty: 628.236010
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2013
Description: NA3077, Hazardous Waste Solid, N.O.S. (Benzene DO18), 9, PGIII

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Mix:	False
Reported Qty:	235 LB
Kilo Qty:	106.596001
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2013
Description:	UN1993, Waste Flammable Liquids, N.O.S. (Gasoline, Diesel Fuel), 3, PGII.
Mix:	False
Reported Qty:	95 GAL
Kilo Qty:	359.602746
Density No:	8.34500000
Density Qty:	PPG

Facility ID:	43619955
Data Year:	2014
Description:	Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix:	False
Reported Qty:	300 LB
Kilo Qty:	136.080002
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2014
Description:	Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix:	False
Reported Qty:	1377 LB
Kilo Qty:	624.607210
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2015
Description:	Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix:	False
Reported Qty:	514 LB
Kilo Qty:	233.150404
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2015
Description:	Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix:	False
Reported Qty:	918 LB
Kilo Qty:	416.404807
Density No:	0
Density Qty:	Not reported

Shipments Sent:

Facility ID:	43619955
Data Year:	2008
Shipment sent data:	5/13/2008
Reported Qty:	50 LB
Kilo Qty:	22.680000390096

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/17/2008
Reported Qty: 90 LB
Kilo Qty: 40.8240007021728

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 6/11/2008
Reported Qty: 60 LB
Kilo Qty: 27.2160004681152

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/31/2008
Reported Qty: 3672 LB
Kilo Qty: 1665.61922864865

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/12/2008
Reported Qty: 4590 LB
Kilo Qty: 2082.02403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/9/2009
Reported Qty: 75 LB
Kilo Qty: 34.020000585144

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 12/10/2009
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/24/2009
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/9/2009
Reported Qty: 1377 LB
Kilo Qty: 624.607210743244

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 4/15/2009
Reported Qty: 1377 LB
Kilo Qty: 624.607210743244

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 2/27/2009

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/9/2010
Reported Qty: 75 LB
Kilo Qty: 34.020000585144

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 10/20/2010
Reported Qty: 100 LB
Kilo Qty: 45.360000780192

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 4/12/2010
Reported Qty: 250 LB
Kilo Qty: 113.40000195048

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/27/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/30/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/13/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 135 LB
Kilo Qty: 61.2360010

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-05-13 00:00:00
Reported Qty: 100 LB
Kilo Qty: 45.3600007

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 209 LB
Kilo Qty: 94.8024016

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Waste Stream Comments:

Facility ID: 43619955
Data Year: 2008
Comments: GAS & WATER MIX

Facility ID: 43619955
Data Year: 2008
Comments: SPILL BUCKET WITH BENZENE

Facility ID: 43619955
Data Year: 2009
Comments: spill bucket

Facility ID: 43619955
Data Year: 2010
Comments: SPILL BUCKET

Facility ID: 43619955
Data Year: 2010
Comments: Monthly Scheduled Clean Up

Facility ID: 43619955
Data Year: 2011
Comments: Incineration

Facility ID: 43619955
Data Year: 2011
Comments: Incineration

Facility ID: 43619955
Data Year: 2013
Comments: absorbents/pad

Facility ID: 43619955
Data Year: 2014
Comments: absorbents/pad

Facility Site ID Number: 43619955
EPA ID: WAD988489506
NAICS: 447110
SWC Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
Data Year: 2017
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	409018069
Business Type:	Not reported
Mail Name:	Chevron Products Co
Mail addr line1:	PO Box 6004
Mail city,st,zip:	San Ramon, CA 94583-2324
Mail country:	UNITED STATES
Legal org name:	Totem Lake Chevron
Legal org type:	Private
Legal addr line1:	PO Box 6004
Legal city,st,zip:	San Ramon, CA 94583-2324
Legal country:	UNITED STATES
Legal phone nbr:	877-386-6044
Legal effective date:	03/06/2001
Land org name:	Chevron Products Co
Land org type:	Private
Land person name:	Not reported
Land addr line1:	PO Box 6004
Land city,st,zip:	San Ramon, CA 94583-2324
Land country:	UNITED STATES
Land phone nbr:	877-386-6044
Operator org name:	Chevron Products Co
Operator org type:	Private
Operator addr line1:	12500 Totem Lake Blvd NE
Operator city,st,zip:	Kirkland, WA 98034-7205
Operator country:	UNITED STATES
Operator phone nbr:	(425)821-1801
Operator effective date:	10/10/1996
Site contact name:	Station Manager
Site contact addr line1:	12500 Totem Lake Blvd NE
Site Contact City/State/ Zip:	Kirkland, WA 98034-7205
Site Contact Country:	UNITED STATES
Site Contact Phone #:	425-821-1801
Site Contact EMail:	NAWTDesk@chevron.com
Form Contact NAME:	Waste Desk
Form Contact ADDR LINE1:	PO Box 6004
Form Contact City,ST,Zip:	San Ramon, CA 94583-2324
Form Contact Country:	UNITED STATES
Form Contact Phone #:	877-386-6044
Form Contact EMail:	NAWTDesk@chevron.com
Gen Status CD:	XQG
Monthly Generation:	False
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Waste Streams Generated:

Facility ID:	43619955
Data Year:	2008
Description:	PUMPING UNDER GROUND STORAGE TANKS GAS & WATER
Mix:	False
Reported Qty:	50 LB
Kilo Qty:	22.680000390096009
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2008
Description:	RAGS/PADS CONTAMINATED WITH GASOLINE
Mix:	False
Reported Qty:	150 LB
Kilo Qty:	68.040001170288022
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2008
Description:	SPILL BUCKET WATER CONTAMINATED WITH HYDROCARBONS & BENZENE
Mix:	False
Reported Qty:	8262 LB
Kilo Qty:	3747.6432644594643
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2009
Description:	RAGS/PADS CONTAMINATED WITH GASOLINE
Mix:	False
Reported Qty:	75 LB
Kilo Qty:	34.020000585144011
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2009
Description:	spill bucket water contaminated with hydrocarbons and benzene
Mix:	False
Reported Qty:	4131 LB
Kilo Qty:	1873.8216322297321
Density No:	0
Density Qty:	Not reported

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Facility ID: 43619955
Data Year: 2010
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 425 LB
Kilo Qty: 192.78000331581606
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2010
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 1377 LB
Kilo Qty: 624.60721074324408
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2011
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 235 LB
Kilo Qty: 106.596001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2011
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 668 LB
Kilo Qty: 303.004805
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2012
Description: Spill Pads/Dispenser Fuel Filters/Dispenser Hoses w/Gas
Mix: False
Reported Qty: 230 LB
Kilo Qty: 104.328001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2012
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 1385 LB
Kilo Qty: 628.236010
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2013
Description: NA3077, Hazardous Waste Solid, N.O.S. (Benzene DO18), 9, PGIII

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Mix:	False
Reported Qty:	235 LB
Kilo Qty:	106.596001
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2013
Description:	UN1993, Waste Flammable Liquids, N.O.S. (Gasoline, Diesel Fuel), 3, PGII.
Mix:	False
Reported Qty:	95 GAL
Kilo Qty:	359.602746
Density No:	8.34500000
Density Qty:	PPG

Facility ID:	43619955
Data Year:	2014
Description:	Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix:	False
Reported Qty:	300 LB
Kilo Qty:	136.080002
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2014
Description:	Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix:	False
Reported Qty:	1377 LB
Kilo Qty:	624.607210
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2015
Description:	Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix:	False
Reported Qty:	514 LB
Kilo Qty:	233.150404
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2015
Description:	Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix:	False
Reported Qty:	918 LB
Kilo Qty:	416.404807
Density No:	0
Density Qty:	Not reported

Shipments Sent:

Facility ID:	43619955
Data Year:	2008
Shipment sent data:	5/13/2008
Reported Qty:	50 LB
Kilo Qty:	22.680000390096

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/17/2008
Reported Qty: 90 LB
Kilo Qty: 40.8240007021728

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 6/11/2008
Reported Qty: 60 LB
Kilo Qty: 27.2160004681152

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/31/2008
Reported Qty: 3672 LB
Kilo Qty: 1665.61922864865

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/12/2008
Reported Qty: 4590 LB
Kilo Qty: 2082.02403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/9/2009
Reported Qty: 75 LB
Kilo Qty: 34.020000585144

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 12/10/2009
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/24/2009
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/9/2009
Reported Qty: 1377 LB
Kilo Qty: 624.607210743244

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 4/15/2009
Reported Qty: 1377 LB
Kilo Qty: 624.607210743244

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 2/27/2009

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/9/2010
Reported Qty: 75 LB
Kilo Qty: 34.020000585144

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 10/20/2010
Reported Qty: 100 LB
Kilo Qty: 45.360000780192

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 4/12/2010
Reported Qty: 250 LB
Kilo Qty: 113.40000195048

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/27/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/30/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/13/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 135 LB
Kilo Qty: 61.2360010

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-05-13 00:00:00
Reported Qty: 100 LB
Kilo Qty: 45.3600007

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 209 LB
Kilo Qty: 94.8024016

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Waste Stream Comments:

Facility ID: 43619955
Data Year: 2008
Comments: GAS & WATER MIX

Facility ID: 43619955
Data Year: 2008
Comments: SPILL BUCKET WITH BENZENE

Facility ID: 43619955
Data Year: 2009
Comments: spill bucket

Facility ID: 43619955
Data Year: 2010
Comments: SPILL BUCKET

Facility ID: 43619955
Data Year: 2010
Comments: Monthly Scheduled Clean Up

Facility ID: 43619955
Data Year: 2011
Comments: Incineration

Facility ID: 43619955
Data Year: 2011
Comments: Incineration

Facility ID: 43619955
Data Year: 2013
Comments: absorbents/pad

Facility ID: 43619955
Data Year: 2014
Comments: absorbents/pad

Facility Site ID Number: 43619955
EPA ID: WAD988489506
NAICS: 447110
SWC Desc: Not reported
FWC Desc: D001, D018
Form Comm: Not reported
Data Year: 2012
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	409018069
Business Type:	Not reported
Mail Name:	Chevron Products Co
Mail addr line1:	PO Box 6004
Mail city,st,zip:	San Ramon, CA 94583-2324
Mail country:	UNITED STATES
Legal org name:	Totem Lake Chevron
Legal org type:	Private
Legal addr line1:	PO Box 6004
Legal city,st,zip:	San Ramon, CA 94583-2324
Legal country:	UNITED STATES
Legal phone nbr:	877-386-6044
Legal effective date:	03/06/2001
Land org name:	Chevron Products Co
Land org type:	Private
Land person name:	Not reported
Land addr line1:	PO Box 6004
Land city,st,zip:	San Ramon, CA 94583-2324
Land country:	UNITED STATES
Land phone nbr:	877-386-6044
Operator org name:	Chevron Products Co
Operator org type:	Private
Operator addr line1:	12500 Totem Lake Blvd NE
Operator city,st,zip:	Kirkland, WA 98034-7205
Operator country:	UNITED STATES
Operator phone nbr:	(425)821-1801
Operator effective date:	10/10/1996
Site contact name:	Station Manager
Site contact addr line1:	12500 Totem Lake Blvd NE
Site Contact City/State/ Zip:	Kirkland, WA 98034-7205
Site Contact Country:	UNITED STATES
Site Contact Phone #:	425-821-1801
Site Contact EMail:	NAWTDesk@chevron.com
Form Contact NAME:	Kathy Norris
Form Contact ADDR LINE1:	PO Box 6004
Form Contact City,ST,Zip:	San Ramon, CA 94583-2324
Form Contact Country:	UNITED STATES
Form Contact Phone #:	877-386-6044
Form Contact EMail:	NAWTDesk@chevron.com
Gen Status CD:	MQG
Monthly Generation:	False
Batch Generation:	True
One Time Generation:	False
Transport Own Waste:	False

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Tranports Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Waste Streams Generated:

Facility ID: 43619955
Data Year: 2008
Description: PUMPING UNDER GROUND STORAGE TANKS GAS & WATER
Mix: False
Reported Qty: 50 LB
Kilo Qty: 22.680000390096009
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2008
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 150 LB
Kilo Qty: 68.040001170288022
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2008
Description: SPILL BUCKET WATER CONTAMINATED WITH HYDROCARBONS & BENZENE
Mix: False
Reported Qty: 8262 LB
Kilo Qty: 3747.6432644594643
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2009
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 75 LB
Kilo Qty: 34.020000585144011
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2009
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 4131 LB
Kilo Qty: 1873.8216322297321
Density No: 0
Density Qty: Not reported

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Facility ID: 43619955
Data Year: 2010
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 425 LB
Kilo Qty: 192.78000331581606
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2010
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 1377 LB
Kilo Qty: 624.60721074324408
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2011
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 235 LB
Kilo Qty: 106.596001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2011
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 668 LB
Kilo Qty: 303.004805
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2012
Description: Spill Pads/Dispenser Fuel Filters/Dispenser Hoses w/Gas
Mix: False
Reported Qty: 230 LB
Kilo Qty: 104.328001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2012
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 1385 LB
Kilo Qty: 628.236010
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2013
Description: NA3077, Hazardous Waste Solid, N.O.S. (Benzene DO18), 9, PGIII

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Mix:	False
Reported Qty:	235 LB
Kilo Qty:	106.596001
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2013
Description:	UN1993, Waste Flammable Liquids, N.O.S. (Gasoline, Diesel Fuel), 3, PGII.
Mix:	False
Reported Qty:	95 GAL
Kilo Qty:	359.602746
Density No:	8.34500000
Density Qty:	PPG

Facility ID:	43619955
Data Year:	2014
Description:	Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix:	False
Reported Qty:	300 LB
Kilo Qty:	136.080002
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2014
Description:	Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix:	False
Reported Qty:	1377 LB
Kilo Qty:	624.607210
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2015
Description:	Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix:	False
Reported Qty:	514 LB
Kilo Qty:	233.150404
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2015
Description:	Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix:	False
Reported Qty:	918 LB
Kilo Qty:	416.404807
Density No:	0
Density Qty:	Not reported

Shipments Sent:

Facility ID:	43619955
Data Year:	2008
Shipment sent data:	5/13/2008
Reported Qty:	50 LB
Kilo Qty:	22.680000390096

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/17/2008
Reported Qty: 90 LB
Kilo Qty: 40.8240007021728

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 6/11/2008
Reported Qty: 60 LB
Kilo Qty: 27.2160004681152

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/31/2008
Reported Qty: 3672 LB
Kilo Qty: 1665.61922864865

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/12/2008
Reported Qty: 4590 LB
Kilo Qty: 2082.02403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/9/2009
Reported Qty: 75 LB
Kilo Qty: 34.020000585144

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 12/10/2009
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/24/2009
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/9/2009
Reported Qty: 1377 LB
Kilo Qty: 624.607210743244

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 4/15/2009
Reported Qty: 1377 LB
Kilo Qty: 624.607210743244

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 2/27/2009

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/9/2010
Reported Qty: 75 LB
Kilo Qty: 34.020000585144

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 10/20/2010
Reported Qty: 100 LB
Kilo Qty: 45.360000780192

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 4/12/2010
Reported Qty: 250 LB
Kilo Qty: 113.40000195048

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/27/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/30/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/13/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 135 LB
Kilo Qty: 61.2360010

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-05-13 00:00:00
Reported Qty: 100 LB
Kilo Qty: 45.3600007

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 209 LB
Kilo Qty: 94.8024016

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Waste Stream Comments:

Facility ID: 43619955
Data Year: 2008
Comments: GAS & WATER MIX

Facility ID: 43619955
Data Year: 2008
Comments: SPILL BUCKET WITH BENZENE

Facility ID: 43619955
Data Year: 2009
Comments: spill bucket

Facility ID: 43619955
Data Year: 2010
Comments: SPILL BUCKET

Facility ID: 43619955
Data Year: 2010
Comments: Monthly Scheduled Clean Up

Facility ID: 43619955
Data Year: 2011
Comments: Incineration

Facility ID: 43619955
Data Year: 2011
Comments: Incineration

Facility ID: 43619955
Data Year: 2013
Comments: absorbents/pad

Facility ID: 43619955
Data Year: 2014
Comments: absorbents/pad

Facility Site ID Number: 43619955
EPA ID: WAD988489506
NAICS: 447110
SWC Desc: Not reported
FWC Desc: D001,D018
Form Comm: Not reported
Data Year: 2014
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	409018069
Business Type:	Not reported
Mail Name:	Chevron Products Co
Mail addr line1:	PO Box 6004
Mail city,st,zip:	San Ramon, CA 94583-2324
Mail country:	UNITED STATES
Legal org name:	Totem Lake Chevron
Legal org type:	Private
Legal addr line1:	PO Box 6004
Legal city,st,zip:	San Ramon, CA 94583-2324
Legal country:	UNITED STATES
Legal phone nbr:	877-386-6044
Legal effective date:	03/06/2001
Land org name:	Chevron Products Co
Land org type:	Private
Land person name:	Not reported
Land addr line1:	PO Box 6004
Land city,st,zip:	San Ramon, CA 94583-2324
Land country:	UNITED STATES
Land phone nbr:	877-386-6044
Operator org name:	Chevron Products Co
Operator org type:	Private
Operator addr line1:	12500 Totem Lake Blvd NE
Operator city,st,zip:	Kirkland, WA 98034-7205
Operator country:	UNITED STATES
Operator phone nbr:	(425)821-1801
Operator effective date:	10/10/1996
Site contact name:	Station Manager
Site contact addr line1:	12500 Totem Lake Blvd NE
Site Contact City/State/ Zip:	Kirkland, WA 98034-7205
Site Contact Country:	UNITED STATES
Site Contact Phone #:	425-821-1801
Site Contact EMail:	NAWTDesk@chevron.com
Form Contact NAME:	Kathy Norris
Form Contact ADDR LINE1:	PO Box 6004
Form Contact City,ST,Zip:	San Ramon, CA 94583-2324
Form Contact Country:	UNITED STATES
Form Contact Phone #:	877-386-6044
Form Contact EMail:	NAWTDesk@chevron.com
Gen Status CD:	MQG
Monthly Generation:	False
Batch Generation:	True
One Time Generation:	False
Transport Own Waste:	False

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Tranports Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Waste Streams Generated:

Facility ID: 43619955
Data Year: 2008
Description: PUMPING UNDER GROUND STORAGE TANKS GAS & WATER
Mix: False
Reported Qty: 50 LB
Kilo Qty: 22.680000390096009
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2008
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 150 LB
Kilo Qty: 68.040001170288022
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2008
Description: SPILL BUCKET WATER CONTAMINATED WITH HYDROCARBONS & BENZENE
Mix: False
Reported Qty: 8262 LB
Kilo Qty: 3747.6432644594643
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2009
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 75 LB
Kilo Qty: 34.020000585144011
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2009
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 4131 LB
Kilo Qty: 1873.8216322297321
Density No: 0
Density Qty: Not reported

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Facility ID: 43619955
Data Year: 2010
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 425 LB
Kilo Qty: 192.78000331581606
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2010
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 1377 LB
Kilo Qty: 624.60721074324408
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2011
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 235 LB
Kilo Qty: 106.596001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2011
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 668 LB
Kilo Qty: 303.004805
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2012
Description: Spill Pads/Dispenser Fuel Filters/Dispenser Hoses w/Gas
Mix: False
Reported Qty: 230 LB
Kilo Qty: 104.328001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2012
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 1385 LB
Kilo Qty: 628.236010
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2013
Description: NA3077, Hazardous Waste Solid, N.O.S. (Benzene DO18), 9, PGIII

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Mix:	False
Reported Qty:	235 LB
Kilo Qty:	106.596001
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2013
Description:	UN1993, Waste Flammable Liquids, N.O.S. (Gasoline, Diesel Fuel), 3, PGII.
Mix:	False
Reported Qty:	95 GAL
Kilo Qty:	359.602746
Density No:	8.34500000
Density Qty:	PPG

Facility ID:	43619955
Data Year:	2014
Description:	Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix:	False
Reported Qty:	300 LB
Kilo Qty:	136.080002
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2014
Description:	Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix:	False
Reported Qty:	1377 LB
Kilo Qty:	624.607210
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2015
Description:	Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix:	False
Reported Qty:	514 LB
Kilo Qty:	233.150404
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2015
Description:	Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix:	False
Reported Qty:	918 LB
Kilo Qty:	416.404807
Density No:	0
Density Qty:	Not reported

Shipments Sent:

Facility ID:	43619955
Data Year:	2008
Shipment sent data:	5/13/2008
Reported Qty:	50 LB
Kilo Qty:	22.680000390096

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/17/2008
Reported Qty: 90 LB
Kilo Qty: 40.8240007021728

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 6/11/2008
Reported Qty: 60 LB
Kilo Qty: 27.2160004681152

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/31/2008
Reported Qty: 3672 LB
Kilo Qty: 1665.61922864865

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/12/2008
Reported Qty: 4590 LB
Kilo Qty: 2082.02403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/9/2009
Reported Qty: 75 LB
Kilo Qty: 34.020000585144

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 12/10/2009
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/24/2009
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/9/2009
Reported Qty: 1377 LB
Kilo Qty: 624.607210743244

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 4/15/2009
Reported Qty: 1377 LB
Kilo Qty: 624.607210743244

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 2/27/2009

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/9/2010
Reported Qty: 75 LB
Kilo Qty: 34.020000585144

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 10/20/2010
Reported Qty: 100 LB
Kilo Qty: 45.360000780192

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 4/12/2010
Reported Qty: 250 LB
Kilo Qty: 113.40000195048

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/27/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/30/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/13/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 135 LB
Kilo Qty: 61.2360010

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-05-13 00:00:00
Reported Qty: 100 LB
Kilo Qty: 45.3600007

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 209 LB
Kilo Qty: 94.8024016

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Waste Stream Comments:

Facility ID: 43619955
Data Year: 2008
Comments: GAS & WATER MIX

Facility ID: 43619955
Data Year: 2008
Comments: SPILL BUCKET WITH BENZENE

Facility ID: 43619955
Data Year: 2009
Comments: spill bucket

Facility ID: 43619955
Data Year: 2010
Comments: SPILL BUCKET

Facility ID: 43619955
Data Year: 2010
Comments: Monthly Scheduled Clean Up

Facility ID: 43619955
Data Year: 2011
Comments: Incineration

Facility ID: 43619955
Data Year: 2011
Comments: Incineration

Facility ID: 43619955
Data Year: 2013
Comments: absorbents/pad

Facility ID: 43619955
Data Year: 2014
Comments: absorbents/pad

Facility Site ID Number: 43619955
EPA ID: WAD988489506
NAICS: 447110
SWC Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
Data Year: 2011
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	409018069
Business Type:	Not reported
Mail Name:	Chevron Products Co
Mail addr line1:	PO Box 6004
Mail city,st,zip:	San Ramon, CA 94583-2324
Mail country:	UNITED STATES
Legal org name:	Totem Lake Chevron
Legal org type:	Private
Legal addr line1:	PO Box 6004
Legal city,st,zip:	San Ramon, CA 94583-2324
Legal country:	UNITED STATES
Legal phone nbr:	877-386-6044
Legal effective date:	03/06/2001
Land org name:	Chevron Products Co
Land org type:	Private
Land person name:	Not reported
Land addr line1:	PO Box 6004
Land city,st,zip:	San Ramon, CA 94583-2324
Land country:	UNITED STATES
Land phone nbr:	877-386-6044
Operator org name:	Chevron Products Co
Operator org type:	Private
Operator addr line1:	12500 Totem Lake Blvd NE
Operator city,st,zip:	Kirkland, WA 98034-7205
Operator country:	UNITED STATES
Operator phone nbr:	(425)821-1801
Operator effective date:	10/10/1996
Site contact name:	Station Manager
Site contact addr line1:	12500 Totem Lake Blvd NE
Site Contact City/State/ Zip:	Kirkland, WA 98034-7205
Site Contact Country:	UNITED STATES
Site Contact Phone #:	425-821-1801
Site Contact EMail:	NAWTDesk@chevron.com
Form Contact NAME:	Kathy Norris
Form Contact ADDR LINE1:	PO Box 6004
Form Contact City,ST,Zip:	San Ramon, CA 94583-2324
Form Contact Country:	UNITED STATES
Form Contact Phone #:	877-386-6044
Form Contact EMail:	NAWTDesk@chevron.com
Gen Status CD:	MQG
Monthly Generation:	False
Batch Generation:	True
One Time Generation:	False
Transport Own Waste:	False

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Tranports Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Waste Streams Generated:

Facility ID: 43619955
Data Year: 2008
Description: PUMPING UNDER GROUND STORAGE TANKS GAS & WATER
Mix: False
Reported Qty: 50 LB
Kilo Qty: 22.680000390096009
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2008
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 150 LB
Kilo Qty: 68.040001170288022
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2008
Description: SPILL BUCKET WATER CONTAMINATED WITH HYDROCARBONS & BENZENE
Mix: False
Reported Qty: 8262 LB
Kilo Qty: 3747.6432644594643
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2009
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 75 LB
Kilo Qty: 34.020000585144011
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2009
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 4131 LB
Kilo Qty: 1873.8216322297321
Density No: 0
Density Qty: Not reported

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Facility ID: 43619955
Data Year: 2010
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 425 LB
Kilo Qty: 192.78000331581606
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2010
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 1377 LB
Kilo Qty: 624.60721074324408
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2011
Description: RAGS/PADS CONTAMINATED WITH GASOLINE
Mix: False
Reported Qty: 235 LB
Kilo Qty: 106.596001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2011
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 668 LB
Kilo Qty: 303.004805
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2012
Description: Spill Pads/Dispenser Fuel Filters/Dispenser Hoses w/Gas
Mix: False
Reported Qty: 230 LB
Kilo Qty: 104.328001
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2012
Description: spill bucket water contaminated with hydrocarbons and benzene
Mix: False
Reported Qty: 1385 LB
Kilo Qty: 628.236010
Density No: 0
Density Qty: Not reported

Facility ID: 43619955
Data Year: 2013
Description: NA3077, Hazardous Waste Solid, N.O.S. (Benzene DO18), 9, PGIII

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Mix:	False
Reported Qty:	235 LB
Kilo Qty:	106.596001
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2013
Description:	UN1993, Waste Flammable Liquids, N.O.S. (Gasoline, Diesel Fuel), 3, PGII.
Mix:	False
Reported Qty:	95 GAL
Kilo Qty:	359.602746
Density No:	8.34500000
Density Qty:	PPG

Facility ID:	43619955
Data Year:	2014
Description:	Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix:	False
Reported Qty:	300 LB
Kilo Qty:	136.080002
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2014
Description:	Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix:	False
Reported Qty:	1377 LB
Kilo Qty:	624.607210
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2015
Description:	Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix:	False
Reported Qty:	514 LB
Kilo Qty:	233.150404
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2015
Description:	Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix:	False
Reported Qty:	918 LB
Kilo Qty:	416.404807
Density No:	0
Density Qty:	Not reported

Shipments Sent:

Facility ID:	43619955
Data Year:	2008
Shipment sent data:	5/13/2008
Reported Qty:	50 LB
Kilo Qty:	22.680000390096

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/17/2008
Reported Qty: 90 LB
Kilo Qty: 40.8240007021728

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 6/11/2008
Reported Qty: 60 LB
Kilo Qty: 27.2160004681152

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/31/2008
Reported Qty: 3672 LB
Kilo Qty: 1665.61922864865

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/12/2008
Reported Qty: 4590 LB
Kilo Qty: 2082.02403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/9/2009
Reported Qty: 75 LB
Kilo Qty: 34.020000585144

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 12/10/2009
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/24/2009
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/9/2009
Reported Qty: 1377 LB
Kilo Qty: 624.607210743244

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 4/15/2009
Reported Qty: 1377 LB
Kilo Qty: 624.607210743244

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 2/27/2009

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/9/2010
Reported Qty: 75 LB
Kilo Qty: 34.020000585144

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 10/20/2010
Reported Qty: 100 LB
Kilo Qty: 45.360000780192

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 4/12/2010
Reported Qty: 250 LB
Kilo Qty: 113.40000195048

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/27/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/30/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/13/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 135 LB
Kilo Qty: 61.2360010

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-05-13 00:00:00
Reported Qty: 100 LB
Kilo Qty: 45.3600007

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 209 LB
Kilo Qty: 94.8024016

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Waste Stream Comments:

Facility ID: 43619955
Data Year: 2008
Comments: GAS & WATER MIX

Facility ID: 43619955
Data Year: 2008
Comments: SPILL BUCKET WITH BENZENE

Facility ID: 43619955
Data Year: 2009
Comments: spill bucket

Facility ID: 43619955
Data Year: 2010
Comments: SPILL BUCKET

Facility ID: 43619955
Data Year: 2010
Comments: Monthly Scheduled Clean Up

Facility ID: 43619955
Data Year: 2011
Comments: Incineration

Facility ID: 43619955
Data Year: 2011
Comments: Incineration

Facility ID: 43619955
Data Year: 2013
Comments: absorbents/pad

Facility ID: 43619955
Data Year: 2014
Comments: absorbents/pad

Facility Site ID Number: 43619955
EPA ID: WAD988489506
NAICS: 447110
SWC Desc: Not reported
FWC Desc: D001 - D018
Form Comm: Not reported
Data Year: 2013
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	409018069
Business Type:	Not reported
Mail Name:	Chevron Products Co
Mail addr line1:	PO Box 6004
Mail city,st,zip:	San Ramon, CA 94583-2324
Mail country:	UNITED STATES
Legal org name:	Totem Lake Chevron
Legal org type:	Private
Legal addr line1:	PO Box 6004
Legal city,st,zip:	San Ramon, CA 94583-2324
Legal country:	UNITED STATES
Legal phone nbr:	877-386-6044
Legal effective date:	03/06/2001
Land org name:	Chevron Products Co
Land org type:	Private
Land person name:	Not reported
Land addr line1:	PO Box 6004
Land city,st,zip:	San Ramon, CA 94583-2324
Land country:	UNITED STATES
Land phone nbr:	877-386-6044
Operator org name:	Chevron Products Co
Operator org type:	Private
Operator addr line1:	12500 Totem Lake Blvd NE
Operator city,st,zip:	Kirkland, WA 98034-7205
Operator country:	UNITED STATES
Operator phone nbr:	(425)821-1801
Operator effective date:	10/10/1996
Site contact name:	Station Manager
Site contact addr line1:	12500 Totem Lake Blvd NE
Site Contact City/State/ Zip:	Kirkland, WA 98034-7205
Site Contact Country:	UNITED STATES
Site Contact Phone #:	425-821-1801
Site Contact EMail:	NAWTDesk@chevron.com
Form Contact NAME:	Kathy Norris
Form Contact ADDR LINE1:	PO Box 6004
Form Contact City,ST,Zip:	San Ramon, CA 94583-2324
Form Contact Country:	UNITED STATES
Form Contact Phone #:	877-386-6044
Form Contact EMail:	NAWTDesk@chevron.com
Gen Status CD:	MQG
Monthly Generation:	False
Batch Generation:	True
One Time Generation:	False
Transport Own Waste:	False

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Waste Streams Generated:

Facility ID:	43619955
Data Year:	2008
Description:	PUMPING UNDER GROUND STORAGE TANKS GAS & WATER
Mix:	False
Reported Qty:	50 LB
Kilo Qty:	22.680000390096009
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2008
Description:	RAGS/PADS CONTAMINATED WITH GASOLINE
Mix:	False
Reported Qty:	150 LB
Kilo Qty:	68.040001170288022
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2008
Description:	SPILL BUCKET WATER CONTAMINATED WITH HYDROCARBONS & BENZENE
Mix:	False
Reported Qty:	8262 LB
Kilo Qty:	3747.6432644594643
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2009
Description:	RAGS/PADS CONTAMINATED WITH GASOLINE
Mix:	False
Reported Qty:	75 LB
Kilo Qty:	34.020000585144011
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2009
Description:	spill bucket water contaminated with hydrocarbons and benzene
Mix:	False
Reported Qty:	4131 LB
Kilo Qty:	1873.8216322297321
Density No:	0
Density Qty:	Not reported

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Facility ID:	43619955
Data Year:	2010
Description:	RAGS/PADS CONTAMINATED WITH GASOLINE
Mix:	False
Reported Qty:	425 LB
Kilo Qty:	192.78000331581606
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2010
Description:	spill bucket water contaminated with hydrocarbons and benzene
Mix:	False
Reported Qty:	1377 LB
Kilo Qty:	624.60721074324408
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2011
Description:	RAGS/PADS CONTAMINATED WITH GASOLINE
Mix:	False
Reported Qty:	235 LB
Kilo Qty:	106.596001
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2011
Description:	spill bucket water contaminated with hydrocarbons and benzene
Mix:	False
Reported Qty:	668 LB
Kilo Qty:	303.004805
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2012
Description:	Spill Pads/Dispenser Fuel Filters/Dispenser Hoses w/Gas
Mix:	False
Reported Qty:	230 LB
Kilo Qty:	104.328001
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2012
Description:	spill bucket water contaminated with hydrocarbons and benzene
Mix:	False
Reported Qty:	1385 LB
Kilo Qty:	628.236010
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2013
Description:	NA3077, Hazardous Waste Solid, N.O.S. (Benzene DO18), 9, PGIII

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Mix:	False
Reported Qty:	235 LB
Kilo Qty:	106.596001
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2013
Description:	UN1993, Waste Flammable Liquids, N.O.S. (Gasoline, Diesel Fuel), 3, PGII.
Mix:	False
Reported Qty:	95 GAL
Kilo Qty:	359.602746
Density No:	8.34500000
Density Qty:	PPG

Facility ID:	43619955
Data Year:	2014
Description:	Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix:	False
Reported Qty:	300 LB
Kilo Qty:	136.080002
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2014
Description:	Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix:	False
Reported Qty:	1377 LB
Kilo Qty:	624.607210
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2015
Description:	Spill Pads, Absorbents, dispenser fuel filters, dispenser hoses w/gas
Mix:	False
Reported Qty:	514 LB
Kilo Qty:	233.150404
Density No:	0
Density Qty:	Not reported

Facility ID:	43619955
Data Year:	2015
Description:	Spill Bucket Water Contaminated with Hydrocarbons and benzene
Mix:	False
Reported Qty:	918 LB
Kilo Qty:	416.404807
Density No:	0
Density Qty:	Not reported

Shipments Sent:

Facility ID:	43619955
Data Year:	2008
Shipment sent data:	5/13/2008
Reported Qty:	50 LB
Kilo Qty:	22.680000390096

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/17/2008
Reported Qty: 90 LB
Kilo Qty: 40.8240007021728

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 6/11/2008
Reported Qty: 60 LB
Kilo Qty: 27.2160004681152

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/31/2008
Reported Qty: 3672 LB
Kilo Qty: 1665.61922864865

Facility ID: 43619955
Data Year: 2008
Shipment sent data: 12/12/2008
Reported Qty: 4590 LB
Kilo Qty: 2082.02403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/9/2009
Reported Qty: 75 LB
Kilo Qty: 34.020000585144

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 12/10/2009
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/24/2009
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 6/9/2009
Reported Qty: 1377 LB
Kilo Qty: 624.607210743244

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 4/15/2009
Reported Qty: 1377 LB
Kilo Qty: 624.607210743244

Facility ID: 43619955
Data Year: 2009
Shipment sent data: 2/27/2009

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/9/2010
Reported Qty: 75 LB
Kilo Qty: 34.020000585144

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 10/20/2010
Reported Qty: 100 LB
Kilo Qty: 45.360000780192

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 4/12/2010
Reported Qty: 250 LB
Kilo Qty: 113.40000195048

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 12/27/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/30/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2010
Shipment sent data: 7/13/2010
Reported Qty: 459 LB
Kilo Qty: 208.202403581081

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 135 LB
Kilo Qty: 61.2360010

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-05-13 00:00:00
Reported Qty: 100 LB
Kilo Qty: 45.3600007

Facility ID: 43619955
Data Year: 2011
Shipment sent data: 2011-08-05 00:00:00
Reported Qty: 209 LB
Kilo Qty: 94.8024016

TOTEM LAKE CHEVRON 91144 (Continued) **1000659281**

Waste Stream Comments:

Facility ID: 43619955
Data Year: 2008
Comments: GAS & WATER MIX

Facility ID: 43619955
Data Year: 2008
Comments: SPILL BUCKET WITH BENZENE

Facility ID: 43619955
Data Year: 2009
Comments: spill bucket

Facility ID: 43619955
Data Year: 2010
Comments: SPILL BUCKET

Facility ID: 43619955
Data Year: 2010
Comments: Monthly Scheduled Clean Up

Facility ID: 43619955
Data Year: 2011
Comments: Incineration

Facility ID: 43619955
Data Year: 2011
Comments: Incineration

Facility ID: 43619955
Data Year: 2013
Comments: absorbents/pad

Facility ID: 43619955
Data Year: 2014
Comments: absorbents/pad

14
SSW
< 1/8
0.090 mi.
473 ft.

TOTEM LK TWIN-42 IN CULVERT REPLACEMENT **WA ALLSITES** **S113229955**
120TH AVE NE AND TOTEM LK BLVD **N/A**
KIRKLAND, WA 98033

Relative:
Lower

Actual:
133 ft.

ALLSITES:

Facility Name: TOTEM LK TWIN-42 IN CULVERT REPLACEMENT
Facility Id: 11004

Interaction: 103756
Interaction 1: I
Interaction 2: CONSTSWGP
Ecology Program: WATQUAL
Program Data: PARIS
Facility Alt.: Totem Lk Twin-42 In Culvert Replacement
Program ID: WAR126676
Date Interaction: 2013-01-24 00:00:00
Date Interaction 3: Construction SW GP

TOTEM LK TWIN-42 IN CULVERT REPLACEMENT (Continued) **S113229955**

Latitude: 47.710145713000003
Longitude: -122.179475293

15
WNW
< 1/8
0.107 mi.
567 ft.

TOTEM LAKE MALL
12600 TOTEM LAKE BLVD NE
KIRKLAND, WA 98034

WA ALLSITES **S118344919**
WA ASBESTOS **N/A**

Relative:
Lower

Actual:
132 ft.

ALLSITES:

Facility Name: TOTEM LAKE MALL DEVELOPEMENT
Facility Id: 21126

Interaction: 114368
Interaction 1: A
Interaction 2: CONSTSWGP
Ecology Program: WATQUAL
Program Data: PARIS
Facility Alt.: Totem Lake Mall Development
Program ID: WAR303348
Date Interaction: 2015-08-11 00:00:00
Date Interaction 3: Construction SW GP
Latitude: 47.711845206
Longitude: -122.18216942799999

ASBESTOS:

Facility Type: Mall
Parent ID: 0
Form ID: 110790##1511Rhine380674
Notice Date: 01/18/2016
Start Date: 01/28/2016
Completion Date: 05/31/2016
Initial: 1
Amended: Not reported
On Hold: Not reported
Off Hold: Not reported
Emergency: Not reported
Site Hours Start: 7:00am
Site Hours End: 3:30pm
Sunday: Not reported
Monday: 1
Tuesday: 1
Wednesday: 1
Thursday: 1
Friday: 1
Saturday: Not reported
Contractor ID: 1511
Phone: 253-537-5852
Job Site CAS: Kenny Bell
Project Form Email: wendyd@rhinedemolition.com
Property Owner Name: Not reported
Property Owner Agent: Robert Minhondo
Property Owner Company: Center Cal Properties, LLC
Property Owner Address: 1600 E. Franklin Ave.
Property Owner City: El Segundo

TOTEM LAKE MALL (Continued) **S118344919**

Property Owner State:	CA
Property Owner Zip4:	90245
Property Owner Phone:	310-563-6900
Job Site Room:	Not reported
Facility Age:	Not reported
Facility Size:	Not reported
Facility Remodel:	Not reported
Facility Demo:	1
Facility Repair:	Not reported
Facility Maint:	Not reported
Removed:	1
Encapsulated:	Not reported
Quantity Sq Ft:	39928
Fireproofing:	Not reported
Popcorn Ceiling:	1
CAB:	Not reported
Sheet Vinyl:	1
Asbestos Paper:	Not reported
Boiler Insulation:	Not reported
Duct Paper:	Not reported
VAT:	Not reported
Roofing:	1
Sq Ft Other:	1
Sq Ft Other Text:	floor mastic
Quantity Lin Ft:	Not reported
Mag Pipe Insulation:	Not reported
Air Cell Pipe Insulation:	Not reported
Ducting Insulation:	Not reported
Cement Asbestos Pipe:	Not reported
Mudded Pipe Insulation:	Not reported
Duct Tape:	Not reported
Lin Ft Other1:	Not reported
Lin Ft Other1 Text:	Not reported
Lin Ft Other2:	Not reported
Lin Ft Other2 Text:	Not reported
Indoors:	1
Outdoors:	1
Neg Pres Enclosure:	1
Glove Bag:	Not reported
Mini Enclosure:	Not reported
Critical Barriers:	1
Wrap And Cut:	Not reported
Wet Methods:	1
HEPA Vacuum:	1
MANUALMETHODS :	1
Other CM1:	Not reported
Other CM1 Text:	Not reported
Other CM2:	1
Other CM2 Text:	regulated area
Half Mask APR:	1
Full Face APR:	Not reported
PAPR:	Not reported
Type C Continuous:	Not reported
Type C Pressure:	1
Other Resp Pro:	Not reported
Other Resp Pro Text:	Not reported
Comments:	duct sealant, fire doors, gaskets

TOTEM LAKE MALL (Continued) **S118344919**

Date Time Submitted:	2016-01-18 09:57:54
Submitter IP Address:	23.25.140.105
Region:	Not reported
UBI:	Not reported
Notice type:	Not reported
Project Type:	Not reported
Supervisor:	Not reported
Supervisor Phone:	Not reported
Certificate Status:	Not reported

Contractor:

Contractor ID:	1511
Contractor UBI:	603071050
Contractor Priority:	M
Contractor Cris Num:	RHINEDL893BE
Contractor Name:	Rhine Demolition LLC
Contractor Status:	Active
Contact Name:	Wendy Dennis
Contact Phone:	2535375852
Contact Fax:	2535319548
Contractor Cert Prn Date:	2015-12-22 00:00:00
Contractor Original Date:	01/18/2011
Contractor Effective Date:	01/18/2011
Contractor Renewal Letter Date:	10/20/2016
Contractor Exp Date:	01/03/2017
Contractor Suspended Date:	Not reported
Contractor Cnty Code:	27
Contractor Street Address:	1124 112TH ST EAST
Contractor City:	TACOMA
Contractor State:	WA
Contractor Zip:	984453710
Contractor Phone:	2535375852
Contractor Email:	wendyd@rhinedemolition.com
Contractor Web Address:	www.rhinedemolition.com
Contractor Mail Street Address:	1124 112TH ST EAST
Contractor Mail City:	TACOMA
Contractor Mail State:	WA
Contractor Mail Zip:	984453710
Contractor Memo:	*Previously licensed as R.W. Rhine Inc, RHINERW346C1, asbestos contractor certificate #1462

Facility Type:	Mall
Parent ID:	110790
Form ID:	111286##1511Rhine340035
Notice Date:	01/18/2016
Start Date:	01/28/2016
Completion Date:	05/31/2016
Initial:	Not reported
Amended:	1
On Hold:	1
Off Hold:	Not reported
Emergency:	Not reported
Site Hours Start:	7:00am
Site Hours End:	3:30pm
Sunday:	Not reported
Monday:	1
Tuesday:	1

TOTEM LAKE MALL (Continued) **S118344919**

Wednesday:	1
Thursday:	1
Friday:	1
Saturday:	Not reported
Contractor ID:	1511
Phone:	253-537-5852
Job Site CAS:	Kenny Bell
Project Form Email:	wendyd@rhinedemolition.com
Property Owner Name:	Not reported
Property Owner Agent:	Robert Minhondo
Property Owner Company:	Center Cal Properties, LLC
Property Owner Address:	1600 E. Franklin Ave.
Property Owner City:	El Segundo
Property Owner State:	CA
Property Owner Zip4:	90245
Property Owner Phone:	310-563-6900
Job Site Room:	Not reported
Facility Age:	Not reported
Facility Size:	Not reported
Facility Remodel:	Not reported
Facility Demo:	1
Facility Repair:	Not reported
Facility Maint:	Not reported
Removed:	1
Encapsulated:	Not reported
Quantity Sq Ft:	39928
Fireproofing:	Not reported
Popcorn Ceiling:	1
CAB:	Not reported
Sheet Vinyl:	1
Asbestos Paper:	Not reported
Boiler Insulation:	Not reported
Duct Paper:	Not reported
VAT:	Not reported
Roofing:	1
Sq Ft Other:	1
Sq Ft Other Text:	floor mastic
Quantity Lin Ft:	Not reported
Mag Pipe Insulation:	Not reported
Air Cell Pipe Insulation:	Not reported
Ducting Insulation:	Not reported
Cement Asbestos Pipe:	Not reported
Mudded Pipe Insulation:	Not reported
Duct Tape:	Not reported
Lin Ft Other1:	Not reported
Lin Ft Other1 Text:	Not reported
Lin Ft Other2:	Not reported
Lin Ft Other2 Text:	Not reported
Indoors:	1
Outdoors:	1
Neg Pres Enclosure:	1
Glove Bag:	Not reported
Mini Enclosure:	Not reported
Critical Barriers:	1
Wrap And Cut:	Not reported
Wet Methods:	1
HEPA Vacuum:	1

TOTEM LAKE MALL (Continued) **S118344919**

MANUALMETHODS :	1
Other CM1:	Not reported
Other CM1 Text:	Not reported
Other CM2:	1
Other CM2 Text:	regulated area
Half Mask APR:	1
Full Face APR:	Not reported
PAPR:	Not reported
Type C Continuous:	Not reported
Type C Pressure:	1
Other Resp Pro:	Not reported
Other Resp Pro Text:	Not reported
Comments:	duct sealant, fire doors, gaskets
Date Time Submitted:	2016-01-29 13:19:51
Submitter IP Address:	23.25.140.105
Region:	Not reported
UBI:	Not reported
Notice type:	Not reported
Project Type:	Not reported
Supervisor:	Not reported
Supervisor Phone:	Not reported
Certificate Status:	Not reported

Contractor:

Contractor ID:	1511
Contractor UBI:	603071050
Contractor Priority:	M
Contractor Cris Num:	RHINEDL893BE
Contractor Name:	Rhine Demolition LLC
Contractor Status:	Active
Contact Name:	Wendy Dennis
Contact Phone:	2535375852
Contact Fax:	2535319548
Contractor Cert Prn Date:	2015-12-22 00:00:00
Contractor Original Date:	01/18/2011
Contractor Effective Date:	01/18/2011
Contractor Renewal Letter Date:	10/20/2016
Contractor Exp Date:	01/03/2017
Contractor Suspended Date:	Not reported
Contractor Cnty Code:	27
Contractor Street Address:	1124 112TH ST EAST
Contractor City:	TACOMA
Contractor State:	WA
Contractor Zip:	984453710
Contractor Phone:	2535375852
Contractor Email:	wendyd@rhinedemolition.com
Contractor Web Address:	www.rhinedemolition.com
Contractor Mail Street Address:	1124 112TH ST EAST
Contractor Mail City:	TACOMA
Contractor Mail State:	WA
Contractor Mail Zip:	984453710
Contractor Memo:	*Previously licensed as R.W. Rhine Inc, RHINERW346C1, asbestos contractor certificate #1462

16 NNE 1/8-1/4 0.127 mi. 669 ft. | **JEFFERSON HOUSE MEMORY CARE** | **WA ALLSITES** | **S118820874** **N/A**

KIRKLAND, WA 98034

Relative: Higher

Actual: 239 ft.

ALLSITES:

Facility Name:	JEFFERSON HOUSE MEMORY CARE
Facility Id:	13974
Interaction:	118842
Interaction 1:	A
Interaction 2:	CONSTSWGP
Ecology Program:	WATQUAL
Program Data:	PARIS
Facility Alt.:	Jefferson House Memory Care
Program ID:	WAR304346
Date Interaction:	2016-07-05 00:00:00
Date Interaction 3:	Construction SW GP
Latitude:	47.713707560000003
Longitude:	-122.176012716

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17 SSW 1/8-1/4 0.132 mi. 696 ft. | **(FORMER DENNYS RESTAURANT;FUTURE CHICK-FIL-A)** | **WA ALLSITES** **WA ASBESTOS** | **S118821145** **N/A**

12106 NE 124TH ST
KIRKLAND, WA 98034

Relative: Higher

Actual: 141 ft.

ALLSITES:

Facility Name:	CHICK FIL A KIRKLAND
Facility Id:	23687

ASBESTOS:

Facility Type:	Restaurant
Parent ID:	0
Form ID:	134545##1210Therm070419
Notice Date:	11/04/2016
Start Date:	11/14/2016
Completion Date:	12/30/2016
Initial:	1
Amended:	Not reported
On Hold:	Not reported
Off Hold:	Not reported
Emergency:	Not reported
Site Hours Start:	7:00 a.m.
Site Hours End:	3:30 p.m.
Sunday:	Not reported
Monday:	1
Tuesday:	1
Wednesday:	1
Thursday:	1
Friday:	1
Saturday:	Not reported
Contractor ID:	1210
Phone:	253-984-1818
Job Site CAS:	Branton Watkins
Project Form Email:	debif@ttnw-inc.com
Property Owner Name:	Chick-fil-A, Inc.

(FORMER DENNYS RESTAURANT;FUTURE CHICK-FIL-A) (Continued) **S118821145**

Property Owner Agent:	David York
Property Owner Company:	Not reported
Property Owner Address:	5200 Bluffington Rd
Property Owner City:	Atlanta
Property Owner State:	GA
Property Owner Zip4:	30349
Property Owner Phone:	858-231-0100
Job Site Room:	throughout the structure
Facility Age:	1978
Facility Size:	5508 sq.ft.
Facility Remodel:	Not reported
Facility Demo:	1
Facility Repair:	Not reported
Facility Maint:	Not reported
Removed:	1
Encapsulated:	Not reported
Quantity Sq Ft:	1370
Fireproofing:	Not reported
Popcorn Ceiling:	Not reported
CAB:	Not reported
Sheet Vinyl:	1
Asbestos Paper:	Not reported
Boiler Insulation:	Not reported
Duct Paper:	Not reported
VAT:	Not reported
Roofing:	Not reported
Sq Ft Other:	Not reported
Sq Ft Other Text:	builtup roofing,sealant
Quantity Lin Ft:	10
Mag Pipe Insulation:	Not reported
Air Cell Pipe Insulation:	Not reported
Ducting Insulation:	Not reported
Cement Asbestos Pipe:	Not reported
Mudded Pipe Insulation:	Not reported
Duct Tape:	Not reported
Lin Ft Other1:	1
Lin Ft Other1 Text:	mudded elbow joints
Lin Ft Other2:	Not reported
Lin Ft Other2 Text:	Not reported
Indoors:	1
Outdoors:	1
Neg Pres Enclosure:	Not reported
Glove Bag:	Not reported
Mini Enclosure:	Not reported
Critical Barriers:	1
Wrap And Cut:	1
Wet Methods:	1
HEPA Vacuum:	1
MANUALMETHODS :	1
Other CM1:	Not reported
Other CM1 Text:	Not reported
Other CM2:	Not reported
Other CM2 Text:	Not reported
Half Mask APR:	1
Full Face APR:	Not reported
PAPR:	Not reported
Type C Continuous:	Not reported

(FORMER DENNYS RESTAURANT;FUTURE CHICK-FIL-A) (Continued) **S118821145**

Type C Pressure:	Not reported
Other Resp Pro:	Not reported
Other Resp Pro Text:	Not reported
Comments:	Not reported
Date Time Submitted:	2016-11-04 15:26:34
Submitter IP Address:	75.151.101.37
Region:	Not reported
UBI:	Not reported
Notice type:	Not reported
Project Type:	Not reported
Supervisor:	Not reported
Supervisor Phone:	Not reported
Certificate Status:	Not reported

Contractor:

Contractor ID:	1210
Contractor UBI:	601725020
Contractor Priority:	L
Contractor Cris Num:	THERMNI044NT
Contractor Name:	Thermatech Northwest Inc
Contractor Status:	Active
Contact Name:	SANDRA GUILEY
Contact Phone:	2539841818
Contact Fax:	2539841886
Contractor Cert Prn Date:	2016-04-04 00:00:00
Contractor Original Date:	08/30/1996
Contractor Effective Date:	04/08/2009
Contractor Renewal Letter Date:	01/22/2016
Contractor Exp Date:	04/01/2017
Contractor Suspended Date:	Not reported
Contractor Cnty Code:	27
Contractor Street Address:	10312 SALES RD S
Contractor City:	LAKEWOOD
Contractor State:	WA
Contractor Zip:	98499
Contractor Phone:	2539841818
Contractor Email:	sandrag@ttnw-inc.com
Contractor Web Address:	www.thermatechnorthwestinc.com
Contractor Mail Street Address:	10312 SALES RD S
Contractor Mail City:	LAKEWOOD
Contractor Mail State:	WA
Contractor Mail Zip:	98499
Contractor Memo:	Not reported

Facility Type:	Restaurant
Parent ID:	134545
Form ID:	135247##1210Therm164147
Notice Date:	11/23/2016
Start Date:	11/21/2016
Completion Date:	11/22/2016
Initial:	Not reported
Amended:	1
On Hold:	Not reported
Off Hold:	Not reported
Emergency:	Not reported
Site Hours Start:	7:00 a.m.
Site Hours End:	3:30 p.m.

(FORMER DENNYS RESTAURANT;FUTURE CHICK-FIL-A) (Continued) **S118821145**

Sunday:	Not reported
Monday:	1
Tuesday:	1
Wednesday:	Not reported
Thursday:	Not reported
Friday:	Not reported
Saturday:	Not reported
Contractor ID:	1210
Phone:	253-984-1818
Job Site CAS:	Branton Watkins
Project Form Email:	debif@ttnw-inc.com
Property Owner Name:	Chick-fil-A, Inc.
Property Owner Agent:	David York
Property Owner Company:	Not reported
Property Owner Address:	5200 Bluffington Rd
Property Owner City:	Atlanta
Property Owner State:	GA
Property Owner Zip4:	30349
Property Owner Phone:	858-231-0100
Job Site Room:	throughout the structure
Facility Age:	1978
Facility Size:	5508 sq.ft.
Facility Remodel:	Not reported
Facility Demo:	1
Facility Repair:	Not reported
Facility Maint:	Not reported
Removed:	1
Encapsulated:	Not reported
Quantity Sq Ft:	1370
Fireproofing:	Not reported
Popcorn Ceiling:	Not reported
CAB:	Not reported
Sheet Vinyl:	1
Asbestos Paper:	Not reported
Boiler Insulation:	Not reported
Duct Paper:	Not reported
VAT:	Not reported
Roofing:	Not reported
Sq Ft Other:	Not reported
Sq Ft Other Text:	builtup roofing,sealant
Quantity Lin Ft:	10
Mag Pipe Insulation:	Not reported
Air Cell Pipe Insulation:	Not reported
Ducting Insulation:	Not reported
Cement Asbestos Pipe:	Not reported
Mudded Pipe Insulation:	Not reported
Duct Tape:	Not reported
Lin Ft Other1:	1
Lin Ft Other1 Text:	mudded elbow joints
Lin Ft Other2:	Not reported
Lin Ft Other2 Text:	Not reported
Indoors:	1
Outdoors:	1
Neg Pres Enclosure:	Not reported
Glove Bag:	Not reported
Mini Enclosure:	Not reported
Critical Barriers:	1

(FORMER DENNYS RESTAURANT;FUTURE CHICK-FIL-A) (Continued) **S118821145**

Wrap And Cut:	1
Wet Methods:	1
HEPA Vacuum:	1
MANUALMETHODS :	1
Other CM1:	Not reported
Other CM1 Text:	Not reported
Other CM2:	Not reported
Other CM2 Text:	Not reported
Half Mask APR:	1
Full Face APR:	Not reported
PAPR:	Not reported
Type C Continuous:	Not reported
Type C Pressure:	Not reported
Other Resp Pro:	Not reported
Other Resp Pro Text:	Not reported
Comments:	Completed Tuesday 11-22-16.
Date Time Submitted:	2016-11-23 06:43:43
Submitter IP Address:	75.151.101.37
Region:	Not reported
UBI:	Not reported
Notice type:	Not reported
Project Type:	Not reported
Supervisor:	Not reported
Supervisor Phone:	Not reported
Certificate Status:	Not reported

Contractor:

Contractor ID:	1210
Contractor UBI:	601725020
Contractor Priority:	L
Contractor Cris Num:	THERMNI044NT
Contractor Name:	Thermatech Northwest Inc
Contractor Status:	Active
Contact Name:	SANDRA GUILEY
Contact Phone:	2539841818
Contact Fax:	2539841886
Contractor Cert Prn Date:	2016-04-04 00:00:00
Contractor Original Date:	08/30/1996
Contractor Effective Date:	04/08/2009
Contractor Renewal Letter Date:	01/22/2016
Contractor Exp Date:	04/01/2017
Contractor Suspended Date:	Not reported
Contractor Cnty Code:	27
Contractor Street Address:	10312 SALES RD S
Contractor City:	LAKEWOOD
Contractor State:	WA
Contractor Zip:	98499
Contractor Phone:	2539841818
Contractor Email:	sandrag@ttnw-inc.com
Contractor Web Address:	www.thermatechnorthwestinc.com
Contractor Mail Street Address:	10312 SALES RD S
Contractor Mail City:	LAKEWOOD
Contractor Mail State:	WA
Contractor Mail Zip:	98499
Contractor Memo:	Not reported

Facility Type:	Restaurant

(FORMER DENNYS RESTAURANT;FUTURE CHICK-FIL-A) (Continued) **S118821145**

Parent ID:	134545
Form ID:	134822##1210Therm395886
Notice Date:	11/04/2016
Start Date:	11/14/2016
Completion Date:	12/30/2016
Initial:	Not reported
Amended:	1
On Hold:	1
Off Hold:	Not reported
Emergency:	Not reported
Site Hours Start:	7:00 a.m.
Site Hours End:	3:30 p.m.
Sunday:	Not reported
Monday:	1
Tuesday:	1
Wednesday:	1
Thursday:	1
Friday:	1
Saturday:	Not reported
Contractor ID:	1210
Phone:	253-984-1818
Job Site CAS:	Branton Watkins
Project Form Email:	debif@ttnw-inc.com
Property Owner Name:	Chick-fil-A, Inc.
Property Owner Agent:	David York
Property Owner Company:	Not reported
Property Owner Address:	5200 Bluffington Rd
Property Owner City:	Atlanta
Property Owner State:	GA
Property Owner Zip4:	30349
Property Owner Phone:	858-231-0100
Job Site Room:	throughout the structure
Facility Age:	1978
Facility Size:	5508 sq.ft.
Facility Remodel:	Not reported
Facility Demo:	1
Facility Repair:	Not reported
Facility Maint:	Not reported
Removed:	1
Encapsulated:	Not reported
Quantity Sq Ft:	1370
Fireproofing:	Not reported
Popcorn Ceiling:	Not reported
CAB:	Not reported
Sheet Vinyl:	1
Asbestos Paper:	Not reported
Boiler Insulation:	Not reported
Duct Paper:	Not reported
VAT:	Not reported
Roofing:	Not reported
Sq Ft Other:	Not reported
Sq Ft Other Text:	builtup roofing,sealant
Quantity Lin Ft:	10
Mag Pipe Insulation:	Not reported
Air Cell Pipe Insulation:	Not reported
Ducting Insulation:	Not reported
Cement Asbestos Pipe:	Not reported

(FORMER DENNYS RESTAURANT;FUTURE CHICK-FIL-A) (Continued) **S118821145**

Mudded Pipe Insulation:	Not reported
Duct Tape:	Not reported
Lin Ft Other1:	1
Lin Ft Other1 Text:	mudded elbow joints
Lin Ft Other2:	Not reported
Lin Ft Other2 Text:	Not reported
Indoors:	1
Outdoors:	1
Neg Pres Enclosure:	Not reported
Glove Bag:	Not reported
Mini Enclosure:	Not reported
Critical Barriers:	1
Wrap And Cut:	1
Wet Methods:	1
HEPA Vacuum:	1
MANUALMETHODS :	1
Other CM1:	Not reported
Other CM1 Text:	Not reported
Other CM2:	Not reported
Other CM2 Text:	Not reported
Half Mask APR:	1
Full Face APR:	Not reported
PAPR:	Not reported
Type C Continuous:	Not reported
Type C Pressure:	Not reported
Other Resp Pro:	Not reported
Other Resp Pro Text:	Not reported
Comments:	ON HOLD Monday 11-14-16 at 730am
Date Time Submitted:	2016-11-14 07:41:30
Submitter IP Address:	75.151.101.37
Region:	Not reported
UBI:	Not reported
Notice type:	Not reported
Project Type:	Not reported
Supervisor:	Not reported
Supervisor Phone:	Not reported
Certificate Status:	Not reported

Contractor:

Contractor ID:	1210
Contractor UBI:	601725020
Contractor Priority:	L
Contractor Cris Num:	THERMNI044NT
Contractor Name:	Thermatech Northwest Inc
Contractor Status:	Active
Contact Name:	SANDRA GUILEY
Contact Phone:	2539841818
Contact Fax:	2539841886
Contractor Cert Prn Date:	2016-04-04 00:00:00
Contractor Original Date:	08/30/1996
Contractor Effective Date:	04/08/2009
Contractor Renewal Letter Date:	01/22/2016
Contractor Exp Date:	04/01/2017
Contractor Suspended Date:	Not reported
Contractor Cnty Code:	27
Contractor Street Address:	10312 SALES RD S
Contractor City:	LAKEWOOD
Contractor State:	WA

(FORMER DENNYS RESTAURANT;FUTURE CHICK-FIL-A) (Continued) **S118821145**

Contractor Zip:	98499
Contractor Phone:	2539841818
Contractor Email:	sandrag@ttnw-inc.com
Contractor Web Address:	www.thermatechnorthwestinc.com
Contractor Mail Street Address:	10312 SALES RD S
Contractor Mail City:	LAKEWOOD
Contractor Mail State:	WA
Contractor Mail Zip:	98499
Contractor Memo:	Not reported

Facility Type:	Restaurant
Parent ID:	134545
Form ID:	134926##1210Therm289042
Notice Date:	11/16/2016
Start Date:	11/21/2016
Completion Date:	12/30/2016
Initial:	Not reported
Amended:	1
On Hold:	Not reported
Off Hold:	1
Emergency:	Not reported
Site Hours Start:	7:00 a.m.
Site Hours End:	3:30 p.m.
Sunday:	Not reported
Monday:	1
Tuesday:	1
Wednesday:	1
Thursday:	1
Friday:	1
Saturday:	Not reported
Contractor ID:	1210
Phone:	253-984-1818
Job Site CAS:	Branton Watkins
Project Form Email:	debif@ttnw-inc.com
Property Owner Name:	Chick-fil-A, Inc.
Property Owner Agent:	David York
Property Owner Company:	Not reported
Property Owner Address:	5200 Bluffington Rd
Property Owner City:	Atlanta
Property Owner State:	GA
Property Owner Zip4:	30349
Property Owner Phone:	858-231-0100
Job Site Room:	throughout the structure
Facility Age:	1978
Facility Size:	5508 sq.ft.
Facility Remodel:	Not reported
Facility Demo:	1
Facility Repair:	Not reported
Facility Maint:	Not reported
Removed:	1
Encapsulated:	Not reported
Quantity Sq Ft:	1370
Fireproofing:	Not reported
Popcorn Ceiling:	Not reported
CAB:	Not reported
Sheet Vinyl:	1

(FORMER DENNYS RESTAURANT;FUTURE CHICK-FIL-A) (Continued) **S118821145**

Asbestos Paper:	Not reported
Boiler Insulation:	Not reported
Duct Paper:	Not reported
VAT:	Not reported
Roofing:	Not reported
Sq Ft Other:	Not reported
Sq Ft Other Text:	builtup roofing,sealant
Quantity Lin Ft:	10
Mag Pipe Insulation:	Not reported
Air Cell Pipe Insulation:	Not reported
Ducting Insulation:	Not reported
Cement Asbestos Pipe:	Not reported
Mudded Pipe Insulation:	Not reported
Duct Tape:	Not reported
Lin Ft Other1:	1
Lin Ft Other1 Text:	mudded elbow joints
Lin Ft Other2:	Not reported
Lin Ft Other2 Text:	Not reported
Indoors:	1
Outdoors:	1
Neg Pres Enclosure:	Not reported
Glove Bag:	Not reported
Mini Enclosure:	Not reported
Critical Barriers:	1
Wrap And Cut:	1
Wet Methods:	1
HEPA Vacuum:	1
MANUALMETHODS :	1
Other CM1:	Not reported
Other CM1 Text:	Not reported
Other CM2:	Not reported
Other CM2 Text:	Not reported
Half Mask APR:	1
Full Face APR:	Not reported
PAPR:	Not reported
Type C Continuous:	Not reported
Type C Pressure:	Not reported
Other Resp Pro:	Not reported
Other Resp Pro Text:	Not reported
Comments:	OFF HOLD and Amend start date to Monday 11-21-16
Date Time Submitted:	2016-11-16 09:01:03
Submitter IP Address:	75.151.101.37
Region:	Not reported
UBI:	Not reported
Notice type:	Not reported
Project Type:	Not reported
Supervisor:	Not reported
Supervisor Phone:	Not reported
Certificate Status:	Not reported

Contractor:

Contractor ID:	1210
Contractor UBI:	601725020
Contractor Priority:	L
Contractor Cris Num:	THERMNI044NT
Contractor Name:	Thermatech Northwest Inc
Contractor Status:	Active
Contact Name:	SANDRA GUILEY

(FORMER DENNYS RESTAURANT;FUTURE CHICK-FIL-A) (Continued) **S118821145**

Contact Phone:	2539841818
Contact Fax:	2539841886
Contractor Cert Prn Date:	2016-04-04 00:00:00
Contractor Original Date:	08/30/1996
Contractor Effective Date:	04/08/2009
Contractor Renewal Letter Date:	01/22/2016
Contractor Exp Date:	04/01/2017
Contractor Suspended Date:	Not reported
Contractor Cnty Code:	27
Contractor Street Address:	10312 SALES RD S
Contractor City:	LAKEWOOD
Contractor State:	WA
Contractor Zip:	98499
Contractor Phone:	2539841818
Contractor Email:	sandrag@ttnw-inc.com
Contractor Web Address:	www.thermatechnorthwestinc.com
Contractor Mail Street Address:	10312 SALES RD S
Contractor Mail City:	LAKEWOOD
Contractor Mail State:	WA
Contractor Mail Zip:	98499
Contractor Memo:	Not reported

18
SW
1/8-1/4
0.133 mi.
702 ft.

WA DOT TOTEM LAKE INTERCHANGE **WA ALLSITES** **S110038685**
I405 BETWEEN NE 118TH ST & NE 137T **N/A**
KIRKLAND, WA 98033

Relative:
Higher

Actual:
144 ft.

ALLSITES:

Facility Name:	WA DOT TOTEM LAKE INTERCHANGE
Facility Id:	21859
Interaction:	83905
Interaction 1:	I
Interaction 2:	CONSTSWGP
Ecology Program:	WATQUAL
Program Data:	PARIS
Facility Alt.:	WA DOT TOTEM LAKE INTERCHANGE
Program ID:	WAR005933
Date Interaction:	2004-11-08 00:00:00
Date Interaction 3:	Construction SW GP
Latitude:	47.709994361
Longitude:	-122.18098510599999

C19
SSE
1/8-1/4
0.148 mi.
779 ft.

CAR WASH ENTERPRISES CWE **WA HSL** **1000838825**
12302 NE 124TH ST **WA CSCSL** **WAD988516290**
KIRKLAND, WA 98034 **WA LUST**
WA UST
Site 1 of 4 in cluster C **WA ALLSITES**
RCRA NonGen / NLR
FINDS
ECHO
WA MANIFEST

Relative:
Higher

Actual:
137 ft.

CAR WASH ENTERPRISES CWE (Continued) **1000838825**

HSL:

edr_fstat:	WA
edr_fzip:	Not reported
edr_fcnty:	KING
edr_zip:	Not reported
Facility Type:	**Hazardous Sites List**
Facility Status:	Cleanup Started
FSID Number:	83988889
Rank:	4
Region:	NW
EDR Link ID:	83988889
Region Decode:	NORTHWEST REGIONAL OFFICE

CSCSL:

Facility ID:	83988889
Region:	Northwest
Lat/Long:	47.709141992 / -122.17714461
Brownfield Status:	Not reported
Rank Status:	4
Clean Up Siteid:	6745
Site Status:	Cleanup Started
PSI?:	Not reported
Contaminant Name:	Benzene
Ground Water:	Confirmed Above Cleanup Level
Surface Water:	Not reported
Soil:	Confirmed Above Cleanup Level
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest

Facility ID:	83988889
Region:	Northwest
Lat/Long:	47.709141992 / -122.17714461
Brownfield Status:	Not reported
Rank Status:	4
Clean Up Siteid:	6745
Site Status:	Cleanup Started
PSI?:	Not reported
Contaminant Name:	Lead
Ground Water:	Confirmed Above Cleanup Level
Surface Water:	Not reported
Soil:	Confirmed Above Cleanup Level
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest

Facility ID:	83988889
Region:	Northwest
Lat/Long:	47.709141992 / -122.17714461
Brownfield Status:	Not reported
Rank Status:	4
Clean Up Siteid:	6745
Site Status:	Cleanup Started
PSI?:	Not reported

CAR WASH ENTERPRISES CWE (Continued) **1000838825**

Contaminant Name:	Metals Priority Pollutants
Ground Water:	Confirmed Above Cleanup Level
Surface Water:	Not reported
Soil:	Not reported
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest

Facility ID:	83988889
Region:	Northwest
Lat/Long:	47.709141992 / -122.17714461
Brownfield Status:	Not reported
Rank Status:	4
Clean Up Siteid:	6745
Site Status:	Cleanup Started
PSI?:	Not reported
Contaminant Name:	Petroleum-Diesel
Ground Water:	Not reported
Surface Water:	Not reported
Soil:	Remediated-Below Cleanup Level
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest

Facility ID:	83988889
Region:	Northwest
Lat/Long:	47.709141992 / -122.17714461
Brownfield Status:	Not reported
Rank Status:	4
Clean Up Siteid:	6745
Site Status:	Cleanup Started
PSI?:	Not reported
Contaminant Name:	Petroleum-Gasoline
Ground Water:	Confirmed Above Cleanup Level
Surface Water:	Not reported
Soil:	Confirmed Above Cleanup Level
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest

Facility ID:	83988889
Region:	Northwest
Lat/Long:	47.709141992 / -122.17714461
Brownfield Status:	Not reported
Rank Status:	4
Clean Up Siteid:	6745
Site Status:	Cleanup Started
PSI?:	Not reported
Contaminant Name:	Petroleum-Other
Ground Water:	Confirmed Above Cleanup Level
Surface Water:	Not reported
Soil:	Confirmed Above Cleanup Level
Sediment:	Not reported
Air:	Not reported

CAR WASH ENTERPRISES CWE (Continued) **1000838825**

Bedrock: Not reported
Responsible Unit: Northwest

LUST:
Facility ID: 83988889
Lust Status Type: Cleanup Started
Cleanup Site ID: 6745
Cleanup Unit Type: Upland
Process Type: Independent Action
Cleanup Unit Name: Brown Bear Car Wash 5495
Lust Status Date: 12/11/1995
Response Section: Northwest
Lat/Long: 47.7091419 / -122.17714

UST:
Facility ID: 83988889
Site Id: 6895
UBI: Not reported
Phone Number: Not reported
Decimal Latitude: 47.7091419921813
Decimal Longitude: -122.177144608022

Tank Name: 1DIESEL
Tag Number: A8445
Tank Status: Removed
Tank Status Date: 08/06/1996
Tank Install Date: 00/31/1964
Tank Closure Date: Not reported
Capacity Range: Not reported
Tank Permit Expiration Date: Not reported
Tank Upgrade Date: Not reported
Tank Spill Prevention: Not reported
Tank Overfill Prevention: Not reported
Tank Material: Steel
Tank Construction: Single Wall Tank
Tank Tightness Test: Not reported
Tank Corrosion Protection: Not reported
Tank Manifold: Not reported
Tank Release Detection: Not reported
Tank SFC Type: Not reported
Pipe Material: Steel
Pipe Construction: Not reported
Pipe Primary Release Detection: Not reported
Pipe Second Release Detection: Not reported
Pipe Corrosion Protection: Not reported
Pipe Pumping System: Not reported
Responsible Unit: NORTHWEST
Dispencer/Pump SFC Type: Not reported

Tank Name: 2UNLEAD
Tag Number: A8445
Tank Status: Removed
Tank Status Date: 08/06/1996
Tank Install Date: 00/31/1964
Tank Closure Date: Not reported

CAR WASH ENTERPRISES CWE (Continued) **1000838825**

Capacity Range:	Not reported
Tank Permit Expiration Date:	Not reported
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Single Wall Tank
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Steel
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	3SUPER
Tag Number:	A8445
Tank Status:	Removed
Tank Status Date:	08/06/1996
Tank Install Date:	00/31/1964
Tank Closure Date:	Not reported
Capacity Range:	Not reported
Tank Permit Expiration Date:	Not reported
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Single Wall Tank
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Steel
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	DSL
Tag Number:	A8445
Tank Status:	Removed
Tank Status Date:	06/01/2010
Tank Install Date:	00/28/1990
Tank Closure Date:	04/01/2005
Capacity Range:	5,000 to 9,999 Gallons

CAR WASH ENTERPRISES CWE (Continued) **1000838825**

Tank Permit Expiration Date:	02/28/2007
Tank Upgrade Date:	02/20/1998
Tank Spill Prevention:	Spill Bucket/Spill Box
Tank Overfill Prevention:	Ball Float Valve (vent line)
Tank Material:	Steel Clad with Corrosion Resistant Composite
Tank Construction:	Double Wall Tank
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Corrosion Resistant
Tank Manifold:	Not reported
Tank Release Detection:	Automatic Tank Gauging
Tank SFC Type:	Not reported
Pipe Material:	Fiberglass
Pipe Construction:	Double Wall Pipe
Pipe Primary Release Detection:	Automatic Line Leak Detector (ALLD)
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Corrosion Resistant
Pipe Pumping System:	Pressurized System
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	REG
Tag Number:	A8445
Tank Status:	Removed
Tank Status Date:	06/01/2010
Tank Install Date:	00/28/1990
Tank Closure Date:	04/01/2010
Capacity Range:	10,000 to 19,999 Gallons
Tank Permit Expiration Date:	02/28/2007
Tank Upgrade Date:	02/20/1998
Tank Spill Prevention:	Spill Bucket/Spill Box
Tank Overfill Prevention:	Ball Float Valve (vent line)
Tank Material:	Steel Clad with Corrosion Resistant Composite
Tank Construction:	Double Wall Tank
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Corrosion Resistant
Tank Manifold:	Not reported
Tank Release Detection:	Automatic Tank Gauging
Tank SFC Type:	Not reported
Pipe Material:	Fiberglass
Pipe Construction:	Double Wall Pipe
Pipe Primary Release Detection:	Automatic Line Leak Detector (ALLD)
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Corrosion Resistant
Pipe Pumping System:	Pressurized System
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	SUP
Tag Number:	A8445
Tank Status:	Removed
Tank Status Date:	06/01/2010
Tank Install Date:	00/28/1990
Tank Closure Date:	04/01/2010
Capacity Range:	5,000 to 9,999 Gallons
Tank Permit Expiration Date:	02/28/2007

CAR WASH ENTERPRISES CWE (Continued) **1000838825**

Tank Upgrade Date:	02/20/1998
Tank Spill Prevention:	Spill Bucket/Spill Box
Tank Overfill Prevention:	Ball Float Valve (vent line)
Tank Material:	Steel Clad with Corrosion Resistant Composite
Tank Construction:	Double Wall Tank
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Corrosion Resistant
Tank Manifold:	Not reported
Tank Release Detection:	Automatic Tank Gauging
Tank SFC Type:	Not reported
Pipe Material:	Fiberglass
Pipe Construction:	Double Wall Pipe
Pipe Primary Release Detection:	Automatic Line Leak Detector (ALLD)
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Corrosion Resistant
Pipe Pumping System:	Pressurized System
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	UNL
Tag Number:	A8445
Tank Status:	Removed
Tank Status Date:	06/01/2010
Tank Install Date:	00/28/1990
Tank Closure Date:	04/01/2010
Capacity Range:	10,000 to 19,999 Gallons
Tank Permit Expiration Date:	02/28/2007
Tank Upgrade Date:	02/20/1998
Tank Spill Prevention:	Spill Bucket/Spill Box
Tank Overfill Prevention:	Ball Float Valve (vent line)
Tank Material:	Steel Clad with Corrosion Resistant Composite
Tank Construction:	Double Wall Tank
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Corrosion Resistant
Tank Manifold:	Not reported
Tank Release Detection:	Automatic Tank Gauging
Tank SFC Type:	Not reported
Pipe Material:	Fiberglass
Pipe Construction:	Double Wall Pipe
Pipe Primary Release Detection:	Automatic Line Leak Detector (ALLD)
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Corrosion Resistant
Pipe Pumping System:	Pressurized System
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

ALLSITES:

Facility Name:	CAR WASH ENTERPRISES CWE KIRKLAND
Facility Id:	83988889

Interaction:	67535
Interaction 1:	I
Interaction 2:	LUST
Ecology Program:	TOXICS
Program Data:	ISIS
Facility Alt.:	Not reported

CAR WASH ENTERPRISES CWE (Continued) **1000838825**

Program ID:	6895
Date Interaction:	1990-08-17 00:00:00
Date Interaction 3:	LUST Facility
Latitude:	47.709137575
Longitude:	-122.177128078

Interaction:	67536
Interaction 1:	I
Interaction 2:	TIER2
Ecology Program:	HAZWASTE
Program Data:	EPCRA
Facility Alt.:	Not reported
Program ID:	WAD988516290
Date Interaction:	1992-01-01 00:00:00
Date Interaction 3:	Emergency/Haz Chem Rpt TI
Latitude:	47.709137575
Longitude:	-122.177128078

Interaction:	67538
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD988516290
Date Interaction:	1995-12-01 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.709137575
Longitude:	-122.177128078

Interaction:	67537
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD988516290
Date Interaction:	1993-01-06 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.709137575
Longitude:	-122.177128078

Interaction:	67539
Interaction 1:	A
Interaction 2:	UST
Ecology Program:	TOXICS
Program Data:	UST
Facility Alt.:	Not reported
Program ID:	6895
Date Interaction:	2000-03-20 00:00:00
Date Interaction 3:	Underground Storage Tank
Latitude:	47.709137575
Longitude:	-122.177128078

CAR WASH ENTERPRISES CWE (Continued) **1000838825**

Interaction:	67540
Interaction 1:	I
Interaction 2:	VOLCLNST
Ecology Program:	TOXICS
Program Data:	ISIS
Facility Alt.:	Car Wash Enterprises CWE Kirkland
Program ID:	NW0895
Date Interaction:	2002-05-07 00:00:00
Date Interaction 3:	Voluntary Cleanup Sites
Latitude:	47.709137575
Longitude:	-122.177128078

Interaction:	67541
Interaction 1:	A
Interaction 2:	SCS
Ecology Program:	TOXICS
Program Data:	ISIS
Facility Alt.:	Car Wash Enterprises CWE Kirkland
Program ID:	Not reported
Date Interaction:	2006-06-16 00:00:00
Date Interaction 3:	State Cleanup Site
Latitude:	47.709137575
Longitude:	-122.177128078

RCRA NonGen / NLR:

Date form received by agency:	05/02/2005
Facility name:	CAR WASH ENTERPRISES CWE
Facility address:	12302 NE 124TH ST KIRKLAND, WA 98034
EPA ID:	WAD988516290
Mailing address:	3977 LEARY WAY NW SEATTLE, WA 98107
Contact:	CAR WASH ENTERP CAR WASH ENTERP
Contact address:	3977 LEARY WAY NW SEATTLE, WA 98107
Contact country:	US
Contact telephone:	000-000-0000
Contact email:	Not reported
EPA Region:	10
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	CAR WASH ENTERP C
Owner/operator address:	3977 LEARY WAY NW SEATTLE, WA 98107
Owner/operator country:	US
Owner/operator telephone:	281-293-1000
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	03/02/1997

CAR WASH ENTERPRISES CWE (Continued) **1000838825**

Owner/Op end date: Not reported

Owner/operator name: TOM N
Owner/operator address: 3977 LEARY WAY NW
SEATTLE, WA 98107
Owner/operator country: US
Owner/operator telephone: 206-789-3700
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 01/01/1900
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 12/31/2003
Site name: CIRCLE K STORE 5495 BP OIL
Classification: Not a generator, verified

Date form received by agency: 02/26/2003
Site name: CIRCLE K STORE 5495 BP OIL
Classification: Not a generator, verified

Violation Status: No violations found

FINDS:

Registry ID: 110005382870

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of

CAR WASH ENTERPRISES CWE (Continued) **1000838825**

events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZARDOUS WASTE BIENNIAL REPORTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1000838825
Registry ID:	110005382870
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110005382870

WA MANIFEST:

Facility Site ID Number:	22463
EPA ID:	WAH000039734
NAICS:	446110
SWC Desc:	WP01,WT02
FWC Desc:	D001,D002,D007,D009,D010,D011,D024,D026,P001,P075,U165
Form Comm:	Not reported
Data Year:	2017
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	601637571
Business Type:	Retail
Mail Name:	Rite Aid Corp
Mail addr line1:	30 Hunter Lane
Mail city,st,zip:	Camp Hill, PA 17011
Mail country:	UNITED STATES
Legal org name:	Thrifty Payless Inc

CAR WASH ENTERPRISES CWE (Continued) **1000838825**

Legal org type:	Private
Legal addr line1:	30 Hunter Lane
Legal city,st,zip:	Camp Hill, PA 17011
Legal country:	UNITED STATES
Legal phone nbr:	717-761-2633
Legal effective date:	11/16/2006
Land org name:	Kirkland Totem Lake VI, LLC
Land org type:	Private
Land person name:	Bruce Cowgill
Land addr line1:	2760 E Spring Street,
Land addr line2:	Suite 200
Land city,st,zip:	Longbeach, CA 90806
Land country:	UNITED STATES
Land phone nbr:	(562) 490-0098
Operator org name:	Thrifty Payless Inc
Operator org type:	Private
Operator addr line1:	30 Hunter Lane
Operator city,st,zip:	Camp Hill, PA 17011
Operator country:	UNITED STATES
Operator phone nbr:	717-761-2633
Operator effective date:	11/16/2006
Site contact name:	Store Manager
Site contact addr line1:	12421 Totem Lake Blvd NE
Site Contact City/State/ Zip:	Kirkland, WA 98034
Site Contact Country:	UNITED STATES
Site Contact Phone #:	425-821-1500
Site Contact EMail:	Not reported
Form Contact NAME:	David W Crozier
Form Contact ADDR LINE1:	30 Hunter Lane
Form Contact City,ST,Zip:	Camp Hill, PA 17011
Form Contact Country:	UNITED STATES
Form Contact Phone #:	717-975-8643
Form Contact EMail:	EHS@riteaid.com
Gen Status CD:	SQG
Monthly Generation:	True
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Facility Site ID Number:	22463
EPA ID:	WAH000039734
NAICS:	446110
SWC Desc:	WP01,WT02,WSC2
FWC Desc:	D001,D002,D007,D009,D010,D011,D024,D026,P001,P075
Form Comm:	as a component of reporting

CAR WASH ENTERPRISES CWE (Continued) **1000838825**

Data Year:	2016
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	601637571
Business Type:	Retail
Mail Name:	Rite Aid Corp
Mail addr line1:	30 Hunter Lane
Mail city,st,zip:	Camp Hill, PA 17011
Mail country:	UNITED STATES
Legal org name:	Thrifty Payless Inc
Legal org type:	Private
Legal addr line1:	30 Hunter Lane
Legal city,st,zip:	Camp Hill, PA 17011
Legal country:	UNITED STATES
Legal phone nbr:	717-761-2633
Legal effective date:	11/16/2006
Land org name:	Kirkland Totem Lake VI, LLC
Land org type:	Private
Land person name:	Bruce Cowgill
Land addr line1:	2760 E Spring Street,
Land addr line2:	Suite 200
Land city,st,zip:	Longbeach, CA 90806
Land country:	UNITED STATES
Land phone nbr:	(562) 490-0098
Operator org name:	Rite Aid Corp
Operator org type:	Private
Operator addr line1:	30 Hunter Lane
Operator city,st,zip:	Camp Hill, PA 17011
Operator country:	UNITED STATES
Operator phone nbr:	717-761-2633
Operator effective date:	11/16/2006
Site contact name:	Store Manager
Site contact addr line1:	12421 Totem Lake Blvd NE
Site Contact City/State/ Zip:	Kirkland, WA 98034

CAR WASH ENTERPRISES CWE (Continued) **1000838825**

Site Contact Country:	UNITED STATES
Site Contact Phone #:	425-821-1500
Site Contact EMail:	Not reported
Form Contact NAME:	David W Crozier
Form Contact ADDR LINE1:	30 Hunter Lane
Form Contact City,ST,Zip:	Camp Hill, PA 17011
Form Contact Country:	UNITED STATES
Form Contact Phone #:	717-975-8643
Form Contact EMail:	EHS@riteaid.com
Gen Status CD:	SQG
Monthly Generation:	True
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Facility Site ID Number:	22463
EPA ID:	WAH000039734
NAICS:	446110
SWC Desc:	WT02,WP01
FWC Desc:	D001,D002,D007,D010,D011,D024,D009,D026,P001,P075
Form Comm:	Not reported
Data Year:	2015
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False

CAR WASH ENTERPRISES CWE (Continued) **1000838825**

Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	601637571
Business Type:	Retail
Mail Name:	Rite Aid Corp
Mail addr line1:	30 Hunter Lane
Mail city,st,zip:	Camp Hill, PA 17011
Mail country:	UNITED STATES
Legal org name:	Thrifty Payless Inc
Legal org type:	Private
Legal addr line1:	30 Hunter Lane
Legal city,st,zip:	Camp Hill, PA 17011
Legal country:	UNITED STATES
Legal phone nbr:	717-761-2633
Legal effective date:	11/16/2006
Land org name:	Kirkland Totem Lake VI, LLC
Land org type:	Private
Land person name:	Bruce Cowgill
Land addr line1:	2760 E Spring Street,
Land addr line2:	Suite 200
Land city,st,zip:	Longbeach, CA 90806
Land country:	UNITED STATES
Land phone nbr:	(562) 490-0098
Operator org name:	Rite Aid Corp
Operator org type:	Private
Operator addr line1:	30 Hunter Lane
Operator city,st,zip:	Camp Hill, PA 17011
Operator country:	UNITED STATES
Operator phone nbr:	717-761-2633
Operator effective date:	11/16/2006
Site contact name:	Store Manager
Site contact addr line1:	12421 Totem Lake Blvd NE
Site Contact City/State/ Zip:	Kirkland, WA 98034
Site Contact Country:	UNITED STATES
Site Contact Phone #:	425-821-1500
Site Contact EMail:	Not reported
Form Contact NAME:	David W Crozier
Form Contact ADDR LINE1:	30 Hunter Lane
Form Contact City,ST,Zip:	Camp Hill, PA 17011
Form Contact Country:	UNITED STATES
Form Contact Phone #:	717-975-8643
Form Contact EMail:	EHS@riteaid.com
Gen Status CD:	SQG
Monthly Generation:	True
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False

CAR WASH ENTERPRISES CWE (Continued) **1000838825**

Used Oil Fuel Marketer Meets Specs: False

Facility Site ID Number:	22463
EPA ID:	WAH000039734
NAICS:	446110
SWC Desc:	WP01
FWC Desc:	D001, D002, P001, P075, D007, D010
Form Comm:	Not reported
Data Year:	2013
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	601637571
Business Type:	Retail
Mail Name:	Rite Aid Corp
Mail addr line1:	30 Hunter Lane
Mail city,st,zip:	Camp Hill, PA 17011
Mail country:	UNITED STATES
Legal org name:	Thrifty Payless Inc
Legal org type:	Private
Legal addr line1:	30 Hunter Lane
Legal city,st,zip:	Camp Hill, PA 17011
Legal country:	UNITED STATES
Legal phone nbr:	717-761-2633
Legal effective date:	06/13/1997
Land org name:	Centry II DDR Totem Lake LLC
Land org type:	Private
Land person name:	Not reported
Land addr line1:	3300 Enterprise Parkway
Land addr line2:	Attn: General Counsel
Land city,st,zip:	Beachwood, OH 44122
Land country:	UNITED STATES
Land phone nbr:	216-755-5500
Operator org name:	Rite Aid Corp

CAR WASH ENTERPRISES CWE (Continued) **1000838825**

Operator org type:	Private
Operator addr line1:	30 Hunter Lane
Operator city,st,zip:	Camp Hill, PA 17011
Operator country:	UNITED STATES
Operator phone nbr:	717-761-2633
Operator effective date:	06/13/1997
Site contact name:	Store Manager
Site contact addr line1:	12421 Totem Lake Blvd NE
Site Contact City/State/ Zip:	Kirkland, WA 98034
Site Contact Country:	UNITED STATES
Site Contact Phone #:	425-821-1500
Site Contact EMail:	Not reported
Form Contact NAME:	Stephanie A Caiati
Form Contact ADDR LINE1:	30 Hunter Lane
Form Contact City,ST,Zip:	Camp Hill, PA 17011
Form Contact Country:	UNITED STATES
Form Contact Phone #:	717-975-8643
Form Contact EMail:	rsksafe@riteaid.com
Gen Status CD:	SQG
Monthly Generation:	True
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Facility Site ID Number:	22463
EPA ID:	WAH000039734
NAICS:	446110
SWC Desc:	WP01,WT02
FWC Desc:	D001,D002,D007,D009,D010,D011,D024,D026,P001,P075
Form Comm:	Not reported
Data Year:	2014
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False

CAR WASH ENTERPRISES CWE (Continued) **1000838825**

Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	601637571
Business Type:	Retail
Mail Name:	Rite Aid Corp
Mail addr line1:	30 Hunter Lane
Mail city,st,zip:	Camp Hill, PA 17011
Mail country:	UNITED STATES
Legal org name:	Thrifty Payless Inc
Legal org type:	Private
Legal addr line1:	30 Hunter Lane
Legal city,st,zip:	Camp Hill, PA 17011
Legal country:	UNITED STATES
Legal phone nbr:	717-761-2633
Legal effective date:	11/16/2006
Land org name:	Kirkland Totem Lake VI, LLC
Land org type:	Private
Land person name:	Bruce Cowgill
Land addr line1:	2760 E. Spring Street, Suite 200
Land city,st,zip:	Longbeach, CA 90806
Land country:	UNITED STATES
Land phone nbr:	(562) 490-0098
Operator org name:	Rite Aid Corp
Operator org type:	Private
Operator addr line1:	30 Hunter Lane
Operator city,st,zip:	Camp Hill, PA 17011
Operator country:	UNITED STATES
Operator phone nbr:	717-761-2633
Operator effective date:	11/16/2006
Site contact name:	Store Manager
Site contact addr line1:	12421 Totem Lake Blvd NE
Site Contact City/State/ Zip:	Kirkland, WA 98034
Site Contact Country:	UNITED STATES
Site Contact Phone #:	425-821-1500
Site Contact EMail:	Not reported
Form Contact NAME:	Stephanie A Caiati
Form Contact ADDR LINE1:	30 Hunter Lane
Form Contact City,ST,Zip:	Camp Hill, PA 17011
Form Contact Country:	UNITED STATES
Form Contact Phone #:	717-975-8643
Form Contact EMail:	rsksafe@riteaid.com
Gen Status CD:	SQG
Monthly Generation:	True
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False

CAR WASH ENTERPRISES CWE (Continued) **1000838825**

Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

C20
SSE
1/8-1/4
0.148 mi.
779 ft.

RITE AID 5192 **WA ALLSITES** **S111413942**
12421 TOTEM LAKE BLVD NE **N/A**
KIRKLAND, WA 98034

Site 2 of 4 in cluster C

Relative:
Higher

Actual:
137 ft.

ALLSITES:
Facility Name: RITE AID 5192
Facility Id: 22463

C21
SSE
1/8-1/4
0.148 mi.
779 ft.

RITE AID #5192 **RCRA-CESQG** **1014928316**
12421 TOTEM LAKE BLVD NE **WAH000039734**
KIRKLAND, WA 98034

Site 3 of 4 in cluster C

Relative:
Higher

Actual:
137 ft.

RCRA-CESQG:
Date form received by agency: 09/14/2015
Facility name: RITE AID #5192
Facility address: 12421 TOTEM LAKE BLVD NE
KIRKLAND, WA 98034
EPA ID: WAH000039734
Mailing address: 30 HUNTER LANE
CAMP HILL, PA 17011
Contact: DAVID W CROZIER
Contact address: 30 HUNTER LANE
CAMP HILL, PA 17011
Contact country: US
Contact telephone: 717-975-8643
Contact email: EHS@RITEAID.COM
EPA Region: 10
Classification: Conditionally Exempt Small Quantity Generator
Description: Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely

RITE AID #5192 (Continued) **1014928316**

hazardous waste

Owner/Operator Summary:

Owner/operator name:	CENTRY II DDR TOTEM LAKE LLC
Owner/operator address:	3300 ENTERPRISE PARKWAY ATTN: GENERAL COUNSEL BEACHWOOD, OH 44122
Owner/operator country:	US
Owner/operator telephone:	216-755-5500
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	KIRKLAND TOTEM LAKE VI, LLC
Owner/operator address:	2760 E SPRING STREET, SUITE 200 LONGBEACH, CA 90806
Owner/operator country:	US
Owner/operator telephone:	562-490-0098
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	THRIFTY PAYLESS INC
Owner/operator address:	30 HUNTER LANE CAMP HILL, PA 17011
Owner/operator country:	US
Owner/operator telephone:	717-761-2633
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No

RITE AID #5192 (Continued) **1014928316**

Used oil transfer facility: No
Used oil transporter: No

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D002
. Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D009
. Waste name: MERCURY

. Waste code: D010
. Waste name: SELENIUM

. Waste code: D011
. Waste name: SILVER

. Waste code: D022
. Waste name: CHLOROFORM

. Waste code: D024
. Waste name: M-CRESOL

. Waste code: D026
. Waste name: CRESOL

. Waste code: P001
. Waste name: 2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYLBUTYL)-, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3%

. Waste code: P075
. Waste name: NICOTINE, & SALTS

. Waste code: U044
. Waste name: CHLOROFORM

. Waste code: WP01
. Waste name: WP01

. Waste code: WT02
. Waste name: WT02

RITE AID #5192 (Continued) **1014928316**

Historical Generators:
Date form received by agency: 12/07/2011
Site name: RITE AID #5192
Classification: Conditionally Exempt Small Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D002
. Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D009
. Waste name: MERCURY

. Waste code: D010
. Waste name: SELENIUM

. Waste code: D024
. Waste name: M-CRESOL

. Waste code: P001
. Waste name: 2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYLBUTYL)-, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3%

. Waste code: P075
. Waste name: NICOTINE, & SALTS

Date form received by agency: 12/07/2011
Site name: RITE AID #5192
Classification: Conditionally Exempt Small Quantity Generator

Violation Status: No violations found

C22 **CAR WASH ENTERPRISES** **WA ICR** **S103503394**
South **12302 NE 124TH ST.** **N/A**
1/8-1/4 **KIRKLAND, WA 98033**
0.173 mi.
912 ft. **Site 4 of 4 in cluster C**

Relative:
Higher

Actual:
142 ft.

ICR:
Date Ecology Received Report: 02/26/98
Contaminants Found at Site: Petroleum products
Media Contaminated: Soil

CAR WASH ENTERPRISES (Continued) **S103503394**

Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 98-04
County Code: 17
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 08/25/98
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 98-13
County Code: 17
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 09/28/98
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 98-13
County Code: 17
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 12/29/98
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 98-15
County Code: 17
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 03/18/98
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 98-15
County Code: 17
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 08/04/99
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Waste Management: Tank
Region: North Western

CAR WASH ENTERPRISES (Continued) **S103503394**

Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 98-17
County Code: 17
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 07/18/00
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 98-28
County Code: 17
Contact: Not reported
Report Title: Sampling - May 2000

Date Ecology Received Report: 02/02/00
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 98-27
County Code: 17
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 04/07/00
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 98-25
County Code: 17
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 10/03/95
Contaminants Found at Site: Petroleum products
Media Contaminated: Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 94-13
County Code: 17
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 12/03/90
Contaminants Found at Site: Petroleum products
Media Contaminated: Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Final cleanup report
Site Register Issue: 90-17

CAR WASH ENTERPRISES (Continued) **S103503394**

County Code:	17
Contact:	Not reported
Report Title:	Not reported

Date Ecology Received Report:	07/12/01
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	98-42
County Code:	17
Contact:	Not reported
Report Title:	Monitoring - May 2001

Date Ecology Received Report:	10/26/99
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	98-30
County Code:	17
Contact:	Not reported
Report Title:	Quarterly Monitoring Report - Third Quarter 1999

Date Ecology Received Report:	05/30/97
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	94-54
County Code:	17
Contact:	Not reported
Report Title:	Not reported

Date Ecology Received Report:	10/30/01
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	98-43
County Code:	17
Contact:	Not reported
Report Title:	Third Quartet Ground Water Monitoring - August 2001

Date Ecology Received Report:	01/04/01
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	98-32
County Code:	17
Contact:	Not reported

CAR WASH ENTERPRISES (Continued) **S103503394**

Report Title:	Tosco Marketing Company Quarterly Report
Date Ecology Received Report:	05/17/01
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	98-43
County Code:	17
Contact:	Not reported
Report Title:	Monitoring Well Installation - May 2000
Date Ecology Received Report:	05/24/01
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	98-37
County Code:	17
Contact:	Not reported
Report Title:	Monitoring - February 2001
Date Ecology Received Report:	11/07/97
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	95-13
County Code:	17
Contact:	Not reported
Report Title:	Not reported

D23 **SHELL STATION 120565** **WA CSCSL** **1004794300**
South **12221 124TH AVENUE NORTHEAST** **WA LUST** **WAD988502779**
1/8-1/4 **KIRKLAND, WA 98034** **WA UST**
0.194 mi. **WA ALLSITES**
1024 ft. **Site 1 of 2 in cluster D** **RCRA NonGen / NLR**
FINDS
Relative: **ECHO**
Higher **WA Financial Assurance**
Actual: **WA MANIFEST**
148 ft.

CSCSL:

Facility ID:	41716978
Region:	Northwest
Lat/Long:	47.70809 / -122.17712
Brownfield Status:	Not reported
Rank Status:	N
Clean Up Siteid:	9061
Site Status:	Cleanup Started
PSI?:	Not reported
Contaminant Name:	Benzene
Ground Water:	Below MTCA Cleanup Level After Assessment
Surface Water:	Not reported
Soil:	Below MTCA Cleanup Level After Assessment

SHELL STATION 120565 (Continued) **1004794300**

Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest

Facility ID:	41716978
Region:	Northwest
Lat/Long:	47.70809 / -122.17712
Brownfield Status:	Not reported
Rank Status:	N
Clean Up Siteid:	9061
Site Status:	Cleanup Started
PSI?:	Not reported
Contaminant Name:	Petroleum-Diesel
Ground Water:	Below MTCA Cleanup Level After Assessment
Surface Water:	Not reported
Soil:	Confirmed Above Cleanup Level
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest

Facility ID:	41716978
Region:	Northwest
Lat/Long:	47.70809 / -122.17712
Brownfield Status:	Not reported
Rank Status:	N
Clean Up Siteid:	9061
Site Status:	Cleanup Started
PSI?:	Not reported
Contaminant Name:	Petroleum-Gasoline
Ground Water:	Below MTCA Cleanup Level After Assessment
Surface Water:	Not reported
Soil:	Confirmed Above Cleanup Level
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest

Facility ID:	41716978
Region:	Northwest
Lat/Long:	47.70809 / -122.17712
Brownfield Status:	Not reported
Rank Status:	N
Clean Up Siteid:	9061
Site Status:	Cleanup Started
PSI?:	Not reported
Contaminant Name:	Petroleum-Other
Ground Water:	Below MTCA Cleanup Level After Assessment
Surface Water:	Not reported
Soil:	Below MTCA Cleanup Level After Assessment
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest

SHELL STATION 120565 (Continued) **1004794300**

LUST:

Facility ID:	41716978
Lust Status Type:	Cleanup Started
Cleanup Site ID:	9061
Cleanup Unit Type:	Upland
Process Type:	Independent Action
Cleanup Unit Name:	Texaco 632320059
Lust Status Date:	07/01/2011
Response Section:	Northwest
Lat/Long:	47.70809 / -122.17712

UST:

Facility ID:	41716978
Site Id:	4419
UBI:	Not reported
Phone Number:	Not reported
Decimal Latitude:	47.70809
Decimal Longitude:	-122.17712
Tank Name:	1
Tag Number:	A0434
Tank Status:	Removed
Tank Status Date:	08/06/1996
Tank Install Date:	00/01/1991
Tank Closure Date:	Not reported
Capacity Range:	10,000 to 19,999 Gallons
Tank Permit Expiration Date:	07/01/1993
Tank Upgrade Date:	02/09/1998
Tank Spill Prevention:	Spill Bucket/Spill Box
Tank Overfill Prevention:	Overfill Alarm
Tank Material:	Fiberglass Reinforced Plastic
Tank Construction:	Double Wall Tank
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Corrosion Resistant
Tank Manifold:	Not reported
Tank Release Detection:	Interstitial Monitoring
Tank SFC Type:	Not reported
Pipe Material:	Fiberglass
Pipe Construction:	Double Wall Pipe
Pipe Primary Release Detection:	Interstitial Monitoring (or Sump Sensor)
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Corrosion Resistant
Pipe Pumping System:	Pressurized System
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported
Tank Name:	10
Tag Number:	A0434
Tank Status:	Operational
Tank Status Date:	08/06/1996
Tank Install Date:	00/01/1992
Tank Closure Date:	Not reported
Capacity Range:	10,000 to 19,999 Gallons
Tank Permit Expiration Date:	08/31/2018
Tank Upgrade Date:	02/09/1998

SHELL STATION 120565 (Continued) **1004794300**

Tank Spill Prevention:	Spill Bucket/Spill Box
Tank Overfill Prevention:	Overfill Alarm
Tank Material:	Fiberglass Reinforced Plastic
Tank Construction:	Double Wall Tank
Tank Tightness Test:	Part of Automatic Tank Gauging (ATG) System
Tank Corrosion Protection:	Corrosion Resistant
Tank Manifold:	Not reported
Tank Release Detection:	Statistical Inventory Reconciliation
Tank SFC Type:	Not reported
Pipe Material:	Fiberglass
Pipe Construction:	Double Wall Pipe
Pipe Primary Release Detection:	Statistical Inventory Reconciliation
Pipe Second Release Detection:	Interstitial Monitoring (or Sump Sensor)
Pipe Corrosion Protection:	Corrosion Resistant
Pipe Pumping System:	Pressurized System
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	2
Tag Number:	A0434
Tank Status:	Removed
Tank Status Date:	08/06/1996
Tank Install Date:	00/01/1991
Tank Closure Date:	Not reported
Capacity Range:	Not reported
Tank Permit Expiration Date:	07/01/1993
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Spill Bucket/Spill Box
Tank Overfill Prevention:	Overfill Alarm
Tank Material:	Fiberglass Reinforced Plastic
Tank Construction:	Double Wall Tank
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Corrosion Resistant
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Fiberglass
Pipe Construction:	Double Wall Pipe
Pipe Primary Release Detection:	Interstitial Monitoring (or Sump Sensor)
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Corrosion Resistant
Pipe Pumping System:	Pressurized System
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	3
Tag Number:	A0434
Tank Status:	Removed
Tank Status Date:	08/06/1996
Tank Install Date:	00/01/1991
Tank Closure Date:	Not reported
Capacity Range:	Not reported
Tank Permit Expiration Date:	07/01/1993
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Spill Bucket/Spill Box

SHELL STATION 120565 (Continued) **1004794300**

Tank Overfill Prevention:	Overfill Alarm
Tank Material:	Fiberglass Reinforced Plastic
Tank Construction:	Double Wall Tank
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Corrosion Resistant
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Fiberglass
Pipe Construction:	Double Wall Pipe
Pipe Primary Release Detection:	Interstitial Monitoring (or Sump Sensor)
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Corrosion Resistant
Pipe Pumping System:	Pressurized System
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	4
Tag Number:	A0434
Tank Status:	Removed
Tank Status Date:	08/06/1996
Tank Install Date:	00/01/1991
Tank Closure Date:	Not reported
Capacity Range:	Not reported
Tank Permit Expiration Date:	07/01/1993
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Spill Bucket/Spill Box
Tank Overfill Prevention:	Overfill Alarm
Tank Material:	Fiberglass Reinforced Plastic
Tank Construction:	Double Wall Tank
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Corrosion Resistant
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Fiberglass
Pipe Construction:	Double Wall Pipe
Pipe Primary Release Detection:	Interstitial Monitoring (or Sump Sensor)
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Corrosion Resistant
Pipe Pumping System:	Pressurized System
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	5
Tag Number:	A0434
Tank Status:	Removed - No Site Assessment Found
Tank Status Date:	01/01/1991
Tank Install Date:	00/31/1964
Tank Closure Date:	Not reported
Capacity Range:	111 TO 1,100 Gallons
Tank Permit Expiration Date:	07/29/1992
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported

SHELL STATION 120565 (Continued) **1004794300**

Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Impressed Current
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Steel
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	6
Tag Number:	A0434
Tank Status:	Exempt
Tank Status Date:	08/06/1996
Tank Install Date:	00/31/1964
Tank Closure Date:	Not reported
Capacity Range:	Not reported
Tank Permit Expiration Date:	Not reported
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Impressed Current
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Steel
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	7
Tag Number:	A0434
Tank Status:	Operational
Tank Status Date:	08/06/1996
Tank Install Date:	00/01/1992
Tank Closure Date:	Not reported
Capacity Range:	10,000 to 19,999 Gallons
Tank Permit Expiration Date:	08/31/2018
Tank Upgrade Date:	02/06/1998
Tank Spill Prevention:	Spill Bucket/Spill Box
Tank Overfill Prevention:	Overfill Alarm
Tank Material:	Fiberglass Reinforced Plastic

SHELL STATION 120565 (Continued) **1004794300**

Tank Construction:	Double Wall Tank
Tank Tightness Test:	Part of Automatic Tank Gauging (ATG) System
Tank Corrosion Protection:	Corrosion Resistant
Tank Manifold:	Not reported
Tank Release Detection:	Statistical Inventory Reconciliation
Tank SFC Type:	Not reported
Pipe Material:	Fiberglass
Pipe Construction:	Double Wall Pipe
Pipe Primary Release Detection:	Statistical Inventory Reconciliation
Pipe Second Release Detection:	Interstitial Monitoring (or Sump Sensor)
Pipe Corrosion Protection:	Corrosion Resistant
Pipe Pumping System:	Pressurized System
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	8
Tag Number:	A0434
Tank Status:	Operational
Tank Status Date:	08/06/1996
Tank Install Date:	00/01/1992
Tank Closure Date:	Not reported
Capacity Range:	10,000 to 19,999 Gallons
Tank Permit Expiration Date:	08/31/2018
Tank Upgrade Date:	02/06/1998
Tank Spill Prevention:	Spill Bucket/Spill Box
Tank Overfill Prevention:	Overfill Alarm
Tank Material:	Fiberglass Reinforced Plastic
Tank Construction:	Double Wall Tank
Tank Tightness Test:	Part of Automatic Tank Gauging (ATG) System
Tank Corrosion Protection:	Corrosion Resistant
Tank Manifold:	Not reported
Tank Release Detection:	Statistical Inventory Reconciliation
Tank SFC Type:	Not reported
Pipe Material:	Fiberglass
Pipe Construction:	Double Wall Pipe
Pipe Primary Release Detection:	Statistical Inventory Reconciliation
Pipe Second Release Detection:	Interstitial Monitoring (or Sump Sensor)
Pipe Corrosion Protection:	Corrosion Resistant
Pipe Pumping System:	Pressurized System
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	9
Tag Number:	A0434
Tank Status:	Operational
Tank Status Date:	08/06/1996
Tank Install Date:	00/01/1992
Tank Closure Date:	Not reported
Capacity Range:	10,000 to 19,999 Gallons
Tank Permit Expiration Date:	08/31/2018
Tank Upgrade Date:	02/09/1998
Tank Spill Prevention:	Spill Bucket/Spill Box
Tank Overfill Prevention:	Overfill Alarm
Tank Material:	Fiberglass Reinforced Plastic
Tank Construction:	Double Wall Tank

SHELL STATION 120565 (Continued) **1004794300**

Tank Tightness Test:	Part of Automatic Tank Gauging (ATG) System
Tank Corrosion Protection:	Corrosion Resistant
Tank Manifold:	Not reported
Tank Release Detection:	Statistical Inventory Reconciliation
Tank SFC Type:	Not reported
Pipe Material:	Fiberglass
Pipe Construction:	Double Wall Pipe
Pipe Primary Release Detection:	Statistical Inventory Reconciliation
Pipe Second Release Detection:	Interstitial Monitoring (or Sump Sensor)
Pipe Corrosion Protection:	Corrosion Resistant
Pipe Pumping System:	Pressurized System
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

ALLSITES:

Facility Name:	SHELL STATION 120565
Facility Id:	41716978

Interaction:	43312
Interaction 1:	I
Interaction 2:	LUST
Ecology Program:	TOXICS
Program Data:	ISIS
Facility Alt.:	Not reported
Program ID:	4419
Date Interaction:	1991-11-15 00:00:00
Date Interaction 3:	LUST Facility
Latitude:	47.708084360000001
Longitude:	-122.177105107

Interaction:	43313
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD988502779
Date Interaction:	1992-03-09 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.708084360000001
Longitude:	-122.177105107

Interaction:	43315
Interaction 1:	I
Interaction 2:	HWOTHER
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD988502779
Date Interaction:	2002-12-31 00:00:00
Date Interaction 3:	Haz Waste Management Acti
Latitude:	47.708084360000001
Longitude:	-122.177105107

SHELL STATION 120565 (Continued) **1004794300**

Interaction:	43316
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD988502779
Date Interaction:	2005-10-20 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.708084360000001
Longitude:	-122.177105107

Interaction:	43311
Interaction 1:	I
Interaction 2:	TIER2
Ecology Program:	HAZWASTE
Program Data:	EPCRA
Facility Alt.:	Not reported
Program ID:	WAD988502779
Date Interaction:	1991-01-01 00:00:00
Date Interaction 3:	Emergency/Haz Chem Rpt TI
Latitude:	47.708084360000001
Longitude:	-122.177105107

Interaction:	43314
Interaction 1:	A
Interaction 2:	UST
Ecology Program:	TOXICS
Program Data:	UST
Facility Alt.:	JACKSONS 619
Program ID:	Not reported
Date Interaction:	2000-03-20 00:00:00
Date Interaction 3:	Underground Storage Tank
Latitude:	47.708084360000001
Longitude:	-122.177105107

Interaction:	95846
Interaction 1:	I
Interaction 2:	HWOTHER
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	SHELL STATION 120565
Program ID:	WAD988502779
Date Interaction:	2010-12-31 00:00:00
Date Interaction 3:	Haz Waste Management Acti
Latitude:	47.708084360000001
Longitude:	-122.177105107

Interaction:	43317
Interaction 1:	I
Interaction 2:	HWOTHER
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE

SHELL STATION 120565 (Continued) **1004794300**

Facility Alt.:	Not reported
Program ID:	WAD988502779
Date Interaction:	2005-12-31 00:00:00
Date Interaction 3:	Haz Waste Management Acti
Latitude:	47.708084360000001
Longitude:	-122.177105107

Interaction:	43318
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD988502779
Date Interaction:	2006-12-31 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.708084360000001
Longitude:	-122.177105107

RCRA NonGen / NLR:

Date form received by agency:	07/27/2011
Facility name:	SHELL STATION 120565
Facility address:	12221 124TH AVE NE KIRKLAND, WA 98033
EPA ID:	WAD988502779
Mailing address:	12700 NORTHBOROUGH DR 300G04 HOUSTON, TX 77067-2508
Contact:	SHELL OIL PRODU SHELL OIL PRODU
Contact address:	12700 NORTHBOROUGH DR 300G04 HOUSTON, TX 77067-2508
Contact country:	US
Contact telephone:	000-000-0000
Contact email:	Not reported
EPA Region:	10
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	EQUILION ENTERP E
Owner/operator address:	12700 NORTHBOROUGH DR 300G04 HOUSTON, TX 77067
Owner/operator country:	US
Owner/operator telephone:	281-874-2224
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	08/01/1998
Owner/Op end date:	Not reported

Owner/operator name:	EQUILION ENTERP E
Owner/operator address:	PO BOX 2099 NOB 300G04

SHELL STATION 120565 (Continued) **1004794300**

	HOUSTON, TX 77252
Owner/operator country:	US
Owner/operator telephone:	281-874-2224
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	08/01/1998
Owner/Op end date:	Not reported

Owner/operator name:	EQUILION ENTERPRISES LLC DBA SHELL OIL P
Owner/operator address:	PO BOX 2099 NOB 300G03 - RACHEL HULL
	HOUSTON, TX 77252
Owner/operator country:	US
Owner/operator telephone:	Not reported
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	08/01/1998
Owner/Op end date:	Not reported

Owner/operator name:	EQUILION ENTERPRISES LLC DBA SHELL OIL P
Owner/operator address:	12700 NORTHBOROUGH DR 300G03
	HOUSTON, TX 77067
Owner/operator country:	US
Owner/operator telephone:	Not reported
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	08/01/1998
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency: 01/27/2010

SHELL STATION 120565 (Continued) **1004794300**

Site name: SHELL STATION 120565
Classification: Conditionally Exempt Small Quantity Generator

. Waste code: WSQG
. Waste name: WSQG

Date form received by agency: 12/31/2007
Site name: SHELL STATION 120565
Classification: Not a generator, verified

Date form received by agency: 12/31/2005
Site name: SHELL STATION 120565
Classification: Not a generator, verified

Date form received by agency: 12/31/2003
Site name: SHELL STATION 120565
Classification: Not a generator, verified

Date form received by agency: 03/25/2003
Site name: SHELL 120565
Classification: Not a generator, verified

Violation Status: No violations found

FINDS:

Registry ID: 110005372961

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZARDOUS WASTE BIENNIAL REPORTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1004794300
Registry ID: 110005372961
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110005372961

WA Financial Assurance 1:
DOE Site ID: 4419
Financial Resp Type: GREAT AMERICAN E&S INSURANCE CO

SHELL STATION 120565 (Continued) **1004794300**

Inception Date:	11/09/2017
Expiration Date:	11/09/2018
Address 2:	Not reported
Policy Number:	BTA 9986598-08
Effective Date:	11/09/2017
Liability Limit Type:	Not reported
Compliance Method:	Not reported
Proof of Responsibility Document Flag:	Not reported
Retroactive Date:	Not reported
Latitude:	47.70809
Longitude:	-122.17712

DOE Site ID:	4419
Financial Resp Type:	GREAT AMERICAN E&S INSURANCE CO
Inception Date:	11/09/2015
Expiration Date:	11/09/2016
Address 2:	Not reported
Policy Number:	BTA 9986598-06
Effective Date:	11/09/2015
Liability Limit Type:	Not reported
Compliance Method:	Not reported
Proof of Responsibility Document Flag:	Not reported
Retroactive Date:	Not reported
Latitude:	47.70809
Longitude:	-122.17712

DOE Site ID:	4419
Financial Resp Type:	GREAT AMERICAN E&S INSURANCE CO
Inception Date:	11/09/2016
Expiration Date:	11/09/2017
Address 2:	Not reported
Policy Number:	BTA 9986598-07
Effective Date:	11/09/2016
Liability Limit Type:	Not reported
Compliance Method:	Not reported
Proof of Responsibility Document Flag:	Not reported
Retroactive Date:	Not reported
Latitude:	47.70809
Longitude:	-122.17712

WA MANIFEST:

Facility Site ID Number:	41716978
EPA ID:	WAD988502779
NAICS:	44711
SWC Desc:	Not reported
FWC Desc:	D001
Form Comm:	NO RCRA HAZARDOUS WASTE GENERATED IN 2005
Data Year:	Not reported
Permit by Rule:	FALSE
Treatment by Generator:	FALSE
Mixed radioactive waste:	FALSE
Importer of hazardous waste:	FALSE
Immediate recycler:	FALSE
Treatment/Storage/Disposal/Recycling Facility:	FALSE
Generator of dangerous fuel waste:	FALSE
Generator marketing to burner:	FALSE
Other marketers (i.e., blender, distributor, etc.):	FALSE

SHELL STATION 120565 (Continued) **1004794300**

Utility boiler burner:	FALSE
Industry boiler burner:	FALSE
Industrial Furnace:	FALSE
Smelter defferal:	FALSE
Universal waste - batteries - generate:	FALSE
Universal waste - thermostats - generate:	FALSE
Universal waste - mercury - generate:	FALSE
Universal waste - lamps - generate:	FALSE
Universal waste - batteries - accumulate:	FALSE
Universal waste - thermostats - accumulate:	FALSE
Universal waste - mercury - accumulate:	FALSE
Universal waste - lamps - accumulate:	FALSE
Destination Facility for Universal Waste:	FALSE
Off-specification used oil burner - utility boiler:	FALSE
Off-specification used oil burner - industrial boiler:	FALSE
Off-specification used oil burner - industrial furnace:	FALSE
Tax Reg #:	601238698
Business Type:	SERVICE STATION
Mail Name:	Shell Oil Products US
Mail addr line1:	12700 NORTHBOROUGH DR
Mail addr line2:	300G04
Mail city,st,zip:	HOUSTON, TX 77067-2508
Mail country:	UNITED STATES
Legal org name:	Equilion Enterprises LLC dba Shell Oil P
Legal org type:	Private
Legal addr line1:	PO BOX 2099
Legal addr line2:	NOB 300G04
Legal city,st,zip:	HOUSTON, TX 77252-2099
Legal country:	UNITED STATES
Legal phone nbr:	281-874-2224
Legal effective date:	08/01/1998
Land org name:	Equilon Enterprises LLC dba Shell Oil P.
Land org type:	Private
Land person name:	Not reported
Land addr line1:	PO BOX 2099
Land addr line2:	NOB 300G04
Land city,st,zip:	HOUSTON, TX 77252-2099
Land country:	UNITED STATES
Land phone nbr:	281-874-2224
Operator org name:	Equilion Enterprises LLC dba Shell Oil P
Operator org type:	Private
Operator addr line1:	12700 NORTHBOROUGH DR
Operator addr line2:	300G04
Operator city,st,zip:	HOUSTON, TX 77067-2058
Operator country:	UNITED STATES
Operator phone nbr:	(281)874-2224
Operator effective date:	08/01/1998
Site contact name:	DON F WISDOM
Site contact addr line1:	12700 NORTHBOROUGH DR
Site contact addr line2:	300F07
Site Contact City/State/ Zip:	HOUSTON, TX 77067-2058
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(281) 874-2238
Site Contact EMail:	DON.F.WISDOM@SHELL.COM
Form Contact NAME:	RACHEL HULL
Form Contact ADDR LINE1:	12700 NORTHBOROUGH DRIVE
Form Contact ADDR LINE2:	NOB 300G04

SHELL STATION 120565 (Continued) **1004794300**

Form Contact City,ST,Zip:	HOUSTON, TX 77067-2508
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(281)874-2224
Form Contact EMail:	RACHEL.HULL@SHELL.COM
Gen Status CD:	MQG
Monthly Generation:	FALSE
Batch Generation:	FALSE
One Time Generation:	TRUE
Transport Own Waste:	FALSE
Tranports Other Waste:	FALSE
Recycler Onsite:	FALSE
Transfer Facility:	FALSE
Other Exemption:	Not reported
UW Battery Gen:	FALSE
Used Oil Transporter:	FALSE
Used Oil Transfer Facility:	FALSE
Used Oil Processor:	FALSE
Used Oil Refiner:	FALSE
Used Oil Fuel Marketer Directs Shipments:	FALSE
Used Oil Fuel Marketer Meets Specs:	FALSE

Waste Streams Generated:

Facility ID:	41716978
Data Year:	2008
Description:	RINSATE - GASOLINE
Mix:	False
Reported Qty:	3210.9000000000001 LB
Kilo Qty:	1456.4642650511855
Density No:	0
Density Qty:	Not reported

Facility ID:	41716978
Data Year:	2008
Description:	ABSORBENT MAT. W/GASOLINE
Mix:	False
Reported Qty:	205 LB
Kilo Qty:	92.988001599393627
Density No:	0
Density Qty:	Not reported

Facility ID:	41716978
Data Year:	Not reported
Description:	ABSORBENT MATERIAL WITH GASOLINE
Mix:	No
Reported Qty:	300 LB
Kilo Qty:	136.080002340576
Density No:	0
Density Qty:	Not reported

Shipments Sent:

Facility ID:	41716978
Data Year:	2008
Shipment sent data:	7/30/2008
Reported Qty:	55 LB
Kilo Qty:	24.9480004291056

SHELL STATION 120565 (Continued) **1004794300**

Facility ID: 41716978
Data Year: 2008
Shipment sent data: 4/14/2008
Reported Qty: 40 LB
Kilo Qty: 18.1440003120768

Facility ID: 41716978
Data Year: 2008
Shipment sent data: 4/2/2008
Reported Qty: 110 LB
Kilo Qty: 49.8960008582112

Facility ID: 41716978
Data Year: 2008
Shipment sent data: 9/18/2008
Reported Qty: 3210.9 LB
Kilo Qty: 1456.46426505119

Facility ID: 41716978
Data Year: Not reported
Shipment sent data: 7/18/2006
Reported Qty: 150 LB
Kilo Qty: 68.040001170288

Facility ID: 41716978
Data Year: Not reported
Shipment sent data: 2/10/2006
Reported Qty: 150 LB
Kilo Qty: 68.040001170288

Facility Site ID Number: 41716978
EPA ID: WAD988502779
NAICS: 44711
SWC Desc: Not reported
FWC Desc: D001, D018
Form Comm: Not reported
Data Year: 2008
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter defferal: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False

SHELL STATION 120565 (Continued) **1004794300**

Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	601238698
Business Type:	SERVICE STATION
Mail Name:	Shell Oil Products US
Mail addr line1:	12700 NORTHBOROUGH DR
Mail addr line2:	300G04
Mail city,st,zip:	HOUSTON, TX 77067-2508
Mail country:	UNITED STATES
Legal org name:	Equilion Enterprises LLC dba Shell Oil P
Legal org type:	Private
Legal addr line1:	PO BOX 2099
Legal addr line2:	NOB 300G04
Legal city,st,zip:	HOUSTON, TX 77252-2099
Legal country:	UNITED STATES
Legal phone nbr:	281-874-2224
Legal effective date:	08/01/1998
Land org name:	Equilon Enterprises LLC dba Shell Oil P.
Land org type:	Private
Land person name:	Not reported
Land addr line1:	PO BOX 2099
Land addr line2:	NOB 300G04
Land city,st,zip:	HOUSTON, TX 77252-2099
Land country:	UNITED STATES
Land phone nbr:	281-874-2224
Operator org name:	Equilion Enterprises LLC dba Shell Oil P
Operator org type:	Private
Operator addr line1:	12700 NORTHBOROUGH DR
Operator addr line2:	300G04
Operator city,st,zip:	HOUSTON, TX 77067-2058
Operator country:	UNITED STATES
Operator phone nbr:	(281)874-2224
Operator effective date:	08/01/1998
Site contact name:	RAY E WALDING
Site contact addr line1:	12700 NORTHBOROUGH DR
Site contact addr line2:	300F08
Site Contact City/State/ Zip:	HOUSTON, TX 77067-2058
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(281) 874-2247
Site Contact EMail:	RAY.WALDING@SHELL.COM
Form Contact NAME:	Jeanne Traylor
Form Contact ADDR LINE1:	12700 NORTHBOROUGH DRIVE
Form Contact ADDR LINE2:	NOB 300G04
Form Contact City,ST,Zip:	HOUSTON, TX 77067-2508
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(281)874-2224
Form Contact EMail:	jeanne.traylor@shell.com
Gen Status CD:	LQG
Monthly Generation:	False
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False

SHELL STATION 120565 (Continued) **1004794300**

Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Waste Streams Generated:

Facility ID: 41716978
Data Year: 2008
Description: RINSATE - GASOLINE
Mix: False
Reported Qty: 3210.9000000000001 LB
Kilo Qty: 1456.4642650511855
Density No: 0
Density Qty: Not reported

Facility ID: 41716978
Data Year: 2008
Description: ABSORBENT MAT. W/GASOLINE
Mix: False
Reported Qty: 205 LB
Kilo Qty: 92.988001599393627
Density No: 0
Density Qty: Not reported

Facility ID: 41716978
Data Year: Not reported
Description: ABSORBENT MATERIAL WITH GASOLINE
Mix: No
Reported Qty: 300 LB
Kilo Qty: 136.080002340576
Density No: 0
Density Qty: Not reported

Shipments Sent:

Facility ID: 41716978
Data Year: 2008
Shipment sent data: 7/30/2008
Reported Qty: 55 LB
Kilo Qty: 24.9480004291056

Facility ID: 41716978
Data Year: 2008
Shipment sent data: 4/14/2008
Reported Qty: 40 LB
Kilo Qty: 18.1440003120768

Facility ID: 41716978
Data Year: 2008
Shipment sent data: 4/2/2008
Reported Qty: 110 LB

SHELL STATION 120565 (Continued) **1004794300**

Kilo Qty: 49.8960008582112

Facility ID: 41716978
Data Year: 2008
Shipment sent data: 9/18/2008
Reported Qty: 3210.9 LB
Kilo Qty: 1456.46426505119

Facility ID: 41716978
Data Year: Not reported
Shipment sent data: 7/18/2006
Reported Qty: 150 LB
Kilo Qty: 68.040001170288

Facility ID: 41716978
Data Year: Not reported
Shipment sent data: 2/10/2006
Reported Qty: 150 LB
Kilo Qty: 68.040001170288

Facility Site ID Number: 41716978
EPA ID: WAD988502779
NAICS: 447110
SWC Desc: Not reported
FWC Desc: D001
Form Comm: Not reported
Data Year: 2009
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter defferal: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: 601238698
Business Type: SERVICE STATION
Mail Name: Shell Oil Products US
Mail addr line1: 12700 NORTHBOROUGH DR

SHELL STATION 120565 (Continued) **1004794300**

Mail addr line2:	300G04
Mail city,st,zip:	HOUSTON, TX 77067-2508
Mail country:	UNITED STATES
Legal org name:	Equilion Enterprises LLC dba Shell Oil P
Legal org type:	Private
Legal addr line1:	PO BOX 2099
Legal addr line2:	NOB 300G04
Legal city,st,zip:	HOUSTON, TX 77252-2099
Legal country:	UNITED STATES
Legal phone nbr:	281-874-2224
Legal effective date:	08/01/1998
Land org name:	Equilon Enterprises LLC dba Shell Oil P.
Land org type:	Private
Land person name:	Not reported
Land addr line1:	PO BOX 2099
Land addr line2:	NOB 300G04
Land city,st,zip:	HOUSTON, TX 77252-2099
Land country:	UNITED STATES
Land phone nbr:	281-874-2224
Operator org name:	Equilion Enterprises LLC dba Shell Oil P
Operator org type:	Private
Operator addr line1:	12700 NORTHBOROUGH DR
Operator addr line2:	300G04
Operator city,st,zip:	HOUSTON, TX 77067-2058
Operator country:	UNITED STATES
Operator phone nbr:	(281)874-2224
Operator effective date:	08/01/1998
Site contact name:	RAY E WALDING
Site contact addr line1:	12700 NORTHBOROUGH DR
Site contact addr line2:	300F08
Site Contact City/State/ Zip:	HOUSTON, TX 77067-2058
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(281) 874-2247
Site Contact EMail:	RAY.WALDING@SHELL.COM
Form Contact NAME:	Jeanne Traylor
Form Contact ADDR LINE1:	P O Box 3127, Rm 685
Form Contact ADDR LINE2:	NOB 300G04
Form Contact City,ST,Zip:	HOUSTON, TX 77253
Form Contact Country:	UNITED STATES
Form Contact Phone #:	713-241-6992
Form Contact EMail:	jeanne.traylor@shell.com
Gen Status CD:	SQG
Monthly Generation:	False
Batch Generation:	True
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

SHELL STATION 120565 (Continued) **1004794300**

Waste Streams Generated:

Facility ID:	41716978
Data Year:	2008
Description:	RINSATE - GASOLINE
Mix:	False
Reported Qty:	3210.9000000000001 LB
Kilo Qty:	1456.4642650511855
Density No:	0
Density Qty:	Not reported

Facility ID:	41716978
Data Year:	2008
Description:	ABSORBENT MAT. W/GASOLINE
Mix:	False
Reported Qty:	205 LB
Kilo Qty:	92.988001599393627
Density No:	0
Density Qty:	Not reported

Facility ID:	41716978
Data Year:	Not reported
Description:	ABSORBENT MATERIAL WITH GASOLINE
Mix:	No
Reported Qty:	300 LB
Kilo Qty:	136.080002340576
Density No:	0
Density Qty:	Not reported

Shipments Sent:

Facility ID:	41716978
Data Year:	2008
Shipment sent data:	7/30/2008
Reported Qty:	55 LB
Kilo Qty:	24.9480004291056

Facility ID:	41716978
Data Year:	2008
Shipment sent data:	4/14/2008
Reported Qty:	40 LB
Kilo Qty:	18.1440003120768

Facility ID:	41716978
Data Year:	2008
Shipment sent data:	4/2/2008
Reported Qty:	110 LB
Kilo Qty:	49.8960008582112

Facility ID:	41716978
Data Year:	2008
Shipment sent data:	9/18/2008
Reported Qty:	3210.9 LB
Kilo Qty:	1456.46426505119

Facility ID:	41716978
Data Year:	Not reported
Shipment sent data:	7/18/2006

SHELL STATION 120565 (Continued) **1004794300**

Reported Qty:	150 LB
Kilo Qty:	68.040001170288

Facility ID:	41716978
Data Year:	Not reported
Shipment sent data:	2/10/2006
Reported Qty:	150 LB
Kilo Qty:	68.040001170288

Facility Site ID Number:	41716978
EPA ID:	WAD988502779
NAICS:	447110
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	2010
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	601238698
Business Type:	SERVICE STATION
Mail Name:	Shell Oil Products US
Mail addr line1:	12700 NORTHBOROUGH DR
Mail addr line2:	300G04
Mail city,st,zip:	HOUSTON, TX 77067-2508
Mail country:	UNITED STATES
Legal org name:	Equilion Enterprises LLC dba Shell Oil P
Legal org type:	Private
Legal addr line1:	PO BOX 2099
Legal addr line2:	NOB 300G04
Legal city,st,zip:	HOUSTON, TX 77252-2099
Legal country:	UNITED STATES
Legal phone nbr:	281-874-2224
Legal effective date:	08/01/1998

SHELL STATION 120565 (Continued) **1004794300**

Land org name:	Equilon Enterprises LLC dba Shell Oil P.
Land org type:	Private
Land person name:	Not reported
Land addr line1:	PO BOX 2099
Land addr line2:	NOB 300G04
Land city,st,zip:	HOUSTON, TX 77252-2099
Land country:	UNITED STATES
Land phone nbr:	281-874-2224
Operator org name:	Equilion Enterprises LLC dba Shell Oil P
Operator org type:	Private
Operator addr line1:	12700 NORTHBOROUGH DR
Operator addr line2:	300G04
Operator city,st,zip:	HOUSTON, TX 77067-2058
Operator country:	UNITED STATES
Operator phone nbr:	(281)874-2224
Operator effective date:	08/01/1998
Site contact name:	RAY E WALDING
Site contact addr line1:	12700 NORTHBOROUGH DR
Site contact addr line2:	300F08
Site Contact City/State/ Zip:	HOUSTON, TX 77067-2058
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(281) 874-2247
Site Contact EMail:	RAY.WALDING@SHELL.COM
Form Contact NAME:	Jeanne Traylor
Form Contact ADDR LINE1:	P O Box 3127, Rm 669B
Form Contact City,ST,Zip:	HOUSTON, TX 77253
Form Contact Country:	UNITED STATES
Form Contact Phone #:	713-241-6992
Form Contact EMail:	jeanne.traylor@shell.com
Gen Status CD:	XQG
Monthly Generation:	False
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Waste Streams Generated:

Facility ID:	41716978
Data Year:	2008
Description:	RINSATE - GASOLINE
Mix:	False
Reported Qty:	3210.9000000000001 LB
Kilo Qty:	1456.4642650511855
Density No:	0
Density Qty:	Not reported

Facility ID:	41716978

SHELL STATION 120565 (Continued) **1004794300**

Data Year: 2008
Description: ABSORBENT MAT. W/GASOLINE
Mix: False
Reported Qty: 205 LB
Kilo Qty: 92.988001599393627
Density No: 0
Density Qty: Not reported

Facility ID: 41716978
Data Year: Not reported
Description: ABSORBENT MATERIAL WITH GASOLINE
Mix: No
Reported Qty: 300 LB
Kilo Qty: 136.080002340576
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 41716978
Data Year: 2008
Shipment sent data: 7/30/2008
Reported Qty: 55 LB
Kilo Qty: 24.9480004291056

Facility ID: 41716978
Data Year: 2008
Shipment sent data: 4/14/2008
Reported Qty: 40 LB
Kilo Qty: 18.1440003120768

Facility ID: 41716978
Data Year: 2008
Shipment sent data: 4/2/2008
Reported Qty: 110 LB
Kilo Qty: 49.8960008582112

Facility ID: 41716978
Data Year: 2008
Shipment sent data: 9/18/2008
Reported Qty: 3210.9 LB
Kilo Qty: 1456.46426505119

Facility ID: 41716978
Data Year: Not reported
Shipment sent data: 7/18/2006
Reported Qty: 150 LB
Kilo Qty: 68.040001170288

Facility ID: 41716978
Data Year: Not reported
Shipment sent data: 2/10/2006
Reported Qty: 150 LB
Kilo Qty: 68.040001170288

Facility Site ID Number: 41716978
EPA ID: WAD988502779

SHELL STATION 120565 (Continued) **1004794300**

NAICS:	44711
SWC Desc:	Not reported
FWC Desc:	D001
Form Comm:	NO RCRA HAZARDOUS WASTE GENERATED IN 2005
Data Year:	Not reported
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	601238698
Business Type:	SERVICE STATION
Mail Name:	Shell Oil Products US
Mail addr line1:	12700 NORTHBOROUGH DR
Mail addr line2:	300G04
Mail city,st,zip:	HOUSTON, TX 77067-2508
Mail country:	UNITED STATES
Legal org name:	Equilion Enterprises LLC dba Shell Oil P
Legal org type:	Private
Legal addr line1:	PO BOX 2099
Legal addr line2:	NOB 300G04
Legal city,st,zip:	HOUSTON, TX 77252-2099
Legal country:	UNITED STATES
Legal phone nbr:	281-874-2224
Legal effective date:	08/01/1998
Land org name:	Equilon Enterprises LLC dba Shell Oil P.
Land org type:	Private
Land person name:	Not reported
Land addr line1:	PO BOX 2099
Land addr line2:	NOB 300G04
Land city,st,zip:	HOUSTON, TX 77252-2099
Land country:	UNITED STATES
Land phone nbr:	281-874-2224
Operator org name:	Equilion Enterprises LLC dba Shell Oil P
Operator org type:	Private
Operator addr line1:	12700 NORTHBOROUGH DR
Operator addr line2:	300G04

SHELL STATION 120565 (Continued) **1004794300**

Operator city,st,zip:	HOUSTON, TX 77067-2058
Operator country:	UNITED STATES
Operator phone nbr:	(281)874-2224
Operator effective date:	08/01/1998
Site contact name:	RAY E WALDING
Site contact addr line1:	12700 NORTHBOROUGH DR
Site contact addr line2:	300F08
Site Contact City/State/ Zip:	HOUSTON, TX 77067-2058
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(281) 874-2247
Site Contact EMail:	RAY.WALDING@SHELL.COM
Form Contact NAME:	RACHEL HULL
Form Contact ADDR LINE1:	12700 NORTHBOROUGH DRIVE
Form Contact ADDR LINE2:	NOB 300G04
Form Contact City,ST,Zip:	HOUSTON, TX 77067-2508
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(281)874-2224
Form Contact EMail:	RACHEL.HULL@SHELL.COM
Gen Status CD:	SQG
Monthly Generation:	False
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Waste Streams Generated:

Facility ID:	41716978
Data Year:	2008
Description:	RINSATE - GASOLINE
Mix:	False
Reported Qty:	3210.9000000000001 LB
Kilo Qty:	1456.4642650511855
Density No:	0
Density Qty:	Not reported

Facility ID:	41716978
Data Year:	2008
Description:	ABSORBENT MAT. W/GASOLINE
Mix:	False
Reported Qty:	205 LB
Kilo Qty:	92.988001599393627
Density No:	0
Density Qty:	Not reported

Facility ID:	41716978
Data Year:	Not reported
Description:	ABSORBENT MATERIAL WITH GASOLINE

SHELL STATION 120565 (Continued) **1004794300**

Mix: No
Reported Qty: 300 LB
Kilo Qty: 136.080002340576
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 41716978
Data Year: 2008
Shipment sent data: 7/30/2008
Reported Qty: 55 LB
Kilo Qty: 24.9480004291056

Facility ID: 41716978
Data Year: 2008
Shipment sent data: 4/14/2008
Reported Qty: 40 LB
Kilo Qty: 18.1440003120768

Facility ID: 41716978
Data Year: 2008
Shipment sent data: 4/2/2008
Reported Qty: 110 LB
Kilo Qty: 49.8960008582112

Facility ID: 41716978
Data Year: 2008
Shipment sent data: 9/18/2008
Reported Qty: 3210.9 LB
Kilo Qty: 1456.46426505119

Facility ID: 41716978
Data Year: Not reported
Shipment sent data: 7/18/2006
Reported Qty: 150 LB
Kilo Qty: 68.040001170288

Facility ID: 41716978
Data Year: Not reported
Shipment sent data: 2/10/2006
Reported Qty: 150 LB
Kilo Qty: 68.040001170288

Facility Site ID Number: 41716978
EPA ID: WAD988502779
NAICS: 44711
SWC Desc: Not reported
FWC Desc: D001
Form Comm: NO RCRA HAZARDOUS WASTE GENERATED IN 2005
Data Year: Not reported
Permit by Rule: No
Treatment by Generator: No
Mixed radioactive waste: No
Importer of hazardous waste: No
Immediate recycler: No
Treatment/Storage/Disposal/Recycling Facility: No

SHELL STATION 120565 (Continued) **1004794300**

Generator of dangerous fuel waste:	No
Generator marketing to burner:	No
Other marketers (i.e., blender, distributor, etc.):	No
Utility boiler burner:	No
Industry boiler burner:	No
Industrial Furnace:	No
Smelter defferal:	No
Universal waste - batteries - generate:	No
Universal waste - thermostats - generate:	No
Universal waste - mercury - generate:	No
Universal waste - lamps - generate:	No
Universal waste - batteries - accumulate:	No
Universal waste - thermostats - accumulate:	No
Universal waste - mercury - accumulate:	No
Universal waste - lamps - accumulate:	No
Destination Facility for Universal Waste:	No
Off-specification used oil burner - utility boiler:	No
Off-specification used oil burner - industrial boiler:	No
Off-specification used oil burner - industrial furnace:	No
Tax Reg #:	601238698
Business Type:	SERVICE STATION
Mail Name:	Shell Oil Products US
Mail addr line1:	12700 NORTHBOROUGH DR
Mail addr line2:	300G03
Mail city,st,zip:	HOUSTON, TX 77067-2508
Mail country:	UNITED STATES
Legal org name:	Equilion Enterprises LLC dba Shell Oil P
Legal org type:	Private
Legal addr line1:	PO BOX 2099
Legal addr line2:	NOB 300G03 - RACHEL HULL
Legal city,st,zip:	HOUSTON, TX 77252-2099
Legal country:	UNITED STATES
Legal phone nbr:	281-874-2224
Legal effective date:	08/01/1998
Land org name:	Equilon Enterprises LLC dba Shell Oil P.
Land org type:	Private
Land person name:	Not reported
Land addr line1:	PO BOX 2099
Land addr line2:	NOB 300G03
Land city,st,zip:	HOUSTON, TX 77252-2099
Land country:	UNITED STATES
Land phone nbr:	281-874-2224
Operator org name:	Equilion Enterprises LLC dba Shell Oil P
Operator org type:	Private
Operator addr line1:	12700 NORTHBOROUGH DR
Operator addr line2:	300G03
Operator city,st,zip:	HOUSTON, TX 77067-2058
Operator country:	UNITED STATES
Operator phone nbr:	(281)874-2224
Operator effective date:	08/01/1998
Site contact name:	DON F WISDOM
Site contact addr line1:	12700 NORTHBOROUGH DR
Site contact addr line2:	300F07
Site Contact City/State/ Zip:	HOUSTON, TX 77067-2058
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(281) 874-2238
Site Contact EMail:	DON.F.WISDOM@SHELL.COM

SHELL STATION 120565 (Continued) **1004794300**

Form Contact NAME:	RACHEL HULL
Form Contact ADDR LINE1:	12700 NORTHBOROUGH DRIVE
Form Contact ADDR LINE2:	NOB 300G03
Form Contact City,ST,Zip:	HOUSTON, TX 77067-2508
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(281)874-2224
Form Contact EMail:	RACHEL.HULL@SHELL.COM
Gen Status CD:	XQG
Monthly Generation:	No
Batch Generation:	No
One Time Generation:	No
Transport Own Waste:	No
Tranports Other Waste:	No
Recycler Onsite:	No
Transfer Facility:	No
Other Exemption:	Not reported
UW Battery Gen:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Fuel Marketer Directs Shipments:	No
Used Oil Fuel Marketer Meets Specs:	No

Waste Streams Generated:

Facility ID:	41716978
Data Year:	2008
Description:	RINSATE - GASOLINE
Mix:	False
Reported Qty:	3210.9000000000001 LB
Kilo Qty:	1456.4642650511855
Density No:	0
Density Qty:	Not reported

Facility ID:	41716978
Data Year:	2008
Description:	ABSORBENT MAT. W/GASOLINE
Mix:	False
Reported Qty:	205 LB
Kilo Qty:	92.988001599393627
Density No:	0
Density Qty:	Not reported

Facility ID:	41716978
Data Year:	Not reported
Description:	ABSORBENT MATERIAL WITH GASOLINE
Mix:	No
Reported Qty:	300 LB
Kilo Qty:	136.080002340576
Density No:	0
Density Qty:	Not reported

Shipments Sent:

Facility ID:	41716978
Data Year:	2008
Shipment sent data:	7/30/2008

SHELL STATION 120565 (Continued) **1004794300**

Reported Qty: 55 LB
Kilo Qty: 24.9480004291056

Facility ID: 41716978
Data Year: 2008
Shipment sent data: 4/14/2008
Reported Qty: 40 LB
Kilo Qty: 18.1440003120768

Facility ID: 41716978
Data Year: 2008
Shipment sent data: 4/2/2008
Reported Qty: 110 LB
Kilo Qty: 49.8960008582112

Facility ID: 41716978
Data Year: 2008
Shipment sent data: 9/18/2008
Reported Qty: 3210.9 LB
Kilo Qty: 1456.46426505119

Facility ID: 41716978
Data Year: Not reported
Shipment sent data: 7/18/2006
Reported Qty: 150 LB
Kilo Qty: 68.040001170288

Facility ID: 41716978
Data Year: Not reported
Shipment sent data: 2/10/2006
Reported Qty: 150 LB
Kilo Qty: 68.040001170288

D24 **TEXACO STATION CO-OP** **WA ICR** **S103510090**
South **12221 NE 124TH** **WA SPILLS** **N/A**
1/8-1/4 **KIRKLAND, WA 98034**
0.194 mi.
1024 ft. **Site 2 of 2 in cluster D**

Relative:
Higher

Actual:
148 ft.

ICR:
Date Ecology Received Report: 11/04/93
Contaminants Found at Site: Petroleum products
Media Contaminated: Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 93-13
County Code: 17
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 11/08/93
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report

TEXACO STATION CO-OP (Continued) **S103510090**

Site Register Issue:	93-13
County Code:	17
Contact:	Not reported
Report Title:	Not reported
Date Ecology Received Report:	01/24/95
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Final cleanup report
Site Register Issue:	93-49
County Code:	17
Contact:	Not reported
Report Title:	Not reported
Date Ecology Received Report:	01/24/95
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	93-49
County Code:	17
Contact:	Not reported
Report Title:	Not reported

SPILLS:

Facility ID:	554013
Medium:	Not reported
Material Desc:	PETROLEUM - OIL OTHER
Material Qty:	1
Material Units:	GALLON
Date Received:	03/21/2006
Contact Name:	Not reported
Incident Date:	Not reported
Incident Category Type:	Not reported
Incident Category:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Source Type:	Not reported
Source:	Not reported
Vessel Facility Name2:	Not reported
Recovered Quantity:	Not reported
Resp Party Contact:	Not reported
Cause:	Not reported
Cause Type:	Not reported
Resp Party Name:	Not reported
Facility ID:	554726
Medium:	Not reported
Material Desc:	PETROLEUM - DIESEL FUEL
Material Qty:	5
Material Units:	GALLON
Date Received:	04/26/2006
Contact Name:	Not reported
Incident Date:	Not reported

TEXACO STATION CO-OP (Continued) **S103510090**

Incident Category Type:	Not reported
Incident Category:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Source Type:	Not reported
Source:	Not reported
Vessel Facility Name2:	Not reported
Recovered Quantity:	Not reported
Resp Party Contact:	Not reported
Cause:	Not reported
Cause Type:	Not reported
Resp Party Name:	Not reported

Facility ID:	555023
Medium:	Not reported
Material Desc:	PETROLEUM - GASOLINE
Material Qty:	4
Material Units:	CUP
Date Received:	05/10/2006
Contact Name:	Not reported
Incident Date:	Not reported
Incident Category Type:	Not reported
Incident Category:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Source Type:	Not reported
Source:	Not reported
Vessel Facility Name2:	Not reported
Recovered Quantity:	Not reported
Resp Party Contact:	Not reported
Cause:	Not reported
Cause Type:	Not reported
Resp Party Name:	Not reported

E25 **DISCOUNT TIRE PROPERTY** **WA UST** **U003604675**
SSE **12410 NE 124TH ST** **WA ALLSITES** **N/A**
1/8-1/4 **KIRKLAND, WA 98034**
0.196 mi.
1037 ft. **Site 1 of 3 in cluster E**

Relative:
Higher

Actual:
142 ft.

UST:

Facility ID:	62752569
Site Id:	490630
UBI:	Not reported
Phone Number:	Not reported
Decimal Latitude:	47.7092125273972
Decimal Longitude:	-122.175182486301

Tank Name:	1
Tag Number:	Not reported
Tank Status:	Removed
Tank Status Date:	12/10/1999
Tank Install Date:	00/01/1900
Tank Closure Date:	Not reported
Capacity Range:	Not reported
Tank Permit Expiration Date:	Not reported
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported

DISCOUNT TIRE PROPERTY (Continued) **U003604675**

Tank Overfill Prevention:	Not reported
Tank Material:	Not reported
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	2
Tag Number:	Not reported
Tank Status:	Removed
Tank Status Date:	12/10/1999
Tank Install Date:	00/01/1900
Tank Closure Date:	Not reported
Capacity Range:	Not reported
Tank Permit Expiration Date:	Not reported
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Not reported
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

ALLSITES:

Facility Name:	DISCOUNT TIRE PROPERTY
Facility Id:	62752569

Interaction:	55372
Interaction 1:	I
Interaction 2:	UST
Ecology Program:	TOXICS
Program Data:	UST
Facility Alt.:	Not reported
Program ID:	490630
Date Interaction:	1999-03-29 00:00:00

DISCOUNT TIRE PROPERTY (Continued) **U003604675**

Date Interaction 3: Underground Storage Tank
Latitude: 47.709206639000001
Longitude: -122.175180438

F26
North
1/8-1/4
0.200 mi.
1055 ft.

Relative:
Higher

Actual:
189 ft.

EVERGREEN HOSPITAL MEDICAL CTR
12040 NE 128TH ST
KIRKLAND, WA 98034

Site 1 of 3 in cluster F

RCRA-SQG **1004793242**
WA UST **WA0000345306**
WA ALLSITES
FINDS
ECHO
WA MANIFEST

RCRA-SQG:
Date form received by agency: 03/16/2015
Facility name: EVERGREEN HOSPITAL MEDICAL CTR
Facility address: 12040 NE 128TH ST
KIRKLAND, WA 98034
EPA ID: WA0000345306
Contact: JEFF KLENOVIC
Contact address: 12040 NE 128TH ST
KIRKLAND, WA 98034-3013
Contact country: US
Contact telephone: 425-899-1783
Contact email: JAKLENOVIC@EVERGREENHEALTH.COM
EPA Region: 10
Land type: District
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:
Owner/operator name: KING CNTY
Owner/operator address: 12040 NE 128TH ST
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: County
Owner/Operator Type: Owner
Owner/Op start date: 08/15/1996
Owner/Op end date: Not reported

Owner/operator name: KING COUNTY HOSPITAL DISTRICT #2
Owner/operator address: 12040 NE 128TH ST
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 425-899-1783
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: District
Owner/Operator Type: Owner

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: KING CNTY
Owner/operator address: 12040 NE 128TH ST
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 425-899-1783
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: District
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: KING CNTY
Owner/operator address: 12040 NE 128TH ST
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: County
Owner/Operator Type: Operator
Owner/Op start date: 08/15/1996
Owner/Op end date: Not reported

Owner/operator name: KING CNTY
Owner/operator address: 12040 NE 128TH ST
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 425-899-1783
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: District
Owner/Operator Type: Owner
Owner/Op start date: 08/15/1996
Owner/Op end date: Not reported

Owner/operator name: KING CNTY
Owner/operator address: 12040 NE 128TH ST
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 425-899-1778
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: District
Owner/Operator Type: Operator
Owner/Op start date: 08/15/1996
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: U002
. Waste name: ACETONE (I)

. Waste code: WT02
. Waste name: WT02

Historical Generators:
Date form received by agency: 01/26/2012
Site name: EVERGREEN HOSPITAL MEDICAL CTR
Classification: Conditionally Exempt Small Quantity Generator

. Waste code: WSQG
. Waste name: WSQG

Date form received by agency: 02/22/2011
Site name: EVERGREEN HOSPITAL MEDICAL CTR
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 03/10/2010
Site name: EVERGREEN HOSPITAL MEDICAL CTR
Classification: Conditionally Exempt Small Quantity Generator

. Waste code: WSQG
. Waste name: WSQG

Date form received by agency: 12/31/2007
Site name: EVERGREEN HOSPITAL MEDICAL CTR
Classification: Not a generator, verified

Date form received by agency: 12/31/2005
Site name: EVERGREEN HOSPITAL MEDICAL CTR
Classification: Not a generator, verified

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Date form received by agency: 12/31/2003
Site name: EVERGREEN HOSPITAL MEDICAL CTR
Classification: Not a generator, verified

Facility Has Received Notices of Violations:
Regulation violated: Not reported
Area of violation: Generators - Manifest
Date violation determined: 05/02/2017
Date achieved compliance: 08/09/2017
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 07/12/2017
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 05/02/2017
Date achieved compliance: 08/09/2017
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 07/12/2017
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: State Statute or Regulation
Date violation determined: 05/02/2017
Date achieved compliance: 08/09/2017
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 07/12/2017
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - Pre-transport
Date violation determined: 05/02/2017
Date achieved compliance: 08/09/2017
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 07/12/2017
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:

Evaluation date: 05/02/2017
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 08/09/2017
Evaluation lead agency: State

Evaluation date: 05/02/2017
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Manifest
Date achieved compliance: 08/09/2017
Evaluation lead agency: State

Evaluation date: 05/02/2017
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: State Statute or Regulation
Date achieved compliance: 08/09/2017
Evaluation lead agency: State

Evaluation date: 05/02/2017
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Pre-transport
Date achieved compliance: 08/09/2017
Evaluation lead agency: State

Evaluation date: 09/23/2009
Evaluation: FOCUSED COMPLIANCE INSPECTION
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

UST:

Facility ID: 77233621
Site Id: 11668
UBI: Not reported
Phone Number: Not reported
Decimal Latitude: 47.71472
Decimal Longitude: -122.18077

Tank Name: 1OLD
Tag Number: Not reported
Tank Status: Exempt
Tank Status Date: 08/06/1996
Tank Install Date: 00/31/1964
Tank Closure Date: Not reported
Capacity Range: Not reported
Tank Permit Expiration Date: 07/11/1992
Tank Upgrade Date: Not reported
Tank Spill Prevention: Not reported
Tank Overfill Prevention: Not reported
Tank Material: Steel
Tank Construction: Not reported
Tank Tightness Test: Not reported

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

ALLSITES:

Facility Name:	EVERGREEN HOSPITAL MEDICAL CTR
Facility Id:	77233621

Interaction:	122451
Interaction 1:	A
Interaction 2:	HWP
Ecology Program:	HAZWASTE
Program Data:	HWPPRT
Facility Alt.:	Evergreen Hospital Medical Ctr
Program ID:	WA0000345306
Date Interaction:	2017-05-05 00:00:00
Date Interaction 3:	Hazardous Waste Planner
Latitude:	47.714714360000002
Longitude:	-122.180755105

Interaction:	63857
Interaction 1:	A
Interaction 2:	TIER2
Ecology Program:	HAZWASTE
Program Data:	EPCRA
Facility Alt.:	Not reported
Program ID:	CRK000061960
Date Interaction:	2004-09-13 00:00:00
Date Interaction 3:	Emergency/Haz Chem Rpt TI
Latitude:	47.714714360000002
Longitude:	-122.180755105

Interaction:	63856
Interaction 1:	I
Interaction 2:	UST
Ecology Program:	TOXICS
Program Data:	UST
Facility Alt.:	Not reported
Program ID:	11668
Date Interaction:	2000-02-29 00:00:00
Date Interaction 3:	Underground Storage Tank
Latitude:	47.714714360000002
Longitude:	-122.180755105

Interaction:	63855

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Interaction 1:	A
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Evergreen Hospital Medical Ctr
Program ID:	WA0000345306
Date Interaction:	1994-06-09 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.714714360000002
Longitude:	-122.180755105

FINDS:

Registry ID: 110005305231

Environmental Interest/Information System

Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

AFS (Aerometric Information Retrieval System (AIRS) Facility Subsystem) replaces the former Compliance Data System (CDS), the National Emission Data System (NEDS), and the Storage and Retrieval of Aerometric Data (SAROAD). AIRS is the national repository for information concerning airborne pollution in the United States. AFS is used to track emissions and compliance data from industrial plants. AFS data are utilized by states to prepare State Implementation Plans to comply with regulatory programs and by EPA as an input for the estimation of total national emissions. AFS is undergoing a major redesign to support facility operating permits required under Title V of the Clean Air Act.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZARDOUS WASTE BIENNIAL REPORTER

AIR MINOR

ICIS (Integrated Compliance Information System) is the Integrated Compliance Information System and provides a database that, when complete, will contain integrated Enforcement and Compliance information across most of EPA's programs. The vision for ICIS is to replace EPA's independent databases that contain Enforcement data with a single repository for that information. Currently, ICIS contains all Federal Administrative and Judicial enforcement actions. This information is maintained in ICIS by EPA in the Regional offices and it Headquarters. A future release of ICIS will replace the Permit Compliance System (PCS) which supports the NPDES and will integrate

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

that information with Federal actions already in the system. ICIS also has the capability to track other activities occurring in the Region that support Compliance and Enforcement programs. These include; Incident Tracking, Compliance Assistance, and Compliance Monitoring.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1004793242
Registry ID:	110005305231
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110005305231

WA MANIFEST:

Facility Site ID Number:	77233621
EPA ID:	WA0000345306
NAICS:	62211
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	Not reported
Permit by Rule:	FALSE
Treatment by Generator:	FALSE
Mixed radioactive waste:	FALSE
Importer of hazardous waste:	FALSE
Immediate recycler:	FALSE
Treatment/Storage/Disposal/Recycling Facility:	FALSE
Generator of dangerous fuel waste:	FALSE
Generator marketing to burner:	FALSE
Other marketers (i.e., blender, distributor, etc.):	FALSE
Utility boiler burner:	FALSE
Industry boiler burner:	FALSE
Industrial Furnace:	FALSE
Smelter defferal:	FALSE
Universal waste - batteries - generate:	FALSE
Universal waste - thermostats - generate:	FALSE
Universal waste - mercury - generate:	FALSE
Universal waste - lamps - generate:	FALSE
Universal waste - batteries - accumulate:	FALSE
Universal waste - thermostats - accumulate:	FALSE
Universal waste - mercury - accumulate:	FALSE
Universal waste - lamps - accumulate:	FALSE
Destination Facility for Universal Waste:	FALSE
Off-specification used oil burner - utility boiler:	FALSE
Off-specification used oil burner - industrial boiler:	FALSE
Off-specification used oil burner - industrial furnace:	FALSE
Tax Reg #:	600062259
Business Type:	Acute Care Hospital
Mail Name:	Evergreen Hospital Medical Ctr
Mail addr line1:	12040 NE 128TH ST
Mail city,st,zip:	KIRKLAND, WA 98034-3013
Mail country:	UNITED STATES
Legal org name:	King Cnty
Legal org type:	District
Legal addr line1:	12040 NE 128TH ST

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Legal city,st,zip:	KIRKLAND, WA 98034-3013
Legal country:	UNITED STATES
Legal phone nbr:	(425)899-1783
Legal effective date:	08/15/1996
Land org name:	King County Hospital District #2
Land org type:	District
Land person name:	Not reported
Land addr line1:	12040 NE 128TH ST
Land city,st,zip:	KIRKLAND, WA 98034-3013
Land country:	UNITED STATES
Land phone nbr:	(425)899-1783
Operator org name:	King Cnty
Operator org type:	District
Operator addr line1:	12040 NE 128TH ST
Operator city,st,zip:	KIRKLAND, WA 98034-3013
Operator country:	UNITED STATES
Operator phone nbr:	(425) 899-1778
Operator effective date:	08/15/1996
Site contact name:	Chuck Thorell
Site contact addr line1:	12040 NE 128th St
Site Contact City/State/ Zip:	KIRKLAND, WA 98034-3013
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(425)899-1783
Site Contact EMail:	cthorell@evergreenhealthcare.org
Form Contact NAME:	Chuck Thorell
Form Contact ADDR LINE1:	12040 NE 128th St
Form Contact City,ST,Zip:	KIRKLAND, WA 98034-3013
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(425)899-1783
Form Contact EMail:	cthorell@evergreenhealthcare.org
Gen Status CD:	SQG
Monthly Generation:	FALSE
Batch Generation:	TRUE
One Time Generation:	FALSE
Transport Own Waste:	FALSE
Tranports Other Waste:	FALSE
Recycler Onsite:	FALSE
Transfer Facility:	FALSE
Other Exemption:	Not reported
UW Battery Gen:	FALSE
Used Oil Transporter:	FALSE
Used Oil Transfer Facility:	FALSE
Used Oil Processor:	FALSE
Used Oil Refiner:	FALSE
Used Oil Fuel Marketer Directs Shipments:	FALSE
Used Oil Fuel Marketer Meets Specs:	FALSE

Waste Streams Generated:

Facility ID:	77233621
Data Year:	2014
Description:	CLASS 9 LABPACK
Mix:	False
Reported Qty:	32 LB
Kilo Qty:	14.5152002
Density No:	0
Density Qty:	Not reported

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Facility ID: 77233621
Data Year: 2014
Description: CLASS B (ALKALINE) LABPACK (DW)
Mix: False
Reported Qty: 108 LB
Kilo Qty: 48.9888008
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS 8 (ACID) LABPACK (DW)
Mix: False
Reported Qty: 54 LB
Kilo Qty: 24.4944004
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS 6.1 POISON LABPACK (DW)
Mix: False
Reported Qty: 110 LB
Kilo Qty: 49.8960008
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS 3 LABPACK (DW)
Mix: False
Reported Qty: 100 LB
Kilo Qty: 45.3600007
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Drum /#1 1X5DF
Mix: False
Reported Qty: 15 LB
Kilo Qty: 6.80400011
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Methanol and xylene solvent waste
Mix: False
Reported Qty: 75.0600000 LB
Kilo Qty: 34.0472165
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Corroxy - #2 55CF

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Mix:	False
Reported Qty:	60 LB
Kilo Qty:	27.2160004
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Merc #1 5DF
Mix:	False
Reported Qty:	5 LB
Kilo Qty:	2.26800003
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Loose Pack Stain Waste
Mix:	False
Reported Qty:	175 LB
Kilo Qty:	79.3800013
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Toxic Buffers
Mix:	False
Reported Qty:	11 LB
Kilo Qty:	4.98960008
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Formalin, Neutralized
Mix:	False
Reported Qty:	287.100000 GAL
Kilo Qty:	1086.10620
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Formalin, Recycled
Mix:	False
Reported Qty:	49.5 GAL
Kilo Qty:	187.259691
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent OPA
Mix:	False
Reported Qty:	137 GAL
Kilo Qty:	518.274296

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent Rapacide
Mix:	False
Reported Qty:	276 GAL
Kilo Qty:	1044.11464
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent Rapacide
Mix:	False
Reported Qty:	316 GAL
Kilo Qty:	1195.43560
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	CLASS 8 (ALKALINE) LABPACK (DW)
Mix:	False
Reported Qty:	20 LB
Kilo Qty:	9.07200015
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2016
Description:	Waste Sulfuric Acid
Mix:	False
Reported Qty:	20 LB
Kilo Qty:	9.07200015
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2016
Description:	Waste Hydrochloric Acid
Mix:	False
Reported Qty:	15 LB
Kilo Qty:	6.80400011
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2016
Description:	Waste Aerosols
Mix:	False
Reported Qty:	8 LB
Kilo Qty:	3.62880006
Density No:	0
Density Qty:	Not reported

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Shipments Sent:

Facility ID:	77233621
Data Year:	2015
Shipment sent data:	2015-05-27 00:00:00
Reported Qty:	15 LB
Kilo Qty:	6.80400011
Facility ID:	77233621
Data Year:	2015
Shipment sent data:	2015-06-03 00:00:00
Reported Qty:	75.0600000 LB
Kilo Qty:	34.0472165
Facility ID:	77233621
Data Year:	2015
Shipment sent data:	2015-12-23 00:00:00
Reported Qty:	60 LB
Kilo Qty:	27.2160004
Facility ID:	77233621
Data Year:	2015
Shipment sent data:	2015-12-23 00:00:00
Reported Qty:	5 LB
Kilo Qty:	2.26800003
Facility ID:	77233621
Data Year:	2015
Shipment sent data:	2015-12-23 00:00:00
Reported Qty:	175 LB
Kilo Qty:	79.3800013
Facility ID:	77233621
Data Year:	2015
Shipment sent data:	2015-07-29 00:00:00
Reported Qty:	11 LB
Kilo Qty:	4.98960008
Facility ID:	77233621
Data Year:	2015
Shipment sent data:	2015-03-17 00:00:00
Reported Qty:	20 LB
Kilo Qty:	9.07200015
Facility ID:	77233621
Data Year:	2017
Shipment sent data:	2017-12-18 00:00:00
Reported Qty:	900 LB
Kilo Qty:	408.240007
Facility ID:	77233621
Data Year:	2017
Shipment sent data:	2017-11-20 00:00:00
Reported Qty:	1600 LB
Kilo Qty:	725.760012
Facility ID:	77233621
Data Year:	2017

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Shipment sent data: 2017-10-24 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-10-10 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-09-26 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-09-12 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-29 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-15 00:00:00
Reported Qty: 250 LB
Kilo Qty: 113.400001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-01 00:00:00
Reported Qty: 500 LB
Kilo Qty: 226.800003

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-07-25 00:00:00
Reported Qty: 240 LB
Kilo Qty: 108.864001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-07-11 00:00:00
Reported Qty: 250 LB
Kilo Qty: 113.400001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-06-20 00:00:00
Reported Qty: 240 LB
Kilo Qty: 108.864001

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-06-06 00:00:00
Reported Qty: 125 LB
Kilo Qty: 56.7000009

Waste Stream Comments:
Facility ID: 77233621
Data Year: 2014
Comments: iTEMS FROM LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2015
Comments: A-& Spill clean-up material

Facility ID: 77233621
Data Year: 2015
Comments: spill clean-up debries.

Facility ID: 77233621
Data Year: 2015
Comments: A-7: mercury debries disposal - outdated equipment

Facility ID: 77233621
Data Year: 2015
Comments: Out of spec or outdated chemicals from Lab

Facility ID: 77233621
Data Year: 2015
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2015
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

Facility ID: 77233621
Data Year: 2015
Comments: SOURCE - LAB

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Facility ID: 77233621
Data Year: 2015
Comments: This waste stream is generated from the use of a two-part product, Part A and Part B, which are mixed in the disinfection machine. Part A is acidic, bur when mixed with Part B, a buffe, and used for its intended purpose, yields a waste effluent with a pH near nuetral. Studies done onsite show that about half the cycles generate a waste that has an acceptable pH (6.7 or 6.8) and about half the cycles genewrate a waste that has an unacceptable pH (4.7-4.1)

Facility ID: 77233621
Data Year: 2015
Comments: This waste stream is generated from two tabletop Medivator machines. The product is a one-part disinfectant containing 2.5% glutaraldehyde. King County allows waste up to 4% glutaraldehyde to be discharged without pretreatment because it is readily decomposed in wastewater treatment plants. However, waste containing glutaraldehyde designates as a Category C toxic waste in Washington.

Facility ID: 77233621
Data Year: 2015
Comments: This product was used in CPC (subsequently discontinued) to disinfect endoscopes.

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Disposal of mercury filled Blood Pressure cuff no longer used

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Outdated chemical from Laboratory

Facility ID: 77233621
Data Year: 2016
Comments: A-7: out dated labortory chemical

Facility ID: 77233621
Data Year: 2016
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2016
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

Facility Site ID Number: 77233621
EPA ID: WA0000345306
NAICS: 62211
SWC Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
Data Year: 2008
Permit by Rule: False
Treatment by Generator: False

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	600068426
Business Type:	Acute Care Hospital
Mail Name:	Evergreen Hospital Medical Ctr
Mail addr line1:	12040 NE 128TH ST
Mail city,st,zip:	KIRKLAND, WA 98034-3013
Mail country:	UNITED STATES
Legal org name:	King Cnty
Legal org type:	District
Legal addr line1:	12040 NE 128TH ST
Legal city,st,zip:	KIRKLAND, WA 98034-3013
Legal country:	UNITED STATES
Legal phone nbr:	(425) 899-1783
Legal effective date:	08/15/1996
Land org name:	King County Hospital District #2
Land org type:	District
Land person name:	Not reported
Land addr line1:	12040 NE 128TH ST
Land city,st,zip:	KIRKLAND, WA 98034-3013
Land country:	UNITED STATES
Land phone nbr:	(425)899-1783
Operator org name:	King Cnty
Operator org type:	District
Operator addr line1:	12040 NE 128TH ST
Operator city,st,zip:	KIRKLAND, WA 98034-3013
Operator country:	UNITED STATES
Operator phone nbr:	(425) 899-1778
Operator effective date:	08/15/1996
Site contact name:	Chuck Thorell
Site contact addr line1:	12040 NE 128th St
Site Contact City/State/ Zip:	KIRKLAND, WA 98034-3013
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(425) 899-1783
Site Contact EMail:	cthorell@evergreenhealthcare.org
Form Contact NAME:	Chuck Thorell

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Form Contact ADDR LINE1:	12040 NE 128th St
Form Contact City,ST,Zip:	KIRKLAND, WA 98034-3013
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(425) 899-1783
Form Contact EMail:	cthorell@evergreenhealthcare.org
Gen Status CD:	SQG
Monthly Generation:	False
Batch Generation:	True
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Waste Streams Generated:

Facility ID:	77233621
Data Year:	2014
Description:	CLASS 9 LABPACK
Mix:	False
Reported Qty:	32 LB
Kilo Qty:	14.5152002
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2014
Description:	CLASS B (ALKALINE) LABPACK (DW)
Mix:	False
Reported Qty:	108 LB
Kilo Qty:	48.9888008
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2014
Description:	CLASS 8 (ACID) LABPACK (DW)
Mix:	False
Reported Qty:	54 LB
Kilo Qty:	24.4944004
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2014
Description:	CLASS 6.1 POISON LABPACK (DW)
Mix:	False
Reported Qty:	110 LB
Kilo Qty:	49.8960008
Density No:	0

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2014
Description:	CLASS 3 LABPACK (DW)
Mix:	False
Reported Qty:	100 LB
Kilo Qty:	45.3600007
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Drum /#1 1X5DF
Mix:	False
Reported Qty:	15 LB
Kilo Qty:	6.80400011
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Methanol and xylene solvent waste
Mix:	False
Reported Qty:	75.0600000 LB
Kilo Qty:	34.0472165
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Corroxy - #2 55CF
Mix:	False
Reported Qty:	60 LB
Kilo Qty:	27.2160004
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Merc #1 5DF
Mix:	False
Reported Qty:	5 LB
Kilo Qty:	2.26800003
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Loose Pack Stain Waste
Mix:	False
Reported Qty:	175 LB
Kilo Qty:	79.3800013
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Data Year:	2015
Description:	Toxic Buffers
Mix:	False
Reported Qty:	11 LB
Kilo Qty:	4.98960008
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Formalin, Neutralized
Mix:	False
Reported Qty:	287.100000 GAL
Kilo Qty:	1086.10620
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Formalin, Recycled
Mix:	False
Reported Qty:	49.5 GAL
Kilo Qty:	187.259691
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent OPA
Mix:	False
Reported Qty:	137 GAL
Kilo Qty:	518.274296
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent Rapacide
Mix:	False
Reported Qty:	276 GAL
Kilo Qty:	1044.11464
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent Rapacide
Mix:	False
Reported Qty:	316 GAL
Kilo Qty:	1195.43560
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	CLASS 8 (ALKALINE) LABPACK (DW)
Mix:	False

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Reported Qty:	20 LB
Kilo Qty:	9.07200015
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2016
Description:	Waste Sulfuric Acid
Mix:	False
Reported Qty:	20 LB
Kilo Qty:	9.07200015
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2016
Description:	Waste Hydrochloric Acid
Mix:	False
Reported Qty:	15 LB
Kilo Qty:	6.80400011
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2016
Description:	Waste Aerosols
Mix:	False
Reported Qty:	8 LB
Kilo Qty:	3.62880006
Density No:	0
Density Qty:	Not reported

Shipments Sent:

Facility ID:	77233621
Data Year:	2015
Shipment sent data:	2015-05-27 00:00:00
Reported Qty:	15 LB
Kilo Qty:	6.80400011

Facility ID:	77233621
Data Year:	2015
Shipment sent data:	2015-06-03 00:00:00
Reported Qty:	75.0600000 LB
Kilo Qty:	34.0472165

Facility ID:	77233621
Data Year:	2015
Shipment sent data:	2015-12-23 00:00:00
Reported Qty:	60 LB
Kilo Qty:	27.2160004

Facility ID:	77233621
Data Year:	2015
Shipment sent data:	2015-12-23 00:00:00
Reported Qty:	5 LB
Kilo Qty:	2.26800003

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 175 LB
Kilo Qty: 79.3800013

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-07-29 00:00:00
Reported Qty: 11 LB
Kilo Qty: 4.98960008

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-03-17 00:00:00
Reported Qty: 20 LB
Kilo Qty: 9.07200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-12-18 00:00:00
Reported Qty: 900 LB
Kilo Qty: 408.240007

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-11-20 00:00:00
Reported Qty: 1600 LB
Kilo Qty: 725.760012

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-10-24 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-10-10 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-09-26 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-09-12 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-29 00:00:00

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-15 00:00:00
Reported Qty: 250 LB
Kilo Qty: 113.400001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-01 00:00:00
Reported Qty: 500 LB
Kilo Qty: 226.800003

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-07-25 00:00:00
Reported Qty: 240 LB
Kilo Qty: 108.864001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-07-11 00:00:00
Reported Qty: 250 LB
Kilo Qty: 113.400001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-06-20 00:00:00
Reported Qty: 240 LB
Kilo Qty: 108.864001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-06-06 00:00:00
Reported Qty: 125 LB
Kilo Qty: 56.7000009

Waste Stream Comments:
Facility ID: 77233621
Data Year: 2014
Comments: iTEMS FROM LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2015
Comments: A-& Spill clean-up material

Facility ID: 77233621
Data Year: 2015
Comments: spill clean-up debries.

Facility ID: 77233621
Data Year: 2015
Comments: A-7: mercury debries disposal - outdated equipment

Facility ID: 77233621
Data Year: 2015
Comments: Out of spec or outdated chemicals from Lab

Facility ID: 77233621
Data Year: 2015
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2015
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

Facility ID: 77233621
Data Year: 2015
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2015
Comments: This waste stream is generated from the use of a two-part product, Part A and Part B, which are mixed in the disinfection machine. Part A is acidic, bur when mixed with Part B, a buffe, and used for its intended purpose, yields a waste effluent with a pH near nuetral. Studies done onsite show that about half the cycles generate a waste that has an acceptable pH (6.7 or 6.8) and about half the cycles genewrate a waste that has an unacceptable pH (4.7-4.1)

Facility ID: 77233621
Data Year: 2015
Comments: This waste stream is generated from two tabletop Medivator machines. The product is a one-part disinfectant containing 2.5% glutaraldehyde. King County allows waste up to 4% glutaraldehyde to be discharged without pretreatment because it is readily decomposed in wastewater treatment plants. However, waste containing glutaraldehyde designates as a Category C toxic waste in Washington.

Facility ID: 77233621
Data Year: 2015
Comments: This product was used in CPC (subsequently discontinued) to disinfect endoscopes.

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Disposal of mercury filled Blood Pressure cuff no longer used

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Outdated chemical from Laboratory

Facility ID: 77233621
Data Year: 2016
Comments: A-7: out dated labortory chemical

Facility ID: 77233621
Data Year: 2016
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2016
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

Facility Site ID Number:	77233621
EPA ID:	WA0000345306
NAICS:	622110
SWC Desc:	WT02
FWC Desc:	D001,D002,D035,F003,F005,D011,D024,U002,U162
Form Comm:	10 A-7: Elementary neutralization
Data Year:	2016
Permit by Rule:	False
Treatment by Generator:	True
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	600068426

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Business Type:	Acute Care Hospital
Mail Name:	Evergreen Hospital Medical Ctr
Mail addr line1:	12040 NE 128TH ST
Mail city,st,zip:	KIRKLAND, WA 98034-3013
Mail country:	UNITED STATES
Legal org name:	King Cnty
Legal org type:	District
Legal addr line1:	12040 NE 128TH ST
Legal city,st,zip:	KIRKLAND, WA 98034-3013
Legal country:	UNITED STATES
Legal phone nbr:	(425) 899-1783
Legal effective date:	08/15/1996
Land org name:	King County Hospital District #2
Land org type:	District
Land person name:	Not reported
Land addr line1:	12040 NE 128TH ST
Land city,st,zip:	KIRKLAND, WA 98034-3013
Land country:	UNITED STATES
Land phone nbr:	(425)899-1783
Operator org name:	King Cnty
Operator org type:	District
Operator addr line1:	12040 NE 128TH ST
Operator city,st,zip:	KIRKLAND, WA 98034-3013
Operator country:	UNITED STATES
Operator phone nbr:	(425) 899-1778
Operator effective date:	08/15/1996
Site contact name:	Jeff A Klenovic
Site contact addr line1:	12040 NE 128th St
Site Contact City/State/ Zip:	KIRKLAND, WA 98034-3013
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(425) 899-1783
Site Contact EMail:	jaklenovic@evergreenhealth.com
Form Contact NAME:	Jeff Klenovic
Form Contact ADDR LINE1:	12040 NE 128th St
Form Contact City,ST,Zip:	KIRKLAND, WA 98034-3013
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(425) 899-1783
Form Contact EMail:	jaklenovic@evergreenhealth.com
Gen Status CD:	MQG
Monthly Generation:	False
Batch Generation:	True
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Waste Streams Generated:

Facility ID:	77233621

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Data Year:	2014
Description:	CLASS 9 LABPACK
Mix:	False
Reported Qty:	32 LB
Kilo Qty:	14.5152002
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2014
Description:	CLASS B (ALKALINE) LABPACK (DW)
Mix:	False
Reported Qty:	108 LB
Kilo Qty:	48.9888008
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2014
Description:	CLASS 8 (ACID) LABPACK (DW)
Mix:	False
Reported Qty:	54 LB
Kilo Qty:	24.4944004
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2014
Description:	CLASS 6.1 POISON LABPACK (DW)
Mix:	False
Reported Qty:	110 LB
Kilo Qty:	49.8960008
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2014
Description:	CLASS 3 LABPACK (DW)
Mix:	False
Reported Qty:	100 LB
Kilo Qty:	45.3600007
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Drum /#1 1X5DF
Mix:	False
Reported Qty:	15 LB
Kilo Qty:	6.80400011
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Methanol and xylene solvent waste
Mix:	False

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Reported Qty: 75.0600000 LB
Kilo Qty: 34.0472165
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Corroxy - #2 55CF
Mix: False
Reported Qty: 60 LB
Kilo Qty: 27.2160004
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Merc #1 5DF
Mix: False
Reported Qty: 5 LB
Kilo Qty: 2.26800003
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Loose Pack Stain Waste
Mix: False
Reported Qty: 175 LB
Kilo Qty: 79.3800013
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Toxic Buffers
Mix: False
Reported Qty: 11 LB
Kilo Qty: 4.98960008
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Formalin, Neutralized
Mix: False
Reported Qty: 287.100000 GAL
Kilo Qty: 1086.10620
Density No: 8.33999999
Density Qty: PPG

Facility ID: 77233621
Data Year: 2015
Description: Formalin, Recycled
Mix: False
Reported Qty: 49.5 GAL
Kilo Qty: 187.259691
Density No: 8.33999999

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent OPA
Mix:	False
Reported Qty:	137 GAL
Kilo Qty:	518.274296
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent Rapacide
Mix:	False
Reported Qty:	276 GAL
Kilo Qty:	1044.11464
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent Rapacide
Mix:	False
Reported Qty:	316 GAL
Kilo Qty:	1195.43560
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	CLASS 8 (ALKALINE) LABPACK (DW)
Mix:	False
Reported Qty:	20 LB
Kilo Qty:	9.07200015
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2016
Description:	Waste Sulfuric Acid
Mix:	False
Reported Qty:	20 LB
Kilo Qty:	9.07200015
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2016
Description:	Waste Hydrochloric Acid
Mix:	False
Reported Qty:	15 LB
Kilo Qty:	6.80400011
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Data Year: 2016
Description: Waste Aerosols
Mix: False
Reported Qty: 8 LB
Kilo Qty: 3.62880006
Density No: 0
Density Qty: Not reported

Shipments Sent:

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-05-27 00:00:00
Reported Qty: 15 LB
Kilo Qty: 6.80400011

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-06-03 00:00:00
Reported Qty: 75.0600000 LB
Kilo Qty: 34.0472165

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 60 LB
Kilo Qty: 27.2160004

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 5 LB
Kilo Qty: 2.26800003

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 175 LB
Kilo Qty: 79.3800013

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-07-29 00:00:00
Reported Qty: 11 LB
Kilo Qty: 4.98960008

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-03-17 00:00:00
Reported Qty: 20 LB
Kilo Qty: 9.07200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-12-18 00:00:00
Reported Qty: 900 LB
Kilo Qty: 408.240007

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-11-20 00:00:00
Reported Qty: 1600 LB
Kilo Qty: 725.760012

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-10-24 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-10-10 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-09-26 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-09-12 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-29 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-15 00:00:00
Reported Qty: 250 LB
Kilo Qty: 113.400001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-01 00:00:00
Reported Qty: 500 LB
Kilo Qty: 226.800003

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-07-25 00:00:00
Reported Qty: 240 LB
Kilo Qty: 108.864001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-07-11 00:00:00

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Reported Qty: 250 LB
Kilo Qty: 113.400001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-06-20 00:00:00
Reported Qty: 240 LB
Kilo Qty: 108.864001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-06-06 00:00:00
Reported Qty: 125 LB
Kilo Qty: 56.7000009

Waste Stream Comments:
Facility ID: 77233621
Data Year: 2014
Comments: iTEMS FROM LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2015
Comments: A-& Spill clean-up material

Facility ID: 77233621
Data Year: 2015
Comments: spill clean-up debries.

Facility ID: 77233621
Data Year: 2015
Comments: A-7: mercury debries disposal - outdated equipment

Facility ID: 77233621
Data Year: 2015
Comments: Out of spec or outdated chemicals from Lab

Facility ID: 77233621
Data Year: 2015
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Facility ID: 77233621
Data Year: 2015
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

Facility ID: 77233621
Data Year: 2015
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2015
Comments: This waste stream is generated from the use of a two-part product, Part A and Part B, which are mixed in the disinfection machine. Part A is acidic, bur when mixed with Part B, a buffe, and used for its intended purpose, yields a waste effluent with a pH near nuetral. Studies done onsite show that about half the cycles generate a waste that has an acceptable pH (6.7 or 6.8) and about half the cycles genewrate a waste that has an unacceptable pH (4.7-4.1)

Facility ID: 77233621
Data Year: 2015
Comments: This waste stream is generated from two tabletop Medivator machines. The product is a one-part disinfectant containing 2.5% glutaraldehyde. King County allows waste up to 4% glutaraldehyde to be discharged without pretreatment because it is readily decomposed in wastewater treatment plants. However, waste containing glutaraldehyde designates as a Category C toxic waste in Washington.

Facility ID: 77233621
Data Year: 2015
Comments: This product was used in CPC (subsequently discontinued) to disinfect endoscopes.

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Disposal of mercury filled Blood Pressure cuff no longer used

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Outdated chemical from Laboratory

Facility ID: 77233621
Data Year: 2016
Comments: A-7: out dated labortory chemical

Facility ID: 77233621
Data Year: 2016
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2016
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Facility Site ID Number:	77233621
EPA ID:	WA0000345306
NAICS:	622110
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	2011
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	600068426
Business Type:	Acute Care Hospital
Mail Name:	Evergreen Hospital Medical Ctr
Mail addr line1:	12040 NE 128TH ST
Mail city,st,zip:	KIRKLAND, WA 98034-3013
Mail country:	UNITED STATES
Legal org name:	King Cnty
Legal org type:	District
Legal addr line1:	12040 NE 128TH ST
Legal city,st,zip:	KIRKLAND, WA 98034-3013
Legal country:	UNITED STATES
Legal phone nbr:	(425) 899-1783
Legal effective date:	08/15/1996
Land org name:	King County Hospital District #2
Land org type:	District
Land person name:	Not reported
Land addr line1:	12040 NE 128TH ST
Land city,st,zip:	KIRKLAND, WA 98034-3013
Land country:	UNITED STATES
Land phone nbr:	(425)899-1783
Operator org name:	King Cnty
Operator org type:	District
Operator addr line1:	12040 NE 128TH ST
Operator city,st,zip:	KIRKLAND, WA 98034-3013
Operator country:	UNITED STATES

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Operator phone nbr:	(425) 899-1778
Operator effective date:	08/15/1996
Site contact name:	Chuck Thorell
Site contact addr line1:	12040 NE 128th St
Site Contact City/State/ Zip:	KIRKLAND, WA 98034-3013
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(425) 899-1783
Site Contact EMail:	cthorell@evergreenhealthcare.org
Form Contact NAME:	Chuck Thorell
Form Contact ADDR LINE1:	12040 NE 128th St
Form Contact City,ST,Zip:	KIRKLAND, WA 98034-3013
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(425) 899-1783
Form Contact EMail:	cthorell@evergreenhealthcare.org
Gen Status CD:	SQG
Monthly Generation:	False
Batch Generation:	True
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Waste Streams Generated:

Facility ID:	77233621
Data Year:	2014
Description:	CLASS 9 LABPACK
Mix:	False
Reported Qty:	32 LB
Kilo Qty:	14.5152002
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2014
Description:	CLASS B (ALKALINE) LABPACK (DW)
Mix:	False
Reported Qty:	108 LB
Kilo Qty:	48.9888008
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2014
Description:	CLASS 8 (ACID) LABPACK (DW)
Mix:	False
Reported Qty:	54 LB
Kilo Qty:	24.4944004
Density No:	0

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2014
Description:	CLASS 6.1 POISON LABPACK (DW)
Mix:	False
Reported Qty:	110 LB
Kilo Qty:	49.8960008
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2014
Description:	CLASS 3 LABPACK (DW)
Mix:	False
Reported Qty:	100 LB
Kilo Qty:	45.3600007
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Drum /#1 1X5DF
Mix:	False
Reported Qty:	15 LB
Kilo Qty:	6.80400011
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Methanol and xylene solvent waste
Mix:	False
Reported Qty:	75.0600000 LB
Kilo Qty:	34.0472165
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Corroxy - #2 55CF
Mix:	False
Reported Qty:	60 LB
Kilo Qty:	27.2160004
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Merc #1 5DF
Mix:	False
Reported Qty:	5 LB
Kilo Qty:	2.26800003
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Data Year:	2015
Description:	Loose Pack Stain Waste
Mix:	False
Reported Qty:	175 LB
Kilo Qty:	79.3800013
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Toxic Buffers
Mix:	False
Reported Qty:	11 LB
Kilo Qty:	4.98960008
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Formalin, Neutralized
Mix:	False
Reported Qty:	287.100000 GAL
Kilo Qty:	1086.10620
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Formalin, Recycled
Mix:	False
Reported Qty:	49.5 GAL
Kilo Qty:	187.259691
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent OPA
Mix:	False
Reported Qty:	137 GAL
Kilo Qty:	518.274296
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent Rapacide
Mix:	False
Reported Qty:	276 GAL
Kilo Qty:	1044.11464
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent Rapacide
Mix:	False

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Reported Qty:	316 GAL
Kilo Qty:	1195.43560
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	CLASS 8 (ALKALINE) LABPACK (DW)
Mix:	False
Reported Qty:	20 LB
Kilo Qty:	9.07200015
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2016
Description:	Waste Sulfuric Acid
Mix:	False
Reported Qty:	20 LB
Kilo Qty:	9.07200015
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2016
Description:	Waste Hydrochloric Acid
Mix:	False
Reported Qty:	15 LB
Kilo Qty:	6.80400011
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2016
Description:	Waste Aerosols
Mix:	False
Reported Qty:	8 LB
Kilo Qty:	3.62880006
Density No:	0
Density Qty:	Not reported

Shipments Sent:

Facility ID:	77233621
Data Year:	2015
Shipment sent data:	2015-05-27 00:00:00
Reported Qty:	15 LB
Kilo Qty:	6.80400011

Facility ID:	77233621
Data Year:	2015
Shipment sent data:	2015-06-03 00:00:00
Reported Qty:	75.0600000 LB
Kilo Qty:	34.0472165

Facility ID:	77233621
Data Year:	2015
Shipment sent data:	2015-12-23 00:00:00

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Reported Qty: 60 LB
Kilo Qty: 27.2160004

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 5 LB
Kilo Qty: 2.26800003

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 175 LB
Kilo Qty: 79.3800013

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-07-29 00:00:00
Reported Qty: 11 LB
Kilo Qty: 4.98960008

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-03-17 00:00:00
Reported Qty: 20 LB
Kilo Qty: 9.07200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-12-18 00:00:00
Reported Qty: 900 LB
Kilo Qty: 408.240007

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-11-20 00:00:00
Reported Qty: 1600 LB
Kilo Qty: 725.760012

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-10-24 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-10-10 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-09-26 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-09-12 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-29 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-15 00:00:00
Reported Qty: 250 LB
Kilo Qty: 113.400001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-01 00:00:00
Reported Qty: 500 LB
Kilo Qty: 226.800003

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-07-25 00:00:00
Reported Qty: 240 LB
Kilo Qty: 108.864001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-07-11 00:00:00
Reported Qty: 250 LB
Kilo Qty: 113.400001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-06-20 00:00:00
Reported Qty: 240 LB
Kilo Qty: 108.864001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-06-06 00:00:00
Reported Qty: 125 LB
Kilo Qty: 56.7000009

Waste Stream Comments:
Facility ID: 77233621
Data Year: 2014
Comments: iTEMS FROM LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2015
Comments: A-& Spill clean-up material

Facility ID: 77233621
Data Year: 2015
Comments: spill clean-up debries.

Facility ID: 77233621
Data Year: 2015
Comments: A-7: mercury debries disposal - outdated equipment

Facility ID: 77233621
Data Year: 2015
Comments: Out of spec or outdated chemicals from Lab

Facility ID: 77233621
Data Year: 2015
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2015
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

Facility ID: 77233621
Data Year: 2015
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2015
Comments: This waste stream is generated from the use of a two-part product, Part A and Part B, which are mixed in the disinfection machine. Part A is acidic, bur when mixed with Part B, a buffe, and used for its intended purpose, yields a waste effluent with a pH near nuetral. Studies done onsite show that about half the cycles generate a waste that has an acceptable pH (6.7 or 6.8) and about half the cycles genewrate a waste that has an unacceptable pH (4.7-4.1)

Facility ID: 77233621
Data Year: 2015
Comments: This waste stream is generated from two tabletop Medivator machines. The product is a one-part disinfectant containing 2.5% glutaraldehyde.

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

King County allows waste up to 4% glutaraldehyde to be discharged without pretreatment because it is readily decomposed in wastewater treatment plants. However, waste containing glutaraldehyde designates as a Category C toxic waste in Washington.

Facility ID: 77233621
Data Year: 2015
Comments: This product was used in CPC (subsequently discontinued) to disinfect endoscopes.

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Disposal of mercury filled Blood Pressure cuff no longer used

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Outdated chemical from Laboratory

Facility ID: 77233621
Data Year: 2016
Comments: A-7: out dated labortory chemical

Facility ID: 77233621
Data Year: 2016
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2016
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

Facility Site ID Number:	77233621
EPA ID:	WA0000345306
NAICS:	62211
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	Not reported
Permit by Rule:	No
Treatment by Generator:	No
Mixed radioactive waste:	No
Importer of hazardous waste:	No
Immediate recycler:	No
Treatment/Storage/Disposal/Recycling Facility:	No
Generator of dangerous fuel waste:	No
Generator marketing to burner:	No
Other marketers (i.e., blender, distributor, etc.):	No
Utility boiler burner:	No
Industry boiler burner:	No
Industrial Furnace:	No
Smelter defferal:	No
Universal waste - batteries - generate:	No
Universal waste - thermostats - generate:	No
Universal waste - mercury - generate:	No

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Universal waste - lamps - generate:	No
Universal waste - batteries - accumulate:	No
Universal waste - thermostats - accumulate:	No
Universal waste - mercury - accumulate:	No
Universal waste - lamps - accumulate:	No
Destination Facility for Universal Waste:	No
Off-specification used oil burner - utility boiler:	No
Off-specification used oil burner - industrial boiler:	No
Off-specification used oil burner - industrial furnace:	No
Tax Reg #:	600062259
Business Type:	Not reported
Mail Name:	Evergreen Hospital Medical Ctr
Mail addr line1:	12040 NE 128TH ST
Mail city,st,zip:	KIRKLAND, WA 98034-3013
Mail country:	UNITED STATES
Legal org name:	King Cnty
Legal org type:	County
Legal addr line1:	12040 NE 128TH ST
Legal city,st,zip:	KIRKLAND, WA 98034-3013
Legal country:	UNITED STATES
Legal phone nbr:	(425)899-1783
Legal effective date:	08/15/1996
Land org name:	King Cnty
Land org type:	County
Land person name:	Not reported
Land addr line1:	12040 NE 128TH ST
Land city,st,zip:	KIRKLAND, WA 98034-3013
Land country:	UNITED STATES
Land phone nbr:	(425)899-1783
Operator org name:	King Cnty
Operator org type:	County
Operator addr line1:	12040 NE 128TH ST
Operator city,st,zip:	KIRKLAND, WA 98034-3013
Operator country:	UNITED STATES
Operator phone nbr:	(425) 899-1778
Operator effective date:	08/15/1996
Site contact name:	Chuck Thorell
Site contact addr line1:	12040 NE 128th St
Site Contact City/State/ Zip:	KIRKLAND, WA 98034-3013
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(425)899-1783
Site Contact EMail:	cthorell@evergreenhealthcare.org
Form Contact NAME:	Chuck Thorell
Form Contact ADDR LINE1:	12040 NE 128th St
Form Contact City,ST,Zip:	KIRKLAND, WA 98034-3013
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(425)899-1783
Form Contact EMail:	cthorell@evergreenhealthcare.org
Gen Status CD:	SQG
Monthly Generation:	No
Batch Generation:	Yes
One Time Generation:	No
Transport Own Waste:	No
Tranports Other Waste:	No
Recycler Onsite:	No
Transfer Facility:	No
Other Exemption:	Not reported

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

UW Battery Gen: No
Used Oil Transporter: No
Used Oil Transfer Facility: No
Used Oil Processor: No
Used Oil Refiner: No
Used Oil Fuel Marketer Directs Shipments: No
Used Oil Fuel Marketer Meets Specs: No

Waste Streams Generated:

Facility ID: 77233621
Data Year: 2014
Description: CLASS 9 LABPACK
Mix: False
Reported Qty: 32 LB
Kilo Qty: 14.5152002
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS B (ALKALINE) LABPACK (DW)
Mix: False
Reported Qty: 108 LB
Kilo Qty: 48.9888008
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS 8 (ACID) LABPACK (DW)
Mix: False
Reported Qty: 54 LB
Kilo Qty: 24.4944004
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS 6.1 POISON LABPACK (DW)
Mix: False
Reported Qty: 110 LB
Kilo Qty: 49.8960008
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS 3 LABPACK (DW)
Mix: False
Reported Qty: 100 LB
Kilo Qty: 45.3600007
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Drum /#1 1X5DF

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Mix:	False
Reported Qty:	15 LB
Kilo Qty:	6.80400011
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Methanol and xylene solvent waste
Mix:	False
Reported Qty:	75.0600000 LB
Kilo Qty:	34.0472165
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Corroxy - #2 55CF
Mix:	False
Reported Qty:	60 LB
Kilo Qty:	27.2160004
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Merc #1 5DF
Mix:	False
Reported Qty:	5 LB
Kilo Qty:	2.26800003
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Loose Pack Stain Waste
Mix:	False
Reported Qty:	175 LB
Kilo Qty:	79.3800013
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Toxic Buffers
Mix:	False
Reported Qty:	11 LB
Kilo Qty:	4.98960008
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Formalin, Neutralized
Mix:	False
Reported Qty:	287.100000 GAL
Kilo Qty:	1086.10620

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Formalin, Recycled
Mix:	False
Reported Qty:	49.5 GAL
Kilo Qty:	187.259691
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent OPA
Mix:	False
Reported Qty:	137 GAL
Kilo Qty:	518.274296
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent Rapacide
Mix:	False
Reported Qty:	276 GAL
Kilo Qty:	1044.11464
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent Rapacide
Mix:	False
Reported Qty:	316 GAL
Kilo Qty:	1195.43560
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	CLASS 8 (ALKALINE) LABPACK (DW)
Mix:	False
Reported Qty:	20 LB
Kilo Qty:	9.07200015
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2016
Description:	Waste Sulfuric Acid
Mix:	False
Reported Qty:	20 LB
Kilo Qty:	9.07200015
Density No:	0
Density Qty:	Not reported

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Facility ID:	77233621
Data Year:	2016
Description:	Waste Hydrochloric Acid
Mix:	False
Reported Qty:	15 LB
Kilo Qty:	6.80400011
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2016
Description:	Waste Aerosols
Mix:	False
Reported Qty:	8 LB
Kilo Qty:	3.62880006
Density No:	0
Density Qty:	Not reported

Shipments Sent:

Facility ID:	77233621
Data Year:	2015
Shipment sent data:	2015-05-27 00:00:00
Reported Qty:	15 LB
Kilo Qty:	6.80400011

Facility ID:	77233621
Data Year:	2015
Shipment sent data:	2015-06-03 00:00:00
Reported Qty:	75.0600000 LB
Kilo Qty:	34.0472165

Facility ID:	77233621
Data Year:	2015
Shipment sent data:	2015-12-23 00:00:00
Reported Qty:	60 LB
Kilo Qty:	27.2160004

Facility ID:	77233621
Data Year:	2015
Shipment sent data:	2015-12-23 00:00:00
Reported Qty:	5 LB
Kilo Qty:	2.26800003

Facility ID:	77233621
Data Year:	2015
Shipment sent data:	2015-12-23 00:00:00
Reported Qty:	175 LB
Kilo Qty:	79.3800013

Facility ID:	77233621
Data Year:	2015
Shipment sent data:	2015-07-29 00:00:00
Reported Qty:	11 LB
Kilo Qty:	4.98960008

Facility ID:	77233621
Data Year:	2015

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Shipment sent data: 2015-03-17 00:00:00
Reported Qty: 20 LB
Kilo Qty: 9.07200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-12-18 00:00:00
Reported Qty: 900 LB
Kilo Qty: 408.240007

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-11-20 00:00:00
Reported Qty: 1600 LB
Kilo Qty: 725.760012

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-10-24 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-10-10 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-09-26 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-09-12 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-29 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-15 00:00:00
Reported Qty: 250 LB
Kilo Qty: 113.400001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-01 00:00:00
Reported Qty: 500 LB
Kilo Qty: 226.800003

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-07-25 00:00:00
Reported Qty: 240 LB
Kilo Qty: 108.864001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-07-11 00:00:00
Reported Qty: 250 LB
Kilo Qty: 113.400001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-06-20 00:00:00
Reported Qty: 240 LB
Kilo Qty: 108.864001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-06-06 00:00:00
Reported Qty: 125 LB
Kilo Qty: 56.7000009

Waste Stream Comments:
Facility ID: 77233621
Data Year: 2014
Comments: iTEMS FROM LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2015
Comments: A-& Spill clean-up material

Facility ID: 77233621
Data Year: 2015
Comments: spill clean-up debries.

Facility ID: 77233621
Data Year: 2015
Comments: A-7: mercury debries disposal - outdated equipment

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Facility ID: 77233621
Data Year: 2015
Comments: Out of spec or outdated chemicals from Lab

Facility ID: 77233621
Data Year: 2015
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2015
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

Facility ID: 77233621
Data Year: 2015
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2015
Comments: This waste stream is generated from the use of a two-part product, Part A and Part B, which are mixed in the disinfection machine. Part A is acidic, bur when mixed with Part B, a buffe, and used for its intended purpose, yields a waste effluent with a pH near nuetral. Studies done onsite show that about half the cycles generate a waste that has an acceptable pH (6.7 or 6.8) and about half the cycles genewrate a waste that has an unacceptable pH (4.7-4.1)

Facility ID: 77233621
Data Year: 2015
Comments: This waste stream is generated from two tabletop Medivator machines. The product is a one-part disinfectant containing 2.5% glutaraldehyde. King County allows waste up to 4% glutaraldehyde to be discharged without pretreatment because it is readily decomposed in wastewater treatment plants. However, waste containing glutaraldehyde designates as a Category C toxic waste in Washington.

Facility ID: 77233621
Data Year: 2015
Comments: This product was used in CPC (subsequently discontinued) to disinfect endoscopes.

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Disposal of mercury filled Blood Pressure cuff no longer used

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Outdated chemical from Laboratory

Facility ID: 77233621
Data Year: 2016
Comments: A-7: out dated labortory chemical

Facility ID: 77233621
Data Year: 2016

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2016
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

Facility Site ID Number:	77233621
EPA ID:	WA0000345306
NAICS:	62211
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	Not reported
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	600068426
Business Type:	Acute Care Hospital
Mail Name:	Evergreen Hospital Medical Ctr
Mail addr line1:	12040 NE 128TH ST
Mail city,st,zip:	KIRKLAND, WA 98034-3013
Mail country:	UNITED STATES
Legal org name:	King Cnty
Legal org type:	District
Legal addr line1:	12040 NE 128TH ST
Legal city,st,zip:	KIRKLAND, WA 98034-3013
Legal country:	UNITED STATES
Legal phone nbr:	(425)899-1783
Legal effective date:	08/15/1996
Land org name:	King County Hospital District #2
Land org type:	District

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Land person name:	Not reported
Land addr line1:	12040 NE 128TH ST
Land city,st,zip:	KIRKLAND, WA 98034-3013
Land country:	UNITED STATES
Land phone nbr:	(425)899-1783
Operator org name:	King Cnty
Operator org type:	District
Operator addr line1:	12040 NE 128TH ST
Operator city,st,zip:	KIRKLAND, WA 98034-3013
Operator country:	UNITED STATES
Operator phone nbr:	(425) 899-1778
Operator effective date:	08/15/1996
Site contact name:	Chuck Thorell
Site contact addr line1:	12040 NE 128th St
Site Contact City/State/ Zip:	KIRKLAND, WA 98034-3013
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(425)899-1783
Site Contact EMail:	cthorell@evergreenhealthcare.org
Form Contact NAME:	Chuck Thorell
Form Contact ADDR LINE1:	12040 NE 128th St
Form Contact City,ST,Zip:	KIRKLAND, WA 98034-3013
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(425)899-1783
Form Contact EMail:	cthorell@evergreenhealthcare.org
Gen Status CD:	SQG
Monthly Generation:	False
Batch Generation:	True
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Waste Streams Generated:

Facility ID:	77233621
Data Year:	2014
Description:	CLASS 9 LABPACK
Mix:	False
Reported Qty:	32 LB
Kilo Qty:	14.5152002
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2014
Description:	CLASS B (ALKALINE) LABPACK (DW)
Mix:	False
Reported Qty:	108 LB
Kilo Qty:	48.9888008

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS 8 (ACID) LABPACK (DW)
Mix: False
Reported Qty: 54 LB
Kilo Qty: 24.4944004
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS 6.1 POISON LABPACK (DW)
Mix: False
Reported Qty: 110 LB
Kilo Qty: 49.8960008
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS 3 LABPACK (DW)
Mix: False
Reported Qty: 100 LB
Kilo Qty: 45.3600007
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Drum /#1 1X5DF
Mix: False
Reported Qty: 15 LB
Kilo Qty: 6.80400011
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Methanol and xylene solvent waste
Mix: False
Reported Qty: 75.0600000 LB
Kilo Qty: 34.0472165
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Corroxy - #2 55CF
Mix: False
Reported Qty: 60 LB
Kilo Qty: 27.2160004
Density No: 0
Density Qty: Not reported

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Facility ID:	77233621
Data Year:	2015
Description:	Merc #1 5DF
Mix:	False
Reported Qty:	5 LB
Kilo Qty:	2.26800003
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Loose Pack Stain Waste
Mix:	False
Reported Qty:	175 LB
Kilo Qty:	79.3800013
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Toxic Buffers
Mix:	False
Reported Qty:	11 LB
Kilo Qty:	4.98960008
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Formalin, Neutralized
Mix:	False
Reported Qty:	287.100000 GAL
Kilo Qty:	1086.10620
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Formalin, Recycled
Mix:	False
Reported Qty:	49.5 GAL
Kilo Qty:	187.259691
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent OPA
Mix:	False
Reported Qty:	137 GAL
Kilo Qty:	518.274296
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent Rapacide

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Mix:	False
Reported Qty:	276 GAL
Kilo Qty:	1044.11464
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent Rapacide
Mix:	False
Reported Qty:	316 GAL
Kilo Qty:	1195.43560
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	CLASS 8 (ALKALINE) LABPACK (DW)
Mix:	False
Reported Qty:	20 LB
Kilo Qty:	9.07200015
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2016
Description:	Waste Sulfuric Acid
Mix:	False
Reported Qty:	20 LB
Kilo Qty:	9.07200015
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2016
Description:	Waste Hydrochloric Acid
Mix:	False
Reported Qty:	15 LB
Kilo Qty:	6.80400011
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2016
Description:	Waste Aerosols
Mix:	False
Reported Qty:	8 LB
Kilo Qty:	3.62880006
Density No:	0
Density Qty:	Not reported

Shipments Sent:

Facility ID:	77233621
Data Year:	2015
Shipment sent data:	2015-05-27 00:00:00
Reported Qty:	15 LB
Kilo Qty:	6.80400011

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-06-03 00:00:00
Reported Qty: 75.0600000 LB
Kilo Qty: 34.0472165

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 60 LB
Kilo Qty: 27.2160004

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 5 LB
Kilo Qty: 2.26800003

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 175 LB
Kilo Qty: 79.3800013

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-07-29 00:00:00
Reported Qty: 11 LB
Kilo Qty: 4.98960008

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-03-17 00:00:00
Reported Qty: 20 LB
Kilo Qty: 9.07200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-12-18 00:00:00
Reported Qty: 900 LB
Kilo Qty: 408.240007

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-11-20 00:00:00
Reported Qty: 1600 LB
Kilo Qty: 725.760012

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-10-24 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-10-10 00:00:00

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-09-26 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-09-12 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-29 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-15 00:00:00
Reported Qty: 250 LB
Kilo Qty: 113.400001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-01 00:00:00
Reported Qty: 500 LB
Kilo Qty: 226.800003

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-07-25 00:00:00
Reported Qty: 240 LB
Kilo Qty: 108.864001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-07-11 00:00:00
Reported Qty: 250 LB
Kilo Qty: 113.400001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-06-20 00:00:00
Reported Qty: 240 LB
Kilo Qty: 108.864001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-06-06 00:00:00
Reported Qty: 125 LB
Kilo Qty: 56.7000009

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Waste Stream Comments:

Facility ID: 77233621
Data Year: 2014
Comments: iTEMS FROM LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2015
Comments: A-& Spill clean-up material

Facility ID: 77233621
Data Year: 2015
Comments: spill clean-up debries.

Facility ID: 77233621
Data Year: 2015
Comments: A-7: mercury debries disposal - outdated equipment

Facility ID: 77233621
Data Year: 2015
Comments: Out of spec or outdated chemicals from Lab

Facility ID: 77233621
Data Year: 2015
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2015
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

Facility ID: 77233621
Data Year: 2015
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2015
Comments: This waste stream is generated from the use of a two-part product, Part A and Part B, which are mixed in the disinfection machine. Part A is acidic, bur when mixed with Part B, a buffe, and used for its

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

intended purpose, yields a waste effluent with a pH near nuetral. Studies done onsite show that about half the cycles generate a waste that has an acceptable pH (6.7 or 6.8) and about half the cycles genewrate a waste that has an unacceptable pH (4.7-4.1)

Facility ID: 77233621
Data Year: 2015
Comments: This waste stream is generated from two tabletop Medivator machines. The product is a one-part disinfectant containing 2.5% glutaraldehyde. King County allows waste up to 4% glutaraldehyde to be discharged without pretreatment because it is readily decomposed in wastewater treatment plants. However, waste containing glutaraldehyde designates as a Category C toxic waste in Washington.

Facility ID: 77233621
Data Year: 2015
Comments: This product was used in CPC (subsequently discontinued) to disinfect endoscopes.

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Disposal of mercury filled Blood Pressure cuff no longer used

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Outdated chemical from Laboratory

Facility ID: 77233621
Data Year: 2016
Comments: A-7: out dated labortory chemical

Facility ID: 77233621
Data Year: 2016
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2016
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

Facility Site ID Number: 77233621
EPA ID: WA0000345306
NAICS: 622110
SWC Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
Data Year: 2009
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	600068426
Business Type:	Acute Care Hospital
Mail Name:	Evergreen Hospital Medical Ctr
Mail addr line1:	12040 NE 128TH ST
Mail city,st,zip:	KIRKLAND, WA 98034-3013
Mail country:	UNITED STATES
Legal org name:	King Cnty
Legal org type:	District
Legal addr line1:	12040 NE 128TH ST
Legal city,st,zip:	KIRKLAND, WA 98034-3013
Legal country:	UNITED STATES
Legal phone nbr:	(425) 899-1783
Legal effective date:	08/15/1996
Land org name:	King County Hospital District #2
Land org type:	District
Land person name:	Not reported
Land addr line1:	12040 NE 128TH ST
Land city,st,zip:	KIRKLAND, WA 98034-3013
Land country:	UNITED STATES
Land phone nbr:	(425)899-1783
Operator org name:	King Cnty
Operator org type:	District
Operator addr line1:	12040 NE 128TH ST
Operator city,st,zip:	KIRKLAND, WA 98034-3013
Operator country:	UNITED STATES
Operator phone nbr:	(425) 899-1778
Operator effective date:	08/15/1996
Site contact name:	Chuck Thorell
Site contact addr line1:	12040 NE 128th St
Site Contact City/State/ Zip:	KIRKLAND, WA 98034-3013
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(425) 899-1783
Site Contact EMail:	cthorell@evergreenhealthcare.org
Form Contact NAME:	Chuck Thorell
Form Contact ADDR LINE1:	12040 NE 128th St
Form Contact City,ST,Zip:	KIRKLAND, WA 98034-3013
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(425) 899-1783
Form Contact EMail:	cthorell@evergreenhealthcare.org

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Gen Status CD:	SQG
Monthly Generation:	False
Batch Generation:	True
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Waste Streams Generated:

Facility ID:	77233621
Data Year:	2014
Description:	CLASS 9 LABPACK
Mix:	False
Reported Qty:	32 LB
Kilo Qty:	14.5152002
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2014
Description:	CLASS B (ALKALINE) LABPACK (DW)
Mix:	False
Reported Qty:	108 LB
Kilo Qty:	48.9888008
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2014
Description:	CLASS 8 (ACID) LABPACK (DW)
Mix:	False
Reported Qty:	54 LB
Kilo Qty:	24.4944004
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2014
Description:	CLASS 6.1 POISON LABPACK (DW)
Mix:	False
Reported Qty:	110 LB
Kilo Qty:	49.8960008
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2014
Description:	CLASS 3 LABPACK (DW)

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Mix:	False
Reported Qty:	100 LB
Kilo Qty:	45.3600007
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Drum /#1 1X5DF
Mix:	False
Reported Qty:	15 LB
Kilo Qty:	6.80400011
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Methanol and xylene solvent waste
Mix:	False
Reported Qty:	75.0600000 LB
Kilo Qty:	34.0472165
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Corroxy - #2 55CF
Mix:	False
Reported Qty:	60 LB
Kilo Qty:	27.2160004
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Merc #1 5DF
Mix:	False
Reported Qty:	5 LB
Kilo Qty:	2.26800003
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Loose Pack Stain Waste
Mix:	False
Reported Qty:	175 LB
Kilo Qty:	79.3800013
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Toxic Buffers
Mix:	False
Reported Qty:	11 LB
Kilo Qty:	4.98960008

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Formalin, Neutralized
Mix:	False
Reported Qty:	287.100000 GAL
Kilo Qty:	1086.10620
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Formalin, Recycled
Mix:	False
Reported Qty:	49.5 GAL
Kilo Qty:	187.259691
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent OPA
Mix:	False
Reported Qty:	137 GAL
Kilo Qty:	518.274296
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent Rapacide
Mix:	False
Reported Qty:	276 GAL
Kilo Qty:	1044.11464
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent Rapacide
Mix:	False
Reported Qty:	316 GAL
Kilo Qty:	1195.43560
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	CLASS 8 (ALKALINE) LABPACK (DW)
Mix:	False
Reported Qty:	20 LB
Kilo Qty:	9.07200015
Density No:	0
Density Qty:	Not reported

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Facility ID: 77233621
Data Year: 2016
Description: Waste Sulfuric Acid
Mix: False
Reported Qty: 20 LB
Kilo Qty: 9.07200015
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2016
Description: Waste Hydrochloric Acid
Mix: False
Reported Qty: 15 LB
Kilo Qty: 6.80400011
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2016
Description: Waste Aerosols
Mix: False
Reported Qty: 8 LB
Kilo Qty: 3.62880006
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-05-27 00:00:00
Reported Qty: 15 LB
Kilo Qty: 6.80400011

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-06-03 00:00:00
Reported Qty: 75.0600000 LB
Kilo Qty: 34.0472165

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 60 LB
Kilo Qty: 27.2160004

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 5 LB
Kilo Qty: 2.26800003

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 175 LB
Kilo Qty: 79.3800013

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-07-29 00:00:00
Reported Qty: 11 LB
Kilo Qty: 4.98960008

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-03-17 00:00:00
Reported Qty: 20 LB
Kilo Qty: 9.07200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-12-18 00:00:00
Reported Qty: 900 LB
Kilo Qty: 408.240007

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-11-20 00:00:00
Reported Qty: 1600 LB
Kilo Qty: 725.760012

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-10-24 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-10-10 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-09-26 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-09-12 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-29 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-15 00:00:00

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Reported Qty: 250 LB
Kilo Qty: 113.400001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-01 00:00:00
Reported Qty: 500 LB
Kilo Qty: 226.800003

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-07-25 00:00:00
Reported Qty: 240 LB
Kilo Qty: 108.864001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-07-11 00:00:00
Reported Qty: 250 LB
Kilo Qty: 113.400001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-06-20 00:00:00
Reported Qty: 240 LB
Kilo Qty: 108.864001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-06-06 00:00:00
Reported Qty: 125 LB
Kilo Qty: 56.7000009

Waste Stream Comments:
Facility ID: 77233621
Data Year: 2014
Comments: iTEMS FROM LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2015
Comments: A-& Spill clean-up material

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Facility ID: 77233621
Data Year: 2015
Comments: spill clean-up debries.

Facility ID: 77233621
Data Year: 2015
Comments: A-7: mercury debries disposal - outdated equipment

Facility ID: 77233621
Data Year: 2015
Comments: Out of spec or outdated chemicals from Lab

Facility ID: 77233621
Data Year: 2015
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2015
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

Facility ID: 77233621
Data Year: 2015
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2015
Comments: This waste stream is generated from the use of a two-part product, Part A and Part B, which are mixed in the disinfection machine. Part A is acidic, bur when mixed with Part B, a buffe, and used for its intended purpose, yields a waste effluent with a pH near nuetral. Studies done onsite show that about half the cycles generate a waste that has an acceptable pH (6.7 or 6.8) and about half the cycles genewrate a waste that has an unacceptable pH (4.7-4.1)

Facility ID: 77233621
Data Year: 2015
Comments: This waste stream is generated from two tabletop Medivator machines. The product is a one-part disinfectant containing 2.5% glutaraldehyde. King County allows waste up to 4% glutaraldehyde to be discharged without pretreatment because it is readily decomposed in wastewater treatment plants. However, waste containing glutaraldehyde designates as a Category C toxic waste in Washington.

Facility ID: 77233621
Data Year: 2015
Comments: This product was used in CPC (subsequently discontinued) to disinfect endoscopes.

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Disposal of mercury filled Blood Pressure cuff no longer used

Facility ID: 77233621
Data Year: 2016

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Comments: A-7: Outdated chemical from Laboratory

Facility ID: 77233621
Data Year: 2016
Comments: A-7: out dated labortory chemical

Facility ID: 77233621
Data Year: 2016
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2016
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

Facility Site ID Number:	77233621
EPA ID:	WA0000345306
NAICS:	622110
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	2010
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	600068426
Business Type:	Acute Care Hospital
Mail Name:	Evergreen Hospital Medical Ctr
Mail addr line1:	12040 NE 128TH ST
Mail city,st,zip:	KIRKLAND, WA 98034-3013
Mail country:	UNITED STATES
Legal org name:	King Cnty

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Legal org type:	District
Legal addr line1:	12040 NE 128TH ST
Legal city,st,zip:	KIRKLAND, WA 98034-3013
Legal country:	UNITED STATES
Legal phone nbr:	(425) 899-1783
Legal effective date:	08/15/1996
Land org name:	King County Hospital District #2
Land org type:	District
Land person name:	Not reported
Land addr line1:	12040 NE 128TH ST
Land city,st,zip:	KIRKLAND, WA 98034-3013
Land country:	UNITED STATES
Land phone nbr:	(425)899-1783
Operator org name:	King Cnty
Operator org type:	District
Operator addr line1:	12040 NE 128TH ST
Operator city,st,zip:	KIRKLAND, WA 98034-3013
Operator country:	UNITED STATES
Operator phone nbr:	(425) 899-1778
Operator effective date:	08/15/1996
Site contact name:	Chuck Thorell
Site contact addr line1:	12040 NE 128th St
Site Contact City/State/ Zip:	KIRKLAND, WA 98034-3013
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(425) 899-1783
Site Contact EMail:	cthorell@evergreenhealthcare.org
Form Contact NAME:	Chuck Thorell
Form Contact ADDR LINE1:	12040 NE 128th St
Form Contact City,ST,Zip:	KIRKLAND, WA 98034-3013
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(425) 899-1783
Form Contact EMail:	cthorell@evergreenhealthcare.org
Gen Status CD:	SQG
Monthly Generation:	False
Batch Generation:	True
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Waste Streams Generated:

Facility ID:	77233621
Data Year:	2014
Description:	CLASS 9 LABPACK
Mix:	False
Reported Qty:	32 LB
Kilo Qty:	14.5152002
Density No:	0

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS B (ALKALINE) LABPACK (DW)
Mix: False
Reported Qty: 108 LB
Kilo Qty: 48.9888008
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS 8 (ACID) LABPACK (DW)
Mix: False
Reported Qty: 54 LB
Kilo Qty: 24.4944004
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS 6.1 POISON LABPACK (DW)
Mix: False
Reported Qty: 110 LB
Kilo Qty: 49.8960008
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS 3 LABPACK (DW)
Mix: False
Reported Qty: 100 LB
Kilo Qty: 45.3600007
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Drum /#1 1X5DF
Mix: False
Reported Qty: 15 LB
Kilo Qty: 6.80400011
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Methanol and xylene solvent waste
Mix: False
Reported Qty: 75.0600000 LB
Kilo Qty: 34.0472165
Density No: 0
Density Qty: Not reported

Facility ID: 77233621

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Data Year:	2015
Description:	Corroxy - #2 55CF
Mix:	False
Reported Qty:	60 LB
Kilo Qty:	27.2160004
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Merc #1 5DF
Mix:	False
Reported Qty:	5 LB
Kilo Qty:	2.26800003
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Loose Pack Stain Waste
Mix:	False
Reported Qty:	175 LB
Kilo Qty:	79.3800013
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Toxic Buffers
Mix:	False
Reported Qty:	11 LB
Kilo Qty:	4.98960008
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Formalin, Neutralized
Mix:	False
Reported Qty:	287.100000 GAL
Kilo Qty:	1086.10620
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Formalin, Recycled
Mix:	False
Reported Qty:	49.5 GAL
Kilo Qty:	187.259691
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent OPA
Mix:	False

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Reported Qty:	137 GAL
Kilo Qty:	518.274296
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent Rapacide
Mix:	False
Reported Qty:	276 GAL
Kilo Qty:	1044.11464
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent Rapacide
Mix:	False
Reported Qty:	316 GAL
Kilo Qty:	1195.43560
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	CLASS 8 (ALKALINE) LABPACK (DW)
Mix:	False
Reported Qty:	20 LB
Kilo Qty:	9.07200015
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2016
Description:	Waste Sulfuric Acid
Mix:	False
Reported Qty:	20 LB
Kilo Qty:	9.07200015
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2016
Description:	Waste Hydrochloric Acid
Mix:	False
Reported Qty:	15 LB
Kilo Qty:	6.80400011
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2016
Description:	Waste Aerosols
Mix:	False
Reported Qty:	8 LB
Kilo Qty:	3.62880006
Density No:	0

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Density Qty: Not reported

Shipments Sent:

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-05-27 00:00:00
Reported Qty: 15 LB
Kilo Qty: 6.80400011

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-06-03 00:00:00
Reported Qty: 75.0600000 LB
Kilo Qty: 34.0472165

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 60 LB
Kilo Qty: 27.2160004

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 5 LB
Kilo Qty: 2.26800003

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 175 LB
Kilo Qty: 79.3800013

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-07-29 00:00:00
Reported Qty: 11 LB
Kilo Qty: 4.98960008

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-03-17 00:00:00
Reported Qty: 20 LB
Kilo Qty: 9.07200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-12-18 00:00:00
Reported Qty: 900 LB
Kilo Qty: 408.240007

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-11-20 00:00:00
Reported Qty: 1600 LB
Kilo Qty: 725.760012

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-10-24 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-10-10 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-09-26 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-09-12 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-29 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-15 00:00:00
Reported Qty: 250 LB
Kilo Qty: 113.400001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-01 00:00:00
Reported Qty: 500 LB
Kilo Qty: 226.800003

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-07-25 00:00:00
Reported Qty: 240 LB
Kilo Qty: 108.864001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-07-11 00:00:00
Reported Qty: 250 LB
Kilo Qty: 113.400001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-06-20 00:00:00

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Reported Qty: 240 LB
Kilo Qty: 108.864001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-06-06 00:00:00
Reported Qty: 125 LB
Kilo Qty: 56.7000009

Waste Stream Comments:
Facility ID: 77233621
Data Year: 2014
Comments: iTEMS FROM LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2015
Comments: A-& Spill clean-up material

Facility ID: 77233621
Data Year: 2015
Comments: spill clean-up debries.

Facility ID: 77233621
Data Year: 2015
Comments: A-7: mercury debries disposal - outdated equipment

Facility ID: 77233621
Data Year: 2015
Comments: Out of spec or outdated chemicals from Lab

Facility ID: 77233621
Data Year: 2015
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2015
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Facility ID: 77233621
Data Year: 2015
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2015
Comments: This waste stream is generated from the use of a two-part product, Part A and Part B, which are mixed in the disinfection machine. Part A is acidic, bur when mixed with Part B, a buffe, and used for its intended purpose, yields a waste effluent with a pH near nuetral. Studies done onsite show that about half the cycles generate a waste that has an acceptable pH (6.7 or 6.8) and about half the cycles genewrate a waste that has an unacceptable pH (4.7-4.1)

Facility ID: 77233621
Data Year: 2015
Comments: This waste stream is generated from two tabletop Medivator machines. The product is a one-part disinfectant containing 2.5% glutaraldehyde. King County allows waste up to 4% glutaraldehyde to be discharged without pretreatment because it is readily decomposed in wastewater treatment plants. However, waste containing glutaraldehyde designates as a Category C toxic waste in Washington.

Facility ID: 77233621
Data Year: 2015
Comments: This product was used in CPC (subsequently discontinued) to disinfect endoscopes.

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Disposal of mercury filled Blood Pressure cuff no longer used

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Outdated chemical from Laboratory

Facility ID: 77233621
Data Year: 2016
Comments: A-7: out dated labortory chemical

Facility ID: 77233621
Data Year: 2016
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2016
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

Facility Site ID Number: 77233621
EPA ID: WA0000345306
NAICS: 622110
SWC Desc: WT02
FWC Desc: D001,U002

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Form Comm:	Not reported
Data Year:	2014
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	600068426
Business Type:	Acute Care Hospital
Mail Name:	Evergreen Hospital Medical Ctr
Mail addr line1:	12040 NE 128TH ST
Mail city,st,zip:	KIRKLAND, WA 98034-3013
Mail country:	UNITED STATES
Legal org name:	King Cnty
Legal org type:	District
Legal addr line1:	12040 NE 128TH ST
Legal city,st,zip:	KIRKLAND, WA 98034-3013
Legal country:	UNITED STATES
Legal phone nbr:	(425) 899-1783
Legal effective date:	08/15/1996
Land org name:	King County Hospital District #2
Land org type:	District
Land person name:	Not reported
Land addr line1:	12040 NE 128TH ST
Land city,st,zip:	KIRKLAND, WA 98034-3013
Land country:	UNITED STATES
Land phone nbr:	(425)899-1783
Operator org name:	King Cnty
Operator org type:	District
Operator addr line1:	12040 NE 128TH ST
Operator city,st,zip:	KIRKLAND, WA 98034-3013
Operator country:	UNITED STATES
Operator phone nbr:	(425) 899-1778
Operator effective date:	08/15/1996
Site contact name:	Jeff A Klenovic
Site contact addr line1:	12040 NE 128th St
Site Contact City/State/ Zip:	KIRKLAND, WA 98034-3013

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Site Contact Country:	UNITED STATES
Site Contact Phone #:	(425) 899-1783
Site Contact EMail:	jaklenovic@evergreenhealth.com
Form Contact NAME:	Jeff Klenovic
Form Contact ADDR LINE1:	12040 NE 128th St
Form Contact City,ST,Zip:	KIRKLAND, WA 98034-3013
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(425) 899-1783
Form Contact EMail:	jaklenovic@evergreenhealth.com
Gen Status CD:	MQG
Monthly Generation:	False
Batch Generation:	True
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Waste Streams Generated:

Facility ID:	77233621
Data Year:	2014
Description:	CLASS 9 LABPACK
Mix:	False
Reported Qty:	32 LB
Kilo Qty:	14.5152002
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2014
Description:	CLASS B (ALKALINE) LABPACK (DW)
Mix:	False
Reported Qty:	108 LB
Kilo Qty:	48.9888008
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2014
Description:	CLASS 8 (ACID) LABPACK (DW)
Mix:	False
Reported Qty:	54 LB
Kilo Qty:	24.4944004
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2014
Description:	CLASS 6.1 POISON LABPACK (DW)

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Mix:	False
Reported Qty:	110 LB
Kilo Qty:	49.8960008
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2014
Description:	CLASS 3 LABPACK (DW)
Mix:	False
Reported Qty:	100 LB
Kilo Qty:	45.3600007
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Drum /#1 1X5DF
Mix:	False
Reported Qty:	15 LB
Kilo Qty:	6.80400011
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Methanol and xylene solvent waste
Mix:	False
Reported Qty:	75.0600000 LB
Kilo Qty:	34.0472165
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Corroxy - #2 55CF
Mix:	False
Reported Qty:	60 LB
Kilo Qty:	27.2160004
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Merc #1 5DF
Mix:	False
Reported Qty:	5 LB
Kilo Qty:	2.26800003
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Loose Pack Stain Waste
Mix:	False
Reported Qty:	175 LB
Kilo Qty:	79.3800013

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Toxic Buffers
Mix:	False
Reported Qty:	11 LB
Kilo Qty:	4.98960008
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Formalin, Neutralized
Mix:	False
Reported Qty:	287.100000 GAL
Kilo Qty:	1086.10620
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Formalin, Recycled
Mix:	False
Reported Qty:	49.5 GAL
Kilo Qty:	187.259691
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent OPA
Mix:	False
Reported Qty:	137 GAL
Kilo Qty:	518.274296
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent Rapacide
Mix:	False
Reported Qty:	276 GAL
Kilo Qty:	1044.11464
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent Rapacide
Mix:	False
Reported Qty:	316 GAL
Kilo Qty:	1195.43560
Density No:	8.33999999
Density Qty:	PPG

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Facility ID: 77233621
Data Year: 2015
Description: CLASS 8 (ALKALINE) LABPACK (DW)
Mix: False
Reported Qty: 20 LB
Kilo Qty: 9.07200015
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2016
Description: Waste Sulfuric Acid
Mix: False
Reported Qty: 20 LB
Kilo Qty: 9.07200015
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2016
Description: Waste Hydrochloric Acid
Mix: False
Reported Qty: 15 LB
Kilo Qty: 6.80400011
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2016
Description: Waste Aerosols
Mix: False
Reported Qty: 8 LB
Kilo Qty: 3.62880006
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-05-27 00:00:00
Reported Qty: 15 LB
Kilo Qty: 6.80400011

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-06-03 00:00:00
Reported Qty: 75.0600000 LB
Kilo Qty: 34.0472165

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 60 LB
Kilo Qty: 27.2160004

Facility ID: 77233621
Data Year: 2015

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 5 LB
Kilo Qty: 2.26800003

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 175 LB
Kilo Qty: 79.3800013

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-07-29 00:00:00
Reported Qty: 11 LB
Kilo Qty: 4.98960008

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-03-17 00:00:00
Reported Qty: 20 LB
Kilo Qty: 9.07200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-12-18 00:00:00
Reported Qty: 900 LB
Kilo Qty: 408.240007

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-11-20 00:00:00
Reported Qty: 1600 LB
Kilo Qty: 725.760012

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-10-24 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-10-10 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-09-26 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-09-12 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-29 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-15 00:00:00
Reported Qty: 250 LB
Kilo Qty: 113.400001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-01 00:00:00
Reported Qty: 500 LB
Kilo Qty: 226.800003

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-07-25 00:00:00
Reported Qty: 240 LB
Kilo Qty: 108.864001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-07-11 00:00:00
Reported Qty: 250 LB
Kilo Qty: 113.400001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-06-20 00:00:00
Reported Qty: 240 LB
Kilo Qty: 108.864001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-06-06 00:00:00
Reported Qty: 125 LB
Kilo Qty: 56.7000009

Waste Stream Comments:
Facility ID: 77233621
Data Year: 2014
Comments: iTEMS FROM LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2015
Comments: A-& Spill clean-up material

Facility ID: 77233621
Data Year: 2015
Comments: spill clean-up debries.

Facility ID: 77233621
Data Year: 2015
Comments: A-7: mercury debries disposal - outdated equipment

Facility ID: 77233621
Data Year: 2015
Comments: Out of spec or outdated chemicals from Lab

Facility ID: 77233621
Data Year: 2015
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2015
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

Facility ID: 77233621
Data Year: 2015
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2015
Comments: This waste stream is generated from the use of a two-part product, Part A and Part B, which are mixed in the disinfection machine. Part A is acidic, bur when mixed with Part B, a buffe, and used for its intended purpose, yields a waste effluent with a pH near nuetral. Studies done onsite show that about half the cycles generate a waste that has an acceptable pH (6.7 or 6.8) and about half the cycles genewrate a waste that has an unacceptable pH (4.7-4.1)

Facility ID: 77233621
Data Year: 2015
Comments: This waste stream is generated from two tabletop Medivator machines. The product is a one-part disinfectant containing 2.5% glutaraldehyde. King County allows waste up to 4% glutaraldehyde to be discharged without pretreatment because it is readily decomposed in wastewater treatment plants. However, waste containing glutaraldehyde designates as a Category C toxic waste in Washington.

Facility ID: 77233621

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Data Year: 2015
Comments: This product was used in CPC (subsequently discontinued) to disinfect endoscopes.

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Disposal of mercury filled Blood Pressure cuff no longer used

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Outdated chemical from Laboratory

Facility ID: 77233621
Data Year: 2016
Comments: A-7: out dated labortory chemical

Facility ID: 77233621
Data Year: 2016
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2016
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

Facility Site ID Number: 77233621
EPA ID: WA0000345306
NAICS: 622110
SWC Desc: WT02
FWC Desc: D001,D002,F003,D009
Form Comm: 10-A-7: Treatment by generator includes neutralization of spent OPA and formalin.
Data Year: 2015
Permit by Rule: False
Treatment by Generator: True
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter defferal: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	600068426
Business Type:	Acute Care Hospital
Mail Name:	Evergreen Hospital Medical Ctr
Mail addr line1:	12040 NE 128TH ST
Mail city,st,zip:	KIRKLAND, WA 98034-3013
Mail country:	UNITED STATES
Legal org name:	King Cnty
Legal org type:	District
Legal addr line1:	12040 NE 128TH ST
Legal city,st,zip:	KIRKLAND, WA 98034-3013
Legal country:	UNITED STATES
Legal phone nbr:	(425) 899-1783
Legal effective date:	08/15/1996
Land org name:	King County Hospital District #2
Land org type:	District
Land person name:	Not reported
Land addr line1:	12040 NE 128TH ST
Land city,st,zip:	KIRKLAND, WA 98034-3013
Land country:	UNITED STATES
Land phone nbr:	(425)899-1783
Operator org name:	King Cnty
Operator org type:	District
Operator addr line1:	12040 NE 128TH ST
Operator city,st,zip:	KIRKLAND, WA 98034-3013
Operator country:	UNITED STATES
Operator phone nbr:	(425) 899-1778
Operator effective date:	08/15/1996
Site contact name:	Jeff A Klenovic
Site contact addr line1:	12040 NE 128th St
Site Contact City/State/ Zip:	KIRKLAND, WA 98034-3013
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(425) 899-1783
Site Contact EMail:	jaklenovic@evergreenhealth.com
Form Contact NAME:	Jeff Klenovic
Form Contact ADDR LINE1:	12040 NE 128th St
Form Contact City,ST,Zip:	KIRKLAND, WA 98034-3013
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(425) 899-1783
Form Contact EMail:	jaklenovic@evergreenhealth.com
Gen Status CD:	MQG
Monthly Generation:	False
Batch Generation:	True
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Waste Streams Generated:

Facility ID: 77233621
Data Year: 2014
Description: CLASS 9 LABPACK
Mix: False
Reported Qty: 32 LB
Kilo Qty: 14.5152002
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS B (ALKALINE) LABPACK (DW)
Mix: False
Reported Qty: 108 LB
Kilo Qty: 48.9888008
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS 8 (ACID) LABPACK (DW)
Mix: False
Reported Qty: 54 LB
Kilo Qty: 24.4944004
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS 6.1 POISON LABPACK (DW)
Mix: False
Reported Qty: 110 LB
Kilo Qty: 49.8960008
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS 3 LABPACK (DW)
Mix: False
Reported Qty: 100 LB
Kilo Qty: 45.3600007
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Drum /#1 1X5DF
Mix: False
Reported Qty: 15 LB
Kilo Qty: 6.80400011
Density No: 0
Density Qty: Not reported

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Facility ID:	77233621
Data Year:	2015
Description:	Methanol and xylene solvent waste
Mix:	False
Reported Qty:	75.0600000 LB
Kilo Qty:	34.0472165
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Corroxy - #2 55CF
Mix:	False
Reported Qty:	60 LB
Kilo Qty:	27.2160004
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Merc #1 5DF
Mix:	False
Reported Qty:	5 LB
Kilo Qty:	2.26800003
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Loose Pack Stain Waste
Mix:	False
Reported Qty:	175 LB
Kilo Qty:	79.3800013
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Toxic Buffers
Mix:	False
Reported Qty:	11 LB
Kilo Qty:	4.98960008
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Formalin, Neutralized
Mix:	False
Reported Qty:	287.100000 GAL
Kilo Qty:	1086.10620
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Formalin, Recycled

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Mix:	False
Reported Qty:	49.5 GAL
Kilo Qty:	187.259691
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent OPA
Mix:	False
Reported Qty:	137 GAL
Kilo Qty:	518.274296
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent Rapacide
Mix:	False
Reported Qty:	276 GAL
Kilo Qty:	1044.11464
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent Rapacide
Mix:	False
Reported Qty:	316 GAL
Kilo Qty:	1195.43560
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	CLASS 8 (ALKALINE) LABPACK (DW)
Mix:	False
Reported Qty:	20 LB
Kilo Qty:	9.07200015
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2016
Description:	Waste Sulfuric Acid
Mix:	False
Reported Qty:	20 LB
Kilo Qty:	9.07200015
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2016
Description:	Waste Hydrochloric Acid
Mix:	False
Reported Qty:	15 LB
Kilo Qty:	6.80400011

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2016
Description: Waste Aerosols
Mix: False
Reported Qty: 8 LB
Kilo Qty: 3.62880006
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-05-27 00:00:00
Reported Qty: 15 LB
Kilo Qty: 6.80400011

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-06-03 00:00:00
Reported Qty: 75.0600000 LB
Kilo Qty: 34.0472165

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 60 LB
Kilo Qty: 27.2160004

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 5 LB
Kilo Qty: 2.26800003

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 175 LB
Kilo Qty: 79.3800013

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-07-29 00:00:00
Reported Qty: 11 LB
Kilo Qty: 4.98960008

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-03-17 00:00:00
Reported Qty: 20 LB
Kilo Qty: 9.07200015

Facility ID: 77233621
Data Year: 2017

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Shipment sent data:	2017-12-18 00:00:00
Reported Qty:	900 LB
Kilo Qty:	408.240007
Facility ID:	77233621
Data Year:	2017
Shipment sent data:	2017-11-20 00:00:00
Reported Qty:	1600 LB
Kilo Qty:	725.760012
Facility ID:	77233621
Data Year:	2017
Shipment sent data:	2017-10-24 00:00:00
Reported Qty:	200 LB
Kilo Qty:	90.7200015
Facility ID:	77233621
Data Year:	2017
Shipment sent data:	2017-10-10 00:00:00
Reported Qty:	200 LB
Kilo Qty:	90.7200015
Facility ID:	77233621
Data Year:	2017
Shipment sent data:	2017-09-26 00:00:00
Reported Qty:	200 LB
Kilo Qty:	90.7200015
Facility ID:	77233621
Data Year:	2017
Shipment sent data:	2017-09-12 00:00:00
Reported Qty:	200 LB
Kilo Qty:	90.7200015
Facility ID:	77233621
Data Year:	2017
Shipment sent data:	2017-08-29 00:00:00
Reported Qty:	200 LB
Kilo Qty:	90.7200015
Facility ID:	77233621
Data Year:	2017
Shipment sent data:	2017-08-15 00:00:00
Reported Qty:	250 LB
Kilo Qty:	113.400001
Facility ID:	77233621
Data Year:	2017
Shipment sent data:	2017-08-01 00:00:00
Reported Qty:	500 LB
Kilo Qty:	226.800003
Facility ID:	77233621
Data Year:	2017
Shipment sent data:	2017-07-25 00:00:00
Reported Qty:	240 LB
Kilo Qty:	108.864001

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-07-11 00:00:00
Reported Qty: 250 LB
Kilo Qty: 113.400001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-06-20 00:00:00
Reported Qty: 240 LB
Kilo Qty: 108.864001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-06-06 00:00:00
Reported Qty: 125 LB
Kilo Qty: 56.7000009

Waste Stream Comments:
Facility ID: 77233621
Data Year: 2014
Comments: iTEMS FROM LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2015
Comments: A-& Spill clean-up material

Facility ID: 77233621
Data Year: 2015
Comments: spill clean-up debries.

Facility ID: 77233621
Data Year: 2015
Comments: A-7: mercury debries disposal - outdated equipment

Facility ID: 77233621
Data Year: 2015
Comments: Out of spec or outdated chemicals from Lab

Facility ID: 77233621
Data Year: 2015

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2015
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

Facility ID: 77233621
Data Year: 2015
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2015
Comments: This waste stream is generated from the use of a two-part product, Part A and Part B, which are mixed in the disinfection machine. Part A is acidic, bur when mixed with Part B, a buffe, and used for its intended purpose, yields a waste effluent with a pH near nuetral. Studies done onsite show that about half the cycles generate a waste that has an acceptable pH (6.7 or 6.8) and about half the cycles genewrate a waste that has an unacceptable pH (4.7-4.1)

Facility ID: 77233621
Data Year: 2015
Comments: This waste stream is generated from two tabletop Medivator machines. The product is a one-part disinfectant containing 2.5% glutaraldehyde. King County allows waste up to 4% glutaraldehyde to be discharged without pretreatment because it is readily decomposed in wastewater treatment plants. However, waste containing glutaraldehyde designates as a Category C toxic waste in Washington.

Facility ID: 77233621
Data Year: 2015
Comments: This product was used in CPC (subsequently discontinued) to disinfect endoscopes.

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Disposal of mercury filled Blood Pressure cuff no longer used

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Outdated chemical from Laboratory

Facility ID: 77233621
Data Year: 2016
Comments: A-7: out dated labortory chemical

Facility ID: 77233621
Data Year: 2016
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2016
Comments: Waste formalin is occasionally recycled by Pathology staff when it

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

meets certain quality criteria. The formalin is reused to preserve specimens.

Facility Site ID Number:	77233621
EPA ID:	WA0000345306
NAICS:	622110
SWC Desc:	Not reported
FWC Desc:	SQG
Form Comm:	Not reported
Data Year:	2013
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	600068426
Business Type:	Acute Care Hospital
Mail Name:	Evergreen Hospital Medical Ctr
Mail addr line1:	12040 NE 128TH ST
Mail city,st,zip:	KIRKLAND, WA 98034-3013
Mail country:	UNITED STATES
Legal org name:	King Cnty
Legal org type:	District
Legal addr line1:	12040 NE 128TH ST
Legal city,st,zip:	KIRKLAND, WA 98034-3013
Legal country:	UNITED STATES
Legal phone nbr:	(425) 899-1783
Legal effective date:	08/15/1996
Land org name:	King County Hospital District #2
Land org type:	District
Land person name:	Not reported
Land addr line1:	12040 NE 128TH ST
Land city,st,zip:	KIRKLAND, WA 98034-3013
Land country:	UNITED STATES
Land phone nbr:	(425)899-1783
Operator org name:	King Cnty

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Operator org type:	District
Operator addr line1:	12040 NE 128TH ST
Operator city,st,zip:	KIRKLAND, WA 98034-3013
Operator country:	UNITED STATES
Operator phone nbr:	(425) 899-1778
Operator effective date:	08/15/1996
Site contact name:	Jeff A Klenovic
Site contact addr line1:	12040 NE 128th St
Site Contact City/State/ Zip:	KIRKLAND, WA 98034-3013
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(425) 899-1783
Site Contact EMail:	jaklenovic@evergreenhealth.com
Form Contact NAME:	Jeff Klenovic
Form Contact ADDR LINE1:	12040 NE 128th St
Form Contact City,ST,Zip:	KIRKLAND, WA 98034-3013
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(425) 899-1783
Form Contact EMail:	jaklenovic@evergreenhealth.com
Gen Status CD:	SQG
Monthly Generation:	False
Batch Generation:	True
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Waste Streams Generated:

Facility ID:	77233621
Data Year:	2014
Description:	CLASS 9 LABPACK
Mix:	False
Reported Qty:	32 LB
Kilo Qty:	14.5152002
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2014
Description:	CLASS B (ALKALINE) LABPACK (DW)
Mix:	False
Reported Qty:	108 LB
Kilo Qty:	48.9888008
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2014
Description:	CLASS 8 (ACID) LABPACK (DW)

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Mix:	False
Reported Qty:	54 LB
Kilo Qty:	24.4944004
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2014
Description:	CLASS 6.1 POISON LABPACK (DW)
Mix:	False
Reported Qty:	110 LB
Kilo Qty:	49.8960008
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2014
Description:	CLASS 3 LABPACK (DW)
Mix:	False
Reported Qty:	100 LB
Kilo Qty:	45.3600007
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Drum /#1 1X5DF
Mix:	False
Reported Qty:	15 LB
Kilo Qty:	6.80400011
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Methanol and xylene solvent waste
Mix:	False
Reported Qty:	75.0600000 LB
Kilo Qty:	34.0472165
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Corroxy - #2 55CF
Mix:	False
Reported Qty:	60 LB
Kilo Qty:	27.2160004
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Merc #1 5DF
Mix:	False
Reported Qty:	5 LB
Kilo Qty:	2.26800003

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Loose Pack Stain Waste
Mix:	False
Reported Qty:	175 LB
Kilo Qty:	79.3800013
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Toxic Buffers
Mix:	False
Reported Qty:	11 LB
Kilo Qty:	4.98960008
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Formalin, Neutralized
Mix:	False
Reported Qty:	287.100000 GAL
Kilo Qty:	1086.10620
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Formalin, Recycled
Mix:	False
Reported Qty:	49.5 GAL
Kilo Qty:	187.259691
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent OPA
Mix:	False
Reported Qty:	137 GAL
Kilo Qty:	518.274296
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent Rapacide
Mix:	False
Reported Qty:	276 GAL
Kilo Qty:	1044.11464
Density No:	8.33999999
Density Qty:	PPG

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Facility ID: 77233621
Data Year: 2015
Description: Spent Rapacide
Mix: False
Reported Qty: 316 GAL
Kilo Qty: 1195.43560
Density No: 8.33999999
Density Qty: PPG

Facility ID: 77233621
Data Year: 2015
Description: CLASS 8 (ALKALINE) LABPACK (DW)
Mix: False
Reported Qty: 20 LB
Kilo Qty: 9.07200015
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2016
Description: Waste Sulfuric Acid
Mix: False
Reported Qty: 20 LB
Kilo Qty: 9.07200015
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2016
Description: Waste Hydrochloric Acid
Mix: False
Reported Qty: 15 LB
Kilo Qty: 6.80400011
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2016
Description: Waste Aerosols
Mix: False
Reported Qty: 8 LB
Kilo Qty: 3.62880006
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-05-27 00:00:00
Reported Qty: 15 LB
Kilo Qty: 6.80400011

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-06-03 00:00:00
Reported Qty: 75.0600000 LB
Kilo Qty: 34.0472165

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 60 LB
Kilo Qty: 27.2160004

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 5 LB
Kilo Qty: 2.26800003

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 175 LB
Kilo Qty: 79.3800013

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-07-29 00:00:00
Reported Qty: 11 LB
Kilo Qty: 4.98960008

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-03-17 00:00:00
Reported Qty: 20 LB
Kilo Qty: 9.07200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-12-18 00:00:00
Reported Qty: 900 LB
Kilo Qty: 408.240007

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-11-20 00:00:00
Reported Qty: 1600 LB
Kilo Qty: 725.760012

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-10-24 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-10-10 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-09-26 00:00:00

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-09-12 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-29 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-15 00:00:00
Reported Qty: 250 LB
Kilo Qty: 113.400001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-01 00:00:00
Reported Qty: 500 LB
Kilo Qty: 226.800003

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-07-25 00:00:00
Reported Qty: 240 LB
Kilo Qty: 108.864001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-07-11 00:00:00
Reported Qty: 250 LB
Kilo Qty: 113.400001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-06-20 00:00:00
Reported Qty: 240 LB
Kilo Qty: 108.864001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-06-06 00:00:00
Reported Qty: 125 LB
Kilo Qty: 56.7000009

Waste Stream Comments:
Facility ID: 77233621
Data Year: 2014
Comments: iTEMS FROM LAB

Facility ID: 77233621

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2015
Comments: A-& Spill clean-up material

Facility ID: 77233621
Data Year: 2015
Comments: spill clean-up debries.

Facility ID: 77233621
Data Year: 2015
Comments: A-7: mercury debries disposal - outdated equipment

Facility ID: 77233621
Data Year: 2015
Comments: Out of spec or outdated chemicals from Lab

Facility ID: 77233621
Data Year: 2015
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2015
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

Facility ID: 77233621
Data Year: 2015
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2015
Comments: This waste stream is generated from the use of a two-part product, Part A and Part B, which are mixed in the disinfection machine. Part A is acidic, bur when mixed with Part B, a buffe, and used for its intended purpose, yields a waste effluent with a pH near nuetral. Studies done onsite show that about half the cycles generate a waste that has an acceptable pH (6.7 or 6.8) and about half the cycles genewrate a waste that has an unacceptable pH (4.7-4.1)

Facility ID: 77233621

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Data Year: 2015
Comments: This waste stream is generated from two tabletop Medivator machines. The product is a one-part disinfectant containing 2.5% glutaraldehyde. King County allows waste up to 4% glutaraldehyde to be discharged without pretreatment because it is readily decomposed in wastewater treatment plants. However, waste containing glutaraldehyde designates as a Category C toxic waste in Washington.

Facility ID: 77233621
Data Year: 2015
Comments: This product was used in CPC (subsequently discontinued) to disinfect endoscopes.

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Disposal of mercury filled Blood Pressure cuff no longer used

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Outdated chemical from Laboratory

Facility ID: 77233621
Data Year: 2016
Comments: A-7: out dated labortory chemical

Facility ID: 77233621
Data Year: 2016
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2016
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

Facility Site ID Number: 77233621
EPA ID: WA0000345306
NAICS: 622110
SWC Desc: WSC2,WT02
FWC Desc: D001,D005,D010,D011,D024,P001,P042,P075,U010,U058,U188,U205,U002
Form Comm: Not reported
Data Year: 2017
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter defferal: False

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	600068426
Business Type:	Acute Care Hospital
Mail Name:	Evergreen Hospital Medical Ctr
Mail addr line1:	12040 NE 128TH ST
Mail city,st,zip:	KIRKLAND, WA 98034-3013
Mail country:	UNITED STATES
Legal org name:	King Cnty
Legal org type:	District
Legal addr line1:	12040 NE 128TH ST
Legal city,st,zip:	KIRKLAND, WA 98034-3013
Legal country:	UNITED STATES
Legal phone nbr:	(425) 899-1783
Legal effective date:	08/15/1996
Land org name:	King County Hospital District #2
Land org type:	District
Land person name:	Not reported
Land addr line1:	12040 NE 128TH ST
Land city,st,zip:	KIRKLAND, WA 98034-3013
Land country:	UNITED STATES
Land phone nbr:	(425)899-1783
Operator org name:	King Cnty
Operator org type:	District
Operator addr line1:	12040 NE 128TH ST
Operator city,st,zip:	KIRKLAND, WA 98034-3013
Operator country:	UNITED STATES
Operator phone nbr:	(425) 899-1778
Operator effective date:	08/15/1996
Site contact name:	Jeff A Klenovic
Site contact addr line1:	12040 NE 128th St
Site Contact City/State/ Zip:	KIRKLAND, WA 98034-3013
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(425) 899-1783
Site Contact EMail:	jaklenovic@evergreenhealth.com
Form Contact NAME:	Jeff A Klenovic
Form Contact ADDR LINE1:	12040 NE 128th St
Form Contact City,ST,Zip:	KIRKLAND, WA 98034-3013
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(425) 899-1783
Form Contact EMail:	jaklenovic@evergreenhealth.com
Gen Status CD:	MQG
Monthly Generation:	False
Batch Generation:	True
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Waste Streams Generated:

Facility ID: 77233621
Data Year: 2014
Description: CLASS 9 LABPACK
Mix: False
Reported Qty: 32 LB
Kilo Qty: 14.5152002
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS B (ALKALINE) LABPACK (DW)
Mix: False
Reported Qty: 108 LB
Kilo Qty: 48.9888008
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS 8 (ACID) LABPACK (DW)
Mix: False
Reported Qty: 54 LB
Kilo Qty: 24.4944004
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS 6.1 POISON LABPACK (DW)
Mix: False
Reported Qty: 110 LB
Kilo Qty: 49.8960008
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2014
Description: CLASS 3 LABPACK (DW)
Mix: False
Reported Qty: 100 LB
Kilo Qty: 45.3600007
Density No: 0
Density Qty: Not reported

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Facility ID: 77233621
Data Year: 2015
Description: Drum /#1 1X5DF
Mix: False
Reported Qty: 15 LB
Kilo Qty: 6.80400011
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Methanol and xylene solvent waste
Mix: False
Reported Qty: 75.0600000 LB
Kilo Qty: 34.0472165
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Corroxy - #2 55CF
Mix: False
Reported Qty: 60 LB
Kilo Qty: 27.2160004
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Merc #1 5DF
Mix: False
Reported Qty: 5 LB
Kilo Qty: 2.26800003
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Loose Pack Stain Waste
Mix: False
Reported Qty: 175 LB
Kilo Qty: 79.3800013
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Toxic Buffers
Mix: False
Reported Qty: 11 LB
Kilo Qty: 4.98960008
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2015
Description: Formalin, Neutralized

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Mix:	False
Reported Qty:	287.100000 GAL
Kilo Qty:	1086.10620
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Formalin, Recycled
Mix:	False
Reported Qty:	49.5 GAL
Kilo Qty:	187.259691
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent OPA
Mix:	False
Reported Qty:	137 GAL
Kilo Qty:	518.274296
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent Rapacide
Mix:	False
Reported Qty:	276 GAL
Kilo Qty:	1044.11464
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent Rapacide
Mix:	False
Reported Qty:	316 GAL
Kilo Qty:	1195.43560
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	CLASS 8 (ALKALINE) LABPACK (DW)
Mix:	False
Reported Qty:	20 LB
Kilo Qty:	9.07200015
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2016
Description:	Waste Sulfuric Acid
Mix:	False
Reported Qty:	20 LB
Kilo Qty:	9.07200015

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2016
Description: Waste Hydrochloric Acid
Mix: False
Reported Qty: 15 LB
Kilo Qty: 6.80400011
Density No: 0
Density Qty: Not reported

Facility ID: 77233621
Data Year: 2016
Description: Waste Aerosols
Mix: False
Reported Qty: 8 LB
Kilo Qty: 3.62880006
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-05-27 00:00:00
Reported Qty: 15 LB
Kilo Qty: 6.80400011

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-06-03 00:00:00
Reported Qty: 75.0600000 LB
Kilo Qty: 34.0472165

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 60 LB
Kilo Qty: 27.2160004

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 5 LB
Kilo Qty: 2.26800003

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 175 LB
Kilo Qty: 79.3800013

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-07-29 00:00:00
Reported Qty: 11 LB
Kilo Qty: 4.98960008

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-03-17 00:00:00
Reported Qty: 20 LB
Kilo Qty: 9.07200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-12-18 00:00:00
Reported Qty: 900 LB
Kilo Qty: 408.240007

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-11-20 00:00:00
Reported Qty: 1600 LB
Kilo Qty: 725.760012

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-10-24 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-10-10 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-09-26 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-09-12 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-29 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-15 00:00:00
Reported Qty: 250 LB
Kilo Qty: 113.400001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-01 00:00:00

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Reported Qty: 500 LB
Kilo Qty: 226.800003

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-07-25 00:00:00
Reported Qty: 240 LB
Kilo Qty: 108.864001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-07-11 00:00:00
Reported Qty: 250 LB
Kilo Qty: 113.400001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-06-20 00:00:00
Reported Qty: 240 LB
Kilo Qty: 108.864001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-06-06 00:00:00
Reported Qty: 125 LB
Kilo Qty: 56.7000009

Waste Stream Comments:
Facility ID: 77233621
Data Year: 2014
Comments: iTEMS FROM LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2015
Comments: A-& Spill clean-up material

Facility ID: 77233621
Data Year: 2015
Comments: spill clean-up debries.

Facility ID: 77233621

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Data Year: 2015
Comments: A-7: mercury debries disposal - outdated equipment

Facility ID: 77233621
Data Year: 2015
Comments: Out of spec or outdated chemicals from Lab

Facility ID: 77233621
Data Year: 2015
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2015
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

Facility ID: 77233621
Data Year: 2015
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2015
Comments: This waste stream is generated from the use of a two-part product, Part A and Part B, which are mixed in the disinfection machine. Part A is acidic, bur when mixed with Part B, a buffe, and used for its intended purpose, yields a waste effluent with a pH near nuetral. Studies done onsite show that about half the cycles generate a waste that has an acceptable pH (6.7 or 6.8) and about half the cycles genewrate a waste that has an unacceptable pH (4.7-4.1)

Facility ID: 77233621
Data Year: 2015
Comments: This waste stream is generated from two tabletop Medivator machines. The product is a one-part disinfectant containing 2.5% glutaraldehyde. King County allows waste up to 4% glutaraldehyde to be discharged without pretreatment because it is readily decomposed in wastewater treatment plants. However, waste containing glutaraldehyde designates as a Category C toxic waste in Washington.

Facility ID: 77233621
Data Year: 2015
Comments: This product was used in CPC (subsequently discontinued) to disinfect endoscopes.

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Disposal of mercury filled Blood Pressure cuff no longer used

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Outdated chemical from Laboratory

Facility ID: 77233621
Data Year: 2016
Comments: A-7: out dated labortory chemical

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Facility ID: 77233621
Data Year: 2016
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2016
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

Facility Site ID Number:	77233621
EPA ID:	WA0000345306
NAICS:	622110
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	2012
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	600068426
Business Type:	Acute Care Hospital
Mail Name:	Evergreen Hospital Medical Ctr
Mail addr line1:	12040 NE 128TH ST
Mail city,st,zip:	KIRKLAND, WA 98034-3013
Mail country:	UNITED STATES
Legal org name:	King Cnty
Legal org type:	District
Legal addr line1:	12040 NE 128TH ST
Legal city,st,zip:	KIRKLAND, WA 98034-3013
Legal country:	UNITED STATES
Legal phone nbr:	(425) 899-1783
Legal effective date:	08/15/1996

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Land org name:	King County Hospital District #2
Land org type:	District
Land person name:	Not reported
Land addr line1:	12040 NE 128TH ST
Land city,st,zip:	KIRKLAND, WA 98034-3013
Land country:	UNITED STATES
Land phone nbr:	(425)899-1783
Operator org name:	King Cnty
Operator org type:	District
Operator addr line1:	12040 NE 128TH ST
Operator city,st,zip:	KIRKLAND, WA 98034-3013
Operator country:	UNITED STATES
Operator phone nbr:	(425) 899-1778
Operator effective date:	08/15/1996
Site contact name:	Chuck Thorell
Site contact addr line1:	12040 NE 128th St
Site Contact City/State/ Zip:	KIRKLAND, WA 98034-3013
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(425) 899-1783
Site Contact EMail:	cthorell@evergreenhealthcare.org
Form Contact NAME:	Chuck Thorell
Form Contact ADDR LINE1:	12040 NE 128th St
Form Contact City,ST,Zip:	KIRKLAND, WA 98034-3013
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(425) 899-1783
Form Contact EMail:	cthorell@evergreenhealthcare.org
Gen Status CD:	SQG
Monthly Generation:	False
Batch Generation:	True
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Waste Streams Generated:

Facility ID:	77233621
Data Year:	2014
Description:	CLASS 9 LABPACK
Mix:	False
Reported Qty:	32 LB
Kilo Qty:	14.5152002
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2014
Description:	CLASS B (ALKALINE) LABPACK (DW)
Mix:	False

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Reported Qty:	108 LB
Kilo Qty:	48.9888008
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2014
Description:	CLASS 8 (ACID) LABPACK (DW)
Mix:	False
Reported Qty:	54 LB
Kilo Qty:	24.4944004
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2014
Description:	CLASS 6.1 POISON LABPACK (DW)
Mix:	False
Reported Qty:	110 LB
Kilo Qty:	49.8960008
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2014
Description:	CLASS 3 LABPACK (DW)
Mix:	False
Reported Qty:	100 LB
Kilo Qty:	45.3600007
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Drum /#1 1X5DF
Mix:	False
Reported Qty:	15 LB
Kilo Qty:	6.80400011
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Methanol and xylene solvent waste
Mix:	False
Reported Qty:	75.0600000 LB
Kilo Qty:	34.0472165
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Corroxy - #2 55CF
Mix:	False
Reported Qty:	60 LB
Kilo Qty:	27.2160004
Density No:	0

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Merc #1 5DF
Mix:	False
Reported Qty:	5 LB
Kilo Qty:	2.26800003
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Loose Pack Stain Waste
Mix:	False
Reported Qty:	175 LB
Kilo Qty:	79.3800013
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Toxic Buffers
Mix:	False
Reported Qty:	11 LB
Kilo Qty:	4.98960008
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2015
Description:	Formalin, Neutralized
Mix:	False
Reported Qty:	287.100000 GAL
Kilo Qty:	1086.10620
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Formalin, Recycled
Mix:	False
Reported Qty:	49.5 GAL
Kilo Qty:	187.259691
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent OPA
Mix:	False
Reported Qty:	137 GAL
Kilo Qty:	518.274296
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Data Year:	2015
Description:	Spent Rapacide
Mix:	False
Reported Qty:	276 GAL
Kilo Qty:	1044.11464
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	Spent Rapacide
Mix:	False
Reported Qty:	316 GAL
Kilo Qty:	1195.43560
Density No:	8.33999999
Density Qty:	PPG

Facility ID:	77233621
Data Year:	2015
Description:	CLASS 8 (ALKALINE) LABPACK (DW)
Mix:	False
Reported Qty:	20 LB
Kilo Qty:	9.07200015
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2016
Description:	Waste Sulfuric Acid
Mix:	False
Reported Qty:	20 LB
Kilo Qty:	9.07200015
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2016
Description:	Waste Hydrochloric Acid
Mix:	False
Reported Qty:	15 LB
Kilo Qty:	6.80400011
Density No:	0
Density Qty:	Not reported

Facility ID:	77233621
Data Year:	2016
Description:	Waste Aerosols
Mix:	False
Reported Qty:	8 LB
Kilo Qty:	3.62880006
Density No:	0
Density Qty:	Not reported

Shipments Sent:

Facility ID:	77233621
Data Year:	2015
Shipment sent data:	2015-05-27 00:00:00

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Reported Qty: 15 LB
Kilo Qty: 6.80400011

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-06-03 00:00:00
Reported Qty: 75.0600000 LB
Kilo Qty: 34.0472165

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 60 LB
Kilo Qty: 27.2160004

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 5 LB
Kilo Qty: 2.26800003

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-12-23 00:00:00
Reported Qty: 175 LB
Kilo Qty: 79.3800013

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-07-29 00:00:00
Reported Qty: 11 LB
Kilo Qty: 4.98960008

Facility ID: 77233621
Data Year: 2015
Shipment sent data: 2015-03-17 00:00:00
Reported Qty: 20 LB
Kilo Qty: 9.07200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-12-18 00:00:00
Reported Qty: 900 LB
Kilo Qty: 408.240007

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-11-20 00:00:00
Reported Qty: 1600 LB
Kilo Qty: 725.760012

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-10-24 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-10-10 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-09-26 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-09-12 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-29 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-15 00:00:00
Reported Qty: 250 LB
Kilo Qty: 113.400001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-08-01 00:00:00
Reported Qty: 500 LB
Kilo Qty: 226.800003

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-07-25 00:00:00
Reported Qty: 240 LB
Kilo Qty: 108.864001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-07-11 00:00:00
Reported Qty: 250 LB
Kilo Qty: 113.400001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-06-20 00:00:00
Reported Qty: 240 LB
Kilo Qty: 108.864001

Facility ID: 77233621
Data Year: 2017
Shipment sent data: 2017-06-06 00:00:00

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Reported Qty: 125 LB
Kilo Qty: 56.7000009

Waste Stream Comments:
Facility ID: 77233621
Data Year: 2014
Comments: iTEMS FROM LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2014
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2015
Comments: A-& Spill clean-up material

Facility ID: 77233621
Data Year: 2015
Comments: spill clean-up debries.

Facility ID: 77233621
Data Year: 2015
Comments: A-7: mercury debries disposal - outdated equipment

Facility ID: 77233621
Data Year: 2015
Comments: Out of spec or outdated chemicals from Lab

Facility ID: 77233621
Data Year: 2015
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2015
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

Facility ID: 77233621
Data Year: 2015
Comments: SOURCE - LAB

Facility ID: 77233621
Data Year: 2015

EVERGREEN HOSPITAL MEDICAL CTR (Continued) **1004793242**

Comments: This waste stream is generated from the use of a two-part product, Part A and Part B, which are mixed in the disinfection machine. Part A is acidic, bur when mixed with Part B, a buffe, and used for its intended purpose, yields a waste effluent with a pH near nuetral. Studies done onsite show that about half the cycles generate a waste that has an acceptable pH (6.7 or 6.8) and about half the cycles genewrate a waste that has an unacceptable pH (4.7-4.1)

Facility ID: 77233621
Data Year: 2015
Comments: This waste stream is generated from two tabletop Medivator machines. The product is a one-part disinfectant containing 2.5% glutaraldehyde. King County allows waste up to 4% glutaraldehyde to be discharged without pretreatment because it is readily decomposed in wastewater treatment plants. However, waste containing glutaraldehyde designates as a Category C toxic waste in Washington.

Facility ID: 77233621
Data Year: 2015
Comments: This product was used in CPC (subsequently discontinued) to disinfect endoscopes.

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Disposal of mercury filled Blood Pressure cuff no longer used

Facility ID: 77233621
Data Year: 2016
Comments: A-7: Outdated chemical from Laboratory

Facility ID: 77233621
Data Year: 2016
Comments: A-7: out dated labortory chemical

Facility ID: 77233621
Data Year: 2016
Comments: Most waste formalin is evidently neutralized by Pathology staff and discharged to the sanitary sewer.

Facility ID: 77233621
Data Year: 2016
Comments: Waste formalin is occasionally recycled by Pathology staff when it meets certain quality criteria. The formalin is reused to preserve specimens.

F27 **SEATTLE CANCER CARE ALLIANCE** **WA ALLSITES** **S112209403**
North **12040 NE 128TH ST STE 1600** **WA MANIFEST** **N/A**
1/8-1/4 **KIRKLAND, WA 98034**
0.200 mi.
1055 ft. **Site 2 of 3 in cluster F**

Relative: ALLSITES:
Higher Facility Name: SEATTLE CANCER CARE ALLIANCE AT EVERGREE
Actual: Facility Id: 23717
189 ft.

Interaction: 102590
Interaction 1: A

SEATTLE CANCER CARE ALLIANCE (Continued) **S112209403**

Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Seattle Cancer Care Alliance
Program ID:	WAH000042102
Date Interaction:	2012-10-01 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.715795053999997
Longitude:	-122.178231643

WA MANIFEST:

Facility Site ID Number:	23717
EPA ID:	WAH000042102
NAICS:	621498
SWC Desc:	Not reported
FWC Desc:	P001,P042,U010,U058
Form Comm:	Sections 5, 7: Other = Non-profit corporation
Data Year:	2017
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	601883375
Business Type:	Cancer Outpatient Clinic
Mail Name:	Seattle Cancer Care Alliance
Mail addr line1:	825 Eastlake Ave E
Mail city,st,zip:	Seattle, WA 98109
Mail country:	UNITED STATES
Legal org name:	Seattle Cancer Care Alliance
Legal org type:	Other
Legal addr line1:	825 Eastlake Ave E
Legal city,st,zip:	Seattle, WA 98109
Legal country:	UNITED STATES
Legal phone nbr:	206-288-7222
Legal effective date:	11/05/2012

SEATTLE CANCER CARE ALLIANCE (Continued) **S112209403**

Land org name:	King County Public Hospital Dist No 2
Land org type:	Private
Land person name:	Not reported
Land addr line1:	12040 NE 128th St
Land city,st,zip:	Kirkland, WA 98034
Land country:	UNITED STATES
Land phone nbr:	425-899-1000
Operator org name:	Not reported
Operator org type:	Other
Operator addr line1:	12040 NE 128th St Ste 1600
Operator city,st,zip:	Kirkland, WA 98034
Operator country:	UNITED STATES
Operator phone nbr:	206-681-5216
Operator effective date:	01/01/2012
Site contact name:	Jason Good
Site contact addr line1:	1100 Fairview Ave. N.
Site Contact City/State/ Zip:	Seattle, WA 98109-1024
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(206)667-4250
Site Contact EMail:	jgood@fhcrc.org
Form Contact NAME:	Jason Good
Form Contact ADDR LINE1:	1100 Fairview Ave N
Form Contact City,ST,Zip:	Seattle, WA 98109-1024
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(206)667-4250
Form Contact EMail:	jgood@fhcrc.org
Gen Status CD:	SQG
Monthly Generation:	True
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Facility Site ID Number:	23717
EPA ID:	WAH000042102
NAICS:	621498
SWC Desc:	Not reported
FWC Desc:	P001,P042,U010,U058
Form Comm:	Sections 5, 7: Other = Non-profit corporation
Data Year:	2016
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False

SEATTLE CANCER CARE ALLIANCE (Continued) **S112209403**

Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	601883375
Business Type:	Cancer Outpatient Clinic
Mail Name:	Seattle Cancer Care Alliance
Mail addr line1:	825 Eastlake Ave E
Mail city,st,zip:	Seattle, WA 98109
Mail country:	UNITED STATES
Legal org name:	Seattle Cancer Care Alliance
Legal org type:	Other
Legal addr line1:	825 Eastlake Ave E
Legal city,st,zip:	Seattle, WA 98109
Legal country:	UNITED STATES
Legal phone nbr:	206-288-7222
Legal effective date:	11/05/2012
Land org name:	King County Public Hospital Dist No 2
Land org type:	Private
Land person name:	Not reported
Land addr line1:	12040 NE 128th St
Land city,st,zip:	Kirkland, WA 98034
Land country:	UNITED STATES
Land phone nbr:	425-899-1000
Operator org name:	Not reported
Operator org type:	Other
Operator addr line1:	12040 NE 128th St Ste 1600
Operator city,st,zip:	Kirkland, WA 98034
Operator country:	UNITED STATES
Operator phone nbr:	206-681-5216
Operator effective date:	01/01/2012
Site contact name:	Jason Good
Site contact addr line1:	1100 Fairview Ave. N.
Site Contact City/State/ Zip:	Seattle, WA 98109-1024
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(206)667-4250
Site Contact EMail:	jgood@fhcrc.org
Form Contact NAME:	Jason Good
Form Contact ADDR LINE1:	1100 Fairview Ave N
Form Contact City,ST,Zip:	Seattle, WA 98109-1024
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(206)667-4250

SEATTLE CANCER CARE ALLIANCE (Continued) **S112209403**

Form Contact EMail:	jgood@fhcrc.org
Gen Status CD:	SQG
Monthly Generation:	True
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Facility Site ID Number:	23717
EPA ID:	WAH000042102
NAICS:	621498
SWC Desc:	Not reported
FWC Desc:	U010, U058, P001, P042
Form Comm:	Sections 5, 7: Other = Non-profit corporation
Data Year:	2013
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	601883375
Business Type:	Cancer Outpatient Clinic
Mail Name:	Seattle Cancer Care Alliance
Mail addr line1:	825 Eastlake Ave E
Mail city,st,zip:	Seattle, WA 98109
Mail country:	UNITED STATES

SEATTLE CANCER CARE ALLIANCE (Continued) **S112209403**

Legal org name:	Seattle Cancer Care Alliance
Legal org type:	Other
Legal addr line1:	825 Eastlake Ave E
Legal city,st,zip:	Seattle, WA 98109
Legal country:	UNITED STATES
Legal phone nbr:	206-288-7222
Legal effective date:	11/05/2012
Land org name:	King County Public Hospital Dist No 2
Land org type:	Private
Land person name:	Not reported
Land addr line1:	12040 NE 128th St
Land city,st,zip:	Kirkland, WA 98034
Land country:	UNITED STATES
Land phone nbr:	425-899-1000
Operator org name:	Not reported
Operator org type:	Other
Operator addr line1:	12040 NE 128th St Ste 1600
Operator city,st,zip:	Kirkland, WA 98034
Operator country:	UNITED STATES
Operator phone nbr:	206-681-5216
Operator effective date:	01/01/2012
Site contact name:	Jason Good
Site contact addr line1:	1100 Fairview Ave. N.
Site Contact City/State/ Zip:	Seattle, WA 98109-1024
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(206)667-4250
Site Contact EMail:	jgood@fhcrc.org
Form Contact NAME:	Jason Good
Form Contact ADDR LINE1:	1100 Fairview Ave N
Form Contact City,ST,Zip:	Seattle, WA 98109-1024
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(206)667-4250
Form Contact EMail:	jgood@fhcrc.org
Gen Status CD:	SQG
Monthly Generation:	True
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Facility Site ID Number:	23717
EPA ID:	WAH000042102
NAICS:	621498
SWC Desc:	Not reported
FWC Desc:	P001,P042,U010,U058
Form Comm:	Sections 5, 7: Other = Non-profit corporation

SEATTLE CANCER CARE ALLIANCE (Continued) **S112209403**

Data Year:	2015
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	601883375
Business Type:	Cancer Outpatient Clinic
Mail Name:	Seattle Cancer Care Alliance
Mail addr line1:	825 Eastlake Ave E
Mail city,st,zip:	Seattle, WA 98109
Mail country:	UNITED STATES
Legal org name:	Seattle Cancer Care Alliance
Legal org type:	Other
Legal addr line1:	825 Eastlake Ave E
Legal city,st,zip:	Seattle, WA 98109
Legal country:	UNITED STATES
Legal phone nbr:	206-288-7222
Legal effective date:	11/05/2012
Land org name:	King County Public Hospital Dist No 2
Land org type:	Private
Land person name:	Not reported
Land addr line1:	12040 NE 128th St
Land city,st,zip:	Kirkland, WA 98034
Land country:	UNITED STATES
Land phone nbr:	425-899-1000
Operator org name:	Not reported
Operator org type:	Other
Operator addr line1:	12040 NE 128th St Ste 1600
Operator city,st,zip:	Kirkland, WA 98034
Operator country:	UNITED STATES
Operator phone nbr:	206-681-5216
Operator effective date:	01/01/2012
Site contact name:	Jason Good
Site contact addr line1:	1100 Fairview Ave. N.
Site Contact City/State/ Zip:	Seattle, WA 98109-1024
Site Contact Country:	UNITED STATES

SEATTLE CANCER CARE ALLIANCE (Continued) **S112209403**

Site Contact Phone #:	(206)667-4250
Site Contact EMail:	jgood@fhcrc.org
Form Contact NAME:	Jason Good
Form Contact ADDR LINE1:	1100 Fairview Ave N
Form Contact City,ST,Zip:	Seattle, WA 98109-1024
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(206)667-4250
Form Contact EMail:	jgood@fhcrc.org
Gen Status CD:	SQG
Monthly Generation:	True
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Facility Site ID Number:	23717
EPA ID:	WAH000042102
NAICS:	621498
SWC Desc:	Not reported
FWC Desc:	P001,P042,U010,U058
Form Comm:	Sections 5, 7: Other = Non-profit corporation
Data Year:	2014
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False

SEATTLE CANCER CARE ALLIANCE (Continued) **S112209403**

Off-specification used oil burner - industrial furnace: False
Tax Reg #: 601883375
Business Type: Cancer Outpatient Clinic
Mail Name: Seattle Cancer Care Alliance
Mail addr line1: 825 Eastlake Ave E
Mail city,st,zip: Seattle, WA 98109
Mail country: UNITED STATES
Legal org name: Seattle Cancer Care Alliance
Legal org type: Other
Legal addr line1: 825 Eastlake Ave E
Legal city,st,zip: Seattle, WA 98109
Legal country: UNITED STATES
Legal phone nbr: 206-288-7222
Legal effective date: 11/05/2012
Land org name: King County Public Hospital Dist No 2
Land org type: Private
Land person name: Not reported
Land addr line1: 12040 NE 128th St
Land city,st,zip: Kirkland, WA 98034
Land country: UNITED STATES
Land phone nbr: 425-899-1000
Operator org name: Not reported
Operator org type: Other
Operator addr line1: 12040 NE 128th St Ste 1600
Operator city,st,zip: Kirkland, WA 98034
Operator country: UNITED STATES
Operator phone nbr: 206-681-5216
Operator effective date: 01/01/2012
Site contact name: Jason Good
Site contact addr line1: 1100 Fairview Ave. N.
Site Contact City/State/ Zip: Seattle, WA 98109-1024
Site Contact Country: UNITED STATES
Site Contact Phone #: (206)667-4250
Site Contact EMail: jgood@fhcrc.org
Form Contact NAME: Jason Good
Form Contact ADDR LINE1: 1100 Fairview Ave N
Form Contact City,ST,Zip: Seattle, WA 98109-1024
Form Contact Country: UNITED STATES
Form Contact Phone #: (206)667-4250
Form Contact EMail: jgood@fhcrc.org
Gen Status CD: SQG
Monthly Generation: True
Batch Generation: False
One Time Generation: False
Transport Own Waste: False
Tranports Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

SEATTLE CANCER CARE ALLIANCE (Continued) **S112209403**

Facility Site ID Number:	23717
EPA ID:	WAH000042102
NAICS:	621498
SWC Desc:	Not reported
FWC Desc:	U010, U058, P001, P042
Form Comm:	Section 7: Other = Non-profit corporation
Data Year:	2012
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	601883375
Business Type:	Cancer Outpatient Clinic
Mail Name:	Seattle Cancer Care Alliance
Mail addr line1:	825 Eastlake Ave E
Mail city,st,zip:	Seattle, WA 98109
Mail country:	UNITED STATES
Legal org name:	King County Public Hospital Dist No 2
Legal org type:	Private
Legal addr line1:	12040 NE 128th St
Legal city,st,zip:	Kirkland, WA 98034
Legal country:	UNITED STATES
Legal phone nbr:	425-899-1000
Legal effective date:	01/01/1972
Land org name:	King County Public Hospital Dist No 2
Land org type:	Private
Land person name:	Not reported
Land addr line1:	12040 NE 128th St
Land city,st,zip:	Kirkland, WA 98034
Land country:	UNITED STATES
Land phone nbr:	425-899-1000
Operator org name:	Not reported
Operator org type:	Other
Operator addr line1:	12040 NE 128th St Ste 1600
Operator city,st,zip:	Kirkland, WA 98034
Operator country:	UNITED STATES

SEATTLE CANCER CARE ALLIANCE (Continued) **S112209403**

Operator phone nbr:	206-681-5216
Operator effective date:	01/01/2012
Site contact name:	Jason Good
Site contact addr line1:	1100 Fairview Ave. N.
Site Contact City/State/ Zip:	Seattle, WA 98109-1024
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(206)667-4250
Site Contact EMail:	jgood@fhcrc.org
Form Contact NAME:	Jason Good
Form Contact ADDR LINE1:	1100 Fairview Ave N
Form Contact City,ST,Zip:	Seattle, WA 98109-1024
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(206)667-4250
Form Contact EMail:	jgood@fhcrc.org
Gen Status CD:	SQG
Monthly Generation:	True
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

F28 **SEATTLE CANCER CARE ALLIANCE** **RCRA-CESQG** **1016977435**
North **12040 NE 128TH ST STE 1600** **WAH000042102**
1/8-1/4 **KIRKLAND, WA 98034**
0.200 mi.
1055 ft. **Site 3 of 3 in cluster F**

Relative:
Higher

Actual:
189 ft.

RCRA-CESQG:

Date form received by agency:	01/12/2016
Facility name:	SEATTLE CANCER CARE ALLIANCE
Facility address:	12040 NE 128TH ST STE 1600 KIRKLAND, WA 98034
EPA ID:	WAH000042102
Mailing address:	825 EASTLAKE AVE E SEATTLE, WA 98109
Contact:	JASON GOOD
Contact address:	1100 FAIRVIEW AVE N SEATTLE, WA 98109-1024
Contact country:	US
Contact telephone:	206-667-4250
Contact email:	JGOOD@FHCRC.ORG
EPA Region:	10
Classification:	Conditionally Exempt Small Quantity Generator
Description:	Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous

SEATTLE CANCER CARE ALLIANCE (Continued) **1016977435**

waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Owner/Operator Summary:

Owner/operator name:	KING COUNTY PUBLIC HOSPITAL DIST NO 2
Owner/operator address:	12040 NE 128TH ST KIRKLAND, WA 98034
Owner/operator country:	US
Owner/operator telephone:	425-899-1000
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	01/12/2016
Owner/Op end date:	Not reported

Owner/operator name:	KING COUNTY PUBLIC HOSPITAL DIST NO 2
Owner/operator address:	12040 NE 128TH ST KIRKLAND, WA 98034
Owner/operator country:	US
Owner/operator telephone:	206-681-5216
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	01/12/2016
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

. Waste code: P001

SEATTLE CANCER CARE ALLIANCE (Continued) **1016977435**

. Waste name: 2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYLBUTYL)-, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3%

. Waste code: P042
. Waste name: 1,2-BENZENEDIOL, 4-[1-HYDROXY-2-(METHYLAMINO)ETHYL]-, (R)-

. Waste code: U010
. Waste name: AZIRINO[2',3':3,4]PYRROLO[1,2-A]INDOLE-4,7-DIONE, 6-AMINO-8-[[(AMINOCARBONYL)OXY]METHYL]- 1,1A,2,8,8A,8B-HEXAHYDRO-8A-METHOXY-5-METHYL-, [1AS-(1AALPHA, 8BETA,8AALPHA,8BALPHA)]-

. Waste code: U058
. Waste name: CYCLOPHOSPHAMIDE

Historical Generators:
Date form received by agency: 01/21/2015
Site name: SEATTLE CANCER CARE ALLIANCE
Classification: Conditionally Exempt Small Quantity Generator

. Waste code: P001
. Waste name: 2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYLBUTYL)-, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3%

. Waste code: P042
. Waste name: 1,2-BENZENEDIOL, 4-[1-HYDROXY-2-(METHYLAMINO)ETHYL]-, (R)-

. Waste code: U010
. Waste name: AZIRINO[2',3':3,4]PYRROLO[1,2-A]INDOLE-4,7-DIONE, 6-AMINO-8-[[(AMINOCARBONYL)OXY]METHYL]- 1,1A,2,8,8A,8B-HEXAHYDRO-8A-METHOXY-5-METHYL-, [1AS-(1AALPHA, 8BETA,8AALPHA,8BALPHA)]-

. Waste code: U058
. Waste name: CYCLOPHOSPHAMIDE

Date form received by agency: 10/01/2012
Site name: SEATTLE CANCER CARE ALLIANCE AT EVERGREE
Classification: Conditionally Exempt Small Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: P001
. Waste name: 2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYLBUTYL)-, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3%

. Waste code: P042
. Waste name: 1,2-BENZENEDIOL, 4-[1-HYDROXY-2-(METHYLAMINO)ETHYL]-, (R)-

. Waste code: U010

SEATTLE CANCER CARE ALLIANCE (Continued) **1016977435**

. Waste name: AZIRINO[2',3':3,4]PYRROLO[1,2-A]INDOLE-4,7-DIONE, 6-AMINO-8-[[(AMINOCARBONYL)OXY]METHYL]-1,1A,2,8,8A,8B-HEXAHYDRO-8A-METHOXY-5-METHYL-, [1AS-(1AALPHA, 8BETA,8AALPHA,8BALPHA)]-

. Waste code: U058
. Waste name: CYCLOPHOSPHAMIDE

Violation Status: No violations found

E29
SE
1/8-1/4
0.204 mi.
1077 ft.

RJB WHOLESALE INC
12418 NE 124TH ST
KIRKLAND, WA 98034

WA UST **U001126235**
WA ALLSITES **N/A**

Site 2 of 3 in cluster E

Relative:
Higher

Actual:
142 ft.

UST:

Facility ID:	32459291
Site Id:	10195
UBI:	Not reported
Phone Number:	Not reported
Decimal Latitude:	47.70854
Decimal Longitude:	-122.177135
Tank Name:	1
Tag Number:	Not reported
Tank Status:	Removed
Tank Status Date:	08/06/1996
Tank Install Date:	00/31/1964
Tank Closure Date:	Not reported
Capacity Range:	Not reported
Tank Permit Expiration Date:	Not reported
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Steel
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported
Tank Name:	2
Tag Number:	Not reported
Tank Status:	Removed
Tank Status Date:	08/06/1996
Tank Install Date:	00/31/1964
Tank Closure Date:	Not reported
Capacity Range:	Not reported

RJB WHOLESALE INC (Continued) **U001126235**

Tank Permit Expiration Date:	Not reported
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Steel
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

ALLSITES:

Facility Name:	RJB WHOLESALE INC
Facility Id:	32459291

Interaction:	37934
Interaction 1:	I
Interaction 2:	UST
Ecology Program:	TOXICS
Program Data:	UST
Facility Alt.:	Not reported
Program ID:	10195
Date Interaction:	2000-02-29 00:00:00
Date Interaction 3:	Underground Storage Tank
Latitude:	47.708534360000002
Longitude:	-122.177120106

G30 **RUSSELL J BECK** **WA UST** **U000800881**
SE **12442 NE 124TH ST PO BOX 583** **WA ALLSITES** **N/A**
1/8-1/4 **KIRKLAND, WA 98083**
0.213 mi.
1127 ft. **Site 1 of 2 in cluster G**

Relative:
Higher

Actual:
136 ft.

UST:

Facility ID:	11122758
Site Id:	8162
UBI:	Not reported
Phone Number:	Not reported
Decimal Latitude:	47.70854
Decimal Longitude:	-122.176805

Tank Name:	UNLEADED GAS
Tag Number:	Not reported
Tank Status:	Removed
Tank Status Date:	08/06/1996
Tank Install Date:	00/31/1964
Tank Closure Date:	Not reported

RUSSELL J BECK (Continued) **U000800881**

Capacity Range:	Not reported
Tank Permit Expiration Date:	Not reported
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Not reported
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

ALLSITES:

Facility Name:	RUSSELL J BECK
Facility Id:	11122758

Interaction:	25893
Interaction 1:	I
Interaction 2:	UST
Ecology Program:	TOXICS
Program Data:	UST
Facility Alt.:	Not reported
Program ID:	8162
Date Interaction:	2000-02-29 00:00:00
Date Interaction 3:	Underground Storage Tank
Latitude:	47.708534360000002
Longitude:	-122.176790107

G31 **WESCO AUTOBODY SUPPLY INCORPORATED KIRKLAND** **WA ALLSITES** **1001491362**
ESE **12532 NE 124TH ST** **RCRA NonGen / NLR** **WA0000049692**
1/8-1/4 **KIRKLAND, WA 98034** **FINDS**
0.218 mi. **ECHO**
1153 ft. **Site 2 of 2 in cluster G**

Relative:
Higher

Actual:
135 ft.

ALLSITES:

Facility Name:	WESCO AUTOBODY SUPPLY INC KIRKLAND
Facility Id:	18211813

Interaction:	30416
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WA0000049692
Date Interaction:	1993-11-05 00:00:00
Date Interaction 3:	Hazardous Waste Generator

WESCO AUTOBODY SUPPLY INCORPORATED KIRKLAND (Continued) **1001491362**

Latitude: 47.709888376000002
Longitude: -122.173333296

RCRA NonGen / NLR:
Date form received by agency: 03/21/1996
Facility name: WESCO AUTOBODY SUPPLY INC KIRKLAND
Facility address: 12532 NE 124TH ST
KIRKLAND, WA 98033
EPA ID: WA0000049692
Contact: BERNIE PLETSCHET
Contact address: PO BOX 5003
LYNNWOOD, WA 98046
Contact country: US
Contact telephone: 206-771-0926
Contact email: Not reported
EPA Region: 10
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: WESCO AUTOBODY SUPPLY INC
Owner/operator address: PO BOX 5003
LYNNWOOD, WA 98046
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: BUCHAN BROS
Owner/operator address: 11555 NORTHRUP WAY
BELLEVUE, WA 98004
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No

WESCO AUTOBODY SUPPLY INCORPORATED KIRKLAND (Continued) **1001491362**

Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 10/19/1995
Site name: WESCO AUTOBODY SUPPLY INC KIRKLAND
Classification: Conditionally Exempt Small Quantity Generator

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Date form received by agency: 01/12/1994
Site name: WESCO AUTOBODY SUPPLY INC KIRKLAND
Classification: Not a generator, verified

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED

WESCO AUTOBODY SUPPLY INCORPORATED KIRKLAND (Continued) **1001491362**

SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: WT02
. Waste name: WT02

Date form received by agency: 10/06/1993
Site name: WESCO AUTOBODY SUPPLY INC KIRKLAND
Classification: Small Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: WT02
. Waste name: WT02

WESCO AUTOBODY SUPPLY INCORPORATED KIRKLAND (Continued) **1001491362**

Violation Status: No violations found

FINDS:

Registry ID: 110005301869

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1001491362
Registry ID: 110005301869
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110005301869

E32
SSE
1/8-1/4
0.224 mi.
1183 ft.

Relative:
Higher

Actual:
150 ft.

EVERGREEN AUTO REBUILD INC
12350 124TH AVE NE
KIRKLAND, WA 98034

Site 3 of 3 in cluster E

RCRA-CESQG **1000357893**
WA ALLSITES **WAD070392303**
WA CSCSL NFA
FINDS
ECHO
WA MANIFEST

RCRA-CESQG:
Date form received by agency: 01/06/2012
Facility name: EVERGREEN AUTO REBUILD INC
Facility address: 12350 124TH AVE NE
KIRKLAND, WA 98034
EPA ID: WAD070392303
Mailing address: 12350 124TH AVE NE STE A
KIRKLAND, WA 98034
Contact: DON G WHITCHER
Contact address: 12350 124TH AVE NE STE A
KIRKLAND, WA 98034
Contact country: US
Contact telephone: 425-823-8888
Contact email: Not reported
EPA Region: 10
Land type: Private
Classification: Conditionally Exempt Small Quantity Generator
Description: Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous

EVERGREEN AUTO REBUILD INC (Continued) **1000357893**

waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Owner/Operator Summary:

Owner/operator name:	EVERGREEN AUTO E
Owner/operator address:	12350 124TH AVE NE STE A KIRKLAND, WA 98034
Owner/operator country:	US
Owner/operator telephone:	425-823-8888
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	09/04/1996
Owner/Op end date:	Not reported

Owner/operator name:	DON WHITCHER
Owner/operator address:	12350 124TH AVE NE STE A KIRKLAND, WA 98034
Owner/operator country:	US
Owner/operator telephone:	425-823-8888
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	09/04/1996
Owner/Op end date:	Not reported

Owner/operator name:	DON WHITCHER
Owner/operator address:	12350 124TH AVE NE STE A KIRKLAND, WA 98034
Owner/operator country:	US
Owner/operator telephone:	Not reported
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	09/04/1996
Owner/Op end date:	Not reported

Owner/operator name:	DON W
Owner/operator address:	12350 124TH AVE NE STE A KIRKLAND, WA 98034
Owner/operator country:	US
Owner/operator telephone:	425-823-8888
Owner/operator email:	Not reported

EVERGREEN AUTO REBUILD INC (Continued) **1000357893**

Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 09/04/1996
Owner/Op end date: Not reported

Owner/operator name: EVERGREEN AUTO REBUILD INC
Owner/operator address: 12350 124TH AVE NE STE A
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 425-823-8888
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 09/04/1996
Owner/Op end date: Not reported

Owner/operator name: EVERGREEN AUTO REBUILD INC
Owner/operator address: 12350 124TH AVE NE STE A
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 09/04/1996
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

. Waste code: WSQG
. Waste name: WSQG

Historical Generators:
Date form received by agency: 03/09/2011
Site name: EVERGREEN AUTO REBUILD INC

EVERGREEN AUTO REBUILD INC (Continued) **1000357893**

Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 01/12/2010
Site name: EVERGREEN AUTO REBUILD INC
Classification: Conditionally Exempt Small Quantity Generator

. Waste code: WSQG
. Waste name: WSQG

Date form received by agency: 12/31/2007
Site name: EVERGREEN AUTO REBUILD INC
Classification: Not a generator, verified

Date form received by agency: 04/26/2006
Site name: EVERGREEN AUTO REBUILD INC
Classification: Not a generator, verified

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D005
. Waste name: BARIUM

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: F001
. Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLOROETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE, AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Date form received by agency: 12/31/2005
Site name: EVERGREEN AUTO REBUILD INC
Classification: Not a generator, verified

EVERGREEN AUTO REBUILD INC (Continued) **1000357893**

Date form received by agency: 12/31/2003
Site name: EVERGREEN AUTO REBUILD INC
Classification: Small Quantity Generator

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 01/11/2005
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

ALLSITES:
Facility Name: EVERGREEN AUTO REBUILD INC
Facility Id: 2396

Interaction: 4362
Interaction 1: I
Interaction 2: SCS
Ecology Program: TOXICS
Program Data: ISIS
Facility Alt.: Evergreen Auto Rebuild Inc
Program ID: Not reported
Date Interaction: 1992-02-05 00:00:00
Date Interaction 3: State Cleanup Site
Latitude: 47.703912819999999
Longitude: -122.176679157

Interaction: 4361
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Evergreen Auto Rebuild Inc
Program ID: WAD070392303
Date Interaction: 1986-06-23 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.703912819999999
Longitude: -122.176679157

Interaction: 105044
Interaction 1: A
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: ABRA Auto Body & Glass Kirkland
Program ID: WAD070392303
Date Interaction: 2013-05-14 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.703912819999999
Longitude: -122.176679157

EVERGREEN AUTO REBUILD INC (Continued) **1000357893**

CSCSL NFA:

Facility/Site Id:	2396
CS Id:	2777
NFA Date:	12/20/1996
Rank:	Not reported
VCP:	No
Latitude:	47.703918
Longitude:	-122.176697

FINDS:

Registry ID: 110005325549

Environmental Interest/Information System

Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZARDOUS WASTE BIENNIAL REPORTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1000357893
Registry ID:	110005325549
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110005325549

WA MANIFEST:

Facility Site ID Number:	2396
EPA ID:	WAD070392303
NAICS:	811112
SWC Desc:	WT02
FWC Desc:	D001D005D035F001F003
Form Comm:	Not reported
Data Year:	2013
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False

EVERGREEN AUTO REBUILD INC (Continued) **1000357893**

Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	603283211
Business Type:	auto body repair
Mail Name:	Team Safety LLC
Mail addr line1:	6801 W 121st St
Mail addr line2:	#110
Mail city,st,zip:	Overland Park, KS 66209
Mail country:	UNITED STATES
Legal org name:	ABRA Inc
Legal org type:	Private
Legal addr line1:	7225 Northland Drive
Legal addr line2:	#210
Legal city,st,zip:	Brooklyn Park, MN 55428
Legal country:	UNITED STATES
Legal phone nbr:	763-585-6253
Legal effective date:	05/14/2013
Land org name:	Colin W Radford, Merlyna M Radford
Land org type:	Private
Land person name:	Foster Radford
Land addr line1:	10423 MAIN ST STE 4
Land city,st,zip:	BELLEVUE, WA 98004
Land country:	UNITED STATES
Land phone nbr:	(425)823-8880
Operator org name:	ABRA Inc
Operator org type:	Private
Operator addr line1:	7225 Northland Drive
Operator addr line2:	#210
Operator city,st,zip:	Brooklyn Park, MN 55428
Operator country:	UNITED STATES
Operator phone nbr:	763-585-6253
Operator effective date:	05/14/2013
Site contact name:	Scott Schilperoort
Site contact addr line1:	12350 124th Ave NE
Site Contact City/State/ Zip:	Kirkland, WA 98034
Site Contact Country:	UNITED STATES
Site Contact Phone #:	425-823-8880
Site Contact EMail:	Not reported
Form Contact NAME:	Greg Wright
Form Contact ADDR LINE1:	7225 Northland Drive
Form Contact ADDR LINE2:	#210
Form Contact City,ST,Zip:	Brooklyn Park, MN 55428

EVERGREEN AUTO REBUILD INC (Continued) **1000357893**

Form Contact Country:	UNITED STATES
Form Contact Phone #:	763-585-6253
Form Contact EMail:	gwright@abraauto.com
Gen Status CD:	SQG
Monthly Generation:	True
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	True
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Facility Site ID Number:	2396
EPA ID:	WAD070392303
NAICS:	811112
SWC Desc:	WT02
FWC Desc:	D001,D005,D006,D035,D039,D040,F003,F005
Form Comm:	Not reported
Data Year:	2016
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	603283211
Business Type:	auto body repair
Mail Name:	Team Safety LLC
Mail addr line1:	16120 Foster St

EVERGREEN AUTO REBUILD INC (Continued) **1000357893**

Mail city,st,zip:	Overland Park, KS 66085
Mail country:	UNITED STATES
Legal org name:	ABRA Inc
Legal org type:	Private
Legal addr line1:	7225 Northland Drive
Legal addr line2:	#210
Legal city,st,zip:	Brooklyn Park, MN 55428
Legal country:	UNITED STATES
Legal phone nbr:	763-585-6253
Legal effective date:	05/14/2013
Land org name:	Colin W Radford, Merlyna M Radford
Land org type:	Private
Land person name:	Foster Radford
Land addr line1:	10423 MAIN ST STE 4
Land city,st,zip:	BELLEVUE, WA 98004
Land country:	UNITED STATES
Land phone nbr:	(425)823-8880
Operator org name:	ABRA Inc
Operator org type:	Private
Operator addr line1:	7225 Northland Drive
Operator addr line2:	#210
Operator city,st,zip:	Brooklyn Park, MN 55428
Operator country:	UNITED STATES
Operator phone nbr:	763-585-6253
Operator effective date:	05/14/2013
Site contact name:	Scott Schilperoort
Site contact addr line1:	12350 124th Ave NE
Site Contact City/State/ Zip:	Kirkland, WA 98034
Site Contact Country:	UNITED STATES
Site Contact Phone #:	425-823-8880
Site Contact EMail:	sschilperoort@abraauto.com
Form Contact NAME:	Kevin Caruso
Form Contact ADDR LINE1:	7225 Northland Drive
Form Contact ADDR LINE2:	#210
Form Contact City,ST,Zip:	Brooklyn Park, MN 55428
Form Contact Country:	UNITED STATES
Form Contact Phone #:	763-585-6253
Form Contact EMail:	kcaruso@abraauto.com
Gen Status CD:	SQG
Monthly Generation:	True
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	True
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Facility Site ID Number:	2396

EVERGREEN AUTO REBUILD INC (Continued) **1000357893**

EPA ID:	WAD070392303
NAICS:	811121
SWC Desc:	Not reported
FWC Desc:	D001-IGNITABLE
Form Comm:	Not reported
Data Year:	2008
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	601090863
Business Type:	Not reported
Mail Name:	Evergreen Auto Rebuild Inc
Mail addr line1:	12350 124TH AVE NE STE A
Mail city,st,zip:	KIRKLAND, WA 98034-8217
Mail country:	UNITED STATES
Legal org name:	Evergreen Auto Rebuild Inc
Legal org type:	Private
Legal addr line1:	12350 124TH AVE NE STE A
Legal city,st,zip:	KIRKLAND, WA 98034-8217
Legal country:	UNITED STATES
Legal phone nbr:	(425)823-8888
Legal effective date:	09/04/1996
Land org name:	Radford & Co
Land org type:	Private
Land person name:	Not reported
Land addr line1:	10423 MAIN ST STE 4
Land city,st,zip:	BELLEVUE, WA 98004-5925
Land country:	UNITED STATES
Land phone nbr:	(425)454-4200
Operator org name:	Not reported
Operator org type:	Private
Operator addr line1:	12350 124TH AVE NE STE A
Operator city,st,zip:	KIRKLAND, WA 98034-8217
Operator country:	UNITED STATES
Operator phone nbr:	(425)823-8888

EVERGREEN AUTO REBUILD INC (Continued) **1000357893**

Operator effective date:	09/04/1996
Site contact name:	Don G Whitcher
Site contact addr line1:	12350 124TH AVE NE STE A
Site Contact City/State/ Zip:	KIRKLAND, WA 98034-8217
Site Contact Country:	UNITED STATES
Site Contact Phone #:	425823-8888
Site Contact EMail:	Not reported
Form Contact NAME:	Don G Whitcher
Form Contact ADDR LINE1:	12350 124TH AVE NE STE A
Form Contact City,ST,Zip:	KIRKLAND, WA 98034-8217
Form Contact Country:	UNITED STATES
Form Contact Phone #:	425823-8888
Form Contact EMail:	97HDSOFT@MSN.COM
Gen Status CD:	SQG
Monthly Generation:	True
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Facility Site ID Number:	2396
EPA ID:	WAD070392303
NAICS:	811112
SWC Desc:	WT02
FWC Desc:	D001,D005,D035,F001,F003
Form Comm:	Not reported
Data Year:	2014
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False

EVERGREEN AUTO REBUILD INC (Continued) **1000357893**

Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	603283211
Business Type:	auto body repair
Mail Name:	Team Safety LLC
Mail addr line1:	6801 W 121st St
Mail addr line2:	#110
Mail city,st,zip:	Overland Park, KS 66209
Mail country:	UNITED STATES
Legal org name:	ABRA Inc
Legal org type:	Private
Legal addr line1:	7225 Northland Drive
Legal addr line2:	#210
Legal city,st,zip:	Brooklyn Park, MN 55428
Legal country:	UNITED STATES
Legal phone nbr:	763-585-6253
Legal effective date:	05/14/2013
Land org name:	Colin W Radford, Merlyna M Radford
Land org type:	Private
Land person name:	Foster Radford
Land addr line1:	10423 MAIN ST STE 4
Land city,st,zip:	BELLEVUE, WA 98004
Land country:	UNITED STATES
Land phone nbr:	(425)823-8880
Operator org name:	ABRA Inc
Operator org type:	Private
Operator addr line1:	7225 Northland Drive
Operator addr line2:	#210
Operator city,st,zip:	Brooklyn Park, MN 55428
Operator country:	UNITED STATES
Operator phone nbr:	763-585-6253
Operator effective date:	05/14/2013
Site contact name:	Scott Schilperoort
Site contact addr line1:	12350 124th Ave NE
Site Contact City/State/ Zip:	Kirkland, WA 98034
Site Contact Country:	UNITED STATES
Site Contact Phone #:	425-823-8880
Site Contact EMail:	Not reported
Form Contact NAME:	Greg Wright
Form Contact ADDR LINE1:	7225 Northland Drive
Form Contact ADDR LINE2:	#210
Form Contact City,ST,Zip:	Brooklyn Park, MN 55428
Form Contact Country:	UNITED STATES
Form Contact Phone #:	763-585-6253
Form Contact EMail:	gwright@abraauto.com
Gen Status CD:	SQG
Monthly Generation:	True
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	True
Transfer Facility:	False

EVERGREEN AUTO REBUILD INC (Continued) **1000357893**

Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Facility Site ID Number:	2396
EPA ID:	WAD070392303
NAICS:	811121
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	Not reported
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	601090863
Business Type:	Not reported
Mail Name:	Evergreen Auto Rebuild Inc
Mail addr line1:	12350 124TH AVE NE STE A
Mail city,st,zip:	KIRKLAND, WA 98034-8217
Mail country:	UNITED STATES
Legal org name:	Evergreen Auto Rebuild Inc
Legal org type:	Private
Legal addr line1:	12350 124TH AVE NE STE A
Legal city,st,zip:	KIRKLAND, WA 98034-8217
Legal country:	UNITED STATES
Legal phone nbr:	(425)823-8888
Legal effective date:	09/04/1996
Land org name:	Radford & Co
Land org type:	Private

EVERGREEN AUTO REBUILD INC (Continued) **1000357893**

Land person name:	Not reported
Land addr line1:	10423 MAIN ST STE 4
Land city,st,zip:	BELLEVUE, WA 98004-5925
Land country:	UNITED STATES
Land phone nbr:	(425)454-4200
Operator org name:	Not reported
Operator org type:	Private
Operator addr line1:	12350 124TH AVE NE STE A
Operator city,st,zip:	KIRKLAND, WA 98034-8217
Operator country:	UNITED STATES
Operator phone nbr:	(425)823-8888
Operator effective date:	09/04/1996
Site contact name:	Don G Whitcher
Site contact addr line1:	12350 124TH AVE NE STE A
Site Contact City/State/ Zip:	KIRKLAND, WA 98034-8217
Site Contact Country:	UNITED STATES
Site Contact Phone #:	425823-8888
Site Contact EMail:	Not reported
Form Contact NAME:	Don G Whitcher
Form Contact ADDR LINE1:	12350 124TH AVE NE STE A
Form Contact City,ST,Zip:	KIRKLAND, WA 98034-8217
Form Contact Country:	UNITED STATES
Form Contact Phone #:	425823-8888
Form Contact EMail:	97HDSOFT@MSN.COM
Gen Status CD:	SQG
Monthly Generation:	True
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Facility Site ID Number:	2396
EPA ID:	WAD070392303
NAICS:	811121
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	2011
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False

EVERGREEN AUTO REBUILD INC (Continued) **1000357893**

Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	601090863
Business Type:	Not reported
Mail Name:	Evergreen Auto Rebuild Inc
Mail addr line1:	12350 124TH AVE NE STE A
Mail city,st,zip:	KIRKLAND, WA 98034-8217
Mail country:	UNITED STATES
Legal org name:	Evergreen Auto Rebuild Inc
Legal org type:	Private
Legal addr line1:	12350 124TH AVE NE STE A
Legal city,st,zip:	KIRKLAND, WA 98034-8217
Legal country:	UNITED STATES
Legal phone nbr:	(425)823-8888
Legal effective date:	09/04/1996
Land org name:	Radford & Co
Land org type:	Private
Land person name:	Not reported
Land addr line1:	10423 MAIN ST STE 4
Land city,st,zip:	BELLEVUE, WA 98004-5925
Land country:	UNITED STATES
Land phone nbr:	(425)454-4200
Operator org name:	Not reported
Operator org type:	Private
Operator addr line1:	12350 124TH AVE NE STE A
Operator city,st,zip:	KIRKLAND, WA 98034-8217
Operator country:	UNITED STATES
Operator phone nbr:	(425)823-8888
Operator effective date:	09/04/1996
Site contact name:	Don G Whitcher
Site contact addr line1:	12350 124TH AVE NE STE A
Site Contact City/State/ Zip:	KIRKLAND, WA 98034-8217
Site Contact Country:	UNITED STATES
Site Contact Phone #:	425823-8888
Site Contact EMail:	Not reported
Form Contact NAME:	Don G Whitcher
Form Contact ADDR LINE1:	12350 124TH AVE NE STE A
Form Contact City,ST,Zip:	KIRKLAND, WA 98034-8217
Form Contact Country:	UNITED STATES
Form Contact Phone #:	425823-8888
Form Contact EMail:	don.whitcher2@frontier.com
Gen Status CD:	SQG

EVERGREEN AUTO REBUILD INC (Continued) **1000357893**

Monthly Generation:	False
Batch Generation:	True
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Facility Site ID Number:	2396
EPA ID:	WAD070392303
NAICS:	811121
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	2010
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	601090863
Business Type:	Not reported
Mail Name:	Evergreen Auto Rebuild Inc
Mail addr line1:	12350 124TH AVE NE STE A
Mail city,st,zip:	KIRKLAND, WA 98034-8217
Mail country:	UNITED STATES
Legal org name:	Evergreen Auto Rebuild Inc
Legal org type:	Private

EVERGREEN AUTO REBUILD INC (Continued) **1000357893**

Legal addr line1:	12350 124TH AVE NE STE A
Legal city,st,zip:	KIRKLAND, WA 98034-8217
Legal country:	UNITED STATES
Legal phone nbr:	(425)823-8888
Legal effective date:	09/04/1996
Land org name:	Radford & Co
Land org type:	Private
Land person name:	Not reported
Land addr line1:	10423 MAIN ST STE 4
Land city,st,zip:	BELLEVUE, WA 98004-5925
Land country:	UNITED STATES
Land phone nbr:	(425)454-4200
Operator org name:	Not reported
Operator org type:	Private
Operator addr line1:	12350 124TH AVE NE STE A
Operator city,st,zip:	KIRKLAND, WA 98034-8217
Operator country:	UNITED STATES
Operator phone nbr:	(425)823-8888
Operator effective date:	09/04/1996
Site contact name:	Don G Whitcher
Site contact addr line1:	12350 124TH AVE NE STE A
Site Contact City/State/ Zip:	KIRKLAND, WA 98034-8217
Site Contact Country:	UNITED STATES
Site Contact Phone #:	425823-8888
Site Contact EMail:	Not reported
Form Contact NAME:	Don G Whitcher
Form Contact ADDR LINE1:	12350 124TH AVE NE STE A
Form Contact City,ST,Zip:	KIRKLAND, WA 98034-8217
Form Contact Country:	UNITED STATES
Form Contact Phone #:	425823-8888
Form Contact EMail:	don.whitcher2@frontier.com
Gen Status CD:	SQG
Monthly Generation:	False
Batch Generation:	True
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Facility Site ID Number:	2396
EPA ID:	WAD070392303
NAICS:	811121
SWC Desc:	Not reported
FWC Desc:	D001 D035 F003 F005
Form Comm:	Not reported
Data Year:	2012
Permit by Rule:	False

EVERGREEN AUTO REBUILD INC (Continued) **1000357893**

Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	601090863
Business Type:	Not reported
Mail Name:	Evergreen Auto Rebuild Inc
Mail addr line1:	12350 124TH AVE NE STE A
Mail city,st,zip:	KIRKLAND, WA 98034-8217
Mail country:	UNITED STATES
Legal org name:	Evergreen Auto Rebuild Inc
Legal org type:	Private
Legal addr line1:	12350 124TH AVE NE STE A
Legal city,st,zip:	KIRKLAND, WA 98034-8217
Legal country:	UNITED STATES
Legal phone nbr:	(425)823-8888
Legal effective date:	09/04/1996
Land org name:	Radford & Co
Land org type:	Private
Land person name:	Not reported
Land addr line1:	10423 MAIN ST STE 4
Land city,st,zip:	BELLEVUE, WA 98004-5925
Land country:	UNITED STATES
Land phone nbr:	(425)454-4200
Operator org name:	Not reported
Operator org type:	Private
Operator addr line1:	12350 124TH AVE NE STE A
Operator city,st,zip:	KIRKLAND, WA 98034-8217
Operator country:	UNITED STATES
Operator phone nbr:	(425)823-8888
Operator effective date:	09/04/1996
Site contact name:	Don G Whitcher
Site contact addr line1:	12350 124TH AVE NE STE A
Site Contact City/State/ Zip:	KIRKLAND, WA 98034-8217
Site Contact Country:	UNITED STATES
Site Contact Phone #:	425823-8888
Site Contact EMail:	Not reported

EVERGREEN AUTO REBUILD INC (Continued) **1000357893**

Form Contact NAME:	Don G Whitcher
Form Contact ADDR LINE1:	12350 124TH AVE NE STE A
Form Contact City,ST,Zip:	KIRKLAND, WA 98034-8217
Form Contact Country:	UNITED STATES
Form Contact Phone #:	425823-8888
Form Contact EMail:	don.whitcher2@frontier.com
Gen Status CD:	SQG
Monthly Generation:	False
Batch Generation:	True
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Facility Site ID Number:	2396
EPA ID:	WAD070392303
NAICS:	811121
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	2009
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	601090863

EVERGREEN AUTO REBUILD INC (Continued) **1000357893**

Business Type:	Not reported
Mail Name:	Evergreen Auto Rebuild Inc
Mail addr line1:	12350 124TH AVE NE STE A
Mail city,st,zip:	KIRKLAND, WA 98034-8217
Mail country:	UNITED STATES
Legal org name:	Evergreen Auto Rebuild Inc
Legal org type:	Private
Legal addr line1:	12350 124TH AVE NE STE A
Legal city,st,zip:	KIRKLAND, WA 98034-8217
Legal country:	UNITED STATES
Legal phone nbr:	(425)823-8888
Legal effective date:	09/04/1996
Land org name:	Radford & Co
Land org type:	Private
Land person name:	Not reported
Land addr line1:	10423 MAIN ST STE 4
Land city,st,zip:	BELLEVUE, WA 98004-5925
Land country:	UNITED STATES
Land phone nbr:	(425)454-4200
Operator org name:	Not reported
Operator org type:	Private
Operator addr line1:	12350 124TH AVE NE STE A
Operator city,st,zip:	KIRKLAND, WA 98034-8217
Operator country:	UNITED STATES
Operator phone nbr:	(425)823-8888
Operator effective date:	09/04/1996
Site contact name:	Don G Whitcher
Site contact addr line1:	12350 124TH AVE NE STE A
Site Contact City/State/ Zip:	KIRKLAND, WA 98034-8217
Site Contact Country:	UNITED STATES
Site Contact Phone #:	425823-8888
Site Contact EMail:	Not reported
Form Contact NAME:	Don G Whitcher
Form Contact ADDR LINE1:	12350 124TH AVE NE STE A
Form Contact City,ST,Zip:	KIRKLAND, WA 98034-8217
Form Contact Country:	UNITED STATES
Form Contact Phone #:	425823-8888
Form Contact EMail:	97HDSOFT@MSN.COM
Gen Status CD:	SQG
Monthly Generation:	True
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Facility Site ID Number:	2396

EVERGREEN AUTO REBUILD INC (Continued) **1000357893**

EPA ID:	WAD070392303
NAICS:	811121
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	Not reported
Permit by Rule:	No
Treatment by Generator:	No
Mixed radioactive waste:	No
Importer of hazardous waste:	No
Immediate recycler:	No
Treatment/Storage/Disposal/Recycling Facility:	No
Generator of dangerous fuel waste:	No
Generator marketing to burner:	No
Other marketers (i.e., blender, distributor, etc.):	No
Utility boiler burner:	No
Industry boiler burner:	No
Industrial Furnace:	No
Smelter defferal:	No
Universal waste - batteries - generate:	No
Universal waste - thermostats - generate:	No
Universal waste - mercury - generate:	No
Universal waste - lamps - generate:	No
Universal waste - batteries - accumulate:	No
Universal waste - thermostats - accumulate:	No
Universal waste - mercury - accumulate:	No
Universal waste - lamps - accumulate:	No
Destination Facility for Universal Waste:	No
Off-specification used oil burner - utility boiler:	No
Off-specification used oil burner - industrial boiler:	No
Off-specification used oil burner - industrial furnace:	No
Tax Reg #:	601090863
Business Type:	Not reported
Mail Name:	Evergreen Auto Rebuild Inc
Mail addr line1:	12350 124TH AVE NE STE A
Mail city,st,zip:	KIRKLAND, WA 98034-8217
Mail country:	UNITED STATES
Legal org name:	Evergreen Auto Rebuild Inc
Legal org type:	Private
Legal addr line1:	12350 124TH AVE NE STE A
Legal city,st,zip:	KIRKLAND, WA 98034-8217
Legal country:	UNITED STATES
Legal phone nbr:	(425)823-8888
Legal effective date:	09/04/1996
Land org name:	Radford & Co
Land org type:	Private
Land person name:	Not reported
Land addr line1:	10423 MAIN ST STE 4
Land city,st,zip:	BELLEVUE, WA 98004-5925
Land country:	UNITED STATES
Land phone nbr:	(425)454-4200
Operator org name:	Not reported
Operator org type:	Private
Operator addr line1:	12350 124TH AVE NE STE A
Operator city,st,zip:	KIRKLAND, WA 98034-8217
Operator country:	UNITED STATES
Operator phone nbr:	(425)823-8888

EVERGREEN AUTO REBUILD INC (Continued) **1000357893**

Operator effective date:	09/04/1996
Site contact name:	Don G Whitcher
Site contact addr line1:	12350 124TH AVE NE STE A
Site Contact City/State/ Zip:	KIRKLAND, WA 98034-8217
Site Contact Country:	UNITED STATES
Site Contact Phone #:	425823-8888
Site Contact EMail:	Not reported
Form Contact NAME:	Don G Whitcher
Form Contact ADDR LINE1:	12350 124TH AVE NE STE A
Form Contact City,ST,Zip:	KIRKLAND, WA 98034-8217
Form Contact Country:	UNITED STATES
Form Contact Phone #:	425823-8888
Form Contact EMail:	97HDSOFT@MSN.COM
Gen Status CD:	SQG
Monthly Generation:	Yes
Batch Generation:	No
One Time Generation:	No
Transport Own Waste:	No
Tranports Other Waste:	No
Recycler Onsite:	No
Transfer Facility:	No
Other Exemption:	Not reported
UW Battery Gen:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Fuel Marketer Directs Shipments:	No
Used Oil Fuel Marketer Meets Specs:	No

Facility Site ID Number:	2396
EPA ID:	WAD070392303
NAICS:	811112
SWC Desc:	WT02
FWC Desc:	D001,D008,D018,D035,D039,D040,F001,F003,F005
Form Comm:	Not reported
Data Year:	2017
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False

EVERGREEN AUTO REBUILD INC (Continued) **1000357893**

Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	603283211
Business Type:	auto body repair
Mail Name:	Team Safety LLC
Mail addr line1:	16120 Foster St
Mail city,st,zip:	Overland Park, KS 66085
Mail country:	UNITED STATES
Legal org name:	ABRA Inc
Legal org type:	Private
Legal addr line1:	7225 Northland Drive
Legal addr line2:	#210
Legal city,st,zip:	Brooklyn Park, MN 55428
Legal country:	UNITED STATES
Legal phone nbr:	763-585-6253
Legal effective date:	05/14/2013
Land org name:	Colin W Radford, Merlyna M Radford
Land org type:	Private
Land person name:	Foster Radford
Land addr line1:	10423 MAIN ST STE 4
Land city,st,zip:	BELLEVUE, WA 98004
Land country:	UNITED STATES
Land phone nbr:	(425)823-8880
Operator org name:	ABRA Auto Body & Glass, LP
Operator org type:	Private
Operator addr line1:	7225 Northland Drive
Operator addr line2:	#210
Operator city,st,zip:	Brooklyn Park, MN 55428
Operator country:	UNITED STATES
Operator phone nbr:	763-585-6253
Operator effective date:	05/14/2013
Site contact name:	Scott Schilperoort
Site contact addr line1:	12350 124th Ave NE
Site Contact City/State/ Zip:	Kirkland, WA 98034
Site Contact Country:	UNITED STATES
Site Contact Phone #:	425-823-8880
Site Contact EMail:	sschilperoort@abraauto.com
Form Contact NAME:	Kevin Caruso
Form Contact ADDR LINE1:	7225 Northland Drive
Form Contact ADDR LINE2:	#210
Form Contact City,ST,Zip:	Brooklyn Park, MN 55428
Form Contact Country:	UNITED STATES
Form Contact Phone #:	763-585-6253
Form Contact EMail:	kcaruso@abraauto.com
Gen Status CD:	SQG
Monthly Generation:	True
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported

EVERGREEN AUTO REBUILD INC (Continued) **1000357893**

UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Facility Site ID Number:	2396
EPA ID:	WAD070392303
NAICS:	811112
SWC Desc:	WT02
FWC Desc:	D001,D005,D006,D035,D018,D039,F003,F005
Form Comm:	Not reported
Data Year:	2015
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	603283211
Business Type:	auto body repair
Mail Name:	Team Safety LLC
Mail addr line1:	6801 W 121st St
Mail addr line2:	#110
Mail city,st,zip:	Overland Park, KS 66209
Mail country:	UNITED STATES
Legal org name:	ABRA Inc
Legal org type:	Private
Legal addr line1:	7225 Northland Drive
Legal addr line2:	#210
Legal city,st,zip:	Brooklyn Park, MN 55428
Legal country:	UNITED STATES
Legal phone nbr:	763-585-6253
Legal effective date:	05/14/2013
Land org name:	Colin W Radford, Merlyna M Radford

EVERGREEN AUTO REBUILD INC (Continued) **1000357893**

Land org type:	Private
Land person name:	Foster Radford
Land addr line1:	10423 MAIN ST STE 4
Land city,st,zip:	BELLEVUE, WA 98004
Land country:	UNITED STATES
Land phone nbr:	(425)823-8880
Operator org name:	ABRA Inc
Operator org type:	Private
Operator addr line1:	7225 Northland Drive
Operator addr line2:	#210
Operator city,st,zip:	Brooklyn Park, MN 55428
Operator country:	UNITED STATES
Operator phone nbr:	763-585-6253
Operator effective date:	05/14/2013
Site contact name:	Scott Schilperoort
Site contact addr line1:	12350 124th Ave NE
Site Contact City/State/ Zip:	Kirkland, WA 98034
Site Contact Country:	UNITED STATES
Site Contact Phone #:	425-823-8880
Site Contact EMail:	sschilperoort@abraauto.com
Form Contact NAME:	Greg Wright
Form Contact ADDR LINE1:	7225 Northland Drive
Form Contact ADDR LINE2:	#210
Form Contact City,ST,Zip:	Brooklyn Park, MN 55428
Form Contact Country:	UNITED STATES
Form Contact Phone #:	763-585-6253
Form Contact EMail:	gwright@abraauto.com
Gen Status CD:	SQG
Monthly Generation:	True
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Facility Site ID Number:	2396
EPA ID:	WAD070392303
NAICS:	811121
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	Not reported
Permit by Rule:	FALSE
Treatment by Generator:	FALSE
Mixed radioactive waste:	FALSE
Importer of hazardous waste:	FALSE
Immediate recycler:	FALSE

EVERGREEN AUTO REBUILD INC (Continued) **1000357893**

Treatment/Storage/Disposal/Recycling Facility:	FALSE
Generator of dangerous fuel waste:	FALSE
Generator marketing to burner:	FALSE
Other marketers (i.e., blender, distributor, etc.):	FALSE
Utility boiler burner:	FALSE
Industry boiler burner:	FALSE
Industrial Furnace:	FALSE
Smelter defferal:	FALSE
Universal waste - batteries - generate:	FALSE
Universal waste - thermostats - generate:	FALSE
Universal waste - mercury - generate:	FALSE
Universal waste - lamps - generate:	FALSE
Universal waste - batteries - accumulate:	FALSE
Universal waste - thermostats - accumulate:	FALSE
Universal waste - mercury - accumulate:	FALSE
Universal waste - lamps - accumulate:	FALSE
Destination Facility for Universal Waste:	FALSE
Off-specification used oil burner - utility boiler:	FALSE
Off-specification used oil burner - industrial boiler:	FALSE
Off-specification used oil burner - industrial furnace:	FALSE
Tax Reg #:	601090863
Business Type:	Not reported
Mail Name:	Evergreen Auto Rebuild Inc
Mail addr line1:	12350 124TH AVE NE STE A
Mail city,st,zip:	KIRKLAND, WA 98034-8217
Mail country:	UNITED STATES
Legal org name:	Evergreen Auto Rebuild Inc
Legal org type:	Private
Legal addr line1:	12350 124TH AVE NE STE A
Legal city,st,zip:	KIRKLAND, WA 98034-8217
Legal country:	UNITED STATES
Legal phone nbr:	(425)823-8888
Legal effective date:	09/04/1996
Land org name:	Radford & Co
Land org type:	Private
Land person name:	Not reported
Land addr line1:	10423 MAIN ST STE 4
Land city,st,zip:	BELLEVUE, WA 98004-5925
Land country:	UNITED STATES
Land phone nbr:	(425)454-4200
Operator org name:	Not reported
Operator org type:	Private
Operator addr line1:	12350 124TH AVE NE STE A
Operator city,st,zip:	KIRKLAND, WA 98034-8217
Operator country:	UNITED STATES
Operator phone nbr:	(425)823-8888
Operator effective date:	09/04/1996
Site contact name:	Don G Whitcher
Site contact addr line1:	12350 124TH AVE NE STE A
Site Contact City/State/ Zip:	KIRKLAND, WA 98034-8217
Site Contact Country:	UNITED STATES
Site Contact Phone #:	425823-8888
Site Contact EMail:	Not reported
Form Contact NAME:	Don G Whitcher
Form Contact ADDR LINE1:	12350 124TH AVE NE STE A
Form Contact City,ST,Zip:	KIRKLAND, WA 98034-8217
Form Contact Country:	UNITED STATES

EVERGREEN AUTO REBUILD INC (Continued) **1000357893**

Form Contact Phone #:	425823-8888
Form Contact EMail:	97HDSOFT@MSN.COM
Gen Status CD:	SQG
Monthly Generation:	TRUE
Batch Generation:	FALSE
One Time Generation:	FALSE
Transport Own Waste:	FALSE
Tranports Other Waste:	FALSE
Recycler Onsite:	FALSE
Transfer Facility:	FALSE
Other Exemption:	Not reported
UW Battery Gen:	FALSE
Used Oil Transporter:	FALSE
Used Oil Transfer Facility:	FALSE
Used Oil Processor:	FALSE
Used Oil Refiner:	FALSE
Used Oil Fuel Marketer Directs Shipments:	FALSE
Used Oil Fuel Marketer Meets Specs:	FALSE

H33 **THURMAN INDUSTRIES INC** **WA UST** **U001123591**
ESE **12626 NE 124TH ST** **WA ALLSITES** **N/A**
1/8-1/4 **KIRKLAND, WA 98034**
0.235 mi.
1240 ft. **Site 1 of 2 in cluster H**

Relative:
Lower

Actual:
132 ft.

UST:

Facility ID:	96934556
Site Id:	4385
UBI:	Not reported
Phone Number:	Not reported
Decimal Latitude:	47.70924
Decimal Longitude:	-122.174425
Tank Name:	1
Tag Number:	Not reported
Tank Status:	Removed
Tank Status Date:	08/06/1996
Tank Install Date:	00/31/1964
Tank Closure Date:	Not reported
Capacity Range:	Not reported
Tank Permit Expiration Date:	Not reported
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Above Ground Piping
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported

THURMAN INDUSTRIES INC (Continued) **U001123591**

Responsible Unit: NORTHWEST
Dispencer/Pump SFC Type: Not reported

ALLSITES:
Facility Name: THURMAN INDUSTRIES INC
Facility Id: 96934556

Interaction: 75116
Interaction 1: I
Interaction 2: UST
Ecology Program: TOXICS
Program Data: UST
Facility Alt.: Not reported
Program ID: 4385
Date Interaction: 2000-02-29 00:00:00
Date Interaction 3: Underground Storage Tank
Latitude: 47.709234359
Longitude: -122.174410106

34
South
1/8-1/4
0.237 mi.
1252 ft.

WANG MANAGEMENT CO
12421 124TH AVE NE
KIRKLAND, WA 98033

WA ALLSITES **1000232030**
RCRA NonGen / NLR **WAD982658304**
FINDS
ECHO

Relative:
Higher

Actual:
155 ft.

ALLSITES:
Facility Name: WANG MANAGEMENT CO
Facility Id: 93747955

Interaction: 73070
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAD982658304
Date Interaction: 1989-05-31 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.707984359999998
Longitude: -122.176915107

RCRA NonGen / NLR:
Date form received by agency: 06/13/1997
Facility name: WANG MANAGEMENT CO
Facility address: 12421 124TH AVE NE
KIRKLAND, WA 98033
EPA ID: WAD982658304
Contact: TOTEM LAKE PROP TOTEM LAKE PROP
Contact address: 12421 124TH AVE NE
KIRKLAND, WA 98033
Contact country: US
Contact telephone: 000-000-0000
Contact email: Not reported
EPA Region: 10
Classification: Non-Generator

WANG MANAGEMENT CO (Continued) **1000232030**

Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	TOTEM LAKE ASSO T
Owner/operator address:	16215 NE 124TH ST REDMOND, WA 98052
Owner/operator country:	US
Owner/operator telephone:	425-881-6774
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	06/13/1997
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	06/13/1997
Site name:	WANG MANAGEMENT CO
Classification:	Not a generator, verified
Violation Status:	No violations found

FINDS:

Registry ID: 110005347874

Environmental Interest/Information System

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

WANG MANAGEMENT CO (Continued) **1000232030**

ECHO:

Envid:	1000232030
Registry ID:	110005347874
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110005347874

I35 **QUAKER STATE MINIT LUBE #1067** **WA ICR** **S103508771**
SE **12427 NE 124TH ST.** **N/A**
1/8-1/4 **KIRKLAND, WA 98034**
0.238 mi.
1259 ft. **Site 1 of 2 in cluster I**

Relative:
Higher

Actual:
151 ft.

ICR:

Date Ecology Received Report:	01/04/95
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Final cleanup report
Site Register Issue:	94-19
County Code:	17
Contact:	Not reported
Report Title:	Not reported

Date Ecology Received Report:	03/02/95
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	93-48
County Code:	17
Contact:	Not reported
Report Title:	Not reported

Date Ecology Received Report:	07/07/95
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	94-03
County Code:	17
Contact:	Not reported
Report Title:	Not reported

I36 **MINIT-LUBE 1067** **WA UST** **U003029108**
SE **12427 NE 124TH ST** **WA ALLSITES** **N/A**
1/8-1/4 **KIRKLAND, WA 98034** **WA CSCSL NFA**
0.238 mi.
1259 ft. **Site 2 of 2 in cluster I**

Relative:
Higher

Actual:
151 ft.

UST:

Facility ID:	41585457
Site Id:	97536
UBI:	Not reported
Phone Number:	Not reported

MINIT-LUBE 1067 (Continued) **U003029108**

Decimal Latitude: 47.70854
Decimal Longitude: -122.177035

Tank Name: 1
Tag Number: Not reported
Tank Status: Removed
Tank Status Date: 08/06/1996
Tank Install Date: 00/01/1988
Tank Closure Date: Not reported
Capacity Range: 5,000 to 9,999 Gallons
Tank Permit Expiration Date: 07/01/1995
Tank Upgrade Date: Not reported
Tank Spill Prevention: None
Tank Overfill Prevention: 25 Gallons or less
Tank Material: Steel
Tank Construction: Double Wall Tank
Tank Tightness Test: Not reported
Tank Corrosion Protection: None
Tank Manifold: Not reported
Tank Release Detection: Statistical Inventory Reconciliation
Tank SFC Type: Not reported
Pipe Material: Steel
Pipe Construction: Single Wall Pipe
Pipe Primary Release Detection: Vapor Monitoring
Pipe Second Release Detection: Not reported
Pipe Corrosion Protection: Sacrificial Anode
Pipe Pumping System: Non-Safe Suction
Responsible Unit: NORTHWEST
Dispencer/Pump SFC Type: Not reported

ALLSITES:
Facility Name: JIFFY LUBE STORE 2054
Facility Id: 41585457

Interaction: 43199
Interaction 1: I
Interaction 2: LUST
Ecology Program: TOXICS
Program Data: ISIS
Facility Alt.: Not reported
Program ID: 97536
Date Interaction: 1995-02-15 00:00:00
Date Interaction 3: LUST Facility
Latitude: 47.708534360000002
Longitude: -122.177020107

Interaction: 43198
Interaction 1: I
Interaction 2: UST
Ecology Program: TOXICS
Program Data: UST
Facility Alt.: Not reported
Program ID: 97536
Date Interaction: 1988-02-01 00:00:00
Date Interaction 3: Underground Storage Tank
Latitude: 47.708534360000002

MINIT-LUBE 1067 (Continued) **U003029108**

Longitude: -122.177020107

Interaction: 43200
Interaction 1: A
Interaction 2: TIER2
Ecology Program: HAZWASTE
Program Data: EPCRA
Facility Alt.: Not reported
Program ID: CRK000060490
Date Interaction: 2004-02-14 00:00:00
Date Interaction 3: Emergency/Haz Chem Rpt TI
Latitude: 47.708534360000002
Longitude: -122.177020107

CSCSL NFA:
Facility/Site Id: 41585457
CS Id: 9053
NFA Date: 10/03/2011
Rank: Not reported
VCP: No
Latitude: 47.70854
Longitude: -122.177035

H37 **TOYOTA OF KIRKLAND** **WA ALLSITES** **1001226380**
ESE **12612 NE 124TH ST** **RCRA NonGen / NLR** **WAR000008052**
1/8-1/4 **KIRKLAND, WA 98034** **WA MANIFEST**
0.245 mi.
1296 ft. **Site 2 of 2 in cluster H**

Relative:
Higher

Actual:
134 ft.

ALLSITES:
Facility Name: TOYOTA OF KIRKLAND
Facility Id: 51838333

Interaction: 48988
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAR000008052
Date Interaction: 1996-02-26 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.710469025000002
Longitude: -122.17241724199999

RCRA NonGen / NLR:
Date form received by agency: 02/19/2008
Facility name: TOYOTA OF KIRKLAND
Facility address: 12612 NE 124TH ST
KIRKLAND, WA 98034
EPA ID: WAR000008052
Mailing address: PO BOX 818
KIRKLAND, WA 98083
Contact: TOYOTA OF KIRKL TOYOTA OF KIRKL

TOYOTA OF KIRKLAND (Continued) **1001226380**

Contact address: PO BOX 818
KIRKLAND, WA 98083
Contact country: US
Contact telephone: 000-000-0000
Contact email: Not reported
EPA Region: 10
Land type: Private
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: TOYOTA OF KIRKL T
Owner/operator address: 12612 NE 124TH ST
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 425-814-9696
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 05/03/1996
Owner/Op end date: Not reported

Owner/operator name: JAY SUNDET
Owner/operator address: PO BOX 818
KIRKLAND, WA 98083
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 01/01/1900
Owner/Op end date: Not reported

Owner/operator name: TOYOTA OF KIRKLAND
Owner/operator address: 12612 NE 124TH ST
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 05/03/1996
Owner/Op end date: Not reported

Owner/operator name: ADAM P
Owner/operator address: PO BOX 818
KIRKLAND, WA 98083
Owner/operator country: US
Owner/operator telephone: 425-814-9696
Owner/operator email: Not reported
Owner/operator fax: Not reported

TOYOTA OF KIRKLAND (Continued) **1001226380**

Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 01/01/1900
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 12/31/2007
Site name: TOYOTA OF KIRKLAND
Classification: Not a generator, verified

Date form received by agency: 08/09/2007
Site name: TOYOTA OF KIRKLAND
Classification: Not a generator, verified

Date form received by agency: 12/31/2005
Site name: TOYOTA OF KIRKLAND
Classification: Not a generator, verified

Date form received by agency: 12/31/2003
Site name: TOYOTA OF KIRKLAND
Classification: Not a generator, verified

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 01/29/1998
Evaluation: COMPLIANCE ASSISTANCE VISIT
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

WA MANIFEST:
Facility Site ID Number: 51838333
EPA ID: WAR000008052
NAICS: 44111
SWC Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported

TOYOTA OF KIRKLAND (Continued) **1001226380**

Data Year:	Not reported
Permit by Rule:	FALSE
Treatment by Generator:	FALSE
Mixed radioactive waste:	FALSE
Importer of hazardous waste:	FALSE
Immediate recycler:	FALSE
Treatment/Storage/Disposal/Recycling Facility:	FALSE
Generator of dangerous fuel waste:	FALSE
Generator marketing to burner:	FALSE
Other marketers (i.e., blender, distributor, etc.):	FALSE
Utility boiler burner:	FALSE
Industry boiler burner:	FALSE
Industrial Furnace:	FALSE
Smelter defferal:	FALSE
Universal waste - batteries - generate:	FALSE
Universal waste - thermostats - generate:	FALSE
Universal waste - mercury - generate:	FALSE
Universal waste - lamps - generate:	FALSE
Universal waste - batteries - accumulate:	FALSE
Universal waste - thermostats - accumulate:	FALSE
Universal waste - mercury - accumulate:	FALSE
Universal waste - lamps - accumulate:	FALSE
Destination Facility for Universal Waste:	FALSE
Off-specification used oil burner - utility boiler:	FALSE
Off-specification used oil burner - industrial boiler:	FALSE
Off-specification used oil burner - industrial furnace:	FALSE
Tax Reg #:	601642219
Business Type:	Not reported
Mail Name:	Toyota of Kirkland
Mail addr line1:	PO Box 818
Mail city,st,zip:	KIRKLAND, WA 98083
Mail country:	UNITED STATES
Legal org name:	Toyota of Kirkland
Legal org type:	Private
Legal addr line1:	12612 NE 124TH ST
Legal city,st,zip:	KIRKLAND, WA 98034-8301
Legal country:	UNITED STATES
Legal phone nbr:	(425)814-9696
Legal effective date:	05/03/1996
Land org name:	Toyota Motor Sales USA
Land org type:	Private
Land person name:	Not reported
Land addr line1:	PO Box 2991
Land city,st,zip:	TORRANCE, CA 90509-2991
Land country:	UNITED STATES
Land phone nbr:	(310)618-4820
Operator org name:	Not reported
Operator org type:	Private
Operator addr line1:	PO Box 818
Operator city,st,zip:	Kirkland, WA 98083
Operator country:	UNITED STATES
Operator phone nbr:	(425)814-9696
Operator effective date:	Not reported
Site contact name:	Adam Powell
Site contact addr line1:	PO Box 818
Site Contact City/State/ Zip:	KIRKLAND, WA 98083-0818
Site Contact Country:	UNITED STATES

TOYOTA OF KIRKLAND (Continued) **1001226380**

Site Contact Phone #:	(425)814-9696
Site Contact EMail:	Not reported
Form Contact NAME:	Adam Powell
Form Contact ADDR LINE1:	PO Box 818
Form Contact City,ST,Zip:	KIRKLAND, WA 98083-0818
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(425)814-9696
Form Contact EMail:	apowell@toyotaofkirkland.com
Gen Status CD:	SQG
Monthly Generation:	FALSE
Batch Generation:	FALSE
One Time Generation:	FALSE
Transport Own Waste:	FALSE
Tranports Other Waste:	FALSE
Recycler Onsite:	FALSE
Transfer Facility:	FALSE
Other Exemption:	Not reported
UW Battery Gen:	FALSE
Used Oil Transporter:	FALSE
Used Oil Transfer Facility:	FALSE
Used Oil Processor:	FALSE
Used Oil Refiner:	FALSE
Used Oil Fuel Marketer Directs Shipments:	FALSE
Used Oil Fuel Marketer Meets Specs:	FALSE

Facility Site ID Number:	51838333
EPA ID:	WAR000008052
NAICS:	44111
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	Not reported
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False

TOYOTA OF KIRKLAND (Continued) **1001226380**

Off-specification used oil burner - industrial furnace: False

Tax Reg #:	602243158
Business Type:	Not reported
Mail Name:	Toyota of Kirkland
Mail addr line1:	PO Box 818
Mail city,st,zip:	KIRKLAND, WA 98083
Mail country:	UNITED STATES
Legal org name:	Toyota of Kirkland
Legal org type:	Private
Legal addr line1:	12612 NE 124TH ST
Legal city,st,zip:	KIRKLAND, WA 98034-8301
Legal country:	UNITED STATES
Legal phone nbr:	(425)814-9696
Legal effective date:	05/03/1996
Land org name:	Toyota Motor Sales USA
Land org type:	Private
Land person name:	Not reported
Land addr line1:	PO Box 2991
Land city,st,zip:	TORRANCE, CA 90509-2991
Land country:	UNITED STATES
Land phone nbr:	(310)618-4820
Operator org name:	Not reported
Operator org type:	Private
Operator addr line1:	PO Box 818
Operator city,st,zip:	Kirkland, WA 98083
Operator country:	UNITED STATES
Operator phone nbr:	(425)814-9696
Operator effective date:	Not reported
Site contact name:	Adam Powell
Site contact addr line1:	PO Box 818
Site Contact City/State/ Zip:	KIRKLAND, WA 98083-0818
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(425)814-9696
Site Contact EMail:	Not reported
Form Contact NAME:	Adam Powell
Form Contact ADDR LINE1:	PO Box 818
Form Contact City,ST,Zip:	KIRKLAND, WA 98083-0818
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(425)814-9696
Form Contact EMail:	apowell@toyotaofkirkland.com
Gen Status CD:	SQG
Monthly Generation:	False
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

TOYOTA OF KIRKLAND (Continued) **1001226380**

Facility Site ID Number:	51838333
EPA ID:	WAR000008052
NAICS:	44111
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	Not reported
Permit by Rule:	No
Treatment by Generator:	No
Mixed radioactive waste:	No
Importer of hazardous waste:	No
Immediate recycler:	No
Treatment/Storage/Disposal/Recycling Facility:	No
Generator of dangerous fuel waste:	No
Generator marketing to burner:	No
Other marketers (i.e., blender, distributor, etc.):	No
Utility boiler burner:	No
Industry boiler burner:	No
Industrial Furnace:	No
Smelter defferal:	No
Universal waste - batteries - generate:	No
Universal waste - thermostats - generate:	No
Universal waste - mercury - generate:	No
Universal waste - lamps - generate:	No
Universal waste - batteries - accumulate:	No
Universal waste - thermostats - accumulate:	No
Universal waste - mercury - accumulate:	No
Universal waste - lamps - accumulate:	No
Destination Facility for Universal Waste:	No
Off-specification used oil burner - utility boiler:	No
Off-specification used oil burner - industrial boiler:	No
Off-specification used oil burner - industrial furnace:	No
Tax Reg #:	601642219
Business Type:	Not reported
Mail Name:	Toyota of Kirkland
Mail addr line1:	PO Box 818
Mail city,st,zip:	KIRKLAND, WA 98083
Mail country:	UNITED STATES
Legal org name:	Toyota of Kirkland
Legal org type:	Private
Legal addr line1:	12612 NE 124TH ST
Legal city,st,zip:	KIRKLAND, WA 98034-8301
Legal country:	UNITED STATES
Legal phone nbr:	(425)814-9696
Legal effective date:	05/03/1996
Land org name:	Toyota Motor Sales USA
Land org type:	Private
Land person name:	Not reported
Land addr line1:	PO Box 2991
Land city,st,zip:	TORRANCE, CA 90509-2991
Land country:	UNITED STATES
Land phone nbr:	(310)618-4820
Operator org name:	Not reported
Operator org type:	Private
Operator addr line1:	PO Box 818
Operator city,st,zip:	Kirkland, WA 98083
Operator country:	UNITED STATES

TOYOTA OF KIRKLAND (Continued) **1001226380**

Operator phone nbr:	(425)814-9696
Operator effective date:	Not reported
Site contact name:	Jay Sundet
Site contact addr line1:	PO Box 818
Site Contact City/State/ Zip:	KIRKLAND, WA 98083-0818
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(425)814-9696
Site Contact EMail:	Not reported
Form Contact NAME:	Jay Sundet
Form Contact ADDR LINE1:	PO Box 818
Form Contact City,ST,Zip:	KIRKLAND, WA 98083-0818
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(425)814-9696
Form Contact EMail:	jsundet@toyotaofkirkland.com
Gen Status CD:	SQG
Monthly Generation:	No
Batch Generation:	No
One Time Generation:	No
Transport Own Waste:	No
Tranports Other Waste:	No
Recycler Onsite:	No
Transfer Facility:	No
Other Exemption:	Not reported
UW Battery Gen:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Fuel Marketer Directs Shipments:	No
Used Oil Fuel Marketer Meets Specs:	No

J38 **FRANCIS VILLAGE** **WA ALLSITES** **S110625613**
ESE **12601 NE 124TH ST** **N/A**
1/4-1/2 **KIRKLAND, WA 98034**
0.268 mi.
1414 ft. **Site 1 of 2 in cluster J**

Relative:
Higher

Actual:
140 ft.

ALLSITES:

Facility Name:	FRANCIS VILLAGE
Facility Id:	14624
Interaction:	94199
Interaction 1:	I
Interaction 2:	CONSTSWGP
Ecology Program:	WATQUAL
Program Data:	PARIS
Facility Alt.:	Francis Village
Program ID:	WAR124631
Date Interaction:	2010-08-09 00:00:00
Date Interaction 3:	Construction SW GP
Latitude:	47.70874268
Longitude:	-122.174465201

J39 ESE 1/4-1/2 0.277 mi. 1463 ft. | **CIRCUIT TECHNOLOGY INC**
12704 NE 124TH ST 25
KIRKLAND, WA

Site 2 of 2 in cluster J

WA ALLSITES | **S109553496**
N/A

Relative: Higher

Actual: 136 ft.

ALLSITES:

Facility Name:	CIRCUIT TECHNOLOGY INC
Facility Id:	15877344

Interaction:	29067
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD980975049
Date Interaction:	1984-06-04 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.709874358999997
Longitude:	-122.172075107

Interaction:	29068
Interaction 1:	I
Interaction 2:	TRI
Ecology Program:	HAZWASTE
Program Data:	EPCRA
Facility Alt.:	Not reported
Program ID:	WAD980975049
Date Interaction:	1987-01-01 00:00:00
Date Interaction 3:	Toxics Release Inventory
Latitude:	47.709874358999997
Longitude:	-122.172075107

Interaction:	29069
Interaction 1:	A
Interaction 2:	TIER2
Ecology Program:	HAZWASTE
Program Data:	EPCRA
Facility Alt.:	Not reported
Program ID:	WAD980975049
Date Interaction:	1988-01-01 00:00:00
Date Interaction 3:	Emergency/Haz Chem Rpt TI
Latitude:	47.709874358999997
Longitude:	-122.172075107

Interaction:	29070
Interaction 1:	I
Interaction 2:	TRI
Ecology Program:	HAZWASTE
Program Data:	EPCRA
Facility Alt.:	Not reported
Program ID:	WAD980975049
Date Interaction:	1990-01-01 00:00:00
Date Interaction 3:	Toxics Release Inventory
Latitude:	47.709874358999997

CIRCUIT TECHNOLOGY INC (Continued) **S109553496**

Longitude: -122.172075107

Interaction: 29071
Interaction 1: I
Interaction 2: HWP
Ecology Program: HAZWASTE
Program Data: HWPPRT
Facility Alt.: Not reported
Program ID: WAD980975049
Date Interaction: 1991-01-01 00:00:00
Date Interaction 3: Hazardous Waste Planner
Latitude: 47.709874358999997
Longitude: -122.172075107

40
NW
1/4-1/2
0.280 mi.
1479 ft.

OSBORNE SPERRY DENTAL LAB INC
11830 NE 128TH ST
KIRKLAND, WA 98034

WA ALLSITES
RCRA NonGen / NLR
FINDS
ECHO

1000341589
WAD085190239

Relative:
Higher

Actual:
173 ft.

ALLSITES:
Facility Name: OSBORNE SPERRY DENTAL LAB INC
Facility Id: 41747993

Interaction: 43346
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAD085190239
Date Interaction: 1990-11-10 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.71466436
Longitude: -122.183355104

RCRA NonGen / NLR:
Date form received by agency: 01/06/1999
Facility name: OSBORNE SPERRY DENTAL LAB INC
Facility address: 11830 NE 128TH ST
KIRKLAND, WA 98034
EPA ID: WAD085190239
Contact: OSBORNE SPERRY OSBORNE SPERRY
Contact address: 11830 NE 128TH ST
KIRKLAND, WA 98034-7202
Contact country: US
Contact telephone: 000-000-0000
Contact email: Not reported
EPA Region: 10
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: OSBORNE SPERRY O

OSBORNE SPERRY DENTAL LAB INC (Continued) **1000341589**

Owner/operator address: 11830 NE 128TH ST
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 000-000-0000
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 12/30/1996
Owner/Op end date: Not reported

Owner/operator name: OSBORNE SPERRY O
Owner/operator address: 11830 NE 128TH ST
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 000-000-0000
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 12/30/1996
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 11/04/1990
Site name: OSBORNE SPERRY DENTAL LAB INC
Classification: Not a generator, verified

Violation Status: No violations found

FINDS:

Registry ID: 110005327805

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport,

OSBORNE SPERRY DENTAL LAB INC (Continued) **1000341589**

and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1000341589
Registry ID:	110005327805
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110005327805

K41 **HAVLIKS RADIATOR SVC INC** **WA ALLSITES** **1004794349**
SSE **11851 124TH AVE NE** **RCRA NonGen / NLR** **WAD988507968**
1/4-1/2 **KIRKLAND, WA 98034** **FINDS**
0.282 mi. **ECHO**
1491 ft. **Site 1 of 5 in cluster K** **WA MANIFEST**

Relative:
Higher

Actual:
170 ft.

ALLSITES:

Facility Name:	HAVLIKS RADIATOR SVC INC
Facility Id:	93461187

Interaction:	72838
Interaction 1:	I
Interaction 2:	HWOTHER
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD988507968
Date Interaction:	2003-12-31 00:00:00
Date Interaction 3:	Haz Waste Management Acti
Latitude:	47.709754359999998
Longitude:	-122.183155105

Interaction:	72837
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD988507968
Date Interaction:	1992-06-19 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.709754359999998
Longitude:	-122.183155105

RCRA NonGen / NLR:

Date form received by agency:	05/25/2006
Facility name:	HAVLIKS RADIATOR SVC INC
Facility address:	11851 124TH AVE NE KIRKLAND, WA 98034-8110
EPA ID:	WAD988507968
Contact:	HAVLIKS RADIATO HAVLIKS RADIATO
Contact address:	11851 124TH AVE NE

HAVLIKS RADIATOR SVC INC (Continued) **1004794349**

	KIRKLAND, WA 98034-8110
Contact country:	US
Contact telephone:	000-000-0000
Contact email:	Not reported
EPA Region:	10
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	HAVLIKS RADIATOR SVC INC
Owner/operator address:	11851 124TH AVE NE
	KIRKLAND, WA 98034
Owner/operator country:	US
Owner/operator telephone:	Not reported
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	05/03/1996
Owner/Op end date:	Not reported

Owner/operator name:	HAVLIKS RADIATO H
Owner/operator address:	11851 124TH AVE NE
	KIRKLAND, WA 98034
Owner/operator country:	US
Owner/operator telephone:	425-823-8900
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	05/03/1996
Owner/Op end date:	Not reported

Owner/operator name:	ERIC JEROCHIM
Owner/operator address:	11851 124TH AVE NE
	KIRKLAND, WA 98034
Owner/operator country:	US
Owner/operator telephone:	Not reported
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	05/07/1997
Owner/Op end date:	Not reported

Owner/operator name:	ERIC J
Owner/operator address:	11851 124TH AVE NE
	KIRKLAND, WA 98034
Owner/operator country:	US
Owner/operator telephone:	425-823-8900
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private

HAVLIKS RADIATOR SVC INC (Continued) **1004794349**

Owner/Operator Type: Operator
Owner/Op start date: 05/07/1997
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 12/31/2005
Site name: HAVLIKS RADIATOR SVC INC
Classification: Not a generator, verified

Date form received by agency: 12/31/2003
Site name: HAVLIKS RADIATOR SVC INC
Classification: Not a generator, verified

Date form received by agency: 03/11/2003
Site name: HAVLIKS RADIATOR SVC INC
Classification: Not a generator, verified

Violation Status: No violations found

FINDS:

Registry ID: 110005376636

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZARDOUS WASTE BIENNIAL REPORTER

HAVLIKS RADIATOR SVC INC (Continued) **1004794349**

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1004794349
Registry ID:	110005376636
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110005376636

WA MANIFEST:

Facility Site ID Number:	93461187
EPA ID:	WAD988507968
NAICS:	811118
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	Not reported
Permit by Rule:	No
Treatment by Generator:	No
Mixed radioactive waste:	No
Importer of hazardous waste:	No
Immediate recycler:	No
Treatment/Storage/Disposal/Recycling Facility:	No
Generator of dangerous fuel waste:	No
Generator marketing to burner:	No
Other marketers (i.e., blender, distributor, etc.):	No
Utility boiler burner:	No
Industry boiler burner:	No
Industrial Furnace:	No
Smelter defferal:	No
Universal waste - batteries - generate:	No
Universal waste - thermostats - generate:	No
Universal waste - mercury - generate:	No
Universal waste - lamps - generate:	No
Universal waste - batteries - accumulate:	No
Universal waste - thermostats - accumulate:	No
Universal waste - mercury - accumulate:	No
Universal waste - lamps - accumulate:	No
Destination Facility for Universal Waste:	No
Off-specification used oil burner - utility boiler:	No
Off-specification used oil burner - industrial boiler:	No
Off-specification used oil burner - industrial furnace:	No
Tax Reg #:	600633123
Business Type:	Not reported
Mail Name:	Havliks Radiator Svc Inc
Mail addr line1:	11851 124TH AVE NE
Mail city,st,zip:	KIRKLAND, WA 98034-8110
Mail country:	UNITED STATES
Legal org name:	Havliks Radiator Svc Inc
Legal org type:	Private
Legal addr line1:	11851 124TH AVE NE
Legal city,st,zip:	KIRKLAND, WA 98034-8110
Legal country:	UNITED STATES
Legal phone nbr:	4258238900
Legal effective date:	05/03/1996
Land org name:	Totem Square Partners

HAVLIKS RADIATOR SVC INC (Continued) **1004794349**

Land org type:	Private
Land person name:	Not reported
Land addr line1:	PO Box 661300
Land city,st,zip:	SACRAMENTO, CA 95866-1300
Land country:	UNITED STATES
Land phone nbr:	425-820-1330
Operator org name:	Not reported
Operator org type:	Private
Operator addr line1:	11851 124TH AVE NE
Operator city,st,zip:	KIRKLAND, WA 98034-8110
Operator country:	UNITED STATES
Operator phone nbr:	(425)823-8900
Operator effective date:	05/07/1997
Site contact name:	Eric Jerochim
Site contact addr line1:	11851 124TH AVE NE
Site Contact City/State/ Zip:	KIRKLAND, WA 98034-8110
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(425)823-8900
Site Contact EMail:	Not reported
Form Contact NAME:	Eric Jerochim
Form Contact ADDR LINE1:	11851 124TH AVE NE
Form Contact City,ST,Zip:	KIRKLAND, WA 98034-8110
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(425)823-8900
Form Contact EMail:	e.jerochim@verizon.net
Gen Status CD:	SQG
Monthly Generation:	No
Batch Generation:	No
One Time Generation:	No
Transport Own Waste:	No
Tranports Other Waste:	No
Recycler Onsite:	No
Transfer Facility:	No
Other Exemption:	Not reported
UW Battery Gen:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Fuel Marketer Directs Shipments:	No
Used Oil Fuel Marketer Meets Specs:	No

K42 **NELSONS AUTOMOTIVE SVC** **WA ALLSITES** **1000659020**
SSE **11821 124TH AVE NE** **RCRA NonGen / NLR** **WAD988486825**
1/4-1/2 **KIRKLAND, WA 98034** **FINDS**
0.282 mi. **ECHO**
1491 ft. **Site 2 of 5 in cluster K**

Relative:
Higher

Actual:
170 ft.

ALLSITES:

Facility Name:	NELSONS AUTOMOTIVE SVC
Facility Id:	71536249
Interaction:	60140
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE

NELSONS AUTOMOTIVE SVC (Continued) **1000659020**

Facility Alt.:	Not reported
Program ID:	WAD988486825
Date Interaction:	1991-05-22 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.705593380000003
Longitude:	-122.177260129

Interaction:	125408
Interaction 1:	A
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Busby Junk Removal LLC
Program ID:	WAD988486825
Date Interaction:	2018-02-27 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.705593380000003
Longitude:	-122.177260129

RCRA NonGen / NLR:

Date form received by agency:	07/19/1993
Facility name:	NELSONS AUTOMOTIVE SVC
Facility address:	11821 124TH AVE NE KIRKLAND, WA 98034
EPA ID:	WAD988486825
Contact:	NELSONS AUTOMOT NELSONS AUTOMOT
Contact address:	11821 124TH AVE NE KIRKLAND, WA 98034-8110
Contact country:	US
Contact telephone:	000-000-0000
Contact email:	Not reported
EPA Region:	10
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	NELSONS AUTOMOT N
Owner/operator address:	11821 124TH AVE NE KIRKLAND, WA 98034
Owner/operator country:	US
Owner/operator telephone:	000-000-0000
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	05/02/1996
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No

NELSONS AUTOMOTIVE SVC (Continued) **1000659020**

Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 07/19/1993
Site name: NELSONS AUTOMOTIVE SVC
Classification: Not a generator, verified

Violation Status: No violations found

FINDS:

Registry ID: 110005361161

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1000659020
Registry ID: 110005361161
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110005361161

K43 **MOSS DOCTORS** **WA ALLSITES** **S109010470**
SSE **11923 124TH AVE NE** **WA SPILLS** **N/A**
1/4-1/2 **KIRKLAND, WA 98034**
0.282 mi.
1491 ft. **Site 3 of 5 in cluster K**

Relative:
Higher

Actual:
170 ft.

ALLSITES:
Facility Name: MOSS DOCTORS
Facility Id: 3643838

MOSS DOCTORS (Continued) **S109010470**

Interaction:	13109
Interaction 1:	A
Interaction 2:	ENFORFNL
Ecology Program:	SPILLS
Program Data:	DMS
Facility Alt.:	Not reported
Program ID:	Not reported
Date Interaction:	2008-01-18 00:00:00
Date Interaction 3:	Enforcement Final
Latitude:	47.705930360000004
Longitude:	-122.175691108

SPILLS:

Facility ID:	603053
Medium:	Not reported
Material Desc:	UNKNOWN
Material Qty:	Not reported
Material Units:	Not reported
Date Received:	01/04/2008
Contact Name:	Not reported
Incident Date:	Not reported
Incident Category Type:	Not reported
Incident Category:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Source Type:	Not reported
Source:	Not reported
Vessel Facility Name2:	Not reported
Recovered Quantity:	Not reported
Resp Party Contact:	Not reported
Cause:	Not reported
Cause Type:	Not reported
Resp Party Name:	Not reported

K44 **MACRO TECHNOLOGIES LLC** **RCRA-LQG** **1001969475**
SSE **11815 124TH AVE NE** **WA ALLSITES** **WAD052595196**
1/4-1/2 **KIRKLAND, WA 98034** **FINDS**
0.282 mi. **ECHO**
1491 ft. **Site 4 of 5 in cluster K** **WA MANIFEST**

Relative:
Higher

Actual:
170 ft.

RCRA-LQG:

Date form received by agency:	02/18/2011
Facility name:	MACRO TECHNOLOGIES LLC
Facility address:	11815 124TH AVE NE KIRKLAND, WA 98034
EPA ID:	WAD052595196
Contact:	MACRO TECHNOLOG MACRO TECHNOLOG
Contact address:	11815 124TH AVE NE KIRKLAND, WA 98034
Contact country:	US
Contact telephone:	000-000-0000
Contact email:	Not reported
EPA Region:	10
Land type:	Private
Classification:	Large Quantity Generator
Description:	Handler: generates 1,000 kg or more of hazardous waste during any

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

calendar month; or generates more than 1 kg of acutely hazardous waste during any calendar month; or generates more than 100 kg of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month; or generates 1 kg or less of acutely hazardous waste during any calendar month, and accumulates more than 1 kg of acutely hazardous waste at any time; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates more than 100 kg of that material at any time

Owner/Operator Summary:

Owner/operator name:	CHARLES LOOMIS
Owner/operator address:	11828 NE 112TH ST KIRKLAND, WA 98033
Owner/operator country:	US
Owner/operator telephone:	Not reported
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	08/27/1996
Owner/Op end date:	Not reported
Owner/operator name:	CHARLES L
Owner/operator address:	11828 NE 112TH ST KIRKLAND, WA 98033
Owner/operator country:	US
Owner/operator telephone:	425-823-4560
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	08/27/1996
Owner/Op end date:	Not reported
Owner/operator name:	MACRO TECHNOLOGIES INC 124TH AVE
Owner/operator address:	11815 124TH AVE NE KIRKLAND, WA 98034
Owner/operator country:	US
Owner/operator telephone:	Not reported
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	02/07/2001
Owner/Op end date:	Not reported
Owner/operator name:	DON M
Owner/operator address:	11815 124TH AVE NE KIRKLAND, WA 98034
Owner/operator country:	US
Owner/operator telephone:	425-825-8100

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 08/01/2009
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

. Waste code: D002
. Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

. Waste code: D005
. Waste name: BARIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

Historical Generators:
Date form received by agency: 02/22/2010
Site name: MACRO TECHNOLOGIES LLC
Classification: Large Quantity Generator

. Waste code: D002
. Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

Date form received by agency: 12/31/2007
Site name: MACRO TECHNOLOGIES INC 124TH AVE
Classification: Large Quantity Generator

Date form received by agency: 12/31/2005
Site name: MACRO TECHNOLOGIES INC 124TH AVE
Classification: Large Quantity Generator

Date form received by agency: 12/31/2003
Site name: MACRO TECHNOLOGIES INC 124TH AVE
Classification: Small Quantity Generator

Date form received by agency: 02/18/2003
Site name: MACRO TECHNOLOGIES INC 124TH AVE
Classification: Not a generator, verified

. Waste code: D002
. Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

. Waste code: D005
. Waste name: BARIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

Facility Has Received Notices of Violations:
Regulation violated: Not reported
Area of violation: TSD IS-Container Use and Management
Date violation determined: 08/19/2014
Date achieved compliance: 12/17/2014
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 09/24/2014
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: State Statute or Regulation

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Date violation determined: 08/19/2014
Date achieved compliance: 12/17/2014
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 09/24/2014
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 08/19/2014
Date achieved compliance: 12/17/2014
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 09/24/2014
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - General Facility Standards
Date violation determined: 08/19/2014
Date achieved compliance: 12/17/2014
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 09/24/2014
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - Manifest
Date violation determined: 08/19/2014
Date achieved compliance: 12/17/2014
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 09/24/2014
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - Contingency Plan and Emergency Procedures
Date violation determined: 08/19/2014

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Date achieved compliance: 12/17/2014
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 09/24/2014
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Universal Waste - Small Quantity Handlers
Date violation determined: 05/12/2009
Date achieved compliance: 06/09/2009
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 05/20/2009
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - General Facility Standards
Date violation determined: 05/12/2009
Date achieved compliance: 06/09/2009
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 05/20/2009
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: SR - -630(7)
Area of violation: Generators - General
Date violation determined: 11/08/2005
Date achieved compliance: 02/08/2006
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 01/09/2006
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: SR - -200(1)(e)
Area of violation: Generators - Records/Reporting
Date violation determined: 11/08/2005
Date achieved compliance: 04/18/2006

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 01/09/2006
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: SR - -573(9)
Area of violation: Generators - General
Date violation determined: 11/08/2005
Date achieved compliance: 12/13/2005
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 01/09/2006
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: SR - -210(1)
Area of violation: Generators - Records/Reporting
Date violation determined: 11/08/2005
Date achieved compliance: 11/08/2005
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 01/09/2006
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: SR - -630(5)(a)
Area of violation: Generators - General
Date violation determined: 11/08/2005
Date achieved compliance: 11/08/2005
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 01/09/2006
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: SR - -330(2)
Area of violation: Generators - Records/Reporting
Date violation determined: 11/08/2005
Date achieved compliance: 04/03/2006
Violation lead agency: State

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Enforcement action: WRITTEN INFORMAL
Enforcement action date: 01/09/2006
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: SR - -200(1)(e)
Area of violation: Generators - Records/Reporting
Date violation determined: 11/08/2005
Date achieved compliance: 04/17/2006
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 01/09/2006
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: SR - -640(5)(d)
Area of violation: Generators - General
Date violation determined: 11/08/2005
Date achieved compliance: 12/15/2005
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 01/09/2006
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: SR - -200(1)(b)
Area of violation: Generators - General
Date violation determined: 11/08/2005
Date achieved compliance: 02/20/2006
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 01/09/2006
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: SR - -200(1)(c)
Area of violation: Generators - General
Date violation determined: 11/08/2005
Date achieved compliance: 12/15/2005
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Enforcement action date: 01/09/2006
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:

Evaluation date: 11/17/2014
Evaluation: FOCUSED COMPLIANCE INSPECTION
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 08/19/2014
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD IS-Container Use and Management
Date achieved compliance: 12/17/2014
Evaluation lead agency: State

Evaluation date: 08/19/2014
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General Facility Standards
Date achieved compliance: 12/17/2014
Evaluation lead agency: State

Evaluation date: 08/19/2014
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Manifest
Date achieved compliance: 12/17/2014
Evaluation lead agency: State

Evaluation date: 08/19/2014
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 12/17/2014
Evaluation lead agency: State

Evaluation date: 08/19/2014
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - Contingency Plan and Emergency Procedures
Date achieved compliance: 12/17/2014
Evaluation lead agency: State

Evaluation date: 08/19/2014
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: State Statute or Regulation
Date achieved compliance: 12/17/2014
Evaluation lead agency: State

Evaluation date: 05/12/2009
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General Facility Standards
Date achieved compliance: 06/09/2009
Evaluation lead agency: State

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Evaluation date: 05/12/2009
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Universal Waste - Small Quantity Handlers
Date achieved compliance: 06/09/2009
Evaluation lead agency: State

Evaluation date: 11/08/2005
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Records/Reporting
Date achieved compliance: 04/17/2006
Evaluation lead agency: State

Evaluation date: 11/08/2005
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 02/08/2006
Evaluation lead agency: State

Evaluation date: 11/08/2005
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 12/13/2005
Evaluation lead agency: State

Evaluation date: 11/08/2005
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 02/20/2006
Evaluation lead agency: State

Evaluation date: 11/08/2005
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Records/Reporting
Date achieved compliance: 04/03/2006
Evaluation lead agency: State

Evaluation date: 11/08/2005
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 11/08/2005
Evaluation lead agency: State

Evaluation date: 11/08/2005
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Records/Reporting
Date achieved compliance: 11/08/2005
Evaluation lead agency: State

Evaluation date: 11/08/2005
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Records/Reporting
Date achieved compliance: 04/18/2006
Evaluation lead agency: State

Evaluation date: 11/08/2005
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Date achieved compliance: 12/15/2005
Evaluation lead agency: State

ALLSITES:
Facility Name: MACRO TECHNOLOGIES INC 124TH AVE
Facility Id: 22945928

Interaction: 32849
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAD052595196
Date Interaction: 1988-11-21 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.709804361000003
Longitude: -122.18330510600001

Interaction: 32851
Interaction 1: I
Interaction 2: HWP
Ecology Program: HAZWASTE
Program Data: HWPPRT
Facility Alt.: Marco Technologies LLC
Program ID: WAD052595196
Date Interaction: 2006-01-01 00:00:00
Date Interaction 3: Hazardous Waste Planner
Latitude: 47.709804361000003
Longitude: -122.18330510600001

Interaction: 32850
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Macro Technologies LLC
Program ID: WAD052595196
Date Interaction: 1998-08-07 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.709804361000003
Longitude: -122.18330510600001

FINDS:

Registry ID: 110005321990

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZARDOUS WASTE BIENNIAL REPORTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1001969475
Registry ID:	110005321990
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110005321990

WA MANIFEST:

Facility Site ID Number:	22945928
EPA ID:	WAD052595196
NAICS:	335122
SWC Desc:	Not reported
FWC Desc:	D002 D005 D007 D008D002 D008
Form Comm:	Not reported
Data Year:	Not reported
Permit by Rule:	No
Treatment by Generator:	No
Mixed radioactive waste:	No
Importer of hazardous waste:	No
Immediate recycler:	No
Treatment/Storage/Disposal/Recycling Facility:	No
Generator of dangerous fuel waste:	No
Generator marketing to burner:	No
Other marketers (i.e., blender, distributor, etc.):	No
Utility boiler burner:	No
Industry boiler burner:	No
Industrial Furnace:	No
Smelter defferal:	No
Universal waste - batteries - generate:	No
Universal waste - thermostats - generate:	No
Universal waste - mercury - generate:	No
Universal waste - lamps - generate:	No
Universal waste - batteries - accumulate:	No
Universal waste - thermostats - accumulate:	No
Universal waste - mercury - accumulate:	No
Universal waste - lamps - accumulate:	No
Destination Facility for Universal Waste:	No
Off-specification used oil burner - utility boiler:	No
Off-specification used oil burner - industrial boiler:	No
Off-specification used oil burner - industrial furnace:	No
Tax Reg #:	600345551
Business Type:	Not reported
Mail Name:	Macro Technologies Inc 124th Ave
Mail addr line1:	11815 124th Ave NE
Mail city,st,zip:	KIRKLAND, WA 98034

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Mail country:	UNITED STATES
Legal org name:	Macro Technologies Inc 124th Ave
Legal org type:	Private
Legal addr line1:	11815 124th Ave NE
Legal city,st,zip:	KIRKLAND, WA 98034
Legal country:	UNITED STATES
Legal phone nbr:	4253980132
Legal effective date:	02/07/2001
Land org name:	Totem Square Partners
Land org type:	Private
Land person name:	Not reported
Land addr line1:	2029 Century Park E #1550
Land city,st,zip:	LOS ANGELES, CA 90067
Land country:	UNITED STATES
Land phone nbr:	(310)277-1648
Operator org name:	Not reported
Operator org type:	Private
Operator addr line1:	11828 NE 112th St
Operator city,st,zip:	KIRKLAND, WA 98033
Operator country:	UNITED STATES
Operator phone nbr:	(425)823-4560
Operator effective date:	08/27/1996
Site contact name:	Jeff Williams
Site contact addr line1:	11815 124th Ave NE
Site Contact City/State/ Zip:	KIRKLAND, WA 98034
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(425)825-8100 19
Site Contact EMail:	Not reported
Form Contact NAME:	Jeff Williams
Form Contact ADDR LINE1:	11815 124th Ave NE
Form Contact City,ST,Zip:	KIRKLAND, WA 98034
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(425)825-8100 19
Form Contact EMail:	jeffw@macrotechnologies.com
Gen Status CD:	LQG
Monthly Generation:	No
Batch Generation:	Yes
One Time Generation:	No
Transport Own Waste:	No
Tranports Other Waste:	No
Recycler Onsite:	No
Transfer Facility:	No
Other Exemption:	Not reported
UW Battery Gen:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Fuel Marketer Directs Shipments:	No
Used Oil Fuel Marketer Meets Specs:	No

Waste Streams Generated:

Facility ID:	22945928
Data Year:	2008
Description:	Regulated waste coolant
Mix:	False
Reported Qty:	36336.980000000003 LB

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Kilo Qty:	16482.45441149822
Density No:	0
Density Qty:	Not reported

Facility ID:	22945928
Data Year:	2009
Description:	SPENT MACHINE COOLANT and ELECTRO POLISH WASTE WATER
Mix:	False
Reported Qty:	5454.3599999999997 LB
Kilo Qty:	2474.0977385544811
Density No:	0
Density Qty:	Not reported

Facility ID:	22945928
Data Year:	2009
Description:	Regulated waste coolant
Mix:	False
Reported Qty:	11442.48 LB
Kilo Qty:	5190.3090172733155
Density No:	0
Density Qty:	Not reported

Facility ID:	22945928
Data Year:	2010
Description:	Regulated Waste Coolant, Hydrite 4000, Absorbants W/Regulated waste Coolant
Mix:	False
Reported Qty:	21377.16 LB
Kilo Qty:	9696.6799427828955
Density No:	0
Density Qty:	Not reported

Facility ID:	22945928
Data Year:	Not reported
Description:	HYDRITE 4000
Mix:	No
Reported Qty:	875.7 LB
Kilo Qty:	397.217526832142
Density No:	0
Density Qty:	Not reported

Facility ID:	22945928
Data Year:	Not reported
Description:	Regulated waste coolant
Mix:	No
Reported Qty:	23160.18 LB
Kilo Qty:	10505.4578286939
Density No:	0
Density Qty:	Not reported

Facility ID:	22945928
Data Year:	Not reported
Description:	Regulated waste coolant
Mix:	No
Reported Qty:	10875.36 LB
Kilo Qty:	4933.06338084869
Density No:	0
Density Qty:	Not reported

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Shipments Sent:

Facility ID:	22945928
Data Year:	2008
Shipment sent data:	1/14/2008
Reported Qty:	500 LB
Kilo Qty:	226.80000390096

Facility ID:	22945928
Data Year:	2008
Shipment sent data:	12/5/2008
Reported Qty:	3127.5 LB
Kilo Qty:	1418.63402440051

Facility ID:	22945928
Data Year:	2008
Shipment sent data:	10/8/2008
Reported Qty:	2126.7 LB
Kilo Qty:	964.671136592343

Facility ID:	22945928
Data Year:	2008
Shipment sent data:	9/3/2008
Reported Qty:	3853.08 LB
Kilo Qty:	1747.75711806142

Facility ID:	22945928
Data Year:	2008
Shipment sent data:	8/4/2008
Reported Qty:	2585.4 LB
Kilo Qty:	1172.73746017108

Facility ID:	22945928
Data Year:	2008
Shipment sent data:	6/24/2008
Reported Qty:	3252.6 LB
Kilo Qty:	1475.37938537653

Facility ID:	22945928
Data Year:	2008
Shipment sent data:	6/4/2008
Reported Qty:	4036.56 LB
Kilo Qty:	1830.98364749292

Facility ID:	22945928
Data Year:	2008
Shipment sent data:	5/7/2008
Reported Qty:	3310.98 LB
Kilo Qty:	1501.860553832

Facility ID:	22945928
Data Year:	2008
Shipment sent data:	4/10/2008
Reported Qty:	3702.96 LB
Kilo Qty:	1679.6626848902

Facility ID:	22945928
Data Year:	2008

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Shipment sent data: 3/14/2008
Reported Qty: 2785.56 LB
Kilo Qty: 1263.53003773272

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 2/20/2008
Reported Qty: 2568.72 LB
Kilo Qty: 1165.17141204095

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 1/23/2008
Reported Qty: 2043.3 LB
Kilo Qty: 926.840895941663

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 1/14/2008
Reported Qty: 2443.62 LB
Kilo Qty: 1108.42605106493

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 10/2/2009
Reported Qty: 1167.6 LB
Kilo Qty: 529.623369109522

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 10/9/2009
Reported Qty: 2618.76 LB
Kilo Qty: 1187.86955643136

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 8/11/2009
Reported Qty: 1668 LB
Kilo Qty: 756.604813013603

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 5/12/2009
Reported Qty: 2393.58 LB
Kilo Qty: 1085.72790667452

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 3/20/2009
Reported Qty: 2618.76 LB
Kilo Qty: 1187.86955643136

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 2/18/2009
Reported Qty: 3127.5 LB
Kilo Qty: 1418.63402440051

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Facility ID:	22945928
Data Year:	2009
Shipment sent data:	1/19/2009
Reported Qty:	3302.64 LB
Kilo Qty:	1498.07752976693

Facility Site ID Number:	22945928
EPA ID:	WAD052595196
NAICS:	335122
SWC Desc:	Not reported
FWC Desc:	D002 D005 D007 D008D002 D008
Form Comm:	Not reported
Data Year:	Not reported
Permit by Rule:	FALSE
Treatment by Generator:	FALSE
Mixed radioactive waste:	FALSE
Importer of hazardous waste:	FALSE
Immediate recycler:	FALSE
Treatment/Storage/Disposal/Recycling Facility:	FALSE
Generator of dangerous fuel waste:	FALSE
Generator marketing to burner:	FALSE
Other marketers (i.e., blender, distributor, etc.):	FALSE
Utility boiler burner:	FALSE
Industry boiler burner:	FALSE
Industrial Furnace:	FALSE
Smelter defferal:	FALSE
Universal waste - batteries - generate:	FALSE
Universal waste - thermostats - generate:	FALSE
Universal waste - mercury - generate:	FALSE
Universal waste - lamps - generate:	FALSE
Universal waste - batteries - accumulate:	FALSE
Universal waste - thermostats - accumulate:	FALSE
Universal waste - mercury - accumulate:	FALSE
Universal waste - lamps - accumulate:	FALSE
Destination Facility for Universal Waste:	FALSE
Off-specification used oil burner - utility boiler:	FALSE
Off-specification used oil burner - industrial boiler:	FALSE
Off-specification used oil burner - industrial furnace:	FALSE
Tax Reg #:	600345551
Business Type:	Not reported
Mail Name:	Macro Technologies Inc 124th Ave
Mail addr line1:	11815 124th Ave NE
Mail city,st,zip:	KIRKLAND, WA 98034
Mail country:	UNITED STATES
Legal org name:	Macro Technologies Inc 124th Ave
Legal org type:	Private
Legal addr line1:	11815 124th Ave NE
Legal city,st,zip:	KIRKLAND, WA 98034
Legal country:	UNITED STATES
Legal phone nbr:	4253980132
Legal effective date:	02/07/2001
Land org name:	Totem Square Partners
Land org type:	Private
Land person name:	Not reported
Land addr line1:	2029 Century Park E #1550
Land city,st,zip:	LOS ANGELES, CA 90067

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Land country:	UNITED STATES
Land phone nbr:	(310)277-1648
Operator org name:	Not reported
Operator org type:	Private
Operator addr line1:	11828 NE 112th St
Operator city,st,zip:	KIRKLAND, WA 98033
Operator country:	UNITED STATES
Operator phone nbr:	(425)823-4560
Operator effective date:	08/27/1996
Site contact name:	Jeff Williams
Site contact addr line1:	11815 124th Ave NE
Site Contact City/State/ Zip:	KIRKLAND, WA 98034
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(425)825-8100 19
Site Contact EMail:	Not reported
Form Contact NAME:	Jeff Williams
Form Contact ADDR LINE1:	11815 124th Ave NE
Form Contact City,ST,Zip:	KIRKLAND, WA 98034
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(425)825-8100 19
Form Contact EMail:	jeffw@macrotechnologies.com
Gen Status CD:	LQG
Monthly Generation:	FALSE
Batch Generation:	FALSE
One Time Generation:	FALSE
Transport Own Waste:	FALSE
Tranports Other Waste:	FALSE
Recycler Onsite:	FALSE
Transfer Facility:	FALSE
Other Exemption:	Not reported
UW Battery Gen:	FALSE
Used Oil Transporter:	FALSE
Used Oil Transfer Facility:	FALSE
Used Oil Processor:	FALSE
Used Oil Refiner:	FALSE
Used Oil Fuel Marketer Directs Shipments:	FALSE
Used Oil Fuel Marketer Meets Specs:	FALSE

Waste Streams Generated:

Facility ID:	22945928
Data Year:	2008
Description:	Regulated waste coolant
Mix:	False
Reported Qty:	36336.980000000003 LB
Kilo Qty:	16482.45441149822
Density No:	0
Density Qty:	Not reported

Facility ID:	22945928
Data Year:	2009
Description:	SPENT MACHINE COOLANT and ELECTRO POLISH WASTE WATER
Mix:	False
Reported Qty:	5454.3599999999997 LB
Kilo Qty:	2474.0977385544811
Density No:	0
Density Qty:	Not reported

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Facility ID: 22945928
Data Year: 2009
Description: Regulated waste coolant
Mix: False
Reported Qty: 11442.48 LB
Kilo Qty: 5190.3090172733155
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: 2010
Description: Regulated Waste Coolant, Hydrite 4000, Absorbants W/Regulated waste Coolant
Mix: False
Reported Qty: 21377.16 LB
Kilo Qty: 9696.6799427828955
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: Not reported
Description: HYDRITE 4000
Mix: No
Reported Qty: 875.7 LB
Kilo Qty: 397.217526832142
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: Not reported
Description: Regulated waste coolant
Mix: No
Reported Qty: 23160.18 LB
Kilo Qty: 10505.4578286939
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: Not reported
Description: Regulated waste coolant
Mix: No
Reported Qty: 10875.36 LB
Kilo Qty: 4933.06338084869
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 22945928
Data Year: 2008
Shipment sent data: 1/14/2008
Reported Qty: 500 LB
Kilo Qty: 226.80000390096

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 12/5/2008
Reported Qty: 3127.5 LB
Kilo Qty: 1418.63402440051

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 10/8/2008
Reported Qty: 2126.7 LB
Kilo Qty: 964.671136592343

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 9/3/2008
Reported Qty: 3853.08 LB
Kilo Qty: 1747.75711806142

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 8/4/2008
Reported Qty: 2585.4 LB
Kilo Qty: 1172.73746017108

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 6/24/2008
Reported Qty: 3252.6 LB
Kilo Qty: 1475.37938537653

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 6/4/2008
Reported Qty: 4036.56 LB
Kilo Qty: 1830.98364749292

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 5/7/2008
Reported Qty: 3310.98 LB
Kilo Qty: 1501.860553832

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 4/10/2008
Reported Qty: 3702.96 LB
Kilo Qty: 1679.6626848902

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 3/14/2008
Reported Qty: 2785.56 LB
Kilo Qty: 1263.53003773272

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 2/20/2008
Reported Qty: 2568.72 LB
Kilo Qty: 1165.17141204095

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 1/23/2008

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Reported Qty: 2043.3 LB
Kilo Qty: 926.840895941663

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 1/14/2008
Reported Qty: 2443.62 LB
Kilo Qty: 1108.42605106493

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 10/2/2009
Reported Qty: 1167.6 LB
Kilo Qty: 529.623369109522

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 10/9/2009
Reported Qty: 2618.76 LB
Kilo Qty: 1187.86955643136

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 8/11/2009
Reported Qty: 1668 LB
Kilo Qty: 756.604813013603

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 5/12/2009
Reported Qty: 2393.58 LB
Kilo Qty: 1085.72790667452

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 3/20/2009
Reported Qty: 2618.76 LB
Kilo Qty: 1187.86955643136

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 2/18/2009
Reported Qty: 3127.5 LB
Kilo Qty: 1418.63402440051

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 1/19/2009
Reported Qty: 3302.64 LB
Kilo Qty: 1498.07752976693

Facility Site ID Number: 22945928
EPA ID: WAD052595196
NAICS: 335122
SWC Desc: Not reported
FWC Desc: D002, D005, D007, D008

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Form Comm:	Not reported
Data Year:	2010
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	602942175
Business Type:	Not reported
Mail Name:	Macro Technologies LLC
Mail addr line1:	11815 124th Ave NE
Mail city,st,zip:	Kirkland, WA 98034
Mail country:	UNITED STATES
Legal org name:	Macro Technologies LLC
Legal org type:	Private
Legal addr line1:	11815 124th Ave NE
Legal city,st,zip:	Kirkland, WA 98034
Legal country:	UNITED STATES
Legal phone nbr:	(425)825-8100
Legal effective date:	08/01/2009
Land org name:	Totem Square Partners
Land org type:	Private
Land person name:	Not reported
Land addr line1:	2029 Century Park E Ste 1550
Land city,st,zip:	Los Angeles, CA 90067
Land country:	UNITED STATES
Land phone nbr:	(310)277-1648
Operator org name:	Not reported
Operator org type:	Private
Operator addr line1:	11828 NE 112th St
Operator city,st,zip:	Kirkland, WA 98033
Operator country:	UNITED STATES
Operator phone nbr:	(425)823-4560
Operator effective date:	08/27/1996
Site contact name:	Jeff Williams
Site contact addr line1:	12530 135th Ave NE
Site Contact City/State/ Zip:	Kirkland, WA 98034

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Site Contact Country:	UNITED STATES
Site Contact Phone #:	(425)825-8100
Site Contact EMail:	jeffw@macrotechnologies.com
Form Contact NAME:	Jeff Williams
Form Contact ADDR LINE1:	12530 135th Ave NE
Form Contact City,ST,Zip:	Kirkland, WA 98034
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(425)825-8100
Form Contact EMail:	jeffw@macrotechnologies.com
Gen Status CD:	LQG
Monthly Generation:	False
Batch Generation:	True
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Waste Streams Generated:

Facility ID:	22945928
Data Year:	2008
Description:	Regulated waste coolant
Mix:	False
Reported Qty:	36336.980000000003 LB
Kilo Qty:	16482.45441149822
Density No:	0
Density Qty:	Not reported

Facility ID:	22945928
Data Year:	2009
Description:	SPENT MACHINE COOLANT and ELECTRO POLISH WASTE WATER
Mix:	False
Reported Qty:	5454.3599999999997 LB
Kilo Qty:	2474.0977385544811
Density No:	0
Density Qty:	Not reported

Facility ID:	22945928
Data Year:	2009
Description:	Regulated waste coolant
Mix:	False
Reported Qty:	11442.48 LB
Kilo Qty:	5190.3090172733155
Density No:	0
Density Qty:	Not reported

Facility ID:	22945928
Data Year:	2010
Description:	Regulated Waste Coolant, Hydrite 4000, Absorbants W/Regulated waste Coolant

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Mix:	False
Reported Qty:	21377.16 LB
Kilo Qty:	9696.6799427828955
Density No:	0
Density Qty:	Not reported

Facility ID:	22945928
Data Year:	Not reported
Description:	HYDRITE 4000
Mix:	No
Reported Qty:	875.7 LB
Kilo Qty:	397.217526832142
Density No:	0
Density Qty:	Not reported

Facility ID:	22945928
Data Year:	Not reported
Description:	Regulated waste coolant
Mix:	No
Reported Qty:	23160.18 LB
Kilo Qty:	10505.4578286939
Density No:	0
Density Qty:	Not reported

Facility ID:	22945928
Data Year:	Not reported
Description:	Regulated waste coolant
Mix:	No
Reported Qty:	10875.36 LB
Kilo Qty:	4933.06338084869
Density No:	0
Density Qty:	Not reported

Shipments Sent:

Facility ID:	22945928
Data Year:	2008
Shipment sent data:	1/14/2008
Reported Qty:	500 LB
Kilo Qty:	226.80000390096

Facility ID:	22945928
Data Year:	2008
Shipment sent data:	12/5/2008
Reported Qty:	3127.5 LB
Kilo Qty:	1418.63402440051

Facility ID:	22945928
Data Year:	2008
Shipment sent data:	10/8/2008
Reported Qty:	2126.7 LB
Kilo Qty:	964.671136592343

Facility ID:	22945928
Data Year:	2008
Shipment sent data:	9/3/2008
Reported Qty:	3853.08 LB
Kilo Qty:	1747.75711806142

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 8/4/2008
Reported Qty: 2585.4 LB
Kilo Qty: 1172.73746017108

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 6/24/2008
Reported Qty: 3252.6 LB
Kilo Qty: 1475.37938537653

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 6/4/2008
Reported Qty: 4036.56 LB
Kilo Qty: 1830.98364749292

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 5/7/2008
Reported Qty: 3310.98 LB
Kilo Qty: 1501.860553832

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 4/10/2008
Reported Qty: 3702.96 LB
Kilo Qty: 1679.6626848902

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 3/14/2008
Reported Qty: 2785.56 LB
Kilo Qty: 1263.53003773272

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 2/20/2008
Reported Qty: 2568.72 LB
Kilo Qty: 1165.17141204095

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 1/23/2008
Reported Qty: 2043.3 LB
Kilo Qty: 926.840895941663

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 1/14/2008
Reported Qty: 2443.62 LB
Kilo Qty: 1108.42605106493

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 10/2/2009

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Reported Qty: 1167.6 LB
Kilo Qty: 529.623369109522

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 10/9/2009
Reported Qty: 2618.76 LB
Kilo Qty: 1187.86955643136

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 8/11/2009
Reported Qty: 1668 LB
Kilo Qty: 756.604813013603

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 5/12/2009
Reported Qty: 2393.58 LB
Kilo Qty: 1085.72790667452

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 3/20/2009
Reported Qty: 2618.76 LB
Kilo Qty: 1187.86955643136

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 2/18/2009
Reported Qty: 3127.5 LB
Kilo Qty: 1418.63402440051

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 1/19/2009
Reported Qty: 3302.64 LB
Kilo Qty: 1498.07752976693

Facility Site ID Number: 22945928
EPA ID: WAD052595196
NAICS: 335122
SWC Desc: Not reported
FWC Desc: D008
Form Comm: Not reported
Data Year: 2008
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	600345551
Business Type:	Not reported
Mail Name:	Macro Technologies Inc 124th Ave
Mail addr line1:	11815 124th Ave NE
Mail city,st,zip:	KIRKLAND, WA 98034
Mail country:	UNITED STATES
Legal org name:	Macro Technologies Inc 124th Ave
Legal org type:	Private
Legal addr line1:	11815 124th Ave NE
Legal city,st,zip:	KIRKLAND, WA 98034
Legal country:	UNITED STATES
Legal phone nbr:	4253980132
Legal effective date:	02/07/2001
Land org name:	Totem Square Partners
Land org type:	Private
Land person name:	Not reported
Land addr line1:	2029 Century Park E #1550
Land city,st,zip:	LOS ANGELES, CA 90067
Land country:	UNITED STATES
Land phone nbr:	(310)277-1648
Operator org name:	Not reported
Operator org type:	Private
Operator addr line1:	11828 NE 112th St
Operator city,st,zip:	KIRKLAND, WA 98033
Operator country:	UNITED STATES
Operator phone nbr:	(425)823-4560
Operator effective date:	08/27/1996
Site contact name:	Jeff Williams
Site contact addr line1:	11815 124th Ave NE
Site Contact City/State/ Zip:	KIRKLAND, WA 98034
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(425)825-8100 19
Site Contact EMail:	Not reported
Form Contact NAME:	Jeff Williams
Form Contact ADDR LINE1:	11815 124th Ave NE
Form Contact City,ST,Zip:	KIRKLAND, WA 98034
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(425)825-8100 19
Form Contact EMail:	jeffw@macrotechnologies.com
Gen Status CD:	LQG
Monthly Generation:	False
Batch Generation:	True

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Waste Streams Generated:

Facility ID:	22945928
Data Year:	2008
Description:	Regulated waste coolant
Mix:	False
Reported Qty:	36336.980000000003 LB
Kilo Qty:	16482.45441149822
Density No:	0
Density Qty:	Not reported

Facility ID:	22945928
Data Year:	2009
Description:	SPENT MACHINE COOLANT and ELECTRO POLISH WASTE WATER
Mix:	False
Reported Qty:	5454.3599999999997 LB
Kilo Qty:	2474.0977385544811
Density No:	0
Density Qty:	Not reported

Facility ID:	22945928
Data Year:	2009
Description:	Regulated waste coolant
Mix:	False
Reported Qty:	11442.48 LB
Kilo Qty:	5190.3090172733155
Density No:	0
Density Qty:	Not reported

Facility ID:	22945928
Data Year:	2010
Description:	Regulated Waste Coolant, Hydrite 4000, Absorbants W/Regulated waste Coolant
Mix:	False
Reported Qty:	21377.16 LB
Kilo Qty:	9696.6799427828955
Density No:	0
Density Qty:	Not reported

Facility ID:	22945928
Data Year:	Not reported
Description:	HYDRITE 4000
Mix:	No
Reported Qty:	875.7 LB
Kilo Qty:	397.217526832142

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: Not reported
Description: Regulated waste coolant
Mix: No
Reported Qty: 23160.18 LB
Kilo Qty: 10505.4578286939
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: Not reported
Description: Regulated waste coolant
Mix: No
Reported Qty: 10875.36 LB
Kilo Qty: 4933.06338084869
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 22945928
Data Year: 2008
Shipment sent data: 1/14/2008
Reported Qty: 500 LB
Kilo Qty: 226.80000390096

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 12/5/2008
Reported Qty: 3127.5 LB
Kilo Qty: 1418.63402440051

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 10/8/2008
Reported Qty: 2126.7 LB
Kilo Qty: 964.671136592343

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 9/3/2008
Reported Qty: 3853.08 LB
Kilo Qty: 1747.75711806142

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 8/4/2008
Reported Qty: 2585.4 LB
Kilo Qty: 1172.73746017108

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 6/24/2008
Reported Qty: 3252.6 LB
Kilo Qty: 1475.37938537653

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 6/4/2008
Reported Qty: 4036.56 LB
Kilo Qty: 1830.98364749292

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 5/7/2008
Reported Qty: 3310.98 LB
Kilo Qty: 1501.860553832

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 4/10/2008
Reported Qty: 3702.96 LB
Kilo Qty: 1679.6626848902

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 3/14/2008
Reported Qty: 2785.56 LB
Kilo Qty: 1263.53003773272

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 2/20/2008
Reported Qty: 2568.72 LB
Kilo Qty: 1165.17141204095

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 1/23/2008
Reported Qty: 2043.3 LB
Kilo Qty: 926.840895941663

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 1/14/2008
Reported Qty: 2443.62 LB
Kilo Qty: 1108.42605106493

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 10/2/2009
Reported Qty: 1167.6 LB
Kilo Qty: 529.623369109522

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 10/9/2009
Reported Qty: 2618.76 LB
Kilo Qty: 1187.86955643136

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 8/11/2009

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Reported Qty:	1668 LB
Kilo Qty:	756.604813013603

Facility ID:	22945928
Data Year:	2009
Shipment sent data:	5/12/2009
Reported Qty:	2393.58 LB
Kilo Qty:	1085.72790667452

Facility ID:	22945928
Data Year:	2009
Shipment sent data:	3/20/2009
Reported Qty:	2618.76 LB
Kilo Qty:	1187.86955643136

Facility ID:	22945928
Data Year:	2009
Shipment sent data:	2/18/2009
Reported Qty:	3127.5 LB
Kilo Qty:	1418.63402440051

Facility ID:	22945928
Data Year:	2009
Shipment sent data:	1/19/2009
Reported Qty:	3302.64 LB
Kilo Qty:	1498.07752976693

Facility Site ID Number:	22945928
EPA ID:	WAD052595196
NAICS:	335122
SWC Desc:	Not reported
FWC Desc:	D002, D007, D008
Form Comm:	Sold Company
Data Year:	2009
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	600345551
Business Type:	Not reported
Mail Name:	Macro Technologies Inc 124th Ave
Mail addr line1:	11815 124th Ave NE
Mail city,st,zip:	KIRKLAND, WA 98034
Mail country:	UNITED STATES
Legal org name:	Macro Technologies Inc 124th Ave
Legal org type:	Private
Legal addr line1:	11815 124th Ave NE
Legal city,st,zip:	KIRKLAND, WA 98034
Legal country:	UNITED STATES
Legal phone nbr:	4253980132
Legal effective date:	02/07/2001
Land org name:	Totem Square Partners
Land org type:	Private
Land person name:	Not reported
Land addr line1:	2029 Century Park E #1550
Land city,st,zip:	LOS ANGELES, CA 90067
Land country:	UNITED STATES
Land phone nbr:	(310)277-1648
Operator org name:	Not reported
Operator org type:	Private
Operator addr line1:	11828 NE 112th St
Operator city,st,zip:	KIRKLAND, WA 98033
Operator country:	UNITED STATES
Operator phone nbr:	(425)823-4560
Operator effective date:	08/27/1996
Site contact name:	Jeff Williams
Site contact addr line1:	11815 124th Ave NE
Site Contact City/State/ Zip:	KIRKLAND, WA 98034
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(425)825-8100 19
Site Contact EMail:	Not reported
Form Contact NAME:	Jeff Williams
Form Contact ADDR LINE1:	11815 124th Ave NE
Form Contact City,ST,Zip:	KIRKLAND, WA 98034
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(425)825-8100 19
Form Contact EMail:	jeffw@macrotechnologies.com
Gen Status CD:	LQG
Monthly Generation:	False
Batch Generation:	True
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Used Oil Fuel Marketer Meets Specs: False

Waste Streams Generated:

Facility ID: 22945928
Data Year: 2008
Description: Regulated waste coolant
Mix: False
Reported Qty: 36336.980000000003 LB
Kilo Qty: 16482.45441149822
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: 2009
Description: SPENT MACHINE COOLANT and ELECTRO POLISH WASTE WATER
Mix: False
Reported Qty: 5454.3599999999997 LB
Kilo Qty: 2474.0977385544811
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: 2009
Description: Regulated waste coolant
Mix: False
Reported Qty: 11442.48 LB
Kilo Qty: 5190.3090172733155
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: 2010
Description: Regulated Waste Coolant, Hydrite 4000, Absorbants W/Regulated waste Coolant
Mix: False
Reported Qty: 21377.16 LB
Kilo Qty: 9696.6799427828955
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: Not reported
Description: HYDRITE 4000
Mix: No
Reported Qty: 875.7 LB
Kilo Qty: 397.217526832142
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: Not reported
Description: Regulated waste coolant
Mix: No
Reported Qty: 23160.18 LB
Kilo Qty: 10505.4578286939
Density No: 0
Density Qty: Not reported

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Facility ID: 22945928
Data Year: Not reported
Description: Regulated waste coolant
Mix: No
Reported Qty: 10875.36 LB
Kilo Qty: 4933.06338084869
Density No: 0
Density Qty: Not reported

Shipments Sent:

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 1/14/2008
Reported Qty: 500 LB
Kilo Qty: 226.80000390096

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 12/5/2008
Reported Qty: 3127.5 LB
Kilo Qty: 1418.63402440051

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 10/8/2008
Reported Qty: 2126.7 LB
Kilo Qty: 964.671136592343

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 9/3/2008
Reported Qty: 3853.08 LB
Kilo Qty: 1747.75711806142

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 8/4/2008
Reported Qty: 2585.4 LB
Kilo Qty: 1172.73746017108

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 6/24/2008
Reported Qty: 3252.6 LB
Kilo Qty: 1475.37938537653

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 6/4/2008
Reported Qty: 4036.56 LB
Kilo Qty: 1830.98364749292

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 5/7/2008
Reported Qty: 3310.98 LB
Kilo Qty: 1501.860553832

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 4/10/2008
Reported Qty: 3702.96 LB
Kilo Qty: 1679.6626848902

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 3/14/2008
Reported Qty: 2785.56 LB
Kilo Qty: 1263.53003773272

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 2/20/2008
Reported Qty: 2568.72 LB
Kilo Qty: 1165.17141204095

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 1/23/2008
Reported Qty: 2043.3 LB
Kilo Qty: 926.840895941663

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 1/14/2008
Reported Qty: 2443.62 LB
Kilo Qty: 1108.42605106493

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 10/2/2009
Reported Qty: 1167.6 LB
Kilo Qty: 529.623369109522

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 10/9/2009
Reported Qty: 2618.76 LB
Kilo Qty: 1187.86955643136

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 8/11/2009
Reported Qty: 1668 LB
Kilo Qty: 756.604813013603

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 5/12/2009
Reported Qty: 2393.58 LB
Kilo Qty: 1085.72790667452

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 3/20/2009

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Reported Qty: 2618.76 LB
Kilo Qty: 1187.86955643136

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 2/18/2009
Reported Qty: 3127.5 LB
Kilo Qty: 1418.63402440051

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 1/19/2009
Reported Qty: 3302.64 LB
Kilo Qty: 1498.07752976693

Facility Site ID Number: 22945928
EPA ID: WAD052595196
NAICS: 335122
SWC Desc: Not reported
FWC Desc: D002 D005 D007 D008D002 D008
Form Comm: Not reported
Data Year: Not reported
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter defferal: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: 600345551
Business Type: Not reported
Mail Name: Macro Technologies Inc 124th Ave
Mail addr line1: 11815 124th Ave NE
Mail city,st,zip: KIRKLAND, WA 98034
Mail country: UNITED STATES
Legal org name: Macro Technologies Inc 124th Ave
Legal org type: Private
Legal addr line1: 11815 124th Ave NE

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Legal city,st,zip:	KIRKLAND, WA 98034
Legal country:	UNITED STATES
Legal phone nbr:	4253980132
Legal effective date:	02/07/2001
Land org name:	Totem Square Partners
Land org type:	Private
Land person name:	Not reported
Land addr line1:	2029 Century Park E #1550
Land city,st,zip:	LOS ANGELES, CA 90067
Land country:	UNITED STATES
Land phone nbr:	(310)277-1648
Operator org name:	Not reported
Operator org type:	Private
Operator addr line1:	11828 NE 112th St
Operator city,st,zip:	KIRKLAND, WA 98033
Operator country:	UNITED STATES
Operator phone nbr:	(425)823-4560
Operator effective date:	08/27/1996
Site contact name:	Jeff Williams
Site contact addr line1:	11815 124th Ave NE
Site Contact City/State/ Zip:	KIRKLAND, WA 98034
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(425)825-8100 19
Site Contact EMail:	Not reported
Form Contact NAME:	Jeff Williams
Form Contact ADDR LINE1:	11815 124th Ave NE
Form Contact City,ST,Zip:	KIRKLAND, WA 98034
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(425)825-8100 19
Form Contact EMail:	jeffw@macrotechnologies.com
Gen Status CD:	LQG
Monthly Generation:	False
Batch Generation:	True
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Waste Streams Generated:

Facility ID:	22945928
Data Year:	2008
Description:	Regulated waste coolant
Mix:	False
Reported Qty:	36336.980000000003 LB
Kilo Qty:	16482.45441149822
Density No:	0
Density Qty:	Not reported

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Facility ID: 22945928
Data Year: 2009
Description: SPENT MACHINE COOLANT and ELECTRO POLISH WASTE WATER
Mix: False
Reported Qty: 5454.3599999999997 LB
Kilo Qty: 2474.0977385544811
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: 2009
Description: Regulated waste coolant
Mix: False
Reported Qty: 11442.48 LB
Kilo Qty: 5190.3090172733155
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: 2010
Description: Regulated Waste Coolant, Hydrite 4000, Absorbants W/Regulated waste Coolant
Mix: False
Reported Qty: 21377.16 LB
Kilo Qty: 9696.6799427828955
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: Not reported
Description: HYDRITE 4000
Mix: No
Reported Qty: 875.7 LB
Kilo Qty: 397.217526832142
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: Not reported
Description: Regulated waste coolant
Mix: No
Reported Qty: 23160.18 LB
Kilo Qty: 10505.4578286939
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: Not reported
Description: Regulated waste coolant
Mix: No
Reported Qty: 10875.36 LB
Kilo Qty: 4933.06338084869
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 22945928
Data Year: 2008

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Shipment sent data: 1/14/2008
Reported Qty: 500 LB
Kilo Qty: 226.80000390096

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 12/5/2008
Reported Qty: 3127.5 LB
Kilo Qty: 1418.63402440051

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 10/8/2008
Reported Qty: 2126.7 LB
Kilo Qty: 964.671136592343

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 9/3/2008
Reported Qty: 3853.08 LB
Kilo Qty: 1747.75711806142

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 8/4/2008
Reported Qty: 2585.4 LB
Kilo Qty: 1172.73746017108

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 6/24/2008
Reported Qty: 3252.6 LB
Kilo Qty: 1475.37938537653

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 6/4/2008
Reported Qty: 4036.56 LB
Kilo Qty: 1830.98364749292

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 5/7/2008
Reported Qty: 3310.98 LB
Kilo Qty: 1501.860553832

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 4/10/2008
Reported Qty: 3702.96 LB
Kilo Qty: 1679.6626848902

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 3/14/2008
Reported Qty: 2785.56 LB
Kilo Qty: 1263.53003773272

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 2/20/2008
Reported Qty: 2568.72 LB
Kilo Qty: 1165.17141204095

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 1/23/2008
Reported Qty: 2043.3 LB
Kilo Qty: 926.840895941663

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 1/14/2008
Reported Qty: 2443.62 LB
Kilo Qty: 1108.42605106493

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 10/2/2009
Reported Qty: 1167.6 LB
Kilo Qty: 529.623369109522

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 10/9/2009
Reported Qty: 2618.76 LB
Kilo Qty: 1187.86955643136

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 8/11/2009
Reported Qty: 1668 LB
Kilo Qty: 756.604813013603

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 5/12/2009
Reported Qty: 2393.58 LB
Kilo Qty: 1085.72790667452

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 3/20/2009
Reported Qty: 2618.76 LB
Kilo Qty: 1187.86955643136

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 2/18/2009
Reported Qty: 3127.5 LB
Kilo Qty: 1418.63402440051

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 1/19/2009

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Reported Qty:	3302.64 LB
Kilo Qty:	1498.07752976693

Facility Site ID Number:	22945928
EPA ID:	WAD052595196
NAICS:	335122
SWC Desc:	Not reported
FWC Desc:	D002, D007, D008
Form Comm:	Not reported
Data Year:	2009
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	602942175
Business Type:	Not reported
Mail Name:	Macro Technologies LLC
Mail addr line1:	11815 124th Ave NE
Mail city,st,zip:	Kirkland, WA 98034
Mail country:	UNITED STATES
Legal org name:	Macro Technologies LLC
Legal org type:	Private
Legal addr line1:	11815 124th Ave NE
Legal city,st,zip:	Kirkland, WA 98034
Legal country:	UNITED STATES
Legal phone nbr:	(425)825-8100
Legal effective date:	08/01/2009
Land org name:	Totem Square Partners
Land org type:	Private
Land person name:	Not reported
Land addr line1:	2029 Century Park E Ste 1550
Land city,st,zip:	Los Angeles, CA 90067
Land country:	UNITED STATES
Land phone nbr:	(310)277-1648
Operator org name:	Not reported

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Operator org type:	Private
Operator addr line1:	11828 NE 112th St
Operator city,st,zip:	Kirkland, WA 98033
Operator country:	UNITED STATES
Operator phone nbr:	(425)823-4560
Operator effective date:	08/27/1996
Site contact name:	Jeff Williams
Site contact addr line1:	11815 124th Ave NE
Site Contact City/State/ Zip:	Kirkland, WA 98034
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(425)825-8100
Site Contact EMail:	jeffw@macrotechnologies.com
Form Contact NAME:	Jeff Williams
Form Contact ADDR LINE1:	11815 124th Ave NE
Form Contact City,ST,Zip:	Kirkland, WA 98034
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(425)825-8100
Form Contact EMail:	jeffw@macrotechnologies.com
Gen Status CD:	LQG
Monthly Generation:	False
Batch Generation:	True
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Waste Streams Generated:

Facility ID:	22945928
Data Year:	2008
Description:	Regulated waste coolant
Mix:	False
Reported Qty:	36336.980000000003 LB
Kilo Qty:	16482.45441149822
Density No:	0
Density Qty:	Not reported

Facility ID:	22945928
Data Year:	2009
Description:	SPENT MACHINE COOLANT and ELECTRO POLISH WASTE WATER
Mix:	False
Reported Qty:	5454.3599999999997 LB
Kilo Qty:	2474.0977385544811
Density No:	0
Density Qty:	Not reported

Facility ID:	22945928
Data Year:	2009
Description:	Regulated waste coolant

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Mix: False
Reported Qty: 11442.48 LB
Kilo Qty: 5190.3090172733155
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: 2010
Description: Regulated Waste Coolant, Hydrite 4000, Absorbants W/Regulated waste Coolant
Mix: False
Reported Qty: 21377.16 LB
Kilo Qty: 9696.6799427828955
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: Not reported
Description: HYDRITE 4000
Mix: No
Reported Qty: 875.7 LB
Kilo Qty: 397.217526832142
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: Not reported
Description: Regulated waste coolant
Mix: No
Reported Qty: 23160.18 LB
Kilo Qty: 10505.4578286939
Density No: 0
Density Qty: Not reported

Facility ID: 22945928
Data Year: Not reported
Description: Regulated waste coolant
Mix: No
Reported Qty: 10875.36 LB
Kilo Qty: 4933.06338084869
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 22945928
Data Year: 2008
Shipment sent data: 1/14/2008
Reported Qty: 500 LB
Kilo Qty: 226.80000390096

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 12/5/2008
Reported Qty: 3127.5 LB
Kilo Qty: 1418.63402440051

Facility ID: 22945928
Data Year: 2008

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Shipment sent data: 10/8/2008
Reported Qty: 2126.7 LB
Kilo Qty: 964.671136592343

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 9/3/2008
Reported Qty: 3853.08 LB
Kilo Qty: 1747.75711806142

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 8/4/2008
Reported Qty: 2585.4 LB
Kilo Qty: 1172.73746017108

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 6/24/2008
Reported Qty: 3252.6 LB
Kilo Qty: 1475.37938537653

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 6/4/2008
Reported Qty: 4036.56 LB
Kilo Qty: 1830.98364749292

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 5/7/2008
Reported Qty: 3310.98 LB
Kilo Qty: 1501.860553832

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 4/10/2008
Reported Qty: 3702.96 LB
Kilo Qty: 1679.6626848902

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 3/14/2008
Reported Qty: 2785.56 LB
Kilo Qty: 1263.53003773272

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 2/20/2008
Reported Qty: 2568.72 LB
Kilo Qty: 1165.17141204095

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 1/23/2008
Reported Qty: 2043.3 LB
Kilo Qty: 926.840895941663

MACRO TECHNOLOGIES LLC (Continued) **1001969475**

Facility ID: 22945928
Data Year: 2008
Shipment sent data: 1/14/2008
Reported Qty: 2443.62 LB
Kilo Qty: 1108.42605106493

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 10/2/2009
Reported Qty: 1167.6 LB
Kilo Qty: 529.623369109522

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 10/9/2009
Reported Qty: 2618.76 LB
Kilo Qty: 1187.86955643136

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 8/11/2009
Reported Qty: 1668 LB
Kilo Qty: 756.604813013603

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 5/12/2009
Reported Qty: 2393.58 LB
Kilo Qty: 1085.72790667452

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 3/20/2009
Reported Qty: 2618.76 LB
Kilo Qty: 1187.86955643136

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 2/18/2009
Reported Qty: 3127.5 LB
Kilo Qty: 1418.63402440051

Facility ID: 22945928
Data Year: 2009
Shipment sent data: 1/19/2009
Reported Qty: 3302.64 LB
Kilo Qty: 1498.07752976693

45 NW 1/4-1/2 0.290 mi. 1531 ft. | **LENNAR TOTEM LAKE APARTMENTS**
11811 NE 128TH ST
KIRKLAND, WA 98034

WA ALLSITES **S120845973**
WA NPDES **N/A**

Relative: Higher

Actual: 168 ft.

ALLSITES:

Facility Name:	LENNAR TOTEM LAKE APARTMENTS
Facility Id:	24439
Interaction:	122611
Interaction 1:	A
Interaction 2:	CONSTSWGP
Ecology Program:	WATQUAL
Program Data:	PARIS
Facility Alt.:	Lennar Totem Lake Apartments
Program ID:	WAR305978
Date Interaction:	2017-06-09 00:00:00
Date Interaction 3:	Construction SW GP
Latitude:	47.714523696999997
Longitude:	-122.183513467

NPDES:

Facility Status:	Not reported
Facility Type:	Construction SW GP
Admin Region:	Headqarters
Date Issued:	11/18/2015
Latitude:	Not reported
Longitude:	Not reported
Permit ID:	WAR305978
Permit Version:	Not reported
Permit Status:	Active
Permit SubStatus:	Not reported
Ecology Contact:	Not reported
WRIA:	Not reported
Permit Expiration Date:	12/31/2020
Effective Date:	11/16/2017
Days to Expiration:	-897

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46 SW 1/4-1/2 0.308 mi. 1626 ft. | **FRED MEYER STORES INC**
12221 120TH AVE NE
KIRKLAND, WA 98034

RCRA-LQG **1000474133**
WA CSCSL **WAD988482287**
WA LUST
WA UST
WA SWRCY
WA ALLSITES
FINDS
WA MANIFEST

Relative: Higher

Actual: 158 ft.

RCRA-LQG:

Date form received by agency:	11/23/2016
Facility name:	FRED MEYER STORES INC
Facility address:	12221 120TH AVE NE KIRKLAND, WA 98034
EPA ID:	WAD988482287
Mailing address:	PO BOX 42121 PORTLAND, OR 97055
Contact:	MARCUS YOUNG
Contact address:	3800 SE 22ND AVE

FRED MEYER STORES INC (Continued) **1000474133**

	PORTLAND, OR 97202
Contact country:	US
Contact telephone:	503-797-3750
Contact email:	MARCUS.YOUNG@FREDMEYER.COM
EPA Region:	10
Land type:	Private
Classification:	Large Quantity Generator
Description:	Handler: generates 1,000 kg or more of hazardous waste during any calendar month; or generates more than 1 kg of acutely hazardous waste during any calendar month; or generates more than 100 kg of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month; or generates 1 kg or less of acutely hazardous waste during any calendar month, and accumulates more than 1 kg of acutely hazardous waste at any time; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates more than 100 kg of that material at any time

Owner/Operator Summary:

Owner/operator name:	FRED MEYER STORES INC
Owner/operator address:	3800 SE 22ND AVE PORTLAND, OR 97242
Owner/operator country:	US
Owner/operator telephone:	503-232-8844
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	11/07/1980
Owner/Op end date:	Not reported

Owner/operator name:	FRED MEYER INC F
Owner/operator address:	12221 120TH AVE NE KIRKLAND, WA 98034
Owner/operator country:	US
Owner/operator telephone:	000-000-0000
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	01/23/1991
Owner/Op end date:	Not reported

Owner/operator name:	FRED MEYER STORES INC
Owner/operator address:	12221 120TH AVE NE KIRKLAND, WA 98034
Owner/operator country:	US
Owner/operator telephone:	425-820-3200
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator

FRED MEYER STORES INC (Continued) **1000474133**

Owner/Op start date: 11/07/1980
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D002
. Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

. Waste code: D003
. Waste name: A MATERIAL IS CONSIDERED TO BE A REACTIVE HAZARDOUS WASTE IF IT IS NORMALLY UNSTABLE, REACTS VIOLENTLY WITH WATER, GENERATES TOXIC GASES WHEN EXPOSED TO WATER OR CORROSIVE MATERIALS, OR IF IT IS CAPABLE OF DETONATION OR EXPLOSION WHEN EXPOSED TO HEAT OR A FLAME. ONE EXAMPLE OF SUCH WASTE WOULD BY WASTE GUNPOWDER.

. Waste code: D005
. Waste name: BARIUM

. Waste code: D007
. Waste name: CHROMIUM

. Waste code: D008
. Waste name: LEAD

. Waste code: D009
. Waste name: MERCURY

FRED MEYER STORES INC (Continued) **1000474133**

. Waste code: D010
. Waste name: SELENIUM

. Waste code: D011
. Waste name: SILVER

. Waste code: D016
. Waste name: 2,4-D

. Waste code: D018
. Waste name: BENZENE

. Waste code: D023
. Waste name: O-CRESOL

. Waste code: D024
. Waste name: M-CRESOL

. Waste code: D025
. Waste name: P-CRESOL

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: P001
. Waste name: 2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYLBUTYL)-, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3%

. Waste code: P075
. Waste name: NICOTINE, & SALTS

. Waste code: U002
. Waste name: ACETONE (I)

. Waste code: U010
. Waste name: AZIRINO[2',3':3,4]PYRROLO[1,2-A]INDOLE-4,7-DIONE, 6-AMINO-8-[[(AMINOCARBONYL)OXY]METHYL]-1,1A,2,8,8A,8B-HEXAHYDRO-8A-METHOXY-5-METHYL-, [1AS-(1AALPHA, 8BETA,8AALPHA,8BALPHA)]-

. Waste code: U034
. Waste name: ACETALDEHYDE, TRICHLORO-

. Waste code: U035
. Waste name: BENZENEBUTANOIC ACID, 4-[BIS(2-CHLOROETHYL)AMINO]-

. Waste code: U044
. Waste name: CHLOROFORM

. Waste code: U058
. Waste name: CYCLOPHOSPHAMIDE

. Waste code: U059
. Waste name: DAUNOMYCIN

. Waste code: U089
. Waste name: DIETHYLSTILBESTEROL

FRED MEYER STORES INC (Continued) **1000474133**

. Waste code: U122
. Waste name: FORMALDEHYDE

. Waste code: U129
. Waste name: CYCLOHEXANE, 1,2,3,4,5,6-HEXACHLORO-, (1ALPHA,2ALPHA,3BETA,4ALPHA,5ALPHA,6BETA)-

. Waste code: U132
. Waste name: HEXACHLOROPHENE

. Waste code: U150
. Waste name: MELPHALAN

. Waste code: U154
. Waste name: METHANOL (I)

. Waste code: U159
. Waste name: 2-BUTANONE (I,T)

. Waste code: U188
. Waste name: PHENOL

. Waste code: U200
. Waste name: RESERPINE

. Waste code: U201
. Waste name: 1,3-BENZENEDIOL

. Waste code: U205
. Waste name: SELENIUM SULFIDE

. Waste code: U206
. Waste name: GLUCOPYRANOSE, 2-DEOXY-2-(3-METHYL-3-NITROSOUREIDO)-, D-

. Waste code: U240
. Waste name: ACETIC ACID, (2,4-DICHLOROPHENOXY)-, SALTS & ESTERS

. Waste code: U249
. Waste name: ZINC PHOSPHIDE ZN3P2, WHEN PRESENT AT CONCENTRATIONS OF 10% OR LESS

. Waste code: U279
. Waste name: CARBARYL (OR) 1-NAPHTHALENOL, METHYLCARBAMATE

. Waste code: WP01
. Waste name: WP01

. Waste code: WP02
. Waste name: WP02

. Waste code: WPCB
. Waste name: WPCB

. Waste code: WSC2
. Waste name: WSC2

. Waste code: WT01
. Waste name: WT01

FRED MEYER STORES INC (Continued) **1000474133**

. Waste code: WT02
. Waste name: WT02

Historical Generators:
Date form received by agency: 03/02/2001
Site name: FRED MEYER TOTEM LAKE
Classification: Not a generator, verified

Date form received by agency: 03/02/2001
Site name: FRED MEYER TOTEM LAKE
Classification: Not a generator, verified

Date form received by agency: 11/20/1990
Site name: FRED MEYER TOTEM LAKE
Classification: Conditionally Exempt Small Quantity Generator

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D002
. Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

. Waste code: WT02
. Waste name: WT02

Facility Has Received Notices of Violations:
Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 07/27/2016
Date achieved compliance: 12/14/2016
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 09/23/2016
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: State Statute or Regulation
Date violation determined: 07/27/2016
Date achieved compliance: 12/14/2016

FRED MEYER STORES INC (Continued) **1000474133**

Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 09/23/2016
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - Contingency Plan and Emergency Procedures
Date violation determined: 07/27/2016
Date achieved compliance: 12/14/2016
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 09/23/2016
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD IS-Container Use and Management
Date violation determined: 07/27/2016
Date achieved compliance: 12/14/2016
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 09/23/2016
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: TSD - General Facility Standards
Date violation determined: 07/27/2016
Date achieved compliance: 12/14/2016
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 09/23/2016
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - Pre-transport
Date violation determined: 07/27/2016
Date achieved compliance: 12/14/2016
Violation lead agency: State

FRED MEYER STORES INC (Continued) **1000474133**

Enforcement action: WRITTEN INFORMAL
Enforcement action date: 09/23/2016
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: LDR - General
Date violation determined: 07/27/2016
Date achieved compliance: 12/14/2016
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 09/23/2016
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Regulation violated: Not reported
Area of violation: Generators - Manifest
Date violation determined: 07/27/2016
Date achieved compliance: 12/14/2016
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 09/23/2016
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:
Evaluation date: 07/27/2016
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: State Statute or Regulation
Date achieved compliance: 12/14/2016
Evaluation lead agency: State

Evaluation date: 07/27/2016
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - General Facility Standards
Date achieved compliance: 12/14/2016
Evaluation lead agency: State

Evaluation date: 07/27/2016
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: LDR - General
Date achieved compliance: 12/14/2016
Evaluation lead agency: State

Evaluation date: 07/27/2016

FRED MEYER STORES INC (Continued) **1000474133**

Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 12/14/2016
Evaluation lead agency: State

Evaluation date: 07/27/2016
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD - Contingency Plan and Emergency Procedures
Date achieved compliance: 12/14/2016
Evaluation lead agency: State

Evaluation date: 07/27/2016
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Manifest
Date achieved compliance: 12/14/2016
Evaluation lead agency: State

Evaluation date: 07/27/2016
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - Pre-transport
Date achieved compliance: 12/14/2016
Evaluation lead agency: State

Evaluation date: 07/27/2016
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: TSD IS-Container Use and Management
Date achieved compliance: 12/14/2016
Evaluation lead agency: State

Evaluation date: 06/24/1997
Evaluation: COMPLIANCE ASSISTANCE VISIT
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

CSCSL:
Facility ID: 51971957
Region: Northwest
Lat/Long: 47.70596 / -122.182375
Brownfield Status: Not reported
Rank Status: N
Clean Up Siteid: 9528
Site Status: Cleanup Started
PSI?: Not reported
Contaminant Name: Petroleum-Other
Ground Water: Not reported
Surface Water: Not reported
Soil: Confirmed Above Cleanup Level
Sediment: Not reported
Air: Not reported
Bedrock: Not reported
Responsible Unit: Northwest

LUST:
Facility ID: 51971957
Lust Status Type: Cleanup Started
Cleanup Site ID: 9528

FRED MEYER STORES INC (Continued) **1000474133**

Cleanup Unit Type:	Upland
Process Type:	Independent Action
Cleanup Unit Name:	MCABEE CONSTRUCTION CO
Lust Status Date:	10/03/2011
Response Section:	Northwest
Lat/Long:	47.70596 / -122.18237

UST:

Facility ID:	51971957
Site Id:	639
UBI:	Not reported
Phone Number:	Not reported
Decimal Latitude:	47.70596
Decimal Longitude:	-122.182375

Tank Name:	1
Tag Number:	Not reported
Tank Status:	Removed
Tank Status Date:	08/06/1996
Tank Install Date:	00/13/1981
Tank Closure Date:	Not reported
Capacity Range:	111 TO 1,100 Gallons
Tank Permit Expiration Date:	07/31/2000
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	None
Tank Overfill Prevention:	None
Tank Material:	Steel
Tank Construction:	Single Wall Tank
Tank Tightness Test:	Annual
Tank Corrosion Protection:	Interior Lining
Tank Manifold:	Not reported
Tank Release Detection:	Manual Inventory Control (daily)
Tank SFC Type:	Not reported
Pipe Material:	Steel
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	None
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	2
Tag Number:	Not reported
Tank Status:	Closed in Place
Tank Status Date:	08/06/1996
Tank Install Date:	00/31/1964
Tank Closure Date:	Not reported
Capacity Range:	111 TO 1,100 Gallons
Tank Permit Expiration Date:	Not reported
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Single Wall Tank
Tank Tightness Test:	Not reported

FRED MEYER STORES INC (Continued) **1000474133**

Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Steel
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

SWRCY:

Facility ID:	81834
Service:	Goodwill Totem Lake Donation Center
Phone:	(206) 329-1000
Extension:	Not reported
Website:	Not reported
Email:	tiffany.hatch@seattlegoodwill.org
Material Category:	Electronics
Material Accepted:	E-readers
Contact Name:	Tiffany Hatch
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	Mon - Sun, 7:30 am - 5pm
Comments:	Located in the north end of the Fred Meyer parking lot near the gas station. This location accepts up to 5 televisions (19" or smaller), monitors, computers and laptops per donor, per day under the E-Cycle Washington program. Televisions 19" or larger need to be delivered to your closest Goodwill store. Accept non-reusable textiles as well as reusable items.

Facility ID:	81834
Service:	Goodwill Totem Lake Donation Center
Phone:	(206) 329-1000
Extension:	Not reported
Website:	Not reported
Email:	tiffany.hatch@seattlegoodwill.org
Material Category:	Electronics
Material Accepted:	Televisions
Contact Name:	Tiffany Hatch
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	Mon - Sun, 7:30 am - 5pm
Comments:	Located in the north end of the Fred Meyer parking lot near the gas station. This location accepts up to 5 televisions (19" or smaller), monitors, computers and laptops per donor, per day under the E-Cycle Washington program. Televisions 19" or larger need to be delivered to your closest Goodwill store. Accept non-reusable textiles as well as reusable items.

Facility ID:	81834

FRED MEYER STORES INC (Continued) **1000474133**

Service:	Goodwill Totem Lake Donation Center
Phone:	(206) 329-1000
Extension:	Not reported
Website:	Not reported
Email:	tiffany.hatch@seattlegoodwill.org
Material Category:	Electronics
Material Accepted:	Computers
Contact Name:	Tiffany Hatch
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	Mon - Sun, 7:30 am - 5pm
Comments:	Located in the north end of the Fred Meyer parking lot near the gas station. This location accepts up to 5 televisions (19" or smaller), monitors, computers and laptops per donor, per day under the E-Cycle Washington program. Televisions 19" or larger need to be delivered to your closest Goodwill store. Accept non-reusable textiles as well as reusable items.

Facility ID:	81834
Service:	Goodwill Totem Lake Donation Center
Phone:	(206) 329-1000
Extension:	Not reported
Website:	Not reported
Email:	tiffany.hatch@seattlegoodwill.org
Material Category:	Electronics
Material Accepted:	Monitors
Contact Name:	Tiffany Hatch
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	Mon - Sun, 7:30 am - 5pm
Comments:	Located in the north end of the Fred Meyer parking lot near the gas station. This location accepts up to 5 televisions (19" or smaller), monitors, computers and laptops per donor, per day under the E-Cycle Washington program. Televisions 19" or larger need to be delivered to your closest Goodwill store. Accept non-reusable textiles as well as reusable items.

Facility ID:	81834
Service:	Goodwill Totem Lake Donation Center
Phone:	(206) 329-1000
Extension:	Not reported
Website:	Not reported
Email:	tiffany.hatch@seattlegoodwill.org
Material Category:	Electronics
Material Accepted:	Portable DVD players
Contact Name:	Tiffany Hatch
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	Mon - Sun, 7:30 am - 5pm
Comments:	Located in the north end of the Fred Meyer parking lot near the gas station. This location accepts up to 5 televisions (19" or smaller),

FRED MEYER STORES INC (Continued) **1000474133**

monitors, computers and laptops per donor, per day under the E-Cycle Washington program. Televisions 19" or larger need to be delivered to your closest Goodwill store. Accept non-reusable textiles as well as reusable items.

Facility ID:	81834
Service:	Goodwill Totem Lake Donation Center
Phone:	(206) 329-1000
Extension:	Not reported
Website:	Not reported
Email:	tiffany.hatch@seattlegoodwill.org
Material Category:	Miscellaneous
Material Accepted:	Clothes and Textiles
Contact Name:	Tiffany Hatch
Residential:	Yes
Commercial:	No
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	Mon - Sun, 7:30 am - 5pm
Comments:	Located in the north end of the Fred Meyer parking lot near the gas station. This location accepts up to 5 televisions (19" or smaller), monitors, computers and laptops per donor, per day under the E-Cycle Washington program. Televisions 19" or larger need to be delivered to your closest Goodwill store. Accept non-reusable textiles as well as reusable items.

ALLSITES:

Facility Name:	FRED MEYER TOTEM LAKE
Facility Id:	92981559

Interaction:	72577
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD988482287
Date Interaction:	1991-01-16 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.715454360999999
Longitude:	-122.18278510499999

Interaction:	120254
Interaction 1:	A
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Fred Meyer Stores Inc
Program ID:	WAD988482287
Date Interaction:	2016-11-17 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.715454360999999
Longitude:	-122.18278510499999

Interaction:	120227

FRED MEYER STORES INC (Continued) **1000474133**

Interaction 1: I
Interaction 2: HWOTHER
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Fred Meyer Totem Lake
Program ID: WAD988482287
Date Interaction: 2000-12-31 00:00:00
Date Interaction 3: Haz Waste Management Acti
Latitude: 47.715454360999999
Longitude: -122.18278510499999

Facility Name: FRED MEYER INC 120TH AVE KIRKLAND
Facility Id: 51971957

Interaction: 49085
Interaction 1: I
Interaction 2: LUST
Ecology Program: TOXICS
Program Data: ISIS
Facility Alt.: Not reported
Program ID: 639
Date Interaction: 1989-10-30 00:00:00
Date Interaction 3: LUST Facility
Latitude: 47.70595436
Longitude: -122.18236010699999

Interaction: 49086
Interaction 1: I
Interaction 2: UST
Ecology Program: TOXICS
Program Data: UST
Facility Alt.: Not reported
Program ID: 639
Date Interaction: 2000-03-20 00:00:00
Date Interaction 3: Underground Storage Tank
Latitude: 47.70595436
Longitude: -122.18236010699999

FINDS:

Registry ID: 110070135505

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

FRED MEYER STORES INC (Continued) **1000474133**

WA MANIFEST:

Facility Site ID Number:	92981559
EPA ID:	WAD988482287
NAICS:	445110
SWC Desc:	WT01,WT02,WP01,WP02,WSC2,WPCB
FWC Desc:	D001,D002,D003,D005,D007,D008,D009,D010,D011,D016,D018,D023,D024,D025, D035,P001,P075,U002,U205,U154,U159,U240,U249,U279,U034,U035,U044,U058, U059,U089,U122,U132,U129,U150,U010,U188,U200,U201,U206
Form Comm:	Site Operator: Department store of grocer goods, consumer commodities, general hard-lines, pharmacy, and fuel center.
Data Year:	2017
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	602342738
Business Type:	grocery store
Mail Name:	Fred Meyer Stores Inc
Mail addr line1:	PO Box 42121
Mail city,st,zip:	PORTLAND, OR 97055
Mail country:	UNITED STATES
Legal org name:	Fred Meyer Stores Inc
Legal org type:	Private
Legal addr line1:	3800 SE 22nd Ave
Legal city,st,zip:	Portland, OR 97242
Legal country:	UNITED STATES
Legal phone nbr:	503-232-8844
Legal effective date:	11/07/1980
Land org name:	Fred Meyer Stores Inc
Land org type:	Private
Land person name:	Not reported
Land addr line1:	3800 SE 22nd Ave
Land city,st,zip:	Portland, OR 97242
Land country:	UNITED STATES
Land phone nbr:	503-232-8844
Operator org name:	Fred Meyer Stores Inc

FRED MEYER STORES INC (Continued) **1000474133**

Operator org type:	Private
Operator addr line1:	12221 120TH Ave NE
Operator city,st,zip:	Kirkland, WA 98034
Operator country:	UNITED STATES
Operator phone nbr:	425-820-3200
Operator effective date:	11/07/1980
Site contact name:	Cheryl Ferguson
Site contact addr line1:	12221 120th NE
Site Contact City/State/ Zip:	KIRKLAND, WA 98034
Site Contact Country:	UNITED STATES
Site Contact Phone #:	425-820-3200
Site Contact EMail:	cheryl.ferguson@stores.fredmeyer.com
Form Contact NAME:	Marcus Young
Form Contact ADDR LINE1:	3800 SE 22nd Ave
Form Contact City,ST,Zip:	PORTLAND, OR 97202
Form Contact Country:	UNITED STATES
Form Contact Phone #:	503-797-3750
Form Contact EMail:	Marcus.young@fredmeyer.com
Gen Status CD:	LQG
Monthly Generation:	True
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Waste Streams Generated:

Facility ID:	92981559
Data Year:	2016
Description:	Retail products designated Dangerous Waste, Non-RCRA
Mix:	False
Reported Qty:	94 LB
Kilo Qty:	42.6384007
Density No:	0
Density Qty:	Not reported

Facility ID:	92981559
Data Year:	2016
Description:	Retail photo processing chemicals
Mix:	False
Reported Qty:	42 LB
Kilo Qty:	19.0512003
Density No:	0
Density Qty:	Not reported

Facility ID:	92981559
Data Year:	2016
Description:	Medicine and pills from pharmacy

FRED MEYER STORES INC (Continued) **1000474133**

Mix:	False
Reported Qty:	5 LB
Kilo Qty:	2.26800003
Density No:	0
Density Qty:	Not reported

Facility ID:	92981559
Data Year:	2016
Description:	Empty warfarin containers from pharmacy
Mix:	False
Reported Qty:	6 LB
Kilo Qty:	2.72160004
Density No:	0
Density Qty:	Not reported

Facility ID:	92981559
Data Year:	2016
Description:	Photo chemicals for processing film
Mix:	False
Reported Qty:	19 LB
Kilo Qty:	8.61840014
Density No:	0
Density Qty:	Not reported

Facility ID:	92981559
Data Year:	2016
Description:	Retail products, household bleach, pool chemicals, cleaning products
Mix:	False
Reported Qty:	28 LB
Kilo Qty:	12.7008002
Density No:	0
Density Qty:	Not reported

Facility ID:	92981559
Data Year:	2016
Description:	Retail products, lawn and garden chemicals
Mix:	False
Reported Qty:	77 LB
Kilo Qty:	34.9272006
Density No:	0
Density Qty:	Not reported

Facility ID:	92981559
Data Year:	2016
Description:	Retail paint, stains, and solvent material
Mix:	False
Reported Qty:	28 LB
Kilo Qty:	12.7008002
Density No:	0
Density Qty:	Not reported

Facility ID:	92981559
Data Year:	2017
Description:	Retail Products designated Washington DW Solid Corrosive, Solid Corrosive
Mix:	False
Reported Qty:	5 LB
Kilo Qty:	2.26800003

FRED MEYER STORES INC (Continued) **1000474133**

Density No: 0
Density Qty: Not reported

Facility ID: 92981559
Data Year: 2017
Description: Retail aerosol cans
Mix: False
Reported Qty: 200 LB
Kilo Qty: 90.7200015
Density No: 0
Density Qty: Not reported

Facility ID: 92981559
Data Year: 2017
Description: Retail products designated Washington Dangerous Waste Toxic, Non-RCRA
Mix: False
Reported Qty: 330 LB
Kilo Qty: 149.688002
Density No: 0
Density Qty: Not reported

Facility ID: 92981559
Data Year: 2017
Description: Medicine and pills from pharmacy
Mix: False
Reported Qty: 10 LB
Kilo Qty: 4.53600007
Density No: 0
Density Qty: Not reported

Facility ID: 92981559
Data Year: 2017
Description: Empty warfarin containers from pharmacy
Mix: False
Reported Qty: 4 LB
Kilo Qty: 1.81440003
Density No: 0
Density Qty: Not reported

Facility ID: 92981559
Data Year: 2017
Description: Retail products, household bleach, pool chemicals, cleaning products
Mix: False
Reported Qty: 25 LB
Kilo Qty: 11.3400001
Density No: 0
Density Qty: Not reported

Facility ID: 92981559
Data Year: 2017
Description: Retail products, lawn and garden chemicals
Mix: False
Reported Qty: 85 LB
Kilo Qty: 38.5560006
Density No: 0
Density Qty: Not reported

FRED MEYER STORES INC (Continued) **1000474133**

Facility ID: 92981559
Data Year: 2017
Description: Retail paint, stains, and solvent material
Mix: False
Reported Qty: 245 LB
Kilo Qty: 111.132001
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-12-17 00:00:00
Reported Qty: 20 LB
Kilo Qty: 9.07200015

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-04-02 00:00:00
Reported Qty: 74 LB
Kilo Qty: 33.5664005

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-04-02 00:00:00
Reported Qty: 42 LB
Kilo Qty: 19.0512003

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-04-02 00:00:00
Reported Qty: 19 LB
Kilo Qty: 8.61840014

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-04-02 00:00:00
Reported Qty: 18 LB
Kilo Qty: 8.16480014

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-12-17 00:00:00
Reported Qty: 10 LB
Kilo Qty: 4.53600007

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-04-02 00:00:00
Reported Qty: 67 LB
Kilo Qty: 30.3912005

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-04-02 00:00:00
Reported Qty: 4 LB
Kilo Qty: 1.81440003

FRED MEYER STORES INC (Continued) **1000474133**

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-12-17 00:00:00
Reported Qty: 20 LB
Kilo Qty: 9.07200015

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-04-02 00:00:00
Reported Qty: 8 LB
Kilo Qty: 3.62880006

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-12-17 00:00:00
Reported Qty: 5 LB
Kilo Qty: 2.26800003

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-12-17 00:00:00
Reported Qty: 2 LB
Kilo Qty: 0.90720001

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-12-17 00:00:00
Reported Qty: 10 LB
Kilo Qty: 4.53600007

Facility ID: 92981559
Data Year: 2017
Shipment sent data: 2017-11-03 00:00:00
Reported Qty: 1 LB
Kilo Qty: 0.45360000

Facility ID: 92981559
Data Year: 2017
Shipment sent data: 2017-11-07 00:00:00
Reported Qty: 100 LB
Kilo Qty: 45.3600007

Facility ID: 92981559
Data Year: 2017
Shipment sent data: 2017-11-03 00:00:00
Reported Qty: 10 LB
Kilo Qty: 4.53600007

Facility ID: 92981559
Data Year: 2017
Shipment sent data: 2017-11-03 00:00:00
Reported Qty: 20 LB
Kilo Qty: 9.07200015

Facility ID: 92981559
Data Year: 2017
Shipment sent data: 2017-11-03 00:00:00

FRED MEYER STORES INC (Continued) **1000474133**

Reported Qty: 10 LB
Kilo Qty: 4.53600007

Facility ID: 92981559
Data Year: 2017
Shipment sent data: 2017-08-28 00:00:00
Reported Qty: 1 LB
Kilo Qty: 0.45360000

Facility ID: 92981559
Data Year: 2017
Shipment sent data: 2017-08-28 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Waste Stream Comments:
Facility ID: 92981559
Data Year: 2017
Comments: B-1. Waste weight reflects both weight and empty containers.

Facility Site ID Number: 92981559
EPA ID: WAD988482287
NAICS: 445110
SWC Desc: WT02,WT01,WSC2,WP02,WP01,WPCB
FWC Desc: D001,D002,D003,D005,D007,D023,D024,D025,D009,D010,D011,D016,D008,D018, D035,P001,P075,U034,U035,U044,U058,U059,U089,U122,U132,U150,U010,U188, U200,U201,U205,U206,U002,U154,U159,U240,U249,U279
Form Comm: Supermarket grocery store with consumer commodities, general hardline goods, pharmacy and fuel station.
Data Year: 2016
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter defferal: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: 602342738

FRED MEYER STORES INC (Continued) **1000474133**

Business Type:	grocery store
Mail Name:	Fred Meyer Stores Inc
Mail addr line1:	PO Box 42121
Mail city,st,zip:	PORTLAND, OR 97055
Mail country:	UNITED STATES
Legal org name:	Fred Meyer Stores Inc
Legal org type:	Private
Legal addr line1:	3800 SE 22nd Ave
Legal city,st,zip:	Portland, OR 97242
Legal country:	UNITED STATES
Legal phone nbr:	503-232-8844
Legal effective date:	11/07/1980
Land org name:	Fred Meyer Stores Inc
Land org type:	Private
Land person name:	Not reported
Land addr line1:	3800 SE 22nd Ave
Land city,st,zip:	Portland, OR 97242
Land country:	UNITED STATES
Land phone nbr:	503-232-8844
Operator org name:	Fred Meyer Stores Inc
Operator org type:	Private
Operator addr line1:	12221 120TH Ave NE
Operator city,st,zip:	Kirkland, WA 98034
Operator country:	UNITED STATES
Operator phone nbr:	425-820-3200
Operator effective date:	11/07/1980
Site contact name:	Cheryl Ferguson
Site contact addr line1:	12221 120th NE
Site Contact City/State/ Zip:	KIRKLAND, WA 98034
Site Contact Country:	UNITED STATES
Site Contact Phone #:	425-820-3200
Site Contact EMail:	cheryl.ferguson@stores.fredmeyer.com
Form Contact NAME:	Marcus Young
Form Contact ADDR LINE1:	3800 SE 22nd Ave
Form Contact City,ST,Zip:	PORTLAND, OR 97202
Form Contact Country:	UNITED STATES
Form Contact Phone #:	503-797-3750
Form Contact EMail:	Marcus.young@fredmeyer.com
Gen Status CD:	LQG
Monthly Generation:	True
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Waste Streams Generated:

Facility ID:	92981559

FRED MEYER STORES INC (Continued) **1000474133**

Data Year:	2016
Description:	Retail products designated Dangerous Waste, Non-RCRA
Mix:	False
Reported Qty:	94 LB
Kilo Qty:	42.6384007
Density No:	0
Density Qty:	Not reported

Facility ID:	92981559
Data Year:	2016
Description:	Retail photo processing chemicals
Mix:	False
Reported Qty:	42 LB
Kilo Qty:	19.0512003
Density No:	0
Density Qty:	Not reported

Facility ID:	92981559
Data Year:	2016
Description:	Medicine and pills from pharmacy
Mix:	False
Reported Qty:	5 LB
Kilo Qty:	2.26800003
Density No:	0
Density Qty:	Not reported

Facility ID:	92981559
Data Year:	2016
Description:	Empty warfarin containers from pharmacy
Mix:	False
Reported Qty:	6 LB
Kilo Qty:	2.72160004
Density No:	0
Density Qty:	Not reported

Facility ID:	92981559
Data Year:	2016
Description:	Photo chemicals for processing film
Mix:	False
Reported Qty:	19 LB
Kilo Qty:	8.61840014
Density No:	0
Density Qty:	Not reported

Facility ID:	92981559
Data Year:	2016
Description:	Retail products, household bleach, pool chemicals, cleaning products
Mix:	False
Reported Qty:	28 LB
Kilo Qty:	12.7008002
Density No:	0
Density Qty:	Not reported

Facility ID:	92981559
Data Year:	2016
Description:	Retail products, lawn and garden chemicals
Mix:	False

FRED MEYER STORES INC (Continued) **1000474133**

Reported Qty: 77 LB
Kilo Qty: 34.9272006
Density No: 0
Density Qty: Not reported

Facility ID: 92981559
Data Year: 2016
Description: Retail paint, stains, and solvent material
Mix: False
Reported Qty: 28 LB
Kilo Qty: 12.7008002
Density No: 0
Density Qty: Not reported

Facility ID: 92981559
Data Year: 2017
Description: Retail Products designated Washington DW Solid Corrosive, Solid Corrosive
Mix: False
Reported Qty: 5 LB
Kilo Qty: 2.26800003
Density No: 0
Density Qty: Not reported

Facility ID: 92981559
Data Year: 2017
Description: Retail aerosol cans
Mix: False
Reported Qty: 200 LB
Kilo Qty: 90.7200015
Density No: 0
Density Qty: Not reported

Facility ID: 92981559
Data Year: 2017
Description: Retail products designated Washington Dangerous Waste Toxic, Non-RCRA
Mix: False
Reported Qty: 330 LB
Kilo Qty: 149.688002
Density No: 0
Density Qty: Not reported

Facility ID: 92981559
Data Year: 2017
Description: Medicine and pills from pharmacy
Mix: False
Reported Qty: 10 LB
Kilo Qty: 4.53600007
Density No: 0
Density Qty: Not reported

Facility ID: 92981559
Data Year: 2017
Description: Empty warfarin containers from pharmacy
Mix: False
Reported Qty: 4 LB
Kilo Qty: 1.81440003
Density No: 0

FRED MEYER STORES INC (Continued) **1000474133**

Density Qty: Not reported

Facility ID: 92981559
Data Year: 2017
Description: Retail products, household bleach, pool chemicals, cleaning products
Mix: False
Reported Qty: 25 LB
Kilo Qty: 11.3400001
Density No: 0
Density Qty: Not reported

Facility ID: 92981559
Data Year: 2017
Description: Retail products, lawn and garden chemicals
Mix: False
Reported Qty: 85 LB
Kilo Qty: 38.5560006
Density No: 0
Density Qty: Not reported

Facility ID: 92981559
Data Year: 2017
Description: Retail paint, stains, and solvent material
Mix: False
Reported Qty: 245 LB
Kilo Qty: 111.132001
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-12-17 00:00:00
Reported Qty: 20 LB
Kilo Qty: 9.07200015

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-04-02 00:00:00
Reported Qty: 74 LB
Kilo Qty: 33.5664005

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-04-02 00:00:00
Reported Qty: 42 LB
Kilo Qty: 19.0512003

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-04-02 00:00:00
Reported Qty: 19 LB
Kilo Qty: 8.61840014

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-04-02 00:00:00

FRED MEYER STORES INC (Continued) **1000474133**

Reported Qty: 18 LB
Kilo Qty: 8.16480014

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-12-17 00:00:00
Reported Qty: 10 LB
Kilo Qty: 4.53600007

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-04-02 00:00:00
Reported Qty: 67 LB
Kilo Qty: 30.3912005

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-04-02 00:00:00
Reported Qty: 4 LB
Kilo Qty: 1.81440003

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-12-17 00:00:00
Reported Qty: 20 LB
Kilo Qty: 9.07200015

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-04-02 00:00:00
Reported Qty: 8 LB
Kilo Qty: 3.62880006

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-12-17 00:00:00
Reported Qty: 5 LB
Kilo Qty: 2.26800003

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-12-17 00:00:00
Reported Qty: 2 LB
Kilo Qty: 0.90720001

Facility ID: 92981559
Data Year: 2016
Shipment sent data: 2016-12-17 00:00:00
Reported Qty: 10 LB
Kilo Qty: 4.53600007

Facility ID: 92981559
Data Year: 2017
Shipment sent data: 2017-11-03 00:00:00
Reported Qty: 1 LB
Kilo Qty: 0.45360000

FRED MEYER STORES INC (Continued) **1000474133**

Facility ID: 92981559
Data Year: 2017
Shipment sent data: 2017-11-07 00:00:00
Reported Qty: 100 LB
Kilo Qty: 45.3600007

Facility ID: 92981559
Data Year: 2017
Shipment sent data: 2017-11-03 00:00:00
Reported Qty: 10 LB
Kilo Qty: 4.53600007

Facility ID: 92981559
Data Year: 2017
Shipment sent data: 2017-11-03 00:00:00
Reported Qty: 20 LB
Kilo Qty: 9.07200015

Facility ID: 92981559
Data Year: 2017
Shipment sent data: 2017-11-03 00:00:00
Reported Qty: 10 LB
Kilo Qty: 4.53600007

Facility ID: 92981559
Data Year: 2017
Shipment sent data: 2017-08-28 00:00:00
Reported Qty: 1 LB
Kilo Qty: 0.45360000

Facility ID: 92981559
Data Year: 2017
Shipment sent data: 2017-08-28 00:00:00
Reported Qty: 200 LB
Kilo Qty: 90.7200015

Waste Stream Comments:
Facility ID: 92981559
Data Year: 2017
Comments: B-1. Waste weight reflects both weight and empty containers.

---

47 SSE 1/4-1/2 0.309 mi. 1630 ft. | **NE 120TH STREET ROADWAY EXTENSION** | **WA ALLSITES** | **S115348504**
SLATER AVE AND 124TH AVE | **N/A**
KIRKLAND, WA 98034

Relative: Higher
Actual: 165 ft.

ALLSITES:
Facility Name: NE 120TH STREET ROADWAY EXTENSION
Facility Id: 7577

Interaction: 107178
Interaction 1: I
Interaction 2: CONSTSWGP
Ecology Program: WATQUAL
Program Data: PARIS

NE 120TH STREET ROADWAY EXTENSION (Continued) **S115348504**

Facility Alt.:	NE 120th Street Roadway Extension
Program ID:	WAR301607
Date Interaction:	2014-01-30 00:00:00
Date Interaction 3:	Construction SW GP
Latitude:	47.707665759999998
Longitude:	-122.17403520800001

48
ESE
1/4-1/2
0.311 mi.
1642 ft.

SHERWIN WILLIAMS CO STORE 8002
12731 NE 124TH ST
KIRKLAND, WA 98034

WA ALLSITES
FINDS
ECHO
WA MANIFEST

1011932364
N/A

Relative:
Higher

Actual:
140 ft.

ALLSITES:

Facility Name:	SHERWIN WILLIAMS CO STORE 8002
Facility Id:	5205170

Interaction:	91450
Interaction 1:	I
Interaction 2:	HWOTHER
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Sherwin Williams Co Store 8002
Program ID:	WAH000034028
Date Interaction:	2009-12-31 00:00:00
Date Interaction 3:	Haz Waste Management Acti
Latitude:	47.706384360000001
Longitude:	-122.170285108

Interaction:	125338
Interaction 1:	A
Interaction 2:	HWOTHER
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Sherwin Williams Co Store 8002
Program ID:	WAH000034028
Date Interaction:	2017-12-31 00:00:00
Date Interaction 3:	Haz Waste Management Acti
Latitude:	47.706384360000001
Longitude:	-122.170285108

Interaction:	104551
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Sherwin Williams Co Store 8002
Program ID:	WAH000034028
Date Interaction:	2013-04-12 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.706384360000001
Longitude:	-122.170285108

Interaction:	16260

SHERWIN WILLIAMS CO STORE 8002 (Continued) **1011932364**

Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	SHERWIN WILLIAMS CO STORE 8002
Program ID:	WAH000034028
Date Interaction:	2008-11-19 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.706384360000001
Longitude:	-122.170285108

FINDS:

Registry ID: 110037546518

Environmental Interest/Information System

Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZARDOUS WASTE BIENNIAL REPORTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1011932364
Registry ID:	110037546518
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110037546518

WA MANIFEST:

Facility Site ID Number:	5205170
EPA ID:	WAH000034028
NAICS:	444120
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	2017
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False

SHERWIN WILLIAMS CO STORE 8002 (Continued) **1011932364**

Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	409012267
Business Type:	Paint Wallpaper & Varnish
Mail Name:	The Sherwin-Williams Co
Mail addr line1:	101 W. Prospect Ave
Mail addr line2:	1000 Midland
Mail city,st,zip:	Cleveland, OH 44115
Mail country:	UNITED STATES
Legal org name:	The Sherwin Williams Co
Legal org type:	Private
Legal addr line1:	101 W. Prospect Ave
Legal addr line2:	1000 Midland
Legal city,st,zip:	Cleveland, OH 44115
Legal country:	UNITED STATES
Legal phone nbr:	(216)566-1710
Legal effective date:	11/06/1986
Land org name:	Not reported
Land org type:	Private
Land person name:	Nicholas & Susan Le Cleircq
Land addr line1:	PO Box 53288
Land city,st,zip:	Bellevue, WA 98015
Land country:	UNITED STATES
Land phone nbr:	(425)453-5354
Operator org name:	The Sherwin-Williams Co
Operator org type:	Private
Operator addr line1:	101 Prospect Ave NW,
Operator addr line2:	1000 Midland
Operator city,st,zip:	Cleveland, OH 44115
Operator country:	UNITED STATES
Operator phone nbr:	(216)515-1710
Operator effective date:	11/06/1986
Site contact name:	Store Manager
Site contact addr line1:	12731 NE 124th St
Site Contact City/State/ Zip:	Kirkland, WA 98034-8307
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(425)821-8022
Site Contact EMail:	sw8002@sherwin.com
Form Contact NAME:	Carol F Doe
Form Contact ADDR LINE1:	101 W. Prospect Ave

SHERWIN WILLIAMS CO STORE 8002 (Continued) **1011932364**

Form Contact ADDR LINE2:	1000 Midland
Form Contact City,ST,Zip:	Cleveland, OH 44115
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(216)566-1710
Form Contact EMail:	carol.f.doe@sherwin.com
Gen Status CD:	XQG
Monthly Generation:	False
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Waste Streams Generated:

Facility ID:	5205170
Data Year:	2012
Description:	Waste paint-related material
Mix:	False
Reported Qty:	1500 LB
Kilo Qty:	680.400011
Density No:	0
Density Qty:	Not reported

Shipments Sent:

Facility ID:	5205170
Data Year:	2012
Shipment sent data:	2012-12-18 00:00:00
Reported Qty:	1500 LB
Kilo Qty:	680.400011

Facility Site ID Number:	5205170
EPA ID:	WAH000034028
NAICS:	444120
SWC Desc:	Not reported
FWC Desc:	D001
Form Comm:	No hazardous waste was generated in 2016.
Data Year:	2016
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False

SHERWIN WILLIAMS CO STORE 8002 (Continued) **1011932364**

Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	409012267
Business Type:	Paint Wallpaper & Varnish
Mail Name:	The Sherwin-Williams Co
Mail addr line1:	101 W. Prospect Ave
Mail addr line2:	1000 Midland
Mail city,st,zip:	Cleveland, OH 44115
Mail country:	UNITED STATES
Legal org name:	The Sherwin Williams Co
Legal org type:	Private
Legal addr line1:	101 W. Prospect Ave
Legal addr line2:	1000 Midland
Legal city,st,zip:	Cleveland, OH 44115
Legal country:	UNITED STATES
Legal phone nbr:	(216)566-1710
Legal effective date:	11/06/1986
Land org name:	Not reported
Land org type:	Private
Land person name:	Nicholas & Susan Le Cleircq
Land addr line1:	PO Box 53288
Land city,st,zip:	Bellevue, WA 98015
Land country:	UNITED STATES
Land phone nbr:	(425)453-5354
Operator org name:	The Sherwin-Williams Co
Operator org type:	Private
Operator addr line1:	101 Prospect Ave NW,
Operator addr line2:	1000 Midland
Operator city,st,zip:	Cleveland, OH 44115
Operator country:	UNITED STATES
Operator phone nbr:	(216)515-1710
Operator effective date:	11/06/1986
Site contact name:	Store Manager
Site contact addr line1:	12731 NE 124th St
Site Contact City/State/ Zip:	Kirkland, WA 98034-8307
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(425)821-8022
Site Contact EMail:	sw8002@sherwin.com
Form Contact NAME:	Carol F Doe
Form Contact ADDR LINE1:	101 W. Prospect Ave
Form Contact ADDR LINE2:	1000 Midland
Form Contact City,ST,Zip:	Cleveland, OH 44115
Form Contact Country:	UNITED STATES

SHERWIN WILLIAMS CO STORE 8002 (Continued) **1011932364**

Form Contact Phone #:	(216)566-1710
Form Contact EMail:	carol.f.doe@sherwin.com
Gen Status CD:	SQG
Monthly Generation:	True
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Waste Streams Generated:

Facility ID:	5205170
Data Year:	2012
Description:	Waste paint-related material
Mix:	False
Reported Qty:	1500 LB
Kilo Qty:	680.400011
Density No:	0
Density Qty:	Not reported

Shipments Sent:

Facility ID:	5205170
Data Year:	2012
Shipment sent data:	2012-12-18 00:00:00
Reported Qty:	1500 LB
Kilo Qty:	680.400011

Facility Site ID Number:	5205170
EPA ID:	WAH000034028
NAICS:	444120
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	2011
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False

SHERWIN WILLIAMS CO STORE 8002 (Continued) **1011932364**

Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	409012267
Business Type:	Paint Wallpaper & Varnish
Mail Name:	The Sherwin-Williams Co
Mail addr line1:	101 Prospect Ave 333 Republic Bldg
Mail city,st,zip:	Cleveland, OH 44115
Mail country:	UNITED STATES
Legal org name:	The Sherwin Williams Co
Legal org type:	Private
Legal addr line1:	101 Prospect Ave 333 Republic Bldg
Legal city,st,zip:	Cleveland, OH 44115
Legal country:	UNITED STATES
Legal phone nbr:	(216)566-1710
Legal effective date:	11/06/1986
Land org name:	Not reported
Land org type:	Private
Land person name:	Nicholas & Susan Le Cleircq
Land addr line1:	PO Box 53288
Land city,st,zip:	Bellevue, WA 98015
Land country:	UNITED STATES
Land phone nbr:	(425)453-5354
Operator org name:	The Sherwin-Williams Co
Operator org type:	Private
Operator addr line1:	101 Prospect Ave NW, 333 Republic
Operator city,st,zip:	Cleveland, OH 44115
Operator country:	UNITED STATES
Operator phone nbr:	(216)515-1710
Operator effective date:	11/06/1986
Site contact name:	Robert KOTHENBEUTEL
Site contact addr line1:	12731 NE 124th St
Site Contact City/State/ Zip:	Kirkland, WA 98034-8307
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(425)821-8022
Site Contact EMail:	sw8002@sherwin.com
Form Contact NAME:	Shay Roseman
Form Contact ADDR LINE1:	101 Prospect Ave 333 Republic Bldg
Form Contact City,ST,Zip:	Cleveland, OH 44115
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(216)566-1710
Form Contact EMail:	shay.roseman@sherwin.com
Gen Status CD:	XQG
Monthly Generation:	False
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False

SHERWIN WILLIAMS CO STORE 8002 (Continued) **1011932364**

Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Waste Streams Generated:

Facility ID:	5205170
Data Year:	2012
Description:	Waste paint-related material
Mix:	False
Reported Qty:	1500 LB
Kilo Qty:	680.400011
Density No:	0
Density Qty:	Not reported

Shipments Sent:

Facility ID:	5205170
Data Year:	2012
Shipment sent data:	2012-12-18 00:00:00
Reported Qty:	1500 LB
Kilo Qty:	680.400011

Facility Site ID Number:	5205170
EPA ID:	WAH000034028
NAICS:	444120
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	2009
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False

SHERWIN WILLIAMS CO STORE 8002 (Continued) **1011932364**

Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	409012267
Business Type:	Paint Wallpaper & Varnish
Mail Name:	The Sherwin Williams Co # 8002
Mail addr line1:	101 Prospect Ave 333 Republic Bldg
Mail city,st,zip:	Cleveland, OH 44115
Mail country:	UNITED STATES
Legal org name:	The Sherwin Williams Co
Legal org type:	Private
Legal addr line1:	101 Prospect Ave 333 Republic Bldg
Legal city,st,zip:	Cleveland, OH 44115
Legal country:	UNITED STATES
Legal phone nbr:	(216)566-1710
Legal effective date:	11/06/1986
Land org name:	Not reported
Land org type:	Private
Land person name:	Nicholas & Susan Le Cleircq
Land addr line1:	PO Box 53288
Land city,st,zip:	Bellevue, WA 98015
Land country:	UNITED STATES
Land phone nbr:	(425)453-5354
Operator org name:	Sherwin Williams #8002
Operator org type:	Private
Operator addr line1:	12731 NE 124th St
Operator city,st,zip:	Kirkland, WA 98034
Operator country:	UNITED STATES
Operator phone nbr:	(425)821-8022
Operator effective date:	11/06/1986
Site contact name:	Shay Roseman
Site contact addr line1:	101 Prospect Ave 333 Republic Bldg
Site Contact City/State/ Zip:	Cleveland, OH 44115
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(216)566-1710
Site Contact EMail:	shay.roseman@sherwin.com
Form Contact NAME:	Shay Roseman
Form Contact ADDR LINE1:	101 Prospect Ave 333 Republic Bldg
Form Contact City,ST,Zip:	Cleveland, OH 44115
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(216)566-1710
Form Contact EMail:	shay.roseman@sherwin.com
Gen Status CD:	XQG
Monthly Generation:	False
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False

SHERWIN WILLIAMS CO STORE 8002 (Continued) **1011932364**

Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Waste Streams Generated:
Facility ID: 5205170
Data Year: 2012
Description: Waste paint-related material
Mix: False
Reported Qty: 1500 LB
Kilo Qty: 680.400011
Density No: 0
Density Qty: Not reported

Shipments Sent:
Facility ID: 5205170
Data Year: 2012
Shipment sent data: 2012-12-18 00:00:00
Reported Qty: 1500 LB
Kilo Qty: 680.400011

Facility Site ID Number: 5205170
EPA ID: WAH000034028
NAICS: 444120
SWC Desc: Not reported
FWC Desc: D001
Form Comm: Not reported
Data Year: 2010
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter defferal: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: 409012267

SHERWIN WILLIAMS CO STORE 8002 (Continued) **1011932364**

Business Type:	Paint Wallpaper & Varnish
Mail Name:	The Sherwin Williams Co # 8002
Mail addr line1:	101 Prospect Ave 333 Republic Bldg
Mail city,st,zip:	Cleveland, OH 44115
Mail country:	UNITED STATES
Legal org name:	The Sherwin Williams Co
Legal org type:	Private
Legal addr line1:	101 Prospect Ave 333 Republic Bldg
Legal city,st,zip:	Cleveland, OH 44115
Legal country:	UNITED STATES
Legal phone nbr:	(216)566-1710
Legal effective date:	11/06/1986
Land org name:	Not reported
Land org type:	Private
Land person name:	Nicholas & Susan Le Cleircq
Land addr line1:	PO Box 53288
Land city,st,zip:	Bellevue, WA 98015
Land country:	UNITED STATES
Land phone nbr:	(425)453-5354
Operator org name:	Sherwin Williams #8002
Operator org type:	Private
Operator addr line1:	12731 NE 124th St
Operator city,st,zip:	Kirkland, WA 98034
Operator country:	UNITED STATES
Operator phone nbr:	(425)821-8022
Operator effective date:	11/06/1986
Site contact name:	Shay Roseman
Site contact addr line1:	101 Prospect Ave 333 Republic Bldg
Site Contact City/State/ Zip:	Cleveland, OH 44115
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(216)566-1710
Site Contact EMail:	shay.roseman@sherwin.com
Form Contact NAME:	Shay Roseman
Form Contact ADDR LINE1:	101 Prospect Ave 333 Republic Bldg
Form Contact City,ST,Zip:	Cleveland, OH 44115
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(216)566-1710
Form Contact EMail:	shay.roseman@sherwin.com
Gen Status CD:	XQG
Monthly Generation:	False
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Waste Streams Generated:

Facility ID:	5205170

SHERWIN WILLIAMS CO STORE 8002 (Continued) **1011932364**

Data Year:	2012
Description:	Waste paint-related material
Mix:	False
Reported Qty:	1500 LB
Kilo Qty:	680.400011
Density No:	0
Density Qty:	Not reported

Shipments Sent:

Facility ID:	5205170
Data Year:	2012
Shipment sent data:	2012-12-18 00:00:00
Reported Qty:	1500 LB
Kilo Qty:	680.400011

Facility Site ID Number:	5205170
EPA ID:	WAH000034028
NAICS:	444120
SWC Desc:	Not reported
FWC Desc:	D001
Form Comm:	Not reported
Data Year:	2012
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	409012267
Business Type:	Paint Wallpaper & Varnish
Mail Name:	The Sherwin-Williams Co
Mail addr line1:	101 Prospect Ave 333 Republic Bldg
Mail city,st,zip:	Cleveland, OH 44115
Mail country:	UNITED STATES
Legal org name:	The Sherwin Williams Co
Legal org type:	Private
Legal addr line1:	101 Prospect Ave 333 Republic Bldg

SHERWIN WILLIAMS CO STORE 8002 (Continued) **1011932364**

Legal city,st,zip:	Cleveland, OH 44115
Legal country:	UNITED STATES
Legal phone nbr:	(216)566-1710
Legal effective date:	11/06/1986
Land org name:	Not reported
Land org type:	Private
Land person name:	Nicholas & Susan Le Cleircq
Land addr line1:	PO Box 53288
Land city,st,zip:	Bellevue, WA 98015
Land country:	UNITED STATES
Land phone nbr:	(425)453-5354
Operator org name:	The Sherwin-Williams Co
Operator org type:	Private
Operator addr line1:	101 Prospect Ave NW, 333 Republic
Operator city,st,zip:	Cleveland, OH 44115
Operator country:	UNITED STATES
Operator phone nbr:	(216)515-1710
Operator effective date:	11/06/1986
Site contact name:	Bonnie Curry
Site contact addr line1:	12731 NE 124th St
Site Contact City/State/ Zip:	Kirkland, WA 98034-8307
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(425)821-8022
Site Contact EMail:	sw8002@sherwin.com
Form Contact NAME:	Shay Roseman
Form Contact ADDR LINE1:	101 Prospect Ave 333 Republic Bldg
Form Contact City,ST,Zip:	Cleveland, OH 44115
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(216)566-1710
Form Contact EMail:	shay.roseman@sherwin.com
Gen Status CD:	MQG
Monthly Generation:	False
Batch Generation:	True
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Waste Streams Generated:

Facility ID:	5205170
Data Year:	2012
Description:	Waste paint-related material
Mix:	False
Reported Qty:	1500 LB
Kilo Qty:	680.400011
Density No:	0
Density Qty:	Not reported

SHERWIN WILLIAMS CO STORE 8002 (Continued) **1011932364**

Shipments Sent:

Facility ID:	5205170
Data Year:	2012
Shipment sent data:	2012-12-18 00:00:00
Reported Qty:	1500 LB
Kilo Qty:	680.400011

L49
SE
1/4-1/2
0.314 mi.
1660 ft.

VERIZON KIRKLAND GARAGE
12055 SLATER AVE NE
KIRKLAND, WA 98034

WA ALLSITES **S108523659**
N/A

Site 1 of 4 in cluster L

Relative:
Higher

Actual:
173 ft.

ALLSITES:

Facility Name:	VERIZON KIRKLAND GARAGE
Facility Id:	2555

Interaction:	4798
Interaction 1:	I
Interaction 2:	LUST
Ecology Program:	TOXICS
Program Data:	ISIS
Facility Alt.:	Not reported
Program ID:	12327
Date Interaction:	1993-04-27 00:00:00
Date Interaction 3:	LUST Facility
Latitude:	47.708144359999999
Longitude:	-122.173165107

Interaction:	4802
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD988484283
Date Interaction:	2005-12-31 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.708144359999999
Longitude:	-122.173165107

Interaction:	4796
Interaction 1:	A
Interaction 2:	TIER2
Ecology Program:	HAZWASTE
Program Data:	EPCRA
Facility Alt.:	Not reported
Program ID:	WAD988484283
Date Interaction:	1989-01-01 00:00:00
Date Interaction 3:	Emergency/Haz Chem Rpt TI
Latitude:	47.708144359999999
Longitude:	-122.173165107

VERIZON KIRKLAND GARAGE (Continued) **S108523659**

Interaction:	4803
Interaction 1:	I
Interaction 2:	HWOTHER
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD988484283
Date Interaction:	2007-12-31 00:00:00
Date Interaction 3:	Haz Waste Management Acti
Latitude:	47.708144359999999
Longitude:	-122.173165107

Interaction:	4797
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD988484283
Date Interaction:	1991-04-01 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.708144359999999
Longitude:	-122.173165107

Interaction:	4799
Interaction 1:	I
Interaction 2:	IRAP
Ecology Program:	TOXICS
Program Data:	ISIS
Facility Alt.:	Verizon Kirkland Garage
Program ID:	Not reported
Date Interaction:	1995-08-21 00:00:00
Date Interaction 3:	Independent Remedial Actn
Latitude:	47.708144359999999
Longitude:	-122.173165107

Interaction:	4800
Interaction 1:	A
Interaction 2:	UST
Ecology Program:	TOXICS
Program Data:	UST
Facility Alt.:	KIRKLAND GARAGE
Program ID:	12327
Date Interaction:	2000-03-20 00:00:00
Date Interaction 3:	Underground Storage Tank
Latitude:	47.708144359999999
Longitude:	-122.173165107

Interaction:	4801
Interaction 1:	I
Interaction 2:	HWOTHER
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE

VERIZON KIRKLAND GARAGE (Continued) **S108523659**

Facility Alt.:	Not reported
Program ID:	WAD988484283
Date Interaction:	2003-12-31 00:00:00
Date Interaction 3:	Haz Waste Management Acti
Latitude:	47.708144359999999
Longitude:	-122.173165107

L50 **GTE VEHICLE CENTER** **WA ICR** **S104486818**
SE **12055 SLATER AVE.** **N/A**
1/4-1/2 **KIRKLAND, WA 98034**
0.314 mi.
1660 ft. **Site 2 of 4 in cluster L**

Relative:
Higher

Actual:
173 ft.

ICR:

Date Ecology Received Report:	09/08/93
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	93-13
County Code:	17
Contact:	Not reported
Report Title:	Not reported

Date Ecology Received Report:	05/18/94
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	93-27
County Code:	17
Contact:	Not reported
Report Title:	Not reported

Date Ecology Received Report:	08/24/94
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Final cleanup report
Site Register Issue:	93-35
County Code:	17
Contact:	Not reported
Report Title:	Not reported

L51 SE 1/4-1/2 0.314 mi. 1660 ft. | **GTE VEHICLE CENTER 12055 SLATER AVE NE KIRKLAND, WA 98034** | **WA CSCSL NFA** | **S121927798 N/A**

Site 3 of 4 in cluster L

Relative: Higher
Actual: 173 ft.

CSCSL NFA:

Facility/Site Id:	2555
CS Id:	5147
NFA Date:	08/21/1995
Rank:	Not reported
VCP:	No
Latitude:	47.70815
Longitude:	-122.17318

L52 SE 1/4-1/2 0.314 mi. 1660 ft. | **GTE VEHICLE CENTER 12055 SLATER AVE NE KIRKLAND, WA 98034** | **WA INST CONTROL** | **S121927923 N/A**

Site 4 of 4 in cluster L

Relative: Higher
Actual: 173 ft.

INST CONTROL:

Facility Site ID:	2555
Latitude:	47.70815
Longitude:	-122.17318
Instrument Type:	Environmental Covenant
Document Type:	Restrictive Covenant
County Filing # For Individual IC Doc:	199508070676
Filing Date Of Individual IC Doc:	08/07/1995
Anchorage Restrictions:	No
Drinking Water Restrictions:	Yes
Education Programs:	No
Financial Assurance:	No
Finfish Harvesting Restrictions:	No
Groundwater Restriction:	No
Maintenance Requirements:	No
No Dredge Zone:	No
No Wake Zone:	No
Property Use Restriction:	Yes
Restrictive Signage:	No
Shell Fish Harvesting Restrictions:	No
Soil Restriction:	Yes
Surface Water Restriction:	No
Swimming Restriction:	No
Vessel Draft Restriction:	No
CS ID:	5147
Shoreline Stabilization Structure:	N
Wave Attenuation Structure:	N
Fencing or Other Permanent Access Barriers:	N
Simple Soil CAP:	N
Engineered CAP:	N
Engineered Bottom Barriers:	N
Immobilization by Stabilization, Solidification, or Encapsulation:	N
Ground Water Extraction and Gradient Control:	N
Vertical Ground Water Barrier:	N
Impermeable Surface:	N
Restrict Land Use:	N
Restrict All Ground Water Use:	N
Prohibit Domestic Ground Water Well Installation:	N
Prohibit All Soil Disturbance:	N

GTE VEHICLE CENTER (Continued) **S121927923**

Access Barrier: N

K53 **TOTEM SQUARE LP** **WA ALLSITES** **1000993276**
SSE **12063 124TH AVE NE** **RCRA NonGen / NLR** **WA0001022631**
1/4-1/2 **KIRKLAND, WA 98034** **FINDS**
0.317 mi. **ECHO**
1672 ft. **Site 5 of 5 in cluster K**

Relative:
Higher

Actual:
168 ft.

ALLSITES:

Facility Name:	TOTEM SQUARE LP
Facility Id:	47893677
Interaction:	47275
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WA0001022631
Date Interaction:	1995-02-06 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.706394361000001
Longitude:	-122.177145107

RCRA NonGen / NLR:

Date form received by agency:	02/20/1998
Facility name:	TOTEM SQUARE LP
Facility address:	12063 124TH AVE NE KIRKLAND, WA 98034
EPA ID:	WA0001022631
Mailing address:	11901 124TH AVE NE KIRKLAND, WA 98034-8112
Contact:	TOTEM SQUARE TOTEM SQUARE
Contact address:	11901 124TH AVE NE KIRKLAND, WA 98034-8112
Contact country:	US
Contact telephone:	000-000-0000
Contact email:	Not reported
EPA Region:	10
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	TOTEM SQUARE T
Owner/operator address:	12063 124TH AVE NE KIRKLAND, WA 98034
Owner/operator country:	US
Owner/operator telephone:	000-000-0000
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	05/01/1996
Owner/Op end date:	Not reported

TOTEM SQUARE LP (Continued) **1000993276**

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	02/20/1998
Site name:	TOTEM SQUARE LP
Classification:	Not a generator, verified
Violation Status:	No violations found

FINDS:

Registry ID: 110005309077

Environmental Interest/Information System

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1000993276
Registry ID:	110005309077
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110005309077

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54 WSW 1/4-1/2 0.326 mi. 1720 ft. **FRED MEYER FUEL CENTER NO. 391** **WA ALLSITES** **S113427205**
12301 120TH AVE NE **N/A**
KIRKLAND, WA 98034

Relative: Higher
Actual: 201 ft.

ALLSITES:

Facility Name:	FRED MEYER FUEL CENTER NO. 391
Facility Id:	9967
Interaction:	104573
Interaction 1:	I

FRED MEYER FUEL CENTER NO. 391 (Continued) **S113427205**

Interaction 2:	CONSTSWGP
Ecology Program:	WATQUAL
Program Data:	PARIS
Facility Alt.:	Fred Meyer Fuel Center No. 391
Program ID:	WAR126852
Date Interaction:	2013-03-21 00:00:00
Date Interaction 3:	Construction SW GP
Latitude:	47.709002325
Longitude:	-122.18500430500001

Interaction:	107049
Interaction 1:	A
Interaction 2:	UST
Ecology Program:	TOXICS
Program Data:	UST
Facility Alt.:	Fred Meyer Fuel Center No. 391
Program ID:	620097
Date Interaction:	2014-01-17 00:00:00
Date Interaction 3:	Underground Storage Tank
Latitude:	47.709002325
Longitude:	-122.18500430500001

M55 **EXXON 72428** **WA HSL** **S108022437**
West **12412 116TH AVE NE** **WA CSCSL** **N/A**
1/4-1/2 **KIRKLAND, WA 98034** **WA LUST**
0.326 mi. **WA VCP**
1721 ft. **Site 1 of 2 in cluster M** **WA ALLSITES**
WA SPILLS

Relative:
Lower

Actual:
131 ft.

HSL:

edr_fstat:	WA
edr_fzip:	Not reported
edr_fcnty:	KING
edr_zip:	Not reported
Facility Type:	**Hazardous Sites List**
Facility Status:	Cleanup Started
FSID Number:	85348955
Rank:	4
Region:	NW
EDR Link ID:	85348955
Region Decode:	NORTHWEST REGIONAL OFFICE

CSCSL:

Facility ID:	85348955
Region:	Northwest
Lat/Long:	47.711648723 / -122.18608314
Brownfield Status:	Not reported
Rank Status:	4
Clean Up Siteid:	10813
Site Status:	Cleanup Started
PSI?:	Not reported
Contaminant Name:	Benzene
Ground Water:	Confirmed Above Cleanup Level
Surface Water:	Not reported
Soil:	Confirmed Above Cleanup Level

EXXON 72428 (Continued) **S108022437**

Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest

Facility ID:	85348955
Region:	Northwest
Lat/Long:	47.711648723 / -122.18608314
Brownfield Status:	Not reported
Rank Status:	4
Clean Up Siteid:	10813
Site Status:	Cleanup Started
PSI?:	Not reported
Contaminant Name:	Lead
Ground Water:	Confirmed Above Cleanup Level
Surface Water:	Not reported
Soil:	Below MTCA Cleanup Level After Assessment
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest

Facility ID:	85348955
Region:	Northwest
Lat/Long:	47.711648723 / -122.18608314
Brownfield Status:	Not reported
Rank Status:	4
Clean Up Siteid:	10813
Site Status:	Cleanup Started
PSI?:	Not reported
Contaminant Name:	Petroleum-Diesel
Ground Water:	Confirmed Above Cleanup Level
Surface Water:	Not reported
Soil:	Confirmed Above Cleanup Level
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest

Facility ID:	85348955
Region:	Northwest
Lat/Long:	47.711648723 / -122.18608314
Brownfield Status:	Not reported
Rank Status:	4
Clean Up Siteid:	10813
Site Status:	Cleanup Started
PSI?:	Not reported
Contaminant Name:	Petroleum-Gasoline
Ground Water:	Confirmed Above Cleanup Level
Surface Water:	Not reported
Soil:	Confirmed Above Cleanup Level
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest

Facility ID:	85348955

EXXON 72428 (Continued) **S108022437**

Region:	Northwest
Lat/Long:	47.711648723 / -122.18608314
Brownfield Status:	Not reported
Rank Status:	4
Clean Up Siteid:	10813
Site Status:	Cleanup Started
PSI?:	Not reported
Contaminant Name:	Petroleum-Other
Ground Water:	Confirmed Above Cleanup Level
Surface Water:	Not reported
Soil:	Confirmed Above Cleanup Level
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest

LUST:

Facility ID:	85348955
Lust Status Type:	Cleanup Started
Cleanup Site ID:	10813
Cleanup Unit Type:	Upland
Process Type:	Voluntary Cleanup Program
Cleanup Unit Name:	EXXON 72428
Lust Status Date:	07/12/1995
Response Section:	Northwest
Lat/Long:	47.7116487 / -122.18608

VCP:

edr_fstat:	WA
edr_fzip:	98034-4309
edr_fcnty:	KING
edr_zip:	Not reported
Facility ID:	85348955
VCP Status:	Not reported
VCP:	Yes
Ecology Status:	Not reported
NFA Type:	Not reported
Date NFA:	Not reported
Rank:	4
Cleanup Siteid:	10813

edr_fstat:	WA
edr_fzip:	98034-4309
edr_fcnty:	KING
edr_zip:	Not reported
Facility ID:	85348955
VCP Status:	Not reported
VCP:	Yes
Ecology Status:	Not reported
NFA Type:	Not reported
Date NFA:	Not reported
Rank:	4
Cleanup Siteid:	10813

edr_fstat:	WA
edr_fzip:	98034-4309

EXXON 72428 (Continued) **S108022437**

edr_fcnty: KING
edr_zip: Not reported
Facility ID: 85348955
VCP Status: Not reported
VCP: Yes
Ecology Status: Not reported
NFA Type: Not reported
Date NFA: Not reported
Rank: 4
Cleanup Siteid: 10813

edr_fstat: WA
edr_fzip: 98034-4309
edr_fcnty: KING
edr_zip: Not reported
Facility ID: 85348955
VCP Status: Not reported
VCP: Yes
Ecology Status: Not reported
NFA Type: Not reported
Date NFA: Not reported
Rank: 4
Cleanup Siteid: 10813

edr_fstat: WA
edr_fzip: 98034-4309
edr_fcnty: KING
edr_zip: Not reported
Facility ID: 85348955
VCP Status: Not reported
VCP: Yes
Ecology Status: Not reported
NFA Type: Not reported
Date NFA: Not reported
Rank: 4
Cleanup Siteid: 10813

ALLSITES:
Facility Name: TOSCO 0313030102
Facility Id: 85348955

Interaction: 68407
Interaction 1: A
Interaction 2: UST
Ecology Program: TOXICS
Program Data: UST
Facility Alt.: PLATINUM ENERGY
Program ID: 9547
Date Interaction: 1985-01-01 00:00:00
Date Interaction 3: Underground Storage Tank
Latitude: 47.711643780999999
Longitude: -122.18606287999999

Interaction: 68408
Interaction 1: A
Interaction 2: LUST

EXXON 72428 (Continued) **S108022437**

Ecology Program: TOXICS
Program Data: ISIS
Facility Alt.: Not reported
Program ID: 9547
Date Interaction: 1991-10-22 00:00:00
Date Interaction 3: LUST Facility
Latitude: 47.711643780999999
Longitude: -122.18606287999999

Interaction: 112998
Interaction 1: A
Interaction 2: VOLCLNST
Ecology Program: TOXICS
Program Data: ISIS
Facility Alt.: TOSCO 0313030102
Program ID: NW2969
Date Interaction: 2015-04-27 00:00:00
Date Interaction 3: Voluntary Cleanup Sites
Latitude: 47.711643780999999
Longitude: -122.18606287999999

Interaction: 68409
Interaction 1: I
Interaction 2: TIER2
Ecology Program: HAZWASTE
Program Data: EPCRA
Facility Alt.: Not reported
Program ID: WAD988488565
Date Interaction: 1992-01-01 00:00:00
Date Interaction 3: Emergency/Haz Chem Rpt TI
Latitude: 47.711643780999999
Longitude: -122.18606287999999

Facility Name: BP SERVICE STATION 03130
Facility Id: 44568374

Interaction: 45180
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAD988488565
Date Interaction: 2005-12-31 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.711274361000001
Longitude: -122.18650510499999

Interaction: 45181
Interaction 1: A
Interaction 2: HWOTHER
Ecology Program: HAZWASTE
Program Data: TURBOWASTE

EXXON 72428 (Continued) **S108022437**

Facility Alt.:	ConocoPhillips 30102
Program ID:	WAD988488565
Date Interaction:	2007-12-31 00:00:00
Date Interaction 3:	Haz Waste Management Acti
Latitude:	47.711274361000001
Longitude:	-122.18650510499999

Interaction:	45178
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD988488565
Date Interaction:	1991-05-22 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.711274361000001
Longitude:	-122.18650510499999

Interaction:	45179
Interaction 1:	I
Interaction 2:	HWOTHER
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD988488565
Date Interaction:	2004-12-31 00:00:00
Date Interaction 3:	Haz Waste Management Acti
Latitude:	47.711274361000001
Longitude:	-122.18650510499999

SPILLS:

Facility ID:	607144
Medium:	Not reported
Material Desc:	PETROLEUM - GASOLINE
Material Qty:	Not reported
Material Units:	GALLON
Date Received:	07/21/2008
Contact Name:	BOE
Incident Date:	Not reported
Incident Category Type:	Not reported
Incident Category:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Source Type:	Not reported
Source:	Not reported
Vessel Facility Name2:	Not reported
Recovered Quantity:	Not reported
Resp Party Contact:	Not reported
Cause:	Not reported
Cause Type:	Not reported
Resp Party Name:	Not reported

M56 **EXXON #7 2428** **WA ICR** **S104485586**
West **12412 116TH NE** **N/A**
1/4-1/2 **KIRKLAND, WA 98034**
0.326 mi.
1721 ft. **Site 2 of 2 in cluster M**

Relative:
Lower

Actual:
131 ft.

ICR:

Date Ecology Received Report:	05/07/99
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	98-17
County Code:	17
Contact:	Not reported
Report Title:	Not reported

Date Ecology Received Report:	04/28/99
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	98-16
County Code:	17
Contact:	Not reported
Report Title:	Not reported

Date Ecology Received Report:	12/17/99
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	98-27
County Code:	17
Contact:	Not reported
Report Title:	Not reported

Date Ecology Received Report:	/ /
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	92-49
County Code:	17
Contact:	Not reported
Report Title:	Not reported

Date Ecology Received Report:	/ /
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	93-19
County Code:	17

EXXON #7 2428 (Continued) **S104485586**

Contact:	Not reported
Report Title:	Not reported

Date Ecology Received Report:	12/23/91
Contaminants Found at Site:	Metals, Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	92-14
County Code:	17
Contact:	Not reported
Report Title:	Not reported

Date Ecology Received Report:	04/13/92
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	92-22
County Code:	17
Contact:	Not reported
Report Title:	Not reported

Date Ecology Received Report:	10/13/92
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	92-37
County Code:	17
Contact:	Not reported
Report Title:	Not reported

Date Ecology Received Report:	07/01/93
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	93-06
County Code:	17
Contact:	Not reported
Report Title:	Not reported

Date Ecology Received Report:	01/04/94
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	93-18
County Code:	17
Contact:	Not reported
Report Title:	Not reported

EXXON #7 2428 (Continued) **S104485586**

Date Ecology Received Report:	/ /
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	94-03
County Code:	17
Contact:	Not reported
Report Title:	Not reported

Date Ecology Received Report:	04/14/94
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	93-30
County Code:	17
Contact:	Not reported
Report Title:	Not reported

Date Ecology Received Report:	08/29/94
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	93-33
County Code:	17
Contact:	Not reported
Report Title:	Not reported

Date Ecology Received Report:	02/01/95
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	93-48
County Code:	17
Contact:	Not reported
Report Title:	Not reported

Date Ecology Received Report:	04/11/95
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	94-15
County Code:	17
Contact:	Not reported
Report Title:	Not reported

Date Ecology Received Report:	05/01/95
Contaminants Found at Site:	Petroleum products

EXXON #7 2428 (Continued) **S104485586**

Media Contaminated: Groundwater, Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 94-03
County Code: 17
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 10/06/94
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 93-36
County Code: 17
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 07/01/96
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 94-34
County Code: 17
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 11/27/95
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 94-19
County Code: 17
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 11/08/01
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 98-43
County Code: 17
Contact: Not reported
Report Title: Third Quarter Ground Water Monitoring - September 2001

Date Ecology Received Report: 11/08/01
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Waste Management: Tank

EXXON #7 2428 (Continued) **S104485586**

Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	98-43
County Code:	17
Contact:	Not reported
Report Title:	Second Quarter Ground Water Monitoring - June 2001

Date Ecology Received Report:	07/25/01
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	98-39
County Code:	17
Contact:	Not reported
Report Title:	Quarterly Ground Water Monitoring Report

Date Ecology Received Report:	09/11/00
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	98-42
County Code:	17
Contact:	Not reported
Report Title:	Soil Sampling - August 2000

Date Ecology Received Report:	04/09/01
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	98-37
County Code:	17
Contact:	Not reported
Report Title:	Ground Water Sampling - December 2000

57
East
1/4-1/2
0.342 mi.
1806 ft.

QUALITY FINISHING INC **WA ALLSITES** **S121970821**
12706 NE 124TH ST **N/A**
KIRKLAND, WA 98034

Relative:
Higher

Actual:
140 ft.

ALLSITES:

Facility Name:	QUALITY FINISHING INC
Facility Id:	96137858

Interaction:	80448
Interaction 1:	A
Interaction 2:	AQLA
Ecology Program:	AIRQUAL
Program Data:	AIRSIS
Facility Alt.:	Quality Finishing Inc
Program ID:	C_033_16097
Date Interaction:	2007-01-01 00:00:00

QUALITY FINISHING INC (Continued) **S121970821**

Date Interaction 3:	Air Qual Local Authority
Latitude:	47.711625818999998
Longitude:	-122.1707068

Interaction:	74632
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD089942999
Date Interaction:	1981-06-11 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.711625818999998
Longitude:	-122.1707068

58
SSE
1/4-1/2
0.345 mi.
1822 ft.

TOTEM LAKE AUTO SVC CTR
11902 124TH AVE NE
KIRKLAND, WA 98034

WA ALLSITES **1000659762**
RCRA NonGen / NLR **WAD988494381**
FINDS
ECHO

Relative:
Higher

Actual:
174 ft.

ALLSITES:

Facility Name:	TOTEM LAKE AUTO SVC CTR
Facility Id:	3564939

Interaction:	12948
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD988494381
Date Interaction:	1991-09-30 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.709694360999997
Longitude:	-122.182935106

RCRA NonGen / NLR:

Date form received by agency:	09/01/1993
Facility name:	TOTEM LAKE AUTO SVC CTR
Site name:	BUCHAN BROS INVESTMENT PROPERT
Facility address:	11902 124TH AVE NE KIRKLAND, WA 98034
EPA ID:	WAD988494381
Mailing address:	11555 NORTHUP WAY BELLEVUE, WA 98004
Contact:	GLORIA SAUNDERSON
Contact address:	Not reported Not reported
Contact country:	US
Contact telephone:	206-827-9499
Contact email:	Not reported
EPA Region:	10

TOTEM LAKE AUTO SVC CTR (Continued) **1000659762**

Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: SEE PAPER COPY
Owner/operator address: 11902 124TH AVE NE
KIRKLAND, WA 98034
Owner/operator country: Not reported
Owner/operator telephone: 000-000-0000
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: TOTEM LAKE AUTO SVC CTR
Owner/operator address: 11902 124TH AVE NE
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 000-000-0000
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 09/30/1991
Site name: TOTEM LAKE AUTO SVC CTR
Classification: Not a generator, verified

Date form received by agency: 09/30/1991
Site name: TOTEM LAKE AUTO SVC CTR
Classification: Not a generator, verified

TOTEM LAKE AUTO SVC CTR (Continued) **1000659762**

Violation Status: No violations found

FINDS:

Registry ID: 110005366914

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1000659762
Registry ID: 110005366914
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110005366914

N59 SSE 1/4-1/2 0.348 mi. 1840 ft. **DAVES AUTO PAINTING INC**
11947 124TH AVE NE
KIRKLAND, WA 98034
Site 1 of 5 in cluster N

WA ALLSITES **1000199465**
RCRA NonGen / NLR **WAD115165110**
FINDS
ECHO
WA MANIFEST

Relative: Higher
Actual: 168 ft.

ALLSITES:
Facility Name: DAVES AUTO PAINTING INC
Facility Id: 30929928

Interaction: 37067
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAD115165110
Date Interaction: 1986-12-09 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.709454360999999
Longitude: -122.182365105

RCRA NonGen / NLR:
Date form received by agency: 03/20/2007
Facility name: DAVES AUTO PAINTING INC
Facility address: 11947 124TH AVE NE
KIRKLAND, WA 98034
EPA ID: WAD115165110
Contact: TIM WHITAKER
Contact address: 11947 124TH AVE NE
KIRKLAND, WA 98034
Contact country: US
Contact telephone: 425-823-8255

DAVES AUTO PAINTING INC (Continued) **1000199465**

Contact email: TIMOTHYJWHITAKER@HOTMAIL.NET
EPA Region: 10
Land type: Private
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: DAVES AUTO PAINTING DENTS
Owner/operator address: 11947 124TH AVE NE
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 04/15/1983
Owner/Op end date: Not reported

Owner/operator name: DAVES AUTO PAINTING DENTS
Owner/operator address: 11947 124TH AVE NE
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 425-486-3703
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: DAVE WHITAKER
Owner/operator address: 11947 124TH AVE NE
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 04/15/1983
Owner/Op end date: Not reported

Owner/operator name: CAL AMERICAN REAL ESTATE
Owner/operator address: 2029 CENTURY PARK E STE 1550
LOS ANGELES, CA 90067
Owner/operator country: US
Owner/operator telephone: 310-277-6318
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported

DAVES AUTO PAINTING INC (Continued) **1000199465**

Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 03/20/2007
Site name: DAVES AUTO PAINTING INC
Classification: Not a generator, verified

Date form received by agency: 12/31/2005
Site name: DAVES AUTO PAINTING INC
Classification: Not a generator, verified

Date form received by agency: 12/31/2003
Site name: DAVES AUTO PAINTING INC
Classification: Not a generator, verified

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 01/29/1998
Evaluation: COMPLIANCE ASSISTANCE VISIT
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

FINDS:

Registry ID: 110005330793

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport,

DAVES AUTO PAINTING INC (Continued) **1000199465**

and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZARDOUS WASTE BIENNIAL REPORTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1000199465
Registry ID:	110005330793
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110005330793

WA MANIFEST:

Facility Site ID Number:	30929928
EPA ID:	WAD115165110
NAICS:	811121
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	Not reported
Permit by Rule:	FALSE
Treatment by Generator:	FALSE
Mixed radioactive waste:	FALSE
Importer of hazardous waste:	FALSE
Immediate recycler:	FALSE
Treatment/Storage/Disposal/Recycling Facility:	FALSE
Generator of dangerous fuel waste:	FALSE
Generator marketing to burner:	FALSE
Other marketers (i.e., blender, distributor, etc.):	FALSE
Utility boiler burner:	FALSE
Industry boiler burner:	FALSE
Industrial Furnace:	FALSE
Smelter defferal:	FALSE
Universal waste - batteries - generate:	FALSE
Universal waste - thermostats - generate:	FALSE
Universal waste - mercury - generate:	FALSE
Universal waste - lamps - generate:	FALSE
Universal waste - batteries - accumulate:	FALSE
Universal waste - thermostats - accumulate:	FALSE
Universal waste - mercury - accumulate:	FALSE
Universal waste - lamps - accumulate:	FALSE
Destination Facility for Universal Waste:	FALSE
Off-specification used oil burner - utility boiler:	FALSE
Off-specification used oil burner - industrial boiler:	FALSE
Off-specification used oil burner - industrial furnace:	FALSE
Tax Reg #:	602302499
Business Type:	Not reported
Mail Name:	Daves Auto Painting Inc
Mail addr line1:	11947 124TH AVE NE
Mail city,st,zip:	KIRKLAND, WA 98034-8112
Mail country:	UNITED STATES
Legal org name:	Daves Auto Painting Dents
Legal org type:	Private

DAVES AUTO PAINTING INC (Continued) **1000199465**

Legal addr line1:	11947 124TH AVE NE
Legal city,st,zip:	KIRKLAND, WA 98034-8112
Legal country:	UNITED STATES
Legal phone nbr:	(425)486-3703
Legal effective date:	04/15/1983
Land org name:	Cal American Real Estate
Land org type:	Private
Land person name:	Not reported
Land addr line1:	2029 Century Park E Ste 1550
Land city,st,zip:	LOS ANGELES, CA 90067
Land country:	UNITED STATES
Land phone nbr:	(310)277-6318
Operator org name:	Dave's Auto Painting
Operator org type:	Private
Operator addr line1:	11947 124th Ave NE
Operator city,st,zip:	KIRKLAND, WA 98034
Operator country:	UNITED STATES
Operator phone nbr:	(425)823-8255
Operator effective date:	04/15/1983
Site contact name:	Dave Whitaker
Site contact addr line1:	11947 124th Ave NE
Site Contact City/State/ Zip:	KIRKLAND, WA 98034
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(425)823-8255
Site Contact EMail:	Not reported
Form Contact NAME:	Tim Whitaker
Form Contact ADDR LINE1:	11947 124th Ave NE
Form Contact City,ST,Zip:	KIRKLAND, WA 98034
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(425)823-8255
Form Contact EMail:	timothyjwhitaker@hotmail.net
Gen Status CD:	SQG
Monthly Generation:	FALSE
Batch Generation:	FALSE
One Time Generation:	FALSE
Transport Own Waste:	FALSE
Tranports Other Waste:	FALSE
Recycler Onsite:	FALSE
Transfer Facility:	FALSE
Other Exemption:	Not reported
UW Battery Gen:	FALSE
Used Oil Transporter:	FALSE
Used Oil Transfer Facility:	FALSE
Used Oil Processor:	FALSE
Used Oil Refiner:	FALSE
Used Oil Fuel Marketer Directs Shipments:	FALSE
Used Oil Fuel Marketer Meets Specs:	FALSE

Facility Site ID Number:	30929928
EPA ID:	WAD115165110
NAICS:	811121
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	Not reported
Permit by Rule:	No

DAVES AUTO PAINTING INC (Continued) **1000199465**

Treatment by Generator:	No
Mixed radioactive waste:	No
Importer of hazardous waste:	No
Immediate recycler:	No
Treatment/Storage/Disposal/Recycling Facility:	No
Generator of dangerous fuel waste:	No
Generator marketing to burner:	No
Other marketers (i.e., blender, distributor, etc.):	No
Utility boiler burner:	No
Industry boiler burner:	No
Industrial Furnace:	No
Smelter defferal:	No
Universal waste - batteries - generate:	No
Universal waste - thermostats - generate:	No
Universal waste - mercury - generate:	No
Universal waste - lamps - generate:	No
Universal waste - batteries - accumulate:	No
Universal waste - thermostats - accumulate:	No
Universal waste - mercury - accumulate:	No
Universal waste - lamps - accumulate:	No
Destination Facility for Universal Waste:	No
Off-specification used oil burner - utility boiler:	No
Off-specification used oil burner - industrial boiler:	No
Off-specification used oil burner - industrial furnace:	No
Tax Reg #:	602302499
Business Type:	Not reported
Mail Name:	Daves Auto Painting Inc
Mail addr line1:	11947 124TH AVE NE
Mail city,st,zip:	KIRKLAND, WA 98034-8112
Mail country:	UNITED STATES
Legal org name:	Daves Auto Painting Dents
Legal org type:	Private
Legal addr line1:	11947 124TH AVE NE
Legal city,st,zip:	KIRKLAND, WA 98034-8112
Legal country:	UNITED STATES
Legal phone nbr:	(425)486-3703
Legal effective date:	04/15/1983
Land org name:	Cal American Real Estate
Land org type:	Private
Land person name:	Not reported
Land addr line1:	2029 Century Park E Ste 1550
Land city,st,zip:	LOS ANGELES, CA 90067
Land country:	UNITED STATES
Land phone nbr:	(310)277-6318
Operator org name:	Dave's Auto Painting
Operator org type:	Private
Operator addr line1:	11947 124th Ave NE
Operator city,st,zip:	KIRKLAND, WA 98034
Operator country:	UNITED STATES
Operator phone nbr:	(425)823-8255
Operator effective date:	04/15/1983
Site contact name:	Dave Whitaker
Site contact addr line1:	11947 124th Ave NE
Site Contact City/State/ Zip:	KIRKLAND, WA 98034
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(425)823-8255
Site Contact EMail:	Not reported

DAVES AUTO PAINTING INC (Continued) **1000199465**

Form Contact NAME:	Tim Whitaker
Form Contact ADDR LINE1:	11947 124th Ave NE
Form Contact City,ST,Zip:	KIRKLAND, WA 98034
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(425)823-8255
Form Contact EMail:	timothyjwhitaker@hotmail.net
Gen Status CD:	SQG
Monthly Generation:	No
Batch Generation:	No
One Time Generation:	No
Transport Own Waste:	No
Tranports Other Waste:	No
Recycler Onsite:	No
Transfer Facility:	No
Other Exemption:	Not reported
UW Battery Gen:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Fuel Marketer Directs Shipments:	No
Used Oil Fuel Marketer Meets Specs:	No

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60 **12528 NE 129TH COURT** **US BROWNFIELDS** **1023618534**
NNE **12528 NE 129TH COURT APT. C9** **N/A**
1/4-1/2 **KIRKLAND, WA 98034**
0.352 mi.
1858 ft.

Relative:
Higher

Actual:
279 ft.

US BROWNFIELDS:

Property Name:	12528 NE 129TH COURT
Recipient Name:	Public Health Seattle & King County
Grant Type:	Assessment
Property Number:	2826059141
Parcel size:	1
Latitude:	47.7163
Longitude:	-122.173373
HCM Label:	Not reported
Map Scale:	Not reported
Point of Reference:	Not reported
Highlights:	Not reported
Datum:	Not reported
Acres Property ID:	16066
IC Data Access:	Not reported
Start Date:	Not reported
Redev Completition Date:	Not reported
Completed Date:	Not reported
Acres Cleaned Up:	Not reported
Cleanup Funding:	Not reported
Cleanup Funding Source:	Not reported
Assessment Funding:	Not reported
Assessment Funding Source:	Not reported
Redevelopment Funding:	Not reported
Redev. Funding Source:	Not reported
Redev. Funding Entity Name:	Not reported
Redevelopment Start Date:	Not reported
Assessment Funding Entity:	Not reported

12528 NE 129TH COURT (Continued) **1023618534**

Cleanup Funding Entity:	Not reported
Grant Type:	N/A
Accomplishment Type:	Not reported
Accomplishment Count:	0
Cooperative Agreement Number:	97093401
Start Date:	Not reported
Ownership Entity:	Not reported
Completion Date:	Not reported
Current Owner:	Marvin F. Poer and Company
Did Owner Change:	Not reported
Cleanup Required:	Not reported
Video Available:	Not reported
Photo Available:	Not reported
Institutional Controls Required:	Not reported
IC Category Proprietary Controls:	Not reported
IC Cat. Info. Devices:	Not reported
IC Cat. Gov. Controls:	Not reported
IC Cat. Enforcement Permit Tools:	Not reported
IC in place date:	Not reported
IC in place:	U
State/tribal program date:	Not reported
State/tribal program ID:	Not reported
State/tribal NFA date:	Not reported
Air contaminated:	Not reported
Air cleaned:	Not reported
Asbestos found:	Not reported
Asbestos cleaned:	Not reported
Controled substance found:	Not reported
Controled substance cleaned:	Not reported
Drinking water affected:	Not reported
Drinking water cleaned:	Not reported
Groundwater affected:	Not reported
Groundwater cleaned:	Not reported
Lead contaminant found:	Not reported
Lead cleaned up:	Not reported
No media affected:	Not reported
Unknown media affected:	Not reported
Other cleaned up:	Not reported
Other metals found:	Not reported
Other metals cleaned:	Not reported
Other contaminants found:	Not reported
Other contams found description:	Not reported
PAHs found:	Not reported
PAHs cleaned up:	Not reported
PCBs found:	Not reported
PCBs cleaned up:	Not reported
Petro products found:	Not reported
Petro products cleaned:	Not reported
Sediments found:	Not reported
Sediments cleaned:	Not reported
Soil affected:	Not reported
Soil cleaned up:	Not reported
Surface water cleaned:	Not reported
VOCs found:	Not reported
VOCs cleaned:	Not reported
Cleanup other description:	Not reported
Num. of cleanup and re-dev. jobs:	Not reported

12528 NE 129TH COURT (Continued) **1023618534**

Past use greenspace acreage:	Not reported
Past use residential acreage:	Not reported
Surface Water:	Not reported
Past use commercial acreage:	Not reported
Past use industrial acreage:	Not reported
Future use greenspace acreage:	Not reported
Future use residential acreage:	Not reported
Future use commercial acreage:	Not reported
Future use industrial acreage:	Not reported
Greenspace acreage and type:	Not reported
Superfund Fed. landowner flag:	Not reported
Arsenic cleaned up:	Not reported
Cadmium cleaned up:	Not reported
Chromium cleaned up:	Not reported
Copper cleaned up:	Not reported
Iron cleaned up:	Not reported
mercury cleaned up:	Not reported
Nickel Cleaned Up:	Not reported
No clean up:	Not reported
Pesticides cleaned up:	Not reported
Selenium cleaned up:	Not reported
SVOCs cleaned up:	Not reported
Unknown clean up:	Not reported
Arsenic contaminant found:	Not reported
Cadmium contaminant found:	Not reported
Chromium contaminant found:	Not reported
Copper contaminant found:	Not reported
Iron contaminant found:	Not reported
Mercury contaminant found:	Not reported
Nickel contaminant found:	Not reported
No contaminant found:	Not reported
Pesticides contaminant found:	Not reported
Selenium contaminant found:	Not reported
SVOCs contaminant found:	Not reported
Unknown contaminant found:	Not reported
Future Use: Multistory	Not reported
Media affected Bluiding Material:	Not reported
Media affected indoor air:	Not reported
Building material media cleaned up:	Not reported
Indoor air media cleaned up:	Not reported
Unknown media cleaned up:	Not reported
Past Use: Multistory	Not reported
Property Description:	Not reported
Below Poverty Number:	196
Below Poverty Percent:	5.4%
Meidan Income:	6048
Meidan Income Number:	669
Meidan Income Percent:	18.3%
Vacant Housing Number:	119
Vacant Housing Percent:	6.8%
Unemployed Number:	201
Unemployed Percent:	5.5%

N61 SSE 1/4-1/2 0.354 mi. 1870 ft. | **N GRAVERS INC**
11943 124TH AVE NE
KIRKLAND, WA 98034

Site 2 of 5 in cluster N

WA ALLSITES
RCRA NonGen / NLR
FINDS
ECHO

1005445539
WAH000018127

Relative: Higher

Actual: 168 ft.

ALLSITES:

Facility Name:	N GRAVERS INC
Facility Id:	19127197
Interaction:	30921
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAH000018127
Date Interaction:	2002-04-23 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.705567375000001
Longitude:	-122.17732916200001

RCRA NonGen / NLR:

Date form received by agency:	07/23/2003
Facility name:	N GRAVERS INC
Facility address:	11943 124TH AVE NE KIRKLAND, WA 98034
EPA ID:	WAH000018127
Mailing address:	15100 SE 38TH ST STE 825 BELLEVUE, WA 98006-1765
Contact:	KEVIN KAYSER
Contact address:	15100 SE 38TH ST STE 825 BELLEVUE, WA 98006-1765
Contact country:	US
Contact telephone:	425-471-4871
Contact email:	Not reported
EPA Region:	10
Land type:	Private
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	TOTEM SQUARE PARTNERS
Owner/operator address:	2029 CENTURY PARK E #1550 LOS ANGELES, CA 90067
Owner/operator country:	US
Owner/operator telephone:	310-277-1648
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported
Owner/operator name:	TOTEM SQUARE PARTNERS

N GRAVERS INC (Continued) **1005445539**

Owner/operator address: 2029 CENTURY PARK E #1550
LOS ANGELES, CA 90067
Owner/operator country: US
Owner/operator telephone: 310-277-1648
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 07/23/2003
Site name: N GRAVERS INC
Classification: Not a generator, verified

Date form received by agency: 04/23/2002
Site name: N GRAVERS INC
Classification: Not a generator, verified

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 12/18/2003
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

FINDS:

Registry ID: 110012557349

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air

N GRAVERS INC (Continued) **1005445539**

Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1005445539
Registry ID:	110012557349
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110012557349

62
WSW
1/4-1/2
0.355 mi.
1877 ft.

KIRKLAND PONTIAC
12335 120TH AVE NE
KIRKLAND, WA 98034

WA ALLSITES
RCRA NonGen / NLR
FINDS
ECHO

1000659495
WAD988491676

Relative:
Higher

Actual:
198 ft.

ALLSITES:

Facility Name:	KIRKLAND PONTIAC
Facility Id:	74772727

Interaction:	62318
Interaction 1:	I
Interaction 2:	HWOTHER
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD988491676
Date Interaction:	2003-12-31 00:00:00
Date Interaction 3:	Haz Waste Management Acti
Latitude:	47.708084360999997
Longitude:	-122.182755105

Interaction:	62316
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD988491676
Date Interaction:	1991-07-30 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.708084360999997
Longitude:	-122.182755105

Interaction:	62317
Interaction 1:	I

KIRKLAND PONTIAC (Continued) **1000659495**

Interaction 2:	HWP
Ecology Program:	HAZWASTE
Program Data:	HWPPRT
Facility Alt.:	Not reported
Program ID:	WAD988491676
Date Interaction:	1993-01-01 00:00:00
Date Interaction 3:	Hazardous Waste Planner
Latitude:	47.708084360999997
Longitude:	-122.182755105

RCRA NonGen / NLR:

Date form received by agency:	02/28/2005
Facility name:	KIRKLAND PONTIAC
Facility address:	12335 120TH AVE NE KIRKLAND, WA 98034
EPA ID:	WAD988491676
Contact:	KIRKLAND PONTIA KIRKLAND PONTIA
Contact address:	12335 120TH AVE NE KIRKLAND, WA 98034-6909
Contact country:	US
Contact telephone:	000-000-0000
Contact email:	Not reported
EPA Region:	10
Land type:	Private
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	BILL C
Owner/operator address:	12335 120TH AVE NE KIRKLAND, WA 98034
Owner/operator country:	US
Owner/operator telephone:	425-821-7162
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	02/28/1997
Owner/Op end date:	Not reported

Owner/operator name:	AUTONATION KIRK A
Owner/operator address:	12335 120TH AVE NE KIRKLAND, WA 98034
Owner/operator country:	US
Owner/operator telephone:	425-821-6800
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	06/01/2000
Owner/Op end date:	Not reported

KIRKLAND PONTIAC (Continued) **1000659495**

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency: 12/31/2003
Site name: KIRKLAND PONTIAC
Classification: Not a generator, verified

Date form received by agency: 02/24/1997
Site name: KIRKLAND PONTIAC
Classification: Not a generator, verified

Violation Status: No violations found

Evaluation Action Summary:

Evaluation date: 01/29/1998
Evaluation: COMPLIANCE ASSISTANCE VISIT
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

FINDS:

Registry ID: 110005364747

Environmental Interest/Information System

Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZARDOUS WASTE BIENNIAL REPORTER

KIRKLAND PONTIAC (Continued) **1000659495**

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1000659495
Registry ID: 110005364747
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110005364747

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63 WNW 1/4-1/2 0.367 mi. 1938 ft. **US CLEANERS 12547 116TH AVE NE KIRKLAND, WA 98033** **WA ALLSITES RCRA NonGen / NLR FINDS ECHO WA Inactive Drycleaners** **1001490832 WAD988505608**

Relative: Lower
Actual: 128 ft.

ALLSITES:
Facility Name: US CLEANERS
Facility Id: 65991728

Interaction: 57512
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAD988505608
Date Interaction: 1992-04-20 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.712104361000002
Longitude: -122.18654510499999

RCRA NonGen / NLR:
Date form received by agency: 03/04/1996
Facility name: US CLEANERS
Facility address: 12547 116TH AVE NE
KIRKLAND, WA 98033
EPA ID: WAD988505608
Contact: US CLEANERS US CLEANERS
Contact address: 12547 116TH AVE NE
KIRKLAND, WA 98034-4310
Contact country: US
Contact telephone: 000-000-0000
Contact email: Not reported
EPA Region: 10
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: STEVE K
Owner/operator address: 12547 116TH AVE NE
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 425-820-0676
Owner/operator email: Not reported
Owner/operator fax: Not reported

US CLEANERS (Continued) **1001490832**

Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 07/11/1996
Owner/Op end date: Not reported

Owner/operator name: STEVE K
Owner/operator address: 12547 116TH AVE NE
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 425-820-0676
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 07/11/1996
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 03/04/1996
Site name: US CLEANERS
Classification: Not a generator, verified

Violation Status: No violations found

FINDS:

Registry ID: 110005374996

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of

US CLEANERS (Continued) **1001490832**

events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1001490832
Registry ID:	110005374996
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110005374996

INACTIVE DRYCLEANERS:

EPA I:	WAD988505608
FS Id:	7513
Facility ID:	7513
NAICS Code:	81232
Fed Waste Code Desc:	Not reported
State Waste Code Desc:	Not reported
TAX REG NBR:	Not reported
BUSINESS TYPE:	Not reported
MAIL NAME:	Not reported
MAIL LINE1:	Not reported
MAIL LINE2:	Not reported
MAIL CITY:	Not reported
MAIL STATE:	Not reported
MAIL ZIP:	Not reported
MAIL COUNTRY:	Not reported
LEGAL ORG NAME:	Not reported
LEGAL PERSON FIRST NAME:	Not reported
LEGAL PERSON MIDDLE INIT:	Not reported
LEGAL PERSON LAST NAME:	Not reported
LEGAL LINE1:	Not reported
LEGAL LINE2:	Not reported
LEGAL CITY:	Not reported
LEGAL STATE:	Not reported
LEGAL ZIP:	Not reported
LEGAL COUNTRY:	Not reported
LEGAL PHONE NBR:	Not reported
LEGAL EFFECTIVE DATE:	Not reported
LEGAL ORGANIZATION TYPE:	Not reported
LAND ORG NAME:	Not reported
LAND PERSON FIRST NAME:	Not reported
LAND PERSON MIDDLE INIT:	Not reported
LAND PERSON LAST NAME:	Not reported
LAND LINE1:	Not reported
LAND LINE2:	Not reported
LAND CITY:	Not reported
LAND STATE:	Not reported
LAND ZIP:	Not reported
LAND COUNTRY:	Not reported
LAND PHONE NBR:	Not reported
LAND ORGANIZATION TYPE:	Not reported
OPERATOR ORG NAME:	Not reported

US CLEANERS (Continued) **1001490832**

OPERATOR PERSON FIRST NAME:	Not reported
OPERATOR PERSON MIDDLE INIT:	Not reported
OPERATOR PERSON LAST NAME:	Not reported
OPERATOR LINE1:	Not reported
OPERATOR LINE2:	Not reported
OPERATOR CITY:	Not reported
OPERATOR STATE:	Not reported
OPERATOR ZIP:	Not reported
OPERATOR COUNTRY:	Not reported
OPERATOR PHONE NBR:	Not reported
OPERATOR EFFECTIVE DATE:	Not reported
OPERATOR ORGANIZATION TYPE:	Not reported
SITE CONTACT FIRST NAME:	Not reported
SITE CONTACT MIDDLE INIT:	Not reported
SITE CONTACT LAST NAME:	Not reported
SITE CONTACT LINE1:	Not reported
SITE CONTACT LINE2:	Not reported
SITE CONTACT CITY:	Not reported
SITE CONTACT STATE:	Not reported
SITE CONTACT ZIP:	Not reported
SITE CONTACT COUNTRY:	Not reported
SITE CONTACT PHONE NBR:	Not reported
SITE CONTACT EMAIL:	Not reported
FORM CONTACT FIRST NAME:	Not reported
FORM CONTACT MIDDLE INIT:	Not reported
FORM CONTACT LAST NAME:	Not reported
FORM CONTACT LINE1:	Not reported
FORM CONTACT LINE2:	Not reported
FORM CONTACT CITY:	Not reported
FORM CONTACT STATE:	Not reported
FORM CONTACT ZIP:	Not reported
FORM CONTACT COUNTRY:	Not reported
FORM CONTACT PHONE NBR:	Not reported
FORM CONTACT EMAIL:	Not reported
GEN STATUS CD:	Not reported
MONTHLY GENERATION:	Not reported
BATCH GENERATION:	Not reported
ONE TIME GENERATION:	Not reported
TRANSPORTS OWN WASTE:	Not reported
TRANSPORTS OTHERS WASTE:	Not reported
RECYCLER ONSITE:	Not reported
TRANSFER FACILITY:	Not reported
PBR:	Not reported
TBG:	Not reported
MIXED RADIOACTIVE:	Not reported
IMPORTER:	Not reported
TSDR FACILITY:	Not reported
IMMEDIATE RECYCLER:	Not reported
GEN DANG FUEL:	Not reported
GEN MARKET TO BURNER:	Not reported
GEN OTHER MARKETERS:	Not reported
UTILITY BOILER BURNER:	Not reported
INDUSTRY BOILER BURNER:	Not reported
FURNACE BURNER:	Not reported
SMELTER DEFERRAL:	Not reported
SMALL QTY EXEMPTION:	Not reported
OTHER EXEMPTION:	Not reported

US CLEANERS (Continued) **1001490832**

UW BATTERY GEN:	Not reported
UW THERMOSTATS GEN:	Not reported
UW MERCURY GEN:	Not reported
UW LAMPS GEN:	Not reported
UW BATTERY ACCUM:	Not reported
UW THERMOSTATS ACCUM:	Not reported
UW MERCURY ACCUM:	Not reported
UW LAMPS ACCUM:	Not reported
UW DESTINATION FACILITY:	Not reported
OFF SPEC UTILITY BOILER:	Not reported
OFF SPEC INDUSTRY BOILER:	Not reported
OFF SPEC FURNACE:	Not reported
USED OIL TRANSPORTER:	Not reported
USED OIL TRANSFER FACILITY:	Not reported
USED OIL PROCESSOR:	Not reported
USED OIL REREFINER:	Not reported
USED OIL FUEL MARKETER DIR SHIPMENTS:	Not reported
USED OIL FUEL MARKETER MEETS SPECS:	Not reported
ECO Int Type Code:	Not reported
Status Code:	Not reported
Start Date:	Not reported
End Date:	Not reported
NAICS DS:	Not reported
Program Name:	Not reported
FS SIC Code:	Not reported
SIC DS:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Comments:	Not reported
EPA I:	Not reported
FS Id:	65991728
Facility ID:	65991728
NAICS Code:	Not reported
Fed Waste Code Desc:	Not reported
State Waste Code Desc:	Not reported
TAX REG NBR:	Not reported
BUSINESS TYPE:	Not reported
MAIL NAME:	Not reported
MAIL LINE1:	Not reported
MAIL LINE2:	Not reported
MAIL CITY:	Not reported
MAIL STATE:	Not reported
MAIL ZIP:	Not reported
MAIL COUNTRY:	Not reported
LEGAL ORG NAME:	Not reported
LEGAL PERSON FIRST NAME:	Not reported
LEGAL PERSON MIDDLE INIT:	Not reported
LEGAL PERSON LAST NAME:	Not reported
LEGAL LINE1:	Not reported
LEGAL LINE2:	Not reported
LEGAL CITY:	Not reported
LEGAL STATE:	Not reported
LEGAL ZIP:	Not reported
LEGAL COUNTRY:	Not reported
LEGAL PHONE NBR:	Not reported
LEGAL EFFECTIVE DATE:	Not reported
LEGAL ORGANIZATION TYPE:	Not reported

US CLEANERS (Continued) **1001490832**

LAND ORG NAME:	Not reported
LAND PERSON FIRST NAME:	Not reported
LAND PERSON MIDDLE INIT:	Not reported
LAND PERSON LAST NAME:	Not reported
LAND LINE1:	Not reported
LAND LINE2:	Not reported
LAND CITY:	Not reported
LAND STATE:	Not reported
LAND ZIP:	Not reported
LAND COUNTRY:	Not reported
LAND PHONE NBR:	Not reported
LAND ORGANIZATION TYPE:	Not reported
OPERATOR ORG NAME:	Not reported
OPERATOR PERSON FIRST NAME:	Not reported
OPERATOR PERSON MIDDLE INIT:	Not reported
OPERATOR PERSON LAST NAME:	Not reported
OPERATOR LINE1:	Not reported
OPERATOR LINE2:	Not reported
OPERATOR CITY:	Not reported
OPERATOR STATE:	Not reported
OPERATOR ZIP:	Not reported
OPERATOR COUNTRY:	Not reported
OPERATOR PHONE NBR:	Not reported
OPERATOR EFFECTIVE DATE:	Not reported
OPERATOR ORGANIZATION TYPE:	Not reported
SITE CONTACT FIRST NAME:	Not reported
SITE CONTACT MIDDLE INIT:	Not reported
SITE CONTACT LAST NAME:	Not reported
SITE CONTACT LINE1:	Not reported
SITE CONTACT LINE2:	Not reported
SITE CONTACT CITY:	Not reported
SITE CONTACT STATE:	Not reported
SITE CONTACT ZIP:	Not reported
SITE CONTACT COUNTRY:	Not reported
SITE CONTACT PHONE NBR:	Not reported
SITE CONTACT EMAIL:	Not reported
FORM CONTACT FIRST NAME:	Not reported
FORM CONTACT MIDDLE INIT:	Not reported
FORM CONTACT LAST NAME:	Not reported
FORM CONTACT LINE1:	Not reported
FORM CONTACT LINE2:	Not reported
FORM CONTACT CITY:	Not reported
FORM CONTACT STATE:	Not reported
FORM CONTACT ZIP:	Not reported
FORM CONTACT COUNTRY:	Not reported
FORM CONTACT PHONE NBR:	Not reported
FORM CONTACT EMAIL:	Not reported
GEN STATUS CD:	Not reported
MONTHLY GENERATION:	Not reported
BATCH GENERATION:	Not reported
ONE TIME GENERATION:	Not reported
TRANSPORTS OWN WASTE:	Not reported
TRANSPORTS OTHERS WASTE:	Not reported
RECYCLER ONSITE:	Not reported
TRANSFER FACILITY:	Not reported
PBR:	Not reported
TBG:	Not reported

US CLEANERS (Continued) **1001490832**

MIXED RADIOACTIVE:	Not reported
IMPORTER:	Not reported
TSDR FACILITY:	Not reported
IMMEDIATE RECYCLER:	Not reported
GEN DANG FUEL:	Not reported
GEN MARKET TO BURNER:	Not reported
GEN OTHER MARKETERS:	Not reported
UTILITY BOILER BURNER:	Not reported
INDUSTRY BOILER BURNER:	Not reported
FURNACE BURNER:	Not reported
SMELTER DEFERRAL:	Not reported
SMALL QTY EXEMPTION:	Not reported
OTHER EXEMPTION:	Not reported
UW BATTERY GEN:	Not reported
UW THERMOSTATS GEN:	Not reported
UW MERCURY GEN:	Not reported
UW LAMPS GEN:	Not reported
UW BATTERY ACCUM:	Not reported
UW THERMOSTATS ACCUM:	Not reported
UW MERCURY ACCUM:	Not reported
UW LAMPS ACCUM:	Not reported
UW DESTINATION FACILITY:	Not reported
OFF SPEC UTILITY BOILER:	Not reported
OFF SPEC INDUSTRY BOILER:	Not reported
OFF SPEC FURNACE:	Not reported
USED OIL TRANSPORTER:	Not reported
USED OIL TRANSFER FACILITY:	Not reported
USED OIL PROCESSOR:	Not reported
USED OIL REREFINER:	Not reported
USED OIL FUEL MARKETER DIR SHIPMENTS:	Not reported
USED OIL FUEL MARKETER MEETS SPECS:	Not reported
ECO Int Type Code:	HWG
Status Code:	I
Start Date:	04/20/1992
End Date:	12/31/1995
NAICS DS:	Not reported
Program Name:	7216
FS SIC Code:	Drycleaning Plants, Except Rug Cleaning
SIC DS:	HAZWASTE
Latitude:	47.71211
Longitude:	-122.18656
Comments:	Not reported

N64 **GALLERIA REFINISHERS** **WA ALLSITES** **1000473956**
SSE **11933 124TH AVE NE** **RCRA NonGen / NLR** **WAD988480323**
1/4-1/2 **KIRKLAND, WA 98034** **FINDS**
0.368 mi. **ECHO**
1945 ft. **Site 3 of 5 in cluster N**

Relative:
Higher

Actual:
168 ft.

ALLSITES:

Facility Name:	GALLERIA REFINISHERS
Facility Id:	13286966
Interaction:	27414
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported

GALLERIA REFINISHERS (Continued) **1000473956**

Program ID:	WAD988480323
Date Interaction:	1990-11-14 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.709484361000001
Longitude:	-122.182445105

RCRA NonGen / NLR:

Date form received by agency:	07/10/2003
Facility name:	GALLERIA REFINISHERS
Facility address:	11933 124TH AVE NE KIRKLAND, WA 98034
EPA ID:	WAD988480323
Contact:	GALLERIA REFINI GALLERIA REFINI
Contact address:	11933 124TH AVE NE KIRKLAND, WA 98034-8112
Contact country:	US
Contact telephone:	000-000-0000
Contact email:	Not reported
EPA Region:	10
Land type:	Private
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	CLAUDE L
Owner/operator address:	11933 124TH AVE NE KIRKLAND, WA 98034
Owner/operator country:	US
Owner/operator telephone:	425-821-6918
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	12/31/2001
Owner/Op end date:	Not reported

Owner/operator name:	CLAUDE L
Owner/operator address:	11933 124TH AVE NE KIRKLAND, WA 98034
Owner/operator country:	US
Owner/operator telephone:	425-821-6918
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	12/31/2001
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No

GALLERIA REFINISHERS (Continued) **1000473956**

Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 07/10/2003
Site name: GALLERIA REFINISHERS
Classification: Not a generator, verified

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 01/29/1998
Evaluation: COMPLIANCE ASSISTANCE VISIT
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

FINDS:

Registry ID: 110005356596

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1000473956
Registry ID: 110005356596
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110005356596

65
West
1/4-1/2
0.372 mi.
1963 ft.

Relative:
Higher

Actual:
135 ft.

ARCO 6031
11450 NE 124TH ST
KIRKLAND, WA 98034

WA CSCSL
WA LUST
WA VCP
WA ALLSITES
RCRA NonGen / NLR
FINDS
ECHO
WA MANIFEST

1004794498
WAD988515250

CSCSL:

Facility ID:	79226415
Region:	Northwest
Lat/Long:	47.711486611 / -122.18703623
Brownfield Status:	Not reported
Rank Status:	N
Clean Up Siteid:	10551
Site Status:	Cleanup Started
PSI?:	Not reported
Contaminant Name:	Benzene
Ground Water:	Confirmed Above Cleanup Level
Surface Water:	Not reported
Soil:	Confirmed Above Cleanup Level
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest

Facility ID:	79226415
Region:	Northwest
Lat/Long:	47.711486611 / -122.18703623
Brownfield Status:	Not reported
Rank Status:	N
Clean Up Siteid:	10551
Site Status:	Cleanup Started
PSI?:	Not reported
Contaminant Name:	Methyl tertiary-butyl ether
Ground Water:	Confirmed Above Cleanup Level
Surface Water:	Not reported
Soil:	Confirmed Above Cleanup Level
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest

Facility ID:	79226415
Region:	Northwest
Lat/Long:	47.711486611 / -122.18703623
Brownfield Status:	Not reported
Rank Status:	N
Clean Up Siteid:	10551
Site Status:	Cleanup Started
PSI?:	Not reported
Contaminant Name:	Petroleum-Gasoline
Ground Water:	Confirmed Above Cleanup Level
Surface Water:	Not reported
Soil:	Confirmed Above Cleanup Level
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported

ARCO 6031 (Continued) **1004794498**

Responsible Unit:	Northwest

LUST:

Facility ID:	79226415
Lust Status Type:	Monitoring
Cleanup Site ID:	10551
Cleanup Unit Type:	Upland
Process Type:	Voluntary Cleanup Program
Cleanup Unit Name:	ARCO FACILITY 6031
Lust Status Date:	07/14/2008
Response Section:	Northwest
Lat/Long:	47.7114866 / -122.18703

VCP:

edr_fstat:	WA
edr_fzip:	98033
edr_fcnty:	KING
edr_zip:	Not reported
Facility ID:	79226415
VCP Status:	Not reported
VCP:	Yes
Ecology Status:	Not reported
NFA Type:	Not reported
Date NFA:	Not reported
Rank:	N
Cleanup Siteid:	10551

edr_fstat:	WA
edr_fzip:	98033
edr_fcnty:	KING
edr_zip:	Not reported
Facility ID:	79226415
VCP Status:	Not reported
VCP:	Yes
Ecology Status:	Not reported
NFA Type:	Not reported
Date NFA:	Not reported
Rank:	N
Cleanup Siteid:	10551

edr_fstat:	WA
edr_fzip:	98033
edr_fcnty:	KING
edr_zip:	Not reported
Facility ID:	79226415
VCP Status:	Not reported
VCP:	Yes
Ecology Status:	Not reported
NFA Type:	Not reported
Date NFA:	Not reported
Rank:	N
Cleanup Siteid:	10551

ALLSITES:

Facility Name:	ARCO 6031
Facility Id:	79226415

ARCO 6031 (Continued) **1004794498**

Interaction:	97289
Interaction 1:	A
Interaction 2:	VOLCLNST
Ecology Program:	TOXICS
Program Data:	ISIS
Facility Alt.:	Arco 6031
Program ID:	NW2462
Date Interaction:	2011-07-14 00:00:00
Date Interaction 3:	Voluntary Cleanup Sites
Latitude:	47.711480971999997
Longitude:	-122.18702133399999

Interaction:	65024
Interaction 1:	A
Interaction 2:	LUST
Ecology Program:	TOXICS
Program Data:	ISIS
Facility Alt.:	Not reported
Program ID:	8796
Date Interaction:	2003-09-08 00:00:00
Date Interaction 3:	LUST Facility
Latitude:	47.711480971999997
Longitude:	-122.18702133399999

Interaction:	90785
Interaction 1:	A
Interaction 2:	HWOTHER
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Arco 6031
Program ID:	WAD988515250
Date Interaction:	2009-12-31 00:00:00
Date Interaction 3:	Haz Waste Management Acti
Latitude:	47.711480971999997
Longitude:	-122.18702133399999

Interaction:	65022
Interaction 1:	I
Interaction 2:	TIER2
Ecology Program:	HAZWASTE
Program Data:	EPCRA
Facility Alt.:	Not reported
Program ID:	WAD988515250
Date Interaction:	1988-01-01 00:00:00
Date Interaction 3:	Emergency/Haz Chem Rpt TI
Latitude:	47.711480971999997
Longitude:	-122.18702133399999

Interaction:	96635
Interaction 1:	I
Interaction 2:	VOLCLNST
Ecology Program:	TOXICS
Program Data:	ISIS

ARCO 6031 (Continued) **1004794498**

Facility Alt.:	Arco 6031
Program ID:	NW2403
Date Interaction:	2011-04-27 00:00:00
Date Interaction 3:	Voluntary Cleanup Sites
Latitude:	47.711480971999997
Longitude:	-122.18702133399999

Interaction:	112805
Interaction 1:	I
Interaction 2:	ENFORFNL
Ecology Program:	TOXICS
Program Data:	DMS
Facility Alt.:	Not reported
Program ID:	Not reported
Date Interaction:	2015-04-14 00:00:00
Date Interaction 3:	Enforcement Final
Latitude:	47.711480971999997
Longitude:	-122.18702133399999

Interaction:	65021
Interaction 1:	A
Interaction 2:	UST
Ecology Program:	TOXICS
Program Data:	UST
Facility Alt.:	Not reported
Program ID:	8796
Date Interaction:	1987-11-01 00:00:00
Date Interaction 3:	Underground Storage Tank
Latitude:	47.711480971999997
Longitude:	-122.18702133399999

Interaction:	65023
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	ARCO 6031
Program ID:	WAD988515250
Date Interaction:	1992-12-04 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.711480971999997
Longitude:	-122.18702133399999

Interaction:	89774
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	ARCO 6031
Program ID:	WAD988515250
Date Interaction:	2009-09-22 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.711480971999997

ARCO 6031 (Continued) **1004794498**

Longitude: -122.18702133399999

RCRA NonGen / NLR:

Date form received by agency:	02/16/2017
Facility name:	ARCO 6031
Facility address:	11450 NE 124TH ST KIRKLAND, WA 98033
EPA ID:	WAD988515250
Mailing address:	1440 PUYALLUP AVENUE TACOMA, WA 98421
Contact:	TIM SHALABI
Contact address:	1440 PUYALLUP AVENUE TACOMA, WA 98421
Contact country:	US
Contact telephone:	253-627-8444
Contact email:	CORPORATE@PYRAMIDGOLD.NET
EPA Region:	10
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	HARBOR OLYMPIC LAND LLC
Owner/operator address:	1440 PUYALLUP AVENUE TACOMA, WA 98421
Owner/operator country:	US
Owner/operator telephone:	253-627-8444
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	09/22/2009
Owner/Op end date:	Not reported

Owner/operator name:	HARBOR OLYMPIC LAND LLC
Owner/operator address:	1440 PUYALLUP AVENUE TACOMA, WA 98421
Owner/operator country:	US
Owner/operator telephone:	253-627-8444
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	09/22/2009
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No

ARCO 6031 (Continued) **1004794498**

Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 02/16/2017
Site name: ARCO 6031
Classification: Not a generator, verified

Date form received by agency: 02/29/2012
Site name: ARCO 6031
Classification: Not a generator, verified

Date form received by agency: 01/27/2011
Site name: ARCO 6031
Classification: Not a generator, verified

Date form received by agency: 02/11/2010
Site name: ARCO 6031
Classification: Not a generator, verified

. Waste code: D018
. Waste name: BENZENE

Date form received by agency: 01/12/2010
Site name: ARCO 6031
Classification: Small Quantity Generator

Date form received by agency: 12/24/2009
Site name: ARCO 6031
Classification: Not a generator, verified

. Waste code: D018
. Waste name: BENZENE

Date form received by agency: 12/31/2007
Site name: ARCO 6031
Classification: Small Quantity Generator

Date form received by agency: 12/31/2005
Site name: ARCO 6031
Classification: Small Quantity Generator

Date form received by agency: 12/31/2003
Site name: ARCO 6031
Classification: Small Quantity Generator

Date form received by agency: 03/28/2001
Site name: ARCO 6031 PSI 6031
Classification: Not a generator, verified

Date form received by agency: 11/13/1992

ARCO 6031 (Continued) **1004794498**

Site name: ARCO 6031
Classification: Small Quantity Generator

. Waste code: D008
. Waste name: LEAD

. Waste code: WT02
. Waste name: WT02

Violation Status: No violations found

FINDS:

Registry ID: 110005382031

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HAZARDOUS WASTE BIENNIAL REPORTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1004794498
Registry ID: 110005382031
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110005382031

WA MANIFEST:
Facility Site ID Number: 79226415
EPA ID: WAD988515250
NAICS: 44711
SWC Desc: Not reported
FWC Desc: D001 & D018D001 & D018
Form Comm: Not reported
Data Year: Not reported
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False

ARCO 6031 (Continued) **1004794498**

Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	409018414
Business Type:	Gas staion with store
Mail Name:	BP West Coast Products LLC
Mail addr line1:	PO Box 6038
Mail city,st,zip:	ARTESIA, CA 90702-6038
Mail country:	UNITED STATES
Legal org name:	BP West Coast Products LLC
Legal org type:	Private
Legal addr line1:	PO BOX 6038
Legal city,st,zip:	ARTESIA, CA 90702-6038
Legal country:	UNITED STATES
Legal phone nbr:	503-524-6191
Legal effective date:	07/11/1996
Land org name:	BP West Coast Products LLC
Land org type:	Private
Land person name:	Not reported
Land addr line1:	PO BOX 6038
Land city,st,zip:	ARTESIA, CA 90702-6038
Land country:	UNITED STATES
Land phone nbr:	503-524-6191
Operator org name:	BP West Coast Products LLC
Operator org type:	Private
Operator addr line1:	PO BOX 6038
Operator city,st,zip:	ARTESIA, CA 90702-6038
Operator country:	UNITED STATES
Operator phone nbr:	503-524-6191
Operator effective date:	07/11/1996
Site contact name:	Ruth Ha
Site contact addr line1:	PO BOX 6038
Site Contact City/State/ Zip:	ARTESIA, CA 90702
Site Contact Country:	UNITED STATES
Site Contact Phone #:	503-524-6191
Site Contact EMail:	harx00@bp.com
Form Contact NAME:	Ruth Ha
Form Contact ADDR LINE1:	PO BOX 6038
Form Contact City,ST,Zip:	ARTESIA, CA 90702
Form Contact Country:	UNITED STATES
Form Contact Phone #:	503-524-6191
Form Contact EMail:	harx00@bp.com
Gen Status CD:	MQG

ARCO 6031 (Continued) **1004794498**

Monthly Generation: False
Batch Generation: True
One Time Generation: False
Transport Own Waste: False
Tranports Other Waste: False
Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Waste Streams Generated:

Facility ID: 79226415
Data Year: 2009
Description: Absorbent, soil and debris with gasoline
Mix: False
Reported Qty: 300 LB
Kilo Qty: 136.08000234057604
Density No: 0
Density Qty: Not reported

Facility ID: 79226415
Data Year: Not reported
Description: Absorbent, soil and debris with gasoline
Mix: No
Reported Qty: 350 LB
Kilo Qty: 158.760002730672
Density No: 0
Density Qty: Not reported

Facility ID: 79226415
Data Year: Not reported
Description: Absorbent, soil and debris with gasoline
Mix: No
Reported Qty: 500 LB
Kilo Qty: 226.80000390096
Density No: 0
Density Qty: Not reported

Facility ID: 79226415
Data Year: Not reported
Description: Gasoline and water mixture
Mix: No
Reported Qty: 110 GAL
Kilo Qty: 416.132647157482
Density No: 8.34
Density Qty: PPG

Shipments Sent:

Facility ID: 79226415
Data Year: Not reported

ARCO 6031 (Continued) **1004794498**

Shipment sent data: 8/1/2007
Reported Qty: 100 LB
Kilo Qty: 45.360000780192

Facility ID: 79226415
Data Year: Not reported
Shipment sent data: 9/28/2007
Reported Qty: 250 LB
Kilo Qty: 113.40000195048

Waste Stream Comments:
Facility ID: 79226415
Data Year: 2006
Comments: A-7&A-8: Petroleum contact water from secondary containment.

Facility Site ID Number: 79226415
EPA ID: WAD988515250
NAICS: 447110
SWC Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
Data Year: 2010
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter defferal: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False
Tax Reg #: 602850362
Business Type: Gas staion with store
Mail Name: Harbor Olympic Land 6031 LLC
Mail addr line1: 2326 Milwaukee Way
Mail city,st,zip: Tacoma, WA 98421
Mail country: UNITED STATES
Legal org name: Harbor Olympic Land LLC
Legal org type: Private
Legal addr line1: 2326 Milwaukee Way

ARCO 6031 (Continued) **1004794498**

Legal city,st,zip:	Tacoma, WA 98421
Legal country:	UNITED STATES
Legal phone nbr:	(253)627-8444
Legal effective date:	09/22/2009
Land org name:	Harbor Olympic Land LLC
Land org type:	Private
Land person name:	Tim Shalabi
Land addr line1:	2326 Milwaukee Way
Land city,st,zip:	Tacoma, WA 98421
Land country:	UNITED STATES
Land phone nbr:	(253)627-8444
Operator org name:	Harbor Olympic Land LLC
Operator org type:	Private
Operator addr line1:	2326 Milwaukee Way
Operator city,st,zip:	Tacoma, WA 98421
Operator country:	UNITED STATES
Operator phone nbr:	(253)627-8444
Operator effective date:	09/22/2009
Site contact name:	Tim Shalabi
Site contact addr line1:	2326 Milwaukee Way
Site Contact City/State/ Zip:	Tacoma, WA 98421
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(253)627-8444
Site Contact EMail:	corporate@pyramidgold.net
Form Contact NAME:	Stuart Pennington
Form Contact ADDR LINE1:	2326 Milwaukee Way
Form Contact City,ST,Zip:	Tacoma, WA 98421
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(253)627-8444
Form Contact EMail:	corporate@pyramidgold.net
Gen Status CD:	XQG
Monthly Generation:	False
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Waste Streams Generated:

Facility ID:	79226415
Data Year:	2009
Description:	Absorbent, soil and debris with gasoline
Mix:	False
Reported Qty:	300 LB
Kilo Qty:	136.08000234057604
Density No:	0
Density Qty:	Not reported

ARCO 6031 (Continued) **1004794498**

Facility ID: 79226415
Data Year: Not reported
Description: Absorbent, soil and debris with gasoline
Mix: No
Reported Qty: 350 LB
Kilo Qty: 158.760002730672
Density No: 0
Density Qty: Not reported

Facility ID: 79226415
Data Year: Not reported
Description: Absorbent, soil and debris with gasoline
Mix: No
Reported Qty: 500 LB
Kilo Qty: 226.80000390096
Density No: 0
Density Qty: Not reported

Facility ID: 79226415
Data Year: Not reported
Description: Gasoline and water mixture
Mix: No
Reported Qty: 110 GAL
Kilo Qty: 416.132647157482
Density No: 8.34
Density Qty: PPG

Shipments Sent:
Facility ID: 79226415
Data Year: Not reported
Shipment sent data: 8/1/2007
Reported Qty: 100 LB
Kilo Qty: 45.360000780192

Facility ID: 79226415
Data Year: Not reported
Shipment sent data: 9/28/2007
Reported Qty: 250 LB
Kilo Qty: 113.40000195048

Waste Stream Comments:
Facility ID: 79226415
Data Year: 2006
Comments: A-7&A-8: Petroleum contact water from secondary containment.

Facility Site ID Number: 79226415
EPA ID: WAD988515250
NAICS: 447110
SWC Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
Data Year: 2017
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False

ARCO 6031 (Continued) **1004794498**

Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	Not reported
Business Type:	Gas staion with store
Mail Name:	Harbor Olympic Land 6031 LLC
Mail addr line1:	1440 Puyallup Avenue
Mail city,st,zip:	Tacoma, WA 98421
Mail country:	UNITED STATES
Legal org name:	Harbor Olympic Land LLC
Legal org type:	Private
Legal addr line1:	1440 Puyallup Avenue
Legal city,st,zip:	Tacoma, WA 98421
Legal country:	UNITED STATES
Legal phone nbr:	(253)627-8444
Legal effective date:	09/22/2009
Land org name:	Harbor Olympic Land LLC
Land org type:	Private
Land person name:	Tim Shalabi
Land addr line1:	1440 Puyallup Avenue
Land city,st,zip:	Tacoma, WA 98421
Land country:	UNITED STATES
Land phone nbr:	(253)627-8444
Operator org name:	Harbor Olympic Land LLC
Operator org type:	Private
Operator addr line1:	1440 Puyallup Avenue
Operator city,st,zip:	Tacoma, WA 98421
Operator country:	UNITED STATES
Operator phone nbr:	(253)572-4675
Operator effective date:	09/22/2009
Site contact name:	Tim Shalabi
Site contact addr line1:	1440 Puyallup Avenue
Site Contact City/State/ Zip:	Tacoma, WA 98421
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(253)572-4675
Site Contact EMail:	corporate@pyramidgold.net
Form Contact NAME:	Tim Shalabi
Form Contact ADDR LINE1:	1440 Puyallup Avenue

ARCO 6031 (Continued) **1004794498**

Form Contact City,ST,Zip:	Tacoma, WA 98421
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(253)572-4675
Form Contact EMail:	corporate@pyramidgold.net
Gen Status CD:	XQG
Monthly Generation:	False
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Waste Streams Generated:

Facility ID:	79226415
Data Year:	2009
Description:	Absorbent, soil and debris with gasoline
Mix:	False
Reported Qty:	300 LB
Kilo Qty:	136.08000234057604
Density No:	0
Density Qty:	Not reported

Facility ID:	79226415
Data Year:	Not reported
Description:	Absorbent, soil and debris with gasoline
Mix:	No
Reported Qty:	350 LB
Kilo Qty:	158.760002730672
Density No:	0
Density Qty:	Not reported

Facility ID:	79226415
Data Year:	Not reported
Description:	Absorbent, soil and debris with gasoline
Mix:	No
Reported Qty:	500 LB
Kilo Qty:	226.80000390096
Density No:	0
Density Qty:	Not reported

Facility ID:	79226415
Data Year:	Not reported
Description:	Gasoline and water mixture
Mix:	No
Reported Qty:	110 GAL
Kilo Qty:	416.132647157482
Density No:	8.34
Density Qty:	PPG

ARCO 6031 (Continued) **1004794498**

Shipments Sent:

Facility ID:	79226415
Data Year:	Not reported
Shipment sent data:	8/1/2007
Reported Qty:	100 LB
Kilo Qty:	45.360000780192

Facility ID:	79226415
Data Year:	Not reported
Shipment sent data:	9/28/2007
Reported Qty:	250 LB
Kilo Qty:	113.40000195048

Waste Stream Comments:

Facility ID:	79226415
Data Year:	2006
Comments:	A-7&A-8: Petroleum contact water from secondary containment.

Facility Site ID Number:	79226415
EPA ID:	WAD988515250
NAICS:	44711
SWC Desc:	Not reported
FWC Desc:	D001 & D018D001 & D018
Form Comm:	Not reported
Data Year:	Not reported
Permit by Rule:	FALSE
Treatment by Generator:	FALSE
Mixed radioactive waste:	FALSE
Importer of hazardous waste:	FALSE
Immediate recycler:	FALSE
Treatment/Storage/Disposal/Recycling Facility:	FALSE
Generator of dangerous fuel waste:	FALSE
Generator marketing to burner:	FALSE
Other marketers (i.e., blender, distributor, etc.):	FALSE
Utility boiler burner:	FALSE
Industry boiler burner:	FALSE
Industrial Furnace:	FALSE
Smelter defferal:	FALSE
Universal waste - batteries - generate:	FALSE
Universal waste - thermostats - generate:	FALSE
Universal waste - mercury - generate:	FALSE
Universal waste - lamps - generate:	FALSE
Universal waste - batteries - accumulate:	FALSE
Universal waste - thermostats - accumulate:	FALSE
Universal waste - mercury - accumulate:	FALSE
Universal waste - lamps - accumulate:	FALSE
Destination Facility for Universal Waste:	FALSE
Off-specification used oil burner - utility boiler:	FALSE
Off-specification used oil burner - industrial boiler:	FALSE
Off-specification used oil burner - industrial furnace:	FALSE
Tax Reg #:	409018414
Business Type:	Gas staion with store
Mail Name:	BP West Coast Products LLC
Mail addr line1:	PO Box 6038
Mail city,st,zip:	ARTESIA, CA 90702-6038

ARCO 6031 (Continued) **1004794498**

Mail country:	UNITED STATES
Legal org name:	BP West Coast Products LLC
Legal org type:	Private
Legal addr line1:	PO BOX 6038
Legal city,st,zip:	ARTESIA, CA 90702-6038
Legal country:	UNITED STATES
Legal phone nbr:	(714)670-3958
Legal effective date:	07/11/1996
Land org name:	BP West Coast Products LLC
Land org type:	Private
Land person name:	Teresa Santana
Land addr line1:	PO BOX 6038
Land city,st,zip:	ARTESIA, CA 90702-6038
Land country:	UNITED STATES
Land phone nbr:	(714) 670-3958
Operator org name:	BP West Coast Products LLC
Operator org type:	Private
Operator addr line1:	PO BOX 6038
Operator city,st,zip:	ARTESIA, CA 90702-6038
Operator country:	UNITED STATES
Operator phone nbr:	(714)670-3958
Operator effective date:	07/11/1996
Site contact name:	Teresa Station
Site contact addr line1:	PO BOX 6038
Site Contact City/State/ Zip:	ARTESIA, CA 90702
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(714) 670-3958
Site Contact EMail:	santanta@bp.com
Form Contact NAME:	Teresa Station
Form Contact ADDR LINE1:	PO BOX 6038
Form Contact City,ST,Zip:	ARTESIA, CA 90702
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(714) 670-3958
Form Contact EMail:	santanta@bp.com
Gen Status CD:	MQG
Monthly Generation:	FALSE
Batch Generation:	TRUE
One Time Generation:	FALSE
Transport Own Waste:	FALSE
Tranports Other Waste:	FALSE
Recycler Onsite:	FALSE
Transfer Facility:	FALSE
Other Exemption:	Not reported
UW Battery Gen:	FALSE
Used Oil Transporter:	FALSE
Used Oil Transfer Facility:	FALSE
Used Oil Processor:	FALSE
Used Oil Refiner:	FALSE
Used Oil Fuel Marketer Directs Shipments:	FALSE
Used Oil Fuel Marketer Meets Specs:	FALSE

Waste Streams Generated:

Facility ID:	79226415
Data Year:	2009
Description:	Absorbent, soil and debris with gasoline
Mix:	False
Reported Qty:	300 LB

ARCO 6031 (Continued) **1004794498**

Kilo Qty: 136.08000234057604
Density No: 0
Density Qty: Not reported

Facility ID: 79226415
Data Year: Not reported
Description: Absorbent, soil and debris with gasoline
Mix: No
Reported Qty: 350 LB
Kilo Qty: 158.760002730672
Density No: 0
Density Qty: Not reported

Facility ID: 79226415
Data Year: Not reported
Description: Absorbent, soil and debris with gasoline
Mix: No
Reported Qty: 500 LB
Kilo Qty: 226.80000390096
Density No: 0
Density Qty: Not reported

Facility ID: 79226415
Data Year: Not reported
Description: Gasoline and water mixture
Mix: No
Reported Qty: 110 GAL
Kilo Qty: 416.132647157482
Density No: 8.34
Density Qty: PPG

Shipments Sent:
Facility ID: 79226415
Data Year: Not reported
Shipment sent data: 8/1/2007
Reported Qty: 100 LB
Kilo Qty: 45.360000780192

Facility ID: 79226415
Data Year: Not reported
Shipment sent data: 9/28/2007
Reported Qty: 250 LB
Kilo Qty: 113.40000195048

Waste Stream Comments:
Facility ID: 79226415
Data Year: 2006
Comments: A-7&A-8: Petroleum contact water from secondary containment.

Facility Site ID Number: 79226415
EPA ID: WAD988515250
NAICS: 447110
SWC Desc: Not reported
FWC Desc: D018
Form Comm: Not reported

ARCO 6031 (Continued) **1004794498**

Data Year:	2009
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	409018414
Business Type:	Gas staion with store
Mail Name:	BP West Coast Products LLC
Mail addr line1:	PO Box 6038
Mail city,st,zip:	ARTESIA, CA 90702-6038
Mail country:	UNITED STATES
Legal org name:	BP West Coast Products LLC
Legal org type:	Private
Legal addr line1:	PO BOX 6038
Legal city,st,zip:	ARTESIA, CA 90702-6038
Legal country:	UNITED STATES
Legal phone nbr:	(714)670-3958
Legal effective date:	07/11/1996
Land org name:	BP West Coast Products LLC
Land org type:	Private
Land person name:	Not reported
Land addr line1:	PO BOX 6038
Land city,st,zip:	ARTESIA, CA 90702-6038
Land country:	UNITED STATES
Land phone nbr:	(714)670-3958
Operator org name:	BP West Coast Products LLC
Operator org type:	Private
Operator addr line1:	PO BOX 6038
Operator city,st,zip:	ARTESIA, CA 90702-6038
Operator country:	UNITED STATES
Operator phone nbr:	(714)670-3958
Operator effective date:	07/11/1996
Site contact name:	Bratzo Basagoitia
Site contact addr line1:	PO BOX 6038
Site Contact City/State/ Zip:	ARTESIA, CA 90702
Site Contact Country:	UNITED STATES

ARCO 6031 (Continued) **1004794498**

Site Contact Phone #:	(714)670-3958
Site Contact EMail:	basabm@bp.com
Form Contact NAME:	Bratzo Basagoitia
Form Contact ADDR LINE1:	PO BOX 6038
Form Contact City,ST,Zip:	ARTESIA, CA 90702
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(714)670-3958
Form Contact EMail:	basabm@bp.com
Gen Status CD:	MQG
Monthly Generation:	False
Batch Generation:	True
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Waste Streams Generated:

Facility ID:	79226415
Data Year:	2009
Description:	Absorbent, soil and debris with gasoline
Mix:	False
Reported Qty:	300 LB
Kilo Qty:	136.08000234057604
Density No:	0
Density Qty:	Not reported

Facility ID:	79226415
Data Year:	Not reported
Description:	Absorbent, soil and debris with gasoline
Mix:	No
Reported Qty:	350 LB
Kilo Qty:	158.760002730672
Density No:	0
Density Qty:	Not reported

Facility ID:	79226415
Data Year:	Not reported
Description:	Absorbent, soil and debris with gasoline
Mix:	No
Reported Qty:	500 LB
Kilo Qty:	226.80000390096
Density No:	0
Density Qty:	Not reported

Facility ID:	79226415
Data Year:	Not reported
Description:	Gasoline and water mixture
Mix:	No

ARCO 6031 (Continued) **1004794498**

Reported Qty: 110 GAL
Kilo Qty: 416.132647157482
Density No: 8.34
Density Qty: PPG

Shipments Sent:
Facility ID: 79226415
Data Year: Not reported
Shipment sent data: 8/1/2007
Reported Qty: 100 LB
Kilo Qty: 45.360000780192

Facility ID: 79226415
Data Year: Not reported
Shipment sent data: 9/28/2007
Reported Qty: 250 LB
Kilo Qty: 113.40000195048

Waste Stream Comments:
Facility ID: 79226415
Data Year: 2006
Comments: A-7&A-8: Petroleum contact water from secondary containment.

Facility Site ID Number: 79226415
EPA ID: WAD988515250
NAICS: 447110
SWC Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
Data Year: 2016
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter defferal: False
Universal waste - batteries - generate: False
Universal waste - thermostats - generate: False
Universal waste - mercury - generate: False
Universal waste - lamps - generate: False
Universal waste - batteries - accumulate: False
Universal waste - thermostats - accumulate: False
Universal waste - mercury - accumulate: False
Universal waste - lamps - accumulate: False
Destination Facility for Universal Waste: False
Off-specification used oil burner - utility boiler: False
Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False

ARCO 6031 (Continued) **1004794498**

Tax Reg #:	602850362
Business Type:	Gas staion with store
Mail Name:	Harbor Olympic Land 6031 LLC
Mail addr line1:	1440 Puyallup Avenue
Mail city,st,zip:	Tacoma, WA 98421
Mail country:	UNITED STATES
Legal org name:	Harbor Olympic Land LLC
Legal org type:	Private
Legal addr line1:	1440 Puyallup Avenue
Legal city,st,zip:	Tacoma, WA 98421
Legal country:	UNITED STATES
Legal phone nbr:	(253)627-8444
Legal effective date:	09/22/2009
Land org name:	Harbor Olympic Land LLC
Land org type:	Private
Land person name:	Tim Shalabi
Land addr line1:	1440 Puyallup Avenue
Land city,st,zip:	Tacoma, WA 98421
Land country:	UNITED STATES
Land phone nbr:	(253)627-8444
Operator org name:	Harbor Olympic Land LLC
Operator org type:	Private
Operator addr line1:	1440 Puyallup Avenue
Operator city,st,zip:	Tacoma, WA 98421
Operator country:	UNITED STATES
Operator phone nbr:	(253)627-8444
Operator effective date:	09/22/2009
Site contact name:	Tim Shalabi
Site contact addr line1:	1440 Puyallup Avenue
Site Contact City/State/ Zip:	Tacoma, WA 98421
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(253)627-8444
Site Contact EMail:	corporate@pyramidgold.net
Form Contact NAME:	Tim Shalabi
Form Contact ADDR LINE1:	1440 Puyallup Avenue
Form Contact City,ST,Zip:	Tacoma, WA 98421
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(253)627-8444
Form Contact EMail:	corporate@pyramidgold.net
Gen Status CD:	XQG
Monthly Generation:	False
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

ARCO 6031 (Continued) **1004794498**

Waste Streams Generated:

Facility ID:	79226415
Data Year:	2009
Description:	Absorbent, soil and debris with gasoline
Mix:	False
Reported Qty:	300 LB
Kilo Qty:	136.08000234057604
Density No:	0
Density Qty:	Not reported

Facility ID:	79226415
Data Year:	Not reported
Description:	Absorbent, soil and debris with gasoline
Mix:	No
Reported Qty:	350 LB
Kilo Qty:	158.760002730672
Density No:	0
Density Qty:	Not reported

Facility ID:	79226415
Data Year:	Not reported
Description:	Absorbent, soil and debris with gasoline
Mix:	No
Reported Qty:	500 LB
Kilo Qty:	226.80000390096
Density No:	0
Density Qty:	Not reported

Facility ID:	79226415
Data Year:	Not reported
Description:	Gasoline and water mixture
Mix:	No
Reported Qty:	110 GAL
Kilo Qty:	416.132647157482
Density No:	8.34
Density Qty:	PPG

Shipments Sent:

Facility ID:	79226415
Data Year:	Not reported
Shipment sent data:	8/1/2007
Reported Qty:	100 LB
Kilo Qty:	45.360000780192

Facility ID:	79226415
Data Year:	Not reported
Shipment sent data:	9/28/2007
Reported Qty:	250 LB
Kilo Qty:	113.40000195048

Waste Stream Comments:

Facility ID:	79226415
Data Year:	2006
Comments:	A-7&A-8: Petroleum contact water from secondary containment.

ARCO 6031 (Continued) **1004794498**

Facility Site ID Number:	79226415
EPA ID:	WAD988515250
NAICS:	447110
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	2015
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	602850362
Business Type:	Gas staion with store
Mail Name:	Harbor Olympic Land 6031 LLC
Mail addr line1:	1440 Puyallup Avenue
Mail city,st,zip:	Tacoma, WA 98421
Mail country:	UNITED STATES
Legal org name:	Harbor Olympic Land LLC
Legal org type:	Private
Legal addr line1:	1440 Puyallup Avenue
Legal city,st,zip:	Tacoma, WA 98421
Legal country:	UNITED STATES
Legal phone nbr:	(253)627-8444
Legal effective date:	09/22/2009
Land org name:	Harbor Olympic Land LLC
Land org type:	Private
Land person name:	Tim Shalabi
Land addr line1:	1440 Puyallup Avenue
Land city,st,zip:	Tacoma, WA 98421
Land country:	UNITED STATES
Land phone nbr:	(253)627-8444
Operator org name:	Harbor Olympic Land LLC
Operator org type:	Private
Operator addr line1:	1440 Puyallup Avenue
Operator city,st,zip:	Tacoma, WA 98421
Operator country:	UNITED STATES

ARCO 6031 (Continued) **1004794498**

Operator phone nbr:	(253)627-8444
Operator effective date:	09/22/2009
Site contact name:	Tim Shalabi
Site contact addr line1:	1440 Puyallup Avenue
Site Contact City/State/ Zip:	Tacoma, WA 98421
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(253)627-8444
Site Contact EMail:	corporate@pyramidgold.net
Form Contact NAME:	Tim Shalabi
Form Contact ADDR LINE1:	1440 Puyallup Avenue
Form Contact City,ST,Zip:	Tacoma, WA 98421
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(253)627-8444
Form Contact EMail:	corporate@pyramidgold.net
Gen Status CD:	XQG
Monthly Generation:	False
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Waste Streams Generated:

Facility ID:	79226415
Data Year:	2009
Description:	Absorbent, soil and debris with gasoline
Mix:	False
Reported Qty:	300 LB
Kilo Qty:	136.08000234057604
Density No:	0
Density Qty:	Not reported

Facility ID:	79226415
Data Year:	Not reported
Description:	Absorbent, soil and debris with gasoline
Mix:	No
Reported Qty:	350 LB
Kilo Qty:	158.760002730672
Density No:	0
Density Qty:	Not reported

Facility ID:	79226415
Data Year:	Not reported
Description:	Absorbent, soil and debris with gasoline
Mix:	No
Reported Qty:	500 LB
Kilo Qty:	226.80000390096
Density No:	0

ARCO 6031 (Continued) **1004794498**

Density Qty: Not reported

Facility ID: 79226415
Data Year: Not reported
Description: Gasoline and water mixture
Mix: No
Reported Qty: 110 GAL
Kilo Qty: 416.132647157482
Density No: 8.34
Density Qty: PPG

Shipments Sent:
Facility ID: 79226415
Data Year: Not reported
Shipment sent data: 8/1/2007
Reported Qty: 100 LB
Kilo Qty: 45.360000780192

Facility ID: 79226415
Data Year: Not reported
Shipment sent data: 9/28/2007
Reported Qty: 250 LB
Kilo Qty: 113.40000195048

Waste Stream Comments:
Facility ID: 79226415
Data Year: 2006
Comments: A-7&A-8: Petroleum contact water from secondary containment.

Facility Site ID Number: 79226415
EPA ID: WAD988515250
NAICS: 44711
SWC Desc: Not reported
FWC Desc: D001 & D018D001 & D018
Form Comm: Not reported
Data Year: Not reported
Permit by Rule: No
Treatment by Generator: No
Mixed radioactive waste: No
Importer of hazardous waste: No
Immediate recycler: No
Treatment/Storage/Disposal/Recycling Facility: No
Generator of dangerous fuel waste: No
Generator marketing to burner: No
Other marketers (i.e., blender, distributor, etc.): No
Utility boiler burner: No
Industry boiler burner: No
Industrial Furnace: No
Smelter defferal: No
Universal waste - batteries - generate: No
Universal waste - thermostats - generate: No
Universal waste - mercury - generate: No
Universal waste - lamps - generate: No
Universal waste - batteries - accumulate: No
Universal waste - thermostats - accumulate: No

ARCO 6031 (Continued) **1004794498**

Universal waste - mercury - accumulate:	No
Universal waste - lamps - accumulate:	No
Destination Facility for Universal Waste:	No
Off-specification used oil burner - utility boiler:	No
Off-specification used oil burner - industrial boiler:	No
Off-specification used oil burner - industrial furnace:	No
Tax Reg #:	409018414
Business Type:	Gas staion with store
Mail Name:	BP West Coast Products LLC
Mail addr line1:	PO Box 6038
Mail city,st,zip:	ARTESIA, CA 90702-6038
Mail country:	UNITED STATES
Legal org name:	BP West Coast Products LLC
Legal org type:	Private
Legal addr line1:	PO BOX 6038
Legal city,st,zip:	ARTESIA, CA 90702-6038
Legal country:	UNITED STATES
Legal phone nbr:	(714)670-3958
Legal effective date:	07/11/1996
Land org name:	BP West Coast Products LLC
Land org type:	Private
Land person name:	Teresa Santana
Land addr line1:	PO BOX 6038
Land city,st,zip:	ARTESIA, CA 90702-6038
Land country:	UNITED STATES
Land phone nbr:	(714) 670-3958
Operator org name:	BP West Coast Products LLC
Operator org type:	Private
Operator addr line1:	PO BOX 6038
Operator city,st,zip:	ARTESIA, CA 90702-6038
Operator country:	UNITED STATES
Operator phone nbr:	(714)670-3958
Operator effective date:	07/11/1996
Site contact name:	Teresa Station
Site contact addr line1:	PO BOX 6038
Site Contact City/State/ Zip:	ARTESIA, CA 90702
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(714) 670-3958
Site Contact EMail:	santanta@bp.com
Form Contact NAME:	Teresa Station
Form Contact ADDR LINE1:	PO BOX 6038
Form Contact City,ST,Zip:	ARTESIA, CA 90702
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(714) 670-3958
Form Contact EMail:	santanta@bp.com
Gen Status CD:	MQG
Monthly Generation:	No
Batch Generation:	Yes
One Time Generation:	No
Transport Own Waste:	No
Tranports Other Waste:	No
Recycler Onsite:	No
Transfer Facility:	No
Other Exemption:	Not reported
UW Battery Gen:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No

ARCO 6031 (Continued) **1004794498**

Used Oil Processor: No
Used Oil Refiner: No
Used Oil Fuel Marketer Directs Shipments: No
Used Oil Fuel Marketer Meets Specs: No

Waste Streams Generated:

Facility ID: 79226415
Data Year: 2009
Description: Absorbent, soil and debris with gasoline
Mix: False
Reported Qty: 300 LB
Kilo Qty: 136.08000234057604
Density No: 0
Density Qty: Not reported

Facility ID: 79226415
Data Year: Not reported
Description: Absorbent, soil and debris with gasoline
Mix: No
Reported Qty: 350 LB
Kilo Qty: 158.760002730672
Density No: 0
Density Qty: Not reported

Facility ID: 79226415
Data Year: Not reported
Description: Absorbent, soil and debris with gasoline
Mix: No
Reported Qty: 500 LB
Kilo Qty: 226.80000390096
Density No: 0
Density Qty: Not reported

Facility ID: 79226415
Data Year: Not reported
Description: Gasoline and water mixture
Mix: No
Reported Qty: 110 GAL
Kilo Qty: 416.132647157482
Density No: 8.34
Density Qty: PPG

Shipments Sent:

Facility ID: 79226415
Data Year: Not reported
Shipment sent data: 8/1/2007
Reported Qty: 100 LB
Kilo Qty: 45.360000780192

Facility ID: 79226415
Data Year: Not reported
Shipment sent data: 9/28/2007
Reported Qty: 250 LB
Kilo Qty: 113.40000195048

ARCO 6031 (Continued) **1004794498**

Waste Stream Comments:

Facility ID:	79226415
Data Year:	2006
Comments:	A-7&A-8: Petroleum contact water from secondary containment.

Facility Site ID Number:	79226415
EPA ID:	WAD988515250
NAICS:	447110
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	2009
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	602850362
Business Type:	Gas staion with store
Mail Name:	Harbor Olympic Land 6031 LLC
Mail addr line1:	2326 Milwaukee Way
Mail city,st,zip:	Tacoma, WA 98421
Mail country:	UNITED STATES
Legal org name:	Harbor Olympic Land LLC
Legal org type:	Private
Legal addr line1:	2326 Milwaukee Way
Legal city,st,zip:	Tacoma, WA 98421
Legal country:	UNITED STATES
Legal phone nbr:	(360)815-2726
Legal effective date:	09/22/2009
Land org name:	Harbor Olympic Land LLC
Land org type:	Private
Land person name:	Stuart Pennington
Land addr line1:	2326 Milwaukee Way
Land city,st,zip:	Tacoma, WA 98421
Land country:	UNITED STATES

ARCO 6031 (Continued) **1004794498**

Land phone nbr:	(360)815-2726
Operator org name:	Harbor Olympic Land LLC
Operator org type:	Private
Operator addr line1:	2326 Milwaukee Way
Operator city,st,zip:	Tacoma, WA 98421
Operator country:	UNITED STATES
Operator phone nbr:	(360)815-2726
Operator effective date:	09/22/2009
Site contact name:	Stuart Pennington
Site contact addr line1:	2326 Milwaukee Way
Site Contact City/State/ Zip:	Tacoma, WA 98421
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(360)815-2726
Site Contact EMail:	sepennington61@gmail.com
Form Contact NAME:	Stuart Pennington
Form Contact ADDR LINE1:	2326 Milwaukee Way
Form Contact City,ST,Zip:	Tacoma, WA 98421
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(360)815-2726
Form Contact EMail:	sepennington61@gmail.com
Gen Status CD:	XQG
Monthly Generation:	False
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Waste Streams Generated:

Facility ID:	79226415
Data Year:	2009
Description:	Absorbent, soil and debris with gasoline
Mix:	False
Reported Qty:	300 LB
Kilo Qty:	136.08000234057604
Density No:	0
Density Qty:	Not reported

Facility ID:	79226415
Data Year:	Not reported
Description:	Absorbent, soil and debris with gasoline
Mix:	No
Reported Qty:	350 LB
Kilo Qty:	158.760002730672
Density No:	0
Density Qty:	Not reported

Facility ID:	79226415

ARCO 6031 (Continued) **1004794498**

Data Year: Not reported
Description: Absorbent, soil and debris with gasoline
Mix: No
Reported Qty: 500 LB
Kilo Qty: 226.80000390096
Density No: 0
Density Qty: Not reported

Facility ID: 79226415
Data Year: Not reported
Description: Gasoline and water mixture
Mix: No
Reported Qty: 110 GAL
Kilo Qty: 416.132647157482
Density No: 8.34
Density Qty: PPG

Shipments Sent:
Facility ID: 79226415
Data Year: Not reported
Shipment sent data: 8/1/2007
Reported Qty: 100 LB
Kilo Qty: 45.360000780192

Facility ID: 79226415
Data Year: Not reported
Shipment sent data: 9/28/2007
Reported Qty: 250 LB
Kilo Qty: 113.40000195048

Waste Stream Comments:
Facility ID: 79226415
Data Year: 2006
Comments: A-7&A-8: Petroleum contact water from secondary containment.

Facility Site ID Number: 79226415
EPA ID: WAD988515250
NAICS: 447110
SWC Desc: Not reported
FWC Desc: Not reported
Form Comm: Not reported
Data Year: 2011
Permit by Rule: False
Treatment by Generator: False
Mixed radioactive waste: False
Importer of hazardous waste: False
Immediate recycler: False
Treatment/Storage/Disposal/Recycling Facility: False
Generator of dangerous fuel waste: False
Generator marketing to burner: False
Other marketers (i.e., blender, distributor, etc.): False
Utility boiler burner: False
Industry boiler burner: False
Industrial Furnace: False
Smelter defferal: False

ARCO 6031 (Continued) **1004794498**

Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	602850362
Business Type:	Gas staion with store
Mail Name:	Harbor Olympic Land 6031 LLC
Mail addr line1:	2326 Milwaukee Way
Mail city,st,zip:	Tacoma, WA 98421
Mail country:	UNITED STATES
Legal org name:	Harbor Olympic Land LLC
Legal org type:	Private
Legal addr line1:	2326 Milwaukee Way
Legal city,st,zip:	Tacoma, WA 98421
Legal country:	UNITED STATES
Legal phone nbr:	(253)627-8444
Legal effective date:	09/22/2009
Land org name:	Harbor Olympic Land LLC
Land org type:	Private
Land person name:	Tim Shalabi
Land addr line1:	2326 Milwaukee Way
Land city,st,zip:	Tacoma, WA 98421
Land country:	UNITED STATES
Land phone nbr:	(253)627-8444
Operator org name:	Harbor Olympic Land LLC
Operator org type:	Private
Operator addr line1:	2326 Milwaukee Way
Operator city,st,zip:	Tacoma, WA 98421
Operator country:	UNITED STATES
Operator phone nbr:	(253)627-8444
Operator effective date:	09/22/2009
Site contact name:	Tim Shalabi
Site contact addr line1:	2326 Milwaukee Way
Site Contact City/State/ Zip:	Tacoma, WA 98421
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(253)627-8444
Site Contact EMail:	corporate@pyramidgold.net
Form Contact NAME:	Stuart Pennington
Form Contact ADDR LINE1:	2326 Milwaukee Way
Form Contact City,ST,Zip:	Tacoma, WA 98421
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(253)627-8444
Form Contact EMail:	corporate@pyramidgold.net
Gen Status CD:	XQG
Monthly Generation:	False
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False

ARCO 6031 (Continued) **1004794498**

Recycler Onsite: False
Transfer Facility: False
Other Exemption: Not reported
UW Battery Gen: False
Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

Waste Streams Generated:

Facility ID: 79226415
Data Year: 2009
Description: Absorbent, soil and debris with gasoline
Mix: False
Reported Qty: 300 LB
Kilo Qty: 136.08000234057604
Density No: 0
Density Qty: Not reported

Facility ID: 79226415
Data Year: Not reported
Description: Absorbent, soil and debris with gasoline
Mix: No
Reported Qty: 350 LB
Kilo Qty: 158.760002730672
Density No: 0
Density Qty: Not reported

Facility ID: 79226415
Data Year: Not reported
Description: Absorbent, soil and debris with gasoline
Mix: No
Reported Qty: 500 LB
Kilo Qty: 226.80000390096
Density No: 0
Density Qty: Not reported

Facility ID: 79226415
Data Year: Not reported
Description: Gasoline and water mixture
Mix: No
Reported Qty: 110 GAL
Kilo Qty: 416.132647157482
Density No: 8.34
Density Qty: PPG

Shipments Sent:

Facility ID: 79226415
Data Year: Not reported
Shipment sent data: 8/1/2007
Reported Qty: 100 LB
Kilo Qty: 45.360000780192

Facility ID: 79226415

ARCO 6031 (Continued) **1004794498**

Data Year:	Not reported
Shipment sent data:	9/28/2007
Reported Qty:	250 LB
Kilo Qty:	113.40000195048

Waste Stream Comments:

Facility ID:	79226415
Data Year:	2006
Comments:	A-7&A-8: Petroleum contact water from secondary containment.

Facility Site ID Number:	79226415
EPA ID:	WAD988515250
NAICS:	447110
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	2012
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	602850362
Business Type:	Gas staion with store
Mail Name:	Harbor Olympic Land 6031 LLC
Mail addr line1:	2326 Milwaukee Way
Mail city,st,zip:	Tacoma, WA 98421
Mail country:	UNITED STATES
Legal org name:	Harbor Olympic Land LLC
Legal org type:	Private
Legal addr line1:	2326 Milwaukee Way
Legal city,st,zip:	Tacoma, WA 98421
Legal country:	UNITED STATES
Legal phone nbr:	(253)627-8444
Legal effective date:	09/22/2009
Land org name:	Harbor Olympic Land LLC

ARCO 6031 (Continued) **1004794498**

Land org type:	Private
Land person name:	Tim Shalabi
Land addr line1:	2326 Milwaukee Way
Land city,st,zip:	Tacoma, WA 98421
Land country:	UNITED STATES
Land phone nbr:	(253)627-8444
Operator org name:	Harbor Olympic Land LLC
Operator org type:	Private
Operator addr line1:	2326 Milwaukee Way
Operator city,st,zip:	Tacoma, WA 98421
Operator country:	UNITED STATES
Operator phone nbr:	(253)627-8444
Operator effective date:	09/22/2009
Site contact name:	Tim Shalabi
Site contact addr line1:	2326 Milwaukee Way
Site Contact City/State/ Zip:	Tacoma, WA 98421
Site Contact Country:	UNITED STATES
Site Contact Phone #:	(253)627-8444
Site Contact EMail:	corporate@pyramidgold.net
Form Contact NAME:	Stuart Pennington
Form Contact ADDR LINE1:	2326 Milwaukee Way
Form Contact City,ST,Zip:	Tacoma, WA 98421
Form Contact Country:	UNITED STATES
Form Contact Phone #:	(253)627-8444
Form Contact EMail:	corporate@pyramidgold.net
Gen Status CD:	XQG
Monthly Generation:	False
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Waste Streams Generated:

Facility ID:	79226415
Data Year:	2009
Description:	Absorbent, soil and debris with gasoline
Mix:	False
Reported Qty:	300 LB
Kilo Qty:	136.08000234057604
Density No:	0
Density Qty:	Not reported

Facility ID:	79226415
Data Year:	Not reported
Description:	Absorbent, soil and debris with gasoline
Mix:	No
Reported Qty:	350 LB

ARCO 6031 (Continued) **1004794498**

Kilo Qty: 158.760002730672
Density No: 0
Density Qty: Not reported

Facility ID: 79226415
Data Year: Not reported
Description: Absorbent, soil and debris with gasoline
Mix: No
Reported Qty: 500 LB
Kilo Qty: 226.80000390096
Density No: 0
Density Qty: Not reported

Facility ID: 79226415
Data Year: Not reported
Description: Gasoline and water mixture
Mix: No
Reported Qty: 110 GAL
Kilo Qty: 416.132647157482
Density No: 8.34
Density Qty: PPG

Shipments Sent:
Facility ID: 79226415
Data Year: Not reported
Shipment sent data: 8/1/2007
Reported Qty: 100 LB
Kilo Qty: 45.360000780192

Facility ID: 79226415
Data Year: Not reported
Shipment sent data: 9/28/2007
Reported Qty: 250 LB
Kilo Qty: 113.40000195048

Waste Stream Comments:
Facility ID: 79226415
Data Year: 2006
Comments: A-7&A-8: Petroleum contact water from secondary containment.

66
ENE
1/4-1/2
0.373 mi.
1969 ft.

CIR QUICK INCORPORATED
12817 NE 126TH PL
KIRKLAND, WA 98034

WA ALLSITES **1000139524**
RCRA NonGen / NLR **WAD981768294**
FINDS
ECHO

Relative:
Higher

Actual:
161 ft.

ALLSITES:
Facility Name: CIR QUICK INC
Facility Id: 54434341

Interaction: 50751
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported

CIR QUICK INCORPORATED (Continued) **1000139524**

Program ID:	WAD981768294
Date Interaction:	1997-01-01 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.713434358000001
Longitude:	-122.165915107

Interaction:	50750
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD981768294
Date Interaction:	1987-07-21 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.713434358000001
Longitude:	-122.165915107

RCRA NonGen / NLR:

Date form received by agency:	03/30/1998
Facility name:	CIR QUICK INC
Facility address:	12817 NE 126TH PL KIRKLAND, WA 98034
EPA ID:	WAD981768294
Mailing address:	PO BOX 875 REDMOND, WA 98073
Contact:	DAVID NANLE
Contact address:	21817 NE 126TH PL KIRKLAND, WA 98034
Contact country:	US
Contact telephone:	425-821-6247
Contact email:	Not reported
EPA Region:	10
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	RYDER, DAVE
Owner/operator address:	PO BOX 875 REDMOND, WA 98073
Owner/operator country:	US
Owner/operator telephone:	206-882-1873
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	WILLOWS PARK ASSOTIATES
Owner/operator address:	PO BOX 5003 BELLEVUE, WA 98009
Owner/operator country:	US

CIR QUICK INCORPORATED (Continued) **1000139524**

Owner/operator telephone: 000-000-0000
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 03/30/1998
Site name: CIR QUICK INC
Classification: Large Quantity Generator

Date form received by agency: 03/30/1998
Site name: CIR QUICK INC
Classification: Not a generator, verified

Date form received by agency: 03/30/1998
Site name: CIR QUICK INC
Classification: Not a generator, verified

. Waste code: D008
. Waste name: LEAD

. Waste code: F006
. Waste name: WASTEWATER TREATMENT SLUDGES FROM ELECTROPLATING OPERATIONS EXCEPT FROM THE FOLLOWING PROCESSES: (1) SULFURIC ACID ANODIZING OF ALUMINUM; (2) TIN PLATING ON CARBON STEEL; (3) ZINC PLATING (SEGREGATED BASIS) ON CARBON STEEL; (4) ALUMINUM OR ZINC-ALUMINUM PLATING ON CARBON STEEL; (5) CLEANING/STRIPPING ASSOCIATED WITH TIN, ZINC AND ALUMINUM PLATING ON CARBON STEEL; AND (6) CHEMICAL ETCHING AND MILLING OF ALUMINUM.

Violation Status: No violations found

FINDS:

Registry ID: 110000828800

CIR QUICK INCORPORATED (Continued) **1000139524**

Environmental Interest/Information System

Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1000139524
Registry ID:	110000828800
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110000828800

O67 **EAST URBAN AUTO SVC** **WA ALLSITES** **1004793302**
SE **11841 SLATER AVE** **RCRA NonGen / NLR** **WA0000968297**
1/4-1/2 **KIRKLAND, WA 98034** **FINDS**
0.374 mi. **ECHO**
1976 ft. **Site 1 of 2 in cluster O**

Relative:
Higher

Actual:
180 ft.

ALLSITES:

Facility Name:	EAST URBAN AUTO SVC
Facility Id:	43348836
Interaction:	44399
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WA0000968297
Date Interaction:	1994-12-07 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.706194359999998
Longitude:	-122.17298510800001

RCRA NonGen / NLR:

Date form received by agency:	01/22/2004
Facility name:	EAST URBAN AUTO SVC
Facility address:	11841 SLATER AVE KIRKLAND, WA 98034
EPA ID:	WA0000968297
Mailing address:	11841 SLATER AVE NE KIRKLAND, WA 98034-4103
Contact:	JERI LUCAS
Contact address:	11841 SLATER AVE NE

EAST URBAN AUTO SVC (Continued) **1004793302**

	KIRKLAND, WA 98034-4103
Contact country:	US
Contact telephone:	425-821-8619
Contact email:	Not reported
EPA Region:	10
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	EAST URBAN AUTO SVC
Owner/operator address:	11841 SLATER AVE NE
	KIRKLAND, WA 98034
Owner/operator country:	US
Owner/operator telephone:	425-821-8619
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	EAST URBAN AUTO SVC
Owner/operator address:	11841 SLATER AVE NE
	KIRKLAND, WA 98034
Owner/operator country:	US
Owner/operator telephone:	Not reported
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	05/01/1996
Owner/Op end date:	Not reported

Owner/operator name:	JERI LUCAS
Owner/operator address:	11841 SLATER AVE NE
	KIRKLAND, WA 98034
Owner/operator country:	US
Owner/operator telephone:	Not reported
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	05/06/1997
Owner/Op end date:	Not reported

Owner/operator name:	BUCHAN BROTHERS CONSTRUCTION
Owner/operator address:	11555 NORTHUP WAY
	BELLEVUE, WA 98004
Owner/operator country:	US
Owner/operator telephone:	425-827-9499
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private

EAST URBAN AUTO SVC (Continued) **1004793302**

Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 01/22/2004
Site name: EAST URBAN AUTO SVC
Classification: Not a generator, verified

Date form received by agency: 12/31/2003
Site name: EAST URBAN AUTO SVC
Classification: Not a generator, verified

Violation Status: No violations found

FINDS:

Registry ID: 110005307792

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZARDOUS WASTE BIENNIAL REPORTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

EAST URBAN AUTO SVC (Continued) **1004793302**

ECHO:
Envid: 1004793302
Registry ID: 110005307792
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110005307792

N68
SSE
1/4-1/2
0.389 mi.
2056 ft.

IMPORT CAR SVC INC
11926 124TH AVE NE
KIRKLAND, WA 98034

WA ALLSITES **1000838992**
RCRA NonGen / NLR **WAD988518122**
FINDS
ECHO

Site 4 of 5 in cluster N

Relative:
Higher

Actual:
174 ft.

ALLSITES:
Facility Name: IMPORT CAR SVC INC
Facility Id: 79325544

Interaction: 65090
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAD988518122
Date Interaction: 1993-02-19 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.709524361
Longitude: -122.18246510500001

RCRA NonGen / NLR:
Date form received by agency: 02/19/1998
Facility name: IMPORT CAR SVC INC
Facility address: 11926 124TH AVE NE
KIRKLAND, WA 98034-8111
EPA ID: WAD988518122
Contact: IMPORT CAR SVC IMPORT CAR SVC
Contact address: 11926 124TH AVE NE
KIRKLAND, WA 98034-8111
Contact country: US
Contact telephone: 000-000-0000
Contact email: Not reported
EPA Region: 10
Land type: Private
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: IMPORT CAR SVC I
Owner/operator address: 11926 124TH AVE NE
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 000-000-0000
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner

IMPORT CAR SVC INC (Continued) **1000838992**

Owner/Op start date: 05/03/1996
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 02/19/1998
Site name: IMPORT CAR SVC INC
Classification: Not a generator, verified

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 01/29/1998
Evaluation: COMPLIANCE ASSISTANCE VISIT
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

FINDS:

Registry ID: 110005384280

Environmental Interest/Information System
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Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1000838992
Registry ID: 110005384280
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110005384280

N69 SSE 1/4-1/2 0.390 mi. 2060 ft. | **BUCHAN BROS INVESTMENT PROPERTY**
11924 124TH AVE NE
KIRKLAND, WA 98034

Site 5 of 5 in cluster N

WA UST **U004020800**
WA ALLSITES **N/A**

Relative: Higher

Actual: 174 ft.

UST:

Facility ID:	25769269
Site Id:	2555
UBI:	Not reported
Phone Number:	Not reported
Decimal Latitude:	47.70553
Decimal Longitude:	-122.176975
Tank Name:	TANK #1
Tag Number:	Not reported
Tank Status:	Removed
Tank Status Date:	08/06/1996
Tank Install Date:	00/31/1964
Tank Closure Date:	Not reported
Capacity Range:	111 TO 1,100 Gallons
Tank Permit Expiration Date:	Not reported
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Single Wall Tank
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Steel
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

ALLSITES:

Facility Name:	BUCHAN BROS INVESTMENT PROPERTY
Facility Id:	25769269
Interaction:	34722
Interaction 1:	I
Interaction 2:	UST
Ecology Program:	TOXICS
Program Data:	UST
Facility Alt.:	Not reported
Program ID:	2555
Date Interaction:	2000-02-29 00:00:00
Date Interaction 3:	Underground Storage Tank
Latitude:	47.705524359999998
Longitude:	-122.176960108

P70 SSW 1/4-1/2 0.396 mi. 2091 ft. | **NORTHWEST CONSTRUCTION INC**
11831 120TH AVE NE
KIRKLAND, WA 98034

Site 1 of 4 in cluster P

WA CSCSL
WA LUST
WA UST
WA ALLSITES

1000411165
N/A

Relative: Higher

Actual: 179 ft.

CSCSL:

Facility ID:	37172442
Region:	Northwest
Lat/Long:	47.70534 / -122.182355
Brownfield Status:	Not reported
Rank Status:	N
Clean Up Siteid:	5968
Site Status:	Cleanup Started
PSI?:	Not reported
Contaminant Name:	Benzene
Ground Water:	Confirmed Above Cleanup Level
Surface Water:	Not reported
Soil:	Confirmed Above Cleanup Level
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest

Facility ID:	37172442
Region:	Northwest
Lat/Long:	47.70534 / -122.182355
Brownfield Status:	Not reported
Rank Status:	N
Clean Up Siteid:	5968
Site Status:	Cleanup Started
PSI?:	Not reported
Contaminant Name:	Metals - Other
Ground Water:	Confirmed Above Cleanup Level
Surface Water:	Not reported
Soil:	Not reported
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest

Facility ID:	37172442
Region:	Northwest
Lat/Long:	47.70534 / -122.182355
Brownfield Status:	Not reported
Rank Status:	N
Clean Up Siteid:	5968
Site Status:	Cleanup Started
PSI?:	Not reported
Contaminant Name:	Petroleum-Diesel
Ground Water:	Confirmed Above Cleanup Level
Surface Water:	Not reported
Soil:	Confirmed Above Cleanup Level
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest

Facility ID: 37172442

NORTHWEST CONSTRUCTION INC (Continued) **1000411165**

Region: Northwest
Lat/Long: 47.70534 / -122.182355
Brownfield Status: Not reported
Rank Status: N
Clean Up Siteid: 5968
Site Status: Cleanup Started
PSI?: Not reported
Contaminant Name: Petroleum-Gasoline
Ground Water: Confirmed Above Cleanup Level
Surface Water: Not reported
Soil: Confirmed Above Cleanup Level
Sediment: Not reported
Air: Not reported
Bedrock: Not reported
Responsible Unit: Northwest

Facility ID: 37172442
Region: Northwest
Lat/Long: 47.70534 / -122.182355
Brownfield Status: Not reported
Rank Status: N
Clean Up Siteid: 5968
Site Status: Cleanup Started
PSI?: Not reported
Contaminant Name: Petroleum-Other
Ground Water: Confirmed Above Cleanup Level
Surface Water: Not reported
Soil: Confirmed Above Cleanup Level
Sediment: Not reported
Air: Not reported
Bedrock: Not reported
Responsible Unit: Northwest

LUST:
Facility ID: 37172442
Lust Status Type: Cleanup Started
Cleanup Site ID: 5968
Cleanup Unit Type: Upland
Process Type: Independent Action
Cleanup Unit Name: Homebase 45
Lust Status Date: 07/01/2011
Response Section: Northwest
Lat/Long: 47.70534 / -122.18235

UST:
Facility ID: 37172442
Site Id: 7352
UBI: Not reported
Phone Number: Not reported
Decimal Latitude: 47.70534
Decimal Longitude: -122.182355

Tank Name: DIESEL
Tag Number: Not reported
Tank Status: Removed
Tank Status Date: 08/06/1996

NORTHWEST CONSTRUCTION INC (Continued) **1000411165**

Tank Install Date:	00/31/1964
Tank Closure Date:	Not reported
Capacity Range:	Not reported
Tank Permit Expiration Date:	Not reported
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	GASOLINE
Tag Number:	Not reported
Tank Status:	Removed
Tank Status Date:	08/06/1996
Tank Install Date:	00/31/1964
Tank Closure Date:	Not reported
Capacity Range:	Not reported
Tank Permit Expiration Date:	Not reported
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	OIL #1
Tag Number:	Not reported
Tank Status:	Removed
Tank Status Date:	08/06/1996
Tank Install Date:	00/31/1964

NORTHWEST CONSTRUCTION INC (Continued) **1000411165**

Tank Closure Date:	Not reported
Capacity Range:	Not reported
Tank Permit Expiration Date:	Not reported
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	OIL #2
Tag Number:	Not reported
Tank Status:	Removed
Tank Status Date:	08/06/1996
Tank Install Date:	00/31/1964
Tank Closure Date:	Not reported
Capacity Range:	Not reported
Tank Permit Expiration Date:	Not reported
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	OIL #3
Tag Number:	Not reported
Tank Status:	Removed
Tank Status Date:	08/06/1996
Tank Install Date:	00/31/1964
Tank Closure Date:	Not reported

NORTHWEST CONSTRUCTION INC (Continued) **1000411165**

Capacity Range:	Not reported
Tank Permit Expiration Date:	Not reported
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	OIL #4
Tag Number:	Not reported
Tank Status:	Removed
Tank Status Date:	08/06/1996
Tank Install Date:	00/31/1964
Tank Closure Date:	Not reported
Capacity Range:	Not reported
Tank Permit Expiration Date:	Not reported
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

ALLSITES:

Facility Name:	HOMEBASE 45
Facility Id:	37172442

Interaction:	41098
Interaction 1:	I
Interaction 2:	VOLCLNST
Ecology Program:	TOXICS

NORTHWEST CONSTRUCTION INC (Continued) **1000411165**

Program Data:	ISIS
Facility Alt.:	Homebase 45
Program ID:	NW0573
Date Interaction:	2000-11-09 00:00:00
Date Interaction 3:	Voluntary Cleanup Sites
Latitude:	47.705334360999998
Longitude:	-122.182340106

Interaction:	41100
Interaction 1:	A
Interaction 2:	SCS
Ecology Program:	TOXICS
Program Data:	ISIS
Facility Alt.:	Homebase 45
Program ID:	Not reported
Date Interaction:	2006-07-19 00:00:00
Date Interaction 3:	State Cleanup Site
Latitude:	47.705334360999998
Longitude:	-122.182340106

Interaction:	41096
Interaction 1:	I
Interaction 2:	LUST
Ecology Program:	TOXICS
Program Data:	ISIS
Facility Alt.:	Not reported
Program ID:	7352
Date Interaction:	1989-05-02 00:00:00
Date Interaction 3:	LUST Facility
Latitude:	47.705334360999998
Longitude:	-122.182340106

Interaction:	41099
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD988469045
Date Interaction:	1989-10-30 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.705334360999998
Longitude:	-122.182340106

Interaction:	41097
Interaction 1:	I
Interaction 2:	UST
Ecology Program:	TOXICS
Program Data:	UST
Facility Alt.:	Not reported
Program ID:	7352
Date Interaction:	2000-03-20 00:00:00
Date Interaction 3:	Underground Storage Tank

NORTHWEST CONSTRUCTION INC (Continued) **1000411165**

Latitude: 47.705334360999998
Longitude: -122.182340106

P71
SSW
1/4-1/2
0.399 mi.
2105 ft.

EVERGREEN AUTO REBUILD INC KIRKLAND
11731 120TH AVE NE STE A
KIRKLAND, WA 98034

Site 2 of 4 in cluster P

WA ALLSITES **S113229948**
N/A

Relative:
Higher

Actual:
187 ft.

ALLSITES:
Facility Name: EVERGREEN AUTO REBUILD INC KIRKLAND
Facility Id: 10830

Interaction: 104369
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Evergreen Auto Rebuild Inc Kirkland
Program ID: WAH000043116
Date Interaction: 2013-03-25 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.705923812000002
Longitude: -122.18173859700001

72
East
1/4-1/2
0.405 mi.
2137 ft.

WASHINGTON ELECTRIC SIGN INC
12815 NE 124TH
KIRKLAND, WA 98034

WA ALLSITES **1000241867**
RCRA NonGen / NLR **WAD151660867**
FINDS
ECHO

Relative:
Higher

Actual:
149 ft.

ALLSITES:
Facility Name: WASHINGTON ELECTRIC SIGN INC
Facility Id: 22666461

Interaction: 32634
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAD151660867
Date Interaction: 1987-03-10 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.706034361
Longitude: -122.177195107

RCRA NonGen / NLR:
Date form received by agency: 09/03/1998
Facility name: WASHINGTON ELECTRIC SIGN INC
Facility address: 12815 NE 124TH
KIRKLAND, WA 98034
EPA ID: WAD151660867

WASHINGTON ELECTRIC SIGN INC (Continued) **1000241867**

Mailing address: 8920 122ND AVE NE
KIRKLAND, WA 98033-5827
Contact: WASHINGTON ELEC WASHINGTON ELEC
Contact address: 8920 122ND AVE NE
KIRKLAND, WA 98033-5827
Contact country: US
Contact telephone: 000-000-0000
Contact email: Not reported
EPA Region: 10
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: WASHINGTON ELEC W
Owner/operator address: 12815 NE 124TH ST
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 000-000-0000
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 05/02/1996
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 09/03/1998
Site name: WASHINGTON ELECTRIC SIGN INC
Classification: Not a generator, verified

Violation Status: No violations found

FINDS:

Registry ID: 110005332577

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource

WASHINGTON ELECTRIC SIGN INC (Continued) **1000241867**

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ECHO:

Envid:	1000241867
Registry ID:	110005332577
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110005332577

P73 **EASTSIDE SPRAYING SERVICE** **WA ALLSITES** **1007069917**
SSW **11803 120TH AVE NE** **FINDS** **N/A**
1/4-1/2 **KIRKLAND, WA 98034**
0.408 mi.
2154 ft. **Site 3 of 4 in cluster P**

Relative:
Higher

Actual:
177 ft.

ALLSITES:

Facility Name:	EASTSIDE SPRAYING SERVICE
Facility Id:	48426162
Interaction:	47500
Interaction 1:	I
Interaction 2:	TIER2
Ecology Program:	HAZWASTE
Program Data:	EPCRA
Facility Alt.:	Not reported
Program ID:	CRK000004530
Date Interaction:	1990-01-01 00:00:00
Date Interaction 3:	Emergency/Haz Chem Rpt TI
Latitude:	47.704912284000002
Longitude:	-122.183570471

FINDS:

Registry ID: 110015465236

Environmental Interest/Information System

Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

74 East 1/4-1/2 0.408 mi. 2154 ft. | **SCOTTS LAWNSERVICE KIRKLAND**
12910 NE 125TH WAY
KIRKLAND, WA 98034 | **WA ALLSITES** | **S109553288**
N/A

Relative: Higher
Actual: 134 ft.

ALLSITES:

Facility Name:	SCOTTS LAWNSERVICE KIRKLAND
Facility Id:	2177185
Interaction:	9990
Interaction 1:	I
Interaction 2:	TIER2
Ecology Program:	HAZWASTE
Program Data:	EPCRA
Facility Alt.:	Not reported
Program ID:	CRK000063600
Date Interaction:	2005-03-01 00:00:00
Date Interaction 3:	Emergency/Haz Chem Rpt TI
Latitude:	47.712532723999999
Longitude:	-122.169597806

O75 SE 1/4-1/2 0.409 mi. 2157 ft. | **CRITTER DOCTOR ANIMAL HOSPITAL**
11828 SLATER AVE NE STE 100
KIRKLAND, WA 98034 | **WA ALLSITES** | **S110123498**
N/A

Site 2 of 2 in cluster O

Relative: Higher
Actual: 191 ft.

ALLSITES:

Facility Name:	CRITTER DOCTOR ANIMAL HOSPITAL
Facility Id:	4660
Interaction:	89081
Interaction 1:	I
Interaction 2:	LSC
Ecology Program:	HAZWASTE
Program Data:	LSC
Facility Alt.:	Critter Doctor Animal Hospital
Program ID:	Not reported
Date Interaction:	2009-04-21 00:00:00
Date Interaction 3:	Local Source Cntrl 7/09-3
Latitude:	47.706633109999999
Longitude:	-122.172141994

---

76 East 1/4-1/2 0.413 mi. 2180 ft. | **KIRKLAND CHRYSLER PLYMOUTH JEEP EAGLE**
12828 NE 124TH ST
KIRKLAND, WA 98034 | **WA UST**
WA ALLSITES
RCRA NonGen / NLR
FINDS
ECHO | **1001491257**
WAR000004572

Relative: Lower
Actual: 133 ft.

UST:

Facility ID:	31669993
Site Id:	1606
UBI:	Not reported
Phone Number:	Not reported
Decimal Latitude:	47.71136447465

KIRKLAND CHRYSLER PLYMOUTH JEEP EAGLE (Continued) **1001491257**

Decimal Longitude: -122.168321771841

Tank Name: 1
Tag Number: Not reported
Tank Status: Removed
Tank Status Date: 08/06/1996
Tank Install Date: 00/20/1978
Tank Closure Date: Not reported
Capacity Range: Not reported
Tank Permit Expiration Date: 07/01/1994
Tank Upgrade Date: Not reported
Tank Spill Prevention: None
Tank Overfill Prevention: None
Tank Material: Not reported
Tank Construction: Single Wall Tank
Tank Tightness Test: Not reported
Tank Corrosion Protection: Other
Tank Manifold: Not reported
Tank Release Detection: Vapor Monitoring
Tank SFC Type: Not reported
Pipe Material: Not reported
Pipe Construction: Single Wall Pipe
Pipe Primary Release Detection: Other
Pipe Second Release Detection: Not reported
Pipe Corrosion Protection: Other
Pipe Pumping System: Other
Responsible Unit: NORTHWEST
Dispencer/Pump SFC Type: Not reported

ALLSITES:
Facility Name: KIRKLAND CHRYSLER PLYMOUTH JEEP EAGLE
Facility Id: 31669993

Interaction: 37494
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAR000004572
Date Interaction: 1995-08-24 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.711358593999996
Longitude: -122.168301672

Interaction: 37492
Interaction 1: I
Interaction 2: UST
Ecology Program: TOXICS
Program Data: UST
Facility Alt.: Not reported
Program ID: Not reported
Date Interaction: 1978-10-20 00:00:00
Date Interaction 3: Underground Storage Tank
Latitude: 47.711358593999996
Longitude: -122.168301672

KIRKLAND CHRYSLER PLYMOUTH JEEP EAGLE (Continued) **1001491257**

Interaction:	37493
Interaction 1:	I
Interaction 2:	UST
Ecology Program:	TOXICS
Program Data:	UST
Facility Alt.:	Not reported
Program ID:	Not reported
Date Interaction:	1993-11-18 00:00:00
Date Interaction 3:	Underground Storage Tank
Latitude:	47.711358593999996
Longitude:	-122.168301672

RCRA NonGen / NLR:

Date form received by agency:	01/31/1997
Facility name:	KIRKLAND CHRYSLER PLYMOUTH JEEP EAGLE
Facility address:	12828 NE 124TH ST KIRKLAND, WA 98034
EPA ID:	WAR000004572
Mailing address:	PO BOX 8260 KIRKLAND, WA 98034-0260
Contact:	KIRKLAND CHRYSL KIRKLAND CHRYSL
Contact address:	PO BOX 8260 KIRKLAND, WA 98034-0260
Contact country:	US
Contact telephone:	000-000-0000
Contact email:	Not reported
EPA Region:	10
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	DARRELL R
Owner/operator address:	PO BOX 8260 KIRKLAND, WA 98034
Owner/operator country:	US
Owner/operator telephone:	425-821-1777
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	11/20/1996
Owner/Op end date:	Not reported
Owner/operator name:	CHRYSLER REALTY C
Owner/operator address:	7700 IRVINE CENTER DR STE 330 IRVINE, CA 92618
Owner/operator country:	US
Owner/operator telephone:	714-450-5119
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	11/20/1996

KIRKLAND CHRYSLER PLYMOUTH JEEP EAGLE (Continued) **1001491257**

Owner/Op end date: Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency: 01/31/1997
Site name: KIRKLAND CHRYSLER PLYMOUTH JEEP EAGLE
Classification: Not a generator, verified

Violation Status: No violations found

FINDS:

Registry ID: 110005401555

Environmental Interest/Information System

Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid: 1001491257
Registry ID: 110005401555
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110005401555

P77 SSW 1/4-1/2 0.422 mi. 2227 ft. | **SPECTRA LUX CORP**
11825 120TH NE
KIRKLAND, WA 98034

Site 4 of 4 in cluster P

WA ALLSITES **1000181209**
RCRA NonGen / NLR **WAD982653537**

Relative: Higher

Actual: 169 ft.

ALLSITES:

Facility Name:	SPECTRA LUX CORP
Facility Id:	63657721

Interaction:	55980
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD982653537
Date Interaction:	1988-08-01 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.705464360000001
Longitude:	-122.181125107

Interaction:	55983
Interaction 1:	I
Interaction 2:	HWP
Ecology Program:	HAZWASTE
Program Data:	HWPPRT
Facility Alt.:	Not reported
Program ID:	WAD982653537
Date Interaction:	1993-01-01 00:00:00
Date Interaction 3:	Hazardous Waste Planner
Latitude:	47.705464360000001
Longitude:	-122.181125107

Interaction:	55981
Interaction 1:	I
Interaction 2:	TRI
Ecology Program:	HAZWASTE
Program Data:	EPCRA
Facility Alt.:	Not reported
Program ID:	WAD982653537
Date Interaction:	1989-01-01 00:00:00
Date Interaction 3:	Toxics Release Inventory
Latitude:	47.705464360000001
Longitude:	-122.181125107

Interaction:	55985
Interaction 1:	I
Interaction 2:	HWP
Ecology Program:	HAZWASTE
Program Data:	HWPPRT
Facility Alt.:	Not reported
Program ID:	WAD982653537
Date Interaction:	2005-01-01 00:00:00
Date Interaction 3:	Hazardous Waste Planner
Latitude:	47.705464360000001

SPECTRA LUX CORP (Continued) **1000181209**

Longitude: -122.181125107

Interaction: 83047
Interaction 1: I
Interaction 2: INDSWGP
Ecology Program: WATQUAL
Program Data: PARIS
Facility Alt.: SPECTRA LUX CORP
Program ID: SO3000703
Date Interaction: 1992-12-18 00:00:00
Date Interaction 3: Industrial SW GP
Latitude: 47.705464360000001
Longitude: -122.181125107

RCRA NonGen / NLR:
Date form received by agency: 02/27/2004
Facility name: SPECTRA LUX CORP
Facility address: 11825 120TH NE
KIRKLAND, WA 98034
EPA ID: WAD982653537
Mailing address: 12335 134TH COURT NE
REDMOND, WA 98052
Contact: DENNIS EGAN
Contact address: 12335 134TH COURT NE
REDMOND, WA 98052
Contact country: US
Contact telephone: 425-823-1801
Contact email: DENNISE@SPECTRALUX.COM
EPA Region: 10
Land type: Private
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: SPECTRA LUX CORP
Owner/operator address: 12335 134TH COURT NE
REDMOND, WA 98052
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 01/01/1997
Owner/Op end date: Not reported

Owner/operator name: SPECTRA LUX CORP
Owner/operator address: 12335 134TH COURT NE
REDMOND, WA 98052
Owner/operator country: US
Owner/operator telephone: 425-823-6857
Owner/operator email: Not reported
Owner/operator fax: Not reported

SPECTRA LUX CORP (Continued) **1000181209**

Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: CHRIST CHURCH KIRKLAND
Owner/operator address: 11725 NE 118TH ST
KIRKLAND, WA 98034
Owner/operator country: US
Owner/operator telephone: 425-820-2900
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: SPECTRA LUX CORP
Owner/operator address: 12335 134TH COURT NE
REDMOND, WA 98052
Owner/operator country: US
Owner/operator telephone: Not reported
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 07/23/1996
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 02/27/2004
Site name: SPECTRA LUX CORP
Classification: Not a generator, verified

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF

SPECTRA LUX CORP (Continued) **1000181209**

LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D002
. Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

. Waste code: D006
. Waste name: CADMIUM

. Waste code: D011
. Waste name: SILVER

. Waste code: D018
. Waste name: BENZENE

. Waste code: D035
. Waste name: METHYL ETHYL KETONE

. Waste code: D039
. Waste name: TETRACHLOROETHYLENE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Date form received by agency: 12/31/2003
Site name: SPECTRA LUX CORP

SPECTRA LUX CORP (Continued) **1000181209**

Classification: Small Quantity Generator

Facility Has Received Notices of Violations:

Regulation violated:	SR - -200(1)(b) / -630(6)
Area of violation:	Generators - Records/Reporting
Date violation determined:	05/08/2003
Date achieved compliance:	06/09/2003
Violation lead agency:	State
Enforcement action:	WRITTEN INFORMAL
Enforcement action date:	05/13/2003
Enf. disposition status:	Not reported
Enf. disp. status date:	Not reported
Enforcement lead agency:	State
Proposed penalty amount:	Not reported
Final penalty amount:	Not reported
Paid penalty amount:	Not reported

Evaluation Action Summary:

Evaluation date:	05/08/2003
Evaluation:	COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation:	Generators - Records/Reporting
Date achieved compliance:	06/09/2003
Evaluation lead agency:	State

Q78
South
1/4-1/2
0.426 mi.
2249 ft.

Relative:
Higher

Actual:
183 ft.

PREMIUM TUNE N LUBE TOTEM LAKE **WA UST** **1000838592**
11727 124TH AVE NE **WA ICR** **WAD988513792**
KIRKLAND, WA 98034 **WA VCP**
WA ALLSITES
Site 1 of 2 in cluster Q **WA CSCSL NFA**
RCRA NonGen / NLR
FINDS
ECHO

UST:

Facility ID:	14423498
Site Id:	1989
UBI:	Not reported
Phone Number:	Not reported
Decimal Latitude:	47.705389926666
Decimal Longitude:	-122.176325404287
Tank Name:	1 - 15/40
Tag Number:	Not reported
Tank Status:	Removed
Tank Status Date:	08/06/1996
Tank Install Date:	00/31/1964
Tank Closure Date:	Not reported
Capacity Range:	Not reported
Tank Permit Expiration Date:	06/30/1998
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Not reported
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Not reported

PREMIUM TUNE N LUBE TOTEM LAKE (Continued) **1000838592**

Tank SFC Type:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	2 - 10/30
Tag Number:	Not reported
Tank Status:	Removed
Tank Status Date:	08/06/1996
Tank Install Date:	00/31/1964
Tank Closure Date:	Not reported
Capacity Range:	Not reported
Tank Permit Expiration Date:	06/30/1998
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Not reported
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	3-WASTE OIL
Tag Number:	Not reported
Tank Status:	Removed
Tank Status Date:	08/06/1996
Tank Install Date:	00/31/1964
Tank Closure Date:	Not reported
Capacity Range:	111 TO 1,100 Gallons
Tank Permit Expiration Date:	06/30/1998
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Not reported
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported

PREMIUM TUNE N LUBE TOTEM LAKE (Continued) **1000838592**

Pipe Material:	Not reported
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

ICR:

Date Ecology Received Report:	09/09/98
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Soil

VCP:

edr_fstat:	WA
edr_fzip:	98034
edr_fcnty:	KING
edr_zip:	Not reported
Facility ID:	14423498
VCP Status:	Not reported
VCP:	Yes
Ecology Status:	Not reported
NFA Type:	Not reported
Date NFA:	4/12/1999
Rank:	Not reported
Cleanup Siteid:	5567

ALLSITES:

Facility Name:	PREMIUM TUNE N LUBE TOTEM LAKE
Facility Id:	14423498

Interaction:	28094
Interaction 1:	I
Interaction 2:	VOLCLNST
Ecology Program:	TOXICS
Program Data:	ISIS
Facility Alt.:	Premium Tune N Lube Totem Lake
Program ID:	1989
Date Interaction:	1998-09-09 00:00:00
Date Interaction 3:	Voluntary Cleanup Sites
Latitude:	47.705384803000001
Longitude:	-122.17631933600001

Interaction:	28092
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD988513792
Date Interaction:	1992-11-09 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.705384803000001
Longitude:	-122.17631933600001

PREMIUM TUNE N LUBE TOTEM LAKE (Continued) **1000838592**

Interaction:	28093
Interaction 1:	I
Interaction 2:	LUST
Ecology Program:	TOXICS
Program Data:	ISIS
Facility Alt.:	Not reported
Program ID:	1989
Date Interaction:	1998-09-09 00:00:00
Date Interaction 3:	LUST Facility
Latitude:	47.705384803000001
Longitude:	-122.17631933600001

Interaction:	28095
Interaction 1:	I
Interaction 2:	UST
Ecology Program:	TOXICS
Program Data:	UST
Facility Alt.:	Not reported
Program ID:	1989
Date Interaction:	2000-02-29 00:00:00
Date Interaction 3:	Underground Storage Tank
Latitude:	47.705384803000001
Longitude:	-122.17631933600001

CSCSL NFA:

Facility/Site Id:	14423498
CS Id:	5567
NFA Date:	04/12/1999
Rank:	Not reported
VCP:	Yes
Latitude:	47.705389927
Longitude:	-122.1763254

RCRA NonGen / NLR:

Date form received by agency:	05/26/1998
Facility name:	PREMIUM TUNE N LUBE TOTEM LAKE
Facility address:	11727 124TH AVE NE KIRKLAND, WA 98034
EPA ID:	WAD988513792
Mailing address:	24705 SE 45TH WAY ISSAQUAH, WA 98029-7709
Contact:	BRIAN C LAWSON
Contact address:	24705 SE 45TH WAY ISSAQUAH, WA 98029-7709
Contact country:	US
Contact telephone:	425-392-5500
Contact email:	Not reported
EPA Region:	10
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	DGH ENTERPRISES
Owner/operator address:	19401 40TH AVE W STE 310

PREMIUM TUNE N LUBE TOTEM LAKE (Continued) **1000838592**

	LYNNWOOD, WA 98036
Owner/operator country:	US
Owner/operator telephone:	425-776-3333
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	PREMIUM TUNE N LUBE INC
Owner/operator address:	24705 SE 45TH WAY
	ISSAQUAH, WA 98029
Owner/operator country:	US
Owner/operator telephone:	425-392-5500
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	03/12/1998
Site name:	PREMIUM TUNE N LUBE TOTEM LAKE
Classification:	Not a generator, verified
Violation Status:	No violations found

FINDS:

Registry ID: 110005380738

Environmental Interest/Information System

Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air

PREMIUM TUNE N LUBE TOTEM LAKE (Continued) **1000838592**

Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1000838592
Registry ID:	110005380738
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110005380738

R79 **ROSETTA INPHARMATICS INC** **WA ALLSITES** **1001969520**
WSW **12040 115TH AVE NE STE 210** **RCRA NonGen / NLR** **WAD988473070**
1/4-1/2 **KIRKLAND, WA 98034** **FINDS**
0.428 mi. **ECHO**
2259 ft. **Site 1 of 3 in cluster R** **NY MANIFEST**

Relative:
Higher

Actual:
180 ft.

ALLSITES:

Facility Name:	ROSETTA INPHARMATICS INC
Facility Id:	64917534
Interaction:	56874
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD988473070
Date Interaction:	1990-06-18 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.708894362000002
Longitude:	-122.189035105
Interaction:	56876
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD988473070
Date Interaction:	1998-04-17 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.708894362000002
Longitude:	-122.189035105
Interaction:	56875
Interaction 1:	I

ROSETTA INPHARMATICS INC (Continued) **1001969520**

Interaction 2:	HWP
Ecology Program:	HAZWASTE
Program Data:	HWPPRT
Facility Alt.:	Not reported
Program ID:	WAD988473070
Date Interaction:	1995-01-01 00:00:00
Date Interaction 3:	Hazardous Waste Planner
Latitude:	47.708894362000002
Longitude:	-122.189035105

RCRA NonGen / NLR:

Date form received by agency:	03/17/2005
Facility name:	ROSETTA INPHARMATICS INC
Facility address:	12040 115TH AVE NE STE 210 KIRKLAND, WA 98034
EPA ID:	WAD988473070
Mailing address:	401 TERRY AVE N SEATTLE, WA 98109
Contact:	ROSETTA INPHARM ROSETTA INPHARM
Contact address:	401 TERRY AVE N SEATTLE, WA 98109
Contact country:	US
Contact telephone:	000-000-0000
Contact email:	Not reported
EPA Region:	10
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	ROSETTA INPHARMATICS
Owner/operator address:	401 TERRY AVE N SEATTLE, WA 98109
Owner/operator country:	US
Owner/operator telephone:	Not reported
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	04/17/1998
Owner/Op end date:	Not reported

Owner/operator name:	MERCK CO INC
Owner/operator address:	PO BOX 100 WHITEHOUSE STATION, NJ 08889
Owner/operator country:	US
Owner/operator telephone:	Not reported
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	07/19/2001
Owner/Op end date:	Not reported

ROSETTA INPHARMATICS INC (Continued) **1001969520**

Owner/operator name: MERCK CO INC M
Owner/operator address: PO BOX 100
WHITEHOUSE STATION, NJ 08889
Owner/operator country: US
Owner/operator telephone: 908-423-1000
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 07/19/2001
Owner/Op end date: Not reported

Owner/operator name: ROSETTA INPHARM R
Owner/operator address: 401 TERRY AVE N
SEATTLE, WA 98109
Owner/operator country: US
Owner/operator telephone: 206-802-6375
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 04/17/1998
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D002
. Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS

ROSETTA INPHARMATICS INC (Continued) **1001969520**

USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

. Waste code: D003
. Waste name: A MATERIAL IS CONSIDERED TO BE A REACTIVE HAZARDOUS WASTE IF IT IS NORMALLY UNSTABLE, REACTS VIOLENTLY WITH WATER, GENERATES TOXIC GASES WHEN EXPOSED TO WATER OR CORROSIVE MATERIALS, OR IF IT IS CAPABLE OF DETONATION OR EXPLOSION WHEN EXPOSED TO HEAT OR A FLAME. ONE EXAMPLE OF SUCH WASTE WOULD BY WASTE GUNPOWDER.

. Waste code: D004
. Waste name: ARSENIC

. Waste code: D008
. Waste name: LEAD

. Waste code: D009
. Waste name: MERCURY

. Waste code: D022
. Waste name: CHLOROFORM

. Waste code: D038
. Waste name: PYRIDINE

. Waste code: D040
. Waste name: TRICHLOROETHYLENE

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: F005
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: P044
. Waste name: DIMETHOATE

. Waste code: P070
. Waste name: ALDICARB

. Waste code: P089

ROSETTA INPHARMATICS INC (Continued) **1001969520**

. Waste name: PARATHION

. Waste code: U003
. Waste name: ACETONITRILE (I,T)

. Waste code: U007
. Waste name: ACRYLAMIDE

. Waste code: U011
. Waste name: AMITROLE

. Waste code: U032
. Waste name: CALCIUM CHROMATE

. Waste code: U112
. Waste name: ACETIC ACID ETHYL ESTER (I)

. Waste code: U122
. Waste name: FORMALDEHYDE

. Waste code: U154
. Waste name: METHANOL (I)

. Waste code: U181
. Waste name: BENZENAMINE, 2-METHYL-5-NITRO-

. Waste code: U188
. Waste name: PHENOL

. Waste code: U206
. Waste name: GLUCOPYRANOSE, 2-DEOXY-2-(3-METHYL-3-NITROSOUREIDO)-, D-

. Waste code: U228
. Waste name: ETHENE, TRICHLORO-

. Waste code: U239
. Waste name: BENZENE, DIMETHYL- (I,T)

. Waste code: U372
. Waste name: CARBAMIC ACID, 1H-BENZIMIDAZOL-2-YL, METHYL ESTER (OR) CARBENDAZIM

Historical Generators:
Date form received by agency: 12/31/2003
Site name: ROSETTA INPHARMATICS INC
Classification: Not a generator, verified

Date form received by agency: 02/26/2002
Site name: ROSETTA INPHARMATICS INC
Classification: Not a generator, verified

. Waste code: D001
. Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT

ROSETTA INPHARMATICS INC (Continued) **1001969520**

WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

. Waste code: D002
. Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

. Waste code: D009
. Waste name: MERCURY

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: U002
. Waste name: ACETONE (I)

. Waste code: WT02
. Waste name: WT02

Date form received by agency: 03/01/1996
Site name: PROCYTE CORPORATION - MAIN OFFICE
Classification: Large Quantity Generator

Violation Status: No violations found

FINDS:

Registry ID: 110009511581

Environmental Interest/Information System

Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZARDOUS WASTE BIENNIAL REPORTER

ROSETTA INPHARMATICS INC (Continued) **1001969520**

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1001969520
Registry ID:	110009511581
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110009511581

NY MANIFEST:

Country:	USA
EPA ID:	WAD988473070
Facility Status:	Not reported
Location Address 1:	12040 115TH AVENUE NE #210
Code:	BP
Location Address 2:	Not reported
Total Tanks:	Not reported
Location City:	KIRKLAND
Location State:	WA
Location Zip:	98034
Location Zip 4:	Not reported

NY MANIFEST:

EPAID:	WAD988473070
Mailing Name:	PROCYTE CORP
Mailing Contact:	KAREN HEDINE
Mailing Address 1:	12040 115TH AVENUE NE #210
Mailing Address 2:	Not reported
Mailing City:	KIRKLAND
Mailing State:	WA
Mailing Zip:	98034
Mailing Zip 4:	Not reported
Mailing Country:	USA
Mailing Phone:	4258204548

NY MANIFEST:

Document ID:	NYB7732971
Manifest Status:	K
seq:	Not reported
Year:	1997
Trans1 State ID:	Not reported
Trans2 State ID:	Not reported
Generator Ship Date:	07/18/1997
Trans1 Recv Date:	07/18/1997
Trans2 Recv Date:	07/23/1997
TSD Site Recv Date:	08/11/1997
Part A Recv Date:	/ /
Part B Recv Date:	08/26/1997
Generator EPA ID:	WAD988473070
Trans1 EPA ID:	SCD987574647
Trans2 EPA ID:	Not reported
TSDF ID 1:	NYD000632372
TSDF ID 2:	Not reported
Manifest Tracking Number:	Not reported
Import Indicator:	Not reported
Export Indicator:	Not reported

ROSETTA INPHARMATICS INC (Continued) **1001969520**

Discr Quantity Indicator:	Not reported
Discr Type Indicator:	Not reported
Discr Residue Indicator:	Not reported
Discr Partial Reject Indicator:	Not reported
Discr Full Reject Indicator:	Not reported
Manifest Ref Number:	Not reported
Alt Facility RCRA ID:	Not reported
Alt Facility Sign Date:	Not reported
MGMT Method Type Code:	Not reported
Waste Code:	U135 - HYDROGEN SULFIDE
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Waste Code:	Not reported
Quantity:	00012
Units:	P - Pounds
Number of Containers:	003
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100

Click this hyperlink while viewing on your computer to access
-1 additional NY MANIFEST: record(s) in the EDR Site Report.

Q80 **THOMASON FORD TOYOTA** **WA UST** **U001123851**
SSE **11800 124TH AVE NE** **WA ALLSITES** **N/A**
1/4-1/2 **KIRKLAND, WA 98034**
0.441 mi.
2326 ft. **Site 2 of 2 in cluster Q**

Relative:
Higher

Actual:
184 ft.

UST:

Facility ID:	35499432
Site Id:	4985
UBI:	Not reported
Phone Number:	Not reported
Decimal Latitude:	47.7049
Decimal Longitude:	-122.176975
Tank Name:	1
Tag Number:	Not reported
Tank Status:	Exempt
Tank Status Date:	08/06/1996
Tank Install Date:	00/31/1964
Tank Closure Date:	Not reported
Capacity Range:	111 TO 1,100 Gallons
Tank Permit Expiration Date:	Not reported
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported

THOMASON FORD TOYOTA (Continued) **U001123851**

Pipe Material: Steel
Pipe Construction: Not reported
Pipe Primary Release Detection: Not reported
Pipe Second Release Detection: Not reported
Pipe Corrosion Protection: Not reported
Pipe Pumping System: Not reported
Responsible Unit: NORTHWEST
Dispencer/Pump SFC Type: Not reported

Tank Name: 2
Tag Number: Not reported
Tank Status: Removed
Tank Status Date: 08/06/1996
Tank Install Date: 00/31/1964
Tank Closure Date: Not reported
Capacity Range: 111 TO 1,100 Gallons
Tank Permit Expiration Date: Not reported
Tank Upgrade Date: Not reported
Tank Spill Prevention: Not reported
Tank Overfill Prevention: Not reported
Tank Material: Steel
Tank Construction: Not reported
Tank Tightness Test: Not reported
Tank Corrosion Protection: Not reported
Tank Manifold: Not reported
Tank Release Detection: Not reported
Tank SFC Type: Not reported
Pipe Material: Steel
Pipe Construction: Not reported
Pipe Primary Release Detection: Not reported
Pipe Second Release Detection: Not reported
Pipe Corrosion Protection: Not reported
Pipe Pumping System: Not reported
Responsible Unit: NORTHWEST
Dispencer/Pump SFC Type: Not reported

ALLSITES:
Facility Name: FORD OF KIRKLAND
Facility Id: 35499432

Interaction: 39982
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAD027271477
Date Interaction: 1985-03-15 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.704894359999997
Longitude: -122.176960107

Interaction: 39984
Interaction 1: I
Interaction 2: UST

THOMASON FORD TOYOTA (Continued) **U001123851**

Ecology Program:	TOXICS
Program Data:	UST
Facility Alt.:	Not reported
Program ID:	4985
Date Interaction:	2000-02-29 00:00:00
Date Interaction 3:	Underground Storage Tank
Latitude:	47.704894359999997
Longitude:	-122.176960107

Interaction:	39983
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD027271477
Date Interaction:	1995-07-28 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.704894359999997
Longitude:	-122.176960107

Interaction:	39985
Interaction 1:	I
Interaction 2:	HWOTHER
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD027271477
Date Interaction:	2003-12-31 00:00:00
Date Interaction 3:	Haz Waste Management Acti
Latitude:	47.704894359999997
Longitude:	-122.176960107

81
SSE
1/4-1/2
0.443 mi.
2339 ft.

HYUNDAI OF KIRKLAND SERVICE GARAGE **WA ALLSITES** **S114555773**
11651 SLATER AVE NE **N/A**
KIRKLAND, WA 98034

Relative:
Higher

Actual:
191 ft.

ALLSITES:

Facility Name:	HYUNDAI OF KIRKLAND SERVICE GARAGE
Facility Id:	13216

Interaction:	106690
Interaction 1:	I
Interaction 2:	CONSTSWGP
Ecology Program:	WATQUAL
Program Data:	PARIS
Facility Alt.:	Hyundai of Kirkland Service Garage
Program ID:	WAR301519
Date Interaction:	2013-12-04 00:00:00
Date Interaction 3:	Construction SW GP
Latitude:	47.705334680999997
Longitude:	-122.174652412

82
West
1/4-1/2
0.445 mi.
2347 ft.

SAVERS RECYCLING, INC.
12515 116TH AVE NE
KIRKLAND, WA 98034

WA SWRCY **S111776942**
WA SPILLS **N/A**

Relative:
Lower

Actual:
124 ft.

SWRCY:

Facility ID:	81941
Service:	Value Village Kirkland
Phone:	425-821-7186
Extension:	Not reported
Website:	http://www.savers.com/
Email:	mtalmadge@savers.com
Material Category:	Electronics
Material Accepted:	E-readers
Contact Name:	Mike Talmadge
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	9am to 9pm Monday through Saturday - 10:00 AM -7:00 PM Sunday
Comments:	Not reported

Facility ID:	81941
Service:	Value Village Kirkland
Phone:	425-821-7186
Extension:	Not reported
Website:	http://www.savers.com/
Email:	mtalmadge@savers.com
Material Category:	Electronics
Material Accepted:	Computers
Contact Name:	Mike Talmadge
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	9am to 9pm Monday through Saturday - 10:00 AM -7:00 PM Sunday
Comments:	Not reported

Facility ID:	81941
Service:	Value Village Kirkland
Phone:	425-821-7186
Extension:	Not reported
Website:	http://www.savers.com/
Email:	mtalmadge@savers.com
Material Category:	Electronics
Material Accepted:	Monitors
Contact Name:	Mike Talmadge
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	9am to 9pm Monday through Saturday - 10:00 AM -7:00 PM Sunday
Comments:	Not reported

Facility ID:	81941
Service:	Value Village Kirkland
Phone:	425-821-7186
Extension:	Not reported

SAVERS RECYCLING, INC. (Continued) **S111776942**

Website:	http://www.savers.com/
Email:	mtalmadge@savers.com
Material Category:	Electronics
Material Accepted:	Televisions
Contact Name:	Mike Talmadge
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	9am to 9pm Monday through Saturday - 10:00 AM -7:00 PM Sunday
Comments:	Not reported

Facility ID:	81941
Service:	Value Village Kirkland
Phone:	425-821-7186
Extension:	Not reported
Website:	http://www.savers.com/
Email:	mtalmadge@savers.com
Material Category:	Electronics
Material Accepted:	Portable DVD players
Contact Name:	Mike Talmadge
Residential:	Yes
Commercial:	Yes
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	9am to 9pm Monday through Saturday - 10:00 AM -7:00 PM Sunday
Comments:	Not reported

Facility ID:	81941
Service:	Value Village Kirkland
Phone:	425-821-7186
Extension:	Not reported
Website:	http://www.savers.com/
Email:	mtalmadge@savers.com
Material Category:	Miscellaneous
Material Accepted:	Clothes and Textiles
Contact Name:	Mike Talmadge
Residential:	Yes
Commercial:	No
Service Type:	Dropoff and buy-back sites
Light Recycle Participant:	No
Hours:	9am to 9pm Monday through Saturday - 10:00 AM -7:00 PM Sunday
Comments:	Not reported

SPILLS:

Facility ID:	635258
Medium:	SURFACE WATER-FRESH
Material Desc:	PETROLEUM - HYDRAULIC OIL
Material Qty:	0
Material Units:	GALLON
Date Received:	07/19/2012
Contact Name:	Not reported
Incident Date:	Not reported
Incident Category Type:	Not reported
Incident Category:	Not reported
Latitude:	Not reported
Longitude:	Not reported

SAVERS RECYCLING, INC. (Continued) **S111776942**

Source Type:	Not reported
Source:	Not reported
Vessel Facility Name2:	Not reported
Recovered Quantity:	Not reported
Resp Party Contact:	Not reported
Cause:	Not reported
Cause Type:	Not reported
Resp Party Name:	Not reported

S83 **FOOD & DRUG ADMIN, OFFICE OF CRIMINAL IN** **WA ALLSITES** **S111769876**
West **11411 NE 124TH ST** **WA MANIFEST** **N/A**
1/4-1/2 **KIRKLAND, WA 98034**
0.446 mi.
2356 ft. **Site 1 of 2 in cluster S**

Relative:
Higher

Actual:
151 ft.

ALLSITES:

Facility Name:	FOOD & DRUG ADMIN OFFICE OF CRIMINAL IN
Facility Id:	22157

Interaction:	103347
Interaction 1:	A
Interaction 2:	HWOTHER
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Food & Drug Admin, Office of Criminal In
Program ID:	WAH000041012
Date Interaction:	2012-12-31 00:00:00
Date Interaction 3:	Haz Waste Management Acti
Latitude:	47.710573294
Longitude:	-122.18842569

Interaction:	99847
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Food & Drug Admin, Office of Criminal In
Program ID:	WAH000041012
Date Interaction:	2012-02-17 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.710573294
Longitude:	-122.18842569

WA MANIFEST:

Facility Site ID Number:	22157
EPA ID:	WAH000041012
NAICS:	922120
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	2016
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False

FOOD & DRUG ADMIN, OFFICE OF CRIMINAL IN (Continued) **S111769876**

Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	NA
Business Type:	Federal law enforcement
Mail Name:	Food & Drug Admin, Office of Criminal In
Mail addr line1:	11411 NE 124th St
Mail addr line2:	Ste 235
Mail city,st,zip:	Kirkland, WA 98034
Mail country:	UNITED STATES
Legal org name:	G & I IV Kirkland LLC
Legal org type:	Tribal
Legal addr line1:	220 East 22nd St
Legal addr line2:	27th Floor
Legal city,st,zip:	New York, NY 10017
Legal country:	UNITED STATES
Legal phone nbr:	425-283-5791
Legal effective date:	01/01/2000
Land org name:	G & I IV Kirkland LLC
Land org type:	Private
Land person name:	Not reported
Land addr line1:	220 East 22nd St
Land addr line2:	27th Floor
Land city,st,zip:	New York, NY 10017
Land country:	UNITED STATES
Land phone nbr:	425-283-5791
Operator org name:	FDA/Office of Criminal Investigator
Operator org type:	Federal
Operator addr line1:	7500 Standish Place
Operator addr line2:	Ste 250N
Operator city,st,zip:	Rockville, MD 20855
Operator country:	UNITED STATES
Operator phone nbr:	240-276-9500
Operator effective date:	01/01/2011
Site contact name:	Lisa Malinowski
Site contact addr line1:	201 Avenida Fabricante
Site contact addr line2:	Ste 200
Site Contact City/State/ Zip:	San Clemente, CA 92672
Site Contact Country:	UNITED STATES

FOOD & DRUG ADMIN, OFFICE OF CRIMINAL IN (Continued) **S111769876**

Site Contact Phone #:	949-940-4220
Site Contact EMail:	Bruce.Marron@oci.fda.gov
Form Contact NAME:	Michele Wagner
Form Contact ADDR LINE1:	7500 Standish Place
Form Contact ADDR LINE2:	Ste 250N
Form Contact City,ST,Zip:	Rockville, MD 20855
Form Contact Country:	UNITED STATES
Form Contact Phone #:	240-276-9480
Form Contact EMail:	Michele.Wagner@oci.fda.gov
Gen Status CD:	XQG
Monthly Generation:	False
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Facility Site ID Number:	22157
EPA ID:	WAH000041012
NAICS:	922120
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	2017
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False

FOOD & DRUG ADMIN, OFFICE OF CRIMINAL IN (Continued) **S111769876**

Off-specification used oil burner - industrial boiler: False
Off-specification used oil burner - industrial furnace: False

Tax Reg #:	NA
Business Type:	Federal law enforcement
Mail Name:	Food & Drug Admin, Office of Criminal In
Mail addr line1:	11411 NE 124th St
Mail addr line2:	Ste 235
Mail city,st,zip:	Kirkland, WA 98034
Mail country:	UNITED STATES
Legal org name:	G & I IV Kirkland LLC
Legal org type:	Tribal
Legal addr line1:	220 East 22nd St
Legal addr line2:	27th Floor
Legal city,st,zip:	New York, NY 10017
Legal country:	UNITED STATES
Legal phone nbr:	425-283-5791
Legal effective date:	01/01/2000
Land org name:	G & I IV Kirkland LLC
Land org type:	Private
Land person name:	Not reported
Land addr line1:	220 East 22nd St
Land addr line2:	27th Floor
Land city,st,zip:	New York, NY 10017
Land country:	UNITED STATES
Land phone nbr:	425-283-5791
Operator org name:	FDA/Office of Criminal Investigator
Operator org type:	Federal
Operator addr line1:	7500 Standish Place
Operator addr line2:	Ste 250N
Operator city,st,zip:	Rockville, MD 20855
Operator country:	UNITED STATES
Operator phone nbr:	240-276-9500
Operator effective date:	01/01/2011
Site contact name:	Lisa Malinowski
Site contact addr line1:	201 Avenida Fabricante
Site contact addr line2:	Ste 200
Site Contact City/State/ Zip:	San Clemente, CA 92672
Site Contact Country:	UNITED STATES
Site Contact Phone #:	949-940-4220
Site Contact EMail:	Bruce.Marron@oci.fda.gov
Form Contact NAME:	Zachary Olds
Form Contact ADDR LINE1:	7500 Standish Place
Form Contact ADDR LINE2:	Ste 250N
Form Contact City,ST,Zip:	Rockville, MD 20855
Form Contact Country:	UNITED STATES
Form Contact Phone #:	240-276-9497
Form Contact EMail:	Zachary.Olds@fda.hhs.gov
Gen Status CD:	XQG
Monthly Generation:	False
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False

FOOD & DRUG ADMIN, OFFICE OF CRIMINAL IN (Continued) **S111769876**

Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Facility Site ID Number:	22157
EPA ID:	WAH000041012
NAICS:	922120
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	2012
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	NA
Business Type:	Federal law enforcement
Mail Name:	Food & Drug Admin, Office of Criminal In
Mail addr line1:	11411 NE 124th St
Mail addr line2:	Ste 235
Mail city,st,zip:	Kirkland, WA 98034
Mail country:	UNITED STATES
Legal org name:	G & I IV Kirkland LLC
Legal org type:	Tribal
Legal addr line1:	220 East 22nd St
Legal addr line2:	27th Floor
Legal city,st,zip:	New York, NY 10017
Legal country:	UNITED STATES
Legal phone nbr:	425-283-5791
Legal effective date:	01/01/2000
Land org name:	G & I IV Kirkland LLC
Land org type:	Private

FOOD & DRUG ADMIN, OFFICE OF CRIMINAL IN (Continued) **S111769876**

Land person name:	Not reported
Land addr line1:	220 East 22nd St
Land addr line2:	27th Floor
Land city,st,zip:	New York, NY 10017
Land country:	UNITED STATES
Land phone nbr:	425-283-5791
Operator org name:	FDA/Office of Criminal Investigator
Operator org type:	Federal
Operator addr line1:	7500 Standish Place
Operator addr line2:	Ste 250N
Operator city,st,zip:	Rockville, MD 20855
Operator country:	UNITED STATES
Operator phone nbr:	240-276-9500
Operator effective date:	01/01/2011
Site contact name:	Lisa Malinowski
Site contact addr line1:	201 Avenida Fabricante
Site contact addr line2:	Ste 200
Site Contact City/State/ Zip:	San Clemente, CA 92672
Site Contact Country:	UNITED STATES
Site Contact Phone #:	949-940-4220
Site Contact EMail:	Bruce.Marron@oci.fda.gov
Form Contact NAME:	Michele Wagner
Form Contact ADDR LINE1:	7500 Standish Place
Form Contact ADDR LINE2:	Ste 250N
Form Contact City,ST,Zip:	Rockville, MD 20855
Form Contact Country:	UNITED STATES
Form Contact Phone #:	240-276-9480
Form Contact EMail:	Michele.Wagner@oci.fda.gov
Gen Status CD:	XQG
Monthly Generation:	False
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Facility Site ID Number:	22157
EPA ID:	WAH000041012
NAICS:	922120
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	2014
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False

FOOD & DRUG ADMIN, OFFICE OF CRIMINAL IN (Continued) **S111769876**

Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False
Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	NA
Business Type:	Federal law enforcement
Mail Name:	Food & Drug Admin, Office of Criminal In
Mail addr line1:	11411 NE 124th St
Mail addr line2:	Ste 235
Mail city,st,zip:	Kirkland, WA 98034
Mail country:	UNITED STATES
Legal org name:	G & I IV Kirkland LLC
Legal org type:	Tribal
Legal addr line1:	220 East 22nd St
Legal addr line2:	27th Floor
Legal city,st,zip:	New York, NY 10017
Legal country:	UNITED STATES
Legal phone nbr:	425-283-5791
Legal effective date:	01/01/2000
Land org name:	G & I IV Kirkland LLC
Land org type:	Private
Land person name:	Not reported
Land addr line1:	220 East 22nd St
Land addr line2:	27th Floor
Land city,st,zip:	New York, NY 10017
Land country:	UNITED STATES
Land phone nbr:	425-283-5791
Operator org name:	FDA/Office of Criminal Investigator
Operator org type:	Federal
Operator addr line1:	7500 Standish Place
Operator addr line2:	Ste 250N
Operator city,st,zip:	Rockville, MD 20855
Operator country:	UNITED STATES
Operator phone nbr:	240-276-9500
Operator effective date:	01/01/2011
Site contact name:	Lisa Malinowski
Site contact addr line1:	201 Avenida Fabricante
Site contact addr line2:	Ste 200
Site Contact City/State/ Zip:	San Clemente, CA 92672
Site Contact Country:	UNITED STATES

FOOD & DRUG ADMIN, OFFICE OF CRIMINAL IN (Continued) **S111769876**

Site Contact Phone #:	949-940-4220
Site Contact EMail:	Bruce.Marron@oci.fda.gov
Form Contact NAME:	Michele Wagner
Form Contact ADDR LINE1:	7500 Standish Place
Form Contact ADDR LINE2:	Ste 250N
Form Contact City,ST,Zip:	Rockville, MD 20855
Form Contact Country:	UNITED STATES
Form Contact Phone #:	240-276-9480
Form Contact EMail:	Michele.Wagner@oci.fda.gov
Gen Status CD:	XQG
Monthly Generation:	False
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False
Used Oil Transporter:	False
Used Oil Transfer Facility:	False
Used Oil Processor:	False
Used Oil Refiner:	False
Used Oil Fuel Marketer Directs Shipments:	False
Used Oil Fuel Marketer Meets Specs:	False

Facility Site ID Number:	22157
EPA ID:	WAH000041012
NAICS:	922120
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	Not reported
Data Year:	2015
Permit by Rule:	False
Treatment by Generator:	False
Mixed radioactive waste:	False
Importer of hazardous waste:	False
Immediate recycler:	False
Treatment/Storage/Disposal/Recycling Facility:	False
Generator of dangerous fuel waste:	False
Generator marketing to burner:	False
Other marketers (i.e., blender, distributor, etc.):	False
Utility boiler burner:	False
Industry boiler burner:	False
Industrial Furnace:	False
Smelter defferal:	False
Universal waste - batteries - generate:	False
Universal waste - thermostats - generate:	False
Universal waste - mercury - generate:	False
Universal waste - lamps - generate:	False
Universal waste - batteries - accumulate:	False
Universal waste - thermostats - accumulate:	False
Universal waste - mercury - accumulate:	False
Universal waste - lamps - accumulate:	False
Destination Facility for Universal Waste:	False
Off-specification used oil burner - utility boiler:	False

FOOD & DRUG ADMIN, OFFICE OF CRIMINAL IN (Continued) **S111769876**

Off-specification used oil burner - industrial boiler:	False
Off-specification used oil burner - industrial furnace:	False
Tax Reg #:	NA
Business Type:	Federal law enforcement
Mail Name:	Food & Drug Admin, Office of Criminal In
Mail addr line1:	11411 NE 124th St
Mail addr line2:	Ste 235
Mail city,st,zip:	Kirkland, WA 98034
Mail country:	UNITED STATES
Legal org name:	G & I IV Kirkland LLC
Legal org type:	Tribal
Legal addr line1:	220 East 22nd St
Legal addr line2:	27th Floor
Legal city,st,zip:	New York, NY 10017
Legal country:	UNITED STATES
Legal phone nbr:	425-283-5791
Legal effective date:	01/01/2000
Land org name:	G & I IV Kirkland LLC
Land org type:	Private
Land person name:	Not reported
Land addr line1:	220 East 22nd St
Land addr line2:	27th Floor
Land city,st,zip:	New York, NY 10017
Land country:	UNITED STATES
Land phone nbr:	425-283-5791
Operator org name:	FDA/Office of Criminal Investigator
Operator org type:	Federal
Operator addr line1:	7500 Standish Place
Operator addr line2:	Ste 250N
Operator city,st,zip:	Rockville, MD 20855
Operator country:	UNITED STATES
Operator phone nbr:	240-276-9500
Operator effective date:	01/01/2011
Site contact name:	Lisa Malinowski
Site contact addr line1:	201 Avenida Fabricante
Site contact addr line2:	Ste 200
Site Contact City/State/ Zip:	San Clemente, CA 92672
Site Contact Country:	UNITED STATES
Site Contact Phone #:	949-940-4220
Site Contact EMail:	Bruce.Marron@oci.fda.gov
Form Contact NAME:	Michele Wagner
Form Contact ADDR LINE1:	7500 Standish Place
Form Contact ADDR LINE2:	Ste 250N
Form Contact City,ST,Zip:	Rockville, MD 20855
Form Contact Country:	UNITED STATES
Form Contact Phone #:	240-276-9480
Form Contact EMail:	Michele.Wagner@oci.fda.gov
Gen Status CD:	XQG
Monthly Generation:	False
Batch Generation:	False
One Time Generation:	False
Transport Own Waste:	False
Tranports Other Waste:	False
Recycler Onsite:	False
Transfer Facility:	False
Other Exemption:	Not reported
UW Battery Gen:	False

FOOD & DRUG ADMIN, OFFICE OF CRIMINAL IN (Continued) **S111769876**

Used Oil Transporter: False
Used Oil Transfer Facility: False
Used Oil Processor: False
Used Oil Refiner: False
Used Oil Fuel Marketer Directs Shipments: False
Used Oil Fuel Marketer Meets Specs: False

84
SSW
1/4-1/2
0.449 mi.
2370 ft.

NEXTEL PNW 2-3
11710 118TH AVE NE
KIRKLAND, WA 98034

WA ALLSITES **S109553351**
WA NPDES **N/A**

Relative:
Higher

Actual:
207 ft.

ALLSITES:
Facility Name: NEXTEL PNW 2-3
Facility Id: 6714467

Interaction: 19444
Interaction 1: A
Interaction 2: TIER2
Ecology Program: HAZWASTE
Program Data: EPCRA
Facility Alt.: Not reported
Program ID: CRK000054180
Date Interaction: 2004-02-09 00:00:00
Date Interaction 3: Emergency/Haz Chem Rpt TI
Latitude: 47.705251322999999
Longitude: -122.184714231

Interaction: 19443
Interaction 1: A
Interaction 2: TIER2
Ecology Program: HAZWASTE
Program Data: EPCRA
Facility Alt.: Not reported
Program ID: CRK000054180
Date Interaction: 2003-09-15 00:00:00
Date Interaction 3: Emergency/Haz Chem Rpt TI
Latitude: 47.705251322999999
Longitude: -122.184714231

Interaction: 114765
Interaction 1: A
Interaction 2: INDSWGP
Ecology Program: WATQUAL
Program Data: PARIS
Facility Alt.: Amazon.com.DEDC LLC-UWA1
Program ID: CNE303659
Date Interaction: 2015-09-15 00:00:00
Date Interaction 3: Industrial SW GP
Latitude: 47.705251322999999
Longitude: -122.184714231

NEXTEL PNW 2-3 (Continued) **S109553351**

NPDES:

Facility Status:	Not reported
Facility Type:	Industrial SW GP
Admin Region:	Headqarters
Date Issued:	08/18/2015
Latitude:	Not reported
Longitude:	Not reported
Permit ID:	CNE303659
Permit Version:	Not reported
Permit Status:	Active
Permit SubStatus:	Not reported
Ecology Contact:	Not reported
WRIA:	Not reported
Permit Expiration Date:	12/31/2019
Effective Date:	08/18/2015
Days to Expiration:	-531

R85 **SKELETECH INC** **WA ALLSITES** **1001969597**
WSW **12026 115TH AVE NE** **RCRA NonGen / NLR** **WAH000005611**
1/4-1/2 **KIRKLAND, WA 98034** **FINDS**
0.449 mi. **ECHO**
2373 ft. **Site 2 of 3 in cluster R**

Relative:
Higher

Actual:
178 ft.

ALLSITES:

Facility Name:	SKELETECH INC
Facility Id:	71187283
Interaction:	59878
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAH000005611
Date Interaction:	1998-06-26 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.699394362
Longitude:	-122.18900010599999

RCRA NonGen / NLR:

Date form received by agency:	11/30/1999
Facility name:	SKELETECH INC
Facility address:	12026 115TH AVE NE KIRKLAND, WA 98034
EPA ID:	WAH000005611
Mailing address:	22002 26TH AVE SE #104 BOTHELL, WA 98021-4902
Contact:	SKELETECH INC SKELETECH INC
Contact address:	22002 26TH AVE SE #104 BOTHELL, WA 98021-4902
Contact country:	US
Contact telephone:	000-000-0000
Contact email:	Not reported
EPA Region:	10
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

SKELETECH INC (Continued) **1001969597**

Owner/Operator Summary:

Owner/operator name:	TINA B
Owner/operator address:	12026 115TH AVE NE KIRKLAND, WA 98034
Owner/operator country:	US
Owner/operator telephone:	425-823-4141
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	06/26/1998
Owner/Op end date:	Not reported

Owner/operator name:	CHRIS JEROME S
Owner/operator address:	12026 115TH AVE NE KIRKLAND, WA 98034
Owner/operator country:	US
Owner/operator telephone:	000-000-0000
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	06/26/1998
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	11/30/1999
Site name:	SKELETECH INC
Classification:	Not a generator, verified
Violation Status:	No violations found

FINDS:

Registry ID: 110005393047

Environmental Interest/Information System

SKELETECH INC (Continued) **1001969597**

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1001969597
Registry ID:	110005393047
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110005393047

R86 **ROSETTA INPHARMATICS LLC H** **WA ALLSITES** **1001600514**
WSW **12004 115TH AVE NE** **RCRA NonGen / NLR** **WAH000009043**
1/4-1/2 **KIRKLAND, WA 98034** **FINDS**
0.449 mi. **ECHO**
2373 ft. **Site 3 of 3 in cluster R**

Relative:
Higher

Actual:
178 ft.

ALLSITES:

Facility Name:	ROSETTA INPHARMATICS LLC H
Facility Id:	65835863

Interaction:	57384
Interaction 1:	I
Interaction 2:	HWP
Ecology Program:	HAZWASTE
Program Data:	HWPPRT
Facility Alt.:	Not reported
Program ID:	WAH000009043
Date Interaction:	2002-01-01 00:00:00
Date Interaction 3:	Hazardous Waste Planner
Latitude:	47.707550537000003
Longitude:	-122.18719245

Interaction:	57385
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAH000009043
Date Interaction:	1999-07-15 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.707550537000003
Longitude:	-122.18719245

RCRA NonGen / NLR:

Date form received by agency:	10/04/2004
Facility name:	ROSETTA INPHARMATICS LLC H
Facility address:	12004 115TH AVE NE KIRKLAND, WA 98034

ROSETTA INPHARMATICS LLC H (Continued) **1001600514**

EPA ID:	WAH000009043
Mailing address:	401 TERRY AVE N SEATTLE, WA 98109
Contact:	ROSETTA INPHARM ROSETTA INPHARM
Contact address:	401 TERRY AVE N SEATTLE, WA 98109
Contact country:	US
Contact telephone:	000-000-0000
Contact email:	Not reported
EPA Region:	10
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	MERCK + CO INC
Owner/operator address:	PO BOX 100 WHITEHOUSE STATION, NJ 08889
Owner/operator country:	US
Owner/operator telephone:	Not reported
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	07/19/2001
Owner/Op end date:	Not reported

Owner/operator name:	ROSETTA INPHARM R
Owner/operator address:	401 TERRY AVE N SEATTLE, WA 98109
Owner/operator country:	US
Owner/operator telephone:	206-802-6385
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	07/16/1998
Owner/Op end date:	Not reported

Owner/operator name:	ROSETTA INPHARMATICS LLC
Owner/operator address:	401 TERRY AVE N SEATTLE, WA 98109
Owner/operator country:	US
Owner/operator telephone:	Not reported
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	07/16/1999
Owner/Op end date:	Not reported

Owner/operator name:	MERCK & COMPANY M
Owner/operator address:	PO BOX 100 WHITEHOUSE STATION, NJ 08889
Owner/operator country:	US

ROSETTA INPHARMATICS LLC H (Continued) **1001600514**

Owner/operator telephone: 908-423-1000
Owner/operator email: Not reported
Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 05/19/2001
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 03/31/2004
Site name: ROSETTA INPHARMATICS INC 12004 115TH
Classification: Conditionally Exempt Small Quantity Generator

. Waste code: F003
. Waste name: THE FOLLOWING SPENT NON-HALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NON-HALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NON-HALOGENATED SOLVENTS, AND, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

. Waste code: U002
. Waste name: ACETONE (I)

. Waste code: WT02
. Waste name: WT02

Date form received by agency: 12/31/2003
Site name: ROSETTA INPHARMATICS INC 12004 115TH
Classification: Large Quantity Generator

Date form received by agency: 02/28/2002
Site name: ROSETTA INPHARMATICS INC 12004 115TH
Classification: Large Quantity Generator

ROSETTA INPHARMATICS LLC H (Continued) **1001600514**

Violation Status: No violations found

FINDS:

Registry ID: 110005395759

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZARDOUS WASTE BIENNIAL REPORTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1001600514
Registry ID: 110005395759
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110005395759

S87 **AMERITECH LASER INC** **WA SWF/LF** **S118401467**
West **11410 NE 124TH ST 133** **N/A**
1/4-1/2 **KIRKLAND, WA 98034**
0.452 mi.
2384 ft. **Site 2 of 2 in cluster S**

Relative:
Higher

Actual:
142 ft.

SWF/LF:
Facility ID: 686
Region: STATE
Permit Status: Recycle Survey
Contact Organization: Ameritech Laser Inc
Contact Address1: 11410 Ne 124th St 133
Contact Address2: Not reported
Contact City: Kirkland
Contact State: WA
Contact Postal: 98034
Contact EMail: Not reported
Contact Phone: (425) 825-1153
Contact Phone Ext: Not reported
Permit No: Not reported
Phone: Not reported
Operator Name: Not reported
Operator Organization: Ameritech Laser Inc
Operator EMail: Not reported
Operator Title: Not reported
Recycle Survey Code: 6783

AMERITECH LASER INC (Continued) **S118401467**

Ownership:	Not reported
Facility Type:	Recycling (non-regulated)
Contact Name:	Jay Mortenson
Contact Title:	President
Year Closed:	Not reported
Open to Public Flag:	No
Website:	Not reported
Latitude:	Not reported
Longitude:	Not reported

88
SW
1/4-1/2
0.464 mi.
2451 ft.

LIFEBRIDGE
11725 NE 118TH ST
KIRKLAND, WA 98034

WA ALLSITES **S121304709**
WA ASBESTOS **N/A**
WA NPDES

Relative:
Higher

Actual:
166 ft.

ALLSITES:

Facility Name:	LIFEBRIDGE
Facility Id:	21866
Interaction:	123335
Interaction 1:	A
Interaction 2:	CONSTSWGP
Ecology Program:	WATQUAL
Program Data:	PARIS
Facility Alt.:	LifeBridge
Program ID:	WAR305971
Date Interaction:	2017-07-05 00:00:00
Date Interaction 3:	Construction SW GP
Latitude:	47.705274719999998
Longitude:	-122.185495589

ASBESTOS:

Facility Type:	Not reported
Parent ID:	Not reported
Form ID:	121123#2129989585
Notice Date:	06/01/2018
Start Date:	03/19/2018
Completion Date:	05/21/2018
Initial:	Not reported
Amended:	Not reported
On Hold:	Not reported
Off Hold:	Not reported
Emergency:	Not reported
Site Hours Start:	Not reported
Site Hours End:	Not reported
Sunday:	Not reported
Monday:	Not reported
Tuesday:	Not reported
Wednesday:	Not reported
Thursday:	Not reported
Friday:	Not reported
Saturday:	Not reported
Contractor ID:	ABCN00001008
Phone:	Not reported
Job Site CAS:	Not reported

LIFEBRIDGE (Continued) **S121304709**

Project Form Email:	Not reported
Property Owner Name:	Not reported
Property Owner Agent:	Not reported
Property Owner Company:	DICKSON COMPANY (TACOMA)
Property Owner Address:	Not reported
Property Owner City:	Not reported
Property Owner State:	Not reported
Property Owner Zip4:	Not reported
Property Owner Phone:	Not reported
Job Site Room:	Not reported
Facility Age:	Not reported
Facility Size:	Not reported
Facility Remodel:	Not reported
Facility Demo:	Not reported
Facility Repair:	Not reported
Facility Maint:	Not reported
Removed:	Not reported
Encapsulated:	Not reported
Quantity Sq Ft:	Not reported
Fireproofing:	Not reported
Popcorn Ceiling:	Not reported
CAB:	Not reported
Sheet Vinyl:	Not reported
Asbestos Paper:	Not reported
Boiler Insulation:	Not reported
Duct Paper:	Not reported
VAT:	Not reported
Roofing:	Not reported
Sq Ft Other:	Not reported
Sq Ft Other Text:	Not reported
Quantity Lin Ft:	Not reported
Mag Pipe Insulation:	Not reported
Air Cell Pipe Insulation:	Not reported
Ducting Insulation:	Not reported
Cement Asbestos Pipe:	Not reported
Mudded Pipe Insulation:	Not reported
Duct Tape:	Not reported
Lin Ft Other1:	Not reported
Lin Ft Other1 Text:	Not reported
Lin Ft Other2:	Not reported
Lin Ft Other2 Text:	Not reported
Indoors:	Not reported
Outdoors:	Not reported
Neg Pres Enclosure:	Not reported
Glove Bag:	Not reported
Mini Enclosure:	Not reported
Critical Barriers:	Not reported
Wrap And Cut:	Not reported
Wet Methods:	Not reported
HEPA Vacuum:	Not reported
MANUALMETHODS :	Not reported
Other CM1:	Not reported
Other CM1 Text:	Not reported
Other CM2:	Not reported
Other CM2 Text:	Not reported
Half Mask APR:	Not reported
Full Face APR:	Not reported

LIFEBRIDGE (Continued) **S121304709**

PAPR:	Not reported
Type C Continuous:	Not reported
Type C Pressure:	Not reported
Other Resp Pro:	Not reported
Other Resp Pro Text:	Not reported
Comments:	Not reported
Date Time Submitted:	Not reported
Submitter IP Address:	Not reported
Region:	Not reported
UBI:	Not reported
Notice type:	Not reported
Project Type:	Not reported
Supervisor:	Not reported
Supervisor Phone:	Not reported
Certificate Status:	Not reported
Facility Type:	Not reported
Parent ID:	Not reported
Form ID:	124804#615513766
Notice Date:	06/11/2018
Start Date:	06/11/2018
Completion Date:	06/13/2018
Initial:	Not reported
Amended:	Not reported
On Hold:	Not reported
Off Hold:	Not reported
Emergency:	Not reported
Site Hours Start:	Not reported
Site Hours End:	Not reported
Sunday:	Not reported
Monday:	Not reported
Tuesday:	Not reported
Wednesday:	Not reported
Thursday:	Not reported
Friday:	Not reported
Saturday:	Not reported
Contractor ID:	ABCN00001515
Phone:	Not reported
Job Site CAS:	Not reported
Project Form Email:	Not reported
Property Owner Name:	Not reported
Property Owner Agent:	Not reported
Property Owner Company:	PACIFIC NORTHWEST ENVIRONMENTA (DAMASCUS)
Property Owner Address:	Not reported
Property Owner City:	Not reported
Property Owner State:	Not reported
Property Owner Zip4:	Not reported
Property Owner Phone:	Not reported
Job Site Room:	Not reported
Facility Age:	Not reported
Facility Size:	Not reported
Facility Remodel:	Not reported
Facility Demo:	Not reported
Facility Repair:	Not reported
Facility Maint:	Not reported
Removed:	Not reported
Encapsulated:	Not reported

LIFEBRIDGE (Continued) **S121304709**

Quantity Sq Ft:	Not reported
Fireproofing:	Not reported
Popcorn Ceiling:	Not reported
CAB:	Not reported
Sheet Vinyl:	Not reported
Asbestos Paper:	Not reported
Boiler Insulation:	Not reported
Duct Paper:	Not reported
VAT:	Not reported
Roofing:	Not reported
Sq Ft Other:	Not reported
Sq Ft Other Text:	Not reported
Quantity Lin Ft:	Not reported
Mag Pipe Insulation:	Not reported
Air Cell Pipe Insulation:	Not reported
Ducting Insulation:	Not reported
Cement Asbestos Pipe:	Not reported
Mudded Pipe Insulation:	Not reported
Duct Tape:	Not reported
Lin Ft Other1:	Not reported
Lin Ft Other1 Text:	Not reported
Lin Ft Other2:	Not reported
Lin Ft Other2 Text:	Not reported
Indoors:	Not reported
Outdoors:	Not reported
Neg Pres Enclosure:	Not reported
Glove Bag:	Not reported
Mini Enclosure:	Not reported
Critical Barriers:	Not reported
Wrap And Cut:	Not reported
Wet Methods:	Not reported
HEPA Vacuum:	Not reported
MANUALMETHODS :	Not reported
Other CM1:	Not reported
Other CM1 Text:	Not reported
Other CM2:	Not reported
Other CM2 Text:	Not reported
Half Mask APR:	Not reported
Full Face APR:	Not reported
PAPR:	Not reported
Type C Continuous:	Not reported
Type C Pressure:	Not reported
Other Resp Pro:	Not reported
Other Resp Pro Text:	Not reported
Comments:	Not reported
Date Time Submitted:	Not reported
Submitter IP Address:	Not reported
Region:	Not reported
UBI:	Not reported
Notice type:	Not reported
Project Type:	Not reported
Supervisor:	Not reported
Supervisor Phone:	Not reported
Certificate Status:	Not reported

NPDES:

Facility Status:	Not reported

LIFEBRIDGE (Continued) **S121304709**

Facility Type:	Construction SW GP
Admin Region:	Headqarters
Date Issued:	11/18/2015
Latitude:	Not reported
Longitude:	Not reported
Permit ID:	WAR305971
Permit Version:	Not reported
Permit Status:	Active
Permit SubStatus:	Not reported
Ecology Contact:	Not reported
WRIA:	Not reported
Permit Expiration Date:	12/31/2020
Effective Date:	11/14/2017
Days to Expiration:	-897

T89 **CLARKS WHEEL** **WA ALLSITES** **S109554259**
South **12232 NE 116TH ST STE B** **N/A**
1/4-1/2 **KIRKLAND, WA 98034**
0.478 mi.
2522 ft. **Site 1 of 3 in cluster T**

Relative:
Higher

Actual:
190 ft.

ALLSITES:

Facility Name:	CLARKS WHEEL
Facility Id:	19979378

Interaction:	31404
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD009238668
Date Interaction:	1985-06-19 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.703904360999999
Longitude:	-122.17800510799999

Interaction:	31405
Interaction 1:	I
Interaction 2:	HWP
Ecology Program:	HAZWASTE
Program Data:	HWPPRT
Facility Alt.:	Not reported
Program ID:	WAD009238668
Date Interaction:	1993-01-01 00:00:00
Date Interaction 3:	Hazardous Waste Planner
Latitude:	47.703904360999999
Longitude:	-122.17800510799999

T90 South 1/4-1/2 0.478 mi. 2522 ft. | **ESCHEN AUTOMOTIVE INC**
12232 NE 116TH ST STE A
KIRKLAND, WA | **WA ALLSITES** | **S109552280**
N/A

Site 2 of 3 in cluster T

Relative: Higher
Actual: 190 ft.

ALLSITES:

Facility Name:	ESCHEN AUTOMOTIVE INC
Facility Id:	3592744
Interaction:	13007
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD988505251
Date Interaction:	1991-10-17 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.703904360999999
Longitude:	-122.17800510799999

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91 SSW 1/4-1/2 0.481 mi. 2540 ft. | **AT&T WIRELESS JUANITA**
11616 120TH AVE NE
KIRKLAND, WA 98034 | **WA ALLSITES FINDS** | **1007728499**
N/A

Relative: Higher
Actual: 178 ft.

ALLSITES:

Facility Name:	AT&T WIRELESS JUANITA
Facility Id:	5991947
Interaction:	17975
Interaction 1:	I
Interaction 2:	TIER2
Ecology Program:	HAZWASTE
Program Data:	EPCRA
Facility Alt.:	Not reported
Program ID:	CRK000055720
Date Interaction:	2003-09-15 00:00:00
Date Interaction 3:	Emergency/Haz Chem Rpt TI
Latitude:	47.703813109999999
Longitude:	-122.18229947499999

FINDS:

Registry ID: 110018851624

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

AT&T WIRELESS JUANITA (Continued) **1007728499**

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

T92 **ULTRA ONE HOUR CLEANERS** **WA ALLSITES** **1001490440**
South **11613 124TH AVE NE** **RCRA NonGen / NLR** **WAD981773633**
1/4-1/2 **KIRKLAND, WA 98034** **FINDS**
0.482 mi. **ECHO**
2544 ft. **Site 3 of 3 in cluster T** **WA Inactive Drycleaners**

Relative:
Higher

Actual:
195 ft.

ALLSITES:

Facility Name:	ULTRA ONE HOUR CLEANERS
Facility Id:	72134819
Interaction:	60496
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD981773633
Date Interaction:	1988-05-17 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.704114359999998
Longitude:	-122.175825109

RCRA NonGen / NLR:

Date form received by agency:	05/28/1997
Facility name:	ULTRA ONE HOUR CLEANERS
Facility address:	11613 124TH AVE NE KIRKLAND, WA 98033
EPA ID:	WAD981773633
Contact:	KENNY CHONG ROH
Contact address:	11613 124TH AVE NE KIRKLAND, WA 98034-8106
Contact country:	US
Contact telephone:	000-000-0000
Contact email:	Not reported
EPA Region:	10
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No

ULTRA ONE HOUR CLEANERS (Continued) **1001490440**

Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 05/27/1997
Site name: ULTRA ONE HOUR CLEANERS
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 02/18/1997
Site name: ULTRA ONE HOUR CLEANERS
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 12/31/1993
Site name: ULTRA ONE HOUR CLEANERS
Classification: Conditionally Exempt Small Quantity Generator

Violation Status: No violations found

FINDS:

Registry ID: 110005344564

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:
Envid: 1001490440
Registry ID: 110005344564
DFR URL: http://echo.epa.gov/detailed-facility-report?fid=110005344564

INACTIVE DRYCLEANERS:
EPA I: WAD981773633
FS Id: 12658
Facility ID: 12658
NAICS Code: 81232
Fed Waste Code Desc: Not reported
State Waste Code Desc: Not reported
TAX REG NBR: Not reported
BUSINESS TYPE: Not reported
MAIL NAME: Not reported

ULTRA ONE HOUR CLEANERS (Continued) **1001490440**

MAIL LINE1:	Not reported
MAIL LINE2:	Not reported
MAIL CITY:	Not reported
MAIL STATE:	Not reported
MAIL ZIP:	Not reported
MAIL COUNTRY:	Not reported
LEGAL ORG NAME:	Not reported
LEGAL PERSON FIRST NAME:	Not reported
LEGAL PERSON MIDDLE INIT:	Not reported
LEGAL PERSON LAST NAME:	Not reported
LEGAL LINE1:	Not reported
LEGAL LINE2:	Not reported
LEGAL CITY:	Not reported
LEGAL STATE:	Not reported
LEGAL ZIP:	Not reported
LEGAL COUNTRY:	Not reported
LEGAL PHONE NBR:	Not reported
LEGAL EFFECTIVE DATE:	Not reported
LEGAL ORGANIZATION TYPE:	Not reported
LAND ORG NAME:	Not reported
LAND PERSON FIRST NAME:	Not reported
LAND PERSON MIDDLE INIT:	Not reported
LAND PERSON LAST NAME:	Not reported
LAND LINE1:	Not reported
LAND LINE2:	Not reported
LAND CITY:	Not reported
LAND STATE:	Not reported
LAND ZIP:	Not reported
LAND COUNTRY:	Not reported
LAND PHONE NBR:	Not reported
LAND ORGANIZATION TYPE:	Not reported
OPERATOR ORG NAME:	Not reported
OPERATOR PERSON FIRST NAME:	Not reported
OPERATOR PERSON MIDDLE INIT:	Not reported
OPERATOR PERSON LAST NAME:	Not reported
OPERATOR LINE1:	Not reported
OPERATOR LINE2:	Not reported
OPERATOR CITY:	Not reported
OPERATOR STATE:	Not reported
OPERATOR ZIP:	Not reported
OPERATOR COUNTRY:	Not reported
OPERATOR PHONE NBR:	Not reported
OPERATOR EFFECTIVE DATE:	Not reported
OPERATOR ORGANIZATION TYPE:	Not reported
SITE CONTACT FIRST NAME:	Not reported
SITE CONTACT MIDDLE INIT:	Not reported
SITE CONTACT LAST NAME:	Not reported
SITE CONTACT LINE1:	Not reported
SITE CONTACT LINE2:	Not reported
SITE CONTACT CITY:	Not reported
SITE CONTACT STATE:	Not reported
SITE CONTACT ZIP:	Not reported
SITE CONTACT COUNTRY:	Not reported
SITE CONTACT PHONE NBR:	Not reported
SITE CONTACT EMAIL:	Not reported
FORM CONTACT FIRST NAME:	Not reported
FORM CONTACT MIDDLE INIT:	Not reported

ULTRA ONE HOUR CLEANERS (Continued) **1001490440**

FORM CONTACT LAST NAME:	Not reported
FORM CONTACT LINE1:	Not reported
FORM CONTACT LINE2:	Not reported
FORM CONTACT CITY:	Not reported
FORM CONTACT STATE:	Not reported
FORM CONTACT ZIP:	Not reported
FORM CONTACT COUNTRY:	Not reported
FORM CONTACT PHONE NBR:	Not reported
FORM CONTACT EMAIL:	Not reported
GEN STATUS CD:	Not reported
MONTHLY GENERATION:	Not reported
BATCH GENERATION:	Not reported
ONE TIME GENERATION:	Not reported
TRANSPORTS OWN WASTE:	Not reported
TRANSPORTS OTHERS WASTE:	Not reported
RECYCLER ONSITE:	Not reported
TRANSFER FACILITY:	Not reported
PBR:	Not reported
TBG:	Not reported
MIXED RADIOACTIVE:	Not reported
IMPORTER:	Not reported
TSDR FACILITY:	Not reported
IMMEDIATE RECYCLER:	Not reported
GEN DANG FUEL:	Not reported
GEN MARKET TO BURNER:	Not reported
GEN OTHER MARKETERS:	Not reported
UTILITY BOILER BURNER:	Not reported
INDUSTRY BOILER BURNER:	Not reported
FURNACE BURNER:	Not reported
SMELTER DEFERRAL:	Not reported
SMALL QTY EXEMPTION:	Not reported
OTHER EXEMPTION:	Not reported
UW BATTERY GEN:	Not reported
UW THERMOSTATS GEN:	Not reported
UW MERCURY GEN:	Not reported
UW LAMPS GEN:	Not reported
UW BATTERY ACCUM:	Not reported
UW THERMOSTATS ACCUM:	Not reported
UW MERCURY ACCUM:	Not reported
UW LAMPS ACCUM:	Not reported
UW DESTINATION FACILITY:	Not reported
OFF SPEC UTILITY BOILER:	Not reported
OFF SPEC INDUSTRY BOILER:	Not reported
OFF SPEC FURNACE:	Not reported
USED OIL TRANSPORTER:	Not reported
USED OIL TRANSFER FACILITY:	Not reported
USED OIL PROCESSOR:	Not reported
USED OIL REREFINER:	Not reported
USED OIL FUEL MARKETER DIR SHIPMENTS:	Not reported
USED OIL FUEL MARKETER MEETS SPECS:	Not reported
ECO Int Type Code:	Not reported
Status Code:	Not reported
Start Date:	Not reported
End Date:	Not reported
NAICS DS:	Not reported
Program Name:	Not reported
FS SIC Code:	Not reported

ULTRA ONE HOUR CLEANERS (Continued) **1001490440**

SIC DS:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Comments:	Not reported
EPA I:	Not reported
FS Id:	72134819
Facility ID:	72134819
NAICS Code:	Not reported
Fed Waste Code Desc:	Not reported
State Waste Code Desc:	Not reported
TAX REG NBR:	Not reported
BUSINESS TYPE:	Not reported
MAIL NAME:	Not reported
MAIL LINE1:	Not reported
MAIL LINE2:	Not reported
MAIL CITY:	Not reported
MAIL STATE:	Not reported
MAIL ZIP:	Not reported
MAIL COUNTRY:	Not reported
LEGAL ORG NAME:	Not reported
LEGAL PERSON FIRST NAME:	Not reported
LEGAL PERSON MIDDLE INIT:	Not reported
LEGAL PERSON LAST NAME:	Not reported
LEGAL LINE1:	Not reported
LEGAL LINE2:	Not reported
LEGAL CITY:	Not reported
LEGAL STATE:	Not reported
LEGAL ZIP:	Not reported
LEGAL COUNTRY:	Not reported
LEGAL PHONE NBR:	Not reported
LEGAL EFFECTIVE DATE:	Not reported
LEGAL ORGANIZATION TYPE:	Not reported
LAND ORG NAME:	Not reported
LAND PERSON FIRST NAME:	Not reported
LAND PERSON MIDDLE INIT:	Not reported
LAND PERSON LAST NAME:	Not reported
LAND LINE1:	Not reported
LAND LINE2:	Not reported
LAND CITY:	Not reported
LAND STATE:	Not reported
LAND ZIP:	Not reported
LAND COUNTRY:	Not reported
LAND PHONE NBR:	Not reported
LAND ORGANIZATION TYPE:	Not reported
OPERATOR ORG NAME:	Not reported
OPERATOR PERSON FIRST NAME:	Not reported
OPERATOR PERSON MIDDLE INIT:	Not reported
OPERATOR PERSON LAST NAME:	Not reported
OPERATOR LINE1:	Not reported
OPERATOR LINE2:	Not reported
OPERATOR CITY:	Not reported
OPERATOR STATE:	Not reported
OPERATOR ZIP:	Not reported
OPERATOR COUNTRY:	Not reported
OPERATOR PHONE NBR:	Not reported
OPERATOR EFFECTIVE DATE:	Not reported
OPERATOR ORGANIZATION TYPE:	Not reported

ULTRA ONE HOUR CLEANERS (Continued) **1001490440**

SITE CONTACT FIRST NAME:	Not reported
SITE CONTACT MIDDLE INIT:	Not reported
SITE CONTACT LAST NAME:	Not reported
SITE CONTACT LINE1:	Not reported
SITE CONTACT LINE2:	Not reported
SITE CONTACT CITY:	Not reported
SITE CONTACT STATE:	Not reported
SITE CONTACT ZIP:	Not reported
SITE CONTACT COUNTRY:	Not reported
SITE CONTACT PHONE NBR:	Not reported
SITE CONTACT EMAIL:	Not reported
FORM CONTACT FIRST NAME:	Not reported
FORM CONTACT MIDDLE INIT:	Not reported
FORM CONTACT LAST NAME:	Not reported
FORM CONTACT LINE1:	Not reported
FORM CONTACT LINE2:	Not reported
FORM CONTACT CITY:	Not reported
FORM CONTACT STATE:	Not reported
FORM CONTACT ZIP:	Not reported
FORM CONTACT COUNTRY:	Not reported
FORM CONTACT PHONE NBR:	Not reported
FORM CONTACT EMAIL:	Not reported
GEN STATUS CD:	Not reported
MONTHLY GENERATION:	Not reported
BATCH GENERATION:	Not reported
ONE TIME GENERATION:	Not reported
TRANSPORTS OWN WASTE:	Not reported
TRANSPORTS OTHERS WASTE:	Not reported
RECYCLER ONSITE:	Not reported
TRANSFER FACILITY:	Not reported
PBR:	Not reported
TBG:	Not reported
MIXED RADIOACTIVE:	Not reported
IMPORTER:	Not reported
TSDR FACILITY:	Not reported
IMMEDIATE RECYCLER:	Not reported
GEN DANG FUEL:	Not reported
GEN MARKET TO BURNER:	Not reported
GEN OTHER MARKETERS:	Not reported
UTILITY BOILER BURNER:	Not reported
INDUSTRY BOILER BURNER:	Not reported
FURNACE BURNER:	Not reported
SMELTER DEFERRAL:	Not reported
SMALL QTY EXEMPTION:	Not reported
OTHER EXEMPTION:	Not reported
UW BATTERY GEN:	Not reported
UW THERMOSTATS GEN:	Not reported
UW MERCURY GEN:	Not reported
UW LAMPS GEN:	Not reported
UW BATTERY ACCUM:	Not reported
UW THERMOSTATS ACCUM:	Not reported
UW MERCURY ACCUM:	Not reported
UW LAMPS ACCUM:	Not reported
UW DESTINATION FACILITY:	Not reported
OFF SPEC UTILITY BOILER:	Not reported
OFF SPEC INDUSTRY BOILER:	Not reported
OFF SPEC FURNACE:	Not reported

ULTRA ONE HOUR CLEANERS (Continued) **1001490440**

USED OIL TRANSPORTER:	Not reported
USED OIL TRANSFER FACILITY:	Not reported
USED OIL PROCESSOR:	Not reported
USED OIL REREFINER:	Not reported
USED OIL FUEL MARKETER DIR SHIPMENTS:	Not reported
USED OIL FUEL MARKETER MEETS SPECS:	Not reported
ECO Int Type Code:	HWG
Status Code:	I
Start Date:	05/17/1988
End Date:	12/31/1995
NAICS DS:	Not reported
Program Name:	7216
FS SIC Code:	Drycleaning Plants, Except Rug Cleaning
SIC DS:	HAZWASTE
Latitude:	47.70412
Longitude:	-122.17584
Comments:	Not reported

93
South
1/4-1/2
0.494 mi.
2610 ft.

STEELFORM CONTRACTING COMPANY
12230 NE 116TH ST
KIRKLAND, WA 98034

WA UST **U000919261**
WA ALLSITES **N/A**

Relative:
Higher

Actual:
187 ft.

UST:

Facility ID:	21695439
Site Id:	470
UBI:	Not reported
Phone Number:	Not reported
Decimal Latitude:	47.70371
Decimal Longitude:	-122.179475
Tank Name:	1
Tag Number:	Not reported
Tank Status:	Removed
Tank Status Date:	08/06/1996
Tank Install Date:	00/31/1964
Tank Closure Date:	Not reported
Capacity Range:	Not reported
Tank Permit Expiration Date:	Not reported
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Steel
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

STEELFORM CONTRACTING COMPANY (Continued) **U000919261**

ALLSITES:
Facility Name: STEELFORM CONTRACTING COMPANY
Facility Id: 21695439

Interaction: 32015
Interaction 1: I
Interaction 2: UST
Ecology Program: TOXICS
Program Data: UST
Facility Alt.: Not reported
Program ID: 470
Date Interaction: 2000-02-29 00:00:00
Date Interaction 3: Underground Storage Tank
Latitude: 47.703704360000003
Longitude: -122.179460107

94
South
1/4-1/2
0.498 mi.
2631 ft.

I405 NE 116TH ST INTER ST IMPROV
INTERSECTION OF I405 NE 116TH ST
KIRKLAND, WA 98033

WA ALLSITES **S110625629**
WA CSCSL NFA **N/A**

Relative:
Higher

Actual:
184 ft.

ALLSITES:
Facility Name: I405 NE 116TH ST INTER ST IMPROV
Facility Id: 14958

Interaction: 106363
Interaction 1: I
Interaction 2: INDPNDNT
Ecology Program: TOXICS
Program Data: ISIS
Facility Alt.: WA DOT I405 NE 116th St Improv
Program ID: Not reported
Date Interaction: 2012-03-22 00:00:00
Date Interaction 3: Independent Cleanup
Latitude: 47.704153689999998
Longitude: -122.179556887

Interaction: 93917
Interaction 1: I
Interaction 2: CONSTSWGP
Ecology Program: WATQUAL
Program Data: PARIS
Facility Alt.: WA DOT I-405, NE 116th St Inter/St
Program ID: WAR124582
Date Interaction: 2010-07-16 00:00:00
Date Interaction 3: Construction SW GP
Latitude: 47.704153689999998
Longitude: -122.179556887

CSCSL NFA:
Facility/Site Id: 14958
CS Id: 12234
NFA Date: 03/22/2012

I405 NE 116TH ST INTER ST IMPROV (Continued) **S110625629**

Rank:	Not reported
VCP:	No
Latitude:	47.70415933
Longitude:	-122.17957178

95
South
1/2-1
0.537 mi.
2834 ft.

Relative:
Higher

Actual:
198 ft.

CONOCOPHILLIPS 2603147
12235 NE 116TH
KIRKLAND, WA 98033

WA CSCSL **1000659201**
WA LUST **WAD988488680**
WA VCP
WA ALLSITES
WA SPILLS
RCRA NonGen / NLR
FINDS
ECHO
WA Financial Assurance
WA MANIFEST

CSCSL:

Facility ID:	32821675
Region:	Northwest
Lat/Long:	47.703676073 / -122.17692506
Brownfield Status:	Not reported
Rank Status:	N
Clean Up Siteid:	8727
Site Status:	Cleanup Started
PSI?:	Not reported
Contaminant Name:	Benzene
Ground Water:	Confirmed Above Cleanup Level
Surface Water:	Not reported
Soil:	Confirmed Above Cleanup Level
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest

Facility ID:	32821675
Region:	Northwest
Lat/Long:	47.703676073 / -122.17692506
Brownfield Status:	Not reported
Rank Status:	N
Clean Up Siteid:	8727
Site Status:	Cleanup Started
PSI?:	Not reported
Contaminant Name:	Lead
Ground Water:	Confirmed Above Cleanup Level
Surface Water:	Not reported
Soil:	Confirmed Above Cleanup Level
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest

Facility ID:	32821675
Region:	Northwest
Lat/Long:	47.703676073 / -122.17692506
Brownfield Status:	Not reported
Rank Status:	N
Clean Up Siteid:	8727
Site Status:	Cleanup Started

CONOCOPHILLIPS 2603147 (Continued) **1000659201**

PSI?:	Not reported
Contaminant Name:	Non-Halogenated Solvents
Ground Water:	Confirmed Above Cleanup Level
Surface Water:	Not reported
Soil:	Confirmed Above Cleanup Level
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest

Facility ID:	32821675
Region:	Northwest
Lat/Long:	47.703676073 / -122.17692506
Brownfield Status:	Not reported
Rank Status:	N
Clean Up Siteid:	8727
Site Status:	Cleanup Started
PSI?:	Not reported
Contaminant Name:	Other Non-Halogenated Organics
Ground Water:	Not reported
Surface Water:	Not reported
Soil:	Confirmed Above Cleanup Level
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest

Facility ID:	32821675
Region:	Northwest
Lat/Long:	47.703676073 / -122.17692506
Brownfield Status:	Not reported
Rank Status:	N
Clean Up Siteid:	8727
Site Status:	Cleanup Started
PSI?:	Not reported
Contaminant Name:	Petroleum-Diesel
Ground Water:	Confirmed Above Cleanup Level
Surface Water:	Not reported
Soil:	Confirmed Above Cleanup Level
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest

Facility ID:	32821675
Region:	Northwest
Lat/Long:	47.703676073 / -122.17692506
Brownfield Status:	Not reported
Rank Status:	N
Clean Up Siteid:	8727
Site Status:	Cleanup Started
PSI?:	Not reported
Contaminant Name:	Petroleum-Gasoline
Ground Water:	Confirmed Above Cleanup Level
Surface Water:	Not reported
Soil:	Confirmed Above Cleanup Level
Sediment:	Not reported

CONOCOPHILLIPS 2603147 (Continued) **1000659201**

Air: Not reported
Bedrock: Not reported
Responsible Unit: Northwest

LUST:
Facility ID: 32821675
Lust Status Type: Cleanup Started
Cleanup Site ID: 8727
Cleanup Unit Type: Upland
Process Type: Voluntary Cleanup Program
Cleanup Unit Name: EXXON 73640
Lust Status Date: 06/01/1995
Response Section: Northwest
Lat/Long: 47.7036760 / -122.17692

VCP:
edr_fstat: WA
edr_fzip: 98033
edr_fcnty: KING
edr_zip: Not reported
Facility ID: 32821675
VCP Status: Not reported
VCP: Yes
Ecology Status: Not reported
NFA Type: Not reported
Date NFA: Not reported
Rank: N
Cleanup Siteid: 8727

edr_fstat: WA
edr_fzip: 98033
edr_fcnty: KING
edr_zip: Not reported
Facility ID: 32821675
VCP Status: Not reported
VCP: Yes
Ecology Status: Not reported
NFA Type: Not reported
Date NFA: Not reported
Rank: N
Cleanup Siteid: 8727

edr_fstat: WA
edr_fzip: 98033
edr_fcnty: KING
edr_zip: Not reported
Facility ID: 32821675
VCP Status: Not reported
VCP: Yes
Ecology Status: Not reported
NFA Type: Not reported
Date NFA: Not reported
Rank: N
Cleanup Siteid: 8727

edr_fstat: WA

CONOCOPHILLIPS 2603147 (Continued) **1000659201**

edr_fzip: 98033
edr_fcnty: KING
edr_zip: Not reported
Facility ID: 32821675
VCP Status: Not reported
VCP: Yes
Ecology Status: Not reported
NFA Type: Not reported
Date NFA: Not reported
Rank: N
Cleanup Siteid: 8727

edr_fstat: WA
edr_fzip: 98033
edr_fcnty: KING
edr_zip: Not reported
Facility ID: 32821675
VCP Status: Not reported
VCP: Yes
Ecology Status: Not reported
NFA Type: Not reported
Date NFA: Not reported
Rank: N
Cleanup Siteid: 8727

edr_fstat: WA
edr_fzip: 98033
edr_fcnty: KING
edr_zip: Not reported
Facility ID: 32821675
VCP Status: Not reported
VCP: Yes
Ecology Status: Not reported
NFA Type: Not reported
Date NFA: Not reported
Rank: N
Cleanup Siteid: 8727

ALLSITES:
Facility Name: KIRKLAND 76
Facility Id: 32821675

Interaction: 38184
Interaction 1: I
Interaction 2: TIER2
Ecology Program: HAZWASTE
Program Data: EPCRA
Facility Alt.: Not reported
Program ID: WAD988488680
Date Interaction: 1990-01-01 00:00:00
Date Interaction 3: Emergency/Haz Chem Rpt TI
Latitude: 47.703670432999999
Longitude: -122.17691017

Interaction: 38183
Interaction 1: A

CONOCOPHILLIPS 2603147 (Continued) **1000659201**

Interaction 2:	UST
Ecology Program:	TOXICS
Program Data:	UST
Facility Alt.:	Not reported
Program ID:	9556
Date Interaction:	1969-01-01 00:00:00
Date Interaction 3:	Underground Storage Tank
Latitude:	47.703670432999999
Longitude:	-122.17691017

Interaction:	103111
Interaction 1:	A
Interaction 2:	VOLCLNST
Ecology Program:	TOXICS
Program Data:	ISIS
Facility Alt.:	KIRKLAND 76
Program ID:	NW2659
Date Interaction:	2012-11-28 00:00:00
Date Interaction 3:	Voluntary Cleanup Sites
Latitude:	47.703670432999999
Longitude:	-122.17691017

Interaction:	38187
Interaction 1:	I
Interaction 2:	HWOTHER
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD988488680
Date Interaction:	2004-12-31 00:00:00
Date Interaction 3:	Haz Waste Management Acti
Latitude:	47.703670432999999
Longitude:	-122.17691017

Interaction:	38186
Interaction 1:	A
Interaction 2:	LUST
Ecology Program:	TOXICS
Program Data:	ISIS
Facility Alt.:	Not reported
Program ID:	9556
Date Interaction:	1991-12-23 00:00:00
Date Interaction 3:	LUST Facility
Latitude:	47.703670432999999
Longitude:	-122.17691017

Interaction:	38185
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD988488680

CONOCOPHILLIPS 2603147 (Continued) **1000659201**

Date Interaction:	1991-05-22 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.703670432999999
Longitude:	-122.17691017

SPILLS:

Facility ID:	647140
Medium:	IMPERMEABLE CONTAINMENT
Material Desc:	PETROLEUM - GASOLINE
Material Qty:	0
Material Units:	GALLON
Date Received:	02/28/2014
Contact Name:	Not reported
Incident Date:	Not reported
Incident Category Type:	Not reported
Incident Category:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Source Type:	Not reported
Source:	Not reported
Vessel Facility Name2:	Not reported
Recovered Quantity:	Not reported
Resp Party Contact:	Not reported
Cause:	Not reported
Cause Type:	Not reported
Resp Party Name:	Not reported

Facility ID:	647140
Medium:	IMPERMEABLE CONTAINMENT
Material Desc:	PETROLEUM - GASOLINE
Material Qty:	0
Material Units:	GALLON
Date Received:	Not reported
Contact Name:	Not reported
Incident Date:	Not reported
Incident Category Type:	Not reported
Incident Category:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Source Type:	Not reported
Source:	Not reported
Vessel Facility Name2:	Not reported
Recovered Quantity:	Not reported
Resp Party Contact:	Not reported
Cause:	Not reported
Cause Type:	Not reported
Resp Party Name:	Not reported

RCRA NonGen / NLR:

Date form received by agency:	02/15/2006
Facility name:	CONOCOPHILLIPS 2603147
Facility address:	12235 NE 116TH KIRKLAND, WA 98033
EPA ID:	WAD988488680
Mailing address:	600 NORTH DAIRY ASHFORD

CONOCOPHILLIPS 2603147 (Continued) **1000659201**

	HOUSTON, TX 77079
Contact:	CONOCOPHILLIPS CONOCOPHILLIPS
Contact address:	600 NORTH DAIRY ASHFORD
	HOUSTON, TX 77079
Contact country:	US
Contact telephone:	000-000-0000
Contact email:	Not reported
EPA Region:	10
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	GARRY P
Owner/operator address:	12235 NE 116TH ST
	KIRKLAND, WA 98033
Owner/operator country:	US
Owner/operator telephone:	425-827-1932
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	03/18/1997
Owner/Op end date:	Not reported

Owner/operator name:	CONOCOPHILLIPS COMPANY
Owner/operator address:	600 NORTH DAIRY ASHFORD
	HOUSTON, TX 77079
Owner/operator country:	US
Owner/operator telephone:	Not reported
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	12/31/2003
Owner/Op end date:	Not reported

Owner/operator name:	GARRY PRICE
Owner/operator address:	12235 NE 116TH ST
	KIRKLAND, WA 98033
Owner/operator country:	US
Owner/operator telephone:	Not reported
Owner/operator email:	Not reported
Owner/operator fax:	Not reported
Owner/operator extension:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	03/18/1997
Owner/Op end date:	Not reported

Owner/operator name:	CONOCOPHILLIPS C
Owner/operator address:	600 NORTH DAIRY ASHFORD
	HOUSTON, TX 77079
Owner/operator country:	US
Owner/operator telephone:	281-293-1000
Owner/operator email:	Not reported

CONOCOPHILLIPS 2603147 (Continued) **1000659201**

Owner/operator fax: Not reported
Owner/operator extension: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 12/31/2003
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 12/31/2005
Site name: CONOCOPHILLIPS 2603147
Classification: Not a generator, verified

Date form received by agency: 12/31/2003
Site name: CONOCOPHILLIPS 2603147
Classification: Not a generator, verified

Date form received by agency: 02/26/2003
Site name: BP SERVICE STATION 03147
Classification: Not a generator, verified

Violation Status: No violations found

FINDS:

Registry ID: 110005362632

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

CONOCOPHILLIPS 2603147 (Continued) **1000659201**

HAZARDOUS WASTE BIENNIAL REPORTER

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

ECHO:

Envid:	1000659201
Registry ID:	110005362632
DFR URL:	http://echo.epa.gov/detailed-facility-report?fid=110005362632

WA Financial Assurance 1:

DOE Site ID:	9556
Financial Resp Type:	COLONY INSURANCE COMPANY
Inception Date:	11/28/2017
Expiration Date:	12/01/2018
Address 2:	Not reported
Policy Number:	WA641315-8
Effective Date:	11/28/2017
Liability Limit Type:	Not reported
Compliance Method:	Not reported
Proof of Responsibility Document Flag:	Not reported
Retroactive Date:	Not reported
Latitude:	47.703676073
Longitude:	-122.17692506

DOE Site ID:	9556
Financial Resp Type:	COLONY INSURANCE COMPANY
Inception Date:	12/01/2016
Expiration Date:	12/01/2017
Address 2:	Not reported
Policy Number:	WA641315-7
Effective Date:	12/01/2016
Liability Limit Type:	Not reported
Compliance Method:	Not reported
Proof of Responsibility Document Flag:	Not reported
Retroactive Date:	Not reported
Latitude:	47.703676073
Longitude:	-122.17692506

WA MANIFEST:

Facility Site ID Number:	32821675
EPA ID:	WAD988488680
NAICS:	44711
SWC Desc:	Not reported
FWC Desc:	Not reported
Form Comm:	3-1-06 Amended report per Marina to withdraw ID #. TW
Data Year:	Not reported
Permit by Rule:	No
Treatment by Generator:	No
Mixed radioactive waste:	No
Importer of hazardous waste:	No
Immediate recycler:	No
Treatment/Storage/Disposal/Recycling Facility:	No
Generator of dangerous fuel waste:	No
Generator marketing to burner:	No

CONOCOPHILLIPS 2603147 (Continued) **1000659201**

Other marketers (i.e., blender, distributor, etc.):	No
Utility boiler burner:	No
Industry boiler burner:	No
Industrial Furnace:	No
Smelter defferal:	No
Universal waste - batteries - generate:	No
Universal waste - thermostats - generate:	No
Universal waste - mercury - generate:	No
Universal waste - lamps - generate:	No
Universal waste - batteries - accumulate:	No
Universal waste - thermostats - accumulate:	No
Universal waste - mercury - accumulate:	No
Universal waste - lamps - accumulate:	No
Destination Facility for Universal Waste:	No
Off-specification used oil burner - utility boiler:	No
Off-specification used oil burner - industrial boiler:	No
Off-specification used oil burner - industrial furnace:	No
Tax Reg #:	600115909
Business Type:	Not reported
Mail Name:	ConocoPhillips Company
Mail addr line1:	600 North Dairy Ashford
Mail city,st,zip:	Houston, TX 77079
Mail country:	UNITED STATES
Legal org name:	ConocoPhillips Company
Legal org type:	Private
Legal addr line1:	600 North Dairy Ashford
Legal city,st,zip:	Houston, TX 77079
Legal country:	UNITED STATES
Legal phone nbr:	281-293-1000
Legal effective date:	12/31/2003
Land org name:	ConocoPhillips Company
Land org type:	Private
Land person name:	Not reported
Land addr line1:	600 North Dairy Ashford
Land city,st,zip:	Houston, TX 77079
Land country:	UNITED STATES
Land phone nbr:	281-293-1000
Operator org name:	Not reported
Operator org type:	Private
Operator addr line1:	12235 NE 116th St
Operator city,st,zip:	Kirkland, WA 98033
Operator country:	UNITED STATES
Operator phone nbr:	425-827-1932
Operator effective date:	03/18/1997
Site contact name:	Irene Jimenez
Site contact addr line1:	1380 San Pablo Ave
Site Contact City/State/ Zip:	Rodeo, CA 94572
Site Contact Country:	UNITED STATES
Site Contact Phone #:	510-245-5176
Site Contact EMail:	Irene.I.Jimenez@ConocoPhillips.com
Form Contact NAME:	Marina Tishkova
Form Contact ADDR LINE1:	600 North Dairy Ashford TA1026B
Form Contact City,ST,Zip:	Houston, TX 77079
Form Contact Country:	UNITED STATES
Form Contact Phone #:	281-293-4335
Form Contact EMail:	Marina.A.Tishkova@conocophillips.com
Gen Status CD:	XQG

CONOCOPHILLIPS 2603147 (Continued) **1000659201**

Monthly Generation:	Yes
Batch Generation:	No
One Time Generation:	No
Transport Own Waste:	No
Tranports Other Waste:	No
Recycler Onsite:	No
Transfer Facility:	No
Other Exemption:	Not reported
UW Battery Gen:	No
Used Oil Transporter:	No
Used Oil Transfer Facility:	No
Used Oil Processor:	No
Used Oil Refiner:	No
Used Oil Fuel Marketer Directs Shipments:	No
Used Oil Fuel Marketer Meets Specs:	No

96
SSW
1/2-1
0.551 mi.
2909 ft.

Relative:
Higher

Actual:
177 ft.

EASTSIDE PETROLEUM CO INC
11520 120TH AVE NE
KIRKLAND, WA 98033

WA CSCSL **1007073015**
WA LUST **N/A**
WA UST
WA ALLSITES
FINDS
WA PTAP

CSCSL:

Facility ID:	29783797
Region:	Northwest
Lat/Long:	47.703462276 / -122.18076151
Brownfield Status:	Not reported
Rank Status:	N
Clean Up Siteid:	12045
Site Status:	Awaiting Cleanup
PSI?:	Not reported
Contaminant Name:	Benzene
Ground Water:	Suspected
Surface Water:	Not reported
Soil:	Confirmed Above Cleanup Level
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Pollution Liability Insurance Agency

Facility ID:	29783797
Region:	Northwest
Lat/Long:	47.703462276 / -122.18076151
Brownfield Status:	Not reported
Rank Status:	N
Clean Up Siteid:	12045
Site Status:	Awaiting Cleanup
PSI?:	Not reported
Contaminant Name:	Petroleum-Diesel
Ground Water:	Suspected
Surface Water:	Not reported
Soil:	Confirmed Above Cleanup Level
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Pollution Liability Insurance Agency

EASTSIDE PETROLEUM CO INC (Continued) **1007073015**

Facility ID:	29783797
Region:	Northwest
Lat/Long:	47.703462276 / -122.18076151
Brownfield Status:	Not reported
Rank Status:	N
Clean Up Siteid:	12045
Site Status:	Awaiting Cleanup
PSI?:	Not reported
Contaminant Name:	Petroleum-Gasoline
Ground Water:	Suspected
Surface Water:	Not reported
Soil:	Confirmed Above Cleanup Level
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Pollution Liability Insurance Agency

LUST:

Facility ID:	29783797
Lust Status Type:	Awaiting Cleanup
Cleanup Site ID:	12045
Cleanup Unit Type:	Upland
Process Type:	PLIA Petroleum Technical Assistance Program
Cleanup Unit Name:	EASTSIDE PETROLEUM CO INC
Lust Status Date:	09/15/2010
Response Section:	Pollution Liability Insurance Agency
Lat/Long:	47.7034622 / -122.18076

UST:

Facility ID:	29783797
Site Id:	3227
UBI:	Not reported
Phone Number:	Not reported
Decimal Latitude:	47.7034622760492
Decimal Longitude:	-122.180761505211
Tank Name:	6
Tag Number:	Not reported
Tank Status:	Removed
Tank Status Date:	10/22/2010
Tank Install Date:	Not reported
Tank Closure Date:	09/13/2010
Capacity Range:	Not reported
Tank Permit Expiration Date:	Not reported
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Not reported
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Not reported

EASTSIDE PETROLEUM CO INC (Continued) **1007073015**

Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	D-1
Tag Number:	Not reported
Tank Status:	Removed
Tank Status Date:	08/06/1996
Tank Install Date:	00/01/1972
Tank Closure Date:	Not reported
Capacity Range:	10,000 to 19,999 Gallons
Tank Permit Expiration Date:	Not reported
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	None
Tank Overfill Prevention:	None
Tank Material:	Not reported
Tank Construction:	Single Wall Tank
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	None
Tank Manifold:	Not reported
Tank Release Detection:	Manual Inventory Control (daily)
Tank SFC Type:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Single Wall Pipe
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	None
Pipe Pumping System:	Non-Safe Suction
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	D-2
Tag Number:	Not reported
Tank Status:	Removed
Tank Status Date:	08/06/1996
Tank Install Date:	00/01/1972
Tank Closure Date:	Not reported
Capacity Range:	10,000 to 19,999 Gallons
Tank Permit Expiration Date:	Not reported
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	None
Tank Overfill Prevention:	None
Tank Material:	Not reported
Tank Construction:	Single Wall Tank
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	None
Tank Manifold:	Not reported
Tank Release Detection:	Manual Inventory Control (daily)
Tank SFC Type:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Single Wall Pipe
Pipe Primary Release Detection:	Not reported

EASTSIDE PETROLEUM CO INC (Continued) **1007073015**

Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	None
Pipe Pumping System:	Non-Safe Suction
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	P-1
Tag Number:	Not reported
Tank Status:	Removed
Tank Status Date:	08/06/1996
Tank Install Date:	00/01/1972
Tank Closure Date:	09/13/2010
Capacity Range:	10,000 to 19,999 Gallons
Tank Permit Expiration Date:	07/01/1995
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	None
Tank Overfill Prevention:	None
Tank Material:	Not reported
Tank Construction:	Single Wall Tank
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	None
Tank Manifold:	Not reported
Tank Release Detection:	Manual Inventory Control (daily)
Tank SFC Type:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Single Wall Pipe
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	None
Pipe Pumping System:	Non-Safe Suction
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	R-1
Tag Number:	Not reported
Tank Status:	Removed
Tank Status Date:	08/06/1996
Tank Install Date:	00/01/1972
Tank Closure Date:	09/13/2010
Capacity Range:	10,000 to 19,999 Gallons
Tank Permit Expiration Date:	07/01/1995
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	None
Tank Overfill Prevention:	None
Tank Material:	Not reported
Tank Construction:	Single Wall Tank
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	None
Tank Manifold:	Not reported
Tank Release Detection:	Manual Inventory Control (daily)
Tank SFC Type:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Single Wall Pipe
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported

EASTSIDE PETROLEUM CO INC (Continued) **1007073015**

Pipe Corrosion Protection:	None
Pipe Pumping System:	Non-Safe Suction
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	U-1
Tag Number:	Not reported
Tank Status:	Removed
Tank Status Date:	08/06/1996
Tank Install Date:	00/01/1972
Tank Closure Date:	Not reported
Capacity Range:	10,000 to 19,999 Gallons
Tank Permit Expiration Date:	07/01/2002
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	None
Tank Overfill Prevention:	None
Tank Material:	Not reported
Tank Construction:	Single Wall Tank
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	None
Tank Manifold:	Not reported
Tank Release Detection:	Manual Inventory Control (daily)
Tank SFC Type:	Not reported
Pipe Material:	Not reported
Pipe Construction:	Single Wall Pipe
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	None
Pipe Pumping System:	Non-Safe Suction
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

ALLSITES:

Facility Name:	EASTSIDE PETROLEUM CO INC
Facility Id:	29783797

Interaction:	36853
Interaction 1:	I
Interaction 2:	UST
Ecology Program:	TOXICS
Program Data:	UST
Facility Alt.:	Not reported
Program ID:	3227
Date Interaction:	1972-06-01 00:00:00
Date Interaction 3:	Underground Storage Tank
Latitude:	47.703457116000003
Longitude:	-122.180726486

Interaction:	103259
Interaction 1:	A
Interaction 2:	LUST
Ecology Program:	TOXICS
Program Data:	ISIS
Facility Alt.:	EASTSIDE PETROLEUM CO INC
Program ID:	3227

EASTSIDE PETROLEUM CO INC (Continued) **1007073015**

Date Interaction: 2010-12-20 00:00:00
Date Interaction 3: LUST Facility
Latitude: 47.703457116000003
Longitude: -122.180726486

FINDS:

Registry ID: 110015496453

Environmental Interest/Information System
Washington Facility / Site Identification System (WA-FSIS) provides a means to query and display data maintained by the Washington Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

Click this hyperlink while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

PTAP:
Site ID: PNW072
FSID Number: 29783797
Entry Date: 06/12/2018

97
East
1/2-1
0.611 mi.
3225 ft.

MIRACLE DRY CLEANERS
13205 NE 124TH ST STE A
KIRKLAND, WA 98034

WA CSCSL **S111289396**
WA ALLSITES **N/A**
WA Inactive Drycleaners

Relative:
Higher

Actual:
146 ft.

CSCSL:
Facility ID: 4915
Region: Northwest
Lat/Long: 47.711019226 / -122.16393711
Brownfield Status: Not reported
Rank Status: N
Clean Up Siteid: 11679
Site Status: Cleanup Started
PSI?: Not reported
Contaminant Name: Halogenated Solvents
Ground Water: Not reported
Surface Water: Not reported
Soil: Suspected
Sediment: Not reported
Air: Not reported
Bedrock: Not reported
Responsible Unit: Northwest

ALLSITES:
Facility Name: MIRACLE DRY CLEANERS
Facility Id: 4915

Interaction: 98161

MIRACLE DRY CLEANERS (Continued) **S111289396**

Interaction 1:	I
Interaction 2:	VOLCLNST
Ecology Program:	TOXICS
Program Data:	ISIS
Facility Alt.:	Miracle Dry Cleaners
Program ID:	NW2498
Date Interaction:	2011-09-19 00:00:00
Date Interaction 3:	Voluntary Cleanup Sites
Latitude:	47.711013585000003
Longitude:	-122.163922215

INACTIVE DRYCLEANERS:

EPA I:	Not reported
FS Id:	4915
Facility ID:	4915
NAICS Code:	8123
Fed Waste Code Desc:	Not reported
State Waste Code Desc:	Not reported
TAX REG NBR:	Not reported
BUSINESS TYPE:	Not reported
MAIL NAME:	Not reported
MAIL LINE1:	Not reported
MAIL LINE2:	Not reported
MAIL CITY:	Not reported
MAIL STATE:	Not reported
MAIL ZIP:	Not reported
MAIL COUNTRY:	Not reported
LEGAL ORG NAME:	Not reported
LEGAL PERSON FIRST NAME:	Not reported
LEGAL PERSON MIDDLE INIT:	Not reported
LEGAL PERSON LAST NAME:	Not reported
LEGAL LINE1:	Not reported
LEGAL LINE2:	Not reported
LEGAL CITY:	Not reported
LEGAL STATE:	Not reported
LEGAL ZIP:	Not reported
LEGAL COUNTRY:	Not reported
LEGAL PHONE NBR:	Not reported
LEGAL EFFECTIVE DATE:	Not reported
LEGAL ORGANIZATION TYPE:	Not reported
LAND ORG NAME:	Not reported
LAND PERSON FIRST NAME:	Not reported
LAND PERSON MIDDLE INIT:	Not reported
LAND PERSON LAST NAME:	Not reported
LAND LINE1:	Not reported
LAND LINE2:	Not reported
LAND CITY:	Not reported
LAND STATE:	Not reported
LAND ZIP:	Not reported
LAND COUNTRY:	Not reported
LAND PHONE NBR:	Not reported
LAND ORGANIZATION TYPE:	Not reported
OPERATOR ORG NAME:	Not reported
OPERATOR PERSON FIRST NAME:	Not reported
OPERATOR PERSON MIDDLE INIT:	Not reported
OPERATOR PERSON LAST NAME:	Not reported

MIRACLE DRY CLEANERS (Continued) **S111289396**

OPERATOR LINE1:	Not reported
OPERATOR LINE2:	Not reported
OPERATOR CITY:	Not reported
OPERATOR STATE:	Not reported
OPERATOR ZIP:	Not reported
OPERATOR COUNTRY:	Not reported
OPERATOR PHONE NBR:	Not reported
OPERATOR EFFECTIVE DATE:	Not reported
OPERATOR ORGANIZATION TYPE:	Not reported
SITE CONTACT FIRST NAME:	Not reported
SITE CONTACT MIDDLE INIT:	Not reported
SITE CONTACT LAST NAME:	Not reported
SITE CONTACT LINE1:	Not reported
SITE CONTACT LINE2:	Not reported
SITE CONTACT CITY:	Not reported
SITE CONTACT STATE:	Not reported
SITE CONTACT ZIP:	Not reported
SITE CONTACT COUNTRY:	Not reported
SITE CONTACT PHONE NBR:	Not reported
SITE CONTACT EMAIL:	Not reported
FORM CONTACT FIRST NAME:	Not reported
FORM CONTACT MIDDLE INIT:	Not reported
FORM CONTACT LAST NAME:	Not reported
FORM CONTACT LINE1:	Not reported
FORM CONTACT LINE2:	Not reported
FORM CONTACT CITY:	Not reported
FORM CONTACT STATE:	Not reported
FORM CONTACT ZIP:	Not reported
FORM CONTACT COUNTRY:	Not reported
FORM CONTACT PHONE NBR:	Not reported
FORM CONTACT EMAIL:	Not reported
GEN STATUS CD:	Not reported
MONTHLY GENERATION:	Not reported
BATCH GENERATION:	Not reported
ONE TIME GENERATION:	Not reported
TRANSPORTS OWN WASTE:	Not reported
TRANSPORTS OTHERS WASTE:	Not reported
RECYCLER ONSITE:	Not reported
TRANSFER FACILITY:	Not reported
PBR:	Not reported
TBG:	Not reported
MIXED RADIOACTIVE:	Not reported
IMPORTER:	Not reported
TSDR FACILITY:	Not reported
IMMEDIATE RECYCLER:	Not reported
GEN DANG FUEL:	Not reported
GEN MARKET TO BURNER:	Not reported
GEN OTHER MARKETERS:	Not reported
UTILITY BOILER BURNER:	Not reported
INDUSTRY BOILER BURNER:	Not reported
FURNACE BURNER:	Not reported
SMELTER DEFERRAL:	Not reported
SMALL QTY EXEMPTION:	Not reported
OTHER EXEMPTION:	Not reported
UW BATTERY GEN:	Not reported
UW THERMOSTATS GEN:	Not reported
UW MERCURY GEN:	Not reported

MIRACLE DRY CLEANERS (Continued) **S111289396**

UW LAMPS GEN:	Not reported
UW BATTERY ACCUM:	Not reported
UW THERMOSTATS ACCUM:	Not reported
UW MERCURY ACCUM:	Not reported
UW LAMPS ACCUM:	Not reported
UW DESTINATION FACILITY:	Not reported
OFF SPEC UTILITY BOILER:	Not reported
OFF SPEC INDUSTRY BOILER:	Not reported
OFF SPEC FURNACE:	Not reported
USED OIL TRANSPORTER:	Not reported
USED OIL TRANSFER FACILITY:	Not reported
USED OIL PROCESSOR:	Not reported
USED OIL REREFINER:	Not reported
USED OIL FUEL MARKETER DIR SHIPMENTS:	Not reported
USED OIL FUEL MARKETER MEETS SPECS:	Not reported
ECO Int Type Code:	VOLCLNST
Status Code:	I
Start Date:	09/19/2011
End Date:	03/14/2013
NAICS DS:	Drycleaning and Laundry Services
Program Name:	Not reported
FS SIC Code:	Not reported
SIC DS:	TOXICS
Latitude:	47.711019226
Longitude:	-122.16393711
Comments:	Not reported

98
East
1/2-1
0.658 mi.
3473 ft.

GRAHAM STEEL CORP
13210 N E 124TH ST/PO BOX 658
KIRKLAND, WA 98083

WA CSCSL **U000595113**
WA LUST **N/A**
WA UST
WA VCP
WA ALLSITES

Relative:
Higher

Actual:
141 ft.

CSCSL:

Facility ID:	37124273
Region:	Northwest
Lat/Long:	47.7114 / -122.16423
Brownfield Status:	Not reported
Rank Status:	N
Clean Up Siteid:	5967
Site Status:	Cleanup Started
PSI?:	Not reported
Contaminant Name:	Metals - Other
Ground Water:	Below MTCA Cleanup Level After Assessment
Surface Water:	Not reported
Soil:	Below MTCA Cleanup Level After Assessment
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest

Facility ID:	37124273
Region:	Northwest
Lat/Long:	47.7114 / -122.16423
Brownfield Status:	Not reported
Rank Status:	N
Clean Up Siteid:	5967
Site Status:	Cleanup Started
PSI?:	Not reported

GRAHAM STEEL CORP (Continued) **U000595113**

Contaminant Name:	Petroleum Products-Unspecified
Ground Water:	Below MTCA Cleanup Level After Assessment
Surface Water:	Not reported
Soil:	Not reported
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest

Facility ID:	37124273
Region:	Northwest
Lat/Long:	47.7114 / -122.16423
Brownfield Status:	Not reported
Rank Status:	N
Clean Up Siteid:	5967
Site Status:	Cleanup Started
PSI?:	Not reported
Contaminant Name:	Petroleum-Diesel
Ground Water:	Not reported
Surface Water:	Not reported
Soil:	Confirmed Above Cleanup Level
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest

LUST:

Facility ID:	37124273
Lust Status Type:	NFA
Cleanup Site ID:	5967
Cleanup Unit Type:	Upland
Process Type:	Independent Action
Cleanup Unit Name:	Graham Steel
Lust Status Date:	11/18/2004
Response Section:	Northwest
Lat/Long:	47.7114 / -122.16423

UST:

Facility ID:	37124273
Site Id:	11087
UBI:	Not reported
Phone Number:	Not reported
Decimal Latitude:	47.7114
Decimal Longitude:	-122.16423

Tank Name:	1
Tag Number:	Not reported
Tank Status:	Removed
Tank Status Date:	10/02/1991
Tank Install Date:	00/31/1980
Tank Closure Date:	12/11/1991
Capacity Range:	2,001 to 4,999 Gallons
Tank Permit Expiration Date:	Not reported
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported

GRAHAM STEEL CORP (Continued) **U000595113**

Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Fiberglass
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	2
Tag Number:	Not reported
Tank Status:	Removed
Tank Status Date:	10/02/1991
Tank Install Date:	00/31/1980
Tank Closure Date:	12/11/1991
Capacity Range:	111 TO 1,100 Gallons
Tank Permit Expiration Date:	Not reported
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Fiberglass
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	3
Tag Number:	Not reported
Tank Status:	Removed
Tank Status Date:	10/02/1991
Tank Install Date:	00/31/1980
Tank Closure Date:	12/11/1991
Capacity Range:	10,000 to 19,999 Gallons
Tank Permit Expiration Date:	Not reported
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel

GRAHAM STEEL CORP (Continued) **U000595113**

Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Fiberglass
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

Tank Name:	4
Tag Number:	Not reported
Tank Status:	Removed
Tank Status Date:	10/02/1991
Tank Install Date:	00/31/1980
Tank Closure Date:	12/11/1991
Capacity Range:	111 TO 1,100 Gallons
Tank Permit Expiration Date:	Not reported
Tank Upgrade Date:	Not reported
Tank Spill Prevention:	Not reported
Tank Overfill Prevention:	Not reported
Tank Material:	Steel
Tank Construction:	Not reported
Tank Tightness Test:	Not reported
Tank Corrosion Protection:	Not reported
Tank Manifold:	Not reported
Tank Release Detection:	Not reported
Tank SFC Type:	Not reported
Pipe Material:	Fiberglass
Pipe Construction:	Not reported
Pipe Primary Release Detection:	Not reported
Pipe Second Release Detection:	Not reported
Pipe Corrosion Protection:	Not reported
Pipe Pumping System:	Not reported
Responsible Unit:	NORTHWEST
Dispencer/Pump SFC Type:	Not reported

VCP:

edr_fstat:	WA
edr_fzip:	98034-8004
edr_fcnty:	KING
edr_zip:	Not reported
Facility ID:	37124273
VCP Status:	Not reported
VCP:	Yes
Ecology Status:	Not reported
NFA Type:	Not reported
Date NFA:	Not reported
Rank:	N
Cleanup Siteid:	5967

GRAHAM STEEL CORP (Continued) **U000595113**

edr_fstat: WA
edr_fzip: 98034-8004
edr_fcnty: KING
edr_zip: Not reported
Facility ID: 37124273
VCP Status: Not reported
VCP: Yes
Ecology Status: Not reported
NFA Type: Not reported
Date NFA: Not reported
Rank: N
Cleanup Siteid: 5967

edr_fstat: WA
edr_fzip: 98034-8004
edr_fcnty: KING
edr_zip: Not reported
Facility ID: 37124273
VCP Status: Not reported
VCP: Yes
Ecology Status: Not reported
NFA Type: Not reported
Date NFA: Not reported
Rank: N
Cleanup Siteid: 5967

ALLSITES:
Facility Name: TOYOTA SCION OF KIRKLAND
Facility Id: 11200

Interaction: 105411
Interaction 1: I
Interaction 2: CONSTSWGP
Ecology Program: WATQUAL
Program Data: PARIS
Facility Alt.: Toyota Scion of Kirkland
Program ID: WAR127173
Date Interaction: 2013-05-23 00:00:00
Date Interaction 3: Construction SW GP
Latitude: 47.711888133000002
Longitude: -122.164621565

Facility Name: GRAHAM STEEL CORP
Facility Id: 37124273

Interaction: 41054
Interaction 1: A
Interaction 2: TIER2
Ecology Program: HAZWASTE
Program Data: EPCRA
Facility Alt.: Not reported
Program ID: WAD027338888
Date Interaction: 1990-01-01 00:00:00
Date Interaction 3: Emergency/Haz Chem Rpt TI
Latitude: 47.711394359000003
Longitude: -122.164215109

GRAHAM STEEL CORP (Continued) **U000595113**

Interaction:	77833
Interaction 1:	A
Interaction 2:	VOLCLNST
Ecology Program:	TOXICS
Program Data:	ISIS
Facility Alt.:	GRAHAM STEEL CORP
Program ID:	NW2173
Date Interaction:	2009-07-07 00:00:00
Date Interaction 3:	Voluntary Cleanup Sites
Latitude:	47.711394359000003
Longitude:	-122.164215109

Interaction:	82586
Interaction 1:	I
Interaction 2:	INDSWGP
Ecology Program:	WATQUAL
Program Data:	PARIS
Facility Alt.:	GRAHAM STEEL CORP
Program ID:	SO3001120
Date Interaction:	1993-03-31 00:00:00
Date Interaction 3:	Industrial SW GP
Latitude:	47.711394359000003
Longitude:	-122.164215109

Interaction:	41056
Interaction 1:	I
Interaction 2:	UST
Ecology Program:	TOXICS
Program Data:	UST
Facility Alt.:	Not reported
Program ID:	11087
Date Interaction:	2000-03-20 00:00:00
Date Interaction 3:	Underground Storage Tank
Latitude:	47.711394359000003
Longitude:	-122.164215109

Interaction:	41053
Interaction 1:	I
Interaction 2:	HWG
Ecology Program:	HAZWASTE
Program Data:	TURBOWASTE
Facility Alt.:	Not reported
Program ID:	WAD027338888
Date Interaction:	1980-07-14 00:00:00
Date Interaction 3:	Hazardous Waste Generator
Latitude:	47.711394359000003
Longitude:	-122.164215109

Interaction:	41055
Interaction 1:	I
Interaction 2:	LUST
Ecology Program:	TOXICS
Program Data:	ISIS

GRAHAM STEEL CORP (Continued) **U000595113**

Facility Alt.:	Not reported
Program ID:	11087
Date Interaction:	1991-10-07 00:00:00
Date Interaction 3:	LUST Facility
Latitude:	47.711394359000003
Longitude:	-122.164215109

Interaction:	41058
Interaction 1:	I
Interaction 2:	VOLCLNST
Ecology Program:	TOXICS
Program Data:	ISIS
Facility Alt.:	GRAHAM STEEL CORP
Program ID:	NW1350
Date Interaction:	2004-11-18 00:00:00
Date Interaction 3:	Voluntary Cleanup Sites
Latitude:	47.711394359000003
Longitude:	-122.164215109

99
East
1/2-1
0.688 mi.
3632 ft.

WASTE MANAGEMENT SNO KING KIRKLAND
13225 NE 126TH PL
KIRKLAND, WA 98034

WA CSCSL **S107473614**
WA VCP **N/A**
WA ALLSITES
WA SPILLS

Relative:
Higher

Actual:
152 ft.

CSCSL:

Facility ID:	36181742
Region:	Northwest
Lat/Long:	47.71372 / -122.16449
Brownfield Status:	Not reported
Rank Status:	N
Clean Up Siteid:	11817
Site Status:	Cleanup Started
PSI?:	Not reported
Contaminant Name:	Arsenic
Ground Water:	Confirmed Above Cleanup Level
Surface Water:	Not reported
Soil:	Not reported
Sediment:	Not reported
Air:	Not reported
Bedrock:	Not reported
Responsible Unit:	Northwest

VCP:

edr_fstat:	WA
edr_fzip:	98034
edr_fcnty:	KING
edr_zip:	Not reported
Facility ID:	36181742
VCP Status:	Not reported
VCP:	Yes
Ecology Status:	Not reported
NFA Type:	Not reported
Date NFA:	Not reported
Rank:	N

WASTE MANAGEMENT SNO KING KIRKLAND (Continued) **S107473614**

Cleanup Siteid: 11817

ALLSITES:
Facility Name: WASTE MANAGEMENT SNO KING KIRKLAND
Facility Id: 36181742

Interaction: 40430
Interaction 1: I
Interaction 2: UST
Ecology Program: TOXICS
Program Data: UST
Facility Alt.: Not reported
Program ID: Not reported
Date Interaction: 2000-02-29 00:00:00
Date Interaction 3: Underground Storage Tank
Latitude: 47.713714357999997
Longitude: -122.164475108

Interaction: 100770
Interaction 1: A
Interaction 2: VOLCLNST
Ecology Program: TOXICS
Program Data: ISIS
Facility Alt.: Waste Management Sno King Kirkland
Program ID: NW2581
Date Interaction: 2012-03-14 00:00:00
Date Interaction 3: Voluntary Cleanup Sites
Latitude: 47.713714357999997
Longitude: -122.164475108

Interaction: 82568
Interaction 1: I
Interaction 2: INDSWGP
Ecology Program: WATQUAL
Program Data: PARIS
Facility Alt.: WASTE MANAGEMENT SNO KING KIRKLAND
Program ID: WAR002485
Date Interaction: 1995-10-25 00:00:00
Date Interaction 3: Industrial SW GP
Latitude: 47.713714357999997
Longitude: -122.164475108

Interaction: 40428
Interaction 1: I
Interaction 2: HWG
Ecology Program: HAZWASTE
Program Data: TURBOWASTE
Facility Alt.: Not reported
Program ID: WAR000005983
Date Interaction: 1995-10-23 00:00:00
Date Interaction 3: Hazardous Waste Generator
Latitude: 47.713714357999997
Longitude: -122.164475108

WASTE MANAGEMENT SNO KING KIRKLAND (Continued) **S107473614**

Interaction:	40429
Interaction 1:	A
Interaction 2:	TIER2
Ecology Program:	HAZWASTE
Program Data:	EPCRA
Facility Alt.:	Not reported
Program ID:	WAR000005983
Date Interaction:	1996-01-01 00:00:00
Date Interaction 3:	Emergency/Haz Chem Rpt TI
Latitude:	47.713714357999997
Longitude:	-122.164475108

SPILLS:

Facility ID:	541011
Medium:	Not reported
Material Desc:	PETROLEUM - HYDRAULIC OIL
Material Qty:	Not reported
Material Units:	Not reported
Date Received:	05/25/2004
Contact Name:	Not reported
Incident Date:	Not reported
Incident Category Type:	Not reported
Incident Category:	Not reported
Latitude:	Not reported
Longitude:	Not reported
Source Type:	Not reported
Source:	Not reported
Vessel Facility Name2:	Not reported
Recovered Quantity:	Not reported
Resp Party Contact:	Not reported
Cause:	Not reported
Cause Type:	Not reported
Resp Party Name:	Not reported

Count: 2 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
KIRKLAND	S105454367	KIRKLAND & KAMIAKIN JR. HIGHS	430 18TH AVE. & 1411 132ND AVE	98033	WA ICR
KIRKLAND	S103850713	WEAVER PROPERTY	100412 SLATER AVE.	98033	WA ICR

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 07/17/2018
Date Data Arrived at EDR: 08/09/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 29

Source: EPA
Telephone: N/A
Last EDR Contact: 10/04/2018
Next Scheduled EDR Contact: 01/14/2019
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 07/17/2018
Date Data Arrived at EDR: 08/09/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 29

Source: EPA
Telephone: N/A
Last EDR Contact: 10/04/2018
Next Scheduled EDR Contact: 01/14/2019
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 07/17/2018
Date Data Arrived at EDR: 08/09/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 29

Source: EPA
Telephone: N/A
Last EDR Contact: 10/04/2018
Next Scheduled EDR Contact: 01/14/2019
Data Release Frequency: Quarterly

Federal CERCLIS list

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 11/07/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 92

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 07/06/2018
Next Scheduled EDR Contact: 10/15/2018
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 07/17/2018
Date Data Arrived at EDR: 08/09/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 29

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 10/04/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 07/17/2018
Date Data Arrived at EDR: 08/09/2018
Date Made Active in Reports: 09/07/2018
Number of Days to Update: 29

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 10/04/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report
CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/19/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal
RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 09/19/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators
RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 09/19/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 09/19/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 09/19/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 05/14/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 07/16/2018
Next Scheduled EDR Contact: 11/26/2018
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 07/31/2018
Date Data Arrived at EDR: 08/28/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 17

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/28/2018
Next Scheduled EDR Contact: 12/10/2018
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 07/31/2018
Date Data Arrived at EDR: 08/28/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 17

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 08/28/2018
Next Scheduled EDR Contact: 12/10/2018
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 06/18/2018
Date Data Arrived at EDR: 06/27/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 79

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 09/25/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

State- and tribal - equivalent NPL

HSL: Hazardous Sites List

The Hazardous Sites List is a subset of the CSCSL Report. It includes sites which have been assessed and ranked using the Washington Ranking Method (WARM).

Date of Government Version: 08/22/2018
Date Data Arrived at EDR: 09/07/2018
Date Made Active in Reports: 09/25/2018
Number of Days to Update: 18

Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 09/05/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Semi-Annually

State- and tribal - equivalent CERCLIS

CSCSL: Confirmed and Suspected Contaminated Sites List

State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: 07/16/2018
Date Data Arrived at EDR: 07/20/2018
Date Made Active in Reports: 09/06/2018
Number of Days to Update: 48

Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 10/18/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: Solid Waste Facility Database

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 09/04/2018
Date Data Arrived at EDR: 09/07/2018
Date Made Active in Reports: 09/26/2018
Number of Days to Update: 19

Source: Department of Ecology
Telephone: 360-407-6132
Last EDR Contact: 09/04/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Annually

State and tribal leaking storage tank lists

LUST: Leaking Underground Storage Tanks Site List

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 08/10/2018
Date Data Arrived at EDR: 08/10/2018
Date Made Active in Reports: 09/06/2018
Number of Days to Update: 27

Source: Department of Ecology
Telephone: 360-407-7183
Last EDR Contact: 08/10/2018
Next Scheduled EDR Contact: 11/26/2018
Data Release Frequency: Quarterly

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 04/01/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 05/08/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 04/13/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 04/25/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 04/10/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 04/12/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 04/24/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 04/12/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 05/15/2017
Date Data Arrived at EDR: 05/30/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 136

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 10/10/2018
Next Scheduled EDR Contact: 01/21/2019
Data Release Frequency: Varies

UST: Underground Storage Tank Database
Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 05/01/2018
Date Data Arrived at EDR: 05/01/2018
Date Made Active in Reports: 05/09/2018
Number of Days to Update: 8

Source: Department of Ecology
Telephone: 360-407-7183
Last EDR Contact: 08/08/2018
Next Scheduled EDR Contact: 11/26/2018
Data Release Frequency: Quarterly

AST: Aboveground Storage Tank Locations
A listing of aboveground storage tank locations regulated by the Department of Ecology's Spill Prevention, Preparedness and Response Program.

Date of Government Version: 12/14/2015
Date Data Arrived at EDR: 02/02/2016
Date Made Active in Reports: 05/03/2016
Number of Days to Update: 91

Source: Department of Ecology
Telephone: 360-407-7562
Last EDR Contact: 07/26/2018
Next Scheduled EDR Contact: 11/12/2018
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 04/01/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 04/24/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 04/10/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 04/12/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 04/13/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 04/12/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 05/08/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 04/25/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

PTAP: PTAP Site Listing

A list of sites accepted into the Petroleum Technical Assistance Program. The Petroleum Technical Assistance Program (PTAP) expands the statea??s ability to respond to the high customer demand to clean up petroleum contaminated sites. Under the PTAP, the Pollution Liability Insurance Agency (PLIA) may provide informal site-specific technical consultations and issue written opinion letters to persons conducting independent remedial actions at qualifying petroleum cleanup sites. PLIA may provide these services under the authority of RCW 70.149.040(9) and the Model Toxics Control Act (MTCA), Chapter 70.149 RCW and Chapter 173-340 WAC.

Date of Government Version: 06/26/2018
Date Data Arrived at EDR: 08/10/2018
Date Made Active in Reports: 09/25/2018
Number of Days to Update: 46

Source: Department of Ecology
Telephone: 360-407-0515
Last EDR Contact: 08/10/2018
Next Scheduled EDR Contact: 11/26/2018
Data Release Frequency: Varies

State and tribal institutional control / engineering control registries

INST CONTROL: Institutional Control Site List

Sites that have institutional controls.

Date of Government Version: 07/16/2018
Date Data Arrived at EDR: 07/20/2018
Date Made Active in Reports: 09/06/2018
Number of Days to Update: 48

Source: Department of Ecology
Telephone: 360-407-7170
Last EDR Contact: 10/18/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Quarterly

State and tribal voluntary cleanup sites

ICR: Independent Cleanup Reports

These are remedial action reports Ecology has received from either the owner or operator of the sites. These actions have been conducted without department oversight or approval and are not under an order or decree. This database is no longer updated by the Department of Ecology.

Date of Government Version: 12/01/2002
Date Data Arrived at EDR: 01/03/2003
Date Made Active in Reports: 01/22/2003
Number of Days to Update: 19

Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 08/10/2009
Next Scheduled EDR Contact: 11/09/2009
Data Release Frequency: No Update Planned

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 09/24/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Sites

Sites that have entered either the Voluntary Cleanup Program or its predecessor Independent Remedial Action Program.

Date of Government Version: 07/16/2018
Date Data Arrived at EDR: 07/20/2018
Date Made Active in Reports: 09/06/2018
Number of Days to Update: 48

Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 10/18/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Brownfields Sites Listing

A listing of brownfields sites included in the Confirmed & Suspected Sites Listing. Brownfields are abandoned, idle or underused commercial or industrial properties, where the expansion or redevelopment is hindered by real or perceived contamination. Brownfields vary in size, location, age, and past use -- they can be anything from a five-hundred acre automobile assembly plant to a small, abandoned corner gas station.

Date of Government Version: 07/16/2018
Date Data Arrived at EDR: 07/20/2018
Date Made Active in Reports: 09/06/2018
Number of Days to Update: 48

Source: Department of Ecology
Telephone: 360-725-4030
Last EDR Contact: 10/18/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 06/18/2018
Date Data Arrived at EDR: 06/20/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 09/18/2018
Next Scheduled EDR Contact: 12/31/2018
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

SWRCY: Recycling Facility List

A llisting of recycling center locations.

Date of Government Version: 07/24/2018
Date Data Arrived at EDR: 07/26/2018
Date Made Active in Reports: 09/06/2018
Number of Days to Update: 42

Source: Department of Ecology
Telephone: 360-407-6105
Last EDR Contact: 10/22/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

SWTIRE: Solid Waste Tire Facilities

This study identified sites statewide with unauthorized accumulations of scrap tires.

Date of Government Version: 11/01/2005
Date Data Arrived at EDR: 03/16/2006
Date Made Active in Reports: 04/13/2006
Number of Days to Update: 28

Source: Department of Ecology
Telephone: N/A
Last EDR Contact: 09/08/2017
Next Scheduled EDR Contact: 12/18/2017
Data Release Frequency: Varies

SWTIRE 2: Solid Waste Tire Facilities 2
solid waste tire piles

Date of Government Version: 06/20/2017
Date Data Arrived at EDR: 06/23/2017
Date Made Active in Reports: 05/30/2018
Number of Days to Update: 341

Source: Department of Ecology
Telephone: 425-649-7104
Last EDR Contact: 08/30/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 07/30/2018
Next Scheduled EDR Contact: 11/12/2018
Data Release Frequency: Varies

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 10/22/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land
A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 08/03/2018
Next Scheduled EDR Contact: 11/12/2018
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register
A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 05/18/2018
Date Data Arrived at EDR: 06/20/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 86

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/28/2018
Next Scheduled EDR Contact: 12/10/2018
Data Release Frequency: No Update Planned

ALLSITES: Facility/Site Identification System Listing
Information on facilities and sites of interest to the Department of Ecology.

Date of Government Version: 07/09/2018
Date Data Arrived at EDR: 07/10/2018
Date Made Active in Reports: 09/18/2018
Number of Days to Update: 70

Source: Department of Ecology
Telephone: 360-407-6423
Last EDR Contact: 07/26/2018
Next Scheduled EDR Contact: 11/12/2018
Data Release Frequency: Quarterly

CDL: Clandestine Drug Lab Contaminated Site List
Illegal methamphetamine labs use hazardous chemicals that create public health hazards. Chemicals and residues can cause burns, respiratory and neurological damage, and death. Biological hazards associated with intravenous needles, feces, and blood also pose health risks.

Date of Government Version: 07/11/2018
Date Data Arrived at EDR: 08/23/2018
Date Made Active in Reports: 09/25/2018
Number of Days to Update: 33

Source: Department of Health
Telephone: 360-236-3380
Last EDR Contact: 08/20/2018
Next Scheduled EDR Contact: 11/19/2018
Data Release Frequency: Varies

HIST CDL: List of Sites Contaminated by Clandestine Drug Labs
This listing of contaminated sites by Clandestine Drug Labs includes non-remediated properties. The current CDL listing does not. This listing is no longer updated by the state agency.

Date of Government Version: 02/08/2007
Date Data Arrived at EDR: 06/26/2007
Date Made Active in Reports: 07/19/2007
Number of Days to Update: 23

Source: Department of Health
Telephone: 360-236-3381
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

CSCSL NFA: Confirmed and Contaminated Sites - No Further Action
This report contains information about sites that are undergoing cleanup and sites that are awaiting further investigation and/or cleanup. Sites on the Hazardous Sites List (see above) are included in this data set.

Date of Government Version: 07/16/2018
Date Data Arrived at EDR: 07/20/2018
Date Made Active in Reports: 09/05/2018
Number of Days to Update: 47

Source: Department of Ecology
Telephone: 360-407-7170
Last EDR Contact: 10/18/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Quarterly

US CDL: Clandestine Drug Labs
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 05/18/2018
Date Data Arrived at EDR: 06/20/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 86

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 08/28/2018
Next Scheduled EDR Contact: 12/10/2018
Data Release Frequency: Quarterly

Local Land Records

LIENS 2: CERCLA Lien Information
A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 07/17/2018
Date Data Arrived at EDR: 08/09/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 57

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 10/04/2018
Next Scheduled EDR Contact: 01/14/2019
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 03/26/2018
Date Data Arrived at EDR: 03/27/2018
Date Made Active in Reports: 06/08/2018
Number of Days to Update: 73

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 09/25/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

SPILLS: Reported Spills
Spills reported to the Spill Prevention, Preparedness and Response Division.

Date of Government Version: 09/12/2018
Date Data Arrived at EDR: 09/14/2018
Date Made Active in Reports: 09/25/2018
Number of Days to Update: 11

Source: Department of Ecology
Telephone: 360-407-6950
Last EDR Contact: 08/30/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Semi-Annually

SPILLS 90: SPILLS90 data from FirstSearch
Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 05/23/2006
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 03/06/2013
Number of Days to Update: 62

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated
RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 03/01/2018
Date Data Arrived at EDR: 03/28/2018
Date Made Active in Reports: 06/22/2018
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: (206) 553-1200
Last EDR Contact: 09/19/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites
The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 01/31/2015
Date Data Arrived at EDR: 07/08/2015
Date Made Active in Reports: 10/13/2015
Number of Days to Update: 97

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 08/24/2018
Next Scheduled EDR Contact: 12/03/2018
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 10/12/2018
Next Scheduled EDR Contact: 01/21/2019
Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 10/12/2018
Next Scheduled EDR Contact: 01/21/2019
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 08/17/2018
Next Scheduled EDR Contact: 11/26/2018
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/27/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 100

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 09/25/2018
Next Scheduled EDR Contact: 01/07/2019
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 08/03/2018
Next Scheduled EDR Contact: 11/19/2018
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 08/10/2018
Next Scheduled EDR Contact: 11/19/2018
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 06/21/2017
Date Made Active in Reports: 01/05/2018
Number of Days to Update: 198

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 09/21/2018
Next Scheduled EDR Contact: 12/31/2018
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 01/10/2018
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 2

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 08/24/2018
Next Scheduled EDR Contact: 12/03/2018
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 07/17/2018
Date Data Arrived at EDR: 08/09/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 57

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 10/04/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 08/01/2018
Date Data Arrived at EDR: 08/22/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 44

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 10/23/2018
Next Scheduled EDR Contact: 02/04/2019
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 10/17/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 3

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 10/04/2018
Next Scheduled EDR Contact: 11/19/2018
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 06/01/2017
Date Data Arrived at EDR: 06/09/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 126

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 10/11/2018
Next Scheduled EDR Contact: 01/21/2019
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 10/09/2018
Next Scheduled EDR Contact: 01/21/2019
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: Quarterly

MLTS: Material Licensing Tracking System
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 08/30/2016
Date Data Arrived at EDR: 09/08/2016
Date Made Active in Reports: 10/21/2016
Number of Days to Update: 43

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 09/28/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Quarterly

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 09/07/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 09/04/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 05/24/2017
Date Data Arrived at EDR: 11/30/2017
Date Made Active in Reports: 12/15/2017
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 07/27/2018
Next Scheduled EDR Contact: 11/05/2018
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/02/2018
Date Data Arrived at EDR: 07/05/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 92

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 10/03/2018
Next Scheduled EDR Contact: 01/14/2019
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 08/09/2018
Next Scheduled EDR Contact: 11/12/2018
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 06/30/2018
Date Data Arrived at EDR: 07/17/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 80

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 10/01/2018
Next Scheduled EDR Contact: 12/31/2018
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 09/28/2017
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 08/24/2018
Next Scheduled EDR Contact: 12/03/2018
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 10/09/2018
Next Scheduled EDR Contact: 01/21/2019
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 08/08/2017
Date Data Arrived at EDR: 09/11/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 3

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 09/11/2018
Next Scheduled EDR Contact: 11/19/2018
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 06/23/2017
Date Data Arrived at EDR: 10/11/2017
Date Made Active in Reports: 11/03/2017
Number of Days to Update: 23

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 08/20/2018
Next Scheduled EDR Contact: 12/03/2018
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 07/17/2018
Date Data Arrived at EDR: 08/09/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 57

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 10/04/2018
Next Scheduled EDR Contact: 01/14/2019
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data
A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File
Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/01/2018
Date Data Arrived at EDR: 08/29/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 37

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 08/29/2018
Next Scheduled EDR Contact: 12/10/2018
Data Release Frequency: Semi-Annually

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing
This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 02/29/2008
Date Made Active in Reports: 04/18/2008
Number of Days to Update: 49

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 08/31/2018
Next Scheduled EDR Contact: 12/10/2018
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing
Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 08/31/2018
Next Scheduled EDR Contact: 12/10/2018
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines
An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 09/10/2018
Date Data Arrived at EDR: 09/11/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 3

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 09/10/2018
Next Scheduled EDR Contact: 12/24/2018
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 08/07/2018
Date Data Arrived at EDR: 09/05/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 30

Source: EPA
Telephone: (206) 553-1200
Last EDR Contact: 09/18/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 06/19/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 87

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 10/15/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Varies

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 09/02/2018
Date Data Arrived at EDR: 09/05/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 9

Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 09/05/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 07/26/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 71

Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 08/31/2018
Next Scheduled EDR Contact: 12/10/2018
Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 08/22/2018
Date Data Arrived at EDR: 08/22/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 44

Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 08/22/2018
Next Scheduled EDR Contact: 12/03/2018
Data Release Frequency: Quarterly

AIRS (EMI): Washington Emissions Data System

Emissions inventory data.

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/04/2018
Number of Days to Update: 40

Source: Department of Ecology
Telephone: 360-407-6040
Last EDR Contact: 09/17/2018
Next Scheduled EDR Contact: 12/31/2018
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ASBESTOS: Asbestos Notification Listing
Asbestos sites

Date of Government Version: 07/31/2018
Date Data Arrived at EDR: 08/02/2018
Date Made Active in Reports: 09/06/2018
Number of Days to Update: 35

Source: Department of Labor & Industries
Telephone: 360-902-6209
Last EDR Contact: 08/02/2018
Next Scheduled EDR Contact: 12/03/2018
Data Release Frequency: Varies

COAL ASH: Coal Ash Disposal Site Listing
A listing of coal ash disposal site locations.

Date of Government Version: 09/05/2018
Date Data Arrived at EDR: 09/07/2018
Date Made Active in Reports: 09/25/2018
Number of Days to Update: 18

Source: Department of Ecology
Telephone: 360-407-6933
Last EDR Contact: 08/30/2018
Next Scheduled EDR Contact: 12/17/2018
Data Release Frequency: Varies

DRYCLEANERS: Drycleaner List
A listing of registered drycleaners who registered with the Department of Ecology (using the SIC code of 7215 and 7216) as hazardous waste generators.

Date of Government Version: 07/17/2018
Date Data Arrived at EDR: 07/24/2018
Date Made Active in Reports: 09/05/2018
Number of Days to Update: 43

Source: Department of Ecology
Telephone: 360-407-6732
Last EDR Contact: 10/15/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing
A listing of financial assurance information for underground storage tank facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 07/31/2018
Date Data Arrived at EDR: 08/02/2018
Date Made Active in Reports: 09/05/2018
Number of Days to Update: 34

Source: Department of Ecology
Telephone: 360-586-1060
Last EDR Contact: 08/27/2018
Next Scheduled EDR Contact: 12/10/2018
Data Release Frequency: No Update Planned

Financial Assurance 2: Financial Assurance Information Listing
A listing of financial assurance information for hazardous waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 06/01/2018
Date Data Arrived at EDR: 06/05/2018
Date Made Active in Reports: 07/24/2018
Number of Days to Update: 49

Source: Department of Ecology
Telephone: 360-407-6754
Last EDR Contact: 08/08/2018
Next Scheduled EDR Contact: 11/26/2018
Data Release Frequency: Varies

Financial Assurance 3: Financial Assurance Information Listing
A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 11/15/2017
Date Data Arrived at EDR: 11/20/2017
Date Made Active in Reports: 01/04/2018
Number of Days to Update: 45

Source: Department of Ecology
Telephone: 360-407-6136
Last EDR Contact: 08/08/2018
Next Scheduled EDR Contact: 11/26/2018
Data Release Frequency: No Update Planned

INACTIVE DRYCLEANERS: Inactive Drycleaners
A listing of inactive drycleaner facility locations.

Date of Government Version: 07/17/2018
Date Data Arrived at EDR: 07/24/2018
Date Made Active in Reports: 09/05/2018
Number of Days to Update: 43

Source: Department of Ecology
Telephone: 360-407-6732
Last EDR Contact: 10/15/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Annually

WA MANIFEST: Hazardous Waste Manifest Data
Hazardous waste manifest information.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/04/2018
Number of Days to Update: 40

Source: Department of Ecology
Telephone: N/A
Last EDR Contact: 09/17/2018
Next Scheduled EDR Contact: 12/31/2018
Data Release Frequency: Annually

NPDES: Water Quality Permit System Data
A listing of permitted wastewater facilities.

Date of Government Version: 07/16/2018
Date Data Arrived at EDR: 07/20/2018
Date Made Active in Reports: 09/06/2018
Number of Days to Update: 48

Source: Department of Ecology
Telephone: 360-407-6073
Last EDR Contact: 10/18/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Quarterly

UIC: Underground Injection Wells Listing
A listing of underground injection wells.

Date of Government Version: 07/16/2018
Date Data Arrived at EDR: 07/20/2018
Date Made Active in Reports: 09/06/2018
Number of Days to Update: 48

Source: Department of Ecology
Telephone: 360-407-6143
Last EDR Contact: 10/18/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Quarterly

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants
The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations
EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA HWS: Recovered Government Archive State Hazardous Waste Facilities List

The EDR Recovered Government Archive State Hazardous Waste database provides a list of SHWS incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Ecology in Washington.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/24/2013
Number of Days to Update: 176

Source: Department of Ecology
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Ecology in Washington.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/10/2014
Number of Days to Update: 193

Source: Department of Ecology
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Ecology in Washington.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/24/2013
Number of Days to Update: 176

Source: Department of Ecology
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COUNTY RECORDS

KING COUNTY:

LF KING: Abandoned Landfill Study in King County
The King County Abandoned Landfill Survey was conducted from October through December 1984 by the Health Department's Environmental Health Division at the request of the King County Council. The primary objective of the survey was to determine if any public health problems existed at the predetermined 24 sites.

Date of Government Version: 04/30/1985
Date Data Arrived at EDR: 11/07/1994
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: Seattle-King County Department of Public Health
Telephone: 206-296-4785
Last EDR Contact: 10/21/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SEATTLE COUNTY:

LF SEATTLE CITY: Abandoned Landfill Study in the City of Seattle
The Seattle Abandoned Landfill Survey was conducted in June and July of 1984 by the Health Department's Environmental Health Division at the request of the Mayor's Office. The primary objective of the survey was to determine if any public health problems existed at the predetermined 12 sites.

Date of Government Version: 07/30/1984
Date Data Arrived at EDR: 11/07/1994
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: Seattle - King County Department of Public Health
Telephone: 206-296-4785
Last EDR Contact: 10/21/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SEATTLE/KING COUNTY:

LF SEATTLE/KING: Seattle - King County Abandoned Landfill Toxicity / Hazard Assessment Project
This report presents the Seattle-King County Health Department's follow-up investigation of two city owned and four county owned abandoned landfills which was conducted from February to December 1986.

Date of Government Version: 12/31/1986
Date Data Arrived at EDR: 08/18/1995
Date Made Active in Reports: 09/20/1995
Number of Days to Update: 33

Source: Department of Public Health
Telephone: 206-296-4785
Last EDR Contact: 08/14/1995
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SNOHOMISH COUNTY:

LF SNOHOMISH: Solid Waste Sites of Record at Snohomish Health District
Solid waste disposal and/or utilization sites in Snohomish County.

Date of Government Version: 11/16/2011
Date Data Arrived at EDR: 03/29/2012
Date Made Active in Reports: 05/03/2012
Number of Days to Update: 35

Source: Snohomish Health District
Telephone: 206-339-5250
Last EDR Contact: 09/21/2018
Next Scheduled EDR Contact: 12/31/2018
Data Release Frequency: Semi-Annually

TACOMA/PIERCE COUNTY:

LF TACOMA/PIERCE: Closed Landfill Survey
Following numerous requests for information about closed dumpsites and landfills in Pierce County, the Tacoma-Pierce County Health Department decided to conduct a study on the matter. The aim of the study was to evaluate public health risks associated with the closed dumpsites and landfills, and to determine the need, if any, for further investigations of a more detailed nature. The sites represent all of the known dumpsites and landfills closed after 1950.

Date of Government Version: 09/01/2002
Date Data Arrived at EDR: 03/24/2003
Date Made Active in Reports: 05/14/2003
Number of Days to Update: 51

Source: Tacoma-Pierce County Health Department
Telephone: 206-591-6500
Last EDR Contact: 03/19/2003
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 08/10/2018
Date Data Arrived at EDR: 08/10/2018
Date Made Active in Reports: 09/10/2018
Number of Days to Update: 31

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 08/09/2018
Next Scheduled EDR Contact: 11/26/2018
Data Release Frequency: No Update Planned

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 07/01/2018
Date Data Arrived at EDR: 08/01/2018
Date Made Active in Reports: 08/31/2018
Number of Days to Update: 30

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 08/01/2018
Next Scheduled EDR Contact: 11/12/2018
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 07/25/2017
Date Made Active in Reports: 09/25/2017
Number of Days to Update: 62

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 10/15/2018
Next Scheduled EDR Contact: 01/28/2019
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 06/15/2018
Date Made Active in Reports: 07/09/2018
Number of Days to Update: 24

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 09/06/2018
Next Scheduled EDR Contact: 12/24/2018
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: PennWell Corporation
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Electric Power Transmission Line Data
Source: PennWell Corporation
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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Daycare Center Listing
Source: Department of Social & Health Services
Telephone: 253-383-1735

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Ecology
Telephone: 360-407-6121

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

TOTEM LAKE PARK PH I
12031 NE TOTEM LAKE WAY
KIRKLAND, WA 98034

TARGET PROPERTY COORDINATES

Latitude (North):	47.711751 - 47˚ 42’ 42.30’’
Longitude (West):	122.17792 - 122˚ 10’ 40.51’’
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	561666.0
UTM Y (Meters):	5284372.0
Elevation:	134 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	6005535 KIRKLAND, WA
Version Date:	2014

EDR’s GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

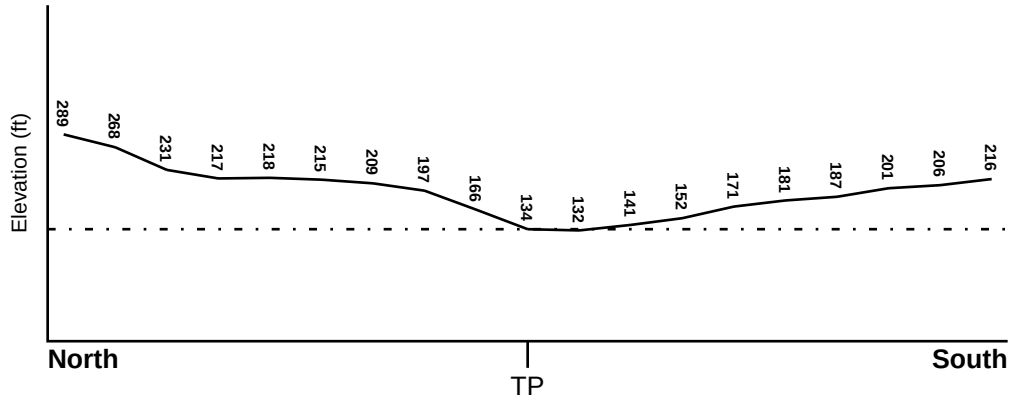
TOPOGRAPHIC INFORMATION

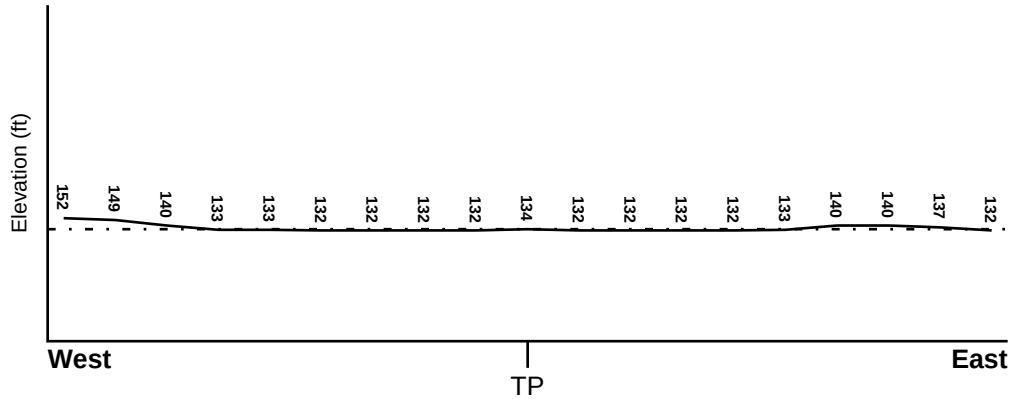
Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

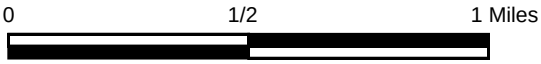
General Topographic Gradient: General South

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES





Target Property Elevation: 134 ft.



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
53033C0360F	FEMA Q3 Flood data

Additional Panels in search area:	FEMA Source Type
53033C0352F	FEMA Q3 Flood data
53033C0354F	FEMA Q3 Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
KIRKLAND	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Location Relative to TP:	1/2 - 1 Mile NE
Site Name:	GOLDEN PENN OIL CO OF SEATTLE
Site EPA ID Number:	WAD085197945
Groundwater Flow Direction:	NOT AVAILABLE
Inferred Depth to Water:	10 feet to 30 feet
Hydraulic Connection:	The near-surface aquifer is located in a sand and gravel outwash beneath the Vashon till.
Sole Source Aquifer:	No information about a sole source aquifer is available
Data Quality:	Information is inferred in the CERCLIS investigation report(s)

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
1	1/8 - 1/4 Mile SSE	NNW
1G	1/8 - 1/4 Mile SSE	NNW

For additional site information, refer to Physical Setting Source Map Findings.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

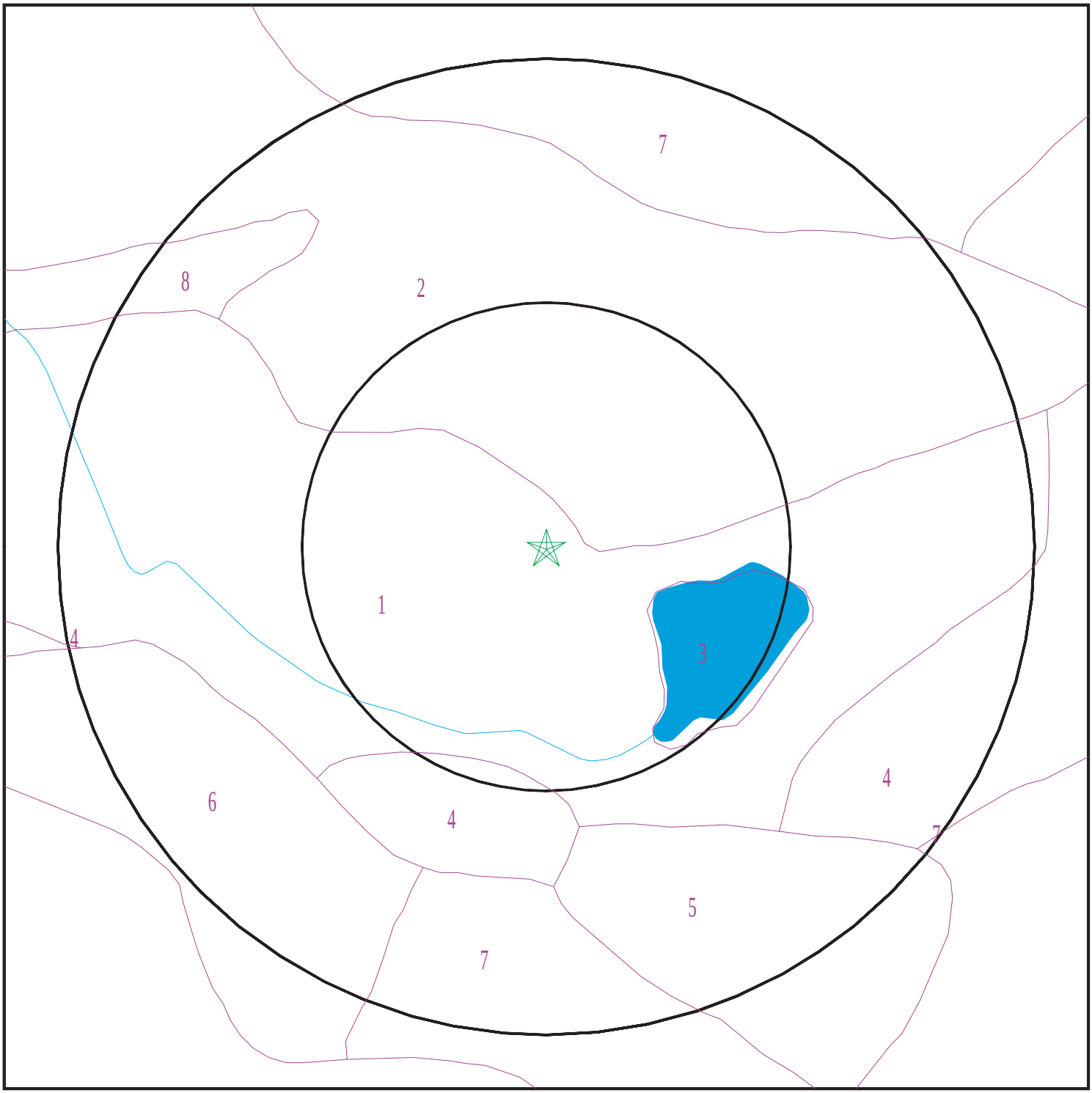
Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 5463995.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	Totem Lake Park Ph I	CLIENT:	O Neill Service Group
ADDRESS:	12031 NE TOTEM LAKE WAY Kirkland WA 98034	CONTACT:	Vance Atkins
		INQUIRY #:	5463995.2s
LAT/LONG:	47.711751 / 122.17792	DATE:	October 24, 2018 3:37 pm

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Seattle

Soil Surface Texture: muck

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Very poorly drained

Hydric Status: All hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	muck	A-8	Highly organic soils, Peat.	Max: 14 Min: 4	Max: Min:
2	11 inches	59 inches	stratified mucky peat to muck	A-8	Highly organic soils, Peat.	Max: 14 Min: 4	Max: Min:

Soil Map ID: 2

Soil Component Name: Everett

Soil Surface Texture: gravelly sandy loam

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Somewhat excessively drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	16 inches	gravelly sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Clean gravels, Poorly Graded Gravel. COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel.	Max: 705 Min: 141	Max: 6.5 Min: 5.6
2	16 inches	31 inches	very gravelly sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Clean gravels, Poorly Graded Gravel. COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel.	Max: 705 Min: 141	Max: 6.5 Min: 5.6
3	31 inches	59 inches	very gravelly coarse sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Clean gravels, Poorly Graded Gravel. COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel.	Max: 705 Min: 141	Max: 6.5 Min: 5.6

Soil Map ID: 3

Soil Component Name: Water

Soil Surface Texture: gravelly sandy loam

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class:

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

No Layer Information available.

Soil Map ID: 4

Soil Component Name: Kitsap

Soil Surface Texture: silt loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 69 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 1.4 Min: 0.42	Max: 6.5 Min: 5.1
2	5 inches	24 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 1.4 Min: 0.42	Max: 6.5 Min: 5.1
3	24 inches	59 inches	stratified silt to silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 1.4 Min: 0.42	Max: 6.5 Min: 5.1

Soil Map ID: 5

Soil Component Name: Indianola

Soil Surface Texture: loamy fine sand

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches	loamy fine sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 705 Min: 141	Max: 6.5 Min: 6.1
2	5 inches	29 inches	loamy fine sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 705 Min: 141	Max: 6.5 Min: 6.1
3	29 inches	59 inches	sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 705 Min: 141	Max: 6.5 Min: 6.1

Soil Map ID: 6

Soil Component Name: Urban land

Soil Surface Texture: loamy fine sand

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class:

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

No Layer Information available.

Soil Map ID: 7

Soil Component Name: Alderwood

Soil Surface Texture: gravelly sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 84 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	gravelly sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 0.42 Min: 0.01	Max: 6 Min: 5.1
2	11 inches	26 inches	very gravelly sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 0.42 Min: 0.01	Max: 6 Min: 5.1

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
3	26 inches	59 inches	very gravelly sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 0.42 Min: 0.01	Max: 6 Min: 5.1

Soil Map ID: 8

Soil Component Name: Everett

Soil Surface Texture: gravelly sandy loam

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	16 inches	gravelly sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Clean gravels, Poorly Graded Gravel. COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel.	Max: 705 Min: 141	Max: 6.5 Min: 5.6

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
2	16 inches	31 inches	very gravelly sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Clean gravels, Poorly Graded Gravel. COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel.	Max: 705 Min: 141	Max: 6.5 Min: 5.6
3	31 inches	59 inches	very gravelly coarse sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Clean gravels, Poorly Graded Gravel. COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel.	Max: 705 Min: 141	Max: 6.5 Min: 5.6

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 0.001 miles
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
2	USGS40001269087	1/4 - 1/2 Mile ESE
3	USGS40001269250	1/4 - 1/2 Mile WNW
4	USGS40001269088	1/4 - 1/2 Mile WSW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
5	USGS40001269030	1/4 - 1/2 Mile ESE
6	USGS40001269203	1/4 - 1/2 Mile West
7	USGS40001269086	1/4 - 1/2 Mile ESE
A8	USGS40001269347	1/4 - 1/2 Mile NW
A9	USGS40001269378	1/4 - 1/2 Mile NW
10	USGS40001269377	1/2 - 1 Mile NE
A11	USGS40001269395	1/2 - 1 Mile NW
12	USGS40001269089	1/2 - 1 Mile WSW
B13	USGS40001268891	1/2 - 1 Mile SW
14	USGS40001269436	1/2 - 1 Mile NW
15	USGS40001269478	1/2 - 1 Mile NNE
B16	USGS40001268876	1/2 - 1 Mile SW
17	USGS40001269360	1/2 - 1 Mile NW
B18	USGS40001268864	1/2 - 1 Mile SW
19	USGS40001268863	1/2 - 1 Mile SE
20	USGS40001268877	1/2 - 1 Mile SW
C21	USGS40001269359	1/2 - 1 Mile ENE
22	USGS40001269162	1/2 - 1 Mile West
23	USGS40001268822	1/2 - 1 Mile SE
C24	USGS40001269394	1/2 - 1 Mile ENE
25	USGS40001269676	1/2 - 1 Mile North
D26	USGS40001269653	1/2 - 1 Mile NNW
E27	USGS40001269461	1/2 - 1 Mile NE
F28	USGS40001269675	1/2 - 1 Mile NNE
D29	USGS40001269699	1/2 - 1 Mile NNW
E30	USGS40001269470	1/2 - 1 Mile NE
F31	USGS40001269707	1/2 - 1 Mile NNE
32	USGS40001269722	1/2 - 1 Mile North
33	USGS40001269477	1/2 - 1 Mile NE
G34	USGS40001268812	1/2 - 1 Mile SW
H35	USGS40001268892	1/2 - 1 Mile WSW
G36	USGS40001268795	1/2 - 1 Mile SW
H37	USGS40001268878	1/2 - 1 Mile WSW

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

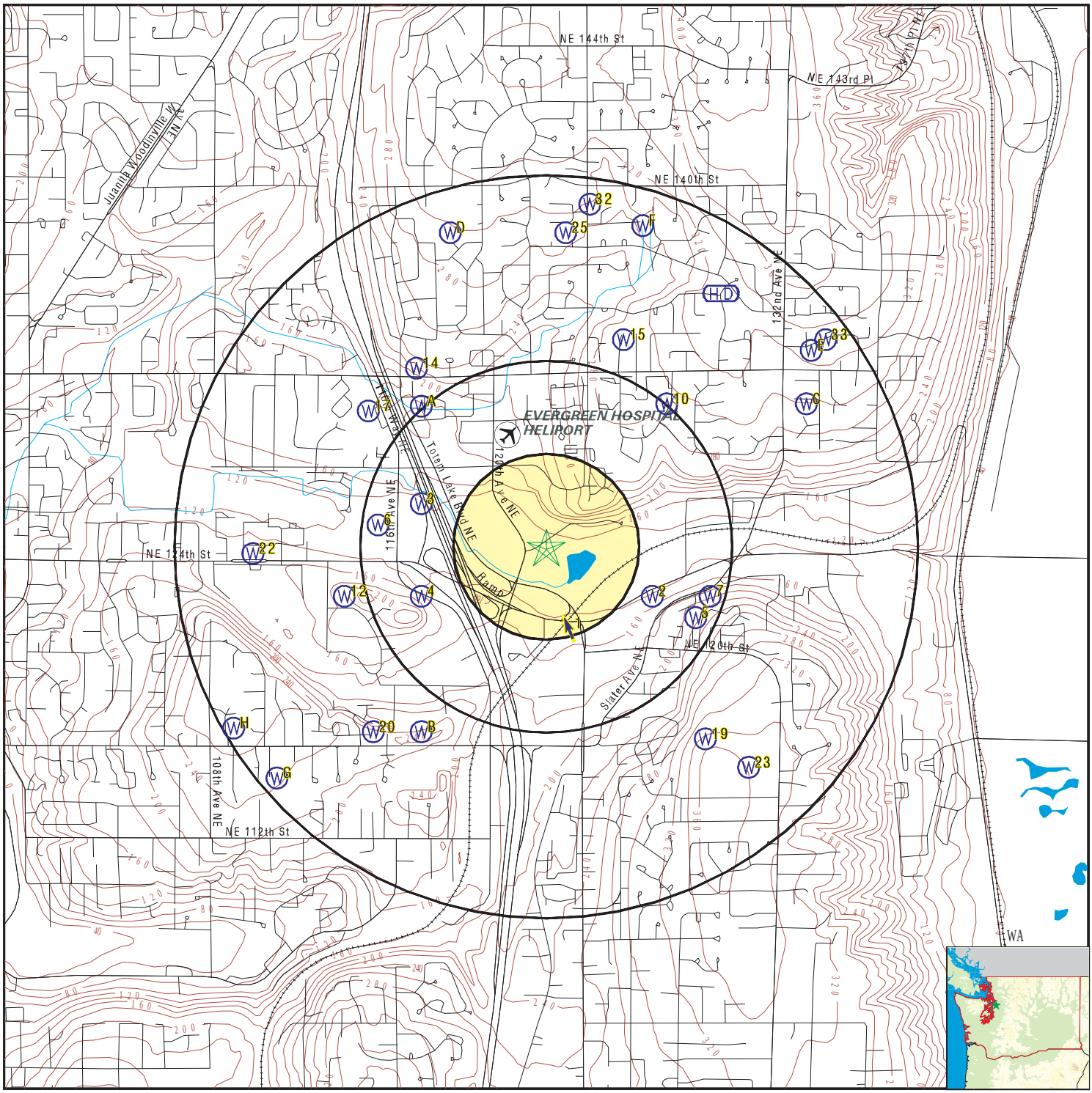
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

PHYSICAL SETTING SOURCE MAP - 5463995.2s



0 1/4 1/2 1 Miles

County Boundary
Major Roads
Contour Lines
Airports
Earthquake epicenter, Richter 5 or greater
Water Wells
Public Water Supply Wells
Cluster of Multiple Icons

Groundwater Flow Direction
Indeterminate Groundwater Flow at Location
Groundwater Flow Varies at Location
Closest Hydrogeological Data
Oil, gas or related wells

SITE NAME: Totem Lake Park Ph I	CLIENT: O Neill Service Group
ADDRESS: 12031 NE TOTEM LAKE WAY Kirkland WA 98034	CONTACT: Vance Atkins
LAT/LONG: 47.711751 / 122.17792	INQUIRY #: 5463995.2s
	DATE: October 24, 2018 3:37 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation			Database	EDR ID Number
1 **SSE** **1/8 - 1/4 Mile** **Higher**	Site ID: Groundwater Flow: Shallowest Water Table Depth: Deepest Water Table Depth: Average Water Table Depth: Date:	5642 NNW 6.77 10.52 Not Reported 06/28/1995	**AQUIFLOW**	**61329**

2
ESE
1/4 - 1/2 Mile
Higher

FED USGS **USGS40001269087**

Organization ID:	USGS-WA		
Organization Name:	USGS Washington Water Science Center		
Monitor Location:	26N/05E-28K01	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19210101
Well Depth:	61	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1951-04-26
Feet below surface:	14	Feet to sea level:	Not Reported
Note:	Not Reported		

3
WNW
1/4 - 1/2 Mile
Higher

FED USGS **USGS40001269250**

Organization ID:	USGS-WA		
Organization Name:	USGS Washington Water Science Center		
Monitor Location:	26N/05E-28E01	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19510612
Well Depth:	42	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

4
WSW
1/4 - 1/2 Mile
Higher

FED USGS **USGS40001269088**

Organization ID:	USGS-WA		
Organization Name:	USGS Washington Water Science Center		
Monitor Location:	26N/05E-28M01	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported

Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19511106
Well Depth:	162	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1951-11-06
Feet below surface:	40	Feet to sea level:	Not Reported
Note:	Not Reported		

5
ESE **FED USGS** **USGS40001269030**
1/4 - 1/2 Mile
Higher

Organization ID:	USGS-WA		
Organization Name:	USGS Washington Water Science Center		
Monitor Location:	26N/05E-28J01	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19010101
Well Depth:	10.6	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1951-04-26
Feet below surface:	4	Feet to sea level:	Not Reported
Note:	Not Reported		

6
West **FED USGS** **USGS40001269203**
1/4 - 1/2 Mile
Lower

Organization ID:	USGS-WA		
Organization Name:	USGS Washington Water Science Center		
Monitor Location:	26N/05E-29H01	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19480101
Well Depth:	125	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

---

7
ESE **FED USGS** **USGS40001269086**
1/4 - 1/2 Mile
Higher

Organization ID:	USGS-WA		
Organization Name:	USGS Washington Water Science Center		
Monitor Location:	26N/05E-28J02	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported

Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19010101
Well Depth:	34	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1951-04-26
Feet below surface:	19	Feet to sea level:	Not Reported
Note:	Not Reported		

A8
NW
1/4 - 1/2 Mile
Higher

FED USGS **USGS40001269347**

Organization ID:	USGS-WA		
Organization Name:	USGS Washington Water Science Center		
Monitor Location:	26N/05E-28D01	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19010101
Well Depth:	51	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1951-06-12
Feet below surface:	10	Feet to sea level:	Not Reported
Note:	Not Reported		

A9
NW
1/4 - 1/2 Mile
Higher

FED USGS **USGS40001269378**

Organization ID:	USGS-WA		
Organization Name:	USGS Washington Water Science Center		
Monitor Location:	26N/05E-28D02	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19510612
Well Depth:	15	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1951-06-12
Feet below surface:	9	Feet to sea level:	Not Reported
Note:	Not Reported		

10
NE
1/2 - 1 Mile
Higher

FED USGS **USGS40001269377**

Organization ID:	USGS-WA
Organization Name:	USGS Washington Water Science Center

Monitor Location:	26N/05E-28B01	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19010101
Well Depth:	55	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1951-05-24
Feet below surface:	46	Feet to sea level:	Not Reported
Note:	Not Reported		

A11
NW
1/2 - 1 Mile
Higher

FED USGS **USGS40001269395**

Organization ID:	USGS-WA		
Organization Name:	USGS Washington Water Science Center		
Monitor Location:	26N/05E-29B01	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19510901
Well Depth:	21.8	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1951-09-01
Feet below surface:	20	Feet to sea level:	Not Reported
Note:	Not Reported		

12
WSW
1/2 - 1 Mile
Higher

FED USGS **USGS40001269089**

Organization ID:	USGS-WA		
Organization Name:	USGS Washington Water Science Center		
Monitor Location:	26N/05E-29J01	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19510430
Well Depth:	40	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

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B13
SW
1/2 - 1 Mile
Higher

FED USGS **USGS40001268891**

Organization ID:	USGS-WA
Organization Name:	USGS Washington Water Science Center

Monitor Location:	26N/05E-28N03	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19510427
Well Depth:	14.3	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1951-04-27
Feet below surface:	5	Feet to sea level:	Not Reported
Note:	Not Reported		

14
NW
1/2 - 1 Mile
Higher

FED USGS **USGS40001269436**

Organization ID:	USGS-WA		
Organization Name:	USGS Washington Water Science Center		
Monitor Location:	26N/05E-21N01	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19010101
Well Depth:	22	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1951-05-24
Feet below surface:	9	Feet to sea level:	Not Reported
Note:	Not Reported		

15
NNE
1/2 - 1 Mile
Higher

FED USGS **USGS40001269478**

Organization ID:	USGS-WA		
Organization Name:	USGS Washington Water Science Center		
Monitor Location:	26N/05E-21Q01	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19010101
Well Depth:	85.6	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1951-06-12
Feet below surface:	10	Feet to sea level:	Not Reported
Note:	Not Reported		

Map ID Direction Distance Elevation	Database	EDR ID Number
B16 **SW** **1/2 - 1 Mile** **Higher**	**FED USGS**	**USGS40001268876**

Organization ID:	USGS-WA		
Organization Name:	USGS Washington Water Science Center		
Monitor Location:	26N/05E-28N02	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19010101
Well Depth:	120	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1951-11-06
Feet below surface:	55	Feet to sea level:	Not Reported
Note:	Not Reported		

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17 **NW** **1/2 - 1 Mile** **Higher**	**FED USGS**	**USGS40001269360**

Organization ID:	USGS-WA		
Organization Name:	USGS Washington Water Science Center		
Monitor Location:	26N/05E-29A01	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19010101
Well Depth:	18	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1944-02-07
Feet below surface:	8	Feet to sea level:	Not Reported
Note:	Not Reported		

B18 **SW** **1/2 - 1 Mile** **Higher**	**FED USGS**	**USGS40001268864**

Organization ID:	USGS-WA		
Organization Name:	USGS Washington Water Science Center		
Monitor Location:	26N/05E-27N01	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19010101
Well Depth:	Not Reported	Well Depth Units:	Not Reported
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1951-04-24
Feet below surface:	39	Feet to sea level:	Not Reported
Note:	Not Reported		

19
SE
1/2 - 1 Mile
Higher

FED USGS **USGS40001268863**

Organization ID:	USGS-WA		
Organization Name:	USGS Washington Water Science Center		
Monitor Location:	26N/05E-28R01	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19010101
Well Depth:	11	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1951-04-24
Feet below surface:	2	Feet to sea level:	Not Reported
Note:	Not Reported		

20
SW
1/2 - 1 Mile
Higher

FED USGS **USGS40001268877**

Organization ID:	USGS-WA		
Organization Name:	USGS Washington Water Science Center		
Monitor Location:	26N/05E-29R01	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19010101
Well Depth:	13	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1951-04-30
Feet below surface:	5	Feet to sea level:	Not Reported
Note:	Not Reported		

C21
ENE
1/2 - 1 Mile
Higher

FED USGS **USGS40001269359**

Organization ID:	USGS-WA		
Organization Name:	USGS Washington Water Science Center		
Monitor Location:	26N/05E-27D01	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19010101

Well Depth:	80	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1951-06-21
Feet below surface:	69	Feet to sea level:	Not Reported
Note:	Not Reported		

22
West
1/2 - 1 Mile
Higher

FED USGS **USGS40001269162**

Organization ID:	USGS-WA		
Organization Name:	USGS Washington Water Science Center		
Monitor Location:	26N/05E-29G01	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19510430
Well Depth:	35	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

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23
SE
1/2 - 1 Mile
Higher

FED USGS **USGS40001268822**

Organization ID:	USGS-WA		
Organization Name:	USGS Washington Water Science Center		
Monitor Location:	26N/05E-33A01	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19010101
Well Depth:	57	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1951-04-24
Feet below surface:	48	Feet to sea level:	Not Reported
Note:	Not Reported		

C24
ENE
1/2 - 1 Mile
Higher

FED USGS **USGS40001269394**

Organization ID:	USGS-WA		
Organization Name:	USGS Washington Water Science Center		
Monitor Location:	26N/05E-27D02	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19010101

Well Depth:	82.5	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1951-06-21
Feet below surface:	63	Feet to sea level:	Not Reported
Note:	Not Reported		

25
North
1/2 - 1 Mile
Higher

FED USGS **USGS40001269676**

Organization ID:	USGS-WA		
Organization Name:	USGS Washington Water Science Center		
Monitor Location:	26N/05E-21L01	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19010101
Well Depth:	63	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1951-06-19
Feet below surface:	53	Feet to sea level:	Not Reported
Note:	Not Reported		

D26
NNW
1/2 - 1 Mile
Higher

FED USGS **USGS40001269653**

Organization ID:	USGS-WA		
Organization Name:	USGS Washington Water Science Center		
Monitor Location:	26N/05E-21M01	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19010101
Well Depth:	66	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1951-05-04
Feet below surface:	58	Feet to sea level:	Not Reported
Note:	Not Reported		

E27
NE
1/2 - 1 Mile
Higher

FED USGS **USGS40001269461**

Organization ID:	USGS-WA		
Organization Name:	USGS Washington Water Science Center		
Monitor Location:	26N/05E-21N04	Type:	Well
Description:	Not Reported	HUC:	17110012

Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19010101
Well Depth:	148	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1951-07-17
Feet below surface:	143	Feet to sea level:	Not Reported
Note:	Not Reported		

F28
NNE **FED USGS** **USGS40001269675**
1/2 - 1 Mile
Higher

Organization ID:	USGS-WA		
Organization Name:	USGS Washington Water Science Center		
Monitor Location:	26N/05E-21K01	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19010101
Well Depth:	20	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1944-02-07
Feet below surface:	10	Feet to sea level:	Not Reported
Note:	Not Reported		

D29
NNW **FED USGS** **USGS40001269699**
1/2 - 1 Mile
Higher

Organization ID:	USGS-WA		
Organization Name:	USGS Washington Water Science Center		
Monitor Location:	26N/05E-21M02	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19010101
Well Depth:	90	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1944-04-07
Feet below surface:	80	Feet to sea level:	Not Reported
Note:	Not Reported		

Map ID Direction Distance Elevation	Database	EDR ID Number
E30 **NE** **1/2 - 1 Mile** **Higher**	**FED USGS**	**USGS40001269470**

Organization ID:	USGS-WA		
Organization Name:	USGS Washington Water Science Center		
Monitor Location:	26N/05E-21N02	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19010101
Well Depth:	123	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1944-02-07
Feet below surface:	119	Feet to sea level:	Not Reported
Note:	Not Reported		

F31 **NNE** **1/2 - 1 Mile** **Higher**	**FED USGS**	**USGS40001269707**

Organization ID:	USGS-WA		
Organization Name:	USGS Washington Water Science Center		
Monitor Location:	26N/05E-21K02	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19010101
Well Depth:	21	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1944-02-07
Feet below surface:	18	Feet to sea level:	Not Reported
Note:	Not Reported		

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32 **North** **1/2 - 1 Mile** **Higher**	**FED USGS**	**USGS40001269722**

Organization ID:	USGS-WA		
Organization Name:	USGS Washington Water Science Center		
Monitor Location:	26N/05E-21K03	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19010101
Well Depth:	75	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1951-08-01
Feet below surface:	53	Feet to sea level:	Not Reported
Note:	Not Reported		

33
NE
1/2 - 1 Mile
Higher

FED USGS **USGS40001269477**

Organization ID:	USGS-WA		
Organization Name:	USGS Washington Water Science Center		
Monitor Location:	26N/05E-21N03	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19010101
Well Depth:	110	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1958-02-26
Feet below surface:	105	Feet to sea level:	Not Reported
Note:	Not Reported		

G34
SW
1/2 - 1 Mile
Higher

FED USGS **USGS40001268812**

Organization ID:	USGS-WA		
Organization Name:	USGS Washington Water Science Center		
Monitor Location:	26N/05E-32B02	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19010101
Well Depth:	35	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1951-04-27
Feet below surface:	4	Feet to sea level:	Not Reported
Note:	Not Reported		

H35
WSW
1/2 - 1 Mile
Higher

FED USGS **USGS40001268892**

Organization ID:	USGS-WA		
Organization Name:	USGS Washington Water Science Center		
Monitor Location:	26N/05E-29Q02	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19010101

Well Depth:	34	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1951-04-27
Feet below surface:	13	Feet to sea level:	Not Reported
Note:	Not Reported		

G36
SW
1/2 - 1 Mile
Higher

FED USGS **USGS40001268795**

Organization ID:	USGS-WA		
Organization Name:	USGS Washington Water Science Center		
Monitor Location:	26N/05E-32B01	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19010101
Well Depth:	20	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1951-04-26
Feet below surface:	7	Feet to sea level:	Not Reported
Note:	Not Reported		

H37
WSW
1/2 - 1 Mile
Higher

FED USGS **USGS40001268878**

Organization ID:	USGS-WA		
Organization Name:	USGS Washington Water Science Center		
Monitor Location:	26N/05E-29Q01	Type:	Well
Description:	Not Reported	HUC:	17110012
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	19010101
Well Depth:	53.2	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1951-04-27
Feet below surface:	14	Feet to sea level:	Not Reported
Note:	Not Reported		

1G
SSE
1/8 - 1/4 Mile
Lower

AQUIFLOW **61329**

Site ID:	5642
Groundwater Flow:	NNW
Shallowest Water Table Depth:	6.77
Deepest Water Table Depth:	10.52
Average Water Table Depth:	Not Reported
Date:	06/28/1995

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

Federal EPA Radon Zone for KING County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 98034

Number of sites tested: 3

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.200 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	2.167 pCi/L	67%	33%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Ecology
Telephone: 360-407-6121

HYDROGEOLOGIC INFORMATION

AQUIFLOW[R] Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Wells
Source: Department of Health
Telephone: 360-236-3148
Group A and B well locations.

Water Well Listing
Source: Public Utility District
Telephone: 206-779-7656
A listing of water well locations in Kitsap County.

OTHER STATE DATABASE INFORMATION

Oil and Gas Well Listing
Source: Department of Natural Resources
Telephone: 360-902-1450
Locations that represent oil and gas test well sites in Washington State from 1890 to present.

RADON

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary faultlines, prepared in 1975 by the United State Geological Survey

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

APPENDIX D

HISTORICAL DOCUMENTATION

Totem Lake Park Ph I

12031 NE TOTEM LAKE WAY

Kirkland, WA 98034

Inquiry Number: 5463995.8

October 25, 2018

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

10/25/18

Site Name:

Totem Lake Park Ph I
12031 NE TOTEM LAKE WAY
Kirkland, WA 98034
EDR Inquiry # 5463995.8

Client Name:

O'Neill Service Group
2000 124th Ave NE Suite B109
Bellevue, WA 98005-0000
Contact: Vance Atkins

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

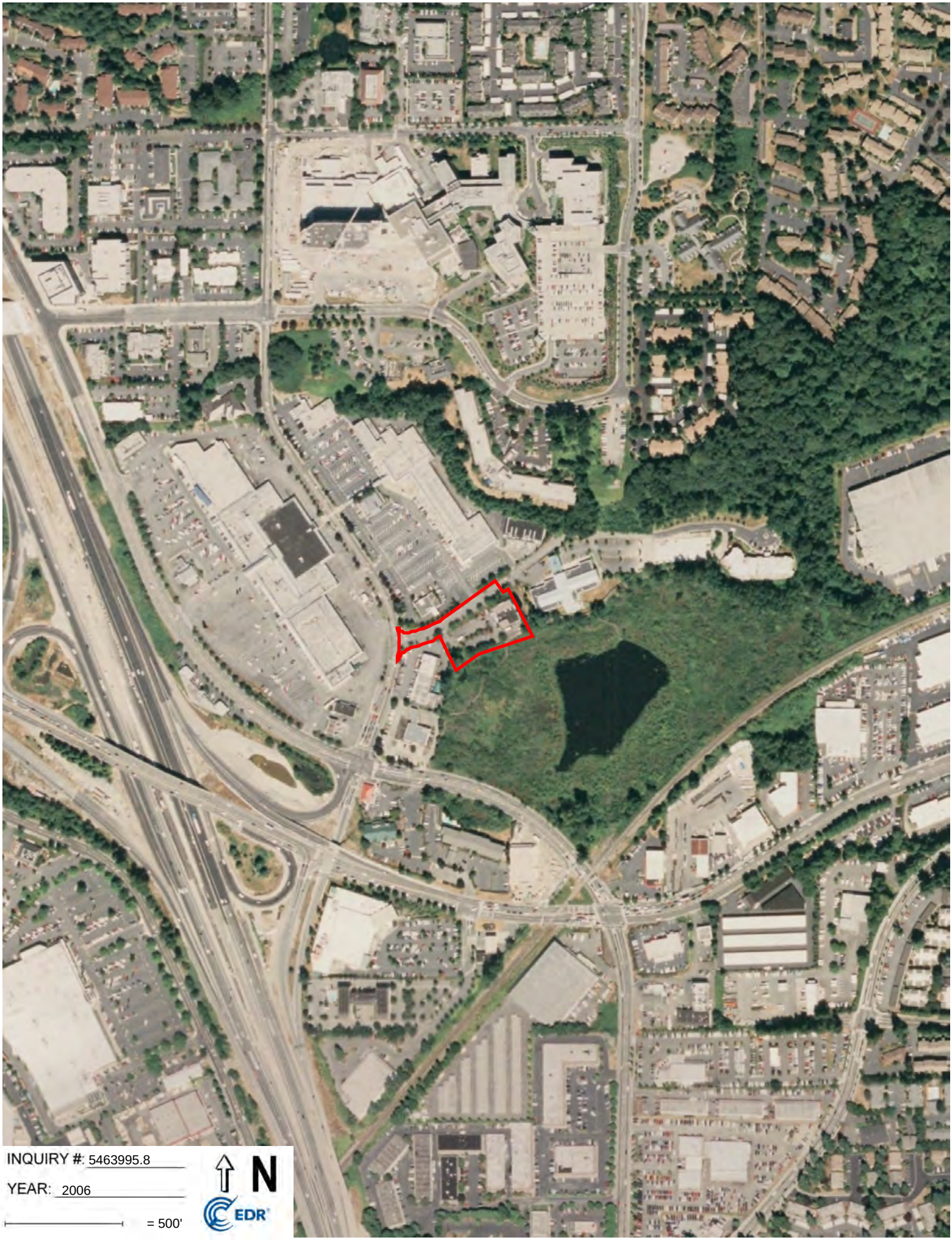
Year	*Scale*	*Details*	*Source*
2017	1"=500'	Flight Year: 2017	USDA/NAIP
2013	1"=500'	Flight Year: 2013	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2006	1"=500'	Flight Year: 2006	USDA/NAIP
1990	1"=500'	Acquisition Date: July 10, 1990	USGS/DOQQ
1985	1"=500'	Flight Date: June 19, 1985	NRWA
1980	1"=500'	Flight Date: July 27, 1980	USDA
1977	1"=500'	Flight Date: September 13, 1977	USGS
1973	1"=500'	Flight Date: July 09, 1973	NOAA
1968	1"=500'	Flight Date: September 02, 1968	USGS
1965	1"=500'	Flight Date: July 06, 1965	NRWA
1952	1"=500'	Flight Date: July 01, 1952	USGS
1944	1"=500'	Flight Date: April 27, 1944	DIA
1941	1"=500'	Flight Date: June 11, 1941	USDA

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.


INQUIRY #: 5463995.8
YEAR: 2017
= 500'
N
EDR


INQUIRY #: 5463995.8
YEAR: 2013
= 500'
N
EDR


INQUIRY #: 5463995.8
YEAR: 2009
= 500'
N
EDR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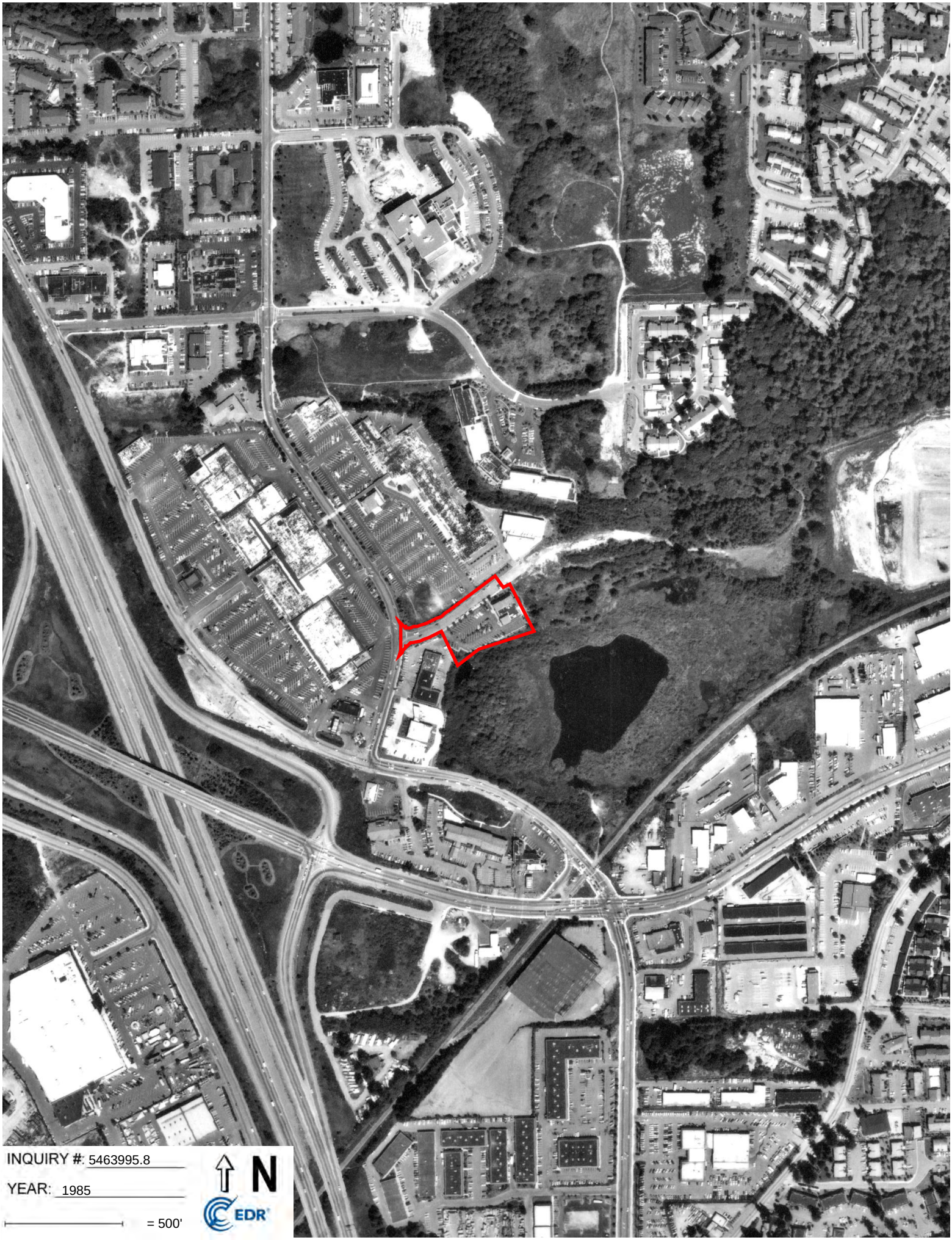
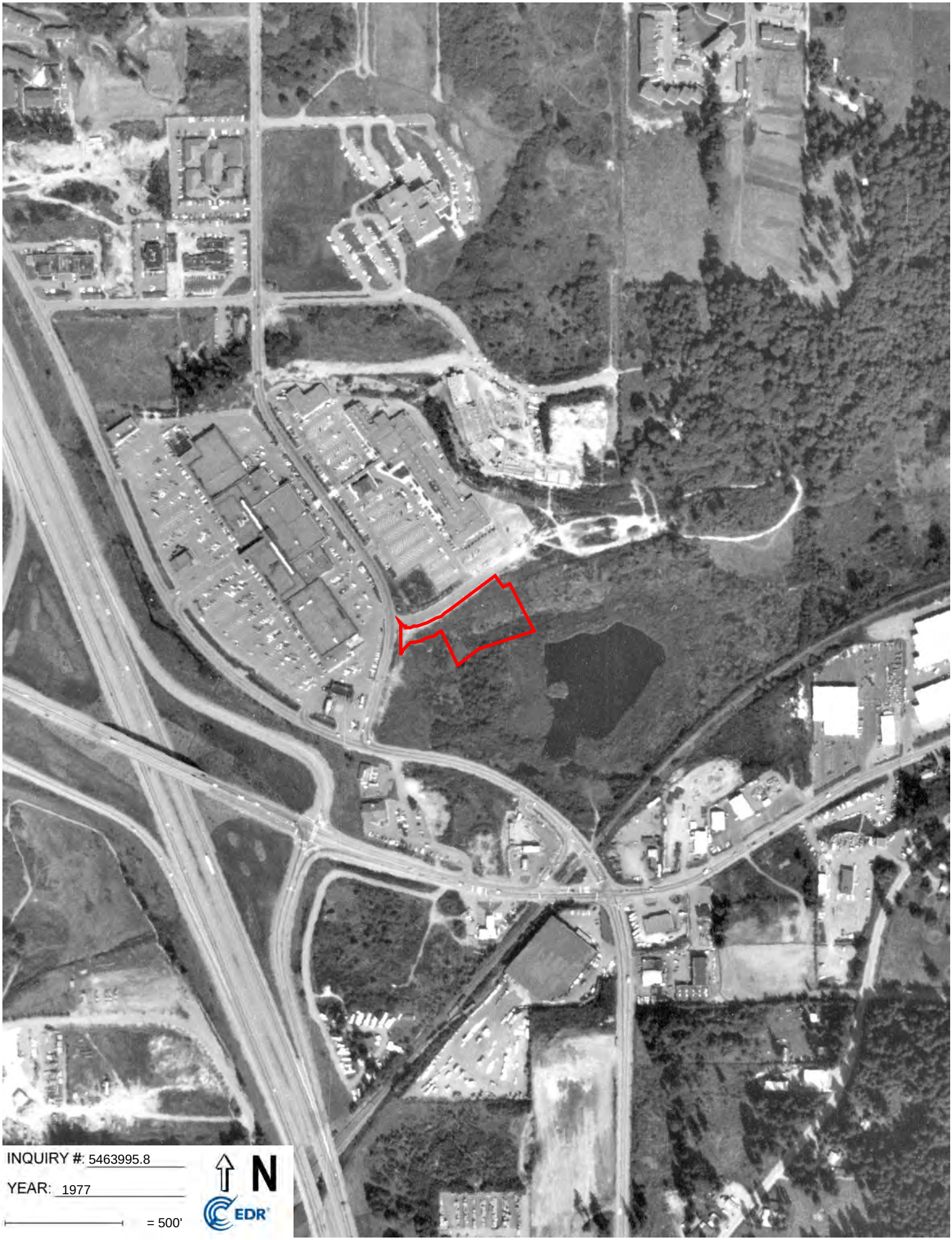
YEAR: 2006
= 500'
N
EDR


INQUIRY #: 5463995.8
YEAR: 1990
= 500'
N
EDR


INQUIRY #: 5463995.8
YEAR: 1985
= 500'
N
EDR


INQUIRY #: 5463995.8
YEAR: 1980
= 500'
N
EDR


INQUIRY #: 5463995.8
YEAR: 1977
= 500'
N
EDR


INQUIRY #: 5463995.8
YEAR: 1973
= 500'
N
EDR


INQUIRY #: 5463995.8
YEAR: 1968
= 500'
N
EDR

INQUIRY #: 5463995.8

YEAR: 1965

= 500'

N

EDR


INQUIRY #: 5463995.8
YEAR: 1952
= 500'
N
EDR


INQUIRY #: 5463995.8
YEAR: 1944
= 500'
N
EDR

INQUIRY #: 5463995.8

YEAR: 1941

= 500'

N

EDR

APPENDIX E

PROPERTY TAX RECORDS

New Search | Property Tax Bill | Map This Property | Glossary of Terms | Area Report | Print Property Detail

PARCEL DATA

Parcel	692840-0032
Name	KIRKLAND CITY OF
Site Address	12031 NE TOTEM LAKE WAY 98034
Geo Area	85-25
Spec Area	
Property Name	Retail Building

Jurisdiction	KIRKLAND
Levy Code	1806
Property Type	C
Plat Block / Building Number	
Plat Lot / Unit Number	TR C
Quarter-Section-Township-Range	NW-28-26-5

Legal Description

PUGET SOUND CENTER POR LY SLY OF FOLG DESC LN BEG SE COR TR G SD PLAT TH N 78-30-00 W 163.00 FT ALG SLY LN SD TR G TH 122.60 FT C/A 46-49-44 ALG ARC OF A CIRCULAR CURVE TO LFT SD CURVE HAVING RAD OF 150.00 FT WCH BEARS N 11-30-00 E FR THE CURVE CENTER TO CURVE BEG TH S 54-40-16 W 478.16 FT TH 151.80 FT C/A 21-55-17 ALG ARC OF CURVE TO RGT SD CURVE HAVING RAD 396.75 FT WCH BEARS S 35-19-44 E FR THE CURVE CTR TO CURVE BEG TH 58.08 FT C/A 95-04-22 ALG ARC OF A CURVE TO RGT SD CURVE HAVING A RAD OF 35.00 FT WCH BEARS S 13-24-27 E FR CURVE CTR TO THE CURVE BEG TO ELY R/W MGN OF 120 AVE NE & TERMINUS OF LN ALSO LESS POR BEG N 1/4 COR SEC 28 TWP 26 RNG 5 TH S 01-43-38 W ALG E LN W 1/2 SD SEC 3020.27 FT TH N 88-16-22 W 700.01 FT TO N R/W LN OF KINGSGATE WAY NE & TPOB TH N 09-43-38 E 214 FT TH N 17-49-33 E 175 FT TH N 26-36-57 W 133.49 FT TH ALG CRV RGT RAD 446.75 C/A 13-12-30 ARC DIST 102.99 FT TH ALG CRV LFT RAD 72.24 C/A 67-58-39 85.71 FT TH ALG CRV RGT RAD 465 FT C/A 09-12-39 ARC DIST 74.75 FT TH S 17-49-33 W ALG E R/W LN 120 AVE NE 269.78 FT TO BEG OF CRV LFT TH ALG SD CRV RAD 25 FT C/A 92-24-59 ARC DIST 40.32 FT TO N R/W LN KINGSGATE WAY NE SD PT BEING COMPOUND CRV CTR BEARING N 15-24-34 E 1210.92 FT TH ALG SD CRV LFT RAD 1210.92 FT C/A 05-40-56 ARC DIST 120.09 FT TH CONT ALG SD LN S 80-16-22 E 87.89 FT TO TPOB AKA LOTS C & D & POR KNOWN OF REFFERED TO AS TOTEM LAKE WAY OF KIRKLAND SHORT PLAT 77-4-14 AF # 7704210659 LESS POR PLATTED TOTEM LAKE SOUTH - 1980 PLAT
PLat Block:
Plat Lot: TR C

LAND DATA

Highest & Best Use As If Vacant	RETAIL/WHOLESALE
Highest & Best Use As Improved	PRESENT USE
Present Use	Retail Store
Land SqFt	69,540
Acres	1.60

Percentage Unusable	
Unbuildable	NO
Restrictive Size Shape	YES
Zoning	P
Water	WATER DISTRICT
Sewer/Septic	PUBLIC
Road Access	PUBLIC
Parking	ADEQUATE
Street Surface	PAVED

Views

Rainier	
Territorial	GOOD
Olympics	
Cascades	
Seattle Skyline	
Puget Sound	
Lake Washington	
Lake Sammamish	
Lake/River/Creek	GOOD
Other View	

Waterfront

Waterfront Location	
Waterfront Footage	0
Lot Depth Factor	0
Waterfront Bank	
Tide/Shore	
Waterfront Restricted Access	
Waterfront Access Rights	NO
Poor Quality	NO
Proximity Influence	NO

Designations

Historic Site	
Current Use	(none)
Nbr Bldg Sites	
Adjacent to Golf Fairway	NO
Adjacent to Greenbelt	NO
Other Designation	NO
Deed Restrictions	NO
Development Rights Purchased	NO
Easements	NO
Native Growth Protection Easement	NO
DNR Lease	NO

Nuisances

Topography	
Traffic Noise	
Airport Noise	
Power Lines	NO
Other Nuisances	NO

Problems

Water Problems	NO
Transportation Concurrency	NO
Other Problems	NO

Environmental

Environmental	NO

BUILDING

Building Number	1
Building Description	Retail Building
Number Of Buildings Aggregated	1
Predominant Use	RETAIL STORE (353)
Shape	Rect or Slight Irreg
Construction Class	WOOD FRAME
Building Quality	AVERAGE
Stories	1
Building Gross Sq Ft	7,000
Building Net Sq Ft	7,000
Year Built	1979
Eff. Year	1985
Percentage Complete	100
Heating System	WARMED AND COOLED AIR
Sprinklers	No
Elevators	

Click the camera to see more pictures.

Picture of Building 1

Section(s) Of Building Number: 1

Section Number	Section Use	Description	Stories	Height	Floor Number	Gross Sq Ft	Net Sq Ft
1	RETAIL STORE (353)		1	14		7,000	7,000

TAX ROLL HISTORY

This is a government owned parcel.
Change to state law (RCW 84. 40.045 and 84.40.175) by the 2013 Legislature eliminated revaluation of government owned parcels.

SALES HISTORY

Excise Number	Recording Number	Document Date	Sale Price	Seller Name	Buyer Name	Instrument	Sale Reason
2653963	20140219000403	2/5/2014	$2,340,000.00	ROSARITA L L C	KIRKLAND CITY OF	Statutory Warranty Deed	None
2090311	20041215002776	12/14/2004	$1,718,500.00	VIESER LLC	ROSARITA LLC	Statutory Warranty Deed	None
2044491	20040603002790	5/26/2004	$0.00	CHRISTOPHER GORDON+VIESER WILLIAM	VIESER LLC	Quit Claim Deed	Other
1613292	199805210229	5/10/1998	$0.00	VIESER COMPANY THE	VIESER LLC	Quit Claim Deed	Other

REVIEW HISTORY

Tax Year	Review Number	Review Type	Appealed Value	Hearing Date	Settlement Value	Decision	Status
2010	0908269	Local Appeal	$1,909,000	1/1/1900	$1,476,300	REVISE, ASSESSOR RECOMMENDED	Completed
1989	8806741	Local Appeal	$1,063,800	1/1/1900	$0		Completed
1987	8603797	Local Appeal	$957,700	1/1/1900	$957,700	SUSTAIN	Completed
1985	8404213	Local Appeal	$0	1/1/1900	$0	REVISE	Completed

PERMIT HISTORY

HOME IMPROVEMENT EXEMPTION

New Search | Property Tax Bill | Map This Property | Glossary of Terms | Area Report | Print Property Detail

APPENDIX F

ENVIRONMENTAL LIENS AND ACTIVITY AND USE LIMITATIONS

Totem Lake Park Ph I
12031 NE TOTEM LAKE WAY
Kirkland, WA 98034

Inquiry Number: 5505449.2
December 10, 2018

EDR Environmental Lien and AUL Search

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

EDR Environmental Lien and AUL Search

The EDR Environmental Lien and AUL Search Report provides results from a search of available current land title records for environmental cleanup liens and other activity and use limitations, such as engineering controls and institutional controls.

A network of professional, trained researchers, following established procedures, uses client supplied address information to:

- search for parcel information and/or legal description;
- search for ownership information;
- research official land title documents recorded at jurisdictional agencies such as recorders' offices, registries of deeds, county clerks' offices, etc.;
- access a copy of the deed;
- search for environmental encumbering instrument(s) associated with the deed;
- provide a copy of any environmental encumbrance(s) based upon a review of key words in the instrument(s) (title, parties involved, and description); and
- provide a copy of the deed or cite documents reviewed.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EDR Environmental Lien and AUL Search

TARGET PROPERTY INFORMATION

ADDRESS

12031 NE TOTEM LAKE WAY
Totem Lake Park Ph I
Kirkland, WA 98034

RESEARCH SOURCE

Source 1:

King Recorder
King, WA

PROPERTY INFORMATION

Deed 1:

Type of Deed:	Statutory Warranty Deed
Title is vested in:	City of Kirkland
Title received from:	Rosarita LLC
Deed Dated	2/12/2014
Deed Recorded:	2/19/2014
Book:	NA
Page:	NA
Volume:	NA
Instrument:	20140219000403
Docket:	NA
Land Record Comments:	see exhibit
Miscellaneous Comments:	NA
Legal Description:	see exhibit
Legal Current Owner:	City of Kirkland
Parcel # / Property Identifier:	692-840-0032
Comments:	see exhibit

Deed Exhibit 1

CHICAGO TITLE INS. CO. ②
REF# 1350470-06

WHEN RECORDED RETURN TO:

City of Kirkland
12031 NE Totem Lake Way
Kirkland, WA 98034

20140219000403
CHICAGO TITLE WD 73.00
PAGE-001 OF 002
02/19/2014 11:41
KING COUNTY, WA

E2653963
02/19/2014 11:41
KING COUNTY, WA
TAX $41,657.00
SALE $2,340,000.00 PAGE-001 OF 001

Escrow Number: 01148-29181
Filed for Record at Request of: ***Stewart Title Company***

STATUTORY WARRANTY DEED

THE GRANTOR(S), Rosarita, LLC, a Washington limited liability company for and in consideration of Ten Dollars and other good and valuable consideration in hand paid, conveys and warrants to City of Kirkland the following described real estate, situated in the County of King, State of Washington:

LEGAL DESCRIPTION ON EXHIBIT " A " ATTACHED HERETO AND MADE A PART HEREOF.

Subject to: This conveyance is subject to covenants, conditions, restrictions and easements, if any affecting title which may appear in the public record, including those shown on any recorded plat or survey.
Abbreviated Legal: (Required if full legal not inserted above.)
Lot C of City of Kirkland Short Plat No. 77-4-14 (Short Plat of Totem Lake South), Recording No. 7704210659 and corrected under Recording No. 7903080659

Tax Parcel Number(s): 692840-0032

Dated: February 12th, 2014

ROSARITA, LLC
Brian Lurie, member
Brian Lurie
Sole Member

State of Washington
) ss.
County of King

I certify that I know or have satisfactory evidence that BRIAN LURIE signed this instrument, on oath stated that HE IS authorized to execute the instrument and acknowledged it as the SOLE MEMBER of ROSARITA LLC to be the free and voluntary act of such party for the uses and purposes mentioned in this instrument.

Dated: February 12th, 2014

Name: Nicole M Johnson
Notary Public in and for the State of WASHINGTON,
residing at NORTH BEND
My appointment expires: March 20, 2017

NICOLE M. JOHNSON
STATE OF WASHINGTON
NOTARY PUBLIC
MY COMMISSION EXPIRES
03-20-17

CHICAGO TITLE COMPANY
A.L.T.A. COMMITMENT
SCHEDULE A
(Continued)

Order No.: 1350470
Your No.: YUPPIE PAWN SHOP

LEGAL DESCRIPTION EXHIBIT
(Paragraph 4 of Schedule A continuation)

LOT C OF CITY OF KIRKLAND SHORT PLAT NUMBER 77-4-14 (SHORT PLAT OF TOTEM LAKE SOUTH), RECORDED UNDER RECORDING NUMBER 7704210659, AND AS CORRECTED BY CITY OF KIRKLAND LOT LINE ADJUSTMENT NUMBER KROLL 424W G&B ESTATES, RECORDED UNDER RECORDING NUMBER 7903080659, IN KING COUNTY, WASHINGTON;

TOGETHER WITH THAT PORTION, IF ANY, OF ADJOINING TOTEM LAKE WAY, WHICH, IF VACATED, ATTACHED TO SAID PREMISES BY OPERATION OF LAW;

EXCEPT ANY PORTION THEREOF LYING WITHIN THE CORRECTION MAP OF TOTEM LAKE SOUTH, ACCORDING TO THE PLAT THEREOF, RECORDED IN VOLUME 110, OF PLATS, PAGES 92 AND 93, IN KING COUNTY, WASHINGTON.

APPENDIX G

PHOTOGRAPHS

Figure 1 Subject property, front of commercial building

Figure 2 Subject property, front of commercial building

Figure 3 Parking lot, western portion of Subject Property

Figure 4 Parking lot, western portion of Subject Property

Figure 5 Temporary construction office trailer adjacent south of Subject Property commercial building

Figure 6 Interior of commercial building utilized as temporary office space

Figure 7 Interior of commercial building utilized as temporary office space

Figure 8 Interior of commercial building utilized as temporary office space

Figure 9 Interior of commercial building utilized as temporary office space

Figure 10 Utility closet with maintenance supplies

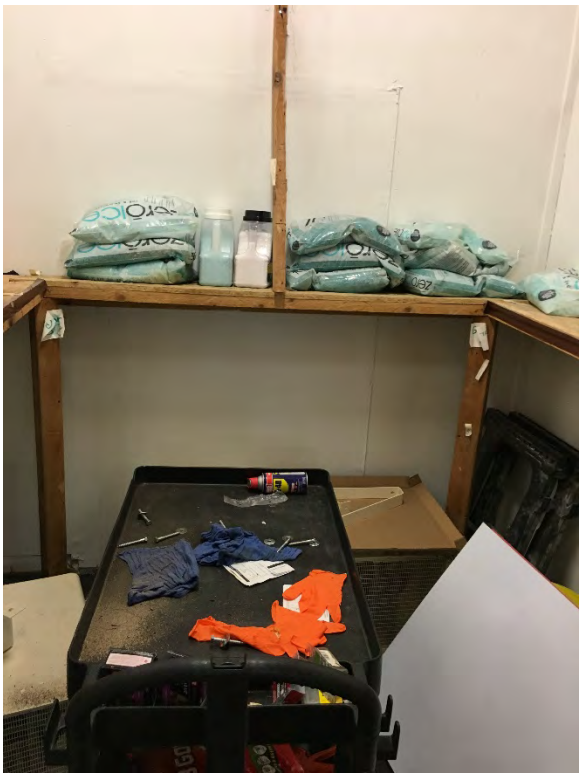


Figure 11 Store room with deicing supplies

Figure 12 Restroom with floor drain

Figure 13 Flammables cabinet

Figure 14 Park boardwalk and access, adjacent south of Subject Property

Figure 15 Totem Lake shoreline, adjacent south of Subject Property

Figure 16 Trail access and hotel property, adjacent east of Subject Property

Figure 17 Hotel property, adjacent east of Subject Property

Figure 18 Parcel under construction, adjacent north of Subject Property

Figure 19 Commercial/retail development adjacent north-northwest of subject property

Figure 20 Restaurant, adjacent west of Subject Property

Figure 21 Excavating foundation with AESI personnel and contractor

Figure 22 Treated wood pile exposed under building, sample TP1-2 location

Figure 23 Location of second pile (not visible), sample TP1-5 location

APPENDIX H

PROFESSIONAL QUALIFICATIONS

Vance Atkins, LG/LHG/CPG

Summary of Relevant Experience

Mr Atkins has acted as task and project manager on a wide range of site investigations and remediations in the Puget Sound region, including preparing sampling and analysis plans, conducting investigations and directing remedial activities. He provides on-call hazardous materials consulting services for pre-construction and construction activities.

Education

B.S. Geology

Years Employed by Firm

2

Years of Experience

27

Certifications/Registrations

40 Hour Hazwoper
8-hour OSHA Supervisor
30-hour OSHA Safety
CPR
UST Site Assessor

Added Project Value

- ✓ 25 plus years of hazardous materials experience
- ✓ Complex remediation experience
- ✓ Phase Is
- ✓ Phase IIs
- ✓ Below ground site investigations
- ✓ Ground water testing
- ✓ Soil characterizations
- ✓ Underground Storage Tank removal, remediation
- ✓ Due Diligence evaluations of complex sites
- ✓ Site Investigations
- ✓ Corridor Studies

Specific Experience

On-Call Environmental Due Diligence Consulting – As the Project Manager for Seattle Parks, Mr. Atkins performed on-call environmental services included performing Phase II soil and ground water sampling at parcels under consideration for property transfer and development, preparation of remedial options and engineering cost estimates, sampling and characterization of soils prior to construction for disposal requirements, and client meetings with affect parties during purchase and sale discussions.

On-Call Hazardous Material Consulting – Mr. Atkins is the project manager for on-call environmental services for client construction projects at the Port of Everett facility. On-call tasks include sampling and characterization of soils prior to construction for disposal requirements, rapid response to assess unforeseen or stockpiled contaminated soils encountered during construction, preparation of Contained-in requests for soils containing chlorinated solvents, and review of construction specifications associated with contaminated materials handling and disposal.

Hazardous Material Consulting and Management – As the Project manager for pre-construction and construction-phase hazardous materials management for Seattle Department of Transportation, work included delineation of halogenated solvent-contaminated soils and securing Contained-in determination prior to construction. Mr. Atkins also reviewed project specifications and assisted the client and contractor in selecting a waste disposal facility and ongoing waste management. The Contained-in determination was subsequently updated due to project schedule extensions and changes in waste soil volumes due to project changes. He prepared a project closure report summarizing source areas, soil volumes, and analytical results.

Multi-Site Characterization and Remediation of Multiple Contaminants – Mr. Atkins completed initial due diligence ESAs of eight properties for negotiation and purchase by the City of Bothell. He developed sampling and analysis plans for the properties, conducted on-site investigations to delineate contaminated areas, and identified construction impacts. These included petroleum, polycyclic aromatic hydrocarbons and metals contamination in soils and ground water. Mr. Atkins oversaw and managed subsequent excavation of contaminated soils from four properties, conducted confirmation sampling and day-to-day management with the client's project engineer and general contractor. Daily management included tracking of disposed multiple waste streams from multiple parcels for Ecology reimbursement. He prepared the cleanup reports. The work was performed under both Ecology Agreed Orders and the Voluntary Cleanup Program.

Petroleum-Affected Soil Remediation – Mr. Atkins acted as project and task manager for petroleum-affected soil remediation in preparation for future property redevelopment by the City of Everett. He conducted delineation to segregate clean overburden from underlying petroleum-affected soils prior to mass excavation. Mr. Atkins Directed remediation contractor during excavation activities, collected confirmation samples, directed the placement of Oxygen Release Compound® along excavation sidewalls inaccessible to excavation. The work was performed under the Voluntary Cleanup Program.

Remedial Investigation/Feasibility Study, Halogenated Solvents. – Mr. Atkins managed and performed an RI/FS within a Washington State correctional facility to assess sources of halogenated solvents in ground water. He reviewed previous investigations, and conducted multiple phases of subsurface investigations including geophysics, test pits, and well drilling. The work was performed within the secure perimeter, necessitating clearances, daily inspections, and flexible working hours. The investigation was performed with direct oversight by and coordination with Corrections' environmental manager and Ecology's project manager. The site is currently under consideration for a No Further Action determination.

Phase I ESAs and Environmental Due Diligence – Mr. Atkins has performed and/or managed over 150 single- and multiple-site Phase I ESAs for residential, commercial and industrial properties throughout Washington, Oregon and Alaska. Assessments were conducted in general accordance with ASTM E- 1527-13 and other applicable standards. Additionally, he has completed several corridor studies and historical due diligence as part of roadway or utility project design and engineering to determine if additional investigations or modified project specifications will be necessary.

Pre-Construction Due Diligence Corridor Study – Mr. Atkins prepared a corridor study to assess the potential for encountering contaminated soils and/or ground water during an arterial widening and reconstruction project In Burien, Washington. The project footprint was comprised of one-half mile of roadway with 26 adjoining parcels. Potential environmental impacts from past and current land use were assessed by review of historical tax records and aerial photographs, environmental database review, regulatory file review, and reconnaissance. Mr. Atkins reviewed construction specifications and contractor submittals, and prepared health and safety and monitoring plans for the excavation and handling of petroleum and solvent contaminated soils and ground water during construction. The review was based on hazardous material investigation procedures described in the WSDOT Environmental Procedures Manual.

NEPA Discipline Reports – Mr. Atkins completed geology and hazardous materials discipline reports to identify potential effects to the proposed project resulting from hazardous materials, soils, and site geology, and to formulate mitigation measures to reduce or eliminate these effects. The reports were completed in accordance with WSDOT guidances.

Corridor Study and Phase I ESA – Mr. Atkins performed a corridor study of approximately 7,700 linear feet of roadway in Snohomish County, Washington. The study was performed to assess the potential to encounter contaminated soil and ground water during roadway improvements, which included roadway widening, drainage improvements, and utilities. A subsequent Phase I ESA was performed for a parcel under consideration for purchase for siting of a storm water facility. The assessments were performed, in part, to meet Snohomish County environmental checklist requirements, in addition to ASTM standards.

Large-Scale Forestlands Phase I ESA – Mr. Atkins managed and performed a Phase I ESA on a subject property comprised of 20 discontinuous parcels adjoining the Hoh River in the western Olympic Peninsula. The property is undeveloped forest land, except for periodic timber harvesting. The 2,057-acre property was transferred from timber company ownership to temporary land conservancy ownership prior to transfer to public land.

APPENDIX I

TERMINOLOGY

TERMINOLOGY

The following provides definitions and descriptions of certain terms that may be used in this report. Italics indicate terms that are defined by ASTM Standard Practice E 1527-13. The Standard Practice should be referenced for further detail related definitions or additional explanation regarding the meaning of terms.

Recognized environmental condition(s) (REC): The presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include de minimis conditions.

De minimis conditions: Conditions that generally do not present threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be de minimis are not recognized environmental conditions.

Historical recognized environmental condition(s) (HREC): Environmental condition which in the past would have been considered a recognized environmental condition, but which may or may not be considered a recognized environmental condition currently. The final decision rests with the environmental professional and will be influenced by the current impact of the historical recognized environmental condition on the property. If a past release of any hazardous substances or petroleum products has occurred in connection with the property, with such remediation accepted by the responsible regulatory agency (for example, as evidenced by the issuance of a no further action letter or equivalent), this condition shall be considered a historical recognized environmental condition.

Material threat: A physically observable or obvious threat which is reasonably likely to lead to a release that, in the opinion of the environmental professional, is threatening and might result in impact to public health or the environment. An example might include an aboveground storage tank that contains a hazardous substance and which shows evidence of damage such that it may cause or contribute to tank integrity failure with a release of contents to the environment.

Material impact to public health or environment: A substantial risk of harm to public health or the environment resulting from the presence or likely presence of an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property. An example might include a release of a hazardous substance in concentrations exceeding applicable governmental agency standards under conditions that could reasonably and foreseeably result in substantial exposure to humans or substantial damage to natural resources. The risk of that exposure or damage would represent a material impact to public health or environment.

General risk of enforcement action: The likelihood that an environmental condition would be subject to enforcement action if brought to the attention of appropriate governmental agencies. If the circumstances suggest an enforcement action would be more likely than not, then the condition is considered a general risk of enforcement action.

Data failure: A failure to achieve the historical research objectives, even after reviewing the standard historical sources that are reasonably ascertainable and likely to be useful. Data failure is one type of data gap.

Data gap: A lack of or inability to obtain information required by this practice despite good faith efforts by the environmental professional to gather such information. Data gaps may result from incompleteness in any of the activities required by this practice, including, but not limited to site reconnaissance (for example, an inability to conduct the site visit), and interviews (for example, an inability to interview the key site manager, regulatory officials, etc.).

APPENDIX J

ANALYTICAL LABORATORY REPORT

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

O'Neill Service Group
Vance Atkins
17619 NE 67th Court, Suite 100
Redmond, WA 98052

RE: Kirkland Totom Lake
Work Order Number: 1811297

November 28, 2018

Attention Vance Atkins:

Fremont Analytical, Inc. received 3 sample(s) on 11/19/2018 for the analyses presented in the following report.

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.
Mercury by EPA Method 7471
Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)
Sample Moisture (Percent Moisture)
Total Metals by EPA Method 6020

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

DoD/ELAP Certification #L17-135, ISO/IEC 17025:2005
ORELAP Certification: WA 100009-007 (NELAP Recognized)

Date: *11/28/2018*

CLIENT: O'Neill Service Group
Project: Kirkland Totom Lake
Work Order: 1811297

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1811297-001	TP-1-4	11/18/2018 8:50 AM	11/19/2018 5:50 PM
1811297-002	TP-1-2	11/18/2018 9:00 AM	11/19/2018 5:50 PM
1811297-003	TP-1-5	11/18/2018 9:30 AM	11/19/2018 5:50 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **1811297**

Date: **11/28/2018**

CLIENT: O'Neill Service Group

Project: Kirkland Totom Lake

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1811297**
Date Reported: **11/28/2018**

Client: O'Neill Service Group
Collection Date: 11/18/2018 8:50:00 AM
Project: Kirkland Totom Lake
Lab ID: 1811297-001
Matrix: Soil
Client Sample ID: TP-1-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 22711		Analyst: DW
Diesel (Fuel Oil)	ND	25.0		mg/Kg-dry	1	11/26/2018 11:47:46 PM
Heavy Oil	ND	62.6		mg/Kg-dry	1	11/26/2018 11:47:46 PM
Heavy Oil Range Organics (C24-37)	103	62.6		mg/Kg-dry	1	11/26/2018 11:47:46 PM
Surr: 2-Fluorobiphenyl	103	50 - 150		%Rec	1	11/26/2018 11:47:46 PM
Surr: o-Terphenyl	106	50 - 150		%Rec	1	11/26/2018 11:47:46 PM

NOTES:
Heavy Oil Range Organics - Indicates the presence of unresolved compounds in the Lube+ Oil ranges.

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 22722		Analyst: SB
Naphthalene	ND	46.9		µg/Kg-dry	1	11/28/2018 10:19:20 AM
2-Methylnaphthalene	ND	46.9		µg/Kg-dry	1	11/28/2018 10:19:20 AM
1-Methylnaphthalene	ND	46.9		µg/Kg-dry	1	11/28/2018 10:19:20 AM
Acenaphthylene	ND	46.9		µg/Kg-dry	1	11/28/2018 10:19:20 AM
Acenaphthene	ND	46.9		µg/Kg-dry	1	11/28/2018 10:19:20 AM
Fluorene	ND	46.9		µg/Kg-dry	1	11/28/2018 10:19:20 AM
Phenanthrene	ND	46.9		µg/Kg-dry	1	11/28/2018 10:19:20 AM
Anthracene	ND	46.9		µg/Kg-dry	1	11/28/2018 10:19:20 AM
Fluoranthene	ND	46.9		µg/Kg-dry	1	11/28/2018 10:19:20 AM
Pyrene	ND	46.9		µg/Kg-dry	1	11/28/2018 10:19:20 AM
Benz(a)anthracene	ND	46.9		µg/Kg-dry	1	11/28/2018 10:19:20 AM
Chrysene	ND	46.9		µg/Kg-dry	1	11/28/2018 10:19:20 AM
Benzo(b)fluoranthene	ND	46.9		µg/Kg-dry	1	11/28/2018 10:19:20 AM
Benzo(k)fluoranthene	ND	46.9		µg/Kg-dry	1	11/28/2018 10:19:20 AM
Benzo(a)pyrene	ND	46.9		µg/Kg-dry	1	11/28/2018 10:19:20 AM
Indeno(1,2,3-cd)pyrene	ND	46.9		µg/Kg-dry	1	11/28/2018 10:19:20 AM
Dibenz(a,h)anthracene	ND	46.9		µg/Kg-dry	1	11/28/2018 10:19:20 AM
Benzo(g,h,i)perylene	ND	46.9		µg/Kg-dry	1	11/28/2018 10:19:20 AM
Surr: 2-Fluorobiphenyl	65.3	12.5 - 140		%Rec	1	11/28/2018 10:19:20 AM
Surr: Terphenyl-d14 (surr)	63.6	45.7 - 172		%Rec	1	11/28/2018 10:19:20 AM
Mercury by EPA Method 7471				Batch ID: 22719		Analyst: TN
Mercury	ND	0.317		mg/Kg-dry	1	11/26/2018 1:40:20 PM
Total Metals by EPA Method 6020				Batch ID: 22717		Analyst: WC
Arsenic	5.02	0.248		mg/Kg-dry	1	11/26/2018 3:40:41 PM
Cadmium	ND	0.198		mg/Kg-dry	1	11/26/2018 3:40:41 PM

Analytical Report

Work Order: **1811297**

Date Reported: **11/28/2018**

Client: O'Neill Service Group

Collection Date: 11/18/2018 8:50:00 AM

Project: Kirkland Totom Lake

Lab ID: 1811297-001

Matrix: Soil

Client Sample ID: TP-1-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 22717		Analyst: WC
Chromium	21.6	0.0990		mg/Kg-dry	1	11/26/2018 3:40:41 PM
Lead	4.24	0.198		mg/Kg-dry	1	11/26/2018 3:40:41 PM
Sample Moisture (Percent Moisture)				Batch ID: R47808		Analyst: EAS
Percent Moisture	21.1			wt%	1	11/21/2018 8:48:25 AM

Analytical Report

Work Order: **1811297**
Date Reported: **11/28/2018**

Client: O'Neill Service Group
Collection Date: 11/18/2018 9:00:00 AM
Project: Kirkland Totom Lake
Lab ID: 1811297-002
Matrix: Soil
Client Sample ID: TP-1-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 22711		Analyst: DW
Diesel (Fuel Oil)	ND	18.8		mg/Kg-dry	1	11/27/2018 12:17:44 AM
Heavy Oil	ND	47.1		mg/Kg-dry	1	11/27/2018 12:17:44 AM
Heavy Oil Range Organics (C24-37)	161	47.1		mg/Kg-dry	1	11/27/2018 12:17:44 AM
Surr: 2-Fluorobiphenyl	102	50 - 150		%Rec	1	11/27/2018 12:17:44 AM
Surr: o-Terphenyl	105	50 - 150		%Rec	1	11/27/2018 12:17:44 AM

NOTES:
Heavy Oil Range Organics - Indicates the presence of unresolved compounds in the Lube+ Oil ranges.

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 22722		Analyst: SB
Naphthalene	ND	40.6		µg/Kg-dry	1	11/28/2018 10:40:20 AM
2-Methylnaphthalene	ND	40.6		µg/Kg-dry	1	11/28/2018 10:40:20 AM
1-Methylnaphthalene	ND	40.6		µg/Kg-dry	1	11/28/2018 10:40:20 AM
Acenaphthylene	160	40.6		µg/Kg-dry	1	11/28/2018 10:40:20 AM
Acenaphthene	175	40.6		µg/Kg-dry	1	11/28/2018 10:40:20 AM
Fluorene	129	40.6		µg/Kg-dry	1	11/28/2018 10:40:20 AM
Phenanthrene	399	40.6		µg/Kg-dry	1	11/28/2018 10:40:20 AM
Anthracene	328	40.6		µg/Kg-dry	1	11/28/2018 10:40:20 AM
Fluoranthene	1,060	40.6		µg/Kg-dry	1	11/28/2018 10:40:20 AM
Pyrene	955	40.6		µg/Kg-dry	1	11/28/2018 10:40:20 AM
Benz(a)anthracene	564	40.6		µg/Kg-dry	1	11/28/2018 10:40:20 AM
Chrysene	695	40.6		µg/Kg-dry	1	11/28/2018 10:40:20 AM
Benzo(b)fluoranthene	973	40.6		µg/Kg-dry	1	11/28/2018 10:40:20 AM
Benzo(k)fluoranthene	740	40.6		µg/Kg-dry	1	11/28/2018 10:40:20 AM
Benzo(a)pyrene	784	40.6		µg/Kg-dry	1	11/28/2018 10:40:20 AM
Indeno(1,2,3-cd)pyrene	579	40.6		µg/Kg-dry	1	11/28/2018 10:40:20 AM
Dibenz(a,h)anthracene	204	40.6		µg/Kg-dry	1	11/28/2018 10:40:20 AM
Benzo(g,h,i)perylene	567	40.6		µg/Kg-dry	1	11/28/2018 10:40:20 AM
Surr: 2-Fluorobiphenyl	105	12.5 - 140		%Rec	1	11/28/2018 10:40:20 AM
Surr: Terphenyl-d14 (surr)	111	45.7 - 172		%Rec	1	11/28/2018 10:40:20 AM
Mercury by EPA Method 7471				Batch ID: 22719		Analyst: TN
Mercury	ND	0.252		mg/Kg-dry	1	11/26/2018 1:41:56 PM
Total Metals by EPA Method 6020				Batch ID: 22717		Analyst: WC
Arsenic	5.99	0.204		mg/Kg-dry	1	11/26/2018 3:44:42 PM
Cadmium	0.263	0.163		mg/Kg-dry	1	11/26/2018 3:44:42 PM

Analytical Report

Work Order: **1811297**

Date Reported: **11/28/2018**

Client: O'Neill Service Group

Collection Date: 11/18/2018 9:00:00 AM

Project: Kirkland Totom Lake

Lab ID: 1811297-002

Matrix: Soil

Client Sample ID: TP-1-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 22717		Analyst: WC
Chromium	24.1	0.0815		mg/Kg-dry	1	11/26/2018 3:44:42 PM
Lead	6.24	0.163		mg/Kg-dry	1	11/26/2018 3:44:42 PM
Sample Moisture (Percent Moisture)				Batch ID: R47808		Analyst: EAS
Percent Moisture	9.81			wt%	1	11/21/2018 8:48:25 AM

Analytical Report

Work Order: **1811297**
Date Reported: **11/28/2018**

Client: O'Neill Service Group
Collection Date: 11/18/2018 9:30:00 AM
Project: Kirkland Totom Lake
Lab ID: 1811297-003
Matrix: Soil
Client Sample ID: TP-1-5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.				Batch ID: 22711		Analyst: DW
Diesel (Fuel Oil)	ND	20.7		mg/Kg-dry	1	11/27/2018 12:47:50 AM
Heavy Oil	ND	51.7		mg/Kg-dry	1	11/27/2018 12:47:50 AM
Heavy Oil Range Organics (C24-37)	51.9	51.7		mg/Kg-dry	1	11/27/2018 12:47:50 AM
Surr: 2-Fluorobiphenyl	106	50 - 150		%Rec	1	11/27/2018 12:47:50 AM
Surr: o-Terphenyl	108	50 - 150		%Rec	1	11/27/2018 12:47:50 AM

NOTES:
Heavy Oil Range Organics - Indicates the presence of unresolved compounds in the Lube+ Oil ranges.

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)				Batch ID: 22722		Analyst: SB
Naphthalene	ND	41.5		µg/Kg-dry	1	11/28/2018 11:01:16 AM
2-Methylnaphthalene	ND	41.5		µg/Kg-dry	1	11/28/2018 11:01:16 AM
1-Methylnaphthalene	ND	41.5		µg/Kg-dry	1	11/28/2018 11:01:16 AM
Acenaphthylene	ND	41.5		µg/Kg-dry	1	11/28/2018 11:01:16 AM
Acenaphthene	ND	41.5		µg/Kg-dry	1	11/28/2018 11:01:16 AM
Fluorene	ND	41.5		µg/Kg-dry	1	11/28/2018 11:01:16 AM
Phenanthrene	ND	41.5		µg/Kg-dry	1	11/28/2018 11:01:16 AM
Anthracene	ND	41.5		µg/Kg-dry	1	11/28/2018 11:01:16 AM
Fluoranthene	ND	41.5		µg/Kg-dry	1	11/28/2018 11:01:16 AM
Pyrene	ND	41.5		µg/Kg-dry	1	11/28/2018 11:01:16 AM
Benz(a)anthracene	ND	41.5		µg/Kg-dry	1	11/28/2018 11:01:16 AM
Chrysene	ND	41.5		µg/Kg-dry	1	11/28/2018 11:01:16 AM
Benzo(b)fluoranthene	ND	41.5		µg/Kg-dry	1	11/28/2018 11:01:16 AM
Benzo(k)fluoranthene	ND	41.5		µg/Kg-dry	1	11/28/2018 11:01:16 AM
Benzo(a)pyrene	ND	41.5		µg/Kg-dry	1	11/28/2018 11:01:16 AM
Indeno(1,2,3-cd)pyrene	ND	41.5		µg/Kg-dry	1	11/28/2018 11:01:16 AM
Dibenz(a,h)anthracene	ND	41.5		µg/Kg-dry	1	11/28/2018 11:01:16 AM
Benzo(g,h,i)perylene	ND	41.5		µg/Kg-dry	1	11/28/2018 11:01:16 AM
Surr: 2-Fluorobiphenyl	91.4	12.5 - 140		%Rec	1	11/28/2018 11:01:16 AM
Surr: Terphenyl-d14 (surr)	97.3	45.7 - 172		%Rec	1	11/28/2018 11:01:16 AM
Mercury by EPA Method 7471				Batch ID: 22719		Analyst: TN
Mercury	ND	0.256		mg/Kg-dry	1	11/26/2018 1:43:33 PM
Total Metals by EPA Method 6020				Batch ID: 22717		Analyst: WC
Arsenic	5.74	0.211		mg/Kg-dry	1	11/26/2018 3:48:44 PM
Cadmium	ND	0.169		mg/Kg-dry	1	11/26/2018 3:48:44 PM

Analytical Report

Work Order: **1811297**

Date Reported: **11/28/2018**

Client: O'Neill Service Group

Collection Date: 11/18/2018 9:30:00 AM

Project: Kirkland Totom Lake

Lab ID: 1811297-003

Matrix: Soil

Client Sample ID: TP-1-5

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Total Metals by EPA Method 6020				Batch ID: 22717		Analyst: WC
Chromium	23.5	0.0844		mg/Kg-dry	1	11/26/2018 3:48:44 PM
Lead	7.20	0.169		mg/Kg-dry	1	11/26/2018 3:48:44 PM
Sample Moisture (Percent Moisture)				Batch ID: R47808		Analyst: EAS
Percent Moisture	12.9			wt%	1	11/21/2018 8:48:25 AM

Date: *11/28/2018*

Work Order: 1811297
CLIENT: O'Neill Service Group
Project: Kirkland Totom Lake

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **MB-22717** SampType: **MBLK** Units: **mg/Kg** Prep Date: **11/26/2018** RunNo: **47865**
Client ID: **MBLKS** Batch ID: **22717** Analysis Date: **11/26/2018** SeqNo: **934471**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.191									
Cadmium	ND	0.153									
Chromium	ND	0.0763									
Lead	ND	0.153									

Sample ID **LCS-22717** SampType: **LCS** Units: **mg/Kg** Prep Date: **11/26/2018** RunNo: **47865**
Client ID: **LCSS** Batch ID: **22717** Analysis Date: **11/26/2018** SeqNo: **934472**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	39.0	0.188	37.59	0	104	80	120				
Cadmium	1.92	0.150	1.880	0	102	80	120				
Chromium	40.8	0.0752	37.59	0	109	80	120				
Lead	19.7	0.150	18.80	0	105	80	120				

Sample ID **1811173-001ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **11/26/2018** RunNo: **47865**
Client ID: **BATCH** Batch ID: **22717** Analysis Date: **11/26/2018** SeqNo: **934476**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	5.54	0.252						5.251	5.26	20	
Cadmium	ND	0.201						0		20	
Chromium	69.6	0.101						67.31	3.30	20	
Lead	4.63	0.201						4.377	5.71	20	

Sample ID **1811173-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **11/26/2018** RunNo: **47865**
Client ID: **BATCH** Batch ID: **22717** Analysis Date: **11/26/2018** SeqNo: **934478**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	50.6	0.254	50.76	5.251	89.3	75	125				
Cadmium	2.44	0.203	2.538	0.1800	89.1	75	125				

Date: *11/28/2018*

Work Order: 1811297
CLIENT: O'Neill Service Group
Project: Kirkland Totom Lake

QC SUMMARY REPORT

Total Metals by EPA Method 6020

Sample ID **1811173-001AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **11/26/2018** RunNo: **47865**
Client ID: **BATCH** Batch ID: **22717** Analysis Date: **11/26/2018** SeqNo: **934478**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	112	0.102	50.76	67.31	87.8	75	125				
Lead	24.0	0.203	25.38	4.377	77.4	75	125				

Sample ID **1811173-001AMSD** SampType: **MSD** Units: **mg/Kg-dry** Prep Date: **11/26/2018** RunNo: **47865**
Client ID: **BATCH** Batch ID: **22717** Analysis Date: **11/26/2018** SeqNo: **934479**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	52.7	0.254	50.76	5.251	93.5	75	125	50.56	4.18	20	
Cadmium	2.62	0.203	2.538	0.1800	96.3	75	125	2.443	7.14	20	
Chromium	115	0.102	50.76	67.31	94.3	75	125	111.9	2.91	20	
Lead	25.4	0.203	25.38	4.377	82.7	75	125	24.02	5.49	20	

Date: *11/28/2018*

Work Order: 1811297
CLIENT: O'Neill Service Group
Project: Kirkland Totom Lake

QC SUMMARY REPORT

Mercury by EPA Method 7471

Sample ID	MB-22719	SampType:	MBLK	Units:	mg/Kg	Prep Date:	11/26/2018	RunNo:	47854
Client ID:	MBLKS	Batch ID:	22719			Analysis Date:	11/26/2018	SeqNo:	934216

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.219									

Sample ID	LCS-22719	SampType:	LCS	Units:	mg/Kg	Prep Date:	11/26/2018	RunNo:	47854
Client ID:	LCSS	Batch ID:	22719			Analysis Date:	11/26/2018	SeqNo:	934217

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.456	0.227	0.4545	0	100	80	120				

Sample ID	1811254-002ADUP	SampType:	DUP	Units:	mg/Kg-dry	Prep Date:	11/26/2018	RunNo:	47854
Client ID:	BATCH	Batch ID:	22719			Analysis Date:	11/26/2018	SeqNo:	934178

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.304						0		20	

Sample ID	1811254-002AMS	SampType:	MS	Units:	mg/Kg-dry	Prep Date:	11/26/2018	RunNo:	47854
Client ID:	BATCH	Batch ID:	22719			Analysis Date:	11/26/2018	SeqNo:	934179

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.592	0.310	0.6196	0.05564	86.6	70	130				

Sample ID	1811254-002AMSD	SampType:	MSD	Units:	mg/Kg-dry	Prep Date:	11/26/2018	RunNo:	47854
Client ID:	BATCH	Batch ID:	22719			Analysis Date:	11/26/2018	SeqNo:	934180

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.602	0.315	0.6309	0.05564	86.6	70	130	0.5924	1.59	20	

Date: *11/28/2018*

Work Order: 1811297
CLIENT: O'Neill Service Group
Project: Kirkland Totom Lake

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID **MB-22711** SampType: **MBLK** Units: **mg/Kg** Prep Date: **11/21/2018** RunNo: **47884**
Client ID: **MBLKS** Batch ID: **22711** Analysis Date: **11/26/2018** SeqNo: **934798**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	20.0									
Heavy Oil	ND	50.0									
Surr: 2-Fluorobiphenyl	20.0		20.00		100	50	150				
Surr: o-Terphenyl	20.7		20.00		103	50	150				

Sample ID **LCS-22711** SampType: **LCS** Units: **mg/Kg** Prep Date: **11/21/2018** RunNo: **47884**
Client ID: **LCSS** Batch ID: **22711** Analysis Date: **11/26/2018** SeqNo: **934799**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	610	20.0	500.0	0	122	65	135				
Surr: 2-Fluorobiphenyl	20.7		20.00		104	50	150				
Surr: o-Terphenyl	23.0		20.00		115	50	150				

Sample ID **1811294-005ADUP** SampType: **DUP** Units: **mg/Kg-dry** Prep Date: **11/21/2018** RunNo: **47884**
Client ID: **BATCH** Batch ID: **22711** Analysis Date: **11/26/2018** SeqNo: **934801**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	ND	18.6						0		30	
Heavy Oil	ND	46.5						0		30	
Surr: 2-Fluorobiphenyl	17.3		18.59		93.3	50	150		0		
Surr: o-Terphenyl	17.9		18.59		96.4	50	150		0		

Sample ID **1811294-005AMS** SampType: **MS** Units: **mg/Kg-dry** Prep Date: **11/21/2018** RunNo: **47884**
Client ID: **BATCH** Batch ID: **22711** Analysis Date: **11/26/2018** SeqNo: **934802**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	599	19.5	487.4	0	123	65	135				
Surr: 2-Fluorobiphenyl	19.5		19.50		99.8	50	150				
Surr: o-Terphenyl	22.3		19.50		114	50	150				

Date: *11/28/2018*

Work Order: 1811297
CLIENT: O'Neill Service Group
Project: Kirkland Totom Lake

QC SUMMARY REPORT

Diesel and Heavy Oil by NWTPH-Dx/Dx Ext.

Sample ID	**1811294-005AMS**	SampType:	**MS**	Units:	**mg/Kg-dry**	Prep Date:	**11/21/2018**	RunNo:	**47884**
Client ID:	**BATCH**	Batch ID:	**22711**			Analysis Date:	**11/26/2018**	SeqNo:	**934802**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID	**1811294-005AMSD**	SampType:	**MSD**	Units:	**mg/Kg-dry**	Prep Date:	**11/21/2018**	RunNo:	**47884**
Client ID:	**BATCH**	Batch ID:	**22711**			Analysis Date:	**11/26/2018**	SeqNo:	**934803**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Diesel (Fuel Oil)	704	20.9	522.6	0	135	65	135	598.5	16.2	30	
Surr: 2-Fluorobiphenyl	21.9		20.91		105	50	150		0		
Surr: o-Terphenyl	24.4		20.91		117	50	150		0		

Date: *11/28/2018*

Work Order: 1811297
CLIENT: O'Neill Service Group
Project: Kirkland Totom Lake

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **MB-22722** SampType: **MBLK** Units: **µg/Kg** Prep Date: **11/26/2018** RunNo: **47926**
Client ID: **MBLKS** Batch ID: **22722** Analysis Date: **11/28/2018** SeqNo: **935815**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	40.0									
2-Methylnaphthalene	ND	40.0									
1-Methylnaphthalene	ND	40.0									
Acenaphthylene	ND	40.0									
Acenaphthene	ND	40.0									
Fluorene	ND	40.0									
Phenanthrene	ND	40.0									
Anthracene	ND	40.0									
Fluoranthene	ND	40.0									
Pyrene	ND	40.0									
Benz(a)anthracene	ND	40.0									
Chrysene	ND	40.0									
Benzo(b)fluoranthene	ND	40.0									
Benzo(k)fluoranthene	ND	40.0									
Benzo(a)pyrene	ND	40.0									
Indeno(1,2,3-cd)pyrene	ND	40.0									
Dibenz(a,h)anthracene	ND	40.0									
Benzo(g,h,i)perylene	ND	40.0									
Surr: 2-Fluorobiphenyl	501		500.0		100	12.5	140				
Surr: Terphenyl-d14 (surr)	620		500.0		124	45.7	172				

Sample ID **LCS-22722** SampType: **LCS** Units: **µg/Kg** Prep Date: **11/26/2018** RunNo: **47926**
Client ID: **LCSS** Batch ID: **22722** Analysis Date: **11/28/2018** SeqNo: **935816**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	942	40.0	1,000	0	94.2	50.6	131				
2-Methylnaphthalene	945	40.0	1,000	0	94.5	45.1	135				
1-Methylnaphthalene	920	40.0	1,000	0	92.0	46.2	133				
Acenaphthylene	946	40.0	1,000	0	94.6	32.8	136				
Acenaphthene	931	40.0	1,000	0	93.1	42	137				

Work Order: 1811297
CLIENT: O'Neill Service Group
Project: Kirkland Totom Lake

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **LCS-22722** SampType: **LCS** Units: **µg/Kg** Prep Date: **11/26/2018** RunNo: **47926**
Client ID: **LCSS** Batch ID: **22722** Analysis Date: **11/28/2018** SeqNo: **935816**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluorene	937	40.0	1,000	0	93.7	41.4	144				
Phenanthrene	905	40.0	1,000	0	90.5	36.6	141				
Anthracene	914	40.0	1,000	0	91.4	42.5	157				
Fluoranthene	937	40.0	1,000	0	93.7	43.4	144				
Pyrene	921	40.0	1,000	0	92.1	39.6	146				
Benz(a)anthracene	938	40.0	1,000	0	93.8	36.6	142				
Chrysene	962	40.0	1,000	0	96.2	43	165				
Benzo(b)fluoranthene	1,030	40.0	1,000	0	103	41	155				
Benzo(k)fluoranthene	871	40.0	1,000	0	87.1	30.6	164				
Benzo(a)pyrene	919	40.0	1,000	0	91.9	30.2	171				
Indeno(1,2,3-cd)pyrene	916	40.0	1,000	0	91.6	31.3	159				
Dibenz(a,h)anthracene	926	40.0	1,000	0	92.6	28	158				
Benzo(g,h,i)perylene	914	40.0	1,000	0	91.4	32.4	144				
Surr: 2-Fluorobiphenyl	617		500.0		123	12.5	140				
Surr: Terphenyl-d14 (surr)	675		500.0		135	45.7	172				

Sample ID **1811281-007ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **11/26/2018** RunNo: **47926**
Client ID: **BATCH** Batch ID: **22722** Analysis Date: **11/28/2018** SeqNo: **935818**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	ND	39.1						0		30	
2-Methylnaphthalene	ND	39.1						0		30	
1-Methylnaphthalene	ND	39.1						0		30	
Acenaphthylene	ND	39.1						0		30	
Acenaphthene	ND	39.1						0		30	
Fluorene	ND	39.1						0		30	
Phenanthrene	ND	39.1						0		30	
Anthracene	ND	39.1						0		30	
Fluoranthene	ND	39.1						0		30	
Pyrene	ND	39.1						0		30	

Work Order: 1811297
CLIENT: O'Neill Service Group
Project: Kirkland Totom Lake

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1811281-007ADUP** SampType: **DUP** Units: **µg/Kg-dry** Prep Date: **11/26/2018** RunNo: **47926**
Client ID: **BATCH** Batch ID: **22722** Analysis Date: **11/28/2018** SeqNo: **935818**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	39.1						0		30	
Chrysene	ND	39.1						0		30	
Benzo(b)fluoranthene	ND	39.1						0		30	
Benzo(k)fluoranthene	ND	39.1						0		30	
Benzo(a)pyrene	ND	39.1						0		30	
Indeno(1,2,3-cd)pyrene	ND	39.1						0		30	
Dibenz(a,h)anthracene	ND	39.1						0		30	
Benzo(g,h,i)perylene	ND	39.1						0		30	
Surr: 2-Fluorobiphenyl	443		489.3		90.6	12.5	140		0		
Surr: Terphenyl-d14 (surr)	532		489.3		109	45.7	172		0		

Sample ID **1811281-007AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **11/26/2018** RunNo: **47926**
Client ID: **BATCH** Batch ID: **22722** Analysis Date: **11/28/2018** SeqNo: **935819**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	875	43.7	1,092	0	80.1	42.9	138				
2-Methylnaphthalene	871	43.7	1,092	0	79.7	42.8	151				
1-Methylnaphthalene	856	43.7	1,092	0	78.3	41.6	148				
Acenaphthylene	878	43.7	1,092	0	80.4	32.6	160				
Acenaphthene	877	43.7	1,092	0	80.3	31.7	126				
Fluorene	866	43.7	1,092	1.797	79.1	43.4	153				
Phenanthrene	844	43.7	1,092	0	77.3	23.8	135				
Anthracene	857	43.7	1,092	2.434	78.3	32.6	160				
Fluoranthene	882	43.7	1,092	0	80.7	28	144				
Pyrene	867	43.7	1,092	0	79.4	27.8	141				
Benz(a)anthracene	868	43.7	1,092	6.474	78.8	34.9	139				
Chrysene	925	43.7	1,092	6.301	84.1	45.2	146				
Benzo(b)fluoranthene	900	43.7	1,092	0	82.4	42.2	168				
Benzo(k)fluoranthene	874	43.7	1,092	0	80.0	20.5	150				
Benzo(a)pyrene	851	43.7	1,092	0	77.9	34.4	179				

Work Order: 1811297
CLIENT: O'Neill Service Group
Project: Kirkland Totom Lake

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID **1811281-007AMS** SampType: **MS** Units: **µg/Kg-dry** Prep Date: **11/26/2018** RunNo: **47926**
Client ID: **BATCH** Batch ID: **22722** Analysis Date: **11/28/2018** SeqNo: **935819**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Indeno(1,2,3-cd)pyrene	820	43.7	1,092	0	75.1	11.8	140				
Dibenz(a,h)anthracene	814	43.7	1,092	0	74.5	17.3	156				
Benzo(g,h,i)perylene	791	43.7	1,092	0	72.4	24.9	119				
Surr: 2-Fluorobiphenyl	531		546.2		97.2	12.5	140				
Surr: Terphenyl-d14 (surr)	576		546.2		105	45.7	172				

Sample ID **1811281-007AMSD** SampType: **MSD** Units: **µg/Kg-dry** Prep Date: **11/26/2018** RunNo: **47926**
Client ID: **BATCH** Batch ID: **22722** Analysis Date: **11/28/2018** SeqNo: **935820**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Naphthalene	747	43.0	1,076	0	69.4	42.9	138	875.3	15.9	30	
2-Methylnaphthalene	736	43.0	1,076	0	68.4	42.8	151	870.9	16.8	30	
1-Methylnaphthalene	727	43.0	1,076	0	67.5	41.6	148	855.8	16.3	30	
Acenaphthylene	738	43.0	1,076	0	68.6	32.6	160	877.9	17.3	30	
Acenaphthene	746	43.0	1,076	0	69.3	31.7	126	877.2	16.2	30	
Fluorene	736	43.0	1,076	1.797	68.2	43.4	153	865.6	16.2	30	
Phenanthrene	728	43.0	1,076	0	67.7	23.8	135	844.2	14.8	30	
Anthracene	727	43.0	1,076	2.434	67.3	32.6	160	857.4	16.5	30	
Fluoranthene	774	43.0	1,076	0	71.9	28	144	881.6	13.0	30	
Pyrene	758	43.0	1,076	0	70.5	27.8	141	867.1	13.4	30	
Benz(a)anthracene	758	43.0	1,076	6.474	69.8	34.9	139	867.7	13.5	30	
Chrysene	818	43.0	1,076	6.301	75.4	45.2	146	924.9	12.3	30	
Benzo(b)fluoranthene	779	43.0	1,076	0	72.4	42.2	168	900.0	14.4	30	
Benzo(k)fluoranthene	777	43.0	1,076	0	72.2	20.5	150	873.8	11.8	30	
Benzo(a)pyrene	745	43.0	1,076	0	69.3	34.4	179	851.1	13.2	30	
Indeno(1,2,3-cd)pyrene	713	43.0	1,076	0	66.3	11.8	140	820.0	14.0	30	
Dibenz(a,h)anthracene	725	43.0	1,076	0	67.4	17.3	156	813.6	11.5	30	
Benzo(g,h,i)perylene	702	43.0	1,076	0	65.2	24.9	119	791.1	12.0	30	
Surr: 2-Fluorobiphenyl	445		538.0		82.7	12.5	140		0		
Surr: Terphenyl-d14 (surr)	513		538.0		95.4	45.7	172		0		

Date: *11/28/2018*

Work Order: 1811297
CLIENT: O'Neill Service Group
Project: Kirkland Totom Lake

QC SUMMARY REPORT

Polyaromatic Hydrocarbons by EPA Method 8270 (SIM)

Sample ID	**1811281-007AMSD**	SampType:	**MSD**			Units:	**µg/Kg-dry**	Prep Date:	**11/26/2018**		RunNo:	**47926**	
Client ID:	**BATCH**	Batch ID:	**22722**					Analysis Date:	**11/28/2018**		SeqNo:	**935820**	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	

Date: *11/28/2018*

Work Order: 1811297
CLIENT: O'Neill Service Group
Project: Kirkland Totom Lake

QC SUMMARY REPORT

Sample Moisture (Percent Moisture)

Sample ID **1811281-007ADUP** SampType: **DUP** Units: **wt%** Prep Date: **11/21/2018** RunNo: **47808**
Client ID: **BATCH** Batch ID: **R47808** Analysis Date: **11/21/2018** SeqNo: **932751**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	13.1	0.500						12.74	2.82	20	

Sample ID **1811282-001ADUP** SampType: **DUP** Units: **wt%** Prep Date: **11/21/2018** RunNo: **47808**
Client ID: **BATCH** Batch ID: **R47808** Analysis Date: **11/21/2018** SeqNo: **932753**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	23.3	0.500						21.93	6.23	20	

Sample Log-In Check List

Client Name:	**ONEILL**	Work Order Number:	**1811297**
Logged by:	**Clare Griggs**	Date Received:	**11/19/2018 5:50:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes ☑	No ☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified:		Date	
By Whom:		Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:			

19. Additional remarks:

Item Information

Item #	Temp ºC
Cooler	3.9
Sample	8.1

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Chain of Custody Record & Laboratory Services Agreement

Date: 11/19/18 Page: 1 of: 1

Laboratory Project No (internal): 1811297

Project Name: KIRKLAND TOTEM LAKE

Special Remarks:

Client: OSG

Project No:

Address:

Collected by: ATKINS

City, State, Zip:

Location:

Telephone:

Report To (PM): ATKINS

Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 30 days)

Fax:

PM Email:

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T) | Dissolved (D)	Anions (IC)***	EDB (801.1)					Comments
1 TP-1-4	11/18/18	850							X		X		X								
2 TP-1-2	↓	900							X		X		X								
3 TP-1-5	↓	930							X		X		X								
4																					
5																					
6																					
7																					
8																					
9																					
10																					

*Matrix: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

**Metals (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL *Individual:* Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

***Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite

Turn-around Time:

- ☑ Standard
- ☐ 3 Day
- ☐ 2 Day
- ☐ Next Day
- Same Day ____ (specify)

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above and that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished	Date/Time	Received	Date/Time
x [signature]	11/19/18 1700	x [signature]	11/19/18 1780
Relinquished	Date/Time	Received	Date/Time
x		x	

APPENDIX K

ECOLOGY TREATED WOOD EXCLUSION FOCUS PAPER

Focus on Treated Wood Exclusion

With increased attention being focused on the safety of treated wood, there is a need to clarify the dangerous waste exclusion for treated wood and to clarify the disposal and recycling options. The exclusion is divided into two parts in the *Dangerous Waste Regulations*. Arsenical-treated wood is discussed in WAC 173-303-071(3) (g) (i) and wood treated with other preservatives (typically pentachlorophenol and creosote) is covered in WAC 173-303-071(3) (g) (ii).

Arsenical-Treated Wood (WAC 173-303-071(3)(g)

In simple terms, the conditions for the arsenical-treated wood exclusion are:

1. it designates only for the federal toxicity characteristic or for state criteria, and
2. the wood product has previously been used for its intended purpose as a treated wood (not to include treated wood wastes from manufacturers or sawmills that has never been used).

Once the treated wood meets these conditions, it is excluded from being a dangerous waste. It may go into a permitted solid waste landfill, or be reused for normal treated wood applications.

This exclusion applies to arsenical-treated wood that is designated as dangerous waste for toxicity characteristic D004 through D017 or state criteria (toxicity or persistence). The term "arsenical-treated wood" does not mean the exclusion only applies to treated wood that fails the toxicity characteristic leaching procedure (TCLP) solely for arsenic. The exclusion is intended to apply to treated wood that fails TCLP for any of the other fourteen toxicity characteristic (D004-D017) constituents. Typically, copper chromated arsenic (CCA) treated wood fits this description. Ammoniacal copper zinc arsenate (ACZA) preservative is another example, but it is used less frequently to treat wood.

What does "**generated by persons who utilize the arsenical-treated wood for the material's intended end use"** mean? EPA intended for the exclusion to apply to treated wood products that have been previously used as a treated wood and are now a waste. The exclusion does not apply to wastes from sawmills (such as cut ends) or wood preserving facilities, since the waste has not been previously used as treated wood.

Once the treated wood has been used by the consumer, it fulfills the conditions of the exclusion. According to WAC 173-303-071(3), it becomes "excluded from the requirements of chapter 173-303 WAC, except for sections -050, -145 and -960." These sections cover spills and releases, clean up, and Ecology's ability to take action if an activity would cause harm to human health or the environment.

Example
CCA treated wood was used to construct municipal park playground equipment and the parks department now wants to remove the structure. What are the disposal options? It is known the wood is treated with CCA and may possibly designate for chrome (D007) and arsenic (D004), but it would not designate for D018-D043 based on information such as a Material Safety Data Sheet (MSDS). The parks department may offer the treated wood for reuse by others, dispose of the treated wood at a permitted municipal solid waste landfill (if local regulations allow) or at a treatment, storage and disposal (TSD) facility. If the wood is given to others for reuse, they would have the same disposal options once they were through using the wood.

Wood Treated With Other Preservatives (WAC 173-303-071(3) (g) (ii))

In 1993, Ecology amended the *Dangerous Waste Regulations* to exclude wood treated with preservatives other than those covered by the arsenical-treated wood exclusion. This exclusion is available only for wood waste that designates for state toxicity or persistence. Typically this includes wood treated with pentachlorophenol and creosote. Wood treated with these chemicals does not often designate as a hazardous waste under the TCLP test, but it may designate under state dangerous waste criteria.

Disposal Options

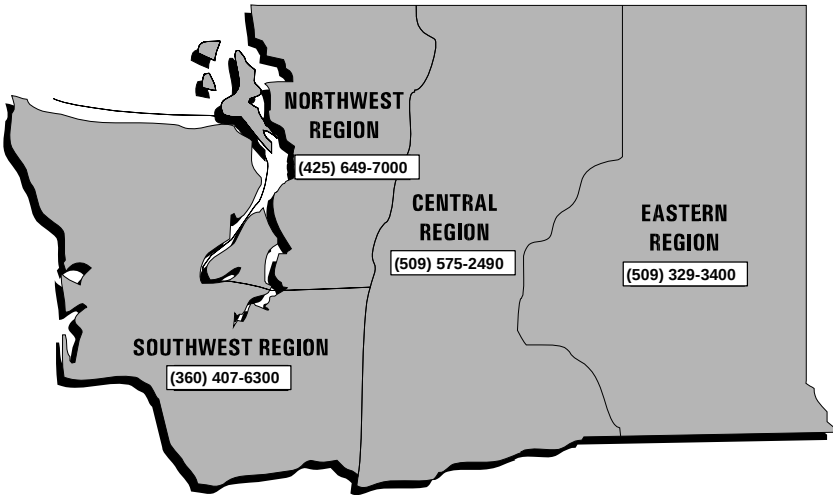
The exclusion allows disposal of state-only treated wood waste in a municipal solid waste landfill permitted under chapter 173-351 WAC. Treated wood waste must go to a lined landfill with a leachate collection system. This landfill option cannot be used for wood waste that designates because it is listed or fails the TCLP test, but it may be sent to a non-permitted facility that will treat or recycle it. It may also be sent to a permitted TSD facility. An additional part of the exclusion applies only to creosote treated wood. Creosote treated wood may be burned for energy recovery in a regulated commercial or industrial furnace or boiler.

With any of these disposal options, the treated wood waste does not have to be managed or reported as a dangerous waste, but it must be removed from the generator's site within 180 days. Any residue or ash resulting from treating or burning creosote treated wood must be designated and managed appropriately.

Ecology encourages the reuse of this kind of treated wood as a preferred management alternative. If the wood is reused, it is not regulated as a dangerous waste provided that the reuse is consistent with the intended end use of the treated wood. Examples of reuse include: fence posts, retaining walls, landscaping, decks, and general construction.

For More Information

Call your nearest regional office:



If you have special formatting needs for this publication, call (voice) 360-407-6759 (voice) or 711 or 800-833-6388 (TTY).

APPENDIX **O**

YUPPIE PAWN HAZARDOUS MATERIALS SURVEY

City of Kirkland

HAZARDOUS MATERIALS REPORT

Tax Parcel 2724200525
12031 Northeast Totem Lake Way
Kirkland, Washington 98034

Submitted to:

O'Neill Service Group
17619 Northeast 67th Court, Suite 100
Redmond, Washington 98052

Prepared by:

Med-Tox Northwest
Post Office Box 1446
Auburn, WA 98071-1446
MTNW Project A-8570.53
Telephone: 253-351-0677

Jon A. Havelock

Jon A. Havelock, CSP, CHMM
AHERA BI # ABIR0907180004N15667 Exp. 09/07/2019

December 28, 2018

Table of Contents

Tables

Acronyms

AAS	atomic absorption spectroscopy
ACM	asbestos-containing materials
AHERA	Asbestos Hazard Emergency Response Act
ASHARA	Asbestos Schools Hazard Abatement Reauthorization Act
ASTM	American Society of Testing and Materials
CFC	chlorofluorocarbons
CFR	Code of Federal Regulation
DEHP	Di (2-ethylhexyl) phthalate
EPA	U.S. Environmental Protection Agency
GWB	gypsum wallboard
HBM	hazardous building materials
HVAC	heating, ventilation, and air conditioning
LBP	lead-based paint
mg/cm^2	milligrams per square centimeter
mg/kg	milligrams per kilogram
MTNW	Med-Tox Northwest
NVLAP	National Voluntary Laboratory Accreditation Program
OSHA	Occupational Safety and Health Administration
PCB	polychlorinated biphenyl
PLM	polarized light microscopy
ppm	parts per million
PSCAA	Puget Sound Clean Air Agency
SAT	Seattle Asbestos Test
SVF	sheet vinyl flooring
TCLP	toxicity characteristic leaching procedure
TSI	thermal system insulation
WAC	Washington Administration Code
WDOC	Washington Department of Commerce
WISHA	Washington Industrial Safety and Health Act
XRF	x-ray fluorescence
% wt.	percent in weight

Survey Summary

On November 14, 2018, Jon Havelock, Eric Jarvis and Jason Carlson of Med-Tox Northwest (MTNW) conducted a hazardous building materials (HBM) survey of the property located at 12031 Northeast Totem Lake Way in Kirkland, Washington. This work was conducted on behalf of O'Neill Service Group. The building was occupied at the time of the survey; however, at the request of property management, only limited destructive sampling was allowed.

This report identifies building materials that contain asbestos, estimates the quantity of asbestos-containing material (ACM) present and documents building materials that potentially contain lead-based paint (LBP), polychlorinated biphenyls (PCBs), and other hazardous materials that require removal or management as part of demolition activities. Washington Administrative Code (WAC) 296-155-775 requires identification of asbestos and hazardous materials and their hazards eliminated before demolition is started.

As required by WAC 296-62-077 and Puget Sound Clean Air Agency (PSCAA), building inspectors certified under the Asbestos Hazard Emergency Response Act (AHERA) and employed by MTNW conducted the asbestos portion of the survey. Copies of the inspector's AHERA Building Inspector certificate and Washington Department of Commerce (WDOC) LBP Inspector/Risk Assessor certificates are included in **Appendix A**.

No previous HBM surveys or as-built construction documents were available as part of the survey.

Building Information

Photographic documentation of the structure and the major systems described herein are provided in **Appendix B**.

General and Structural: Originally constructed in 1979 the structure at 12031 NE Totem Lake Way is approximately 7000 square feet (SF) in size. The building is currently occupied by two different companies which use their areas as office space. Prior to the current tenants, this building was used as a retail store.

There is one main floor to the building with the addition of a second tier wrap around storage area. The interior of the building is divided into three main areas; an entry way and two office spaces. The entryway consists of two restrooms, a custodial closet, and one office room.

Office 1 is composed of a main office area, a long meeting room, a back-office area, a conference room, a closet area, a bathroom, and an electrical room. Office 2 consisted of one open office space with a closet space in the SE corner.

The building is constructed on a concrete slab foundation, is wood-framed and finished with plywood siding on the bottom portion and silver rib-metal paneling on the upper portion. Exterior windows were vinyl-framed, and aluminum-framed with steel rebar stretching horizontally over the interior portion of the windows. Interior doors are hollow core wood and metal, exterior doors were metal and wood framed. The roof is a combination of a pitched roof and built up roof. The pitched roof sections of the building were finished with brown rib-metal paneling. The built-up roofing system was inaccessible during the time of the survey. The roof for the entrance overhang was finished with gray rib-metal paneling.

A 120 SF detached wood-framed shed is located east of the southeast section of the building. The shed was finished with the same plywood siding as the building. The roof was finished with multiple layers of asphalt roofing shingles. The interior walls and ceiling of the shed were finished with sprayed on yellow foam insulation.

Heating and Mechanical Systems: Heat for the building is provided by electric baseboards and central heating, ventilation, and air conditioning (HVAC) system. Pipes that were observed either had a polyethylene wrap or they were un-insulated.

Walls/Ceiling: Interior walls of the building were finished with a heavy textured gypsum wallboard (GWB) system, an orange peel textured GWB system, untextured GWB, lap wood siding, and vinyl sheet board. Bathroom walls were finished with ceramic wall tiles. In addition, walls were also finished with wood, brick, ceramic tile, and vinyl cove base. Ceilings of the building were finished with a heavy textured GWB system, an orange peel textured GWB system, untextured GWB, or horizontal wood planks.

Floor Systems: Floors of the building were primarily a concrete sub-floor, with wood sub-floor found in elevated areas of Office 1. Offices and the entry way were primarily finished with glued-down carpet. Office 1 and 2 also had parquet wood tiles, sheet vinyl tiles, sheet vinyl flooring (SVF), and ceramic tiles. Bathrooms floors were finished with ceramic tiles.

Asbestos Survey

The AHERA regulation, 40 Code of Federal Regulation (CFR) 763, is the primary governing regulation when performing asbestos surveys. This regulation was originally enacted for school buildings but has since been applied to public and commercial buildings by the Asbestos School Hazard Abatement Reauthorization Act (ASHARA) in 1994 and by the Occupational Safety and Health Administration's (OSHA) worker protection regulations in 1995, specifically 29 CFR 1926.1101(k).

PSCAA also requires compliance with AHERA's survey and sampling requirements. This applies to any renovation or demolition activities where suspect ACM may be disturbed. PSCAA is a local agency that receives statutory authority from the U.S. Environmental Protection Agency (EPA) to enforce environmental regulations.

AHERA divides suspect ACM into three categories; “surfacing materials” (i.e., sprayed fireproofing, popcorn ceiling texture, etc.), “thermal system insulation” (TSI) (i.e., pipe or building insulation, etc.), and “miscellaneous materials” (i.e., flooring material, roofing, construction mastics, etc.). The following sections summarize the potential ACMs identified for each of these three categories. For a complete listing of suspect materials sampled, see **Appendix C**. See **Appendix J** for drawings of asbestos and lead sample locations and material types.

The following sections summarize the potential ACMs identified by homogeneous material (HM) description as they relate to each of the AHERA categories and clarify location along with the number of samples collected for regulatory compliance.

Surfacing Materials

There were four surfacing materials observed in the building.

- Heavy Troweled Textured GWB system (HM-01). HM-01 was the identified on the walls throughout the building. Nine samples of HM-01 were collected between the two offices and entrance. After being analyzed for asbestos content HM-01 was determined to be negative for asbestos.
- Untextured GWB (HM-02). Untextured GWB was present in the entrance area and in Office 1. Five samples were collected between the two areas and analyzed for asbestos content; HM-02 was found to be negative for asbestos.
- Orange peel textured GWB system (HM-03). Orange peel textured GWB was present in the entrance area restrooms, entry way office, custodial closet, and in the conference room of Office 1. Seven samples of HM-03 were collected from seven different locations then analyzed for asbestos content. HM-03 was found to be negative for asbestos.
- Sprayed on yellow foam insulation (HM-26). HM-26 was observed on the walls and ceilings of the shed. Three samples of HM-26 were collected and analyzed for asbestos content; no asbestos detected.

Thermal System Insulation

There was one TSI material observed in the building.

- Pink wall insulation (HM-23). HM-23 was found in an exposed area of the wall inside the electrical room. Three samples were collected and analyzed for asbestos content; no asbestos was detected.

Miscellaneous Materials

- Wall laminate board with yellow mastic (HM-04). HM-04 was identified on the NW wall of the meeting room in Office 1. Two samples of HM-04 were collected and analyzed for asbestos content. HM-04 was determined to be negative for asbestos.

- Wall laminate board with orange mastic (HM-05). HM-05 was identified on the N wall of the meeting room hallway in Office 1. Two samples of HM-05 were collected and analyzed for asbestos content. HM-05 was determined to be negative for asbestos
- Wall laminate board with brown mastic (HM-06). HM-06 was found in the NW corner of the meeting room in Office 1 on the E wall. Two samples were collected and analyzed for asbestos content; no asbestos was detected.
- 3- x 3-inch brown wall tile with grout (HM-07). HM-07 was present in the men's and women's restroom. Two samples were collected and analyzed for asbestos content; this material was determined to be negative for asbestos.
- 3- x 3-inch brown wall with yellow and green mastic (HM-08). HM-08 was found in the men's restroom. Two samples were collected and analyzed for asbestos content; no asbestos was detected.
- 6- x 6-inch red floor tile with grout (HM-09). This material was present in Office 2, the electric room, and both the men's and women's restroom. Two samples were collected and analyzed for asbestos content; no asbestos was detected.
- Dark gray and red carpet with yellow mastic (HM-10). HM-10 was present in the entry way, Office 1, and Office 2. Three samples (one from each area) were collected and analyzed for asbestos content; HM-10 was found to be negative for asbestos.
- Blue and gray carpet with yellow mastic (HM-11). HM-11 was present in the entry way, Office 1, and Office 2. Three samples (one from each area) were collected and analyzed for asbestos content; HM-11 was found to be negative for asbestos.
- Parquet wood floor tile with white mastic and grout (HM-12). HM-12 was identified in the main office area of Office 1. Two samples were collected and analyzed for asbestos content; no asbestos was detected.
- Parquet wood floor tile with dark yellow mastic (HM-13**).** HM-13 was identified in Office 2. Two samples were collected and analyzed for asbestos content; no asbestos was detected.
- 12- x 12-inch green and yellow SVT with yellow mastic (HM-14**).** HM-14 was discovered in the main office of Office 1 under HM-10. Two samples were collected and analyzed for asbestos content; no asbestos was detected.
- 6- x 6-inch brown/white square pattern SVF with brown binder (HM-15). This material was observed in the electrical room hallway. Three samples were collected and analyzed for asbestos; no asbestos was detected.

- Brick wall base with white paint and grout (HM-16). This material was observed in the NW corner of the meeting room in Office 1. Two samples were collected and analyzed for asbestos; no asbestos was detected.
- Gray wall base grout with white paint (HM-17). This material was found in the conference room of Office 1. Two samples were collected and analyzed for asbestos content; no asbestos was detected.
- Black vinyl cove base with yellow mastic (HM-18). HM-18 was identified in the entry way office. Two samples were collected and analyzed for asbestos content; this material was determined to be negative for asbestos.
- Gray vinyl cove base with brown mastic (HM-19). HM-19 was identified in Office 2. Two samples were collected and analyzed for asbestos content; HM-19 was determined to be negative for asbestos.
- Tan cove base with yellow mastic (HM-20). HM-20 was identified in the SE bathroom of Office 1. Two samples were collected and analyzed for asbestos content; no asbestos was detected.
- Brown wall base sealant (HM-21). HM-21 found along the N wall of the meeting room hallway in Office 1. Two samples were collected and analyzed for asbestos content; no asbestos was detected.
- Exterior window caulking (HM-22). This material was observed on exterior window frames. Three samples were collected and analyzed for asbestos; this material was determined to be negative for asbestos.
- Wall VBP (HM-24). HM-24 was found under the GWB of the second level storage area. Three samples were collected and analyzed for asbestos content; no asbestos was detected.
- Asphalt roofing shingles and VBP (HM-25). The shed roof was covered by multiple layers of asphalt roof shingles with VBP over the plywood sheathing. Three samples were collected and analyzed for asbestos content; no asbestos was detected.

Table 1 summarizes ACM identified in the residence surveyed by MTNW.

Table 1. Summary of Asbestos-Containing Materials

Material	Location	Friable	Quantity*
There were no asbestos-containing materials identified at 8808.2.			

Note: This table is not to be used without the complete survey document including appendices for additional information.

Table 2 lists all suspect materials sampled that have been determined to be non-asbestos containing.

Table 2. Summary of Suspect Materials Determined Non-Asbestos Containing

Material Location	Material Description
Interior	Heavy Troweled Textured GWB system
Interior	Untextured GWB
Interior	Orange peel textured GWB system
Meeting room – Office 1	Wall laminate board with yellow mastic
Meeting room hallway – Office 1	Wall laminate board with orange mastic
Meeting room – Office 1	Wall laminate board with brown mastic
Restroom's	3- x 3-inch brown wall tile with grout
Men's restroom	3- x 3-inch brown wall with yellow and green mastic
Office 2, electric room, restrooms	6- x 6-inch red floor tile with grout
Interior	Dark gray and red carpet with yellow mastic
Interior	Blue and gray carpet with yellow mastic
Office 1	Parquet wood floor tile with white mastic and grout
Office 2	Parquet wood floor tile with dark yellow mastic
Main office – Office 1	12- x 12-inch green and yellow SVT with yellow mastic
Electrical room hallway	6- x 6-inch brown/white square pattern SVF with brown binder
Meeting room – Office 1	Brick wall base with white paint and grout
Conference room – Office 1	Gray wall base grout with white paint
Entry way - office	Black vinyl cove base with yellow mastic
Office 2	Gray vinyl cove base with brown mastic
Bathroom – Office 1	Tan cove base with yellow mastic
Meeting room hallway – Office 1	Brown wall base sealant
Exterior	Exterior window caulking
Electrical room	Pink wall insulation
Interior - second level storage area	Wall VBP
Shed - roof	Asphalt roofing shingles and VBP
Shed - interior	Sprayed on yellow foam insulation

Note: This table is not to be used without the complete survey document including appendices for additional information.

Lead-Based Paint Summary

Lead was commonly used in most paint products until 1978, when it was banned from residential paints at concentrations greater than 600 parts per million (ppm) and then reduced to 90 ppm in 2012; however, commercial applications with lead are still utilized and available. Lead is poisonous to the human body and presents a potential health hazard during any kind of disturbance (such as maintenance, including grinding,

welding, and cutting) and if improperly disposed, where lead can enter drinking water supplies.

EPA defines LBP as a concentration of 1.0 milligrams per square centimeter (mg/cm2) or greater by x-ray fluorescence (XRF) or 0.5 percent in weight (% wt.) or greater by total lead analysis; equivalent to 5,000 milligrams per kilogram (mg/kg). This EPA action level triggers requirements for protection of the environment, maintenance workers, and building occupants in child occupied facilities as defined by 40 CFR 745. Additionally, building components exceeding EPA lead levels may cause demolition waste streams to fail waste designation sampling performed for compliance with WAC 173-303 Dangerous Waste Regulations.

Washington Department of Occupational Safety and Health (DOSH) worker protection regulations have not defined a minimum concentration for regulating lead and has clarified that lead at any detectable concentration shall be considered regulated by WAC 296-155-176, Lead. Paint sample results can be expressed in mg/kg (same as ppm), % wt. or mg/cm2 by area depending on the type of analytical method used. Any positive result, regardless of the reporting method by the laboratory, will require compliance with WAC 296-155-176.

Lead in Painted Surfaces

Interior painted surfaces were tested for lead content using bulk sample collection and chemical analysis. A total of nine paint chip samples were collected. Analytical results are provided in **Table 3**.

Table 3. Summary of Bulk Paint Chip Sample Results

Sample Number	Location	Component	Substrate	Color	Result (ppm)
Totem Lake Retail					
8808.2-EJ-01Pb	Entry way; S wall	Wall	GWB	Beige	<94
8808.2-EJ-02Pb	Office 2; W wall	Wall	GWB	Green	<91
8808.2-EJ-03Pb	Custodial closet; S wall	Wall	GWB	White	<96
8808.2-EJ-04Pb	Entry way; W wall	Siding	Wood	Brown	<85
8808.2-EJ-05Pb	Entry way; N wall	Siding	Wood	Gray	<91
8808.2-EJ-06Pb	Entry way – 2nd level; N wall	Siding	Wood	Tan	<86
Exterior					
8808.2-EJ-07Pb	E Wall	Window	Wood	White	<82
8808.2-EJ-08Pb	W wall	Siding	Wood	Red	<88
8808.2-EJ-09Pb	Door frame	Trim	Wood	Dark Red	<89

ppm = parts per million. Note: This table is not to be used without the complete survey document including appendices for additional information.

Waste Designation Survey

Construction waste or demolition debris expected as a result of 8808.2 consists of most of the building materials due to limited recycling value for the type of construction. Due to no Pb, toxicity characteristic leaching procedure (TCLP) samples were not collected.

All nine samples analyzed were determined to contain lead less than the detection limit of the analytical method. Based on these results, the demolition waste from the building can be disposed of as general construction debris.

Other Hazardous Building Materials

Chlorofluorocarbons

MTNW inspected the building for cooling systems with potential chlorofluorocarbons (CFCs); none were observed.

PCB Light Ballasts and Fluorescent Light Tubes

Older fluorescent light ballasts have small capacitors that may contain high concentrations of PCBs. Nearly all ballasts manufactured before 1979 contain PCBs. All ballasts manufactured after July 1, 1978 that do not contain PCBs are required to be clearly marked "No PCBs". Unmarked ballasts or ballasts without a date code should be assumed to be PCB ballasts. PCBs are toxic chemicals according to the EPA. While there is only a small amount, about one ounce, of PCBs in each light ballast capacitor, there are a large number of ballasts in the United States. A "No PCB" label means there are less than 50 ppm PCBs; however, in the state of Washington, PCB in oils are regulated at 2 ppm (WAC 173-303-9904).

There were fluorescent light fixtures observed at 8808.2. Smoke detectors may be regulated as universal or hazardous waste and will require dismantling and special handling. **Table 4** provides a summary of these items in the building:

Table 4. Summary of Fluorescent Lights and Smoke Detectors

Location	4-foot, 4-bulb	4-foot, 2-bulb	4-foot, 1-bulb	Exit signs	Door closers	Smoke Detectors
Throughout	6	54	32	7	8	25
Total	**6**	**54**	**32**	**7**	**8**	**25**

Note: This table is not to be used without the complete survey document including appendices for additional information.

Typically, there is one ballast for every two-light tubes in a fluorescent light fixture; accordingly, there are approximately two ballasts in the light fixture requiring recycling or PCB hazardous waste disposal. There are also four four-foot tubes that will need to be recycled during demolition along individual 4-foot tubes.

PCB in Caulking and Paint

PCBs were used in paint and caulk formulations as drying oils (resins) and plasticizers or softening agents (liquids). Concrete surfaces and equipment, as well as marine or waterproofing applications may have painted surfaces containing PCBs.

PCBs were tested in representative caulking and paint on the exterior of 12031. **Table 6** below provides a summary of PCB sample results.

Table 6. Summary of PCB Sample Results.

Sample Number	Location	Material	Result (mg/kg*)
Totem Lake Retail			
8808.2-EJ-01PCB	Exterior north window	Window caulk	None Detected
8808.2-EJ-02PCB	West exterior wall	CMU	None Detected
8808.2-EJ-03PCB	Exterior north wall	Red paint	None Detected
8808.2-EJ-04PCB	Exterior door frame	Dark Red paint	None Detected

Note: Do not use this table without the complete survey document.

Mercury Containing Switches

Heating system thermostats were investigated for mercury containing systems. All the thermostats observed were electric.

Laboratory Analytical Methods

Asbestos-Containing Materials

Bulk samples were analyzed by Polarized Light Microscopy (PLM) dispersion staining EPA Method 600/R-93/116 and by 400 Point Count Analysis by Seattle Asbestos Test (SAT). SAT is accredited through the National Voluntary Laboratory Accreditation Program (NVLAP) of the U.S. Department of Commerce. This accreditation does not constitute endorsement, but rather a finding of laboratory competence. The NVLAP participant number for SAT is 200768-0 (certification copies are in **Appendix D**). Analytical results are in **Appendix E**.

Lead-Based Paint

Bulk paint chip samples were submitted to EMSL Analytical, Inc. for analysis using atomic absorption spectroscopy (AAS) to determine the presence and percentage of lead. Procedures for analyzing metals are found in the American Society of Testing and Materials (ASTM) D-3335-78 and EPA Method Manual SW-846, Method 6010. EMSL used SW 846-7000B, an equivalent analytical method.

Analytical results for paint chip results are provided in **Appendix F**. EMSL Analytical, Inc., laboratory certification is attached in **Appendix G**.

Sample and material location drawings are provided in **Appendix I**.

PCB

Bulk PCB samples were submitted to On-Site Environmental, Inc., for analysis using gas chromatography (GC) equipped with electron capture detectors (ECD). The samples were analyzed using EPA Method SW-846 8082A and the analytical results are provided in **Appendix H**. On-Site Environmental, Inc. laboratory certification is attached in **Appendix I**.

Sample and material location drawings are provided in **Appendix J**.

Comments and Recommendations

Asbestos-Containing Materials

MTNW recommends that this survey report be placed on-site during renovation and/or demolition and copies provided to the contractor(s) bidding and performing work. Washington Industrial Safety and Health Act (WISHA), OSHA and PSCAA require that the report be on-site and available for review during the entire project duration.

No materials containing asbestos content were found during the survey. The building was occupied at the time of the survey. A limited destructive investigation was conducted during the survey; however, additional destructive investigation will be required prior to demolition.

1. Electrical systems were not sampled due to power being live. Sample and verify that asbestos is not present prior to building demolition.
2. The doors to the structure did not appear to be fire doors with suspect asbestos content. Prior to any activity that will impact the doors, drill into the doors and door frames to determine if suspect fire protection is located inside.
3. Perform destructive investigation inside wall and ceiling cavities to verify suspect asbestos is not hidden or present prior to demolition.
4. Perform destructive investigation to verify if additional layers of flooring suspected of containing asbestos are not hidden or present prior to demolition.
5. If during demolition, pipe or pipe fitting insulation suspected of containing ACM is made visible, the material(s) must be sampled by an AHERA building inspector prior to being disturbed.

WAC 296-65 requires ACM be removed by trained and licensed contractors using certified asbestos abatement workers and supervisors (except for deregulated roofing sealants, mastics, and coatings). A 10-day prior notification is also required before abatement can begin. In addition, PSCAA requires notification and fees prior to beginning removal of friable ACM.

If additional destructive investigations uncover asbestos-containing materials, MTNW recommends third party oversight of asbestos abatement and renovation activities by an AHERA accredited building inspector to ensure regulatory compliance and completion of the additional destructive methods recommended herein.

Lead-Based Paint

Lead in painted surfaces were not detected in this building. All samples were analyzed to contain lead less than the detection of the analytical method and based on these results, the demolition waste from the building can be disposed of as general construction debris.

PCB

There were no PCB's detected in the bulk samples collected. MTNW recommends that the asbestos abatement contractor be tasked with dismantling light fixtures, collecting all lighting ballasts for proper disposal, and recycling the light tubes. Ballasts without "No-PCB" labels are considered PCB-containing and must be disposed as a hazardous waste. "No-PCB" and Di (2-ethylhexyl) phthalate (DEHP) ballasts may designate as Washington Dangerous Waste and should be sent to an EPA licensed facility for proper disposal.

Other Hazardous Building Materials

Smoke detectors should be collected and recycled/disposed of appropriately.

Limitations

A good faith effort has been made to identify ACM, LBP and other HBM in preparation for building demolition. This survey was performed for complete demolition of the building. Additional destructive investigation and sampling will be required depending on inaccessible building systems including mechanical spaces and/or mechanical/electrical system routing.

Sampling was performed consistent with the level of care and skill ordinarily exercised by professionals currently practicing under similar conditions in the area. No other warranty, expressed or implied, is made.

This report has been prepared for the exclusive use of O'Neill Service Group and it designates for this project only. The analyses, conclusions, and recommendations presented in this report are based on conditions encountered at the time of our survey and our experience and judgment. MTNW cannot be held responsible for interpretation by others of the data contained in this report; any use of this report shall include the entire document. This survey is not intended for use as abatement plans and/or specifications which MTNW recommends for regulatory compliance.

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Appendix A
AHERA Building Inspector and WDOC Lead Inspector/Risk Assessor Certificates

Certificate Of Completion

Asbestos Building Inspector Refresher Course

DOSH #:CA-015-06

Jon Havelock

ABIR0907180004N15667

Paul Semper

Principal Instructor

Michael W. Horner

Michael W. Horner
Training Director

9/7/2018	9/7/2018	9/7/2018	9/7/2019
Course Start Date	Course End Date	Exam Date	Expiration Date

This course satisfies the education requirements for Asbestos accreditation under the Toxic Substances Control Act, Title II. This course has been approved by the Department of Industrial Relations, Division of Occupational Safety and Health of the State of California

NATEC International, Inc.

National Association of Training and Environmental Consulting

1100 Technology Circle- Suite A, Anaheim, CA 92805 • www.natecintl.com • 800-969-3228

Important Industry Contacts

CAL-OSHA: Ph# (916) 574-2993
(916) 483-0572 Fax Notification
Web: www.dir.ca.gov or calosha.com

CDPH/CLPPB: Ph# (510) 620-5600
Web: www.cdph.ca.gov/programs/CLPPB

SCAQMD: Ph# (909) 396-3739
Fax#(909) 396-3342

BAAQMD: Ph# (415) 749-4762

NATEC International, Inc.

National Association of Training and Environmental Consulting

Anaheim, CA • Oakland, CA • Fresno, CA • Sacramento, CA

Asbestos • Lead • Mold • HAZWOPER

P.O. Box 25205 Anaheim, CA 92825-5205

(714) 678-2750, (800) 969-3228, Fax (714) 678-2757

www.natecintl.com

NATEC International, Inc.

National Association of Training and Environmental Consulting

*Note: Card is not suitable substitute for certificate and is not accepted by SCAQMD as proof of certification

This Card Acknowledges That
Jon Havelock

Holds Training Certification For
Asbestos Building Inspector Refresher Course

(Valid for 12 months)

Training Date 9/7/2018
Certificate No. ABIR0907180004N15667

Michael W. Horner
Training Director

STATE OF WASHINGTON

Department of Commerce

Lead-Based Paint Abatement Program

Jon A Havelock

Has fulfilled the certification requirements of
WAC 365-230
and has been certified to conduct lead-based paint activities as a
Risk Assessor New

Certification #	Issuance Date	Expiration Date
0241	01/23/2017	12/03/2019

Certificate of Completion

This is to certify that

Eric T. Jarvis

has satisfactorily completed
24 hours of training as an

AHERA Building Inspector

to comply with the training requirements of
TSCA Title II, 40 CFR 763 (AHERA)

EPA Provider # 1085

169779
Certificate Number

ARGUS PACIFIC
TRAINING • CONSULTING
A Terracon COMPANY

Oct 15 - 17, 2018 Expires in 1 year.
Date(s) of Training

Exam Score: 88%
If appropriate:

Instructor

ARGUS PACIFIC, INC / 21905 64th AVE W, SUITE 100 / MOUNTLAKE TERRACE, WASHINGTON 98043 / 206.285.3373 / ARGUSPACIFIC.COM

Certificate of Completion

This is to certify that

Jason S. Carlson

has satisfactorily completed
4 hours of refresher training as an

AHERA Building Inspector

to comply with the training requirements of
TSCA Title II, 40 CFR 763 (AHERA)

EPA Provider # 1085

169363
Certificate Number

ARGUS PACIFIC
TRAINING • CONSULTING
A Terracon COMPANY

Sep 12, 2018 Expires in 1 year.
Date(s) of Training

Exam Score: N/A
If appropriate:

Instructor

ARGUS PACIFIC, INC / 1900 WEST NICKERSON ST, SUITE 315 / SEATTLE, WASHINGTON 98119 / 206.285.3373 / ARGUSPACIFIC.COM

Appendix B
Building and Building System Photographic Documentation

Photo 1: West side of 8808.2 looking east.

Photo 2: Northwest corner of building looking east.

Photo 3: Northeast corner of building looking southwest. Wood deck patio area enclosed by a wood fence. Windows at 88008.2 have rebar over the windows internally for security purposes.

Photo 4: East side-south end of building looking west. A detached shed is located east of the building. The area is fenced off with the same metal siding that is found on the main structure.

Photo 5: Southwest corner of the building looking northeast.

Photo 6: View of entry area looking east. Office 1 is to the right and Office 2 straight ahead. To the left are the restrooms, janitors closet, and entry area office.

Photo 7: View of upper storage area in entry area facing west. The previous tenants built miniature store fronts along the upper level for decorative purposes.

Photo 8: Men's restroom looking northwest. The women's restroom is composed of the same building materials.

Photo 9: Office 1 – Main office area looking south.

Photo 10: Looking east into the long meeting room of Office 1 from the south end of the main office area.

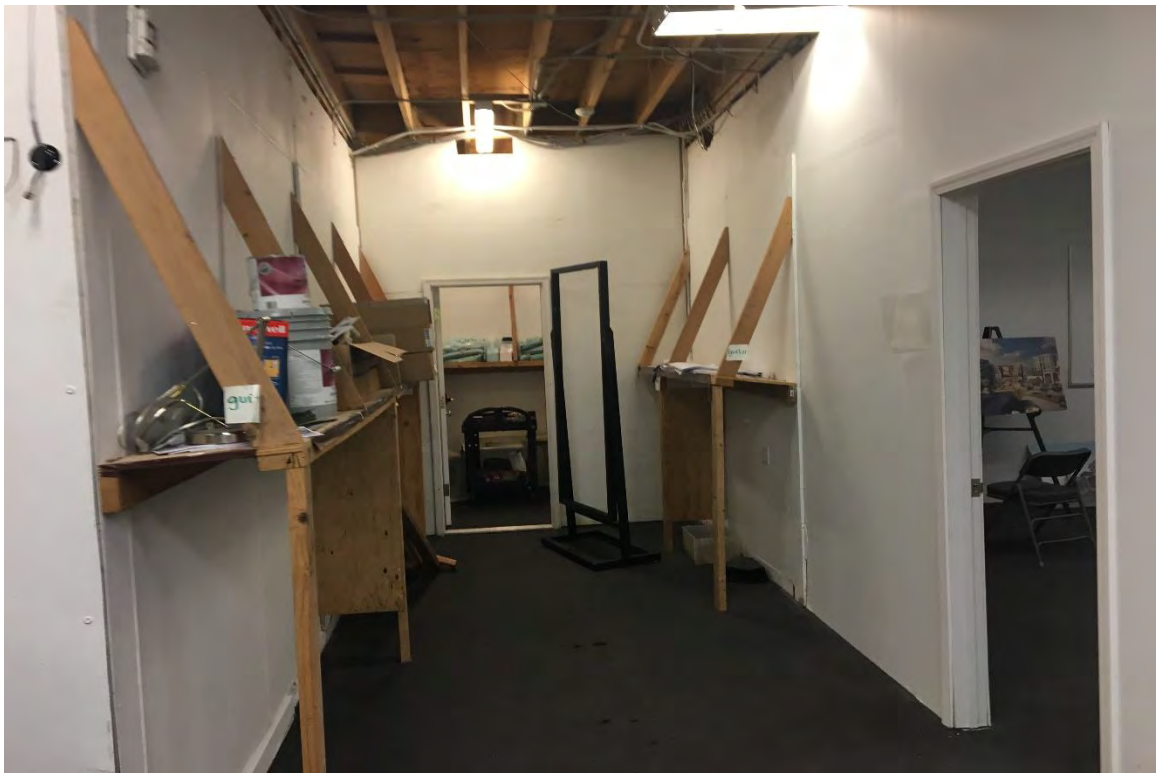

Photo 11: From the north end of the long meeting room looking east down the conference room hallway. To the right is the conference room, straight ahead is a storage closet.

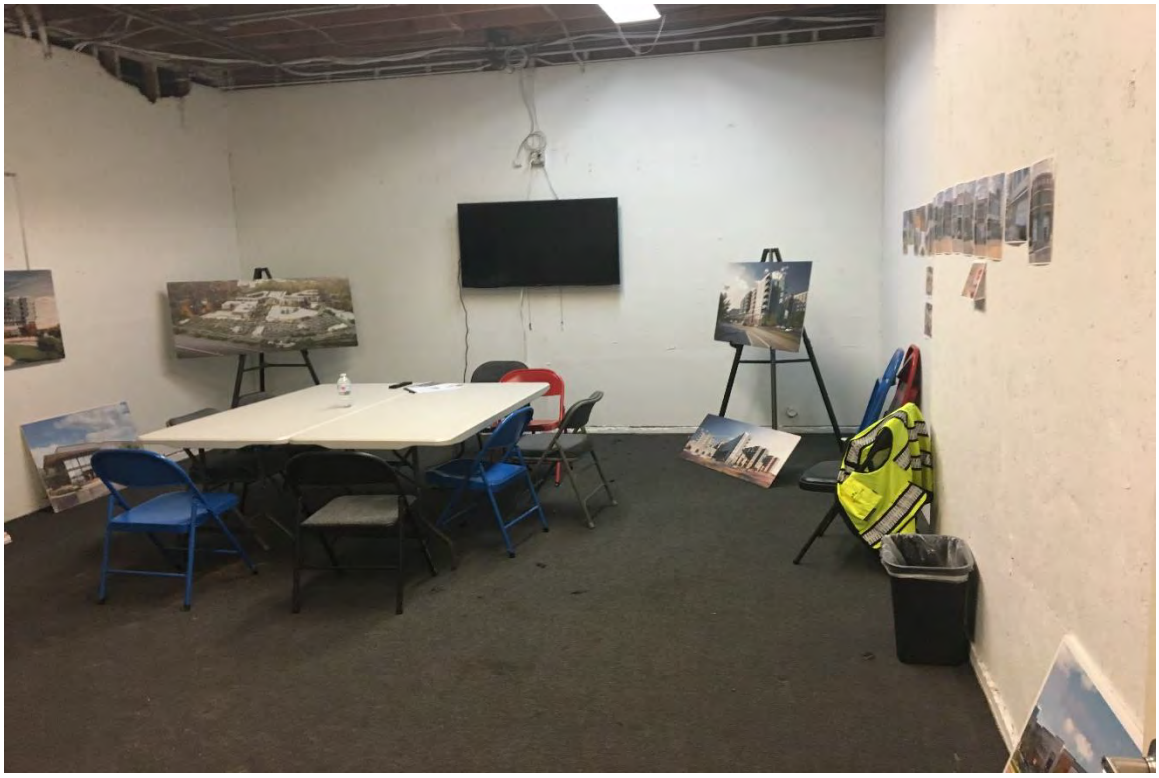

Photo 12: North end of conference room facing south.

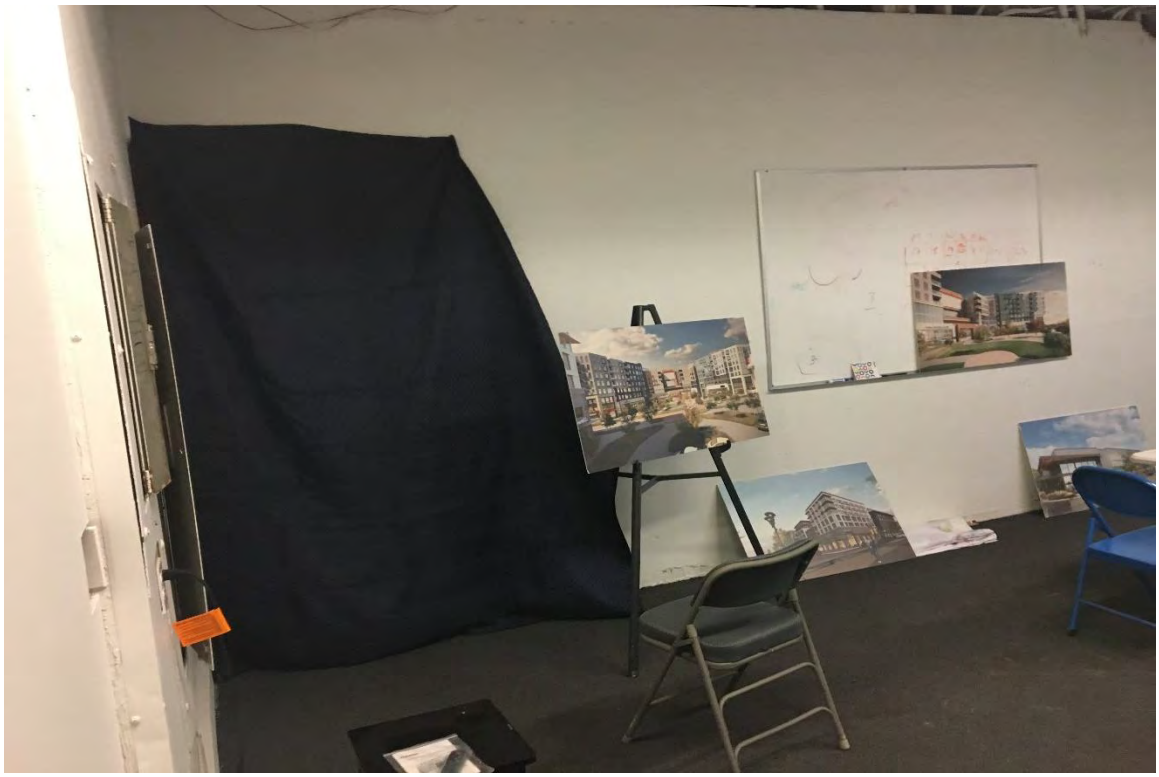

Photo 13. North end of conference room looking east. The blanket on the wall is used to cover the door way that leads to the electrical room and the exit for the storage shed.

Photo 14. North end of electric room hallway facing south towards the electrical room.

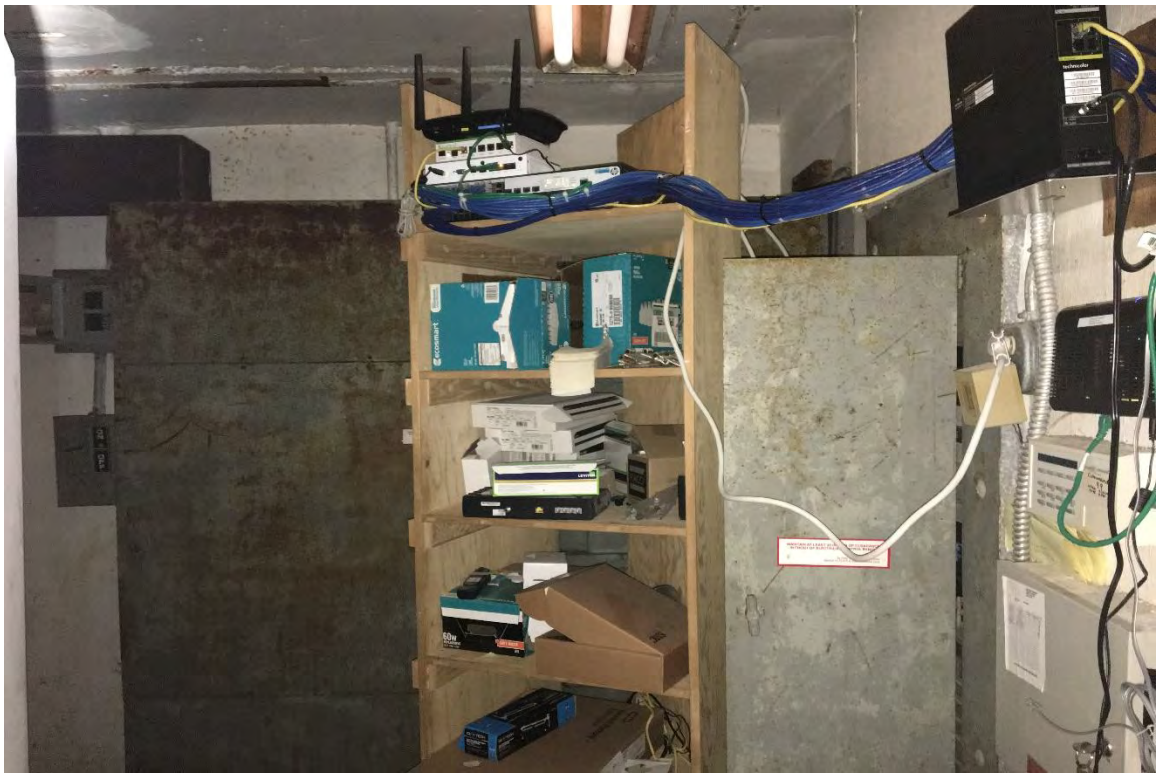

Photo 15. Electric room facing south.

Photo 16. Looking east from the door of the east office space in Office 1.

Photo 17. West side of Office 2 at entrance looking northeast.

Photo 18. West side of Office 2 at entrance looking southeast.

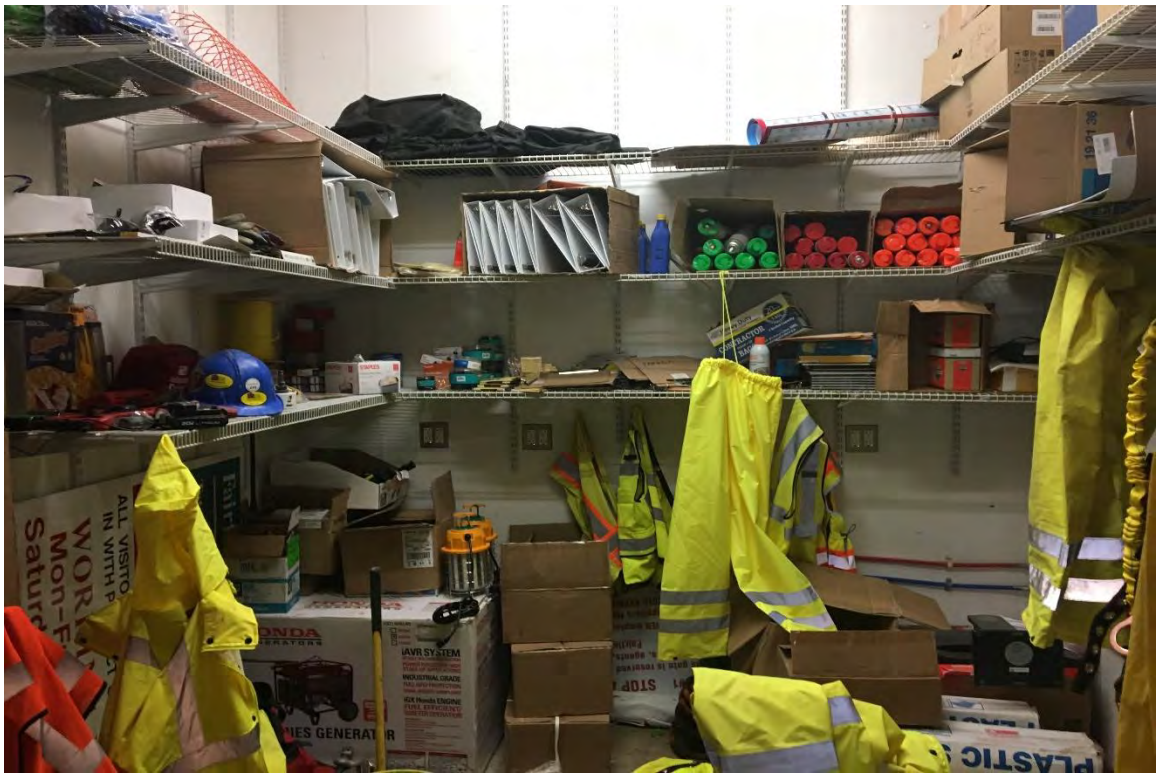

Photo 19. Southeast storage closet of Office 2.

Photo 20. North end top view of Office 2 from upper storage area facing south.

Photo 21. Upper storage area of entry way facing west.

Photo 22. Upper storage area northwest corner perimeter wall .

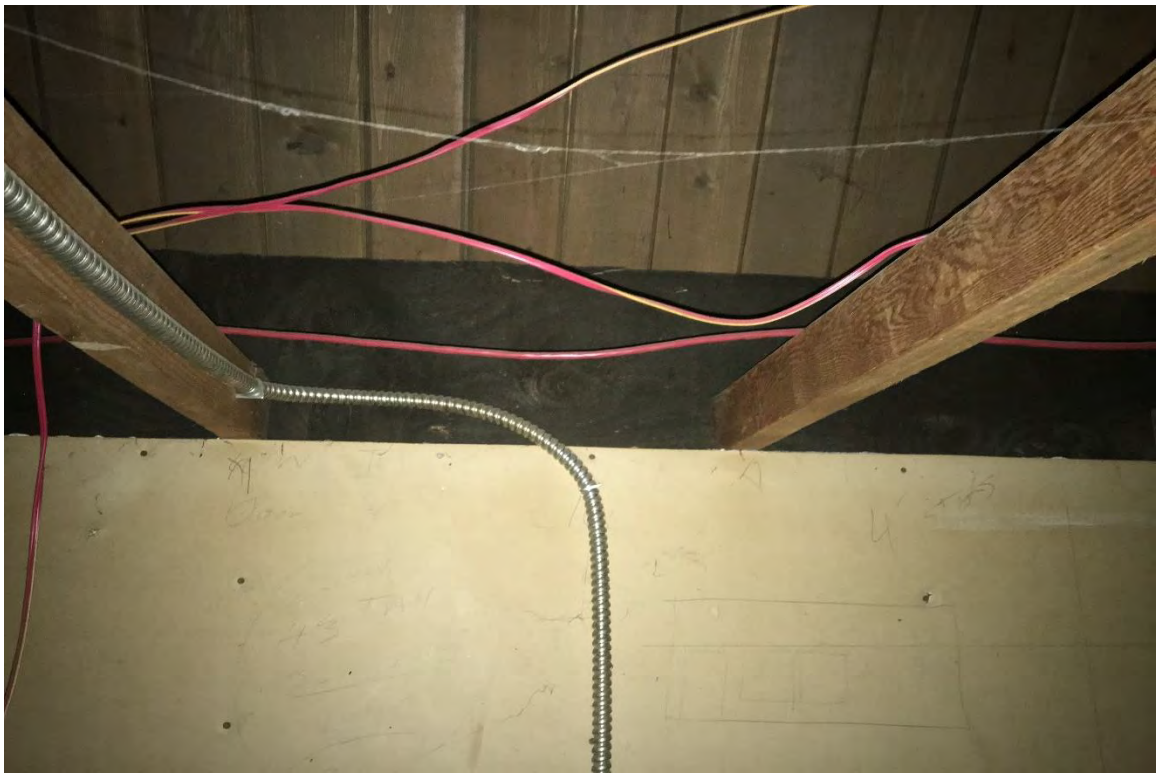

Photo 23. Storage area north wall above Office 2.

Photo 24. North of detached shed facing south.

Photo 25. South door of shed with yellow sprayed on foam insulation.

Photo 26. South door way of shed facing southeast. Yellow foam insulation covers the interior walls and ceiling of the shed.

Photo 27. South doorway of shed facing north.

Photo 28. Southeast corner of shed, floors of the shed are bare concrete.

Appendix C
Summary of Materials Sampled for Asbestos

Table C-1. Summary of Materials Sampled for Asbestos

Sample	Material	Location	AHERA Type	HM	Result
Totem Lake Retail					
8808.2-EJ-001	Heavy Troweled Textured GWB system	Entry Way; S wall, W side	Surfacing	01	None Detected
8808.2-EJ-002	Heavy Troweled Textured GWB system	Entry way; S wall, E side	Surfacing	01	None Detected
8808.2-EJ-003	Heavy Troweled Textured GWB system	Office 1 – E Side Main Office, S wall	Surfacing	01	None Detected
8808.2-EJ-004	Heavy Troweled Textured GWB system	Office 1 – Main Office; W wall, center	Surfacing	01	None Detected
8808.2-EJ-005	Heavy Troweled Textured GWB system	Office 1 – Main Office, NE corner	Surfacing	01	None Detected
8808.2-EJ-006	Heavy Troweled Textured GWB system	Office 1 – W Side Main Office, E wall	Surfacing	01	None Detected
8808.2-EJ-007	Heavy Troweled Textured GWB system	Office 2; E wall	Surfacing	01	None Detected
8808.2-EJ-008	Heavy Troweled Textured GWB system	Office 2; W wall, NW corner	Surfacing	01	None Detected
8808.2-EJ-009	Heavy Troweled Textured GWB system	Office 2; S wall, center	Surfacing	01	None Detected
8808.2-EJ-010	Untextured GWB system	Entry way; S Wall	Surfacing	02	None Detected
8808.2-EJ-011	Untextured GWB system	Entry way, SE corner	Surfacing	02	None Detected
8808.2-EJ-012	Untextured GWB system	Office 1 – Main Office; N wall, center	Surfacing	02	None Detected
8808.2-EJ-013	Untextured GWB system	Office 1 – Main Office, N wall, NE corner	Surfacing	02	None Detected
8808.2-EJ-014	Untextured GWB system	Office 1 – W side Main Office; S wall	Surfacing	02	None Detected
8808.2-EJ-015	Orange peel textured GWB system	Office 1 – Conference room; N wall	Surfacing	03	None Detected
8808.2-EJ-016	Orange peel textured GWB system	Women's restroom; SW corner	Surfacing	03	None Detected

Sample	Material	Location	AHERA Type	HM	Result
8808.2-EJ-017	Orange peel textured GWB system	Men's restroom; SW corner	Surfacing	03	None Detected
8808.2-EJ-018	Orange peel textured GWB system	Entry way Office; N wall	Surfacing	03	None Detected
8808.2-EJ-019	Orange peel textured GWB system	Entry way Office; SW corner	Surfacing	03	None Detected
8808.2-EJ-020	Orange peel textured GWB system	Custodial closet; E wall	Surfacing	03	None Detected
8808.2-EJ-021	Orange peel textured GWB system	Custodial closet; N wall	Surfacing	03	None Detected
8808.2-EJ-022	White Textured Plastic Wall Board with Yellow mastic	Meeting room; NW wall.	Misc.	04	None Detected
8808.2-EJ-023	White Textured Plastic Wall Board with Yellow mastic	Meeting room; NW wall.	Misc.	04	None Detected
8808.2-EJ-024	White Textured Plastic Wall Board with Orange mastic	Meeting room hallway; N wall	Misc.	05	None Detected
8808.2-EJ-025	White Textured Plastic Wall Board with Orange mastic	Meeting room hallway; N wall	Misc.	05	None Detected
8808.2-EJ-026	White Textured Plastic Wall Board with brown mastic	Meeting room; NW corner, E wall.	Misc.	06	None Detected
8808.2-EJ-027	White Textured Plastic Wall Board with brown mastic	Meeting room; NW corner, E wall.	Misc.	06	None Detected
8808.2-EJ-028	3-inch brown wall tile with grout	Men's Restroom; NW corner	Misc.	07	None Detected
8808.2-EJ-029	3-inch brown wall tile with grout	Men's restroom; N wall	Misc.	07	None Detected
8808.2-EJ-030	3-inch brown wall tile with yellow mastic and green mastic	Men's Restroom; NW corner	Misc.	08	None Detected
8808.2-EJ-031	3-inch brown wall tile with yellow mastic and green mastic	Men's restroom; N wall	Misc.	08	None Detected
8808.2-EJ-032	6-inch red floor tile with grout	Men's restroom	Misc.	09	None Detected
8808.2-EJ-033	6-inch red floor tile with grout	Office 2; S wall	Misc.	09	None Detected
8808.2-EJ-034	Dark gray and red carpet with yellow mastic	Office 2; E wall	Misc.	10	None Detected

Sample	Material	Location	AHERA Type	HM	Result
8808.2-EJ-035	Dark gray and red carpet with yellow mastic	Office 1; E wall	Misc.	10	None Detected
8808.2-EJ-036	Dark gray and red carpet with yellow mastic	Entry way, between restrooms	Misc.	10	None Detected
8808.2-EJ-037	Blue and gray carpet with yellow mastic	Office 2; E wall	Misc.	11	None Detected
8808.2-EJ-038	Blue and gray carpet with yellow mastic	Office 1 – Conference room, W wall	Misc.	11	None Detected
8808.2-EJ-039	Blue and gray carpet with yellow mastic	Entry way; NW corner	Misc.	11	None Detected
8808.2-EJ-040	Wood square floor tile with white mastic and grout	Office 1 – Main office; N wall, W of door	Misc.	12	None Detected
8808.2-EJ-041	Wood square floor tile with white mastic and grout	Office 1 – Main office; N wall, W of door	Misc.	12	None Detected
8808.2-EJ-042	Wood square floor tile with dark yellow mastic	Office 2; N wall	Misc.	13	None Detected
8808.2-EJ-043	Wood square floor tile with dark yellow mastic	Office 2; N wall	Misc.	13	None Detected
8808.2-EJ-044	12-inch green and yellow SVT with yellow mastic	Office 1 – Main office, W wall under dark gray and red carpet	Misc.	14	None Detected
8808.2-EJ-045	12-inch green and yellow SVT with yellow mastic	Office 1 – Main office, W wall under dark gray and red carpet	Misc.	14	None Detected
8808.2-EJ-046	6-inch brown and white square pattern SVF with brown binder	Electric room hallway	Misc.	15	None Detected
8808.2-EJ-047	6-inch brown and white square pattern SVF with brown binder	Electric room hallway	Misc.	15	None Detected
8808.2-EJ-048	6-inch brown and white square pattern SVF with brown binder	Electric room hallway	Misc.	15	None Detected
8808.2-EJ-049	Red brick with white paint wall base with grout	Office 1 – Meeting room; NW corner	Misc.	16	None Detected

Sample	Material	Location	AHERA Type	HM	Result
8808.2-EJ-050	Red brick with white paint wall base with grout	Office 1 – Meeting room; N wall	Misc.	16	None Detected
8808.2-EJ-051	Gray wall base grout with white paint	Office 1 – Conference room; S wall	Misc.	17	None Detected
8808.2-EJ-052	Gray wall base grout with white paint	Office 1 – Conference room; E wall	Misc.	17	None Detected
8808.2-EJ-053	Black vinyl cove base with yellow mastic	Entry way office; SW corner	Misc.	18	None Detected
8808.2-EJ-054	Black vinyl cove base with yellow mastic	Entry way office; S wall	Misc.	18	None Detected
8808.2-EJ-055	Gray vinyl cove base with brown mastic	Office 2; SE corner	Misc.	19	None Detected
8808.2-EJ-056	Gray vinyl cove base with brown mastic	Office 2; E wall	Misc.	19	None Detected
8808.2-EJ-057	Tan cove base with yellow mastic	SE restroom; N wall	Misc.	20	None Detected
8808.2-EJ-058	Tan cove base with yellow mastic	SE restroom; NW corner	Misc.	20	None Detected
8808.2-EJ-059	Brown wall base sealant	Office 1 – Meeting room hallway; N wall	Misc.	21	None Detected
8808.2-EJ-060	Brown wall base sealant	Office 1 – Meeting room hallway; N wall	Misc.	21	None Detected
8808.2-EJ-061	Exterior window caulking	E side of building	Misc.	22	None Detected
8808.2-EJ-062	Exterior window caulking	E side of building	Misc.	22	None Detected
8808.2-EJ-063	Exterior window caulking	W side of building	Misc.	22	None Detected
8808.2-EJ-064	Wall insulation	Electrical room; E wall	Misc.	23	None Detected
8808.2-EJ-065	Wall insulation	Electrical room; E wall	Misc.	23	None Detected
8808.2-EJ-066	Wall insulation	Electrical room; E wall	Misc.	23	None Detected
8808.2-EJ-067	Wall VBP	Entry way; W wall above entrance	Misc.	24	None Detected
8808.2-EJ-068	Wall VBP	Entry way; NW corner above restrooms	Misc.	24	None Detected
8808.2-EJ-069	Wall VBP	Entry way; W wall	Misc.	24	None Detected
8808.2-EJ-070	Asphalt roof shingles and VBP	Shed; N end	Misc.	25	None Detected
8808.2-EJ-071	Asphalt roof shingles and VBP	Shed; S end	Misc.	25	None Detected
8808.2-EJ-072	Asphalt roof shingles and VBP	Shed; W side	Misc.	25	None Detected

Sample	Material	Location	AHERA Type	HM	Result
8808.2-EJ-073	Sprayed on yellow insulation	Shed; Ceiling	Surfacing	26	None Detected
8808.2-EJ-074	Sprayed on yellow insulation	Shed; W wall	Surfacing	26	None Detected
8808.2-EJ-075	Sprayed on yellow insulation	Shed; S door	Surfacing	26	None Detected
8808.2-EJ-076	Orange peel textured GWB system	SE restroom; N wall	Surfacing	03	None Detected

CHR = Chrysotile asbestos, E = East, GWB = gypsum wallboard, HM = homogeneous material, Misc. = miscellaneous, N = north, S = south, SE = southeast, SVF = sheet vinyl flooring, SW = southwest, TSI = thermal system insulation, TVF = tile vinyl flooring, VBP = vapor barrier paper, W = west.

Appendix D
SAT National Voluntary Laboratory Accreditation Program Certificate

United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 200768-0

Seattle Asbestos Test, LLC

Lynnwood, WA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2018-10-01 through 2019-09-30

Effective Dates

For the National Voluntary Laboratory Accreditation Program

Appendix E
Analytical Reports- Asbestos

SEATTLE ASBESTOS TEST, LLC
19711 Scriber Lake Rd. Suite D, Lynnwood, WA 98036
Tel: (425) 673-9850, Fax: (425) 673-9810 Website: seattleasbestostest.com

BATCH # 201813507

CHAIN OF CUSTODY

Analysis Type: Bulk Analysis X Point Count 400 ___ Point Count 1000 ___ Point Count Gravimetric ___

Turn Around Time 5 Day Number of Samples 76 Client Job # **8808.2**

Client Name **Med-Tox Northwest**

Address **Post Office Box 1446** City **Auburn** State **WA** Zip **98071-1446**

Phone **253-351-0677** Fax **253-351-0688** Email **havelockj@medtoxnw.com**

Project Location 12031 Northeast Totem Lake Way, Kirkland WA Project Manager Jon Havelock

Sample Condition: Good_____ Damaged_____ Severe Damage(Spillage)_____

SEQ#	SAMPLE ID	SAMPLE DESCRIPTION	Lab ID	Comment	A/R
1	8808.2-EJ-001				
2	Through				
3	8808.2- EJ-076				
4					
5					
6					
7		SEE ATTACHED TABLE			
8					
9					
10					
11					
12					
13					
14					
15					

	Print	Signature	Company Name	Date	Time
Sampled by	**Eric Jarvis**		**Med-Tox Northwest**	11/14/18	1400
Relinquished by	**Eric Jarvis**		**Med-Tox Northwest**	11/20/18	1300
Delivered by					
Received by	Sherlan Ma		SAT	11/21	9:50
Analyzed by	Curtis Yee	Curtis Yee	SAT	11/26/18	9:45
Result reported by					

Seattle Asbestos Test warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted, and disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. Seattle Asbestos Test accepts no legal responsibility for the purpose for which the client uses test results. By signing on this form, the clients agree to relieve Seattle Asbestos Test of any liability that may arise from the test results. Late payment may be charged of interest, invoices goes to collection causes 17-25% of collection fee. NSF is $50.

Result Reporting method: Phone_____, Fax_____, Email X, Pick Up Report_____

Table C-1. Summary of Materials Sampled for Asbestos

Sample	Material	Location	AHERA Type	HM	Result
Totem Lake Retail					
8808.2-EJ-001	Heavy Troweled Textured GWB system	Entry Way; S wall, W side	Surfacing	01	
8808.2-EJ-002	Heavy Troweled Textured GWB system	Entry way; S wall, E side	Surfacing	01	
8808.2-EJ-003	Heavy Troweled Textured GWB system	Office 1 – E Side Main Office, S wall	Surfacing	01	
8808.2-EJ-004	Heavy Troweled Textured GWB system	Office 1 – Main Office; W wall, center	Surfacing	01	
8808.2-EJ-005	Heavy Troweled Textured GWB system	Office 1 – Main Office, NE corner	Surfacing	01	
8808.2-EJ-006	Heavy Troweled Textured GWB system	Office 1 – W Side Main Office, E wall	Surfacing	01	
8808.2-EJ-007	Heavy Troweled Textured GWB system	Office 2; E wall	Surfacing	01	
8808.2-EJ-008	Heavy Troweled Textured GWB system	Office 2; W wall, NW corner	Surfacing	01	
8808.2-EJ-009	Heavy Troweled Textured GWB system	Office 2; S wall, center	Surfacing	01	
8808.2-EJ-010	Untextured GWB system	Entry way; S Wall	Surfacing	02	
8808.2-EJ-011	Untextured GWB system	Entry way, SE corner	Surfacing	02	
8808.2-EJ-012	Untextured GWB system	Office 1 – Main Office; N wall, center	Surfacing	02	
8808.2-EJ-013	Untextured GWB system	Office 1 – Main Office, N wall, NE corner	Surfacing	02	
8808.2-EJ-014	Untextured GWB system	Office 1 – W side Main Office; S wall	Surfacing	02	
8808.2-EJ-015	Orange peel textured GWB system	Office 1 – Conference room; N wall	Surfacing	03	
8808.2-EJ-016	Orange peel textured GWB system	Women's restroom; SW corner	Surfacing	03	

Sample	Material	Location	AHERA Type	HM	Result
8808.2-EJ-017	Orange peel textured GWB system	Men's restroom; SW corner	Surfacing	03	
8808.2-EJ-018	Orange peel textured GWB system	Entry way Office; N wall	Surfacing	03	
8808.2-EJ-019	Orange peel textured GWB system	Entry way Office; SW corner	Surfacing	03	
8808.2-EJ-020	Orange peel textured GWB system	Custodial closet; E wall	Surfacing	03	
8808.2-EJ-021	Orange peel textured GWB system	Custodial closet; N wall	Surfacing	03	
8808.2-EJ-022	White Textured Plastic Wall Board with Yellow mastic	Meeting room; NW wall.	Misc.	04	
8808.2-EJ-023	White Textured Plastic Wall Board with Yellow mastic	Meeting room; NW wall.	Misc.	04	
8808.2-EJ-024	White Textured Plastic Wall Board with Orange mastic	Meeting room hallway; N wall	Misc.	05	
8808.2-EJ-025	White Textured Plastic Wall Board with Orange mastic	Meeting room hallway; N wall	Misc.	05	
8808.2-EJ-026	White Textured Plastic Wall Board with brown mastic	Meeting room; NW corner, E wall.	Misc.	06	
8808.2-EJ-027	White Textured Plastic Wall Board with brown mastic	Meeting room; NW corner, E wall.	Misc.	06	
8808.2-EJ-028	3-inch brown wall tile with grout	Men's Restroom; NW corner	Misc.	07	
8808.2-EJ-029	3-inch brown wall tile with grout	Men's restroom; N wall	Misc.	07	
8808.2-EJ-030	3-inch brown wall tile with yellow mastic and green mastic	Men's Restroom; NW corner	Misc.	08	
8808.2-EJ-031	3-inch brown wall tile with yellow mastic and green mastic	Men's restroom; N wall	Misc.	08	
8808.2-EJ-032	6-inch red floor tile with grout	Men's restroom	Misc.	09	
8808.2-EJ-033	6-inch red floor tile with grout	Office 2; S wall	Misc.	09	

Sample	Material	Location	AHERA Type	HM	Result
8808.2-EJ-034	Dark gray and red carpet with yellow mastic	Office 2; E wall	Misc.	10	
8808.2-EJ-035	Dark gray and red carpet with yellow mastic	Office 1; E wall	Misc.	10	
8808.2-EJ-036	Dark gray and red carpet with yellow mastic	Entry way, between restrooms	Misc.	10	
8808.2-EJ-037	Blue and gray carpet with yellow mastic	Office 2; E wall	Misc.	11	
8808.2-EJ-038	Blue and gray carpet with yellow mastic	Office 1 – Conference room, W wall	Misc.	11	
8808.2-EJ-039	Blue and gray carpet with yellow mastic	Entry way; NW corner	Misc.	11	
8808.2-EJ-040	Wood square floor tile with white mastic and grout	Office 1 – Main office; N wall, W of door	Misc.	12	
8808.2-EJ-041	Wood square floor tile with white mastic and grout	Office 1 – Main office; N wall, W of door	Misc.	12	
8808.2-EJ-042	Wood square floor tile with dark yellow mastic	Office 2; N wall	Misc.	13	
8808.2-EJ-043	Wood square floor tile with dark yellow mastic	Office 2; N wall	Misc.	13	
8808.2-EJ-044	12-inch green and yellow SVT with yellow mastic	Office 1 – Main office, W wall under dark gray and red carpet	Misc.	14	
8808.2-EJ-045	12-inch green and yellow SVT with yellow mastic	Office 1 – Main office, W wall under dark gray and red carpet	Misc.	14	
8808.2-EJ-046	6-inch brown and white square pattern SVF with brown binder	Electric room hallway	Misc.	15	
8808.2-EJ-047	6-inch brown and white square pattern SVF with brown binder	Electric room hallway	Misc.	15	

Sample	Material	Location	AHERA Type	HM	Result
8808.2-EJ-048	6-inch brown and white square pattern SVF with brown binder	Electric room hallway	Misc.	15	
8808.2-EJ-049	Red brick with white paint wall base with grout	Office 1 – Meeting room; NW corner	Misc.	16	
8808.2-EJ-050	Red brick with white paint wall base with grout	Office 1 – Meeting room; N wall	Misc.	16	
8808.2-EJ-051	Gray wall base grout with white paint	Office 1 – Conference room; S wall	Misc.	17	
8808.2-EJ-052	Gray wall base grout with white paint	Office 1 – Conference room; E wall	Misc.	17	
8808.2-EJ-053	Black vinyl cove base with yellow mastic	Entry way office; SW corner	Misc.	18	
8808.2-EJ-054	Black vinyl cove base with yellow mastic	Entry way office; S wall	Misc.	18	
8808.2-EJ-055	Gray vinyl cove base with brown mastic	Office 2; SE corner	Misc.	19	
8808.2-EJ-056	Gray vinyl cove base with brown mastic	Office 2; E wall	Misc.	19	
8808.2-EJ-057	Tan cove base with yellow mastic	SE restroom; N wall	Misc.	20	
8808.2-EJ-058	Tan cove base with yellow mastic	SE restroom; NW corner	Misc.	20	
8808.2-EJ-059	Brown wall base sealant	Office 1 – Meeting room hallway; N wall	Misc.	21	
8808.2-EJ-060	Brown wall base sealant	Office 1 – Meeting room hallway; N wall	Misc.	21	
8808.2-EJ-061	Exterior window caulking	E side of building	Misc.	22	
8808.2-EJ-062	Exterior window caulking	E side of building	Misc.	22	
8808.2-EJ-063	Exterior window caulking	W side of building	Misc.	22	
8808.2-EJ-064	Wall insulation	Electrical room; E wall	Misc.	23	
8808.2-EJ-065	Wall insulation	Electrical room; E wall	Misc.	23	
8808.2-EJ-066	Wall insulation	Electrical room; E wall	Misc.	23	
8808.2-EJ-067	Wall VBP	Entry way; W wall above entrance	Misc.	24	

Sample	Material	Location	AHERA Type	HM	Result
8808.2-EJ-068	Wall VBP	Entry way; NW corner above restrooms	Misc.	24	
8808.2-EJ-069	Wall VBP	Entry way; W wall	Misc.	24	
8808.2-EJ-070	Asphalt roof shingles and VBP	Shed; N end	Misc.	25	
8808.2-EJ-071	Asphalt roof shingles and VBP	Shed; S end	Misc.	25	
8808.2-EJ-072	Asphalt roof shingles and VBP	Shed; W side	Misc.	25	
8808.2-EJ-073	Sprayed on yellow insulation	Shed; Ceiling	Surfacing	26	
8808.2-EJ-074	Sprayed on yellow insulation	Shed; W wall	Surfacing	26	
8808.2-EJ-075	Sprayed on yellow insulation	Shed; S door	Surfacing	26	
8808.2-EJ-076	Orange peel textured GWB system	SE restroom; N wall	Surfacing	03	

CHR = Chrysotile asbestos, E = East, GWB = gypsum wallboard, HM = homogeneous material, Misc. = miscellaneous, N = north, S = south, SE = southeast, SVF = sheet vinyl flooring, SW = southwest, TSI = thermal system insulation, TVF = tile vinyl flooring, VBP = vapor barrier paper, W = west.

SEATTLE ASBESTOS TEST

Lynnwood Laboratory: 19701 Scriber Lake Road, Suite 103, Lynnwood, WA 98036, Tel: 425.673.9850, Fax: 425.673.9810, NVLAP Lab Code: 200768-0

ANALYTICAL LABORATORY REPORT

PLM by Method EPA/600/R-93/116

Attn.: Mr. Jon Havelock
Client: Med-Tox, Northwest
Address: PO Box 1446, Auburn, WA 98071-1446
Job#: 8808.2
Batch#: 201813507
Date Received: 11/21/2018
Samples Rec'd: 76
Date Analyzed: 11/26/2018
Samples Analyzed: 76
Project Loc.: 12031 Northeast Totem Lake Way, Kirkland, WA

Analyzed by: Carolyn Yeo

Reviewed by: Steve (Fanyao) Zhang, President

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-fibrous Components	%	Non-asbestos Fibers
1	8808.2-EJ-001	1	White sandy/brittle material with paint		**None detected**	Sand, Filler, Binder, Paint	3	Cellulose
		2	Off-white powdery material with paper		**None detected**	Binder, Filler	20	Cellulose
2	8808.2-EJ-002	1	White/tan sandy/brittle material with paint		**None detected**	Sand, Filler, Binder, Paint	3	Cellulose
		2	Trace white powdery material with paper		**None detected**	Binder, Filler	16	Cellulose
3	8808.2-EJ-003	1	White sandy/brittle material with paint		**None detected**	Sand, Filler, Binder, Paint	2	Cellulose
4	8808.2-EJ-004	1	Tan sandy/brittle material with paint		**None detected**	Sand, Filler, Binder, Paint	2	Cellulose
		2	Trace off-white chalky material with paper		**None detected**	Binder/filler, Gypsum/binder	24	Cellulose
5	8808.2-EJ-005	1	White powdery material with paint		**None detected**	Binder, Filler, Paint	3	Cellulose
6	8808.2-EJ-006	1	Tan sandy/brittle material with paint		**None detected**	Sand, Filler, Binder, Paint	2	Cellulose
		2	White chalky material with paper		**None detected**	Binder/filler, Gypsum/binder	27	Cellulose
7	8808.2-EJ-007	1	Tan sandy/brittle material with paint		**None detected**	Sand, Filler, Binder, Paint	3	Cellulose
		2	White powdery material with paint and paper		**None detected**	Binder, Filler, Paint	21	Cellulose
		3	Trace white chalky material with paper		**None detected**	Binder/filler, Gypsum/binder	29	Cellulose
8	8808.2-EJ-008	1	Tan sandy/brittle material with paint		**None detected**	Sand, Filler, Binder, Paint	2	Cellulose
9	8808.2-EJ-009	1	White powdery material with paint		**None detected**	Binder, Filler, Paint	3	Cellulose
		2	Brown wood debris		**None detected**	Wood debris	5	Cellulose
10	8808.2-EJ-010	1	White chalky material with paint and paper		**None detected**	Binder/filler, Gypsum/binder	30	Cellulose, Glass fibers
11	8808.2-EJ-011	1	Trace white powdery material with paint and paper		**None detected**	Binder, Filler, Paint	24	Cellulose
		2	White chalky material with paper		**None detected**	Binder/filler, Gypsum/binder	21	Cellulose, Glass fibers
12	8808.2-EJ-012	1	White powdery material with paint and paper		**None detected**	Binder, Filler, Paint	25	Cellulose

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ANALYTICAL LABORATORY REPORT

PLM by Method EPA/600/R-93/116

Attn.: Mr. Jon Havelock
Client: Med-Tox, Northwest
Address: PO Box 1446, Auburn, WA 98071-1446
Job#: 8808.2
Batch#: 201813507
Date Received: 11/21/2018
Samples Rec'd: 76
Date Analyzed: 11/26/2018
Samples Analyzed: 76
Project Loc.: 12031 Northeast Totem Lake Way, Kirkland, WA

Analyzed by: Carolyn Yeo

Reviewed by: Steve (Fanyao) Zhang, President

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-fibrous Components	%	Non-asbestos Fibers
12	8808.2-EJ-012	2	White chalky material with paper		**None detected**	Binder/filler, Gypsum/binder	27	Cellulose, Glass fibers
13	8808.2-EJ-013	1	White chalky material with paint and paper		**None detected**	Binder/filler, Gypsum/binder	30	Cellulose, Glass fibers
14	8808.2-EJ-014	1	White powdery material with paper		**None detected**	Binder, Filler	23	Cellulose
		2	White chalky material with paper		**None detected**	Binder/filler, Gypsum/binder	21	Cellulose, Glass fibers
15	8808.2-EJ-015	1	White powdery material with paint		**None detected**	Binder, Filler, Paint	2	Cellulose
		2	Trace white chalky material with paper		**None detected**	Binder/filler, Gypsum/binder	28	Cellulose
16	8808.2-EJ-016	1	White powdery material with paint and paper		**None detected**	Binder, Filler, Paint	22	Cellulose
		2	White chalky material with paper		**None detected**	Binder/filler, Gypsum/binder	23	Cellulose, Glass fibers
17	8808.2-EJ-017	1	White powdery material with paint and paper		**None detected**	Binder, Filler, Paint	26	Cellulose
		2	White chalky material with paper		**None detected**	Binder/filler, Gypsum/binder	21	Cellulose, Glass fibers
18	8808.2-EJ-018	1	White powdery material with paint and paper		**None detected**	Binder, Filler, Paint	23	Cellulose
		2	White chalky material with paper		**None detected**	Binder/filler, Gypsum/binder	25	Cellulose, Glass fibers
19	8808.2-EJ-019	1	White powdery material with paint and paper		**None detected**	Binder, Filler, Paint	28	Cellulose
		2	White chalky material with paper		**None detected**	Binder/filler, Gypsum/binder	22	Cellulose, Glass fibers
20	8808.2-EJ-020	1	White powdery material with paint and paper		**None detected**	Binder, Filler, Paint	24	Cellulose
		2	White chalky material with paper		**None detected**	Binder/filler, Gypsum/binder	29	Cellulose
21	8808.2-EJ-021	1	White powdery material with paint and paper		**None detected**	Binder, Filler, Paint	27	Cellulose
		2	White chalky material with paper		**None detected**	Binder/filler, Gypsum/binder	20	Cellulose
22	8808.2-EJ-022	1	White hard material with paint		**None detected**	Binder, Filler, Paint	34	Cellulose, Glass fibers
		2	Trace clear soft/elastic material with paint		**None detected**	Binder, Filler, Paint	2	Cellulose

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ANALYTICAL LABORATORY REPORT

PLM by Method EPA/600/R-93/116

Attn.: Mr. Jon Havelock **Client:** Med-Tox, Northwest **Address:** PO Box 1446, Auburn, WA 98071-1446

Job#: 8808.2 **Batch#:** 201813507 **Date Received:** 11/21/2018

Samples Rec'd: 76 **Date Analyzed:** 11/26/2018 **Samples Analyzed:** 76

Project Loc.: 12031 Northeast Totem Lake Way, Kirkland, WA

Analyzed by: Carolyn Yeo Reviewed by: Steve (Fanyao) Zhang, President

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-fibrous Components	%	Non-asbestos Fibers
22	8808.2-EJ-022	3	Yellow mastic		**None detected**	Mastic/binder	3	Cellulose
23	8808.2-EJ-023	1	Yellow mastic		**None detected**	Mastic/binder	2	Cellulose
		2	Trace white brittle material		**None detected**	Binder, Filler	2	Cellulose
		3	Trace off-white chalky material with paper		**None detected**	Binder/filler, Gypsum/binder	15	Cellulose, Glass fibers
24	8808.2-EJ-024	1	Yellow mastic		**None detected**	Mastic/binder	3	Cellulose
		2	Brown fibrous material		**None detected**	Filler	77	Cellulose
25	8808.2-EJ-025	1	White hard material with paint		**None detected**	Binder, Filler, Paint	38	Cellulose, Glass fibers
		2	Yellow mastic		**None detected**	Mastic/binder	2	Cellulose
		3	Brown fibrous material		**None detected**	Filler	71	Cellulose
26	8808.2-EJ-026	1	Brown mastic		**None detected**	Mastic/binder	3	Cellulose
		2	Brown fibrous material		**None detected**	Filler	76	Cellulose
27	8808.2-EJ-027	1	Brown mastic		**None detected**	Mastic/binder	2	Cellulose
		2	Brown fibrous material		**None detected**	Filler	79	Cellulose
28	8808.2-EJ-028	1	Brown ceramic		**None detected**	Ceramic/binder		None detected
		2	Brown sandy/brittle material		**None detected**	Sand, Filler, Binder	3	Cellulose
		3	Yellow mastic		**None detected**	Mastic/binder	2	Cellulose
		4	Brown/green fibrous material		**None detected**	Filler	74	Cellulose
29	8808.2-EJ-029	1	Brown ceramic		**None detected**	Ceramic/binder		None detected
		2	Brown sandy/brittle material		**None detected**	Sand, Filler, Binder	2	Cellulose
		3	Yellow mastic		**None detected**	Mastic/binder	2	Cellulose
		4	Brown/green fibrous material		**None detected**	Filler	78	Cellulose
30	8808.2-EJ-030	1	Brown ceramic		**None detected**	Ceramic/binder		None detected
		2	White woven fibrous material		**None detected**	Filler	86	synthetic fibers
		3	Yellow mastic		**None detected**	Mastic/binder	3	Cellulose

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ANALYTICAL LABORATORY REPORT

PLM by Method EPA/600/R-93/116

Attn.: Mr. Jon Havelock
Client: Med-Tox, Northwest
Address: PO Box 1446, Auburn, WA 98071-1446
Job#: 8808.2
Batch#: 201813507
Date Received: 11/21/2018
Samples Rec'd: 76
Date Analyzed: 11/26/2018
Samples Analyzed: 76
Project Loc.: 12031 Northeast Totem Lake Way, Kirkland, WA

Analyzed by: Carolyn Yeo

Reviewed by: Steve (Fanyao) Zhang, President

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-fibrous Components	%	Non-asbestos Fibers
30	8808.2-EJ-030	4	Brown/green fibrous material		**None detected**	Filler	72	Cellulose
31	8808.2-EJ-031	1	Brown ceramic		**None detected**	Ceramic/binder		None detected
		2	Yellow mastic		**None detected**	Mastic/binder	3	Cellulose
		3	Brown/green fibrous material		**None detected**	Filler	75	Cellulose
32	8808.2-EJ-032	1	Red ceramic		**None detected**	Ceramic/binder		None detected
		2	Gray sandy/brittle material		**None detected**	Sand, Filler, Binder	2	Cellulose
33	8808.2-EJ-033	1	Red ceramic		**None detected**	Ceramic/binder		None detected
		2	Gray sandy/brittle material		**None detected**	Sand, Filler, Binder	3	Cellulose
34	8808.2-EJ-034	1	Multi-colored woven fibrous material		**None detected**	Filler	89	Synthetic fibers
		2	Off-white mastic		**None detected**	Mastic/binder	2	Cellulose
		3	Clear woven plastic		**None detected**	Plastic		None detected
		4	Yellow mastic		**None detected**	Mastic/binder	3	Cellulose
35	8808.2-EJ-035	1	Multi-colored woven fibrous material		**None detected**	Filler	87	Synthetic fibers
		2	Off-white mastic		**None detected**	Mastic/binder	3	Cellulose
		3	Clear woven plastic		**None detected**	Plastic		None detected
		4	Yellow mastic		**None detected**	Mastic/binder	3	Cellulose
36	8808.2-EJ-036	1	Multi-colored woven fibrous material		**None detected**	Filler	88	Synthetic fibers
		2	Off-white mastic		**None detected**	Mastic/binder	2	Cellulose
		3	Clear woven plastic		**None detected**	Plastic		None detected
		4	Yellow mastic		**None detected**	Mastic/binder	2	Cellulose
37	8808.2-EJ-037	1	Blue/gray woven fibrous material		**None detected**	Filler	85	Synthetic fibers
		2	Off-white mastic		**None detected**	Mastic/binder	3	Cellulose
		3	Clear woven plastic		**None detected**	Plastic		None detected

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ANALYTICAL LABORATORY REPORT

PLM by Method EPA/600/R-93/116

Attn.: Mr. Jon Havelock **Client:** Med-Tox, Northwest **Address:** PO Box 1446, Auburn, WA 98071-1446

Job#: 8808.2 **Batch#:** 201813507 **Date Received:** 11/21/2018

Samples Rec'd: 76 **Date Analyzed:** 11/26/2018 **Samples Analyzed:** 76

Project Loc.: 12031 Northeast Totem Lake Way, Kirkland, WA

Analyzed by: Carolyn Yeo Reviewed by: Steve (Fanyao) Zhang, President

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-fibrous Components	%	Non-asbestos Fibers
37	8808.2-EJ-037	4	Yellow mastic		None detected	Mastic/binder	2	Cellulose
38	8808.2-EJ-038	1	Blue/gray woven fibrous material		None detected	Filler	85	Synthetic fibers
		2	Off-white mastic		None detected	Mastic/binder	3	Cellulose
		3	Clear woven plastic		None detected	Plastic		None detected
		4	Yellow mastic		None detected	Mastic/binder	2	Cellulose
39	8808.2-EJ-039	1	Blue/gray woven fibrous material		None detected	Filler	84	Synthetic fibers
		2	Black/gray rubbery material		None detected	Rubber/binder	2	Cellulose
		3	Yellow mastic		None detected	Mastic/binder	3	Cellulose
40	8808.2-EJ-040	1	Brown wood block		None detected	Wood aggregates	5	Cellulose
		2	Yellow/white mastic		None detected	Mastic/binder	2	Cellulose
		3	Gray brittle material		None detected	Binder, Filler	3	Cellulose
41	8808.2-EJ-041	1	Brown wood block		None detected	Wood aggregates	6	Cellulose
		2	Yellow/white mastic		None detected	Mastic/binder	3	Cellulose
		3	Gray brittle material		None detected	Binder, Filler	2	Cellulose
42	8808.2-EJ-042	1	Brown wood block		None detected	Wood aggregates	7	Cellulose
		2	Yellow mastic		None detected	Mastic/binder	2	Cellulose
43	8808.2-EJ-043	1	Brown wood block		None detected	Wood aggregates	6	Cellulose
		2	Yellow mastic		None detected	Mastic/binder	3	Cellulose
44	8808.2-EJ-044	1	Yellow mastic		None detected	Mastic/binder	2	Cellulose
		2	White tile		None detected	Vinyl/binder, Mineral grains	2	Cellulose
		3	Yellow mastic		None detected	Mastic/binder	3	Cellulose
		4	Brown wood debris		None detected	Wood debris	5	Cellulose
45	8808.2-EJ-045	1	Yellow mastic		None detected	Mastic/binder	3	Cellulose
		2	Green/black tile		None detected	Vinyl/binder, Mineral grains	3	Cellulose

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ANALYTICAL LABORATORY REPORT

PLM by Method EPA/600/R-93/116

Attn.: Mr. Jon Havelock
Client: Med-Tox, Northwest
Address: PO Box 1446, Auburn, WA 98071-1446
Job#: 8808.2
Batch#: 201813507
Date Received: 11/21/2018
Samples Rec'd: 76
Date Analyzed: 11/26/2018
Samples Analyzed: 76
Project Loc.: 12031 Northeast Totem Lake Way, Kirkland, WA

Analyzed by: Carolyn Yeo

Reviewed by: Steve (Fanyao) Zhang, President

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-fibrous Components	%	Non-asbestos Fibers
45	8808.2-EJ-045	3	Yellow mastic		**None detected**	Mastic/binder	2	Cellulose
		4	Trace white brittle material		**None detected**	Binder, Filler	3	Cellulose
		5	Brown wood debris		**None detected**	Wood debris	4	Cellulose
46	8808.2-EJ-046	1	Brown/tan sheet vinyl		**None detected**	Vinyl/binder		None detected
		2	Tan fibrous material with mastic		**None detected**	Binder/filler, Mastic/binder	64	Cellulose
		3	Gray brittle material		**None detected**	Binder, Filler	2	Cellulose
47	8808.2-EJ-047	1	Brown/tan sheet vinyl		**None detected**	Vinyl/binder		None detected
		2	Tan fibrous material with mastic		**None detected**	Binder/filler, Mastic/binder	68	Cellulose
		3	Gray brittle material with trace paint		**None detected**	Binder, Filler, Paint	3	Cellulose
48	8808.2-EJ-048	1	Brown/white sheet vinyl		**None detected**	Vinyl/binder		None detected
		2	Tan fibrous material with mastic		**None detected**	Binder/filler, Mastic/binder	63	Cellulose
		3	Gray brittle material		**None detected**	Binder, Filler	2	Cellulose
49	8808.2-EJ-049	1	Red sandy/brittle material with paint		**None detected**	Sand, Filler, Binder, Paint	3	Cellulose
		2	Gray sandy/brittle material		**None detected**	Sand, Filler, Binder	2	Cellulose
50	8808.2-EJ-050	1	Red sandy/brittle material with paint		**None detected**	Sand, Filler, Binder, Paint	2	Cellulose
		2	Gray sandy/brittle material		**None detected**	Sand, Filler, Binder	2	Cellulose
51	8808.2-EJ-051	1	Gray sandy/brittle material with paint		**None detected**	Sand, Binder, Filler, Paint	3	Cellulose
52	8808.2-EJ-052	1	Gray sandy/brittle material with paint		**None detected**	Sand, Binder, Filler, Paint	3	Cellulose
53	8808.2-EJ-053	1	Black rubbery material		**None detected**	Rubber/binder	2	Cellulose
		2	Yellow mastic with paint		**None detected**	Mastic/binder, Paint	2	Cellulose
		3	White brittle material with paint		**None detected**	Binder, Filler, Paint	3	Cellulose
54	8808.2-EJ-054	1	Black rubbery material		**None detected**	Rubber/binder	2	Cellulose
		2	Yellow mastic with paint		**None detected**	Mastic/binder, Paint	3	Cellulose

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ANALYTICAL LABORATORY REPORT

PLM by Method EPA/600/R-93/116

Attn.: Mr. Jon Havelock
Client: Med-Tox, Northwest
Address: PO Box 1446, Auburn, WA 98071-1446
Job#: 8808.2
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Analyzed by: Carolyn Yeo
Reviewed by: Steve (Fanyao) Zhang, President

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-fibrous Components	%	Non-asbestos Fibers
54	8808.2-EJ-054	3	White brittle material with paint		**None detected**	Binder, Filler, Paint	2	Cellulose
55	8808.2-EJ-055	1	Gray rubbery material		**None detected**	Rubber/binder	3	Cellulose
		2	Brown/yellow mastic		**None detected**	Mastic/binder	2	Cellulose
		3	Brown fibrous material		**None detected**	Filler	70	Cellulose
56	8808.2-EJ-056	1	Gray rubbery material		**None detected**	Rubber/binder	3	Cellulose
		2	Brown/yellow mastic		**None detected**	Mastic/binder	2	Cellulose
		3	Trace white powdery material with paper		**None detected**	Binder, Filler	25	Cellulose
		4	Trace white chalky material with paper		**None detected**	Binder/filler, Gypsum/binder	27	Cellulose
57	8808.2-EJ-057	1	Tan/pink rubbery material		**None detected**	Rubber/binder	3	Cellulose
		2	Yellow mastic		**None detected**	Mastic/binder	3	Cellulose
58	8808.2-EJ-058	1	Tan/pink rubbery material		**None detected**	Rubber/binder	2	Cellulose
		2	Yellow mastic		**None detected**	Mastic/binder	3	Cellulose
59	8808.2-EJ-059	1	Brown sandy/brittle material with paint		**None detected**	Sand, Filler, Binder, Paint	2	Cellulose
60	8808.2-EJ-060	1	Brown sandy/brittle material with paint		**None detected**	Sand, Filler, Binder, Paint	3	Cellulose
61	8808.2-EJ-061	1	Gray/clear soft/elastic material		**None detected**	Binder, Filler	2	Cellulose
62	8808.2-EJ-062	1	Gray/clear soft/elastic material with paint		**None detected**	Binder, Filler, Paint	2	Cellulose
		2	Brown wood debris		**None detected**	Wood debris	4	Cellulose
63	8808.2-EJ-063	1	White soft/elastic material with paint		**None detected**	Binder, Filler, Paint	3	Cellulose
64	8808.2-EJ-064	1	Tan paper		**None detected**	Filler	81	Cellulose
		2	Pink fibrous material		**None detected**	Filler	90	Glass fibers
65	8808.2-EJ-065	1	Tan paper		**None detected**	Filler	86	Cellulose
		2	Pink fibrous material		**None detected**	Filler	93	Glass fibers
66	8808.2-EJ-066	1	Pink/brown fibrous material		**None detected**	Filler	87	Glass fibers

SEATTLE ASBESTOS TEST

Lynnwood Laboratory: 19701 Scriber Lake Road, Suite 103, Lynnwood, WA 98036, Tel: 425.673.9850, Fax: 425.673.9810, NVLAP Lab Code: 200768-0

ANALYTICAL LABORATORY REPORT

PLM by Method EPA/600/R-93/116

Attn.: Mr. Jon Havelock
Client: Med-Tox, Northwest
Address: PO Box 1446, Auburn, WA 98071-1446
Job#: 8808.2
Batch#: 201813507
Date Received: 11/21/2018
Samples Rec'd: 76
Date Analyzed: 11/26/2018
Samples Analyzed: 76
Project Loc.: 12031 Northeast Totem Lake Way, Kirkland, WA

Analyzed by: Carolyn Yeo

Reviewed by: Steve (Fanyao) Zhang, President

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-fibrous Components	%	Non-asbestos Fibers
67	8808.2-EJ-067	1	Black asphaltic fibrous material		**None detected**	Asphalt/binder, Filler/binder	64	Cellulose
68	8808.2-EJ-068	1	Black asphaltic fibrous material		**None detected**	Asphalt/binder, Filler/binder	68	Cellulose
69	8808.2-EJ-069	1	Black asphaltic fibrous material		**None detected**	Asphalt/binder, Filler/binder	61	Cellulose
70	8808.2-EJ-070	1	Black asphaltic material with sand		**None detected**	Asphalt/binder, Sand	24	Glass fibers
		2	Trace black asphaltic material		**None detected**	Asphalt, Binder	2	Cellulose
		3	Black asphaltic material with sand		**None detected**	Asphalt/binder, Sand	27	Glass fibers
		4	Black asphaltic material		**None detected**	Asphalt, Binder	3	Cellulose
		5	Clear plastic		**None detected**	Plastic		None detected
		6	Black asphaltic fibrous material		**None detected**	Asphalt/binder, Filler/binder	63	Cellulose
71	8808.2-EJ-071	1	Black asphaltic material with sand		**None detected**	Asphalt/binder, Sand	21	Glass fibers
		2	Red paint		**None detected**	Filler, Paint	2	Cellulose
		3	Black asphaltic material		**None detected**	Asphalt, Binder	3	Cellulose
		4	Clear plastic		**None detected**	Plastic		None detected
		5	Black asphaltic fibrous material		**None detected**	Asphalt/binder, Filler/binder	65	Cellulose
		6	Trace brown wood debris		**None detected**	Wood debris	4	Cellulose
72	8808.2-EJ-072	1	Black asphaltic material with sand		**None detected**	Asphalt/binder, Sand	25	Glass fibers
		2	Black asphaltic material		**None detected**	Asphalt, Binder	2	Cellulose
		3	Clear plastic		**None detected**	Plastic		None detected
		4	Black asphaltic fibrous material		**None detected**	Asphalt/binder, Filler/binder	67	Cellulose
		5	Trace brown wood debris		**None detected**	Wood debris	5	Cellulose
73	8808.2-EJ-073	1	Yellow foamy material		**None detected**	Foam		None detected
		2	Yellow mastic		**None detected**	Mastic/binder	2	Cellulose
74	8808.2-EJ-074	1	Yellow foamy material		**None detected**	Foam		None detected
		2	Yellow mastic		**None detected**	Mastic/binder	3	Cellulose

SEATTLE ASBESTOS TEST

Lynnwood Laboratory: 19701 Scriber Lake Road, Suite 103, Lynnwood, WA 98036, Tel: 425.673.9850, Fax: 425.673.9810, NVLAP Lab Code: 200768-0

ANALYTICAL LABORATORY REPORT

PLM by Method EPA/600/R-93/116

Attn.: Mr. Jon Havelock
Client: Med-Tox, Northwest
Address: PO Box 1446, Auburn, WA 98071-1446
Job#: 8808.2
Batch#: 201813507
Date Received: 11/21/2018
Samples Rec'd: 76
Date Analyzed: 11/26/2018
Samples Analyzed: 76
Project Loc.: 12031 Northeast Totem Lake Way, Kirkland, WA

Analyzed by: Carolyn Yeo

Reviewed by: Steve (Fanyao) Zhang, President

Lab ID	Client Sample ID	Layer	Description	%	**Asbestos Fibers**	Non-fibrous Components	%	Non-asbestos Fibers
75	8808.2-EJ-075	1	Yellow foamy material		**None detected**	Foam		None detected
		2	Yellow mastic		**None detected**	Mastic/binder	2	Cellulose
76	8808.2-EJ-076	1	White powdery material with paint		**None detected**	Binder, Filler, Paint	3	Cellulose

Appendix F
Analytical Report- Lead

EMSL Analytical, Inc.
6340 CastlePlace Dr., Indianapolis, IN 46250
Phone/Fax: (317) 803-2997 / (317) 803-3047
http://www.EMSL.com indianapolislab@emsl.com

EMSL Order:	161823205
CustomerID:	MEDT50
CustomerPO:	
ProjectID:	

Attn: **Jon A. Havelock**
Med-Tox Northwest
PO Box 1446
Auburn, WA 98071

Phone: (253) 351-0677
Fax: (253) 351-0688
Received: 11/21/18 10:00 AM
Collected: 11/14/2018

Project: **Totem Lake / 8808.2**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

Client Sample	*Description*	*Collected*	*Analyzed*	*Weight*	*RDL*	*Lead* **Concentration**
8808.2 - EJ - 01PB *161823205-0001*	Site: TOTEM LAKE RETAIL - ENTRY WAY; S WALL - WALL - GWB - BEIGE	11/14/2018	11/27/2018	0.213 g	94 ppm	<94 ppm
8808.2 - EJ - 02PB *161823205-0002*	Site: TOTEM LAKE RETAIL - OFFICE 2; W WALL - WALL - GWB - GREEN	11/14/2018	11/27/2018	0.2208 g	91 ppm	<91 ppm
8808.2 - EJ - 03PB *161823205-0003*	Site: TOTEM LAKE RETAIL - CUSTODIAL CLOSET; S WALL - WALL - GWB - WHITE	11/14/2018	11/27/2018	0.2082 g	96 ppm	<96 ppm
8808.2 - EJ - 04PB *161823205-0004*	Site: TOTEM LAKE RETAIL - ENTRY WAY; W WALL - SIDING - WOOD - BROWN	11/14/2018	11/27/2018	0.2353 g	85 ppm	<85 ppm
8808.2 - EJ - 05PB *161823205-0005*	Site: TOTEM LAKE RETAIL - ENTRY WAY; N WALL - SIDING - WOOD - GRAY	11/14/2018	11/27/2018	0.2194 g	91 ppm	<91 ppm
8808.2 - EJ - 06PB *161823205-0006*	Site: TOTEM LAKE RETAIL - ENTRY WAY - 2ND LEVEL; N WALL - SIDING - WOOD - TAN	11/14/2018	11/27/2018	0.2327 g	86 ppm	<86 ppm
8808.2 - EJ - 07PB *161823205-0007*	Site: EXTERIOR - E WALL - WINDOW - WOOD - WHITE	11/14/2018	11/27/2018	0.2449 g	82 ppm	<82 ppm
8808.2 - EJ - 08PB *161823205-0008*	Site: EXTERIOR - W WALL - SIDING - WOOD - RED	11/14/2018	11/27/2018	0.2276 g	88 ppm	<88 ppm
8808.2 - EJ - 09PB *161823205-0009*	Site: EXTERIOR - DOOR FRAME - TRIM - WOOD - DARK RED	11/14/2018	11/27/2018	0.2253 g	89 ppm	<89 ppm

Doug Wiegand, Laboratory Manager
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Analytical, Inc. Indianapolis, IN AIHA-LAP, LLC--ELLAP 157245, OH E10040

Initial report from 11/27/2018 14:35:50

Lead (Pb) Chain of Custody

EMSL Order ID *(Lab Use Only)*: 161823205

PHONE:
FAX:

Company: Med-Tox Northwest	**EMSL-Bill to:** ☐ Different ☒ Same If Bill to is Different note instructions in Comments**
Street: PO Box 1446	*Third Party Billing requires written authorization from third party*
City: Auburn **State/Province:** WA	**Zip/Postal Code:** 98071 **Country:** US
Report To (Name): Jon Havelock	**Telephone #:** 253-351-0677
Email Address: havelockj@medtoxnw.com; jarvise@medtoxnw.com	**Fax #:** 253-351-0688 **Purchase Order:**
Project Name/Number: Totem Lake / 8808.2	**Please Provide Results:** ☐ FAX ☒ E-mail ☐ Mail
U.S. State Samples Taken: WA	**CT Samples:** ☐ Commercial/Taxable ☐ Residential/Tax Exempt

Turnaround Time (TAT) Options* - Please Check

☐ 3 Hour ☐ 6 Hour ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 96 Hour ☒ 1 Week ☐ 2 Week

**Analysis completed in accordance with EMSL's Terms and Conditions located in the Price Guide*

Matrix	Method	Instrument	Reporting Limit	Check
Chips ☐ % by wt. ☐ mg/cm² ☒ ppm	SW846-7000B	Flame Atomic Absorption	0.01%	☒
Air	NIOSH 7082	Flame Atomic Absorption	4 µg/filter	☐
	NIOSH 7105	Graphite Furnace AA	0.03 µg/filter	☐
	NIOSH 7300 modified	ICP-AES/ICP-MS	0.5 µg/filter	☐
Wipe* ASTM ☐ non ASTM ☐ *if no box is checked, non-ASTM Wipe is assumed	SW846-7000B	Flame Atomic Absorption	10 µg/wipe	☐
	SW846-6010B or C	ICP-AES	1.0 µg/wipe	☐
	SW846-7000B/7010	Graphite Furnace AA	0.075 µg/wipe	☐
TCLP	SW846-1311/7000B/SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	SW846-1131/SW846-6010B or C	ICP-AES	0.1 mg/L (ppm)	☐
Soil	SW846-7000B	Flame Atomic Absorption	40 mg/kg (ppm)	☐
	SW846-7010	Graphite Furnace AA	0.3 mg/kg (ppm)	☐
	SW846-6010B or C	ICP-AES	2 mg/kg (ppm)	☐
Wastewater Unpreserved ☐ Preserved with HNO_3 pH < 2 ☐	SM3111B/SW846-7000B	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)	☐
	EPA 200.7	ICP-AES	0.020 mg/L (ppm)	☐
Drinking Water Unpreserved ☐ Preserved with HNO_3 pH < 2 ☐	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)	☐
	EPA 200.8	ICP-MS	0.001 mg/L (ppm)	☐
TSP/SPM Filter	40 CFR Part 50	ICP-AES	12 µg/filter	☐
	40 CFR Part 50	Graphite Furnace AA	3.6 µg/filter	☐
Other:				☐

Name of Sampler: Eric Jarvis **Signature of Sampler:**

Sample #	Location	Volume/Area	Date/Time Sampled
8808.2-EJ-01Pb	See attached Table		11-14-18 / 1500
Through			
8808.2-EJ-09Pb			

Client Sample #'s	-8808.2-EJ-01Pb to 09Pb			**Total # of Samples:**	9
Relinquished (Client):	[signature]	**Date:**	11/20/18	**Time:**	12:30
Received (Lab):	Carolyn McD	**Date:**	11.21.18	**Time:**	10:00 EFx
Comments:					

161823205

Table 3. Summary of Bulk Paint Chip Sample Results

Sample Number	Location	Component	Substrate	Color	Result (ppm)
Totem Lake Retail					
8808.2-EJ-01Pb	Entry way; S wall	Wall	GWB	Beige	
8808.2-EJ-02Pb	Office 2; W wall	Wall	GWB	Green	
8808.2-EJ-03Pb	Custodial closet; S wall	Wall	GWB	White	
8808.2-EJ-04Pb	Entry way; W wall	Siding	Wood	Brown	
8808.2-EJ-05Pb	Entry way; N wall	Siding	Wood	Gray	
8808.2-EJ-06Pb	Entry way – 2nd level; N wall	Siding	Wood	Tan	
Exterior					
8808.2-EJ-07Pb	E Wall	Window	Wood	White	
8808.2-EJ-08Pb	W wall	Siding	Wood	Red	
8808.2-EJ-09Pb	Door frame	Trim	Wood	Dark Red	

GWB = gypsum wallboard, ppm = parts per million. **Bolded values** – bulk paint chip samples with lead detected above the laboratory reporting limit have been bolded. The Washington Industrial Safety and Health Administration (WISHA) worker protection regulations have stated that lead at any detectable concentration shall be considered regulated (Washington Administrative Code [WAC] 296-155-176, Lead.

2 OF 2

Appendix G
EMSL Analytical, Inc. Laboratory Certifications

AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

6340 Castleplace Drive, Indianapolis, IN 46250

Laboratory ID: 157245

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

✓	**INDUSTRIAL HYGIENE**	Accreditation Expires: June 01, 2019
✓	**ENVIRONMENTAL LEAD**	Accreditation Expires: June 01, 2019
✓	**ENVIRONMENTAL MICROBIOLOGY**	Accreditation Expires: June 01, 2019
☐	**FOOD**	Accreditation Expires:
☐	**UNIQUE SCOPES**	Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

William Walsh, CIH
Chairperson, Analytical Accreditation Board

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 15: 03/30/2016

Date Issued: 05/31/2017

AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

EMSL Analytical, Inc.
6340 Castleplace Drive, Indianapolis, IN 46250

Laboratory ID: **157245**
Issue Date: 05/31/2017

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

The EPA recognizes the AIHA-LAP, LLC ELLAP program as meeting the requirements of the National Lead Laboratory Accreditation Program (NLLAP) established under Title X of the Residential Lead-Based Paint Hazard Reduction Act of 1992 and includes paint, soil and dust wipe analysis. Air and composited wipes analyses are not included as part of the NLLAP.

Environmental Lead Laboratory Accreditation Program (ELLAP)

Initial Accreditation Date: 09/01/2002

Field of Testing (FoT)	Technology sub-type/ Detector	Method	Method Description (*for internal methods only*)
Paint		EPA SW-846 3050B	
		EPA SW-846 3051A	
		EPA SW-846 7000B	
Soil		EPA SW-846 3050B	
		EPA SW-846 3051A	
		EPA SW-846 7000B	
Settled Dust by Wipe		EPA SW-846 3050B	
		EPA SW-846 3051A	
		EPA SW-846 7000B	
Airborne Dust		NIOSH 7082	

A complete listing of currently accredited Environmental Lead laboratories is available on the AIHA-LAP, LLC website at: http://www.aihaaccreditedlabs.org

Appendix H
Analytical Results – PCBs

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

November 28, 2018

Jon Havelock
MED-TOX
P.O. Box 1146
Auburn, WA 98071

Re: Analytical Data for Project 8808.2
Laboratory Reference No. 1811-194

Dear Jon:

Enclosed are the analytical results and associated quality control data for samples submitted on November 21, 2018.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: November 28, 2018
Samples Submitted: November 21, 2018
Laboratory Reference: 1811-194
Project: 8808.2

Case Narrative

Samples were collected on November 14, 2018 and received by the laboratory on November 21, 2018. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: November 28, 2018
Samples Submitted: November 21, 2018
Laboratory Reference: 1811-194
Project: 8808.2

PCBs EPA 8082A

Matrix: Solid
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**8808.2-EJ-01PCB**					
Laboratory ID:	11-194-01					
Aroclor 1016	**ND**	9.1	EPA 8082A	11-26-18	11-26-18	
Aroclor 1221	**ND**	9.1	EPA 8082A	11-26-18	11-26-18	
Aroclor 1232	**ND**	9.1	EPA 8082A	11-26-18	11-26-18	
Aroclor 1242	**ND**	9.1	EPA 8082A	11-26-18	11-26-18	
Aroclor 1248	**ND**	9.1	EPA 8082A	11-26-18	11-26-18	
Aroclor 1254	**ND**	9.1	EPA 8082A	11-26-18	11-26-18	
Aroclor 1260	**ND**	9.1	EPA 8082A	11-26-18	11-26-18	
Surrogate:	***Percent Recovery***	***Control Limits***				
DCB	***87***	***39-130***				
Client ID:	**8808.2-EJ-02PCB**					
Laboratory ID:	11-194-02					
Aroclor 1016	**ND**	1.5	EPA 8082A	11-26-18	11-26-18	
Aroclor 1221	**ND**	1.5	EPA 8082A	11-26-18	11-26-18	
Aroclor 1232	**ND**	1.5	EPA 8082A	11-26-18	11-26-18	
Aroclor 1242	**ND**	1.5	EPA 8082A	11-26-18	11-26-18	
Aroclor 1248	**ND**	1.5	EPA 8082A	11-26-18	11-26-18	
Aroclor 1254	**ND**	1.5	EPA 8082A	11-26-18	11-26-18	
Aroclor 1260	**ND**	1.5	EPA 8082A	11-26-18	11-26-18	
Surrogate:	***Percent Recovery***	***Control Limits***				
DCB	***92***	***39-130***				
Client ID:	**8808.2-EJ-03PCB**					
Laboratory ID:	11-194-03					
Aroclor 1016	**ND**	4.8	EPA 8082A	11-26-18	11-26-18	
Aroclor 1221	**ND**	4.8	EPA 8082A	11-26-18	11-26-18	
Aroclor 1232	**ND**	4.8	EPA 8082A	11-26-18	11-26-18	
Aroclor 1242	**ND**	4.8	EPA 8082A	11-26-18	11-26-18	
Aroclor 1248	**ND**	4.8	EPA 8082A	11-26-18	11-26-18	
Aroclor 1254	**ND**	4.8	EPA 8082A	11-26-18	11-26-18	
Aroclor 1260	**ND**	4.8	EPA 8082A	11-26-18	11-26-18	
Surrogate:	***Percent Recovery***	***Control Limits***				
DCB	***93***	***39-130***				

Date of Report: November 28, 2018
Samples Submitted: November 21, 2018
Laboratory Reference: 1811-194
Project: 8808.2

PCBs EPA 8082A

Matrix: Solid
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**8808.2-EJ-04PCB**					
Laboratory ID:	11-194-04					
Aroclor 1016	**ND**	6.7	EPA 8082A	11-26-18	11-26-18	
Aroclor 1221	**ND**	6.7	EPA 8082A	11-26-18	11-26-18	
Aroclor 1232	**ND**	6.7	EPA 8082A	11-26-18	11-26-18	
Aroclor 1242	**ND**	6.7	EPA 8082A	11-26-18	11-26-18	
Aroclor 1248	**ND**	6.7	EPA 8082A	11-26-18	11-26-18	
Aroclor 1254	**ND**	6.7	EPA 8082A	11-26-18	11-26-18	
Aroclor 1260	**ND**	6.7	EPA 8082A	11-26-18	11-26-18	
Surrogate:	***Percent Recovery***	***Control Limits***				
DCB	***93***	***39-130***				

Date of Report: November 28, 2018
Samples Submitted: November 21, 2018
Laboratory Reference: 1811-194
Project: 8808.2

PCBs EPA 8082A
QUALITY CONTROL

Matrix: Soil
Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1126S1					
Aroclor 1016	**ND**	0.050	EPA 8082A	11-26-18	11-26-18	
Aroclor 1221	**ND**	0.050	EPA 8082A	11-26-18	11-26-18	
Aroclor 1232	**ND**	0.050	EPA 8082A	11-26-18	11-26-18	
Aroclor 1242	**ND**	0.050	EPA 8082A	11-26-18	11-26-18	
Aroclor 1248	**ND**	0.050	EPA 8082A	11-26-18	11-26-18	
Aroclor 1254	**ND**	0.050	EPA 8082A	11-26-18	11-26-18	
Aroclor 1260	**ND**	0.050	EPA 8082A	11-26-18	11-26-18	
Surrogate:	***Percent Recovery***	***Control Limits***				
DCB	***82***	***39-130***				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS											
Laboratory ID:	SB1126S1										
	SB	SBD	SB	SBD		SB	SBD				
Aroclor 1260	**0.349**	**0.349**	0.500	0.500	N/A	**70**	**70**	56-124	0	18	
Surrogate:											
DCB						***85***	***84***	***39-130***			

OnSite Environmental Inc.

Data Qualifiers and Abbreviations

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1- Sample extract treated with a sulfuric acid/silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Chain of Custody

 DB

Company: MED-TOX NW
Project Number: 8808.2
Project Name: TOTEM LAKE
Project Manager: JON HAVELOCK
Sampled by: ERIC JARVIS

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days) (TPH analysis 5 Days)
☐ _____ (other)

Laboratory Number: 11-194

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	~~NWTPH-Dx (☐ Acid / SG Clean-up)~~ DB	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A					% Moisture
1	8808.2-EJ-01PCB	11/14/18	1400	SOLID	1				X						X												
2	-02PCB								X						X												
3	-03PCB								X						X												
4	-04PCB								X						X												

	Signature	Company	Date	Time
Relinquished	[signature]	MED-TOX NW	11/20/18	12:30
Received	[signature]	OSE	11/20/18	1000
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions

Data Package: Standard ☐ Level III ☐ Level IV ☐

Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

Appendix I
OnSite Environmental Laboratory Accreditation

The State of Washington Department of Ecology

OnSite Environmental, Inc.
Redmond, WA

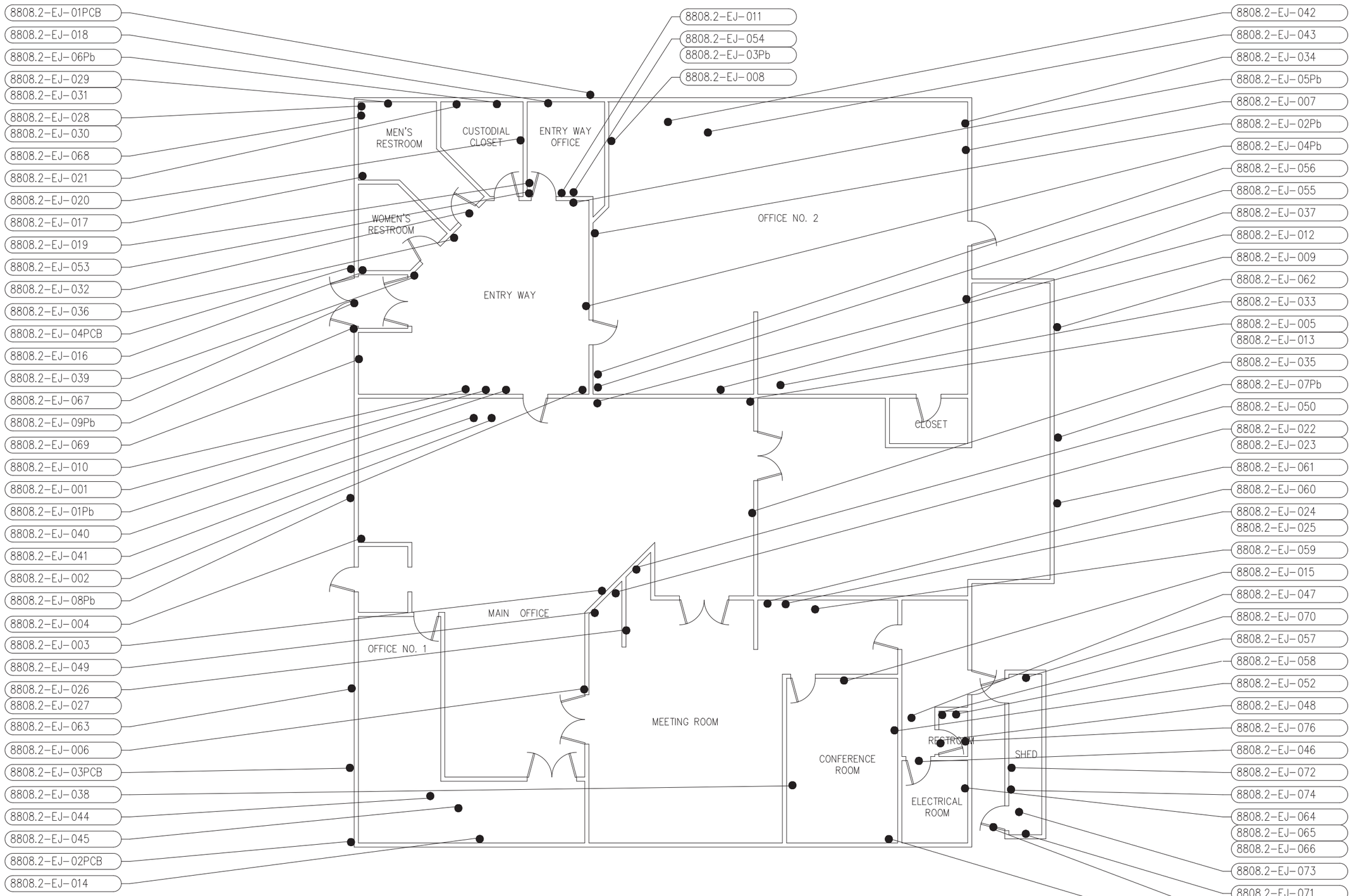
has complied with provisions set forth in Chapter 173-50 WAC and is hereby recognized by the Department of Ecology as an ACCREDITED LABORATORY for the analytical parameters listed on the accompanying Scope of Accreditation. This certificate is effective July 27, 2018 and shall expire July 26, 2019.

Witnessed under my hand on August 10, 2018

Rebecca Wood
Lab Accreditation Unit Supervisor

Laboratory ID
C591

Appendix J
Sample and Material Location Drawing



1ST FLOOR PLAN

SAMPLE LOCATIONS

SCALE: NTS

Symbol	Description	Date	Approved

Designed by: ERIC JARVIS
Date: 12/4/2018
Dwn by: JAL
Chk by: EJ
File Name: A.8808.2
Plot Date:
Plot Scale: AS NOTED
Drawing Number:

MED-TOX NORTHWEST
SAFE ENVIRONMENT OF AMERICA, INC.dba
OCCUPATIONAL ENVIRONMENTAL HEALTH SERVICES
1701 WEST VALLEY HIGHWAY N, SUITE #1
AUBURN, WASHINGTON 98001
(253) 351-0687 (253) 351-0688 (FAX)
http://www.medtoxnorthwest.com

PROJECT NUMBER: A.8808.2

PROJECT: TOTEM LAKE WAY

CLIENT: O'NEIL SERVICE GROUP

Sheet reference number

Sheet 1 OF 1

SAFE ENVIRONMENT OF AMERICA, INC. dba
MED-TOX
NORTHWEST

May 15, 2019

Mr. Vance Atkins
O'Neill Service Group
17619 Northeast 67th Court, Suite 100
Redmond, Washington 98052

Subject: Destructive Investigation Survey Update
12031 Northeast Totem Lake Way
Kirkland, Washington
Med-Tox Northwest Proposal No. 8808.2Arev

Dear Vance:

On April 2, 2019 and May 9, 2019, Anthony Fullerton, Eric Jarvis and Jason Carlson of Med-Tox Northwest (MTNW) conducted a follow-up survey to address the limitations identified in the Hazardous Building Survey Report dated December 2018 for 12031 Northeast Totem Lake Way in Kirkland, Washington. The initial survey for the building was conducted on November 14, 2018.

As required by Washington Administrative Code (WAC) 296-62-077 and Puget Sound Clean Air Agency (PSCAA) Regulation III, Article 4, an Asbestos Hazard Emergency Response Act (AHERA) accredited building inspectors performed the survey. Copies of the inspectors AHERA building inspector certificates are attached.

As part of this investigation, MTNW performed the following:

1. Drilled into the doors and door frames to determine if suspect fire protection was located inside.
2. Performed destructive investigation inside wall and ceiling cavities to verify suspect asbestos was not hidden or present.
3. Performed destructive investigation to verify if additional layers of flooring suspected of containing asbestos were not hidden or present.
4. Inspected and sampled the roof and systems found on the roof for asbestos.
5. Inspected and sampled electrical systems.

There were twelve homogenous materials (HM) identified during the follow-up surveys. From these twelve materials, twenty-six samples were collected and sent in for laboratory analysis. There were two materials determined to be asbestos-containing by polarized light microscopy (PLM) analysis. Black sealant on the heating, ventilation and air conditioning (HVAC) ductwork (HM-02) was found to contain 3% - 4% Chrysotile asbestos. Gray sealant on ductwork (HM-04) was found to contain 3% Chrysotile asbestos.

Photographic documentation of the asbestos-containing materials is attached. For a complete listing of suspect materials sampled please refer to **Table 1** below.

Table 1. Summary of Materials Sampled for Asbestos

Sample	Material	Location	AHERA Type	HM	Result
8808.2a-EJ-001	White laminate wallboard with yellow adhesive	Conference room, North wall	Miscellaneous	01	ND
8808.2a-EJ-002	White laminate wallboard with yellow adhesive	Conference room, North wall	Miscellaneous	01	ND
8808.2a-EJ-003	**Black sealant on HVAC duct**	**Roof**	**Miscellaneous**	**02**	**3% CHR**
8808.2a-EJ-004	**Black sealant on HVAC duct**	**Roof**	**Miscellaneous**	**02**	**4% CHR**
8808.2a-EJ-005	Silver coating on duct	Roof	Miscellaneous	03	ND
8808.2a-EJ-006	Silver coating on duct	Roof	Miscellaneous	03	ND
8808.2a-EJ-007	Silver coating on duct	Roof	Miscellaneous	03	ND
8808.2a-EJ-008	**Gray sealant on duct**	**Roof**	**Miscellaneous**	**04**	**3% CHR**
8808.2a-EJ-009	**Gray sealant on duct**	**Roof**	**Miscellaneous**	**04**	**3% CHR**
8808.2a-EJ-010	Black vibration damper	Roof	Miscellaneous	05	ND
8808.2a-EJ-011	Black vibration damper	Roof	Miscellaneous	05	ND
8808.2a-EJ-012	Black vibration damper	Roof	Miscellaneous	05	ND
8808.2a-EJ-013	Black tar	Parapet	Miscellaneous	06	ND
8808.2a-EJ-014	Black tar	Parapet	Miscellaneous	06	ND
8808.2a-EJ-015	Roof core	Roof	Miscellaneous	07	ND
8808.2a-EJ-016	Roof core	Roof	Miscellaneous	07	ND
8808.2a-EJ-017	Vapor barrier under corrugated roof	Roof	Miscellaneous	08	ND
8808.2a-EJ-018	Vapor barrier under corrugated roof	Roof	Miscellaneous	08	ND
8808.2a-EJ-019	Vapor barrier	Parapet	Miscellaneous	09	ND
8808.2a-EJ-020	Vapor barrier	Parapet	Miscellaneous	09	ND

Sample	Material	Location	AHERA Type	HM	Result
8808.2a-EJ-021	Black wire jacket	Electrical room; south electrical panel	Miscellaneous	10	ND
8808.2a-EJ-022	Black wire jacket	Electrical room; south electrical panel	Miscellaneous	10	ND
8808.2a-EJ-023	Brown paper breaker backing	Electrical room; east electrical panel	Miscellaneous	11	ND
8808.2a-EJ-024	Brown paper breaker backing	Electrical room; east electrical panel	Miscellaneous	11	ND
8808.2a-EJ-025	Black plastic circuit break	Electrical room; west electrical panel	Miscellaneous	12	ND
8808.2a-EJ-026	Black plastic circuit breaker	Electrical room; west electrical panel	Miscellaneous	12	ND

CHR = Chrysotile asbestos, HM = homogeneous material, HVAC = heating, ventilation and air conditioning, ND = None detected.

Bulk samples were analyzed by PLM dispersion staining U.S. Environmental Protection Agency (EPA) Method 600/R-93/116 by Seattle Asbestos Test, LLC. (SAT). SAT is accredited through the National Voluntary Laboratory Accreditation Program (NVLAP) of the U. S. Department of Commerce. This accreditation does not constitute endorsement, but rather a finding of laboratory competence (certification copy is attached).

Table 2 summarizes asbestos containing materials identified in the building surveyed by MTNW. Friability was determined by conditions observed during the survey and by how the material behaves during mechanical demolition.

Table 2. Summary of Asbestos-Containing Materials

Material	Location	Friability	Quantity[1]
Black sealant on HVAC duct (HM-02)	Roof	Non-friable	60 LF
Gray sealant on duct (HM-04)	Roof	Non-friable	60 LF

[1] Material quantity is approximate.

COMMENTS AND RECOMENDATIONS

The asbestos-containing materials identified in Table 2 must be removed by a certified abatement contractor prior to demolition or renovation activities that may disturb the materials.

A good faith effort has been made by Med-Tox Northwest to identify hazardous materials, which could be impacted during the renovation and/or demolition process.

Although not expected, additional suspect materials may become visible during the renovation and/or demolition process. If additional suspect materials become visible, they must be sampled by an AHERA building inspector, analyzed by an accredited laboratory and determined to be negative for asbestos prior to any activities that will impact them. If determined to be asbestos-containing they must be removed by a certified asbestos-abatement contractor.

WAC 296-65 requires asbestos-containing material (ACM) be removed by trained and licensed contractors using certified asbestos abatement workers and supervisors (except for deregulated roofing sealants, mastics, and coatings). A 10-day prior notification is also required before abatement can begin. In addition, PSCAA requires notification and fees prior to beginning removal of friable ACM.

MTNW recommends that this survey report be placed on-site during renovation and/or demolition process and copies provided to the contractor(s) bidding and performing work. Washington Industrial Safety and Health Act (WISHA), Occupational Safety and Health Administration's (OSHA) and PSCAA require that the report be on-site and available for review during the entire project duration.

If you have any questions or need additional information, please contact us at (253) 351-0677.

Sincerely,

Eric Jarvis

Eric Jarvis

Med-Tox Northwest
P.O. Box 1446
Auburn, Washington 98071
Office: (253)351-0677
Cell: (253)830-4080
Email: jarvise@medtoxnw.com

Attachments

Photo 1: Black sealant on HVAC duct with 3-4% Chrysotile asbestos – Roof.

Photo 2: Gray sealant on duct with 3% Chrysotile asbestos – Roof.

SEATTLE ASBESTOS TEST, LLC

Lynnwood Laboratory: 19701 Scriber Lake Road, Suite 103, Lynnwood, WA 98036, Tel: 425.673.9850, Fax: 425.673.9810, NVLAP Lab Code: 200768-0

www.seattleasbestostest.com, admin@seattleasbestostest.com

Project Manager:	Jon Havelock	Date Analyzed:	4/3/2019
Client:	Med-Tox, Northwest	Client Job#:	8808.2a
Address:	PO Box 1446, Auburn, WA 98071-1446	Project Location:	12031 Northeast Totem Lake Way, Kirkland, WA
Tel:	253.351.0677	Laboratory batch#:	201910009
		Samples Received:	20

Enclosed please find the test results for the bulk samples submitted to our laboratory for asbestos analysis. Analysis was performed using polarized light microscopy (PLM) in accordance with Test Method US EPA/600/R-93/116.

Percentages for this report are done by visual estimate and relate to the suggested acceptable error ranges by the method. Since variation in data increases as the quantity of asbestos decreases toward the limit of detection, the EPA recommends point counting for samples containing between <1% and 10% asbestos (NESHAP, 40 CFR Part 61). Statistically, point counting is a more accurate method. If you feel a point count might be beneficial, please feel free to call and request one.

The test results refer only to the samples or items submitted and tested. The accuracy with which these samples represent the actual materials is totally dependent on the acuity of the person who took the samples. This report must not be used by the client to claim product certification, approval, or endorsement by Seattle Asbestos Test, LLC, NVLAP, NIST, or any agency of the Federal government. The test report or calibration certificate shall not be reproduced except in full, without written approval of the laboratory.

This report is highly confidential and will not be released without your consent. Samples are archived for 30 days after the analysis, and disposed of as hazardous waste thereafter.

Thank you for using our service and let us know if we can further assist you.

Sincerely

SZhang

Steve (Fanyao) Zhang
President

SEATTLE ASBESTOS TEST, LLC
19711 Scriber Lake Rd. Suite D, Lynnwood, WA 98036
Tel: (425) 673-9850, Fax: (425) 673-9810 Website: seattleasbestostest.com

BATCH # 2019/0009

CHAIN OF CUSTODY

Analysis Type: Bulk Analysis X Point Count 400 ___ Point Count 1000 ___ Point Count Gravimetric ___

Turn Around Time 24 Hour Number of Samples 20 Client Job # **8808.2a**

Client Name **Med-Tox Northwest**

Address **Post Office Box 1446** City **Auburn** State **WA** Zip **98071-1446**

Phone **253-351-0677** Fax **253-351-0688** Email havelockj@medtoxnw.com & jarvise@medtoxnw.com

Project Location 12031 Northeast Totem Lake Way, Kirkland WA Project Manager Jon Havelock

Sample Condition: Good_____ Damaged_____ Severe Damage(Spillage)_____

SEQ#	SAMPLE ID	SAMPLE DESCRIPTION	Lab ID	Comment	A/R
1	8808.2a-EJ-001.				
2	Through				
3	8808.2a- EJ-020				
4					
5					
6					
7		SEE ATTACHED TABLE			
8					
9					
10					
11					
12					
13					
14					
15					

	Print	Signature	Company Name	Date	Time
Sampled by	Eric Jarvis		Med-Tox Northwest	4/2/19	1300
Relinquished by	Eric Jarvis		Med-Tox Northwest	4/2/19	1630
Delivered by					
Received by				4/3	11:15
Analyzed by				4/3/19	1625
Result reported by					

Result Reporting method: Phone_____, Fax_____, Email X, Pick Up Report_____

20191009

Table C-1. Summary of Materials Sampled for Asbestos

Sample	Material	Location	AHERA Type	HM	Result
Totem Lake Retail					
8808.2a-EJ-001	White laminate wallboard with yellow adhesive	Conference room, North wall	Miscellaneous	01	
8808.2a-EJ-002	White laminate wallboard with yellow adhesive	Conference room, North wall	Miscellaneous	01	
8808.2a-EJ-003	Black sealant on HVAC duct	Roof	Miscellaneous	02	
8808.2a-EJ-004	Black sealant on HVAC duct	Roof	Miscellaneous	02	
8808.2a-EJ-005	Silver coating on duct	Roof	Miscellaneous	03	
8808.2a-EJ-006	Silver coating on duct	Roof	Miscellaneous	03	
8808.2a-EJ-007	Silver coating on duct	Roof	Miscellaneous	03	
8808.2a-EJ-008	Gray sealant on duct	Roof	Miscellaneous	04	
8808.2a-EJ-009	Gray sealant on duct	Roof	Miscellaneous	04	
8808.2a-EJ-010	Black vibration damper	Roof	Miscellaneous	05	
8808.2a-EJ-011	Black vibration damper	Roof	Miscellaneous	05	
8808.2a-EJ-012	Black vibration damper	Roof	Miscellaneous	05	
8808.2a-EJ-013	Black tar	Parapet	Miscellaneous	06	
8808.2a-EJ-014	Black tar	Parapet	Miscellaneous	06	
8808.2a-EJ-015	Roof core	Roof	Miscellaneous	07	
8808.2a-EJ-016	Roof core	Roof	Miscellaneous	07	
8808.2a-EJ-017	Vapor barrier under corrugated roof	Roof	Miscellaneous	08	
8808.2a-EJ-018	Vapor barrier under corrugated roof	Roof	Miscellaneous	08	
8808.2a-EJ-019	Vapor barrier	Parapet	Miscellaneous	09	
8808.2a-EJ-020	Vapor barrier	Parapet	Miscellaneous	09	

CHR = Chrysotile asbestos, HM = homogeneous material.

SEATTLE ASBESTOS TEST

Lynnwood Laboratory: 19701 Scriber Lake Road, Suite 103, Lynnwood, WA 98036, Tel: 425.673.9850, Fax: 425.673.9810, NVLAP Lab Code: 200768-0

ANALYTICAL LABORATORY REPORT

PLM by Method EPA/600/R-93/116

Attn.: Jon Havelock
Client: Med-Tox, Northwest
Address: PO Box 1446, Auburn, WA 98071-1446
Job#: 8808.2a
Batch#: 201910009
Date Received: 4/3/2019
Samples Rec'd: 20
Date Analyzed: 4/3/2019
Samples Analyzed: 20
Project Loc.: 12031 Northeast Totem Lake Way, Kirkland, WA

Analyzed by: Yui Yang

Reviewed by: Steve (Fanyao) Zhang, President

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-fibrous Components	%	Non-asbestos Fibers
1	8808.2a-EJ-001	1	White brittle/rigid material with fibrous material and paint		**None detected**	Filler, Binder, Fine particles, Paint	68	Cellulose, Glass fibrous
		2	Yellow mastic		**None detected**	Mastic/binder	4	Cellulose
		3	White chalky material with paper		**None detected**	Binder/filler, Gypsum/binder	25	Cellulose
2	8808.2a-EJ-002	1	White brittle/rigid material with fibrous material and paint		**None detected**	Filler, Binder, Fine particles, Paint	62	Cellulose, Glass fibrous
		2	Yellow mastic		**None detected**	Mastic/binder	3	Cellulose
		3	White chalky material with paper		**None detected**	Binder/filler, Gypsum/binder	27	Cellulose
3	8808.2a-EJ-003	1	Black asphaltic material	3	**Chrysotile**	Asphalt/binder	3	Cellulose
4	8808.2a-EJ-004	1	Black asphaltic material	4	**Chrysotile**	Asphalt/binder	3	Cellulose
5	8808-2a-EJ-005	1	Silver paint		**None detected**	Paint, Filler	4	Cellulose
6	8808-2a-EJ-006	1	Silver paint		**None detected**	Paint, Filler	3	Cellulose
7	8808-2a-EJ-007	1	Silver paint		**None detected**	Paint, Filler	4	Cellulose
8	8808-2a-EJ-008	1	Gray/sliver brittle material	3	**Chrysotile**	Filler, Binder	2	Cellulose
9	8808-2a-EJ-009	1	Gray/sliver brittle material	3	**Chrysotile**	Filler, Binder	2	Cellulose
10	8808-2a-EJ-010	1	Black soft/elastic material with woven fibrous material		**None detected**	Binder, Filler	20	Synthetic fibers
11	8808-2a-EJ-011	1	Black soft/elastic material with woven fibrous material		**None detected**	Binder, Filler	21	Synthetic fibers
12	8808-2a-EJ-012	1	Clear soft/elastic material		**None detected**	Binder, Filler	3	Cellulose
		2	Black soft/elastic material with woven fibrous material		**None detected**	Binder, Filler	20	Synthetic fibers
13	8808-2a-EJ-013	1	Black asphaltic material with fibrous material		**None detected**	Asphalt/binder, Filler	28	Synthetic fibers, Cellulose

SEATTLE ASBESTOS TEST

Lynnwood Laboratory: 19701 Scriber Lake Road, Suite 103, Lynnwood, WA 98036, Tel: 425.673.9850, Fax: 425.673.9810, NVLAP Lab Code: 200768-0

ANALYTICAL LABORATORY REPORT

PLM by Method EPA/600/R-93/116

Attn.: Jon Havelock **Client:** Med-Tox, Northwest **Address:** PO Box 1446, Auburn, WA 98071-1446

Job#: 8808.2a **Batch#:** 201910009 **Date Received:** 4/3/2019

Samples Rec'd: 20 **Date Analyzed:** 4/3/2019 **Samples Analyzed:** 20

Project Loc.: 12031 Northeast Totem Lake Way, Kirkland, WA

Analyzed by: Yui Yang Reviewed by: Steve (Fanyao) Zhang, President

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-fibrous Components	%	Non-asbestos Fibers
14	8808-2a-EJ-014	1	Black asphaltic material with fibrous material		**None detected**	Asphalt/binder, Filler	27	Synthetic fibers, Cellulose
		2	Black asphaltic material with sand		**None detected**	Asphalt/binder, Sand	24	Glass fibers
15	8808-2a-EJ-015	1	Black asphaltic material		**None detected**	Asphalt/binder	3	Cellulose
		2	Black asphaltic material with fibrous material		**None detected**	Asphalt/binder, Filler	25	Synthetic fibers, Cellulose
		3	Black asphaltic fibrous material		**None detected**	Filler, Asphalt, Binder	70	Cellulose
		4	Brown fibrous material		**None detected**	Binder, Filler, Perlite	82	Cellulose
16	8808-2a-EJ-016	1	Black asphaltic material		**None detected**	Asphalt/binder	3	Cellulose
		2	Black asphaltic material with fibrous material		**None detected**	Asphalt/binder, Filler	21	Synthetic fibers, Cellulose
		3	Black asphaltic fibrous material		**None detected**	Filler, Asphalt, Binder	69	Cellulose
		4	Brown fibrous material		**None detected**	Binder, Filler, Perlite	80	Cellulose
17	8808-2a-EJ-017	1	Brown fibrous material		**None detected**	Binder, Filler, Perlite	77	Cellulose
18	8808-2a-EJ-018	1	Brown fibrous material		**None detected**	Binder, Filler, Perlite	75	Cellulose
19	8808-2a-EJ-019	1	Black asphaltic fibrous material		**None detected**	Filler, Asphalt, Binder	70	Cellulose
20	8808-2a-EJ-020	1	Black asphaltic fibrous material		**None detected**	Filler, Asphalt, Binder	72	Cellulose

SEATTLE ASBESTOS TEST, LLC

Seattle Laboratory: 4500 9th Ave. NE, Suite 300, Seattle, WA 98105, Tel: 206.633.1111, Fax: 206.633.4747, NVLAP Lab Code: 201057-0

www.seattleasbestostest.com, admin@seattleasbestostest.com

Project Manager:	Mr. Jon Havelock	Date Analyzed:	5/10/2019
Client:	Med-Tox, Northwest	Client Job#:	8808.2a
Address:	PO Box 1446, Auburn, WA 98071-1446	Project Location:	Totem Lake Way
Tel:	253.351.0677	Laboratory batch#:	201910482
		Samples Received:	6

Enclosed please find the test results for the bulk samples submitted to our laboratory for asbestos analysis. Analysis was performed using polarized light microscopy (PLM) in accordance with Test Method US EPA/600/R-93/116.

Percentages for this report are done by visual estimate and relate to the suggested acceptable error ranges by the method. Since variation in data increases as the quantity of asbestos decreases toward the limit of detection, the EPA recommends point counting for samples containing between <1% and 10% asbestos (NESHAP, 40 CFR Part 61). Statistically, point counting is a more accurate method. If you feel a point count might be beneficial, please feel free to call and request one.

The test results refer only to the samples or items submitted and tested. The accuracy with which these samples represent the actual materials is totally dependent on the acuity of the person who took the samples. This report must not be used by the client to claim product certification, approval, or endorsement by Seattle Asbestos Test, LLC, NVLAP, NIST, or any agency of the Federal government. The test report or calibration certificate shall not be reproduced except in full, without written approval of the laboratory.

This report is highly confidential and will not be released without your consent. Samples are archived for 30 days after the analysis, and disposed of as hazardous waste thereafter.

Thank you for using our service and let us know if we can further assist you.

Sincerely

Steve (Fanyao) Zhang
President

20190482

SEATTLE ASBESTOS TEST, LLC

Analyzing Quality

Lynnwood Lab: 19701 Scriber Lake Road, Suite 103, Lynnwood, WA 98036, Tel:425.673.9850, Fax:425.673.9810, NVLAP Accreditation Lab Code: 200768
Bellevue Lab: 12727 Northup Way, Suite 1, Bellevue, WA 98005, Tel:425.861.1111, Fax:425.861.1118, NVLAP Accreditation Lab Code: 200876
Seattle Lab: 4500 9th Ave. NE, Suite 300, Seattle, WA 98105, Tel:206.633.1111, Fax:206.633.4747, NVLAP Accreditation Lab Code: 201057
Email: admin@seattleasbestostest.com, Website: www.seattleasbestostest.com

CHAIN OF CUSTODY

- [x] Bulk Asbestos
- [ ] Point Count 400
- [ ] Point Count 1000
- [ ] Point Count Gravimetric
- [ ] Other (Specify) _____
- [ ] 1 Hour
- [ ] 2 Hours
- [ ] Same day (4 to 6 Hrs.)
- [x] 1 Day
- [ ] _____ Days

Tel: 253-351-0677 Fax:

# of Samples: 6 Job#: 8808.2a Project Location: Totem Lake Way

Project Manager: Jon Havelock Cell: 253-351-0677 Email: jarvise@medtoxnw.com

SEQ#	CLIENT SAMPLE #	SAMPLE DESCRIPTION	LOCATION	NOTES
1	8808.2a-EJ-021	Black wire jacket		
2	" "-022	Black wire jacket		
3	" "-023	Brown Paper inside electrical Panel		
4	" "-024	Brown Paper inside Electrical Panel		
5	" "-025	Black Plastic Circuit Breaker		
6	" "-026	Black Plastic Circuit Breaker		
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

	Print Name	Signature	Company	Date	Time
Sampled:	ERIC JARVIS	[signature]	MED TOX NW	5-9-19	10:30
Relinquished:	ERIC JARVIS	[signature]	MED TOX NW	5-9-19	11:20
Delivered:					
Received:	Carolyn Yee	[signature]	Seattle Asbestos Test	5-9-19	11:20
Analyzed:	Carolyn Yee	[signature]	Seattle Asbestos Test	5-10-19	9:04
Reported:			Seattle Asbestos Test		

Results reporting method:
- [ ] Phone
- [ ] Fax
- [x] Email
- [ ] Pick-up

- [ ] Composite all wallboard samples
- [ ] Text result to phone
- [ ] Point count ..... % or less asbestos

201910482

Table 1. Summary of Materials Sampled for Asbestos

Sample	Material	Location	AHERA Type	HM	Result
8808.2a-EJ-021	Black wire jacket	Electrical room; south electrical panel	Miscellaneous	10	
8808.2a-EJ-022	Black wire jacket	Electrical room; south electrical panel	Miscellaneous	10	
8808.2a-EJ-023	Brown paper breaker backing	Electrical room; east electrical panel	Miscellaneous	11	
8808.2a-EJ-024	Brown paper breaker backing	Electrical room; east electrical panel	Miscellaneous	11	
8808.2a-EJ-025	Black plastic circuit break	Electrical room; west electrical panel	Miscellaneous	12	
8808.2a-EJ-026	Black plastic circuit breaker	Electrical room; west electrical panel	Miscellaneous	12	

CHR = Chrysotile asbestos, HM = homogeneous material, ND = None detected

SEATTLE ASBESTOS TEST

Seattle Laboratory: 4500 9th Ave. NE, Suite 300, Seattle, WA 98105, Tel: 206.633.1111, Fax: 206.633.4747, NVLAP Lab Code: 201057-0

ANALYTICAL LABORATORY REPORT

PLM by Method EPA/600/R-93/116

Attn.: Mr. Jon Havelock **Client:** Med-Tox, Northwest **Address:** PO Box 1446, Auburn, WA 98071-1446

Job#: 8808.2a **Batch#:** 201910482 **Date Received:** 5/9/2019

Samples Rec'd: 6 **Date Analyzed:** 5/10/2019 **Samples Analyzed:** 6

Project Loc.: Totem Lake Way

Analyzed by: Carolyn Yeo

Reviewed by: Steve (Fanyao) Zhang, President

Lab ID	Client Sample ID	Layer	Description	%	**Asbestos Fibers**	Non-fibrous Components	%	Non-asbestos Fibers
1	8808.2a-EJ-021	1	Black rubbery material		**None detected**	Rubber/binder	2	Cellulose
2	8808.2a-EJ-022	1	Black rubbery material		**None detected**	Rubber/binder	3	Cellulose
3	8808.2a-EJ-023	1	Brown paper		**None detected**	Filler	77	Cellulose
4	8808.2a-EJ-024	1	Brown paper		**None detected**	Filler	78	Cellulose
5	8808.2a-EJ-025	1	Black hard material		**None detected**	Binder, Filler, Wood debris	4	Cellulose
6	8808.2a-EJ-026	1	Black hard material		**None detected**	Binder, Filler	5	Cellulose, Glass fibers

United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 200768-0

Seattle Asbestos Test, LLC

Lynnwood, WA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2018-10-01 through 2019-09-30

Effective Dates

For the National Voluntary Laboratory Accreditation Program

Certificate of Completion

This is to certify that

Anthony L. Fullerton

has satisfactorily completed
4 hours of refresher training as an

AHERA Building Inspector

to comply with the training requirements of
TSCA Title II, 40 CFR 763 (AHERA)

EPA Provider # 1085

169219
Certificate Number

ARGUS PACIFIC
TRAINING • CONSULTING
A Terracon COMPANY

Aug 29, 2018 Expires in 1 year.
Date(s) of Training

Exam Score: N/A
If appropriate:

Instructor

ARGUS PACIFIC, INC / 1900 WEST NICKERSON ST, SUITE 315 / SEATTLE, WASHINGTON 98119 / 206.285.3373 / ARGUSPACIFIC.COM

Certificate of Completion

This is to certify that

Eric T. Jarvis

has satisfactorily completed
24 hours of training as an

AHERA Building Inspector

to comply with the training requirements of
TSCA Title II, 40 CFR 763 (AHERA)

EPA Provider # 1085

169779
Certificate Number

ARGUS PACIFIC
TRAINING • CONSULTING
A Terracon COMPANY

Oct 15 - 17, 2018 Expires in 1 year.
Date(s) of Training

Exam Score: 88%
If appropriate:

Instructor

ARGUS PACIFIC, INC / 21905 64th AVE W, SUITE 100 / MOUNTLAKE TERRACE, WASHINGTON 98043 / 206.285.3373 / ARGUSPACIFIC.COM

Certificate of Completion

This is to certify that

Jason S. Carlson

has satisfactorily completed
4 hours of refresher training as an

AHERA Building Inspector

to comply with the training requirements of
TSCA Title II, 40 CFR 763 (AHERA)

EPA Provider # 1085

169363
Certificate Number

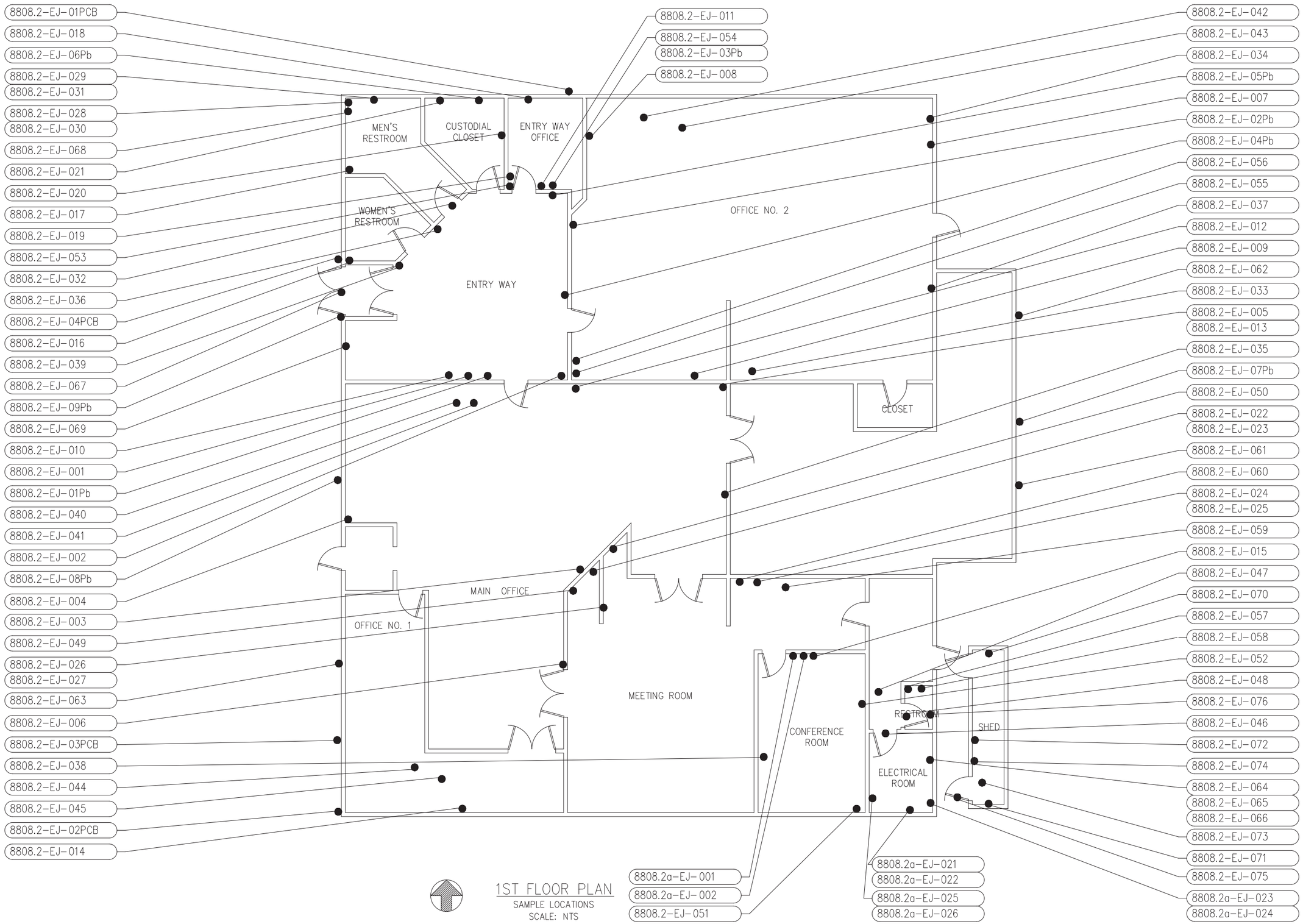
ARGUS PACIFIC
TRAINING • CONSULTING
A Terracon COMPANY

Sep 12, 2018 Expires in 1 year.
Date(s) of Training

Exam Score: N/A
If appropriate:

Instructor

ARGUS PACIFIC, INC / 1900 WEST NICKERSON ST, SUITE 315 / SEATTLE, WASHINGTON 98119 / 206.285.3373 / ARGUSPACIFIC.COM



1ST FLOOR PLAN
SAMPLE LOCATIONS
SCALE: NTS

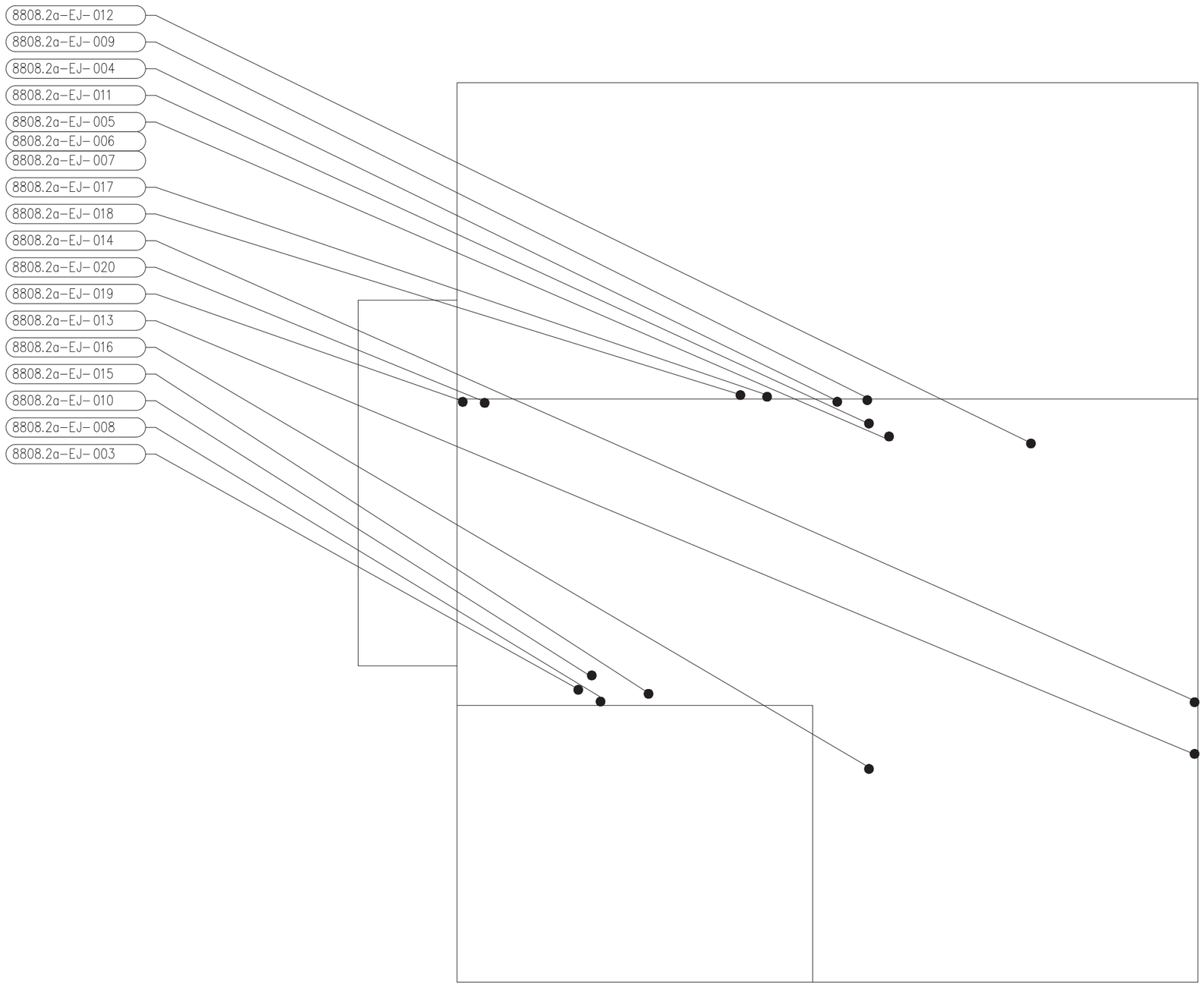
Symbol	Description	Date	Approved

Designed by: ERIC JARVIS
Date: 12/4/2018
Dwn by: JAL
Chk by: EJ
File Name: A.8808.2
Plot Date:
Plot Scale: AS NOTED
Drawing Number:

MED-TOX NORTHWEST
SAFE ENVIRONMENT OF AMERICA, INC.dba
OCCUPATIONAL ENVIRONMENTAL HEALTH SERVICES
http://www.medtoxnorthwest.com
1701 WEST VALLEY HIGHWAY N, SUITE #1
AUBURN, WASHINGTON 98001
(253) 351-0687 (253) 351-0688 (FAX)

PROJECT NUMBER: A.8808.2
PROJECT: TOTEM LAKE WAY
CLIENT: O'NEIL SERVICE GROUP

Sheet reference number
Sheet 1 OF 2



ROOF PLAN
SAMPLE LOCATIONS
SCALE: NTS

Symbol	Description	Date	Approved

Designed by: ERIC JARVIS
Date: 12/4/2018
Dwn by: JAL
Chk by: EJ
File Name: A.8808.2
Plot Date:
Plot Scale: AS NOTED
Drawing Number:

MED-TOX NORTHWEST
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CLIENT: O'NEIL SERVICE GROUP

Sheet reference number