



City of Tacoma
Environmental Services Department

**SPECIFICATION NO.
ES22-0265F**

**WASTEWATER EDUCTOR
DECANT FACILITY PIPELINE
PROJECT (REBID)**

Project No. ENV-04024-03

CITY OF TACOMA
ENVIRONMENTAL SERVICES DEPARTMENT

REQUEST FOR BIDS, SPECIAL PROVISIONS, BID PROPOSAL AND CONTRACT

FOR

SPECIFICATION NO.
ES22-0265F

WASTEWATER EDUCTOR DECANT FACILITY PIPELINE
PROJECT (REBID)

PROJECT NO. ENV-04024-03



7/25/2022

Nathan Mozer, P.E.
KPG Psomas Inc.

2502 Jefferson Avenue
Tacoma, Washington 98403

SPECIFICATION NO. ES22-0265F

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**City of Tacoma
Environmental Services Department**

**REQUEST FOR BIDS ES22-0265F
Wastewater Educator Decant Facility Pipeline Project (Rebid)**

Submittal Deadline: 11:00 a.m., Pacific Time, Tuesday, August 16, 2022

Submittals must be received by the City's Procurement and Payables Division prior to 11:00 a.m. Pacific Time.

For electronic submittals, the City of Tacoma will designate the time of receipt recorded by our email, bids@cityoftacoma.org, as the official time of receipt. This clock will be used as the official time of receipt of all parts of electronic bid submittals.

Submittal Delivery: Sealed submittals will be received as follows:

By Email: bids@cityoftacoma.org Maximum file size: 35 MB. Multiple emails may be sent for each submittal
By Carrier: If possible, please include a flash drive of your full submittal. City of Tacoma Procurement & Payables Division Tacoma Public Utilities 3628 S 35 th Street Tacoma, WA 98409
In Person: If possible, please include a flash drive of your full submittal. City of Tacoma Procurement & Payables Division Tacoma Public Utilities Administration Building North Guard House (east side of main building) 3628 S 35 th Street Tacoma, WA 98409
By Mail: If possible, please include a flash drive of your full submittal. City of Tacoma Procurement & Payables Division Tacoma Public Utilities PO Box 11007 Tacoma, WA 98411-0007

Bid Opening: Held virtually each Tuesday at 11AM. Attend [via this link](#) or call 1 (253) 215 8782.

Submittals in response to a RFB will be recorded as received. As soon as possible on the day of submittal deadline, preliminary results will be posted to www.TacomaPurchasing.org.

Solicitation Documents: An electronic copy of the complete solicitation documents may be viewed and obtained at the City's plan distribution service provider, ARC, 632 Broadway, Tacoma, WA, or by going to <http://www.e-arc.com/location/tacoma>. Prospective bidders will be required to pay reproduction costs. A list of vendors registered for this solicitation is also available at their website.

Pre-Proposal Meeting: A pre-proposal meeting will be held via conference call at 10:00 A.M. PST, August 8, 2022. The phone number is 1 (888) 850-4523 and the access code is 544766. This conference call will answer questions regarding the Local Employment and Apprenticeship Training Program (LEAP) requirements included in the Contract. Prospective bidders are urged to call in.

Project Scope: This Contract shall generally consist of constructing approximately 315 feet of 8-inch sewer main and 160 feet of 12-inch sewer main, including new catch basins and manholes. Approximately 138 feet of the 8-inch sewer main will be installed in a steel casing installed under Portland Avenue using Jack and Bore methods. Work will also include pavement and other hard surface restoration and restoration of miscellaneous improvements disturbed during construction.

Estimate: \$925,000

Paid Sick Leave: The City of Tacoma requires all employers to provide paid sick leave as set forth in Title 18 of the Tacoma Municipal Code. For more information, visit [our Minimum Employment Standards Paid Sick Leave webpage](#).

Americans with Disabilities Act (ADA Information): The City of Tacoma, in accordance with Section 504 of the Rehabilitation Act (Section 504) and the Americans with Disabilities Act (ADA), commits to nondiscrimination on the basis of disability, in all of its programs and activities. Specification materials can be made available in an alternate format by emailing Gail Himes at ghimes@cityoftacoma.org, or by calling her collect at 253-591-5785.

Title VI Information: "The City of Tacoma" in accordance with provisions of Title VI of the Civil Rights Act of 1964, (78 Stat. 252, 42 U.S.C. sections 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that in any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, national origin in consideration of award.

Additional Information: Requests for information regarding the specifications may be obtained by contacting Dawn DeJarlais, Senior Buyer by email to ddejarlais@cityoftacoma.org.

Protest Policy: City of Tacoma protest policy, located at www.tacomapurchasing.org, specifies procedures for protests submitted prior to and after submittal deadline.



Meeting sites are accessible to persons with disabilities. Reasonable accommodations for persons with disabilities can be arranged with 48 hours advance notice by calling 253-502-8468.

SPECIAL REMINDER TO ALL BIDDERS

HEALTH & SAFETY: Be sure to comply with all City of Tacoma health and safety requirements.

PLEASE NOTE: Be sure you have complied with all specifications and requirements and have signed all required documents.

YOUR ATTENTION IS PARTICULARLY CALLED to the following forms, which must be executed in full and submitted with your bid response:

1. **BID PROPOSAL:** The unit prices bid must be shown in the space provided. Check your computations for omissions and errors.
2. **SIGNATURE PAGE:** To be filled in and executed by a duly authorized officer or representative of the bidding entity. If the bidder is a subsidiary or doing business on behalf of another entity, so state, and provide the firm name under which business is hereby transacted.
3. **BID BOND:** The Bid Bond must be executed by the person legally authorized to sign the bid, and must be properly signed by the representatives of the surety company unless the bid is accompanied by a certified check. If Bid Bond is furnished, the form furnished by the City must be followed; no variations from the language thereof will be accepted. The amount of the Bid Bond must be not less than 5% of the total amount bid.
4. **CERTIFICATION OF COMPLIANCE WITH WAGE PAYMENT STATUTES:** Bidder shall complete this form in its entirety to ensure compliance with state legislation (SHB 2017).
5. **STATE RESPONSIBILITY AND RECIPROCAL BID PREFERENCE INFORMATION:** Bidder shall complete this form in its entirety to ensure compliance with state legislation (SHB 2010).
6. **STATEMENT OF QUALIFICATIONS:** The Contractor or subcontractor shall fill out this form in its entirety proving they meet the requirements as outlined in these specifications. It shall be the sole determination of the Engineer to determine if the Contractor/subcontractor does in fact meet the requirements. This is a condition of award of the Contract.
7. **Equity in Contracting Program (EIC)**
Tacoma Municipal Code section 1.07
There is no EIC requirement on this solicitation. However, the City of Tacoma is committed to equality in contracting for under-utilized minority and women-owned businesses and we encourage you to locate these firms here [Office of Minority & Women Owned Businesses \(https://omwbe.wa.gov\)](https://omwbe.wa.gov). Please visit the [EIC website \(https://www.cityoftacoma.org/government/city_departments/community_and_economic_development/equity_in_contracting\)](https://www.cityoftacoma.org/government/city_departments/community_and_economic_development/equity_in_contracting) for more information.

POST AWARD FORMS EXECUTED UPON AWARD:

- A. CONTRACT: Must be executed by the successful bidder.
- B. PAYMENT BOND TO THE CITY OF TACOMA: Must be executed by the successful bidder and his/her surety company.
- C. PERFORMANCE BOND TO THE CITY OF TACOMA: Must be executed by the successful bidder and his/her surety company.
- D. CERTIFICATE OF INSURANCE: Shall be submitted with all required endorsements.
- E. LEAP UTILIZATION PLAN: Shall be submitted at the Pre-Construction Meeting.
- F. GENERAL RELEASE.

CODE OF ETHICS: The successful bidder agrees that its violation of the City's Code of Ethics contained in TMC Chapter 1.46 shall constitute a breach of the contract subjecting the contract to termination.

LOCAL EMPLOYMENT AND APPRENTICESHIP TRAINING PROGRAM (LEAP):

The Local Employment and Apprenticeship Training Program (LEAP) has been adopted to counteract economic and social ills, which accompany high rates of unemployment within the City of Tacoma. The Tacoma City Council established the mandatory LEAP program for public works contracts pursuant to Ordinance No. 28520. The primary goal is to provide an opportunity for City of Tacoma residents and Tacoma Public Utilities ratepayers to enter apprenticeship programs, acquire skills, and perform work that will provide living wages.

LEAP Goals:

1. Local Employment Utilization Goal – Prime contractor is required to ensure that 15 percent of the labor hours worked on the project are performed by residents of the City of Tacoma or local economically distressed areas, whether or not such person is an Apprentice.
2. Apprentice Utilization Goal - Prime contractor is required to ensure that 15 percent of the labor hours worked on the project are performed by Apprentices who reside in the Tacoma Public Utilities service area.

NOTE: If both goals are assigned to this project, the two goals can be satisfied concurrently if the prime contractor utilizes individuals who simultaneously meet the requirements of both goals, such as an apprentice who resides in the City of Tacoma or in a local economically distressed area.

See City of Tacoma – Local Employment and Apprenticeship Training Program section for additional information.

**CITY OF TACOMA
FINANCE/PURCHASING DIVISION
SPECIAL NOTICE TO BIDDERS**

Public works and improvement projects for the City of Tacoma are subject to Washington state law and Tacoma Municipal Code, including, but not limited to the following:

I. STATE OF WASHINGTON

A. RESPONSIBILITY CRITERIA – STATE OF WASHINGTON

In order to be considered a responsible bidder the bidder must meet the following mandatory state responsibility criteria contained in RCW 39.04.350:

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. If applicable:
 - a. Have Industrial Insurance (workers' compensation) coverage for the bidder's employees working in Washington, as required in Title 51 RCW;
 - b. Have a Washington Employment Security Department number, as required in Title 50 RCW;
 - c. Have a Washington Department of Revenue state excise tax registration number, as required in Title 82 RCW and;
4. Not be disqualified from bidding on any public works contract under RCW 39.06.010 (unlicensed or unregistered contractors) or 39.12.065(3) (prevailing wage).
5. Have received training on the requirements related to public works and prevailing wage under this chapter and chapter 39.12 RCW and must designate a person or persons to be trained on these requirements. The training must be provided by the department of labor and industries or by a training provider whose curriculum is approved by the department. Bidders that have completed three or more public works projects and have had a valid business license in Washington for three or more years are exempt from this subsection.

B. RECIPROCAL PREFERENCE FOR RESIDENT CONTRACTORS:

Effective March 30, 2012, RCW 39.04.380 imposes a reciprocal preference for resident contractors. Any bid received from a non-resident contractor from a state that provides an in-state percentage bidding preference is subject application of a comparable percentage disadvantage.

A non-resident contractor from a state that provides an in-state percentage bidding preference means a contractor that:

1. Is from a state that provides a percentage bid preference to its resident contractors bidding on public works projects, and
2. Does not have a physical office located in Washington at the time of bidding on the City of Tacoma public works project.

The state of residence for a non-resident contractor is the state in which the contractor was incorporated, or if not a corporation, the state in which the contractor's business entity was formed.

The City of Tacoma will evaluate all non-resident contractors for an out of state bidder preference. If the state of the non-resident contractor provides an in state contractor preference, a comparable percentage disadvantage will be applied to the non-resident contractor's bid prior to contract award. The responsive and lowest and best responsible bidder after application of any non-resident disadvantage will be awarded the contract.

The reciprocal preference evaluation does not apply to public works procured pursuant to RCW 39.04.155, RCW 39.04.280, federally funded competitive solicitations where such agencies prohibit the application of bid preferences, or any other procurement exempt from competitive bidding.

Bidders must provide the City of Tacoma with their state of incorporation or the state in which the business entity was formed and include whether the bidder has a physical office located in Washington.

The bidder shall submit documentation demonstrating compliance with above criteria on the enclosed State Responsibility and Reciprocal Bidder Information form.

C. SUBCONTRACTOR RESPONSIBILITY

1. The Contractor shall include the language of this subcontractor responsibility 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. The requirements of this section apply to all subcontractors regardless of tier.
2. At the time of subcontract execution, the Contractor shall verify that each of its first tier subcontractors meets the following bidder responsibility criteria:
 - a. 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 subcontract bid submittal;
 - b. Have a current Washington Unified Business Identifier (UBI) number;
 - c. If applicable, have:
 - a. Have 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;
 - d. An electrical contractor license, if required by Chapter 19.28 RCW;
 - e. An elevator contractor license, if required by Chapter 70.87 RCW and;
3. Not be disqualified from bidding on any public works contract under RCW 39.06.010 (unlicensed or unregistered contractors) or 39.12.065(3) (prevailing wage).

II. CITY OF TACOMA

A. SUPPLEMENTAL RESPONSIBILITY CRITERIA – CITY OF TACOMA:

In order to be considered a responsible bidder, the prospective bidder shall have all of the following qualifications set forth in Tacoma Municipal Code 1.06.262:

1. Adequate financial resources or the ability to secure such resources;
2. The necessary experience, stability, organization and technical qualifications to perform the proposed contract;
3. The ability to comply with the required performance schedule, taking into consideration all existing business commitments;
4. A satisfactory record of performance, integrity, judgment and skills; and
5. Be otherwise qualified and eligible to receive an award under applicable laws and regulations.
 - a. Bidder Responsibility. Bidders shall not be in violation of 39.04.350 RCW Bidder Responsibility Criteria - Supplemental Criteria.

In addition to the mandatory bidder responsibility criteria listed immediately above, the City may, in addition to price, consider any or all of the following criteria contained in Tacoma Municipal Code Chapter 1.06.262 in determining bidder responsibility:

1. The ability, capacity, experience, stability, technical qualifications and skill of the respondent to perform the contract;
2. Whether the respondent can perform the contract within the time specified, without delay or interference;
3. Integrity, reputation, character, judgment, experience, and efficiency of the respondents, including past compliance with the City's Ethics Code;
4. Quality of performance of previous contracts;
5. Previous and existing compliance with laws and ordinances relating to contracts or services;
6. Sufficiency of the respondent's financial resources;
7. Quality, availability, and adaptability of the supplies, purchased services or public works to the particular use required;
8. Ability of the respondent to provide future maintenance and service on a timely basis;
9. Payment terms and prompt pay discounts;
10. The number and scope of conditions attached to the submittal;
11. Compliance with all applicable City requirements, including but not limited to the City's Ethics Code and its Small Business Enterprise and Local Employment and Apprenticeship programs;
12. Other qualification criteria set forth in the specification or advertisement that the appropriate department or division head determines to be in the best interests of the City.

The City may require bidders to furnish information, sworn or certified to be true, to demonstrate compliance with the City responsibility criteria set forth above. If the city manager or director of utilities is not satisfied with the sufficiency of the information provided, or if the prospective respondent does not substantially meet all responsibility requirements, any submittal from such respondent must be disregarded.

B. ADDITIONAL SUPPLEMENTAL CRITERIA – NOT APPLICABLE

C. MODIFICATIONS TO SUPPLEMENTAL CRITERIA

Potential bidders may request modifications to the City's **supplemental criteria** by submitting a written request to the Purchasing Division via email to bids@cityoftacoma.org no later than 5:00 p.m. Pacific Time, three days prior to the submittal deadline. Please include the Specification No. and Title when submitting such requests. Requests must include justification for why certain criteria should be modified. Requests received after this date and time will not be considered.

The City will respond to a timely submitted request prior to the bid opening date. Changes to the supplemental criteria, if warranted, will be issued by addendum to the solicitation documents and posted to the City's website for the attention of all prospective bidders.

D. DETERMINATION OF BIDDER RESPONSIBILITY

If the City determines the bidder does not meet the criteria above and is therefore not a responsible bidder, the City shall notify the bidder in writing with the reasons for its determination. If the bidder disagrees, the bidder may appeal the determination in a manner consistent with the City's Protest Policy. Appeals are coordinated by the Purchasing Division heard by the Procurement and Payables Division manager for contracts less than or equal to \$500,000 and by Contracts and Awards Board for contracts greater than \$500,000.

PART I

BID PROPOSAL AND CONTRACT FORMS

BID PROPOSAL

Specification No. ES 22-0265F

Wastewater Eductor Decant Facility Pipeline Project (Rebid)

The undersigned hereby certifies that he/she has examined the location and construction details of work as outlined on the Plans and Specifications for Project No. ENV-04024-03 and has read and thoroughly understands the Plans and Specifications and contract governing the work embraced in this improvement and the method by which payment will be made for said work, and hereby proposes to undertake and complete the work embraced in this improvement in accordance with said Plans, Specifications and contract and at the following schedule of rates and prices:

- NOTE: 1. Unit prices of all items, all extensions and total amount of bid should be shown. Show unit prices in figures only.
2. The notations below the item numbers refer to the specification section where information may be found regarding each contract item. These notations are intended only as a guide and are not warranted to refer to all specification sections where information may be found.

WASTEWATER SEWER IMPROVEMENTS (Rule 170)

ITEM NO.	ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT PRICE	TOTAL AMOUNT
WW1 1-05 SP	Project Redline Drawings	1 LS	<u>LUMP SUM</u>	<u>\$</u>
WW2 1-07 SP	SPCC Plan	1 LS	<u>LUMP SUM</u>	<u>\$</u>
WW3 1-09 SS	Mobilization	1 LS	<u>LUMP SUM</u>	<u>\$</u>
WW4 1-10 SP	Project Temporary Traffic Control	1 LS	<u>LUMP SUM</u>	<u>\$</u>
WW5 2-02 SS	Removal of Structures and Obstructions	1 LS	<u>LUMP SUM</u>	<u>\$</u>
WW6 2-02 SP	Abandon Piezometer	2 EA	<u>\$</u>	<u>\$</u>
WW7 2-03 SP	Roadway Excavation or Contaminated Material, Incl. Haul	35 CY	<u>\$</u>	<u>\$</u>
WW8 2-09 SP	Structure Excavation Class B	234 CY	<u>\$</u>	<u>\$</u>
WW9 2-09 SS	Shoring or Extra Excavation Class B	1,680 SF	<u>\$</u>	<u>\$</u>
WW10 2-09 SP	Structural Shoring - Portland Avenue Crossing	1 LS	<u>LUMP SUM</u>	<u>\$</u>
WW11 2-13 SP	Remove Tree	5 EA	<u>\$</u>	<u>\$</u>
WW12 2-14 SP	Remove Existing Pavement, Type II Class A8	150 SY	<u>\$</u>	<u>\$</u>

Contractor's Name: _____

Specification No. ES 22-0265F

ITEM NO.	ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT PRICE	TOTAL AMOUNT
WW13 2-17 SP	Site Health and Safety Plan	1 LS	<u>LUMP SUM</u>	<u>\$</u>
WW14 2-17 SP	Site Health and Safety Officer	1 LS	<u>LUMP SUM</u>	<u>\$</u>
WW15 2-17 SP	Soil Management Plan	1 LS	<u>LUMP SUM</u>	<u>\$</u>
WW16 4-04 SS	Crushed Surfacing Top Course	59 TN	<u>\$</u>	<u>\$</u>
WW17 4-04 SS	Crushed Surfacing Base Course	12 TN	<u>\$</u>	<u>\$</u>
WW18 5-04 SP	HMA Cl. 1/2 In. PG 58H-22 for Pavement Patch	31 TN	<u>\$</u>	<u>\$</u>
WW19 7-01 SP	Gravel Backfill for Drains	3.5 TN	<u>\$</u>	<u>\$</u>
WW20 7-01 SS	Underdrain Pipe 6 In. Diam.	10 LF	<u>\$</u>	<u>\$</u>
WW21 7-05 SP	Manhole Type 2, 96 In. Diam.	1 EA	<u>\$</u>	<u>\$</u>
WW22 7-05 SP	Manhole Type 1, 48 In. Diam.	2 EA	<u>\$</u>	<u>\$</u>
WW23 7-05 SP	Connect New Sewer Pipe 8 In. Diam., to Existing Structure (Screening Facility)	1 EA	<u>\$</u>	<u>\$</u>
WW24 7-05 SP	Connect New Sewer Pipe 8 In. Diam., to Existing Structure	2 EA	<u>\$</u>	<u>\$</u>
WW25 7-05 SP	Connect New Sewer Pipe 6 In. Diam., to Existing Structure	1 EA	<u>\$</u>	<u>\$</u>
WW26 7-05 SP	Reconnect Existing Sewer Pipe 10 In. Diam., to New Structure	1 EA	<u>\$</u>	<u>\$</u>
WW27 7-08 SP	CDF for Pipe Abandonment	2 CY	<u>\$</u>	<u>\$</u>
WW28 7-08 SP	Temporary Wastewater Sewer Bypass	1 LS	<u>LUMP SUM</u>	<u>\$</u>
WW29 7-08 SP	Temporary Wastewater Sewer Bypass Plan	1 LS	<u>LUMP SUM</u>	<u>\$</u>
WW30 7-08 SP	Underground Utility Potholing	10 EA	<u>\$</u>	<u>\$</u>

Contractor's Name: _____

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ITEM NO.	ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT PRICE	TOTAL AMOUNT
WW31 7-17 SP	Removal and Replacement of Unsuitable Contaminated Material, Incl. Haul	213 CY	\$ _____	\$ _____
WW32 7-17 SP	Ductile Iron Sewer Pipe 6 In. Diam.	7 LF	\$ _____	\$ _____
WW33 7-17 SP	PVC Sewer Pipe 8 In. Diam.	108 LF	\$ _____	\$ _____
WW34 7-17 SP	C900 PVC Sewer Pipe 8 In. Diam.	51 LF	\$ _____	\$ _____
WW35 7-17 SP	PVC Sewer Pipe 10 In. Diam.	27 LF	\$ _____	\$ _____
WW36 7-17 SP	Portland Avenue Jack and Bore Pipe Crossing	1 LS	LUMP SUM	\$ _____
WW37 7-17 SP	CDF Trench Backfill	28 CY	\$ _____	\$ _____
WW38 7-17 SP	Sewer Casing Under Water Main (STA 3+45)	1 LS	LUMP SUM	\$ _____
WW39 7-21 SP	Bioretention Soil Media	18 CY	\$ _____	\$ _____
WW40 7-21 SP	Bioswale Seed Mix	36 SY	\$ _____	\$ _____
WW41 8-01 SS	Erosion Control and Water Pollution Prevention	1 LS	LUMP SUM	\$ _____
WW42 8-01 SP	Storm Water Pollution Prevention Plan (SWPPP)	1 LS	LUMP SUM	\$ _____
WW43 8-01 SS	Inlet Protection	4 EA	\$ _____	\$ _____
WW44 8-01 SS	Silt Fence	100 LF	\$ _____	\$ _____
WW45 8-01 SS	Street Cleaning	30 HR	\$ _____	\$ _____
WW46 8-01 SP	Dewatering Plan	1 LS	LUMP SUM	\$ _____
WW47 8-01 SP	Dewatering	1 FA	\$50,000.00	\$ 50,000.00
WW48 8-02 SS	Seeded Lawn Installation	6 SY	\$ _____	\$ _____

Contractor's Name: _____

Specification No. ES 22-0265F

ITEM NO.	ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT PRICE	TOTAL AMOUNT
WW49 8-02 SP	Topsoil Type A	14 CY	\$ _____	\$ _____
WW50 8-02 SP	Arborist Wood Chip Mulch	5 CY	\$ _____	\$ _____
WW51 8-02 SP	Plant Selection Cupressocyparis leylandii/ Leyland Cypress; 6'-7' Ht.	3 EA	\$ _____	\$ _____
WW52 8-12 SP	Remove and Reinstall Chain Link Fence	40 LF	\$ _____	\$ _____

Base Bid (Subtotal Items Nos. WW1 - WW52) \$ _____

10.3% Sales Tax (Items Nos. WW1 - WW52) \$ _____

Contractor's Name: _____

Specification No. ES 22-0265F

SIGNATURE PAGE

CITY OF TACOMA Environmental Services Department

All submittals must be in ink or typewritten, executed by a duly authorized officer or representative of the bidding/proposing entity, and received and time stamped as directed in the **Request for Bids page near the beginning of the specification**. If the bidder/proposer is a subsidiary or doing business on behalf of another entity, so state, and provide the firm name under which business is hereby transacted.

REQUEST FOR BIDS ES22-0265F Wastewater Eductor Decant Facility Pipeline Project (Rebid)

The undersigned bidder/proposer hereby agrees to execute the proposed contract and furnish all materials, labor, tools, equipment and all other facilities and services in accordance with these specifications.

The bidder/proposer agrees, by submitting a bid/proposal under these specifications, that in the event any litigation should arise concerning the submission of bids/proposals or the award of contract under this specification, Request for Bids, Request for Proposals or Request for Qualifications, the venue of such action or litigation shall be in the Superior Court of the State of Washington, in and for the County of Pierce.

Non-Collusion Declaration

The undersigned bidder/proposer hereby certifies under penalty of perjury that this bid/proposal is genuine and not a sham or collusive bid/proposal, or made in the interests or on behalf of any person or entity not herein named; and that said bidder/proposer has not directly or indirectly induced or solicited any contractor or supplier on the above work to put in a sham bid/proposal or any person or entity to refrain from submitting a bid/proposal; and that said bidder/proposer has not, in any manner, sought by collusion to secure to itself an advantage over any other contractor(s) or person(s).

Bidder/Proposer's Registered Name

Signature of Person Authorized to Enter Date
into Contracts for Bidder/Proposer

Address

Printed Name and Title

City, State, Zip

(Area Code) Telephone Number / Fax Number

Authorized Signatory E-Mail Address

State Business License Number
in WA, also known as UBI (Unified Business Identifier) Number

E.I.No. / Federal Social Security Number Used on Quarterly
Federal Tax Return, U.S. Treasury Dept. Form 941

State Contractor's License Number
(See Ch. 18.27, R.C.W.)

E-Mail Address for Communications

Addendum acknowledgement #1_____ #2_____ #3_____ #4_____ #5_____

THIS PAGE MUST BE SIGNED AND RETURNED WITH SUBMITTAL.

Herewith find deposit in the form of a cashier's check in the amount of \$_____ which amount is not less than 5-percent 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 Tacoma, 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

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:

Received return of deposit in the sum of \$ _____, 20_____



City of Tacoma

Certification of Compliance with Wage Payment Statutes

The bidder hereby certifies that, within the three-year period immediately preceding the bid solicitation date (August 2, 2022), that the bidder is not a “willful” violator, as defined in RCW 49.48.082, of any provision of chapters 49.46, 49.48, or 49.52 RCW, as 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.

I certify under penalty of perjury under the laws of the state of Washington that the foregoing is true and correct.

Bidder

Signature of Authorized Official*

Printed Name

Title

Date

City

State

Check One:

Individual ☐

Partnership ☐

Joint Venture ☐

Corporation ☐

State of Incorporation, or if not a corporation, the state where business entity was formed:

If a co-partnership, give firm name under which business is transacted:

** If a corporation, proposal must be executed in the corporate name by the president or vice-president (or any other corporate officer accompanied by evidence of authority to sign). If a co-partnership, proposal must be executed by a partner.*

Specification No. _____

Name of Bidder: _____

State Responsibility and Reciprocal Bid Preference Information

Certificate of registration as a contractor
(Must be in effect at the time of bid submittal):

Number: _____

Effective Date: _____

Expiration Date: _____

Current Washington Unified Business Identifier
(UBI) Number:

Number: _____

Do you have industrial insurance (workers' compensation)
Coverage nor your employees working in Washington?

☐ Yes ☐ No
☐ Not Applicable

Washington Employment Security Department Number

Number: _____

☐ Not Applicable

Washington Department of Revenue state excise tax
Registration number:

Number: _____

☐ Not Applicable

Have you been disqualified from bidding any public
works contracts under RCW 39.06.010 or 39.12.065(3)?

☐ Yes ☐ No
If yes, provide an explanation of your
disqualification on a separate page.

Do you have a physical office located in the state of
Washington?

☐ Yes ☐ No

If incorporated, in what state were you incorporated?

State: _____ ☐ Not Incorporated

If not incorporated, in what state was your business
entity formed?

State: _____

Have you completed the training required by RCW
39.04.350, or are you on the list of exempt businesses
maintained by the Department of Labor and Industries?

☐ Yes ☐ No

STATEMENT OF QUALIFICATIONS FOR JACK AND BORE CONTRACTOR

This form shall be completed in its entirety and submitted with the bid for all workers including any relief personnel if needed for a second shift. (Use additional copies of this form for a second shift of personnel, if necessary). **Failure to submit and meet the requirements as stated in Section 1-02.1 of the Special Provisions shall be grounds for rejection of the Bid.**

The City of Tacoma will be the sole judge in determining if the prospective Contractor meets the minimum experience requirements.

The pipe jacking contractor shall have a minimum field experience of at least three (3) pipe jacking projects within the last five years installing minimum 12-inch diameter steel casing pipe, each having a total distance of at least 200 feet.

The pipe jacking superintendent performing the pipe jacking work shall have a minimum of five (5) years of experience for similar pipe jacking installation.

The pipe jacking operator shall have technical training in the operation of the equipment proposed for this project and shall have completed at least three (3) pipe jacking projects involving a minimum of 200 feet each of minimum 12-Inch diameter steel casing pipe each utilizing similar methods and equipment proposed for this project.

Contractor or Subcontractor:

Name: _____
Address: _____
Phone: _____ Contact Person: _____

List 3 successfully completed projects that were a minimum of 200 linear feet each of minimum 12-inch diameter steel casings.

#1 Project Name: _____
Owner: _____ Contact Person: _____
Size of Pipe: _____ Total Length Installed: _____
Completion Date: _____

#2 Project Name: _____
Owner: _____ Contact Person: _____
Size of Pipe: _____ Total Length Installed: _____
Completion Date: _____

#3 Project Name: _____
Owner: _____ Contact Person: _____
Size of Pipe: _____ Total Length Installed: _____
Completion Date: _____

Superintendent:

Name: _____
Address: _____
Phone: _____

List projects successfully completed extending back a minimum of five years. Attach additional sheets as necessary.

#1 Project Name: _____
Owner: _____ Contact Person: _____
Name of Contractor Employed By: _____
Size of Pipe: _____ Total Length Installed: _____
Completion Date: _____

#2 Project Name: _____
Owner: _____ Contact Person: _____
Name of Contractor Employed By: _____
Size of Pipe: _____ Total Length Installed: _____
Completion Date: _____

#3 Project Name: _____
Owner: _____ Contact Person: _____
Name of Contractor Employed By: _____
Size of Pipe: _____ Total Length Installed: _____
Completion Date: _____

#4 Project Name: _____
Owner: _____ Contact Person: _____
Name of Contractor Employed By: _____
Size of Pipe: _____ Total Length Installed: _____
Completion Date: _____

Pipe Jacking Operator:

Name: _____
Address: _____
Phone: _____ Contact Person: _____

List 3 successfully completed projects that were a minimum of 200 linear feet each of minimum 12-inch diameter steel casings utilizing similar methods and equipment proposed for this project.

#1 Project Name: _____
Owner: _____ Contact Person: _____
Size of Pipe: _____ Total Length Installed: _____
Completion Date: _____

#2 Project Name: _____
Owner: _____ Contact Person: _____
Size of Pipe: _____ Total Length Installed: _____
Completion Date: _____

#3 Project Name: _____
Owner: _____ Contact Person: _____
Size of Pipe: _____ Total Length Installed: _____
Completion Date: _____

STATEMENT OF QUALIFICATIONS FOR RAVEN 405 CONTRACTOR

This form shall be completed in its entirety and submitted with the bid for all workers including any relief personnel if needed for a second shift. (Use additional copies of this form for a second shift of personnel, if necessary). **Failure to submit and meet the requirements as stated in Section 1-02.1 of the Special Provisions shall be grounds for rejection of the Bid.**

The City of Tacoma will be the sole judge in determining if the prospective Contractor meets the minimum experience requirements.

The Contractor shall specialize in performing the work of this specification and shall have successfully completed a total of, at least 10,000 square feet of surface preparatory work and at least 10,000 square feet of application of the Raven lining system, or approved equivalent. This work shall have all occurred within the last ten years and shall have all been completed and in service for at least one year. Contractor shall describe in the format set forth below the successfully completed projects that demonstrate that the Contractor, or its subcontractors, meet the foregoing experience requirements.

If the Contractor is utilizing a Subcontractor to perform this work, the Subcontractor and its onsite Superintendent shall individually meet these same experience requirements as the Contractor. The Subcontractor's experience and the Subcontractor's onsite superintendent's experience may be substituted for the Contractor's experience.

Each individual to be utilized as an applicator by the Contractor or Subcontractor shall have a minimum of five years' experience each in performing the category of work outlined in this specification. In addition, each applicator shall be certified by the coating manufacturer as being qualified for the application of the approved coating product. Proof of current certification for each applicator to be used shall be required after award. Superintendent required to be onsite during all cleaning, resurfacing, and painting activities.

Contractor or Subcontractor:

Name: _____

Address: _____

Phone: _____ Contact Person: _____

List successfully completed projects within the last ten years, totaling at least 10,000 square feet, that have been completed and in service for at least one year. Attach additional sheets or use the back of page, if necessary.

#1 Project Name: _____

Owner: _____

Contact Person: _____ Phone: _____

Description of Work: _____

Square Feet of Coating Installed: _____

Product Used: _____

Completion Date: _____

#2 Project Name: _____
Owner: _____
Contact Person: _____ Phone: _____
Description of Work: _____

Square Feet of Coating Installed: _____
Product Used: _____
Completion Date: _____

#3 Project Name: _____
Owner: _____
Contact Person: _____ Phone: _____
Description of Work: _____

Square Feet of Coating Installed: _____
Product Used: _____
Completion Date: _____

#4 Project Name: _____
Owner: _____
Contact Person: _____ Phone: _____
Description of Work: _____

Square Feet of Coating Installed: _____
Product Used: _____
Completion Date: _____

#5 Project Name: _____
Owner: _____
Contact Person: _____ Phone: _____
Description of Work: _____

Square Feet of Coating Installed: _____
Product Used: _____
Completion Date: _____

Superintendent (onsite person overseeing installation of coating):

Name: _____
Address: _____
Phone: _____

List successfully completed projects within the last ten years, totaling at least 10,000 square feet, that have been completed and in service for at least one year. Attach additional sheets or use the back of page, if necessary.

#1 Project Name: _____
Owner: _____
Contact Person: _____ Phone: _____
Description of Work: _____

Square Feet of Coating Installed: _____
Product Used: _____
Completion Date: _____

#2 Project Name: _____
Owner: _____
Contact Person: _____ Phone: _____
Description of Work: _____

Square Feet of Coating Installed: _____
Product Used: _____
Completion Date: _____

#3 Project Name: _____
Owner: _____
Contact Person: _____ Phone: _____
Description of Work: _____

Square Feet of Coating Installed: _____
Product Used: _____
Completion Date: _____

#4 Project Name: _____
Owner: _____
Contact Person: _____ Phone: _____
Description of Work: _____

Square Feet of Coating Installed: _____
Product Used: _____
Completion Date: _____

#5 Project Name: _____
Owner: _____
Contact Person: _____ Phone: _____
Description of Work: _____

Square Feet of Coating Installed: _____
Product Used: _____
Completion Date: _____

CONTRACT

Resolution No. [#####]
Contract No. [#####]

This Contract is made and entered into effective as of [Month], [Day], [Year] ("Effective Date") by and between the City of Tacoma, a Municipal Corporation of the State of Washington ("City"), and [supplier name as it appears in Ariba, including dbas or trade names] ("Contractor"). [Contract date should match date of award letter and month should be formally spelled out]

That in consideration of the mutual promises and obligations hereinafter set forth the Parties hereto agree as follows:

- I. Contractor shall fully execute and diligently and completely perform all work and provide all services and deliverables described herein and in the items listed below each of which are fully incorporated herein and which collectively are referred to as "Contract Documents":

-
1. Specification No. [Spec Number] [Spec Title] together with all authorized addenda.
 2. Contractor's submittal [or specifically described portions thereof] dated [Enter Submittal Date] submitted in response to Specification No. [Spec Number] [Spec Title].
 3. Describe with specific detail and list separately any other documents that will make up the contract (fee schedule, work schedule, authorized personnel, etc.) or any other additional items mutually intended to be binding upon the parties.
-

[Delete this highlighted sentence, paragraph III and sub-bullets #1 and #2 if there are no additional attachments to the contract (attachments would be things other than a spec, contract, or bonds)]

- II. If federal funds will be used to fund, pay or reimburse all or a portion of the services provided under the Contract, the terms and conditions set forth at this Appendix A are incorporated into and made part of this Contract and CONTRACTOR will comply with all applicable provisions of Appendix A and with all applicable federal laws, regulations, executive orders, policies, procedures, and directives in the performance of this Contract.

If CONTRACTOR's receipt of federal funds under this Contract is as a sub-recipient, a fully completed Appendix B, "Sub-recipient Information and Requirements" is incorporated into and made part of this Contract.

- III. In the event of a conflict or inconsistency between the terms and conditions contained in this document entitled Contract and any terms and conditions contained the above referenced Contract Documents the following order of precedence applies with the first listed item being the most controlling and the last listed item the least controlling:

1. Contract, inclusive of Appendices A and B.
2. List remaining Contract Documents in applicable controlling order. [If the only contract documents are the specification and submittal and no exceptions are taken in the submittal, this section should be deleted]

- IV. The Contract terminates on xxxxx, and may be renewed for xxxxxxxx [Complete as needed and as stated in the specification]

- V. The total price to be paid by City for Contractor's full and complete performance hereunder, including during any authorized renewal terms, may not exceed:
\$[Dollar Amount], plus any applicable taxes.

- VI. Contractor agrees to accept as full payment hereunder the amounts specified herein and in Contract Documents, and the City agrees to make payments at the times and in the manner and upon the terms and conditions specified. Except as may be otherwise provided herein or in Contract Documents Contractor shall provide and bear the expense of all equipment, work and labor of any sort whatsoever that may be required for the transfer of materials and for constructing and completing the work and providing the services and deliverables required by this Contract.

- VII. The City's preferred method of payment is by ePayables (Payment Plus), followed by credit card (aka procurement card), then Electronic Funds Transfer (EFT) by Automated Clearing House (ACH), then check or other cash equivalent. CONTRACTOR may be required to have the capability of accepting the City's ePayables or credit card methods of payment. The City of Tacoma will not accept price changes or pay additional fees when ePayables (Payment Plus) or credit card is used. The City, in its sole discretion, will determine the method of payment for this Contract.
- VIII. Failure by City to identify a deficiency in the insurance documentation provided by Contractor or failure of City to demand verification of coverage or compliance by Contractor with the insurance requirements contained in the Contract Documents shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- IX. Contractor and for its heirs, executors, administrators, successors, and assigns, does hereby agree to the full performance of all the requirements contained herein and in Contract Documents.
- It is further provided that no liability shall attach to City by reason of entering into this Contract, except as expressly provided herein.

IN WITNESS WHEREOF, the Parties hereto have accepted and executed this Contract, as of the Effective Date stated above, which shall be Effective Date for bonding purposes as applicable.

CITY OF TACOMA:

Signature:

Name:

Title:

CONTRACTOR:

Signature:

Name:

Title:

(City of Tacoma use only - blank lines are intentional)

Director of Finance: _____

Deputy/City Attorney (approved as to form): _____

Approved By: _____

Approved By: _____

Approved By: _____

Approved By: _____

Approved By: _____

Approved By: _____

**APPENDIX A
FEDERAL FUNDING**

1. Termination for Breach

CITY may terminate this Contract in the event of any material breach of any of the terms and conditions of this Contract if CONTRACTOR's breach continues in effect after written notice of breach and 30 days to cure such breach and fails to cure such breach.

2. Prevailing Wages

1. If federal, state, local, or any applicable law requires CONTRACTOR to pay prevailing wages in connection with this Contract, and CONTRACTOR is so notified by the CITY, then CONTRACTOR shall pay applicable prevailing wages and otherwise comply with the Washington State Prevailing Wage Act (RCW 39.12) in the performance of this Contract.
2. If applicable, a Schedule of Prevailing Wage Rates and/or the current prevailing wage determination made by the Secretary of Labor for the locality or localities where the Contract will be performed is made of part of the Contract by this reference. If prevailing wages apply to the Contract, CONTRACTOR and its subcontractors shall:
 - i. Be bound by and perform all transactions regarding the Contract relating to prevailing wages and the usual fringe benefits in compliance with the provisions of Chapter 39.12 RCW, as amended, the Washington State Prevailing Wage Act and/or the Davis-Bacon Act (40 U.S.C. 3141- 3144, and 3146-3148) and the requirements of 29 C.F.R. pt. 5 as may be applicable, including the federal requirement to pay wages not less than once a week.
 - ii. Ensure that no worker, laborer or mechanic employed in the performance of any part of the Contract shall be paid less than the prevailing rate of wage specified on that Schedule and/or specified in a wage determination made by the Secretary of Labor (unless specifically preempted by federal law, the higher of the Washington state prevailing wage or federal Davis-Bacon rate of wage must be paid.
 - iii. Immediately upon award of the Contract, contact the Department of Labor and Industries, Prevailing Wages section, Olympia, Washington and/or the federal Department of Labor, to obtain full information, forms and procedures relating to these matters. Per such procedures, a Statement of Intent to Pay Prevailing Wages and/or other or additional documentation required by applicable federal law, must be submitted by CONTRACTOR and its subcontractors to the CITY, in the manner requested by the CITY, prior to any payment by the CITY hereunder, and an Affidavit of Wages Paid and/or other or additional documentation required by federal law must be received or verified by the CITY prior to final Contract payment.

3. COPELAND ANTI-KICKBACK ACT

For Contracts subject to Davis Bacon Act the following clauses will be incorporated into the Contract:

- A. CONTRACTOR shall comply with 18 U.S.C. § 874, 40 U.S.C. § 3145, and the requirements of 29 C.F.R. pt. 3 as may be applicable, which are incorporated by reference into this Contract.

- B. CONTRACTOR or subcontractor shall insert in any subcontracts the clause above and such other clauses federal agencies may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all of these Contract clauses.
- C. Breach. A breach of the contract clauses above may be grounds for termination of the contract, and for debarment as a contractor and subcontractor as provided in 29 C.F.R. § 5.12.

4. EQUAL EMPLOYMENT OPPORTUNITY

During the performance of this Contract, CONTRACTOR will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. If the CONTRACTOR does over \$10,000 in business a year that is funded, paid or reimbursed with federal funds, CONTRACTOR will take specific and affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following:

- A. Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. CONTRACTOR agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
- B. CONTRACTOR will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.
- C. CONTRACTOR will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the Contractor's legal duty to furnish information.
- D. CONTRACTOR will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- E. CONTRACTOR will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

- F. In the event of CONTRACTOR's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this Contract may be canceled, terminated, or suspended in whole or in part and the CONTRACTOR may be declared ineligible for further federally funded contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
- G. CONTRACTOR will include the portion of the sentence immediately preceding paragraph (A) and the provisions of paragraphs (A) through (G) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. CONTRACTOR will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance:

Provided, however, that in the event CONTRACTOR becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the CONTRACTOR may request the United States to enter into such litigation to protect the interests of the United States.

5. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

- A. Overtime requirements. Neither CONTRACTOR or subcontractor contracting for any part of the Contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.
- B. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (3)(A) of this section the CONTRACTOR and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such CONTRACTOR and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (3)(A) of this section, in the sum of \$27 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (3)(A) of this section.

- C. Withholding for unpaid wages and liquidated damages. The CITY shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the CONTRACTOR or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such CONTRACTOR or sub-contractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (3)(B) of this section.
- D. Subcontracts. The Contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (3)(A) through (D) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime CONTRACTOR shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (3)(A) through (D) of this section.

6. CLEAN AIR ACT

- A. CONTRACTOR agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. § 7401 et seq.
- B. CONTRACTOR agrees to report each violation to the CITY and understands and agrees that the CITY will, in turn, report each violation as required to assure notification to the Federal Emergency Management Agency, and the appropriate Environmental Protection Agency Regional Office.

CONTRACTOR agrees to include these requirements in each subcontract exceeding \$150,000 financed in whole or in part with federal funds.

7. FEDERAL WATER POLLUTION CONTROL ACT

- A. CONTRACTOR agrees to comply with all applicable standards, orders, or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq.
- B. CONTRACTOR agrees to report each violation to the CITY and understands and agrees that the CITY will, in turn, report each violation as required to assure notification to the appropriate federal agency.
- C. CONTRACTOR agrees to include these requirements in each subcontract exceeding \$150,000 financed in whole or in part with federal funding.

8. DEBARMENT AND SUSPENSION

- A. This Contract is a Covered Transaction for purposes of 2 C.F.R. pt. 180 and 2 C.F.R. pt. 3000. As such, the CONTRACTOR is required to verify that none of the contractor's principals (defined at 2 C.F.R. § 180.995) or its affiliates (defined at 2 C.F.R. § 180.905) are excluded (defined at 2 C.F.R. § 180.940) or disqualified (defined at 2 C.F.R. § 180.935).

- B. CONTRACTOR must comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, and must include a requirement to comply with these regulations in any lower tier Covered Transaction it enters into.
- C. This certification is a material representation of fact relied upon by the CITY. If it is later determined that the CONTRACTOR did not comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, in addition to remedies available to CITY, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment.
- D. CONTRACTOR agrees to comply with the requirements of 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C throughout the period of this Contract and to include a provision requiring such compliance in its lower tier covered transactions.

9. BYRD ANTI-LOBBYING AMENDMENT

- A. Contractors who apply or bid for an award of \$100,000 or more shall file the required certification with CITY. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, officer or employee of Congress, or an employee of a Member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 U.S.C. § 1352. Each tier shall also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the recipient who in turn will forward the certification(s) to the CITY.
- B. If applicable, CONTRACTOR must sign and submit to the CITY the certification required by Appendix A to 44 CFR Part 18 contained at Appendix A-1 to this Contract.

10. PROCUREMENT OF RECOVERED MATERIALS

- A. In the performance of this Contract, CONTRACTOR shall make maximum use of products containing recovered materials that are EPA-designated items unless the product cannot be acquired:
 - i. Competitively within a timeframe providing for compliance with the contract performance schedule;
 - ii. Meeting contract performance requirements; or
 - iii. At a reasonable price.
- B. Information about this requirement, along with the list of EPA- designated items, is available at EPA's Comprehensive Procurement Guidelines web site, <https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program>.
- C. CONTRACTOR also agrees to comply with all other applicable requirements of Section 6002 of the Solid Waste Disposal Act.

APPENDIX A-1

APPENDIX A to 44 C.F.R. PART 18 – CERTIFICATION REGARDING LOBBYING Certification for Contracts, Grants, Loans, and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

The Contractor, _____, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. Chap.38, Administrative Remedies for False Claims and Statements, apply to this certification and disclosure, if any.

Signature of Contractor's Authorized Official

Name and Title of Contractor's Authorized Official

Date

APPENDIX B—Sub-recipient information and requirements

Pursuant to 2 CFR 200.332(a)(1) Federal Award Identification

(i) Agency Name (must match the name associated with its unique entity identifier)		(ii) Unique Entity Identifier <i>(i.e., DUNS)</i>	City of Tacoma Number for This Agreement
(iii) Federal Award Identification Number (FAIN)	(iv) Federal Award Date	(v) Federal Period of Performance Start and End Date	(vi) Federal Budget Period Start and End Date
(vii) Amount of Federal Funds <i>Obligated</i> to the agency <i>by this action</i>: \$	(viii) Total Amount of Federal Funds <i>Obligated</i> to the agency		(ix) Total Amount of the Federal Award <i>Committed</i> to the agency \$
(x) Federal Award Project Description: CORONAVIRUS STATE AND LOCAL FISCAL RECOVERY FUNDS– City of Tacoma			
(xi) Federal Awarding Agency: DEPARTMENT OF THE TREASURY	Pass-Through Entity: City of Tacoma	Awarding Official Name and Contact Information:	
(xii) Assistance Listing Number and Name (the pass-through entity must identify the dollar amount made available under each Federal award and the Assistance Listing number at time of disbursement)			(xiii) Identification of Whether the Award is R&D
(xiv) Indirect Cost Rate for the Federal Award	Award Payment Method (lump sum payment or reimbursement) REIMBURSEMENT		



PAYMENT BOND TO THE CITY OF TACOMA

Resolution No.
Bond No.

That we, the undersigned,

as principal, and _____
as a surety, are jointly and severally held and firmly bound to the CITY OF TACOMA, in the penal sum of,
\$ _____, for the payment whereof Contractor and Surety bind themselves,
their executors, administrators, legal representatives, successors and assigns, jointly and severally, firmly by these presents.

This obligation is entered into in pursuance of the statutes of the State of Washington, the Ordinances of the City of Tacoma.

WHEREAS, under and pursuant to the City Charter and general ordinances of the City of Tacoma, the said City has or is about to enter with the above bounden principal, a contract, providing for

Specification No. _____

Specification Title: _____

Contract No. _____

(which contract is referenced to herein and is made a part hereof as though attached hereto), and

WHEREAS, the said principal has accepted, the said contract, and undertake to perform the work therein provided for in the manner and within the time set forth.

This statutory payment bond shall become null and void, if and when the Principal, its heirs, executors, administrators, successors, or assigns shall pay all persons in accordance with RCW 39.08, 39.12, and 60.28, including all workers, laborers, mechanics, subcontractors, and materialmen, and all person who shall supply such contractor or subcontractor with provisions and supplies for the carrying on of such work, and all taxes incurred on said Contract under Titles 50 and 51 RCW and all taxes imposed on the Principal under Title 82 RCW; and if such payment obligations have not been fulfilled, this bond shall remain in full force and effect.

The Surety for value received agrees that no change, extension of time, alteration or addition to the terms of the Contract shall in any way affect its obligation on this bond, and waives notice of any changes, extension of time, alteration or addition to the terms of the Contract or the work performed. The Surety agrees that modifications and changes to the terms and conditions of the Contract that increase the total amount to be paid the Principal shall automatically increase the obligation of the Surety on this bond and notice to Surety is not required for such increased obligation.

No suit or action shall be commenced hereunder by any claimant unless claimant shall have given the written notices to the City, and where required, the Contractor, in accordance with RCW 39.08.030.

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 claims which may be properly filed in accordance with RCW 39.08 whether or not suit is commenced under and against this bond.

If any claimant shall commence suit and obtain judgment against the Surety for recovery hereunder, then the Surety, in addition to such judgment and attorney fees as provided by RCW 39.08.030, shall also pay such costs and attorney fees as may be incurred by the City as a result of such suit. Venue for any action arising out of or in connection with this bond shall be in Pierce County, WA.

Surety companies executing bonds must be authorized to transact business in the State of Washington as surety and named in the current list of "Surety Companies Acceptable in Federal Bonds" as published in the Federal Register by the Audit Staff Bureau of Accounts, U.S. Department of the Treasury.

Resolution No.
Bond No.
Specification No.
Contract No.

One original bond shall be executed, and be signed by the parties' duly authorized officers. This bond will only be accepted if it is accompanied by a fully executed power of attorney for the office executing on behalf of the surety.

Principal: Enter Vendor Legal Name

By: _____

Surety:

By: _____

Agent's Name: _____

Agent's Address: _____

SAMPLE



PERFORMANCE BOND TO THE CITY OF TACOMA

Resolution No.
Bond No.

That we, the undersigned,

as principal, and

as a surety, are jointly and severally held and firmly bound to the CITY OF TACOMA, in the penal sum of

\$ _____, for the payment whereof Contractor and Surety bind themselves,

their executors, administrators, legal representatives, successors and assigns, jointly and severally, firmly by these presents.

This obligation is entered into in pursuance of the statutes of the State of Washington, the Ordinances of the City of Tacoma.

WHEREAS, under and pursuant to the City Charter and general ordinances of the City of Tacoma, the said City has or is about to enter with the above bounden principal, a contract, providing for

Specification No. _____

Specification Title: _____

Contract No. _____

(which contract is referenced to herein and is made a part hereof as though attached hereto), and

WHEREAS, the said principal has accepted, the said contract, and undertake to perform the work therein provided for in the manner and within the time set forth.

This statutory performance bond shall become null and void, if and when the principal, its heirs, executors, administrators, successors, or assigns shall well and faithfully perform all of the Principal's obligations under the Contract and fulfill all terms and conditions of all duly authorized modifications, additions and changes to said Contract that may hereafter be made, at the time and in the manner therein specified; and if such performance obligations have not been fulfilled, this bond shall remain in force and effect.

The Surety for value received agrees that no change, extension of time, alteration or addition to the terms of the Contract, the specifications accompanying the Contract, or to the work to be performed under the Contract shall in any way affect its obligation on this bond, and waives notice of any change, extension of time, alteration or addition to the terms of the Contract or the work performed. The Surety agrees that modifications and changes to the terms and conditions of the Contract that increase the total amount to be paid the Principal shall automatically increase the obligation of the Surety on this bond and notice to Surety is not required for such increase.

If the City shall commence suit and obtain judgment against the Surety for recovery hereunder, then the Surety, in addition to such judgement, shall pay all costs and attorney's fees incurred by the City in enforcement of its rights hereunder. Venue for any action arising out of in connection with this bond shall be in Pierce County, Washington.

Surety companies executing bonds must be authorized to transact business in the State of Washington as surety and named in the current list of "Surety Companies Acceptable in Federal Bonds" as published in the Federal Register by the Audit Staff Bureau of Accounts, U.S. Department of the Treasury.

One original bond shall be executed, and signed by the parties' duly authorized officers. This bond will only be accepted if it is accompanied by a fully executed power of attorney for the office executing on behalf of the surety.

Principal: Enter Vendor Legal Name

By: _____

Surety:

By: _____

Agent's Name: _____

Agent's Address: _____

GENERAL RELEASE TO THE CITY OF TACOMA

The undersigned, named as the contractor for _____
between _____ and the City of Tacoma,
dated _____, 20____, hereby releases the City of
Tacoma, its departmental officers and agents from any and all claim or claims
whatsoever in any manner whatsoever at any time whatsoever arising out of and/or in
connection with and/or relating to said contract, excepting only the equity of the
undersigned in the amount now retained by the City of Tacoma under said contract, to-
wit the sum of \$_____.

Signed at Tacoma, Washington this _____ day of _____, 20____.

Contractor

By _____

Title _____

PART II

SPECIAL PROVISIONS

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1 **INTRODUCTION**
2 **(April 1, 2018 Tacoma GSP)**
3

4 The following special provisions shall be used in conjunction with the "2021 Standard
5 Specifications for Road, Bridge and Municipal Construction" and "Standard Plans for
6 Road, Bridge, and Municipal Construction" as prepared by the Washington State
7 Department of Transportation (WSDOT). State Standard Specifications are available
8 through WSDOT, by calling (360) 705-7430, emailing engrpubs@wsdot.wa.gov, or
9 may be downloaded, free of charge, from this location on the WSDOT home page:
10 <http://www.wsdot.wa.gov/Publications/Manuals/M41-10.htm>
11

12 These Special Provisions are made up of both General Special Provisions (GSPs)
13 from various sources, which may have project-specific fill-ins; and project-specific
14 Special Provisions. Each Provision either supplements, modifies, or replaces the
15 comparable Standard Specification, or is a new Provision. The deletion, amendment,
16 alteration, or addition to any subsection or portion of the Standard Specifications is
17 meant to pertain only to that particular portion of the section, and in no way should it
18 be interpreted that the balance of the section does not apply.
19

20 The GSPs are labeled under the headers of each GSP, with the date of the GSP and
21 its source, as follows:
22

23 *(May 18, 2007 APWA GSP)*
24 *(August 7, 2006 WSDOT GSP)*
25 *(April 2, 2007 Tacoma GSP)*
26

27 The project specific Special Provisions are labeled under the headers of each Special
28 Provision as follows:
29

30 **(*****)**
31

32 A pre-proposal meeting will be held via conference call at 10:00 A.M. PST, August 8,
33 2022. The phone number is 1 (888) 850-4523 and the access code is 544766. This
34 conference call will answer questions regarding the Local Employment and
35 Apprenticeship Training Program (LEAP) requirements included in the Contract.
36 Prospective bidders are urged to call in.
37

38 **DESCRIPTION OF WORK**

39 **(*****)**
40

41 This Contract shall generally consist of constructing approximately 330 feet of 8-inch
42 and 10-inch sewer main including new manholes. Approximately 138 feet of the 8-inch
43 sewer main will be installed in a steel casing installed under Portland Avenue using
44 Jack and Bore methods. Work will also include pavement and other hard surface
45 restoration and restoration of miscellaneous improvements disturbed during
46 construction.
47

48 **END OF SECTION**

1 **1-01 DEFINITIONS AND TERMS**

2
3 **1-01.3 Definitions**

4 **(January 4, 2016 APWA GSP)**

5 *Delete the heading Completion Dates and the three paragraphs that follow it, and replace*
6 *them with the following:*

7
8 **Dates**

9 ***Bid Opening Date***

10 The date on which the Contracting Agency publicly opens and reads the Bids.

11 ***Award Date***

12 The date of the formal decision of the Contracting Agency to accept the lowest
13 responsible and responsive Bidder for the Work.

14 ***Contract Execution Date***

15 The date the Contracting Agency officially binds the Agency to the Contract.

16 ***Notice to Proceed Date***

17 The date stated in the Notice to Proceed on which the Contract time begins.

18 ***Substantial Completion Date***

19 The day the Engineer determines the Contracting Agency has full and unrestricted
20 use and benefit of the facilities, both from the operational and safety standpoint,
21 any remaining traffic disruptions will be rare and brief, and only minor incidental
22 work, replacement of temporary substitute facilities, plant establishment periods,
23 or correction or repair remains for the Physical Completion of the total Contract.

24 ***Physical Completion Date***

25 The day all of the Work is physically completed on the project. All documentation
26 required by the Contract and required by law does not necessarily need to be
27 furnished by the Contractor by this date.

28 ***Completion Date***

29 The day all the Work specified in the Contract is completed and all the obligations
30 of the Contractor under the contract are fulfilled by the Contractor. All
31 documentation required by the Contract and required by law must be furnished by
32 the Contractor before establishment of this date.

33 ***Final Acceptance Date***

34 The date on which the Contracting Agency accepts the Work as complete.

35
36 *Supplement this section with the following:*

37
38 All references in the Standard Specifications, Amendments, or WSDOT General
39 Special Provisions, to the terms "Department of Transportation", "Washington State
40 Transportation Commission", "Commission", "Secretary of Transportation",
41 "Secretary", "Headquarters", and "State Treasurer" shall be revised to read
42 "Contracting Agency".

43
44 All references to the terms "State" or "state" shall be revised to read "Contracting
45 Agency" unless the reference is to an administrative agency of the State of
46 Washington, a State statute or regulation, or the context reasonably indicates
47 otherwise.
48

1 All references to "State Materials Laboratory" shall be revised to read "Contracting
2 Agency designated location".

3
4 All references to "final contract voucher certification" shall be interpreted to mean the
5 Contracting Agency form(s) by which final payment is authorized, and final completion
6 and acceptance granted.

7
8 **Additive**

9 A supplemental unit of work or group of bid items, identified separately in the Bid
10 Proposal, which may, at the discretion of the Contracting Agency, be awarded in
11 addition to the base bid.

12
13 **Alternate**

14 One of two or more units of work or groups of bid items, identified separately in the
15 Bid Proposal, from which the Contracting Agency may make a choice between
16 different methods or material of construction for performing the same work.

17
18 **Business Day**

19 A business day is any day from Monday through Friday except holidays as listed in
20 Section 1-08.5.

21
22 **Contract Bond**

23 The definition in the Standard Specifications for "Contract Bond" applies to whatever
24 bond form(s) are required by the Contract Documents, which may be a combination of
25 a Payment Bond and a Performance Bond.

26
27 **Contract Documents**

28 See definition for "Contract".

29
30 **Contract Time**

31 The period of time established by the terms and conditions of the Contract within which
32 the Work must be physically completed.

33
34 **Notice of Award**

35 The written notice from the Contracting Agency to the successful Bidder signifying the
36 Contracting Agency's acceptance of the Bid Proposal.

37
38 **Notice to Proceed**

39 The written notice from the Contracting Agency or Engineer to the Contractor
40 authorizing and directing the Contractor to proceed with the Work and establishing the
41 date on which the Contract time begins.

42
43 **Traffic**

44 Both vehicular and non-vehicular traffic, such as pedestrians, bicyclists, wheelchairs,
45 and equestrian traffic.

1 *This section is supplemented with the following:*
2 **(April 15, 2020 Tacoma GSP)**

3
4 All references to the acronym UDBE” shall be revised to read “DBE/EIC”.

5
6 All references in the Standard Specifications to the term “Proposal Bond” shall be
7 revised to read “Bid Bond.”

8
9 **Base Bid**

10 The summation of Bid Item amounts (extensions) in the Bid Forms, excluding
11 Additives, Alternates, Deductives, Force Accounts, and taxes collected separately
12 pursuant to Section 1-07.2.

13
14 **Calendar Day**

15 The time period of 24 hours measured from midnight to the next midnight, including
16 weekends and holidays.

17
18 **Change Order**

19 A written order to the Contractor, issued by the Contracting Agency after execution of
20 the contract, authorizing an addition, deletion, or other revision in the Work, within the
21 scope of the Contract Documents, and establishing the basis of payment and time
22 adjustments, if any, for the Work affected by the change.

23
24 **Day**

25 Unless otherwise specified, a calendar day.

26
27 **Deductive**

28 A supplemental unit of work or group of Bid Items, identified separately in the Bid,
29 which may, at the discretion of the Contract Agency, be deducted from the Base Bid
30 should the Contract Agency choose not to Award the total Base Bid.

31
32 **Grand Total Price**

33 The Grand Total Price of the Contract will include the Base Bid, Additives, Alternates,
34 Deductives, Force Accounts, and taxes collected separately pursuant to Section 1-
35 07.2.

36
37 **Standard Specifications**

38 Divisions One through Nine of the specified edition of the WSDOT “Standard
39 Specifications for Road, Bridge, and Municipal Construction.”

40
41 **END OF SECTION**
42
43

1 **1-02 BID PROCEDURES AND CONDITIONS**

2
3 **1-02.1 Prequalification of Bidders**

4 *Delete this section and replace it with the following:*

5
6 **1-02.1 Qualifications of Bidder**
7 **(January 24, 2011 APWA GSP)**
8

9 Before award of a public works contract, a bidder must meet at least the minimum
10 qualifications of RCW 39.04.350(1) to be considered a responsible bidder and
11 qualified to be awarded a public works project.
12

13 *Add the following new section:*

14
15 **1-02.1(1) Supplemental Qualifications Criteria**
16 **(*****)**
17

18 In addition, the Contracting Agency has established Contracting Agency-specific
19 and/or project-specific supplemental criteria, in accordance with RCW 39.04.350(2),
20 for determining Bidder responsibility, including the basis for evaluation and the
21 deadline for appealing a determination that a Bidder is not responsible.
22

23 The Contractor shall submit the forms titled "Statement of Qualifications" with the bid.
24 These forms are found in the bid submittal package. Failure to complete and submit
25 the following requirements shall be grounds for rejection of the bid.
26

27 **Jack and Bore Experience**
28

29 Pipe Jacking Contractor: The pipe jacking contractor shall have a minimum field
30 experience of at least three (3) pipe jacking projects within the last five years installing
31 minimum 12-Inch diameter steel casing pipe, each having a total distance of at least
32 200 feet. Acceptable reference projects shall have been completed to the satisfaction
33 of the Engineer for that project.
34

35 Pipe Jacking Superintendent: The project superintendent performing the pipe jacking
36 work shall have a minimum of five (5) years field experience for similar pipe jacking
37 installation.
38

39 Pipe Jacking Operator: The pipe jacking operator shall have technical training in the
40 operation of the equipment proposed for this project and shall have completed at least
41 three (3) pipe jacking projects involving a minimum of 200 feet each of minimum 12-
42 Inch diameter steel casing pipe each utilizing similar methods and equipment
43 proposed for this project.
44

45 Upon award of the Contract, the identified Superintendent, Pipe Jacking Contractor,
46 Pipe Jacking Superintendent, and Pipe Jacking Operator must be employed or
47 contracted to perform the work. No substitutions will be allowed unless authorized by
48 the City.
49
50

Raven 405 Liner System (or approved equivalent) Application Experience

The Contractor shall specialize in performing the work of this specification and shall have successfully completed a total of, at least 10,000 square feet of surface preparatory work and at least 10,000 square feet of application of the Raven lining system, or approved equivalent. This work shall have all occurred within the last ten years and shall have all been completed and in service for at least one year. Contractor shall describe in the format set forth below the successfully completed projects that demonstrate that the Contractor, or its subcontractors, meet the foregoing experience requirements.

If the Contractor is utilizing a Subcontractor to perform this work, the Subcontractor and its onsite Superintendent shall individually meet these same experience requirements as the Contractor. The Subcontractor's experience and the Subcontractor's onsite superintendent's experience may be substituted for the Contractor's experience.

Each individual to be utilized as an applicator by the Contractor or Subcontractor shall have a minimum of five years' experience each in performing the category of work outlined in this specification. In addition, each applicator shall be certified by the coating manufacturer as being qualified for the application of the approved coating product. Proof of current certification for each applicator to be used shall be required after award. Superintendent required to be onsite during all cleaning, resurfacing, and painting activities.

Documentation

At a minimum, documentation will include but is not limited to Construction drawings, Contract amounts, time frame of construction, name of owner work was performed for, and contact information (name, title, phone number, e-mail address) for the owner or owner's representative who is familiar with the work.

1-02.2 Plans and Specifications (June 27, 2011 APWA GSP)

Delete this section 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 (Advertisement 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")	6	Furnished automatically upon award.
Contract Provisions	6	Furnished automatically upon award.

Large plans (e.g., 22" x 34")	2	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.

1-02.4(1) General
(August 15, 2016 APWA GSP Option B)

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

Any prospective Bidder desiring an explanation or interpretation of the Bid Documents, shall request the explanation or interpretation in writing by close of business 6 business days preceding the bid opening to allow a written reply to reach all prospective Bidders before the submission of their Bids.

1-02.4(2) Subsurface Information
(***)**

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

A geotechnical report has been prepared for this project and is included in Appendix B of these specifications and shall be considered as part of the contract.

1-02.5 Proposal Forms
(July 31, 2017 APWA GSP)

Delete this section 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 UDBE/DBE/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.

1-02.6 Preparation of Proposal
(July 11, 2018 APWA GSP)

Supplement the second paragraph 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.

1 5. Any correction to a bid made by interlineation, alteration, or erasure, shall be
2 initialed by the signer of the bid.

3

4 *Delete the last two paragraphs, and replace them with the following:*

5

6 If no Subcontractor is listed, the Bidder acknowledges that it does not intend to use
7 any Subcontractor to perform those items of work.

8

9 The Bidder shall submit with their Bid a completed Contractor Certification Wage Law
10 Compliance form, provided by the Contracting Agency. Failure to return this
11 certification as part of the Bid Proposal package will make this Bid Nonresponsive and
12 ineligible for Award. A Contractor Certification of Wage Law Compliance form is
13 included in the Proposal Forms.

14

15 The Bidder shall make no stipulation on the Bid Form, nor qualify the bid in any
16 manner.

17

18 A bid by a corporation shall be executed in the corporate name, by the president or a
19 vice president (or other corporate officer accompanied by evidence of authority to
20 sign).

21

22 A bid by a partnership shall be executed in the partnership name and signed by a
23 partner. A copy of the partnership agreement shall be submitted with the Bid Form if
24 any UDBE requirements are to be satisfied through such an agreement.

25

26 A bid by a joint venture shall be executed in the joint venture name and signed by a
27 member of the joint venture. A copy of the joint venture agreement shall be submitted
28 with the Bid Form if any UDBE requirements are to be satisfied through such an
29 agreement.

30

31 **1-02.7 Bid Deposit**

32 **(March 1, 2021 Tacoma GSP)**

33 *Delete this section and replace it with the following:*

34

35 A deposit of at least 5 percent of the total Bid shall accompany each Bid. This
36 deposit may be cash, certified check, cashier's check, or a proposal bond (Surety
37 bond). Any proposal bond shall be on the Contracting Agency's form and shall be
38 signed by the Bidder and the Surety. A proposal bond shall not be conditioned in any
39 way to modify the minimum 5 percent required. The Surety shall: (1) be registered
40 with the Washington State Insurance Commissioner, and (2) appear on the current
41 Authorized Insurance List in the State of Washington published by the Office of the
42 Insurance Commissioner.

43 The failure to furnish a Bid deposit of a minimum of 5 percent shall make the Bid
44 nonresponsive and shall cause the Bid to be rejected by the Contracting Agency.

45 If submitting your bid electronically, a scanned version of the original bid bond or
46 cashier's check shall accompany your electronic bid submittal. The original bid bond
47 or cashier's check shall be sent to the Contracting Agency and received by the

Contracting Agency within 7 calendar days of the bid opening or the bidder may be deemed non-responsive.

Original bid bonds or cashier's check will be delivered to:

City of Tacoma Procurement & Payables Division
Tacoma Public Utilities
P.O. Box 11007
Tacoma, WA 98411-0007

If so stated in the Contract Provisions, cash will not be accepted for a bid deposit.

1-02.9 Delivery of Proposal

(*****)

Delete this section and replace it with the following:

Each Proposal shall be submitted to the City electronically via email to bids@cityoftacoma.org, with the Project Name as stated in the Call for Bids noted on the subject line of the email, or as otherwise required in the Bid Documents, to ensure proper handling and delivery. All electronic documents shall be in PDF format.

To be considered responsive on a FHWA-funded project, the Bidder may be required to submit the following items, as required by Section 1-02.6:

- UDBE Written Confirmation Document from each UDBE firm listed on the Bidder's completed UDBE Utilization Certification (WSDOT 272-056U)
- Good Faith Effort (GFE) Documentation
- UDBE Bid Item Breakdown (WSDOT 272-054)
- UDBE Trucking Credit Form (WSDOT 272-058)

These documents, if applicable, shall be received either with the Bid Proposal or as a supplement to the Bid. These documents shall be received **no later than 48 hours** (not including Saturdays, Sundays and Holidays) after the time for delivery of the Bid Proposal.

If submitted after the Bid Proposal is due, the document(s) must be submitted via email to bids@cityoftacoma.org, with "Supplemental Information" noted in the subject line. All other information required to be submitted with the Bid Proposal must be submitted with the Bid Proposal itself, at the time stated in the Call for Bids.

The Contracting Agency will not open or consider any Bid Proposal that is received after the time specified in the Call for Bids for receipt of Bid Proposals, or received in a location other than that specified in the Call for Bids. The Contracting Agency will not open or consider any "Supplemental Information" (UDBE confirmations, or GFE documentation) that is received after the time specified above, or received in a location other than that specified in the Call for Bids.

If an emergency or unanticipated event interrupts normal work processes of the Contracting Agency so that Proposals cannot be received at the office designated for receipt of bids as specified in Section 1-02.12 the time specified for receipt of the Proposal will be deemed to be extended to the same time of day specified in the

solicitation on the first work day on which the normal work processes of the Contracting Agency resume.

**1-02.10 Withdrawing, Revising, or Supplementing Proposal
(March 16, 2016 Tacoma GSP)**

Delete this section and replace it with the following:

After submitting a Bid Proposal to the Contracting Agency, the Bidder may withdraw, revise, or supplement it if:

1. The Bidder submits a written request signed by an authorized person, and
2. The Contracting Agency receives the request before the time set for receipt of Proposals.
3. The revised or supplemented Bid Proposal (if any) is received by the Contracting Agency before the time set for receipt of Bid Proposals.

The original Bid Proposal may be supplemented, or revised and resubmitted as the official Bid Proposal if the Contracting Agency receives it before the time set for receipt of Proposals.

**1-02.12 Public Opening of Proposals
(*****)**

The first paragraph of this section shall be deleted and replaced with the following:

Proposals will be opened and publicly read via webcast at the time indicated in the call for Bids unless the Bid opening has been delayed or canceled.

This public bid opening will be held via webinar. Please use the link below or on the Request for Bids page to join the webinar:

<https://us02web.zoom.us/j/83250498294>

Preliminary and final bid results are posted at www.TacomaPurchasing.org

**1-02.13 Irregular Proposals
(June 20, 2017 APWA GSP)**

Delete this section and replace it with the following:

1. A Proposal will be considered irregular and will be rejected if:
 - a. The Bidder is not prequalified when so required;
 - 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 an Underutilized Disadvantaged Business Enterprise Certification, if applicable, as required in Section 1-02.6;
 - i. The Bidder fails to submit written confirmation from each UDBE firm listed on the Bidder's completed UDBE Utilization Certification that they are in agreement with the bidder's UDBE 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 Special Provisions;
 - j. The Bidder fails to submit UDBE 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.
2. A Proposal may be considered irregular and may be rejected if:
- a. The Proposal does not include a unit price for every Bid item;
 - b. Any of the unit prices are excessively unbalanced (either above or below the amount of a reasonable Bid) to the potential detriment of the Contracting Agency;
 - c. Receipt of Addenda is not acknowledged;
 - d. A member of a joint venture or partnership and the joint venture or partnership submit Proposals for the same project (in such an instance, both Bids may be rejected); or
 - e. If Proposal form entries are not made in ink.

1-02.14 Disqualification of Bidders

(May 17, 2018 APWA GSP, Option C)

Delete this section 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; or does not meet Supplemental Criteria 1-8 in this Section:

The Contracting Agency will verify that the Bidder meets the mandatory bidder responsibility criteria in RCW 39.04.350(1), and Supplemental Criteria 1-2. Evidence that the Bidder meets Supplemental Criteria 3-8 shall be provided by the Bidder as stated later in this Section.

1. Delinquent State Taxes

- A. Criterion: The Bidder shall not owe delinquent taxes to the Washington State Department of Revenue without a payment plan approved by the Department of Revenue.
- B. Documentation: The Bidder, if and when required as detailed below, shall sign a statement (on a form to be provided by the Contracting Agency) that the Bidder does not owe delinquent taxes to the Washington State Department of Revenue, or if delinquent taxes are owed to the Washington State Department of Revenue, the Bidder must submit a written payment

plan approved by the Department of Revenue, to the Contracting Agency by the deadline listed below.

2. **Federal Debarment**

A. Criterion: The Bidder shall not currently be debarred or suspended by the Federal government.

B. Documentation: The Bidder shall not be listed as having an “active exclusion” on the U.S. government’s “System for Award Management” database (www.sam.gov).

3. **Subcontractor Responsibility**

A. Criterion: The Bidder’s standard subcontract form shall include the subcontractor responsibility language required by RCW 39.06.020, and the Bidder shall have an established procedure which it utilizes to validate the responsibility of each of its subcontractors. The Bidder’s subcontract form shall also include a requirement that each of its subcontractors shall have and document a similar procedure to determine whether the sub-tier subcontractors with whom it contracts are also “responsible” subcontractors as defined by RCW 39.06.020.

B. Documentation: The Bidder, if and when required as detailed below, shall submit a copy of its standard subcontract form for review by the Contracting Agency, and a written description of its procedure for validating the responsibility of subcontractors with which it contracts.

4. **Claims Against Retainage and Bonds**

A. Criterion: The Bidder shall not have a record of excessive claims filed against the retainage or payment bonds for public works projects in the three years prior to the bid submittal date, that demonstrate a lack of effective management by the Bidder of making timely and appropriate payments to its subcontractors, suppliers, and workers, unless there are extenuating circumstances and such circumstances are deemed acceptable to the Contracting Agency.

B. Documentation: The Bidder, if and when required as detailed below, shall submit a list of the public works projects completed in the three years prior to the bid submittal date that have had claims against retainage and bonds and include for each project the following information:

- Name of project
- The owner and contact information for the owner;
- A list of claims filed against the retainage and/or payment bond for any of the projects listed;
- A written explanation of the circumstances surrounding each claim and the ultimate resolution of the claim.

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5. **Public Bidding Crime**

A. Criterion: The Bidder and/or its owners shall not have been convicted of a crime involving bidding on a public works contract in the five years prior to the bid submittal date.

B. Documentation: The Bidder, if and when required as detailed below, shall sign a statement (on a form to be provided by the Contracting Agency) that the Bidder and/or its owners have not been convicted of a crime involving bidding on a public works contract.

6. **Termination for Cause / Termination for Default**

A. Criterion: The Bidder shall not have had any public works contract terminated for cause or terminated for default by a government agency in the five years prior to the bid submittal date, unless there are extenuating circumstances and such circumstances are deemed acceptable to the Contracting Agency.

B. Documentation: The Bidder, if and when required as detailed below, shall sign a statement (on a form to be provided by the Contracting Agency) that the Bidder has not had any public works contract terminated for cause or terminated for default by a government agency in the five years prior to the bid submittal date; or if Bidder was terminated, describe the circumstances.

7. **Lawsuits**

A. Criterion: The Bidder shall not have lawsuits with judgments entered against the Bidder in the five years prior to the bid submittal date that demonstrate a pattern of failing to meet the terms of contracts, unless there are extenuating circumstances and such circumstances are deemed acceptable to the Contracting Agency.

B. Documentation: The Bidder, if and when required as detailed below, shall sign a statement (on a form to be provided by the Contracting Agency) that the Bidder has not had any lawsuits with judgments entered against the Bidder in the five years prior to the bid submittal date that demonstrate a pattern of failing to meet the terms of contracts, or shall submit a list of all lawsuits with judgments entered against the Bidder in the five years prior to the bid submittal date, along with a written explanation of the circumstances surrounding each such lawsuit. The Contracting Agency shall evaluate these explanations to determine whether the lawsuits demonstrate a pattern of failing to meet of terms of construction related contracts.

8. **Jack and Bore and Raven 405 (or approved equivalent) Experience**

A. Criterion: The Contractor shall submit Statement of Qualifications with this Bid.

Failure to submit the completed forms and meet the requirements as stated in Section 1-02.1(1) of the Special Provisions shall be grounds for rejection of Bid.

As evidence that the Bidder meets the Supplemental Responsibility Criteria stated above, the apparent low Bidder must submit to the Contracting Agency by 12:00 P.M. (noon) of the second business day following the bid submittal deadline, a written statement verifying that the Bidder meets the Supplemental Criteria together with supporting documentation (sufficient in the sole judgment of the Contracting Agency) demonstrating compliance with the Supplemental Responsibility Criteria. The Contracting Agency reserves the right to request further documentation as needed from the low bidder and documentation from other Bidders as well to assess Bidder responsibility and compliance with all bidder responsibility criteria. The Contracting Agency also reserves the right to obtain information from third-parties and independent sources of information concerning a Bidder's compliance with the mandatory and supplemental criteria, and to use that information in their evaluation. The Contracting Agency may consider mitigating factors in determining whether the Bidder complies with the requirements of the Supplemental Criteria.

The basis for evaluation of Bidder compliance with these mandatory and Supplemental Criteria shall include any documents or facts obtained by Contracting Agency (whether from the Bidder or third parties) including but not limited to: (i) financial, historical, or operational data from the Bidder; (ii) information obtained directly by the Contracting Agency from others for whom the Bidder has worked, or other public agencies or private enterprises; and (iii) any additional information obtained by the Contracting Agency which is believed to be relevant to the matter.

If the Contracting Agency determines the Bidder does not meet the bidder responsibility criteria above 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.

Request to Change Supplemental Bidder Responsibility Criteria Prior To Bid: Bidders with concerns about the relevancy or restrictiveness of the Supplemental Bidder Responsibility Criteria may make or submit requests to the Contracting Agency to modify the criteria. Such requests shall be in writing, describe the nature of the concerns, and propose specific modifications to the criteria. Bidders shall submit such requests to the Contracting Agency no later than five (5) business days prior to the bid submittal deadline and address the request to the Project Engineer or such other person designated by the Contracting Agency in the Bid Documents.

Supplement this section with the following:

A Bidder will be deemed not responsible if:

1. the Bidder does not meet the mandatory bidder responsibility criteria in RCW 39.04.350(1), as amended; or
2. evidence of collusion exists with any other Bidder or potential Bidder. Participants in collusion will be restricted from submitting further bids; or
3. the Bidder, in the opinion of the Contracting Agency, is not qualified for the work or to the full extent of the bid, or to the extent that the bid exceeds the authorized prequalification amount as may have been determined by a prequalification of the Bidder; or
4. an unsatisfactory performance record exists based on past or current Contracting Agency work or for work done for others, as judged from the standpoint of conduct of the work; workmanship; or progress; affirmative action; equal employment opportunity practices; termination for cause; or Disadvantaged Business Enterprise, Minority Business Enterprise, or Women's Business Enterprise utilization; or
5. there is uncompleted work (Contracting Agency or otherwise) which in the opinion of the Contracting Agency might hinder or prevent the prompt completion of the work bid upon; or
6. the Bidder failed to settle bills for labor or materials on past or current contracts, unless there are extenuating circumstances acceptable to the Contracting Agency; or
7. the Bidder has failed to complete a written public contract or has been convicted of a crime arising from a previous public contract, unless there are extenuating circumstances acceptable to the Contracting Agency; or
8. the Bidder is unable, financially or otherwise, to perform the work, in the opinion of the Contracting Agency; or
9. there are any other reasons deemed proper by the Contracting Agency; or
10. the Bidder fails to meet the Project-specific supplemental bidder responsibility criteria listed in the 1-02.1(1) or

As evidence that the Bidder meets the bidder responsibility criteria above, 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 applicable responsibility criteria, including all documentation specifically listed in the supplemental 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 basis for evaluation of Bidder compliance with these supplemental criteria shall be any documents or facts obtained by Contracting Agency (whether from the Bidder or third parties) which any reasonable owner would rely on for determining such compliance, including but not limited to: (i) financial, historical, or operational data from the Bidder; (ii) information obtained directly by the Contracting Agency from owners for whom the Bidder has worked, or other public agencies or private enterprises; and (iii) any additional information obtained by the Contracting Agency which is believed to be relevant to the matter.

If the Contracting Agency determines the Bidder does not meet the bidder responsibility criteria above 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 24 hours of receipt of the Contracting Agency's determination by presenting its appeal to

1 the Contracting Agency. The Contracting Agency will consider the appeal before
2 issuing its final determination. If the final determination affirms that the Bidder is not
3 responsible, the Contracting Agency will not execute a contract with any other Bidder
4 until at least two business days after the Bidder determined to be not responsible has
5 received the final determination.
6

7 **1-02.15 Pre-Award Information**
8 **(August 14, 2013 APWA GSP)**

9 *Revise this section to read:*

10
11 Before awarding any contract, the Contracting Agency may require one or more of
12 these items or actions of the apparent lowest responsible bidder:

- 13 1. A complete statement of the origin, composition, and manufacture of any or all
14 materials to be used,
- 15 2. Samples of these materials for quality and fitness tests,
- 16 3. A progress schedule (in a form the Contracting Agency requires) showing the
17 order of and time required for the various phases of the work,
- 18 4. A breakdown of costs assigned to any bid item,
- 19 5. Attendance at a conference with the Engineer or representatives of the Engineer,
- 20 6. Obtain, and furnish a copy of, a business license to do business in the city or
21 county where the work is located.
- 22 7. Any other information or action taken that is deemed necessary to ensure that
23 the bidder is the lowest responsible bidder.
24

25 **END OF SECTION**
26

1 **1-03 AWARD AND EXECUTION OF CONTRACT**

2
3 **1-03.1 Consideration of Bids**
4 **(January 23, 2006 APWA GSP)**

5 *Revise the first paragraph to read:*

6
7 After opening and reading proposals, the Contracting Agency will check them for
8 correctness of extensions of the prices per unit and the total price. If a discrepancy
9 exists between the price per unit and the extended amount of any bid item, the price
10 per unit will control. If a minimum bid amount has been established for any item and
11 the bidder's unit or lump sum price is less than the minimum specified amount, the
12 Contracting Agency will unilaterally revise the unit or lump sum price, to the minimum
13 specified amount and recalculate the extension. The total of extensions, corrected
14 where necessary, including sales taxes where applicable and such additives and/or
15 alternates as selected by the Contracting Agency, will be used by the Contracting
16 Agency for award purposes and to fix the Awarded Contract Price amount and the
17 amount of the contract bond.
18

19 **1-03.2 Award of Contract**
20 **(March 27, 2003 Tacoma GSP)**

21
22 All references to 45 calendar days shall be revised to read 60 calendar days.
23

24 **1-03.3 Execution of Contract**
25 **(October 1, 2005 APWA GSP)**

26 *Revise this section to read:*

27
28 Copies of the Contract Provisions, including the unsigned Form of Contract, will be
29 available for signature by the successful bidder on the first business day following
30 award. The number of copies to be executed by the Contractor will be determined by
31 the Contracting Agency.
32

33 Within 10 calendar days after the award date, the successful bidder shall return the
34 signed Contracting Agency-prepared contract, an insurance certification as required
35 by Section 1-07.18, and a satisfactory bond as required by law and Section 1-03.4.
36 Before execution of the contract by the Contracting Agency, the successful bidder shall
37 provide any pre-award information the Contracting Agency may require under Section
38 1-02.15.
39

40 Until the Contracting Agency executes a contract, no proposal shall bind the
41 Contracting Agency nor shall any work begin within the project limits or within
42 Contracting Agency-furnished sites. The Contractor shall bear all risks for any work
43 begun outside such areas and for any materials ordered before the contract is
44 executed by the Contracting Agency.
45

46 If the bidder experiences circumstances beyond their control that prevents return of
47 the contract documents within the calendar days after the award date stated above,
48 the Contracting Agency may grant up to a maximum of 10 additional calendar days for
49 return of the documents, provided the Contracting Agency deems the circumstances
50 warrant it.
51

1 **1-03.4 Contract Bond**
2 **(July 23, 2015 APWA GSP)**

3 *Delete the first paragraph and replace it with the following:*
4

5 The successful bidder shall provide executed payment and performance bond(s) for
6 the full contract amount. The bond may be a combined payment and performance
7 bond; or be separate payment and performance bonds. In the case of separate
8 payment and performance bonds, each shall be for the full contract amount. The
9 bond(s) shall:

- 10 1. Be on Contracting Agency-furnished form(s);
- 11 2. Be signed by an approved surety (or sureties) that:
 - 12 a. Is registered with the Washington State Insurance Commissioner, and
 - 13 b. Appears on the current Authorized Insurance List in the State of Washington
 - 14 published by the Office of the Insurance Commissioner,
- 15 3. Guarantee that the Contractor will perform and comply with all obligations, duties,
16 and conditions under the Contract, including but not limited to the duty and
17 obligation to indemnify, defend, and protect the Contracting Agency against all
18 losses and claims related directly or indirectly from any failure:
 - 19 a. Of the Contractor (or any of the employees, subcontractors, or lower tier
 - 20 subcontractors of the Contractor) to faithfully perform and comply with all
 - 21 contract obligations, conditions, and duties, or
 - 22 b. Of the Contractor (or the subcontractors or lower tier subcontractors of the
 - 23 Contractor) to pay all laborers, mechanics, subcontractors, lower tier
 - 24 subcontractors, material person, or any other person who provides supplies or
 - 25 provisions for carrying out the work;
- 26 4. Be conditioned upon the payment of taxes, increases, and penalties incurred on
- 27 the project under titles 50, 51, and 82 RCW; and
- 28 5. Be accompanied by a power of attorney for the Surety's officer empowered to sign
- 29 the bond; and
- 30 6. Be signed by an officer of the Contractor empowered to sign official statements
- 31 (sole proprietor or partner). If the Contractor is a corporation, the bond(s) must be
- 32 signed by the president or vice president, unless accompanied by written proof of
- 33 the authority of the individual signing the bond(s) to bind the corporation (i.e.,
- 34 corporate resolution, power of attorney, or a letter to such effect signed by the
- 35 president or vice president).
- 36

37 **1-03.5 Failure to Execute Contract**
38 **(April 15, 2020 Tacoma GSP)**

39 *The first sentence is revised to read:*
40

41 Failure to return the insurance certification and bond with the signed contract as
42 required in Section 1-03.3, or failure to provide Equity In Contracting (EIC) information
43 if required in the contract, or failure or refusal to sign the Contract, or failure to register
44 as a contractor in the state of Washington shall result in forfeiture of the bid bond or
45 deposit of this Bidder
46

47 **END OF SECTION**
48

1 **1-04 SCOPE OF THE WORK**

2
3 **1-04.2 Coordination of Contract Documents, Plans, Special Provisions,**
4 **Specifications, and Addenda**
5 **(March 13, 2012 APWA GSP)**

6 *Revise the second paragraph to read:*

7
8 Any inconsistency in the parts of the contract shall be resolved by following this order
9 of precedence (e.g., 1 presiding over 2, 2 over 3, 3 over 4, and so forth):

- 10 1. Addenda,
11 2. Proposal Form,
12 3. Special Provisions,
13 4. Contract Plans,
14 5. Amendments to the Standard Specifications,
15 6. Standard Specifications,
16 7. Contracting Agency's Standard Plans or Details (if any), and
17 8. WSDOT Standard Plans for Road, Bridge, and Municipal Construction.

18
19 **1-04.4 Changes**

20 **(*****)**

21 *Revise the fifth paragraph to read:*

22
23 For item 2, if the actual quantity of any item, exclusive of added or deleted amounts
24 included in agreed change orders, increases or decreases by more than 25 percent
25 from the original Plan quantity, the unit Contract prices for that item may be adjusted
26 in accordance with Section 1-04.6; provided that, the un-adjusted unit Contract price
27 shall apply to any Work completed prior to the Contractor receiving a written change
28 order approved by the Engineer, or an oral order from the Engineer before actually
29 receiving the written change order.

30
31 **1-04.6 Variation in Estimated Quantities**

32 **(May 25, 2006 APWA GSP)**

33 *This section is supplemented with the following:*

34
35 The quantities for "Gravel Backfill for Drains", "Underdrain Pipe 6 In. Diam.",
36 "Underground Utility Potholing" and "CDF Trench Backfill" have been entered into the
37 Proposal only to provide a common proposal for bidders. Actual quantities will be
38 determined in the field as the work progresses, and will be paid at the original bid price,
39 regardless of final quantity. These bid items shall not be subject to the provisions of
40 1-04.6 of the Standard Specifications.

41
42 **(July 23, 2015 APWA GSP, Option B; may not be used on FHWA-funded projects)**

43 *Revise the first paragraph to read:*

44
45 Payment to the Contractor will be made only for the actual quantities of Work
46 performed and accepted in conformance with the Contract. When the accepted
47 quantity of Work performed under a unit item varies from the original Proposal quantity,
48 payment will be at the unit Contract price for all Work unless the total accepted quantity
49 of any Contract item, adjusted to exclude added or deleted amounts included in

1 change orders accepted by both parties, increases or decreases by more than 25
2 percent from the original Proposal quantity, and if the total extended bid price for that
3 item at time of award is equal to or greater than 10 percent of the total contract price
4 at time of award. In that case, payment for contract work may be adjusted as described
5 herein:
6

7 **END OF SECTION**
8
9

1 **1-05 CONTROL OF WORK**

2
3 **1-05.3 Plans and Working Drawings**
4 **(January 6, 2015 Tacoma GSP)**

5 *This section is deleted in its entirety and replaced with the following:*

6
7 **1-05.3 Submittals**

8
9 The Contractor shall not install materials or equipment, which requires submittals, until
10 reviewed by the Contracting Agency. Late submissions by the Contractor shall not be
11 cause for time extension.

12
13 **Submittals shall be made per Bid Item, rather than per material.** The Contractor
14 **shall be responsible for ensuring that each submittal includes cut sheets and/or**
15 **other information for all pertinent materials necessary to complete the work for**
16 **each Bid Item. It is understood that producing submittals for each Bid Item may**
17 **require multiple submittals of common materials that are associated with more**
18 **than one Bid Item. The Contractor shall also be responsible for producing**
19 **submittals that may only be associated with a Specification Section, not a**
20 **particular Bid Item.**

21
22 The Contractor shall submit electronic copies of each submittal required by the
23 Contract Documents through the Contracting Agency's web-based project
24 management software, e-Builder® (see Section 1-05.19), unless otherwise required
25 in these Special Provisions. This includes, but is not limited to:

- 26
27
 - Shop Drawings/Plans
 - Product Data
 - Samples
 - Reports
 - Material Submittals (Ref. 1-06)
 - Progress Schedules (Ref. 1-08.3)
 - Guarantees/Warranties (Ref. 1-05.10)

34
35 Physical samples shall be delivered with a hardcopy transmittal of the e-Builder®
36 submittal.

37
38 The Engineer will return reviewed submittals through the e-Builder® web-based
39 project management software for the Contractor's use.

40
41 **1-05.3(1) Submittal Schedule**

42
43 In conformance with section 1-08.3, the progress schedule shall be submitted and
44 reviewed prior to commencing any work. No delay claim shall be entertained for
45 Contractor's failure to comply.

46
47 No claim will be allowed for damages or extension of time resulting from rejection of a
48 submittal or the requirement of resubmittals as outlined by this section.
49

The Engineer's review will be completed as quickly as possible, but may require up to ten (10) working days from the date the submittals or resubmittals are received until they are sent to the Contractor. If more than ten (10) working days are required for the Engineer's review of any individual submittal or resubmittal, an extension of time will be considered in accordance with Section 1-08.8.

1-05.3(2) Submittal Procedures

Contractor submittals shall be in accordance with the following:

The Contractor shall thoroughly review each submittal for dimensions, quantities, and details of the material or item shown. The Contractor shall review each submittal and note any errors, omissions, or deviations with the Contract Documents. The Contractor shall accept full responsibility for the completeness of each submittal.

Each submittal shall have a unique number assigned to it (via e-Builder®). On each page, indicate the page number, and total number of pages in each submittal.

Each submittal shall indicate the following:

1. The intended use of the item in the work;
2. Clearly indicate only applicable items on any catalog cut sheets;
3. The current revision, issue number, and data shall be indicated on all drawings and other descriptive data.
4. Description of Submittal.
5. Related Specification Section and/or plan sheet.
6. Each material submittal shall clearly indicate the name and address of all suppliers, processors, distributors, and/or producers from which the Contractor directly purchased each material.

When submitting product data, the Contractor shall modify drawings to delete any information not applicable to the project and add information that is applicable to the project. The Contractor shall mark copies of printed material to clearly identify the pertinent materials, products or models.

Samples submitted shall be of sufficient size and quantity to clearly illustrate functional characteristics of product or material and full range of colors available. Field samples and mock-ups, where required, shall be erected at the project site where directed by the Engineer.

The Contractor shall notify the Engineer, in writing at time of submission, of deviations in submittals from requirements of the contract documents.

The City shall not be responsible for delays in reviewing submittals not submitted in accordance with these specifications.

1-05.3(3) Engineer's Review of Submittals

The Engineer's review of drawings and data submitted by the Contractor will cover only general conformity with the Contract drawings and specifications. The Engineer's review of submittals shall not relieve the Contractor from responsibility for errors, omissions, deviations, or responsibility for compliance with the Contract documents.

Review of a separate item does not constitute review of an assembly in which the item functions.

When the submittal or resubmittal is marked "REVIEWED" no further correspondence is required. When the submittal is marked "REVIEWED WITH COMMENTS" the Contractor shall comply with any comments on the return submittal.

1-05.3(4) Resubmittals

When a submittal is marked "REVISE AND RESUBMIT" or "REJECTED," the Contractor shall make the corrections as noted and instructed by the Engineer and resubmit via e-Builder®. The Contractor shall not install material or equipment that has received a review status of "REVISE AND RESUBMIT" or "REJECTED".

When corrected copies are resubmitted, the Contractor shall in writing direct specific attention to all revisions and shall list separately any revision made other than those called for by the Engineer on previous submittals. e-Builder® will assign the resubmittal number of the original submittal followed by a revision number (1, 2, etc.) to indicate the sequence of the resubmittal.

Each submittal shall have a unique number assigned to it (via e-Builder®).

The Contractor shall revise returned submittals as required and resubmit until final review is obtained. Any associated progress delay due to the Contractor's need to revise and resubmit is the Contractor's sole responsibility.

The Contractor shall verify that all exceptions previously noted by the Engineer have been accounted for.

1-05.3(5) Submittal Requirements by Section

The following is a general summary of submittal requirements. This summary is not inclusive of all submittal requirements and does not relieve the Contractor of their responsibility to provide submittals as noted in subsequent sections of the specifications. The Contractor shall review each bid item and individual section in the applicable provisions or specifications, as noted below, for specific requirements.

Section	Description
1-05.3(6)	Project Red Line Drawings
1-06.1	Proposed Material Sources
1-06.1(2)	Request for Approval of Material
1-06.3	Manufacturer's Certificate of Compliance
1-07.15	Temporary Water Pollution/Erosion Control Plan
1-07.15(1)	Spill Prevention, Control and Countermeasures (SPCC) Plan
1-07.16(1)	Property Owner Notification
1-07.17	Utility Restraint Plan
1-08.3(2)	Progress Schedule
1-09.6	Equipment Rental Rates and Equipment Watch Sheets

1-09.9	Schedule Of Values
1-10.2	Traffic Control Plan
2-07.3(1)	Hydrant Permit
2-09	Engineered Shoring Design
2-17	Health and Safety Plan
2-17	Resume of Site Health and Safety Officer
2-17	Manifest Package and Supporting Analytical Data
2-17	Soil Management Plan
2-17	Contractor/Subcontractor Environmental Qualifications
4-04	Crushed Surfacing Top Course
4-04	Crushed Surfacing Base Course
4-04	Gravel Backfill for Drains
5-04	Asphalt Mix Design Certification
7-05	Manholes
7-05	Structural design for Type 2 manhole lid
7-05	Castings
7-05	Type 2 manhole hatch
7-05	Kor-N-Seal Connector
7-05	Raven 405 Lining System
7-05	Non-Destructive Testing Agency Qualifications
7-05	Non-Destructive Testing Results
7-05	Pre-Core Plan
7-05	Casing
7-05	Epoxy Grout
7-05	Asphaltic Sealer
7-05	LinkSeal
7-08.3(1)A	Dewatering Plan
7-08.3(1)A	Special Approved Discharge (SAD) Permit for Sanitary
7-08.3(1)C	Pipe Bedding
7-08.3(2)F	Rigid Couplers
7-08.3(3)	Trench Backfill
7-08.3(5)	Temporary Wastewater Sewer Bypass Plan
7-08.3(6)	Pipe Abandonment Plan
7-08.3(6)	CDF Mix Design
7-17	Pipe materials
7-17	Pipe Jacking Work Plan
7-21	Bioretention Soil Media
7-21	Bioswale Seed Mix
7-17	Casing
7-17	Casing Spacers
7-17	Casing End Seals
8-01.3(1)A	Stormwater Pollution Prevention Plan (SWPPP)
8-02	Topsoil
8-02	Seed Mix
8-02	Arborist Wood Chip Mulch
8-02	Plantings
9-08	Primer and Paint

1-05.3(6) Project Red Line Drawings

The Contractor shall submit Project Red Line Drawings in accordance with the following.

Red line drawings refer to those documents maintained and annotated by the Contractor during construction and is defined as, a neatly and legibly marked set of Contract drawings showing any changes made to the original details of work.

The Contractor shall maintain drawings in good condition; protect from deterioration and keep in a clean, dry, and secure location. The Project Red Line Drawings shall not be used for construction purposes.

The Contractor shall provide to the City, access to Project Red Line Drawings at all times during normal working hours.

Red line drawings shall be updated on a continuous basis. The Contractor shall bring the up-to-date drawings to a monthly "red line review" meeting where the Engineer will verify the maintenance of the Project Red Line Drawings as part of the condition precedent to approving the monthly progress payment disbursement process. Monthly progress payments to the Contractor may not be processed, if red line information for the involved work to date has not been accurately recorded on the Project Red Line Drawings.

At the completion of the construction work, prior to pre-final payment, all Project Red Line Drawings shall be submitted to the Engineer.

A. Project Red Line Drawings:

Do not permanently conceal any work until required information has been recorded. Mark drawings to show the actual installation where the installation varies from the work as originally shown on the Contract drawings or indicated in the Contract specifications. Give particular attention to information on concealed elements that would be difficult to measure and record at a later date.

1. Changes and information shall be clearly drawn, described and shown technically correct.
2. Mark drawings with red erasable pencil.
3. Record data as soon as possible after obtaining it.
4. Mark any new information.
5. Keep accurate measurements of horizontal and vertical locations of underground services and utilities.
6. Mark any changes made where installation varies from that shown originally, such as, in materials, equipments, locations, alignments, elevations, and any other dimensions of the work.
7. For any work not demolished, abated, or salvaged, cross out and appropriately annotate "Not Complete".
8. Indicate revisions to drawings with a "cloud" drawn around the revision and note date the revision(s) was made.
9. Note Request For Change (RFC), Request For Information (RFI), and similar identification, where applicable.

1
2 B. Format:

3
4 Identify and date each print; include the designation "PROJECT RED LINE
5 DRAWINGS" in a prominent location.
6

- 7 1. Prints: Organize Red Line Drawings into manageable sets. Include
8 identification on cover sheets.
9 2. Identify cover sheets as follows:
10 • Specification No.
11 • Project Name
12 • Date
13 • "PROJECT RED LINE DRAWINGS"
14 • Name of Engineer
15 • Name of Contractor
16 3. Electronic Copies: Scan full-size (dimension size: 22x34) Project Red Line
17 Drawings and submit, on a CD-R, in pdf format.
18

19 The lump sum Contract price for "Project Red Line Drawings" shall be full pay for all
20 costs associated with, including but not limited to, documenting, revising, updating,
21 maintaining, and submitting red line drawings at the completion of construction work.
22

23 **1-05.3(8) Clarifications**
24

25 Clarifications of the Contract intent shall be submitted via a Request for Information
26 (RFI) using e-Builder® as described in Section 1-05.19 of the Special Provisions. The
27 Contractor shall provide a clear and concise clarification question, specific project
28 document reference such as plan detail number or specification number, proposed
29 solution to the clarification question, and provide any supporting documentation
30 necessary to understand the clarification question.
31

32 Request for Information responses provided by the Contracting Agency shall be
33 incorporated into the Project Red-Line Drawings, if resulting in a change to the
34 Contract Plans.
35

36 Request for Information responses provided by the Contracting Agency shall not be
37 construed to be a change to the Contract Documents.
38

39 **1-05.4 Conformity With and Deviations from Plans and Stakes**

40 *Add the following new sub-section:*
41

42 **1-05.4(1) Roadway and Utility Surveys**
43 **(October 1, 2005 APWA GSP)**
44

45 The Engineer shall furnish to the Contractor one time only all principal lines, grades,
46 and measurements the Engineer deems necessary for completion of the work. These
47 shall generally consist of one initial set of:

- 48 1. Slope stakes for establishing grading;
49 2. Curb grade stakes;
50 3. Centerline finish grade stakes for pavement sections wider than 25 feet; and

- 1 4. Offset points to establish line and grade for underground utilities such as water,
2 sewers, and storm drains.

3
4 On alley construction projects with minor grade changes, the Engineer shall provide
5 only offset hubs on one side of the alley to establish the alignment and grade.

6
7 **1-05.7 Removal of Defective and Unauthorized Work**
8 **(October 1, 2005 APWA GSP)**

9 *Supplement this section with the following:*

10
11 If the Contractor fails to remedy defective or unauthorized work within the time
12 specified in a written notice from the Engineer, or fails to perform any part of the work
13 required by the Contract Documents, the Engineer may correct and remedy such work
14 as may be identified in the written notice, with Contracting Agency forces or by such
15 other means as the Contracting Agency may deem necessary.

16
17 If the Contractor fails to comply with a written order to remedy what the Engineer
18 determines to be an emergency situation, the Engineer may have the defective and
19 unauthorized work corrected immediately, have the rejected work removed and
20 replaced, or have work the Contractor refuses to perform completed by using
21 Contracting Agency or other forces. An emergency situation is any situation when, in
22 the opinion of the Engineer, a delay in its remedy could be potentially unsafe, or might
23 cause serious risk of loss or damage to the public.

24
25 Direct or indirect costs incurred by the Contracting Agency attributable to correcting
26 and remedying defective or unauthorized work, or work the Contractor failed or refused
27 to perform, shall be paid by the Contractor. Payment will be deducted by the Engineer
28 from monies due, or to become due, the Contractor. Such direct and indirect costs
29 shall include in particular, but without limitation, compensation for additional
30 professional services required, and costs for repair and replacement of work of others
31 destroyed or damaged by correction, removal, or replacement of the Contractor's
32 unauthorized work.

33
34 No adjustment in Contract time or compensation will be allowed because of the delay
35 in the performance of the work attributable to the exercise of the Contracting Agency's
36 rights provided by this Section.

37
38 The rights exercised under the provisions of this section shall not diminish the
39 Contracting Agency's right to pursue any other avenue for additional remedy or
40 damages with respect to the Contractor's failure to perform the work as required.

41
42 **1-05.11 Final Inspection**

43 *Delete this section and replace it with the following:*

44
45 **1-05.11 Final Inspections and Operational Testing**
46 **(October 1, 2005 APWA GSP)**

47
48 **1-05.11(1) Substantial Completion Date**

49
50 When the Contractor considers the work to be substantially complete, the Contractor
51 shall so notify the Engineer and request the Engineer establish the Substantial

1 Completion Date. The Contractor's request shall list the specific items of work that
2 remain to be completed in order to reach physical completion. The Engineer will
3 schedule an inspection of the work with the Contractor to determine the status of
4 completion. The Engineer may also establish the Substantial Completion Date
5 unilaterally.
6

7 If, after this inspection, the Engineer concurs with the Contractor that the work is
8 substantially complete and ready for its intended use, the Engineer, by written notice
9 to the Contractor, will set the Substantial Completion Date. If, after this inspection the
10 Engineer does not consider the work substantially complete and ready for its intended
11 use, the Engineer will, by written notice, so notify the Contractor giving the reasons
12 therefore.
13

14 Upon receipt of written notice concurring in or denying substantial completion,
15 whichever is applicable, the Contractor shall pursue vigorously, diligently and without
16 unauthorized interruption, the work necessary to reach Substantial and Physical
17 Completion. The Contractor shall provide the Engineer with a revised schedule
18 indicating when the Contractor expects to reach substantial and physical completion
19 of the work.
20

21 The above process shall be repeated until the Engineer establishes the Substantial
22 Completion Date and the Contractor considers the work physically complete and ready
23 for final inspection.
24

25 **1-05.11(2) Final Inspection and Physical Completion Date**

26

27 When the Contractor considers the work physically complete and ready for final
28 inspection, the Contractor by written notice, shall request the Engineer to schedule a
29 final inspection. The Engineer will set a date for final inspection. The Engineer and the
30 Contractor will then make a final inspection and the Engineer will notify the Contractor
31 in writing of all particulars in which the final inspection reveals the work incomplete or
32 unacceptable. The Contractor shall immediately take such corrective measures as are
33 necessary to remedy the listed deficiencies. Corrective work shall be pursued
34 vigorously, diligently, and without interruption until physical completion of the listed
35 deficiencies. This process will continue until the Engineer is satisfied the listed
36 deficiencies have been corrected.
37

38 If action to correct the listed deficiencies is not initiated within 7 days after receipt of
39 the written notice listing the deficiencies, the Engineer may, upon written notice to the
40 Contractor, take whatever steps are necessary to correct those deficiencies pursuant
41 to Section 1-05.7.

42 The Contractor will not be allowed an extension of contract time because of a delay in
43 the performance of the work attributable to the exercise of the Engineer's right
44 hereunder.
45

46 Upon correction of all deficiencies, the Engineer will notify the Contractor and the
47 Contracting Agency, in writing, of the date upon which the work was considered
48 physically complete. That date shall constitute the Physical Completion Date of the
49 Contract, but shall not imply acceptance of the work or that all the obligations of the
50 Contractor under the contract have been fulfilled.
51

1 **1-05.11(3) Operational Testing**

2
3 It is the intent of the Contracting Agency to have at the Physical Completion Date a
4 complete and operable system. Therefore when the work involves the installation of
5 machinery or other mechanical equipment; street lighting, electrical distribution or
6 signal systems; irrigation systems; buildings; or other similar work it may be desirable
7 for the Engineer to have the Contractor operate and test the work for a period of time
8 after final inspection but prior to the physical completion date. Whenever items of work
9 are listed in the Contract Provisions for operational testing they shall be fully tested
10 under operating conditions for the time period specified to ensure their acceptability
11 prior to the Physical Completion Date. During and following the test period, the
12 Contractor shall correct any items of workmanship, materials, or equipment which
13 prove faulty, or that are not in first class operating condition. Equipment, electrical
14 controls, meters, or other devices and equipment to be tested during this period shall
15 be tested under the observation of the Engineer, so that the Engineer may determine
16 their suitability for the purpose for which they were installed. The Physical Completion
17 Date cannot be established until testing and corrections have been completed to the
18 satisfaction of the Engineer.

19
20 The costs for power, gas, labor, material, supplies, and everything else needed to
21 successfully complete operational testing, shall be included in the unit Contract prices
22 related to the system being tested, unless specifically set forth otherwise in the
23 proposal.

24
25 Operational and test periods, when required by the Engineer, shall not affect a
26 manufacturer's guaranties or warranties furnished under the terms of the Contract.

27
28 *Add the following new section:*

29
30 **1-05.12(1) One-Year Guarantee Period**
31 **(March 8, 2013 APWA GSP)**

32
33 The Contractor shall return to the project and repair or replace all defects in
34 workmanship and material discovered within one year after Final Acceptance of the
35 Work. The Contractor shall start work to remedy any such defects within 7 calendar
36 days of receiving Contracting Agency's written notice of a defect, and shall complete
37 such work within the time stated in the Contracting Agency's notice. In case of an
38 emergency, where damage may result from delay or where loss of services may result,
39 such corrections may be made by the Contracting Agency's own forces or another
40 Contractor, in which case the cost of corrections shall be paid by the Contractor. In
41 the event the Contractor does not accomplish corrections within the time specified, the
42 work will be otherwise accomplished and the cost of same shall be paid by the
43 Contractor.

44
45 When corrections of defects are made, the Contractor shall then be responsible for
46 correcting all defects in workmanship and materials in the corrected work for one year
47 after acceptance of the corrections by Contracting Agency.

48
49 This guarantee is supplemental to and does not limit or affect the requirements that
50 the Contractor's work comply with the requirements of the Contract or any other legal
51 rights or remedies of the Contracting Agency.

1
2 **1-05.13 Superintendents, Labor and Equipment of Contractor**
3 **(August 14, 2013 APWA GSP)**

4 *Delete the sixth and seventh paragraphs of this section.*

5
6 **1-05.14 Cooperation with Other Contractors**
7 **Supplement this section with the following:**

8
9 *(March 13, 1995 WSDOT GSP)*

10 It is anticipated that the following work adjacent to or within the limits of this project will
11 be performed by others during the course of this project and will require coordination
12 of the work:

13
14 Construction of a duct bank on the east side of E Portland Avenue has been completed
15 within this project extents but the duct bank contractor may need to use a portion of
16 the project site on the east side of Portland Avenue to access the remainder of their
17 project site. Contractor will be required to coordinate with the duct bank contractor to
18 avoid conflicts. The duct bank contractor contact information is as follows:

19
20 Chris Janes
21 Prospect Construction
22 (253) 350-2464
23

24 Contractor shall contact Prospect Construction a minimum of 10 Working days prior to
25 mobilizing to the site to coordinate
26

27 **1-05.15 Method of Serving Notices**
28 **(March 25, 2009 APWA GSP)**

29 *Revise the second paragraph to read:*

30
31 All correspondence from the Contractor shall be directed to the Project Engineer. All
32 correspondence from the Contractor constituting any notification, notice of protest,
33 notice of dispute, or other correspondence constituting notification required to be
34 furnished under the Contract, must be in paper format, hand delivered or sent via mail
35 delivery service to the Project Engineer's office. Electronic copies such as e-mails or
36 electronically delivered copies of correspondence will not constitute such notice and
37 will not comply with the requirements of the Contract.
38

39 *Add the following new section:*

40
41 **1-05.16 Water and Power**
42 **(October 1, 2005 APWA GSP)**
43

44 The Contractor shall make necessary arrangements, and shall bear the costs for
45 power and water necessary for the performance of the work, unless the Contract
46 includes power and water as a pay item.
47
48

1 *Add the following new section:*

2
3 **1-05.19 Project Management Communications**
4 **(*****)**

5
6 **1-05.19(1) Summary**
7

8 The Contractor shall use the Internet web based project management communications
9 tool, e-Builder® ASP software, and protocols included in that software during this
10 project. The use of project management communications as herein described does
11 not replace or change any contractual responsibilities of the participants.

12
13 User registration, electronic and computer equipment, and internet connections are
14 the responsibility of each project participant.

15
16 Nothing in this specification or the subsequent communications supersedes the
17 parties' obligations and rights for copyright or document ownership as established by
18 the Contract Documents. The use of CAD files, processes, or design information
19 distributed in this system is intended only for the project specified herein.

20
21 **1-05.19(2) Training & Support**
22

23 A group training session scheduled by the Contracting Agency will be provided for the
24 Contractor at a City of Tacoma training facility. The training session duration is up to
25 4 hours. The Contractor's e-Builder® users are required to attend the scheduled
26 training sessions that they are assigned to. Requests for specific scheduled classes
27 will be on a first come first served basis by availability.

28
29 **1-05.19(3) Authorized Users**
30

31 Access to the web site will be by individuals who are licensed users.

- 32
33 1. The City will provide the Contractor with up to four licensed user accounts for the
34 duration of the project. The sharing of user accounts is prohibited.
35 2. Additional licensed user accounts may be purchased from e-Builder®.
36 3. Authorized users will be contacted via e-mail with a temporary user password. The
37 user shall update the required information at their first log-in and be responsible
38 for proper password protection.
39 4. Only entities with a direct Contract with the Contracting Agency will be allowed to
40 be an authorized user.

41
42 **1-05.19(4) Communications**
43

44 The use of fax, email and courier communication for this project is discouraged in favor
45 of using e-Builder® to send messages. Communication functions are as follows:

- 46
47 1. Document Integrity and Revisions: Documents, comments, drawings and other
48 data posted to the system remain a permanent component of the project. The
49 originator, time and date are recorded for each document submitted to the system.
50 Submitting a new document or record with a unique ID, originator, and time stamp
51 is the method used to make modifications or corrections.

2. Document Security: The system provides a method for communication of documents. Documents allow security group assignment to respect the contractual parties' communication with the exception that the Contracting Agency Administrative Users have access to everything. **DO NOT POST PRIVATE OR CONFIDENTIAL ITEMS IN THE DATABASE.**
3. Notifications and Distribution: Document distribution to project members may be accomplished both within the e-Builder® system and via email depending on user settings. Project document distribution to parties outside of the project communication system may be accomplished by secure email of outgoing documents and attachments, readable by a standard email client.
4. Except for paper documents which require original signatures and large format documents (greater than 11 x 17 inches), all other documents shall be submitted by transmission in electronic form to the e-Builder® web site by licensed users.
 - a. Large format documents may be transmitted by hardcopy and electronically via e-Builder® as otherwise agreed, or as otherwise noted in the specifications.
 - b. Electronic processes and document types that shall be managed via e-Builder® include, but are not limited to:
 - i. Request for Information (RFI)
 - ii. Change Order (CO)
 - iii. Submittals
 - iv. Transmittals, including record of documents and materials delivered in hard copy
 - v. Meeting Minutes
 - vi. Application for Payments
 - vii. Review Comments
 - viii. Inspector's Daily Field Reports (IDR)
 - ix. Construction Photographs
 - x. Drawings
 - xi. Supplemental Sketches
 - xii. Schedules
 - xiii. Specifications
 - xiv. Inspection Reports
 - xv. Survey Requests
 - xvi. TV Inspection Requests

1-05.19(5) Record Keeping

1. The Contracting Agency, their representatives, and the Contractor shall respond to electronic documents received from e-Builder® and consider them as if received in paper document form.
2. The Contracting Agency, their representatives, and the Contractor reserve the right to reply or respond through e-Builder® to documents actually received in paper document form.
3. The following are examples of paper documents which may require an original signature:
 - a. Contract
 - b. Change Orders
 - c. Application & Certificates for Payment
 - d. Force Account and Protested Force Account forms

1 **1-05.19(6) Minimum Equipment Requirements**

2
3 In addition to other requirements specified in this Section, the Contractor shall be
4 responsible for providing suitable computers, necessary software and internet access
5 to utilize e-Builder®. Furthermore, Microsoft Word, Microsoft Excel, and Adobe
6 Acrobat Reader (compatible with current versions) are required. Contact e-Builder®
7 for any additional equipment requirements and support at the following website:
8 <http://www.e-builder.net/services/support>.
9

10 No separate payment will be made for the use of e-Builder®, as this will be considered
11 incidental to the Contract. All costs incurred to carry out the requirements of utilizing
12 and maintaining e-Builder®, including but not limited to, labor, training, equipment, and
13 required software are the sole responsibility of the Contractor.
14

15 **END OF SECTION**
16

1 **1-06 CONTROL OF MATERIAL**

2
3 **1-06.1 Approval of Materials Prior To Use**
4 **(September 15, 2010 Tacoma GSP)**

5 *The first sentence is revised to read:*

6
7 All materials and equipment shall be submitted for review in accordance with section
8 1-05.3 of these special provisions.

9
10 For aggregates, the Contractor shall notify the Engineer of all proposed aggregates.
11 The Contractor shall use the Aggregate Source Approval (ASA) Database.

12
13 All equipment, materials, and articles incorporated into the permanent Work:

- 14
15 1. Shall be new, unless the Special Provisions or Standard Specifications permit
16 otherwise;
17
18 2. Shall meet the requirements of the Contract and be approved by the Engineer;
19
20 3. May be inspected or tested at any time during their preparation and use; and
21
22 4. Shall not be used in the Work if they become unfit after being previously approved.
23

24 **1-06.1(1) Qualified Products List (QPL)**

25 *This section is revised in its entirety to read:*

26
27 QPL's are not accepted by the City.
28

29 **1-06.1(2) Request for Approval of Material (RAM)**

30 *This section is deleted in its entirety:*

31
32 **END OF SECTION**
33

1 **1-07 LEGAL RELATIONS AND RESPONSIBILITIES TO THE PUBLIC**

2
3 **1-07.1 Laws to be Observed**
4 **(October 1, 2005 APWA GSP)**

5 *Supplement this section with the following:*

6
7 In cases of conflict between different safety regulations, the more stringent regulation
8 shall apply.

9
10 The Washington State Department of Labor and Industries shall be the sole and
11 paramount administrative agency responsible for the administration of the provisions
12 of the Washington Industrial Safety and Health Act of 1973 (WISHA).

13
14 The Contractor shall maintain at the project site office, or other well known place at
15 the project site, all articles necessary for providing first aid to the injured. The
16 Contractor shall establish, publish, and make known to all employees, procedures for
17 ensuring immediate removal to a hospital, or doctor's care, persons, including
18 employees, who may have been injured on the project site. Employees should not be
19 permitted to work on the project site before the Contractor has established and made
20 known procedures for removal of injured persons to a hospital or a doctor's care.

21
22 The Contractor shall have sole responsibility for the safety, efficiency, and adequacy
23 of the Contractor's plant, appliances, and methods, and for any damage or injury
24 resulting from their failure, or improper maintenance, use, or operation. The
25 Contractor shall be solely and completely responsible for the conditions of the project
26 site, including safety for all persons and property in the performance of the work. This
27 requirement shall apply continuously, and not be limited to normal working hours. The
28 required or implied duty of the Engineer to conduct construction review of the
29 Contractor's performance does not, and shall not, be intended to include review and
30 adequacy of the Contractor's safety measures in, on, or near the project site.

31
32 **1-07.2 State Taxes**
33 **(January 6, 2015 TACOMA GSP)**

34 *Supplement this section with the following:*

35
36 Washington State Department of Revenue Rules 170 and 171 shall apply as shown
37 in the Proposal and per Section 1-07.2 of the WSDOT and APWA Standard
38 Specifications for Road, Bridge, and Municipal Construction.

39
40 **1-07.9 Wages**

41
42 **1-07.9(5) Required Documents**
43 **(March 1, 2004 Tacoma GSP)**

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

45
46 Weekly certified payrolls shall be submitted for the Contractor and all lower tier
47 subcontractors or agents.

1 *This section is supplemented with the following:*

2
3 Where fringe benefits are paid in cash, certified payrolls shall include the fringe benefit
4 dollar amount paid to each employee for each employee classification.

5
6 Where fringe benefits are paid into approved plans, funds, or programs, the amount of
7 the fringe benefits shall be identified in the "Benefit Distribution" section of the Certified
8 Payroll Affirmation form.

9
10 **1-07.15 Temporary Water Pollution/Erosion Control**
11 **(March 23, 2010 Tacoma GSP)**

12 *This section is supplemented with the following:*

13
14 Stormwater or dewatering water that has come in contact with concrete rubble,
15 concrete pours, or cement treated soils shall be maintained to pH 8.5 or less before it
16 is allowed to enter waters of the State or the City stormwater system. If pH exceeds
17 8.5, the Contractor shall immediately discontinue work and initiate treatment according
18 to the plan to lower the pH. Work may resume, with treatment, once the pH of the
19 stormwater is 8.5 or less or it can be demonstrated that the runoff will not reach surface
20 waters or the City stormwater system.

21
22 High pH process water shall not be discharged to waters of the State or the City
23 stormwater system. Unless specific measures are identified in the Special Provisions,
24 high pH water may be infiltrated, dispersed in vegetation or compost, or discharged to
25 a sanitary sewer system. Disposal shall be in accordance with the City of Tacoma
26 Surface Water Management Manual or to City wastewater system with proper
27 approval. Water being infiltrated or dispersed shall have no chance of discharging
28 directly to waters of the State or the City stormwater system, including wetlands or
29 conveyances that indirectly lead to waters of the State. High pH process water shall
30 be treated to within a range of 6.5 to 8.5 pH units prior to infiltration to ensure the
31 discharge does not cause a violation of groundwater quality standards. If water is
32 discharged to the sanitary sewer, the Contractor shall provide a copy of permits and
33 requirements for placing the material into a sanitary sewer system prior to beginning
34 the work. Process water may be collected and disposed of by the Contractor off the
35 project site. The Contractor shall provide a copy of the permit for an approved waste
36 site for the disposal of the process water prior to the start of work that generates the
37 process water. A Special Approved Discharge permit shall be required for all
38 discharges to the sanitary sewer system.

39
40 **1-07.15(1) Spill Prevention, Control and Countermeasures Plan**
41 **(February 9, 2011 Tacoma GSP)**

42 *This section is revised to read:*

43
44 The Contractor shall prepare a project-specific spill prevention, control, and
45 countermeasures plan (SPCC Plan) that will be used for the duration of the project.
46 The Contractor shall submit the plan to the Project Engineer no later than the date of
47 the preconstruction conference. No on-site construction activities may commence until
48 the Contracting Agency accepts an SPCC Plan for the project.

49
50 The SPCC Plan shall address all fuels, petroleum products, hazardous materials, and
51 other materials as defined in Chapter 447 of the WSDOT Environmental Procedures

Manual (M 31-11). Occupational safety and health requirements that may pertain to SPCC Plan implementation are contained in, but not limited to, WAC 296-824 and WAC 296-843.

Implementation Requirements

The SPCC Plan shall be updated by the Contractor throughout project construction so that the written plan reflects actual site conditions and practices. The Contractor shall update the SPCC Plan at least annually and maintain a copy of the updated SPCC Plan on the project site. All project employees shall be trained in spill prevention and containment, and they shall know where the SPCC Plan and spill response kits are located and have immediate access to them.

If hazardous materials are encountered or spilled during construction, the Contractor shall do everything possible to control and contain the material until appropriate measures can be taken. The Contractor shall supply and maintain spill response kits of appropriate size within close proximity to hazardous materials and equipment.

The Contractor shall implement the spill prevention measures identified in the SPCC Plan before performing any of the following:

1. Placing materials or equipment in staging or storage areas.
2. Refueling, washing, or maintaining equipment.
3. Stockpiling contaminated materials.

SPCC Plan Element Requirements

The SPCC Plan shall set forth the following information in the following order:

1. Responsible Personnel

Identify the name(s), title(s), and contact information, including a 24/7 emergency contact number, for the personnel responsible for implementing and updating the plan, including all spill responders.

2. Spill Reporting

List the names and telephone numbers of the Federal, State, and local agencies the Contractor shall notify in the event of a spill. The City of Tacoma contact will be the Wastewater Treatment Plant Operations number at 253.591.5595 and the City Source Control Spill Response number at 253.502.2222.

3. Project and Site Information

Describe the following items:

- A. The project Work.
- B. The site location and boundaries.
- C. The drainage pathways from the site, including both stormwater and sanitary conveyance pathways.
- D. Nearby waterways and sensitive areas and their distances from the site.

1 4. Potential Spill Sources

2 Describe each of the following for all potentially hazardous materials brought or
3 generated on-site (including materials used for equipment operation, refueling,
4 maintenance, or cleaning):

5 A. Name of material and its intended use.

6 B. Estimated maximum amount on-site at any one time.

7 C. Location(s) (including any equipment used below the ordinary high water line)
8 where the material will be staged, used, and stored and the distance(s) from
9 nearby waterways and sensitive areas.

10 D. Decontamination location and procedure for equipment that comes into contact
11 with the material.

12 E. Disposal procedures.

13 F. Include a Material Safety Data Sheet (MSDS) for each potentially hazardous
14 material.

15
16 5. Pre-Existing Contamination

17 Describe any pre-existing contamination and contaminant sources (such as buried
18 pipes or tanks) in the project area that are described in the Contract documents.
19 Identify equipment and work practices that will be used to prevent the release of
20 contamination.

21
22 6. Spill Prevention and Response Training

23 Describe how and when all personnel (including refueling Contractors and
24 Subcontractors) will be trained in spill prevention, containment, and response in
25 accordance with the Plan. Describe how and when all spill responders will be
26 trained in accordance with WAC 296-824.

27
28 7. Spill Prevention

29 Describe the following items:

30
31 A. Spill response kit contents and location(s).

32 B. Security measures for potential spill sources.

33 C. Secondary containment practices and structures for all containers to handle
34 the maximum volume of potential spill of hazardous materials.

35 D. Methods used to prevent stormwater from contacting hazardous materials.

36 E. Site inspection procedures and frequency.

37 F. Equipment and structure maintenance practices.

38 G. Daily inspection and cleanup procedures that ensure all equipment used below
39 the ordinary high water line is free of all external petroleum-based products.

40 H. Refueling procedures for equipment that cannot be moved from below the
41 ordinary high water line.

42
43 8. Spill Response

44 Outline the response procedures the Contractor will follow for each scenario listed
45 below. Include a description of the actions the Contractor shall take and the
46 specific on-site spill response equipment that shall be used to assess the spill,
47 secure the area, contain and eliminate the spill source, and clean up and dispose
48 of spilled and contaminated material.

49
50 Response procedures shall be outlined in the Spill Response section and shall
51 include notification to the City of Tacoma Wastewater Treatment Plant Operations

number at 253.591.5595 and the City Source Control Spill Response number at 253.502.2222.

- A. A spill of each type of hazardous material at each location identified in 4, above.
- B. Stormwater that has come into contact with hazardous materials.
- C. Drainage pathways from the site, including both stormwater and sanitary conveyance pathways.
- D. A release or spill of any unknown pre-existing contamination and contaminant sources (such as buried pipes or tanks) encountered during project Work.
- E. A spill occurring during Work with equipment used below the ordinary high water line.

If the Contractor will use a Subcontractor for spill response, provide contact information for the Subcontractor under item 1 (above), identify when the Subcontractor will be used, and describe actions the Contractor shall take while waiting for the Subcontractor to respond.

9. Project Site Map

Provide a map showing the following items:

- A. Site location and boundaries.
- B. Site access roads.
- C. Drainage pathways from the site.
- D. Nearby waterways and sensitive areas.
- E. Hazardous materials, equipment, and decontamination areas identified in 4, above.
- F. Pre-existing contamination or contaminant sources described in 5, above.
- G. Spill prevention and response equipment described in 7 and 8, above.

10. Spill Report Forms

Provide a copy of the spill report form(s) that the Contractor will use in the event of a release or spill.

Payment

Payment will be made in accordance with Section 1-04.1 for the following Bid item when it is included in the Proposal:

“SPCC Plan,” lump sum.

When the written SPCC Plan is accepted by the Contracting Agency, the Contractor shall receive 50-percent of the lump sum Contract price for the plan.

The remaining 50-percent of the lump sum price will be paid after the materials and equipment called for in the plan are mobilized to the project.

The lump sum payment for “SPCC Plan” shall be full pay for:

- 1. All costs associated with creating the accepted SPCC Plan.
- 2. All costs associated with providing and maintaining the on-site spill prevention equipment described in the accepted SPCC Plan.

- 1 3. All costs associated with providing and maintaining the on-site standby spill
2 response equipment and materials described in the accepted SPCC Plan.
3
4 4. All costs associated with implementing the spill prevention measures identified in
5 the accepted SPCC Plan.
6
7 5. All costs associated with updating the SPCC Plan as required by this Specification.
8
9 As to other costs associated with releases or spills, the Contractor may request
10 payment as provided for in the Contract. No payment shall be made if the release or
11 spill was caused by or resulted from the Contractor's operations, negligence, or
12 omissions.
13

14 **1-07.16 Protection and Restoration of Property**

15 **1-07.16(1) Private/Public Property** 16 **(January 13, 2011 Tacoma GSP)**

17 *This section is supplemented with the following:*
18
19

20 Stockpiling in City of Tacoma right-of-way or on existing or new improvements shall
21 not occur unless approved by the Engineer. All stockpile sites shall be restored to as
22 good or better condition.
23

24 The Contractor shall contact all property owners and tenants in the vicinity of this
25 project, via newsletter/mailling, a minimum of one (1) week prior to start of construction.
26 The Contractor shall submit a draft of the property owner notification prior to
27 posting/mailling.
28

29 The newsletter/mailling shall advise the owners and tenants of the construction
30 schedule and indicate the Contractor's name, contact person, and telephone numbers.
31

32 **1-07.16(2) Vegetation Protection and Restoration** 33 **(*****)**

34 *This section is supplemented with the following:*
35

36 The Contractor shall notify the Engineer of any potential conflicts between existing tree
37 limbs and equipment to avoid damage to existing tree canopies. Any pruning activity
38 required to complete the Work as specified shall be performed at the direction of the
39 City Arborist.
40

41 Roots larger than 1½ inches in diameter shall not be cut unless directed to do so by
42 the City Arborist. The City Arborist may recommend root shaving or pruning prior to
43 placement of backfill material and/or topsoil. Only sterilized and sharpened chainsaws,
44 handsaws or pruners shall be used to perform these tasks and this work shall be
45 performed under the supervision of the City Arborist. All work shall be performed to
46 ensure significant tree roots are not damaged.
47

48 The Contractor shall ensure adequate soil moisture throughout the duration of the work
49 to maintain tree health. Roots exposed by trenching or other construction activities
50 shall be covered and kept moist to protect and prevent them from drying out, by
51 wrapping with heavy, moist material, such as burlap or canvas. The material must be

1 kept moist until the trench is backfilled. Trenches dug by machines adjacent to trees
2 with roots less than 1½ inches in diameter shall have severed roots cleanly cut.
3 Trenches with exposed tree roots shall be backfilled within 24 hours unless adequately
4 protected by moist material as approved by the Engineer. All material and fastenings
5 used to cover the roots shall be removed before backfilling.

6
7 Contractor shall coordinate directly with the City Construction Inspector to get approval
8 prior to doing any vegetation removal or trimming.

9
10 All costs for coordinating with the City Arborist and cutting and treating roots as
11 specified herein or as directed by the City Arborist shall be considered incidental to
12 the Work and will not be measured for payment.

13
14 **1-07.16(3) Fences, Mailboxes, Incidentals**

15 **(*****)**

16 *Supplement this section with the following:*

17
18 Contractor shall be required to install and maintain temporary fencing throughout the
19 duration of the project at locations where existing fencing is removed. Installing,
20 maintaining, and removing temporary fencing shall be included in "Removal of
21 Structures and Obstructions".

22
23 **1-07.17 Utilities and Similar Facilities**

24 **(March 7, 2017 Tacoma GSP)**

25 *The first paragraph is supplemented with the following:*

26
27 Public and private utilities or their Contractors will furnish all work necessary to adjust,
28 relocate, replace, or construct their facilities unless otherwise provided for in the Plans
29 or these Special Provisions. Such adjustment, relocations, replacement, or
30 construction will be done within the time for performance of this project. The
31 Contractor shall coordinate their work with such adjustment, relocation, or replacement
32 of utility work. This may require the Contractor to phase their work in a manner that
33 will allow for the utility work.

34
35 The Contractor shall coordinate their work with all utilities and other organizations,
36 which have to adjust or revise their facilities within the project area. These may
37 include, but are not limited to:

- 38
39
 - 40 • City of Tacoma Light Division, Contact: Kevin Kelley, phone: (253) 502-8229
 - 41 • City of Tacoma Water Division, Contact: Kimberly Baard, phone: (253) 396-3317
 - 42 • City of Tacoma Traffic Division, Signal/Streetlight Shop, phone: (253) 591-5287
 - 43 • CLICK! Network, Contact: Ken Mathes, phone: (253) 502-8851
 - 44 • Puget Sound Energy, Contact: Mike Klapperich, Electric, phone: (253) 313-3790
 - 45 • OR Amber Uhls, Gas, phone: (253) 476-6137
 - 46 • CenturyLink, Contact: Eric Charity, phone: (206) 733-8871
 - 47 • Comcast, Contact: Todd Gallant, phone: (253) 878-4955
 - 48 • AT&T Broadband Information Services, Contact: Dan McGeough, phone: (425)
 - 49 • 896-9830
 - 50 • Level 3 Communications, Level3NetworkRelocations@Level3.com
 - One-Number Locator Service "One Call System" telephone **1-800-424-5555**

- Verizon, Contact: David Lacombe, phone: (206) 305-5366
- MCI Metro Utility, Contact: Brad Landis, phone: (425) 229-3123

If the Contractor plans to excavate or trench within ten (10) feet of any utility pole or other electric or water utility structure owned by the City of Tacoma, the Contractor shall contact the City of Tacoma, Department of Public Utilities, Field Coordinator, telephone number 502-8044, and arrange for an inspection before proceeding. The Contractor shall perform, at the Contractor's expense, such additional work as is required to protect the pole or structure from subsidence. The Contractor may be directed to suspend work at the site of any such excavation until such utility structures are adequately protected.

(*****)

Supplement this section with the following:

Contractor shall be aware that excavation for public utilities will be in close proximity to existing underground public and private utilities. Contractor shall be responsible for determining the locations of all existing utilities and coordinating with utility providers prior to excavating adjacent to or under these existing utilities. **Contractor shall be responsible for holding/securing/restraining/bracing existing utilities to prevent movement during construction activities.**

Prior to starting excavation on the east side of Portland Avenue the Contractor shall prepare and submit a comprehensive Utility Restraint Plan showing the proposed sequence and methods for temporarily holding/securing/restraining/bracing existing utilities during excavation and sewer main installation activities.

All costs associated with coordinating with utilities and developing and implementing the Utility Restraint Plan shall be considered incidental to the project and will not be measured for separate payment.

TPU Power

Contractor shall be responsible for coordinating directly with TPU Power before excavating in the vicinity of the power duct bank. The TPU contact information is below:

Sean Veley, Substation Maintenance Supervisor

sveley@cityoftacoma.org

O: (253) 502-8713

C: (253) 208-5030

Contractor shall Contact TPU Power a minimum of 10 Working days prior to beginning excavation around the duct bank. TPU Power personnel must be onsite during excavation adjacent to and under the duct bank.

TPU Water

Contractor shall be responsible for coordinating directly with TPU Water before excavating in the vicinity of the existing 48-inch diameter water main. The TPU Water Contact information is below:

James Goodman
jgoodman@cityoftacoma.org
O: (253) 502-8667
C: (253) 606-0287

Contractor shall Contact TPU Water a minimum of 10 Working days prior to beginning excavation around the water main. TPU Water personnel must be onsite during excavation adjacent to and under the water main.

Environmental Services

Contractor shall be responsible for coordinating directly with Environmental Services before excavating between proposed SSMH #3 and the Screening Facility. The Environmental Services Contact information is below:

Kevin Sorum
KSorum@cityoftacoma.org
O: (253) 502-2223
C: (253) 380-2531

Contractor shall Contact Environmental Services a minimum of 10 Working days prior to beginning excavation between proposed SSMH #3 and the Screening Facility.

1-07.18 Public Liability and Property Damage Insurance

Delete this section in its entirety, and replace it with the following:

1-07.18 Insurance (December 17, 2019 Tacoma GSP)

During the course and performance of the services herein specified, the contractor will maintain the insurance coverage in the amounts and in the manner specified in the City of Tacoma Insurance Requirements as is applicable to the services and deliverables provided under this contract. The City of Tacoma Insurance Requirements document is fully incorporated herein by reference.

Failure by the City to identify a deficiency in the insurance documentation provided by the Contractor or failure of the City to demand verification of coverage or compliance by the Contractor with these insurance requirements shall not be construed as a waiver of the Contractor's obligation to maintain such insurance.

1-07.18(5)K Professional Liability (January 4, 2016 APWA GSP)

The Contractor and/or its Subcontractor(s) 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 shall provide the following minimum limits:
\$1,000,000 per claim and annual aggregate

1 If the scope of such design-related professional services includes work related to
2 pollution conditions, the Professional Liability insurance shall include coverage for
3 Environmental Professional Liability.

4
5 If insurance is on a claims made form, its retroactive date, and that of all subsequent
6 renewals, shall be no later than the effective date of this Contract.

7
8 **1-07.23 Public Convenience and Safety**

9
10 **1-07.23(1) Construction Under Traffic**
11 **(May 2, 2017 APWA GSP)**

12 *Revise the third sentence of the second paragraph to read:*

13
14 Accessibility to existing or temporary pedestrian push buttons shall not be impaired; if
15 approved by the Contracting Agency activating pedestrian recall timing or other
16 accommodation may be allowed during construction.

17
18 **(March 1, 2004 Tacoma GSP)**

19 *This section is supplemented with the following:*

20
21 The following special traffic requirements shall be adhered to during all phases of
22 construction:

23
24 E Portland Avenue, E River Street, and Cleveland Way shall remain fully open to
25 vehicular and pedestrian traffic at all times. All work will be conducted on property
26 owned by the City outside of street right of way. The only time traffic revisions will be
27 needed and will be allowed is during mobilization/demobilization from the project site.

28
29 Contractor must provide proper advance notice to the appropriate City of Tacoma
30 Department as identified in the City of Tacoma Traffic Control Handbook prior to any
31 traffic revisions.

32
33 To minimize the disruption to access to adjacent properties, and to Pierce Transit
34 operations, the lane closure area shall be limited to that area of active work and
35 necessary for appropriate lane closure tapers. The Contractor shall stage work to
36 maintain access to and egress from all properties at all times.

37
38 A safe pedestrian access shall be provided at all times through the project area. All
39 lane closures shall be coordinated with the adjacent businesses, other contractors
40 working within the project vicinity, local transit agencies and the City.

41
42 Where, in the opinion of the Engineer, parking is a hazard to through traffic or to the
43 construction work, parking may be restricted either entirely or during the time when it
44 creates a hazard. Signs for restricting parking shall be approved by the City and
45 placed by the Contractor. The Contractor shall be responsible for and shall maintain
46 all such signs. The replacement of signs restricting parking shall be as approved by
47 the Engineer.

48
49 The Contractor shall notify all property owners and tenants of detours, street and alley
50 closures, or other restrictions that may interfere with their access. Notification shall be

1 at least twenty-four (24) hours in advance for residential property, and at least forty-
2 eight (48) hours in advance for commercial property.

3
4 Emergency traffic, such as police, fire, and disaster units, shall be provided access at
5 all times. In addition, the Contractor shall coordinate Contractor activities with all
6 disposal firms and transit bus service that may be operating in the project area.

7
8 If street closures or lane restrictions, not provided for in the Specifications, are allowed
9 subsequent to award of the contract, an equitable adjustment of the Contract amount
10 shall be negotiated.

11
12 It is the intent of the Contract to effectively prevent the deposition of debris on streets
13 in areas of public traffic or where such debris may be transported into a drainage
14 system. When construction operations are such that debris from the work is deposited
15 on the streets, the Contractor shall, at a minimum, remove on a daily basis any
16 deposits or debris which may accumulate on the roadway surface. Should daily
17 removal be insufficient to keep the streets clean, the Contractor shall perform removal
18 operations on a more frequent basis. If the Engineer determines that a more frequent
19 cleaning is impractical or if the Contractor fails to keep the streets free from deposits
20 and debris resulting from the work, the Contractor shall, upon order of the Engineer,
21 provide facilities for and remove all deposits from the tires or between wheels before
22 trucks or other equipment will be allowed to travel over paved streets. Should the
23 Contractor fail or refuse to clean the streets in question, or the trucks or equipment in
24 question, the Engineer may order the work suspended at the Contractor's risk until
25 compliance with Contractor's obligations is assured, or the Engineer may order the
26 streets in question cleaned by others and such costs incurred by the City in achieving
27 compliance with these contract requirements, including cleaning of the streets, shall
28 be deducted from moneys due or to become due the Contractor on monthly estimate.
29 The Contractor shall have no claim for delay or additional costs should the Engineer
30 choose to suspend the Contractor's work until compliance is achieved.

31
32 *The sixth paragraph of this section is supplemented with the following:*

33
34 Trenches backfilled with CDF shall be protected from traffic with steel plates. The
35 plates shall remain in place for 24-hours after placement of the CDF or until CDF is
36 compacted or hardened to prevent rutting by construction equipment or traffic.

37
38 **1-07.24 Rights of Way**
39 **(July 23, 2015 APWA GSP)**

40
41 *Delete this section and replace it with the following:*

42
43 Street Right of Way lines, limits of easements, and limits of construction permits are
44 indicated in the Plans. The Contractor's construction activities shall be confined within
45 these limits, unless arrangements for use of private property are made.

46
47 Generally, the Contracting Agency will have obtained, prior to bid opening, all rights of
48 way and easements, both permanent and temporary, necessary for carrying out the
49 work. Exceptions to this are noted in the Bid Documents or will be brought to the
50 Contractor's attention by a duly issued Addendum.

1 Whenever any of the work is accomplished on or through property other than public
2 Right of Way, the Contractor shall meet and fulfill all covenants and stipulations of any
3 easement agreement obtained by the Contracting Agency from the owner of the
4 private property. Copies of the easement agreements may be included in the Contract
5 Provisions or made available to the Contractor as soon as practical after they have
6 been obtained by the Engineer.

7
8 Whenever easements or rights of entry have not been acquired prior to advertising,
9 these areas are so noted in the Plans. The Contractor shall not proceed with any
10 portion of the work in areas where right of way, easements or rights of entry have not
11 been acquired until the Engineer certifies to the Contractor that the right of way or
12 easement is available or that the right of entry has been received. If the Contractor is
13 delayed due to acts of omission on the part of the Contracting Agency in obtaining
14 easements, rights of entry or right of way, the Contractor will be entitled to an extension
15 of time. The Contractor agrees that such delay shall not be a breach of contract.

16
17 Each property owner shall be given 48 hours notice prior to entry by the Contractor.
18 This includes entry onto easements and private property where private improvements
19 must be adjusted.

20
21 The Contractor shall be responsible for providing, without expense or liability to the
22 Contracting Agency, any additional land and access thereto that the Contractor may
23 desire for temporary construction facilities, storage of materials, or other Contractor
24 needs. However, before using any private property, whether adjoining the work or not,
25 the Contractor shall file with the Engineer a written permission of the private property
26 owner, and, upon vacating the premises, a written release from the property owner of
27 each property disturbed or otherwise interfered with by reasons of construction
28 pursued under this contract. The statement shall be signed by the private property
29 owner, or proper authority acting for the owner of the private property affected, stating
30 that permission has been granted to use the property and all necessary permits have
31 been obtained or, in the case of a release, that the restoration of the property has been
32 satisfactorily accomplished. The statement shall include the parcel number, address,
33 and date of signature. Written releases must be filed with the Engineer before the
34 Completion Date will be established.

35
36 **END OF SECTION**
37
38

1 **1-08 PROSECUTION AND PROGRESS**

2 *Add the following new section:*

3
4 **1-08.0 Preliminary Matters**
5 **(May 25, 2006 APWA GSP)**

6
7 **1-08.0(1) Preconstruction Conference**
8 **(October 10, 2008 APWA GSP)**
9

10 Prior to the Contractor beginning the work, a preconstruction conference will be held
11 between the Contractor, the Engineer and such other interested parties as may be
12 invited. The purpose of the preconstruction conference will be:

- 13 1. To review the initial progress schedule;
- 14 2. To establish a working understanding among the various parties associated or
15 affected by the work;
- 16 3. To establish and review procedures for progress payment, notifications, approvals,
17 submittals, etc.;
- 18 4. To establish normal working hours for the work;
- 19 5. To review safety standards and traffic control; and
- 20 6. To discuss such other related items as may be pertinent to the work.

21
22 The Contractor shall prepare and submit at the preconstruction conference the
23 following:

- 24 1. A breakdown of all lump sum items;
- 25 2. A preliminary schedule of working drawing submittals; and
- 26 3. A list of material sources for approval if applicable.

27
28 *Add the following new section:*

29
30 **1-08.0(2) Hours of Work**
31 **(March 3, 2008 Tacoma GSP)**
32

33 Except in the case of emergency or unless otherwise approved by the Contracting
34 Agency, the normal straight time working hours for the contract shall be any
35 consecutive 8-hour period between 7:00 a.m. and 6:00 p.m. of a working day with a
36 maximum 1-hour lunch break and a 5-day work week. The normal straight time 8-hour
37 working period for the contract shall be established at the preconstruction conference
38 or prior to the Contractor commencing the work.

39
40 If a Contractor desires to perform work on holidays, Saturdays, Sundays, or before
41 7:00 a.m. or after 6:00 p.m. on any day, the Contractor shall apply in writing to the
42 Engineer for permission to work such times. Permission to work longer than an 8-hour
43 period between 7:00 a.m. and 6:00 p.m. is not required. Such requests shall be
44 submitted to the Engineer no later than noon on the working day prior to the day for
45 which the Contractor is requesting permission to work.

46
47 Permission to work between the hours of 9:00 p.m. and 7:00 a.m. during weekdays
48 and between the hours of 9:00 p.m. and 9:00 a.m. on weekends or holidays may also
49 be subject to noise control requirements. Approval to continue work during these
50 hours may be revoked at any time the Contractor exceeds the Contracting Agency's
51 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.

Add the following new section:

1-08.0(3) Reimbursement for Overtime Work of Contracting Agency Employees (September 29, 2009 Tacoma GSP)

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, city staff 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.

1-08.1 Subcontracting - D/M/WBE Reporting (May 17, 2018 APWA GSP, Option B)

Delete the eighth paragraph.

Revise the ninth paragraph to read:

The Contractor shall comply with the requirements of RCW 39.04.250, 39.76.011, 39.76.020, and 39.76.040, in particular regarding prompt payment to Subcontractors. Whenever the Contractor withholds payment to a Subcontractor for any reason including disputed amounts, the Contractor shall provide notice within 10 calendar days to the Subcontractor with a copy to the Contracting Agency identifying the reason for the withholding and a clear description of what the Subcontractor must do to have the withholding released. Retainage withheld by the Contractor prior to completion of the Subcontractors work is exempt from reporting as a payment withheld and is not included in the withheld amount. The Contracting Agency's copy of the notice to

Subcontractor for deferred payments shall be submitted to the Engineer concurrently with notification to the Subcontractor.

1-08.3 Progress Schedule

1-08.3(1) General Requirements

(*****)

Supplement this section with the following:

The Progress Schedule shall include all utility notification and coordination as specified herein or as needed to complete the Work. The Progress Schedule shall also include coordination required with Prospect Construction, including times Prospect Construction may require access to the site so the Contractor can phase their efforts around these time periods.

1-08.4 Prosecution of Work

Delete this section and replace it with the following:

1-08.4 Notice to Proceed and Prosecution of Work (July 23, 2015 APWA GSP)

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.

1 (*****)

2 *Supplement this section with the following:*

3
4 The second order of work shall be to conduct utility potholing as specified on the Plans
5 or as directed by the City Construction Inspector.
6

7 **1-08.5 Time for Completion**

8 **(March 16, 2016 Tacoma GSP)**

9 *Revise the third and fourth paragraphs to read:*

10
11 Contract time shall begin on the first working day following the Notice to Proceed Date.
12 Each working day shall be charged to the contract as it occurs, until the contract work
13 is physically complete. If substantial completion has been granted and all the
14 authorized working days have been used, charging of working days will cease. Each
15 week the Engineer will provide the Contractor a statement that shows the number of
16 working days: (1) charged to the contract the week before; (2) specified for the physical
17 completion of the contract; and (3) remaining for the physical completion of the
18 contract. The statement will also show the nonworking days and any partial or whole
19 day the Engineer declares as unworkable. Within 10 calendar days after the date of
20 each statement, the Contractor shall file a written protest of any alleged discrepancies
21 in it. To be considered by the Engineer, the protest shall be in sufficient detail to enable
22 the Engineer to ascertain the basis and amount of time disputed. By not filing such
23 detailed protest in that period, the Contractor shall be deemed as having accepted the
24 statement as correct. If the Contractor is approved to work 10 hours a day and 4 days
25 a week (a 4-10 schedule) and the fifth day of the week in which a 4-10 shift is worked
26 would ordinarily be charged as a working day then the fifth day of that week will be
27 charged as a working day whether or not the Contractor works on that day.
28

29 *Revise the sixth paragraph to read:*

30
31 The Engineer will give the Contractor written notice of the completion date of the
32 contract after all the Contractor's obligations under the contract have been performed
33 by the Contractor. The following events must occur before the Completion Date can
34 be established:

- 35 1. The physical work on the project must be complete; and
36 2. The Contractor must furnish all documentation required by the contract and
37 required by law, to allow the Contracting Agency to process final acceptance of the
38 contract. The following documents must be received by the Project Engineer prior
39 to establishing a completion date:
40 a. Certified Payrolls (per Section 1-07.9(5)).
41 b. Material Acceptance Certification Documents
42 c. Reports of Amounts Credited as EIC Participation, as required by the Contract
43 Provisions.
44 d. Final Contract Voucher Certification
45 e. Copies of the approved "Affidavit of Prevailing Wages Paid" for the Contractor
46 and all Subcontractors
47 f. Property owner releases per Section 1-07.24
48
49

1 *This section is supplemented with the following:*
2 **(March 1, 2004 Tacoma GSP)**

3
4 This project shall be physically completed within **95** working days.

5
6 **1-08.6 Suspension of Work**
7 **(*****)**

8 *Supplement this section with the following:*
9

10 Contractor will be allowed to request a suspension for material procurement after
11 potholing has been completed.

12
13 In order to receive a Procurement Suspension, the Contractor shall within 10 calendar
14 days after completing potholes, or after receiving the revised design (if needed), place
15 purchase orders for all materials deemed critical by the Contracting Agency for
16 physical completion of the contract. The Contractor shall provide copies of purchase
17 orders for the critical materials. Such purchase orders shall disclose the purchase
18 order date and estimated delivery dates for such critical material.

19
20 The Contractor shall show procurement of the materials listed below as activities in
21 the Progress Schedule.

22
23 Charging of contract time will resume upon delivery of the critical materials to the
24 Contractor or 60 calendar days after execution by the Contracting Agency, whichever
25 occurs first.

26
27 **1-08.9 Liquidated Damages**
28 **(August 14, 2013 APWA GSP)**

29 *Revise the fourth paragraph to read:*
30

31 When the Contract Work has progressed to Substantial Completion as defined in the
32 Contract, the Engineer may determine that the work is Substantially Complete. The
33 Engineer will notify the Contractor in writing of the Substantial Completion Date. For
34 overruns in Contract time occurring after the date so established, the formula for
35 liquidated damages shown above will not apply. For overruns in Contract time
36 occurring after the Substantial Completion Date, liquidated damages shall be
37 assessed on the basis of direct engineering and related costs assignable to the project
38 until the actual Physical Completion Date of all the Contract Work. The Contractor
39 shall complete the remaining Work as promptly as possible. Upon request by the
40 Project Engineer, the Contractor shall furnish a written schedule for completing the
41 physical Work on the Contract.

42
43 **END OF SECTION**
44

1 **1-09 MEASUREMENT AND PAYMENT**

2
3 **1-09.2(1) General Requirements for Weighing Equipment**
4 **(July 23, 2015 APWA GSP, Option 1)**

5 *Revise the third paragraph to read:*

6
7 **Scale Operations** – “Contractor-provided scale operations” are defined as operations
8 where a scale is set up by the Contractor specifically for the project and most, if not
9 all, material weighed on the scale is utilized for Contract Work. In this situation, the
10 Contractor shall provide, set up, and maintain the scales necessary to perform this
11 Work. The Contracting Agency will provide a person to operate the project scale, write
12 tickets, perform scale checks and prepare reports.

13
14 **1-09.2(1) General Requirements for Weighing Equipment**
15 **(July 23, 2015 APWA GSP, Option 2)**

16 *Revise item 4 of the fifth paragraph to read:*

- 17
18 4. Test results and scale weight records for each day’s hauling operations are
19 provided to the Engineer daily. Reporting shall utilize WSDOT form 422-027,
20 Scaleman’s Daily Report, unless the printed ticket contains the same information
21 that is on the Scaleman’s Daily Report Form. The scale operator must provide
22 AM and/or PM tare weights for each truck on the printed ticket.

23
24 **1-09.6 Force Account**
25 **(October 10, 2008 APWA GSP)**

26 *Supplement this Section with the following:*

27
28 The Contracting Agency has estimated and included in the Proposal, dollar amounts
29 for all items to be paid per force account, only to provide a common proposal for
30 Bidders. All such dollar amounts are to become a part of Contractor's total bid.
31 However, the Contracting Agency does not warrant expressly or by implication, that
32 the actual amount of work will correspond with those estimates. Payment will be made
33 on the basis of the amount of work actually authorized by Engineer.

34
35 **(January 13, 2011 Tacoma GSP)**

36 *Item #3 of this Section is supplemented with the following:*

37
38 The Contractor shall submit a comprehensive summary list of all equipment
39 anticipated to be used on the project and their associated AGC/WSDOT Equipment
40 Rental Rates. The list shall include the contractor's equipment number, make, model,
41 year, operation rate, standby rate, applicable attachments and any other applicable
42 information necessary to determine the applicable rates in accordance with this
43 section. In addition, the contractor shall submit an Equipment Watch rate sheet
44 (www.equipmentwatch.com) for each piece of equipment in the summary list. Access
45 to the Equipment Watch web site is available at the City’s Construction Management
46 Office.

1 **1-09.9 Payments**
2 **(March 13, 2012 APWA GSP)**

3 *Delete the first four paragraphs and replace them with the following:*
4

5 The basis of payment will be the actual quantities of Work performed according to the
6 Contract and as specified for payment.
7

8 The Contractor shall submit a breakdown of the cost of lump sum bid items at the
9 Preconstruction Conference, to enable the Project Engineer to determine the Work
10 performed on a monthly basis. A breakdown is not required for lump sum items that
11 include a basis for incremental payments as part of the respective Specification.
12 Absent a lump sum breakdown, the Project Engineer will make a determination based
13 on information available. The Project Engineer's determination of the cost of work
14 shall be final.
15

16 Progress payments for completed work and material on hand will be based upon
17 progress estimates prepared by the Engineer. A progress estimate cutoff date will be
18 established at the preconstruction conference.
19

20 The initial progress estimate will be made not later than 30 days after the Contractor
21 commences the work, and successive progress estimates will be made every month
22 thereafter until the Completion Date. Progress estimates made during progress of the
23 work are tentative, and made only for the purpose of determining progress payments.
24 The progress estimates are subject to change at any time prior to the calculation of
25 the final payment.
26

27 The value of the progress estimate will be the sum of the following:

- 28 1. Unit Price Items in the Bid Form — the approximate quantity of acceptable
29 units of work completed multiplied by the unit price.
- 30 2. Lump Sum Items in the Bid Form — based on the approved Contractor's lump
31 sum breakdown for that item, or absent such a breakdown, based on the
32 Engineer's determination.
- 33 3. Materials on Hand — 100 percent of invoiced cost of material delivered to Job
34 site or other storage area within the City of Tacoma approved by the Engineer.
- 35 4. Change Orders — entitlement for approved extra cost or completed extra work
36 as determined by the Engineer.
37

38 Progress payments will be made in accordance with the progress estimate less:

- 39 1. Retainage per Section 1-09.9(1), on non FHWA-funded projects;
- 40 2. The amount of progress payments previously made; and
- 41 3. Funds withheld by the Contracting Agency for disbursement in accordance with
42 the Contract Documents.
43

44 Progress payments for work performed shall not be evidence of acceptable
45 performance or an admission by the Contracting Agency that any work has been
46 satisfactorily completed. The determination of payments under the contract will be
47 final in accordance with Section 1-05.1.
48
49

1 *This section is supplemented with the following:*
2 **(January 6, 2015 Tacoma GSP)**

3
4 Breakdowns of all lump sum items shall be provided for all lump sum items and shall
5 include all costs for labor, equipment, materials, and taxes (as applicable) associated
6 with the lump sum item. Washington State Department of Revenue Rules 170 and
7 171 apply to lump sum items per Section 1-07.2 of the WSDOT State Amendments to
8 the Standard Specifications.

9
10 Stockpiled Material - The point of acceptance of stockpiled material for payment and
11 quality shall be at the time of incorporation into the contract.

12
13 **1-09.9(1) Retainage**
14 **(May 10, 2006 Tacoma GSP)**

15 *The fourth paragraph is supplemented with the following:*

- 16
17 6. A "General Release to the City of Tacoma" is on file with the Contracting Agency.
18 7. A release has been obtained from the City of Tacoma's City Clerk's Office.

19
20 **1-09.13(3)A Administration of Arbitration**
21 **(October 1, 2005 APWA GSP)**

22 *Revise the third paragraph to read:*

23
24 The Contracting Agency and the Contractor mutually agree to be bound by the
25 decision of the arbitrator, and judgment upon the award rendered by the arbitrator may
26 be entered in the Superior Court of the county in which the Contracting Agency's
27 headquarters are located. The decision of the arbitrator and the specific basis for the
28 decision shall be in writing. The arbitrator shall use the contract as a basis for
29 decisions.

30
31 **END OF SECTION**
32

1 **1-10 TEMPORARY TRAFFIC CONTROL**

2
3 **1-10.1(2) Description**
4 **(July 22, 2019 Tacoma GSP)**

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

6
7 The Contractor shall keep lanes, on-ramps, and off-ramps open to traffic at all times
8 except when Work requires closure(s) that have been requested and approved in
9 accordance with section 1-10.2(2).

10
11 *The third sentence of the fourth paragraph is revised to read:*

12
13 Approved lane and ramp closures shall be for the minimum time required to complete
14 the Work.

15
16 *This section is supplemented with the following:*

17
18 Existing signs shall not be removed until the Contractor has provided for temporary
19 measures sufficient to safeguard and direct traffic after existing signs have been
20 removed. Preservation of temporary traffic control and street name signs shall be the
21 sole responsibility of the Contractor.

22
23 As the work progresses and permits, temporarily relocated and/or removed traffic
24 signs shall be reset in their permanent location. Permanent signs and other traffic
25 control devices damaged or lost by the Contractor shall be replaced or repaired at the
26 Contractor's expense.

27
28 **1-10.2 Traffic Control Management**

29
30 **1-10.2(1) General**
31 **(January 3, 2017)**

32 *Section 1-10.2(1) is supplemented with the following:*

33
34 Only training with WSDOT TCS card and WSDOT training curriculum is recognized in
35 the State of Washington. The Traffic Control Supervisor shall be certified by one of the
36 following:

37
38 The Northwest Laborers-Employers Training Trust
39 27055 Ohio Ave.
40 Kingston, WA 98346
41 (360) 297-3035

42
43 Evergreen Safety Council
44 12545 135th Ave. NE
45 Kirkland, WA 98034-8709
46 1-800-521-0778

47
48 The American Traffic Safety Services Association
49 15 Riverside Parkway, Suite 100
50 Fredericksburg, Virginia 22406-1022
51 Training Dept. Toll Free (877) 642-4637

1 Phone: (540) 368-1701

2
3 **1-10.2(2) Traffic Control Plans**
4 **(*****)**

5 *Supplement this section with the following:*

6
7 The Contractor shall prepare site specific Traffic Control Plans for all phases of the
8 work and submit them in advance for approval to the Engineer. The Plans may be
9 submitted in phases in advance of, and associated with, specific pending construction
10 activities, but must be provided at least 3 weeks prior to the desired start date of the
11 work/activity to allow for review time and advance deployment of public notice upon
12 receipt of the approved Traffic Control Plan(s). If Traffic Control Plans to address all
13 needs/duration of the project are intended to be submitted at the same time prior to
14 any construction starting, then the City will require 5 weeks' advance notice to ensure
15 adequate review time and coordination on needs. The Contractor's proposed Traffic
16 Control Plans shall show the actual extent of the work area, including equipment
17 needs, within the proposed work zone and complement that information with
18 necessary lane closures, lane shifts, construction signs, flaggers, spotters, and other
19 traffic control devices required to support each phase of the construction while
20 maintaining access as specified in Section 1-07.23. The Contractor-provided plans
21 shall be prepared by the Contractor's Traffic Control Supervisor or an engineer
22 licensed in the State of Washington and shall conform to the requirements contained
23 in the latest version of the Manual on Uniform Traffic Control Devices (MUTCD), the
24 City's Traffic Control Handbook, and the latest version of the Work Zone Traffic Control
25 Guidelines published by the Washington State Department of Transportation.
26 WSDOT 'TC' Plans and the City of Tacoma Sample Setup Drawings are acceptable
27 (if amended with or accompanied by the expected details described above) for
28 submittal and review as and if applicable.

29
30 Traffic Control Plans shall also specify how pedestrian routes shall be maintained
31 through the project site.

32
33 Prior to substantial development and submitting of the initial Traffic Control Plans for
34 review by the Engineer, the Contractor shall meet with the Engineer and provide a
35 detailed explanation of the Contractor's proposed construction schedule, construction
36 phasing and associated temporary traffic control implementation. The plan must be
37 acceptable to the Engineer prior to the Contractor submitting the initial set of Traffic
38 Control Plans. No construction will be allowed until the Traffic Control Plans are
39 acceptable to and approved by the Engineer.

40
41 Payment for developing an approved Traffic Control Plans, including pedestrian-
42 related elements, shall be considered incidental to the lump sum price in the Proposal
43 for "Project Temporary Traffic Control" and no additional compensation will be made.
44
45

1 **1-10.3 Traffic Control Labor, Procedures, and Devices**

2
3 **1-10.3(3)A Construction Signs**
4 **(January 11, 2006 Tacoma GSP)**

5 *The fifth paragraph is revised to read:*

6
7 Signs, posts, or supports that are lost, stolen, damaged, destroyed, or which the
8 Engineer deems to be unacceptable while their use is required on the project shall be
9 replaced by the Contractor at their expense.

10
11 **1-10.4 Measurement**

12
13 **1-10.4(1) Lump Sum Bid for Project (No Unit Items)**
14 **(*****)**

15 *This section is supplemented with the following:*

16
17 The proposal contains the item "Project Temporary Traffic Control", lump sum. The
18 provisions of Section 1-10.4(1) shall apply.

19
20 **1-10.5 Payment**

21
22 **1-10.5(1) Lump Sum Bid for Project (No Unit Items)**
23 **(*****)**

24 *This section is supplemented with the following:*

25
26 The Lump Sum bid item for "Project Temporary Traffic Control" shall cover the cost to
27 provide temporary traffic control for each and every Working day (the entire contract
28 duration) allowed as defined in Section 1-08.5 of these Special Provisions. The total
29 allowable working days defined for this contract includes sufficient time to complete all
30 work associated with items allocated to Force Account items. Should the Contractor
31 complete the work in fewer Working days than allowed, the Contract lump sum item
32 will be paid in full and shall be consider an incentive to the Contractor for early
33 completion. For additional Working days approved via a change order for work that is
34 not identified to be paid by Force Account the daily cost for Project Temporary Traffic
35 Control shall be determined by dividing the lump sum Contract price for "Project
36 Temporary Traffic Control" by the originally allowed contract working days as defined
37 in Section 1-08.5 of these Special Provisions to arrive at a daily cost for temporary
38 traffic control.

39
40 **END OF SECTION**
41

2-01 CLEARING, GRUBBING, AND ROADSIDE CLEANUP

(***)**

2-01.1 Description

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

The Contractor shall clear, grub, and clean up those areas within project area as required to complete the Work.

This section is supplemented with the following:

Stumps, shrubs, and brush located outside the Clearing & Grubbing limits shall be considered as part of "Clearing and Grubbing" when identified for removal on the Plans or when required to complete the work or access the work.

2-01.2 Disposal of Usable Material and Debris

The second paragraph is revised to read:

The Contractor shall dispose of all debris in accordance with Section 2-01.2(2).

2-01.3(1) Clearing

This section is revised to read:

1. Fell trees only within the area to be cleared.
2. Close-cut parallel to the slope of the ground all stumps to be left in the cleared area outside the slope stakes.
3. Close cut all stumps that will be buried by fills 5-feet or less in depth.
4. Follow these requirements for all stumps that will be buried by fills deeper than 5-feet from the top, side, or end surface of the embankment or any structure and are in a location that will not be terraced as described in Section 2-03.3(14):
 - a. Close-cut stumps under 18-inches in diameter.
 - b. Trim stumps that exceed 18-inches in diameter to no more than 12-inches above original ground level.
5. Leave standing any trees or native growth indicated by the Engineer.
6. Trim all trees to be left standing to the height specified by the Engineer, with a minimum height of eight (8) feet above sidewalk and fourteen (14) feet above the roadway surface. Neatly cut all limbs close to the tree trunk.
7. Thin clumps of native growth as the Engineer may direct.
8. Protect, by fencing if necessary, all trees or native growth from any damage caused by construction operations.

2-01.3(2) Grubbing

Item e is revised to read:

Upon which embankments will be placed, except stumps may be close-cut or trimmed as allowed in Section 2-01.3(1) item 4.

1 **2-01.4 Measurement**

2 *Supplement this section with the following:*

3

4 Clearing and grubbing will not be measured for payment but shall be included in the
5 lump sum price for "Removal of Structures and Obstructions".

6

7

END OF SECTION

8

2-02 REMOVAL OF STRUCTURES AND OBSTRUCTIONS

(***)**

2-02.1 Description

Supplement this section with the following:

This work shall consist of removing all materials noted in this section of the Special Provisions as well as any other materials designated for removal on the Plans or necessary for construction of this project for which a specific Bid item is not provided in the Proposal. The following specific items shall be included under "Removal of Structures and Obstructions":

1. Clearing and grubbing.
2. Trimming or removing vegetation as required to complete the Work, including that necessary to access the site.
3. Removing stumps, shrubs, or brush as required to complete the Work.
4. Installing, maintaining, and removing temporary fencing.

In general, the Contractor shall remove/dispose or abandon existing items which are in conflict with the new improvements. Where not in conflict, or where not specified for demolition or removal, Contractor shall protect all private and public improvements.

All material removed for construction of the project, except those designated for salvage, shall be hauled offsite to a legal disposal site by the Contractor. The Contractor shall determine the requirements of his selected disposal site related to accepting the material to be deposited on the site. Testing of the material by the disposal site or refusal of the site to accept the material shall not be the basis for additional payment or for an extension of the Contract time. The cost of all such requirements shall be included in the Bid price for Removal of Structures and Obstructions.

2-02.3 Construction Requirements

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

This section is deleted.

Section 2-02.3 is supplemented with the following:

2-02.3(4) Removal of Piezometers

The Contractor shall abandon all borings with piezometers installed as part of the geotechnical investigations for this project. The locations of the piezometers are listed in the Geotechnical Data Report and shown on the Plans.

The borings with piezometers shall be abandoned in accordance with Department of Ecology requirements and Washington Administrative Code 173-160-460.

Notify the Engineer a minimum of 5 Working days prior to starting piezometer decommissioning so that pressure transducers can be recovered.

1 **2-02.4 Measurement**

2 *This section is supplemented with the following:*

3
4 Borings with piezometers to be abandoned will be measured per each.

5
6 **2-02.5 Payment**

7 *This section is supplemented with the following:*

8
9 "Abandon Piezometer", at per each.

10
11 The unit Contract price for "Abandon Piezometer" shall be full payment for all labor,
12 equipment, materials, and permitting necessary to abandon the piezometers in
13 accordance with these Special Provisions.

14
15 **END OF SECTION**
16
17

1 **2-03 ROADWAY EXCAVATION AND EMBANKMENT**

2 **(*****)**

3
4 **2-03.1 Description**

5 *The last sentence of the first paragraph is deleted.*

6
7 **2-03.3 Construction Requirements**

8 *This section is supplemented with the following:*

9
10 Contractor shall take care not to destabilize the Portland Avenue roadway
11 embankment/prizm when excavating for the launching and receiving pits on the west
12 and east sides of Portland Avenue. Any costs associated with shoring necessary to
13 prevent destabilization shall be included in the lump sum "Structural Shoring – Portland
14 Avenue Crossing", Bid item in Section 2-09.

15
16 Material excavated shall be hauled to LRI Landfill, located at 30919 Meridian Street
17 East, Graham, WA or an approved licensed solid waste disposal facility.

18
19 **2-03.3(5) Slope Treatment**

20 *This section is deleted.*

21
22 **2-03.3(19) Removal of Pavement, Sidewalks, Curbs, and Gutters**

23 *This section is deleted.*

24
25 **2-03.5 Payment**

26 *This section is supplemented with the following:*

27
28 "Roadway Excavation of Contaminated Material, Incl. Haul", per cubic yard.

29
30 The unit Contract price per cubic yard for "Roadway Excavation of Contaminated
31 Material, Incl. Haul" shall be full compensation for all costs incurred for excavating,
32 loading, placing, disposal and haul to LRI or other approved facility.

33
34 **Contractor will not be responsible for paying tipping fees to LRI. The City will**
35 **pay all LRI tipping fees directly to LRI for this project.**

36
37 **END OF SECTION**

1 **2-07 WATERING**
2 **(August 3, 2009 Tacoma GSP)**
3

4 **2-07.3 Construction Requirements**

5 *The last sentence of the first paragraph is revised to read:*
6

7 The Engineer may direct that the Contractor apply water during non-working hours
8 such as evenings, weekends, or recognized holidays.
9

10 *Section 2-07.3 is supplemented with the following:*
11

12 **2-07.3(1) Water Supplied from Hydrants**
13

14 There is no guarantee that all fire hydrants will be available for use for cleaning, lining,
15 or any other construction activities associated with this project. Prior to construction
16 activities, it shall be the Contractor's responsibility to verify which hydrants will be
17 available by contacting Tacoma Water. The Contractor shall use only those hydrants
18 designated by Tacoma Water.
19

20 Water supplied from hydrants governed by Tacoma Water shall be used in strict
21 compliance with the "Operating Procedures for the use of Water Division Hydrants"
22 available at the Tacoma Water Permit Counter.
23

24 The Contractor shall obtain a Hydrant Permit prior to start of work by contacting the
25 Water Permit Counter at (253) 502-8247, 2nd floor, Tacoma Public Utilities,
26 Administrative Building, 3628 South 35th Street, Tacoma, WA 98409. A copy of the
27 approved Hydrant Permit shall be submitted to the Engineer.
28

29 Contractor personnel shall be in possession of a valid Tacoma Public Utilities Hydrant
30 Certification Card prior to obtaining a permit. If necessary, contractor personnel shall
31 undergo training to receive the required certification. Contact the Water Permit
32 Counter to set up training as necessary.
33

34 **END OF SECTION**
35

1 **2-09 STRUCTURE EXCAVATION**

2 **(*****)**

3
4 **2-09.3 Construction Requirements**

5 *Supplement this section with the following:*

6
7 Contractor is alerted to the fact that the proposed sewer alignment will require
8 excavation through an old railroad bed (approximately STA 3+65). The rails and
9 surface ties have been removed from the railroad bed.

10
11 **2-09.3(1) General Requirements**

12
13 **2-09.3(1)D Disposal of Excavated Material**

14 *Supplement this section with the following:*

15
16 All material removed as structure excavation shall be hauled to LRI Landfill, located at
17 30919 Meridian Street East, Graham, WA or an approved licensed solid waste
18 disposal facility. No material excavated for structure installation shall be re-used on
19 the project site.

20
21 **2-09.3(1)E Backfilling**

22 *Supplement this section with the following:*

23
24 All structure backfill shall be Gravel Backfill for Walls per Section 9-03.12(2) of the
25 Standard Specifications.

26
27 **2-09.3(3) Construction Requirements, Structure Excavation, Class A**

28
29 **2-09.3(3)D Shoring and Cofferdams**

30 *Supplement this section with the following:*

31
32 Structural shoring shall be required for the jack and bore launch and receiving pits.
33 This structural shoring shall be designed and stamped by a professional engineer
34 registered in the State of Washington.

35
36 **2-09.4 Measurement**

37 *This section is supplemented with the following:*

38
39 **Longitudinal Limits.** For all storm and sanitary sewers, the longitudinal
40 measurement will be from center of manhole to center of manhole or to the inside face
41 of catch basins and similar type structures.

42
43 *The fourth paragraph is revised to read:*

44
45 There will be no specific unit of measure for the excavation required for manholes,
46 catch basins, grate inlets, and drop inlets.

47
48 *Supplement this section with the following:*

49
50 "Shoring or Extra Excavation Class B", per SF shall only be measured for pipe installed
51 using traditional open trench methods.

1
2 No specific unit of measurement shall be applied to the lump sum Bid item "Structural
3 Shoring – Portland Avenue Crossing".
4

5 **2-09.5 Payment**

6 *The pay item for "Structure Excavation Class B" is supplemented with the following:*
7

8 "Structure Excavation Class B", per cubic yard.
9

10 The unit Contract price for "Structure Excavation Class B" shall be full payment for all
11 excavation, storing, protecting and re-handling of suitable backfill material; backfilling
12 of the trench, compaction of backfill, and all other work necessary for the construction
13 of the sewer trench.
14

15 **All structure excavation required to construct the launch and receiving pits for**
16 **the pipe jacking work are measured and compensated under the lump sum bid**
17 **item "Portland Avenue Jack and Bore Pipe Crossing" as specified in Section 7-**
18 **17. Structure excavation for these pits is not included in the unit contract price**
19 **for "Structure Excavation Class B".**
20

21 "Structural Shoring – Portland Avenue Crossing", lump sum.
22

23 The lump sum price shall be full compensation for the cost of all labor, tools,
24 equipment, and materials necessary or incidental to furnishing, installing, maintaining,
25 and removing the shoring system for the jack and bore operations. Design of an
26 approved shoring plan by a Washington State Professional Engineer shall be included
27 in the lump sum price.
28

29 All costs for dewatering, both for utility installation conducted using traditional methods
30 and utility installation conducted using trenchless technology, shall be included in the
31 lump sum Bid item "Dewatering" per Section 8-01.
32

33 **END OF SECTION**
34
35

1 Add the following new section:

2
3 **2-13 VEGETATION REMOVAL**
4 **(*****)**

5
6 **2-13.1 Description**
7

8 This Work shall consist of the removal and disposal of vegetation identified on the
9 Plans.

10
11 **2-13.2 Definition of Vegetation**
12

13 A "tree" is defined as any self-supporting, woody perennial plant having a main stem
14 (trunk) and which normally attains a height of at least ten (10) feet at maturity, usually
15 with one (1) main stem or trunk and many branches.

16
17 A "shrub" is defined as any woody perennial plant which normally attains a height of
18 less than ten (10) feet at maturity and which can be construed to have some landscape
19 value.

20
21 "Brush" is defined as any perennial vegetation which normally attains a height of ten
22 (10) feet or less at maturity, which is not maintained as part of a landscape feature,
23 which is "volunteer" growth or which exists in a naturalized state. Examples include
24 but are not limited to stands of blackberries and scotch broom.

25
26 **2-13.3 Construction Requirements**
27

28 Disposal of all debris shall be in accordance with Section 2-01.2(2).
29

30 **2-13.4 Measurement**
31

32 Trees shall be classified by the measured circumference at a point four and one-half
33 (4-½) feet above average ground level. Trees that have several stems at the four and
34 one-half (4-½) foot height will be considered a tree clump. The largest diameter single
35 stem will be measured and will dictate the class rating. Only the largest, single stem
36 in the clump will be utilized for measurement and payment.

37
38 Only trees with a circumference measuring 6-inches or more at a point four and one-
39 half (4-½) feet above average ground level will be measured for payment.

40
41 Removing and disposing of stumps, shrub, or brush will not be measured for payment.
42 All costs for stump, shrub, or brush removal and disposal shall be included in "Removal
43 of Structures and Obstructions".
44

45 **2-13.5 Payment**
46

47 Payment will be made in accordance with Section 1-04.1.

48
49 "Remove Tree", per each
50

1 The unit Contract price shall be full pay to remove and dispose of the vegetative
2 matter.

3
4 The unit Contract price for "Remove Tree" shall include the removal of the stump and
5 root ball.

6
7 **END OF SECTION**

8
9

1 Add the following new section:
2

3 **2-14 PAVEMENT REMOVAL**
4 **(March 17, 2003 Tacoma GSP)**
5

6 **2-14.1 Description**
7

8 The Work described in this section includes the removal and disposal of pavement
9 surfaces identified on the Plans or as marked in the field.
10

11 **2-14.2 Pavement Classification**
12

13 Removal of pavement will be according to type and class based on composition and
14 thickness, as defined below:
15

16 **Type I** Pavement removal where all or portions of the existing pavement is
17 being removed in conjunction with street construction or any other
18 removal not described below for Type II or Type III.
19

20 **Type II** Pavement removal required for the placing of utilities at greater and
21 varying depths, such as sewers.
22

23 **Type III** Pavement removal required for narrow and shallow utility cuts in order
24 to install light cables, conduits and similar shallow utilities.
25

26 **Class A2** Class A2 pavement removal shall apply to the removal of asphalt
27 concrete, bituminous road surfacing, multiple lift bituminous surface
28 treatments or any combination of these components having an average
29 thickness of two inches or less.
30

31 **Class A4** Class A4 pavement removal shall apply to the removal of asphalt
32 concrete, bituminous road surfacing, multiple lift bituminous surface
33 treatments or any combination of these components having an average
34 thickness between two inches and four inches.
35

36 **Class A8** Class A8 pavement removal shall apply to the removal of asphalt
37 concrete, bituminous road surfacing, multiple lift bituminous surface
38 treatments or any combination of these components having an average
39 thickness between four inches and eight inches.
40

41 **Class C6** Class C6 pavement removal shall apply to all non-reinforced cement
42 concrete pavements or slabs having an average thickness of six inches
43 or less. After the curbs and pavement have been constructed, the
44 Contractor may be required to remove additional sidewalk necessary
45 to provide proper connections and grades, as determined by the
46 Engineer.
47

48 **Class C12** Class C12 pavement removal shall apply to all non-reinforced cement
49 concrete pavements or slabs having an average thickness of between
50 6 inches and 12 inches.
51

Class CA Class CA pavement removal shall apply to all pavements that have a wearing surface of asphalt concrete upon a cement concrete pavement or, cement concrete base, and for which the total combined thickness of the pavement averages between six inches and twelve inches.

Class H Class H pavement removal shall apply to early type pavement of a cement concrete base with a brick or cobblestone surface and potentially an additional layer of asphalt concrete pavement for which the total combined thickness of the pavement averages between ten inches and twenty inches.

2-14.3 Construction Requirements

All final meetlines shall be sawcut.

Where monolithic cement concrete pavement and curb are being removed, the curb removal shall be considered as pavement removal, and the measurement for payment will be to the back of the curb.

The removal of existing street improvements shall be conducted in such a manner as not to damage utilities and any portion of the improvement that is to remain in place. Any deviation in this matter will obligate the Contractor, at no expense to the Contracting Agency, to repair, replace, or otherwise make proper restoration to the satisfaction of the Engineer.

In the event a pavement averages more than the maximum thickness specified for its class, an additional payment will be made to cover the extra thickness removed by a proportional conversion into additional square yards.

2-14.4 Measurement

Pavement removal will be measured per square yard.

2-14.5 Payment

Payment will be made in accordance with Section 1-04.1.

“Remove Existing Pavement, Type ____Class____”, per square yard

All costs associated with saw cutting meet lines shall be included in the unit Contract price for pavement removal.

END OF SECTION

1 *Add the following new section:*

2
3 **2-17 CONTROL AND MANAGEMENT OF CONTAMINATED MATERIALS**
4 **(June 3, 2014 Tacoma GSP)**

5
6 **2-17.1 Description**

7
8 **2-17.1(1) General**

9
10 Contaminated soils with concentrations of carcinogenic polycyclic aromatic
11 hydrocarbon (cPAHs) exceeding the levels listed in the Washington State Models
12 Toxics Control Act (MTCA) cleanup regulations (Chapter 173-340 WAC) have been
13 encountered on the project site. The Contractor shall operate within and meet all
14 applicable laws and regulations associated with working with regulated materials
15 encountered during excavation activities. The Contractor is notified of the existence
16 of cleanup standards for site soils developed according to the MTCA.

17
18 The Contractor is advised to review the applicable Washington Administrative Codes
19 (WAC), Washington Department of Ecology (DOE), Washington State Department of
20 Health (DOH), MTCA and Asarco Reports.

21
22 Websites for further information:

23
24 WAC: <http://apps.leg.wa.gov/wac/> (Title 173-303 & 173-340)

25
26 DOH: <http://www.doh.wa.gov/>

27
28 DOE: <http://www.ecy.wa.gov/>

29
30 MTCA: <http://www.ecy.wa.gov/pubs/9406.pdf>

31
32 Public Health Seattle and King County:
33 <http://www.kingcounty.gov/healthservices/health/ehs/toxic/ArsenicLead.aspx>

34
35 Pierce County Health Department:
36 <http://www.tpchd.org/index.php>

37
38 Environmental Protection Agency, Asarco Smelter Cleanup:
39 <http://www.epa.gov/region10>

40
41 Agency for Toxics Substances and Disease Registry, Facts on Arsenic:
42 <http://www.atsdr.cdc.gov/tfacts2.html>

43
44 Centers for Disease Control, Facts on Lead:
45 <http://www.cdc.gov/nceh/lead/publications/1997/factlead.htm>

46
47 Department of Health, Drinking Water:
48 <http://www.doh.wa.gov/ehp/dw>

2-17.1(2) Site Description

2-17.1(2)A Historical Land Use

The tide flats has historically been used for commercial and industrial activities and is the home to the Port of Tacoma. Industrial activities with known soil and groundwater contamination identified within a quarter mile of the project site include Cleaner Pressure Washing, Facility Site ID (FSID) 23110, Tacoma Metals Site, FSID 1257, and Simon & Sons Tarpits, FSID 1252. The project site is also located within the Tacoma Smelter Plume and may have elevated concentrations of arsenic and lead in soil from the operations of the former Asarco smelter that operated for nearly 100 years in North Tacoma. The project site's proximity to these sites and possible aerial contamination from the Tacoma Smelter Plume necessitated further evaluation before construction of the replacement sewer line could begin.

2-17.1(2)B Soil Descriptions and Soil Quality

Subsurface conditions at the site were explored in October 2020 by drilling 2 borings along the project alignment. Details regarding the subsurface exploration, geotechnical laboratory testing, and summary logs of the explorations are included in Appendix B of these Specifications.

The Contracting Agency tested the soils collected from the geotechnical borings in the project for arsenic and lead. A summary of the chemical analytical results for the soils is located in Appendix D of these Specifications.

2-17.1(3) Soil Management

The Contractor shall load this contaminated material directly into trucks and dispose of it as contaminated material at LRI Landfill, located at 30919 Meridian Street East, Graham, WA or a licensed solid waste disposal facility. A Waste Disposal Authorization (WDA) for LRI will be supplied to the Contractor at the beginning of the Construction Activities. The Contractor shall follow all provisions of the WDA.

2-17.1(4) Submittals

This paragraph lists submittals required for this project area. Other submittals will be as required.

1. **Health and Safety Plan** – Section 2-17.2(2).
2. **Resume of Site Health and Safety Officer** – Section 2-17.2(3).
3. **Manifest Package and Supporting Analytical Data** – Section 2-17.3(2)D
4. **Soil Management Plan** – Section 2-17.2(5)
5. **Contractor and/or Subcontractor Environmental Qualifications**

2-17.2 Health and Safety

The Contractor shall be responsible for the health and safety conditions at the job site related to the regulated substances. This includes the health and safety of workers and public during work and non-working hours. The Contractor shall inform all workers and visitors of the potential for exposure to regulated materials. The Contractor shall follow regulatory procedures to prevent the release of contamination.

Contaminated material excavated during the project is considered solid waste. The Contractor's Health and Safety Plan shall specify training requirements for the site, including 24, 48, or 80 hour training OSHA training as referenced in WAC 296 843 20010, if applicable. The Contractor shall be responsible for all training costs.

2-17.2(1) Health and Safety Laws and Regulations

For all work conducted within the limits of this project site, the Contractor shall ensure compliance with all applicable health and safety provisions for hazardous waste operations, including requirements of the Federal Occupation Safety and Health Act of 1970 (OSHA) and all amendments, including 29 CFR Part 1910, WAC 296-843, as well as any other applicable regulations. Failure to be thoroughly familiar with applicable health and safety provisions shall not relieve the Contractor of the responsibility to fully comply with all laws and regulations.

2-17.2(2) Site Health and Safety Plan

The Site Health and Safety Plan shall be prepared in accordance with WAC 173-340-810. The Contractor shall develop a written Site Health and Safety Plan to be used for the duration of the project. The plan shall incorporate all required city, county, state, and federal health and safety provisions. The plan shall be submitted to the City within ten (10) working days after execution of the contract. The Contractor is advised that the City will review the Site Health and Safety Plan, but the Contractor is solely responsible for ensuring that the Site Health and Safety Plan is implemented in accordance with the regulatory requirements. At least one copy of the plan shall be maintained at the work site. A properly qualified individual shall be assigned to serve as the Site Health and Safety Officer, authorized to supervise and enforce compliance with the plan. The Health and Safety Officer shall be responsible for monitoring the work area for health hazards including sampling of the air, soil, and water as required to ensure worker safety.

All provisions of the Site Health and Safety Plan shall apply to the Contractor, Subcontractors, and all other visitors to the site. Approved Subcontractors may elect to develop a site-specific plan, but this shall not relieve the Contractor of the requirements and responsibilities described herein. The terms and provisions of a Subcontractor's site-specific plan shall meet or exceed the Contractor's plan and shall be submitted to the City or its agents prior to the Subcontractor commencing work.

The Site Health and Safety Plan shall comply with all applicable regulations and shall include, but not be limited to:

1. A list of chemical hazards and physical hazards, allowable OSHA exposure levels, threshold limit values, and all other regulatory exposure levels.
2. If 24, 48, or 80 hour training is required by the Site Health and Safety Plan, then the Contractor shall provide a list of all persons, by work category/type, who will be trained. Photocopies of the employee's training certificates shall be submitted to the Contracting Agency.

3. Engineering controls, work practices, personnel and equipment decontamination procedures, and types of personal protective equipment to be used.
4. A list of safety and monitoring equipment to be kept at the job site and its storage location. A record of monitoring equipment calibration shall be maintained.
5. A list of required health and safety information to be documented.
6. An emergency evacuation plan for immediate removal to the nearest hospital or doctor's care for any person who may be injured on the job site. It shall include evacuation routes to medical treatment and emergency telephone numbers for hospitals, ambulances, police and fire departments, poison control, and the City of Tacoma.

In the event the Health and Safety Plan is determined by a regulatory agency to be inadequate to protect the employees and the public, then the Plan shall be modified by the Contractor at the Contractor's sole expense.

2-17.2(3) Site Health and Safety Officer

The Contractor shall appoint a Site Health and Safety Officer for the project. The Health and Safety Officer must meet the requirements contained in 29 CFR Part 1910 and Chapter 296-62 WAC and who is qualified by experience and training in hazardous waste operations in accordance with other applicable laws, regulations, and requirements of this Section. The Site Health and Safety Officer shall be qualified and authorized to monitor, supervise, and enforce safety compliance with the Site Health and Safety Plan. A resume of the Site Health and Safety Officer's qualifications shall be submitted to the City for review within five (5) working days of receiving the Notice to Proceed. The Site Health and Safety Officer shall be on site at all times when work operations involve excavation and trenching or at other times when the potential for encountering hazardous substances exists as identified as contaminated soil in the Plans and Section 2-17.

The Contractor shall be solely responsible for identification and monitoring of air (gases), soil, dust, and groundwater with chemical constituents that could pose health and safety concerns to site personnel. The Contractor shall provide for the protection of safety and health of all workers and other authorized persons, including the City and its agents at the jobsite from exposure to potentially hazardous substances.

The Contractor shall be solely responsible for ensuring that all necessary monitoring equipment, protective clothing, and other supplies and equipment up to the appropriate level of protection as defined by WISHA, OSHA, and other applicable guidelines are available to implement the plan. No work shall take place in areas where hazardous substances may potentially be present unless the Site Health and Safety Officer is present and monitoring site conditions.

The Contractor, through the Site Health and Safety Officer, shall not permit any employee, in the performance of the Contract, to work under conditions which are hazardous to the employee. Should violations of the safety and health requirements

1 be called to the Site Health and Safety Officer's attention by the City, its agent, or any
2 authorized representative of a regulator agency, then the Contractor shall immediately
3 correct the identified conditions.

4 5 **2-17.2(4) Contractor Safety Equipment**

6
7 The Contractor shall maintain, at the job site, first-aid and safety equipment applicable
8 to the work as prescribed by the governing safety authorities. All required safety
9 equipment shall be kept in fully operational condition for the duration of the contract.

10
11 All personnel shall be trained in the use of the appropriate safety equipment that would
12 be utilized during the course of their work. The Site Health and Safety Officer shall
13 ascertain that the safety equipment is being used when appropriate and/or required.

14 15 **2-17.2(5) Soil Management Plan**

16
17 The Contractor shall submit a detailed plan for management of all excavated soils.
18 The plan shall include excavation, loading, and transporting procedures, dust control
19 procedures, and disposal of contaminated soils.

20 21 **2-17.3 Construction Requirements**

22
23 Construction activities at the site will generate excess soils and possible groundwater
24 associated with the installation of underground utilities. The Contractor shall fully
25 develop and implement a program in accordance with the Health and Safety Plan to
26 ensure worker health and safety and to minimize disruption to construction due to site
27 contamination.

28 29 **2-17.3(1) Notification**

30
31 The Contractor shall notify the Contracting Agency, in writing, at least ten (10) working
32 days prior to the date that excavation operations are to begin and identify the limits of
33 that excavation. Excavation and sampling shall not take place without a designated
34 representative from the Contracting Agency on site.

35 36 **2-17.3(2) Transportation**

37 38 **2-17.3(2)A General**

39
40 The Contractor shall provide all equipment, personnel, and materials necessary to
41 load and transport waste materials, including contaminated soils and debris, for off-
42 site treatment and/or disposal in accordance with federal, state, and local regulations.

43 44 **2-17.3(2)B Control of Waste Material**

45
46 Vehicles used by the Contractor to transport waste materials shall be properly
47 designed, equipped, and maintained to prevent the loss of materials during transport.
48 The following requirements shall be met for all vehicles transporting waste materials
49 from the site:
50

1. No soil from the site shall adhere to the outside of the surface of the vehicle (including tires and undercarriage).
2. No liquids shall be leaking or dripping from the vehicles.
3. Any and all waste materials shall be covered with tarpaulin or otherwise completely enclosed to prevent loss of materials from the vehicle during transport.

If leaking or dripping from transport vehicles occurs, the Contracting Agency may direct the Contractor to use liners or other means to prevent dripping and leaking. The Contractor shall implement such measures, as directed by the Contracting Agency, at the Contractor's sole expense.

2-17.3(2)C Street Sweeping

The Contractor shall sweep those streets within the project when truck traffic carries soil from the site into the street. Street sweeping shall be conducted in such a way as to not generate visible dust. Material collected from street sweeping shall be disposed of in a legal manner at an off-site location and be included in the street cleaning bid item.

2-17.3(2)D Transportation and Shipping Requirements

The Contractor shall be responsible for obtaining permits and authorizations necessary to use the selected haul routes. The Contractor shall use United States DOT regulations, 49 CFR 172.101 to identify proper shipping names for each hazardous material (including Dangerous Waste) to be shipped off site. Proper shipping names shall be submitted to the Contracting Agency in the form of draft shipping documents for review and comment.

The Contractor shall ensure that each shipment of material sent off site is accompanied by the appropriate shipping documents. The Contractor shall prepare a bill of lading for each shipment of regulated material which does not require a hazardous waste manifest. The bill of lading shall satisfy the requirements of United States DOT regulations, 49 CFR 172 Subpart C and any applicable state or local law or regulation, and shall be submitted to the Contracting Agency for review. The Contractor shall be responsible for completing the shipping documents and obtaining the signatures of the Contracting Agency as needed.

2-17.3(3) Off-site Treatment and Disposal

The Contractor shall provide documentation of legal disposition including trip tickets and Certificates of Disposal.

2-17.4 Measurement

No specific measurement shall apply to the lump sum item of Site Health and Safety Plan, Site Health and Safety Officer, and Soil Management Plan.

1 **2-17.5 Payment**

2
3 Payment will be made in accordance with Section 1-04.1 for each of the following Bid
4 Items that are included in the Proposal:

5
6 “Site Health and Safety Plan”, per lump sum.

7
8 “Site Health and Safety Officer”, per lump sum.

9
10 “Soil Management Plan”, per lump sum.

11
12 Health and safety training, safety equipment and practices, dust control, efficiency
13 losses to other Contract items caused by handling contaminated materials, and other
14 Work required to comply with this specification not specifically identified in a Bid item
15 shall be considered incidental to the work to comply with this Section and all costs
16 therefore shall be included in the Contract prices for the payment items involved and
17 included in the Proposal.

18
19 **END OF SECTION**
20

1 **3-04 ACCEPTANCE OF AGGREGATE**
2 **(April 1, 2012 Tacoma GSP)**
3

4 **3-04.1 Description**

5 *The first and third paragraphs are deleted.*
6

7 *The fourth paragraph is revised to read:*
8

9 Nonstatistical evaluation will be used for the acceptance of aggregate materials.
10

11 **3-04.3(1) General**

12 *The first sentence is revised to read:*
13

14 For the purpose of acceptance sampling and testing, all test results obtained for a
15 material type will be evaluated collectively.
16

17 **3-04.3(4) Testing Results**

18 *This section is replaced with the following:*
19

20 The results of all acceptance testing will be provided by the City's Project Engineer
21 within 3 working day of testing.
22

23 **3-04.3(6) Statistical Evaluation**

24 *This section is deleted:*
25

26 **END OF SECTION**
27
28

1 **4-04 BALLAST AND CRUSHED SURFACING**
2 **(March 17, 2003 Tacoma GSP)**
3

4 **4-04.5 Payment**

5 *This section is supplemented with the following:*
6

7 All costs for labor, equipment, and materials required to furnish, place, and compact
8 the crushed surfacing top course for all asphalt concrete approaches and non-paved
9 approaches shall be included in the unit Contract price for "Crushed Surfacing Top
10 Course", per ton.
11

12 **END OF SECTION**
13
14

1 **5-04 HOT MIX ASPHALT**
2 **(April 1, 2018 Tacoma GSP)**

3 *This Section is revised according to the following overriding provisions:*
4

5 Nonstatistical or test point evaluation shall be the method for HMA compaction
6 acceptance for all HMA pavement, except where visual or commercial evaluation is
7 specified. Visual evaluation shall be considered synonymous with commercial
8 evaluation. The Contracting Agency will not be required to perform any acceptance
9 by statistical evaluation.

10
11 All references to “statistical” are revised to read “nonstatistical”, and “nonstatistical”
12 evaluation shall be considered synonymous with “test point” evaluation. Thus, all
13 Specifications for test procedures, methods, construction requirements, and
14 requirements for evaluation and acceptance shall apply to the Work with the following
15 exceptions:

- 16 • The Contracting Agency shall not be required to perform statistical analysis of any
17 acceptance test results.
- 18 • Quantities for sublots and lots shall be as determined by the Engineer. If test
19 results are found not to be within specification requirements, additional testing as
20 needed to determine a CPF may be performed.
- 21 • The Contracting Agency shall not be required to make price adjustments based
22 on pay factors and composite pay factors.

23
24 **5-04.2 Materials**

25
26 **5-04.2(1) How to Get an HMA Mix Design on the QPL**
27 **(April 1, 2018 Tacoma GSP)**

28 *For Subsection 5-04.2(1) the term “Contracting Agency” is revised to read “WSDOT”.*
29

30 **5-04.2(2) Mix Design – Obtaining Project Approval**
31 **(April 1, 2018 Tacoma GSP)**

32 *This section is revised to read:*
33

34 The Contactor shall submit each HMA mix design to the Contracting Agency on
35 WSDOT Form 350-042. The Contractor shall provide a mix design based upon 3
36 million ESAL's.

37
38 No paving shall begin prior to the HMA mix design acceptance by the Engineer for the
39 Job Mix Formula (JMF) that will be used for the same paving. The Contracting Agency
40 will evaluate HMA mix design submittals according to Visual Evaluation per Table 1.
41 The mix design will be the initial JMF for the class of HMA. The Contractor may request
42 a change in the JMF. Any adjustments to the JMF will require the approval of the
43 Project Engineer and must be made in accordance with Section 9-03.8(7).
44

45 Mix designs for HMA shall have the aggregate structure and asphalt binder content
46 determined in accordance with WSDOT Standard Operating Procedure 732 and meet
47 the requirements of Sections 9-03.8(2) and 9-03.8(6). The Contractor shall determine
48 anti-strip additive requirements for the HMA and submit laboratory test data for anti-
49 stripping and rutting in accordance with the following options:

- 50 • Hamburg Wheel track Test and Section 9-03.8(2), or

- Tensile Strength Ratio (TSR) Test per AASHTO T 283, or
- Previous WSDOT Lab mix design verification test data and stripping evaluation, per the Engineer's discretion and as stated below.

With the HMA mix design submittal the Contractor shall provide one of the following mix design verification certifications for Contracting Agency review:

- The WSDOT Mix Design Evaluation Report from the current WSDOT QPL, or one of the mix design verification certifications listed below.
- The proposed HMA mix design on WSDOT Form 350-042 with the seal and certification (stamp & signature) of a valid licensed Washington State Professional Engineer.**
- The Mix Design Report for the proposed HMA mix design developed by a qualified City or County laboratory that is within one year of the approval date.**

**The mix design shall be performed by a lab accredited by a national authority such as Laboratory Accreditation Bureau, L-A-B for Construction Materials Testing, The Construction Materials Engineering Council (CMEC's) ISO 17025 or AASHTO Accreditation Program (AAP) and shall supply evidence of participation in the AASHTO resource proficiency sample program.

At the discretion of the Engineer, the Contracting Agency may accept verified mix designs older than 12 months from the original verification date with a certification from the Contractor that the materials and sources are the same as those shown on the original mix design.

For the use of Commercial HMA, the Contractor shall select a class of HMA and design level of Equivalent Single Axle Loads (ESAL's) appropriate for the required use. Commercial HMA can be accepted by a Contractor certificate of compliance letter stating the material meets the HMA requirements defined in the Contract.

5-04.2(2)B Using HMA Additives (April 1, 2018 Tacoma GSP)

This section is revised to read:

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 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.

1 **5-04.3 Construction Requirements**

2
3 **5-04.3(2) Paving Under Traffic**
4 **(April 1, 2018 Tacoma GSP)**

5 *The second paragraph is supplemented with the following:*

6
7 No traffic shall be allowed on any newly placed pavement without the approval of the
8 Engineer.

9
10 **5-04.3(3)C Pavers**
11 **(April 1, 2018 Tacoma GSP)**

12 *The second paragraph is deleted.*

13
14 **5-04.3(3)D Material Transfer Device or Material Transfer Vehicle**
15 **(April 1, 2018 Tacoma GSP)**

16 *The first paragraph is revised to read:*

17
18 A Material Transfer Device/Vehicle (MTD/V) shall not be used unless specific paving
19 areas are specified below. A MTD/V shall only be used according to this special
20 provision for the following paving areas:

21
22 \$\$None.\$\$

23
24 **5-04.3(4)C Pavement Repair**
25 **(April 1, 2018 Tacoma GSP)**

26 *This section is revised to read:*

27
28 Pavement repair shall be in accordance with the City of Tacoma Right-of-Way
29 Restoration Policy found at:

30
31 [https://www.cityoftacoma.org/government/city_departments/public_works/right-of-](https://www.cityoftacoma.org/government/city_departments/public_works/right-of-way)
32 [way](https://www.cityoftacoma.org/government/city_departments/public_works/right-of-way)

33
34 Pavement repair consists of asphalt concrete saw-cutting, removing asphalt concrete
35 pavement, removing crushed surfacing and subgrade, and installing Construction
36 Geotextile for Separation, placing crushed surfacing top course over the Construction
37 Geotextile, and HMA in accordance with the Contract or as directed by the Engineer.

38
39 Pavement repair excavation may also be performed by the use of a milling machine of
40 a type that has operated successfully on work comparable with that to be done under
41 the Contract and shall be approved by the Engineer prior to use. If a milling machine
42 is used for excavation, the excavation shall be as directed by the Engineer.

43
44 In all types of excavation, after the removal of the asphalt, the base material will be
45 evaluated by the Engineer to determine if it is suitable. If the base is determined not
46 to be suitable, the Contractor shall remove the base material and restore the sub-
47 grade in accordance with Section 2-06 and the Plans, regardless of the method used
48 for excavation.

49
50 Estimated plan quantities for pavement repair are approximate and are provided for
51 bidding purposes only. The actual dimensions to be used will be verified by the

Engineer at the time of construction. Contrary to Section 1-04.6, no changes to the unit prices bid for the various items will be permitted due to any increase or decrease in the amount of pavement repair.

5-04.3(6) Mixing
(Aug 1, 2020 Tacoma GSP)

The first paragraph is revised to read:

The asphalt supplier shall add any recycling agent and anti-stripping additive to the liquid asphalt binder prior to shipment to the asphalt mixing plant, when the mix design includes these additives. The Contractor shall submit the anti-stripping additive amount and the manufacturer's certification, together with the HMA mix design submittal in accordance with Section 5-04.2. Paving shall not begin before the anti-stripping additive submittal is accepted by the Engineer.

5-04.3(8) Aggregate Acceptance prior to Incorporation in HMA
(Aug 1, 2020 Tacoma GSP)

This section is revised to read:

Sample aggregate in accordance with Section 3-04 prior to being incorporated into HMA. The Contracting Agency shall evaluate the aggregate according to Special Provision 3-04. Aggregate contributed from RAP or RAS shall not be evaluated under Section 3-04.

The combined aggregate bulk specific gravity (Gsb) blend as shown on the HMA Mix Design report or evaluation report per Special Provision 5-04.2(2) will be used for VMA calculations. The Contracting Agency shall not be required to perform a Gsb test.

5-04.3(9) HMA Mixture Acceptance
(April 1, 2018 Tacoma GSP)

The first paragraph is revised to read:

The Contracting Agency will evaluate the HMA mixture by nonstatistical or visual evaluation as determined from the criteria in Table 7 or as determined by the Engineer.

5-04.3(9)A Test Sections
(April 1, 2018 Tacoma GSP)

The first paragraph is revised to read:

At the start of paving, if requested by the Contractor, a compaction test section shall be constructed as directed by the Engineer to determine the compactibility of the mix design. Compactibility shall be based on the ability of the mix to attain the specified minimum density (91 percent of the maximum density determined by WSDOT SOP 729, and FOP for AASHTO T 209).

Following determination of compactibility, the Contractor is responsible for the control of the compaction effort. If the Contractor does not request a test section, the mix will be considered compactible. See also Section 5-04.3(10)C2.

The Contractor shall also construct a test section when requested by the Engineer. Test sections that are in complete compliance with the requirements of Section 5-04

can be incorporated into the Work, and shall be included in the quantities for related Bid Items; otherwise, the Contractor shall remove the defective pavement in failed test sections as determined by the Engineer and at no cost to the Contracting Agency. The Contracting Agency will only pay for HMA pavement that is accepted and incorporated into the project at the discretion of the Engineer. See also Section 5-04.3(10)C2.

The second paragraph is revised to read:

The purpose of a test section is to determine whether or not the Contractor's mix design and production processes will produce HMA meeting the Contract requirements related to mixture. Construct HMA mixture test sections at the beginning of paving, using at least 100 tons and a maximum of 800 tons or as specified by the Engineer. Each test section shall be constructed in one continuous operation.

**5-04.3(9)B Mixture Acceptance – Statistical Evaluation
(April 1, 2018 Tacoma GSP)**

The title of this section is revised to read:

5-04.3(9)B Mixture Acceptance – Nonstatistical Evaluation

**5-04.3(9)B1 Mixture Statistical Evaluation – Lots and Sublots
(April 1, 2018 Tacoma GSP)**

The title of this section is revised to read:

5-04.3(9)B1 Mixture Nonstatistical Evaluation – Lots and Sublots

This section is revised to read:

For HMA in a structural application, sampling and testing for total project quantities less than 400 tons is at the discretion of the engineer. For HMA used in a structural application and with a total project quantity less than 800 tons but more than 400 tons, a minimum of one acceptance test shall be performed:

- i. If test results are found to be within specification requirements, additional testing will be at the engineer's discretion.
- ii. If test results are found not to be within specification requirements, additional testing as needed to determine a CPF shall be performed.
- iii. For a mixture lot in progress with a mixture CPF less than 0.75, a new mixture 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.
- iv. If, before completing a mixture lot, the Contractor requests a change to the JMF which is approved by the Engineer, the mixture produced in that lot after the approved change will be evaluated on the basis of the changed JMF, and the mixture produced in that lot before the approved change will be evaluated on the basis of the unchanged JMF; however, the mixture before and after the change will be evaluated in the same lot. Acceptance of subsequent mixture lots will be evaluated on the basis of the changed JMF.

1 **5-04.3(9)E Mixture Acceptance – Notification of Acceptance Test Results**
2 **(Aug 1, 2020 Tacoma GSP)**

3 *This section is revised to read:*

4
5 The Contracting Agency will endeavor to provide written notification (via email to the
6 Contractor's designee) of acceptance test results within 24 hours of the sample being
7 made available to the Contracting Agency. However, the Contractor agrees:

- 8
9 1. Quality control, defined as the system used by the Contractor to monitor,
10 assess, and adjust its production processes to ensure that the final HMA
11 mixture will meet the specified level of quality, is the sole responsibility of the
12 Contractor.
13 2. The Contractor has no right to rely on any testing performed by the
14 Contracting Agency, nor does the Contractor have any right to rely on timely
15 notification by the Contracting Agency of the Contracting Agency's test results
16 (or statistical analysis thereof), for any part of quality control and/or for making
17 changes or correction to any aspect of the HMA mixture.
18 3. The Contractor shall make no claim for untimely notification by the Contracting
19 Agency of the Contracting Agency's test results (or statistical analysis
20 thereof).

21
22 **5-04.3(10)B HMA Compaction - Cyclic Density**
23 **(April 1, 2018 Tacoma GSP)**

24 *This section is deleted.*

25
26 **5-04.3(10)C1 HMA Compaction Statistical Evaluation – Lots and Sublots**
27 **(April 1, 2018 Tacoma GSP)**

28 *This section is deleted.*

29
30 **5-04.3(10)C2 HMA Compaction Statistical Evaluation – Acceptance Testing**
31 **(April 1, 2018 Tacoma GSP)**

32 *The title of this section is revised to read:*

33
34 **5-04.3(10)C2 HMA Compaction Nonstatistical Evaluation – Acceptance**
35 **Testing**

36 *The second paragraph is revised to read:*

37
38 Compaction tests will be performed at a minimum of 5 various locations, as determined
39 by the Engineer, for each 400 tons placed. The locations will be determined by the
40 stratified random sampling procedure conforming to WSDOT Test Method T 716. For
41 an area in progress with a CPF less than 0.75, a new compaction sequence will begin
42 at the Contractor's request after the Project Engineer is satisfied that material
43 conforming to the Specifications can be produced. The Compaction Test Procedures
44 will be provided to the Contractor by the Contracting Agency at the Pre-Construction
45 Conference or a Pre-Paving Meeting, prior to the placement of HMA material on site.

46
47 *This section is supplemented with the following:*

48
49 Cores may be used as an addition to the nuclear density gauge tests. When cores
50 are taken by the Engineer at the request of the Contractor, the request shall be made

1 by noon of the first working day following placement of the mix. The Engineer shall be
2 reimbursed for the coring expenses.

3
4 The Engineer will inform the Contractor of field compaction test results as work is being
5 performed. Formal Test Report(s) will be provided to the Contractor within 3 Working
6 Days.

7
8 HMA for preleveling shall be compacted to the satisfaction of the Engineer.
9

10 **5-04.4 Measurement**

11 **(April 1, 2018 Tacoma GSP)**

12 *The first paragraph is revised to read:*

13
14 "HMA Cl. ___ PG ___ for Pavement Patch" will be measured by the ton in accordance
15 with Section 1-09.2, with no deduction being made for the weight of asphalt binder,
16 blending sand, mineral filler, anti-stripping additive, or any other component of the
17 mixture; and the measurement shall include asphalt wedge curbs and thickened edges
18 in accordance with the Plans or as directed by the Engineer. If the Contractor elects
19 to remove and replace mix as allowed in Section 5-04.3(11), the material removed will
20 not be measured.

21
22 *The second paragraph is revised to read:*

23
24 No specific unit of measure will apply to roadway cores, which shall be included in the
25 measurements for the HMA items that are included in the Proposal.

26
27 *This section is supplemented with the following:*

28
29 No specific unit of measure will apply to anti-stripping additive, which shall be included
30 in the measurements for the HMA items that are included in the Proposal.

31 32 **5-04.5 Payment**

33 **(April 1, 2018 Tacoma GSP)**

34 *Pay items for "Job Mix Compliance Price Adjustment" and "Compaction Price Adjustment"*
35 *are deleted.*

36
37 *This section is supplemented with the following:*

38
39 "HMA Cl. ___ PG ___ for Pavement Patch", per ton.

40
41 The unit Contract price for pavement patch shall be full pay for all labor, equipment,
42 and materials required to complete the patching of the street, including joints, where
43 required, and removal of temporary base.

44
45 **END OF SECTION**
46
47
48

1 **7-01 DRAINS**

2 **(*****)**

3
4 **7-01.2 Description**

5 *Supplement this section with the following:*

6
7 Work shall also include installing Gravel Backfill for Drains around the existing 6-inch
8 perforated pipe during restoration of the bioswale.

9
10 **7-01.3 Construction Requirements**

11 *Supplement this section with the following:*

12
13 Contractor shall replace underdrain pipe within the bioswale in-kind where removed
14 as a result of construction activities. Any damaged pipe shall be replaced by the
15 Contractor at no expense to the City.

16
17 Fernco or similar flexible coupler may be used to connect replaced underdrain pipe to
18 existing underdrain pipe.

19
20 **7-01.4 Measurement**

21 *Supplement this section with the following:*

22
23 "Gravel Backfill for Drains" will be measured by the volume placed within the neatline
24 measurements taken in the field.

25
26 **7-01.5 Payment**

27 *Supplement this section with the following:*

28
29 All costs associated with connecting replaced underdrain pipe to existing underdrain
30 pipe shall be included in the unit price for "Underdrain Pipe ___ In. Diam.", per linear
31 foot.

32
33 **END OF SECTION**
34

1 **7-04 STORM SEWERS**
2 **(March 17, 2003 Tacoma GSP)**

3
4 *This section is deleted. The requirements of Section 7-17 shall apply to storm sewers.*

5
6 **END OF SECTION**

7
8
9

7-05 MANHOLES, INLETS, CATCH BASINS, AND DRYWELLS

(*****)

7-05.1 Description

This section is supplemented with the following:

All references to sanitary sewers shall be construed to also mean storm sewers.

Work also includes installing an epoxy coating to the interior of all proposed manholes.

7-05.2 Materials

Supplement this section with the following:

Epoxy Grout 9-26.4

All Manholes shall have all interior surfaces coated with a high build epoxy coating system, Raven 405, or approved equivalent, 125 mils dry film thickness. A water base epoxy primer sealer shall be applied to the structures prior to the epoxy coating being applied. The Manufacturer shall certify compatibility of all coating products.

The lid for "Manhole Type 2, 96-In. Diam." shall meet the following requirements:

1. One 48-inch x 32-inch clear inside dimension [Galvanized Steel or Aluminum] access Hatch, HS20 rated. Hatch must be equipped with integral safety grate.
 - A. Unit designed heavy duty, for 16,000 lbs + 30% impact H-20 wheel loads, over a 10-inch x 20-inch contact area. Frame and bearing plate must be cast into and supported by concrete designed for H-20 wheel loads.
 - B. Unit supplied with a heavy-duty pneumatic spring for ease of operation when opening safety grate. Safety grate shall be counterbalanced so one person can easily open the safety grate.
 - C. Each hatch shall be equipped with a stainless-steel hold open arm. Door shall lock open in the 90-degree position.
 - D. Each hatch shall be equipped with a stainless-steel lift handle. Lift handle shall be flush with the top of the hatch.
 - E. Each hatch shall be equipped with a grade 316 stainless steel slam lock with removable Tee handle.
2. Provide two (2) Type 304 Stainless Steel Cast-in-Place Sleeve Davit Bases (3M Product Number 8512828, 3M ID 70007492559, UPC 00840779006106 or approved equivalent).
 - A. Place one davit base each side of the access hatch.
 - B. Each sleeve davit base shall be equipped with a heavy-duty sleeve cap.
 - C. Coordinate with City of Tacoma staff to determine reach of the davit arm to determine optimum sleeve davit base location (offset from the hatch frame).
 - D. The structural design required to incorporate the Cast-in-Place Sleeve Davit Bases into the lid shall be provided by the Contractor or the precast supplier. The structural design shall be stamped by a professional engineering licensed in the state of Washington.

3. Cover to Support each Davit Reactions consisting of (not concurrent with vehicular load):
- A. Maximum Load = 450 lbs
 - B. Vertical Load = 5,000 lbs
 - C. Moment (any lateral direction) = 90,000 in-lbs

7-05.3 Construction Requirements

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

A flexible pipe-to-manhole connector shall be used in all connections of rigid and thermoplastic pipes to **new** precast concrete manholes to provide a watertight joint between the pipe and the manhole, unless otherwise directed by the Engineer. The connector shall be "Kor-N-Seal" with "Wedge Korband" (Type I or II as required for pipe diameter), manufactured by NPC, Inc., Milford, New Hampshire, or Engineer approved equal. The connectors shall be installed in accordance with the manufacturer's recommendations.

Supplement this section with the following:

All manhole interior areas not intended to be coated with Raven 405 or approved equivalent (i.e., ladder rungs, etc.) shall be taped off to avoid overspray.

Surface cleaning and preparation shall be performed per manufacturer's recommendations. Coating system to be applied on site after completion and testing of manholes.

Supplement this section with the following:

"Manhole Type 2, 96-In. Diam." will be constructed using the same diameter barrels from base section to flattop.

7-05.3(1) Adjusting Manholes and Catch Basins to Grade

This section is revised to read:

7-05.3(1) Adjusting Utility Structures to Grade

Where shown in the Plans or where directed by the Engineer, utility structures shall be adjusted to grade as staked or as otherwise designated by the Engineer.

The materials and methods of construction shall conform to the requirements specified in Section 7-05.3 and Standard Plan No. SU-25. The finished structure shall conform to the requirements of the standard plan for the specific structure.

7-05.3(3) Connections to Existing Manholes

The first sentence is revised to read:

The Contractor shall inspect the existing manholes in the field to verify invert elevations and the scope of work necessary to make the connection(s) prior to construction.

1 *Add the following new sections:*

2
3 **7-05.3(4) Connection to Existing Screening Facility**

4
5 The existing Screening Facility wall consists of a 1.5-foot-thick concrete wall with two
6 layers of reinforcement. The applicable structural plans and details for the screening
7 facility can be found in Appendix C.

8
9 Connection to the screening facility will require that the Contractor core through the
10 reinforced wall to provide a penetration. The connection to the existing screening
11 facility shall be made watertight using a LINK-SEAL® as manufactured by GPT
12 Industries, or approved equivalent. It is anticipated that the core will hit multiple pieces
13 of rebar.

14
15 Contractor shall perform a thorough inspection of the facility prior to beginning coring
16 activities and report any defects, structural damage, or deterioration to the Owner.

17
18 The entire surface of the core hole interior will be sealed with an epoxy grout to fill any
19 irregularities or spalling to provide a smooth surfaced on which to install the LINK-
20 SEAL® and to ensure a watertight seal. Additionally, the annular space between the
21 pipe and the core wall will be sealed with epoxy grout after the LINK-SEAL® is in place.
22 Asphaltic sealer shall be applied on the exterior of the Screening Facility wall, around
23 the perimeter of the core hole a minimum of 3 feet in diameter from the pipe penetrating
24 the wall, prior to backfilling. The epoxy grout shall meet the requirements of Section
25 9-26.4.

26
27 The Screening Facility cannot be removed from service and therefore the Contractor
28 will need to perform the Work while the facility is in operation using procedures and
29 equipment that do not jeopardize operations or materially reduce the efficiency of the
30 facility. The treatment plant operators can, however, draw the plant down to obtain a
31 water level elevation in the Screening Facility that is below the invert elevation of the
32 proposed pipe. Note that inclement weather may prohibit the operators from drawing
33 the plant down. Contractor will be required to schedule the entirety of this Work within
34 time periods of favorable weather conditions.

35
36 Treatment Plant Operations staff will restrict the time period during which the plant will
37 be drawn down to the timeframe needed to complete the core and install the first length
38 of pipe out of the Screening Facility. Contractor will be required to install a removable
39 plug in the line penetrating the Screening Facility to prevent surcharge. The plug shall
40 be positioned to not interfere with pipe television inspection and testing.

41
42 Contractor shall coordinate directly with the City Construction Inspector and
43 Environmental Services representative (see Section 1-07.17 for contact information)
44 a minimum of 10 Working days prior to starting the core.

45
46 Work on the core cannot begin until specific permission is granted by the Owner in
47 writing.

48
49 All operational functions of the facility that are required to be performed to facilitate the
50 Work will be performed by the Owner.

1 **7-05.3(4)A Non-Destructive Testing**

2
3 Prior to initiating the core into the Screening Facility, the Contractor shall retain and
4 pay for the services of a qualified non-destructive testing agency to perform
5 investigations to determine the location of existing steel reinforcement, plumbing,
6 conduit, and/or other embedment in the concrete.
7

8 **Quality Assurance**

9 Non-destructive testing agencies shall have a minimum 5 years-experience
10 performing non-destructive testing for location of steel reinforcement in existing
11 concrete under situations similar to that required for this Work.
12

13 **7-05.3(4)B Pre-Core Plan**

14
15 Contractor shall prepare and submit a comprehensive coring plan. At minimum the
16 plan shall include and/or address the following:
17

- 18 1. Proposed sequence for conducting the Work.
- 19 2. Method of coring.
- 20 3. Method of ensuring that construction debris does not fall into the Screening
21 Facility.
- 22 4. Temporary shoring.
- 23 5. Results of non-destructive testing.
- 24 6. Scheduled coring days and weather forecast.
- 25 7. Contractor's 24-hour emergency contact name and phone number.
- 26 8. Treatment plant operator's contact name and number.
- 27 9. Description of proposed contingency plan and clean up method for any spills
28 that may occur.
- 29 10. Elevations of penetration into the Screening Facility.
30

31 Contractor shall submit the plan a minimum of 3 weeks before coring work is
32 scheduled to begin.
33

34 **7-05.3(5) Manhole Lining System**

35
36 Lining and primer shall be applied per manufacturer's recommendations/requirements.
37

38 **7-05.3(5)A Submittals**

39
40 Contractor shall provide the following prior to applying any coating:
41

- 42 1. A copy of the coating materials list showing the manufacturer and coating
43 product that the Contractor intends to use. List shall address the application for
44 which each coating is intended and substrate preparation required, number of
45 coats, method of application, and coating thickness. These documents shall be
46 signed by the Contractor noting compliance with these specifications.
- 47 2. Coating Manufacturer's data sheet for each product proposed, including
48 statements on the suitability of the material for the intended use.
- 49 3. Manufacturer's technical and performance information that demonstrates
50 coatings compliance with the system performance and material requirements.

4. Coating manufacturer's instructions and recommendations on substrate preparation and application.
5. Current certification from coating manufacturer for each applicator that will be using plural component spray application equipment. Certification from the manufacturer for the particular coating to be applied must state that each applicator applying the product has been properly trained in its handling and application requirements. If certification has lapsed, manufacturer must recertify the individual applicator prior to continuing coating application. Proof of current certification for each applicator to be used shall be required before coating application.
6. The Contractor shall submit, prior to Owner's issuance of Notice to Proceed, Product Data Sheets with manufacturer's instructions for cleaning solvents, coatings, and thinners. Include Safety Data Sheets for solvents, coatings, thinners, and other chemical and physical agents.
7. After contract award, a preconstruction meeting will be held. Required attendees include: Owner, Owner's representative, Contractor, Coating manufacturer's technical representative.

7-05.3(5)B Quality Assurance

The Contractor must have a NACE Certified Coating Inspector on site to verify that the requirements of this specification are being met. It is the Contractor's responsibility to ensure that the correct materials and equipment are being provided and that the workmanship (including substrate cleaning, concrete repairs, substrate preparation, coating application, testing and coating repairs) are being completed as required by these specifications. The Coating Inspector shall be responsible for recording and documenting the progress of the work and shall not be responsible for the quality of work being performed. If defects in coating application or workmanship are noted, the Owner shall be immediately notified.

7-05.3(5)C Warranty

A warranty inspection shall be conducted approximately 1-year following completion and final acceptance of all coating work. Contractor and a representative of the coating material manufacturer shall attend this inspection. Due to operational considerations of the facility, this inspection will be coordinated with the contractor several months in advance of the work.

All defective work shall be repaired in accordance with manufacturer's recommendations.

7-05.4 Measurement

The sixth paragraph is revised to read:

Connections to existing structures will be measured per each.

This section is supplemented with the following:

Modifying existing structures to accept different pipe configurations or pipe sizes, including coring, sealing existing penetrations, and rechanneling, shall be incidental to

the unit cost for connecting new pipe to existing structure, and shall not be measured for payment.

Reconnecting existing sewer pipes to new manhole structures or to existing manhole structures will be measured per each.

Reconnecting existing sewer pipes to new sewer pipes shall be considered incidental to the per linear foot price of the pipe and will not be measured for payment.

“Manhole Type 2, 96-In. Diam.” shall be measured per each, complete and in-place.

7-05.5 Payment

The first paragraph is supplemented with the following:

The unit Contract price for “Manhole_____” shall be full pay for all work required to furnish and install the new manhole to finished grade, including, but not limited to, excavating for, furnishing backfill, compaction of backfill, connection of new pipe(s), coating interior areas with Raven 405 system (including primer) or approved equivalent, channeling, covers, frames, ladders, steps, sleeve davit bases, and handholds, as applicable per Standard Plans.

All costs for developing and submitting the structural design to incorporate Sleeve Davit Bases into the Type 2 manhole lid shall be included in the unit price for “Manhole Type 2, 96-In. Diam.”.

The pay item for “Connection to Drainage Structure” is revised to read:

“Connect New Sewer Pipe ____-In. Diam. to Existing Structure”, per each.

Supplement this section with the following:

“Connect New Sewer Pipe ____-In. Diam. to Existing Structure (Screening Facility)”, per each.

The unit price in the Proposal shall be full compensation for all labor, tools, equipment, and materials necessary or incidental to making connection to the existing screening facility. Work elements include, but may not be limited to, developing the Pre-Core Plan; conducting non-destructive testing; exposing the screening facility wall; cleaning the wall in preparation for coring, application of epoxy grout, and application of asphaltic sealer; coring the wall; cleanup of the interior core surface to address irregularities and/or spalling and to ensure watertightness; installing the pipe and LINK-SEAL®; application of epoxy grout and asphaltic sealer; installing and removing the plug at the Screening Facility; and all other work necessary to complete the connection.

All costs associated with conducting the non-destructive testing and developing/implementing the Pre-Core Plan shall be included in the “Connect New Sewer Pipe ____-In. Diam. to Existing Structure (Screening Facility)” unit price.

1 *This section is supplemented with the following:*

2
3 "Reconnect Existing Sewer Pipe, ____-In. Diam., to New Structure", per each.

4
5 The unit Contract price per each shall be full pay for all labor, equipment and materials
6 necessary to reconnect the existing sewer pipe to the new structure as specified in
7 Section 7-05.3.

8
9 **END OF SECTION**

1 **7-07 CLEANING EXISTING DRAINAGE STRUCTURES**
2 **(March 23, 2010 Tacoma GSP)**
3

4 **7-07.3 Construction Requirements**

5 *Item three of paragraph two is revised to read:*
6

- 7 3. If sediment and water from structures does not meet the conditions described in 1
8 or 2 above, the Contractor shall collect and dispose of all water used and all debris
9 generated in cleaning operations. No cleaning water or debris shall be flushed
10 downstream beyond the limits of the work.
11

12 **END OF SECTION**
13
14

1 **7-08 GENERAL PIPE INSTALLATION REQUIREMENTS**

2 **(*****)**

3
4 **7-08.3 Construction Requirements**

5 *This section is supplemented with the following:*

6
7 Material excavated as part of this project shall be hauled to LRI Landfill, located at
8 30919 Meridian Street East, Graham, WA or an approved licensed solid waste
9 disposal facility per Section 2-17 and 7-17 of these Specifications.

10
11 **7-08.3(1)A Trenches**

12 *The tenth paragraph of this section is deleted. All dewatering requirements are found in*
13 *section 8-01.3(1)C.*

14
15 **7-08.3(1)C Bedding the Pipe**

16 *This section is supplemented with the following:*

17
18 Pipe bedding for sanitary and storm sewers shall be in accordance with City of Tacoma
19 Standard Plan No. SU-16.

20
21 **7-08.3(2)F Plugs and Connections**

22 *This section is supplemented with the following:*

23
24 Rigid Couplings, manufactured by Romac Industries, Inc., or Engineer approved
25 equal, shall be used at any pipe joint in which bell and spigot or fused joints are not
26 used. Flexible couplings are not permitted, except for side sewer installation.

27
28 **7-08.3(2)G Jointing of Dissimilar Pipe**

29 *This section is revised to read:*

30
31 Dissimilar pipe shall be joined by use of rigid couplings manufactured by Romac
32 Industries, Inc., or Engineer approved equal, except for side sewer installation.

33
34 **7-08.3(3) Backfilling**

35 *The second paragraph is revised to read:*

36
37 Pipe zone backfill, backfill above the pipe zone, and extra excavation area backfill shall
38 be in accordance with City of Tacoma Standard Plan SU-16. Recycled concrete shall
39 not be used for pipe zone bedding, pipe zone backfill, backfill above pipe zone, and
40 extra excavation area backfill.

41
42 *The fourth paragraph is revised to read:*

43
44 Backfill above the pipe zone shall be accomplished in such a manner that the pipe will
45 not be shifted out of position nor damaged by impact or overloading. If pipe is being
46 placed in a new embankment, backfill above the pipe zone shall be placed in
47 accordance with Section 2-03.3(14)C. If pipe is being placed under existing paved
48 areas, or roadways, backfill above the pipe zone shall be placed in horizontal layers
49 no more than 12-inches thick and compacted to 95-percent maximum density. If pipe
50 is being placed in non-traffic areas, backfill above the pipe zone shall be placed in
51 horizontal layers no more than 12-inches thick and compacted to 85-percent maximum

density. All compaction shall be in accordance with the Compaction Control Test of Section 2-03.3(14)D.

All material excavated from the trench shall be considered unsuitable for backfill above the pipe zone and shall be removed and replaced with imported backfill meeting the requirements of Section 9-03.12(2).

Supplement this section with the following:

At the discretion of the City Construction Inspector CDF may be used to partially backfill trenches at locations where the proposed sewer main(s) cross existing utility lines. CDF for trench backfill shall be measured and paid as specified in Section 7-17.

CDF backfill must be used between the sewer casing pipe and the spring line of the 48-inch water main at approximately STA 3+45

Section 7-08.3 is supplemented with the following:

7-08.3(5) Temporary Bypass Pumping

Bypass pumping will only be required while disconnecting pipes from the existing system and connecting said pipes to the new system. Disconnections/connections shall be made outside of business hours (6:30 am to 3:30 pm) to minimize bypass pumping volume and time.

7-08.3(5)A General Requirements

The Contractor shall design, operate, and install a bypass pumping system to maintain operation of the existing sewer systems throughout the duration of the project without any interruption of sewer service. The Contractor shall divert all flows around each segment of the pipe designated for replacement. This diversion shall consist of pumping flow from an upstream manhole and discharging it to a manhole downstream of the replacement operation. After the pipe replacement work is completed and accepted by the Contracting Agency, flow shall be returned to the reconstructed sewer. The area affected by the bypass operation shall be fully restored.

Flow from the bypass system shall be discharged into the same system downstream of the work unless prior approval is obtained from the Engineer to utilize a nearby pipe network. The Engineer will determine if the nearby system has capacity to receive the additional bypass flow.

To determine locations of upstream and downstream manholes for bypass purposes, Bidders may view pipe networks on the City of Tacoma GIS map at <https://tmap.cityoftacoma.org/>. Pipe networks are viewable by navigating to the intersection/street, selecting the Layer list icon in the upper right corner, and checking the box adjacent to either the Wastewater Network or Stormwater Network, as applicable.

Bypass pumping shall be done in such a manner as not to damage private or public property, or create a nuisance or public menace. The pumped sewage or stormwater

1 shall be in enclosed hoses or pipes that are adequately protected from traffic, and shall
2 be redirected into the appropriate sewer system. The discharge of sewage to private
3 property, city streets, sidewalks, storm sewer, or any location other than an approved
4 sanitary sewer is prohibited. The Contractor shall be liable for all cleanup, damages,
5 and resultant fines should the Contractor's operation cause any backups, overflows,
6 or property damage.

7
8 The Contractor shall be required to test the bypass pumping system in the presence
9 of the Engineer prior to taking any sewer system out of service.

10
11 Silenced pumps shall be used in all areas of night time work to minimize noise
12 disruption and meet the noise control requirements of Tacoma Municipal Code
13 Chapter 8.122.

14
15 The Contractor shall use hard pipe to bypass sewers 12-inches in diameter or greater.
16 The Contractor shall not block any driveways or intersections, but shall bury the pipe
17 to allow continuous access through intersections and driveways.

18
19 The Contractor may use lay-flat hose to bypass storm and sanitary sewers that are
20 less than 12 inches in diameter. The Contractor shall ensure that sewage spills do not
21 occur with the use of lay flat hoses. If sewage spills occur, the Contractor will be
22 required to use hard pipe for all sanitary sewers.

23 24 **7-08.3(5)B Backup Equipment and Monitoring**

25
26 Bypass pumping shall be scheduled for continuous operation with back-up pumps,
27 generators, and other equipment available on-site at all times for periods of
28 maintenance and refueling or failure of the primary bypass pump(s). The Contractor
29 shall provide experienced monitoring personnel on site at all times to verify the bypass
30 pumping system remains functional. These individuals shall have the experience to
31 operate and maintain the bypass system to ensure there is continuous operation of
32 the bypass system.

33 34 **7-08.3(5)C Flow for Bypass System Design**

35
36 The Contractor's bypass operation shall be sized to handle, at a minimum, the full pipe
37 capacity in each subject line removed from service. If flow conditions are greater than
38 full pipe, the Contractor may elect to wait for flow conditions to subside prior to
39 removing the subject line from service. Working days may be adjusted per
40 Specification 1-08.5. Once the Contractor removes a section of line from service
41 he/she is responsible to bypass any and all flow in the system during construction,
42 even in the event the system surcharges and exceeds the full pipe capacity, until the
43 line is returned to service.

44 45 **7-08.3(5)D Bypass Pumping Plan**

46
47 The Contractor shall submit a Bypass Pumping Plans for each location included in this
48 Contract in accordance with Section 1-05. The Contractor's plan for bypass pumping
49 shall be reviewed by the Contracting Agency before the Contractor will be allowed to
50 commence bypass pumping. The review of the bypassing system and equipment by

the Engineer shall in no way relieve the Contractor of his responsibility and public liability.

At a minimum, the bypass pumping plan for each location shall include the following:

1. Location of pumps and generators
2. Method, type, and size of plugs
3. Size, material, location, and method of installation of suction piping
4. Size, material, location, and method of installation of discharge piping
5. Bypass pump sizes, capacity, number of each to be on site
6. For pipes sized 12-inches and greater (excluding catch basins), calculations of static lift, friction losses, and flow velocity, including pump performance curves showing pump operating range
7. Power generator and standby size and location
8. Method of noise control for pumps and generators to comply with the City's noise ordinance, Tacoma Municipal Code Chapter 8.122 if necessary
9. Calculations for selection of bypass pumping pipe sizes
10. Method of protecting discharge manholes from erosion or damage
11. All backup equipment including pumps, hoses, generators, and pipe
12. Contractor's 24-hour emergency contact name and phone number
13. Description of proposed contingency plan and clean up method for any spills that may occur.

7-08.3(6) Abandon Existing Pipe

If construction of the new sewer pipe does not result in the removal of the existing pipe due to differing alignments, then the existing pipe shall be abandoned in place as shown in the Plans. The Contractor shall plug all pipe branches, stubs, or other open ends of the pipe to be abandoned and fill with CDF. The Contractor shall submit a Pipe Abandonment Plan in accordance with Section 1-05.3 describing the proposed methods for filling the pipes with CDF, specifically addressing how the pipes will be filled in a manner that will prevent air pockets from being left in the abandoned pipe. The CDF mix design shall meet the requirements of Section 2-09.3(1)E.

If the pipes to be abandoned are removed and disposed of during construction of the new sewers, all costs for the removal and disposal shall be included in the unit contract price for "Structure Excavation, Class B," at per cubic yard.

7-08.3(7) Underground Utility Potholing

Prior to start of pipeline construction, the Contractor shall pothole existing underground utilities at the locations identified on the Plans. Contractor shall expose the top and bottom of the utility to verify the exact horizontal and vertical location in the field. The top of the utility shall be field surveyed, and the diameter or dimensions shall be verified and submitted to the Engineer. The Contractor shall schedule City Survey crews a minimum 72-hours prior to potholing.

The Contractor shall provide the Engineer with a copy of the plan sheet with the pothole information clearly shown. Upon receipt of this information, the Engineer will determine if a conflict exists. The City will notify the Contractor within five (5) full working days as to what design modifications, if any, are required to resolve the

1 conflict. The Contractor shall perform the pothole as required to avoid impact to the
2 Contract schedule, based on the five (5) working day review time.

3
4 **Contractor shall pothole all utilities prior to starting work or ordering materials**
5 **in order to verify horizontal and vertical location of existing utilities.** Any design
6 modifications needed based on new pothole information will be completed during the
7 material procurement suspension, if requested.

8 9 **7-08.4 Measurement**

10 *This section is supplemented with the following:*

11
12 No specific measurement shall apply to the lump sum item "Temporary ____ Sewer
13 Bypass".

14
15 No specific measurement shall apply to the lump sum item "Temporary ____ Sewer
16 Bypass Plan".

17
18 Abandonment of existing sewer pipes will be measured by the cubic yard of CDF
19 necessary to fill the existing pipes.

20
21 "Underground Utility Potholing" shall be measured per each.

22 23 **7-08.5 Payment**

24 *This section is supplemented with the following:*

25
26 "Temporary ____ Sewer Bypass", per lump sum.

27
28 The lump sum Contract prices for "Temporary ____ Sewer Bypass" shall be full
29 payment for labor, equipment, and materials, including but not limited to, personnel,
30 fuel, monitoring, power, pumps, piping, barricades, emergency stand-by equipment,
31 trenching, surface restoration costs, and all other work necessary to maintain
32 uninterrupted storm and sanitary sewer services by bypassing the applicable sewer
33 system flows.

34
35 "Temporary ____ Sewer Bypass Plan", per lump sum.

36
37 The lump sum Contract price for "Temporary ____ Sewer Bypass Plan" shall be full pay
38 for all costs, including but not limited to, preparing, submitting, revising, and
39 resubmitting revisions for the Temporary Bypass Plan.

40
41 "CDF for Pipe Abandonment", per cubic yard.

42
43 The unit Contract price for "CDF for Pipe Abandonment" shall be full payment for all
44 labor, materials, and equipment necessary to abandon the sewer pipes.

45
46 "Underground Utility Potholing", per each.

47
48 The unit Contract price for "Underground Utility Potholing" per each shall be full
49 compensation for all labor, tools, equipment, and materials necessary to expose the
50 locations of existing utilities, record vertical and horizontal locations, backfill, compact,
51 and restore excavated areas per City of Tacoma Standard Plan SU-27. This unit price

1 shall also include the cost for rescheduling work as required to allow the City time (up
2 to five working days) to issue any design modifications as may be required.

3

4

END OF SECTION

5

6

7

1 **7-17 SANITARY SEWERS**

2 **(*****)**

3
4 **7-17.1 Description**

5 *This section is supplemented with the following:*

6
7 All references to sanitary sewer shall also mean storm sewers.

8
9 Work shall also include installing a gravity sewer main under Portland Avenue using
10 trenchless technology methods.

11
12 **7-17.2 Materials**

13 *The first paragraph is revised to read:*

14
15 Pipe materials used for storm and sanitary sewers shall be as shown on plans. All
16 references to PVC shall mean Solid Wall PVC Sewer Pipe. Profile Wall PVC will not
17 be permitted.

18
19 *This section is supplemented with the following:*

20
21 Polyvinyl Chloride (PVC) Pressure Pipe (4-inches and over) 9-30.1(5)A

22
23 **7-17.3 Construction Requirements**

24 *This section is supplemented with the following:*

25
26 All material excavated from this location will be contaminated and shall be hauled to
27 LRI Landfill, located at 30919 Meridian Street East, Graham, WA or an approved
28 licensed solid waste disposal facility per Section 2-17 of these Specifications.

29
30 *Supplement this section with the following:*

31
32 The sanitary sewer main shall be encased per the Department of Ecology Criteria for
33 Sewage Works Design (Orange Book) Section C1-9.1.4A where crossing under the
34 existing 48-inch water main as specified on the Plans.

35
36 **7-17.3(2)A General**

37 *The first paragraph is revised to read:*

38
39 Sewers and appurtenances shall be cleaned and tested after backfilling by either
40 exfiltration or low-pressure air method at the option of the Contractor, except where
41 the ground water table is such that the Engineer may require the infiltration test.

42
43 **7-17.3(2)H Television Inspection**

44 *The first sentence is revised to read:*

45
46 The Contractor shall hire a third-party television inspection company to perform
47 television inspection services on all new full segments and partial segments of sanitary
48 and storm sewer mains and side sewers and catch basin leads, including the
49 connection point between new and existing pipes, and newly constructed manholes.
50 The inspection video and associated database file shall be submitted for review and
51 final acceptance of the pipes prior to paving where paving occurs over sewers, or prior

1 to final acceptance in non-paved areas, and allowing for any review timeframes as
2 described below.

3
4 The Contractor shall provide the Contracting Agency 72 hours of advance notice so
5 that the Engineer may be present during the inspection if so elected. The video shall
6 be submitted for review which may take up to five (5) working days. If more than five
7 (5) working days are required for the Engineer's review of the videos, an extension of
8 time will be considered in accordance with 1-08.8. At a minimum, the video files shall
9 meet the technical requirements of 7-17.3(3). No claim will be allowed for damages,
10 or extensions of time resulting from the rejection of a video due to not meeting the
11 technical requirements or construction defects identified in the video.

12
13 CCTV inspection work shall be completed by certified National Association of Sewer
14 Service Companies (NASSCO) Pipeline Assessment and Certification Program
15 (PACP) trained operator(s) using established PACP coding and observations. Coding
16 and observation results shall be recorded and presented on a per asset basis,
17 manhole to manhole. A pipe asset is defined as one continuous pipe from the
18 upstream manhole/catch basin to the downstream manhole/catch basin. Footage
19 shall be recorded with the starting and ending points being the center of the
20 manholes/catch basins, with the exception that if partial segments are constructed in
21 this Contract, including side sewers, the inspection only needs to show all new work
22 up to and including the connection to the existing pipe. The camera operator shall
23 also pan around and record the inside of each manhole/catch basin constructed in this
24 project at the start and end of each inspection. The television camera shall have a
25 resolution of 700 lines minimum and shall have a source of illumination attached to it.

26
27 The video files shall be recorded and submitted in MPEG-2 format and include an
28 unmodified NASSCO-PACP Certified Access Database conducted entirely in digital
29 format with electronic reference to the survey which is intended to be imported into the
30 City's viewing software, GraniteNet. The PACP database shall include the City's SAP
31 pipe segment ID. No other file format will be accepted unless approved by the City.

32
33 All videos and database files shall be submitted via the Internet web-based project
34 management communications tool, e-Builder software.

35
36 The Contractor shall provide video identifying the pipe segment by structure numbers
37 and pipe segment number. The inspection shall identify all connections, general
38 conditions of the sewer pipelines, problem areas, location of all connections or problem
39 areas by linear footage, and observations concerning the condition of the pipe joints.
40 The camera system used shall be capable of travelling up to 500 linear feet.

41
42 Although newly constructed, the sewers will likely be in service with flow present during
43 inspections. The lens shall remain clean and clear for the duration of the CCTV
44 inspection. Should the lens become soiled, or fogged, or otherwise impaired to any
45 degree that impedes the ability to clearly see the condition of the pipe, the inspection
46 shall be halted to clean and clear the lens. No additional compensation will be made
47 for re-inspections required by the City due to soiled, fogged, or otherwise impaired
48 camera lenses.

49
50 The Contractor shall maintain sufficient light levels within the main to allow for visual
51 inspection of the pipe walls for a minimum of four feet for all pipe sizes. Additionally,

the Contractor shall make certain that the light levels are not so bright that visual inspection is impeded.

Each individual video inspection shall also include the associated video inspection report for that segment which shall include the following information:

- Date of Inspection
- Main segment number (SAP)
- Upstream and Downstream Manhole Numbers (SAP)
- Street Location
- Setup (Normal or Reverse Flow)
- Pipe size and material
- Status (Active or Inactive) of all side sewers
- Location, length, and depth of water of sags
- Location and description of all other defects

The CCTV Inspection shall be a continuous, unedited video and shall include the following information:

- Date of Inspection
- Main segment number
- Upstream and downstream manhole numbers
- Current distance along the mainline

In addition, the Contractor shall perform wastewater side sewer inspections where they exist via a mainline camera with a lateral launching setup. The lateral launch camera shall be capable of extending at least 30 feet from the main into side sewers and shall include an on-screen footage counter. The quality of the side sewer inspection shall meet the same requirements as the mainline camera. The lateral launch camera be self-leveling and shall also include a sonde transmitter to locate the side sewer in the event of a defect.

The Contractor shall bear all costs incurred in correcting any deficiencies found during television inspection including the cost of any additional television inspection that may be required by the Engineer to verify the correction of said deficiency.

The Contractor shall be responsible for all costs incurred in any television inspection performed solely for the benefit of the Contractor.

Add the following new section:

7-17.3(3) Portland Avenue Jack and Bore Pipe Crossing

General

Contractor shall conform to all Federal, State, and Local laws and regulations pertaining to tunneling.

All proposed construction methods and materials shall be approved by the Engineer prior to the start of construction.

Backfill for the jack and bore operation launching and receiving pits shall be Gravel Backfill for Walls in conformance with City of Tacoma Standard Plan SU-16.

1 Due to the number of utilities on the east side of E Portland Avenue the bore/jack
2 equipment may need to be set up on the west side (i.e., upstream) of E Portland
3 Avenue.
4

5 Contractor shall take care not to destabilize the Portland Avenue roadway
6 embankment/prizm when excavating for the launching and receiving pits on the west
7 and east sides of Portland Avenue. Any costs associated with shoring necessary to
8 prevent destabilization shall be included in the lump sum "Structural Shoring – Portland
9 Avenue Crossing", Bid item in Section 2-09.
10

11 **Jack and Bore Details/Design Required**

12 Submit details of the following to the Engineer for approval before beginning jack and
13 bore operations.
14

15 No pipe jacking work shall be performed nor materials or equipment procured prior to
16 submittal of a detailed Pipe Jacking Work Plan including descriptions of the methods,
17 equipment and procedures to be utilized in completing the work, jacking and receiving
18 pit locations, and casing pipe details. Equipment descriptions shall include
19 manufacturer's literature on the machine type, the pipe jacking system propulsion
20 system, spoil removal system, guidance system, and provisions for injecting pipe
21 lubricants. The pipe jacking work plan shall, at minimum, include the below:
22

- 23 1. Casing, spacers, and end seal material. The use of wood materials in the
24 casing spacer will not be permitted.
- 25 2. Carrier pipe.
- 26 3. Spacers and end seals.
- 27 4. Excavation method.
- 28 5. Location and dimensions of the launch and receiving pits.
- 29 6. A substitute design for any part of the system that must be changed as a result
30 of the jacking or boring operation.
- 31 7. Any structure or equipment that is required because of the particular method
32 or procedure used by the Contractor.
- 33 8. Calculations showing the estimated pipe jacking forces expected during
34 installation and verification the proposed equipment is capable of providing the
35 required jacking force. Jacking force calculations shall be completed following
36 methods outlined in "Jacking Loads Associated with Microtunnelling" Bennett
37 and Cording 1999 or equivalent method.
- 38 9. Calculations showing that the proposed launching pit shoring has the ability to
39 withstand the estimated jacking loads. Include thrust block design and jacking
40 frame details.
- 41 10. Estimate of surface settlement due to ground loss or overcutting.
- 42 11. Details of lubrication system and pipe lubricants to be used during pipe
43 jacking.
- 44 12. Spoil handling, transport, and disposal equipment and procedures including
45 the location of spoil disposal sites.
- 46 13. A safety plan for pipe jacking operations.

- 1 14. Provide shop drawings and details of the casing pipe to be used indicating pipe
2 wall thickness, grout/lubrication fittings, joint details and intermediate jacking
3 station details.
4 15. Work plan describing the proposed installation procedures, methods, and
5 equipment for installing the carrier pipeline inside the casing.
6 16. Shop drawings for casing spacer system to be utilized.
7

8 **Jacking and Boring**

9 The Contractor shall equip the leading section of pipe with jacking head securely
10 anchored to it to prevent any wobble or alignment variation during the jacking or boring
11 operation. For jacking, all excavation shall be carried out entirely within the jacking
12 head and no excavation in advance of it shall be permitting. Every effort shall be made
13 to avoid any loss of earth outside the jacking head. The Contractor shall remove
14 excavated material from the pipe as excavation progresses and shall not allow such
15 material to accumulate within the pipe.
16

17 The Contractor shall jack or bore all pipes to true line and grade. Should any deviation
18 from true line and grade be considered excessive, in the judgement of the Engineer,
19 Contractor shall remove and relay that section of pipe at no expense to the owner.
20

21 Should appreciable loss of ground occur during jacking or boring operations, backpack
22 all voids promptly. Fill all remaining voids upon completion of operations. Such filling
23 or backpacking shall be with grout unless otherwise approved.
24

25 The use of water or other fluids in connection with the boring operation will be
26 permitted only to the extent to lubricate cuttings. Water jetting will not be permitted.
27

28 The design of the sewer pipe is based on the superimposed loads and not on the loads
29 resulting from the jacking or boring operations. Contractor shall be responsible for any
30 increase in casing pipe strength necessary to withstand jacking or boring loads.
31

32 **Tolerances**

33 The casing pipe shall be installed to allow the sewer pipeline to be constructed in
34 accordance with the following tolerances. At no time during the jacking operation shall
35 the tolerances be greater than listed below:
36

- 37 • Line tolerance: 3 inches.
- 38
- 39 • Grade tolerance: 1 inch.
- 40
- 41 • Survey tolerances shall be minimum second order accuracy. Elevations shall
42 be measured and recorded to +/- 0.01 of a foot.
43

44 **Smooth Steel Casing**

45 Join sections of smooth steel casing to be jacked or bored by welding the joints with a
46 continuous weld for full circumference or installing a casing pipe manufactured with an
47 integral pressure-fit interlocking joint such as Permalok® or approved equivalent.
48 Provide joints that are capable of resisting the jacking and boring forces without failure.
49

The jacking casing shall be steel pipe shall be new and uncoated, meeting or exceeding the requirements of ASTM A36. The ends of the pipe shall be protected against damage during installation. If welded, the joints in the steel pipe shall be fully field welded by a certified steel welder.

Vent

A steel vent shall be placed and installed as shown on the Plans.

7-17.4 Measurement

This section is supplemented with the following:

The 8-inch diameter PVC pipe laid within the steel casing between Manhole 2 and Manhole 3 will not be measured and paid for by linear foot. All costs for installation of this section of pipe (between approximately STA 1+98 and STA 3+37) will be included in the lump sum Bid item "Portland Avenue Jack and Bore Pipe Crossing".

Removal and replacement of unsuitable, contaminated and non-contaminated, backfill material for pipe using open trench methods will be determined by the cubic yard in place, based on a neat line measurement per this Section and Section 2-09. Any removal and replacement of unsuitable material outside neat line measurement shall be incidental to the Bid item.

Horizontal Limits: The horizontal limits shall be as defined in Section 2-09.4.

Longitudinal Limits: The longitudinal limits shall be as defined in Section 2-09.4.

Lower Limits: The lower limits shall be the top of the pipe zone as shown on Standard Plan No. SU-16.

Upper Limits: The upper limits shall be the subgrade elevation of the proposed roadway section or pavement patch section.

All costs associated with the disposal of material located above the upper limits shall be included in the unit contract price for other items of work, unless a proposal item is included for this specific item of work.

Pipe zone limits are as defined in Standard Plan SU-16.

No specific unit of measurement will apply for Contractor provided Television Inspection. All costs shall be included in the per foot price of pipe installed.

"CDF Trench Backfill" shall be measured in-place per cubic yard.

No specific unit of measurement shall apply to the lump sum item "Portland Avenue Jack and Bore Pipe Crossing". Tunneling, jacking, and boring extensions beyond the limits shown shall be considered for the Contractor's benefit and convenience, unless ordered by the Engineer in writing, and measurement/payment for said extensions shall be made as if the open trench method of construction had been used.

No specific unit of measurement shall be applied to the lump sum bid item "Sewer Casing Under Water Main (STA 3+45)".

Disposal of the material excavated under E. Portland Avenue during casing installation will be measured and paid as "Removal and Replacement of Unsuitable Contaminated Material, Incl. Haul".

7-17.5 Payment

The second paragraph is revised to read:

The unit Contract price per linear foot for sewer pipe of the kind and size specified shall be full pay for the furnishing, hauling, and assembling in place the complete installation, including but not limited to furnishing and installing pipe bedding within the pipe zone, and all wyes, tees, special fitting, joint materials, other appurtenances necessary for the completion of the installation to the required line and grade; testing, and television inspection unless proposal items are included for these specific items of work.

This section is supplemented with the following:

"Removal and Replacement of Unsuitable Contaminated Material, Incl. Haul", per cubic yard.

The unit Contract price per cubic yard for "Removal and Replacement of Unsuitable Contaminated Material, Incl. Haul" shall be full pay for all work required to haul to LRI or other approved facility, disposal of the unsuitable material as specified in Section 7-08.3(1)A, and the furnishing of suitable backfill material as specified in Section 7-08.3(3).

Contractor will not be responsible for paying tipping fees to LRI. The City will pay all LRI tipping fees directly to LRI for this project.

All material excavated from the trench shall be considered unsuitable for backfill above the pipe zone, and shall be removed and replaced with imported backfill meeting the requirements of Section 9-03.12.(2).

"CDF Trench Backfill", per cubic yard.

The unit price in the proposal shall be full compensation for all work necessary to install CDF trench backfill including, but not limited to, procuring and placing the CDF; forming; and protecting the CDF during cure.

"Portland Avenue Jack and Bore Pipe Crossing", lump sum.

Payment shall include full compensation for all costs associated with or incidental to installing a gravity sewer pipe under Portland Avenue using trenchless methods. Work elements shall include, but not be limited to, pipe zone bedding, compaction, shafts, casing pipe, casing spacers, end seals, connecting to the manholes on each side, casing vent, bollards, paint, developing and implementing a Pipe Jacking Work Plan, and all other materials and appurtenances required to complete the work. Payment

1 shall include the 8-inch diameter SDR 35 PVC pipe inside the casing (between
2 approximately STA 1+98 and STA 3+37).
3

4 **All costs associated with structure excavation required to construct the**
5 **launching and receiving pits for pipe jacking shall be included in the “Portland**
6 **Avenue Jack and Bore Pipe Crossing” lump sum price.**
7

8 **All cost associated with removal and disposal of the excavated material and**
9 **providing export backfill material for the launching and receiving pits shall be**
10 **included in the “Portland Avenue Jack and Bore Pipe Crossing” lump sum price.**
11

12 “Sewer Casing Under Water Main (STA 3+45)”, lump sum.
13

14 Payment shall include full compensation for all costs associated with or incidental to
15 installing a casing in conformance with Ecology Orange Book requirements around
16 the sewer main at the proposed water main crossing. Work elements shall include,
17 but not be limited to, casing pipe, casing spacers, end seals, grout/bentonite, and other
18 all labor, tools, and materials necessary to complete the work.
19

20 **END OF SECTION**
21

1 *Add the following new Section:*

2
3 **7-21 BIORETENTION PLANTER**
4 **(*****)**

5
6 **7-21.1 Description**
7

8 This work shall consist of restoring the existing bioswale to preconstruction conditions.
9

10 **7-21.2 Materials**
11

12 Materials shall meet the following requirements:
13

14 Gravel Backfill for Drains Section 9-03.12(4)
15

16 Bioretention Soil Media shall meet the requirements of the Tacoma Stormwater
17 Management Manual Section 2.2.2.2.7.5.1.
18

19 Bioswale Seed Mix shall meet the requirements of the Tacoma Stormwater
20 Management Manual Section 3.1.7.4, Table 2-5.
21

22 **7-21.3 Construction Requirements**
23

24 **7-21.3(1) General**
25

26 Bioretention soil shall be protected from all sources of additional moisture at the
27 Supplier's site, in covered conveyance, and at the Project Site until incorporated into
28 the Work. Soil placement and compaction will not be allowed when the ground is
29 frozen or excessively wet, or when the weather is too wet as determined by the
30 Engineer
31

32 The Contractor shall provide the testing laboratory for all bioretention soils and have
33 all required test completed, the laboratory shall be a Seal of Testing Assurance (STA),
34 AASHTO, ASTM or other standards organization, as designated in the contract,
35 accredited laboratory with current and maintained certification. The testing laboratory
36 shall be capable of performing all tests to the standards specified, and shall provide
37 test results with an accompanying Manufacturer's Certificate of Compliance.
38

39 **7-21.3(1)A Submittals for Bioretention Soil Mix Design**
40

41 At least 10 Working Days prior to placement of Bioretention Soil, the Contractor shall
42 shall provide to the Engineer verification of the mineral aggregate gradation,
43 compliance with the compost specifications, and the mix ratio in accordance with
44 Section 1-05.3.
45

46 **7-21.3(2)B Grading and Placement for Bioretention Cells**
47

48 Grading and placement for bioretention cells shall be performed as follows:
49

- 50 1. The Contractor shall not start bioretention cell grading until the Project Site
51 draining to the bioretention area has been stabilized and authorization is

given by Engineer. No heavy equipment shall operate within the cell once bioretention cell excavation has begun, including during excavation, backfilling, and grading. The Contractor shall provide the Engineer the opportunity to inspect the excavation 24-hours prior to placement of any material or subgrade soil scarification.

2. After excavation to subgrade, if any sediment laden runoff has entered the cell, the sediment deposition shall be removed by over-excavating the cell in minimum 3-inch layers, and until approved by the Engineer. The excavated material shall be replaced with Bioretention Soil Media, at the Contractor's expense.
3. The Contractor shall scarify the surface of the prepared subgrade to a minimum depth of 3 inches prior to placement of Bioretention Soil.
4. If applicable, after placement of Gravel Reservoir, if any sediment laden runoff has entered the cell, the sediment deposition shall be removed by excavating Gravel Reservoir in the cell in minimum 3-inch layers (until approved by the Engineer) and replacing it with clean Gravel Reservoir, at the Contractor's expense.
5. The Contractor shall place Bioretention Soil Media loosely upon a prepared subgrade.

No Materials or substances shall be mixed or dumped within the cell that may be harmful to plant growth or prove a hindrance to the planting or maintenance operations.

7-21.3(3) Bioretention Soil Mix Placement

The Contractor shall not place Bioretention Soil Media until the Project Site draining to the bioretention area has been stabilized and authorization is given by Engineer.

Soil placement and consolidation shall not occur when the Bioretention Soil Media is excessively wet.

Mixing or placing Bioretention Soil Media shall not be allowed if the area receiving Bioretention Soil Media 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 Contractor shall not place Bioretention Soil Media until the soil mix delivery ticket(s) have been reviewed and accepted by the Engineer.

The Engineer may stop Bioretention Soil Media delivery and placement if the Engineer determines that the delivered soil does not appear to match the submittals, and require sampling and testing of the delivered soil, before authorizing Bioretention Soil Media placement.

Place Bioretention Soil Media specified for grass areas in loose lifts. Compact Bioretention Soil Mix to a relative compaction of 85percent of modified maximum dry density (ASTM D 1557), where slopes allow, as determined by the Engineer. Where Bioretention Soil Mix is placed in the 2-foot road shoulder, compact to a minimum relative compaction of 90 percent of modified maximum dry density (ASTM D 1557). Final soil depth shall be measured and verified only after the soil has been compacted.

1 Bioretention Soil Media shall be protected from all sources of additional moisture at
2 the Supplier's site, in covered conveyance, and at the Project Site until incorporated
3 into the Work.

4
5 **7-21.4 Measurement**
6

7 Bid items of Work completed pursuant to the Contract will be measured as provided
8 in Section 1-09.1, Measurement of Quantities, unless otherwise provided for by
9 individual measurement paragraphs here in this Section.

10
11 "Bioretention Soil Media" will be by measured per cubic yard as measured in place.

12
13 "Bioswale Seed Mix" will be measured per square yard along the ground slope and
14 computed in square yards of actual seeding completed and accepted.

15
16 Gravel Backfill for Drains shall be measured and paid for as specified in Section 7-01
17

18 **7-21.5 Payment**

19 Payment will be made in accordance with Section 1-04.1 for the following bid item(s):
20

21 "Bioretention Soil Media", per Cubic Yard
22

23 The unit cost in the Proposal shall be full compensation for all labor, tools, equipment,
24 and material necessary or incidental to procuring, Contractor provided testing, hauling,
25 preparing, mixing, placing, grading, and compacting the material.

26
27 "Bioswale Seed Mix" will be measured per square yard.
28

29 The unit contract price for "Bioswale Seed Mix" shall include all labor, material, tools,
30 watering, care, and protection necessary to apply specified seed mix as shown on the
31 Plans. All costs involved in the seed bed preparation shall be included in the square
32 yard price for ""Bioswale Seed Mix".
33

34 **END OF SECTION**

1 **8-01 EROSION CONTROL AND WATER POLLUTION CONTROL**
2 **(April 1, 2018 Tacoma GSP)**

3
4 **8-01.1 Description**

5 *This section is supplemented with the following:*

6
7 The City of Tacoma Stormwater Management Manual is available on the City's website
8 at www.cityoftacoma.org/stormwatermanual.
9

10 **8-01.3 Construction Requirements**

11
12 **8-01.3(1) General**

13
14 **8-01.3(1)A Submittals**

15 *This section is revised to read:*

16
17 The Contractor shall prepare and implement a project-specific Construction
18 Stormwater Pollution Prevention Plan (SWPPP) in accordance with the City of Tacoma
19 Stormwater Management Manual (SWMM), Volume 2. The SWPPP is a document
20 that describes the potential for pollution problems on a construction site and explains
21 and illustrates the measures to be taken on the construction site to control those
22 problems.
23

24 The Construction SWPPP shall be prepared as a stand-alone document consisting of
25 two sections: Section 1) Construction SWPPP Narrative and Section 2) Temporary
26 Erosion and Sediment Control (TESC) Plans.
27

28 The Contracting Agency has prepared the Construction Stormwater Pollution
29 Prevention Plan Checklist to aid the Contractor in development of the SWPPP. This
30 checklist provides the Contractor with a tool to determine if all the major items are
31 included in the Construction SWPPP and on the TESC Plans and can be found in
32 Volume 2, Chapter 2 of the SWMM. Contractors are encouraged to complete and
33 submit this checklist with the Construction SWPPP.
34

35 The Department of Ecology has prepared a SWPPP template that can be used for
36 projects in the City of Tacoma. The template can be found on Ecology's website at:
37 <http://www.ecy.wa.gov/programs/wq/stormwater/construction/resourcesguidance.htm>
38 l. The Contractor developing the SWPPP must ensure that all references are
39 appropriate for the City of Tacoma.
40

41 The SWPPP is considered a "living" document that shall be revised to account for
42 additional erosion control/pollution prevention BMPs as they become necessary and
43 are implemented in the field during project construction. A copy of the most current
44 SWPPP and TESC Plan shall remain on-site at all times and an additional copy shall
45 be forwarded to the Engineer. At the Contractor's preference, revisions to the SWPPP
46 and TESC Plan may be forwarded to the Engineer rather than submitting a complete
47 document. Revisions to the SWPPP and TESC Plan may be kept on-site in a file along
48 with the original SWPPP document.
49

The Contractor shall provide Stormwater Pollution Prevention Plan inspection reports or forms per 8-01.3(1) B to the Project Engineer no later than the end of the next working day following the inspection.

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 Meeting and the contact information for the ESC Lead shall be added to the Stormwater Pollution Prevention Plan (SWPPP) Report and the Temporary Erosion and Sediment Control (TESC) Plan Sheet. The ESC Lead shall maintain, for the life of the contract, a current Certified Erosion and Sediment Control Lead (CESCL) certificate or maintain a current Certified Professional in Erosion and Sediment Control (CPESC) certificate from a course approved by the Washington State Department of Ecology. The CESCL or CPESC shall be listed on the Emergency Contact List required under Section 1-05.13(1).

The CESCL or CPESC shall direct implementation of the measures identified in the SWPPP and as shown on the TESC plan. Implementation shall include, but is not limited to the following:

1. Installing and maintaining all temporary erosion and sediment control Best Management Practices (BMPs) included in the SWPPP and as shown on the TESC plan. Damaged or inadequate BMPs shall be corrected as needed to assure continued performance of their intended function in accordance with BMP specifications and Permit requirements.
2. Performing monitoring as required by the NPDES Construction Stormwater General Permit.
3. Inspecting all on-site erosion and sediment control BMPs at least once every calendar week and within 24 hours of any discharge from the site. A SWPPP Inspection report or form shall be prepared for each inspection and shall be included in the SWPPP file. A copy of each SWPPP Inspection report or form shall be submitted to the Engineer no later than the end of the next working day following the inspection. The report or form shall include, but not be limited to the following:
 - a. When, where, and how BMPs were installed, maintained, modified, and removed.
 - b. Observations of BMP effectiveness and proper placement.
 - c. Recommendations for improving future BMP performance with upgraded or replacement BMPs when inspections reveal SWPPP inadequacies.
 - d. Approximate amount of precipitation since last inspection and when last inspection was performed.
4. Updating and maintaining a SWPPP file on site that includes, but is not limited to the following:
 - a. SWPPP Inspection Reports or Forms.
 - b. SWPPP narrative.
 - c. National Pollutant Discharge Elimination System Construction Stormwater General Permit (Notice of Intent).
 - d. All documentation and correspondence related to the NPDES Construction Stormwater General Permit.

1 e. Other applicable permits.

2
3 Upon request, the file shall be provided to the Engineer for review.

4
5 **8-01.3(1)C Water Management**

6 *This section is revised to read:*

7
8 **General.** The Contractor is responsible for keeping excavations free from standing
9 water during construction and disposing of the water in a manner that will not cause
10 pollution, injury to public or private property, or cause a nuisance to the public.
11 Groundwater flowing toward, into, or within excavations shall be controlled to prevent
12 sloughing of excavation walls, boils, uplift, and heave in the excavation, and to
13 eliminate interference with orderly progress of construction. The control of
14 groundwater shall be such that softening of the bottom of excavations, or formation of
15 "quick" conditions or "boils" during excavation, shall not occur. The Contractor is
16 responsible for all foundation material required due to lack of dewatering efforts.

17
18 Recent soil boring logs with approximate groundwater elevations are included in the
19 Plans and/or in Appendix B of these Special Provisions.

20
21 **Dewatering Requirements.** The Contractor shall design, construct, and operate a
22 dewatering system in accordance with this Section and the SAD Authorization. The
23 Contractor shall have competent workers available at all times for the continuous and
24 successful operation of the dewatering and monitoring system.

25
26 **Dewatering Plan.** The Contractor shall submit a dewatering plan to the Engineer for
27 review in accordance with Section 1-05.3 prior to the start of construction. Review of
28 the dewatering plan submitted by the Contractor shall not relieve the Contractor from
29 full responsibility for adequate design and performance of the system. The Contractor
30 shall be solely responsible for the proper design, installation, operation and
31 maintenance of the dewatering system. The Contractor shall be liable for any
32 damages caused by system failure.

33
34 The dewatering plan shall include the following components:

- 35
36 1. System Components – Describe the method and equipment proposed for
37 dewatering the excavation. The Contractor shall have on hand sufficient
38 pumping equipment, storage tanks, and machinery in good working
39 condition for all emergencies, including power outage and flooding
40
41 2. Treatment Method – Describe how dewatering water that is to be
42 discharged to the City's sanitary sewer system will be treated to meet the
43 applicable discharge limits of the Special Approved Discharge
44 Authorization and Tacoma Municipal Code 12.08. Provide applicable
45 calculations.
46
47 3. Point of Discharge – Describe the point of discharge of the dewatering
48 water. Any discharges to private property will require written
49 documentation from the property owner that this point of discharge is
permitted. The Contractor shall provide all proposed points of discharge
as part of the Special Approved Discharge Authorization Application.

4. Maintenance Plan – Describe how the designed system will be maintained over the course of the project.
5. Monitoring Plan – Describe how discharge will be monitored to ensure compliance with all discharge requirements.
6. Special Approved Discharge (SAD) Authorization Application – The Contractor shall apply for a SAD Authorization as part of the dewatering plan. No discharge of dewatering water to the City's sewer systems will be permitted without obtaining this authorization. The City Construction Manager will provide the SAD authorization application to the Contractor after award of the contract.

Requirements for Dewatering Water Discharge to the Storm Sewer System.

Dewatering water will not be permitted to be discharged into the stormwater system on this project.

Requirements for Dewatering Water Discharge to the Sanitary Sewer System.

Prior to discharge of dewatering water to the City's sanitary sewer system, sediment control BMPs must be employed. Groundwater discharges to the sanitary sewer system shall have 225 mg/L or less of Total Suspended Solids (TSS). TSS analysis may be completed by the City Lab with a three-day turnaround, or by a third party laboratory at no additional cost to the City.

In addition to the TSS Requirements, the water shall contain no visible oil sheen or chemical odors. If the Contractor encounters any signs of oil within the soil or dewatering water, including any sheen on the water, and/or any chemical odor in the water or soils, the Engineer and Source Control shall be notified immediately and all discharges to the sanitary sewer system shall be stopped immediately.

In the presence of oil sheens and/or chemical odors, the Contractor shall test the dewatering water prior to discharge for contaminants referenced in the Special Approved Discharge Authorization and Tacoma Municipal Code 12.08.020. All discharges to the City's sanitary sewer system shall not exceed the limits of the Special Approved Discharge Authorization or TMC 12.08.020, whichever is most stringent.

The Contractor shall control the flow of water into the downstream system to ensure that the capacity of the City's sanitary sewer system is not exceeded as a result of the additional flows caused by the dewatering water. The Contractor shall contact the Engineer to request pipe capacity information for the Contractor's proposed discharge points.

The Contractor shall measure and record in gallons the total quantity of dewatering water discharged to the sanitary sewer system. This can be done by metering the flow or calculating batch discharges based on the volume of tanks used. In accordance with the SAD Authorization, the Contractor shall report the discharge quantities with the associated test results to Source Control.

1 **8-01.3(7) Stabilized Construction Entrance**

2 *The third paragraph is revised to read:*

3
4 When the contract requires a wheel wash in conjunction with the stabilized entrance,
5 the details for the wheel wash and the method for containing and treating the sediment-
6 laden runoff shall be included as part of the SWPPP and TESC Plan.

7
8 **8-01.3(8) Street Cleaning**

9 *The third paragraph is revised to read:*

10
11 Street washing with water shall not be permitted.

12
13 **8-01.3(9) Sediment Control Barriers**

14
15 **8-01.3(9)D Inlet Protection**

16 *Replace the third paragraph of this section with the following:*

17
18 When the depth of accumulated sediment and debris reaches approximately 1/3 the
19 height of an internal device or 1/3 the height of the external device (or less when so
20 specified by the manufacturer), or as designated by the Engineer, the sediment and
21 debris shall be removed and disposed of per SWMM BMP C220 or as specified on the
22 Plans or within the SWPPP.

23
24 *The section is supplemented with the following:*

25
26 Only bag-type filters are allowed for use in the public right of way.

27
28 **8-01.3(10) Wattles**

29 *The fifth and sixth sentences are revised to read:*

30
31 On gradually sloped or clay-type soils trenches shall be 3 to 5 inches deep. On loose
32 soils, in high rainfall areas, or on steep slopes, trenches shall be 3 to 5 inches deep,
33 or 1/2 to 2/3 the thickness of the wattle.

34
35 **8-01.4 Measurement**

36
37 **8-01.4(3) Reinstating Unit Items with Lump Sum Erosion/Water Pollution**
38 **Control**

39 *Supplement this section with the following:*

40
41 No specific unit of measurement shall apply to the lump sum item "Stormwater
42 Pollution Prevention Plan (SWPPP)".

43
44 No specific unit of measurement shall apply to the lump sum items "Dewatering Plan".

45
46 "Dewatering" will be paid by Force Account.

1 **8-01.5 Payment**

2 *This section is supplemented with the following:*

3
4 Where removal of erosion control BMPs is directed by the Engineer according to 8-
5 01.3(16) or according to these specifications and the plans, removal shall be included
6 in the lump sum or unit cost for these respective BMPs.

7
8 "Erosion Control and Water Pollution Prevention", per lump sum.

9
10 The lump sum contract price for "Erosion Control and Water Pollution Prevention" shall
11 be full pay for all cost for labor, equipment, and materials to perform all work
12 associated with erosion control. Work shall include, but shall not be limited to,
13 furnishing, purchase and delivery or required materials, installation and maintenance
14 of temporary erosion and sediment control measures, and all costs incurred by the
15 Contractor in performing the Contract Work defined in Section 8-01, except for unit bid
16 items in Section 8-01 when these are included in the bid proposal. It is the Contractor's
17 responsibility to maintain, repair, and replace any and all erosion control measures as
18 required to maintain compliance with the NPDES Construction Stormwater General
19 Permit and Tacoma Municipal Code 12.08 for the entire duration of the Project.

20
21 **8-01.5(3) Reinstating Unit Items with Lump Sum Erosion/Water Pollution**
22 **Control**

23 *This section is supplemented with the following:*

24
25 "Stormwater Pollution Prevention Plan (SWPPP)", per lump sum

26
27 The lump sum contract price for "Stormwater Pollution Prevention Plan (SWPPP)"
28 shall be full pay for all costs, including but not limited to, preparing, submitting, revising,
29 and resubmitting revisions for the Stormwater Pollution Prevention Plan.

30
31 "Dewatering Plan", lump sum.

32
33 The lump sum contract price for "Dewatering Plan" shall be full pay for all costs,
34 including but not limited to, preparing, submitting, revising, and resubmitting revisions
35 for the Dewatering Plan.

36
37 "Dewatering", Force Account.

38
39 The "Dewatering" Force Account item shall include full compensation for all labor,
40 tools, equipment, and materials necessary or incidental to provide a complete
41 dewatering system as specified herein, as required for construction of all underground
42 improvements for the project. This Bid item shall also include, but not be limited to,
43 dewatering handling, testing, storage, permitting, and disposal of clean groundwater
44 and sediment. The lump sum contract price shall include providing and operating
45 treatment systems as necessary to meet SAD requirements.

46
47 **END OF SECTION**
48

8-02 ROADSIDE RESTORATION

(*****)

8-02.2 Materials

Supplement this section with the following:

Topsoil Type A	Special Provisions 9-14.2(1)
Seed	Special Provisions 9-14.3
Fertilizer	Special Provisions 9-14.4
Arborist Wood Chip Mulch	Special Provisions 9-14.5(10)
Tree Watering Bag System	Special Provisions 9-14.9

8-02.3 Construction Requirements

8-02.3(1) Responsibility During Construction

Supplement this section with the following:

Dumping or stockpiling of topsoil, compost, mulch, or any other landscape/construction materials shall not be allowed on roadway surfaces. The Contractor shall locate all underground utilities (both new and existing) prior to starting work and shall not disturb or damage them. Promptly notify the Engineer of any conflict between the proposed work and any obstructions. The Contractor shall be responsible for making any and all repairs for damage caused by his or her activities.

8-02.3(2) Roadside Work Plan

Supplement this section with the following:

The Roadside Work Plan shall apply to all work conducted as part of this project.

City of Tacoma Soil Amendment Requirements:

The Roadside Work Plan shall also include a Soil Management Plan that includes the following items:

1. An 11" X 17" or larger site map indicating:
 - a. Soil Amendment Type, as shown in the Plans, and square yardage;
 - b. Sequence of work in Soil Amendment areas;
2. Calculations for volumes of soil to be stockpiled and amounts of compost or topsoil to be imported to achieve specified minimum organic matter content.
3. IF CALCULATED AMENDMENT RATES ARE TO BE USED, characterize site soils to be amended and compost or alternative organic material for the following properties:
 - a. Soil - Bulk density, organic matter content and depth of compacted layers to a depth of 12-inches.
 - b. Compost or alternative organic material - Bulk density, organic matter content, carbon to nitrogen ratio, moisture content/percent solids.
 - c. Calculations by a Qualified Professional must be provided showing that the organic content requirements will be met based on the organic contents and densities of both the site soil and amendments. Qualified Professionals include Certified Soil Scientists, Crop Advisors or Agronomists; and Licensed Landscape Architects, Civil Engineers or Geologists.

1 **8-02.3(4) Topsoil**

2 *This section is supplemented with the following:*

3
4 Soil amendment and subgrade preparation within Landscape Restoration areas where
5 shown on the Plans shall be per City of Tacoma Standard Plan GSI-01d.

6
7 All grades shall be maintained in the areas to be planted or seeded in a true and even
8 condition. Where final grades have not been established, the areas shall be finish
9 graded and all surfaces left in an even and compacted condition. The finished grade
10 shall be such that after planting, positive drainage shall also be maintained.

11
12 Areas around existing trees to remain shall not be cultivated within the tree drip line or
13 any other areas which appear to have a significant number of existing tree roots, and
14 any areas noted on the plan not to be cultivated.

15
16 The costs of removing all excess material and debris shall be considered incidental to
17 and included in the unit contract prices of other Bid items in this contract.

18
19 **8-02.3(5)C Planting Area Preparation**

20 *This section is supplemented with the following:*

21
22 All grades shall be maintained in the areas to be planted in a true and even condition.
23 The contractor shall be careful not to disturb any of the existing or cut slopes. Where
24 final grades have not been established, the areas shall be finish graded and all
25 surfaces left in an even and compacted condition. The finished grade shall be such
26 that after planting, the grade shall be flush with adjoining surfaces; positive drainage
27 shall also be maintained.

28
29 Lightly compact soil to 85% maximum dry density and establish a smooth and uniform
30 finished grade to allow to surface drainage and prevent ponding, positive drainage
31 shall also be maintained.

32
33 The areas shall be brought to a uniform grade, 1-inch plus the specified depth of
34 mulch, below walks, curbs, junction and valve boxes, and driveways, unless otherwise
35 specified.

36
37 Remove excess material, stumps, wood or rocks over 2 inches in diameter and remove
38 from site.

39
40 **8-02.3(6)B Fertilizers**

41 *This section is supplemented with the following:*

42
43 Trees shall be fertilized at a rate according to manufacturer's recommendations.
44 Fertilizer tablets shall be considered incidental to and included in the unit contract price
45 for trees and shrubs.

46
47 Fertilizers shall be as specified in Section 9-14.4 Fertilizer, of these Special Provisions.
48
49

1 **8-02.3(8)A Dates and Conditions for Planting**

2 *This section is supplemented with the following:*

3
4 All plant material shall be transported to planting locations with care to prevent
5 damage. Tie back branches as necessary and protect bark from chafing with burlap
6 bags. Do not drag plant materials along ground without proper protection of roots and
7 branches.

8
9 Protect rootballs from environmental or mechanical damage and water as necessary
10 to keep roots moist.

11
12 The Contracting Agency shall reserve the option of selecting and inspecting plant
13 material at the nursery. The Contractor shall provide the Contracting Agency with at
14 least one week notice prior to preparing plants for shipping and delivery. The
15 Contractor shall neither deliver to site nor install plant materials until authorized by the
16 Contracting Agency.

17
18 Cold storage of plants shall not be permitted.

19
20 If planting is delayed more than 24 hours after delivery, set balled and burlapped plants
21 on the ground, well protected with soil or wet peat. Adequately cover all roots of bare
22 root material with soil or wet peat. Protect rootballs from freezing, sun, drying winds or
23 mechanical damage. Water plant material as necessary until planted.

24
25 Plants shall not be stored for more than one week. Longer storage period at project
26 site will result in rejection of plant materials by the Contracting Agency.

27
28 **8-02.3(8)B Plant Installation**

29 *This section is supplemented with the following:*

30
31 All trees shall be planted per City of Tacoma Standard Plan LS-01.

32
33 Scarify sides and bottom of all planting pits prior to planting. Sufficient planting soil
34 shall be placed around the plant and compacted so as to ensure that the location of
35 the ground line at the top of the root ball is the same as the nursery. Tree pit shall be
36 backfilled with a well-blended 50/50 mix of Topsoil Type A and native soil, as shown
37 on the Plans.

38
39 Plant trees and shrubs upright and face to give best appearance or relationship to
40 adjacent structures and hold rigidly in position until planting soil has been backfilled
41 and tamped firmly around the root ball or roots.

42
43 Balled and burlapped plants shall be placed in the planting pits with the burlap intact;
44 then the binding shall be removed and all of the burlap or cloth wrapping materials
45 shall be removed from the root ball. Remove all plastic, twine and ropes. The plant
46 shall be rejected if the root ball is cracked or broken during removal of wrapping or
47 during the planting process.

48
49 When the pit is backfilled halfway, place the specified quantity of fertilizer in planting
50 pit, unless otherwise specified on the plans. Evenly spread fertilizer adjacent to the
51 root system at a depth that is between the middle and the bottom of the root system.

1 Do not injure root system. Place and compact planting topsoil carefully to avoid injury
2 to roots; fill all voids.

3
4 When pit is three-quarters (3/4) backfilled, completely fill with water and allow water to
5 soak away. If water does not drain within ½ hour notify Engineer; tree planting pits
6 which do not drain properly may require drain-rock sump to facilitate drainage. Fill pits
7 with additional soil to finish grade and continue backfilling as detailed on plans.

8
9 Install Tree Watering Bag System per manufacturer's recommendations, one (1) each
10 per tree. Tree Watering Bag System shall conform to Section 9-14.9 Tree Watering
11 Bag System, of these Special Provisions and shall be supplied by a Contractor's
12 supplied source, and as approved by the Engineer.

13 14 **8-02.3(9) Pruning, Staking, Guying and Wrapping**

15 *This section is supplemented with the following:*

16
17 Crossed or rubbing branches shall be removed providing the natural shape of the tree
18 is preserved. Under no circumstances shall pruning be done prior to inspection and
19 approval of plants by the Engineer. All cuts shall be made flush with the parent stem
20 leaving no stubs. Pruning cuts shall be made in a manner to favor the earliest possible
21 covering of the wound by callus growth. Cuts that produce large wounds and weaken
22 the tree will not be acceptable.

23
24 Top growth removal to compensate for root loss shall not exceed one-third (1/3) of the
25 top growth unless otherwise specified or directed by the Engineer. Cuts created 3/4
26 inch in diameter shall be treated with an approved tree wound dressing. All pruning
27 shall produce a clean cut without bruising or tearing the bark and shall be in living
28 wood where the wood can properly heal over.

29
30 Evergreens shall not be pruned, except to remove injured branches. The use of pole
31 shears and/or hedge shears for pruning deciduous and evergreen trees will not be
32 permitted. All trimmings and other debris left over from the planting operations shall
33 be collected and disposed of off the site.

34
35 All evergreen trees and deciduous trees over 15 feet in height shall be guyed with
36 three wires or cables.

37
38 All deciduous and evergreen trees shall be staked the same day of planting.

39 40 **8-02.3(10)A Dates and Conditions for Lawn Installation**

41 *This section is supplemented with the following:*

42
43 Where no irrigation system is to be installed, the lawn shall be placed during the
44 following period only:

45
46 March 1st – June 30th
47 September 1st - October 25
48
49

1 **8-02.3(11)B Bark or Wood Chip Mulch**

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

3
4 Mulch shall be feathered to plant material trunks, stems, canes, or root collars, and
5 level with the top of junction and valve boxes, curbs and pavement edges.
6

7 *This section is supplemented with the following:*

8
9 Mulch shall be Arborist Wood Chip Mulch in accordance with Section 9-14.5(10) shall
10 be applied to a depth of 3 inches at the locations indicated on the Plans or as directed
11 by the Engineer.
12

13 **8-02.3(13) Plant Establishment**

14 *This section is revised to read:*

15
16 The Contractor shall maintain the planting areas and all plants planted within the
17 project limits to ensure the resumption and continued growth of the planted material
18 until physical completion of the contract.
19

20 Maintenance shall include, but not be limited to, labor and materials necessary for
21 removal of foreign, dead, or rejected plant material, maintaining a weed-free condition,
22 and the replacement of all unsatisfactory plant material planted under the contract.
23

24 Planting dates for replacement plant material will be approved by the Engineer.
25

26 The Contractor shall meet with the Engineer for the purpose of joint inspection of the
27 project once installation has been completed and thereafter on a periodic "as needed"
28 basis as determined by the Engineer, until the physical completion date of the contract.
29

30 All conditions unsatisfactory to the Engineer shall be corrected by the Contractor within
31 a ten-day period immediately following the inspection. Failure to comply with
32 corrective steps as outlined by the Engineer shall constitute justification of the
33 Contracting Agency to take corrective steps and to deduct all costs thereof from any
34 monies due the Contractor.
35

36 The Contractor shall replace all plants stolen or damaged by the acts of others until
37 the physical completion date of the contract.
38

39 **8-02.4 Measurement**

40 *This section is supplemented with the following:*

41
42 The pay quantities for the plant materials will be determined by count of the number of
43 satisfactory installed trees, shrubs, groundcover and other landscape materials
44 accepted by the Engineer.
45

46 Irrigation water used to establish vegetation will be considered included in the cost of
47 plants.
48

49 "Topsoil Type A" and "Arborist Wood Chip Mulch" shall be measured by the cubic yard
50 in the haul conveyance at the point of delivery.
51

1 **8-02.5 Payment**

2 *The pay item for "Plant Selection" is revised to read*

3
4 "Plant Selection ____", per each.

5
6 Payment for "Plant Selection ____" shall be full pay for all materials, labor, tools,
7 equipment and supplies necessary for weed control within planting areas, planting
8 area preparation, fine grading, planting, cultivating, and clean-up for the particular
9 items called for in the Plans until the physical completion date of the contract. A one
10 (1) year plant warranty shall be included in the unit contract price. Providing and
11 installing Tree Watering Bag System and tree stakes shall be considered incidental to
12 and included in the unit cost for trees.

13
14 "Topsoil Type____", per cubic yard.

15
16 The unit contract price per cubic yard for "Topsoil Type ____" shall be full pay for
17 providing the source of material for Topsoil Type A and C, for pre-excavation weed
18 control, excavating, loading, hauling, intermediate windrowing, stockpiling, weed
19 control on stockpiles or windrows, and removal, placing, spreading, processing,
20 cultivating, and compacting topsoil Type A, Type B, and Type C.

21
22 "Arborist Wood Chip Mulch", per cubic yard.

23
24 The unit contract price per cubic yard for "Arborist Wood Chip Mulch" shall be full pay
25 for furnishing and spreading the mulch as specified and as shown in the Plans.

26
27 *Paragraphs 7 through 18, pertaining to partial payment, are deleted.*

28
29 **END OF SECTION**

8-12 CHAIN LINK FENCE AND WIRE FENCE

(***)**

8-12.1 Description

Supplement this section with the following:

Work shall also include restoring existing chain link fence removed to accommodate construction.

8-12.2 Materials

Supplement this section with the following:

Existing fencing removed during construction shall be replaced in-kind.

8-12.3 Construction Requirements

Supplement this section with the following:

Work will require removing fence at the treatment plant frontage to accommodate construction. Existing fabric and hardware may be salvaged and reused to reinstate fencing. New posts shall be used.

Any materials in poor condition or damaged during removal or construction activities shall be replaced in-kind by the Contractor at no additional cost to the City. The City Construction Inspector shall make the final determination whether salvaged materials are of good enough condition for reinstallation.

All chain link fence posts shall be installed with concrete foundations.

8-12.4 Measurement

Supplement this section with the following:

"Remove and Reinstall Chain Link Fence" shall be measured per linear foot along the ground line for chain links fence removed during construction and reinstalled/replaced in-kind.

8-12.5 Payment

Supplement this section with the following:

"Remove and Reinstall Chain Link Fence", per linear foot.

The unit price shall be full compensation for all labor, tools, equipment, and materials necessary to remove and reinstall the existing chain link fencing as specified herein and on the Plans. All costs for providing and installing posts and replacing portions of fencing damaged during removal or other construction activities shall be considered incidental to this unit cost and no additional compensation will be made.

END OF SECTION

9-03 AGGREGATES
(September 20, 2018 Tacoma GSP)

9-03.21 Recycled Material

9-03.21(1) General Requirements
(Jun 16, 2016 Tacoma GSP)

This section is supplemented with the following:

Recycled materials will only be permitted upon approval of the Engineer. Recycled concrete shall not be permitted for use as pipe zone backfill, backfill above pipe zone, and extra excavation area backfill material.

END OF SECTION

9-08 PAINTS AND RELATED MATERIALS

(March 23, 2010 Tacoma GSP)

The following section is added:

9-08.20 Painting Surfaces Systems

The surfaces shall be painted in accordance with the type materials and exposures as identified in this section. The Contractor shall provide the Engineer with a paint mil.

9-08.20(1) Steel

- A. Exposed/outside exposure (non-galvanized)
 - 1. Primer Coat Section 9-08.1(2)C (2.5-mils)
 - 2. Intermediate Coat Section 9-08.1(2)G (3.5-mils)
 - 3. Top Coat: Section 9-08.1(2)H (1.0-mils)
- B. Exposed/Interior exposure (non-galvanized)
 - 1. Primer Coat: Section 9-08.1(2)C (2.5-mils)
 - 2. Intermediate Coat: Section 9-08.1(2)G (3.5-mils)
 - 3. Top Coat: Section 9-08.1(2)H (1.0-mils)
- C. Unexposed/interior & exterior (non-galvanized)
 - 1. Primer Coat: Section 9-08.1(2)C (2.5-mils)
- D. Exposed/interior & outside exposure (galvanized)
 - 1. Primer Coat: Section 9-08.1(2)E (2.5-mils)
 - 2. Top Coat: Section 9-08.1(2)H (1.0-mils)
- E. Powder Coating and Galvanize Coating shall be applied where indicated in the contract documents. All other surfaces to be coated per Section 6-07.3.
- F. Painting shall be applied in accordance with Section 6-07.3.

9-08.20(2) Concrete

- A. Exposed/outside exposure
 - 1. 1st Coat: Section 9-08.3 (3.0-mils)
- B. Exposed/Interior exposure
 - 1. 1st Coat: Section 9-08.1(3) (2.0-mils)
 - 2. 2nd Coat: Section 9-08.1(3) (1.0-mils)
- C. Surface to be painted where indicated on contract plans
- D. Colors to be selected by the Project Engineer

END OF SECTION

9-14 EROSION CONTROL AND ROADSIDE PLANTING

(*****)

9-14.2(1) Topsoil Type A

Supplement this section with the following:

Topsoil Type A shall be a mixture of 50% pure compost, and 50% sand, sandy loam, or silty sand. The compost shall be fully composted and mature organic materials. No fresh sawdust or other fresh wood by-products shall be added to extend the volume after the composting process.

Chemical/physical characteristics shall comply with the following:

Screen Size (approx. Particle size)	7/16" maximum
Total Nitrogen	.25% minimum
Organic Matter	10% minimum
pH Range	5.5-7.5
Conductivity	5 mmhos/cm maximum

Compost shall be 98% minimum material derived from the aerobic decomposition of recycle plant waste and/or secondary sewage treatment. It shall be free of viable weeds and other plant propagules and shall have a moisture content that has no visible free water or dust produced when handling the material.

Contractor shall provide a complete analysis of the Topsoil Type A, with a (1) cubic foot sample for review and approval.

9-14.3 Seed

Supplement this section with the following:

The grass seed dealer shall mix the grass seed only. The Contractor shall furnish the Engineer with a dealer's guaranteed statement of the composition, mixture, and the percentage of purity and germination of each variety.

All seed mixes shall be certified as 99% weed-free and 90% viable seeds by germination tests and by age specifications by species. Apply hydroseed mulch, tackifier, seed and fertilizer per supplier's recommendations, or per these Special Provisions.

All seeding areas shall be seeded with the following mix:

Type of Seed	% by Weight
Lolium perenne var. Dasher 3/ Dasher 3 Perennial Ryegrass	35%
Lolium perenne var. Cutter II/ Cutter II Perennial Ryegrass	35%
Festuca rubra var. Garnet/ Garnet Creeping Red Fescue	15%

Festuca rubra ssp. fallax var. Woodward/ Windward Chewings Fescue	15%
--	-----

The rate of application shall be as recommended by the seed supplier.

9-14.4 Fertilizer

Supplement this section with the following:

All fertilizer applications shall follow Washington State University, National Arborist Association or other accepted agronomic or horticultural standards.

Fertilizer shall be 10-10-10, applied at a rate recommended by the fertilizer manufacturer.

All fertilizers shall be furnished in standard unopened containers with weight, name of plant nutrients and manufacturer's certified statement of analysis clearly marked, in accordance with State and Federal law.

9-14.5(10) Arborist Wood Chip Mulch

Supplement this section with the following:

Quality: Arborist Wood Chip Mulch shall be coarse ground wood chips (approximately ½" to 6" along the longest dimension) derived from the mechanical grinding or shredding of the above-ground portions of trees. It may contain wood, wood fiber, bark, branches, and leaves; but may not contain visible amounts of soil. It shall be free of weeds and weed seeds including but not limited to the plants on the Pierce County Noxious Weed list (www.piercecountyweedboard.wsu.edu) and shall be free of invasive plant portions capable of resprouting, including but not limited to horsetail, ivy, clematis, knotweed, etc. It may not contain more than ½% by weight of manufactured inert material (plastic, concrete, ceramics, metal, etc.).

1. **Gradation.** Arborist Wood Chip Mulch, when tested, shall meet the following loose volume gradation:

Sieve Size	Percent Passing	
	Minimum	Maximum
2"	95	100
1"	70	100
5/8"	0	50
¼"	0	40

No Particles may be longer than eight inches.

2. **Submittals.** Prior to delivery the contractor shall provide the following:
 - a. The source of the product and the species of trees included in it;
 - b. A sieve analysis verifying the product meets the above size gradation requirement; and,
 - c. A 5 gallon sample of the product, for the Engineer's approval.

1 **9-14.7 Plant Materials**

2
3 **9-14.7(2) Quality**

4 *Supplement this section with the following:*

5
6 Plant material shall be free from disfiguring knots, swollen grafts, sunscald injuries,
7 bark abrasions, evidence of improper pruning or other objectionable disfigurement.

8
9 Potted and container stock shall be well rooted and vigorous enough to ensure survival
10 and healthy growth. Shrubs shall have full foliage (not leggy). Container stock shall be
11 grown in its delivery container for not less than six (6) months, but not for more than
12 two (2) years. Root bound or broken containers will not be accepted. Bare root, liner
13 and root stock with dried or shriveled roots from exposure will not be accepted.

14
15 Measurements, caliper, branching, grading, quality, balling and burlapping shall follow
16 the Code of Standards of the American Associate of Nurserymen in the American
17 Standard for Nursery Stock, ANSI 260.1, latest edition. Measurements shall be taken
18 with all branches in their normal growing position. Plants shall not be pruned prior to
19 delivery to site.

20
21 **9-14.7(3) Handling & Shipping**

22 *Supplement this section with the following:*

23
24 All plant material shall be transported to planting locations with care to prevent
25 damage. Tie back branches as necessary and protect bark from chafing with burlap
26 bags. Do not drag plant materials along ground without proper protection of roots and
27 branches. Protect rootballs from environmental or mechanical damage and water as
28 necessary to keep roots moist.

29
30 **9-14.9 Tree Watering Bag System**

31 *Add the following new section:*

32
33 Tree watering bag system shall be commercially available, 15-gallon, slow-release
34 watering bag with two (2) water-release points per bag. Materials: UV-stabilized
35 polyethylene with nylon zipper and polypropylene handle straps; color: green.

36
37 **END OF SECTION**

1 **9-16 EXPOXY RESINS**

2 *Add the following new section:*

3
4 **9-26.4 Epoxy Grout**

5
6 The epoxy grout shall meet the following requirements:

- 7
- 8 • Three-component mixture of a two-component epoxy resin system (100
 - 9 percent solids) with a graded, precision aggregate blend.
 - 10 • Premeasured, prepackaged system.
 - 11 • Flowable.
 - 12 • Minimum compressive strength in accordance with ASTM C579, Method B,
 - 13 11,000 psi at 75 degrees F; 6,000 psi at 170 degrees F at 7 days.
 - 14 • Maximum creep resistance in accordance with ASTM C1181 at 600 psi, 140
 - 15 degrees F; 6.0×10^{-3} in/in.
 - 16 • Minimum bond strength in accordance with ASTM C882, 2,000 psi.
 - 17 • Minimum tensile strength in accordance with ASTM C307, 2,000 psi.
 - 18 • Maximum coefficient of thermal expansion in accordance with ASTM C531 at
 - 19 73 to 210 degrees F, 24.0×10^{-6} in/in/°F.
 - 20 • Working Time: Minimum 2 hours at 50 degrees F; 1.5 hours at 70 degrees F;
 - 21 50 minutes at 90 degrees F.
 - 22 • Good chemical resistance.
 - 23 • Noncorrosive.
 - 24 • Moisture insensitive.

25 Modify resin and aggregate content when recommended by epoxy grout manufacturer

26 to provide desired epoxy grout flow properties.

27
28 **END OF SPECIAL PROVISIONS**

APPENDIX A

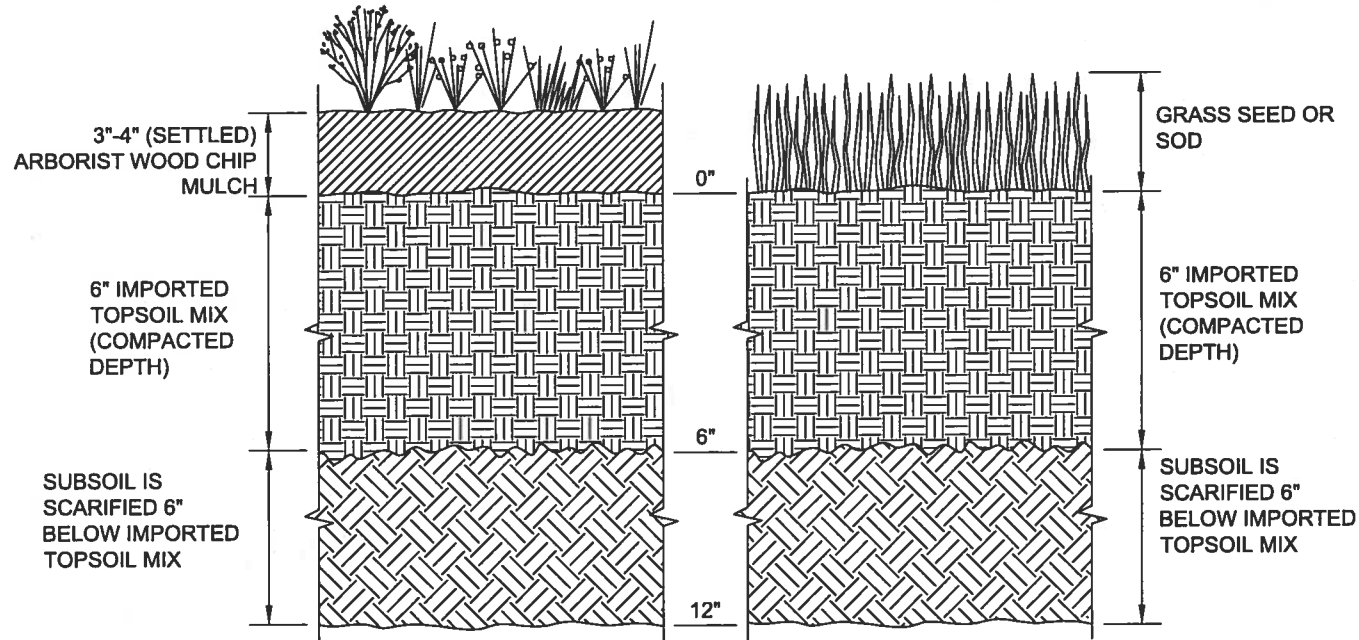
CITY OF TACOMA

AND

WSDOT STANDARD PLANS

PLANTING BEDS

TURF (LAWN) AREAS



OPTION 4: Import topsoil mix of sufficient organic content and depth to meet the requirements. All soil areas disturbed or compacted during construction, and not covered by buildings or pavement, shall be restored as described below.

Scarification: scarify or till subgrade in two direction to 6 inches depth. Entire surface shall be disturbed by scarification. Do not scarify within drip line of existing trees to be retained.

A. Planting Beds

Use imported topsoil mix containing 10% organic matter (typically around 40% compost). Soil portion must be sand or sandy loam as defined by the USDA. Place 3 inches of imported topsoil mix on surface and till into 2 inches of soil. Place 3 inches of imported topsoil mix on surface and till into 2 inches of soil. Place second lift of 3 inches topsoil mix on surface.

Rake beds to smooth and remove surface rocks larger than 2 inches diameter. Mulch planting beds with 3" - 4" of organic mulch or stockpiled duff.

B. Turf (Lawn) Areas

Use imported topsoil mix containing 5% organic matter (typically around 25% compost). Soil portion must be sand or sandy loam as defined by the USDA. Place 3 inches of imported topsoil mix on surface and till into 2 inches of soil. Place second lift of 3 inches topsoil mix on surface.

Water or roll to compact to 85% of maximum dry density. Rake to level and remove surface rocks larger than 1 inch diameter.

Setbacks: to prevent uneven settling, do not compost-amend soils within 3 feet on center of utility infrastructure (poles, vaults, meters etc.). Within one foot of pavement edge, curbs and sidewalks; soil should be compacted to approximately 90% max. modified proctor density (ASTM D1557) to ensure a firm surface. Do not compact within tree protection zone. See Std. Plans LS-08 and LS-09.

See SWMM BMP L613 for additional information.

DCS

PUBLIC WORKS

NA

TACOMA POWER

REVIEWED BY

ENVIRONMENTAL
SERVICES

NA

TACOMA WATER



APPROVED FOR PUBLICATION

CITY ENGINEER

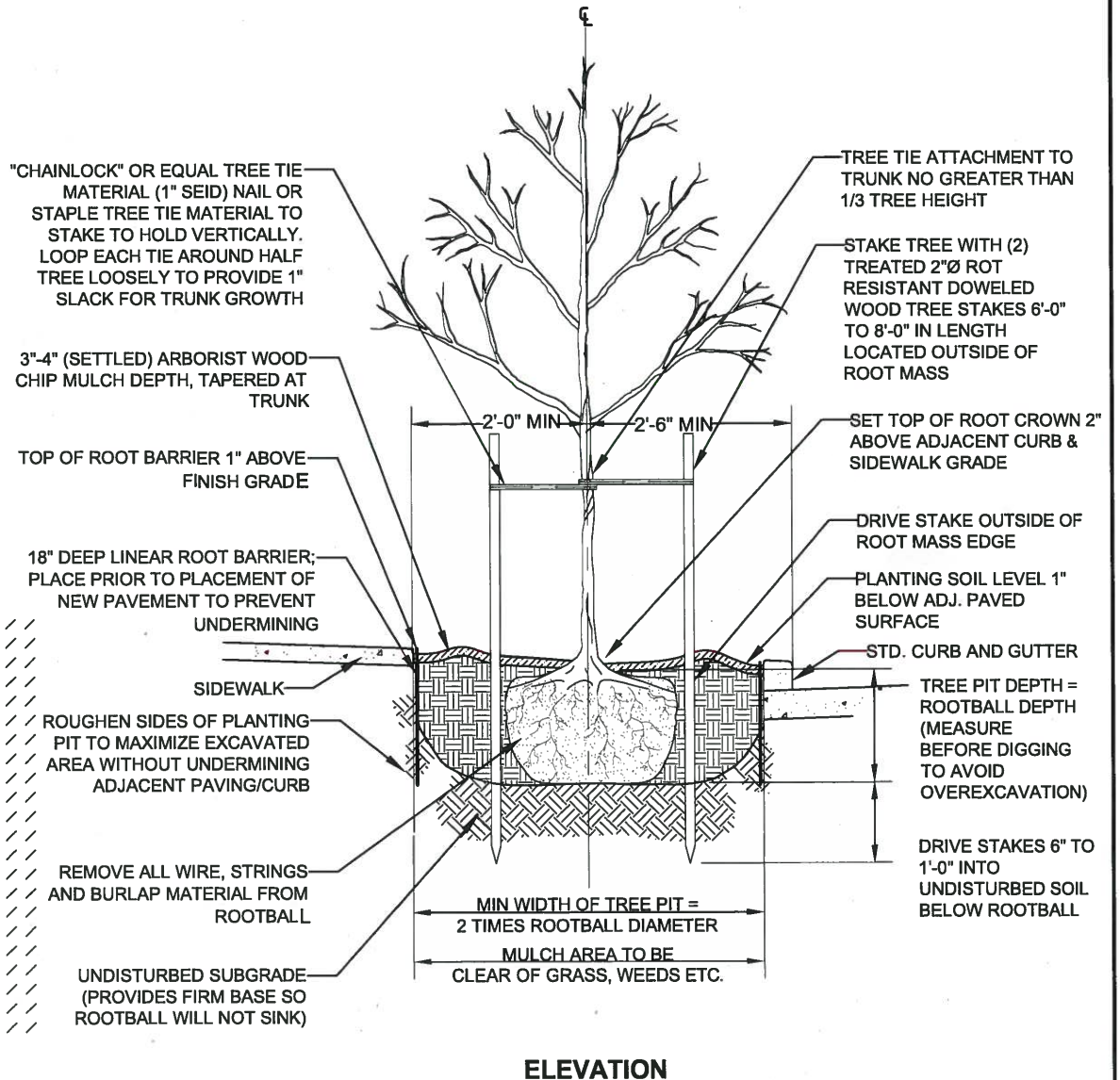
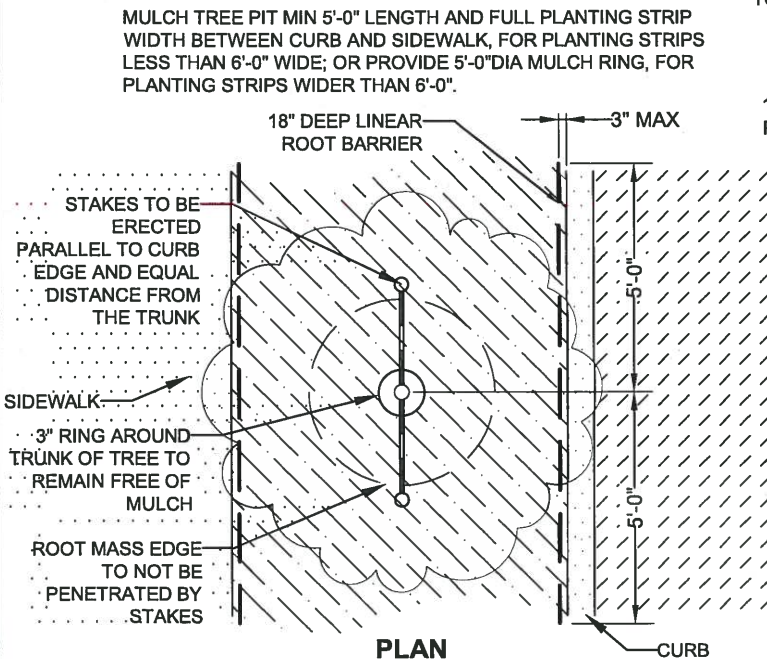
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CITY OF TACOMA
BMP L613 POST CONSTRUCTION SOIL
QUALITY AND DEPTH
OPTION 4 - IMPORTED TOPSOIL
STANDARD PLAN NO. GSI-01d

STANDARD PLAN NO. GSI-03b

NOTES:

1. Planting includes removal of stakes one year after installation.
2. Shape soil surface to provide 4' dia watering ring.
3. Tree clearance shall be per STD PLAN LS-02.
4. See STD PLAN LS-03 for tree well dimension detail.
5. Root barriers shall be an injection molded or extruded modular component made of high density polypropylene or polyethylene plastic. 18" depth x 10' length root barrier is required along edge of roadways, curbs, driveways, trails, sidewalks, or other structures where root ball is within 4 feet. install root barrier for newly planted trees only.



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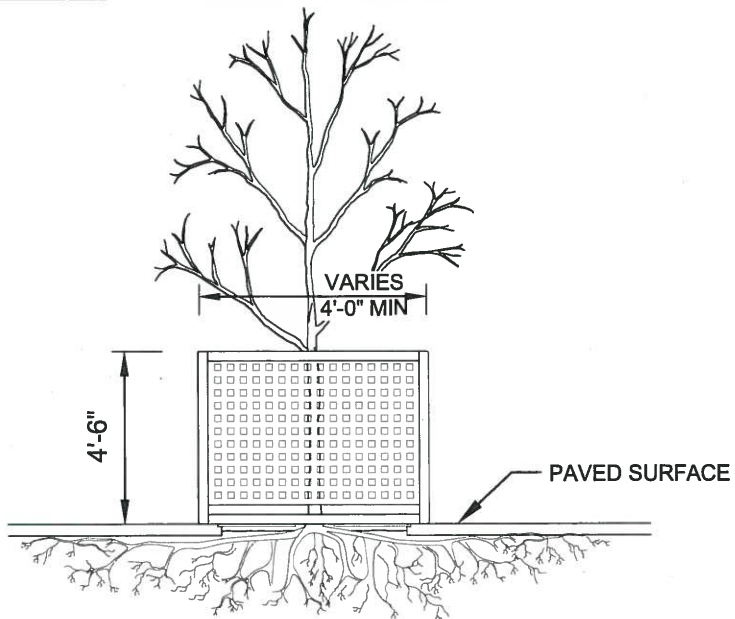
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CITY ENGINEER

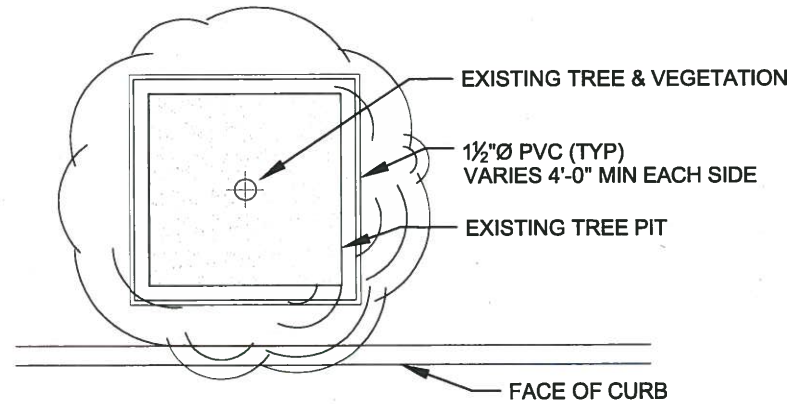
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STREET TREE PLANTING

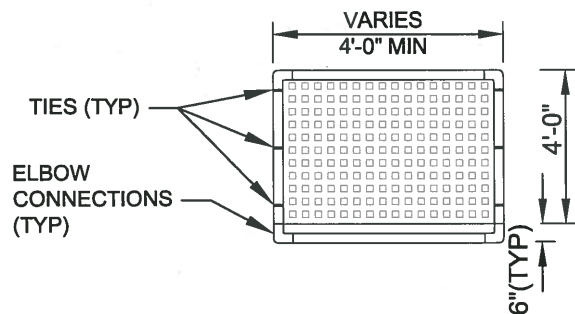
STANDARD PLAN NO. LS-01



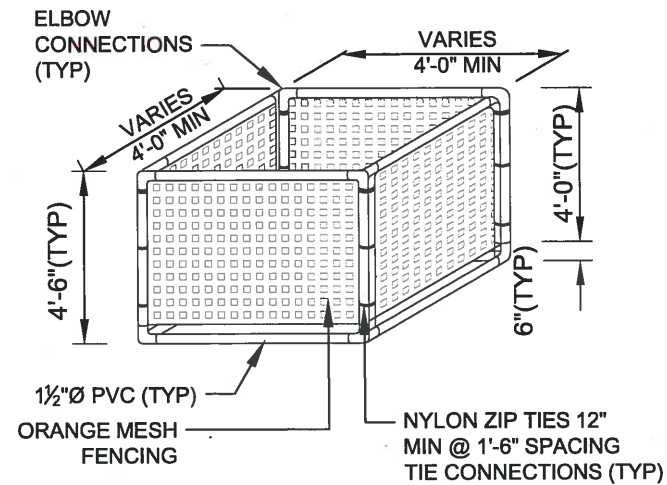
TYPICAL TREE GUARD RAIL



PLAN VIEW



TYPICAL PANEL



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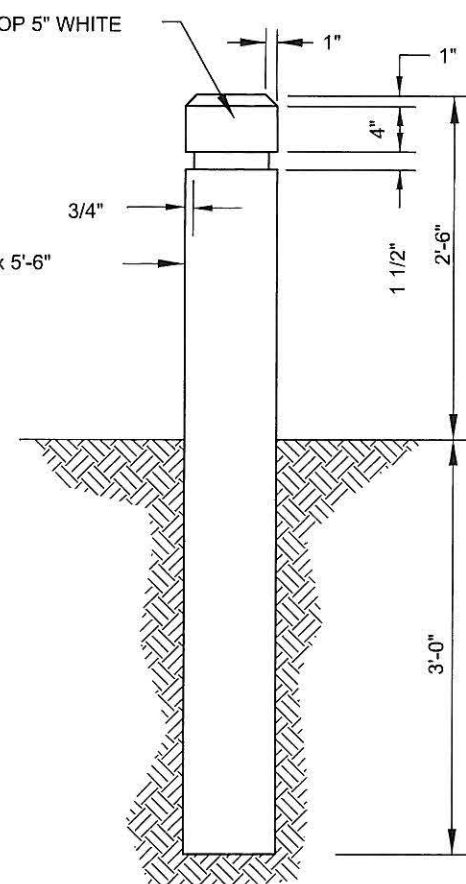
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CITY ENGINEER

DATE

REUSABLE TREE PROTECTION
FENCING FOR PAVED AREAS

STANDARD PLAN NO. LS-11



FIXED BOLLARD

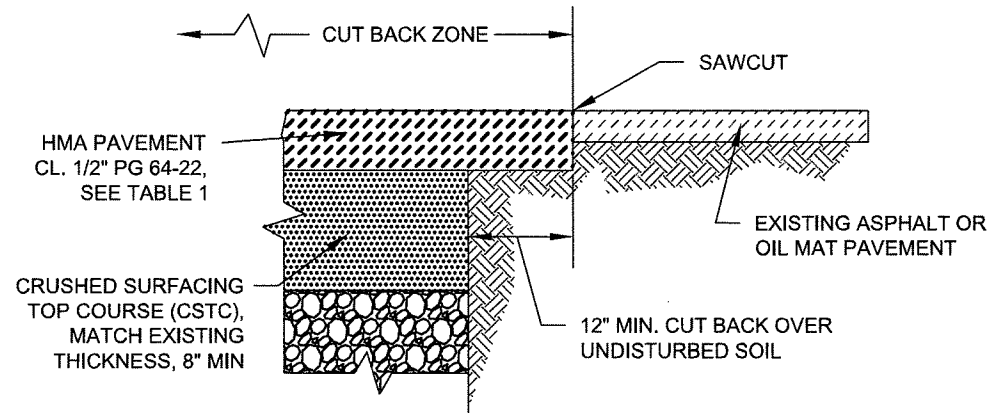
STANDARD PLAN NO. SU-12

NOTES

1. This Standard Plan shall only apply to streets that are exempt from the City of Tacoma's Restoration Policy. See Standard Plan SU-15A for any streets not exempt from this policy.
2. Temporary Surface Restoration:
Arterials, industrial areas and/or roads with bus traffic: Temporary patches shall be compacted and leveled to a minimum of 3-inches of hot-mix asphalt (HMA).
Residential and alleys: Temporary patches shall be compacted and leveled to a minimum of 2-inches of either HMA or cold-mix asphalt. Temporary patches between October 1st and March 31st shall be made with HMA unless otherwise approved.
3. All permanent final patches shall be rectangular in shape and constructed parallel and perpendicular to the road centerline.
4. Where existing pavement defects are in close proximity to the new cut, the inspector may require additional pavement removal to eliminate the pavement defect.
5. The final cut edge of paved surfaces shall be smooth and straight, consistent with grinding or saw cutting devices. No jagged, broken or undermined edges are allowed. Cutting wheel run-out beyond the limits of the opening shall be filled in accordance with WSDOT Standard Specification 5-05.3(8)B for cement concrete surfaces and 5-04.3(5)C for asphalt concrete surfaces.
6. Final compaction of HMA shall be 91% of maximum density.
 Testing shall be performed by a certified independent testing laboratory or certified tester, as approved by the City's Construction Division. Tests shall be completed and reports identifying the project number submitted to the City Construction Division within 48 hours of test.
7. All joints between the new and original asphalt pavement shall be sealed with hot asphalt or asphalt emulsion and covered with dry paving sand before the asphalt solidifies. Existing surfaces shall be prepared in accordance with WSDOT Standard Specification 5-04.3(5)A prior to placing any new pavement surfaces.
8. HMA pavement shall not be placed over CDF until approved by the City.
9. If remaining pavement adjacent to the patch is less than 3' wide, remove and replace with asphalt concrete pavement to match existing (minimum 2").

TABLE 1
PAVEMENT REPLACEMENT DEPTH
IN CUT BACK ZONE

	MIN.	MAX.
ARTERIALS, INDUSTRIAL AREAS & ROADS WITH BUS TRAFFIC	MATCH EXISTING +1", OR 4", WHICHEVER IS GREATER	6"
RESIDENTIALS AND ALLEYS	MATCH EXISTING +1", OR 3", WHICHEVER IS GREATER	4"



CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

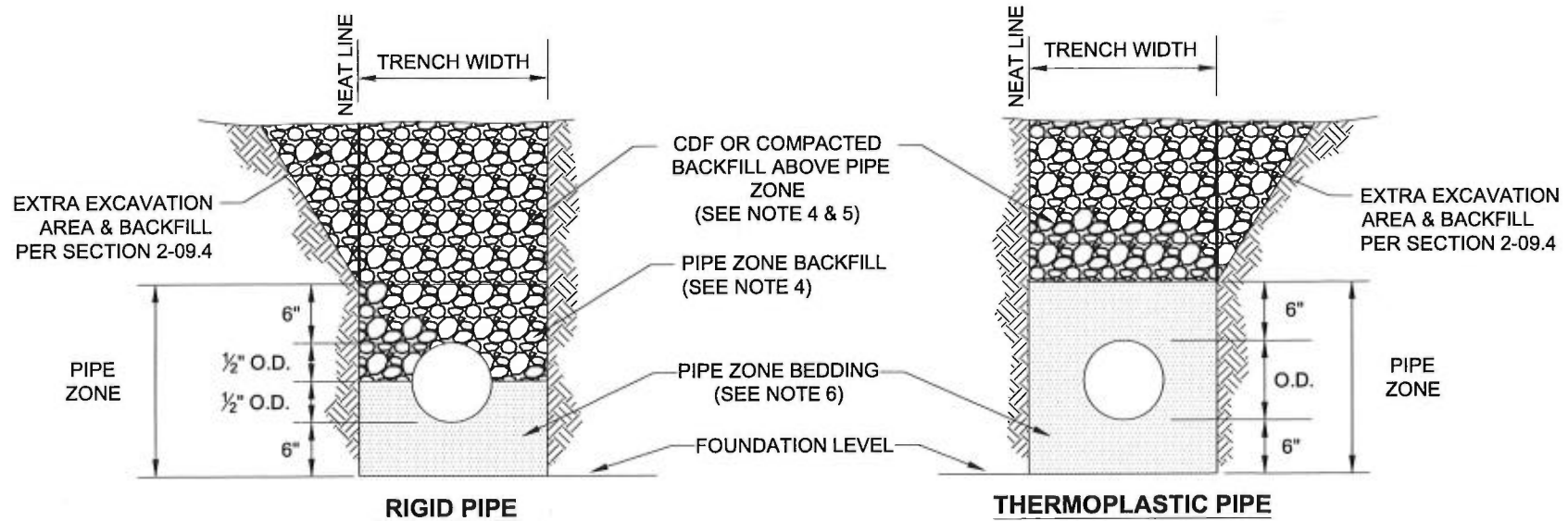
APPROVED FOR PUBLICATION

CITY ENGINEER

DATE

TYPICAL PAVEMENT RESTORATION
FOR ASPHALT CONCRETE/OIL MAT
PAVEMENT

STANDARD PLAN NO. SU-15B



NOTES:

1. Provide uniform support under barrel and provide pockets in bedding for pipe bells.
2. Hand tamp under haunches.
3. Trench width shall be as specified in Section 2-09.4 of the WSDOT Standard Specifications.
4. Pipe zone backfill and backfill above pipe zone shall meet the material requirements of WSDOT Standard Specification Section 9-03.12(2) for gravel backfill for walls.
5. All trenches shall be compacted in accordance with SU-28.
6. Pipe zone bedding shall meet the material requirements of WSDOT Standard Specification Section 9-03.9(3) for crushed surfacing top course.

DCS

PUBLIC WORKS

NA

TACOMA POWER

REVIEWED BY

GMS

ENVIRONMENTAL
SERVICES

NA

TACOMA WATER



APPROVED FOR PUBLICATION

[Signature]

CITY ENGINEER

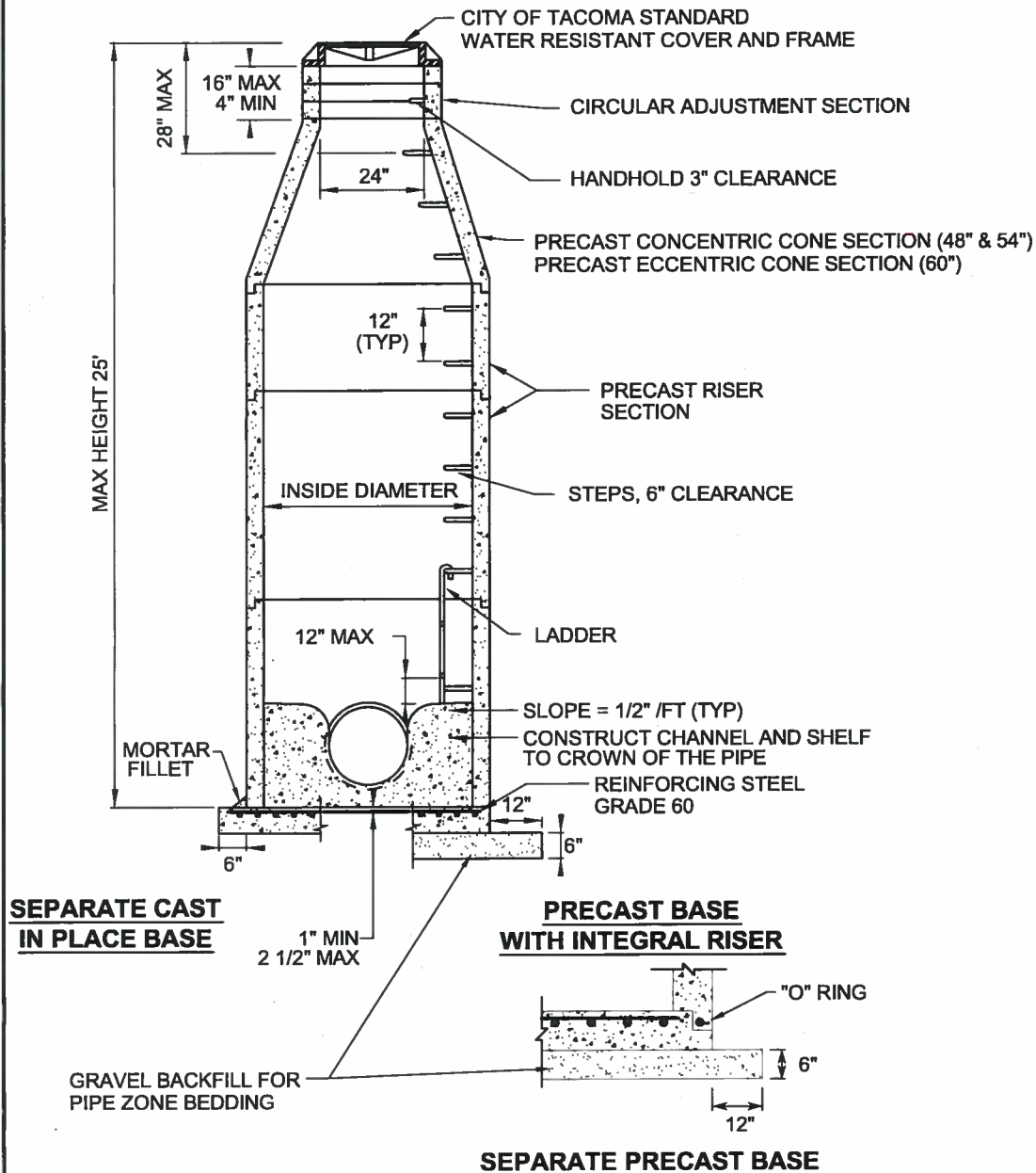
8/16/16

DATE

CITY OF TACOMA
PIPE ZONE BEDDING AND BACKFILL
FOR SANITARY AND STORM
SEWERS

STANDARD PLAN NO.

SU-16



NOTES:

1. For details showing grade ring, ladder, steps, handholds and top slabs, see Standard Plan No. SU-21.
2. Non-reinforced concrete in channel and shelf shall be Class 3000. All precast concrete shall be Class 4000.
3. Rubber gaskets shall be used in tongue and groove joints of pre-cast sections.
4. A flexible pipe-to-manhole connector shall be employed in all connections of rigid and flexible pipes to new precast concrete manholes. The connector shall be "Kor-N-Seal" with "Wedge Korband" manufactured by NPC, Inc., or approved equal.
5. Base reinforcing steel shall be per manufacturer's recommendation.

MANHOLE DIMENSION TABLE

INSIDE DIAMETER	MINIMUM WALL THICKNESS	MINIMUM BASE THICKNESS	MAXIMUM HOLE SIZE	MINIMUM DISTANCE BETWEEN HOLES
48"	4"	6"	36"	8"
54"	4 1/2"	8"	42"	8"
60"	5"	8"	48"	8"

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

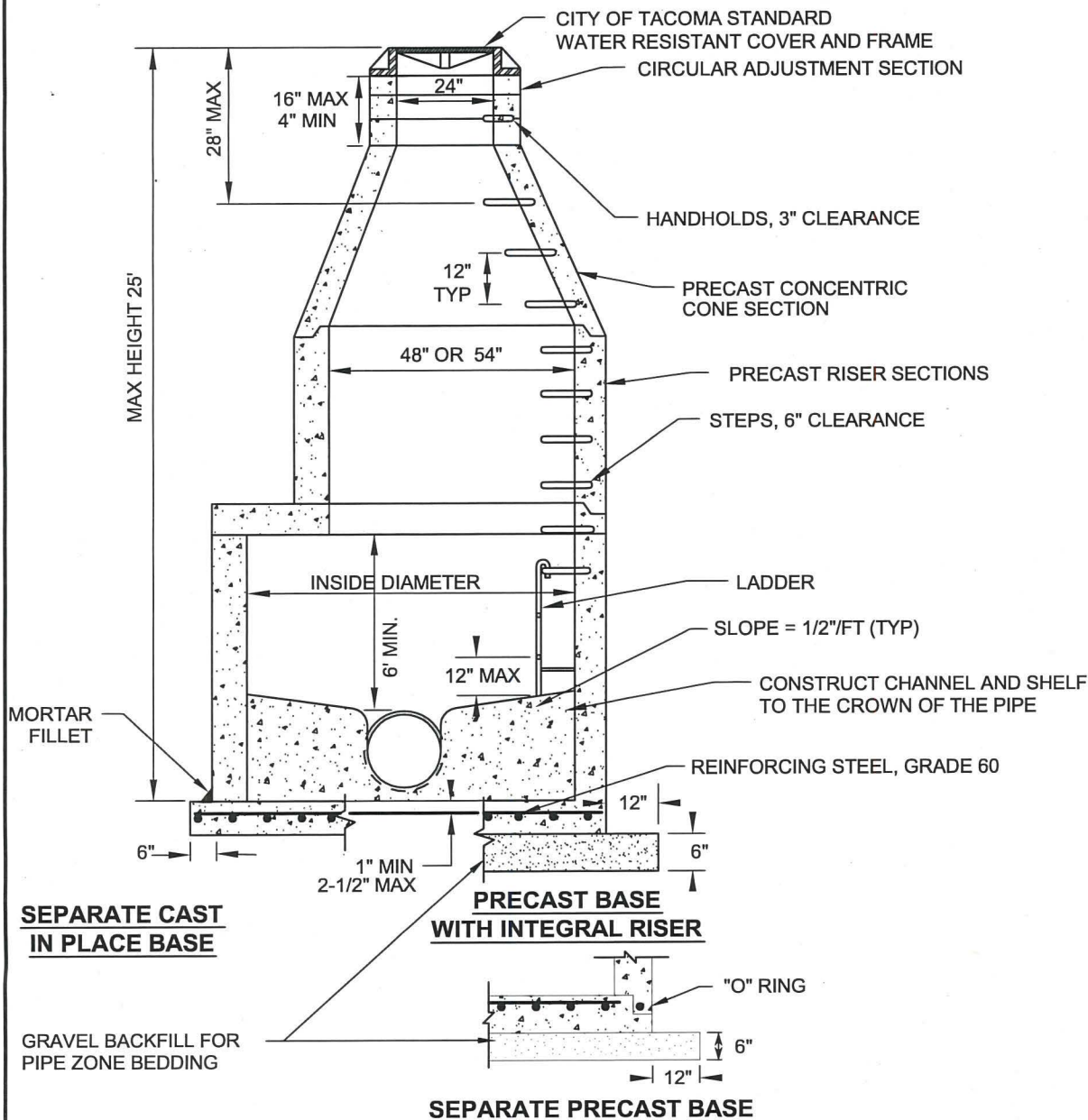
APPROVED FOR PUBLICATION

[Signature]
CITY ENGINEER

[Signature]
DATE

MANHOLE-TYPE 1
48", 54" AND 60"

STANDARD PLAN NO. SU-17



NOTES:

1. For details showing grade ring, ladder, steps, handholds and top slabs, see Standard Plan No. SU-21.
2. Non-reinforced concrete in channel and shelf shall be Class 3000. All precast concrete shall be Class 4000.
3. Rubber gaskets shall be used in tongue and groove joints of pre-cast sections.
4. A flexible pipe-to-manhole connector shall be employed in all connections of rigid and flexible pipes to new precast concrete manholes. The connector shall be "Kor-N-Seal" with "Wedge Korband" manufactured by NPC, Inc., or approved equal.
5. Base reinforcing steel shall be per manufacturer's recommendation.

MANHOLE DIMENSION TABLE

INSIDE DIAMETER	MINIMUM WALL THICKNESS	MINIMUM BASE THICKNESS	MAXIMUM HOLE SIZE	MINIMUM DISTANCE BETWEEN HOLES
72"	6"	8"	60"	12"
84"	8"	12"	72"	12"
96"	8"	12"	84"	12"
108"	10"	12"	96"	12"
120"	11"	12"	108"	12"

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

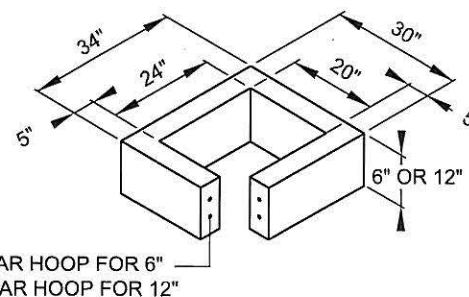
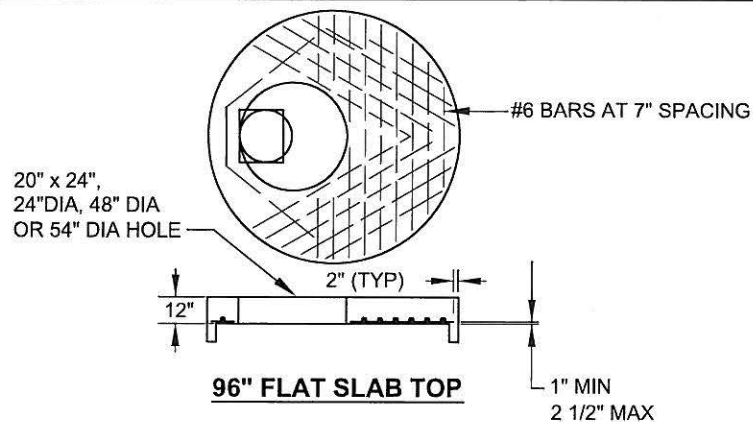
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CITY ENGINEER

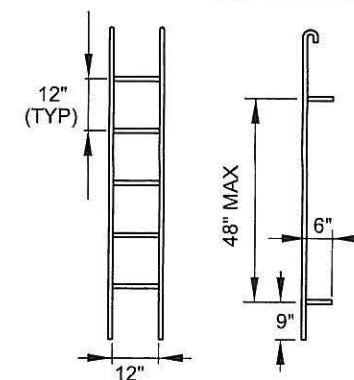
1/17/14
DATE

MANHOLE-TYPE 2
72" AND GREATER

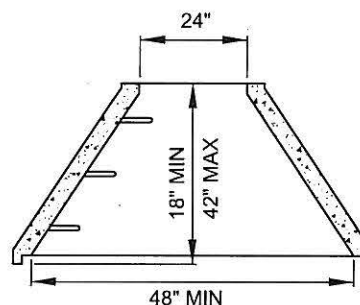
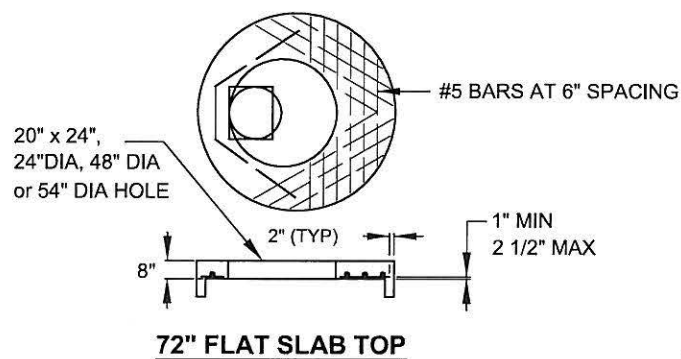
STANDARD PLAN NO. SU-18



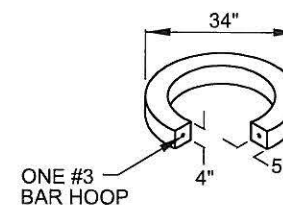
**RECTANGULAR ADJUSTMENT
SECTION**



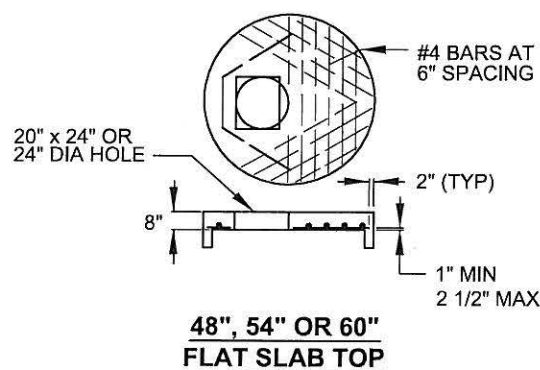
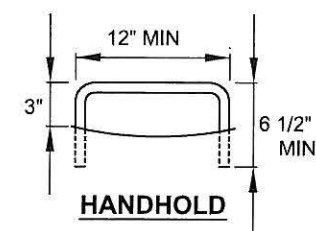
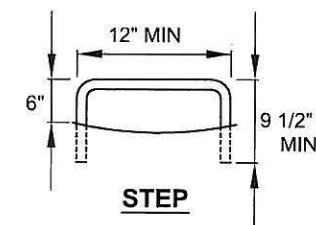
PREFABRICATED LADDER



CONCENTRIC CONE SECTION



**CIRCULAR ADJUSTMENT
SECTION**



NOTE:

As an acceptable alternate to rebar, wire mesh having a minimum area of 0.12 square inches per foot may be used for adjustment sections.

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

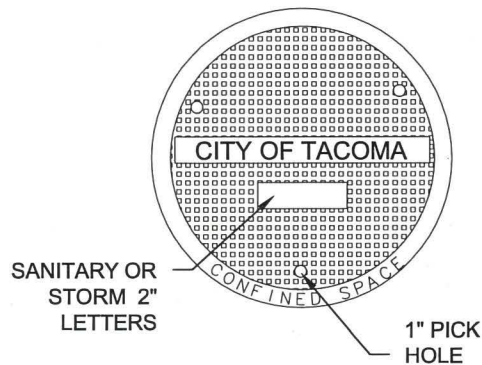
APPROVED FOR PUBLICATION

James Pervey
CITY ENGINEER

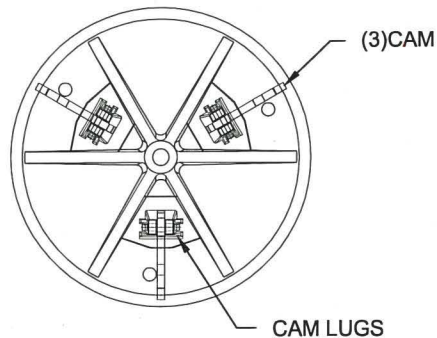
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MISCELLANEOUS DETAILS
FOR MANHOLES AND
CATCH BASINS

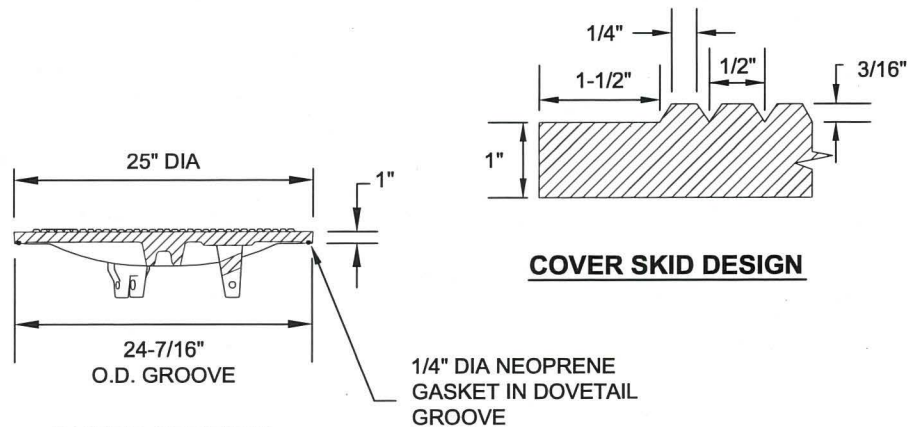
STANDARD PLAN NO. SU-21



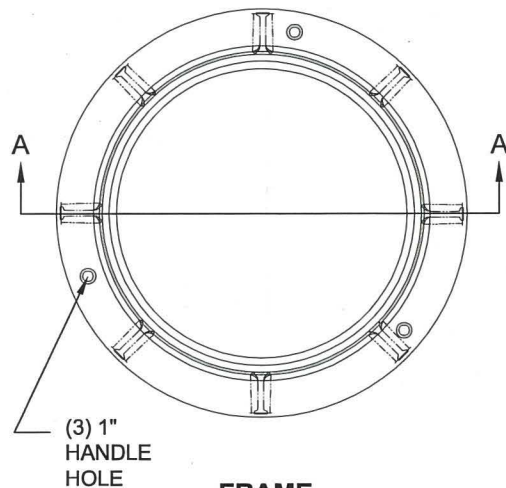
PLAN VIEW



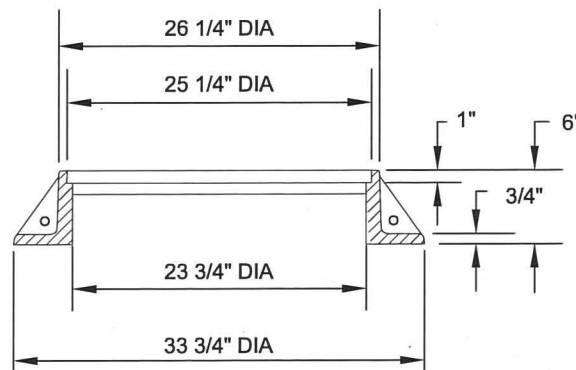
BOTTOM VIEW



COVER SECTION



FRAME



SECTION A-A

NOTES:

1. Covers shall have the word "SANITARY" in 2 inch raised letters when used with sanitary sewer installations, or "STORM" when installed with storm sewers. All covers shall have the words "CITY OF TACOMA" in 1-1/2 inch raised letters and the words "CONFINED SPACE" in 1-inch raised letters.
2. Lids must be interchangeable, any lid shall fit any and all frames.
3. Frame and cover shall be designed for H-20 loading.
4. Frame shall be grey-iron conforming to the requirements of AASHTO M 105, grade 30B.
5. Covers shall be ductile iron conforming to ASTM A 536, grade 80-55-06.
6. Per WSDOT Standard Specification 9-05.15, metal castings shall not be dipped, painted, welded, plugged, or repaired.

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

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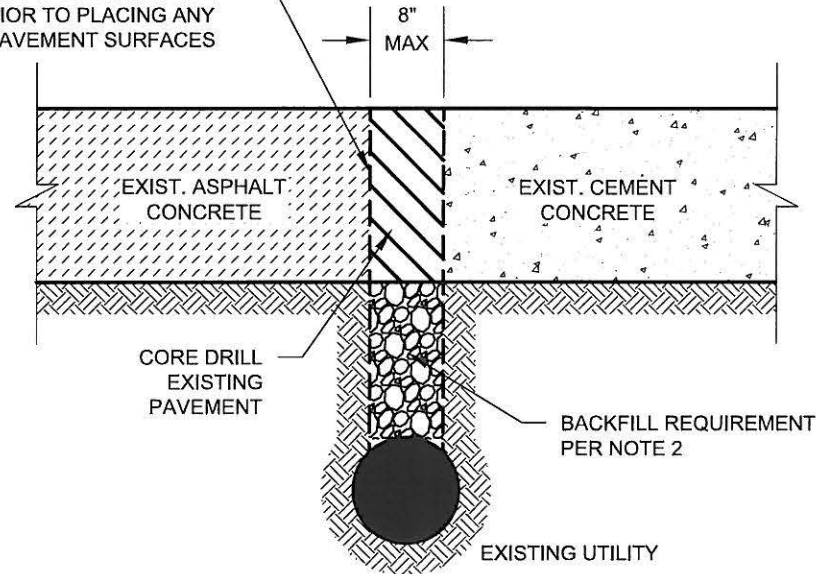
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CITY ENGINEER

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DATE 1/17/04

MANHOLE FRAME AND COVER

STANDARD PLAN NO. SU-22

EXISTING SURFACES SHALL BE PREPARED IN ACCORDANCE WITH WSDOT STANDARD SPECIFICATION 5-04.3(5)A PRIOR TO PLACING ANY NEW PAVEMENT SURFACES



NOTES:

1. The existing pavement shall be cut full depth with an eight inch diameter core drill. The subbase material shall be removed using a vacuum excavator, keeping the excavation as minimal as possible.
2. Backfill the excavation with a six inch cushion of crushed rock over the utility then place the remaining void with CDF or compacted CSTC.
3. For asphalt concrete streets, repair the cored pavement section with HMA Class $\frac{1}{2}$ " PG 64-22 and seal the joint.
4. For cement concrete pavement streets, replace the cored section with Class 6000 cement concrete.
5. If excavation is larger than 8" core, restoration shall comply with the Right of Way Restoration Policy.

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CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

June Perrey 12 Jun 2009
CITY ENGINEER DATE

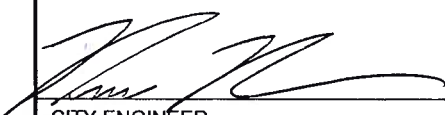
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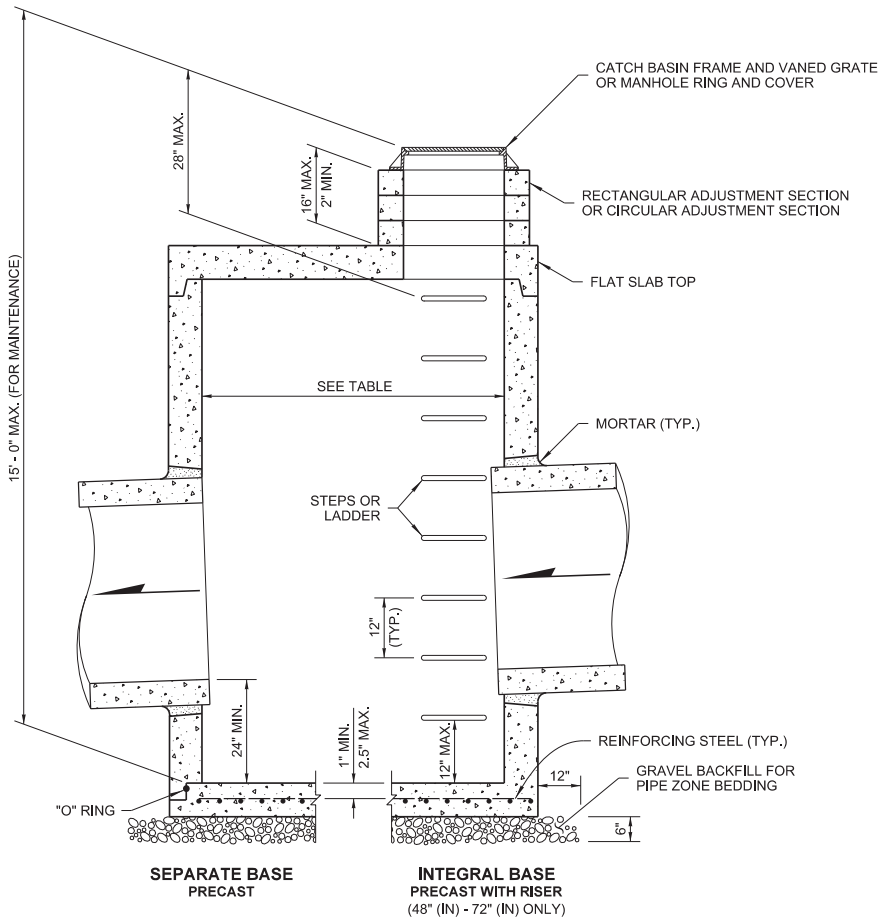
STANDARD PLAN NO. SU-27

COMPACTION TESTING REQUIREMENTS ^A		
DEPTH	TESTING FREQUENCY ^C	
	VERTICAL	HORIZONTAL
SURFACE (BELOW HMA)	N/A	1 TEST EVERY 150 LINEAR FEET OF TRENCH OR MINIMUM 2 PER TRENCH
		1 TEST FOR 150 SQUARE FEET FOR ISOLATED PATCHES ^B
1 TO 4 FEET (OR MIN 18 IN. ABOVE PIPE)	1 EVERY 12 INCHES	SAME AS FOR SURFACE
> 4 FEET TO BOTTOM OF TRENCH	NO SPECIFIC REQUIREMENT - MAY BE REQUIRED BY COT INSPECTOR FOR VERIFICATION OF COMPACTION	
A. TESTING SHALL BE PERFORMED BY A CERTIFIED INDEPENDENT TESTING LABORATORY OR A CERTIFIED TESTOR AS APPROVED BY THE CITY'S CONSTRUCTION DIVISION. THE COST OF TESTING IS THE RESPONSIBILITY OF THE PERMITTEE. TESTS SHALL BE COMPLETED AND REPORTS IDENTIFYING THE PROJECT NUMBER SUBMITTED TO THE CONSTRUCTION DIVISION WITHIN 48 HOURS OF TESTS.		
B. ONLY ONE COMPACTION TEST WILL BE REQUIRED FOR MULTIPLE TRENCHES WITHIN A 150 SF AREA PROVIDED COMPACTION PROCEDURES ARE THE SAME.		
C. EACH LIFT SHALL BE COMPACTED TO 95% MODIFIED PROCTOR DENSITY, AS VERIFIED BY COMPACTION TESTING, BEFORE PROCEEDING TO THE NEXT LIFT. COT INSPECTOR MAY REQUIRE EXCAVATION AND REMOVAL OF SOIL WHERE COMPACTION IS IN QUESTION.		

NOTES:

1. Compact backfill material in max. 12 in. lifts. Compact backfill material to 95% max. modified proctor density (ASTM 1557) except directly over pipe, hand tamp only.
2. Native backfill will require laboratory testing to determine max. modified proctor density. Imported backfill will require submittal of proctor test results from supplier.
3. See WSDOT Standard Specification Section 2-09.3(1)E for material requirements on "Controlled Density Fill" (CDF). CDF may be used for trenches less than 24 in. wide or as approved by the City Engineer. CDF shall be vibrated/compacted.

CITY OF TACOMA DEPARTMENT OF PUBLIC WORKS	APPROVED FOR PUBLICATION		TRENCH BACKFILL COMPACTION REQUIREMENTS	
	 CITY ENGINEER	11/30/16 DATE	STANDARD PLAN NO.	SU-28



NOTES

1. No steps are required when height is 4' or less.
2. The bottom of the precast catch basin may be sloped to facilitate cleaning.
3. The rectangular frame and grate may be installed with the flange up or down. The frame may be cast into the adjustment section.
4. Knockouts shall have a wall thickness of 2" (in) minimum to 2.5" (in) maximum. Provide a 1.5" (in) minimum gap between the knockout wall and the outside of the pipe. After the pipe is installed, fill the gap with joint mortar in accordance with **Standard Specification Section 9-04.3**.

CATCH BASIN DIMENSIONS

CATCH BASIN DIAMETER	MIN. WALL THICKNESS	MIN. BASE THICKNESS	MAXIMUM KNOCKOUT SIZE	MINIMUM DISTANCE BETWEEN KNOCKOUTS
48"	4"	6"	36"	8"
54"	4.5"	8"	42"	8"
60"	5"	8"	48"	8"
72"	6"	8"	60"	12"
84"	8"	12"	72"	12"
96"	8"	12"	84"	12"
120"	10"	12"	96"	12"
144"	12"	12"	108"	12"

PIPE ALLOWANCES

CATCH BASIN DIAMETER	PIPE MATERIAL WITH MAXIMUM INSIDE DIAMETER				
	CONCRETE	ALL METAL	CPSSP PP ①	SOLID WALL PVC ②	PROFILE WALL PVC ③
48"	24"	30"	24"	30"	30"
54"	30"	36"	30"	36"	36"
60"	36"	42"	36"	42"	42"
72"	42"	54"	42"	48"	48"
84"	54"	60"	54"	48"	48"
96"	60"	72"	60"	48"	48"
120"	66"	84"	60"	48"	48"
144"	78"	96"	60"	48"	48"

- ① Corrugated Polyethylene Storm Sewer Pipe (See **Standard Specification Section 9-05.20**)
- ② (See **Standard Specification Section 9-05.12(1)**)
- ③ (See **Standard Specification Section 9-05.12(2)**)
- ④ Polypropylene Pipe (See **Standard Specification Section 9-05.24**)



Heilman, Julie
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CATCH BASIN TYPE 2

STANDARD PLAN B-10.20-02

SHEET 1 OF 1 SHEET

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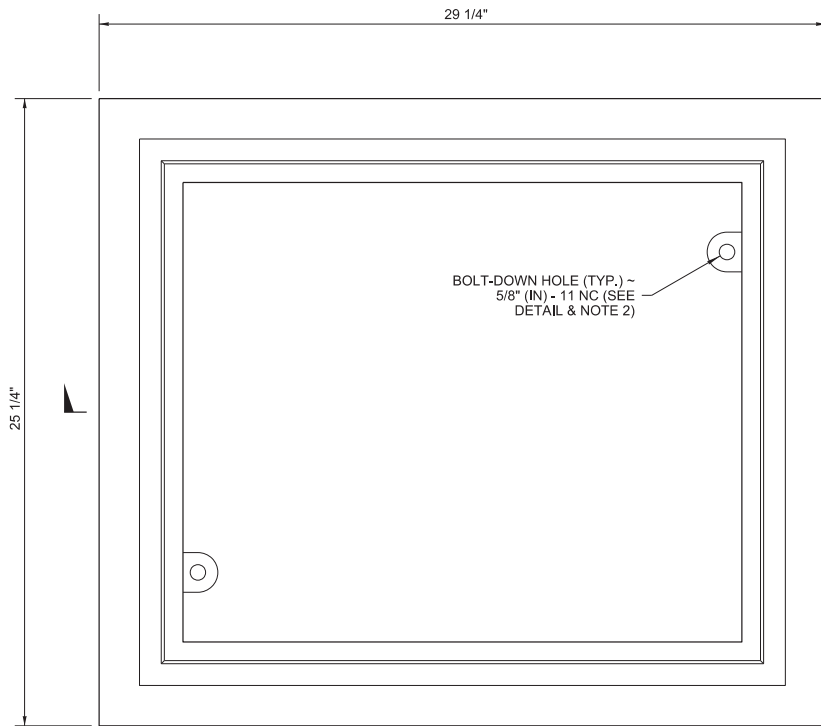
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STATE DESIGN ENGINEER

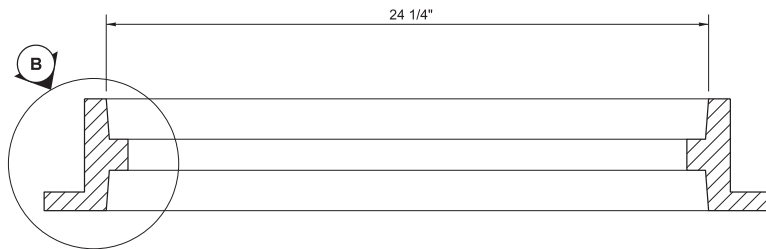


Washington State Department of Transportation

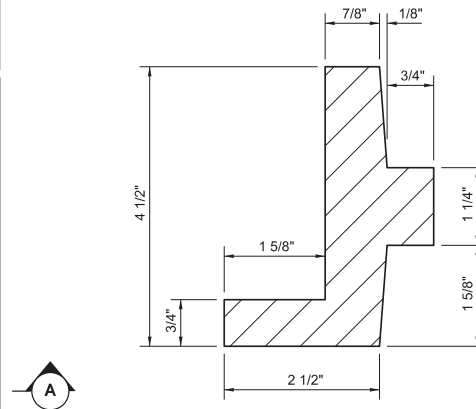
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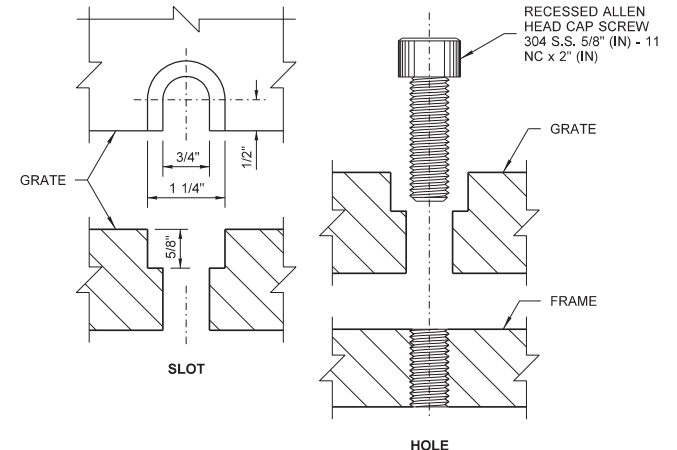
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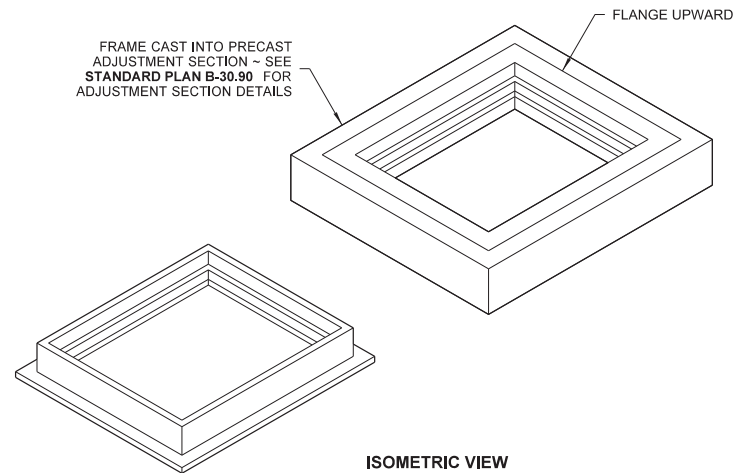
SECTION A



DETAIL B



BOLT-DOWN DETAILS
SEE NOTE 2



ISOMETRIC VIEW
SHOWING THE VARIATIONS

NOTES

1. This frame is designed to accommodate 20" (in) x 24" (in) grates or covers as shown on **Standard Plans B-30.20, B-30.30, B-30.40, and B-30.50.**
2. Bolt-down capability is required on all frames, grates, and covers, unless specified otherwise in the Contract. Provide 2 holes in the frame that are vertically aligned with the grate or cover slots. The frame shall accept the 304 Stainless Steel (S.S.) 5/8" (in) - 11 NC x 2" (in) allen head cap screw by being tapped, or other approved mechanism. Location of bolt-down holes varies by manufacturer.
3. Refer to **Standard Specification Section 9-05.15** and **9-05.15(2)** for additional requirements.



Julie Heilman
Heilman, Julie
Feb 20 2018 12:52 PM
ccsign

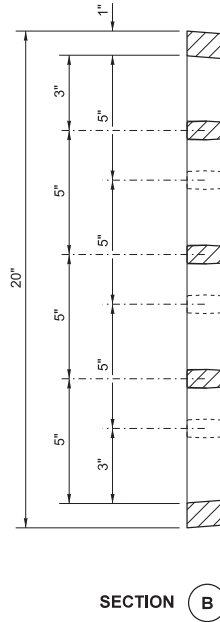
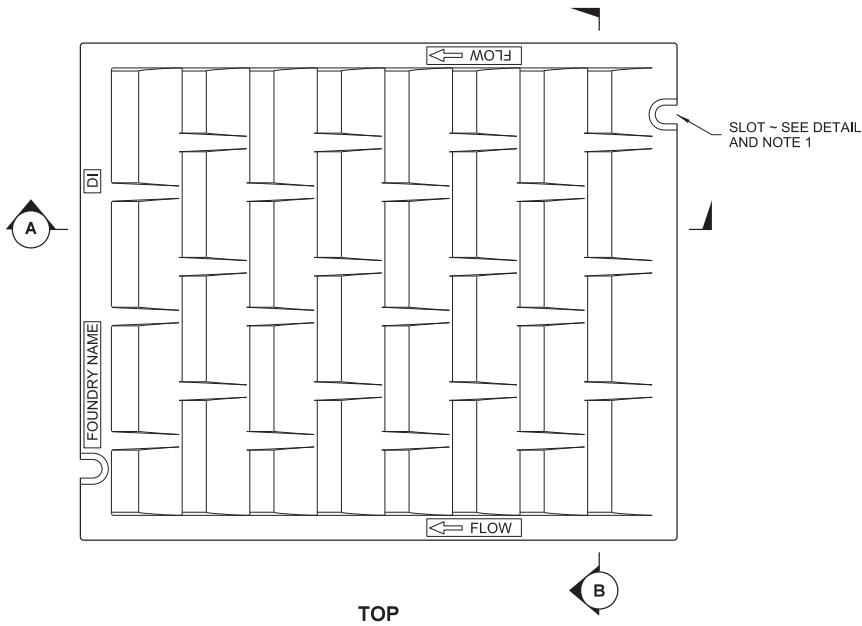
RECTANGULAR FRAME (REVERSIBLE) STANDARD PLAN B-30.10-03

SHEET 1 OF 1 SHEET

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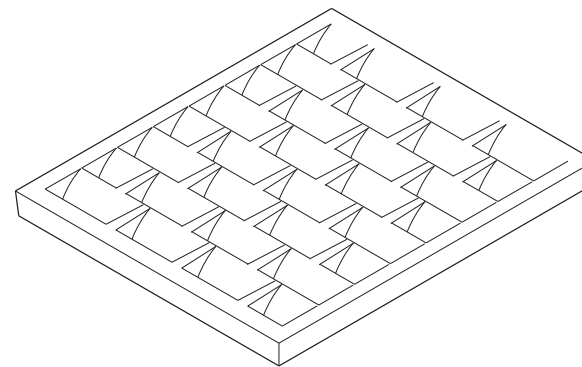
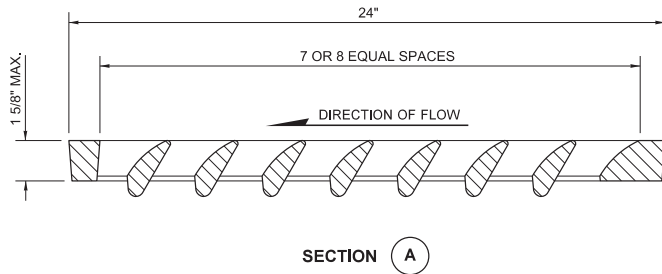
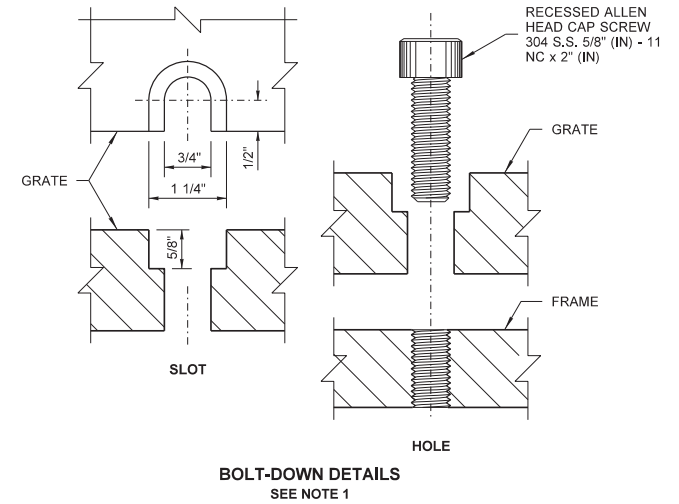
STATE DESIGN ENGINEER
Washington State Department of Transportation

DRAWN BY: FERN LIDDELL



NOTES

1. Bolt-down capability is required on all frames, grates, and covers, unless specified otherwise in the Contract. Provide 2 holes in the frame that are vertically aligned with the grate or cover slots. The frame shall accept the 304 Stainless Steel (S.S.) 5/8" (in) - 11 NC x 2" (in) allen head cap screw by being tapped, or other approved mechanism. Location of bolt-down holes varies by manufacturer.
2. Refer to **Standard Specification Section 9-05.15** and **9-05.15(2)** for additional requirements.
3. For frame details, see **Standard Plan B-30.10**.



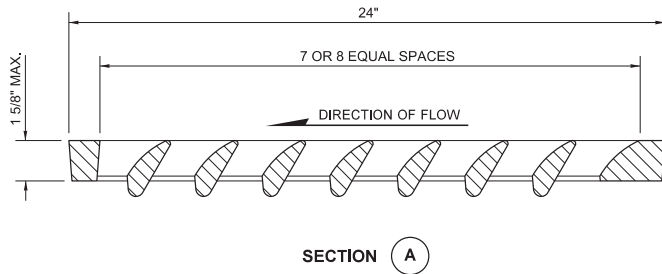
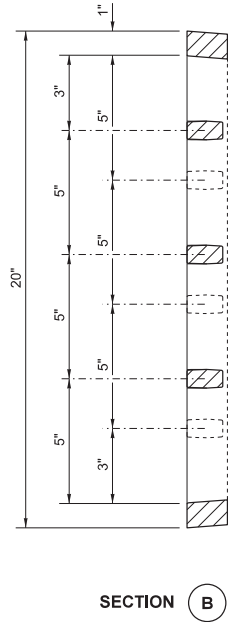
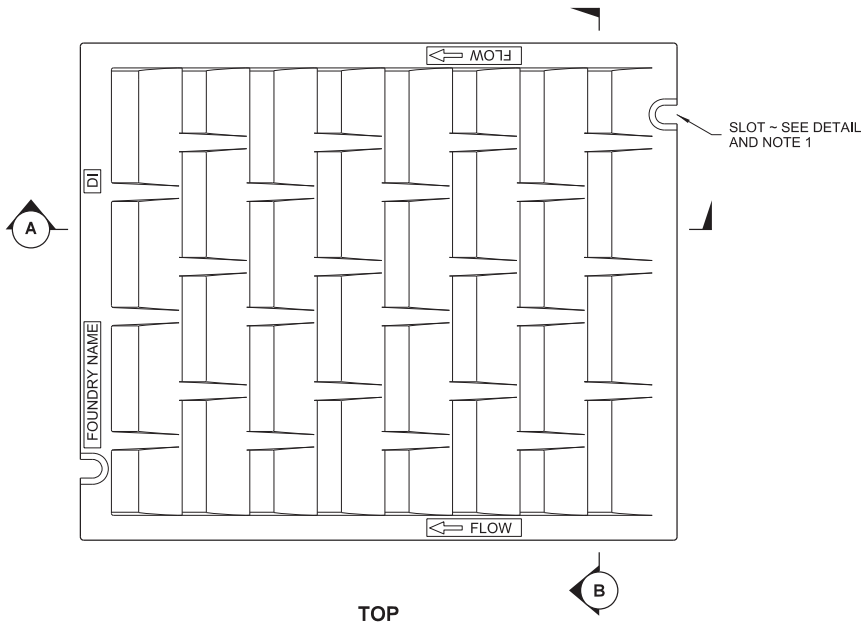
RECTANGULAR VANED GRATE STANDARD PLAN B-30.30-03

SHEET 1 OF 1 SHEET

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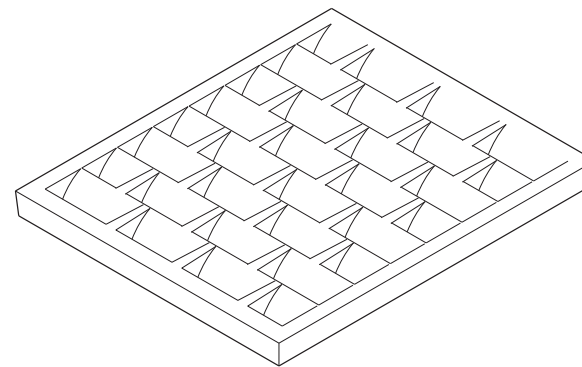
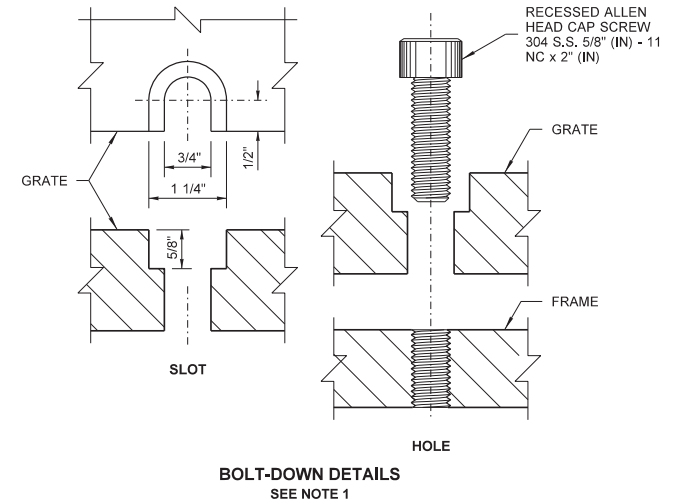
STATE DESIGN ENGINEER
Washington State Department of Transportation

DRAWN BY: FERN LIDDELL



NOTES

1. Bolt-down capability is required on all frames, grates, and covers, unless specified otherwise in the Contract. Provide 2 holes in the frame that are vertically aligned with the grate or cover slots. The frame shall accept the 304 Stainless Steel (S.S.) 5/8" (in) - 11 NC x 2" (in) allen head cap screw by being tapped, or other approved mechanism. Location of bolt-down holes varies by manufacturer.
2. Refer to **Standard Specification Section 9-05.15** and **9-05.15(2)** for additional requirements.
3. For frame details, see **Standard Plan B-30.10**.



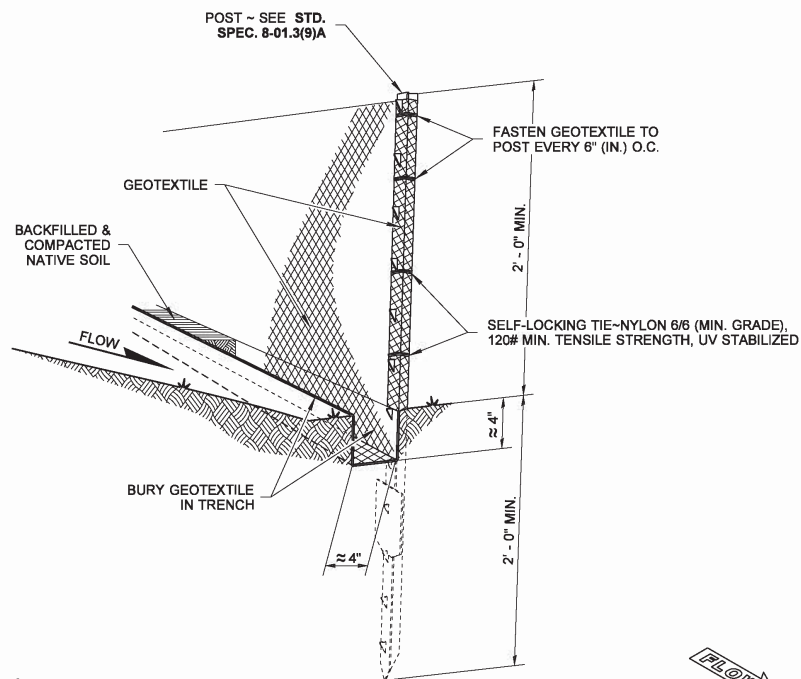
Julie Heilman
Heilman, Julie
Feb 20 2018 12:54 PM

RECTANGULAR VANED GRATE STANDARD PLAN B-30.30-03

SHEET 1 OF 1 SHEET

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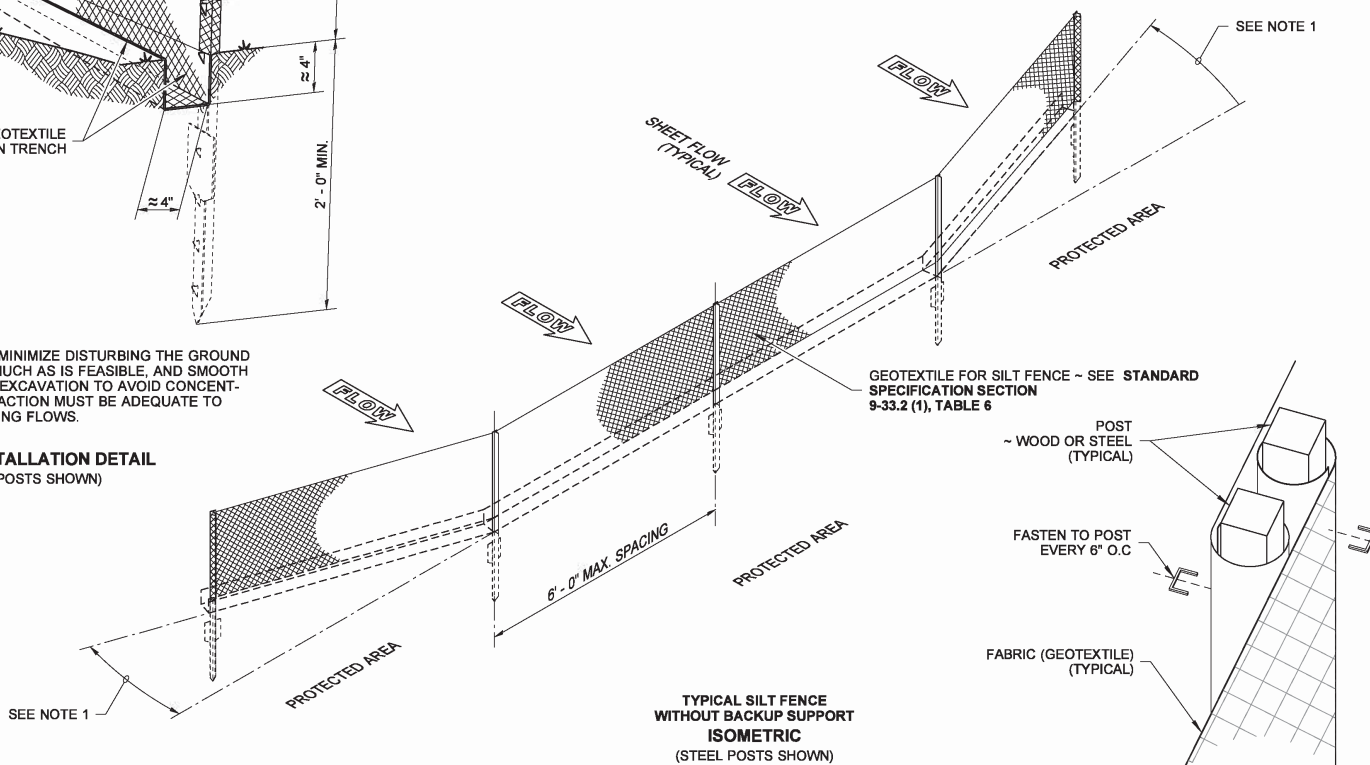
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Washington State Department of Transportation



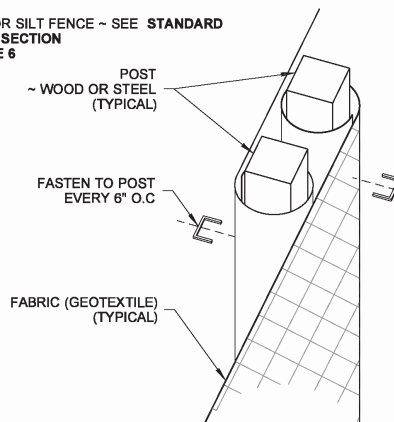
NOTE

DURING EXCAVATION, MINIMIZE DISTURBING THE GROUND AROUND TRENCH AS MUCH AS IS FEASIBLE, AND SMOOTH SURFACE FOLLOWING EXCAVATION TO AVOID CONCENTRATING FLOWS. COMPACTION MUST BE ADEQUATE TO PREVENT UNDERCUTTING FLOWS.

TYPICAL INSTALLATION DETAIL
(STEEL POSTS SHOWN)



TYPICAL SILT FENCE WITHOUT BACKUP SUPPORT ISOMETRIC
(STEEL POSTS SHOWN)



SPliced FENCE SECTIONS SHALL BE CLOSE ENOUGH TOGETHER TO PREVENT SILT LADEN WATER FROM ESCAPING THROUGH THE FENCE AT THE OVERLAP.

SPICE DETAIL
(WOOD POSTS SHOWN)

NOTES

1. Install the ends of the silt fence to point slightly upslope to prevent sediment from flowing around the ends of the fence.
2. Perform maintenance in accordance with **Standard Specifications 8-01.3(9)A and 8-01.3(15)**.
3. Splices shall never be placed in low spots or sump locations. If splices are located in low or sump areas, the fence may need to be reinstalled unless the Project Engineer approves the installation.
4. Install silt fencing parallel to mapped contour lines.



STATE OF
WASHINGTON
REGISTERED
LANDSCAPE ARCHITECT

SANDRA L. SALISBURY
CERTIFICATE NO. 000860

NOTE: THIS PLAN IS NOT A LEGAL ENGINEERING DOCUMENT BUT AN ELECTRONIC DUPLICATE. THE ORIGINAL, SIGNED BY THE ENGINEER AND APPROVED FOR PUBLICATION, IS KEPT ON FILE AT THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION. A COPY MAY BE OBTAINED UPON REQUEST.

SILT FENCE

STANDARD PLAN I-30.15-02

SHEET 1 OF 1 SHEET

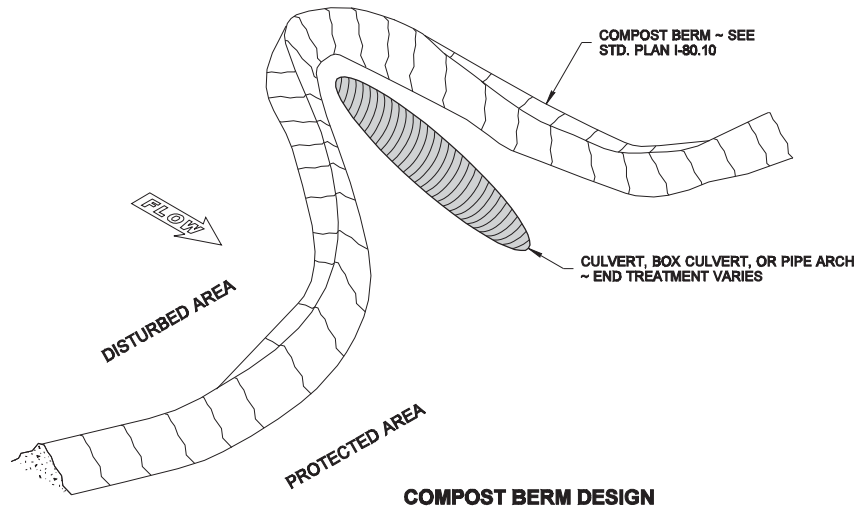
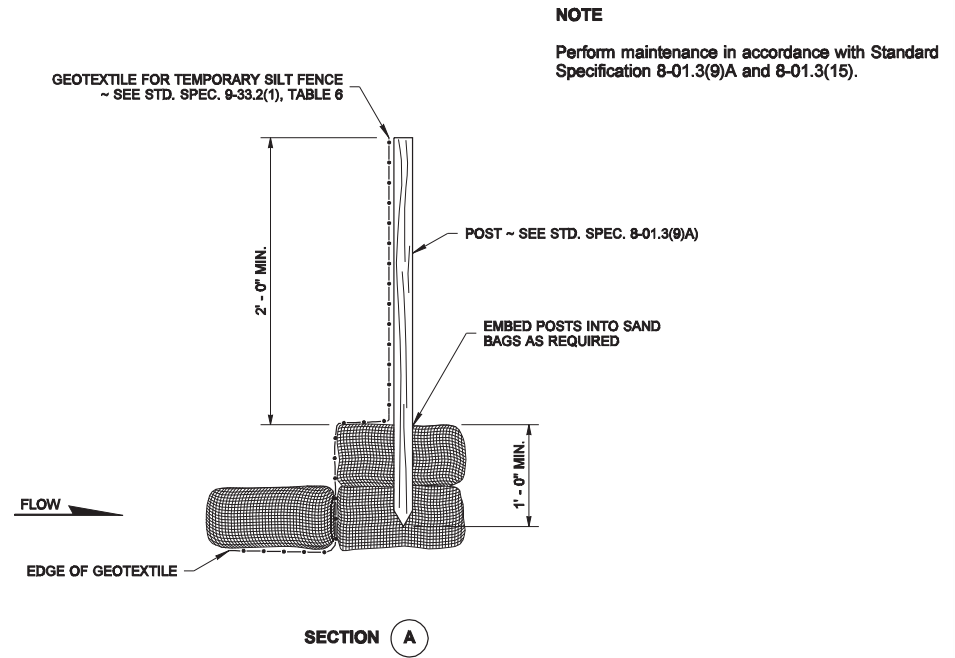
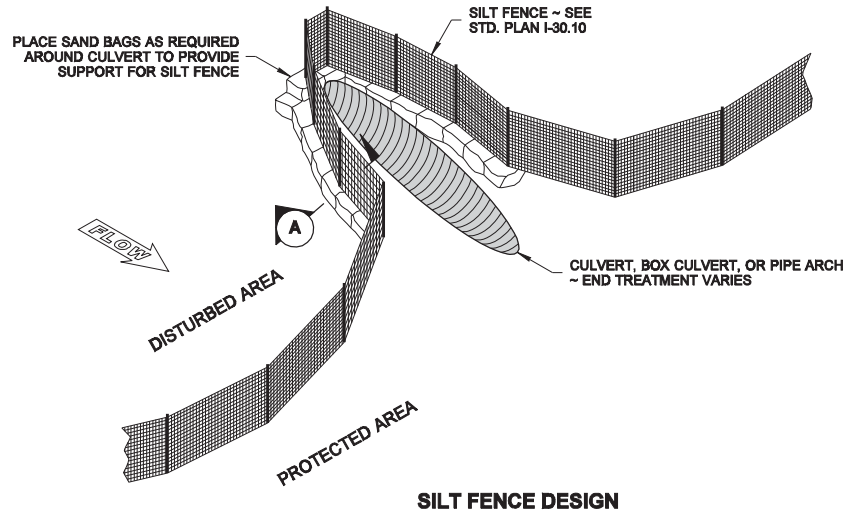
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Pasco Bakotich III 3/22/13

STATE DESIGN ENGINEER DATE



Washington State Department of Transportation



STATE OF
WASHINGTON
REGISTERED
LANDSCAPE ARCHITECT

MARK W. MAURER
CERTIFICATE NO. 000598

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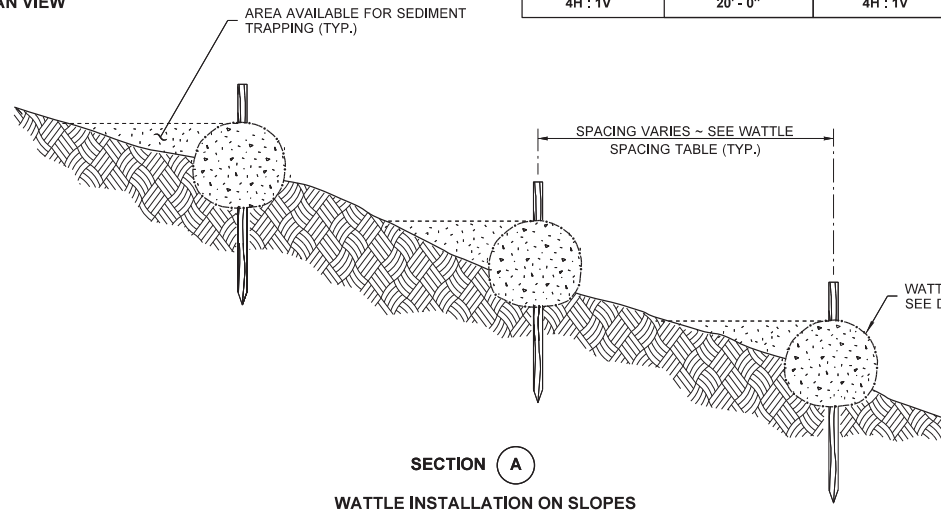
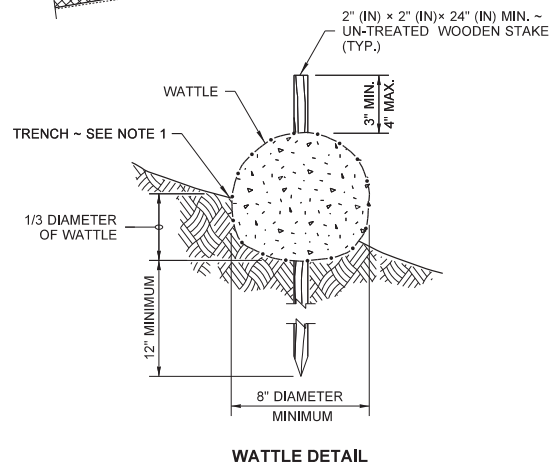
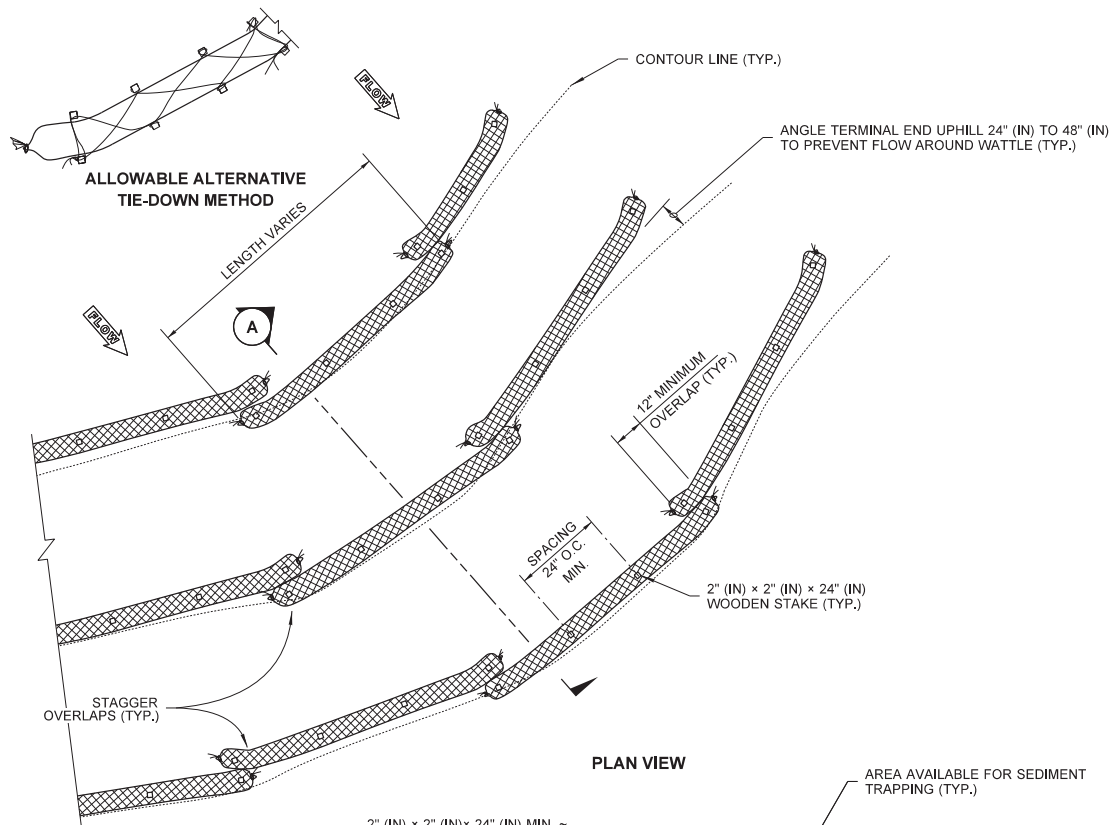
STANDARD PLAN I-30.20-00

SHEET 1 OF 1 SHEET

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Pasco Bakotich III **09-20-07**
STATE DESIGN ENGINEER DATE

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NOTES

1. Wattles shall be in accordance with **Standard Specification, Section 9-14.5(5)**. Install Wattles along contours. Installation shall be in accordance with **Standard Specification, Section 8-01.3(10)**.
2. Securely knot each end of Wattle. Overlap adjacent Wattle ends 12" (in) behind one another and securely tie together.
3. Compact excavated soil and trenches to prevent undercutting. Additional staking may be necessary to prevent undercutting.
4. Install Wattle perpendicular to flow along contours.
5. Wattles shall be inspected regularly, and immediately after a rainfall produces runoff, to ensure they remain thoroughly entrenched and in contact with the soil.
6. Perform maintenance in accordance with **Standard Specification, Section 8-01.3(15)**.
7. Refer to **Standard Specification, Section 8-01.3(16)** for removal.

WATTLE SPACING TABLE			
TEMPORARY		PERMANENT	
8" - 10" OR 10" - 12" DIAM.		10" - 12" DIAM.	
SLOPE	MAX. SPACING	SLOPE	MAX. SPACING
1H : 1V	5' - 0"	-	-
2H : 1V	10' - 0"	2H : 1V	5' - 0"
3H : 1V	15' - 0"	3H : 1V	10' - 0"
4H : 1V	20' - 0"	4H : 1V	15' - 0"



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WATTLE INSTALLATION ON SLOPE

STANDARD PLAN I-30.30-02

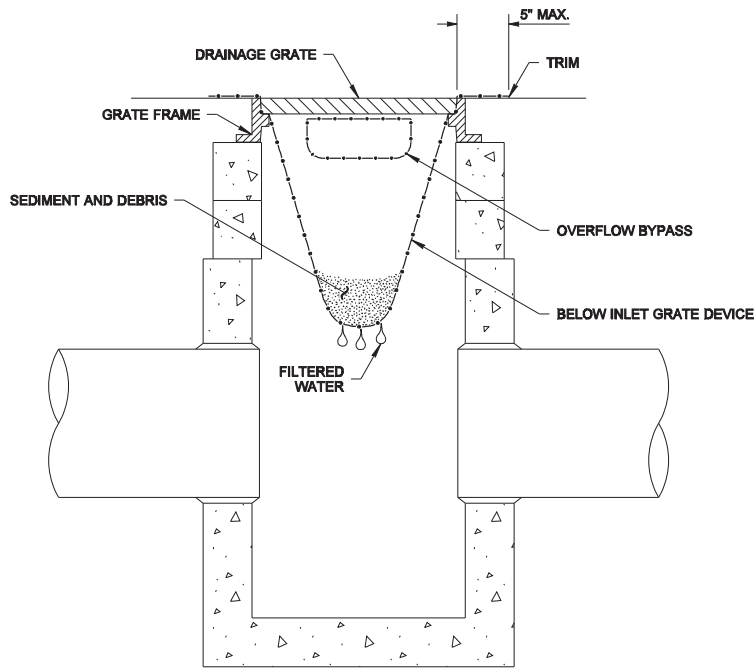
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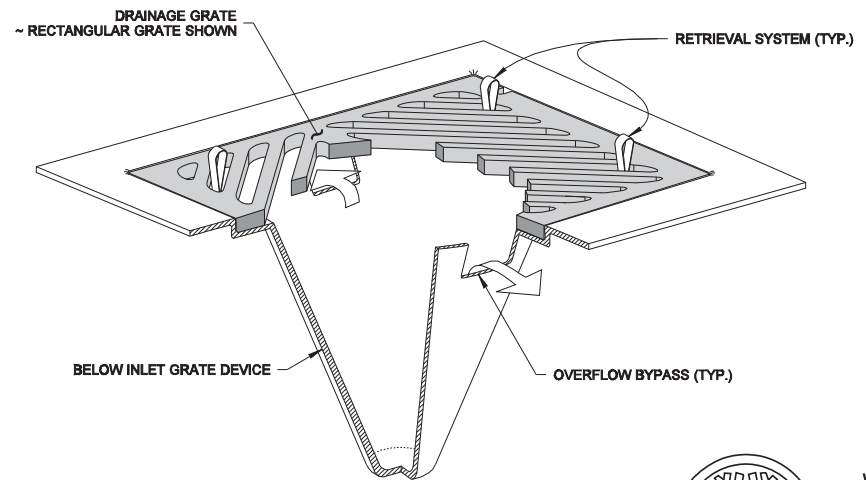
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STATE DESIGN ENGINEER

Washington State Department of Transportation



SECTION VIEW
NOT TO SCALE



ISOMETRIC VIEW

NOTES

1. Size the Below Inlet Grate Device (BIGD) for the storm water structure it will service.
2. The BIGD shall have a built-in high-flow relief system (overflow bypass).
3. The retrieval system must allow removal of the BIGD without spilling the collected material.
4. Perform maintenance in accordance with Standard Specification 8-01.3(15).



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**STORM DRAIN
INLET PROTECTION
STANDARD PLAN I-40.20-00**

SHEET 1 OF 1 SHEET

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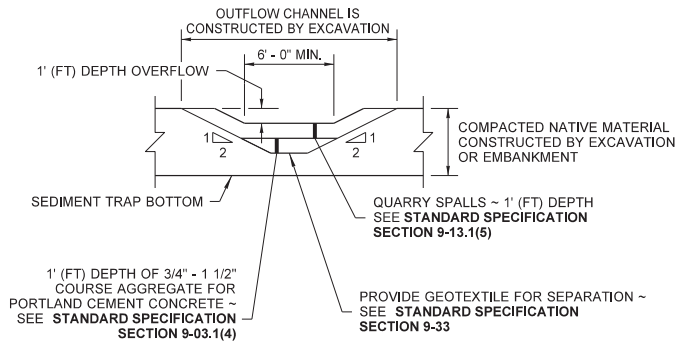
Pasco Bakotich III **09-20-07**

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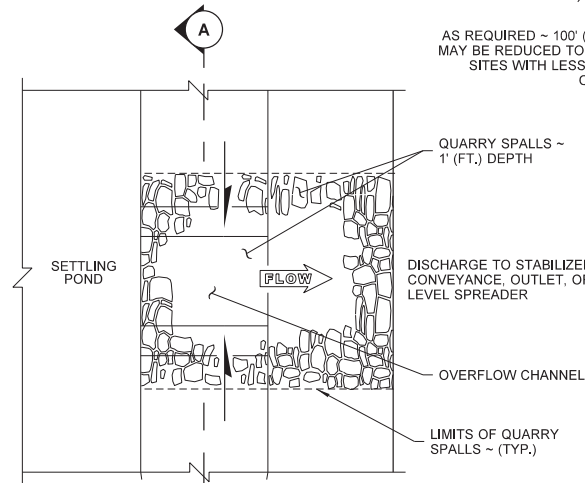
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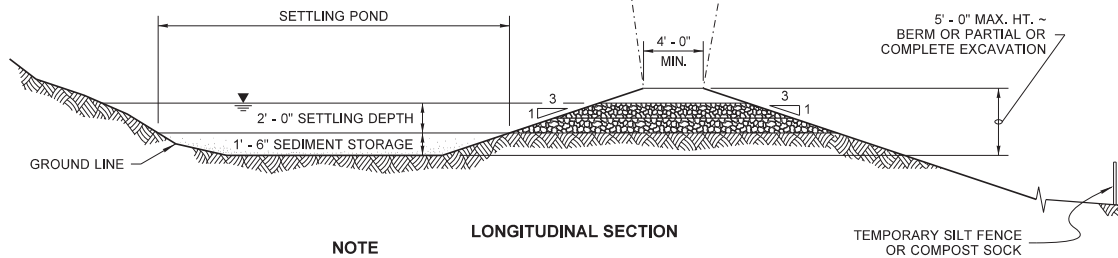
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SECTION A



PARTIAL PLAN VIEW OF BERM
SHOWN LARGER FOR CLARITY

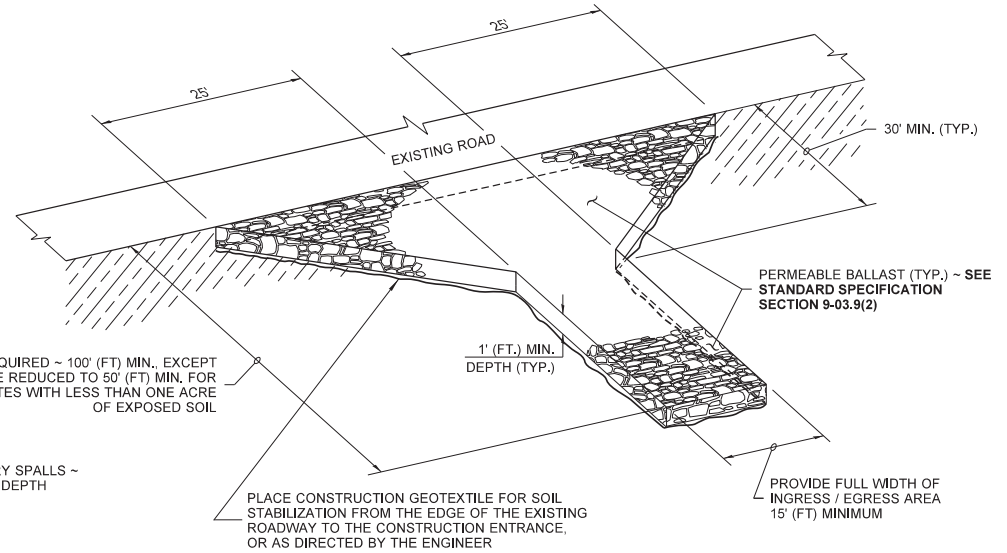


LONGITUDINAL SECTION

NOTE

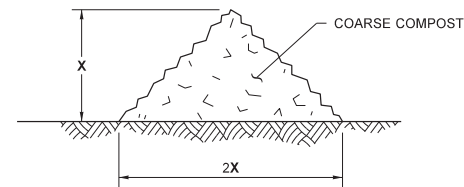
PLACE GEOTEXTILE UNDER THE SPILLWAY AND SIDE SLOPES, PROVIDE A CONTINUOUS LAYER BETWEEN THE GRAVEL/ROCK AND THE NATIVE EARTHEN MATERIAL.

TEMPORARY SEDIMENT TRAP



**ISOMETRIC VIEW
STABILIZED CONSTRUCTION ENTRANCE**

STABILIZED CONSTRUCTION ENTRANCE SHALL MEET THE REQUIREMENTS OF STANDARD SPECIFICATION SECTION 8-01.3(7).



X = 1' - 0" FOR SLOPES 4H:1V OR FLATTER
X = 1' - 6" FOR SLOPES STEEPER THAN 4H:1V

**TYPICAL SECTION
COMPOST BERM DETAIL**



STATE OF
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REGISTERED
LANDSCAPE ARCHITECT

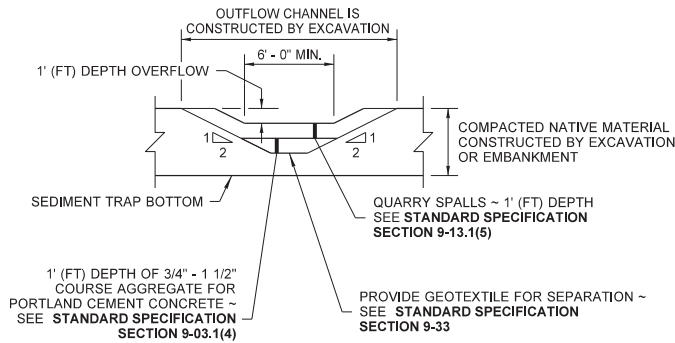
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**MISCELLANEOUS
EROSION CONTROL DETAILS
STANDARD PLAN I-80.10-02**

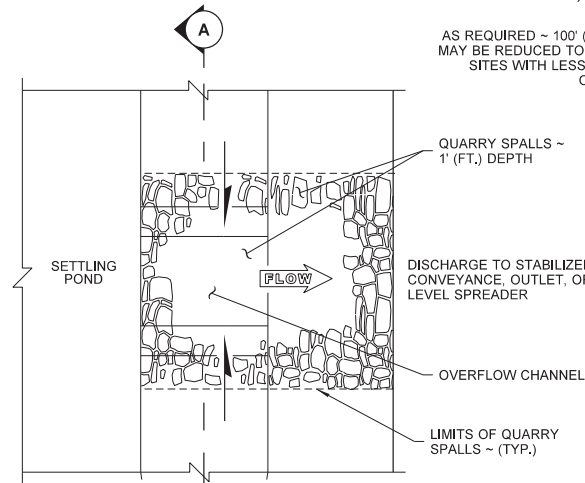
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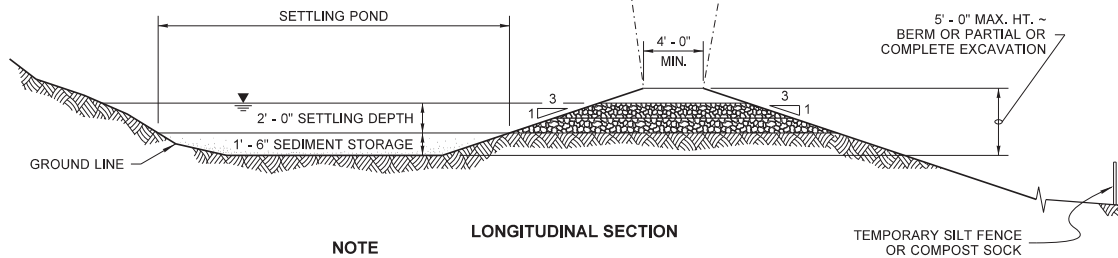
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Washington State Department of Transportation



SECTION A



PARTIAL PLAN VIEW OF BERM
SHOWN LARGER FOR CLARITY

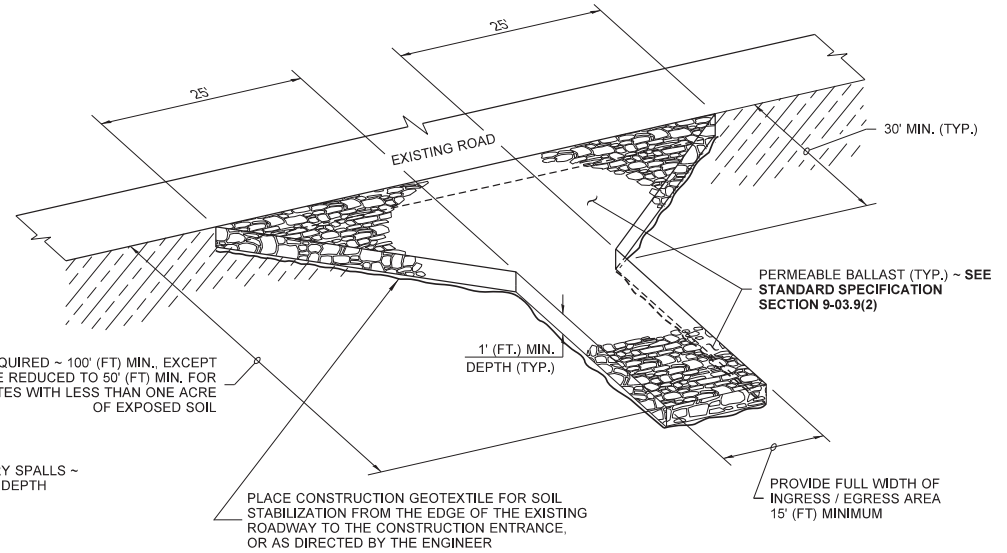


LONGITUDINAL SECTION

NOTE

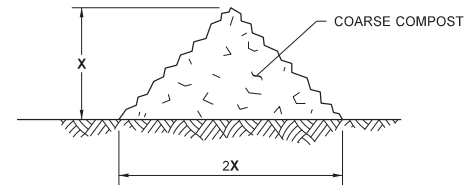
PLACE GEOTEXTILE UNDER THE SPILLWAY AND SIDE SLOPES, PROVIDE A CONTINUOUS LAYER BETWEEN THE GRAVEL/ROCK AND THE NATIVE EARTHEN MATERIAL.

TEMPORARY SEDIMENT TRAP



**ISOMETRIC VIEW
STABILIZED CONSTRUCTION ENTRANCE**

STABILIZED CONSTRUCTION ENTRANCE SHALL MEET THE REQUIREMENTS OF STANDARD SPECIFICATION SECTION 8-01.3(7).



X = 1' - 0" FOR SLOPES 4H:1V OR FLATTER
X = 1' - 6" FOR SLOPES STEEPER THAN 4H:1V

**TYPICAL SECTION
COMPOST BERM DETAIL**



**MISCELLANEOUS
EROSION CONTROL DETAILS
STANDARD PLAN I-80.10-02**

SHEET 1 OF 1 SHEET

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APPENDIX B

SUMMARY

OF

GEOTECHNICAL CONDITIONS

Geotechnical Engineering Services Report

Central Treatment Plant Portland Avenue
Sewer Crossing
Tacoma, Washington

for
KPG

December 18, 2020



GEOENGINEERS 
Earth Science + Technology

Geotechnical Engineering Services Report

Central Treatment Plant Portland Avenue
Sewer Crossing
Tacoma, Washington

for
KPG

December 18, 2020



1101 South Fawcett Avenue, Suite 200
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Geotechnical Engineering Services Report
Central Treatment Plant Portland Avenue
Sewer Crossing
Tacoma, Washington

File No. 0570-174-00

December 18, 2020

Prepared for:

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Attention: Nathan Mozer, PE

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12/18/2020

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1.0 INTRODUCTION AND PROJECT UNDERSTANDING

This report presents the results of our geotechnical engineering services for the City of Tacoma Central Treatment Plant Portland Avenue Sewer Crossing project. The project site is located at the City of Tacoma Central Treatment Plant about 500 feet southeast of the East River Street and Portland Avenue East intersection. A Vicinity Map is provided as Figure 1. Our understanding of the project is based on our discussions with KPG and our experience in the area.

We understand that the City of Tacoma intends to install a new 12-inch-diameter sewer main below Portland Avenue. The sewer main will be about 250 to 300 feet long oriented approximately northeast-southwest. The southwest end of the pipe will be located to the south of the existing City of Tacoma decant facility and will service an existing vacuum truck dump station. The northeast end of the pipe will be located within the Central Treatment Plant facility near the existing Influent Pump Station Building. The approximate alignment of the new sewer pipe is shown on the Site Plan, Figure 2. We understand that the invert elevation of the pipe will likely be between Elevation 0 and Elevation +6 feet (NGVD29). The new sewer line will likely be installed using trenchless methods; however, an open trench installation is also being considered. It is anticipated that temporary shoring and dewatering will be required to install the pipe. Temporary shoring and dewatering systems will be designed by the bidding contractor. GeoEngineers is also providing environmental services for this project to characterize the soil and groundwater at the site for disposal during construction. The results of our environmental services will be provided in a separate deliverable.

2.0 PURPOSE AND SCOPE OF SERVICES

The purpose of our services was to explore subsurface conditions at the site as a basis for providing geotechnical design and construction recommendations. Our services have been completed in accordance with our signed agreement for this project dated October 19, 2020. Our specific scope of services is provided in our proposal dated June 16, 2020.

3.0 SITE CONDITIONS

3.1. Geologic Setting

The project site is on the delta formed at the mouth of the Puyallup River near its entrance to Commencement Bay. The delta is formed by recent alluvial sediments deposited over older glacially consolidated sediments. Glacially consolidated sediments are present below the recent Puyallup delta deposits at depths of about 100 to 400 feet. Bedrock depth has been estimated at about 1,700 feet.

As part of the growth of Tacoma and the Port of Tacoma, much of the Puyallup River delta was filled and developed to establish useable upland. The Puyallup River, which is located adjacent to the site was channelized to facilitate development and control flooding. Based on review of geologic maps, soils designated as either Artificial Fill (af) or Modified Land (Qml) underlie the project site. Review of historic navigation charts indicates that this area was first filled before 1948. Alluvial soils within the Puyallup River delta are generally described as poorly sorted sand and gravel with varying silt and clay content and occasional zones of peat and organics.

3.2. Surface Conditions

The southwest end of the proposed sewer pipe alignment is located near an existing vacuum truck dump station which is access via Cleveland Way. Site features in this area include asphalt pavements, a stormwater detention facility and the City of Tacoma decant facility, which is north of the vacuum-truck pump station.

The northeast end of the proposed sewer pipe alignment is located within the water treatment plant and is near the existing influent pump station building. Existing site features in this area include the asphalt pavements, landscaped areas and the infrastructure associated with the influent pump station.

The proposed alignment the sewer pipe will be located below Portland Avenue, which is elevated on an earthen embankment, and a former railroad alignment. The roadway embankment is about 5 to 10 feet higher than the ground surface elevation at the sewer pipe endpoints. Portland Avenue is a 4-lane asphalt paved roadway with a center turn lane and concrete sidewalks and is a primary accessway to the Port of Tacoma. We understand that the railroad right-of-way is now owned by the City of Tacoma and the railroad tracks were recently removed.

3.3. Subsurface Explorations and Laboratory Testing

Our understanding of subsurface conditions at the site is based on conditions observed in two borings (MW-1 and MW-2) advanced for this project and our experience in the project vicinity. The approximate locations of the explorations completed for this study are shown on Figure 2. Our borings were advanced to about 31.5 feet below ground surface (bgs) and monitoring wells were installed in the borings after completion. Details regarding the subsurface exploration program including summary logs of the exploration are provided in Appendix A.

Selected samples from our exploration were tested to evaluate engineering properties and to confirm or modify field classifications. Our testing program consisted of grain-size analyses and percent fines determinations. Details and the results of our laboratory testing program are provided in Appendix B.

3.4. Soil and Groundwater Conditions

3.4.1. Soil Conditions

We observed what we interpret to be two soil units in our explorations, fill and natural alluvial soils. MW-1 was advanced in an area surfaced with asphalt, which was on the order of 2 inches thick and was underlain by about 2 inches of base course. Below the pavement section we observed fill extending to approximately 10 feet bgs underlain by alluvial soils extending to the full depth explored, about 31.5 feet bgs. MW-2 was advanced within an area surfaced with gravel. Below the gravel, we observed about 9 feet of fill underlain by natural alluvial soil. A description of the soil types encountered within each unit are summarized below.

- Fill – Dense to medium dense silty gravel, silty sand with occasional gravel and medium stiff silt with sand.
- Alluvial Soil – Very loose to medium dense sand with variable silt content, silty sand and medium stiff silt with sand.

3.4.2. Groundwater Conditions

Our understanding of groundwater conditions at the site is based on groundwater observations at the time of drilling, subsequent groundwater measurements in the monitoring wells and data collected from a pressure transducer installed in MW-1. The table below summarizes groundwater measurements made in the monitoring wells. Figure 3 provides a plot of groundwater levels in MW-1 between November 11, 2020 and November 18, 2020. The pressure transducer in MW-1 is still in place and additional groundwater data can be collected from the transducer, if requested. These types of transducers can operate for about a year in the field before they need replacement.

TABLE 1. GROUNDWATER MEASUREMENT SUMMARY

Exploration	Ground Surface Elevation ¹ (feet)	Date	Approximate Depth to Groundwater (feet)	Approximate Groundwater Elevation ¹ (feet)	Notes
MW-1	12	10/26/20	10	2	At time of drilling
MW-1	12	10/27/20	11	1	At time of well development
MW-1	12	10/29/20	12	0	At time of groundwater sampling
MW-1	12	11/18/20	9.9	2.1	At time of pressure transducer download
MW-2	10	10/26/20	9	1	At time of drilling
MW-2	10	10/27/20	9	1	At time of well development
MW-2	10	10/29/20	>15 ²	N.A. ²	Groundwater not observed in well.
MW-2	10	11/18/20	10	0	-

Notes:

¹ Elevations Referenced to NGVD29

² Groundwater not observed within well, which extends 15 feet below ground surface

Based on the groundwater data collected in our monitoring wells, we expect that wet soils and groundwater will be encountered starting around 9 feet below existing site grades. Groundwater was not observed in MW-2 a few days after the well was developed; however, within a few weeks of well development groundwater had collected in the well.

Groundwater levels are expected to fluctuate throughout the year, typically being highest during the winter and spring months. Groundwater levels can be influenced by precipitation events and fluctuations in water levels within the Puyallup River. Water levels in the Puyallup River can fluctuate based on tide levels in Commencement Bay and the cyclical fluctuations of the groundwater elevations shown on Figure 3 suggest that groundwater levels at the site may also be tidally influenced.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1. Temporary Shoring and Dewatering

4.1.1. General

Construction of sewer structures and the launching/receiving pits for trenchless sewer installation will require excavation below existing grade and could require excavation below the groundwater table. Shallow excavations, less than about 3 or 4 feet deep can likely be completed without the use of temporary shoring or dewatering; however, areas of sloughing and perched groundwater seepage could occur. We expect that completing the deeper excavations envisioned for this project as temporary cut slopes or without the use of shoring will not be feasible due to site constraints. If excavations will extend below the static groundwater level, we anticipate that a combined shoring and dewatering system will be needed to construct the proposed improvements.

Excavation, shoring, and dewatering are interrelated; the design and implementation of these elements must be coordinated and must consider the over-all construction staging to ensure a consistent and compatible approach. We recommend that the contractor performing the work be made responsible for designing and installing construction shoring and for controlling and collecting groundwater encountered. The contract documents must specify that the contractor is responsible for selecting excavation and dewatering methods, monitoring the excavations for safety, and providing shoring, as required, to protect personnel and structures. We recommend that all shoring be designed to accommodate at least 1 foot of overexcavation of the subgrade. Excavation, shoring and dewatering systems must be designed by a qualified engineer in accordance with Washington State Department of Transportation (WSDOT) Standard Specifications Section 2-09.3(3) D "Shoring and Cofferdams." We recommend that we be retained to review the proposed shoring and dewatering plan before construction.

All excavations deeper than 4 feet must be shored or laid back at a stable slope if workers are required to enter the excavation. Shoring and temporary slope inclinations must conform to the provisions of Title 296 WAC, Part N, "Excavation, Trenching and Shoring." Regardless of the soil type encountered in the excavation, shoring, trench boxes or sloped sidewalls will be required under WISHA if an excavation is deeper than 4 feet.

4.1.2. Excavation Shoring

4.1.2.1. Anticipated Shoring Approach

There are two general methods for providing worker protection for temporary excavations: (1) passive shield systems, and (2) positive shoring systems. Shields are systems such as trench boxes that are placed in an excavation to protect workers from cave-ins. Positive shoring systems are structures that are designed to provide lateral support to the sides of the excavation and prevent cave-ins.

With shield systems, the excavation is completed before the shield is in place and the shield is removed before the excavation is backfilled. The excavation sides are unsupported and can be prone to sloughing during construction. Even if the sides of the excavation do not slough, the sidewalls may squeeze and move laterally towards the trench. The potential for movement is typically limited to areas directly adjacent to the excavation within a distance equal to the depth of the excavation. **We recommend that trench boxes or other passive shield systems only be allowed where there are no settlement-sensitive structures or utilities adjacent to the excavation within a distance equal to 1.25 times the excavation depth.**

Positive shoring systems such as sheet piles could be used to support the walls of the temporary excavations. A sheet pile shoring system will provide the advantage of cutting off some of the groundwater flow into the excavation reducing the amount of dewatering that is required. Slide-rail shoring systems are not considered a positive shoring system as the bottom of the excavation must often be over cut to advance the system, and installation of this type of system would likely require first dewatering in order to install the shoring below the static groundwater level.

4.1.2.2. Preliminary Shoring Design Recommendations

The soil pressures against a shoring wall are dependent on the type of wall, the soil retained, the method of construction, and the extent of dewatering. For preliminary budgeting and planning purposes, we suggest that loads against a shoring system be estimated using the soil properties in Table 2 below. These values are based on conditions encountered in the explorations completed for this project, review of other explorations completed at the site and our experience. These values are for preliminary planning purposes. Soil and water pressures used in final design must be determined by a qualified engineer and be based on the specific shoring system that will be constructed. The shoring designer must also confirm that the soil conditions observed during construction are consistent with the soil conditions assumed during design.

TABLE 2. PRELIMINARY SOIL PARAMETERS FOR SHORING

Soil Type¹	Friction Angle (degrees)	Cohesion (psf)	Total Moist Unit Weight (pcf)
Fill	30 – 34	0	120
Alluvium	28 – 32	0	120

Notes:

¹ See boring log for description of soil types and approximate locations.

psf – pounds per square foot.

pcf – pounds per cubic foot.

Shoring systems should be designed to withstand anticipated surcharge loads from construction equipment, traffic, soil stockpiles or other sources. Construction surcharge loads should be evaluated on a case-by-case basis. At a minimum, we recommend that a construction surcharged load equal to 250 Pound per square foot (psf) surface load be included in shoring design.

We recommend that all shoring be designed to limit lateral deflections to no more than 2 inches. Tighter tolerances could be required adjacent to movement sensitive improvements such as structures and utilities. The shoring monitoring plan must include establishing monitoring points on the shoring and on adjacent structures. The shoring designer must determine what level of movement is acceptable for the shoring during construction and the appropriate tolerances and action levels. Unless otherwise stated in writing, the contractor should assume that no measurable movement (within standard survey tolerances) of adjacent structures is permitted.

4.1.3. Dewatering

4.1.3.1. General

We understand that excavation depths in excess of 10 feet below existing grade may be necessary to install the sewer pipe and launching/receiving pits. We recommend that average static groundwater levels be considered at a minimum of 9 feet below existing grade for design. We also recommend that shoring designers consider contingencies for the possibility of a 2-foot increase over the average to account for

variations due to precipitation. Areas of perched water seepage could occur above the static groundwater level.

Provided the base of excavations are 2 to 3 feet above the static groundwater level, we expect that groundwater seepage from perched layers can be handled adequately with sumps, pumps, and/or diversion ditches, as necessary. If excavations take place during the winter and spring months, when groundwater levels are expected to be highest, or if excavations are to extend below the observed static groundwater level, dewatering with wells will likely be necessary to complete the excavations.

There are generally two ways to approach a combined shoring and dewatering system. The dewatering system can either be open to the surrounding groundwater table or localized to the excavation. In the case of an open dewatering system, the groundwater is drawn down over a large area and the shoring system retains primarily unsaturated soil. In the case of a localized dewatering system, the groundwater is only significantly lowered within the limits of the excavation and the shoring system must retain both the saturated soil and the hydrostatic pressure from the surrounding groundwater.

Localized dewatering systems require a relatively watertight shoring system (sheet piles) that extend below the base of the excavation to either fully or partially cutoff groundwater flow. By partially cutting off groundwater flow, the majority of inflow into the excavation is limited to the seepage that enters through the base of the excavation. A localized dewatering system creates an imbalance in the hydrostatic pressures inside to outside of the excavation and can result in “quick” or boiling sand conditions in the excavation base. This condition must be considered in the design. Methods to counteract this include: (1) extending the sheets further below the base of the excavation to reduce the groundwater gradient or (2) installing deeper dewatering wells in the interior of the excavation to relieve excess water pressure.

Heave of the excavation subgrade must also be considered in the design. This condition is more prone to occur with braced sheet pile shoring in silt deposits but could also occur under other conditions as well. Heave may be more pronounced if a less permeable stratum is underlain by a more permeable stratum (e.g., silt or silty sand over sand) near the anticipated bottom of excavation.

We recommend the contractor be made responsible for designing and installing appropriate dewatering systems needed to complete the work. The contractor must obtain discharge permits from regulatory agencies, if necessary.

4.1.3.2. Preliminary Dewatering Design Parameters

The table below summarizes the saturated hydraulic conductivity values for use in estimating dewatering volumes and flow rates. These values are based on correlations with grain-size analysis (Massman 2003) and are approximate. We did not complete field testing to evaluate soil hydraulic conductivity.

TABLE 3. PRELIMINARY HYDRAULIC CONDUCTIVITY SUMMARY

Geologic Unit	Typical USCS Soil Type	Modeled Hydraulic Conductivity (ft/day)
Fill	SM, GM	7.0 To 20
Alluvium	SP, SP-SM	50 to 100
Alluvium	SP-SM, SM	7.0 to 40
Alluvium	ML	1.0 to 5.0

We recommend that a range of permeability values be considered for any dewatering analysis. We also recommend analyses consider combinations of high and low permeability when evaluating the potential for heave and piping. These values are preliminary and for budgeting purposes. If more accurate estimates of dewatering flows are critical to the safety and function of the proposed shoring and dewatering system, we recommend that a full-scale pumping test be performed at the site prior to the start of excavation.

4.1.3.3. Settlement of Structures and Utilities

Lowering the groundwater table during dewatering operations increases the effective stress levels in soils at and below the existing groundwater table where it is lowered. This increase in stress can result in settlements of nearby structures and utilities where soft and compressible soils are present at or near the water table. We anticipate that settlement associated with dewatering within the primarily sand and gravel soils will be relatively minor and may not be detected at the ground surface. A higher magnitude of settlement could occur within the primarily fine-grained alluvial soils. The dewatering design should consider the impacts of lowering the groundwater level within fine-grained alluvial soils.

4.2. Trenchless Construction

4.2.1. General

Trenchless construction methods are proposed to install the 250- to 300-foot long section of sewer pipe below Portland Avenue. The approximate alignment of the trenchless sewer segment is shown on Figure 2. We expect that the trenchless construction will consist of constructing temporary launching and receiving shafts at either end of the alignment and advancing a steel conductor casing through which the 12-inch diameter sewer line will be installed.

In our opinion, several trenchless construction methods could be used to install the conductor casing. These include conventional bore and jack methods, pipe ramming, or combination approaches. The contractor should have the option to select and employ the method most appropriate to their experience in this area, and the geotechnical conditions expected for the trenchless segment. The presence of existing structures above or adjacent to the trenchless alignment may limit feasible construction methods.

Based on our explorations and our understanding of the site geology we expect the trenchless segment will be advanced through fill and alluvial soils. Fill soils are expected to consist primarily of sand and gravel soils with variable silt content. Alluvial soils are expected to consist of primarily sand, silty sand and silt soils. We expect that soils above groundwater will generally behave as Rapid Raveling soil based on the Tunnelman's Ground Classification. Where below groundwater we expect alluvial soils will behave as Rapid Raveling or Flowing. Some of the alluvial soils observed in our explorations consisted of relatively clean fine to medium sand. These soil types will be more prone to flowing conditions if encountered below the groundwater table.

We did not observe cobbles or boulders in our explorations and based on our experience in the area, it is our opinion there is a relatively low risk of encountering these materials within the alluvial soils at the site. Alluvial soils in the area can contain wood debris including logs, as well as peat soils. Additionally, fill deposits can contain oversized particles including cobbles, boulders, and debris. We recommend that the contractor be prepared to address the possibility of encountering wood, debris, peat soils, and oversized particles in their submittal of tooling and trenchless construction plan.

4.2.2. Estimated Jacking Forces

We estimated pipe jacking forces based on methods outlined in “Jacking Loads Associated with Microtunnelling” Bennett and Cording 1999. These forces only include side friction resistance, not resistance from face pressures. The face pressure is dependent on the excavation methods used and the advance rate. The face pressure component should be evaluated by the contractor based on their intended method of advancing the tunnels.

We have based our estimates on a casing diameter of 14 inches. We have assumed that the pipe will be lubricated with an appropriate bentonite or polymer slurry and that dewatering will be limited to the areas around the launching and receiving pits. The contractor must evaluate the jacking forces based on their specific plan and approach and their proposed means and methods.

Based on these conditions we calculate that an approximately 300-foot long trenchless segment will have jacking forces on the order of 10 to 17 tons. The ranges provided are based on the recommended “Best Fit” and “Upper Bound” correlations and include a 30 percent increase to account for setup during delays, steering corrections, and misalignment.

To reduce the potential for wall buckling, we recommend that the conductor casing have a minimum wall thickness of around 0.25 inch. The values provided for the jacking forces and pipe sizes are based on minimum specified dimensions and a typical driving system. The contractor must evaluate their specific system and confirm that the pipe sizes are appropriate for the installation methods they are proposing. **We recommend that we be retained to review the proposed trenchless construction plan before construction to confirm that it is in accordance with plans and specifications.**

4.2.3. Settlement

Systematic settlement is settlement attributed to the removal of soil in excess of the volume required for the pipe installation (i.e., the overcut). Systematic settlement is estimated using a normal probability curve and is a function of the material type, the design overcut, and the depth of the installation.

We estimate that for a 14-inch-diameter conductor casing with a 0.5- to 1-inch overcut, ground surface settlement at the pipe location could be on the order of 0.25 inches. This is based on the conductor casing being installed 10 feet bgs. Settlement is expected to be less in areas where the pipe is embedded deeper below the ground surface, such as below the Portland Avenue roadway embankment. Research by Bennett and Cording indicates that observed settlement at the ground surface is typically on the order of one-half of the settlement calculated using these techniques.

These estimates are based on the soil volume lost as a result of the design overcut and a 14-inch diameter pipe. Significant additional settlement can also occur due to poor tunneling or construction practices resulting in additional overcut or over-mining. To reduce the potential for over-mining, the tunneling operation must excavate material and move forward at appropriate, corresponding rates. Over-mining could occur potentially resulting in large surface settlements. Furthermore, groundwater must be managed appropriate to the construction method employed in order to prevent sandy soil from piping into the face of the tunnel.

Where long-term surface settlements (surface settlements that could develop after construction) are a concern, we recommend that the overcut annulus be grouted. We expect that this could be attempted by using the pipe lubrication ports on the conductor casing.

4.2.4. Monitoring

The tunneling operation should be monitored continuously so that soil conditions and the performance of the installation plan can be confirmed. At a minimum items noted during monitoring should include: (1) time to install each pipe segment; (2) spoil volumes (per pipe length); (3) observed soil conditions including occurrences of unstable soils and estimated groundwater inflow rates, if any; (4) jacking forces and torque; (5) line and grade deviations and adjustments to maintain line and grade; (6) any movement of the guidance system; (7) surface settlements and location of settlement markers; (8) volume and location of lubricant pumped (if used); (9) problems encountered; and (10) durations and reasons for delays.

These items should be recorded and reported by the contractor to the engineer. We recommend that we be retained to provide independent confirmation of the observed construction conditions.

4.3. Earthwork Considerations

4.3.1. Temporary Erosion and Sedimentation Control

Erosion and sedimentation rates and quantities can be influenced by construction methods, slope length and gradient, amount of soil exposed and/or disturbed, soil type, construction sequencing and weather. Implementing an Erosion and Sedimentation Control Plan will reduce the project impact on erosion-prone areas. The Plan should be designed in accordance with applicable city, county, and state standards. The Plan should incorporate basic planning principles, including:

- Scheduling grading and construction to reduce soil exposure;
- Re-vegetating or mulching denuded areas;
- Directing runoff away from exposed soils;
- Reducing the length and steepness of slopes with exposed soils;
- Decreasing runoff velocities;
- Preparing drainage ways and outlets to handle concentrated or increased runoff;
- Confining sediment to the project site;
- Inspecting and maintaining control measures frequently.
- Some sloughing and raveling of exposed or disturbed soil on slopes should be expected. We recommend disturbed soil be restored promptly so surface runoff does not become channeled.

Temporary erosion protection should be used and maintained in areas with exposed or disturbed soils to help reduce erosion and reduce transport of sediment to adjacent areas and receiving waters. Permanent erosion protection should be provided by paving, structure construction or landscape planting.

Until permanent erosion protection is established and the site is stabilized, site monitoring may be required by qualified personnel to evaluate the effectiveness of the temporary erosion control measures and to

repair and/or modify them as appropriate. Provisions for modifications to the erosion control system based on monitoring observations should be included in the Erosion and Sedimentation Control Plan.

4.3.2. Subgrade Preparation

Subgrades that will support below-grade structures should be compacted in place to a firm and unyielding condition prior to construction of the structure. Excessive compaction effort on the subgrade, especially if the elevation of the subgrade is below the static groundwater level or within alluvial soils, should be avoided to limit subgrade disturbance. If soft or otherwise unsuitable areas are exposed and cannot be compacted to a stable and uniformly firm condition the following options may be considered: (1) the unsuitable soils should be overexcavated and replaced with compacted structural fill, as needed; or (2) a layer of quarry spalls be pushed into the subgrade to create a firm surface and a non-woven geotextile separation fabric be placed across the quarry spalls prior to placement of structural backfill or construction of structure.

Subgrades that will support pavements should be thoroughly compacted to a uniformly firm and unyielding condition on completion of stripping and before placing structural fill or constructing the pavement section. We recommend that subgrades for pavements be evaluated, as appropriate, to identify areas of yielding or soft soil. Probing with a steel probe rod or proof-rolling with a heavy piece of wheeled construction equipment are appropriate methods of evaluation. If soft or otherwise unsuitable pavement subgrade areas are revealed during evaluation that cannot be compacted to a stable and uniformly firm condition, we recommend that: (1) the unsuitable soils be scarified (e.g., with a ripper or farmer's disc), aerated and recompacted, if practical; or (2) the unsuitable soils be removed and replaced with compacted structural fill, as needed.

4.3.3. Fill Materials

4.3.3.1. Structural Fill

The workability of material used as structural fill and trench backfill will depend on the gradation and moisture content of the soil. Backfill used in trenches and over utilities must be free of debris, organic material and rock fragments larger than 6 inches. Generally, we recommend that structural fill and trench backfill material consist of material similar to "Select Borrow" or "Gravel Borrow" as described in Section 9-03.14 of the WSDOT Standard Specifications. If backfill is placed in submerged conditions, backfill should consist of permeable ballast (WSDOT Specification 9-03.9 (2)) or quarry spalls (WSDOT Specification 9-13). Weather and site conditions should be considered when determining the type of import fill materials purchased and brought to the site for use as structural fill.

4.3.3.2. Select Granular Fill

We recommend that select granular fill be used as backfill material if earthwork is completed during periods of prolonged wet weather. Select granular fill should consist of well-graded sand and gravel or crushed rock with a maximum particle size of 6 inches and less than 5 percent fines by weight based on the minus $\frac{3}{4}$ -inch fraction. Organic matter, debris or other deleterious material should not be present. In our opinion, material with gradation characteristics similar to WSDOT Specification 9-03.9 (Aggregates for Ballast and Crushed Surfacing), or 9-03.14 (Borrow) is suitable for use as select granular fill, provided that the fines content is less than 5 percent (based on the minus $\frac{3}{4}$ -inch fraction) and the maximum particle size is 6 inches.

4.3.3.3. Pipe Bedding

Trench backfill for the bedding and pipe zone should consist of well-graded granular material similar to “gravel backfill for pipe zone bedding” described in Section 9-03.12(3) of the WSDOT Standard Specifications. The material must be free of roots, debris, organic matter and other deleterious material. Other materials may be appropriate depending on manufacturer specifications and/or local jurisdiction requirements.

4.3.3.4. On-Site Soil

Reuse of existing site soils as backfill will need to consider the results of our environmental testing and recommendations which are being provided in a separate document. In our opinion it appears feasible to reuse the existing fill soils observed in our explorations at backfill materials. The existing fill soils contain a relatively high percentage of fines and could be difficult or impossible to compact during periods of wet weather. While not observed in our explorations, in our experience fill soils in the area can contain debris and other deleterious materials. If encountered these materials should be removed from the generated soil prior to re-use as backfill.

The existing alluvial soils at the site contain a high percentage of fines and we expect that they will be generated at moisture contents above what is optimum for compaction. If existing alluvial soils will be used as backfill, we recommend that the project schedule and budget include contingencies for aerating and drying the alluvial soils prior to re-use as backfill. Depending on the time of year the work is performed, it may not be feasible to adequately dry-out the alluvial soils. We recommend that we be consulted further if alluvial soils are being considered for re-use at the site.

4.3.4. Fill Placement and Compaction

To obtain proper compaction, fill soil should be compacted near optimum moisture content and in uniform horizontal lifts. Lift thickness and compaction procedures will depend on the moisture content and gradation characteristics of the soil and the type of equipment used. The maximum allowable moisture content varies with the soil gradation and should be evaluated during construction. Generally, 12-inch loose lifts are appropriate for steel-drum vibratory roller compaction equipment. Compaction should be achieved by mechanical means. During fill and backfill placement, sufficient testing of in-place density should be conducted to check that adequate compaction is being achieved.

For utility excavations, we recommend that the initial lift of fill over the pipe or conduit bank be thick enough to reduce the potential for damage during compaction, but generally should not be greater than about 18 inches above the pipe. In addition, rock fragments greater than about 1 inch in maximum dimension should be excluded from this lift.

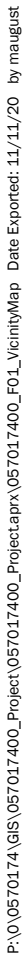
Backfill material should be compacted to at least 95 percent of the theoretical maximum dry density (MDD) per ASTM International (ASTM) D 1557.

5.0 LIMITATIONS

We have prepared this report for the City of Tacoma Central Treatment Plant Portland Avenue Sewer Crossing project in Tacoma, Washington. KPG may distribute copies of this report to owner’s authorized agents and regulatory agencies as may be required for the Project.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted practices for geotechnical engineering services in this area at the time this report was prepared. The conclusions, recommendations, and opinions presented in this report are based on our professional knowledge, judgment and experience. No warranty, express or implied, applies to the services or this report.

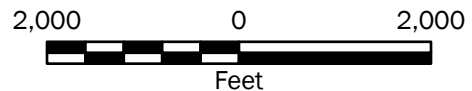
Please refer to Appendix C titled “Report Limitations and Guidelines for Use” for additional information pertaining to use of this report.



1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: ESRI

Projection: PCS: NAD 1983 2011 StatePlane Washington South FIPS 4602 Ft US



Vicinity Map



Central Treatment Plant Portland Avenue Sewer Crossing
Tacoma, Washington

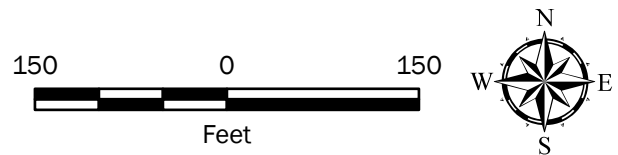


Figure 1



Legend

-  Approximate Location of GeoEngineers Boring
-  Approximate Proposed Sewer Alignment



Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: ESRI

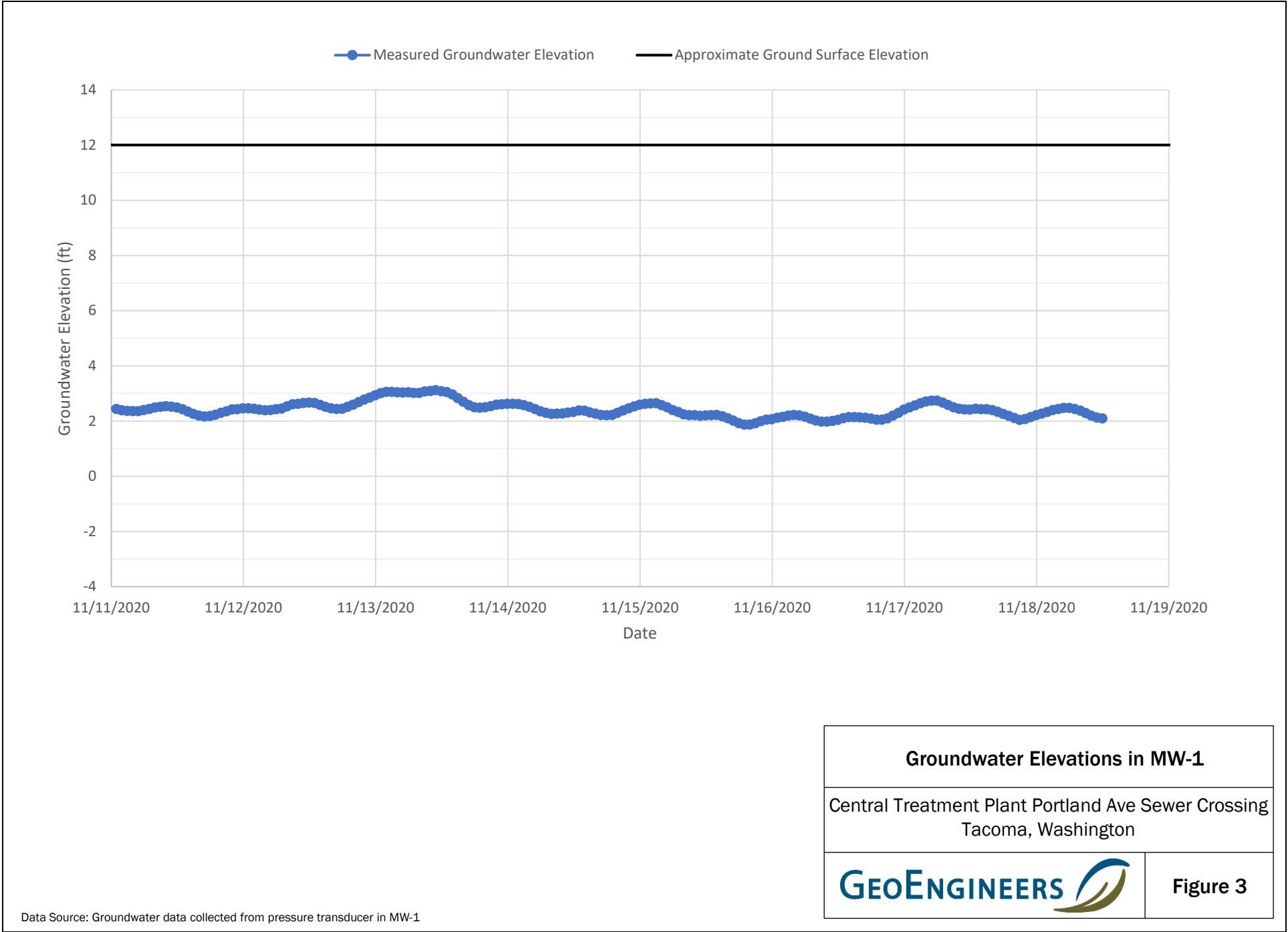
Projection: NAD 1983 StatePlane Washington South FIPS 4602 Feet

Site Plan

Central Treatment Plant Portland Avenue Sewer Crossing
Tacoma, Washington



Figure 2



APPENDIX A

Subsurface Explorations

APPENDIX A

SUBSURFACE EXPLORATIONS

Subsurface conditions at the site were explored by advancing two borings on October 26, 2020. The approximate boring locations are shown on the Site Plan, Figure 2. The boring locations were determined in the field by measuring from existing site features. The locations of the explorations shown on the Site Plan should be considered approximate.

The borings were advanced to nominal depths of 31.5 feet below ground surface (bgs) using a track-mounted hollow-stem auger drill rig. The explorations were continuously monitored by a representative from our firm who examined and classified the soil encountered, obtained representative soil samples, and maintained detailed logs of the explorations. Soil encountered in the borings was classified in general accordance with ASTM International (ASTM) D 2488 and the classification chart listed in Key to Exploration Logs, Figure A-1. Logs of the boring are presented as Figures A-2 and A-3. The logs are based on interpretation of the field and laboratory data and indicates the depth at which we interpret subsurface materials or their characteristics to change, although these changes might actually be gradual.

Soil samples were obtained at approximate 2.5- to 5-foot-depth intervals using a 2-inch outside-diameter, standard split-spoon sampler (Standard Penetration Test [SPT]) in general accordance with ASTM D 1586. The samplers were driven into the soil using a 140-pound automatic hammer, free-falling 30 inches. The number of blows required to drive the samplers each of three, 6-inch increments of penetration were recorded in the field. The sum of the blow counts for the final 12 inches of penetration, unless otherwise noted, is reported on the boring logs.

Monitoring wells were installed in the borings upon completion. A pressure transducer was installed in MW-1 to continuously monitor groundwater levels. Cuttings generated during drilling were collected in drums and left on site. Disposal of the cuttings is being coordinated as part of our environmental services.

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS	
			GRAPH	LETTER		
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES	
		(LITTLE OR NO FINES)		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES	
		GRAVELS WITH FINES		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES	
		(APPRECIABLE AMOUNT OF FINES)		GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES	
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	SAND AND SANDY SOILS	CLEAN SANDS		SW	WELL-GRADED SANDS, GRAVELLY SANDS
			(LITTLE OR NO FINES)		SP	POORLY-GRADED SANDS, GRAVELLY SAND
SANDS WITH FINES				SM	SILTY SANDS, SAND - SILT MIXTURES	
(APPRECIABLE AMOUNT OF FINES)				SC	CLAYEY SANDS, SAND - CLAY MIXTURES	
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS, ROCK FLOUR, CLAYEY SILTS WITH SLIGHT PLASTICITY	
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
	MORE THAN 50% PASSING NO. 200 SIEVE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS SILTY SOILS
					CH	INORGANIC CLAYS OF HIGH PLASTICITY
					OH	ORGANIC CLAYS AND SILTS OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS	

NOTE: Multiple symbols are used to indicate borderline or dual soil classifications

Sampler Symbol Descriptions

	2.4-inch I.D. split barrel
	Standard Penetration Test (SPT)
	Shelby tube
	Piston
	Direct-Push
	Bulk or grab
	Continuous Coring

Blowcount is recorded for driven samplers as the number of blows required to advance sampler 12 inches (or distance noted). See exploration log for hammer weight and drop.

"P" indicates sampler pushed using the weight of the drill rig.

"WOH" indicates sampler pushed using the weight of the hammer.

NOTE: The reader must refer to the discussion in the report text and the logs of explorations for a proper understanding of subsurface conditions. Descriptions on the logs apply only at the specific exploration locations and at the time the explorations were made; they are not warranted to be representative of subsurface conditions at other locations or times.

ADDITIONAL MATERIAL SYMBOLS

SYMBOLS		TYPICAL DESCRIPTIONS
GRAPH	LETTER	
	AC	Asphalt Concrete
	CC	Cement Concrete
	CR	Crushed Rock/Quarry Spalls
	SOD	Sod/Forest Duff
	TS	Topsoil

Groundwater Contact



Measured groundwater level in exploration, well, or piezometer



Measured free product in well or piezometer

Graphic Log Contact



Distinct contact between soil strata



Approximate contact between soil strata

Material Description Contact



Contact between geologic units



Contact between soil of the same geologic unit

Laboratory / Field Tests

%F	Percent fines
%G	Percent gravel
AL	Atterberg limits
CA	Chemical analysis
CP	Laboratory compaction test
CS	Consolidation test
DD	Dry density
DS	Direct shear
HA	Hydrometer analysis
MC	Moisture content
MD	Moisture content and dry density
Mohs	Mohs hardness scale
OC	Organic content
PM	Permeability or hydraulic conductivity
PI	Plasticity index
PL	Point load test
PP	Pocket penetrometer
SA	Sieve analysis
TX	Triaxial compression
UC	Unconfined compression
VS	Vane shear

Sheen Classification

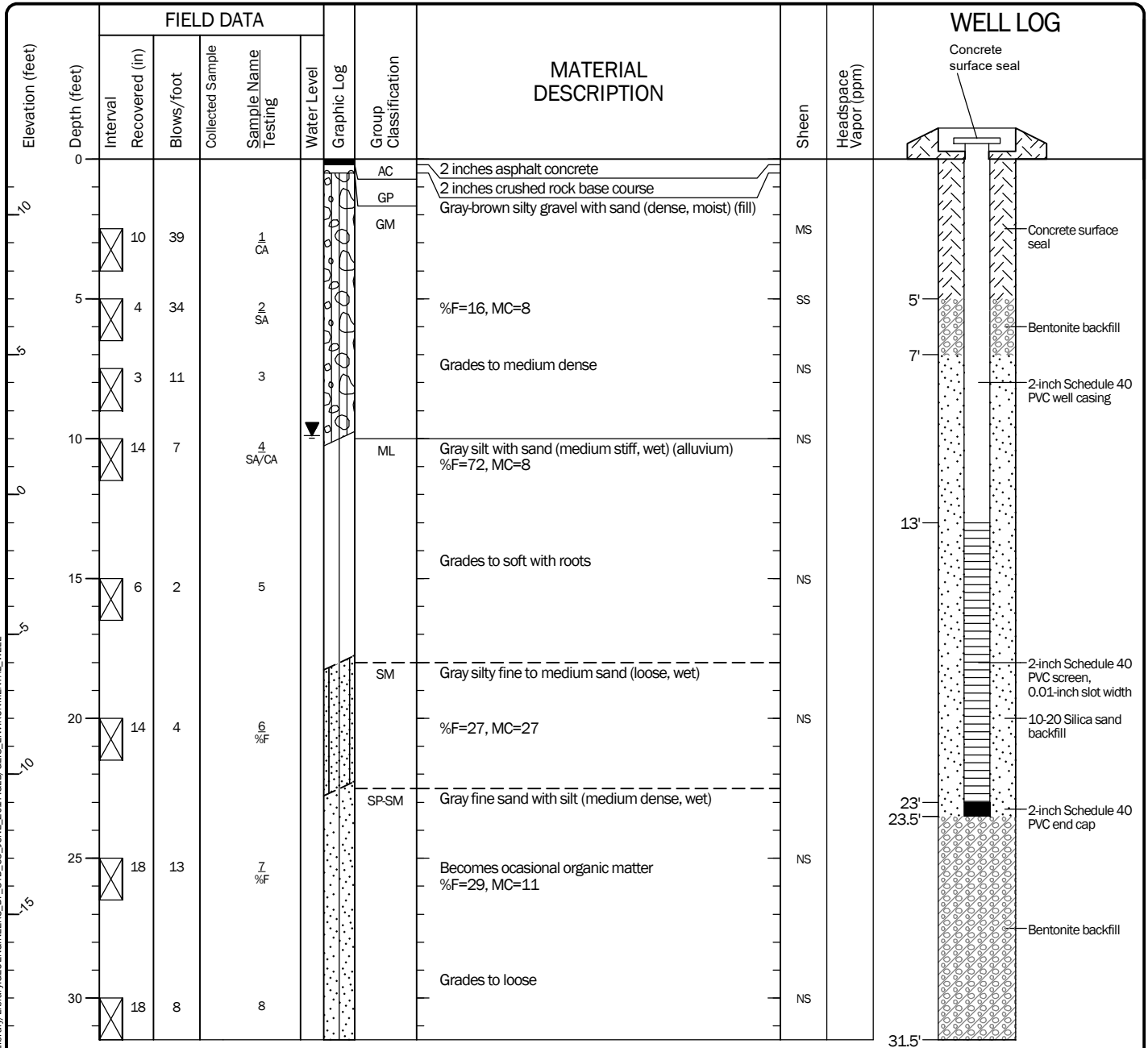
NS	No Visible Sheen
SS	Slight Sheen
MS	Moderate Sheen
HS	Heavy Sheen

Key to Exploration Logs



Figure A-1

Start Drilled 10/26/2020	End 10/26/2020	Total Depth (ft)	31.5	Logged By BZ Checked By BEL/AMW	Driller Holocene Drilling, Inc.	Drilling Method	Hollow-stem Auger			
Hammer Data	Auto Hammer 140 (lbs)/ 30 (in) Drop	Drilling Equipment			Diedrich D-50 Turbo			DOE Well I.D.: BMP-857 A 2-in well was installed on 10/26/2020 to a depth of 30 ft.		
Surface Elevation (ft) Vertical Datum	12 NGVD29	Top of Casing Elevation (ft)			11.62			<u>Groundwater</u> <u>Date Measured</u> 11/18/2020	<u>Depth to Water (ft)</u> 9.90	<u>Elevation (ft)</u> 1.72
Latitude Longitude	471445° 53' 24" -1222449° 30' 36"	Horizontal Datum			WA State Plane NAD83 (feet)					
Notes:										



Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Google Earth. Vertical approximated based on Google Earth.

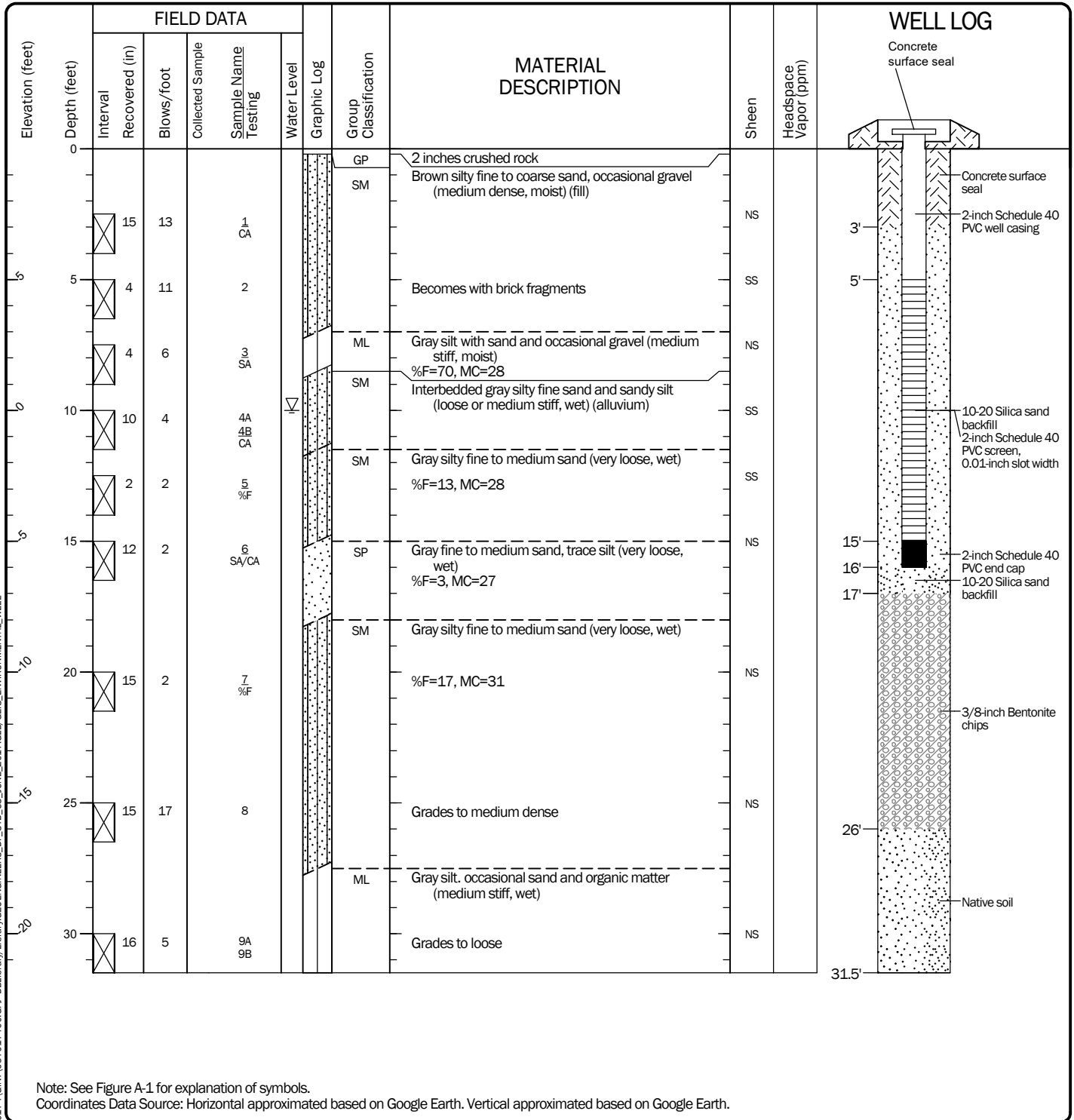
Log of Monitoring Well MW-1 (B-1)



Project: Central Treatment Plant Portland Avenue Sewer Crossing
Project Location: Tacoma, Washington
Project Number: 0570-174-00

Figure A-2
Sheet 1 of 1

Start Drilled 10/26/2020	End 10/26/2020	Total Depth (ft) 31.5	Logged By BZ Checked By BEL/AMW	Driller Holocene Drilling, Inc.	Drilling Method Hollow-stem Auger
Hammer Data Auto Hammer 140 (lbs)/ 30 (in) Drop		Drilling Equipment Diedrich D-50 Turbo		A 2-in well was installed on 10/26/2020 to a depth of 30 ft.	
Surface Elevation (ft) Vertical Datum 10 NGVD29		Top of Casing Elevation (ft) 9.52		Groundwater Date Measured 11/18/2020	
Latitude Longitude 471446° 46' 48" -1222447° 31' 12"		Horizontal Datum WA State Plane NAD83 (feet)		Depth to Water (ft) 10.00 Elevation (ft) -0.48	
Notes:					



Log of Monitoring Well MW-2 (B-2)



Project: Central Treatment Plant Portland Avenue Sewer Crossing
Project Location: Tacoma, Washington
Project Number: 0570-174-00

Figure A-3
Sheet 1 of 1

APPENDIX B

Laboratory Testing

APPENDIX B

LABORATORY TESTING

General

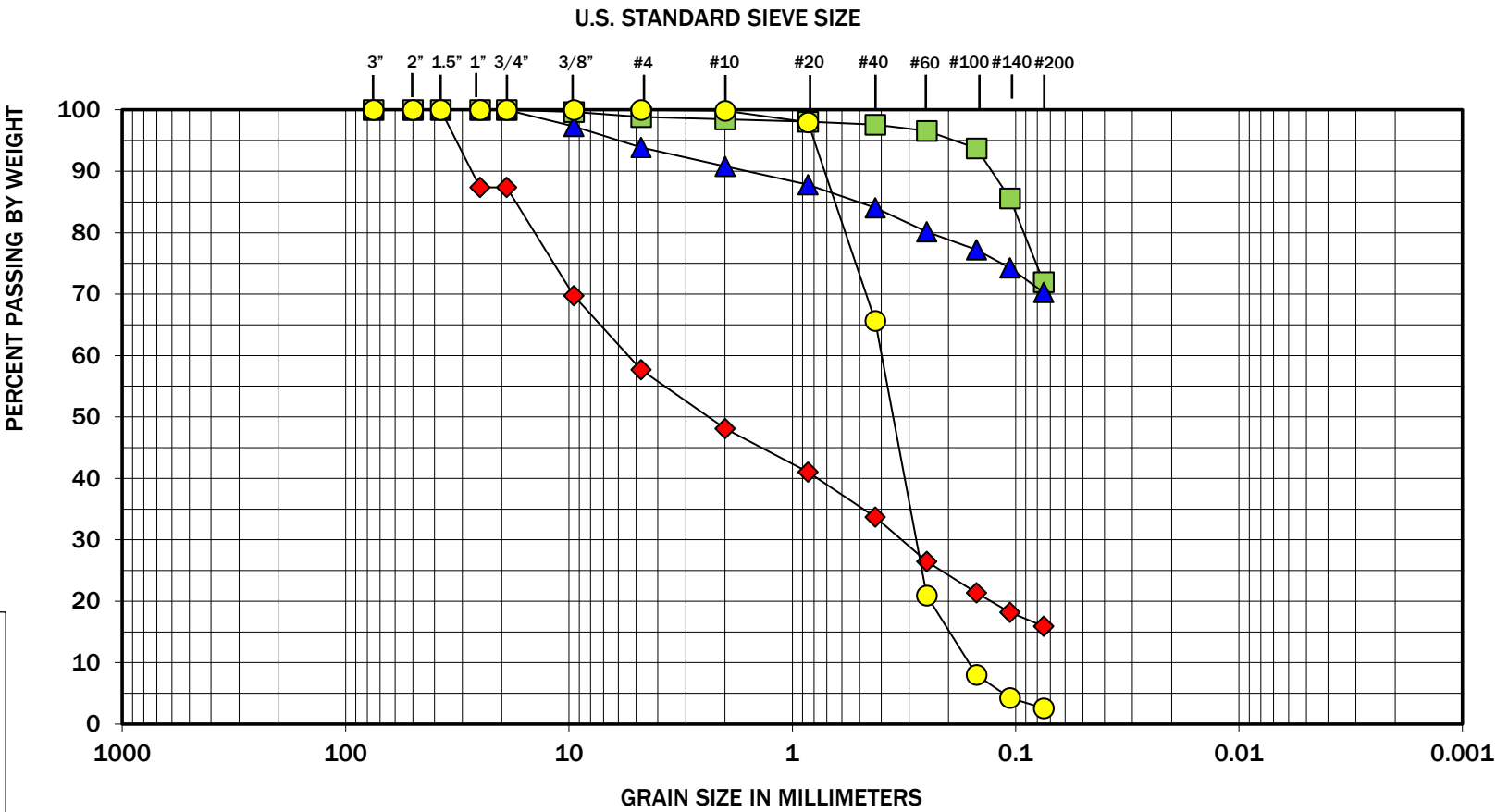
Soil samples obtained from the borings were returned to our laboratory and examined to confirm or modify field classifications, as well as to evaluate engineering properties of the soil. Representative samples were selected for further examination and testing. Our laboratory testing program consisted grain-size distribution analyses, and percent fines determinations. Details of the tests performed are provided in the sections below.

Grain-Size Analysis

Grain-size analyses were performed on selected soil samples in general accordance with ASTM International (ASTM) Test Method D 6913. This test provides a quantitative determination of the distribution of particle sizes in soils. Figure B-1 presents the results of the grain-size analyses.

Percent Passing the U.S. No. 200 Sieve

Selected samples were “washed” through the U.S. No. 200 sieve to estimate the relative percentages of coarse- and fine-grained particles in the soil. The percent passing value represents the percentage by weight of the sample finer than the U.S. No. 200 sieve (fines). The tests were conducted in general accordance with ASTM D 1140. The test results are presented on the exploration logs in Appendix A at the respective sample depths.



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Symbol	Boring Number	Depth (feet)	Moisture (%)	Laboratory Soil Description
◆	MW-1	5	8	Silty gravel with sand (GM)
■	MW-1	10	29	Silt with sand (ML)
▲	MW-2	7.5	28	Silt with sand (ML)
●	MW-2	15	27	Sand (SP)

Note: This report may not be reproduced, except in full, without written approval of GeoEngineers, Inc. Test results are applicable only to the specific sample on which they were performed, and should not be interpreted as representative of any other samples obtained at other times, depths or locations, or generated by separate operations or processes.

The grain size analysis results were obtained in general accordance with ASTM C 136. GeoEngineers 17425 NE Union Hill Road Ste 250, Redmond, WA 98052



APPENDIX C

Report Limitations and Guidelines for Use

APPENDIX C

REPORT LIMITATIONS AND GUIDELINES FOR USE¹

This appendix provides information to help you manage your risks with respect to the use of this report.

Read These Provisions Closely

It is important to recognize that the geoscience practices (geotechnical engineering, geology and environmental science) rely on professional judgment and opinion to a greater extent than other engineering and natural science disciplines, where more precise and/or readily observable data may exist. To help clients better understand how this difference pertains to our services, GeoEngineers includes the following explanatory “limitations” provisions in its reports. Please confer with GeoEngineers if you need to know more how these “Report Limitations and Guidelines for Use” apply to your project or site.

Geotechnical Services are Performed for Specific Purposes, Persons and Projects

This report has been prepared for KPG and for the Project(s) specifically identified in the report. The information contained herein is not applicable to other sites or projects.

GeoEngineers structures its services to meet the specific needs of its clients. No party other than the party to whom this report is addressed may rely on the product of our services unless we agree to such reliance in advance and in writing. Within the limitations of the agreed scope of services for the Project, and its schedule and budget, our services have been executed in accordance with our Agreement with KPG dated October 19, 2020 and generally accepted geotechnical practices in this area at the time this report was prepared. We do not authorize, and will not be responsible for, the use of this report for any purposes or projects other than those identified in the report.

A Geotechnical Engineering or Geologic Report is based on a Unique Set of Project-Specific Factors

This report has been prepared for Central Treatment Plant Portland Avenue Sewer Crossing in Tacoma, Washington. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, it is important not to rely on this report if it was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

¹ Developed based on material provided by ASFE, Professional Firms Practicing in the Geosciences; www.asfe.org.

For example, changes that can affect the applicability of this report include those that affect:

- The function of the proposed structure;
- elevation, configuration, location, orientation or weight of the proposed structure;
- composition of the design team; or
- project ownership.

If changes occur after the date of this report, GeoEngineers cannot be responsible for any consequences of such changes in relation to this report unless we have been given the opportunity to review our interpretations and recommendations. Based on that review, we can provide written modifications or confirmation, as appropriate.

Environmental Concerns are Not Covered

Unless environmental services were specifically included in our scope of services, this report does not provide any environmental findings, conclusions, or recommendations, including but not limited to, the likelihood of encountering underground storage tanks or regulated contaminants.

Information Provided by Others

GeoEngineers has relied upon certain data or information provided or compiled by others in the performance of our services. Although we use sources that we reasonably believe to be trustworthy, GeoEngineers cannot warrant or guarantee the accuracy or completeness of information provided or compiled by others.

Subsurface Conditions Can Change

This geotechnical or geologic report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time, by man-made events such as construction on or adjacent to the site, new information or technology that becomes available subsequent to the report date, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations. If more than a few months have passed since issuance of our report or work product, or if any of the described events may have occurred, please contact GeoEngineers before applying this report for its intended purpose so that we may evaluate whether changed conditions affect the continued reliability or applicability of our conclusions and recommendations.

Geotechnical and Geologic Findings are Professional Opinions

Our interpretations of subsurface conditions are based on field observations from widely spaced sampling locations at the site. Site exploration identifies the specific subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied its professional judgment to render an informed opinion about subsurface conditions at other locations. Actual subsurface conditions may differ, sometimes significantly, from the opinions presented in this report. Our report, conclusions and interpretations are not a warranty of the actual subsurface conditions.

Geotechnical Engineering Report Recommendations are Not Final

We have developed the following recommendations based on data gathered from subsurface investigation(s). These investigations sample just a small percentage of a site to create a snapshot of the subsurface conditions elsewhere on the site. Such sampling on its own cannot provide a complete and accurate view of subsurface conditions for the entire site. Therefore, the recommendations included in this report are preliminary and should not be considered final. GeoEngineers' recommendations can be finalized only by observing actual subsurface conditions revealed during construction. GeoEngineers cannot assume responsibility or liability for the recommendations in this report if we do not perform construction observation.

We recommend that you allow sufficient monitoring, testing and consultation during construction by GeoEngineers to confirm that the conditions encountered are consistent with those indicated by the explorations, to provide recommendations for design changes if the conditions revealed during the work differ from those anticipated, and to evaluate whether earthwork activities are completed in accordance with our recommendations. Retaining GeoEngineers for construction observation for this project is the most effective means of managing the risks associated with unanticipated conditions. If another party performs field observation and confirms our expectations, the other party must take full responsibility for both the observations and recommendations. Please note, however, that another party would lack our project-specific knowledge and resources.

A Geotechnical Engineering or Geologic Report Could Be Subject to Misinterpretation

Misinterpretation of this report by members of the design team or by contractors can result in costly problems. GeoEngineers can help reduce the risks of misinterpretation by conferring with appropriate members of the design team after submitting the report, reviewing pertinent elements of the design team's plans and specifications, participating in pre-bid and preconstruction conferences, and providing construction observation.

Do Not Redraw the Exploration Logs

Geotechnical engineers and geologists prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. The logs included in a geotechnical engineering or geologic report should never be redrawn for inclusion in architectural or other design drawings. Photographic or electronic reproduction is acceptable, but separating logs from the report can create a risk of misinterpretation.

Give Contractors a Complete Report and Guidance

To help reduce the risk of problems associated with unanticipated subsurface conditions, GeoEngineers recommends giving contractors the complete geotechnical engineering or geologic report, including these "Report Limitations and Guidelines for Use." When providing the report, you should preface it with a clearly written letter of transmittal that:

- advises contractors that the report was not prepared for purposes of bid development and that its accuracy is limited; and
- encourages contractors to confer with GeoEngineers and/or to conduct additional study to obtain the specific types of information they need or prefer.

Contractors are Responsible for Site Safety on Their Own Construction Projects

Our geotechnical recommendations are not intended to direct the contractor's procedures, methods, schedule or management of the work site. The contractor is solely responsible for job site safety and for managing construction operations to minimize risks to on-site personnel and adjacent properties.

Biological Pollutants

GeoEngineers' Scope of Work specifically excludes the investigation, detection, prevention or assessment of the presence of Biological Pollutants. Accordingly, this report does not include any interpretations, recommendations, findings or conclusions regarding the detecting, assessing, preventing or abating of Biological Pollutants, and no conclusions or inferences should be drawn regarding Biological Pollutants as they may relate to this project. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria and viruses, and/or any of their byproducts.

A Client that desires these specialized services is advised to obtain them from a consultant who offers services in this specialized field.



1101 South Fawcett Avenue, Suite 200
Tacoma, Washington 98402
253.383.4940

August 4, 2021

KPG
2505 Jefferson Avenue
Tacoma, Washington 98402

Attention: Nathan Mozer, PE

Subject: Geotechnical Engineering Services Report Addendum No. 1
Central Treatment Plant Portland Avenue Sewer Crossing
Tacoma, Washington
File No. 0570-174-00

INTRODUCTION

This geotechnical engineering services report addendum presents the results of our ongoing groundwater monitoring for the Central Treatment Plant Portland Avenue Sewer Crossing project. This is an addendum to our Geotechnical Report dated December 18, 2020 (Geotechnical Report). This addendum should be used in conjunction with our Geotechnical Report.

GROUNDWATER DATA

One monitoring well (MW-1) was installed at the site as part of Geotechnical Engineering Services. The location of the well, the summary exploration log and other details about our exploration program are provided in our Geotechnical Report. Figure 3A presents the water elevation measured by a pressure transducer in MW-1 between November 11, 2020 and July 25, 2021. The referenced ground surface elevation is based on reviewed survey data of the site and should be considered approximate. Groundwater elevation was determined in relation to the referenced ground surface elevation. Additional details regarding soil and groundwater conditions at the site are provided in our Geotechnical Report.

LIMITATIONS

We have prepared this report addendum for KPG for the City of Tacoma Central Treatment Plant Portland Avenue Sewer Crossing project in Tacoma, Washington. KPG may distribute copies of this report to owner's authorized agents and regulatory agencies as may be required for the Project.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted practices for geotechnical engineering services in this area at the time this report



addendum was prepared. The conclusions, recommendations, and opinions presented in this report addendum are based on our professional knowledge, judgment and experience. No warranty, express or implied, applies to the services or this report addendum.

Except as modified herein, the conclusions, recommendations, and limitations (Appendix B) presented in our Geotechnical Report dated December 18, 2020 also apply to this report addendum.

We trust this report addendum meets your current needs.

Sincerely,
GeoEngineers, Inc.



Brett E. Larabee, PE
Senior Geotechnical Engineer



Lyle J. Stone, PE
Associate Geotechnical Engineer

8/4/2021



BEL:LJS:tt

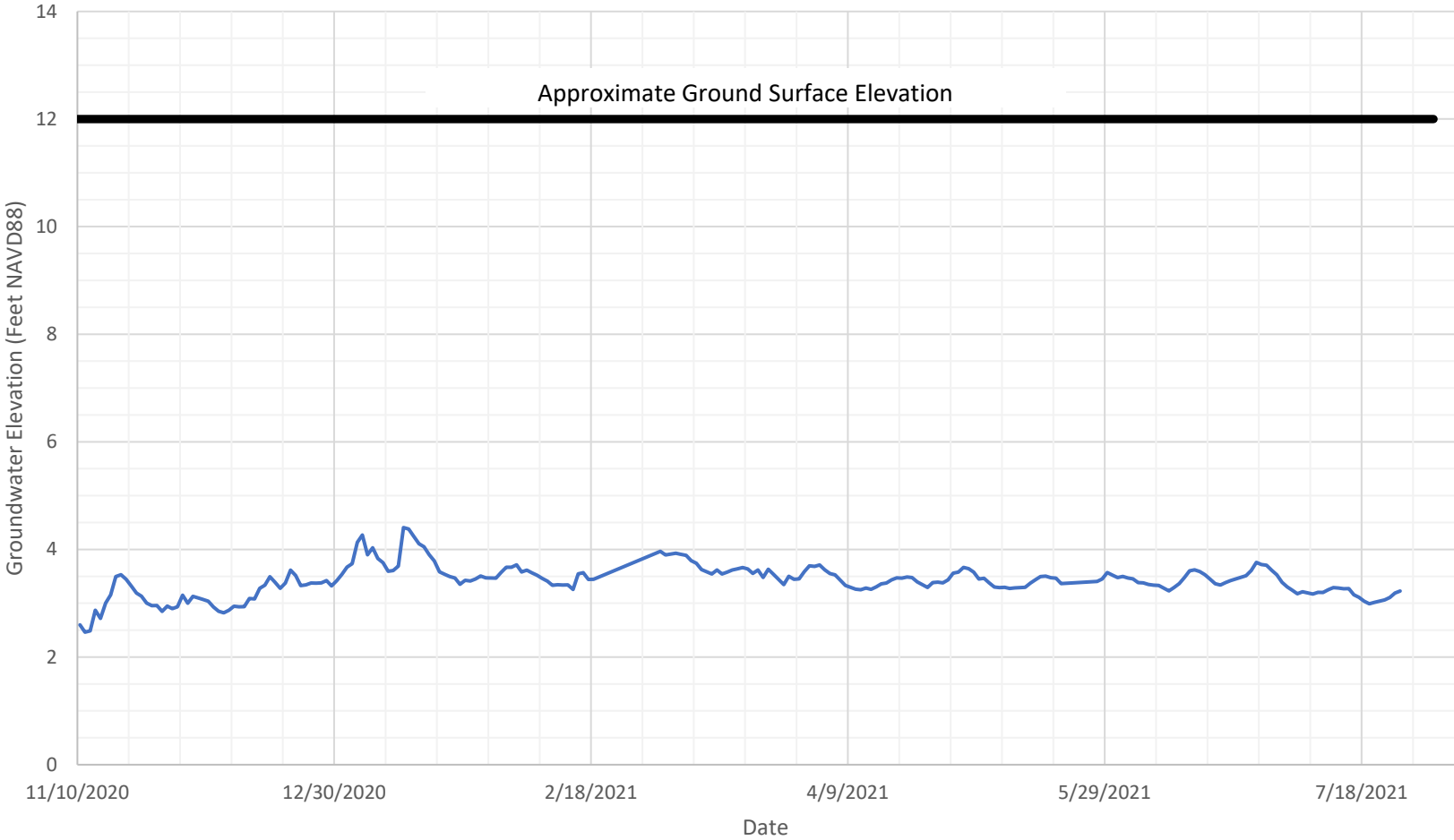
Attachment:

Figure 3A – Groundwater Elevations in MW-1

1 copy submitted electronically

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Groundwater Elevations in MW-1

Central Treatment Plant Portland Ave Sewer Crossing
Tacoma, Washington



Figure 3A

Data Source: Groundwater data collected from pressure transducer in MW-1

May 31, 2022

KPG Psomas, Inc.
2505 Jefferson Avenue
Tacoma, Washington 98402

Attention: Nathan Mozer, PE

Subject: Geotechnical Engineering Services Report Addendum No. 3
Central Treatment Plant Portland Avenue Sewer Crossing
Tacoma, Washington
File No. 0570-174-00

INTRODUCTION

This geotechnical engineering services report addendum presents the results of our ongoing groundwater monitoring for the Central Treatment Plant Portland Avenue Sewer Crossing project. This is an addendum to our Geotechnical Report dated December 18, 2020 (Geotechnical Report). This addendum should be used in conjunction with our Geotechnical Report and our prior report addendums (Addendum 1 dated August 2, 2021 and Addendum 2 dated November 16, 2021).

GROUNDWATER DATA

One monitoring well (MW-1) was installed at the site as part of Geotechnical Engineering Services. The location of the well, the summary exploration log and other details about our exploration program are provided in our Geotechnical Report. Figure 3B presents the water elevation measured by a pressure transducer in MW-1 between November 11, 2020 and May 23, 2022. The referenced ground surface elevation is based on reviewed survey data of the site and should be considered approximate. Groundwater elevation was determined in relation to the referenced ground surface elevation. Additional details regarding soil and groundwater conditions at the site are provided in our Geotechnical Report.

LIMITATIONS

We have prepared this report addendum for KPG Psomas, Inc. (KPG) for the City of Tacoma Central Treatment Plant Portland Avenue Sewer Crossing project in Tacoma, Washington. KPG may distribute copies of this report to owner's authorized agents and regulatory agencies as may be required for the Project.



Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted practices for geotechnical engineering services in this area at the time this report addendum was prepared. The conclusions, recommendations, and opinions presented in this report addendum are based on our professional knowledge, judgment and experience. No warranty, express or implied, applies to the services or this report addendum.

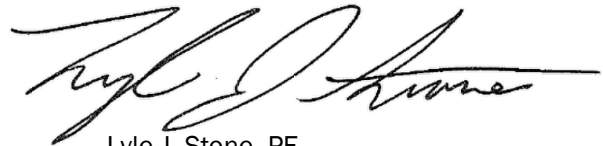
Except as modified herein, the conclusions, recommendations, and limitations (Appendix B) presented in our Geotechnical Report dated December 18, 2020 also apply to this report addendum.

We trust this report addendum meets your current needs.

Sincerely,
GeoEngineers, Inc.



Brett E. Larabee, PE
Senior Geotechnical Engineer



Lyle J. Stone, PE
Associate Geotechnical Engineer

BEL:LJS:sfw

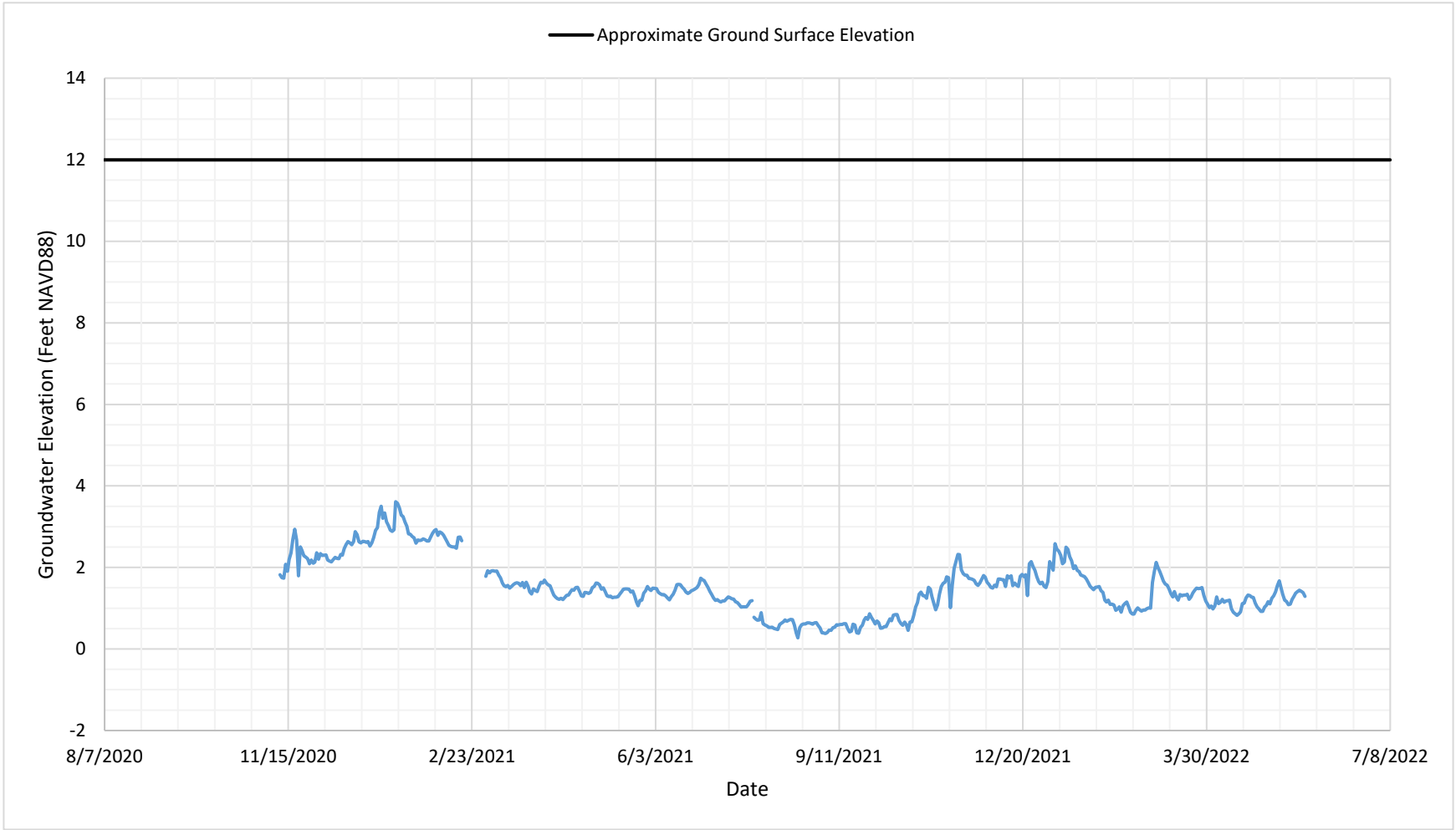
Attachment:


Figure 3B – Groundwater Elevations in MW-1

1 copy submitted electronically

Disclaimer: Any electronic form, facsimile or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.





Groundwater Elevations in MW-1	
Central Treatment Plant Portland Ave Sewer Crossing Tacoma, Washington	
	Figure 3B

Data Source: Groundwater data collected from pressure transducer in MW-1

APPENDIX C

**SCREENING FACILITY
CONSTRUCTION DRAWINGS**

GENERAL NOTES

GENERAL


THESE NOTES ARE GENERAL AND APPLY TO THE ENTIRE PROJECT EXCEPT WHERE SPECIFICALLY INDICATED OTHERWISE.

STRUCTURAL DIMENSIONS CONTROLLED BY OR RELATED TO MECHANICAL OR ELECTRICAL EQUIPMENT SHALL BE COORDINATED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. BOLT SIZES, TYPES, AND PATTERNS SHALL BE VERIFIED WITH THE MANUFACTURER. ALL BOLT PATTERNS SHALL BE TEMPLATED TO INSURE ACCURACY OF PLACEMENT.

MECHANICAL AND ELECTRICAL EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, RECESSES AND REVEALS NOT SHOWN ON THE STRUCTURAL DRAWINGS BUT REQUIRED BY OTHER CONTRACT DRAWINGS, SHALL BE PROVIDED FOR PRIOR TO PLACING CONCRETE.

STRUCTURAL DRAWINGS SHALL BE USED IN COORDINATION WITH MECHANICAL, ELECTRICAL, ARCHITECTURAL, CIVIL DRAWINGS AND SHOP DRAWINGS PROVIDED BY MANUFACTURERS OF EQUIPMENT.

STRUCTURES HAVE BEEN DESIGNED FOR OPERATIONAL, HYDROSTATIC, AND BACKFILL LOADS ON THE COMPLETED STRUCTURES. THE STRUCTURES HAVE NOT BEEN DESIGNED TO RESIST THESE LOADS WHILE ONLY PARTIALLY CONSTRUCTED. DURING CONSTRUCTION, THE STRUCTURES SHALL BE PROTECTED FROM ALL CONSTRUCTION LOADS BY BRACING AND BALANCING UNTIL ALL STRUCTURAL ELEMENTS ARE IN PLACE, AND ALL CONCRETE HAS REACHED THE SPECIFIED 28 DAY COMPRESSIVE STRENGTH. OVERLOADING OF ANY STRUCTURAL ELEMENT IS PROHIBITED.

UNLESS OTHERWISE SHOWN, ON ALL STRUCTURAL DRAWINGS THE FINISHED GRADE AROUND STRUCTURES IS SHOWN THUS , INDICATING EITHER GROUND SURFACE, TOP OF CONCRETE SLAB, OR AC PAVEMENT. FOR DETAILS OF FINISH SURFACES SEE CIVIL AND ARCHITECTURAL DRAWINGS.

STRUCTURAL STEEL

STEEL CONSTRUCTION SHALL CONFORM TO THE SPECIFICATIONS AND STANDARDS AS CONTAINED IN THE LATEST EDITION OF THE LRFD MANUAL OF STEEL CONSTRUCTION.

STRUCTURAL WIDE FLANGE SHAPES SHALL BE STEEL MEETING ASTM A-992 SPECIFICATIONS.

OTHER SHAPES, BARS, PLATES AND SHEETS SHALL BE OF STEEL MEETING ASTM A-36 SPECIFICATIONS.

PIPE, PIPE COLUMNS, AND BOLLARDS SHALL BE OF STEEL MEETING ASTM A-53, TYPE E OR S, GRADE B STANDARD WEIGHT, UNO

HSS SHALL BE OF STEEL MEETING ASTM A-500 GRADE B.

STEEL JOISTS, BEAMS, AND GIRDERS SHALL NOT BE RELOCATED WITHOUT APPROVAL BY THE ENGINEER.

ALL WELDING SHALL BE BY THE SHIELDED ARC METHOD AND SHALL CONFORM TO AWS CODE FOR ARC AND GAS WELDING IN BUILDING CONSTRUCTION. QUALIFICATIONS OF WELDERS SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS FOR STANDARD QUALIFICATION PROCEDURE OF THE AWS.

CONCRETE (EXCEPT PRECAST CONCRETE)

UNLESS OTHERWISE NOTED OR SPECIFIED, ALL STRUCTURAL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI IN 28 DAYS.

REINFORCEMENT STEEL SHALL BE DEFORMED BARS CONFORMING IN QUALITY TO THE REQUIREMENTS OF ASTM A-615, "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", GRADE 60

COLUMN SPIRALS SHALL CONFORM TO ASTM A-82, "SPECIFICATION FOR COLD-DRAWN STEEL WIRE FOR CONCRETE REINFORCEMENT".

ALL DETAILING, FABRICATION AND PLACING OF REINFORCING BARS, UNLESS OTHERWISE INDICATED, SHALL BE IN ACCORDANCE WITH ACI-315, "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", LATEST EDITION.

TOLERANCES IN PLACING REINFORCEMENT SHALL BE:

- ± 3/8 INCH FOR MEMBERS WITH D <= 8 INCHES
- ± 1/2 INCH FOR MEMBERS WITH D > 8 INCHES

ALL CONSTRUCTION JOINTS, SHALL BE ROUGH AND THOROUGHLY CLEANED FOR BOND.

LOCATION OF ALL CONSTRUCTION JOINTS SHALL BE AS SHOWN ON THE DRAWINGS OR APPROVED BY THE ENGINEER. ALL CONSTRUCTION JOINTS LOCATED ON THE DRAWINGS OR REQUIRED FOR CONSTRUCTION, BUT NOT SHOWN ON THE DRAWINGS, SHALL HAVE A 6" FLATSTRIP WATERSTOP, IF IN MEMBERS IN CONTACT WITH WATER. IN ADDITION, JOINTS IN ALL SLABS COVERED WITH WATER, SHALL HAVE BOTH A 6" FLATSTRIP WATERSTOP AND A SEALANT GROOVE.

DOWELS, PIPE, WATERSTOPS AND OTHER INSTALLED MATERIALS AND ACCESSORIES SHALL BE HELD SECURELY IN POSITION WHILE CONCRETE IS BEING PLACED.

UNLESS OTHERWISE INDICATED, ASIDE FROM NORMAL ACCESSORIES USED TO HOLD REINFORCING BARS FIRMLY IN POSITION, THE FOLLOWING SHALL BE ADDED:

- A) IN SLABS *5 RISER BARS AT 36 INCHES OC MAXIMUM TO SUPPORT TOP REINFORCING BARS.
- B) IN WALLS WITH 2 CURTAINS *3 U OR Z SHAPE SPACERS AT 6 FEET OC EACH WAY.

VERTICAL REINFORCEMENT FOR CONCRETE OR MASONRY SHALL BE SPLICED WITH DOWEL BARS OF THE SAME SIZE AND SPACING FROM THE FOUNDATION USING A STANDARD SPLICE LENGTH UNLESS INDICATED OTHERWISE.

SEALANT SHALL BE PLACED AT THE TOP OF ALL JOINTS RECEIVING EXPANSION JOINT FILLER. SEALANT DEPTH SHALL BE THE JOINT FILL THICKNESS OR 1/2", WHICHEVER IS LESS.

ALL GROUT SHALL BE NON-SHRINK GROUT, UNLESS INDICATED OTHERWISE.

UNLESS OTHERWISE SHOWN CONCRETE WALLS AND SLABS SHALL BE REINFORCED AS FOLLOWS: *4#12" EW, CENTER OF 6" SECTIONS; *5#12" EW, CENTER OF 8" SECTIONS; *4 # 12" EW EF OF 10" SECTIONS; *5#12" EW EF OF 12" AND THICKER SECTIONS.

METAL CLIPS OR SUPPORTS SHALL NOT BE PLACED IN CONTACT WITH THE FORMS OR THE SUBGRADE. CONCRETE BLOCKS (OR DOBIES) SUPPORTING BARS ON SUBGRADE SHALL BE IN SUFFICIENT NUMBERS TO SUPPORT THE BARS WITHOUT SETTLEMENT, BUT IN NO CASE SHALL SUCH SUPPORT BE CONTINUOUS.

DOWELS SHALL BE WIRED OR OTHERWISE HELD IN POSITION. THEY SHALL NOT BE SHOVED INTO FRESHLY PLACED CONCRETE.

UNLESS OTHERWISE INDICATED ON THE DRAWINGS, LAPS OF REINFORCEMENT SHALL BE AS SHOWN ON DETAIL S-143.

LOCATE TWO 3/4 INCH GALVANIZED RICHMOND ROCKET INSERTS, HOHMANN & BARNARD OR EQUAL, STRADDLING CENTERLINE OF EQUIPMENT OVER ALL PUMPS, METERS OR OTHER MECHANICAL UNITS OF MORE THAN 100 LBS, FOR INSERTING LIFTING EYES IF NOT OTHERWISE INDICATED.

REINFORCING BARS AND ACCESSORIES SHALL NOT BE IN CONTACT WITH AND PIPE, PIPE FLANGE OR METAL PARTS EMBEDDED IN CONCRETE. A MINIMUM OF 2 INCHES CLEARANCE SHALL BE PROVIDED AT ALL TIMES.

ALL ITEMS EMBEDDED IN CONCRETE SHALL BE SPACED ON CENTER AT LEAST 4 TIMES THEIR OUTSIDE DIMENSION. THE OUTSIDE DIMENSION SHALL NOT EXCEED ONE THIRD OF THE MEMBER THICKNESS

ELECTRICAL CONDUIT EMBEDDED IN CONCRETE SHALL NOT BE SPACED CLOSER THAN 3 OUTSIDE DIAMETERS ON CENTER.

UNLESS OTHERWISE SHOWN ON THE DRAWINGS CONCRETE COVER FOR REINFORCING BARS SHALL BE AS FOLLOWS:

FOR CONCRETE PLACED AGAINST EARTH
SEE CONSTRUCTION JOINT DETAILS FOR THIN SLABS-ON-GRADE, BOTTOM COVER
MAY BE LESS THAN 3" IF SO INDICATED 3"

FOR SURFACES IN CONTACT WITH WATER OR WEATHER
AND FORMED SURFACES IN CONTACT WITH EARTH 2"

FOR CONCRETE NOT EXPOSED TO WEATHER,
OR IN CONTACT WITH WATER OR EARTH 1 1/2"

UNLESS OTHERWISE NOTED, WALLS AND SLABS SHOWN WITH A SINGLE LAYER OF REINFORCEMENT SHALL HAVE THAT REINFORCEMENT CENTERED

SLABS WITH SLOPING SURFACES SHALL HAVE THE INDICATED SLAB THICKNESS MAINTAINED AS THE MINIMUM. SLAB BOTTOMS MAY EITHER SLOPE WITH THE TOP SURFACE OR BE LEVEL. REINFORCING IN SLABS WITH SLOPING SURFACES SHALL BE PLACED AT THE REQUIRED CLEARANCE FROM THE SLAB SURFACES.

TESTING HYDRAULIC STRUCTURES

WHEN FILLING THE STRUCTURES WITH WATER FOR THE TEST REQUIRED IN THE SPECIFICATIONS, ALL VARIOUS BASINS LOCATED IN THE SAME STRUCTURE SHALL BE FILLED SIMULTANEOUSLY AT THE SAME RATE IN ORDER TO KEEP THE SAME LEVEL IN EACH BASIN.

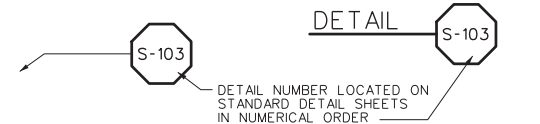
STRUCTURAL STANDARD DETAILS

DETAILS ON GS SHEETS ARE PART OF MWH'S STRUCTURAL STANDARD DETAILS.

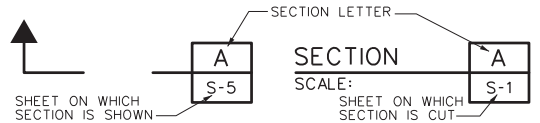
THESE DETAILS ARE TO BE USED WHEN REFERRED TO OR WHEN NO OTHER MORE RESTRICTIVE OR DIFFERENT DETAILS ARE INDICATED ON THE DRAWINGS.

DETAILS NOT PERTAINING TO THE PROJECT ARE MARKED THUS 

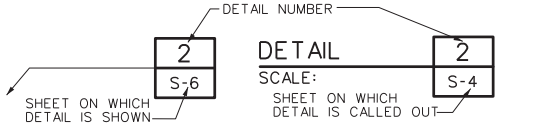
STRUCTURAL STANDARD DETAIL CALLOUT



SECTION CALLOUT



DETAIL CALLOUT



METAL DECK AND ROOFS

THE CONTRACTOR SHALL COORDINATE THE LOCATION AND SIZES OF ROOF OPENINGS WITH THE MECHANICAL, HVAC AND ARCHITECTURAL DRAWINGS. STANDARD DETAIL S-551 SHALL BE USED AT ALL OPENINGS.

UNLESS INDICATED OTHERWISE, SEE THE SPECIFICATIONS FOR THE WELDING REQUIREMENTS FOR METAL DECKING.

UNLESS INDICATED OTHERWISE, 1/2" METAL DECK SHALL BE 18 GA WITH 36" COVERAGE, AND SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES:

W=1.68 PSF (MIN), I= 0.178 IN4 (MIN), S= + 0.180 IN 3 (MIN)
S= + 195 IN3 (MIN)

1/2" METAL DECKING WELDS SHALL BE:

5/8" DIA PUDDLE WELDS @ EACH VALLEY AT ALL STRUCTURAL MEMBERS

5/8" DIA PUDDLE WELDS @ 12" OC AT PANEL EDGES, RIDGE PLATE AND ALL SUPPORT MEMBERS PARALLEL TO DECK RIBBING.

1/2" TOP SEAM WELDS @ 12" PARALLEL TO RIBS BETWEEN ADJACENT PANELS

UNLESS INDICATED OTHERWISE, 3" METAL DECK SHALL BE 18 GA WITH 36" COVERAGE, AND SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES:

W=2.7 PSF (MIN), I= 1.19 IN4 (MIN), I=1.38 IN4 (MIN),
S= + 0.66 IN3 (MIN), S= + .74 IN3 (MIN)

3" METAL DECKING WELDS SHALL BE:

5/8" DIA PUDDLE WELDS @ EACH VALLEY AT ALL STRUCTURAL MEMBERS

5/8" DIA PUDDLE WELDS @ 12" OC AT PANEL EDGES, RIDGE PLATE AND ALL SUPPORT MEMBERS PARALLEL TO DECK RIBBING.

1 1/2" TOP SEAM WELDS @ 12" PARALLEL TO RIBS BETWEEN ADJACENT PANELS

OPEN WEB STEEL JOISTS

THE CONTRACTOR SHALL SUPPLY REQUIRED EQUIPMENT WEIGHTS TO THE STEEL JOIST MANUFACTURER.

HEADERS SHALL BE DESIGNED AND DETAILED BY STEEL JOIST MANUFACTURER.

BRIDGING SHALL BE PROVIDED TO RESIST A WIND UPLIFT OF 20 PSF.

JOISTS HAVE NOT BEEN DESIGNED FOR CONCENTRATED EQUIPMENT LOADS. THE JOIST MANUFACTURER SHALL COORDINATE WITH THE CONTRACTOR FOR REQUIRED EQUIPMENT LOADS. THE JOIST MANUFACTURER IS RESPONSIBLE FOR VERIFYING THE JOISTS ARE ADEQUATE FOR THE CONCENTRATED EQUIPMENT LOADS

MASONRY

CONCRETE BLOCK MASONRY SHALL BE MEDIUM WEIGHT, HOLLOW UNITS CONFORMING TO ASTM C 90 SIZE OF UNITS, COLOR AND TEXTURE SHALL BE PER THE SPECIFICATIONS.

GROUT ALL CELLS OF CONCRETE BLOCK MASONRY UNLESS OTHERWISE NOTED ON DRAWINGS.

UNLESS OTHERWISE INDICATED, LAPS OF REINFORCEMENT IN CMU SHALL BE AS SHOWN ON DETAIL S-415.

MORTAR SHALL BE IN ACCORDANCE WITH ASTM C 270, TYPE M, AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 2500 PSI.

GROUT SHALL BE IN ACCORDANCE WITH ASTM C 476, AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2500 PSI.

SPECIAL INSPECTION SHALL BE PROVIDED FOR ALL MASONRY WORK

THE COMBINED MASONRY ASSEMBLAGE COMPRESSIVE STRENGTH AT 28 DAYS SHALL BE A MINIMUM OF f'm = 2500 PSI.

REINFORCEMENT SHALL BE TIED OR OTHERWISE SECURED IN POSITION PRIOR TO GROUTING.

ALL HORIZONTAL AND VERTICAL REINFORCEMENT SHALL BE CONTINUOUS OVER THE FULL EXTENT OF THE WALL WITH STANDARD SPLICES LOCATED AS NEEDED. WHERE IT IS NECESSARY TO INTERRUPT AN INDIVIDUAL BAR, AN EQUAL SIZED BAR SHALL BE LOCATED AS CLOSE AS POSSIBLE AND SHALL EXTEND A MINIMUM OF ONE SPLICE LENGTH BEYOND EACH SIDE OF THE INTERRUPTION.

DESIGN CRITERIA

DESIGN IN ACCORDANCE WITH THE 2003 INTERNATIONAL BUILDING CODE (IBC), EXCEPT WHERE OTHER APPLICABLE CODES OR THE FOLLOWING NOTES ARE MORE RESTRICTIVE.

LOADINGS:

WIND..... 100 MPH EXP C, Iw=1.15

SEISMIC..... DESIGN CATEGORY D, SITE CLASS F, USE GROUP II, Ie=1.25

Is=1.10, SITE CLASS F, USE GROUP II

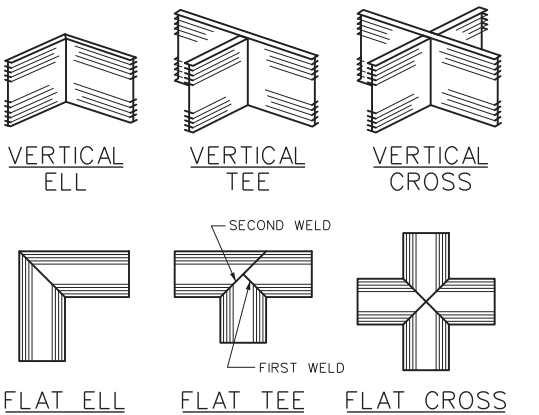
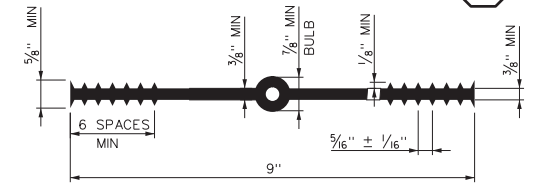
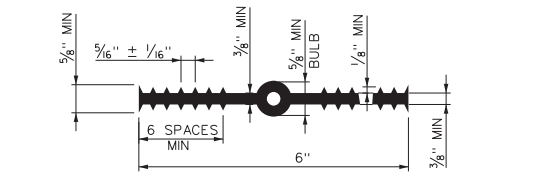
ROOF DL..... 15 PSF (+ EOPT), RLL-25 PSF (SNOW)

LL FOR FLOORS IN EOPT PUMP, ELECTRICAL AND STORAGE ROOMS 125 PSF, 2000 LB CONCENTRATED

LL FOR LOCKER ROOMS (75 PSF), SHOWERS/WASHROOMS (60 PSF) AND AREAS SUBJECT TO VEHICULAR LOADING (HS-25)

SEISMIC DESIGN CRITERIA: CATEGORY D, SITE CLASS F, Ie=1.25, Is=1.10, Iw=1.15, NATURE OF OCCUPANCY: III, USE GROUP II

WIND DESIGN CRITERIA: 100 MPH, EXPOSURE C



ALUMINUM

ALUMINUM CONSTRUCTION SHALL BE IN ACCORDANCE WITH AMERICAN SOCIETY OF CIVIL ENGINEERS SPECIFICATIONS FOR STRUCTURES OF ALUMINUM ALLOY 6061-T6. ALUMINUM SURFACES SHALL BE PREVENTED FROM COMING IN DIRECT CONTACT WITH CONCRETE OR WITH METALS NOT COMPATIBLE WITH ALUMINUM, USING METHODS DESCRIBED IN THE SPECIFICATIONS.

PRECAST CONCRETE

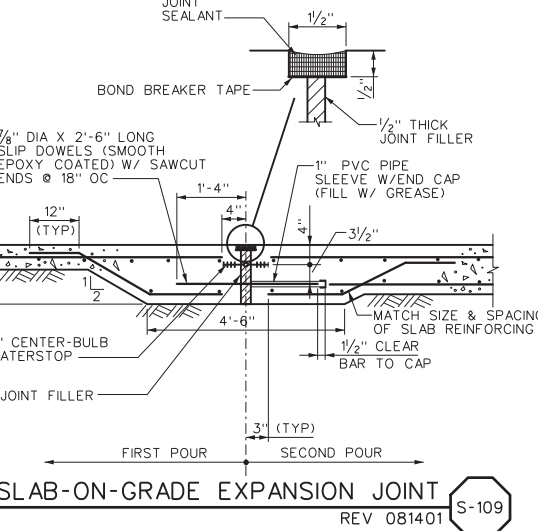
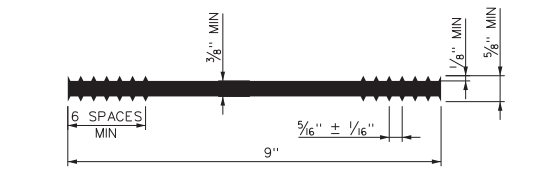
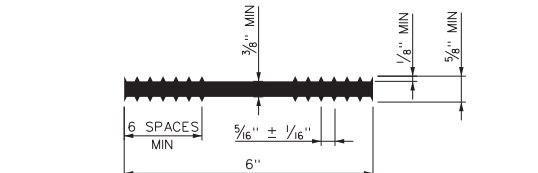
THE SUPPLIER OF THE PRECAST SHALL DESIGN AND PROVIDE DRAWINGS AND CALCULATIONS STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF WA AND SUBMITTED TO THE ENGINEER FOR REVIEW. THE DESIGN SHALL BE PER THE SPECIFICATIONS

THE SUPPLIER SHALL COORDINATE WITH THE CONTRACTOR FOR THE SIZE AND LOCATION OF ALL ROOF PENETRATIONS PRIOR TO FABRICATION.

JOINTS IN CAST IN PLACE CONCRETE

ALL CONSTRUCTION JOINTS BELOW GROUNDWATER (5 FEET BELOW GRADE) SHALL HAVE A 6 INCH FLATSTRIP WATERSTOP UNLESS NOTED OTHERWISE.

ALL CONSTRUCTION JOINTS IN HYDRAULIC STRUCTURES SHALL ALSO HAVE 6 INCH FLATSTRIP WATERSTOPS IN ALL JOINTS BELOW THE MAXIMUM WATER SURFACE ELEVATION.



REV 063003

CONSTRUCTION RECORD DRAWING

This record drawing has been prepared, entirely or in part on the basis of unverified information compiled and furnished by others to the preparer who is not responsible for any inaccuracies, errors or omissions which may have been incorporated into the document as a result

WARNING
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE



NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED	DATE 10/12/05	SCALE NTS
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DATE	DRAWN B. CROOK	PROJECT NAME
FIELD BOOKS	DRAWING NAME	

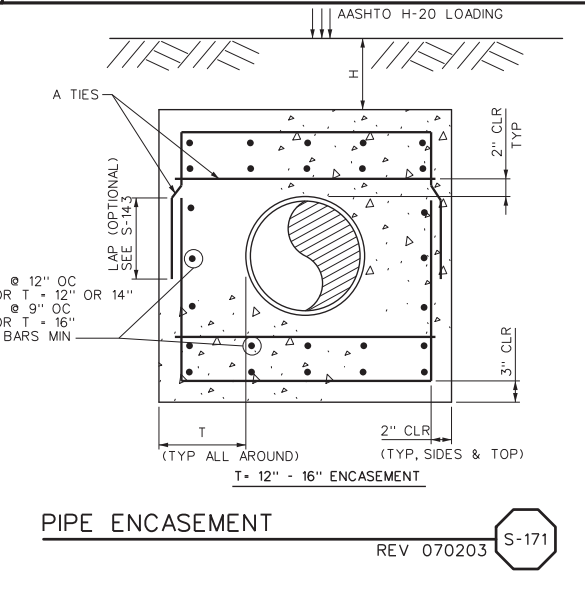
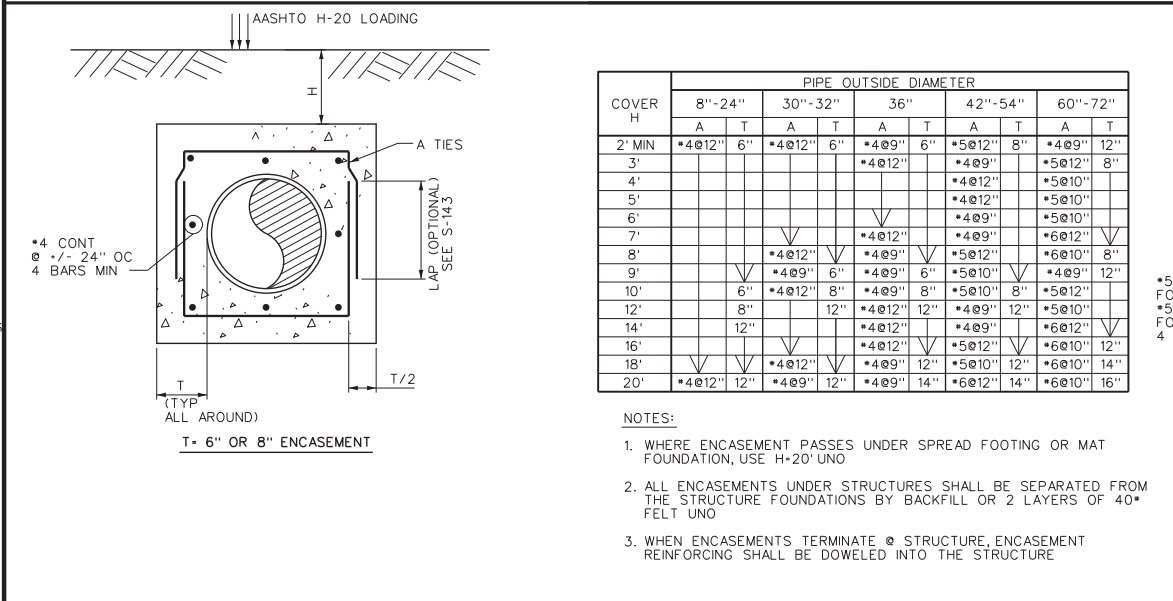
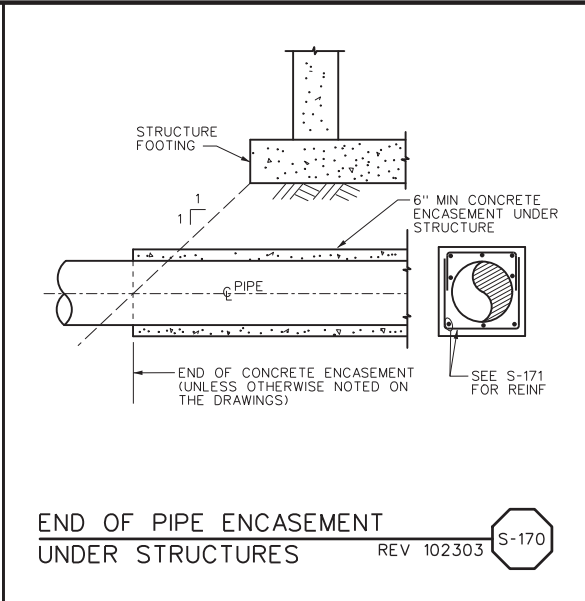
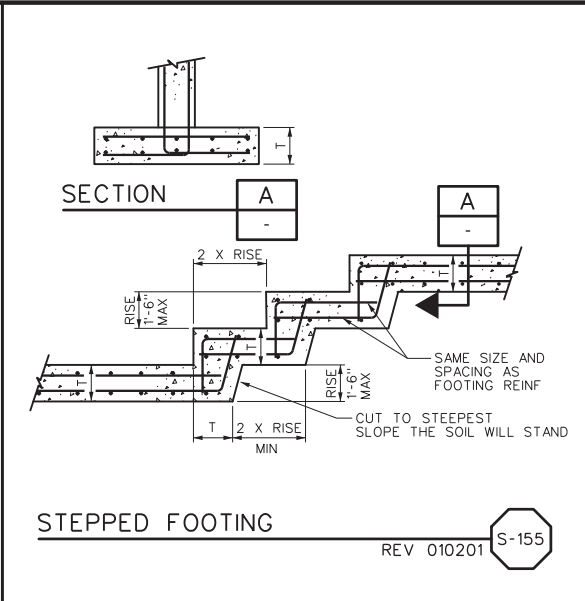
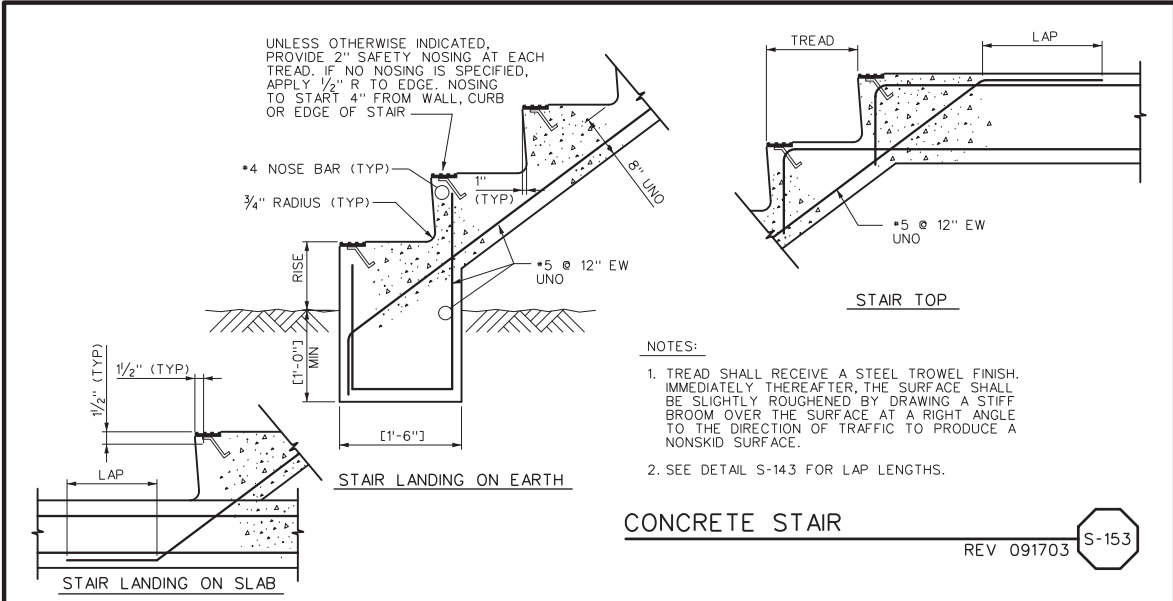
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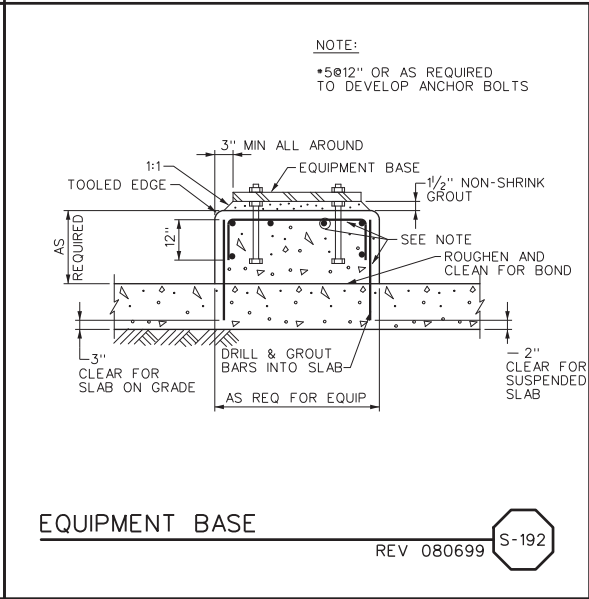
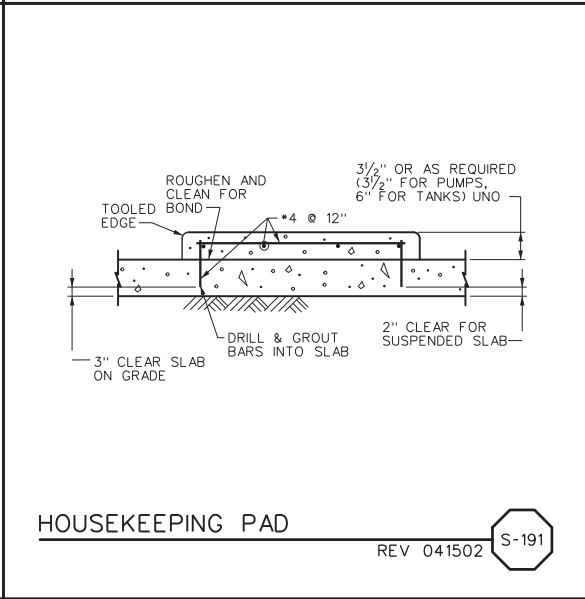
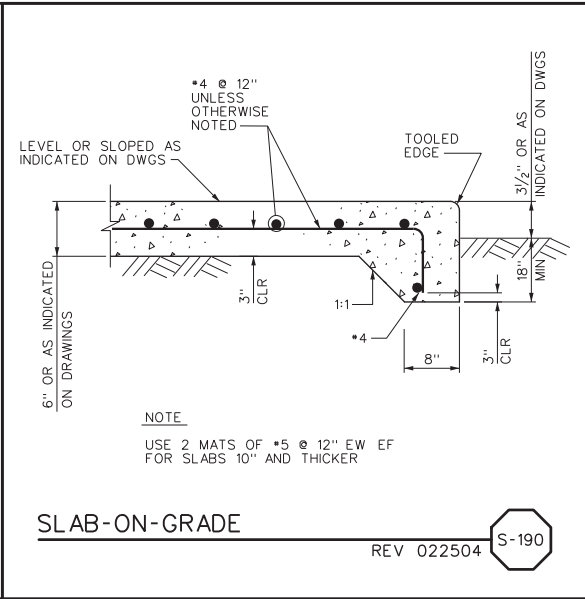
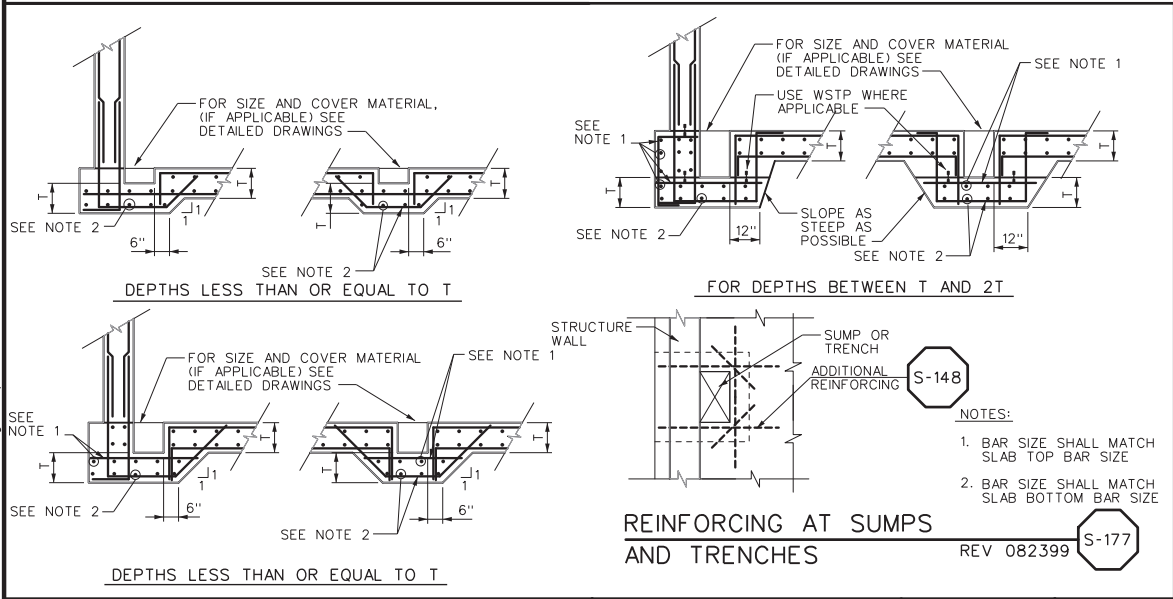
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ANCHOR BOLT DIAMETER (inches)	MINIMUM EMBEDMENT	
	TOP OF COLUMNS	OTHER APPLICATIONS
1/4	5	3
3/8	5	3
1/2	6	4
5/8	6	4.5
3/4	7	5
7/8	8	6
1	9	7
1 1/8	10	8
1 1/4	11	9

NOTES:
1. USE ONLY HEADED ANCHORS, J-BOLTS ARE NOT ALLOWED
2. THIS DETAIL APPLIES TO BOTH CONCRETE AND MASONRY
3. IN MASONRY PROVIDE A 1" ANNULAR SPACE IN BLOCK SHELL AROUND ANCHOR. GROUT TO SURFACE
4. FOR ADHESIVE ANCHORS USE THE TOP OF COLUMN EMBEDMENTS UNLESS THE MANUFACTURER'S LITERATURE CALLS OUT LONGER LENGTHS



CONSTRUCTION RECORD DRAWING This record drawing has been prepared, entirely or in part on the basis of unverified information compiled and furnished by others to the preparer who is not responsible for any inaccuracies, errors or omissions which may have been incorporated into the document as a result	WARNING 1/2" IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE	Tacoma	NO	REVISION	DATE	APPD	FINAL CONSTRUCTION CHECKED	DATE 10/12/05	SCALE NTS	DESIGNED B. CROOK	CHECKED M. FORDHAM	PROJECT NAME	DRAWN B. CROOK	DRAWING NAME	CITY OF TACOMA DEPARTMENT OF PUBLIC WORKS CTP UPGRADE AND EXPANSION PHASE III GENERAL STRUCTUIRAL STANDARD DETAILS - 4	GS-4
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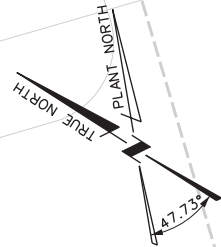
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Model: GS-8B

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JET GROUT COLUMN 1
TOP EL 7.00
BOT EL -30.00

JET GROUT COLUMN 7
TOP EL -16.50
BOT EL -30.00

JET GROUT COLUMN 8
TOP EL 1.00
BOT EL -30.00

JET GROUT COLUMN 9
TOP EL 6.00
BOT EL -20.00

JET GROUT COLUMN 10
TOP EL 3.30
BOT EL -30.00

SCREEN FACILITY AND INFLUENT
PUMP STATION JET GROUT COLUMNS
TOP EL -11.00
BOTTOM EL -26.00

JET GROUT COLUMN 11
TOP EL 8.00
BOT EL -30.00

JET GROUT COLUMN 12
TOP EL 6.00
BOT EL -30.00

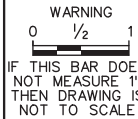
JET GROUT COLUMN 13
TOP EL 8.00
BOT EL -30.00

NOTES

- ALL JET GROUT COLUMNS ARE 12 FEET DIAMETER
- AREA OF DRILLED HOLE BETWEEN TOP OF JET GROUT COLUMN AND EXISTING GRADE SHALL BE BACKFILLED WITH JET GROUT SOILCRETE

CONSTRUCTION RECORD DRAWING

This record drawing has been prepared, entirely or in part on the basis of unverified information compiled and furnished by others to the preparer who is not responsible for any inaccuracies, errors or omissions which may have been incorporated into the document as a result



NO	REVISION	DATE	APPD

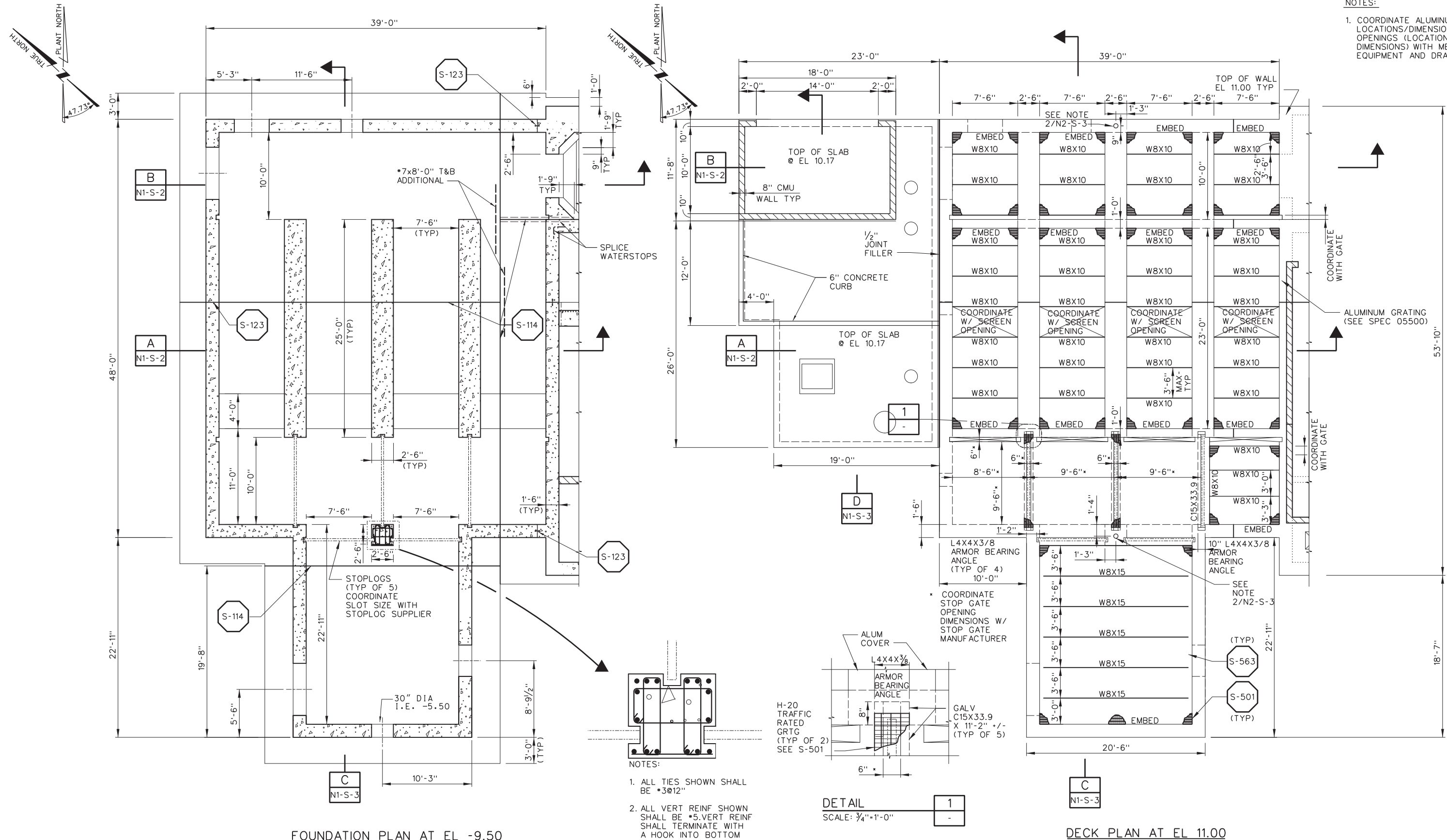
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BY
DATE
FIELD BOOKS

DATE 05/06	SCALE 3/32"=1'-0"
DESIGNED MAK	CHECKED MAK
DRAWN DGP	PROJECT NAME
DRAWING NAME	

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS
CTP UPGRADE AND EXPANSION PHASE III
GENERAL
JET GROUT COLUMN LAYOUT

GS-8B

SHEET NO.
SHEET OF



CONSTRUCTION RECORD DRAWING

This record drawing has been prepared, entirely or in part on the basis of unverified information compiled and furnished by others to the preparer who is not responsible for any inaccuracies, errors or omissions which may have been incorporated into the document as a result

WARNING
1/2
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE



NO	REVISION	DATE	APPD

FINAL CONSTRUCTION CHECKED	DATE 8/29/05	SCALE 3/16"=1'-0"
DESIGNED B. CROOK	CHECKED M. FORDHAM	PROJECT NAME
DRAWN B. CROOK	DRAWING NAME	

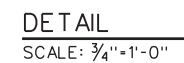
CITY OF TACOMA DEPARTMENT OF PUBLIC WORKS CTP UPGRADE AND EXPANSION PHASE III SCREENING FACILITY FOUNDATION PLAN @ EL -9.50 AND DECK PLAN AT EL 11.00

N1-S-1
SHEET NO.
SHEET OF

N1-S-2

SHEET NO.

SHEET OF



Technical drawing of a rectangular structure, likely a foundation or wall section, showing dimensions and orientation.

Dimensions:

- Overall width: 18'-0"
- Overall height: 11'-4"
- Internal width segments: 5'-6", 5'-8", 5'-6"
- Internal height segments: 8'-0", 3'-4"

Orientation:

- True North is indicated by a line pointing towards the top-left.
- Plant North is indicated by a line pointing towards the top-right.
- The angle between True North and Plant North is 47.73°.

Structural Details:

- The structure is divided into three vertical sections by two vertical lines, each labeled "W8X10".
- The leftmost section contains a small octagonal feature labeled "S-563".
- The middle section contains a hatched, irregular shape.
- The rightmost section is empty.

Labels:

- "S-563" is located near the octagonal feature in the leftmost section.
- "W8X10" is labeled vertically on both the left and right vertical lines.
- "D" is located in a small rectangular box at the bottom center.

OF

APPENDIX D

**LETTER REPORT –
MATERIAL CHARACTERIZATION
AND EVALUATION**

November 9, 2021

KPG
2505 Jefferson Avenue
Tacoma, Washington 98402

Attention: Nathan Mozer, PE

Subject: Letter Report – Material Characterization and Evaluation
Central Treatment Plant - Portland Avenue Sewer Crossing
Tacoma, Washington
File No. 0570-174-00

INTRODUCTION

This letter report presents the results of the investigation performed to characterize soil and groundwater for the City of Tacoma Central Treatment Plant Portland Avenue Sewer Crossing project. Soil and groundwater characterization were performed to support installation of approximately 250 linear feet of new sewer main below Portland Avenue. The sewer main will be oriented approximately northeast-southwest and will service a vector-truck dump station located at the Eductor Decant Facility on the southwest side of Portland Avenue. We understand that the sewer line will be installed using trenchless technologies that will include entry and exit pits on either side of Portland Avenue.

The characterization activities performed by GeoEngineers were developed based on information provided by KPG in June 2020. The sewer main installation activities will require soil and possibly groundwater removal and management during construction. The purpose of the investigation presented in this report was to characterize the soil and groundwater to assist with project planning and material management during construction of the new sewer line. The location of the project site is shown on the Vicinity Map (Figure 1).

PROPERTY BACKGROUND

The sewer line project is located under the Portland Avenue right-of-way (ROW) in the Tacoma Tideflats. The tideflats has historically been used for commercial and industrial activities and is home to the Port of Tacoma. Industrial activities with known soil and groundwater contamination identified within a quarter mile of the project site include Cleaner Pressure Washing, Facility Site ID (FSID) 23110, Tacoma Metals Site, FSID 1257, and Simon & Sons Tarpits, FSID 1252. The project site is also located within the Tacoma Smelter Plume and may have elevated concentrations of arsenic and lead in soil from the operations of the former Asarco smelter that operated for nearly 100 years in North Tacoma. The project site's proximity to these sites and possible aerial contamination from the Tacoma Smelter Plume necessitated further evaluation before construction of the replacement sewer line could begin.

Past uses of the project site included filling, grading and development into a right-of-way for access to industrial properties within the Port of Tacoma. Prior to being developed into Portland Avenue, the area consisted of channel and intertidal marshes of the historic Puyallup River delta. The project area boundary along with surrounding features are shown on Figure 2.

MATERIAL CHARACTERIZATION APPROACH

Material identified to be removed and managed to support construction of the new sewer main based on communications with KPG includes the following:

- The sewer main will be installed under Portland Avenue using trenchless technology.
- Soil to be removed from the entry and exit pits for the horizontal boring machinery will be excavated to a depth ranging from 10 to 15 feet below ground surface (bgs). One pit will be excavated on the Eductor Decanting Facility property on the southwest side of Portland Avenue. The second pit will be excavated within the former railroad spur ROW recently acquired and decommissioned by the City located between Portland Avenue and the Central Wastewater Treatment Plant. It is anticipated that this material will be required to be taken off the project site. The results of characterization described herein will be used to evaluate the material for disposal.
- Groundwater present within the project site will likely be encountered during construction and dewatering may be required. The results of characterization described herein will be used to provide a preliminary evaluation of groundwater for discharge to the sanitary sewer system.

The material characterization approach included advancement of two soil borings, one at the approximate location of each proposed pit. The first boring, B-1, was advanced on the Eductor Decanting Facility property and the second boring, B-2, was advanced on the Central Wastewater Treatment plant side of the project area at a location toward the southeast end of the replacement sewer pipe. The approach included both borings being completed to 30 feet below ground surface using hollow stem auger (HSA) drilling methods. Soil samples were collected using standard penetration test (SPT) split spoon samplers advanced in 18-inch intervals every 2.5 feet to 10 feet bgs and then every 5 feet to total depth. The approach included soil samples being collected from two intervals in boring B-1 and three intervals in boring B-2 for the purposes of characterizing the soil to be removed from the sewer line trench for soil management and off-site disposal.

The material characterization approach included a groundwater monitoring well being completed at one of the locations to be determined based on subsurface conditions observed at the time of drilling. The monitoring well construction approach consisted of a 2-inch-diameter schedule 40 polyvinyl chloride (PVC) riser attached to a 10-foot-long well screen. The approach included the well being developed and subsequently sampled for the purpose of characterizing the groundwater that will be encountered during installation of the new sewer line. The results of the groundwater sampling are to be used to apply for the Special Approved Discharge (SAD) permit with the City for discharge to the sanitary sewer system.

FIELD ACTIVITIES AND SAMPLE COLLECTION

A total of two soil borings were completed by Holocene Drilling of Puyallup, Washington on October 26, 2020 using an HSA drill rig and SPT split spoon sampler to collect soil samples for geotechnical and chemical analysis. Geotechnical results and analysis are provided in a separate letter prepared by GeoEngineers

geotechnical personnel. The soil boring locations are presented on Figure 2. Sampling methods are described in Appendix A.

The advancement of soil borings was monitored by GeoEngineers representatives of who visually classified and performed field screening tests on soil from each boring for evidence of petroleum hydrocarbons and photoionizable vapors. Evidence of a moderate to slight petroleum hydrocarbon sheen was observed to be present in the upper 5 feet of boring B-1 and the upper 12 feet of boring B-2 based on the field screening tests performed. Photoionizable vapors were not detected in the soil observed in borings B-1 and B-2. Soil observed from the borings generally consisted of sands and silts with varying amounts of gravel and organic matter. Fill materials consisting of soil with brick fragments were observed in the upper 7 feet of boring B-2. Borings B-1 and B-2 encountered a wet, gray, fine to medium sand beginning at approximately 18 feet and 15 feet bgs, respectively. The subsurface conditions and field screening results are shown on the soil boring logs presented in Appendix A. Soil samples were collected from each boring to characterize material from the unsaturated and saturated zones. The soil sample depths are presented in Table 1.

Groundwater was originally observed at approximately 17 feet bgs during drilling of boring B-1 prompting a monitoring well, MW-1, to be installed in the same borehole with a 10-foot long screen set from 13 feet to 23 feet bgs. Groundwater was measured again after monitoring well MW-1 was installed, but at a depth of approximately 8 feet bgs, approximately 5 feet above the well screen. It was not clear if the water level being measured after the well was installed was the static groundwater table or if it was the result of water introduced to the boring during drilling activities to control heaving sands. The water level was checked again an hour later, where it was measured to have only lowered to approximately 8.5 feet bgs.

Based on the observations of groundwater levels in well MW-1, a second well, MW-2, was installed in boring B-2 to avoid a second mobilization fee if the first well proved to have a submerged screen. A submerged screen of more than approximately 2 feet may not provide representative analytical results necessary for groundwater characterization purposes, especially if it is found that groundwater contamination consists of light non-aqueous phase liquids (LNAPL) like fuels or oils. Groundwater was originally observed at approximately 12.5 feet bgs in boring B-2 and rose to approximately 6 feet bgs following the installation of groundwater monitoring well MW-2 in the same borehole. Monitoring well MW-2 was installed with a 10-foot screen set from 5 to 15 feet bgs.

Soil generated during drilling and installation of monitoring wells MW-1 and MW-2 was placed in two sealed 55-gallon steel drums located next to the ecology block wall near monitoring well MW-1 on the Eductor Decant Facility. Water generated during drilling equipment decontamination was placed in a third sealed 55-gallon steel drum located next to the two soil drums.

Groundwater monitoring wells MW-1 and MW-2 were developed on October 27, 2020. Development was performed using a Waterra brand check valve and tubing and by intermittently surging the wells using a 1-liter stainless steel bailer. Monitoring well MW-2 was developed first. Groundwater within monitoring well MW-2 was measured to be approximately 9.5 feet bgs prior to developing the well. Approximately 2.5 gallons of water and mud was removed from monitoring well MW-2 after pumping it dry three times. Well development was switched to monitoring well MW-1 due to the poor groundwater recovery observed at monitoring well MW-2. Groundwater within monitoring well MW-1 was measured to be approximately 12.0 feet bgs prior to developing the well. Approximately 14 gallons of groundwater was removed from monitoring well MW-1 and the groundwater was allowed to recover fully mid-way through the development process. Groundwater turbidity visibly decreased from opaque mud to light brown water. However, the turbidity measurements did not decrease to below 1,000 nephelometric turbidity units (NTUs) despite appearing less turbid. The water that

was purged from monitoring wells MW-1 and MW-2 was placed in the 55-gallon steel drum containing the decontamination water generated during the previous day of drilling.

GeoEngineers returned to the site on October 29, 2020 to collect a groundwater sample from monitoring well MW-1. Groundwater was measured to be approximately 12.5 feet bgs prior to start of sampling activities. The groundwater sample was collected using a submersible stainless-steel bladder pump with a disposable low-density polyethylene (LDPE) bladder. Approximately 5.5 gallons of water were purged from the upper 2.5 feet of the well screen with groundwater field parameters measured after approximately every 0.5 gallons purged. Field parameters measured include depth to water, pH, conductivity, turbidity, dissolved oxygen, temperature, and oxidation/reduction potential (ORP). The variation between measurements fell within the acceptable limits prior to sample collection per State and Federal guidelines. The measurements that were recorded are presented on the Groundwater Sample Collection Form provided in Appendix A.

CHEMICAL ANALYSES

Chemical analyses were performed on the soil samples to characterize the soil for off-site disposal purposes. Chemical analyses were performed on the groundwater samples to characterize the groundwater for potential discharge to the City of Tacoma Wastewater Treatment Plant under a SAD permit. The soil and groundwater samples were submitted to OnSite Environmental, Inc. of Redmond, Washington for analysis.

Soil samples were analyzed for the following:

- a. Hydrocarbon identification.
- b. Volatile organic compounds (VOCs),
- c. Polycyclic aromatic hydrocarbons (PAHs),
- d. Resource Conservation and Recovery Act (RCRA) 8 metals plus copper and nickel,
- e. Hexavalent chromium (performed on two samples),
- f. Polychlorinated biphenyls (PCBs), and
- g. pH.

The groundwater sample was analyzed for the following:

- a. Total petroleum hydrocarbons (oil and grease),
- b. Total toxic organics (includes VOCs, semi volatile organic compounds [SVOCs], PCBs, organochlorine pesticides, and chlorinated acid herbicides),
- c. RCRA 8 metals plus copper, molybdenum, nickel and zinc,
- d. Hexavalent chromium,
- e. Total cyanide,
- f. Free cyanide,
- g. Total suspended solids, and
- h. pH.

The analytical laboratory reports and data validation report are provided in Appendix B.

ANALYTICAL RESULTS

The chemical analytical results for soil are presented in Table 1 and for groundwater are presented in Table 2. The analytical results are compared to the established Washington state department of Ecology Model Toxics Control Act (MTCA) Method A cleanup levels where available. Method B cleanup levels were used for comparison for analytes for which Method A cleanup levels have not been established. The background metals concentrations for Washington State (Ecology 1994) are also provided for comparison.

The analytical results for soil samples collected from borings B-1 and B-2 indicated that lube oil-range petroleum hydrocarbons, three VOCs (2-Butanone, acetone and carbon disulfide), a PCB Aroclor and several metals are present in soil at concentrations less than established MTCA Method A/B cleanup levels (Table 1). Arsenic was detected in soil at a concentration greater than background for Washington State in sample GEOENV-B1-2.5-4, and metals copper, lead and mercury were detected in soil at concentrations greater than the background levels in samples GEOENV-B1-2.5-4 and GEOENV-B2-2.5-5. Carcinogenic PAHs were detected in soil from sample GEOENV-B1-2.5-4 at a concentration greater than the MTCA Method A cleanup level for unrestricted land use, but less than the MTCA Method A cleanup level for industrial land use. PAHs were detected in two other samples but at concentrations less than established MTCA Method A/B cleanup levels. Gasoline- and diesel-range petroleum hydrocarbons were not detected above the laboratory reporting limits in the samples. The pH of the soil samples ranged from 6.3 to 8.6 for all samples.

The analytical results for the groundwater sample collected from monitoring well MW-1 indicated that two SVOCs (1-Methylnaphthalene and Acenaphthene) and two metals (arsenic and lead) are present but at concentrations less than the Pollutant Discharge Limits for the SAD permit application (Table 2). Total petroleum hydrocarbons, Cyanide, VOCs, PCBs, pesticides, and herbicides were not detected above the laboratory reporting limits in the sample. The pH of the water sample is 7.3. Flashpoint was also analyzed for profiling the water in the drums for off-site disposal.

CONCLUSIONS AND RECOMMENDATIONS

The results for samples collected from the Portland Avenue Wastewater Sewer project indicate the following:

- Shallow soil from boring B-1 on the Eductor Decant Facility property contains cPAHs at a concentration greater than the MTCA Method A cleanup level and detections of lube oil-range petroleum hydrocarbons, metals, VOCs and PCBs at concentrations less than the MTCA Method A/B cleanup levels for unrestricted land use. The remaining soil samples from boring B-1 and B-2 contained one or more detections of metals, VOCs, and PAHs at concentrations less than the MTCA Method A/B cleanup levels. Shallow soil from borings B-1 and B-2 contained several metals at concentrations greater than background for Washington State.
- Groundwater from monitoring well GEO-MW1 contains limited metals and SVOCs but at concentrations less than the SAD Permit Pollutant Discharge Limits.

Based on the results of samples collected from the Portland Avenue Sewer Crossing project, the following is recommended for management of materials from the property:

- Dispose of material, that is excavated as part of the sewer main installation project and is determined to be structurally unsuitable for reuse on site at a permitted RCRA Subtitle D landfill approved by the City.
- Dispose of groundwater removed for dewatering as part of the sewer replacement project at the City of Tacoma Wastewater Treatment Plant under a SAD permit approved by the City.

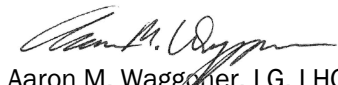
LIMITATIONS

We have prepared this letter report for the exclusive use of KPG, the City of Tacoma and their authorized agents. Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted environmental science practices in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood. Any electronic form, facsimile or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

Please refer to Appendix C, titled "Report Limitations and Guidelines for Use," for additional information pertaining to use of this letter report.

We appreciate the opportunity to present this letter report to KPG on behalf of the City of Tacoma. Please call if you have questions or require additional information.

Sincerely,
GeoEngineers, Inc.



Aaron M. Waggoner, LG, LHG
Project Geologist



Iain H. Wingard
Principal Environmental Scientist

AMW:IHW:ch

Attachments:

Table 1. Summary of Soil Chemical Analytical Results

Table 2. Summary of Water Chemical Analytical Results

Figure 1. Vicinity Map

Figure 2. Site Plan

Appendix A. Field Exploration Program

Figure A-1. Key to Exploration Logs

Figures A-2 through A-3. Log of Monitoring Wells

Groundwater Sample Collection Form

Appendix B. Laboratory Analytical Data and Data Validation Report

Appendix C. Report Limitations and Guidelines for Use

Table 1

Summary of Soil Chemical Analytical Results ¹
City of Tacoma - Central Treatment Plant - Portland Avenue Sewer Crossing
Tacoma, Washington

Sample Area	GEOENV-B1 (MW-1) Decanting Facility Side		GEOENV-B2 (MW-2) Central Treatment Plant Side			MTCA Screening Level ¹³	Washington State Background ¹⁴
Sample Identification ²	GEOENV-B1-2.5-4	GEOENV-B1-10-11.5	GEOENV-B2-2.5-5	GEOENV-B2-10-11.5	GEOENV-B2-15-16.5		
Sample Date	10/26/2020	10/26/2020	10/26/2020	10/26/2020	10/26/2020		
Sample Depth (feet bgs)	2.5 to 4	10 to 11.5	2.5 to 5	10 to 11.5	15 to 16.5		
NWTPH-HCID ³ (mg/kg)							
Gasoline-range hydrocarbons	22 U	27 U	24 U	27 U	27 U	30/100 ¹⁵	NE
Diesel-range hydrocarbons	55 U	66 U	61 U	66 U	66 U	2,000 ¹⁶	NE
Lube Oil-range Hydrocarbons	Detected	130 U	120 U	130 U	130 U		
NWTPH-Dx ⁴ (mg/kg)							
Diesel-range hydrocarbons	140 U	--	--	--	--	2,000 ¹⁶	NE
Lube Oil-range Hydrocarbons	1,200	--	--	--	--		
Metals ⁵ (mg/kg)							
Arsenic	12	6.6 U	6.4	6.6 U	6.6 U	20	7
Barium	130	12	490	82	9.5	16,000 ¹³	NE
Cadmium	0.70	0.66 U	0.61 U	0.66 U	0.66 U	2.0	1.0
Chromium	29	17	21	16	6.0	2,000 ¹⁷	48
Hexavalent Chromium	1.1 U	1.3 U	1.2 U	1.3 U	1.3 U	19	NE
Copper	110	18	68	26	8.7	3,200 ¹³	36
Lead	94	6.6 U	240	21	6.6 U	250	24
Mercury	0.29	0.33 U	0.94	0.33 U	0.33 U	2.0	0.07
Nickel	27	11	24	11	6.5	1,600 ¹³	48
Selenium	11 U	13 U	12 U	13 U	13 U	400 ¹³	NE
Silver	1.1 U	1.3 U	1.2 U	1.3 U	1.3 U	400 ¹³	NE
VOCs ⁶ (mg/kg)							
1,1,1,2-Tetrachloroethane	0.00093 U	0.001 U	0.001 U	0.0011 U	0.0012 U	38.5 ¹³	NE
1,1,1-Trichloroethane	0.00093 U	0.001 U	0.001 U	0.0011 U	0.0012 U	2.0	NE
1,1,2,2-Tetrachloroethane	0.00093 U	0.001 U	0.09 U	0.0011 U	0.0012 U	5.0 ¹³	NE
1,1,2-Trichloroethane	0.00093 U	0.001 U	0.001 U	0.0011 U	0.0012 U	17.5 ¹³	NE
1,1-Dichloroethane	0.00093 U	0.001 U	0.001 U	0.0011 U	0.0012 U	175 ¹³	NE
1,1-Dichloroethene	0.00093 U	0.001 U	0.001 U	0.0011 U	0.0012 U	4,000 ¹³	NE
1,1-Dichloropropene	0.00093 U	0.001 U	0.001 U	0.0011 U	0.0012 U	NE	NE
1,2,3-Trichlorobenzene	0.00093 U	0.001 U	0.064 U	0.0011 U	0.0012 U	NE	NE
1,2,3-Trichloropropane	0.00093 U	0.001 U	0.064 U	0.0011 U	0.0012 U	0.0333 ¹³	NE
1,2,4-Trichlorobenzene	0.00093 U	0.001 U	0.064 U	0.0011 U	0.0012 U	34.5 ¹³	NE
1,2,4-Trimethylbenzene	0.00093 U	0.001 U	0.064 U	0.0011 U	0.0012 U	NE	NE
1,2-Dibromo-3-chloropropane	0.0046 U	0.0052 U	0.32 U	0.0055 U	0.0059 U	1.25 ¹³	NE
1,2-Dibromoethane	0.00093 U	0.001 U	0.001 U	0.0011 U	0.0012 U	0.005	NE
1,2-Dichlorobenzene (o-Dichlorobenzene)	0.00093 U	0.001 U	0.064 U	0.0011 U	0.0012 U	7,200 ¹³	NE
1,2-Dichloroethane	0.00093 U	0.001 U	0.001 U	0.0011 U	0.0012 U	11 ¹³	NE

Sample Area	GEOENV-B1 (MW-1) Decanting Facility Side		GEOENV-B2 (MW-2) Central Treatment Plant Side			MTCA Screening Level ¹³	Washington State Background ¹⁴
Sample Identification ²	GEOENV-B1-2.5-4	GEOENV-B1-10-11.5	GEOENV-B2-2.5-5	GEOENV-B2-10-11.5	GEOENV-B2-15-16.5		
Sample Date	10/26/2020	10/26/2020	10/26/2020	10/26/2020	10/26/2020		
Sample Depth (feet bgs)	2.5 to 4	10 to 11.5	2.5 to 5	10 to 11.5	15 to 16.5		
1,2-Dichloropropane	0.00093 U	0.001 U	0.001 U	0.0011 U	0.0012 U	27.8 ¹³	NE
1,3,5-Trimethylbenzene	0.00093 U	0.001 U	0.064 U	0.0011 U	0.0012 U	800 ¹³	NE
1,3-Dichlorobenzene (m-Dichlorobenzene)	0.00093 U	0.001 U	0.064 U	0.0011 U	0.0012 U	NE	NE
1,3-Dichloropropane	0.00093 U	0.001 U	0.001 U	0.0011 U	0.0012 U	NE	NE
1,4-Dichlorobenzene (p-Dichlorobenzene)	0.00093 U	0.001 U	0.064 U	0.0011 U	0.0012 U	185 ¹³	NE
2,2-Dichloropropane	0.00093 U	0.001 U	0.001 U	0.0011 U	0.0012 U	NE	NE
2-Butanone	0.034	0.027	0.087	0.028	0.0059 U	48,000 ¹³	NE
2-Chloroethyl Vinyl Ether	0.0046 U	0.0052 U	0.0052 U	0.0055 U	0.0059 U	NE	NE
2-Chlorotoluene	0.00093 U	0.001 U	0.064 U	0.0011 U	0.0012 U	1,600 ¹³	NE
2-Hexanone	0.0046 U	0.0052 U	0.0052 U	0.0055 U	0.0059 U	NE	NE
4-Chlorotoluene	0.00093 U	0.001 U	0.064 U	0.0011 U	0.0012 U	NE	NE
4-Methyl-2-Pentanone (Methyl isobutyl ketone)	0.0046 U	0.0052 U	0.0052 U	0.0055 U	0.0059 U	6,400 ¹³	NE
Acetone	0.14	0.12	0.38	0.13	0.015	72,000 ¹³	NE
Benzene	0.00093 U	0.001 U	0.001 U	0.0011 U	0.0012 U	0.03	NE
Bromobenzene	0.00093 U	0.001 U	0.064 U	0.0011 U	0.0012 U	NE	NE
Bromochloromethane	0.00093 U	0.001 U	0.001 U	0.0011 U	0.0012 U	NE	NE
Bromodichloromethane	0.00093 U	0.001 U	0.001 U	0.0011 U	0.0012 U	16.1 ¹³	NE
Bromoform	0.0046 U	0.0052 U	0.0052 U	0.0055 U	0.0059 U	127 ¹³	NE
Bromomethane	0.00093 U	0.001 U	0.001 U	0.0011 U	0.0012 U	112 ¹³	NE
Carbon Disulfide	0.0015	0.0022	0.0026	0.0011 U	0.0016	8,000 ¹³	NE
Carbon Tetrachloride	0.00093 U	0.001 U	0.001 U	0.0011 U	0.0012 U	14.3 ¹³	NE
Chlorobenzene	0.00093 U	0.001 U	0.001 U	0.0011 U	0.0012 U	1,600 ¹³	NE
Chloroethane	0.0046 U	0.0052 U	0.0052 U	0.0055 U	0.0059 U	NE	NE
Chloroform	0.00093 U	0.001 U	0.001 U	0.0011 U	0.0012 U	32.3 ¹³	NE
Chloromethane	0.0046 U	0.0052 U	0.0052 U	0.0055 U	0.0059 U	NE	NE
cis-1,2-Dichloroethene	0.00093 U	0.001 U	0.001 U	0.0011 U	0.0012 U	160 ¹³	NE
cis-1,3-Dichloropropene	0.00093 U	0.001 U	0.001 U	0.0011 U	0.0012 U	NE	NE
Dibromochloromethane	0.00093 U	0.001 U	0.001 U	0.0011 U	0.0012 U	11.9 ¹³	NE
Dibromomethane	0.00093 U	0.001 U	0.001 U	0.0011 U	0.0012 U	800	NE
Dichlorodifluoromethane (CFC-12)	0.00093 U	0.001 U	0.001 U	0.0011 U	0.0012 U	16,000 ¹³	NE
Ethylbenzene	0.00093 U	0.001 U	0.001 U	0.0011 U	0.0012 U	6.0	NE
Hexachlorobutadiene	0.0046 U	0.0052 U	0.32 U	0.0055 U	0.0059 U	12.8 ¹³	NE
Isopropylbenzene (Cumene)	0.00093 U	0.001 U	0.001 U	0.0011 U	0.0012 U	8,000 ¹³	NE
Methyl Iodide (Iodomethane)	0.0046 U	0.0052 U	0.0052 U	0.0055 U	0.0059 U	NE	NE
Methyl t-Butyl Ether	0.00093 U	0.001 U	0.001 U	0.0011 U	0.0012 U	0.1	NE
Methylene Chloride	0.0046 U	0.0052 U	0.0052 U	0.0055 U	0.0059 U	0.02	NE
Naphthalene	0.0046 U	0.0052 U	0.32 U	0.0055 U	0.0059 U	5	NE
n-Butylbenzene	0.00093 U	0.001 U	0.064 U	0.0011 U	0.0012 U	4,000 ¹³	NE

Sample Area	GEOENV-B1 (MW-1) Decanting Facility Side		GEOENV-B2 (MW-2) Central Treatment Plant Side			MTCA Screening Level ¹³	Washington State Background ¹⁴
Sample Identification ²	GEOENV-B1-2.5-4	GEOENV-B1-10-11.5	GEOENV-B2-2.5-5	GEOENV-B2-10-11.5	GEOENV-B2-15-16.5		
Sample Date	10/26/2020	10/26/2020	10/26/2020	10/26/2020	10/26/2020		
Sample Depth (feet bgs)	2.5 to 4	10 to 11.5	2.5 to 5	10 to 11.5	15 to 16.5		
n-Propylbenzene	0.00093 U	0.001 U	0.064 U	0.0011 U	0.0012 U	8,000 ¹³	NE
p-Isopropyltoluene	0.00093 U	0.001 U	0.064 U	0.0011 U	0.0012 U	NE	NE
sec-Butylbenzene	0.00093 U	0.001 U	0.064 U	0.0011 U	0.0012 U	8,000 ¹³	NE
Styrene	0.00093 U	0.001 U	0.001 U	0.0011 U	0.0012 U	16,000 ¹³	NE
tert-Butylbenzene	0.00093 U	0.001 U	0.064 U	0.0011 U	0.0012 U	8,000 ¹³	NE
Tetrachloroethene	0.00093 U	0.001 U	0.001 U	0.0011 U	0.0012 U	0.05	NE
Toluene	0.0046 U	0.0052 U	0.0052 U	0.0055 U	0.0059 U	7.0	NE
Trans-1,2-Dichloroethene	0.00093 U	0.001 U	0.001 U	0.0011 U	0.0012 U	1,600 ¹³	NE
Trans-1,3-Dichloropropene	0.00093 U	0.001 U	0.001 U	0.0011 U	0.0012 U	NE	NE
Trichloroethene	0.00093 U	0.001 U	0.001 U	0.0011 U	0.0012 U	0.03	NE
Trichlorofluoromethane (CFC-11)	0.00093 U	0.001 U	0.001 U	0.0011 U	0.0012 U	24,000 ¹³	NE
Vinyl Acetate	0.0046 U	0.0052 U	0.0052 U	0.0055 U	0.0059 U	80,000 ¹³	NE
Vinyl Chloride	0.00093 U	0.001 U	0.001 U	0.0011 U	0.0012 U	240 ¹³	NE
m,p-Xylene	0.0019 U	0.0021 U	0.0021 U	0.0022 U	0.0023 U	9.0	NE
o-Xylene	0.00093 U	0.001 U	0.001 U	0.0011 U	0.0012 U		
Total Xylenes ⁷	0.0019 U	0.0021 U	0.0021 U	0.0022 U	0.0023 U		
PAHs ⁸ (mg/kg)							
1-Methylnaphthalene	0.037 U	0.0088 U	0.062	0.0093	0.0088 U	5.0	NE
2-Methylnaphthalene	0.037 U	0.0088 U	0.069	0.0096	0.0088 U		
Naphthalene	0.037 U	0.0088 U	0.080	0.0088 U	0.0088 U		
Total Naphthalenes ⁹	0.1110 U	0.0264 U	0.211	0.0277 U	0.0264 U		
Acenaphthene	0.037 U	0.0088 U	0.012	0.0088 U	0.0088 U	4,800	NE
Acenaphthylene	0.064	0.0088 U	0.025	0.0088 U	0.0088 U	NE	NE
Anthracene	0.062	0.0088 U	0.031	0.0088 U	0.0088 U	24,000	NE
Benzo(a)anthracene	0.17	0.0088 U	0.095	0.0088 U	0.0088 U	See cPAHs ¹⁰	NE
Benzo(a)pyrene	0.14	0.0088 U	0.069	0.0088 U	0.0088 U	0.1 ¹⁸	NE
Benzo(b)fluoranthene	0.19	0.0088 U	0.077	0.0088 U	0.0088 U	See cPAHs ¹⁰	NE
Benzo(g,h,i)perylene	0.094	0.0088 U	0.042	0.0088 U	0.0088 U	NE	NE
Benzo(j,k)fluoranthene	0.049	0.0088 U	0.024	0.0088 U	0.0088 U	See cPAHs ¹⁰	NE
Chrysene	0.19	0.0088 U	0.098	0.0088 U	0.0088 U	See cPAHs ¹⁰	NE
Dibenzo(a,h)anthracene	0.037 U	0.0088 U	0.012	0.0088 U	0.0088 U	See cPAHs ¹⁰	NE
Fluoranthene	0.25	0.0088 U	0.11	0.0088 U	0.0088 U	3,200	NE
Fluorene	0.037 U	0.0088 U	0.016	0.0088 U	0.0088 U	3,200	NE
Indeno(1,2,3-c,d)pyrene	0.086	0.0088 U	0.040	0.0088 U	0.0088 U	See cPAHs ¹⁰	NE
Phenanthrene	0.15	0.0088 U	0.13	0.013	0.0088 U	NE	NE
Pyrene	0.27	0.0088 U	0.13	0.0088 U	0.0088 U	2,400	NE
cPAHs ¹⁰ (benzo(a)pyrene toxicity equivalent concentration)	0.1933 ¹⁸	0.0066 U	0.0948	0.0066 U	0.0066 U	0.1 ¹⁸	NE

Sample Area	GEOENV-B1 (MW-1) Decanting Facility Side		GEOENV-B2 (MW-2) Central Treatment Plant Side			MTCA Screening Level ¹³	Washington State Background ¹⁴
Sample Identification ²	GEOENV-B1-2.5-4	GEOENV-B1-10-11.5	GEOENV-B2-2.5-5	GEOENV-B2-10-11.5	GEOENV-B2-15-16.5		
Sample Date	10/26/2020	10/26/2020	10/26/2020	10/26/2020	10/26/2020		
Sample Depth (feet bgs)	2.5 to 4	10 to 11.5	2.5 to 5	10 to 11.5	15 to 16.5		
PCBs ¹¹ (mg/kg)							
Aroclor 1016	0.055 U	0.066 U	0.061 U	0.066 U	0.066 U	1.0	NE
Aroclor 1221	0.055 U	0.066 U	0.061 U	0.066 U	0.066 U		
Aroclor 1232	0.055 U	0.066 U	0.061 U	0.066 U	0.066 U		
Aroclor 1242	0.055 U	0.066 U	0.061 U	0.066 U	0.066 U		
Aroclor 1248	0.055 U	0.066 U	0.061 U	0.066 U	0.066 U	1.0	NE
Aroclor 1254	0.055 U	0.066 U	0.061 U	0.066 U	0.066 U		
Aroclor 1260	0.084	0.066 U	0.061 U	0.066 U	0.066 U		
pH ¹² (at 25 °C)							
Corrosivity	7.2	7.1	6.3	6.9	8.6	NE	NE

Notes:

- ¹ Chemical analysis performed by OnSite Environmental, Inc., of Redmond, Washington.
- ² Sample ID = GEO (GeoEngineers), B/MW (soil boring/monitoring well), 1, 2, etc. (location number), 5.0-6.0 (depth range in feet).
- ³ Hydrocarbon identification for gasoline-, diesel- and lube oil-range petroleum hydrocarbons analyzed by Washington State Department of Ecology (Ecology) approved Method NWTPH-HCID.
- ⁴ Total diesel- and lube oil-range petroleum hydrocarbons analyzed by Ecology-approved Method NWTPH-Dx.
- ⁵ Resource Conservation Recovery Act (RCRA) metals analyzed by EPA method 6000/7000 series.
- ⁶ Full list volatile organic compounds (VOCs) analyzed by EPA Method 8260C.
- ⁷ Total xylenes consists of m,p- and o- xylenes. The higher detection limit is used for non-detects.
- ⁸ Polycyclic aromatic hydrocarbons (PAHs) analyzed by EPA Method 8270D/SIM.
- ⁹ Total naphthalenes consists of 1-methylnaphthalene, 2-methylnaphthalene and naphthalene.
- ¹⁰ Results for cPAHs shown as the sum of benzo[a]pyrene toxicity equivalent concentrations, calculated by multiplying each individual cPAH concentration by its corresponding toxicity equivalency factor (TEF). In this sum, non-detects are represented as ½ of the corresponding analyte reporting limit multiplied by the TEF.
- ¹¹ Polychlorinated biphenyls (PCBs) analyzed by EPA Method 8082A
- ¹² pH analyzed by EPA Method 9045D.
- ¹³ Model Toxics Control Act (MTCA) Method A cleanup levels shown if established. Method B cleanup level shown if no Method A cleanup level is established. The MTCA Method B cleanup level shown is the lowest for either carcinogen or non-carcinogen, based on direct contact.
- ¹⁴ Background metal concentrations for Puget Sound identified in Natural Background Soil Metals Concentrations in Washington State (Washington State Department of Ecology, October 1994,
- ¹⁵ MTCA Method A cleanup level for gasoline is 30 mg/kg if benzene is detected or if the sum of toluene, ethylbenzene and xylenes are greater than or equal to 1% of the total gasoline detection.
- ¹⁶ MTCA Method A cleanup level shown for the sum of diesel- and lube oil-range petroleum hydrocarbons based on Ecology Implementation Memo No. 4
- ¹⁷ MTCA Method A cleanup level for Trivalent Chromium
- ¹⁸ MTCA Method A cleanup level for industrial land use for benzo[a]pyrene is 2.0 mg/kg
- "-" = not tested
- bgs = below ground surface
- mg/kg = milligram per kilogram
- NE = not established
- U = Analyte was not detected at or greater than the listed reporting limit.
- Y = The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, 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.
- TEF = Toxicity Equivalency Factor as defined in WAC 173-340-900 Table 708-2.
- Bold** font type indicates that the analyte was detected at a concentration greater than the respective laboratory reporting limit.
- Grey cells indicate that the analyte was detected at a concentration greater than the respective MTCA Method A cleanup level.

Table 2

Summary of Water Chemical Analytical Results ¹
City of Tacoma - Central Treatment Plant - Portland Avenue Sewer Crossing
Tacoma, Washington

Sample Identification ²	MW-1	Pollutant Discharge Limit ¹⁴
Sample Date	10/29/2020	
Total Petroleum Hydrocarbons ³ (mg/L)		
Hexane Extractable Material	6.0 U	50
Metals ⁴ (µg/L)		
Arsenic	4.3	100
Barium	28 U	NE
Cadmium	4.4 U	250
Chromium	11 U	1,000
Hexavalent Chromium	10 U	250
Copper	11 U	1,000
Lead	1.4	400
Mercury	0.50 U	50
Molybdenum	110 U	1,000
Nickel	22 U	1,000
Selenium	5.6 U	100
Silver	11 U	200
Zinc	28 U	2,000
Cyanide ⁵ (mg/L)		
Free Cyanide	0.005 U	0.2
Total Cyanide	0.006 U	0.64
VOCs ⁶ (µg/L)		
1,1,1,2-Tetrachloroethane	0.20 U	2,130 ¹⁵
1,1,1-Trichloroethane	0.20 U	
1,1,2,2-Tetrachloroethane	0.20 U	
1,1,2-Trichloroethane	0.20 U	
1,1-Dichloroethane	0.20 U	
1,1-Dichloroethene	0.20 U	
1,1-Dichloropropene	0.20 U	
1,2,3-Trichlorobenzene	0.20 U	
1,2,3-Trichloropropane	0.20 U	
1,2,4-Trichlorobenzene	0.20 U	
1,2,4-Trimethylbenzene	0.20 U	
1,2-Dibromo-3-chloropropane	1.0 U	
1,2-Dibromoethane (EDB)	0.20 U	
1,2-Dichlorobenzene (o-Dichlorobenzene)	0.20 U	
1,2-Dichloroethane	0.20 U	
1,2-Dichloropropane	0.20 U	

Sample Identification ²	MW-1	Pollutant Discharge Limit ¹⁴
Sample Date	10/29/2020	
1,3,5-Trimethylbenzene	0.20 U	2,130 ¹⁵
1,3-Dichlorobenzene (m-Dichlorobenzene)	0.20 U	
1,3-Dichloropropane	0.20 U	
1,4-Dichlorobenzene (p-Dichlorobenzene)	0.20 U	
2,2-Dichloropropane	0.20 U	
2-Butanone (Methyl Ethyl Ketone)	5.0 U	
2-Chloroethyl Vinyl Ether	1.3 U	
2-Chlorotoluene	0.20 U	
2-Hexanone	2.0 U	
4-Chlorotoluene	0.20 U	
4-Methyl-2-Pentanone (Methyl isobutyl ketone)	2.0 U	
Acetone	5.0 U	
Benzene	0.20 U	
Bromobenzene	0.20 U	
Bromochloromethane	0.20 U	
Bromodichloromethane	0.20 U	
Bromoform	1.0 U	
Bromomethane	0.79 U	
Carbon Disulfide	0.20 U	
Carbon Tetrachloride	0.20 U	
Chlorobenzene	0.20 U	
Chloroethane	1.0 U	
Chloroform	0.20 U	
Chloromethane	1.0 U	
cis-1,2-Dichloroethene	0.20 U	
cis-1,3-Dichloropropene	0.20 U	
Dibromochloromethane	0.20 U	
Dibromomethane (Methylene Bromide)	0.20 U	
Dichlorodifluoromethane (CFC-12)	0.20 U	
Ethylbenzene	0.20 U	
Hexachlorobutadiene	1.0 U	
Isopropylbenzene (Cumene)	0.20 U	
Methyl Iodide (Iodomethane)	4.8 U	
Methyl t-Butyl Ether	0.20 U	
Methylene Chloride	1.0 U	
Naphthalene	1.0 U	
n-Butylbenzene	0.20 U	
n-Propylbenzene	0.20 U	
p-Isopropyltoluene	0.20 U	
sec-Butylbenzene	0.20 U	

Sample Identification ²	MW-1	Pollutant Discharge Limit ¹⁴
Sample Date	10/29/2020	
Styrene	0.20 U	2,130 ¹⁵
tert-Butylbenzene	0.20 U	
Tetrachloroethene	0.20 U	
Toluene	1.0 U	
Trans-1,2-Dichloroethene	0.20 U	
Trans-1,3-Dichloropropene	0.20 U	
Trichloroethene	0.20 U	
Trichlorofluoromethane (CFC-11)	0.20 U	
Vinyl Acetate	1.0 U	
Vinyl Chloride	0.20 U	
m,p-Xylene	0.40 U	
o-Xylene	0.20 U	
Total Xylenes ⁷	0.40 U	
SVOCs ⁸ (µg/L)		
1,2,4-Trichlorobenzene	0.96 U	2,130 ¹⁵
1,2-Dichlorobenzene	0.96 U	
1,2-Dinitrobenzene	0.96 U	
1,2-Diphenylhydrazine	0.96 U	
1,3-Dichlorobenzene	0.96 U	
1,3-Dinitrobenzene	0.96 U	
1,4-Dichlorobenzene	0.96 U	
1,4-Dinitrobenzene	0.96 U	
1-Methylnaphthalene	0.23	
2,3,4,6-Tetrachlorophenol	0.96 U	
2,3,5,6-Tetrachlorophenol	0.96 U	
2,3-Dichloroaniline	0.96 U	
2,4,5-Trichlorophenol	0.96 U	
2,4,6-Trichlorophenol	0.96 U	
2,4-Dichlorophenol	0.96 U	
2,4-Dimethylphenol	0.96 U	
2,4-Dinitrophenol	4.8 U	
2,4-Dinitrotoluene	0.96 U	
2,6-Dinitrotoluene	0.96 U	
2-Chloronaphthalene	0.96 U	
2-Chlorophenol	0.96 U	
2-Methylnaphthalene	0.1 U	
2-Methylphenol (o-Cresol)	0.96 U	
2-Nitroaniline	0.96 U	
2-Nitrophenol	0.96 U	
3,3'-Dichlorobenzidine	0.96 U	

Sample Identification ²	MW-1	Pollutant Discharge Limit ¹⁴
Sample Date	10/29/2020	
3-Nitroaniline	0.96 U	2,130 ¹⁵
4,6-Dinitro-2-methylphenol	4.8 U	
4-Bromophenyl-phenylether	0.96 U	
4-Chloro-3-methylphenol	0.96 U	
4-Chloroaniline	0.96 U	
4-Chlorophenyl-phenylether	0.96 U	
4-Nitroaniline	0.96 U	
4-Nitrophenol	4.8 U	
Acenaphthene	0.72	
Acenaphthylene	0.1 U	
Aniline	4.8 U	
Anthracene	0.1 U	
Benzidine	6.1 U	
Benzo(j,k)fluoranthene	0.01 U	
Benzo[a]anthracene	0.01 U	
Benzo[a]pyrene	0.01 U	
Benzo[b]fluoranthene	0.01 U	
Benzo[g,h,i]perylene	0.01 U	
Benzyl alcohol	0.96 U	
bis(2-Chloroethoxy)methane	0.96 U	
bis(2-Chloroethyl)ether	0.96 U	
bis(2-Chloroisopropyl)ether	0.96 U	
bis(2-Ethylhexyl)phthalate	4.8 U	
bis-2-Ethylhexyladipate	4.8 U	
Butylbenzylphthalate	0.96 U	
Carbazole	0.96 U	
Chrysene	0.01 U	
(3+4)-Methylphenol (m,p-Cresol)	0.96 U	
Dibenz[a,h]anthracene	0.01 U	
Dibenzofuran	0.96 U	
Diethylphthalate	0.96 U	
Dimethylphthalate	4.8 U	
Di-n-butylphthalate	4.8 U	
Di-n-octylphthalate	0.96 U	
Fluoranthene	0.1 U	
Fluorene	0.1 U	
Hexachlorobenzene	0.96 U	
Hexachlorobutadiene	0.96 U	
Hexachlorocyclopentadiene	0.96 U	
Hexachloroethane	0.96 U	

Sample Identification ²	MW-1	Pollutant Discharge Limit ¹⁴
Sample Date	10/29/2020	
Indeno[1,2,3-cd]pyrene	0.01 U	2,130 ¹⁵
Isophorone	0.96 U	
Naphthalene	0.1 U	
Nitrobenzene	0.96 U	
n-Nitrosodimethylamine	0.96 U	
n-Nitroso-di-n-propylamine	0.96 U	
n-Nitrosodiphenylamine	0.96 U	
Pentachlorophenol	4.8 U	
Phenanthrene	0.1 U	
Phenol	0.96 U	
Pyrene	0.1 U	
Pyridine	0.96 U	
PCBs ⁹ (µg/L)		
Aroclor 1016	0.048 U	2,130 ¹⁵
Aroclor 1221	0.048 U	
Aroclor 1232	0.048 U	
Aroclor 1242	0.048 U	
Aroclor 1248	0.048 U	
Aroclor 1254	0.048 U	
Aroclor 1260	0.048 U	
Organochlorine Pesticides ¹⁰ (µg/L)		
alpha-BHC	0.0048 U	2,130 ¹⁵
gamma-BHC	0.0048 U	
beta-BHC	0.0048 U	
delta-BHC	0.0048 U	
Heptachlor	0.0048 U	
Aldrin	0.0048 U	
Heptachlor Epoxide	0.0029 U	
gamma-Chlordane	0.0048 U	
alpha-Chlordane	0.0048 U	
4,4'-DDE	0.0048 U	
Endosulfan I	0.0048 U	
Dieldrin	0.0048 U	
Endrin	0.0048 U	
4,4'-DDD	0.0048 U	
Endosulfan II	0.0048 U	
4,4'-DDT	0.0048 U	
Endrin Aldehyde	0.0048 U	
Methoxychlor	0.0096 U	

Sample Identification ²	MW-1	Pollutant Discharge Limit ¹⁴
Sample Date	10/29/2020	
Endosulfan Sulfate	0.0048 U	2,130 ¹⁵
Endrin Ketone	0.019 U	
Toxaphene	0.048 U	
Chlorinated Acid Herbicides ¹¹ (µg/L)		
Dalapon	0.44 U	2,130 ¹⁵
Dicamba	0.045 U	
MCPP	8.9 U	
MCPA	22 U	
Dichlorprop	0.045 U	
2,4-D	0.089 U	
Pentachlorophenol	0.0090 U	
2,4,5-TP (Silvex)	0.045 U	
2,4,5-T	0.068 U	
2,4-DB	0.068 U	
Dinoseb	0.045 U	
pH ¹² (at 25 °C)		
Corrosivity	7.3 J	5.5 - 11.0
General Chemistry ¹³		
Total Suspended Solids (mg/L)	4.0	225
Flashpoint (°F)	145	NE

Notes:

¹ Chemical analysis performed by OnSite Environmental, Inc., of Redmond, Washington.

² Sample ID = GEO (GeoEngineers), MW (monitoring well), 1 (location number). Well Installed at location of GEO-B1.

³ Total petroleum hydrocarbons analyzed by EPA Methods 1664A; 1664B (measured as silica gel treated, hexane extractable materials (SGT-HEM)).

⁴ Resource Conservation Recovery Act (RCRA) metals analyzed by EPA methods 200.8/7470A.

⁵ Total and Free Cyanide analyzed by EPA methods 4500B; 4500C and ASTM Standard D7237-10;D4282-02, respectively.

⁶ Full list volatile organic compounds (VOCs) analyzed by EPA Method 8260C.

⁷ Total xylenes consists of m,p- and o- xylenes. The higher detection limit is used for non-detects.

⁸ Full list semivolatile organic compounds (SVOCs) analyzed by EPA Method 8270E/SIM.

⁹ Polychlorinated biphenyls (PCBs) analyzed by EPA Method 8082A.

¹⁰ Organochlorine pesticides analyzed by EPA Method 8081B

¹¹ Chlorinated acid herbicides analyzed by EPA Method 8051A.

¹² pH analyzed by Method SM 4500-H B.

¹³ General chemistry for total suspended solids and flashpoint analyzed by Method SM 2540D and EPA Method 1010A, respectively.

¹⁴ Special Authorization Discharge (SAD) permit discharge limits per City of Tacoma Municipal Code - Chapter 12.08.020; Chapter 12.08.040; and CFR Part 136.3.

¹⁵ Sum of all Total Toxic Organics with 100 µg/L (0.1 mg/L) or greater cannot exceed 2,130 µg/L (2.13 mg/L).

"-" = not tested

µg/L = microgram per liter

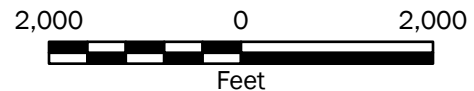
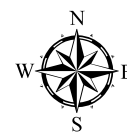
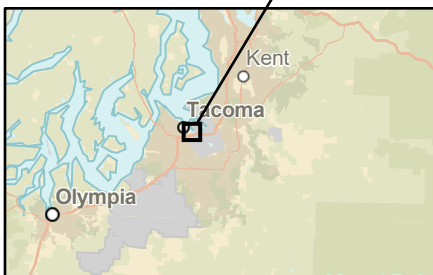
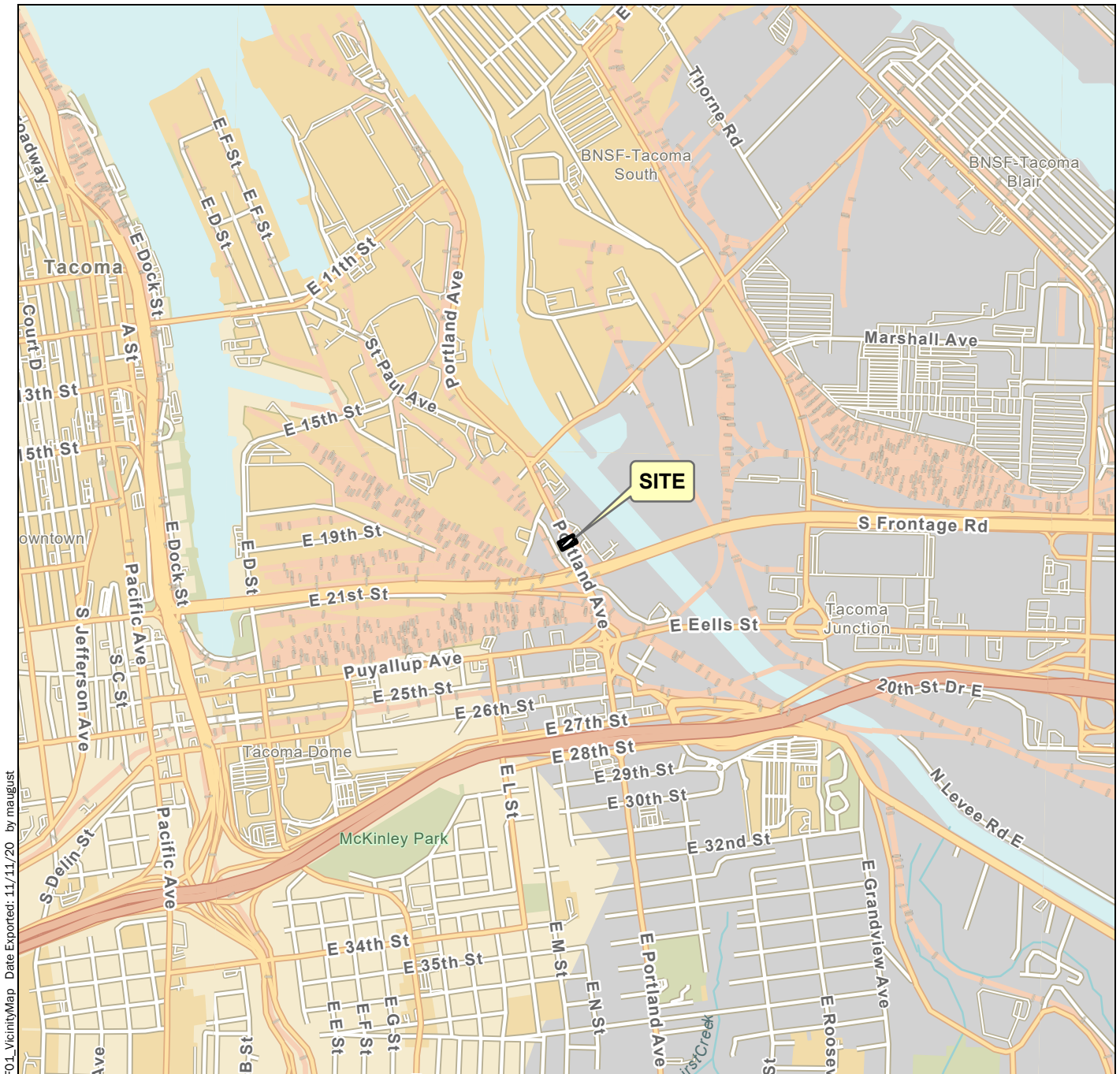
U = Analyte was not detected at or greater than the listed reporting limit.

NE = not established

mg/L = milligram per liter

J = Estimated result

Bold font type indicates that the analyte was detected at a concentration greater than the respective laboratory reporting limit.



Vicinity Map

Central Treatment Plant Portland Avenue Sewer Crossing
Tacoma, Washington



Figure 1

Notes:



1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

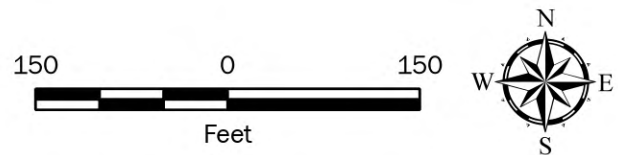
Data Source: ESRI

Projection: PCS: NAD 1983 2011 StatePlane Washington South FIPS 4602 Ft US



Legend

-  Approximate Location of GeoEngineers Boring
-  Approximate Proposed Sewer Alignment



Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: ESRI

Projection: NAD 1983 StatePlane Washington South FIPS 4602 Feet

Project Sample Location Map

Central Treatment Plant Portland Avenue Sewer Crossing
Tacoma, Washington



Figure 2

APPENDIX A

Field Exploration Program

APPENDIX A

FIELD EXPLORATION PROGRAM

Underground Utility Locate

An underground utility locate was conducted for the property and in the areas of the proposed soil boring locations to identify subsurface utilities and/or potential underground physical hazards. The underground utility check consisted of contacting a local utility alert service (one-call) and hiring Applied Professional Services (APS) to conduct a private utility locate of each boring location.

Soil Sampling

The soil borings were completed by Holocene Drilling of Puyallup, Washington using a track-mounted hollow stem auger (HSA) drill rig. Soil samples were obtained from 1.5-foot long standard penetration test split spoon samplers. Upon retrieval, a GeoEngineers representative examined the soil and performed field screening tests. The monitoring well logs are presented in Figures A-2 through A-3.

Selected soil samples were placed in glass jars (supplied by the analytical laboratory), labeled, and stored in a cooler with ice pending delivery to the laboratory. Volatile organic compound (VOC) samples were collected first, directly from the split spoon sampler using the 5035A sampling method. Following the VOC sample collection, the remaining soil was placed in sample containers provided by the analytical laboratory. Sampling equipment was used only one time and disposed of between samples.

Each soil sample obtained for analysis was collected using disposable gloves. A portion of each sample was placed in laboratory-prepared sample jars for possible chemical analysis. The remaining portion of each sample was used for field screening.

Samples from the explorations were submitted to OnSite Environmental, Inc. (OnSite) located in Redmond, Washington for chemical analysis. The soil samples were placed in a cooler with ice for courier transport to the laboratory. Standard chain-of-custody procedures were followed in transporting the soil samples to the laboratory.

Field Screening of Soil Samples

Soil samples obtained from the soil borings were screened in the field for evidence of contamination using: 1) visual examination; 2) sheen screening and 3) vapor headspace screening with a photo-ionization detector (PID). The results of headspace and sheen screening are included in the boring logs.

Visual screening consists of inspecting the soil for stains indicative of petroleum-related contamination. Visual screening is generally more effective when contamination is related to heavy petroleum hydrocarbons, such as motor oil or hydraulic oil, or when hydrocarbon concentrations are high. Sheen screening and headspace vapor screening are more sensitive methods that have been effective in detecting contamination at concentrations less than regulatory cleanup guidelines. Sheen screening involves placing soil in a pan of water and observing the water surface for signs of sheen. Sheen classifications are as follows:

No Sheen (NS)	No visible sheen on water surface.
Slight Sheen (SS)	Light, colorless, dull sheen; spread is irregular, not rapid; sheen dissipates rapidly.
Moderate Sheen (MS)	Light to heavy sheen, may have some color/iridescence; spread is irregular to flowing; few remaining areas of no sheen on water surface.
Heavy Sheen (HS)	Heavy sheen with color/iridescence; spread is rapid; entire water surface may be covered with sheen.

Headspace vapor screening involves placing a soil sample in a plastic sample bag. Air is captured in the bag and the bag is shaken to expose the soil to the air trapped in the bag. The probe of a PID is inserted in the bag and the instrument measures the concentration of combustible vapor in the air removed from the sample headspace. The PID measures concentrations in ppm (parts per million) and is calibrated to isobutylene. The PID is designed to quantify combustible gas and organic vapor concentrations up to 2,500 ppm. A lower threshold of significance of 1 ppm was used in this application. Field screening results are site-specific and vary with soil type, soil moisture content, temperature and type of contaminant.

Groundwater Sample

The groundwater sample was collected using low-flow/low-turbidity sampling techniques to minimize the suspension of particulates in the samples. Groundwater samples were obtained from the temporary well using a submersible bladder pump with polyethylene bladder and tubing. Groundwater was pumped at approximately 0.25 liters per minute from the approximate mid-point of the screened interval to collect the samples.

Water quality parameters were measured during purging using a calibrated YSI brand water quality meter with a flow-through cell. The measured water quality parameters included electrical conductivity, dissolved oxygen (DO), potential hydrogen (pH), oxidation/reduction potential (ORP), and temperature. Turbidity was monitored using a Hach brand turbidimeter. Groundwater samples were collected once the water quality parameters generally varied by less than 10 percent on three consecutive measurements. All field measurements were documented on the field log.

Following well purging, the flow-through cell was disconnected, and the groundwater sample was collected in appropriate laboratory-prepared and -provided containers. The sample was placed into a cooler with ice and delivered by courier service to OnSite. Standard chain-of-custody procedures were followed in transporting the water sample to the laboratory.

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
	SAND AND SANDY SOILS	CLEAN SANDS (LITTLE OR NO FINES)		GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
		CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SP	POORLY-GRADED SANDS, GRAVELLY SAND
FINE GRAINED SOILS	SILTS AND CLAYS	CLEAN SANDS (LITTLE OR NO FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SC	CLAYEY SANDS, SAND - CLAY MIXTURES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SC	CLAYEY SANDS, SAND - CLAY MIXTURES
	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS, ROCK FLOUR, CLAYEY SILTS WITH SLIGHT PLASTICITY
		LIQUID LIMIT LESS THAN 50		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		LIQUID LIMIT LESS THAN 50		OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS SILTY SOILS	
	LIQUID LIMIT GREATER THAN 50		CH	INORGANIC CLAYS OF HIGH PLASTICITY	
	LIQUID LIMIT GREATER THAN 50		OH	ORGANIC CLAYS AND SILTS OF MEDIUM TO HIGH PLASTICITY	
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: Multiple symbols are used to indicate borderline or dual soil classifications

Sampler Symbol Descriptions

	2.4-inch I.D. split barrel
	Standard Penetration Test (SPT)
	Shelby tube
	Piston
	Direct-Push
	Bulk or grab
	Continuous Coring

Blowcount is recorded for driven samplers as the number of blows required to advance sampler 12 inches (or distance noted). See exploration log for hammer weight and drop.

"P" indicates sampler pushed using the weight of the drill rig.

"WOH" indicates sampler pushed using the weight of the hammer.

NOTE: The reader must refer to the discussion in the report text and the logs of explorations for a proper understanding of subsurface conditions. Descriptions on the logs apply only at the specific exploration locations and at the time the explorations were made; they are not warranted to be representative of subsurface conditions at other locations or times.

ADDITIONAL MATERIAL SYMBOLS

SYMBOLS		TYPICAL DESCRIPTIONS
GRAPH	LETTER	
	AC	Asphalt Concrete
	CC	Cement Concrete
	CR	Crushed Rock/Quarry Spalls
	SOD	Sod/Forest Duff
	TS	Topsoil

Groundwater Contact



Measured groundwater level in exploration, well, or piezometer



Measured free product in well or piezometer

Graphic Log Contact



Distinct contact between soil strata



Approximate contact between soil strata

Material Description Contact



Contact between geologic units



Contact between soil of the same geologic unit

Laboratory / Field Tests

%F	Percent fines
%G	Percent gravel
AL	Atterberg limits
CA	Chemical analysis
CP	Laboratory compaction test
CS	Consolidation test
DD	Dry density
DS	Direct shear
HA	Hydrometer analysis
MC	Moisture content
MD	Moisture content and dry density
Mohs	Mohs hardness scale
OC	Organic content
PM	Permeability or hydraulic conductivity
PI	Plasticity index
PL	Point load test
PP	Pocket penetrometer
SA	Sieve analysis
TX	Triaxial compression
UC	Unconfined compression
VS	Vane shear

Sheen Classification

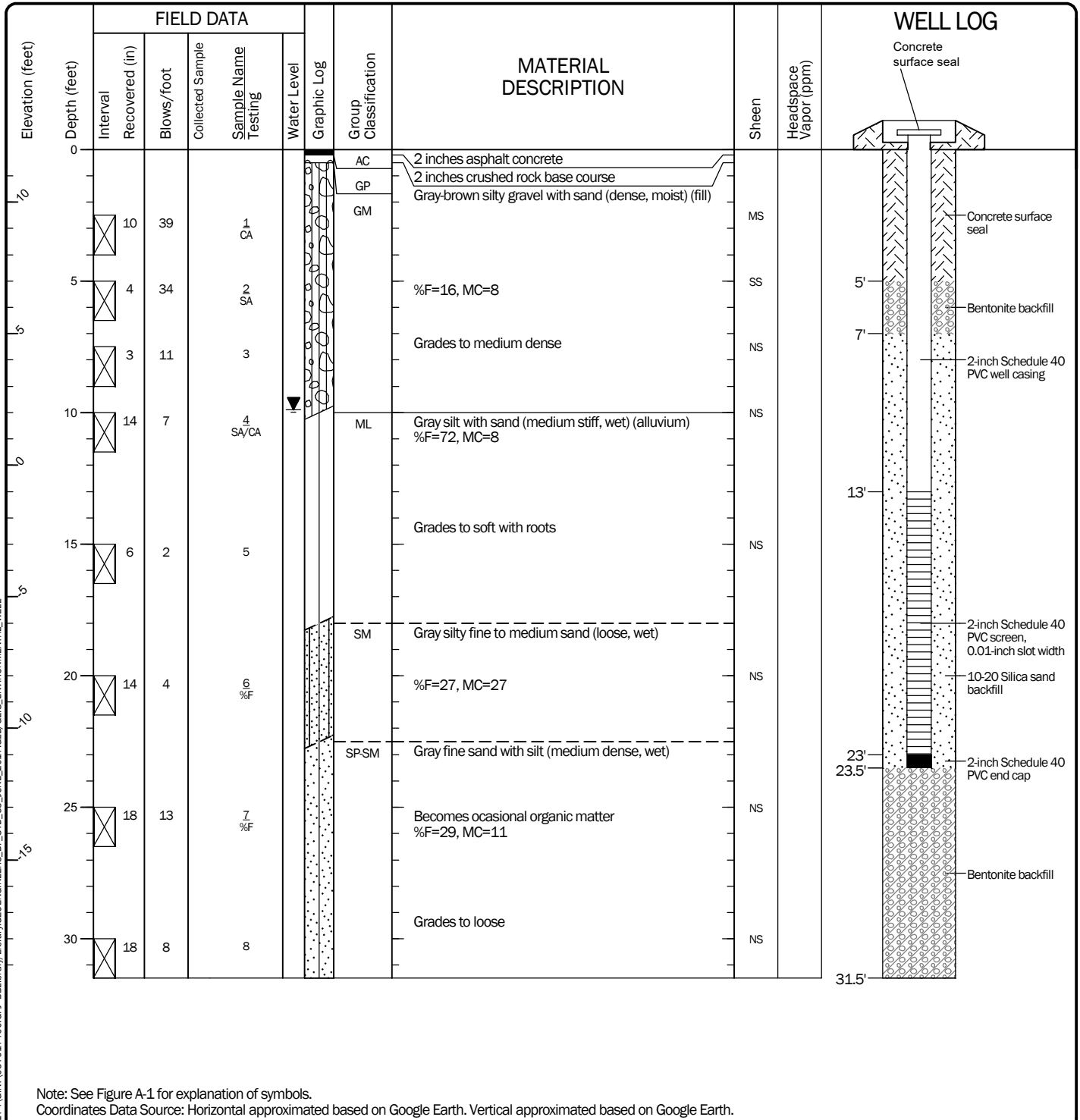
NS	No Visible Sheen
SS	Slight Sheen
MS	Moderate Sheen
HS	Heavy Sheen

Key to Exploration Logs



Figure A-1

Start Drilled 10/26/2020	End 10/26/2020	Total Depth (ft)	31.5	Logged By BZ Checked By BEL/AMW	Driller Holocene Drilling, Inc.	Drilling Method	Hollow-stem Auger
Hammer Data	Auto Hammer 140 (lbs)/ 30 (in) Drop	Drilling Equipment			Diedrich D-50 Turbo		
				DOE Well I.D.: BMP-857 A 2-in well was installed on 10/26/2020 to a depth of 30 ft.			
Surface Elevation (ft) Vertical Datum	12 NGVD29	Top of Casing Elevation (ft)			11.62		
Latitude Longitude	471445° 53' 24" -1222449° 30' 36"	Horizontal Datum			WA State Plane NAD83 (feet)		
				Groundwater Date Measured 11/18/2020			
				Depth to Water (ft) 9.90			
				Elevation (ft) 1.72			
Notes:							



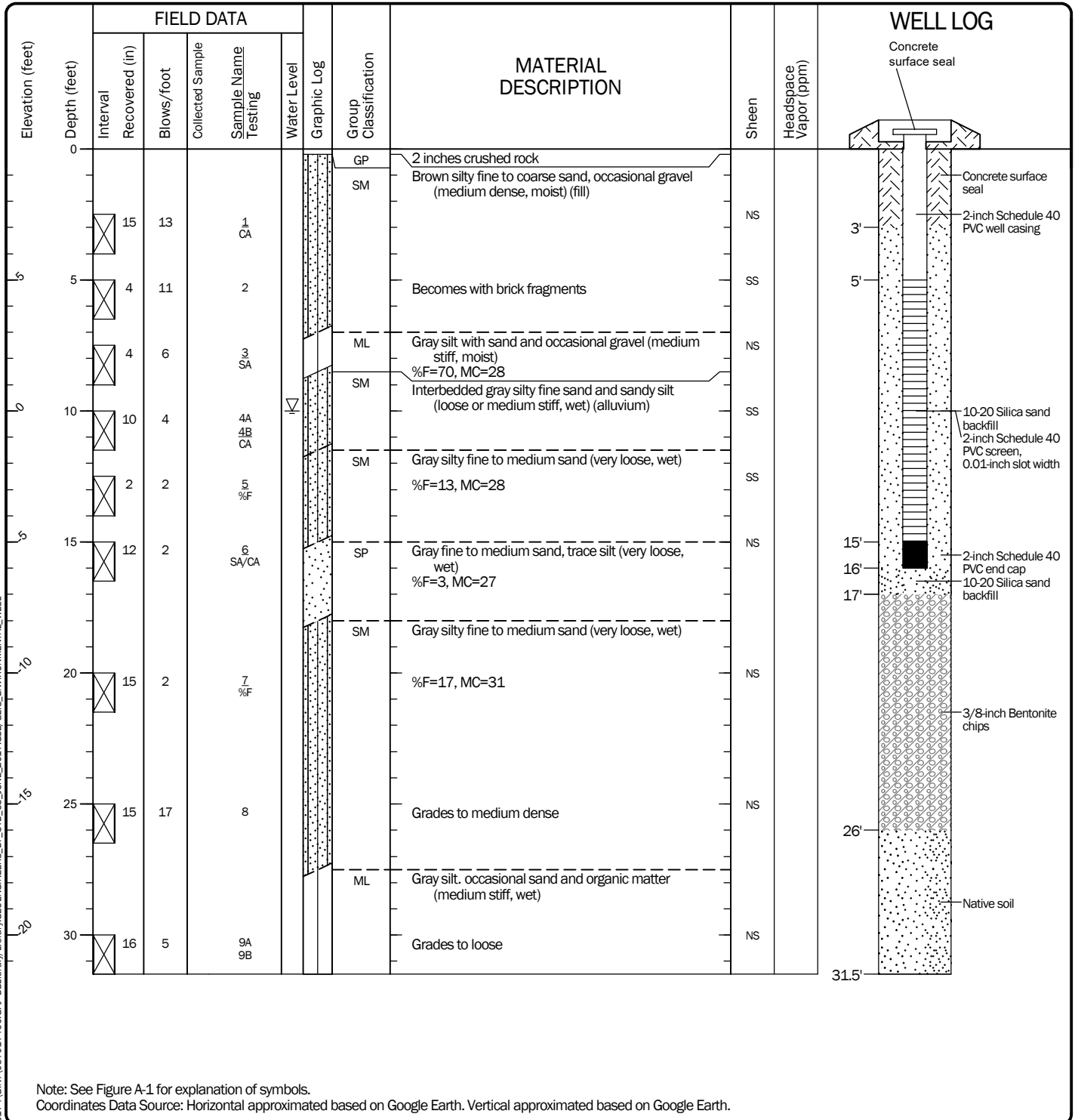
Log of Monitoring Well MW-1 (B-1)



Project: Central Treatment Plant Portland Avenue Sewer Crossing
Project Location: Tacoma, Washington
Project Number: 0570-174-00

Figure A-2
Sheet 1 of 1

Start Drilled 10/26/2020		End 10/26/2020		Total Depth (ft) 31.5		Logged By BZ Checked By BEL/AMW		Driller Holocene Drilling, Inc.		Drilling Method Hollow-stem Auger	
Hammer Data Auto Hammer 140 (lbs) / 30 (in) Drop				Drilling Equipment Diedrich D-50 Turbo				A 2-in well was installed on 10/26/2020 to a depth of 30 ft.			
Surface Elevation (ft) Vertical Datum 10 NGVD29				Top of Casing Elevation (ft) 9.52				Groundwater Date Measured 11/18/2020			
Latitude Longitude 471446° 46' 48" -1222447° 31' 12"				Horizontal Datum WA State Plane NAD83 (feet)				Depth to Water (ft) Elevation (ft) 10.00 -0.48			
Notes:											



Log of Monitoring Well MW-2 (B-2)



Project: Central Treatment Plant Portland Avenue Sewer Crossing
Project Location: Tacoma, Washington
Project Number: 0570-174-00

Figure A-3
Sheet 1 of 1

GROUNDWATER SAMPLE COLLECTION FORM

Project CPT Portland Ave. Job No. 0570-174-00 Collector KBT Sample ID GEO-MW1

PURGE DATA

Well Condition: Secure ☒ Yes ☐ No Describe Damage N/A
 (Padlock brand and number) Masterlock
 Depth to Water (from top of well casing) 11.92'
 Depth to Base of Well 23.10' Height of Water Column 11.18'
 Well Casing Type/Diameter 2" sch 40
 One Casing Volume (gal.) 1.90
 Purge Method Pump (type) bladder QED Bailer (type) _____
 Gallons Purged 6.7
 (Remove minimum of 3 well volumes or until field parameters stabilize)
 Purge Water Storage/Disposal back wall of decanting facility - drums
 (Drum identification, sample analysis, sample results, storage location, etc.)

Diameter (in.)	OD	ID	Volume Gal./ Linear Ft
2	2.375"	2.067"	<u>0.17</u>
3	3.500"	3.068"	0.38
4	4.500"	4.026"	0.66
6	6.625"	6.065"	1.5
8	8.625"	7.981"	2.6

SAMPLING DATA

Date Collected (mo/dy/yr) 10/29/20
 Sample Location and Depth 15' btoc
 Tidal Cycle NAT High Tide at 1638 Low Tide at 1031 Time Collected 1439
 Sample type (Groundwater, Product, Other) Groundwater Weather mid 50s
 Sample Collected with ☒ Bailer ☒ Pump ☐ Other _____
 Made of ☒ Stainless Steel ☐ PVC ☐ Teflon ☒ Disposable LDPE ☐ Other _____
 Sampler Decon Procedure alcohol w/ distilled water rinse, disposable bladder and tubing
 Sample Description (color, free product thickness, odor, turbidity, etc.) cloudy brown, odorless

FIELD PARAMETERS

Time	Depth to Water (feet)	Purge Volume (gallons)	pH	Conductivity (uS/cm)	Turbidity (NTU)	Dissolved (mg/L ppm)	Temperature (F/C)	ORP (mV)	turbidity NTU		
0912	11.92	0	7.20	583.6	380	2.63	15.4	-120.9	380		
0922	11.73	0.5	7.21	587.3	314	2.59	15.8	-117.4			
0928	11.57	0.7	7.22	587.3	268	2.09	15.7	-109.7			
0934	11.82	1.0	7.24	595.1	237	1.20	15.5	-215.6			
0944	12.07	1.6	7.23	592.9	157	0.62	15.2	-254.5			
1000	12.13	2.1	7.24	593.5	105	0.42	15.1	-272.6			
1011	12.15	2.5	7.22	598.3	75.9	0.34	15.1	-286.8			
1022	12.26	3.0	7.22	604.4	57.0	0.27	15.0	-283.5			
1036	12.24	3.9	7.22	612.5	45.0	0.27	15.0	-277.3			
1047	12.24	4.3	7.22	617.0	38.8	0.24	15.0	-271.5			
1100	12.24	5.0	7.21	624.0	34.3	0.36	15.1	-266.6			
1111	11.82	5.2	7.21	627.0	30.3	0.26	15.4	-260.3			
1121	11.82	5.4	7.21	628.0	25.2	0.26	15.5	-264.7			

Meters Used for Measurement YSI, Hach turbidimeter
 pH/Con./DO Instrument Calibration ☒ Yes ☐ No E-Tape Solomist T-19

ADDITIONAL INFORMATION

Samples Compositing Overtime, Distance _____
 Analyses, Number and Volume of Sample Containers 8 2L ambers, 2 1L wide-mouth amber jars w/ HCl, 1 500ml poly w/ HNO3, 1 250ml poly w/ NaOH, 3 40ml VOAS w/ HCl, 2 x 500 ml poly unpreserved
 Duplicate Sample Number(s) N/A
 Comments: (Filtered, Not Filtered, Calculations, etc.) well under pressure. Total metals only, no field filtering
Hex chrom has 24 hr hold time. *estimated from purge bucket
purge rate @ 190 ml/min @ 1106 slowed rate to 170 ml/min
 Signature [Signature] Date 10-29-20 Page 1 of 1

Check if additional information on back ☐

GROUNDWATER SAMPLE COLLECTION FORM

Project CPT Portland Ave. Job No. 0570-174-00 Collector KBT Sample ID GEO-mw1

FIELD PARAMETERS

[illegible]

APPENDIX B

Laboratory Analytical Data

Project: City of Tacoma – Central Treatment Plant, Portland Avenue Sewer Crossing
October 2020 Soil and Groundwater Samples

GEI File No: 0570-174-00

Date: November 20, 2020

This report documents the results of a United States Environmental Protection Agency (USEPA)-defined Stage 2A data validation (USEPA Document 540-R-08-005; USEPA 2009) of analytical data from the analyses of soil and groundwater samples collected as part of the October 2020 sampling event, and the associated laboratory quality control (QC) samples. The samples were obtained from the Central Treatment Plant Site located on Portland Avenue in Tacoma, Washington.

Objective and Quality Control Elements

GeoEngineers, Inc. (GeoEngineers) completed the data validation consistent with the USEPA Contract Laboratory Program National Functional Guidelines for Organic Superfund Methods Data Review (USEPA 2017a) and Inorganic Superfund Methods Data Review (USEPA 2017b) (National Functional Guidelines) to determine if the laboratory analytical results meet the project objectives and are usable for their intended purpose. Data usability was assessed by determining if:

- The samples were analyzed using well-defined and acceptable methods that provide reporting limits below applicable regulatory criteria;
- The precision and accuracy of the data are well-defined and sufficient to provide defensible data; and
- The quality assurance/quality control (QA/QC) procedures utilized by the laboratory meet acceptable industry practices and standards.

The data validation included review of the following QC elements:

- Data Package Completeness
- Chain-of-Custody Documentation
- Holding Times and Sample Preservation
- Surrogate Recoveries
- Method Blanks
- Matrix Spikes/Matrix Spike Duplicates
- Laboratory Control Samples/Laboratory Control Sample Duplicates
- Laboratory Duplicates

Validated Sample Delivery Groups

This data validation included review of the sample delivery groups (SDGs) listed below in Table 1.

TABLE 1. SUMMARY OF VALIDATED SAMPLE DELIVERY GROUPS

Laboratory SDG	Samples Validated
2010-317	GEOENV-B1-2.5-4, GEOENV-B1-10-11.5, GEOENV-B2-2.5-5, GEOENV-B2-10-11.5, GEOENV-B2-15-16.5, DRUM PROFILE
2010-360	GEO-MW1

Chemical Analysis Performed

OnSite Environmental, Inc. (OnSite), located in Redmond, Washington, performed laboratory analysis on the samples using one or more of the following methods:

- Hydrocarbon Identification (NWTPH-HCID) by Method NWTPH-HCID;
- Petroleum Hydrocarbons (NWTPH-Dx) by Method NWTPH-Dx;
- Volatile Organic Compounds (VOCs) by Method SW8260D;
- Semi-volatile Organic Compounds (SVOCs) by Method SW8270E;
- Polycyclic Aromatic Hydrocarbons (PAHs) by Method SW8270E-SIM;
- Polychlorinated Biphenyls (PCBs) by Method SW8082A;
- Organochlorine Pesticides by Method SW8081B;
- Chlorinated Acid Herbicides by Method SW8151A;
- Total Metals (Soils) by Methods EPA6010D and EPA7471B;
- Total Metals (Water) by Methods EPA200.8 and EPA7470A;
- Hexavalent Chromium (Soils) by Method EPA7196A;
- Hexavalent Chromium (Water) by Method SM3500-CrB;
- Hexane Extractable Material (HEM) – Oil and Grease by Method EPA1664A;
- Ignitability by Method SW1010A;
- Paint Filter Test by Method EPA9095B;
- pH (Soils) by Method SW9045D;
- pH (Water) by Method SM4500-HB; and
- Total Suspended Solids (TSS) by Method SM2540D.

AmTest Laboratories (AmTest), located in Kirkland, Washington, served as a secondary laboratory sub-contracted through OnSite and performed analyses on one sample using the following methods:

- Total Cyanide by Method SM4500CN-E99; and
- Free Cyanide by Method SM4500CN-G.

Data Validation Summary

The results for each of the QC elements are summarized below.

Data Package Completeness

OnSite provided the required deliverables for the data validation according to the National Functional Guidelines. The laboratory followed adequate corrective action processes and the identified anomalies were discussed in the relevant laboratory case narrative.

Chain-of-Custody Documentation

Chain-of-custody (COC) forms were provided with the laboratory analytical reports. The laboratory did not include the sample receipt forms that discuss anomalies with the samples once they are received by the laboratory. The COCs were accurate and complete when submitted to the laboratory.

Holding Times and Sample Preservation

The sample holding time is defined as the time that elapses between sample collection and sample analysis. Maximum holding time criteria exist for each analysis to help ensure that the analyte concentrations found at the time of analysis reflect the concentration present at the time of sample collection. Established holding times were met for each analysis, with the exception noted below. The samples were stored at the laboratory at the appropriate temperatures of between two and six degrees Celsius; however, since the laboratory did not include the sample receipt forms, the sample cooler temperatures could not be verified that they were within the control limits upon arrival at the laboratory.

SDG 2010-360: (pH) The 15-minute holding time for pH analysis was exceeded in Sample GEO-MW1. The positive result for pH was qualified as estimated (J) in this sample.

Surrogate Recoveries

A surrogate compound is a compound that is chemically similar to the organic analytes of interest, but unlikely to be found in an environmental sample. Surrogates are used for organic analyses and are added to the samples, standards, and blanks to serve as an accuracy and specificity check of each analysis. The surrogates are added to the samples at a known concentration and percent recoveries are calculated following analysis. The surrogate percent recoveries for field samples were within the laboratory control limits.

Method Blanks

Method blanks are analyzed to ensure that laboratory procedures and reagents do not introduce measurable concentrations of the analytes of interest. A method blank was analyzed with each batch of samples, at a frequency of 1 per 20 samples. For the sample batches, method blanks for the applicable methods were analyzed at the required frequency. None of the analytes of interest were detected above the reporting limits in the method blanks.

Matrix Spikes/Matrix Spike Duplicates

Since the actual analyte concentration in an environmental sample is not known, the accuracy of a particular analysis is usually inferred by performing a matrix spike (MS) analysis on one sample from the associated batch, known as the parent sample. One aliquot of the sample is analyzed in the normal manner and then a second aliquot of the sample is spiked with a known amount of analyte concentration and analyzed. From these analyses, a percent recovery is calculated. Matrix spike duplicate (MSD) analyses are generally performed for organic analyses as a precision check and analyzed in the same sequence as a

matrix spike. Using the result values from the MS and MSD, the relative percent difference (RPD) is calculated. The percent recovery control limits for MS and MSD analyses are specified in the laboratory documents, as are the RPD control limits for MS/MSD sample sets.

One MS/MSD analysis should be performed for every analytical batch or every 20 field samples, whichever is more frequent. The frequency requirements were met for all analyses and the percent recovery and RPD values were within the proper control limits.

Laboratory Control Samples/Laboratory Control Sample Duplicates

A laboratory control sample (LCS) is a blank sample that is spiked with a known amount of analyte and then analyzed. An LCS is similar to an MS, but without the possibility of matrix interference. Given that matrix interference is not an issue, the LCS/LCSD control limits for accuracy and precision are usually more rigorous than for MS/MSD analyses. Additionally, data qualification based on LCS/LCSD analyses would apply to all samples in the associated batch, instead of just the parent sample. The percent recovery control limits for LCS and LCSD analyses are specified in the laboratory documents, as are the RPD control limits for LCS/LCSD sample sets.

One LCS/LCSD analysis should be performed for every analytical batch or every 20 field samples, whichever is more frequent. The frequency requirements were met for all analyses and the percent recovery and RPD values were within the proper control limits, with the following exceptions:

SDG 2010-360: (Herbicides) The RPD values for 2,4-D, dalapon, and dichlorprop were greater than the control limits in the LCS/LCSD extracted on 11/3/2020. There were no positive results for these target analytes in the associated field sample; therefore, no qualifications were required.

Laboratory Duplicates

Internal laboratory duplicate analyses are performed to monitor the precision of the analyses. Two separate aliquots of a sample are analyzed as distinct samples in the laboratory and the RPD between the two results is calculated. Duplicate analyses should be performed once per analytical batch. If one or more of the samples used has a concentration less than five times the reporting limit for that sample, the absolute difference is used instead of the RPD. The RPD control limits are specified in the laboratory documents. Laboratory duplicates were analyzed at the proper frequency and the specified acceptance criteria were met.

Overall Assessment

As was determined by this data validation, the laboratory followed the specified analytical methods. Accuracy was acceptable, as demonstrated by the surrogate, LCS/LCSD, and MS/MSD percent recovery values. Precision was acceptable, as demonstrated by the LCS/LCSD, MS/MSD, and laboratory duplicate RPD values, with the exceptions noted above.

The data are acceptable for the intended use, with the following qualification listed below in Table 2.

TABLE 2. SUMMARY OF QUALIFIED SAMPLES

Sample ID	Analyte	Qualifier	Reason
GEO-MW1	pH	J	Holding Time

References

- U.S. Environmental Protection Agency (USEPA). "Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use," EPA-540-R-08-005. January 2009.
- U.S. Environmental Protection Agency (USEPA), 2017a. "Contract Laboratory Program National Functional Guidelines for Organic Superfund Methods Data Review," EPA-540-R-2017-002. January 2017.
- U.S. Environmental Protection Agency (USEPA), 2017b. "Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review," EPA-540-R-2017-001. January 2017.





14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

November 5, 2020

Aaron Waggoner
GeoEngineers, Inc.
1101 Fawcett Avenue South, Suite 200
Tacoma, WA 98402

Re: Analytical Data for Project 0570-174-00
Laboratory Reference No. 2010-317

Dear Aaron:

Enclosed are the analytical results and associated quality control data for samples submitted on October 27, 2020.

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,

A handwritten signature in black ink, appearing to read 'DB', with a long horizontal stroke extending to the right.

David Baumeister
Project Manager

Enclosures



OnSite Environmental, Inc. 14648 NE 95th Street, Redmond, WA 98052 (425) 883-3881

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: November 5, 2020
Samples Submitted: October 27, 2020
Laboratory Reference: 2010-317
Project: 0570-174-00

Case Narrative

Samples were collected on October 26, 2020 and received by the laboratory on October 27, 2020. 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 5, 2020
Samples Submitted: October 27, 2020
Laboratory Reference: 2010-317
Project: 0570-174-00

ANALYTICAL REPORT FOR SAMPLES

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
GEOENV-B1-2.5-4	10-317-01	Soil	10-26-20	10-27-20	
GEOENV-B1-10-11.5	10-317-02	Soil	10-26-20	10-27-20	
GEOENV-B2-2.5-5	10-317-03	Soil	10-26-20	10-27-20	
GEOENV-B2-10-11.5	10-317-04	Soil	10-26-20	10-27-20	
GEOENV-B2-15-16.5	10-317-05	Soil	10-26-20	10-27-20	
DRUM PROFILE	10-317-06	Soil	10-26-20	10-27-20	



Date of Report: November 5, 2020
 Samples Submitted: October 27, 2020
 Laboratory Reference: 2010-317
 Project: 0570-174-00

HYDROCARBON IDENTIFICATION NWTPH-HCID

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	GEOENV-B1-2.5-4					
Laboratory ID:	10-317-01					
Gasoline Range Organics	ND	22	NWTPH-HCID	10-28-20	10-28-20	
Diesel Range Organics	ND	55	NWTPH-HCID	10-28-20	10-28-20	
Lube Oil	Detected	110	NWTPH-HCID	10-28-20	10-28-20	
Surrogate:	Percent Recovery	Control Limits				
<i>o</i> -Terphenyl	110	50-150				

Client ID:	GEOENV-B1-10-11.5					
Laboratory ID:	10-317-02					
Gasoline Range Organics	ND	27	NWTPH-HCID	10-28-20	10-28-20	
Diesel Range Organics	ND	66	NWTPH-HCID	10-28-20	10-28-20	
Lube Oil Range Organics	ND	130	NWTPH-HCID	10-28-20	10-28-20	
Surrogate:	Percent Recovery	Control Limits				
<i>o</i> -Terphenyl	108	50-150				

Client ID:	GEOENV-B2-2.5-5					
Laboratory ID:	10-317-03					
Gasoline Range Organics	ND	24	NWTPH-HCID	10-28-20	10-28-20	
Diesel Range Organics	ND	61	NWTPH-HCID	10-28-20	10-28-20	
Lube Oil Range Organics	ND	120	NWTPH-HCID	10-28-20	10-28-20	
Surrogate:	Percent Recovery	Control Limits				
<i>o</i> -Terphenyl	107	50-150				

Client ID:	GEOENV-B2-10-11.5					
Laboratory ID:	10-317-04					
Gasoline Range Organics	ND	27	NWTPH-HCID	10-28-20	10-28-20	
Diesel Range Organics	ND	66	NWTPH-HCID	10-28-20	10-28-20	
Lube Oil Range Organics	ND	130	NWTPH-HCID	10-28-20	10-28-20	
Surrogate:	Percent Recovery	Control Limits				
<i>o</i> -Terphenyl	108	50-150				

Client ID:	GEOENV-B2-15-16.5					
Laboratory ID:	10-317-05					
Gasoline Range Organics	ND	27	NWTPH-HCID	10-28-20	10-28-20	
Diesel Range Organics	ND	66	NWTPH-HCID	10-28-20	10-28-20	
Lube Oil Range Organics	ND	130	NWTPH-HCID	10-28-20	10-28-20	
Surrogate:	Percent Recovery	Control Limits				
<i>o</i> -Terphenyl	114	50-150				



Date of Report: November 5, 2020
 Samples Submitted: October 27, 2020
 Laboratory Reference: 2010-317
 Project: 0570-174-00

VOLATILE ORGANICS EPA 8260D
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Matrix: Soil
 Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: GEOENV-B1-2.5-4						
Laboratory ID: 10-317-01						
Dichlorodifluoromethane	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
Chloromethane	ND	0.0046	EPA 8260D	10-27-20	10-27-20	
Vinyl Chloride	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
Bromomethane	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
Chloroethane	ND	0.0046	EPA 8260D	10-27-20	10-27-20	
Trichlorofluoromethane	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
1,1-Dichloroethene	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
Acetone	0.14	0.0093	EPA 8260D	10-27-20	10-27-20	
Iodomethane	ND	0.0046	EPA 8260D	10-27-20	10-27-20	
Carbon Disulfide	0.0015	0.00093	EPA 8260D	10-27-20	10-27-20	
Methylene Chloride	ND	0.0046	EPA 8260D	10-27-20	10-27-20	
(trans) 1,2-Dichloroethene	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
Methyl t-Butyl Ether	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
1,1-Dichloroethane	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
Vinyl Acetate	ND	0.0046	EPA 8260D	10-27-20	10-27-20	
2,2-Dichloropropane	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
(cis) 1,2-Dichloroethene	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
2-Butanone	0.034	0.0046	EPA 8260D	10-27-20	10-27-20	
Bromochloromethane	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
Chloroform	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
1,1,1-Trichloroethane	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
Carbon Tetrachloride	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
1,1-Dichloropropene	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
Benzene	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
1,2-Dichloroethane	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
Trichloroethene	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
1,2-Dichloropropane	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
Dibromomethane	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
Bromodichloromethane	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
2-Chloroethyl Vinyl Ether	ND	0.0046	EPA 8260D	10-27-20	10-27-20	
(cis) 1,3-Dichloropropene	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
Methyl Isobutyl Ketone	ND	0.0046	EPA 8260D	10-27-20	10-27-20	
Toluene	ND	0.0046	EPA 8260D	10-27-20	10-27-20	
(trans) 1,3-Dichloropropene	ND	0.00093	EPA 8260D	10-27-20	10-27-20	



Date of Report: November 5, 2020
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: GEOENV-B1-2.5-4						
Laboratory ID: 10-317-01						
1,1,2-Trichloroethane	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
Tetrachloroethene	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
1,3-Dichloropropane	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
2-Hexanone	ND	0.0046	EPA 8260D	10-27-20	10-27-20	
Dibromochloromethane	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
1,2-Dibromoethane	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
Chlorobenzene	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
1,1,1,2-Tetrachloroethane	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
Ethylbenzene	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
m,p-Xylene	ND	0.0019	EPA 8260D	10-27-20	10-27-20	
o-Xylene	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
Styrene	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
Bromoform	ND	0.0046	EPA 8260D	10-27-20	10-27-20	
Isopropylbenzene	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
Bromobenzene	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
1,1,2,2-Tetrachloroethane	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
1,2,3-Trichloropropane	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
n-Propylbenzene	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
2-Chlorotoluene	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
4-Chlorotoluene	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
1,3,5-Trimethylbenzene	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
tert-Butylbenzene	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
1,2,4-Trimethylbenzene	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
sec-Butylbenzene	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
1,3-Dichlorobenzene	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
p-Isopropyltoluene	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
1,4-Dichlorobenzene	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
1,2-Dichlorobenzene	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
n-Butylbenzene	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
1,2-Dibromo-3-chloropropane	ND	0.0046	EPA 8260D	10-27-20	10-27-20	
1,2,4-Trichlorobenzene	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
Hexachlorobutadiene	ND	0.0046	EPA 8260D	10-27-20	10-27-20	
Naphthalene	ND	0.0046	EPA 8260D	10-27-20	10-27-20	
1,2,3-Trichlorobenzene	ND	0.00093	EPA 8260D	10-27-20	10-27-20	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>103</i>	<i>74-131</i>				
<i>Toluene-d8</i>	<i>101</i>	<i>78-128</i>				
<i>4-Bromofluorobenzene</i>	<i>89</i>	<i>71-130</i>				



Date of Report: November 5, 2020
 Samples Submitted: October 27, 2020
 Laboratory Reference: 2010-317
 Project: 0570-174-00

VOLATILE ORGANICS EPA 8260D
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Matrix: Soil
 Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: GEOENV-B1-10-11.5						
Laboratory ID: 10-317-02						
Dichlorodifluoromethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Chloromethane	ND	0.0052	EPA 8260D	10-27-20	10-27-20	
Vinyl Chloride	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Bromomethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Chloroethane	ND	0.0052	EPA 8260D	10-27-20	10-27-20	
Trichlorofluoromethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,1-Dichloroethene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Acetone	0.12	0.010	EPA 8260D	10-27-20	10-27-20	
Iodomethane	ND	0.0052	EPA 8260D	10-27-20	10-27-20	
Carbon Disulfide	0.0022	0.0010	EPA 8260D	10-27-20	10-27-20	
Methylene Chloride	ND	0.0052	EPA 8260D	10-27-20	10-27-20	
(trans) 1,2-Dichloroethene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Methyl t-Butyl Ether	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,1-Dichloroethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Vinyl Acetate	ND	0.0052	EPA 8260D	10-27-20	10-27-20	
2,2-Dichloropropane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
(cis) 1,2-Dichloroethene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
2-Butanone	0.027	0.0052	EPA 8260D	10-27-20	10-27-20	
Bromochloromethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Chloroform	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,1,1-Trichloroethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Carbon Tetrachloride	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,1-Dichloropropene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Benzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,2-Dichloroethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Trichloroethene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,2-Dichloropropane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Dibromomethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Bromodichloromethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
2-Chloroethyl Vinyl Ether	ND	0.0052	EPA 8260D	10-27-20	10-27-20	
(cis) 1,3-Dichloropropene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Methyl Isobutyl Ketone	ND	0.0052	EPA 8260D	10-27-20	10-27-20	
Toluene	ND	0.0052	EPA 8260D	10-27-20	10-27-20	
(trans) 1,3-Dichloropropene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	



OnSite Environmental, Inc. 14648 NE 95th Street, Redmond, WA 98052 (425) 883-3881

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: November 5, 2020
 Samples Submitted: October 27, 2020
 Laboratory Reference: 2010-317
 Project: 0570-174-00

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: GEOENV-B1-10-11.5						
Laboratory ID: 10-317-02						
1,1,2-Trichloroethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Tetrachloroethene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,3-Dichloropropane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
2-Hexanone	ND	0.0052	EPA 8260D	10-27-20	10-27-20	
Dibromochloromethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,2-Dibromoethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Chlorobenzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,1,1,2-Tetrachloroethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Ethylbenzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
m,p-Xylene	ND	0.0021	EPA 8260D	10-27-20	10-27-20	
o-Xylene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Styrene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Bromoform	ND	0.0052	EPA 8260D	10-27-20	10-27-20	
Isopropylbenzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Bromobenzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,1,2,2-Tetrachloroethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,2,3-Trichloropropane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
n-Propylbenzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
2-Chlorotoluene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
4-Chlorotoluene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,3,5-Trimethylbenzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
tert-Butylbenzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,2,4-Trimethylbenzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
sec-Butylbenzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,3-Dichlorobenzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
p-Isopropyltoluene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,4-Dichlorobenzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,2-Dichlorobenzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
n-Butylbenzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,2-Dibromo-3-chloropropane	ND	0.0052	EPA 8260D	10-27-20	10-27-20	
1,2,4-Trichlorobenzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Hexachlorobutadiene	ND	0.0052	EPA 8260D	10-27-20	10-27-20	
Naphthalene	ND	0.0052	EPA 8260D	10-27-20	10-27-20	
1,2,3-Trichlorobenzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
Dibromofluoromethane	102	74-131				
Toluene-d8	100	78-128				
4-Bromofluorobenzene	90	71-130				



Date of Report: November 5, 2020
 Samples Submitted: October 27, 2020
 Laboratory Reference: 2010-317
 Project: 0570-174-00

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Matrix: Soil
 Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: GEOENV-B2-2.5-5						
Laboratory ID: 10-317-03						
Dichlorodifluoromethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Chloromethane	ND	0.0052	EPA 8260D	10-27-20	10-27-20	
Vinyl Chloride	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Bromomethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Chloroethane	ND	0.0052	EPA 8260D	10-27-20	10-27-20	
Trichlorofluoromethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,1-Dichloroethene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Acetone	0.38	0.010	EPA 8260D	10-27-20	10-27-20	
Iodomethane	ND	0.0052	EPA 8260D	10-27-20	10-27-20	
Carbon Disulfide	0.0026	0.0010	EPA 8260D	10-27-20	10-27-20	
Methylene Chloride	ND	0.0052	EPA 8260D	10-27-20	10-27-20	
(trans) 1,2-Dichloroethene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Methyl t-Butyl Ether	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,1-Dichloroethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Vinyl Acetate	ND	0.0052	EPA 8260D	10-27-20	10-27-20	
2,2-Dichloropropane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
(cis) 1,2-Dichloroethene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
2-Butanone	0.087	0.0052	EPA 8260D	10-27-20	10-27-20	
Bromochloromethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Chloroform	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,1,1-Trichloroethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Carbon Tetrachloride	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,1-Dichloropropene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Benzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,2-Dichloroethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Trichloroethene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,2-Dichloropropane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Dibromomethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Bromodichloromethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
2-Chloroethyl Vinyl Ether	ND	0.0052	EPA 8260D	10-27-20	10-27-20	
(cis) 1,3-Dichloropropene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Methyl Isobutyl Ketone	ND	0.0052	EPA 8260D	10-27-20	10-27-20	
Toluene	ND	0.0052	EPA 8260D	10-27-20	10-27-20	
(trans) 1,3-Dichloropropene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	



OnSite Environmental, Inc. 14648 NE 95th Street, Redmond, WA 98052 (425) 883-3881

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Date of Report: November 5, 2020
 Samples Submitted: October 27, 2020
 Laboratory Reference: 2010-317
 Project: 0570-174-00

VOLATILE ORGANICS EPA 8260D
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: GEOENV-B2-2.5-5						
Laboratory ID: 10-317-03						
1,1,2-Trichloroethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Tetrachloroethene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,3-Dichloropropane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
2-Hexanone	ND	0.0052	EPA 8260D	10-27-20	10-27-20	
Dibromochloromethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,2-Dibromoethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Chlorobenzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,1,1,2-Tetrachloroethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Ethylbenzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
m,p-Xylene	ND	0.0021	EPA 8260D	10-27-20	10-27-20	
o-Xylene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Styrene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Bromoform	ND	0.0052	EPA 8260D	10-27-20	10-27-20	
Isopropylbenzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Bromobenzene	ND	0.064	EPA 8260D	10-28-20	10-28-20	
1,1,2,2-Tetrachloroethane	ND	0.090	EPA 8260D	10-28-20	10-28-20	
1,2,3-Trichloropropane	ND	0.064	EPA 8260D	10-28-20	10-28-20	
n-Propylbenzene	ND	0.064	EPA 8260D	10-28-20	10-28-20	
2-Chlorotoluene	ND	0.064	EPA 8260D	10-28-20	10-28-20	
4-Chlorotoluene	ND	0.064	EPA 8260D	10-28-20	10-28-20	
1,3,5-Trimethylbenzene	ND	0.064	EPA 8260D	10-28-20	10-28-20	
tert-Butylbenzene	ND	0.064	EPA 8260D	10-28-20	10-28-20	
1,2,4-Trimethylbenzene	ND	0.064	EPA 8260D	10-28-20	10-28-20	
sec-Butylbenzene	ND	0.064	EPA 8260D	10-28-20	10-28-20	
1,3-Dichlorobenzene	ND	0.064	EPA 8260D	10-28-20	10-28-20	
p-Isopropyltoluene	ND	0.064	EPA 8260D	10-28-20	10-28-20	
1,4-Dichlorobenzene	ND	0.064	EPA 8260D	10-28-20	10-28-20	
1,2-Dichlorobenzene	ND	0.064	EPA 8260D	10-28-20	10-28-20	
n-Butylbenzene	ND	0.064	EPA 8260D	10-28-20	10-28-20	
1,2-Dibromo-3-chloropropane	ND	0.32	EPA 8260D	10-28-20	10-28-20	
1,2,4-Trichlorobenzene	ND	0.064	EPA 8260D	10-28-20	10-28-20	
Hexachlorobutadiene	ND	0.32	EPA 8260D	10-28-20	10-28-20	
Naphthalene	ND	0.32	EPA 8260D	10-28-20	10-28-20	
1,2,3-Trichlorobenzene	ND	0.064	EPA 8260D	10-28-20	10-28-20	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>105</i>	<i>74-131</i>				
<i>Toluene-d8</i>	<i>100</i>	<i>78-128</i>				
<i>4-Bromofluorobenzene</i>	<i>89</i>	<i>71-130</i>				



OnSite Environmental, Inc. 14648 NE 95th Street, Redmond, WA 98052 (425) 883-3881

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Date of Report: November 5, 2020
 Samples Submitted: October 27, 2020
 Laboratory Reference: 2010-317
 Project: 0570-174-00

VOLATILE ORGANICS EPA 8260D
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Matrix: Soil
 Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: GEOENV-B2-10-11.5						
Laboratory ID: 10-317-04						
Dichlorodifluoromethane	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
Chloromethane	ND	0.0055	EPA 8260D	10-27-20	10-27-20	
Vinyl Chloride	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
Bromomethane	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
Chloroethane	ND	0.0055	EPA 8260D	10-27-20	10-27-20	
Trichlorofluoromethane	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
1,1-Dichloroethene	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
Acetone	0.13	0.011	EPA 8260D	10-27-20	10-27-20	
Iodomethane	ND	0.0055	EPA 8260D	10-27-20	10-27-20	
Carbon Disulfide	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
Methylene Chloride	ND	0.0055	EPA 8260D	10-27-20	10-27-20	
(trans) 1,2-Dichloroethene	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
Methyl t-Butyl Ether	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
1,1-Dichloroethane	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
Vinyl Acetate	ND	0.0055	EPA 8260D	10-27-20	10-27-20	
2,2-Dichloropropane	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
(cis) 1,2-Dichloroethene	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
2-Butanone	0.028	0.0055	EPA 8260D	10-27-20	10-27-20	
Bromochloromethane	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
Chloroform	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
1,1,1-Trichloroethane	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
Carbon Tetrachloride	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
1,1-Dichloropropene	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
Benzene	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
1,2-Dichloroethane	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
Trichloroethene	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
1,2-Dichloropropane	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
Dibromomethane	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
Bromodichloromethane	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
2-Chloroethyl Vinyl Ether	ND	0.0055	EPA 8260D	10-27-20	10-27-20	
(cis) 1,3-Dichloropropene	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
Methyl Isobutyl Ketone	ND	0.0055	EPA 8260D	10-27-20	10-27-20	
Toluene	ND	0.0055	EPA 8260D	10-27-20	10-27-20	
(trans) 1,3-Dichloropropene	ND	0.0011	EPA 8260D	10-27-20	10-27-20	



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 Project: 0570-174-00

VOLATILE ORGANICS EPA 8260D
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: GEOENV-B2-10-11.5						
Laboratory ID: 10-317-04						
1,1,2-Trichloroethane	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
Tetrachloroethene	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
1,3-Dichloropropane	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
2-Hexanone	ND	0.0055	EPA 8260D	10-27-20	10-27-20	
Dibromochloromethane	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
1,2-Dibromoethane	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
Chlorobenzene	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
1,1,1,2-Tetrachloroethane	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
Ethylbenzene	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
m,p-Xylene	ND	0.0022	EPA 8260D	10-27-20	10-27-20	
o-Xylene	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
Styrene	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
Bromoform	ND	0.0055	EPA 8260D	10-27-20	10-27-20	
Isopropylbenzene	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
Bromobenzene	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
1,1,2,2-Tetrachloroethane	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
1,2,3-Trichloropropane	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
n-Propylbenzene	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
2-Chlorotoluene	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
4-Chlorotoluene	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
1,3,5-Trimethylbenzene	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
tert-Butylbenzene	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
1,2,4-Trimethylbenzene	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
sec-Butylbenzene	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
1,3-Dichlorobenzene	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
p-Isopropyltoluene	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
1,4-Dichlorobenzene	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
1,2-Dichlorobenzene	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
n-Butylbenzene	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
1,2-Dibromo-3-chloropropane	ND	0.0055	EPA 8260D	10-27-20	10-27-20	
1,2,4-Trichlorobenzene	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
Hexachlorobutadiene	ND	0.0055	EPA 8260D	10-27-20	10-27-20	
Naphthalene	ND	0.0055	EPA 8260D	10-27-20	10-27-20	
1,2,3-Trichlorobenzene	ND	0.0011	EPA 8260D	10-27-20	10-27-20	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>104</i>	<i>74-131</i>				
<i>Toluene-d8</i>	<i>102</i>	<i>78-128</i>				
<i>4-Bromofluorobenzene</i>	<i>98</i>	<i>71-130</i>				



Date of Report: November 5, 2020
 Samples Submitted: October 27, 2020
 Laboratory Reference: 2010-317
 Project: 0570-174-00

VOLATILE ORGANICS EPA 8260D
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Matrix: Soil
 Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: GEOENV-B2-15-16.5						
Laboratory ID: 10-317-05						
Dichlorodifluoromethane	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
Chloromethane	ND	0.0059	EPA 8260D	10-27-20	10-27-20	
Vinyl Chloride	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
Bromomethane	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
Chloroethane	ND	0.0059	EPA 8260D	10-27-20	10-27-20	
Trichlorofluoromethane	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
1,1-Dichloroethene	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
Acetone	0.015	0.012	EPA 8260D	10-27-20	10-27-20	
Iodomethane	ND	0.0059	EPA 8260D	10-27-20	10-27-20	
Carbon Disulfide	0.0016	0.0012	EPA 8260D	10-27-20	10-27-20	
Methylene Chloride	ND	0.0059	EPA 8260D	10-27-20	10-27-20	
(trans) 1,2-Dichloroethene	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
Methyl t-Butyl Ether	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
1,1-Dichloroethane	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
Vinyl Acetate	ND	0.0059	EPA 8260D	10-27-20	10-27-20	
2,2-Dichloropropane	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
(cis) 1,2-Dichloroethene	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
2-Butanone	ND	0.0059	EPA 8260D	10-27-20	10-27-20	
Bromochloromethane	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
Chloroform	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
1,1,1-Trichloroethane	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
Carbon Tetrachloride	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
1,1-Dichloropropene	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
Benzene	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
1,2-Dichloroethane	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
Trichloroethene	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
1,2-Dichloropropane	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
Dibromomethane	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
Bromodichloromethane	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
2-Chloroethyl Vinyl Ether	ND	0.0059	EPA 8260D	10-27-20	10-27-20	
(cis) 1,3-Dichloropropene	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
Methyl Isobutyl Ketone	ND	0.0059	EPA 8260D	10-27-20	10-27-20	
Toluene	ND	0.0059	EPA 8260D	10-27-20	10-27-20	
(trans) 1,3-Dichloropropene	ND	0.0012	EPA 8260D	10-27-20	10-27-20	



Date of Report: November 5, 2020
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 Laboratory Reference: 2010-317
 Project: 0570-174-00

VOLATILE ORGANICS EPA 8260D
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: GEOENV-B2-15-16.5						
Laboratory ID: 10-317-05						
1,1,2-Trichloroethane	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
Tetrachloroethene	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
1,3-Dichloropropane	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
2-Hexanone	ND	0.0059	EPA 8260D	10-27-20	10-27-20	
Dibromochloromethane	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
1,2-Dibromoethane	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
Chlorobenzene	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
1,1,1,2-Tetrachloroethane	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
Ethylbenzene	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
m,p-Xylene	ND	0.0023	EPA 8260D	10-27-20	10-27-20	
o-Xylene	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
Styrene	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
Bromoform	ND	0.0059	EPA 8260D	10-27-20	10-27-20	
Isopropylbenzene	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
Bromobenzene	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
1,1,2,2-Tetrachloroethane	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
1,2,3-Trichloropropane	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
n-Propylbenzene	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
2-Chlorotoluene	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
4-Chlorotoluene	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
1,3,5-Trimethylbenzene	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
tert-Butylbenzene	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
1,2,4-Trimethylbenzene	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
sec-Butylbenzene	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
1,3-Dichlorobenzene	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
p-Isopropyltoluene	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
1,4-Dichlorobenzene	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
1,2-Dichlorobenzene	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
n-Butylbenzene	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
1,2-Dibromo-3-chloropropane	ND	0.0059	EPA 8260D	10-27-20	10-27-20	
1,2,4-Trichlorobenzene	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
Hexachlorobutadiene	ND	0.0059	EPA 8260D	10-27-20	10-27-20	
Naphthalene	ND	0.0059	EPA 8260D	10-27-20	10-27-20	
1,2,3-Trichlorobenzene	ND	0.0012	EPA 8260D	10-27-20	10-27-20	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>102</i>	<i>74-131</i>				
<i>Toluene-d8</i>	<i>104</i>	<i>78-128</i>				
<i>4-Bromofluorobenzene</i>	<i>103</i>	<i>71-130</i>				



Date of Report: November 5, 2020
 Samples Submitted: October 27, 2020
 Laboratory Reference: 2010-317
 Project: 0570-174-00

PAHs EPA 8270E/SIM

Matrix: Soil
 Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: GEOENV-B1-2.5-4						
Laboratory ID: 10-317-01						
Naphthalene	ND	0.037	EPA 8270E/SIM	10-29-20	10-31-20	
2-Methylnaphthalene	ND	0.037	EPA 8270E/SIM	10-29-20	10-31-20	
1-Methylnaphthalene	ND	0.037	EPA 8270E/SIM	10-29-20	10-31-20	
Acenaphthylene	0.064	0.037	EPA 8270E/SIM	10-29-20	10-31-20	
Acenaphthene	ND	0.037	EPA 8270E/SIM	10-29-20	10-31-20	
Fluorene	ND	0.037	EPA 8270E/SIM	10-29-20	10-31-20	
Phenanthrene	0.15	0.037	EPA 8270E/SIM	10-29-20	10-31-20	
Anthracene	0.062	0.037	EPA 8270E/SIM	10-29-20	10-31-20	
Fluoranthene	0.25	0.037	EPA 8270E/SIM	10-29-20	10-31-20	
Pyrene	0.27	0.037	EPA 8270E/SIM	10-29-20	10-31-20	
Benzo[a]anthracene	0.17	0.037	EPA 8270E/SIM	10-29-20	10-31-20	
Chrysene	0.19	0.037	EPA 8270E/SIM	10-29-20	10-31-20	
Benzo[b]fluoranthene	0.19	0.037	EPA 8270E/SIM	10-29-20	10-31-20	
Benzo[j,k]fluoranthene	0.049	0.037	EPA 8270E/SIM	10-29-20	10-31-20	
Benzo[a]pyrene	0.14	0.037	EPA 8270E/SIM	10-29-20	10-31-20	
Indeno(1,2,3-c,d)pyrene	0.086	0.037	EPA 8270E/SIM	10-29-20	10-31-20	
Dibenz[a,h]anthracene	ND	0.037	EPA 8270E/SIM	10-29-20	10-31-20	
Benzo[g,h,i]perylene	0.094	0.037	EPA 8270E/SIM	10-29-20	10-31-20	
<i>Surrogate: Percent Recovery Control Limits</i>						
2-Fluorobiphenyl	77	46 - 113				
Pyrene-d10	87	45 - 114				
Terphenyl-d14	88	49 - 121				



Date of Report: November 5, 2020
 Samples Submitted: October 27, 2020
 Laboratory Reference: 2010-317
 Project: 0570-174-00

PAHs EPA 8270E/SIM

Matrix: Soil
 Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: GEOENV-B1-10-11.5						
Laboratory ID: 10-317-02						
Naphthalene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
2-Methylnaphthalene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
1-Methylnaphthalene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
Acenaphthylene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
Acenaphthene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
Fluorene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
Phenanthrene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
Anthracene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
Fluoranthene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
Pyrene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
Benzo[a]anthracene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
Chrysene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
Benzo[b]fluoranthene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
Benzo(j,k)fluoranthene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
Benzo[a]pyrene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
Indeno(1,2,3-c,d)pyrene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
Dibenz[a,h]anthracene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
Benzo[g,h,i]perylene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
<i>Surrogate: Percent Recovery Control Limits</i>						
2-Fluorobiphenyl	70	46 - 113				
Pyrene-d10	77	45 - 114				
Terphenyl-d14	77	49 - 121				



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 Laboratory Reference: 2010-317
 Project: 0570-174-00

PAHs EPA 8270E/SIM

Matrix: Soil
 Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: GEOENV-B2-2.5-5						
Laboratory ID: 10-317-03						
Naphthalene	0.080	0.0081	EPA 8270E/SIM	10-29-20	10-31-20	
2-Methylnaphthalene	0.069	0.0081	EPA 8270E/SIM	10-29-20	10-31-20	
1-Methylnaphthalene	0.062	0.0081	EPA 8270E/SIM	10-29-20	10-31-20	
Acenaphthylene	0.025	0.0081	EPA 8270E/SIM	10-29-20	10-31-20	
Acenaphthene	0.012	0.0081	EPA 8270E/SIM	10-29-20	10-31-20	
Fluorene	0.016	0.0081	EPA 8270E/SIM	10-29-20	10-31-20	
Phenanthrene	0.13	0.0081	EPA 8270E/SIM	10-29-20	10-31-20	
Anthracene	0.031	0.0081	EPA 8270E/SIM	10-29-20	10-31-20	
Fluoranthene	0.11	0.0081	EPA 8270E/SIM	10-29-20	10-31-20	
Pyrene	0.13	0.0081	EPA 8270E/SIM	10-29-20	10-31-20	
Benzo[a]anthracene	0.095	0.0081	EPA 8270E/SIM	10-29-20	10-31-20	
Chrysene	0.098	0.0081	EPA 8270E/SIM	10-29-20	10-31-20	
Benzo[b]fluoranthene	0.077	0.0081	EPA 8270E/SIM	10-29-20	10-31-20	
Benzo(j,k)fluoranthene	0.024	0.0081	EPA 8270E/SIM	10-29-20	10-31-20	
Benzo[a]pyrene	0.069	0.0081	EPA 8270E/SIM	10-29-20	10-31-20	
Indeno(1,2,3-c,d)pyrene	0.040	0.0081	EPA 8270E/SIM	10-29-20	10-31-20	
Dibenz[a,h]anthracene	0.012	0.0081	EPA 8270E/SIM	10-29-20	10-31-20	
Benzo[g,h,i]perylene	0.042	0.0081	EPA 8270E/SIM	10-29-20	10-31-20	
<i>Surrogate: Percent Recovery Control Limits</i>						
2-Fluorobiphenyl	70	46 - 113				
Pyrene-d10	77	45 - 114				
Terphenyl-d14	81	49 - 121				



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PAHs EPA 8270E/SIM

Matrix: Soil
 Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: GEOENV-B2-10-11.5						
Laboratory ID: 10-317-04						
Naphthalene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
2-Methylnaphthalene	0.0096	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
1-Methylnaphthalene	0.0093	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
Acenaphthylene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
Acenaphthene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
Fluorene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
Phenanthrene	0.013	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
Anthracene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
Fluoranthene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
Pyrene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
Benzo[a]anthracene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
Chrysene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
Benzo[b]fluoranthene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
Benzo[j,k]fluoranthene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
Benzo[a]pyrene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
Indeno(1,2,3-c,d)pyrene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
Dibenz[a,h]anthracene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
Benzo[g,h,i]perylene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-31-20	
<i>Surrogate: Percent Recovery Control Limits</i>						
2-Fluorobiphenyl	75	46 - 113				
Pyrene-d10	85	45 - 114				
Terphenyl-d14	84	49 - 121				



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 Laboratory Reference: 2010-317
 Project: 0570-174-00

PAHs EPA 8270E/SIM

Matrix: Soil
 Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: GEOENV-B2-15-16.5						
Laboratory ID: 10-317-05						
Naphthalene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-30-20	
2-Methylnaphthalene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-30-20	
1-Methylnaphthalene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-30-20	
Acenaphthylene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-30-20	
Acenaphthene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-30-20	
Fluorene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-30-20	
Phenanthrene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-30-20	
Anthracene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-30-20	
Fluoranthene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-30-20	
Pyrene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-30-20	
Benzo[a]anthracene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-30-20	
Chrysene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-30-20	
Benzo[b]fluoranthene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-30-20	
Benzo(j,k)fluoranthene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-30-20	
Benzo[a]pyrene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-30-20	
Indeno(1,2,3-c,d)pyrene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-30-20	
Dibenz[a,h]anthracene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-30-20	
Benzo[g,h,i]perylene	ND	0.0088	EPA 8270E/SIM	10-29-20	10-30-20	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
2-Fluorobiphenyl	75	46 - 113				
Pyrene-d10	85	45 - 114				
Terphenyl-d14	82	49 - 121				



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PCBs EPA 8082A

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: GEOENV-B1-2.5-4						
Laboratory ID: 10-317-01						
Aroclor 1016	ND	0.055	EPA 8082A	11-3-20	11-3-20	
Aroclor 1221	ND	0.055	EPA 8082A	11-3-20	11-3-20	
Aroclor 1232	ND	0.055	EPA 8082A	11-3-20	11-3-20	
Aroclor 1242	ND	0.055	EPA 8082A	11-3-20	11-3-20	
Aroclor 1248	ND	0.055	EPA 8082A	11-3-20	11-3-20	
Aroclor 1254	ND	0.055	EPA 8082A	11-3-20	11-3-20	
Aroclor 1260	0.084	0.055	EPA 8082A	11-3-20	11-3-20	
<i>Surrogate: Percent Recovery Control Limits</i>						
<i>DCB 100 46-125</i>						

Client ID: GEOENV-B1-10-11.5						
Laboratory ID: 10-317-02						
Aroclor 1016	ND	0.066	EPA 8082A	11-3-20	11-3-20	
Aroclor 1221	ND	0.066	EPA 8082A	11-3-20	11-3-20	
Aroclor 1232	ND	0.066	EPA 8082A	11-3-20	11-3-20	
Aroclor 1242	ND	0.066	EPA 8082A	11-3-20	11-3-20	
Aroclor 1248	ND	0.066	EPA 8082A	11-3-20	11-3-20	
Aroclor 1254	ND	0.066	EPA 8082A	11-3-20	11-3-20	
Aroclor 1260	ND	0.066	EPA 8082A	11-3-20	11-3-20	
<i>Surrogate: Percent Recovery Control Limits</i>						
<i>DCB 89 46-125</i>						

Client ID: GEOENV-B2-2.5-5						
Laboratory ID: 10-317-03						
Aroclor 1016	ND	0.061	EPA 8082A	11-3-20	11-3-20	
Aroclor 1221	ND	0.061	EPA 8082A	11-3-20	11-3-20	
Aroclor 1232	ND	0.061	EPA 8082A	11-3-20	11-3-20	
Aroclor 1242	ND	0.061	EPA 8082A	11-3-20	11-3-20	
Aroclor 1248	ND	0.061	EPA 8082A	11-3-20	11-3-20	
Aroclor 1254	ND	0.061	EPA 8082A	11-3-20	11-3-20	
Aroclor 1260	ND	0.061	EPA 8082A	11-3-20	11-3-20	
<i>Surrogate: Percent Recovery Control Limits</i>						
<i>DCB 103 46-125</i>						



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PCBs EPA 8082A

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: GEOENV-B2-10-11.5						
Laboratory ID: 10-317-04						
Aroclor 1016	ND	0.066	EPA 8082A	11-3-20	11-3-20	
Aroclor 1221	ND	0.066	EPA 8082A	11-3-20	11-3-20	
Aroclor 1232	ND	0.066	EPA 8082A	11-3-20	11-3-20	
Aroclor 1242	ND	0.066	EPA 8082A	11-3-20	11-3-20	
Aroclor 1248	ND	0.066	EPA 8082A	11-3-20	11-3-20	
Aroclor 1254	ND	0.066	EPA 8082A	11-3-20	11-3-20	
Aroclor 1260	ND	0.066	EPA 8082A	11-3-20	11-3-20	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
DCB	99	46-125				

Client ID: GEOENV-B2-15-16.5						
Laboratory ID: 10-317-05						
Aroclor 1016	ND	0.066	EPA 8082A	11-3-20	11-3-20	
Aroclor 1221	ND	0.066	EPA 8082A	11-3-20	11-3-20	
Aroclor 1232	ND	0.066	EPA 8082A	11-3-20	11-3-20	
Aroclor 1242	ND	0.066	EPA 8082A	11-3-20	11-3-20	
Aroclor 1248	ND	0.066	EPA 8082A	11-3-20	11-3-20	
Aroclor 1254	ND	0.066	EPA 8082A	11-3-20	11-3-20	
Aroclor 1260	ND	0.066	EPA 8082A	11-3-20	11-3-20	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
DCB	93	46-125				



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**TOTAL METALS
 EPA 6010D/7471B**

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: GEOENV-B1-2.5-4						
Laboratory ID: 10-317-01						
Arsenic	12	5.5	EPA 6010D	10-29-20	10-29-20	
Barium	130	2.8	EPA 6010D	10-29-20	10-29-20	
Cadmium	0.70	0.55	EPA 6010D	10-29-20	10-29-20	
Chromium	29	0.55	EPA 6010D	10-29-20	10-29-20	
Copper	110	1.1	EPA 6010D	10-29-20	10-29-20	
Lead	94	5.5	EPA 6010D	10-29-20	10-29-20	
Mercury	0.29	0.28	EPA 7471B	10-29-20	10-29-20	
Nickel	27	2.8	EPA 6010D	10-29-20	10-29-20	
Selenium	ND	11	EPA 6010D	10-29-20	10-29-20	
Silver	ND	1.1	EPA 6010D	10-29-20	10-29-20	

Client ID: GEOENV-B1-10-11.5

Laboratory ID: 10-317-02

Arsenic	ND	6.6	EPA 6010D	10-29-20	10-29-20	
Barium	12	3.3	EPA 6010D	10-29-20	10-29-20	
Cadmium	ND	0.66	EPA 6010D	10-29-20	10-29-20	
Chromium	17	0.66	EPA 6010D	10-29-20	10-29-20	
Copper	18	1.3	EPA 6010D	10-29-20	10-29-20	
Lead	ND	6.6	EPA 6010D	10-29-20	10-29-20	
Mercury	ND	0.33	EPA 7471B	10-29-20	10-29-20	
Nickel	11	3.3	EPA 6010D	10-29-20	10-29-20	
Selenium	ND	13	EPA 6010D	10-29-20	10-29-20	
Silver	ND	1.3	EPA 6010D	10-29-20	10-29-20	

Client ID: GEOENV-B2-2.5-5

Laboratory ID: 10-317-03

Arsenic	6.4	6.1	EPA 6010D	10-29-20	10-29-20	
Barium	490	3.0	EPA 6010D	10-29-20	10-29-20	
Cadmium	ND	0.61	EPA 6010D	10-29-20	10-29-20	
Chromium	21	0.61	EPA 6010D	10-29-20	10-29-20	
Copper	68	1.2	EPA 6010D	10-29-20	10-29-20	
Lead	240	6.1	EPA 6010D	10-29-20	10-29-20	
Mercury	0.94	0.30	EPA 7471B	10-29-20	10-29-20	
Nickel	24	3.0	EPA 6010D	10-29-20	10-29-20	
Selenium	ND	12	EPA 6010D	10-29-20	10-29-20	
Silver	ND	1.2	EPA 6010D	10-29-20	10-29-20	



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**TOTAL METALS
 EPA 6010D/7471B**

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: GEOENV-B2-10-11.5						
Laboratory ID: 10-317-04						
Arsenic	ND	6.6	EPA 6010D	10-29-20	10-29-20	
Barium	82	3.3	EPA 6010D	10-29-20	10-29-20	
Cadmium	ND	0.66	EPA 6010D	10-29-20	10-29-20	
Chromium	16	0.66	EPA 6010D	10-29-20	10-29-20	
Copper	26	1.3	EPA 6010D	10-29-20	10-29-20	
Lead	21	6.6	EPA 6010D	10-29-20	10-29-20	
Mercury	ND	0.33	EPA 7471B	10-29-20	10-29-20	
Nickel	11	3.3	EPA 6010D	10-29-20	10-29-20	
Selenium	ND	13	EPA 6010D	10-29-20	10-29-20	
Silver	ND	1.3	EPA 6010D	10-29-20	10-29-20	

Client ID: GEOENV-B2-15-16.5

Laboratory ID: 10-317-05

Arsenic	ND	6.6	EPA 6010D	10-29-20	10-29-20	
Barium	9.5	3.3	EPA 6010D	10-29-20	10-29-20	
Cadmium	ND	0.66	EPA 6010D	10-29-20	10-29-20	
Chromium	6.0	0.66	EPA 6010D	10-29-20	10-29-20	
Copper	8.7	1.3	EPA 6010D	10-29-20	10-29-20	
Lead	ND	6.6	EPA 6010D	10-29-20	10-29-20	
Mercury	ND	0.33	EPA 7471B	10-29-20	10-29-20	
Nickel	6.5	3.3	EPA 6010D	10-29-20	10-29-20	
Selenium	ND	13	EPA 6010D	10-29-20	10-29-20	
Silver	ND	1.3	EPA 6010D	10-29-20	10-29-20	



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**SOLUBLE HEXAVALENT CHROMIUM
 WATER EXTRACTION
 EPA 7196A**

Matrix: Soil
 Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: GEOENV-B1-2.5-4						
Laboratory ID: 10-317-01						
Hexavalent Chromium	ND	1.1	EPA 7196A mod.	11-3-20	11-3-20	
Client ID: GEOENV-B1-10-11.5						
Laboratory ID: 10-317-02						
Hexavalent Chromium	ND	1.3	EPA 7196A mod.	11-3-20	11-3-20	
Client ID: GEOENV-B2-2.5-5						
Laboratory ID: 10-317-03						
Hexavalent Chromium	ND	1.2	EPA 7196A mod.	11-3-20	11-3-20	
Client ID: GEOENV-B2-10-11.5						
Laboratory ID: 10-317-04						
Hexavalent Chromium	ND	1.3	EPA 7196A mod.	11-3-20	11-3-20	
Client ID: GEOENV-B2-15-16.5						
Laboratory ID: 10-317-05						
Hexavalent Chromium	ND	1.3	EPA 7196A mod.	11-3-20	11-3-20	



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pH
EPA 9045D

Matrix: Soil
 Units: pH (@ 25°C)

Analyte	Result	Method	Date Prepared	Date Analyzed	Flags
Client ID:	GEOENV-B1-2.5-4				
Laboratory ID:	10-317-01				
pH	7.2	EPA 9045D	10-27-20	10-27-20	

Client ID:	GEOENV-B1-10-11.5				
Laboratory ID:	10-317-02				
pH	7.1	EPA 9045D	10-27-20	10-27-20	

Client ID:	GEOENV-B2-2.5-5				
Laboratory ID:	10-317-03				
pH	6.3	EPA 9045D	10-27-20	10-27-20	

Client ID:	GEOENV-B2-10-11.5				
Laboratory ID:	10-317-04				
pH	6.9	EPA 9045D	10-27-20	10-27-20	

Client ID:	GEOENV-B2-15-16.5				
Laboratory ID:	10-317-05				
pH	8.6	EPA 9045D	10-27-20	10-27-20	



Date of Report: November 5, 2020
Samples Submitted: October 27, 2020
Laboratory Reference: 2010-317
Project: 0570-174-00

**PAINT FILTER TEST
EPA 9095B**

Matrix: Soil
Units: NA

Analyte	Result	Method	Date Analyzed	Flags
Client ID:	DRUM PROFILE			
Laboratory ID:	10-317-06			
Free Liquids	NO	EPA 9095B	11-4-20	



Date of Report: November 5, 2020
 Samples Submitted: October 27, 2020
 Laboratory Reference: 2010-317
 Project: 0570-174-00

DIESEL AND HEAVY OIL RANGE ORGANICS
NWTPH-Dx

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	GEOENV-B1-2.5-4					
Laboratory ID:	10-317-01					
Diesel Range Organics	ND	140	NWTPH-Dx	11-3-20	11-3-20	
Lube Oil	1200	280	NWTPH-Dx	11-3-20	11-3-20	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	95	50-150				



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 Samples Submitted: October 27, 2020
 Laboratory Reference: 2010-317
 Project: 0570-174-00

**HYDROCARBON IDENTIFICATION
 NWTPH-HCID
 QUALITY CONTROL**

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1028S3					
Gasoline Range Organics	ND	20	NWTPH-HCID	10-28-20	10-28-20	
Diesel Range Organics	ND	50	NWTPH-HCID	10-28-20	10-28-20	
Lube Oil Range Organics	ND	100	NWTPH-HCID	10-28-20	10-28-20	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	103	50-150				



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 Project: 0570-174-00

**VOLATILE ORGANICS EPA 8260D
 QUALITY CONTROL**

page 1 of 2

Matrix: Soil
 Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1027S1					
Dichlorodifluoromethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Chloromethane	ND	0.0050	EPA 8260D	10-27-20	10-27-20	
Vinyl Chloride	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Bromomethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Chloroethane	ND	0.0050	EPA 8260D	10-27-20	10-27-20	
Trichlorofluoromethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,1-Dichloroethene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Acetone	ND	0.010	EPA 8260D	10-27-20	10-27-20	
Iodomethane	ND	0.0050	EPA 8260D	10-27-20	10-27-20	
Carbon Disulfide	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Methylene Chloride	ND	0.0050	EPA 8260D	10-27-20	10-27-20	
(trans) 1,2-Dichloroethene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Methyl t-Butyl Ether	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,1-Dichloroethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Vinyl Acetate	ND	0.0050	EPA 8260D	10-27-20	10-27-20	
2,2-Dichloropropane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
(cis) 1,2-Dichloroethene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
2-Butanone	ND	0.0050	EPA 8260D	10-27-20	10-27-20	
Bromochloromethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Chloroform	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,1,1-Trichloroethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Carbon Tetrachloride	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,1-Dichloropropene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Benzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,2-Dichloroethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Trichloroethene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,2-Dichloropropane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Dibromomethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Bromodichloromethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
2-Chloroethyl Vinyl Ether	ND	0.0050	EPA 8260D	10-27-20	10-27-20	
(cis) 1,3-Dichloropropene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Methyl Isobutyl Ketone	ND	0.0050	EPA 8260D	10-27-20	10-27-20	
Toluene	ND	0.0050	EPA 8260D	10-27-20	10-27-20	
(trans) 1,3-Dichloropropene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	



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**VOLATILE ORGANICS EPA 8260D
 QUALITY CONTROL**

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1027S1					
1,1,2-Trichloroethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Tetrachloroethene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,3-Dichloropropane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
2-Hexanone	ND	0.0050	EPA 8260D	10-27-20	10-27-20	
Dibromochloromethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,2-Dibromoethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Chlorobenzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,1,1,2-Tetrachloroethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Ethylbenzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
m,p-Xylene	ND	0.0020	EPA 8260D	10-27-20	10-27-20	
o-Xylene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Styrene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Bromoform	ND	0.0050	EPA 8260D	10-27-20	10-27-20	
Isopropylbenzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Bromobenzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,1,2,2-Tetrachloroethane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,2,3-Trichloropropane	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
n-Propylbenzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
2-Chlorotoluene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
4-Chlorotoluene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,3,5-Trimethylbenzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
tert-Butylbenzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,2,4-Trimethylbenzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
sec-Butylbenzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,3-Dichlorobenzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
p-Isopropyltoluene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,4-Dichlorobenzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,2-Dichlorobenzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
n-Butylbenzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
1,2-Dibromo-3-chloropropane	ND	0.0050	EPA 8260D	10-27-20	10-27-20	
1,2,4-Trichlorobenzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Hexachlorobutadiene	ND	0.0050	EPA 8260D	10-27-20	10-27-20	
Naphthalene	ND	0.0050	EPA 8260D	10-27-20	10-27-20	
1,2,3-Trichlorobenzene	ND	0.0010	EPA 8260D	10-27-20	10-27-20	
Surrogate:	Percent Recovery	Control Limits				
Dibromofluoromethane	100	74-131				
Toluene-d8	103	78-128				
4-Bromofluorobenzene	104	71-130				



OnSite Environmental, Inc. 14648 NE 95th Street, Redmond, WA 98052 (425) 883-3881

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Date of Report: November 5, 2020
 Samples Submitted: October 27, 2020
 Laboratory Reference: 2010-317
 Project: 0570-174-00

**VOLATILE ORGANICS EPA 8260D
 QUALITY CONTROL**

page 1 of 2

Matrix: Soil
 Units: mg/kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1028S1					
Dichlorodifluoromethane	ND	0.0018	EPA 8260D	10-28-20	10-28-20	
Chloromethane	ND	0.0074	EPA 8260D	10-28-20	10-28-20	
Vinyl Chloride	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
Bromomethane	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
Chloroethane	ND	0.0050	EPA 8260D	10-28-20	10-28-20	
Trichlorofluoromethane	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
1,1-Dichloroethene	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
Acetone	ND	0.010	EPA 8260D	10-28-20	10-28-20	
Iodomethane	ND	0.0050	EPA 8260D	10-28-20	10-28-20	
Carbon Disulfide	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
Methylene Chloride	ND	0.0063	EPA 8260D	10-28-20	10-28-20	
(trans) 1,2-Dichloroethene	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
Methyl t-Butyl Ether	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
1,1-Dichloroethane	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
Vinyl Acetate	ND	0.0050	EPA 8260D	10-28-20	10-28-20	
2,2-Dichloropropane	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
(cis) 1,2-Dichloroethene	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
2-Butanone	ND	0.0050	EPA 8260D	10-28-20	10-28-20	
Bromochloromethane	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
Chloroform	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
1,1,1-Trichloroethane	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
Carbon Tetrachloride	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
1,1-Dichloropropene	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
Benzene	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
1,2-Dichloroethane	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
Trichloroethene	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
1,2-Dichloropropane	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
Dibromomethane	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
Bromodichloromethane	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
2-Chloroethyl Vinyl Ether	ND	0.0050	EPA 8260D	10-28-20	10-28-20	
(cis) 1,3-Dichloropropene	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
Methyl Isobutyl Ketone	ND	0.0050	EPA 8260D	10-28-20	10-28-20	
Toluene	ND	0.0050	EPA 8260D	10-28-20	10-28-20	
(trans) 1,3-Dichloropropene	ND	0.0010	EPA 8260D	10-28-20	10-28-20	



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**VOLATILE ORGANICS EPA 8260D
 QUALITY CONTROL**

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1028S1					
1,1,2-Trichloroethane	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
Tetrachloroethene	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
1,3-Dichloropropane	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
2-Hexanone	ND	0.0050	EPA 8260D	10-28-20	10-28-20	
Dibromochloromethane	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
1,2-Dibromoethane	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
Chlorobenzene	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
1,1,1,2-Tetrachloroethane	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
Ethylbenzene	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
m,p-Xylene	ND	0.0020	EPA 8260D	10-28-20	10-28-20	
o-Xylene	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
Styrene	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
Bromoform	ND	0.0050	EPA 8260D	10-28-20	10-28-20	
Isopropylbenzene	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
Bromobenzene	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
1,1,2,2-Tetrachloroethane	ND	0.0014	EPA 8260D	10-28-20	10-28-20	
1,2,3-Trichloropropane	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
n-Propylbenzene	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
2-Chlorotoluene	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
4-Chlorotoluene	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
1,3,5-Trimethylbenzene	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
tert-Butylbenzene	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
1,2,4-Trimethylbenzene	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
sec-Butylbenzene	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
1,3-Dichlorobenzene	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
p-Isopropyltoluene	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
1,4-Dichlorobenzene	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
1,2-Dichlorobenzene	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
n-Butylbenzene	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
1,2-Dibromo-3-chloropropane	ND	0.0050	EPA 8260D	10-28-20	10-28-20	
1,2,4-Trichlorobenzene	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
Hexachlorobutadiene	ND	0.0050	EPA 8260D	10-28-20	10-28-20	
Naphthalene	ND	0.0050	EPA 8260D	10-28-20	10-28-20	
1,2,3-Trichlorobenzene	ND	0.0010	EPA 8260D	10-28-20	10-28-20	
Surrogate:	Percent Recovery	Control Limits				
Dibromofluoromethane	103	74-131				
Toluene-d8	101	78-128				
4-Bromofluorobenzene	101	71-130				



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 Samples Submitted: October 27, 2020
 Laboratory Reference: 2010-317
 Project: 0570-174-00

**VOLATILE ORGANICS EPA 8260D
 QUALITY CONTROL**

Matrix: Soil
 Units: mg/kg

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB1027S1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	0.0559	0.0559	0.0500	0.0500	112	112	55-126	0	17	
Benzene	0.0518	0.0534	0.0500	0.0500	104	107	65-121	3	16	
Trichloroethene	0.0583	0.0609	0.0500	0.0500	117	122	74-126	4	16	
Toluene	0.0534	0.0562	0.0500	0.0500	107	112	71-121	5	16	
Chlorobenzene	0.0520	0.0534	0.0500	0.0500	104	107	72-123	3	16	
Surrogate:										
Dibromofluoromethane					101	99	74-131			
Toluene-d8					102	102	78-128			
4-Bromofluorobenzene					106	101	71-130			
Laboratory ID:	SB1028S1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	0.0480	0.0474	0.0500	0.0500	96	95	55-126	1	17	
Benzene	0.0451	0.0450	0.0500	0.0500	90	90	65-121	0	16	
Trichloroethene	0.0506	0.0512	0.0500	0.0500	101	102	74-126	1	16	
Toluene	0.0468	0.0467	0.0500	0.0500	94	93	71-121	0	16	
Chlorobenzene	0.0445	0.0453	0.0500	0.0500	89	91	72-123	2	16	
Surrogate:										
Dibromofluoromethane					101	101	74-131			
Toluene-d8					103	101	78-128			
4-Bromofluorobenzene					102	103	71-130			



Date of Report: November 5, 2020
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 Project: 0570-174-00

**PAHs EPA 8270E/SIM
 QUALITY CONTROL**

Matrix: Soil
 Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1029S2					
Naphthalene	ND	0.0020	EPA 8270E/SIM	10-29-20	10-30-20	
2-Methylnaphthalene	ND	0.0020	EPA 8270E/SIM	10-29-20	10-30-20	
1-Methylnaphthalene	ND	0.0020	EPA 8270E/SIM	10-29-20	10-30-20	
Acenaphthylene	ND	0.0020	EPA 8270E/SIM	10-29-20	10-30-20	
Acenaphthene	ND	0.0020	EPA 8270E/SIM	10-29-20	10-30-20	
Fluorene	ND	0.0020	EPA 8270E/SIM	10-29-20	10-30-20	
Phenanthrene	ND	0.0020	EPA 8270E/SIM	10-29-20	10-30-20	
Anthracene	ND	0.0020	EPA 8270E/SIM	10-29-20	10-30-20	
Fluoranthene	ND	0.0020	EPA 8270E/SIM	10-29-20	10-30-20	
Pyrene	ND	0.0020	EPA 8270E/SIM	10-29-20	10-30-20	
Benzo[a]anthracene	ND	0.0020	EPA 8270E/SIM	10-29-20	10-30-20	
Chrysene	ND	0.0020	EPA 8270E/SIM	10-29-20	10-30-20	
Benzo[b]fluoranthene	ND	0.0020	EPA 8270E/SIM	10-29-20	10-30-20	
Benzo(j,k)fluoranthene	ND	0.0020	EPA 8270E/SIM	10-29-20	10-30-20	
Benzo[a]pyrene	ND	0.0020	EPA 8270E/SIM	10-29-20	10-30-20	
Indeno(1,2,3-c,d)pyrene	ND	0.0020	EPA 8270E/SIM	10-29-20	10-30-20	
Dibenz[a,h]anthracene	ND	0.0020	EPA 8270E/SIM	10-29-20	10-30-20	
Benzo[g,h,i]perylene	ND	0.0020	EPA 8270E/SIM	10-29-20	10-30-20	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
2-Fluorobiphenyl	75	46 - 113				
Pyrene-d10	83	45 - 114				
Terphenyl-d14	82	49 - 121				



Date of Report: November 5, 2020
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 Laboratory Reference: 2010-317
 Project: 0570-174-00

**PAHs EPA 8270E/SIM
 QUALITY CONTROL**

Matrix: Soil
 Units: mg/Kg

Analyte	Result		Spike Level		Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
MATRIX SPIKES										
Laboratory ID:	10-279-02									
	MS	MSD	MS	MSD		MS	MSD			
Naphthalene	0.120	0.121	0.0833	0.0833	0.0558	77	78	51 - 115	1	26
Acenaphthylene	0.0623	0.0653	0.0833	0.0833	0.00504	69	72	53 - 121	5	24
Acenaphthene	0.0677	0.0754	0.0833	0.0833	0.00339	77	86	52 - 121	11	25
Fluorene	0.0644	0.0705	0.0833	0.0833	0.00667	69	77	58 - 127	9	23
Phenanthrene	0.126	0.136	0.0833	0.0833	0.0641	74	86	46 - 129	8	28
Anthracene	0.0732	0.0793	0.0833	0.0833	0.0100	76	83	57 - 124	8	21
Fluoranthene	0.0877	0.0932	0.0833	0.0833	0.0287	71	77	46 - 136	6	29
Pyrene	0.0859	0.0921	0.0833	0.0833	0.0266	71	79	41 - 136	7	32
Benzo[a]anthracene	0.0983	0.114	0.0833	0.0833	0.0191	95	114	56 - 136	15	25
Chrysene	0.0890	0.102	0.0833	0.0833	0.0288	72	88	49 - 130	14	22
Benzo[b]fluoranthene	0.0813	0.0937	0.0833	0.0833	0.0267	66	80	51 - 135	14	26
Benzo(j,k)fluoranthene	0.0686	0.0758	0.0833	0.0833	0.00528	76	85	56 - 124	10	23
Benzo[a]pyrene	0.0728	0.0833	0.0833	0.0833	0.0163	68	80	54 - 133	13	26
Indeno(1,2,3-c,d)pyrene	0.0727	0.0819	0.0833	0.0833	0.0159	68	79	52 - 134	12	20
Dibenz[a,h]anthracene	0.0685	0.0791	0.0833	0.0833	0.00596	75	88	58 - 127	14	17
Benzo[g,h,i]perylene	0.0763	0.0861	0.0833	0.0833	0.0215	66	78	54 - 129	12	21
Surrogate:										
2-Fluorobiphenyl						62	67	46 - 113		
Pyrene-d10						70	77	45 - 114		
Terphenyl-d14						71	80	49 - 121		



Date of Report: November 5, 2020
 Samples Submitted: October 27, 2020
 Laboratory Reference: 2010-317
 Project: 0570-174-00

**PCBs EPA 8082A
 QUALITY CONTROL**

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1103S1					
Aroclor 1016	ND	0.050	EPA 8082A	11-3-20	11-3-20	
Aroclor 1221	ND	0.050	EPA 8082A	11-3-20	11-3-20	
Aroclor 1232	ND	0.050	EPA 8082A	11-3-20	11-3-20	
Aroclor 1242	ND	0.050	EPA 8082A	11-3-20	11-3-20	
Aroclor 1248	ND	0.050	EPA 8082A	11-3-20	11-3-20	
Aroclor 1254	ND	0.050	EPA 8082A	11-3-20	11-3-20	
Aroclor 1260	ND	0.050	EPA 8082A	11-3-20	11-3-20	
Surrogate:	Percent Recovery	Control Limits				
DCB	101	46-125				

Analyte	Result				Spike Level	Source	Percent	Recovery	RPD		
						Result	Recovery	Limits			
MATRIX SPIKES											
Laboratory ID:	10-317-05										
	MS	MSD	MS	MSD		MS	MSD				
Aroclor 1260	0.462	0.477	0.500	0.500	ND	92	95	43-125	3	15	
Surrogate:											
DCB						105	105	46-125			



Date of Report: November 5, 2020
 Samples Submitted: October 27, 2020
 Laboratory Reference: 2010-317
 Project: 0570-174-00

**TOTAL METALS
 EPA 6010D/7471B
 QUALITY CONTROL**

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1029SM1					
Arsenic	ND	5.0	EPA 6010D	10-29-20	10-29-20	
Barium	ND	2.5	EPA 6010D	10-29-20	10-29-20	
Cadmium	ND	0.50	EPA 6010D	10-29-20	10-29-20	
Chromium	ND	0.50	EPA 6010D	10-29-20	10-29-20	
Copper	ND	1.0	EPA 6010D	10-29-20	10-29-20	
Lead	ND	5.0	EPA 6010D	10-29-20	10-29-20	
Nickel	ND	2.5	EPA 6010D	10-29-20	10-29-20	
Selenium	ND	10	EPA 6010D	10-29-20	10-29-20	
Silver	ND	1.0	EPA 6010D	10-29-20	10-29-20	
Laboratory ID:	MB1029S1					
Mercury	ND	0.25	EPA 7471B	10-29-20	10-29-20	



Date of Report: November 5, 2020
 Samples Submitted: October 27, 2020
 Laboratory Reference: 2010-317
 Project: 0570-174-00

**TOTAL METALS
 EPA 6010D/7471B
 QUALITY CONTROL**

Matrix: Soil
 Units: mg/Kg (ppm)

					Source	Percent	Recovery	RPD		
Analyte	Result		Spike Level		Result	Recovery	Limits	RPD	Limit	Flags
DUPLICATE										
Laboratory ID:	10-332-04									
	ORIG	DUP								
Arsenic	ND	ND	NA	NA		NA	NA	NA	20	
Barium	49.0	48.6	NA	NA		NA	NA	1	20	
Cadmium	ND	ND	NA	NA		NA	NA	NA	20	
Chromium	24.9	25.5	NA	NA		NA	NA	2	20	
Copper	15.6	15.0	NA	NA		NA	NA	4	20	
Lead	ND	ND	NA	NA		NA	NA	NA	20	
Nickel	31.1	27.4	NA	NA		NA	NA	13	20	
Selenium	ND	ND	NA	NA		NA	NA	NA	20	
Silver	ND	ND	NA	NA		NA	NA	NA	20	

Laboratory ID:	10-332-04									
Mercury	ND	ND	NA	NA		NA	NA	NA	20	

MATRIX SPIKES

Laboratory ID:	10-332-04									
	MS	MSD	MS	MSD		MS	MSD			
Arsenic	96.3	95.0	100	100	ND	96	95	75-125	1	20
Barium	145	143	100	100	49.0	97	94	75-125	2	20
Cadmium	44.8	44.2	50.0	50.0	ND	90	88	75-125	1	20
Chromium	116	115	100	100	24.9	91	90	75-125	1	20
Copper	63.2	61.3	50.0	50.0	15.6	95	91	75-125	3	20
Lead	254	248	250	250	ND	102	99	75-125	2	20
Nickel	121	120	100	100	31.1	90	89	75-125	1	20
Selenium	90.3	90.5	100	100	ND	90	91	75-125	0	20
Silver	23.6	22.2	25.0	25.0	ND	94	89	75-125	6	20

Laboratory ID:	10-332-04									
Mercury	0.543	0.531	0.500	0.500	0.0299	103	100	80-120	2	20



Date of Report: November 5, 2020
 Samples Submitted: October 27, 2020
 Laboratory Reference: 2010-317
 Project: 0570-174-00

**SOLUBLE HEXAVALENT CHROMIUM
 WATER EXTRACTION
 EPA 7196A
 QUALITY CONTROL**

Matrix: Soil
 Units: mg/Kg

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1103S2					
Hexavalent Chromium	ND	1.0	EPA 7196A mod.	11-3-20	11-3-20	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	10-317-01							
	ORIG	DUP						
Hexavalent Chromium	ND	ND	NA	NA	NA	NA	20	

MATRIX SPIKES

Laboratory ID:	10-317-01										
	MS	MSD	MS	MSD		MS	MSD				
Hexavalent Chromium	5.52	4.85	5.00	5.00	ND	110	97	75-125	13	20	

SPIKE BLANK

Laboratory ID:	SB1103S2										
	SB		SB			SB					
Hexavalent Chromium	4.87		5.00		NA	97		75-125	NA	NA	



Date of Report: November 5, 2020
 Samples Submitted: October 27, 2020
 Laboratory Reference: 2010-317
 Project: 0570-174-00

**DIESEL AND HEAVY OIL RANGE ORGANICS
 NWTPH-Dx
 QUALITY CONTROL**

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1103S1					
Diesel Range Organics	ND	25	NWTPH-Dx	11-3-20	11-3-20	
Lube Oil Range Organics	ND	50	NWTPH-Dx	11-3-20	11-3-20	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>o-Terphenyl</i>	87	50-150				

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	11-010-01							
	ORIG	DUP						
Diesel Range Organics	249	189	NA	NA	NA	NA	27	NA
Lube Oil Range Organics	187	131	NA	NA	NA	NA	35	NA
<i>Surrogate:</i>								
<i>o-Terphenyl</i>				99	84	50-150		



Date of Report: November 5, 2020
Samples Submitted: October 27, 2020
Laboratory Reference: 2010-317
Project: 0570-174-00

% MOISTURE

Client ID	Lab ID	% Moisture	Date Analyzed
GEOENV-B1-2.5-4	10-317-01	10	10-28-20
GEOENV-B1-10-11.5	10-317-02	24	10-28-20
GEOENV-B2-2.5-5	10-317-03	18	10-28-20
GEOENV-B2-10-11.5	10-317-04	25	10-28-20
GEOENV-B2-15-16.5	10-317-05	24	10-28-20



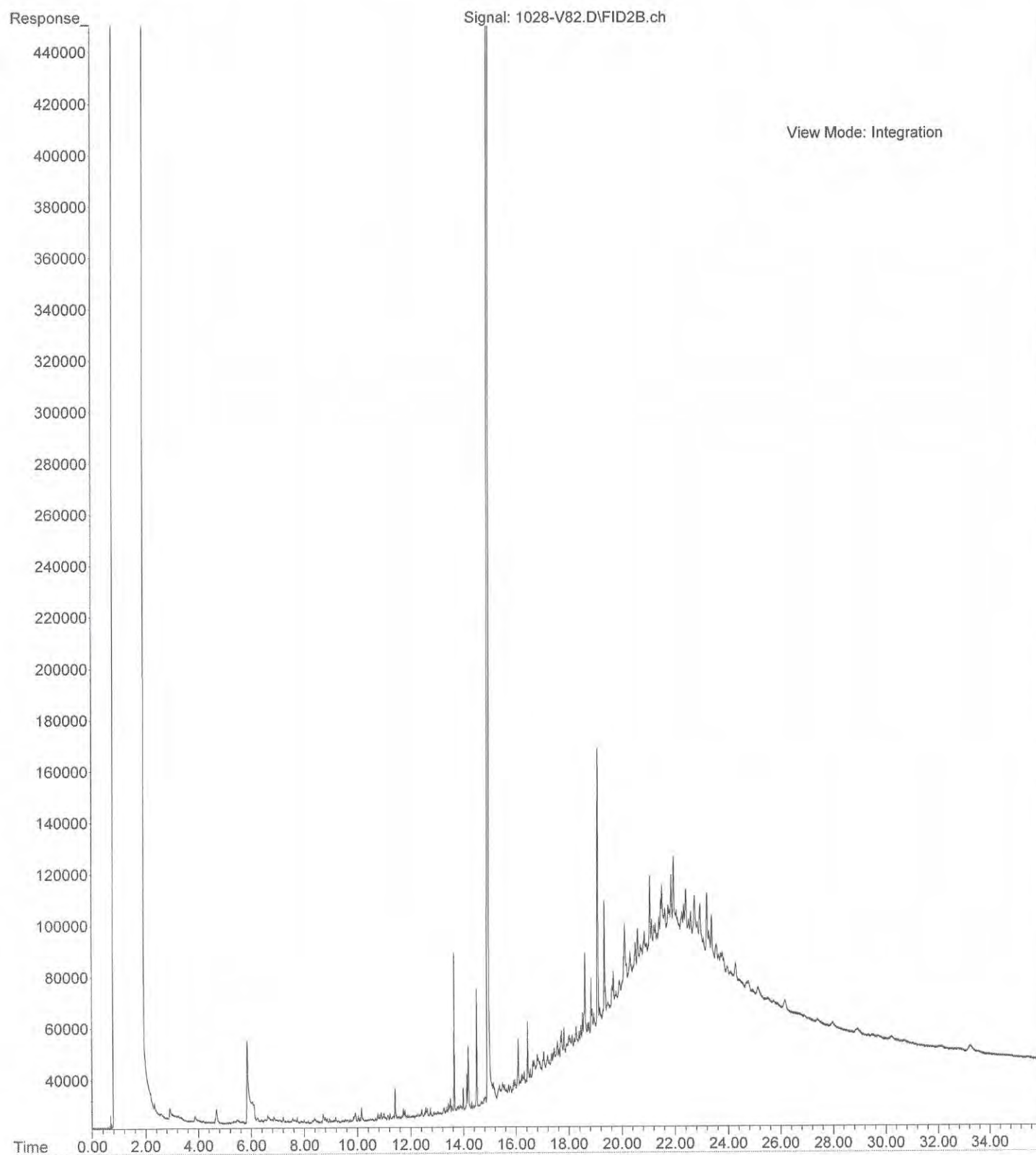


Data Qualifiers and Abbreviations

- 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 methods 8260 & 8270, 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



File :X:\DIESELS\VIGO\DATA\V201028.SEC\1028-V82.D
Operator : JT
Acquired : 29 Oct 2020 5:37 using AcqMethod V201001F.M
Instrument : Vigo
Sample Name: 10-317-01
Misc Info :
Vial Number: 82





14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

November 11, 2020

Aaron Waggoner
GeoEngineers, Inc.
1101 Fawcett Avenue South, Suite 200
Tacoma, WA 98402

Re: Analytical Data for Project 0570-174-00
Laboratory Reference No. 2010-360

Dear Aaron:

Enclosed are the analytical results and associated quality control data for samples submitted on October 29, 2020.

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,

A handwritten signature in black ink, appearing to read 'DB', with a long horizontal line extending to the right.

David Baumeister
Project Manager

Enclosures



OnSite Environmental, Inc. 14648 NE 95th Street, Redmond, WA 98052 (425) 883-3881

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: November 11, 2020
Samples Submitted: October 29, 2020
Laboratory Reference: 2010-360
Project: 0570-174-00

Case Narrative

Samples were collected on October 29, 2020 and received by the laboratory on October 29, 2020. 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.

Organochlorine Pesticides by EPA 8081B Analysis

Negative effects of the matrix from the sample on the instrument caused values for 4,4'-DDT and Methoxychlor in the continuing calibration verification standard (CCVs) to be low. Because of this, quantitation limits and sample concentrations can be higher than reported.

Chlorinated Acid Herbicides EPA 8151A Analysis

The RPD for Dalapon (26%) was above the quality control limit of 20% between the spike blank and spike blank duplicate. The sample was non-detect for Herbicides and all other quality control values were within control limits. Therefore, no further action was performed.

Please note that any other QA/QC issues associated with these extractions and analyses will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.



Date of Report: November 11, 2020
Samples Submitted: October 29, 2020
Laboratory Reference: 2010-360
Project: 0570-174-00

ANALYTICAL REPORT FOR SAMPLES

Client ID	Laboratory ID	Matrix	Date Sampled	Date Received	Notes
GEO-MW1	10-360-01	Water	10-29-20	10-29-20	



Date of Report: November 11, 2020
 Samples Submitted: October 29, 2020
 Laboratory Reference: 2010-360
 Project: 0570-174-00

VOLATILE ORGANICS EPA 8260D
 page 1 of 2

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	GEO-MW1					
Laboratory ID:	10-360-01					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Chloromethane	ND	1.0	EPA 8260D	10-30-20	10-30-20	
Vinyl Chloride	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Bromomethane	ND	0.79	EPA 8260D	10-30-20	10-30-20	
Chloroethane	ND	1.0	EPA 8260D	10-30-20	10-30-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	10-30-20	10-30-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Acetone	ND	5.0	EPA 8260D	10-30-20	10-30-20	
Iodomethane	ND	4.8	EPA 8260D	10-30-20	10-30-20	
Carbon Disulfide	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Methylene Chloride	ND	1.0	EPA 8260D	10-30-20	10-30-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Methyl t-Butyl Ether	ND	0.20	EPA 8260D	10-30-20	10-30-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Vinyl Acetate	ND	1.0	EPA 8260D	10-30-20	10-30-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	10-30-20	10-30-20	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
2-Butanone	ND	5.0	EPA 8260D	10-30-20	10-30-20	
Bromochloromethane	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Chloroform	ND	0.20	EPA 8260D	10-30-20	10-30-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	10-30-20	10-30-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Benzene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Trichloroethene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Dibromomethane	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Bromodichloromethane	ND	0.20	EPA 8260D	10-30-20	10-30-20	
2-Chloroethyl Vinyl Ether	ND	1.3	EPA 8260D	10-30-20	10-30-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260D	10-30-20	10-30-20	
Toluene	ND	1.0	EPA 8260D	10-30-20	10-30-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	10-30-20	10-30-20	



Date of Report: November 11, 2020
 Samples Submitted: October 29, 2020
 Laboratory Reference: 2010-360
 Project: 0570-174-00

VOLATILE ORGANICS EPA 8260D
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	GEO-MW1					
Laboratory ID:	10-360-01					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Tetrachloroethene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	10-30-20	10-30-20	
2-Hexanone	ND	2.0	EPA 8260D	10-30-20	10-30-20	
Dibromochloromethane	ND	0.20	EPA 8260D	10-30-20	10-30-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Chlorobenzene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Ethylbenzene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
m,p-Xylene	ND	0.40	EPA 8260D	10-30-20	10-30-20	
o-Xylene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Styrene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Bromoform	ND	1.0	EPA 8260D	10-30-20	10-30-20	
Isopropylbenzene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Bromobenzene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	10-30-20	10-30-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	10-30-20	10-30-20	
n-Propylbenzene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
1,3,5-Trimethylbenzene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
tert-Butylbenzene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
1,2,4-Trimethylbenzene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
sec-Butylbenzene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
p-Isopropyltoluene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
n-Butylbenzene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	10-30-20	10-30-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	10-30-20	10-30-20	
Naphthalene	ND	1.0	EPA 8260D	10-30-20	10-30-20	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>104</i>	<i>75-127</i>				
<i>Toluene-d8</i>	<i>97</i>	<i>80-127</i>				
<i>4-Bromofluorobenzene</i>	<i>101</i>	<i>78-125</i>				



Date of Report: November 11, 2020
 Samples Submitted: October 29, 2020
 Laboratory Reference: 2010-360
 Project: 0570-174-00

SEMIVOLATILE ORGANICS EPA 8270E/SIM
 page 1 of 2

Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	GEO-MW1					
Laboratory ID:	10-360-01					
n-Nitrosodimethylamine	ND	0.96	EPA 8270E	11-3-20	11-3-20	
Pyridine	ND	0.96	EPA 8270E	11-3-20	11-3-20	
Phenol	ND	0.96	EPA 8270E	11-3-20	11-3-20	
Aniline	ND	4.8	EPA 8270E	11-3-20	11-3-20	
bis(2-Chloroethyl)ether	ND	0.96	EPA 8270E	11-3-20	11-3-20	
2-Chlorophenol	ND	0.96	EPA 8270E	11-3-20	11-3-20	
1,3-Dichlorobenzene	ND	0.96	EPA 8270E	11-3-20	11-3-20	
1,4-Dichlorobenzene	ND	0.96	EPA 8270E	11-3-20	11-3-20	
Benzyl alcohol	ND	0.96	EPA 8270E	11-3-20	11-3-20	
1,2-Dichlorobenzene	ND	0.96	EPA 8270E	11-3-20	11-3-20	
2-Methylphenol (o-Cresol)	ND	0.96	EPA 8270E	11-3-20	11-3-20	
bis(2-Chloroisopropyl)ether	ND	0.96	EPA 8270E	11-3-20	11-3-20	
(3+4)-Methylphenol (m,p-Cresol)	ND	0.96	EPA 8270E	11-3-20	11-3-20	
n-Nitroso-di-n-propylamine	ND	0.96	EPA 8270E	11-3-20	11-3-20	
Hexachloroethane	ND	0.96	EPA 8270E	11-3-20	11-3-20	
Nitrobenzene	ND	0.96	EPA 8270E	11-3-20	11-3-20	
Isophorone	ND	0.96	EPA 8270E	11-3-20	11-3-20	
2-Nitrophenol	ND	0.96	EPA 8270E	11-3-20	11-3-20	
2,4-Dimethylphenol	ND	0.96	EPA 8270E	11-3-20	11-3-20	
bis(2-Chloroethoxy)methane	ND	0.96	EPA 8270E	11-3-20	11-3-20	
2,4-Dichlorophenol	ND	0.96	EPA 8270E	11-3-20	11-3-20	
1,2,4-Trichlorobenzene	ND	0.96	EPA 8270E	11-3-20	11-3-20	
Naphthalene	ND	0.096	EPA 8270E/SIM	11-3-20	11-3-20	
4-Chloroaniline	ND	0.96	EPA 8270E	11-3-20	11-3-20	
Hexachlorobutadiene	ND	0.96	EPA 8270E	11-3-20	11-3-20	
4-Chloro-3-methylphenol	ND	0.96	EPA 8270E	11-3-20	11-3-20	
2-Methylnaphthalene	ND	0.096	EPA 8270E/SIM	11-3-20	11-3-20	
1-Methylnaphthalene	0.23	0.096	EPA 8270E/SIM	11-3-20	11-3-20	
Hexachlorocyclopentadiene	ND	0.96	EPA 8270E	11-3-20	11-3-20	
2,4,6-Trichlorophenol	ND	0.96	EPA 8270E	11-3-20	11-3-20	
2,3-Dichloroaniline	ND	0.96	EPA 8270E	11-3-20	11-3-20	
2,4,5-Trichlorophenol	ND	0.96	EPA 8270E	11-3-20	11-3-20	
2-Chloronaphthalene	ND	0.96	EPA 8270E	11-3-20	11-3-20	
2-Nitroaniline	ND	0.96	EPA 8270E	11-3-20	11-3-20	
1,4-Dinitrobenzene	ND	0.96	EPA 8270E	11-3-20	11-3-20	
Dimethylphthalate	ND	4.8	EPA 8270E	11-3-20	11-3-20	
1,3-Dinitrobenzene	ND	0.96	EPA 8270E	11-3-20	11-3-20	
2,6-Dinitrotoluene	ND	0.96	EPA 8270E	11-3-20	11-3-20	
1,2-Dinitrobenzene	ND	0.96	EPA 8270E	11-3-20	11-3-20	
Acenaphthylene	ND	0.096	EPA 8270E/SIM	11-3-20	11-3-20	
3-Nitroaniline	ND	0.96	EPA 8270E	11-3-20	11-3-20	



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SEMIVOLATILE ORGANICS EPA 8270E/SIM
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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	GEO-MW1					
Laboratory ID:	10-360-01					
2,4-Dinitrophenol	ND	4.8	EPA 8270E	11-3-20	11-3-20	
Acenaphthene	0.72	0.096	EPA 8270E/SIM	11-3-20	11-3-20	
4-Nitrophenol	ND	4.8	EPA 8270E	11-3-20	11-3-20	
2,4-Dinitrotoluene	ND	0.96	EPA 8270E	11-3-20	11-3-20	
Dibenzofuran	ND	0.96	EPA 8270E	11-3-20	11-3-20	
2,3,5,6-Tetrachlorophenol	ND	0.96	EPA 8270E	11-3-20	11-3-20	
2,3,4,6-Tetrachlorophenol	ND	0.96	EPA 8270E	11-3-20	11-3-20	
Diethylphthalate	ND	0.96	EPA 8270E	11-3-20	11-3-20	
4-Chlorophenyl-phenylether	ND	0.96	EPA 8270E	11-3-20	11-3-20	
4-Nitroaniline	ND	0.96	EPA 8270E	11-3-20	11-3-20	
Fluorene	ND	0.096	EPA 8270E/SIM	11-3-20	11-3-20	
4,6-Dinitro-2-methylphenol	ND	4.8	EPA 8270E	11-3-20	11-3-20	
n-Nitrosodiphenylamine	ND	0.96	EPA 8270E	11-3-20	11-3-20	
1,2-Diphenylhydrazine	ND	0.96	EPA 8270E	11-3-20	11-3-20	
4-Bromophenyl-phenylether	ND	0.96	EPA 8270E	11-3-20	11-3-20	
Hexachlorobenzene	ND	0.96	EPA 8270E	11-3-20	11-3-20	
Pentachlorophenol	ND	4.8	EPA 8270E	11-3-20	11-3-20	
Phenanthrene	ND	0.096	EPA 8270E/SIM	11-3-20	11-3-20	
Anthracene	ND	0.096	EPA 8270E/SIM	11-3-20	11-3-20	
Carbazole	ND	0.96	EPA 8270E	11-3-20	11-3-20	
Di-n-butylphthalate	ND	4.8	EPA 8270E	11-3-20	11-3-20	
Fluoranthene	ND	0.096	EPA 8270E/SIM	11-3-20	11-3-20	
Benzidine	ND	6.1	EPA 8270E	11-3-20	11-3-20	
Pyrene	ND	0.096	EPA 8270E/SIM	11-3-20	11-3-20	
Butylbenzylphthalate	ND	0.96	EPA 8270E	11-3-20	11-3-20	
bis-2-Ethylhexyladipate	ND	4.8	EPA 8270E	11-3-20	11-3-20	
3,3'-Dichlorobenzidine	ND	0.96	EPA 8270E	11-3-20	11-3-20	
Benzo[a]anthracene	ND	0.0096	EPA 8270E/SIM	11-3-20	11-3-20	
Chrysene	ND	0.0096	EPA 8270E/SIM	11-3-20	11-3-20	
bis(2-Ethylhexyl)phthalate	ND	4.8	EPA 8270E	11-3-20	11-3-20	
Di-n-octylphthalate	ND	0.96	EPA 8270E	11-3-20	11-3-20	
Benzo[b]fluoranthene	ND	0.0096	EPA 8270E/SIM	11-3-20	11-3-20	
Benzo(j,k)fluoranthene	ND	0.0096	EPA 8270E/SIM	11-3-20	11-3-20	
Benzo[a]pyrene	ND	0.0096	EPA 8270E/SIM	11-3-20	11-3-20	
Indeno[1,2,3-cd]pyrene	ND	0.0096	EPA 8270E/SIM	11-3-20	11-3-20	
Dibenz[a,h]anthracene	ND	0.0096	EPA 8270E/SIM	11-3-20	11-3-20	
Benzo[g,h,i]perylene	ND	0.0096	EPA 8270E/SIM	11-3-20	11-3-20	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
2-Fluorophenol	34	10 - 80				
Phenol-d6	25	10 - 87				
Nitrobenzene-d5	57	33 - 105				
2-Fluorobiphenyl	60	41 - 105				
2,4,6-Tribromophenol	71	25 - 124				
Terphenyl-d14	69	47 - 116				



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PCBs EPA 8082A

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	GEO-MW1					
Laboratory ID:	10-360-01					
Aroclor 1016	ND	0.048	EPA 8082A	11-2-20	11-9-20	
Aroclor 1221	ND	0.048	EPA 8082A	11-2-20	11-9-20	
Aroclor 1232	ND	0.048	EPA 8082A	11-2-20	11-9-20	
Aroclor 1242	ND	0.048	EPA 8082A	11-2-20	11-9-20	
Aroclor 1248	ND	0.048	EPA 8082A	11-2-20	11-9-20	
Aroclor 1254	ND	0.048	EPA 8082A	11-2-20	11-9-20	
Aroclor 1260	ND	0.048	EPA 8082A	11-2-20	11-9-20	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>DCB</i>	<i>84</i>	<i>49-143</i>				



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**ORGANOCHLORINE
 PESTICIDES EPA 8081B**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	GEO-MW1					
Laboratory ID:	10-360-01					
alpha-BHC	ND	0.0048	EPA 8081B	11-2-20	11-4-20	
gamma-BHC	ND	0.0048	EPA 8081B	11-2-20	11-4-20	
beta-BHC	ND	0.0048	EPA 8081B	11-2-20	11-4-20	
delta-BHC	ND	0.0048	EPA 8081B	11-2-20	11-4-20	
Heptachlor	ND	0.0048	EPA 8081B	11-2-20	11-4-20	
Aldrin	ND	0.0048	EPA 8081B	11-2-20	11-4-20	
Heptachlor Epoxide	ND	0.0029	EPA 8081B	11-2-20	11-4-20	
gamma-Chlordane	ND	0.0048	EPA 8081B	11-2-20	11-4-20	
alpha-Chlordane	ND	0.0048	EPA 8081B	11-2-20	11-4-20	
4,4'-DDE	ND	0.0048	EPA 8081B	11-2-20	11-4-20	
Endosulfan I	ND	0.0048	EPA 8081B	11-2-20	11-4-20	
Dieldrin	ND	0.0048	EPA 8081B	11-2-20	11-4-20	
Endrin	ND	0.0048	EPA 8081B	11-2-20	11-4-20	
4,4'-DDD	ND	0.0048	EPA 8081B	11-2-20	11-4-20	
Endosulfan II	ND	0.0048	EPA 8081B	11-2-20	11-4-20	
4,4'-DDT	ND	0.0048	EPA 8081B	11-2-20	11-4-20	
Endrin Aldehyde	ND	0.0048	EPA 8081B	11-2-20	11-4-20	
Methoxychlor	ND	0.0096	EPA 8081B	11-2-20	11-4-20	
Endosulfan Sulfate	ND	0.0048	EPA 8081B	11-2-20	11-4-20	
Endrin Ketone	ND	0.019	EPA 8081B	11-2-20	11-4-20	
Toxaphene	ND	0.048	EPA 8081B	11-2-20	11-4-20	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
TCMX	61	25-114				
DCB	72	30-137				



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**CHLORINATED ACID
 HERBICIDES EPA 8151A**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	GEO-MW1					
Laboratory ID:	10-360-01					
Dalapon	ND	0.44	EPA 8151A	11-3-20	11-9-20	
Dicamba	ND	0.045	EPA 8151A	11-3-20	11-9-20	
MCP	ND	8.9	EPA 8151A	11-3-20	11-9-20	
MCPA	ND	22	EPA 8151A	11-3-20	11-9-20	
Dichlorprop	ND	0.045	EPA 8151A	11-3-20	11-9-20	
2,4-D	ND	0.089	EPA 8151A	11-3-20	11-9-20	
Pentachlorophenol	ND	0.0090	EPA 8151A	11-3-20	11-9-20	
2,4,5-TP (Silvex)	ND	0.045	EPA 8151A	11-3-20	11-9-20	
2,4,5-T	ND	0.068	EPA 8151A	11-3-20	11-9-20	
2,4-DB	ND	0.068	EPA 8151A	11-3-20	11-9-20	
Dinoseb	ND	0.045	EPA 8151A	11-3-20	11-9-20	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
DCAA	83	16-120				



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TOTAL METALS
EPA 200.8/7470A

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	GEO-MW1					
Laboratory ID:	10-360-01					
Arsenic	4.3	3.3	EPA 200.8	11-6-20	11-6-20	
Barium	ND	28	EPA 200.8	11-6-20	11-6-20	
Cadmium	ND	4.4	EPA 200.8	11-6-20	11-6-20	
Chromium	ND	11	EPA 200.8	11-6-20	11-6-20	
Copper	ND	11	EPA 200.8	11-6-20	11-6-20	
Lead	1.4	1.1	EPA 200.8	11-6-20	11-6-20	
Mercury	ND	0.50	EPA 7470A	11-2-20	11-2-20	
Molybdenum	ND	110	EPA 200.8	11-6-20	11-6-20	
Nickel	ND	22	EPA 200.8	11-6-20	11-6-20	
Selenium	ND	5.6	EPA 200.8	11-6-20	11-6-20	
Silver	ND	11	EPA 200.8	11-6-20	11-6-20	
Zinc	ND	28	EPA 200.8	11-6-20	11-6-20	



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**TOTAL SUSPENDED SOLIDS
SM 2540D**

Matrix: Water

Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	GEO-MW1					
Laboratory ID:	10-360-01					
Total Suspended Solids	4.0	4.0	SM 2540D	11-4-20	11-5-20	



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IGNITABILITY EPA 1010A

Matrix: Liquid
Units: deg F

Analyte	Result	Method	Date Analyzed	Flags
Client ID:	GEO-MW1			
Laboratory ID:	10-360-01			
Flash Point	145	EPA 1010A	11-4-20	



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**HEXANE EXTRACTABLE MATERIAL
OIL AND GREASE
EPA 1664A**

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	GEO-MW1					
Laboratory ID:	10-360-01					
Hexane Extractable Material	ND	10	EPA 1664A	11-3-20	11-3-20	



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HEXAVALENT CHROMIUM
SM 3500-Cr B

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	GEO-MW1					
Laboratory ID:	10-360-01					
Hexavalent Chromium	ND	10	SM 3500-Cr B	10-30-20	10-30-20	



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pH
SM 4500-H B

Matrix: Water
Units: pH (@ 25°C)

Analyte	Result	Method	Date Prepared	Date Analyzed	Flags
Client ID:	GEO-MW1				
Laboratory ID:	10-360-01				
pH	7.3	SM 4500-H B	10-30-20	10-30-20	



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**VOLATILE ORGANICS EPA 8260D
 QUALITY CONTROL**

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Matrix: Water

Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1030W1					
Dichlorodifluoromethane	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Chloromethane	ND	1.0	EPA 8260D	10-30-20	10-30-20	
Vinyl Chloride	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Bromomethane	ND	0.79	EPA 8260D	10-30-20	10-30-20	
Chloroethane	ND	1.0	EPA 8260D	10-30-20	10-30-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	10-30-20	10-30-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Acetone	ND	5.0	EPA 8260D	10-30-20	10-30-20	
Iodomethane	ND	4.8	EPA 8260D	10-30-20	10-30-20	
Carbon Disulfide	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Methylene Chloride	ND	1.0	EPA 8260D	10-30-20	10-30-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Methyl t-Butyl Ether	ND	0.20	EPA 8260D	10-30-20	10-30-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Vinyl Acetate	ND	1.0	EPA 8260D	10-30-20	10-30-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	10-30-20	10-30-20	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
2-Butanone	ND	5.0	EPA 8260D	10-30-20	10-30-20	
Bromochloromethane	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Chloroform	ND	0.20	EPA 8260D	10-30-20	10-30-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	10-30-20	10-30-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Benzene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Trichloroethene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Dibromomethane	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Bromodichloromethane	ND	0.20	EPA 8260D	10-30-20	10-30-20	
2-Chloroethyl Vinyl Ether	ND	1.3	EPA 8260D	10-30-20	10-30-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Methyl Isobutyl Ketone	ND	2.0	EPA 8260D	10-30-20	10-30-20	
Toluene	ND	1.0	EPA 8260D	10-30-20	10-30-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	10-30-20	10-30-20	



OnSite Environmental, Inc. 14648 NE 95th Street, Redmond, WA 98052 (425) 883-3881

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**VOLATILE ORGANICS EPA 8260D
 QUALITY CONTROL**

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1030W1					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Tetrachloroethene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	10-30-20	10-30-20	
2-Hexanone	ND	2.0	EPA 8260D	10-30-20	10-30-20	
Dibromochloromethane	ND	0.20	EPA 8260D	10-30-20	10-30-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Chlorobenzene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Ethylbenzene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
m,p-Xylene	ND	0.40	EPA 8260D	10-30-20	10-30-20	
o-Xylene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Styrene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Bromoform	ND	1.0	EPA 8260D	10-30-20	10-30-20	
Isopropylbenzene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Bromobenzene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	10-30-20	10-30-20	
1,2,3-Trichloropropane	ND	0.20	EPA 8260D	10-30-20	10-30-20	
n-Propylbenzene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
1,3,5-Trimethylbenzene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
tert-Butylbenzene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
1,2,4-Trimethylbenzene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
sec-Butylbenzene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
p-Isopropyltoluene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
n-Butylbenzene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	10-30-20	10-30-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	10-30-20	10-30-20	
Naphthalene	ND	1.0	EPA 8260D	10-30-20	10-30-20	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	10-30-20	10-30-20	
Surrogate:	Percent Recovery	Control Limits				
Dibromofluoromethane	104	75-127				
Toluene-d8	98	80-127				
4-Bromofluorobenzene	100	78-125				



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**VOLATILE ORGANICS EPA 8260D
 QUALITY CONTROL**

Matrix: Water

Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
					Recovery					
SPIKE BLANKS										
Laboratory ID:	SB1030W1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	10.7	10.3	10.0	10.0	107	103	65-126	4	19	
Benzene	10.1	9.76	10.0	10.0	101	98	71-119	3	16	
Trichloroethene	9.96	9.77	10.0	10.0	100	98	82-123	2	18	
Toluene	9.63	9.26	10.0	10.0	96	93	77-119	4	18	
Chlorobenzene	9.54	9.25	10.0	10.0	95	93	80-120	3	17	
Surrogate:										
Dibromofluoromethane					103	100	75-127			
Toluene-d8					99	98	80-127			
4-Bromofluorobenzene					105	104	78-125			



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**SEMIVOLATILE ORGANICS EPA 8270E/SIM
 QUALITY CONTROL**

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Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1103W1					
n-Nitrosodimethylamine	ND	1.0	EPA 8270E	11-3-20	11-3-20	
Pyridine	ND	1.0	EPA 8270E	11-3-20	11-3-20	
Phenol	ND	1.0	EPA 8270E	11-3-20	11-3-20	
Aniline	ND	5.0	EPA 8270E	11-3-20	11-3-20	
bis(2-Chloroethyl)ether	ND	1.0	EPA 8270E	11-3-20	11-3-20	
2-Chlorophenol	ND	1.0	EPA 8270E	11-3-20	11-3-20	
1,3-Dichlorobenzene	ND	1.0	EPA 8270E	11-3-20	11-3-20	
1,4-Dichlorobenzene	ND	1.0	EPA 8270E	11-3-20	11-3-20	
Benzyl alcohol	ND	1.0	EPA 8270E	11-3-20	11-3-20	
1,2-Dichlorobenzene	ND	1.0	EPA 8270E	11-3-20	11-3-20	
2-Methylphenol (o-Cresol)	ND	1.0	EPA 8270E	11-3-20	11-3-20	
bis(2-Chloroisopropyl)ether	ND	1.0	EPA 8270E	11-3-20	11-3-20	
(3+4)-Methylphenol (m,p-Cresol)	ND	1.0	EPA 8270E	11-3-20	11-3-20	
n-Nitroso-di-n-propylamine	ND	1.0	EPA 8270E	11-3-20	11-3-20	
Hexachloroethane	ND	1.0	EPA 8270E	11-3-20	11-3-20	
Nitrobenzene	ND	1.0	EPA 8270E	11-3-20	11-3-20	
Isophorone	ND	1.0	EPA 8270E	11-3-20	11-3-20	
2-Nitrophenol	ND	1.0	EPA 8270E	11-3-20	11-3-20	
2,4-Dimethylphenol	ND	1.0	EPA 8270E	11-3-20	11-3-20	
bis(2-Chloroethoxy)methane	ND	1.0	EPA 8270E	11-3-20	11-3-20	
2,4-Dichlorophenol	ND	1.0	EPA 8270E	11-3-20	11-3-20	
1,2,4-Trichlorobenzene	ND	1.0	EPA 8270E	11-3-20	11-3-20	
Naphthalene	ND	0.10	EPA 8270E/SIM	11-3-20	11-3-20	
4-Chloroaniline	ND	1.0	EPA 8270E	11-3-20	11-3-20	
Hexachlorobutadiene	ND	1.0	EPA 8270E	11-3-20	11-3-20	
4-Chloro-3-methylphenol	ND	1.0	EPA 8270E	11-3-20	11-3-20	
2-Methylnaphthalene	ND	0.10	EPA 8270E/SIM	11-3-20	11-3-20	
1-Methylnaphthalene	ND	0.10	EPA 8270E/SIM	11-3-20	11-3-20	
Hexachlorocyclopentadiene	ND	1.0	EPA 8270E	11-3-20	11-3-20	
2,4,6-Trichlorophenol	ND	1.0	EPA 8270E	11-3-20	11-3-20	
2,3-Dichloroaniline	ND	1.0	EPA 8270E	11-3-20	11-3-20	
2,4,5-Trichlorophenol	ND	1.0	EPA 8270E	11-3-20	11-3-20	
2-Chloronaphthalene	ND	1.0	EPA 8270E	11-3-20	11-3-20	
2-Nitroaniline	ND	1.0	EPA 8270E	11-3-20	11-3-20	
1,4-Dinitrobenzene	ND	1.0	EPA 8270E	11-3-20	11-3-20	
Dimethylphthalate	ND	5.0	EPA 8270E	11-3-20	11-3-20	
1,3-Dinitrobenzene	ND	1.0	EPA 8270E	11-3-20	11-3-20	
2,6-Dinitrotoluene	ND	1.0	EPA 8270E	11-3-20	11-3-20	
1,2-Dinitrobenzene	ND	1.0	EPA 8270E	11-3-20	11-3-20	
Acenaphthylene	ND	0.10	EPA 8270E/SIM	11-3-20	11-3-20	
3-Nitroaniline	ND	1.0	EPA 8270E	11-3-20	11-3-20	



OnSite Environmental, Inc. 14648 NE 95th Street, Redmond, WA 98052 (425) 883-3881

This report pertains to the samples analyzed in accordance with the chain of custody,
 and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: November 11, 2020
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 Project: 0570-174-00

**SEMIVOLATILE ORGANICS EPA 8270E/SIM
 QUALITY CONTROL**

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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1103W1					
2,4-Dinitrophenol	ND	5.0	EPA 8270E	11-3-20	11-3-20	
Acenaphthene	ND	0.10	EPA 8270E/SIM	11-3-20	11-3-20	
4-Nitrophenol	ND	5.0	EPA 8270E	11-3-20	11-3-20	
2,4-Dinitrotoluene	ND	1.0	EPA 8270E	11-3-20	11-3-20	
Dibenzofuran	ND	1.0	EPA 8270E	11-3-20	11-3-20	
2,3,5,6-Tetrachlorophenol	ND	1.0	EPA 8270E	11-3-20	11-3-20	
2,3,4,6-Tetrachlorophenol	ND	1.0	EPA 8270E	11-3-20	11-3-20	
Diethylphthalate	ND	1.0	EPA 8270E	11-3-20	11-3-20	
4-Chlorophenyl-phenylether	ND	1.0	EPA 8270E	11-3-20	11-3-20	
4-Nitroaniline	ND	1.0	EPA 8270E	11-3-20	11-3-20	
Fluorene	ND	0.10	EPA 8270E/SIM	11-3-20	11-3-20	
4,6-Dinitro-2-methylphenol	ND	5.0	EPA 8270E	11-3-20	11-3-20	
n-Nitrosodiphenylamine	ND	1.0	EPA 8270E	11-3-20	11-3-20	
1,2-Diphenylhydrazine	ND	1.0	EPA 8270E	11-3-20	11-3-20	
4-Bromophenyl-phenylether	ND	1.0	EPA 8270E	11-3-20	11-3-20	
Hexachlorobenzene	ND	1.0	EPA 8270E	11-3-20	11-3-20	
Pentachlorophenol	ND	5.0	EPA 8270E	11-3-20	11-3-20	
Phenanthrene	ND	0.10	EPA 8270E/SIM	11-3-20	11-3-20	
Anthracene	ND	0.10	EPA 8270E/SIM	11-3-20	11-3-20	
Carbazole	ND	1.0	EPA 8270E	11-3-20	11-3-20	
Di-n-butylphthalate	ND	5.0	EPA 8270E	11-3-20	11-3-20	
Fluoranthene	ND	0.10	EPA 8270E/SIM	11-3-20	11-3-20	
Benzidine	ND	6.4	EPA 8270E	11-3-20	11-3-20	
Pyrene	ND	0.10	EPA 8270E/SIM	11-3-20	11-3-20	
Butylbenzylphthalate	ND	1.0	EPA 8270E	11-3-20	11-3-20	
bis-2-Ethylhexyladipate	ND	5.0	EPA 8270E	11-3-20	11-3-20	
3,3'-Dichlorobenzidine	ND	1.0	EPA 8270E	11-3-20	11-3-20	
Benzo[a]anthracene	ND	0.010	EPA 8270E/SIM	11-3-20	11-3-20	
Chrysene	ND	0.010	EPA 8270E/SIM	11-3-20	11-3-20	
bis(2-Ethylhexyl)phthalate	ND	5.0	EPA 8270E	11-3-20	11-3-20	
Di-n-octylphthalate	ND	1.0	EPA 8270E	11-3-20	11-3-20	
Benzo[b]fluoranthene	ND	0.010	EPA 8270E/SIM	11-3-20	11-3-20	
Benzo[j,k]fluoranthene	ND	0.010	EPA 8270E/SIM	11-3-20	11-3-20	
Benzo[a]pyrene	ND	0.010	EPA 8270E/SIM	11-3-20	11-3-20	
Indeno[1,2,3-cd]pyrene	ND	0.010	EPA 8270E/SIM	11-3-20	11-3-20	
Dibenz[a,h]anthracene	ND	0.010	EPA 8270E/SIM	11-3-20	11-3-20	
Benzo[g,h,i]perylene	ND	0.010	EPA 8270E/SIM	11-3-20	11-3-20	
Surrogate:	Percent Recovery	Control Limits				
2-Fluorophenol	31	10 - 80				
Phenol-d6	21	10 - 87				
Nitrobenzene-d5	52	33 - 105				
2-Fluorobiphenyl	53	41 - 105				
2,4,6-Tribromophenol	66	25 - 124				
Terphenyl-d14	67	47 - 116				



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**SEMIVOLATILE ORGANICS EPA 8270E/SIM
 QUALITY CONTROL**

Matrix: Water

Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB1103W1									
	SB	SBD	SB	SBD	SB	SBD				
Phenol	13.1	11.4	40.0	40.0	33	29	21 - 53	14	25	
2-Chlorophenol	25.9	22.1	40.0	40.0	65	55	38 - 92	16	29	
1,4-Dichlorobenzene	11.0	9.68	20.0	20.0	55	48	30 - 88	13	29	
n-Nitroso-di-n-propylamine	14.4	12.2	20.0	20.0	72	61	40 - 103	17	22	
1,2,4-Trichlorobenzene	11.9	10.4	20.0	20.0	60	52	37 - 95	13	25	
4-Chloro-3-methylphenol	31.5	29.6	40.0	40.0	79	74	57 - 101	6	17	
Acenaphthene	14.0	12.6	20.0	20.0	70	63	51 - 97	11	18	
4-Nitrophenol	16.9	16.0	40.0	40.0	42	40	23 - 64	5	34	
2,4-Dinitrotoluene	15.5	14.1	20.0	20.0	78	71	52 - 103	9	17	
Pentachlorophenol	34.1	32.8	40.0	40.0	85	82	40 - 124	4	35	
Pyrene	16.5	15.7	20.0	20.0	83	79	52 - 107	5	19	
Surrogate:										
2-Fluorophenol					41	35	10 - 80			
Phenol-d6					28	25	10 - 87			
Nitrobenzene-d5					61	54	33 - 105			
2-Fluorobiphenyl					66	57	41 - 105			
2,4,6-Tribromophenol					78	75	25 - 124			
Terphenyl-d14					75	74	47 - 116			



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**PCBs EPA 8082A
 QUALITY CONTROL**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1102W1					
Aroclor 1016	ND	0.050	EPA 8082A	11-2-20	11-9-20	
Aroclor 1221	ND	0.050	EPA 8082A	11-2-20	11-9-20	
Aroclor 1232	ND	0.050	EPA 8082A	11-2-20	11-9-20	
Aroclor 1242	ND	0.050	EPA 8082A	11-2-20	11-9-20	
Aroclor 1248	ND	0.050	EPA 8082A	11-2-20	11-9-20	
Aroclor 1254	ND	0.050	EPA 8082A	11-2-20	11-9-20	
Aroclor 1260	ND	0.050	EPA 8082A	11-2-20	11-9-20	
Surrogate:	Percent Recovery	Control Limits				
DCB	83	49-143				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS											
Laboratory ID:	SB1102W2										
	SB	SBD	SB	SBD		SB	SBD				
Aroclor 1260	0.571	0.552	0.500	0.500	N/A	114	110	64-144	3	12	
Surrogate:											
DCB						90	88	49-143			



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**ORGANOCHLORINE
 PESTICIDES EPA 8081B
 QUALITY CONTROL**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1102W1					
alpha-BHC	ND	0.0050	EPA 8081B	11-2-20	11-4-20	
gamma-BHC	ND	0.0050	EPA 8081B	11-2-20	11-4-20	
beta-BHC	ND	0.0050	EPA 8081B	11-2-20	11-4-20	
delta-BHC	ND	0.0050	EPA 8081B	11-2-20	11-4-20	
Heptachlor	ND	0.0050	EPA 8081B	11-2-20	11-4-20	
Aldrin	ND	0.0050	EPA 8081B	11-2-20	11-4-20	
Heptachlor Epoxide	ND	0.0030	EPA 8081B	11-2-20	11-4-20	
gamma-Chlordane	ND	0.0050	EPA 8081B	11-2-20	11-4-20	
alpha-Chlordane	ND	0.0050	EPA 8081B	11-2-20	11-4-20	
4,4'-DDE	ND	0.0050	EPA 8081B	11-2-20	11-4-20	
Endosulfan I	ND	0.0050	EPA 8081B	11-2-20	11-4-20	
Dieldrin	ND	0.0050	EPA 8081B	11-2-20	11-4-20	
Endrin	ND	0.0050	EPA 8081B	11-2-20	11-4-20	
4,4'-DDD	ND	0.0050	EPA 8081B	11-2-20	11-4-20	
Endosulfan II	ND	0.0050	EPA 8081B	11-2-20	11-4-20	
4,4'-DDT	ND	0.0050	EPA 8081B	11-2-20	11-4-20	
Endrin Aldehyde	ND	0.0050	EPA 8081B	11-2-20	11-4-20	
Methoxychlor	ND	0.010	EPA 8081B	11-2-20	11-4-20	
Endosulfan Sulfate	ND	0.0050	EPA 8081B	11-2-20	11-4-20	
Endrin Ketone	ND	0.020	EPA 8081B	11-2-20	11-4-20	
Toxaphene	ND	0.050	EPA 8081B	11-2-20	11-4-20	
Surrogate:	Percent Recovery	Control Limits				
TCMX	71	25-114				
DCB	76	30-137				



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**ORGANOCHLORINE
 PESTICIDES EPA 8081B
 QUALITY CONTROL**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result		Spike Level		Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB1102W1									
	SB	SBD	SB	SBD		SB	SBD			
alpha-BHC	0.0944	0.104	0.100	0.100	N/A	94	104	42-113	10	19
gamma-BHC	0.0991	0.107	0.100	0.100	N/A	99	107	45-110	8	15
beta-BHC	0.0921	0.103	0.100	0.100	N/A	92	103	40-118	11	15
delta-BHC	0.0947	0.104	0.100	0.100	N/A	95	104	20-113	9	15
Heptachlor	0.101	0.108	0.100	0.100	N/A	101	108	41-113	7	15
Aldrin	0.0891	0.0953	0.100	0.100	N/A	89	95	35-115	7	15
Heptachlor Epoxide	0.0978	0.107	0.100	0.100	N/A	98	107	54-107	9	15
gamma-Chlordane	0.0965	0.106	0.100	0.100	N/A	96	106	43-110	9	15
alpha-Chlordane	0.0867	0.0940	0.100	0.100	N/A	87	94	38-112	8	15
4,4'-DDE	0.0902	0.102	0.100	0.100	N/A	90	102	41-127	12	15
Endosulfan I	0.0972	0.106	0.100	0.100	N/A	97	106	42-115	9	15
Dieldrin	0.0975	0.105	0.100	0.100	N/A	97	105	46-115	7	15
Endrin	0.0998	0.107	0.100	0.100	N/A	100	107	52-117	7	16
4,4'-DDD	0.0964	0.103	0.100	0.100	N/A	96	103	48-122	7	15
Endosulfan II	0.0965	0.101	0.100	0.100	N/A	97	101	44-114	5	15
4,4'-DDT	0.0890	0.0874	0.100	0.100	N/A	89	87	38-141	2	15
Endrin Aldehyde	0.0849	0.0951	0.100	0.100	N/A	85	95	24-117	11	15
Methoxychlor	0.0895	0.0980	0.100	0.100	N/A	89	98	51-135	9	15
Endosulfan Sulfate	0.0917	0.0998	0.100	0.100	N/A	92	100	37-112	8	15
Endrin Ketone	0.102	0.110	0.100	0.100	N/A	102	110	48-112	8	15
Surrogate:										
TCMX						68	75	25-114		
DCB						80	86	30-137		



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**CHLORINATED ACID
 HERBICIDES EPA 8151A
 QUALITY CONTROL**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1103W1					
Dalapon	ND	0.46	EPA 8151A	11-3-20	11-9-20	
Dicamba	ND	0.047	EPA 8151A	11-3-20	11-9-20	
MCP	ND	9.4	EPA 8151A	11-3-20	11-9-20	
MCPA	ND	23	EPA 8151A	11-3-20	11-9-20	
Dichlorprop	ND	0.047	EPA 8151A	11-3-20	11-9-20	
2,4-D	ND	0.094	EPA 8151A	11-3-20	11-9-20	
Pentachlorophenol	ND	0.0095	EPA 8151A	11-3-20	11-9-20	
2,4,5-TP (Silvex)	ND	0.048	EPA 8151A	11-3-20	11-9-20	
2,4,5-T	ND	0.071	EPA 8151A	11-3-20	11-9-20	
2,4-DB	ND	0.071	EPA 8151A	11-3-20	11-9-20	
Dinoseb	ND	0.047	EPA 8151A	11-3-20	11-9-20	
Surrogate:	Percent Recovery	Control Limits				
DCAA	67	16-120				

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS								
Laboratory ID:	SB1103W1							
	SB	SBD	SB	SBD	SB	SBD		
Dalapon	1.12	1.46	12.5	12.5	N/A	9 12	5-140	26 20 L
Dicamba	1.84	2.10	2.50	2.50	N/A	74 84	10-86	13 34
MCP	193	226	250	250	N/A	77 90	40-140	16 20
MCPA	172	207	250	250	N/A	69 83	40-140	18 20
Dichlorprop	1.83	2.28	2.50	2.50	N/A	73 91	40-140	22 20
2,4-D	1.80	2.50	2.50	2.50	N/A	72 100	13-88	33 30
Pentachlorophenol	0.195	0.226	0.250	0.250	N/A	78 90	15-116	15 20
2,4,5-TP (Silvex)	2.52	2.97	2.50	2.50	N/A	101 119	40-140	16 20
2,4,5-T	2.05	2.65	2.50	2.50	N/A	82 106	22-111	26 30
2,4-DB	2.15	2.83	2.50	2.50	N/A	86 113	21-127	27 28
Dinoseb	1.79	2.15	2.50	2.50	N/A	72 86	23-121	18 20
Surrogate:								
DCAA	89 106 16-120							



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**TOTAL METALS
 EPA 200.8/7470A
 QUALITY CONTROL**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1106WM1					
Arsenic	ND	3.3	EPA 200.8	11-6-20	11-6-20	
Barium	ND	28	EPA 200.8	11-6-20	11-6-20	
Cadmium	ND	4.4	EPA 200.8	11-6-20	11-6-20	
Chromium	ND	11	EPA 200.8	11-6-20	11-6-20	
Copper	ND	11	EPA 200.8	11-6-20	11-6-20	
Lead	ND	1.1	EPA 200.8	11-6-20	11-6-20	
Molybdenum	ND	110	EPA 200.8	11-6-20	11-6-20	
Nickel	ND	22	EPA 200.8	11-6-20	11-6-20	
Selenium	ND	5.6	EPA 200.8	11-6-20	11-6-20	
Silver	ND	11	EPA 200.8	11-6-20	11-6-20	
Zinc	ND	28	EPA 200.8	11-6-20	11-6-20	
<hr/>						
Laboratory ID:	MB1102W1					
Mercury	ND	0.50	EPA 7470A	11-2-20	11-2-20	



Date of Report: November 11, 2020
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**TOTAL METALS
 EPA 200.8/7470A
 QUALITY CONTROL**

Matrix: Water
 Units: ug/L (ppb)

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	11-021-08							
	ORIG	DUP						
Arsenic	ND	ND	NA	NA	NA	NA	NA	20
Barium	ND	ND	NA	NA	NA	NA	NA	20
Cadmium	ND	ND	NA	NA	NA	NA	NA	20
Chromium	ND	ND	NA	NA	NA	NA	NA	20
Copper	ND	ND	NA	NA	NA	NA	NA	20
Lead	1.19	ND	NA	NA	NA	NA	NA	20
Molybdenum	ND	ND	NA	NA	NA	NA	NA	20
Nickel	ND	ND	NA	NA	NA	NA	NA	20
Selenium	ND	ND	NA	NA	NA	NA	NA	20
Silver	ND	ND	NA	NA	NA	NA	NA	20
Zinc	37.6	37.8	NA	NA	NA	NA	1	20

Laboratory ID:	10-295-04							
Mercury	ND	ND	NA	NA	NA	NA	NA	20

MATRIX SPIKES

Laboratory ID:	11-021-08									
	MS	MSD	MS	MSD		MS	MSD			
Arsenic	122	122	111	111	ND	110	110	75-125	0	20
Barium	144	139	111	111	23.6	109	104	75-125	3	20
Cadmium	118	117	111	111	ND	107	105	75-125	2	20
Chromium	111	113	111	111	ND	100	102	75-125	1	20
Copper	113	112	111	111	ND	102	101	75-125	1	20
Lead	118	118	111	111	1.19	106	105	75-125	0	20
Molybdenum	116	114	111	111	ND	105	103	75-125	2	20
Nickel	112	112	111	111	ND	101	101	75-125	0	20
Selenium	119	119	111	111	ND	107	107	75-125	0	20
Silver	116	114	111	111	ND	105	103	75-125	1	20
Zinc	154	152	111	111	37.6	105	103	75-125	2	20

Laboratory ID:	10-295-04									
Mercury	12.0	12.4	12.5	12.5	ND	96	99	75-125	4	20



Date of Report: November 11, 2020
 Samples Submitted: October 29, 2020
 Laboratory Reference: 2010-360
 Project: 0570-174-00

**TOTAL SUSPENDED SOLIDS
 SM 2540D
 QUALITY CONTROL**

Matrix: Water
 Units: mg/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1104W1					
Total Suspended Solids	ND	0.80	SM 2540D	11-4-20	11-5-20	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	11-021-02							
	ORIG	DUP						
Total Suspended Solids	317	327	NA	NA	NA	NA	3	21

SPIKE BLANK

Laboratory ID:	SB1104W1							
	SB	SB		SB				
Total Suspended Solids	90.0	100	NA	90	57-126	NA	NA	



Date of Report: November 11, 2020
 Samples Submitted: October 29, 2020
 Laboratory Reference: 2010-360
 Project: 0570-174-00

**HEXANE EXTRACTABLE MATERIAL
 OIL AND GREASE
 EPA 1664A
 QUALITY CONTROL**

Matrix: Water
 Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1103W1					
Hexane Extractable Material	ND	5.0	EPA 1664A	11-3-20	11-3-20	

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB1103W1									
	SB	SBD	SB	SBD	SB	SBD				
HEM	37.3	34.8	40.0	40.0	93	87	83-106	7	12	



Date of Report: November 11, 2020
 Samples Submitted: October 29, 2020
 Laboratory Reference: 2010-360
 Project: 0570-174-00

**HEXAVALENT CHROMIUM
 SM 3500-Cr B
 QUALITY CONTROL**

Matrix: Water

Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB1030W1					
Hexavalent Chromium	ND	10	SM 3500-Cr B	10-30-20	10-30-20	

Analyte	Result	Spike Level	Source Result	Percent Recovery	Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE								
Laboratory ID:	10-360-01							
	ORIG	DUP						
Hexavalent Chromium	ND	ND	NA	NA	NA	NA	20	

MATRIX SPIKES

Laboratory ID:	10-360-01									
	MS	MSD	MS	MSD	MS	MSD				
Hexavalent Chromium	81.2	78.0	100	100	ND	81	78	75-125	4	20

SPIKE BLANK

Laboratory ID:	SB1030W1									
	SB		SB		SB					
Hexavalent Chromium	98.7		100		NA	99		85-115	NA	NA





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 methods 8260 & 8270, 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





Am Test Inc.
13600 NE 126TH PL
Suite C
Kirkland, WA 98034
(425) 885-1664

**Professional
Analytical
Services**

Nov 11 2020
On-Site Environmental
14648 NE 95th ST
Redmond, WA 98052
Attention: David Baumeister

Dear David Baumeister:

Enclosed please find the analytical data for your project.

The following is a cross correlation of client and laboratory identifications for your convenience.

CLIENT ID	MATRIX	AMTEST ID	TEST
GEO-MW1	Water	20-A017790	CONV, CN- Shim

Your sample was received on Friday, October 30, 2020. At the time of receipt, the sample was logged in and properly maintained prior to the subsequent analysis.

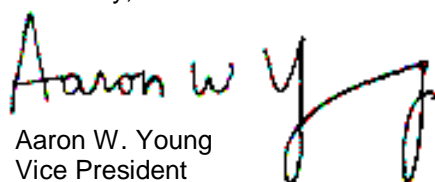
The analytical procedures used at AmTest are well documented and are typically derived from the protocols of the EPA, USDA, FDA or the Army Corps of Engineers.

Following the analytical data you will find the Quality Control (QC) results.

Please note that the detection limits that are listed in the body of the report refer to the Practical Quantitation Limits (PQL's), as opposed to the Method Detection Limits (MDL's).

If you should have any questions pertaining to the data package, please feel free to contact me.

Sincerely,


Aaron W. Young
Vice President

Project #: 0570-174-00
PO Number: 10-360

BACT = Bacteriological
CONV = Conventional

MET = Metals
ORG = Organics

NUT=Nutrients
DEM=Demand

MIN=Minerals

Am Test Inc.
13600 NE 126TH PL
Suite C
Kirkland, WA 98034
(425) 885-1664
www.amtestlab.com



**Professional
Analytical
Services**

ANALYSIS REPORT

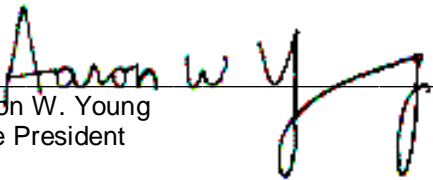
On-Site Environmental
14648 NE 95th ST
Redmond, WA 98052
Attention: David Baumeister
Project #: 0570-174-00
PO Number: 10-360
All results reported on an as received basis.

Date Received: 10/30/20
Date Reported: 11/11/20

AMTEST Identification Number 20-A017790
Client Identification GEO-MW1
Sampling Date 10/29/20

Conventional

PARAMETER	RESULT	UNITS	Q	D.L.	METHOD	ANALYST	DATE
Free Cyanide	0.005	mg/l		0.005	SM 4500-CN G	AW	11/06/20
Total Cyanide	0.006	mg/l		0.005	SM 4500CN-E99	AW	11/06/20


Aaron W. Young
Vice President

QC Summary for sample number: 20-A017790

MATRIX SPIKES

SAMPLE #	ANALYTE	UNITS	SAMPLE VALUE	SMPL+ SPK	SPK AMT	RECOVERY
20-A017790	Free Cyanide	mg/l	0.005	0.098	0.10	93.00 %
20-A017790	Free Cyanide	mg/l	0.005	0.087	0.10	82.00 %
20-A018115	Total Cyanide	mg/l	< 0.005	0.10	0.10	100.00 %
20-A018115	Total Cyanide	mg/l	< 0.005	0.11	0.10	110.00 %
20-A018169	Total Cyanide	mg/l	< 0.005	0.11	0.10	110.00 %
20-A018169	Total Cyanide	mg/l	< 0.005	0.11	0.10	110.00 %

MATRIX SPIKE DUPLICATES

SAMPLE #	ANALYTE	UNITS	SAMPLE + SPK	MSD VALUE	RPD
Spike	Free Cyanide	mg/l	0.098	0.087	12.
Spike	Total Cyanide	mg/l	0.10	0.11	9.5
Spike	Total Cyanide	mg/l	0.11	0.11	0.00

STANDARD REFERENCE MATERIALS

ANALYTE	UNITS	TRUE VALUE	MEASURED VALUE	RECOVERY
Free Cyanide	mg/l	0.10	0.11	110. %
Total Cyanide	mg/l	0.10	0.11	110. %
Total Cyanide	mg/l	0.10	0.11	110. %

BLANKS

ANALYTE	UNITS	RESULT
Free Cyanide	mg/l	< 0.005
Total Cyanide	mg/l	< 0.005
Total Cyanide	mg/l	< 0.005

APPENDIX C

Report Limitations and Guidelines for Use

APPENDIX C

REPORT LIMITATIONS AND GUIDELINES FOR USE¹

This attachment provides information to help you manage your risks with respect to the use of this report. Please confer with GeoEngineers if you need to know more about how these “Report Limitations and Guidelines for Use” apply to your project or property.

Read These Provisions Closely

It is important to recognize that environmental engineering and geoscience practices (geotechnical engineering, geology and environmental science) are less exact than other engineering and natural science disciplines. GeoEngineers includes these explanatory “limitations” provisions in our reports to help reduce the risk of misunderstandings or unrealistic expectations that lead to disappointments, claims and disputes.

Environmental Services Are Performed for Specific Purposes, Persons and Projects

GeoEngineers has performed these environmental services for KPG and The City of Tacoma in general accordance with the scope and limitations of our proposal, dated April 28, 2020. This letter report has been prepared for the exclusive use of the City of Tacoma and their agents. This report is not intended for use by others, and the information contained herein is not applicable to other properties.

GeoEngineers structures its services to meet the specific needs of its clients. For example, an ESA study conducted for a property owner may not fulfill the needs of a prospective purchaser of the same property. Because each environmental study is unique, each environmental report is unique, prepared solely for the specific client and property. Use of this report is not recommended for any purpose or project other than as expressly stated in this report.

This Environmental Report is Based on a Unique Set of Project-Specific Factors

This report has been prepared for KPG and the City of Tacoma for the Portland Avenue Sewer Crossing project located in the tideflats of Tacoma, Washington. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this Project. Unless GeoEngineers specifically indicates otherwise, it is important not to rely on this report if it was:

- not prepared for you,
- not prepared for your Project,
- not prepared for the specific site explored, or
- completed before Project changes were made.

If changes to the Project or property occur after the date of this report, GeoEngineers cannot be responsible for any consequences of such changes in relation to this report unless we have been given the opportunity

¹ Developed based on material provided by GBA, GeoProfessional Business Association; www.geoprofessional.org.

to review our interpretations and recommendations in the context of such changes. Based on that review, we can provide written modifications or confirmation, as appropriate.

Reliance Conditions for Third Parties

This report was prepared for the exclusive use of the party(ies) to whom this report is addressed. No other party may rely on the product of our services unless we agree to such reliance in advance and in writing. Within the limitations of the agreed Project scope, schedule and budget, our services have been executed in accordance with our Agreement with the Client and generally accepted environmental practices in this area at the time this report was prepared.

Understand That Geotechnical Issues Have Not Been Addressed

Unless geotechnical engineering was specifically included in our scope of service, this report does not provide any geotechnical findings, conclusions, or recommendations, including but not limited to, the suitability of subsurface materials for construction purposes.

Do Not Separate Documentation from the Report

Environmental reports often include supplemental documentation, such as maps, figures and tables. Do not separate such documentation from the report. Further, do not, and do not permit any other party to redraw or modify any of the supplemental documentation for incorporation into other professionals' instruments of service.

Environmental Regulations Change and Evolve

Some substances may be present in the vicinity of the subject property in quantities or under conditions that may have led, or may lead, to contamination of the subject property, but are not included in current local, state or federal regulatory definitions of hazardous substances or do not otherwise present current potential liability. GeoEngineers cannot be responsible if the standards for appropriate inquiry, or regulatory definitions of hazardous substances, change or if more stringent environmental standards are developed in the future.

Uncertainty May Remain Even After This Property Assessment is Completed

Performance of a property assessment is intended to reduce uncertainty regarding the potential for contamination in connection with a property, but no property assessment can wholly eliminate that uncertainty. Our interpretation of subsurface conditions in this study is based on field observations and chemical analytical data from a small number of sampling locations. It is always possible that contamination exists in areas that were not explored, sampled or analyzed.

Subsurface Conditions Can Change

This environmental report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time, by man-made events such as construction on or adjacent to the subject property, by new releases of hazardous substances, new information or technology that become available subsequent to the report date, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations. Please contact GeoEngineers before applying this report for its intended purpose so that GeoEngineers may evaluate whether changed conditions affect the continued applicability of the report.



Soil and Groundwater End Use

The cleanup levels referenced in this report are site- and situation-specific. The cleanup levels may not be applicable for other properties or for other on-site uses of the affected soil and/or groundwater. Note that hazardous substances may be present in some of the on-site soil and/or groundwater at detectable concentrations that are less than the referenced cleanup levels. GeoEngineers should be contacted prior to the export of soil or groundwater from the subject property or reuse of the affected soil or groundwater on-site to evaluate the potential for associated environmental liabilities. GeoEngineers will not assume responsibility for potential environmental liability arising out of the transfer of soil and/or groundwater from the subject property to another location, or the reuse of such soil and/or groundwater on-site in any instances that we did not recommend, know of, or control.

Most Environmental Findings Are Professional Opinions

Our interpretations of subsurface conditions are based on field observations and chemical analytical data from widely spaced sampling locations at the subject property. Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied its professional judgment to render an informed opinion about subsurface conditions throughout the property. Actual subsurface conditions may differ significantly from those indicated in this report. Our report, conclusions and interpretations should not be construed as a warranty of the subsurface conditions.

Biological Pollutants

GeoEngineers' Scope of Work specifically excludes the investigation, detection, prevention or assessment of the presence of Biological Pollutants. Accordingly, this report does not include any interpretations, recommendations, findings or conclusions regarding the detecting, assessing, preventing or abating of Biological Pollutants, and no conclusions or inferences should be drawn regarding Biological Pollutants as they may relate to this Project. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria and viruses, and/or any of their byproducts.

A Client that desires these specialized services is advised to obtain them from a consultant who offers services in this specialized field.

Information Provided by Others

GeoEngineers has relied upon certain data or information provided or compiled by others in the performance of our services. Although we use sources that we reasonably believe to be trustworthy, GeoEngineers cannot warrant or guarantee the accuracy or completeness of information provided or compiled by others.

PART III

LOCAL EMPLOYMENT

AND

APPRENTICESHIP

TRAINING PROGRAM (LEAP)

REGULATIONS

FOR

PUBLIC WORKS CONTRACTS

Chapter 1.90

LOCAL EMPLOYMENT AND APPRENTICESHIP TRAINING PROGRAM

Sections:

- 1.90.010 Purpose.
- 1.90.020 Scope.
- 1.90.030 Definitions.
- 1.90.040 LEAP goals.
- 1.90.050 *Repealed.*
- 1.90.060 Effect of program on prime contractor/subcontractor relationship.
- 1.90.070 Apprentice utilization requirements – Bidding and contractual documents.
- 1.90.080 Enforcement.
- 1.90.090 Compliance with applicable law.
- 1.90.100 Review and reporting.
- 1.90.105 Authority
- 1.90.110 Interpretation.

1.90.010 Purpose.

The purpose of this Chapter is to establish a means of providing for the development of a trained and capable workforce possessing the skills necessary to fully participate in the construction trades.

(Ord. 26301 § 1; passed Oct. 6, 1998)

1.90.020 Scope.

The provisions of this Chapter shall apply to all Public Works or Improvements funded in whole or in part with City funds or funds which the City expends or administers in accordance with the terms of a grant.

(Ord. 26301 § 1; passed Oct. 6, 1998)

1.90.030 Definitions.

As used in this chapter, the following terms shall have the following meanings:

A. “Apprentice” shall mean a person enrolled in a course of training specific to a particular construction trade or craft, which training shall be approved by the Washington State Apprenticeship and Training Council established pursuant to RCW 49.04.010.

B. “Building Projects” shall mean all Public Works or Improvements having an Estimated Cost greater than \$750,000.00, and for which a building permit must be issued pursuant to Chapter 1 of the current edition of the state building code (Uniform Building Code).

C. “City” shall mean all divisions and departments of the City of Tacoma, and all affiliated agencies, provided, however, that the Tacoma Community Redevelopment Authority shall not be included within this definition.

D. “Civil Projects” shall mean all Public Works or Improvements that are not defined as a “Building Project,” provided that those projects having an Estimated Cost of less than \$250,000.00 shall not be included in this definition.

E. “Contractor or Service Provider” means a person, corporation, partnership, or joint venture entering into a contract with the City to construct a Public Work or Improvement.

F. “Director” shall mean the Director of Community and Economic Development, or the Director’s Designee.

G. “Economically Distressed ZIP Codes” shall mean ZIP codes in the Tacoma Public Utilities Service Area that meet two out of three (2/3) of the thresholds of:

1. High concentrations of residents living under 200% of the federal poverty line in terms of persons per acre (69th percentile)
2. High concentrations of unemployed people in terms of persons per acre (45th percentile)

3. High concentrations of people 25 years or older without a college degree in terms of persons per acre (75th percentile)

Said thresholds shall be updated within 30 days following any Prevailing Wage updates issued by the Washington State Labor and Industry. All updates are to be published on the first business day in August and in February of each calendar year.

H. "Electrical Utility" and "Water Utility" shall mean, respectively, the Light Division of the Department of Public Utilities of the City of Tacoma, and shall include the electrical and telecommunications services of that Division, and the Water Division of the Department of Public Utilities of the City of Tacoma.

I. "Estimated Cost" shall mean the anticipated cost of a Public Work or Improvement, as determined by the City, based upon the expected costs of materials, supplies, equipment, and labor, but excluding taxes and contingency funds.

J. "Estimated Labor Hours" shall mean the anticipated number of Labor Hours determined by the City to be necessary to construct a Public Work or Improvement and set forth in the specifications for the project, or as may be subsequently revised due to contract or project adjustment, or pursuant to an agreed upon change order.

K. "Existing Employee" shall mean an employee whom the Contractor or Service Provider can demonstrate was actively employed by the Contractor or Service Provider for at least 1000 hours in the calendar year prior to bid opening plus one month following bid opening, and who was performing work in the construction trades.

L. "Labor Hours" shall mean the actual number of hours worked by workers receiving an hourly wage who are employed on the site of a Public Work or Improvement, and who are subject to state or federal prevailing wage requirements. The term "Labor Hours" shall include hours performed by workers employed by the Contractor or Service Provider and all Subcontractors, and shall include additional hours worked as a result of a contract or project adjustment or pursuant to an agreed upon change order. The term "Labor Hours" shall not include hours worked by workers who are not subject to the prevailing wage requirements set forth in either RCW 39.12 or the Davis-Bacon Act - 40 U.S.C. 276 (a).

M. "LEAP Coordinator" shall mean the City of Tacoma staff member who administers LEAP.

N. "LEAP Program" or "Program" shall mean the City of Tacoma's Local Employment and Apprenticeship Training Program, as described in this chapter.

O. "LEAP Regulations" or "Regulations" shall mean the rules and practices established in this document.

P. "LEAP Utilization Plan" shall mean the document submitted by the Contractor to the LEAP Coordinator which outlines how the associated goals will be met on the project.

Q. "Priority Hire Resident" shall mean any resident within the Economically Distressed ZIP Codes.

R. "Project Engineer" shall mean the City employee who directly supervises the engineering or administration of a particular construction project subject to this chapter.

S. "Public Work or Improvement" shall have the same meaning as provided in Section 39.04.010 RCW, as that Section may now exist or hereafter be amended.

T. "Resident of Tacoma" shall mean any person, not defined as a Resident of the Economically Distressed ZIP Codes within the Tacoma Public Utilities Service Area, who continues to occupy a dwelling within the boundaries of the City of Tacoma, has a present intent to continue residency within the boundaries of the City, and who demonstrates the genuineness of that intent by producing evidence that the person's presence is more than merely transitory in nature.

U. "Service Area - Electrical" or "Electrical Service Area" shall mean that area served with retail sales by the Electrical Utility of the City of Tacoma at the time a bid is published by the Electrical Utility for a Public Work or Improvement to be performed primarily for the Electrical Utility.

V. "Service Area - Water" or "Water Service Area" shall mean that area served with retail sales by the Water Utility of the City of Tacoma at the time a bid is published by the water utility for a Public Work or Improvement to be performed primarily for the Water Utility.

W. "Service Contract" shall mean all City contracts relating to a Public Work or Improvement which utilize labor at a City site and which are not within the exceptions to nor defined as "Building Projects" or "Civil Projects."

X. "Subcontractor" means a person, corporation, partnership, or joint venture that has contracted with the Contractor or Service Provider to perform all or part of the work to construct a Public Work or Improvement by a Contractor.

Y. "Tacoma Public Utilities Service Area" shall mean every ZIP code listed by Tacoma Public Utilities as an area that either receives services or maintains infrastructure to provide services.

Z. Washington State Labor and Industry Prevailing Wage shall mean the hourly wage, usual benefits and overtime, paid in the largest city in each county, to the majority of workers, laborers, and mechanics. Prevailing wages are established, by the Department of Labor & Industries, for each trade and occupation employed in the performance of public work. They are established separately for each county, and are reflective of local wage conditions.

AA. "Tacoma Public Utilities" means the City of Tacoma, Department of Public Utilities.

(Ord. 28147 Ex. B; passed May 7, 2013; Ord. 28110 Ex. C; passed Dec. 4, 2012; Ord. 27815 Ex. A; passed Jun. 30, 2009; Ord. 27368 § 1; passed Jun. 21, 2005; Ord. 26698 § 1; passed Sept. 12, 2000; Ord. 26301 § 1; passed Oct. 6, 1998)

1.90.040 LEAP goals.

A. Utilization Goals.

1. All Contractors constructing Civil Projects or Building Projects, and all Service Providers involved with the construction of a Public Work or Improvement, shall ensure that at least 15 percent of the total Labor Hours actually worked on the Project are performed by persons having their residence within the boundaries of the City of Tacoma or Economically Distressed ZIP Codes, whether or not any such person is an Apprentice.

a. The thresholds for this section shall be \$250,000.00 for Civil Projects and \$750,000.00 for Building Projects.

2. Fifteen percent (15%) of the Total Labor Hours on contracts above one-million dollars (\$1,000,000.00) shall have work performed by Apprentices who are residents of the Tacoma Public Utilities Service Area consistent with RCW 39.04.320(1)(a), subject to waiver based on exceptions as specified in RCW 39.04.320(2)(a), (b), and (c).

3. Labor Hours performed by non-residents of the State of Washington will be deducted from a project's total Labor Hours for purposes of determining compliance with the requirements of this chapter.

4. All Contractors and Service Providers shall submit a LEAP Utilization Plan as provided for in the regulations adopted under this chapter, and shall meet with the LEAP Coordinator to review said Plan prior to being issued a Notice to Proceed. Failure to submit a LEAP Utilization Plan may be grounds for the City to withhold remittance of a progress payment until such Plan is received from the responsible Contractor or Provider. A meeting with the LEAP Coordinator prior to issuance of a Notice to Proceed shall be excused only when the LEAP Coordinator is unavailable to meet prior to the scheduled date for issuance of the Notice to Proceed and the Contractor and the LEAP Coordinator have otherwise scheduled a meeting for the coordinator to review the Contractor's or Provider's plan.

The Contractor or Service Provider shall be responsible for meeting the LEAP utilization goal requirements of the contract, including all amendments and change orders thereto, and shall be responsible for overall compliance for all hours worked by Subcontractors. To the extent possible, the Contractor or Service Provider shall recruit Apprentices from multiple trades or crafts.

B. Failure to Meet Utilization Goal.

1. Contracts for the construction of Building projects or Civil Projects and Service Contracts shall provide that Contractors or Service Providers failing to meet the LEAP utilization goals shall be assessed an amount for each hour that is not achieved. The amount per hour shall be based on the extent the Contractor or Service Provider met its goal. The amount per hour that shall be assessed shall be as follows:

Percent of Goal Met	Assessment per unmet hour
100%	\$ 0.00
90% - 99%	\$ 2.00
75% to 89%	\$ 3.50
50% to 74%	\$ 5.00
1% to 49%	\$ 7.50
0%	\$10.00

When determining the percent of goal that is met, all rounding shall be down to the nearest whole percent. No penalty shall be waived by the City unless it is determined by the Director to be in the best interests of the City, which determination shall be made after consultation with the LEAP Coordinator.

2. Deposit of Assessments. All assessments imposed pursuant to this section shall be deposited into a separate account and utilized to support the City's pre-apprenticeship and training program. The policies and regulations adopted by the City Manager and Director of Utilities pursuant to this chapter shall address issues pertaining to a Contractor's existing workforce. Contributions need not be made for Labor Hours that have been adjusted in accordance with Section 1.90.040(E).

C. LEAP Reports. Notwithstanding the provisions of TMC 1.90.100, the Director shall, not less than annually, publish a LEAP report setting forth Contractor compliance with this chapter. Said report shall include information on all contracts and all Contractors to which this chapter applies, and shall detail the level and nature of LEAP participation by contract and by Contractor. The Director's LEAP report may include such other information as may be helpful to assuring fair and accurate representation of the contracts, Contractors or projects covered in the report. The Director's LEAP reports may be considered by the Board of Contracts and Awards in its determinations as to bidder responsibility.

D. LEAP Goal Adjustments.

1. LEAP utilization goals may be adjusted prior to bid opening and/or as a result of a contract amendment or change order on a Building Project, Civil Project, or Service Contract.

a. If LEAP utilization goals are adjusted prior to bid opening, they shall be set forth in the bid or Request For Proposal advertisement and specification documents or in an addendum timely provided to prospective bidders, provided that such adjustment shall be based upon a finding by the Project Engineer that the reasonable and necessary requirements of the contract render LEAP utilization unfeasible at the required levels. The Director shall concur with the Project Engineer's finding, provided that should the Project Engineer and the Director fail to reach agreement on the Project Engineer's finding, then in that circumstance the matter shall be referred to the City Manager or the Director of Utilities, as appropriate, for ultimate resolution. Notwithstanding any other provision of this chapter to the contrary, the decision of the City Manager or the Director of Utilities with regard to LEAP goal adjustment may not be appealed.

b. If LEAP utilization goals are adjusted due to contract amendment or change order, the amount of adjustment shall be consistent with the utilization goals set forth in this chapter and shall be determined pursuant to regulations adopted pursuant to this chapter for administration of LEAP utilization goal adjustments.

2. The methodology of determining the appropriate adjustments to LEAP utilization goals shall be determined in consultation with the LEAP Advisory Committee, established pursuant to this ordinance for so long as the LEAP Advisory Committee remains in existence.

3. LEAP utilization goals shall not apply to those portions of a project that are funded by sources other than (a) City funds, or (b) funds which the City expends or administers in accordance with the terms of a grant to the City, provided that the Project Engineer shall notify the Director of such non-application prior to bid advertisement. For the purposes of this paragraph, credits extended by another entity for the purpose of providing project funding shall not be considered to be City funds.

E. Utilization - Electrical Projects Outside Electrical Service Area. Civil Projects or Building Projects that are constructed primarily for the benefit or use by the City's Electrical Utility, which are wholly situated outside the

Electrical Service Area, and for which the estimated cost is less than \$1,000,000.00, are exempt from the requirements of this chapter.

F. Utilization - Water Projects Outside Water Service Area. Civil Projects or Building Projects that are constructed primarily for the benefit or use by the City's Water Utility, which are wholly situated outside the Water Service Area, and for which the estimated cost is less than \$1,000,000.00 are exempt from the requirements of this chapter.

G. Utilization –Projects Outside Tacoma Public Utilities Service Area. Civil Projects or Building Projects that are constructed primarily for the benefit or use by Tacoma Public Utilities, which are wholly situated outside the retail service area of the Tacoma Public Utilities Service Area, and for which the estimated cost is less than \$1,000,000.00 are exempt from the requirements of this chapter. Projects wholly situated outside the Tacoma Public Utilities Service Area, and for which the estimated cost is more than \$1,000,000.00, shall be exempt from 15% utilization goal specified in subsection A1. of this section. The 15% utilization goal specified in subsection A2. of this section may be met if project work is performed by Apprentices who are enrolled in a course of training specific to a particular construction trade or craft, provided such training has been approved by the Washington State Apprenticeship and Training Council in accordance with Chapter 49.04, RCW.

H. Emergency. This chapter shall not apply in the event of an Emergency. For the purposes of this section, an "Emergency" means unforeseen circumstances beyond the control of the City that either: (a) present a real, immediate threat to the proper performance of essential functions; or (b) will likely result in material loss or damage to property, bodily injury, or loss of life if immediate action is not taken.

I. Conflict with State or Federal Requirements. If any part of this chapter is found to be in conflict with federal or state requirements which are a prescribed condition to the allocation of federal or state funds to the City, then the conflicting part of this chapter is inoperative solely to the extent of the conflict and with respect to the City departments directly affected. This provision does not affect the operation of the remainder of this chapter. Administrative rules or regulations adopted under this chapter shall meet federal and state requirements which are a necessary condition to the receipt of federal or state funds by the City.

(Ord. 28147 Ex. B; passed May 7, 2013: Ord. 27815 Ex. A; passed Jun. 30, 2009: Ord. 27368 § 2; passed Jun. 21, 2005: Ord. 26992 § 1; passed Oct. 15, 2002: Ord. 26698 § 2; passed Sept. 12, 2000: Ord. 26301 § 1; passed Oct. 6, 1998)

1.90.050 Good faith efforts. *Repealed by Ord. 27368.*

(Ord. 27368 § 3; passed Jun. 21, 2005: Ord. 26698 § 3; passed Sept. 12, 2000: Ord. 26301 § 1; passed Oct. 6, 1998)

1.90.060 Effect of program on prime contractor/service provider - subcontractor relationship.

The LEAP Program shall not be construed so as to modify or interfere with any relationship between any Contractor or Service Provider and Subcontractor. The LEAP Program shall not grant the City any authority to control the manner or method of accomplishing any construction work that is additional to any authority retained by the City in a Public Works or Improvement contract.

(Ord. 26698 § 4; passed Sept. 12, 2000: Ord. 26301 § 1; passed Oct. 6, 1998)

1.90.070 Apprentice utilization requirements – Bidding and contractual documents.

All packages of bid documents for every Building Project and every Civil Project shall incorporate provisions satisfactory to the City Attorney so as to allow enforcement of the provisions contained in this Chapter. Such contractual provisions may include liquidated damages, calculated to reimburse the City for the Contractor's breach of these performance requirements, which shall be published with the City's call for bids.

(Ord. 26301 § 1; passed Oct. 6, 1998)

1.90.080 Enforcement.

A. The Director shall review the Contractor's or Service Provider's and all Subcontractor's employment practices during the performance of the work for compliance with LEAP Program requirements. On-site visits may be conducted as necessary to verify compliance with the requirements of the LEAP Program. The Contractor, Service Provider, or Subcontractors shall not deny to the City the right to interview its employees, provided that the Director shall make reasonable efforts to coordinate employee interviews with employers.

B. Any knowing failure or refusal to cooperate in compliance monitoring may disqualify the defaulting Contractor, Service Provider, or Subcontractor from eligibility for other City contracts.

C. The making of any material misrepresentation may disqualify the defaulting Contractor, Service Provider, or Subcontractor from eligibility for other City contracts.

D. Any action by the City, its officers and employees, under the provisions of this Chapter may be reviewed by the Board of Contracts and Awards, upon written application of the party so affected. Application shall be made within twenty (20) days of the date of the action upon which the appeal is based, and provided to the City by certified mail or by personal service. Any action taken by the Board of Contracts and Awards may be appealed to the City Council or Public Utility Board, as appropriate, and thereafter if desired, to the Superior Court of Pierce County, Washington, within fifteen (15) days of the previous decision.

(Ord. 26698 § 5; passed Sept. 12, 2000; Ord. 26301 § 1; passed Oct. 6, 1998)

1.90.090 Compliance with applicable law.

Nothing in this Chapter shall excuse a Prime Contractor, Service Provider, or Subcontractor from complying with all relevant federal, state, and local laws.

(Ord. 26698 § 6; passed Sept. 12, 2000; Ord. 26301 § 1; passed Oct. 6, 1998)

1.90.100 Review and reporting.

The City Manager and Director of Utilities shall review the Program on or before January 1, 2000, and every two (2) years thereafter, and shall report to the City Council and Public Utility Board the Manager's and Director's findings, conclusions, and recommendations as to the continued need for the Program, and any revisions thereto that should be considered by the Council and Board.

(Ord. 26301 § 1; passed Oct. 6, 1998)

1.90.105 Authority.

The City Manager and the Director of Utilities shall have authority to jointly adopt policies and regulations consistent with this chapter to implement the LEAP program.

(Ord. 26698 § 7; passed Sept. 12, 2000; Ord. 26301 § 1; passed Oct. 6, 1998)

1.90.110 Interpretation.

This Chapter shall not be interpreted or construed so as to conflict with any state or federal law, nor shall this Chapter be enforced such that enforcement results in the violation of any applicable judicial order.

(Ord. 26301 § 1; passed Oct. 6, 1998)



City of Tacoma
LEAP Office
747 Market Street, Room 900
Tacoma, WA 98402
(253) 591-5590 or leap@cityoftacoma.org

LEAP

Document Submittal Schedule

In the attached packet, you will find the LEAP forms that are required to be submitted by the Prime and Sub Contractors.

- ❑ **LEAP Abbreviated Program Requirements:** brief overview of LEAP Program requirements
- ❑ **Prime Contractor *LEAP* Utilization Plan:** to be submitted at the Pre-Construction Meeting
(Required by Prime Contractor Only)
- ❑ **LEAP Employee Verification Form:** to be submitted on an ongoing basis for each qualified LEAP employee
- ❑ **LEAP Weekly Payroll Report:** must be attached and filled out to the front of each certified payroll
- ❑ **Tacoma Public Utilities Service Area Map, Economically Distressed ZIP Codes Map:** for your reference on LEAP-qualified zoning areas

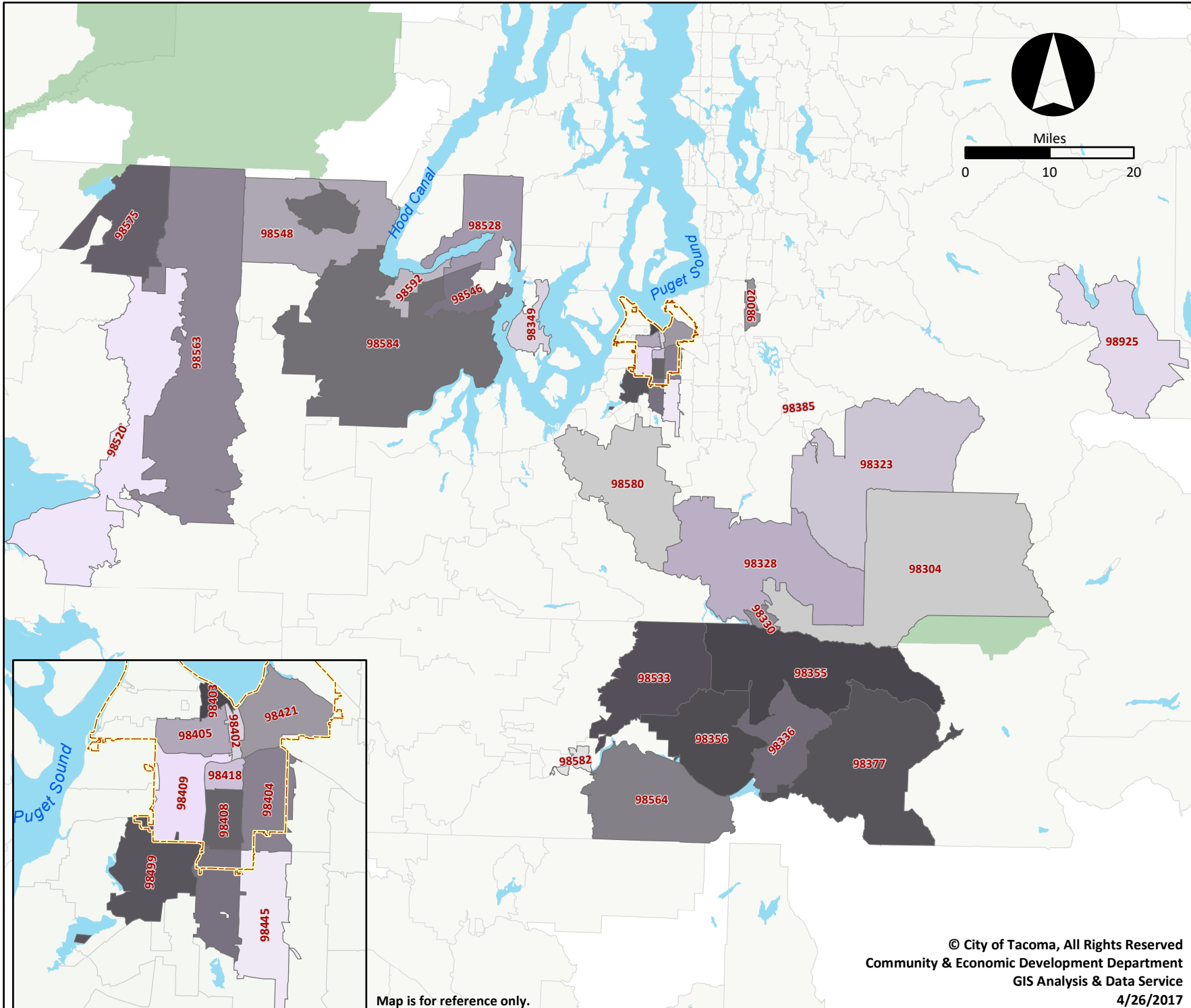
In addition, the City of Tacoma will also require from the Prime Contractor and all its Subcontractors:

- ❑ **Weekly Certified Payrolls:** to be submitted via LCP Tracker weekly, biweekly or monthly with the LEAP Payroll Report attached as scheduled by the Prime
- ❑ **Statement of Intent to Pay Prevailing Wages:** to be submitted prior to commencing work
- ❑ **Affidavit of Wages Paid:** to be submitted upon completion of each contractor's work
- ❑ **Local Resident/Pierce County Apprentice (State – Approved) Employee Verification Form:** to be submitted on an ongoing basis for each qualified LEAP employee
- ❑ **Document Verification:** provide required information when requested from LEAP Office

Please submit above documents as instructed by the LEAP Coordinator.

If you have any questions or request further information, please feel free to contact the City of Tacoma's LEAP Program at (253) 591-5590 or email dtrevorrow@cityoftacoma.org

Appendix C: Economically Distressed ZIP Codes Map



City Limits

- 98002
- 98304
- 98323
- 98328
- 98330
- 98336
- 98349
- 98355
- 98356
- 98377
- 98385
- 98520
- 98528
- 98533
- 98546
- 98548
- 98563
- 98564
- 98575
- 98580
- 98582
- 98584
- 98592
- 98925
- 98402
- 98403
- 98408
- 98409
- 98418
- 98421
- 98444
- 98445
- 98499

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Community & Economic Development Department
GIS Analysis & Data Service
4/26/2017

Map is for reference only.



City of Tacoma LEAP Office
747 Market Street, Room 900
Tacoma, WA 98402
(253) 591-5590
leap@cityoftacoma.org
www.cityoftacoma.org/leap

LEAP EMPLOYEE VERIFICATION FORM

Contractor/Sub: _____ Specification Number: _____

Project Description: _____

Employee Name: _____ Craft: _____

Ethnic Group (*optional*): ☐ Asian/Pac Isl. ☐ Black ☐ Hispanic ☐ Native American ☐ White ☐ Other

Gender (*optional*): ☐ MALE ☐ FEMALE

Complete Physical Address (No PO Boxes): _____

City: _____ State: _____ Zip: _____ Telephone: _____ Date of Hire: _____

Apprenticeship County: _____ Apprentice Registration I.D. (*if applicable*): _____

Youth 18 – 24? Age: _____ Veteran? Copy of DD-214: _____

*******Please fill out entire form for tracking LEAP performance*******

LEAP qualified employee categories: (check all that apply and provide evidence for each check)

_____ a. Resident within the geographic boundaries of the City of Tacoma

_____ b. Resident within Economically Distressed ZIP Codes of the Tacoma Public Utilities Service Area

_____ c. WA State Approved Apprentice living in Tacoma Public Utilities Service Area

_____ d. WA State Approved Apprentice *(Only valid for contracts where 100% of work is performed outside of Pierce County)

Signature of Employee: _____ Date: _____

Contractor Representative: _____ Date: _____

LEAP EMPLOYEE VERIFICATION FORM

To be Completed by Contractor or Subcontractor

Please attach a legible copy of the following document(s) showing the address of residence as proof of local (Tacoma) and/or Pierce County residency and apprentice status, youth status, or veteran status.

.....

_____ For Youth - Copy of Birth Certificate or WA State ID or
_____ WA Driver's License (projects advertised after 05-20-13)

_____ For Veterans – Copy of DD-214

_____ Driver's License with current address

_____ Utility Bill/Phone Bill/Cell Bill/Cable Bill with current
_____ address

_____ Copy of current tax form W-4

_____ Rental Agreement/Lease (residential)

_____ Computer Printout from Other Government Agencies

_____ Property Tax Records

_____ Apprentice Registration I.D.

_____ Food Stamp Award Letter

_____ Housing Authority Verification

_____ Insurance Policy (Residence/Auto)

*Any of the above must have a complete physical address verified by the www.govme.org website.

No PO Boxes

Contractor Representative: _____

Date: _____

Title: _____

LOCAL EMPLOYMENT AND APPRENTICESHIP TRAINING PROGRAM (LEAP)

LEAP REQUIREMENTS & PROCEDURES:

The LEAP office enforces post-award mandatory requirements. Bidders do not have to submit any information in the bid submittal package to be in compliance with LEAP.

Post-award Submittals:

- *Prime Contractor LEAP Utilization Plan.* This form is to be completed and presented at the Pre-Construction Meeting.
- *LEAP Employee Verification Form.* This form is to be completed for every qualifying LEAP employee.
- *LEAP Weekly Payroll Report.* This form is to be completed and submitted with each certified payroll.

The City of Tacoma's LEAP office enforces two mandatory requirements on City projects based on certain monetary thresholds.

Local Employment Utilization Goal - the Prime Contractor performing a qualifying public works project must ensure that 15 percent of the total labor hours worked on the project are performed by residents of the City of Tacoma or Economically Distressed Zip Codes whether or not any such person is an apprentice.

Apprenticeship Utilization Goal – for contracts above one-million dollars, the Prime Contractor performing a qualifying public works project must ensure that 15 percent of the total labor hours worked on the project are performed by Apprentices who are residents of the City of Tacoma or Tacoma Public Utilities Service Area. The accompanying LEAP Regulations, forms, and maps are included in these specifications.

***Exceptions:** If the project is located outside of the retail service area of the Tacoma Public Utilities Service Area, then Apprentices may come from the county in which the work is performed.

This project is below \$1 million and is thusly subject to the:

1. 15% Local Employment Utilization Goal

LEAP staff can assist contractors in the recruitment, screening and selection of qualified City of Tacoma residents, Economically Distressed Area residents, and Apprentices. Contractors may obtain further information by contacting the City's LEAP Office at (253) 316-3057 or (253) 591-5590. The LEAP Office is located in the Tacoma Municipal Building, 747 Market Street, Room 900, Tacoma, WA 98402. www.cityoftacoma.org/leap

No Work Performed (NWP) Report

Prime/Sub Contractor: _____

Specification Number: _____

Project Description: _____

Payroll Week Ending Date: _____ Payroll Number: _____

NO WORK PERFORMED

I, the undersigned, do hereby certify under penalty of perjury, that the information contained herein is true and correct.

Signature of Responsible Officer

Title

Date



City of Tacoma
LEAP Office
747 Market Street, Room 900
Tacoma WA 98402
(253) 591-5590
leap@cityoftacoma.org

PRIME CONTRACTOR LEAP UTILIZATION PLAN

Failure to submit this plan at the Pre-Construction Meeting may result in Progress Payments being withheld.

Part A

Contractor:		Date:
Specification Number:	Contract/Work Order Number(s):	Contract Dollar Amount:
Project Description:		Notes:

PART B PLANNED LEAP HOURS*

Trade or Craft	City of Tacoma Resident	Economic Distressed Area Resident	Tacoma Public Utilities Service Area Apprentice Resident	WA State Apprentice *(Contracts outside of TPU Service Area Only)	
	hrs.	hrs.	hrs.	hrs.	
	hrs.	hrs.	hrs.	hrs.	Date
	hrs.	hrs.	hrs.	hrs.	
	hrs.	hrs.	hrs.	hrs.	
	hrs.	hrs.	hrs.	hrs.	
	hrs.	hrs.	hrs.	hrs.	Rejected
	hrs.	hrs.	hrs.	hrs.	
	hrs.	hrs.	hrs.	hrs.	Date
	hrs.	hrs.	hrs.	hrs.	
Totals					
					TOTAL hrs.

Part C

Provide a description of how the Contractor plans to ensure that the LEAP Utilization Requirements on the project will be met. (Use additional sheets if necessary)

General Instructions for completing Prime Contractor LEAP Utilization Plan

Part A

Contractor/Contract Information Section: The Prime Contractor is responsible for completing this section. Failure to submit this plan at the Pre-Construction Meeting may result in Progress Payments being withheld.

Part B

Planned LEAP Hours Section: This section should be completed by the Prime Contractor. The information required in Part B is described below.

Trade or Craft: Indicate the Trade or Craft being used.

LEAP Employee Categories: Indicate the number of hours that will be utilized by the Prime Contractor and all Sub Contractors for each craft and broken down by City of Tacoma Resident, City of Tacoma Apprentice, Youth, or Veteran, Pierce County Apprentice, Youth, or Veteran.

For Watershed Projects: King County Apprentice – Approved by Washington State and/or Seattle Renewal Community (CEZ) Resident.

For Hydro Projects: Area Residents (residing in either Pierce County or the County where the work is performed: Lewis, Mason, Grays Harbor or Thurston County), Tacoma Community Empowerment Zone Resident, City of Tacoma Residents.

Totals: Total the number of hours in each of the six (6) columns.

Total Planned LEAP Utilization Hours: This is the total number of hours planned on this project to satisfy the LEAP Utilization Requirement.

Part C

Description of how the Contractor plans to ensure fulfillment of the LEAP Utilization Requirement: This section is to be completed by the Prime Contractor. Please describe how you plan to satisfy the LEAP Utilization Requirement on this project. Provide a summary of your outreach and recruitment procedures to hire LEAP Qualified Employees to work on this project.

Economically Distressed ZIP Codes

Zip Code	200% Pov	Unemployed	25+ College	Area
98002		Y	Y	Auburn
98030	Y	Y		Kent
98032	Y	Y		Kent
98198	Y	Y		Seattle
98304	Y	Y	Y	Ashford
98323		Y	Y	Carbonado
98330	Y		Y	Elbe
98336	Y		Y	Glenoma
98355	Y	Y	Y	Mineral
98356	Y	Y	Y	Morton
98377		Y	Y	Randle
98385		Y	Y	South Prairie
98424	Y	Y		Fife
98433		Y	Y	JBLM
98439	Y	Y		Lakewood
98444	Y	Y	Y	Parkland
98467	Y	Y		University Place
98499	Y	Y		Lakewood
98520	Y	Y		Aberdeen
98528	Y		Y	Belfair
98548	Y	Y	Y	Hoodsport
98564	Y		Y	Mosssyrock
98575		Y	Y	Quinault
98580		Y	Y	Roy
98584	Y	Y		Shelton
98597	Y	Y		Yelm
98925	Y	Y	Y	Easton

“200% Pov” = People at or below 200% of the federal poverty line. (69th percentile)

“Unemployed” = Unemployment rate (45th percentile)

“25+ College” = People at or above 25 years old without a college degree. (75th percentile)

Tacoma Public Utility Service Area

98001	Auburn
98002	Auburn
98003	Federal Way
98010	Black Diamond
98022	Enumclaw
98023	Federal Way
98030	Kent
98032	Kent
98038	Maple Valley
98042	Kent
98045	North Bend
98051	Ravensdale
98070	Vashon
98092	Auburn
98198	Seattle
98304	Ashford
98321	Buckley
98323	Carbonado
98327	DuPont
98328	Eatonville
98329	Gig Harbor
98330	Elbe
98332	Gig Harbor
98333	Fox Island
98335	Gig Harbor
98336	Glenoma
98338	Graham
98349	Lakebay
98354	Milton
98355	Mineral

98356	Morton
98360	Orting
98371	Puyallup
98372	Puyallup
98373	Puyallup
98374	Puyallup
98375	Puyallup
98377	Randle
98385	South Prairie
98387	Spanaway
98388	Spanaway
98390	Sumner
98391	Bonney
98402	Tacoma
98403	Tacoma
98404	Tacoma
98405	Tacoma
98406	Tacoma
98407	Tacoma
98408	Tacoma
98409	Tacoma
98416	UPS
98418	Tacoma
98421	Tacoma
98422	Tacoma
98424	Tacoma
98430	Camp Murray
98433	Tacoma
98438	McChord
98439	Lakewood

98443	Tacoma
98444	Tacoma
98445	Tacoma
98446	Tacoma
98447	PLU
98465	Tacoma
98466	Tacoma
98467	University Place
98498	Lakewood
98499	Lakewood
98520	Aberdeen
98524	Allyn
98528	Belfair
98533	Cinebar
98546	Grapeview
98548	Hoodspport
98555	Lilliwaup
98563	Montesano
98564	Mossyrock
98575	Quinault
98580	Roy
98582	Salkum
98584	Shelton
98585	Silver Creek
98591	Toledo
98592	Union
98597	Yelm
98925	Easton

Apprentices may come from **any** of the ZIP codes listed under this page. If an apprentice lives in a Economically Distressed ZIP code, they may count towards those labor hours as well. Journeyman must be from the Economically Distressed ZIP codes.

PART IV

**STATE PREVAILING
WAGE RATES**

PREVAILING WAGE RATES

This project requires prevailing wages under [39.12 RCW](#). Any worker, laborer, or mechanic employed in the performance of any part of the work shall be paid not less than the applicable prevailing rate of wage.

The project site is located in Pierce County.

The effective date for prevailing wages on this project will be the **submittal deadline** with these exceptions:

- a. If the project is not awarded within six months of the submittal deadline, the award date is the effective date.
- b. If the project is not awarded pursuant to a competitive solicitation, the date the contract is executed is the effective date.
- c. Janitorial contracts follow WAC 296-127-023.

Except for janitorial contracts, these rates shall apply for the duration of the contract unless otherwise noted in the solicitation.

Look up prevailing rates of pay, benefits, and overtime codes from this link:

<https://secure.lni.wa.gov/wagelookup/>

REQUIRED FILINGS

The contractor and all subcontractors covered under [39.12 RCW](#) shall submit to the Department of Labor and Industries (L&I) for work provided under this contract:

1. A Statement of Intent to Pay Prevailing Wages must be filed with and approved by L&I upon award of contract.
2. An Affidavit of Wages Paid must be filed with and approved by L&I upon job completion.

Payments cannot be released by the City until verification of these filings are received by the engineer. Additional information regarding these filings can be obtained by calling the Department of Labor & Industries, Prevailing Wage at 360-902-5335, <https://www.lni.wa.gov/> or by visiting their MY L&I account.

PART V
CITY OF TACOMA
INSURANCE REQUIREMENTS



CITY OF TACOMA

INSURANCE REQUIREMENTS FOR CONTRACTS

The Contractor (Contractor) shall maintain at least the minimum insurance set forth below. By requiring such minimum insurance, the City of Tacoma shall not be deemed or construed to have assessed the risk that may be applicable to Contractor under this Contract. Contractor shall assess its own risks and, if it deems appropriate and/or prudent, maintain greater limits and/or broader coverage.

1. GENERAL REQUIREMENTS

The following General Requirements apply to Contractor and to Subcontractor(s) of every tier performing services and/or activities pursuant to the terms of this Contract. Contractor acknowledges and agrees to the following insurance requirements applicable to Contractor and Contractor's Subcontractor(s):

- 1.1. City of Tacoma reserves the right to approve or reject the insurance provided based upon the insurer, terms and coverage, the Certificate of Insurance, and/or endorsements.
- 1.2. Contractor shall not begin work under the Contract until the required insurance has been obtained and approved by City of Tacoma.
- 1.3. Contractor shall keep this insurance in force during the entire term of the Contract and for Thirty (30) calendar days after completion of all work required by the Contract, unless otherwise provided herein.
- 1.4. Insurance policies required under this Contract that name "City of Tacoma" as Additional Insured shall:
 - 1.4.1. Be considered primary and non-contributory for all claims.
 - 1.4.2. Contain a "Separation of Insured provision and a "Waiver of Subrogation" clause in favor of City of Tacoma.
- 1.5. Section 1.4 above does not apply to contracts for purchasing supplies only.
- 1.6. Verification of coverage shall include:
 - 1.6.1. An ACORD certificate or equivalent.
 - 1.6.2. Copies of all endorsements naming the City of Tacoma as additional insured and showing the policy number.
 - 1.6.3. A notation of coverage enhancements on the Certificate of Insurance shall not satisfy these requirements – actual endorsements must be submitted.
- 1.7. Liability insurance policies, with the exception of Professional Liability and Workers' Compensation, shall name the City of Tacoma and its officers, elected officials, employees, agents, and authorized volunteers as additional insured.
 - 1.7.1. No specific person or department should be identified as the additional insured.
 - 1.7.2. All references on certificates of insurance and endorsements shall be listed as "City of Tacoma".
 - 1.7.3. The City of Tacoma shall be additional insured for both ongoing and completed operations using Insurance Services Office (ISO) form CG 20 10 04 13 and CG 20



CITY OF TACOMA

INSURANCE REQUIREMENTS FOR CONTRACTS

37 04 13 or the equivalent for the full available limits of liability maintained by the Contractor 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 describes limits lower than those maintained by the Contractor.

- 1.8. Contractor shall provide a Certificate of Insurance for each policy of insurance meeting the requirements set forth herein when Contractor provides the signed Contract for the work to City of Tacoma. Contractor shall provide copies of any applicable Additional Insured, Waiver of Subrogation, and Primary and Non-contributory endorsements. Contract or Permit number and the City Department must be shown on the Certificate of Insurance.
- 1.9. Insurance limits shown below may be written with an excess policy that follows the form of an underlying primary liability policy or an excess policy providing the required limit.
- 1.10. Liability insurance policies shall be written on an "occurrence" form, except for Professional Liability/Errors and Omissions, Pollution Liability, and Cyber/Privacy and Security
- 1.11. If coverage is approved and purchased on a "Claims-Made" basis, Contractor warrants continuation of coverage, either through policy renewals or by the purchase of an extended reporting period endorsement as set forth below.
- 1.12. The insurance must be written by companies licensed or authorized in the State of Washington pursuant to RCW 48 with an (A-) VII or higher in the A.M. Best's Key Rating Guide www.ambest.com.
- 1.13. Contractor shall provide City of Tacoma notice of any cancellation or non-renewal of this required insurance within Thirty (30) calendar days.
- 1.14. Contractor shall not allow any insurance to be cancelled or lapse during any term of this Contract, otherwise it shall constitute a material breach of the Contract, upon which City of Tacoma may, after giving Five (5) business day notice to 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 City of Tacoma by Contractor upon demand, or at the sole discretion of City of Tacoma, offset against funds due Contractor from City of Tacoma.
- 1.15. Contractor shall be responsible for the payment of all premiums, deductibles and self-insured retentions, and shall indemnify and hold the City of Tacoma harmless to the extent such a deductible or self-insured retained limit may apply to the City of Tacoma as an additional insured. Any deductible or self-insured retained limits in excess of Twenty Five Thousand Dollars (\$25,000) must be disclosed and approved by City of Tacoma Risk Manager and shown on the Certificate of Insurance.
- 1.16. City of Tacoma reserves the right to review insurance requirements during any term of the Contract and to require that Contractor make reasonable adjustments when the scope of services has changed.



CITY OF TACOMA INSURANCE REQUIREMENTS FOR CONTRACTS

- 1.17. 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 by City of Tacoma to Contractor.
- 1.18. Insurance coverages specified in this Contract are not intended and will not be interpreted to limit the responsibility or liability of Contractor or Subcontractor(s).
- 1.19. Failure by City of Tacoma to identify a deficiency in the insurance documentation provided by Contractor or failure of City of Tacoma to demand verification of coverage or compliance by Contractor with these insurance requirements shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- 1.20. If Contractor is a State of Washington or local government and is self-insured for any of the above insurance requirements, a certification of self-insurance shall be attached hereto and be incorporated by reference and shall constitute compliance with this Section.

2. CONTRACTOR

As used herein, "Contractor" shall be the Supplier(s) entering a Contract with City of Tacoma, whether designated as a Supplier, Contractor, Vendor, Proposer, Bidder, Respondent, Seller, Merchant, Service Provider, or otherwise.

3. SUBCONTRACTORS

It is Contractor's responsibility to ensure that each subcontractor obtain and maintain adequate liability insurance coverage. Contractor shall provide evidence of such insurance upon City of Tacoma's request.

4. REQUIRED INSURANCE AND LIMITS

The insurance policies shall provide the minimum coverages and limits set forth below. Providing coverage in these stated minimum limits shall not be construed to relieve Contractor from liability in excess of such limits.

4.1 Commercial General Liability Insurance

Contractor shall maintain Commercial General Liability Insurance policy with limits not less than One Million Dollars (\$1,000,000) each occurrence and Two Million Dollars (\$2,000,000) annual aggregate. The Commercial General Liability Insurance policy shall be written on an Insurance Services Office form CG 00 01 04 13 or its equivalent. Products and Completed Operations shall be maintained for a period of three years following Substantial Completion of the Work related to performing construction services.

This policy shall include product liability especially when a Contract solely is for purchasing supplies. The Commercial General Liability policy shall be endorsed to include:

- 4.1.1 A per project aggregate policy limit, using ISO form CG 25 03 05 09 or an equivalent endorsement.

4.2 Commercial (Business) Automobile Liability Insurance

Contractor shall maintain Commercial Automobile Liability policy with limits not less than One Million Dollars (\$1,000,000) each accident for bodily injury and property damage and bodily injury and property damage coverage for owned (if any), non-owned, hired, or leased vehicles.



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Commercial Automobile Liability Insurance shall be written using ISO form CA 00 01 or equivalent. Contractor must also maintain an MCS 90 endorsement or equivalent and a CA 99 48 endorsement or equivalent if "Pollutants" are to be transported.

4.3 Workers' Compensation

4.3.1 Contractor shall comply with Workers' Compensation coverage as required by the Industrial Insurance laws of the State of Washington, as well as any other similar coverage required for this work by applicable federal laws of other states. The Contractor must comply with their domicile State Industrial Insurance laws if it is outside the State of Washington.

4.4 Employers' Liability Insurance

Contractor shall maintain Employers' Liability coverage with limits not less than One Million Dollars (\$1,000,000) each employee, One Million Dollars (\$1,000,000) each accident, and One Million Dollars (\$1,000,000) policy limit.

4.5 Professional Liability Insurance or Errors and Omissions

Contractor and/or its subcontractor shall maintain Professional Liability or Errors and Omissions with limits of One Million Dollars (\$1,000,000) per claim and Two Million Dollars (\$2,000,000) in the aggregate covering acts, errors and omissions arising out of the professional services under this Contract.

If the policy limit includes the payment of claims or defense costs, from the policy limit, the per claim limit shall be Two Million Dollars (\$2,000,000).

If the scope of such design-related professional services includes work related to pollution conditions, the Professional Liability policy shall include Pollution Liability coverage.

If provided on a "claims-made" basis, such coverage shall be maintained by policy renewals or an extended reporting period endorsement for not less than three years following the end of the Contract.

4.6 Excess or Umbrella Liability Insurance

Contractor shall provide Excess or Umbrella Liability Insurance with limits not less than Three Million Dollars (\$3,000,000) per occurrence and in the aggregate. This coverage shall apply, at a minimum, in excess of primary underlying Commercial General Liability, Employer's Liability, Pollution Liability, Marine General Liability, Protection and Indemnity, and Automobile Liability if required herein.

4.7 Pollution Liability Insurance

Contractor shall maintain a Pollution Liability or Environmental Liability Insurance providing coverage, including investigation and defense costs, for bodily injury and property damage, including loss of use of damaged property or of property that has been physically damaged or destroyed.

Such coverage shall provide both on-site and off-site cleanup costs and cover gradual and sudden pollution, and include in its scope of coverage the City of Tacoma damage claims for loss arising out of Contractor's work with limits not less than One Million Dollars (\$1,000,000) each occurrence and Two Million Dollars (\$2,000,000) aggregate.

This policy shall include Environmental Resource Damage coverage and Hazardous Substance Removal. If such coverage is provided on a "claims-made" basis, the following additional conditions must be met:

4.7.1 The policy must contain no retroactive date, or the retroactive date must precede the commencement date of this Contract.

4.7.2 The extended reporting period (tail) must be purchased to cover a minimum of Six (6) years beyond completion of work.



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4.8 Installation Floater Insurance

Contractor shall maintain during the term of the Contract, at its own expense, Installation Floater Insurance covering Contractor's labor, materials, and equipment to be used for completion of the work performed under this Contract against all risks of direct physical loss, excluding earthquake and flood, for an amount equal to the full amount of the Contract improvements.

4.9 Other Insurance

Other insurance may be deemed appropriate to cover risks and exposures related to the scope of work or changes to the scope of work required by City of Tacoma. The costs of such necessary and appropriate Insurance coverage shall be borne by Contractor.