

**PORT OF TACOMA
TACOMA, WASHINGTON
PORT PARCEL 114 SITE CLEANUP INTERIM ACTION
EXCAVATION**

**PROJECT NO. 92839
CONTRACT NO. POT-PA-000000343**


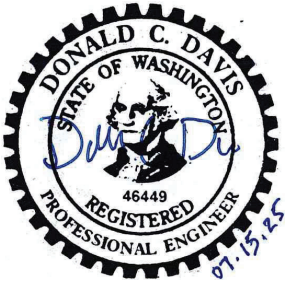
**Thais Howard, PE
Director, Engineering**

**Elly Bulega, PE
Project Manager**

END OF SECTION

The undersigned Engineer of Record hereby certifies that the Technical Specifications for the following portions of this project were written by me, or under my direct supervision, and that I am duly registered under the laws of the State of Washington, and hereby affix my Professional Seal and signature.

Those Sections prepared under my direct supervision and being certified by my seal and signature below are as follows:

<u>SEAL & SIGNATURE</u>	<u>SECTION(S)</u>
	Earthwork 31 00 00 Dewatering 31 23 19
	ESC and CSWPPP 01 57 13 Site Demolition 02 41 13 Aggregates 31 05 16 Site Clearing 31 10 00 Seeding 32 92 19

END OF SECTION

PROCUREMENT AND CONTRACTING REQUIREMENTS

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- 00 01 07 - Seals Page
- 00 01 10 - Table of Contents
- 00 01 15 - List of Drawing Sheets
- 00 11 13 - Advertisement for Bids
- 00 21 00 - Instructions to Bidders
- 00 26 00 - Substitution Procedures
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- 00 43 13 - Bid Security Form
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- 00 61 13.13 - Performance Bond
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- 01 55 00 - Vehicular Access and Parking
- 01 57 13 - TESC and Project SWPPP
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DIVISION 02 -- EXISTING CONDITIONS

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DIVISION 31 -- EARTHWORK

- 31 00 00 - Earthwork
- 31 05 16 - Aggregates
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DIVISION 32 -- EXTERIOR IMPROVEMENTS

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APPENDICES

- Appendix A: Site Subsurface Conditions
- Appendix B: Waste Disposal Authorization (WDA)
- Appendix C: Specific Approved Discharge (SAD) Permit
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- Appendix F: Site Development (SDEV) Permit
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- Appendix H: Picture of Piles Around Ditch

Appendix I: Ferrous Sulfate Safety Data Sheets

Appendix J: Existing Capped Side Sewer Photos

Appendix K: WAC 173-340-900 (RCW 70.105 and MTCA Method A, Table 740-1 requirements)

Appendix L: Critical Area Development Permit

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. Contract Drawings: The following drawings are a part of the Contract Documents:

Sheet No.	Drawing	Drawing Title
1	G1.0	COVER SHEET
2	G1.1	GENERAL CIVIL NOTES
3	D1.0	ENLARGED DEMOLITION AND TESC PLAN
4	C1.0	OVERALL SITE PLAN
5	C2.0	ENLARGED CONCEPTUAL EXCAVATION GRADING PLAN
6	C3.0	ENLARGED FINAL GRADING AND SURFACING PLAN
7	C4.0	MISC. SECTIONS AND DETAILS

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PORT PARCEL 114 SITE CLEANUP INTERIM ACTION EXCAVATION

PROJECT NO. 92839 | CONTRACT NO. POT-PA-000000343

Scope of Work: The Work required for this Project includes:
Dewatering, excavation and disposal of contaminated soils, treatment of in-situ soils with ferrous sulfate, amending gravel borrow before backfilling excavated areas and vegetation restoration.

Bid Estimate: Estimated cost range is \$4,300,000 to \$5,000,000,
plus Washington State Sales Tax (WSST).

In accordance with RCW 39.04.320, fifteen (15) percent apprenticeship participation is required for certain projects estimated to cost one million (\$1,000,000) dollars or more. Bidders may contact the Department of Labor and Industries, Specialty Compliance Services Division, Apprenticeship Section, P.O. Box 44530, Olympia, WA 98504-4530, by phone (360) 902-5320, or e-mail at Apprentice@lni.wa.gov, to obtain information on available apprenticeship programs.

In accordance with new legislation HB 1050 all port districts are required to add the requirement that **apprentices must perform** 15% or more of the total labor hours in public works contracts estimated at \$1 million or more. If the 15% apprenticeship labor hours is met the contractor will receive an incentive fee of \$1,000. If less than 15% apprenticeship labor hours is used a \$500 decrease in the total amount of the contract will be taken for not meeting the required apprenticeship labor hours. L&I will monitor apprenticeship labor hours.

Sealed Bid Date/
Time/Location: Bids will be received at the Front Reception Desk, Port Administration Office, One Sitcum Plaza, Tacoma, Washington 98421 until **2:00 P.M. on September 03, 2025**, at which time they will be publicly opened and read aloud and the apparent low bid will be determined.

Pre-Bid
Conference and
Site Tour: A pre-Bid conference and site visit have been set for 8/25/2025 11:00 AM. The site visit will convene at the project site.
The following Personal Protective Equipment is required for the site visit: sturdy shoes, reflective vest, gloves, safety glasses, hearing protection, and hardhat.

Attendees will be required to sign a Release and Acceptance of Responsibility and Acknowledgement of Risks Form prior to entering the site and shall provide their own Personal Protection Equipment (PPE) as required above.

- Bid Security:** Each Bid must be accompanied by a Bid security in an amount equal to five (5) percent of the Base Bid in a form allowed by the Instructions to Bidders.
- Contact Information:** Any questions to the Port may be submitted to the Procurement Department through the Procurement and Question Submission Portal (Portal link is accessible via this specific procurements website. See left side of page.). A direct link is also available here: [Procurement and Question Portal Link](#). No oral responses will be binding by the Port.
- Instructions for utilizing the portal can be found here: [Procurement and Question Submission Portal Instructions](#).
- Questions will not be accepted after seven (7) days prior to the Bid Date.
- Bidding Documents:** Plans, Specifications, Addenda, and Plan Holders List for this Project are available on-line through The Port of Tacoma's Website portoftacoma.com. Click on "Contracts," "Procurement," and then the Procurement Number POT-PA-000000343. Bidders must subscribe to the Holder's List on the right hand side of the screen in order to receive automatic email notification of future addenda and to be placed on the Holder's List.
- Holder's Lists will be updated regularly and posted to the specific procurements page. Additional Instructions available in Section 00 21 00 - Instructions to Bidders.
- Public Works Training Requirements:** Effective July 1, 2019, all businesses are required to have training before bidding on public works projects and prevailing wage under RCW 39.04.359 and RCW 39.12, or is on the list of exempt businesses maintained by the Department of Labor and Industries. The bidder must designate a person or persons to be trained on these requirements. The training will be provided by the Department of Labor and Industries or by a training provider whose curriculum is approved by the Department of Labor and Industries.
- Please refer to Labor and Industries' web site (https://www.lni.wa.gov/TradesLicensing/PrevWage/Contractors/Training.asp?utm_medium=email&utm_source=govdelivery) for more information and training dates, requirements, and exemptions. Failure to attend this training could result in a determination of "not responsible" and the bidder not being awarded a public works contract.

END OF SECTION

PART 1 - SUMMARY

1.01 DEFINITIONS

All definitions set forth in the Agreement, the General Conditions of the Contract for Construction, and in other Contract Documents are applicable to the Bidding Documents.

- A. "Addenda" are written or graphic instruments issued prior to the execution of the Contract which modify or interpret the Bidding Documents by additions, deletions, clarifications, or corrections. The contents of an Addendum are issued in no particular order and therefore should be carefully and completely reviewed.
- B. An "Additive Bid" (or "Additive") is an amount stated in the Bid to add specified features of the Work.
- C. An "Alternate Bid" (or "Alternate") is an amount stated in the Bid to be added to or deducted from the amount of the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.
- D. An "Apprentice" is a worker for whom an apprenticeship agreement has been registered and approved by the Washington State Apprenticeship and Training Council (RCW 49.04 and WAC 296-05).
- E. "Award" means the formal decision by the Port of Tacoma ("Port") notifying a Responsible Bidder with the lowest responsive Bid of the Port's acceptance of their Bid and intent to enter into a Contract with the Bidder.
- F. The "Award Requirements" include the statutory requirements as a condition precedent to Award.
- G. The "Base Bid" is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base to which Work may be added or from which Work may be deleted for sums stated in Alternate Bids.
- H. A "Bid" is a complete and properly signed proposal to do the Work, submitted in accordance with the Bidding Documents, for the sums therein stipulated and supported by any data called for by the Bidding Documents.
- I. The "Bid Date" is the day and hour specified in the Bidding Documents, as may be changed through an Addendum, by which Bidders are required to submit Bids to the Port.
- J. The "Bid Form" is the form(s) included with the Bidding Documents, with Specification Section 00 41 00, through which a Bidder submits a Bid.
- K. A "Bidder" is a person or entity who submits a Bid.
- L. The "Bidding Documents" include the Advertisement or Invitation to Bid, Instructions to Bidders, the Bid Form, any other sample bidding and contract forms, including those provided by reference, the Bid security, and the proposed Contract Documents, including any Addenda issued prior to the Bid Date.
- M. The "Contract Documents" proposed for the Work consist of the Agreement, the General Conditions of the Contract (as well as any Supplemental, Special, or other conditions included in the Project Manual), the Drawings, the Specifications, and all Addenda issued prior to, and all modifications issued after, execution of the Contract.

- N. The "Schedule of Unit Prices" is a separate schedule on the Bid Form for Unit Pricing as an all-inclusive price per unit of measurement for materials, equipment, or services as described in the Bidding Documents or in the proposed Contract Documents for the optional use of the Port. Quantities are not predictions of amounts anticipated. The Port may, but is not obligated to, accept a Schedule of Unit Price if it accepts the Base Bid. The Schedule of Unit Prices are not factored into the evaluation of determining the low bid amount and are not included as part of the bid award amount.
- O. A "Sub-Bidder" is a person or entity of any tier who submits a bid or proposal to or through the Bidder for materials, equipment or labor for a portion of the Work.

1.02 BIDDER'S REPRESENTATIONS

By making its Bid, each Bidder represents that:

- A. BIDDING DOCUMENTS. The Bidder has read and understands the Bidding Documents, and its Bid is made in accordance with them.
- B. PRE-BID MEETING. The Bidder has attended pre-Bid meeting(s) required by the Bidding Documents. Attendance at a mandatory meeting or training session means that, in the sole opinion of the Port, a Project representative of a Bidder has attended all or substantially all of such meeting or session.
- C. BASIS. Its Bid is based upon the materials, systems, services, and equipment required by the Bidding Documents, and is made without exception.
- D. EXAMINATION. The Bidder has carefully examined and understands the Bidding Documents, the Contract Documents including, but not limited to, any liquidated damages, insurance provisions, and the Project site, including any existing buildings, it has familiarized itself with the local conditions under which the Work is to be performed, has correlated its observations with the requirements of the proposed Contract Documents, and it has satisfied itself as to the nature, location, character, quality, and quantity of the Work, the labor, materials, equipment, goods, supplies, work, services, and other items to be furnished, and all other requirements of the Contract Documents. The Bidder has also satisfied itself as to the conditions and other matters that may be encountered at the Project site or that may affect performance of the Work or the cost or difficulty thereof, including, but not limited to, those conditions and matters affecting transportation, access, disposal, handling and storage of materials, equipment and other items; availability and quality of labor, water, electric power, and utilities; availability and condition of roads; climatic conditions and seasons; physical conditions at the Project site and the surrounding locality; topography and ground surface conditions; and equipment and facilities needed preliminary to, and at all times during, the performance of the Work. The failure of the Bidder to fully acquaint itself with any applicable condition or matter shall not in any way relieve the Bidder from the responsibility for performing the Work in accordance with, and for the Contract Sum and within the Contract Time provided for in, the Contract Documents.
- E. PROJECT MANUAL. The Bidder has checked its copies of the Project Manual (if any) with the table of contents bound therein to ensure the Project Manual is complete.
- F. SEPARATE WORK. The Bidder has examined and coordinated all Drawings, Contract Documents, and Specifications with any other contracts to be awarded separately from, but in connection with, the Work being Bid upon, so that the Bidder is fully informed as to conditions affecting the Work under the Contract being Bid upon.

- G. LICENSE REQUIREMENTS. The Bidders and Sub-Bidders are registered and hold all licenses required by the laws of Washington, including a certificate of registration in compliance with RCW 18.27, for the performance of the Work specified in the Contract Documents.
- H. CERTIFICATION. The Bidder verifies under penalty of perjury that the Bidder has not have been determined by a final and binding citation and notice of assessment issued by the Department of Labor and Industries or through a civil judgment entered by a court of limited or general jurisdiction to have willfully violated, as defined in RCW 49.48.082, any provision of Chapters 49.46, 49.48, or 49.52 RCW within the three (3) year period immediately preceding the Bid Date.
- I. NO EXCEPTIONS. Bids must be based upon the materials, systems, and equipment described and required by the Bidding Documents, without exception.

1.03 BIDDING DOCUMENTS

A. COPIES

- 1. Bidders may obtain complete sets of the Bidding Documents from The Port of Tacoma's Website www.portoftacoma.com. Click on "Contracts" then "Procurement."
- 2. Complete Sets. Bidders shall use complete sets of Bidding Documents in preparing Bids and are solely responsible for obtaining updated information. The Port does not assume any responsibility for errors or misinterpretations resulting from the use of incomplete and/or superseded sets of Bidding Documents.
- 3. Conditions. The Port makes copies of the Bidding Documents available only for the purpose of obtaining Bids on the Work and does not confer a license or grant permission for any other use.
- 4. Legible Documents. To the extent any Drawings, Specifications, or other Bidding Documents are not legible, it is the Bidder's responsibility to obtain legible documents.

B. INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

- 1. Format. The Contract Documents are divided into parts, divisions, and sections for convenient organization and reference. Generally, there has been no attempt to divide the Specification sections into Work performed by the various building trades, any Work by separate contractors, or any Work required for separate facilities in, or phases of the Project.
- 2. Duty to Notify. Bidders shall promptly notify the Port in writing of any ambiguity, inconsistency, or error that they may discover upon examination of the Bidding Documents or of the site and local conditions.
- 3. Products and Installation. All Bidders shall thoroughly familiarize themselves with specified products and installation procedures and submit to the Port any objections (in writing) no later than seven (7) days prior to the Bid Date. The submittal of the Bid constitutes acceptance of products and procedures specified as sufficient, adequate, and satisfactory for completion of the Contract.
- 4. Written Request. Bidders requiring clarification or interpretation of the Bidding Documents shall make a written request to the Procurement Department through the Procurement and Question Submission Portal at least seven (7) days prior to the Bid Date (Portal link is accessible via this specific procurements website. See left side of page.). A direct link is also available here: [Procurement and Question Portal Link](#). No oral responses will be binding by the Port.

Instructions for utilizing the portal can be found here: [Procurement and Question Submission Portal Instructions](#).

5. Request to Modify Responsibility Criteria. No later than seven (7) days prior to the Bid Date, a potential Bidder may request in writing that the Port modify the Responsibility Criteria. The Port will evaluate the information submitted by the potential Bidder and respond before the Bid Date. If the evaluation results in a change of the Criteria, the Port will issue an Addendum identifying the new Criteria.
6. Addenda. The Bidder shall not rely on oral information provided at any pre-Bid meetings or during site visits. Verbal statements made by representatives of the Port are for informational purposes only. Any interpretation, correction, or change of the Bidding Documents will be made solely by written Addendum. Interpretations, corrections, or changes of the Bidding Documents made in any manner other than by written Addendum, including but not limited to, oral statements will not be binding, and Bidders shall not rely upon such statements, interpretations, corrections, or changes. The Port is not responsible for explanations or interpretations of the Bidding Documents other than in a written Addendum.
7. Site Visits. Any site visits are provided as a courtesy to potential Bidders to assist them in becoming familiar with the Project site conditions. However, only the Bidding Documents, including any issued Addenda, may be relied upon by Bidders.
8. Singular References. Reference in the singular to an article, device, or piece of equipment shall include as many of such articles, devices, or pieces as are indicated in the Contract Documents or as are required to complete the installation.
9. Utilities and Runs. The Bidder should assume that the exact locations of any underground or hidden utilities, underground fuel tanks, and plumbing and electrical runs may be somewhat different from any location indicated in the surveys or Contract Documents.

C. SUBSTITUTIONS

1. For substitutions during bidding, refer to Section 00 26 00 – Substitution Procedures.

D. ADDENDA

1. Distribution. All Addenda will be written and will be made available on the Port's website or any other source specified by the Port for the Project.
2. Copies. Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.
3. Verification and Acknowledgment of Receipt. Prior to submitting a Bid, each Bidder shall ascertain that it has received all Addenda issued. Each Bidder shall acknowledge its receipt and consideration of all Addenda in its Bid.

1.04 BIDDING PROCEDURE

A. FORM AND STYLE OF BIDS

1. Form. Bids (including required attachments) shall be submitted on forms identical to the Bid Form included with the Bidding Documents. No oral, email, or telephonic responses or modifications will be considered.
2. Entries on the Bid Form. All blanks on the Bid Form shall be filled in by typewriter, printer, or manually in ink.

3. Figures. All sums shall be expressed in figures, not words. Portions of the Bid Form may require the addition or multiplication of component bids to a total or the identification of component amounts within a total. In case of discrepancy between unit prices listed and their sum(s), the unit prices listed shall govern (rather than the sum).
4. Initial Changes. Any interlineation, alteration, or erasure shall be initialed by an authorized representative of the Bidder.
5. Bid Breakdown. The Bid Form may contain, for the Port's accounting purposes only, a breakdown of some or all of the components included in the Base Bid.
 - a. For lump-sum Bids, the total Contract Sum shall be submitted.
 - b. For unit-price Bids, a price shall be submitted for each item of the Work, an extension thereof, and, if requested, the total Contract Sum.
6. Alternates. All Alternates should be Bid. The Port reserves the right, but is not obligated, to reject any Bid on which all requested Alternates are not Bid. If no change in the Base Bid is required for an Alternate, enter "Zero" or "0." If there is no entry, the Bidder will be presumed to have made no offer to perform the Alternate. If it is not otherwise clear from the Bid or the nature of the Alternate, it will be presumed that the amount listed for an Alternate is additive rather than deductive.
7. Schedule of Unit Prices. All Unit Prices under this schedule shall be bid. The Port reserves the right, but is not obligated, to reject any Bid on which all requested Schedule of Unit Prices are not Bid.
8. No Conditions. The Bidder shall make no conditions or stipulations on the Bid Form, nor qualify its Bid in any manner.
9. Identity of Bidder. The Bidder shall include in the specified location on the Bid Form, the legal name of the Bidder and, if requested, a description of the Bidder as a sole proprietor, a partnership, a joint venture, a corporation, or another described form of legal entity. The Bid shall be signed by the person or persons legally authorized to bind the Bidder to a contract. The Port verifies signature authority on the Labor and Industries website <https://fortress.wa.gov/lni/bbip/Search.aspx> under the contractor registration business owner information. If the business owner information is not current, the Bidder shall show proof of authority to sign at the request of the Port. A Bid submitted by an agent shall have a current power of attorney attached certifying the agent's authority to bind the Bidder
10. Bid Amounts Do Not Include Sales Tax. The Work to be performed constitutes a "retail sale" as this term is defined in RCW 82.04.050. Thus, the Base Bid amount shall include in the sum stated all taxes imposed by law, EXCEPT WASHINGTON STATE AND LOCAL SALES TAX due on the Base Bid. The engaged Contractor will pay retail sales tax on all consumables used during the performance of the Work and on all items that are not incorporated into the final Work; this tax shall be included in the Base Bid price and in any other prices set forth on the Bid Form. The Port will pay state and local retail sales tax due on each progress payment and final payment to the engaged Contractor for transmittal by the Contractor to the Washington State Department of Revenue or to the applicable local government.

B. POTENTIAL LISTING OF SUB-BIDDERS (SUBCONTRACTORS)

1. Procedure. On projects equal to or greater than \$1,000,000, the Bid Form includes a requirement that certain Sub-Bidders be listed, in which case the Bidder must complete the required list. In these circumstances, and regardless of the anticipated cost of the Project, the Bidder must name the Sub-Bidder or Sub-Bidders with whom the Bidder, if awarded the Contract, will subcontract directly (i.e., not lower-tier Sub-Bidders) for performance of the Work of:
 - a. HVAC (heating, ventilation, and air conditioning) Work;
 - b. Plumbing Work as described in RCW 18.106;
 - c. Electrical Work as described in RCW 19.28; and
 - d. Any other categories of Work listed on the Sub-Bidder listing form and/or Bid Form.
2. Self-Performance. If the Bidder intends to self-perform any of these categories of Work, it must name itself for each such category of Work.
3. Multiple Entries. The Bidder shall not list more than one (1) entity for a particular category of Work identified, unless a Sub-Bidder will vary based on an Alternate Bid, in which case the Bidder shall identify the Sub-Bidder to be used for the Alternate and the affected portion of the Work.
4. Failure to Submit. In accordance with RCW 39.30.060, failure of a Bidder to submit, as part of the Bid, the names of such proposed HVAC, plumbing, and electrical Sub-Bidders, or to name itself to perform such Work, or the naming of two (2) or more Sub-Bidders to perform the same Work, shall render the Bidder's Bid non-responsive and; therefore, void.
5. Requirement to Subcontract. The Bidder, if Awarded the Contract, will subcontract with the listed Sub-Bidders for performance of the portion of the Work designated on the Bid Form, subject to the provisions of the Contract for Construction and RCW 39.30.060. The Bidder shall not substitute a listed Sub-Bidder in furtherance of bid shopping or bid peddling.
6. Sub-Bidder Qualification. Listed Sub-Bidders may be required to provide evidence of their qualifications, including a statement of experience and references, prior to Award, or at any time during the Contract Time. Such information shall be provided within twenty-four (24) hours of request. This evidence shall demonstrate that the Sub-Bidder meets or exceeds all requirements for experience, qualifications, manufacturer's certifications, or any other requirements specified in any of the technical sections of the Contract Documents for which the Sub-Bidder proposes to perform Work.
7. Replacement. If a listed Sub-Bidder fails to provide adequate evidence of qualifications, is unable to comply with any bonding requirements of the Bidding Documents or with other requirements of the Contract or Bidding Documents, is not properly licensed, or fails to meet the Responsibility Criteria of the Bidding Documents, the Port may require the Bidder to replace the Sub-Bidder with another subcontractor reasonably acceptable to the Port at no change in the Contract Sum or Contract Time.
8. Sub-Bidder Standards. Sub-Bidders shall meet contractual and technical qualification standards, and provide specialized certification, licensing, and/or payment and performance bonding, if required.

9. MWBE, Veteran-owned, and small business participation encouraged. The Port's policy is to encourage the Contractor to solicit and document participation, and to provide and promote the maximum lawful, practicable opportunity for increased participation, by MWBE firms certified by the Office of Minority and Women's Business Enterprises (OMWBE), Veteran-owned businesses (defined in RCW 43.60.010, and Small, Mini and Micro business enterprises (defined in RCW 39.26.010).

C. BID SECURITY

1. Purpose and Procedure. Each Bid shall be accompanied by Bid security payable to the Port in the form required by the Bidding Documents and equal to five (5) percent of the Base Bid only (i.e., not including any Alternates or Unit Prices). The Bid security constitutes a pledge by the Bidder to the Port that the Bidder will enter into the Contract with the Port in the form provided, in a timely manner, and on the terms stated in its Bid, and will furnish in a timely manner, the payment and performance bonds, certificates of insurance, and all other documents required in the Contract Documents. Should the Bidder fail or refuse to enter into the Contract or fail to furnish such documents, the amount of the Bid security shall be forfeited to the Port as liquidated damages, not as a penalty. By submitting a Bid, each Bidder represents and agrees that the Bid security, if forfeited, is a reasonable prediction on the Bid Date of future damages to the Port. Failure of the Bidder to provide Bid Security as required shall render the bid non-responsive.
2. Form. The Bid security shall be in the form of a certified or bank cashier's check payable to the Port or a Bid bond executed by a bonding company reasonably acceptable to the Port, licensed in the State of Washington, registered with the Washington State Insurance Commissioner, possess an A.M. Best rating of "A-," Fiscal Size Category (FSC) six (6) or better, and be authorized by the U.S. Department of the Treasury. The Bid security shall be signed by the person or persons legally authorized to bind the Bidder. Bid bonds shall be submitted using the form included with the Bidding Documents.
3. Retaining Bid Security. The Port will have the right to retain the Bid security of Bidders to whom an Award is being considered until the earliest of either: (a) mutual execution of the Contract, and the Port's receipt of payment and performance bonds, (b) the specified time has elapsed so that Bids may be withdrawn, or (c) when all Bids have been rejected.
4. Return of Bid Security. Within sixty (60) days after the Bid Date, the Port will release or return Bid securities to Bidders whose Bids are not to be further considered in awarding the Contract. Bid securities of the three apparent low Bidders will be held until the Contract has been finally executed, after which all un-forfeited Bid securities will be returned. Bid security may be returned in the form provided or by separate payment.

D. SUBMISSION OF BIDS

1. Procedure. The Bid, the Bid security, and other documents required to be submitted with the Bid, shall be enclosed in a sealed envelope identified with the Project name and number and the Bidder's name and address. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face of the mailing envelope.
 - a. If a Bid is mailed, it shall be addressed to the Port of Tacoma, Contracts Department, 1 Sitcum Plaza, Tacoma, WA 98421.
 - b. If a Bid is delivered, it shall be delivered to the Front Reception Desk, Port of Tacoma, 1 Sitcum Plaza, Tacoma, WA 98421.

- c. The time stamp clock at the Front Reception Desk at 1 Sitcum Plaza is the Port's official clock.
2. Deposit. Bids shall be deposited at the designated location prior to the Bid Date indicated in the Advertisement or Invitation to Bid, or any extension thereof made by Addendum. Bids received after the Bid Date and time specified shall be returned without consideration at the discretion of the Port, or rejected at the time of receipt.
3. Delivery. The Bidder assumes full responsibility for timely delivery at the location designated for receipt of Bids.
4. Form. Oral, facsimile, telephonic, electronic, or email Bids are invalid and will not be considered.

E. MODIFICATION OR WITHDRAWAL OF BID

1. After the Bid Date. A Bid may not be modified, withdrawn, or canceled by the Bidder during a ninety (90) day period following the Bid Date, and each Bidder so agrees by virtue of submitting its Bid.
2. Before the Bid Date. Prior to the Bid Date, any Bid submitted may be modified or withdrawn only by notice to the party receiving Bids at the place designated for receipt of Bids. The notice shall be in writing, with the signature of the Bidder, and shall be worded so as not to reveal the amount of the original Bid. Email notice will not be accepted. It shall be the Bidder's sole responsibility to verify that the notice has been received by the Port in time to be withdrawn before the Bid opening.
3. Resubmittal. Withdrawn Bids may be resubmitted up to the time designated for the receipt of Bids, provided that they are then fully in conformance with these Instructions to Bidders.
4. Bid Security with Resubmission. Bid security shall be in an amount sufficient for the Bid as modified or resubmitted.

F. COMMUNICATIONS

Communications from a Bidder related to these Instructions to Bidders must be in writing to the Procurement Department through the Procurement and Question Submission Portal (Portal link is accessible via this specific procurements website. See left side of page.) A direct link is also available here: [Procurement and Question Portal Link](#). Communications, including but not limited to, notices and requests by Sub-Bidders shall be made through the Bidder and not directly by a Sub-Bidder to the Port. No oral responses will be binding by the Port.

Instructions for utilizing the portal can be found here: [Procurement and Question Submission Portal Instructions](#).

1.05 CONSIDERATION OF BIDS

- A. OPENING OF BIDS. Unless stated otherwise in the Advertisement or Invitation to Bid or an Addendum, the properly identified Bids received on time will be opened publicly and will be read aloud. An abstract of the Base Bids and any Alternate Bids will promptly (and generally within twenty-four (24) hours) be made available to Bidders and other interested parties.
- B. REJECTION OF BIDS. The Port shall have the right, but not the obligation, to reject any or all Bids for any reason, or for no reason, to reject a Bid not accompanied by the required Bid security, or to reject a Bid which is in any way incomplete or irregular.

- C. BIDDING MISTAKES. The Port will not be obligated to consider notice of claimed Bid mistakes received more than twenty-four (24) hours after the Bid Date. In accordance with Washington law, a low Bidder that claims error and fails to enter into the Contract is prohibited from Bidding on the Project if a subsequent call for Bids is made for the Project.
- D. ACCEPTANCE OF BID (AWARD)
1. Intent to Accept. The Port intends, but is not bound, to Award a Contract to the Responsible Bidder with the lowest responsive Bid, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed the funds available. The Port has the right to waive any informality or irregularity in any Bid(s) received and to accept the Bid which, in its judgment, is in its own best interests.
 2. Alternates. The Port shall have the right to accept Alternates in any order or combination, unless otherwise specifically provided in the Contract or Bidding Documents, and to determine the low Bidder on the basis of the sum of the Base Bid and the Alternates (if any) accepted. Failure to submit Bids on all Alternates may be cause for rejecting the Bidder's entire Bid. The Port retains the right to accept Alternate Bid items at the price Bid within ninety (90) days after the Contract is executed.
 3. Requirements for Award. Before the Award, the lowest responsive Bidder must be deemed Responsible by the Port and must satisfy all Award Requirements.
- E. BID PROTEST PROCEDURES
1. Procedure. A Bidder protesting, for any reason, the Bidding Documents, a Bidding procedure, the Port's objection to a Bidder or a person or entity proposed by the Bidder, including but not limited to, a finding of non-Responsibility, the Award of the Contract or any other aspect arising from, or relating in any way to, the Bidding, shall cause a written protest to be filed with the Port within two (2) business days of the event giving rise to the protest. (Intermediate Saturdays, Sundays, and legal holidays are not counted as business days.) The written protest shall include the name of the protesting Bidder, the bid solicitation number and title under which the protest is submitted, a detailed description of the specific factual and legal grounds for the protest, copies of all supporting documents, evidence that the apparent low bidder has been given notice of the protest, and the specific relief requested. The written protest shall be sent by email to procurement@portoftacoma.com.
 2. Consideration. Upon receipt of the written protest, the Port will consider the protest. The Port may, within three (3) business days of the Port's receipt of the protest, provide any other affected Bidder(s) the opportunity to respond in writing to the protest. If the protest is not resolved by mutual agreement of the protesting Bidder and the Port, the Contracts Director of the Port, or his or her designee, will review the issues and promptly furnish a final and binding written decision to the protesting Bidder, and any other affected Bidder(s), within six (6) business days of the Port's receipt of the protest. (If more than one (1) protest is filed, the Port's decision will be provided within six (6) business days of the Port's receipt of the last protest.) If no reply is received from the Port during the six (6) business-day period, the protest will be deemed rejected.
 3. Waiver. Failure to comply with these protest procedures will render a protest waived.
 4. Condition Precedent. Timely and proper compliance with, and exhaustion of, these protest procedures shall be a condition precedent to any otherwise permissible judicial consideration of a protest.

1.06 POST BID INFORMATION

A. THE LOWEST RESPONSIVE BIDDER SHALL:

1. Responsibility Detail Form. Within 24 hours of the Low Responsive Bidder Selection Notification, the apparent low Bidder shall submit to the Port the Responsibility Detail Form and other required documents (Section 00 45 13) executed by an authorized company officer. As requested from the Port, the low responsive Bidder shall provide written confirmation that the person signing the Bid on behalf of the Bidder was duly authorized at the time of bid, a detailed breakdown of the Bid in a form acceptable to the Port, and other information required by the Port.
2. The apparent low Bidder shall submit to the Port upon request:
 - a. Additional information regarding the use of the Bidder's own forces and the use of subcontractors and suppliers;
 - b. The names of the persons or entities (including a designation of the Work to be performed with the Bidder's own forces, and the names of those who are to furnish materials or equipment fabricated to a special design) proposed for each of the principal portions of the Work (i.e., either a listed Sub-Bidder or a Sub-Bidder performing Work valued at least ten (10) percent of the Base Bid), consistent with the listing required with the Bid; and
 - c. The proprietary names and the suppliers of the principal items or systems of materials and equipment proposed for the Work.
3. Failure to provide any of the above information in a timely manner will constitute an event of breach permitting forfeiture of the Bid security.
4. Bidder Responsibility. The Bidder will be required to establish, to the satisfaction of the Port, the reliability and responsibility of itself and the persons or entities proposed to furnish and perform the Work described in the Bidding Documents. If requested, the Bidder shall meet with the Port to discuss the Bid, including any pricing, the Bid components, and any assumptions made by the Bidder.
5. Sub-Bidder Responsibility. The Responsibility of the Bidder may be judged in part by the Responsibility of Sub-Bidders. Bidders must verify the Responsibility Criteria for each first-tier Sub-Bidder. A Sub-Bidder of any tier that hires other Sub-Bidders must verify Responsibility Criteria for each of its lower-tier Sub-Bidders. The verification shall include a representation that each Sub-Bidder, at the time of subcontract execution, is Responsible and possesses required licenses.
6. Objection. Prior to an Award of the Contract, the Port will notify the Bidder in writing if the Port, after due investigation, has reasonable objection to the Bidder or a person or entity proposed by the Bidder. Upon receiving such objection, the Bidder may, at Bidder's option: (a) withdraw their Bid, (b) submit an acceptable substitute person or entity with no change in the Contract Time and no adjustment in the Base Bid or any Alternate Bid, even if there is a cost to the Bidder occasioned by such substitution, or (c) file a protest in accordance with the Bidding Documents.
7. Change. Persons and entities proposed by the Bidder to whom the Port has made no reasonable objection must be used on the Work for which they were proposed and shall not be changed, except with the written consent of the Port.

8. Right to Terminate. The Bidder's representations concerning its qualifications will be construed as a covenant under the Contract. If a Bidder makes a material misrepresentation on a Qualification Statement, the Port has the right to terminate the Contract for cause and may then pursue any remedies that exist under the Contract or that are otherwise available.

B. INFORMATION FROM OTHER BIDDERS: All other Bidders designated by the Port as under consideration for Award of a Contract shall also provide a properly executed Qualification Statement, if so requested by the Port.

1.07 PERFORMANCE BOND, LABOR AND MATERIAL PAYMENT BOND, AND INSURANCE

A. BOND REQUIREMENTS. Within ten (10) days after the Port's Notice of Award of the Contract, the successful Bidder shall obtain and furnish statutory bonds pursuant to RCW 39.08 covering the faithful performance of the Contract and the payment of all obligations arising thereunder in the form and amount prescribed in the Contract Documents. Bonds shall be written for one hundred (100) percent of the contract award amount, plus Washington State Sales Tax and Change Orders. The cost of such bonds shall be included in the Base Bid.

1. On contracts of one hundred fifty thousand dollars (\$150,000) or less, at the option of the Contractor or the General Contractor/Construction Manager as defined in RCW 39.10.210, the Port may, in lieu of the bond, retain ten (10) percent of the contract amount for a period of thirty days after date of final acceptance, or until receipt of all necessary releases from the department of revenue, the employment security department, and the department of labor and industries and settlement of any liens filed under RCW 60.28, whichever is later. The recovery of unpaid wages and benefits must be the first priority for any actions filed against retainage held by a state agency or authorized local government.

2. On contracts of one hundred fifty thousand dollars (\$150,000) or less, the Port may accept a full payment and performance bond from an individual surety or sureties.

B. TIME OF DELIVERY AND FORM OF BONDS. The successful Bidder shall deliver an original copy of the required bonds to the Port, 1 Sitcum Plaza, Tacoma, WA 98421, within the time specified in the Contract Documents.

C. INSURANCE. The successful Bidder shall deliver a certificate of insurance from the Bidder's insurance company that meets or exceeds all requirements of the Contract Documents.

D. GOVERNMENTAL REQUIREMENTS. Notwithstanding anything in the Bidding or Contract Documents to the contrary, the Bidder shall provide all bonding, insurance, and permit documentation as required by governmental authorities having jurisdiction for any portions of the Project.

1.08 FORM OF AGREEMENT

A. FORM TO BE USED. The Contract for the Work will be written on the form(s) contained in the Bidding Documents, including any General, Supplemental, or Special Conditions, and the other Contract Documents included with the project manual.

B. CONFLICTS. In case of conflict between the provisions of these Instructions and any other Bidding Document, these Instructions shall govern. In case of conflict between the provisions of the Bidding Documents and the Contract Documents, the Contract Documents shall govern.

C. CONTRACT DELIVERY. Within ten (10) days after Notice of Award, the Bidder shall submit a signed Contract to the Port in the form tendered to the Bidder and without modification.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes administrative and procedural requirements for substitutions.

1.02 DEFINITIONS/CLARIFICATIONS

- A. Substitutions. Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
- B. The Contract Documents include performance specifications for products and equipment which meet Project requirements. In those cases where a representative item or manufacturer is named in the specification, it is provided for the sole purpose of identifying a product meeting the required functional performance, and where the words "or equal" are used, a substitution request as further described, is not required.
- C. Where non-competitive or sole source products or manufacturers are explicitly specified with the words "or approved equal," or "Engineer approved equal," or "as approved by the Engineer" are used, they shall be taken to mean "or approved equal." In these cases a substitution request as further described in this Section, is required.

1.03 SUBMITTALS

- A. Substitution Request Form. Use copy of form located at the end of this Section.
- B. Pre-Bid Substitution Requests. Submit one (1) PDF of the Substitution Request Form along with all supporting documentation for consideration of each request. Identify product, fabrication, or installation method to be replaced. Include Drawing numbers and titles. Substitution requests prior to the Bid Date may originate directly from a prime Bidder, or from a prospective Sub-Bidder.
 - 1. Documentation. Show compliance with requirements for substitutions with the following, as applicable:
 - a. Statement indicating why specified product, fabrication, or installation cannot be provided.
 - b. Coordination information, including a list of changes or modifications needed to other parts of the Work that will be necessary to accommodate proposed substitution.
 - c. Product Data, including drawings and descriptions of products, fabrication, and installation procedures.
 - d. Samples, where applicable or requested.
 - e. Certificates and qualification data, where applicable or requested.
 - f. Research reports evidencing compliance with building code in effect for the Project.
 - 2. Engineer's Action. Engineer will review substitution requests if received through the Procurement and Question Submission Portal at least seven (7) days prior to the Bid Date (Portal link is accessible via this specific procurements website. See left side of page.) A direct link is also available here: [Procurement and Question Portal Link](#). No oral responses will be binding by the Port.
 - a. Forms of Acceptance. Substitution requests will be formally accepted via written addendum prior to the Bid Date. Bidders shall not rely upon approvals made in any other manner.

- b. Use product originally specified if Engineer does not issue a decision on use of a proposed substitution within time allocated.
- c. The Port's decision of approval or disapproval of a proposed substitution shall be final.

Instructions for utilizing the portal can be found here: [Procurement and Question Submission Portal Instructions](#).

- C. Post-Award Substitution Requests must be submitted by the Contractor and not a Subcontractor nor Supplier.
 - 1. Documentation. Show compliance with requirements for substitutions with the following, as applicable:
 - a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
 - b. Coordination information, including a list of changes or modifications needed to other parts of the Work that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable specification Section. Significant qualities may include, but are not limited to, attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. Certificates and qualification data, where applicable or requested.
 - g. List of similar installations for completed projects with project names and addresses. Also provide names and addresses of the applicable architect, engineer, and owner.
 - h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - i. Research reports evidencing compliance with building code in effect for the Project.
 - j. Comparison of the approved Baseline Project Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - k. Cost information, including a proposal of change, if any, in the Contract Sum.
 - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
 - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

2. Engineer's Action. If necessary, Engineer will request additional information or documentation for evaluation within seven (7) calendar days of receipt of a request for substitution. Engineer will notify Contractor through Port of acceptance or rejection of proposed substitution within fifteen (15) calendar days of receipt of request, or seven (7) calendar days of receipt of additional information or documentation, whichever is later.
 - a. Forms of Acceptance. Change Order or Minor Change in Work.
 - b. Use product originally specified if Engineer does not issue a decision on use of a proposed substitution within time allocated.
3. Substitutions for Cause. Submit requests for substitution immediately upon discovery of need for change, but not later than fourteen (14) days prior to date required for preparation and review of related submittals.
 - a. Conditions. Engineer will consider Contractor's request for substitution when the following conditions are satisfied:
 - 1) Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - 2) Requested substitution will not adversely affect the Baseline Project Schedule.
 - 3) Requested substitution has received necessary approvals of authorities having jurisdiction.
 - 4) Requested substitution is compatible with other portions of the Work.
 - 5) Requested substitution has been coordinated with other portions of the Work.
 - 6) Requested substitution provides specified warranty.
 - 7) If requested substitution involves more than one (1) contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
4. Substitutions for Convenience. Engineer will consider Contractor's requests for substitution if received within fourteen (14) days after the Notice of Award.
 - a. Conditions. Engineer will consider Contractor's request for substitution when the following conditions are satisfied:
 - 1) Requested substitution offers Port a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Port must assume. Port's additional responsibilities may include compensation to Engineer for redesign and evaluation services, increased cost of other construction by Port, and similar considerations.
 - 2) Requested substitution does not require extensive revisions to the Contract Documents.
 - 3) Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - 4) Requested substitution will not adversely affect the Baseline Project Schedule.
 - 5) Requested substitution has received necessary approvals of authorities having jurisdiction.

- 6) Requested substitution is compatible with other portions of the Work.
- 7) Requested substitution has been coordinated with other portions of the Work.
- 8) Requested substitution provides specified warranty.
- 9) If requested substitution involves more than one (1) contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

D. Substitutions will not be considered when:

1. Indicated or implied on shop drawings or product data submittals without formal request submitted in accordance with this Section.
2. Acceptance will require substantial revision of Contract Documents or other items of the Work.
3. Submittal for substitution request does not include point-by-point comparison of proposed substitution with specified product.

1.04 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

PROJECT TITLE: Port Parcel 114 Site Cleanup Interim Action Excavation **PROJECT NO.:** 92839

SUBMITTED BY: _____ CONTRACT NO.: POT-PA-000000343

PRIME/SUB/SUPPLIER: _____ DATE: _____

Specification Title: _____ Section No.: _____

Description: _____ Paragraph: _____

_____ Page No.: _____

Proposed Substitution: _____

Trade Name: _____ Model No.: _____

Manufacturer: _____

Address: _____ Phone No.: _____

Installer: _____

Address: _____ Phone No.: _____

Differences between proposed substitution and specified product: _____

Point-by-Point comparative data attached - REQUIRED

Reason for not providing specified item: _____

Similar Installation:

Project: _____ A/E: _____

Address: _____

Owner: _____ Date Installed: _____

Proposed substitution affects other parts of Work: No Yes; explain _____

Supporting Data Attached:

Drawings Product Data Samples Tests Reports Other: _____

Applicable to Substitution Requests During Construction:

Proposed to Port for accepting substitution: \$ _____

Proposed substitution changes Contract Time: No Yes [Add] [Deduct] _____ # days.

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay Baseline Project Schedule.
- Cost data as stated above is complete. Claims for additional costs related to accepted substitution which may subsequently become apparent are to be waived.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.
- Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

Submitted By: _____
Signed By: _____ Firm: _____
Address: _____

Telephone: _____ Email: _____
Attachments: _____

A/E's REVIEW AND RECOMMENDATION

- Approved Substitution
- Approved Substitution as Noted
- Reject Substitution - Use specified materials.
- Substitution Request received too late - Use specified materials.

Signed by: _____ Date: _____

ENGINEER'S REVIEW AND ACTION

- Substitution Approved - Make submittals in accordance with this Specification Section. If during construction, prepare Change Order.
- Substitution Approved as Noted - Make submittals in accordance with this Specification Section. If during construction, prepare Change Order.
- Substitution Rejected - Use specified materials.
- Substitution Request received too late - Use specified materials.

Signed by: _____ Date: _____

END OF SECTION

PART 1 - GENERAL

1.01 EXISTING CONDITIONS

- A. Information relating to existing surface and subsurface conditions is available in Appendix A.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section provides the notification required for disclosure of lead-containing or other hazardous materials.

1.02 HAZARDOUS MATERIALS NOTICE

- A. The contractor is notified that certain portions of the Work area are known to contain petroleum hydrocarbons (TPH), high potential of hydrogen (pH) concentrations in soil and ground water, and other contamination as detailed in the Site Subsurface Conditions report from June 19th, 2025, attached in Appendix A.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

BIDDER'S NAME: _____

PROJECT TITLE: **PORT PARCEL 114 SITE CLEANUP INTERIM ACTION EXCAVATION**

The undersigned Bidder declares that it has read the Contract Documents (including documents provided by reference), understands the conditions under which the Work will be performed, has examined the Project site, and has determined for itself all situations affecting the Work herein Bid upon. Bidder proposes and agrees, if this Bid is accepted, to provide at Bidder's own expense, all labor, machinery, tools, materials, etc., including all Work incidental to, or described or implied as incidental to such items, according to the Contract Documents, and that the Bidder will complete the Work within the time stated, and that Bidder will accept in full the lump sum or unit price(s) set forth below:

ITEM NO.	DESCRIPTION OF ITEM	QTY	UOM	UNIT PRICE	EXTENDED PRICE (QTY. x UNIT PRICE)
1	Mobilization and Demobilization	1	LS		
2	Project Administration	1	LS		
3	Clear and Grub Stormwater Ditch	1	LS		
4	Excavate, Handle, and Dispose of Contaminated Material	19,710	TONS		
5	Amend Soils at Base of Boiler House Excavation	5,000	SF		
6	Furnish, Amend, and Place Amended Gravel Borrow Backfill in Boiler House Excavation	1,600	TONS		
7	Furnish and Place Gravel Borrow Backfill	14,650	TONS		
8	Water Management System	1	LS		
9	Import and Place Compost Amended Topsoil 6" Depth	1,800	CY		
10	Seed / Vegetation Placement	10,800	SY		
11	All other Work	1	LS		

ALT. NO.	ADDITIVE ALTERNATE ITEM DESCRIPTION	QTY	UOM	UNIT PRICE	EXTENDED PRICE (QTY. x UNIT PRICE)
ALT-1	Excavation and Gravel Borrow Placement Work in Area on Parcel 117	1	LS		

BASE BID AND ADDITIVE ALTERNATE BID SUBTOTAL AMOUNT	
10.3% WASHINGTON STATE SALES TAX (WSST) ON BASE BID AND ADDITIVE ALTERNATE BID SUBTOTAL	
BID TOTAL (WITH WSST)	

Note: Show prices in figures only.

Evaluation of Bids. In accordance with the provisions of the Contract Documents, Bids will be evaluated to determine the lowest Base Bid and Additive Alternate Subtotal offered by a responsible Bidder submitting a responsive Bid.

The apparent low bid shall be the lowest sum of the base bid and additive alternate. The Port reserves the right to award the contract with or without the additive alternate. The Additive alternate work not immediately awarded may be awarded within 90 days after bid opening.

Schedule of Unit Prices. The unit prices are proposed to apply only in the event of additions to, or deletions from, the work required and ordered. All prices shall include complete installation without Washington State Sales Tax. The bidder shall propose a price for each item; failure to propose a price for each item may render the bid non-responsive. The Port reserves the right to accept or reject the unit prices proposed.

Trench Excavation Safety Provision. If the bid amount contains work which requires trenching exceeding a depth of four (4) feet, all costs for trench safety shall be included in the Base Bid and indicated below for adequate trench safety systems in compliance with RCW 39.04 and WAC 296-155-650. Bidder shall include a lump sum amount, excluding Washington State Sales Tax. If trench excavation safety provisions do not pertain to the Work, the Bidder should enter "N.A." or "Not Applicable" in the blank below.

Trench Excavation Safety: _____ (Total in Written Figures Only)

Principal Subcontractors/Suppliers. For Bids greater than one million (\$1,000,000) dollars, the Bidder shall list below the name of each subcontractor or supplier to whom the Bidder proposes to subcontract the portions of the work listed below, or name itself for the work, in accordance with RCW 39.30.060.

Work to be preformed	License Number	Name of Firm
HVAC (Heating, Ventilation, and Air Conditioning) Work		
Plumbing Work		

Electrical Work		
Structural Steel Installation		
Rebar Installation		

Non-Collusion Representation. The Bidder declares under penalty of perjury that the Bid submitted is genuine and not a sham or collusive bid, or made in the interest or on behalf of any person or firm not therein named; and further represents that the Bidder has not directly or indirectly induced or solicited any other bidder to submit a sham bid, or encouraged any other person or corporation to refrain from bidding; and that the Bidder has not in any manner sought by collusion to secure to the Bidder an advantage over any other bidder or bidders.

RCW 39.04.350 Certification. The Bidder represents and certifies, under penalty of perjury, that within the three- (3-) year period immediately preceding the Bid Date, the Bidder has not been determined by a final and binding citation and notice of assessment issued by the Department of Labor and Industries, nor through a civil judgment entered by a court of limited or general jurisdiction, to have willfully violated, as defined in RCW 49.48.082, any provision of Chapters 49.46, 49.48, nor 49.52 RCW.

Addenda. Bidder acknowledges receipt and acceptance of all Addenda through No. ____ (Identify Last Addenda By Number)

Bid Security. A certified check, cashier's check, or other obligation of a bank, or a bid bond in substantially the form set forth in Section 00 43 13, Bid Security Form for at least five (5) percent of the Base Bid Subtotal, shall be submitted with this Bid.

Apprenticeship Requirements. For Bids greater than one million (\$1,000,000) dollars, the apprentice labor hours required for this project are fifteen (15) percent of the total labor hours. The Bidder agrees to utilize this level of apprentice participation.

 Name of Firm

 Date

 Signature

 By Title

 Mailing Address

 City, State Zip Code

 Telephone Number

 Email Address

 WA State Contractor's License No.

 Employment Security Department No.

Identification of Bidder as a sole proprietor, a partnership, a joint venture, a corporation, or another described form of legal entity

END OF SECTION

KNOW ALL MEN BY THESE PRESENTS:

That we, _____, as Principal, and _____, as Surety, are held and firmly bound unto the PORT OF TACOMA as Obligee, in the penal sum of _____ Dollars, for the payment of which the Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigned, jointly and severally, by these present.

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 the 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__

BY _____
PRINCIPAL

BY _____
SURETY

AGENT AND ADDRESS

Note: Bidder may submit Surety's bid bond form, provided it is similar in substance, made out in the name of the Port of Tacoma, and that the agent's name and address appear as specified. Bonds containing riders limiting responsibility for toxic waste or limiting the term of responsibility will be rejected.

END OF SECTION

THIS IS NOT TO BE SUBMITTED WITH A BID.

THE LOW RESPONSIVE BIDDER SHALL BE REQUIRED TO COMPLETE THIS RESPONSIBILITY DETAIL FORM AS SPECIFIED IN SECTION 00 21 00 - INSTRUCTIONS TO BIDDERS. **THIS COMPLETED RESPONSIBILITY DETAIL FORM SHALL BE SUBMITTED ELECTRONICALLY (PDF) VIA EMAIL TO THE CONTACT(S) IDENTIFIED IN THE LOW RESPONSIVE BIDDER SELECTION NOTIFICATION.**

BIDDER'S COMPANY NAME: _____

For the below Mandatory Bidder Responsibility Criteria, please mark the appropriate choice.

1.01 MANDATORY BIDDER RESPONSIBILITY CRITERIA

A. The Bidder shall meet the following mandatory responsibility criteria as described in RCW 39.04.350(1). The Bidder shall be rejected as not responsible if any answer to questions 1 through 5 is "No" or any answer to questions 6 through 8 is "Yes."

1. Does the Bidder have a Certificate of Registration in compliance with RCW 18.27?
 Yes No
2. Does the Bidder have a current Washington State Unified Business Identifier number?
 Yes No
3. Does the Bidder have Industrial Insurance Coverage for the Bidder's employees working in Washington State as required in RCW 51?
 Yes No
4. Does the Bidder have an Employment Security Department number as required in RCW 50?

****Attach** letter dated within six (6) months of Bid Date.*

**Request a letter electronically by clicking on the following link <https://fortress.wa.gov/esd/twt/pwcinternet/> or by emailing a request to publicworks@esd.wa.gov.*

 Yes No
5. Does the Bidder have a Washington State Excise Tax Registration number as required in RCW 82?
 Yes No
6. Has the Bidder been disqualified from bidding on any public works project under RCW 39.06.010 or 39.12.065(3)?
 Yes No
7. Has the Bidder violated RCW 39.04.370 more than one (1) time as determined by the Washington State Department of Labor and Industries?
 Yes No

- 8. Has the Bidder ever been found to be out of compliance with Apprenticeship Utilization requirements of RCW 39.04.320?
 Yes No

- 9. Has the Bidder ever been found to have willfully violated, as defined in RCW 49.48.082, any provision of Chapters 49.46, 49.48, or 49.52 RCW within the three- (3-) year period immediately preceding the date of this bid solicitation?
 Yes No

- 10. Has the Bidder completed the training required by RCW 39.04.350, or is the Bidder on the list of exempt businesses maintained by the Department of Labor and Industries?
 Yes No

If any answer to questions 1 through 5 is "No" or any answer to questions 6 through 8 is "Yes" - **STOP HERE** and contact the Contract Administrator. The Bidder is not responsible for this Work. Otherwise proceed to 1.02. **Provide attached to this completed form documentation to confirm responsibility criteria.**

For remaining criteria below, check or fill-out the appropriate item. Based upon the answer provided by the Bidder, the Port may request additional information or seek further explanation. As needed, provide backup documentation for any explanations listed below.

1.02 CONTRACT AND REGULATORY HISTORY

A. The Port will evaluate whether the Bidder's contract and regulatory history demonstrates an acceptable record of past project performance and consistent responsibility. The Bidder shall answer the following questions. The Bidder may be rejected as not responsible if any answer to questions 1 through 5 below is "Yes."

- 1. Has the Bidder had a contract terminated for cause or default in the last five (5) years?
 Yes, **If YES, explain below.** No

- 2. Has the Bidder required a Surety to take over all, or a portion of, a project to cure or respond to an asserted default or material breach of contract on the part of the Bidder on any public works project in the last five (5) years?
 Yes, **If YES, explain below.** No

- 3. Have the Bidder and major Sub-Bidders been in bankruptcy, reorganization, and/or receivership on any public works project in the last five (5) years?
 Yes, **If YES, explain below.** No

4. Have the Bidder and major Sub-Bidders been disqualified by any state or local agency from being awarded and/or participating on any public works project in the last five (5) years?

- Yes, **If YES, explain below.** No

5. Are the Bidder and major Sub-Bidders currently a party to a formal dispute resolution process with the Port (i.e., a pending mediation, arbitration, or litigation)?

- Yes, **If YES, explain below.** No

1.03 ACCIDENT/INJURY EXPERIENCE

- A. The Port will evaluate the Bidder’s accident/injury Experience Modification Factor (“EMF”) from the Washington State Department of Labor and Industries to assess whether the Bidder has an acceptable safety record preventing personal injuries on projects.
- B. List the Bidder’s accident/injury EMF for the last five (5) years. An experience factor is calculated annually by the Washington State Department of Labor and Industries.

Year	Effective Year	Experience Factor
1		
2		
3		
4		
5		

If the Bidder has received an EMF of greater than 1.0 for any year, explain the cause(s) of the designation and what remedial steps were taken to correct the EMF. The Bidder may be rejected as not responsible if the Bidder’s EMF is greater than 1.0 and sufficient remedial steps have not been implemented.

1.04 WORK PERFORMED BY BIDDER

- A. The Bidder shall state the amount of the Work, as an equivalent to the Base Bid, excluding taxes, insurance, and bonding, the Bidder will execute with its own forces.

_____ %

1.05 ADDITIONAL CONTRACTOR INFORMATION

- A. As part of completing this Responsibility Detail Form, **submit the following information with the completed Responsibility Detail Form:**
 - 1. Bidder’s recent job resume, including a list of similar Environmental Remediation projects performed and contact information for the similar project owner(s), a brief description of work, start and end dates, and contract amount.
 - 2. Resumes of Bidder’s proposed project manager and job superintendent.

- B. The Bidder's failure to provide the required project information may result in a determination of the Bidder being declared non-responsible by the Port.
- C. The Bidder shall submit this completed, **SIGNED** Responsibility Detail Form electronically (PDF), with all requested backup documentation, via email to the contact(s) noted on the Low Responsive Bidder Selection Notification.
- D. The Bidder and its subcontractors to verify that its subcontractors at each tier meet the responsibility criteria as required by RCW 39.06.020 and 39.04.350.
 - 1. Bidder shall verify major subcontractors meet the responsibility criteria required. Fill out one Port of Tacoma Public Works Project Bidder Evaluation Checklist for Subcontractors for each major subcontractor and submit to the Port with this form. Backup documentation is not required to be submitted.

PROJECT: Port Parcel 114 Site Cleanup Interim Action Excavation

PROJECT NO.: 92839

CONTRACT NO.: POT-PA-000000343

Responsibility Certification Form

The Low responsive Bidder shall complete the Responsibility Detail Form, attach all documentation, and submit to the Port within twenty-four (24) hours following receipt of the Low Responsive Bidder Selection Notification. All forms shall be submitted electronically (PDF) via email to the contact(s) listed on the Selection Notice. Note, the same project may be used to demonstrate experience across multiple categories if applicable.

By completing and signing this Responsibility Detail Form, the Bidder is certifying that the information contained within the Form, the backup documentation, and any additional information requested by the Port is true and complete. The Bidder's failure to disclose the required information or the submittal of false or misleading information may result in the rejection of the Bidder's Bid, revocation of award, or contract termination.

The information provided herein is true and complete.

Signature of Authorized Representative

Date

Print Name and Title

**PORT OF TACOMA PUBLIC WORKS PROJECT BIDDER EVALUATION CHECKLIST FOR
 SUBCONTRACTORS**

PROJECT TITLE: Port Parcel 114 Site Cleanup Interim Action Excavation

BIDDER: _____

CONTRACT AND PROJECT NUMBER: POT-PA-000000343/ 92839 _____

This checklist shall be completed by the Bidder and its subcontractors to verify that its subcontractors at each tier meet the responsibility criteria as required by RCW 39.06.020 and RCW 39.04.350.

This checklist should be submitted to the Port of Tacoma Contracts Administrator within twenty-four (24) hours of request.

Document verification information or backup data is not to be submitted to the Port, this information should remain on file with the Contractor and be presented to the Port if requested at a later date.

Item No.	Item	Initials/ Comments
1.	At the time of Bid submittal, have a certificate of registration in compliance with RCW 18.27: Check the L&I site https://fortress.wa.gov/lni/bbip/ . Verify that a subcontractor has an electrical contractor license, if required by RCW 19.28, or an elevator contractor license, if required by RCW 70.87.	
2.	While reviewing registration information above, also check contractor's Employer Liability Certificate to verify workers' comp (industrial insurance) premium status – current account. Complete a "Submit Contractor Tracking Request" to be notified if the contractor fails to pay workers' comp premiums or renew their contractor registration or if their electrical contractor license is suspended or revoked within one year.	
3.	State excise tax registration number (Department of Revenue). (contractor's Washington State Unified Business Identifier and tax registration number) http://dor.wa.gov/content/doingbusiness/registermybusiness/brd/ .	
4.	Not disqualified from bidding on any public works contract under RCW 39.06.010 or RCW 39.12.065(3) . Check the Department of Labor and Industries http://www.lni.wa.gov/TradesLicensing/PrevWage/AwardingAgencies/DebarredContractors/ .	
5.	Verify subcontractors are registered with the Washington State Employment Security Department (ESD) and have an account number. Request a letter to be sent from the subcontractor electronically by clicking on the following link https://fortress.wa.gov/esd/twt/pwcinternet/ or by emailing a request to publicworks@esd.wa.gov . Include ESD#, UBI#, and business name in the email. Certificate of Coverage letter issued/dated within the last six (6) months. Document if subcontractor confirms in writing, under penalty of perjury, that it has no	

Item No.	Item	Initials/ Comments
	employees and this requirement does not apply.	

END OF SECTION

THIS AGREEMENT is made and entered into by and between the PORT OF TACOMA, a State of Washington municipal corporation, hereinafter designated as the "Port," and:

The "Contractor" is: _____ (Legal Name)

_____ (Address)

_____ (Address 2)

_____ (Phone No.)

The "Project" is: **Port Parcel 114 Site Cleanup Interim Action Excavation** _____ (Title)

92839 | POT-PA-000000343 _____ (Project/Contract No.)

1202 Taylor Way, Tacoma, WA 98401 _____ (Project Address)

The "Engineer" is: **Thais Howard, PE** _____ (Engineer)

Director of Engineering _____ (Title)

thoward@portoftacoma.com _____ (Email)

(253) 888-4718 _____ (Phone No.)

The "Contractor's Representative" is: _____ (Representative)

_____ (Title)

_____ (Email)

_____ (Phone No.)

BACKGROUND AND REPRESENTATIONS:

The Port publicly solicited bids on the Contract Documents. The Contractor submitted a Bid to the Port on the _____ day of _____, 20__ to perform the Work.

The Contractor represents that it has the personnel, experience, qualifications, capabilities, and means to accomplish the Work in strict accordance with the Contract Documents, within the Contract Time and for the Contract Price, and that it and its Subcontractors satisfy the responsibility criteria set forth in the Contract Documents, including any supplemental responsibility criteria.

The Contractor further represents that it has carefully examined, and is fully familiar with, all provisions of the Contract Documents, including any Addenda, that it has fully satisfied itself as to the nature, location, difficulty, character, quality, and quantity of the Work required by the Contract Documents and the conditions and other matters that may be encountered at or near the Project site(s), or that may affect performance of the Work or the cost or difficulty thereof, including all applicable safety and site responsibilities, and that it understands and can satisfy all scheduling and coordination requirements and interim milestones.

AGREEMENT:

The Port and the Contractor agree as follows:

1.0 CONTRACTOR TO FULLY PERFORM THE WORK

The Contractor shall fully execute and complete the entire Work for the Project described in the Contract Documents, except to the extent specifically indicated in the Agreement, the General Conditions of the Contract (as well as any Supplemental, Special, or other conditions included in the Project Manual), the Drawings, the Specifications, and all Addenda issued prior to, and all modifications issued after, execution of the Contract.

2.0 DATE OF COMMENCEMENT

The date of commencement of the Work, which is the date from which the Contract Time is measured, shall be fixed as the date of execution of the Contract.

3.0 CONTRACT TIME AND LIQUIDATED DAMAGES

The Contractor shall achieve all interim milestones as set forth in the Contract Documents and Substantial Completion of the entire Work not later than 60 calendar days from execution of the Contract, subject to adjustments of this Contract Time as provided in the Contract Documents. The Contractor shall achieve Final Completion of the entire Work within 30 calendar days of the date on which Substantial Completion is achieved.

Provisions for liquidated damages as a reasonable estimate of future loss, as of the date of this Agreement, are included in the Contract Documents. The parties agree that the stated liquidated damages are reasonable and not penalties individually nor cumulatively.

The liquidated damages for failure to achieve Substantial Completion by the required date shall be \$550 per calendar day. After the required Final Completion date, the liquidated damages for failure to achieve Final Completion shall be \$50 per calendar day.

Liquidated damages assessed by the Port will be deducted from monies due to the Contractor, or from monies that will become due to the Contractor. The liquidated damages, as specified and calculated herein, shall be levied, cumulatively if applicable, for each and every calendar day that Substantial Completion and/or Final Completion of the Work is delayed beyond the required completion dates, or the completion dates modified by the Port for extensions of the Contract Time.

4.0 CONTRACT PRICE

In accordance with the Contractor's Bid dated _____, the Port shall pay the Contractor in current funds for the Contractor's performance of the Contract, the Contract Price of _____ Dollars (\$ _____), subject to additions and deductions as provided in the Contract Documents. State and local sales tax is not included in the Contract Price, but will be due and paid by the Port with each progress payment.

5.0 ALTERNATES

6.0 INSURANCE AND BONDS

The Contractor shall purchase and maintain insurance and provide bonds as set forth in the Contract Documents.

This Agreement is entered into as of the day and year first written above:

CONTRACTOR

PORT OF TACOMA

By: _____

By: _____

Title: _____

Title: _____

Date: _____

Execution _____
Date: _____

END OF SECTION

PERFORMANCE BOND # _____

CONTRACTOR (NAME AND ADDRESS)

SURETY (NAME AND PRINCIPLE PLACE OF BUSINESS)

OWNER (NAME AND ADDRESS)

AGENT OR BROKER (FOR INFORMATION ONLY)

PORT OF TACOMA
P.O. BOX 1837
TACOMA, WA 98401-1837

KNOW ALL MEN BY THESE PRESENTS:

That _____ as Principal, hereinafter called Contractor, and _____ as Surety, hereinafter called Surety, are held and firmly bound unto the Port of Tacoma as Obligee, hereinafter called the Port, in the amount of _____ Dollars (\$ _____) for the payment whereof Contractor and Surety bind themselves, their executors, administrators, legal representatives, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS:

Contractor shall execute an agreement with the Port for Port Parcel 114 Site Cleanup Interim Action Excavation, Project No. 92839/Contract No. POT-PA-000000343, a copy of which Contract is by reference made a part hereof (the term "Contract" as used herein to include the aforesaid agreement together with all the Contract Documents, addenda, modifications, all alterations, additions thereto, deletions therefrom, and any other document or provision incorporated into the Contract) and is hereinafter referred to as the Contract.

This bond is executed and issued pursuant to the provisions of RCW 39.08.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if Contractor shall promptly and faithfully perform said Contract, then this obligation shall be null and void; otherwise, it shall remain in full force and effect.

FURTHER:

- A. Surety hereby waives notice of any alterations, change orders, modifications, or extensions of time made by the Port.
- B. Surety recognizes that the Contract includes provisions for additions, deletions, and modifications to the Work and/or Contract Time and the amounts payable to the Contractor. Subject to the limitations contained in (A) above, Surety agrees that no such addition, deletion, or modification, or any combination thereof, shall avoid or impair Surety's obligation hereunder.
- C. Whenever Contractor has been declared by the Port to be in default, and the Port has given Surety notice of the Port's determination of such default, Surety shall promptly (in no event more than fifteen (15) days following receipt of such notice) advise the Port of its intended action to:
 - 1. Remedy the default within fifteen (15) days following its advice to the Port as set forth above, or

- 2. Assume within fifteen (15) days, following its advice to the Port as set forth above, completion of the Contract in accordance with the Contract Documents and become entitled to payment of the balance of the Contract Sum, or
- 3. Pay the Port upon completion of the Contract, in cash, the cost of completion together with all other reasonable costs and expenses incurred by the Port as a result of the Contractor's default, including but not limited to, those reasonable costs and expenses incurred by the Port in its efforts to mitigate its losses, which may include, but are not limited to, attorney's fees and efforts to complete the Work prior to the Surety exercising the options available to it as set forth herein.
- D. If the Port shall commence suit and obtain judgment against the Surety for recovery hereunder, then the Surety, in addition to such judgment, shall pay all costs and attorney's fees incurred by the Port in enforcement of its rights hereunder. Venue for any action arising out of, or in connection with, this bond shall be in Pierce County, Washington.
- E. No right or action shall accrue on this bond to, or for the use of, any person or corporation other than the Port of Tacoma.

Signed and Sealed the _____ day of _____, 20____.

IMPORTANT: Surety companies executing bonds must have an A.M. Best Rating of "A-, FSC (6)" or higher, have an underwriting limitation of not less than the Contract Sum, and be authorized to transact business in the State of Washington.

SURETY

CONTRACTOR

Signature

Signature

Printed Name and Title

Printed Name and Title

Power of Attorney attached.

END OF SECTION

LABOR AND MATERIAL PAYMENT BOND # _____

CONTRACTOR (NAME AND ADDRESS)

SURETY (NAME AND PRINCIPLE PLACE OF BUSINESS)

OWNER (NAME AND ADDRESS)

AGENT OR BROKER (FOR INFORMATION ONLY)

PORT OF TACOMA
P.O. BOX 1837
TACOMA, WA 98401-1837

KNOW ALL MEN BY THESE PRESENTS:

That _____ as Principal, hereinafter called Contractor, and _____ as Surety, hereinafter called Surety, are held and firmly bound unto the Port of Tacoma as Obligee, hereinafter called the Port, and all others entitled to recovery hereunder, in the amount of _____ Dollars (\$ _____) for the payment whereof Contractor and Surety bind themselves, their executors, administrators, legal representatives, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS:

Contractor shall execute an agreement with the Port for Port Parcel 114 Site Cleanup Interim Action Excavation, Project No. 92839/Contract No. POT-PA-000000343, a copy of which Contract is by reference made a part hereof (the term "Contract" as used herein to include the aforesaid agreement together with all the Contract Documents, addenda, modifications, alterations, additions thereto, deletions therefrom, and any other document or provision incorporated into the Contract) and is hereinafter referred to as the Contract.

This bond is executed pursuant to the provisions of RCW 39.08.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if Contractor shall promptly make payment to all claimants, as hereinafter defined, for all labor and material used or reasonably required for use in the performance of the Contract and shall indemnify and save the Port harmless from all cost and damage by reason of Contractor's default, then this obligation shall be null and void; otherwise, it shall remain in full force and effect, subject to the following conditions.

- A. Surety hereby waives notice of any alterations, change orders, modifications, or extensions of time made by the Port.
- B. Surety recognizes that the Contract includes provisions for additions, deletions, and modifications to the Work and/or Contract Time and the amounts payable to the Contractor. Subject to the limitations contained in (A) above, Surety agrees that no such addition, deletion, or modification, or any combination thereof, shall avoid or impair Surety's obligation hereunder.

- C. Surety hereby agrees that every person protected under the provisions of RCW 39.08.010 who has not been paid as provided under the Contract, and pursuant to RCW 39.08.010, less any amounts withheld pursuant to statute, and less retainage withheld pursuant to RCW 60.28, after the expiration of a period of thirty (30) days after the date on which the completion of the Contract in accordance with RCW 39.08, may sue on this bond, prosecute the suit to final judgment as may be due claimant, and have execution thereon including recovery of reasonable costs and attorney's fees as provided by RCW 39.08. The Port shall not be liable for the payment of any costs or expenses of any such suit.
- D. No suit or action shall be commenced hereunder by any claimant unless claimant shall have given the written notices to the Port, and where required, the Contractor, in accordance with RCW 39.08.030.
- E. 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.
- F. 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 Port as a result of such suit. Venue for any action arising out of, or in connection with, this bond shall be in Pierce County, Washington.

Signed and Sealed the _____ day of _____, 20_____.

IMPORTANT: Surety companies executing bonds must have an A.M. Best Rating of "A-, FSC (6)" or higher, have an underwriting limitation of not less than the Contract Sum, and be authorized to transact business in the State of Washington.

SURETY

CONTRACTOR

Signature

Signature

Printed Name and Title

Printed Name and Title

Power of Attorney attached.

END OF SECTION

BOND NO.: _____

PROJECT TITLE: Port Parcel 114 Site Cleanup Interim
Action Excavation

PROJECT NO.: 92839 _____

CONTRACT NO.: POT-PA-000000343

KNOW ALL MEN BY THESE PRESENTS: That we, _____
_____ a corporation existing under and by virtue of the laws of the State of
Washington and authorized to do business in the State of Washington, as Principal, and
_____, a corporation organized and existing under the
laws of the State of _____ and authorized to transact the business of
surety in the State of Washington, as Surety, are jointly and severally held and bound unto the PORT OF
TACOMA, hereinafter called Port, as Obligee, and are similarly held and bound unto the beneficiaries of
the trust fund created by RCW 60.28 as their heirs, executors, administrators, successors, and assigns in
the penal sum of _____ (\$ _____)
plus five (5) percent of any increases in the Contract Price that have occurred or may occur, due to
change orders, increases in the quantities, or the addition of any new item of work.

WHEREAS, on the _____ day of _____, the said Principal herein executed Contract
No. POT-PA-000000343 with the Port for Port Parcel 114 Site Cleanup Interim Action Excavation,
Project No. 92839.

WHEREAS, said Contract and RCW 60.28 require the Port to withhold from the Principal the sum of five
(5) percent from monies earned by the Principal on estimates during the progress of the work, hereinafter
referred to as earned retained funds.

WHEREAS, the Principal has requested that the Port accept a bond in lieu of earned retained funds as
allowed under RCW 60.28.

NOW THEREFORE, this obligation is such that the Surety, its successors, and assigns are held and
bound unto the Port and unto all beneficiaries of the trust fund created by RCW 60.28.011(1) in the
aforesaid sum. This bond, including any proceeds therefrom, is subject to all claims and liens and in the
same manner and priority as set forth for retained percentages in RCW 60.28. The condition of this
obligation is also that if the Principal shall satisfy all payment obligations to persons who may lawfully
claim under the trust fund created pursuant to RCW 60.28, to the Port, and indemnify and hold the Port
harmless from any and all loss, costs, and damages that the Port may sustain by release of said
retainage to Principal, then this obligation shall be null and void, provided the Surety is notified by the
Port that the requirements of RCW 60.28.021 have been satisfied and the obligation is duly released by
the Port.

IT IS HEREBY DECLARED AND AGREED that the Surety shall be liable under this obligation as Principal. The Surety will not be discharged or released from liability for any act, omission, or defenses of any kind or nature that would not also discharge the Principal.

IT IS HEREBY FURTHER DECLARED AND AGREED that this obligation shall be binding upon and inure to the benefit of the Principal, the Surety, the Port, the beneficiaries of the trust fund created by RCW 60.28 and their respective heirs, executors, administrators, successors, and assigns.

IN WITNESS WHEREOF, said Principal and said Surety have caused these presents to be duly signed and sealed this _____ day of _____, 20____.

By: _____
Principal

Address: _____

City/ST/Zip: _____

Phone: _____

Surety Name: _____

By: _____
Attorney-In-Fact

Address: _____

City/ST/Zip: _____

Phone: _____

IMPORTANT: Surety companies executing bonds must have an A.M. Best Rating of "A-, FSC (6)" or higher, and be authorized to transact business in the State of Washington.

END OF SECTION

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ARTICLE 1 - THE CONTRACT DOCUMENTS

1.01 GENERAL

- A. Contract Documents form the Contract. The Contract Documents are enumerated in the Agreement between the Port and Contractor ("Agreement"). Together, the Contract Documents form the Contract. The Contract represents the entire integrated agreement between the parties and supersedes all prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only in writing and only as set forth in the Contract Documents.
- B. Headings only for convenience. The titles or headings of the sections, divisions, parts, articles, paragraphs, and subparagraphs of the Contract Documents are intended only for convenience.

1.02 DEFINITIONS

- A. "Contract Documents" proposed for the Work consist of the Agreement, the General Conditions of the Contract (as well as any Supplemental, Special, or other conditions included in the Project Manual), the Drawings, the Specifications, and all Addenda issued prior to, and all modifications issued after, execution of the Contract.
- B. "Contractor" means the person or entity contracting to perform the Work under these Contract Documents. The term Contractor includes the Contractor's authorized representative for purposes of identifying obligations and responsibilities under the Contract Documents, including the ability to receive notice and direction from the Port.
- C. "Day" means a calendar day unless otherwise specifically designated.
- D. "Drawings" are the graphic and pictorial portions of the Contract Documents showing the design, location, and dimensions of the Work, including plans, elevations, sections, details, and diagrams.
- E. "Engineer" is the Port employee generally tasked with administering the Project on the Port's behalf and the person with overall responsibility for managing, for the Port, the Project scope, budget, and schedule. To the extent empowered, the Engineer may delegate to others at the Port (such as a Project Manager or Inspector) the responsibility for performing delegated responsibilities of the Engineer's under this Contract.
- F. "Port" means the Port of Tacoma. The Port will designate in writing a representative (usually the Engineer) who shall have the authority to act on the Port's behalf related to the Project. The "Port" does not include staff, maintenance, or safety workers, or other Port employees or consultants that may contact the Contractor or be present at the Project site.
- G. "Project" is identified in the Agreement and is the total construction to be performed by or through the Port, of which the Work performed under the Contract Documents may be only a part.
- H. "Specifications" are those portions of the Contract Documents that specify the written requirements for materials, equipment, systems, standards, and workmanship for the Work and for the performance of related services.
- I. "Subcontractor" means a person or entity that contracts directly with the Contractor to perform any Work under the Contract Documents. "Subcontractor of any tier" includes Subcontractors as well as any other person or entity, including suppliers, that contracts with a Subcontractor or a lower-tier Subcontractor (also referred to as "Sub-subcontractors") to perform any of the Work.

- J. "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all labor, tools, equipment, materials, services, and incidentals necessary to complete all obligations under the Contract Documents. The Work may constitute only a part of the Project, and may interface and need to be coordinated with the work of others.

1.03 INTENT OF THE CONTRACT DOCUMENTS

- A. Intent of Contract Documents. The intent of the Contract Documents is to describe the complete Work and to include all items and information necessary for the proper execution and completion of the Work by the Contractor.
- B. Contract Documents are complementary. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor is required to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.
- C. No third party contract rights. The Contract Documents shall not create a contractual relationship of any kind (1) between the Port and a Subcontractor of any tier (although the Port does not waive any third-party beneficiary rights it may otherwise have as to Subcontractors of any tier), (2) between the Contractor and the Engineer or other Port employees or consultants, or (3) between any persons or entities other than the Port and Contractor.

1.04 CORRELATION OF THE CONTRACT DOCUMENTS

- A. Precedence. In the event of a conflict or discrepancy between or among the Contract Documents, the conflict or discrepancy will be resolved by the following order of precedence: with an addendum or Change Order having precedence over an earlier document, and computed dimensions having precedence over scaled dimensions, and large scale drawings take precedence over small scale drawings:
 - 1. The signed Agreement
 - a. Supplemental Conditions
 - b. Division 00 General Conditions
 - c. Division 01 General Requirements of Specifications
 - d. All other Specifications, including all remaining divisions, material and system schedules and attachments, and Drawings
 - e. All other sections in Division 00 not specifically identified herein by Section
- B. Inconsistency between or among Contract Documents. If there is any inconsistency between the Drawings, schedules, or Specifications, or any attachments, the Contractor will make an inquiry to the Engineer to determine how to proceed, and, unless otherwise directed, the Contractor will provide the better quality or greater quantity of any work or materials, as reasonably interpreted by the Port, at no change in the Contract Sum or Contract Time. Thus, if Work is shown on Drawings, but not contained in Specifications or schedules, or contained in Specifications or schedules, but not shown on the Drawings, the Work as shown or contained will be provided at no change in the Contract Sum or Contract Time, according to Specifications or Drawings to be issued by the Port.

- C. Inconsistency with law. In the event of a conflict between the Contract Documents and applicable laws, codes, ordinances, regulations, or orders of governmental authorities having jurisdiction over the Work, or in the event of any conflict between such laws, the most stringent requirements govern.
- D. Organization of Contract Documents. The organization of the Specifications and Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of the Work to be performed. The Port assumes no responsibility for the division and proper coordination of Work between particular Subcontractors.
- E. Bid quantities are estimates only. Any "bid quantities" set forth in the Contract Documents are estimates only. The Port does not warrant that the actual amount of Work will correspond to any estimates. The basis of payment will be the actual quantities performed in accordance with the Contract Documents.

1.05 OWNERSHIP OF THE CONTRACT DOCUMENTS

- A. Port owns all Contract Documents. All Drawings, Specifications, and other Contract Documents furnished to the Contractor are Port property, and the Port retains all intellectual property rights, including copyrights. The Contract Documents are to be used only with respect to the Project.

ARTICLE 2 - PORT OF TACOMA

2.01 AUTHORITY OF THE ENGINEER

- A. Engineer will be Port's representative. The Engineer or the Engineer's designee will be the Port's representative during the Project and will administer the Project on the Port's behalf.
- B. Engineer may enforce all obligations. The Engineer has the authority to enforce all requirements imposed on the Contractor by the Contract Documents.
- C. Only Engineer is agent of Port. Other than the Engineer, no other Port employee or consultant is an agent of the Port, and none are authorized to agree on behalf of the Port to changes in the Contract Sum or Contract Time, nor to waive provisions of the Contract Documents, nor to direct the Contractor to take actions that change the Contract Sum or Contract Time, nor to accept notice of protests or claims on behalf of the Port.

2.02 ADMINISTRATION OF THE CONTRACT

- A. Port will administer Contract. The Port will provide administration of the Contract through the Engineer or the Engineer's designee. All communications with the Port or its consultants related to the Contract will be through the designated representative.
- B. Port not responsible for means and methods. The Port is not responsible for, and will have no control or charge of, the means, methods, techniques, sequences, or procedures of construction, or for safety precautions or programs incidental thereto, because these are the sole responsibility of the Contractor. If the Port makes any suggestion of means, methods, techniques, sequences, or procedures, the Contractor will exercise its independent judgment in deciding whether to adopt the suggestion, except as otherwise provided in the Contract Documents.
- C. Port not responsible for acts or omissions of Contractor or Subcontractors. The Port is not responsible for, and will have no control or charge of, the acts or omissions of the Contractor, Subcontractors of any tier, suppliers, or any of their agents or employees, or any other persons performing a portion of the Work.

- D. Port not responsible for the Work. The Port is not responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. The presence of the Engineer or others at the Project site at any time does not relieve the Contractor from its responsibility for non-conforming Work.
- E. Port will have access to the Work. The Port and its representatives will at all times have access to the Work in progress, and the Contractor will provide proper facilities for such access and for inspection.

2.03 INFORMATION PROVIDED BY THE PORT

- A. Port to furnish information with reasonable promptness. The Port shall furnish information and services required of the Port by the Contract Documents with reasonable promptness.
- B. Subsurface investigation. The Port may have undertaken a limited investigation of the soil and other subsurface conditions at the Project site for design purposes only. The results of these investigations will be available for the convenience of the Contractor, but they are not Contract Documents. There is no warranty or guarantee, express or implied, that the conditions indicated are representative of those existing at the site or that unforeseen developments may not occur. The Contractor is solely responsible for interpreting the information.

2.04 CONTRACTOR REVIEW OF PROJECT INFORMATION

- A. Contractor to familiarize itself with site and conditions of Work. Prior to executing the Contract, the Contractor shall visit the site, become generally familiar with local conditions under which the Work is to be performed, and correlate personal observations with the requirements of the Contract Documents and all information provided with the Bid Documents. By signing the Contract, the Contractor confirms that the Contract Sum is reasonable compensation for the Work; that the Contract Time is adequate; that it has carefully examined the Contract Documents and the Project site; and that it has satisfied itself as to the nature, location, and character of the Work, the labor, materials, equipment, and other items required and all other requirements of the Contract Documents. The Contractor's failure fully to acquaint itself with any such condition does not relieve the Contractor from the responsibility for performing the Work in accordance with the Contract Documents, within the Contract Time, and for the Contract Sum.
- B. Contractor to review Contract Documents. Because the Contract Documents are complementary, the Contractor will, before starting each portion of the Work, carefully study and compare the various Drawings, Specifications, and other Contract Documents, as well as all information furnished by the Port.
- C. Contractor to confirm field conditions. Before starting each portion of the Work, the Contractor shall take field measurements of and verify any existing conditions, including all Work in place, and all general reference points; shall observe any conditions at the site affecting the Contractor; and shall carefully compare field measurements, conditions and other information known to the Contractor with the Contract Documents.

2.05 PORT'S RIGHT TO REJECT, STOP, AND/OR CARRY-OUT THE WORK

- A. Port may reject Work. The Port has the authority, but not the obligation, to reject work, materials, and equipment that is defective or that otherwise does not conform to the Contract Documents, and to decide questions concerning the Contract Documents. However, the failure to so reject, or the presence of the Port at the site, shall not be construed as assurance that the Work is acceptable or being completed in compliance with the Contract Documents.

- B. Port may stop Work. If the Contractor fails to correct Work that does not comply with the requirements of the Contract Documents, or repeatedly or materially fails to properly carry out the Work, the Port may issue an order to stop all or a portion of the Work until the cause for the order has been eliminated. The Port's right to stop the Work shall not impose a duty on the Port to exercise this right for the benefit of the Contractor or any third party.
- C. Port may carry-out Work. If the Contractor fails to perform the Work properly, fails to perform any provision of this Contract, or fails to maintain the Baseline Project Schedule, or if the Port reasonably concludes that the Work will not be completed in the specified manner or within the Contract Time, then the Port may, after three (3) days' written notice to the Contractor and without prejudice to any other remedy the Port may have, perform itself or have performed any or all of the Work and may deduct the cost thereof from any payment then or later due the Contractor.

2.06 SEPARATE CONTRACTORS

- A. Port may engage separate contractors or perform work with its own forces. The Port may contract with other contractors ("Separate Contractor") in connection with the Project or perform work with its own forces. The Contractor shall coordinate and cooperate with any Port forces or Separate Contractors, as applicable. The Contractor shall provide reasonable opportunity for the introduction and storage of materials and the execution of work by others.
- B. Contractor to inspect work of others. If any part of the Contractor's Work depends on the work of the Port or any Separate Contractor, the Contractor shall inspect and promptly report to the Port, in writing, any defects that impact the Contractor. Failure of the Contractor to so inspect and report defects in writing shall constitute an acceptance by Contractor of the work of the Port or Separate Contractor.
- C. Contractor to resolve claims of others. Should the Contractor, or any of its Subcontractors of any tier, cause damage of any kind, including but not limited to delay, to any Separate Contractor, the Contractor shall promptly, and using its best efforts, settle or otherwise resolve the dispute with the Separate Contractor. The Contractor shall also promptly remedy damage caused to completed or partially completed construction.

2.07 OFFICERS AND EMPLOYEES OF THE PORT

- A. No personal liability. Officers, employees, and representatives of the Port, including the Commissioners, acting within the scope of their employment, shall not be personally liable to Contractor for any acts or omissions arising out of the Project.

ARTICLE 3 - CONTRACTOR'S RESPONSIBILITIES

3.01 DUTY TO PERFORM THE ENTIRE WORK

- A. Contractor must perform entire Work in accordance with Contract Documents. The Contractor shall perform the entire Work required by the Contract in accordance with the Contract Documents. Unless otherwise specifically provided, the Contractor shall provide and pay for all labor, tools, equipment, materials, electricity, power, water, other utilities, transportation, and other facilities necessary for the execution and completion of the Work.
- B. Contractor shall be independent contractor. The Contractor shall be, and operate as, an independent contractor in the performance of the Work. The Contractor is not authorized to enter into any agreements or undertakings for, or on behalf of, the Port and is not an agent or employee of the Port.

3.02 OBSERVED ERRORS, INCONSISTENCIES, OMISSIONS, OR VARIANCES IN THE CONTRACT DOCUMENTS

- A. Contractor to notify Port of any discrepancy. The Contractor's obligations to review and carefully study the Contract Documents and field conditions are for the purpose of facilitating coordination and construction. If the Contractor at any time observes that the Contract Documents, including Drawings and Specifications, vary from the conditions of the Project site, are in error, or omit any necessary detail, the Contractor shall promptly notify the Engineer in writing through a Request for Information. Any Work done after such observation, until authorized by the Engineer, shall be at Contractor's risk. The Contractor shall also promptly report to the Engineer any observed error, inconsistency, omission, or variance with applicable laws through a Request for Information. If the Contractor fails either to carefully study and compare the Contract Documents, or to promptly report any observed error, inconsistency, omission, or variance, the Contractor shall assume full responsibility and shall bear all costs, liabilities, and damages attributable to the error, inconsistency, omission, or variance.
- B. Requests for Information. The Contractor shall submit Requests for Information concerning the Contract Documents by following the procedure and using such form as the Port may require. The Contractor shall minimize Requests for Information by thoroughly studying the Contract Documents and reviewing all Subcontractor requests. The Contractor shall allow adequate time in its planning and scheduling for a response from the Port to a Request for Information.
- C. Port may provide information to supplement Drawings and Specifications. Minor items of work or detail that are omitted from the Drawings and Specifications, but inferable from the information presented and normally provided by accepted good practice, shall be provided and/or performed by the Contractor as part of the Contract Sum and within the Contract Time. Similarly, the Engineer may furnish to the Contractor additional Drawings and clarifications, consistent with the Contract Documents, as necessary to detail and illustrate the Work. The Contractor shall conform its Work to such additional Drawings and clarifications at no increase in the Contract Sum or Contract Time.

3.03 SUPERVISION AND RESPONSIBILITY FOR SUBCONTRACTORS

- A. Contractor responsible for Work and workers. The Contractor shall have complete control of the means, methods, techniques, sequences, or procedures related to the Work, and for all safety precautions or programs. The Contractor shall have complete control over, and responsibility for, all personnel performing the Work. The Contractor is also responsible for the acts and omissions of the Contractor's principals, employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors of any tier.
- B. Contractor to supervise the Work. The Contractor shall continuously supervise and direct the Work using competent and skilled personnel and the Contractor's best skill and attention.
- C. Contractor to enforce discipline and good order. The Contractor shall enforce strict discipline and good order among all workers on the Project, and shall not employ any unfit person or anyone not skilled in the work to which they are assigned. Incompetent, careless, or negligent workers shall immediately be removed from the Work. The Port may, but is not obligated to, require the Contractor to remove from the Work, at no change in the Contract Sum or Contract Time, anyone whom the Port considers objectionable.

3.04 MATERIALS AND EQUIPMENT

- A. Material and equipment to be new. All materials and equipment to be incorporated into the Work shall be new, unless specifically provided otherwise in the Contract Documents. The Contractor shall, if required in writing by the Port, furnish satisfactory evidence regarding the kind and quality of any materials, identify the source, and warrant compliance with the Contract Documents. The Contractor shall ensure that all materials and equipment are protected, kept dry, and stored under cover in a manner to protect such materials and equipment.
- B. Material and equipment shall conform to manufacturer instructions. All materials and equipment shall conform, and shall be applied, installed, used, maintained, and conditioned in accordance with the instructions of the applicable manufacturer, fabricator, or processor, unless otherwise specifically provided by the Engineer.

3.05 CONTRACTOR WARRANTIES

- A. Work will be of good quality and performed in workmanlike manner. In addition to any specific warranties set forth in the Contract Documents, the Contractor warrants that the Work, including all materials and equipment furnished under the Contract, will be of good quality and new, will be performed in a skillful and workmanlike manner, and will conform to the requirements of the Contract Documents. Any Work not conforming to this warranty, including unapproved or unauthorized substitutions, shall be considered defective.
- B. Work will be free from defects. The Contractor warrants that the Work will be free from defects for a period of one (1) year from the date of Substantial Completion of the Project.
- C. Contractor to collect and deliver warranties to Port. The Contractor shall collect and deliver to the Port any written warranties required by the Contract Documents. These warranties shall be obtained and enforced by the Contractor for the benefit of the Port without the necessity of separate assignment. These warranties shall extend to the Port all rights, claims, benefits, and interests that the Contractor may have under express or implied warranties or guarantees against a Subcontractor of any tier, supplier, or manufacturer for defective or non-conforming Work. Warranty provisions that purport to limit or alter the Port's rights under the Contract Documents, or the laws of the State of Washington, are null and void.
- D. General requirements. The Contractor is not relieved of its general warranty obligations by the specification of a particular product or procedure in the Contract Documents. Warranties in the Contract Documents shall survive completion, acceptance, and final payment.

3.06 REQUIRED WAGES

- A. Contractor will pay required wages. The Contractor shall pay (and shall ensure that all Subcontractors of any tier pay) all prevailing wages and other wages (such as Davis-Bacon Act wages) applicable to the Project. See Specification Section 00 73 46.
- B. The Contractor shall defend (at Contractor's sole cost, with legal counsel approved by Port), indemnify, and hold the Port harmless from all liabilities, obligations, claims, demands, damages, disbursements, lawsuits, losses, fines, penalties, costs, and expenses, whether direct or indirect, and including, but not limited to, attorneys' fees and consultants' fees and other costs and expenses of litigation, from any violation or alleged violation by the Contractor or any Subcontractor of any tier of RCW 39.12 ("Prevailing Wages on Public Works") or Chapter 51 RCW ("Industrial Insurance").

3.07 STATE AND LOCAL TAXES

- A. Contractor will pay taxes on consumables. The Contractor will pay the retail sales tax on all consumables used during performance of the Work and on all items that are not incorporated into the final Work; this tax shall be included in the Contract Sum.

- B. Port will pay taxes on the Contract Sum. The Port will pay state and local retail sales tax on the Contract Sum with each progress payment, and on final payment, for transmittal by the Contractor to the Washington State Department of Revenue or to the applicable local taxing authority. Rule 170: WAC 458-20-170.
- C. Direct all tax questions to the Department of Revenue. The Contractor should direct all questions concerning taxes on any portion of the Work to the State of Washington Department of Revenue or to the local taxing authority.
- D. State Sales Tax - Rule 171: WAC 458-20-171. For work performed related to building, repairing, or improving streets, roads, etc., which are owned by a municipal corporation, or political subdivision of the state, or by the United States, and which are used, primarily, for foot or vehicular traffic, the Contractor shall include Washington State Retail Sales Taxes in the various schedule prices, or other contract amounts, including those that the Contractor pays on the purchase of materials, equipment, or supplies used or consumed in doing the Work.
 - 1. The bid form will indicate which bid items are subject to Rule 171. Any such identification by the Port is not binding upon the Department of Revenue.

3.08 PERMITS, LICENSES, FEES, AND ROYALTIES

- A. Contractor to provide and pay for permits unless otherwise specified. Unless otherwise specified, the Contractor shall procure and pay for all permits, licenses, and governmental inspection fees necessary or incidental to the performance of the Work. All costs related to these permits, licenses, and inspections shall be included in the Contract Sum. Any action taken by the Port to assist the Contractor in obtaining permits or licenses shall not relieve the Contractor of its sole responsibility to obtain and pay for permits, licenses, and inspections as part of the Contract Sum.
- B. Contractor's obligations when permit must be in Port's name. When applicable law or agency requires a permit to be issued to a public agency, the Port will support the Contractor's request for the permit and accept the permit in the Port's name, if:
 - 1. The Contractor takes all necessary steps required for the permit to be issued;
 - 2. The permit applies to Work performed in connection with the Project; and
 - 3. The Contractor agrees in writing to abide by all requirements of the permit and to defend and hold harmless the Port from any liability in connection with the permit.
- C. Contractor to pay royalties. The Contractor shall pay all royalties and license fees required for the Work unless otherwise specified in the Contract Documents.

3.09 SAFETY

- A. Contractor solely responsible for safety. The Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work and the performance of the Contract.
- B. Port not responsible for safety. The Port may identify safety concerns to the Contractor; however, no action or inaction of the Port or any third party relating to safety will: (1) relieve the Contractor of its sole and complete responsibility for safety and sole liability for any consequences, (2) impose any obligation on the Port or a third party to inspect or review the Contractor's safety program or precautions, (3) impose any continuing obligation on the Port or a third party to ensure the Contractor performs the Work safely, or (4) affect the Contractor's responsibility for the protection of property, workers, and the general public.

- C. Contractor to maintain a safe Work site. The Project site may be occupied during performance of the Work. The safety of these site occupants is of paramount importance to the Port. The Contractor shall maintain the Work site and perform the Work in a safe manner and in accordance with the Washington Industrial Safety and Health Act (WISHA) and all other applicable safety laws, rules, and regulations. This requirement shall apply continuously and not be limited to working hours.
- D. Contractor to protect Work site and adjacent property until Final Completion. The Contractor shall continuously protect the Work and adjacent property from damage. At all times until Final Completion, the Contractor shall be responsible for, and protect from damage, weather, deterioration, theft, and vandalism, the Work and all materials, equipment, tools, and other items incorporated or to be incorporated in the Work, and shall repair any damage, injury, or loss.

3.10 CORRECTION OF WORK

- A. Contractor to correct defective Work. The Contractor shall, at no cost to the Port, promptly correct Work that is defective or that otherwise fails to conform to the requirements of the Contract Documents. Such Work shall be corrected, whether before or after Substantial Completion, and even if it was previously inspected or observed by the Port.
- B. One-year correction period. The Contractor shall correct all defects in the Work appearing within one (1) year of Substantial Completion or within any longer period prescribed by law or by the Contract Documents. The Contractor shall initiate remedial action within fourteen (14) days of receipt of notice from the Port and shall complete remedial work within a reasonable time. Work corrected by the Contractor shall be subject to the provisions of this Section 3.10 for an additional one-year period following the Port's acceptance of the corrected Work.
- C. Contractor responsible for defects and failures to correct. The Contractor shall be responsible for any expenses incurred by the Port resulting from defects in the Work. If the Contractor refuses or neglects to correct the defects, or does not timely accomplish corrections, the Port may correct the Work and charge the Contractor the cost of the corrections. If damage or loss of service may result from a delay in correction, the corrections may be made by the Port and reimbursed by the Contractor.
- D. Port may accept defective work. The Port may, at its sole option, elect to retain defective or nonconforming Work. In such a case, the Port shall reduce the Contract Sum by a reasonable amount to account for the defect or non-conformance.
- E. No period of limitation established. Nothing contained in this Section 3.10 establishes a period of limitation with respect to any obligations under the Contract Documents or law. The establishment of the one (1) year correction period relates only to the specific obligation of the Contractor to correct defective or non-conforming Work.

3.11 UNCOVERING OF WORK

- A. Contractor to uncover work covered prior to inspection. If any portion of the Work is covered prior to inspection and approval, the Contractor shall, at its expense, uncover or remove the Work for inspection by the Port or others, and replace the Work to the standard required by the Contract Documents.

- B. Contractor to uncover work at Port's request. After initial inspection and observation, the Port may order a reexamination of Work, and the Work must be uncovered by the Contractor. If the uncovered Work complies with the Contract Documents, the Port shall pay the cost of reexamination and replacement. If the Work is found not to comply with the Contract Documents, the Contractor shall pay the cost of replacement, unless the Contractor demonstrates that it did not cause the defect in the Work.

3.12 RELOCATION OF UTILITIES

- A. Contractor should assume underground utilities are in approximate locations. The Contractor should assume that the locations of any underground or hidden utilities, underground tanks, and plumbing or electrical runs indicated in surveys or the Contract Documents are shown in approximate locations. The accuracy of this information is not guaranteed by the Port and shall be verified by the Contractor. The Contractor shall comply with RCW 19.122.030 and utilize a utility locator service to locate utilities on Port property. The Contractor shall bear the risk of loss if any of its Work directly or indirectly damages or interrupts any utility service or causes or contributes to damages of any nature.
- B. Utility relocation or removal. Where relocation or removal of utilities is necessary or required, it shall be performed at the Contractor's sole expense, unless the Contract Documents specify otherwise. If a utility owner is identified as being responsible for relocating or removing utilities, the work will be accomplished at the utility owner's convenience, either during, or in advance of, construction. Unless otherwise specified, it shall be the Contractor's sole responsibility to coordinate, schedule, and pay for work performed by a utility owner.
- C. Contractor to notify Port of unknown utilities. If the Contractor discovers the presence of any unknown utilities, it shall immediately notify the Engineer in writing.

3.13 LABOR

- A. Contractor responsible for labor peace. The Contractor is responsible for labor peace relating to the Work and shall cooperate in maintaining Project-wide labor harmony. The Contractor shall use its best efforts as an experienced contractor to adopt and implement policies and practices designed to avoid work stoppages, slowdowns, disputes, or strikes.
- B. Contractor to minimize impact of labor disputes. The Contractor will take all necessary steps to prevent labor disputes from disrupting or otherwise interfering with access to Port property. If a labor dispute disrupts the progress of the Work or interferes with access, the Contractor shall promptly and expeditiously take all necessary action to eliminate or minimize the disruption or interference.

3.14 INDEMNIFICATION

- A. Duty to defend, indemnify, and hold harmless. To the fullest extent permitted by law and subject to this Section 3.14, the Contractor shall defend (at the Contractor's sole cost, with legal counsel approved by Port), indemnify, and hold harmless the Port and the Northwest Seaport Alliance, including their respective Commissions, officers, managers, and employees, the Engineer, any consultants, and the agents and employees, successors and assigns of any of them (the "Indemnified Parties") from and against claims, damages, lawsuits, losses (including loss of use), disbursements, liabilities, obligations, fines, penalties, costs, and expenses, whether direct and indirect or consequential, including but not limited to, consultants' fees, and attorneys' fees incurred on such claims and in proving the right to indemnification ("Claims"), arising out of, or resulting from, the acts or omissions of the Contractor, a Subcontractor of any tier, their agents, and anyone directly or indirectly employed by any of them or anyone for whose acts they may be liable (individually and collectively, the "Indemnitor").

- B. Duty to defend, indemnify, and hold harmless for sole negligence. The Contractor will fully defend, indemnify, and hold harmless the Indemnified Parties for the sole negligence or willful misconduct of the Indemnitor.
- C. Duty to defend, indemnify, and hold harmless for concurrent negligence. Where Claims arise from the concurrent negligence of (1) the Port; and (2) the Indemnitor, the Contractor's obligations to indemnify and defend the Indemnified Parties under this Section 3.14 shall be effective only to the extent of the Indemnitor's negligence.
- D. Duty to indemnify not limited by workers' compensation or similar employee benefit acts. In claims against any of the Indemnified Parties by an employee of the Contractor, a Subcontractor of any tier, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under this Section 3.14 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable under workers' compensation acts, disability benefit acts, or other employee benefit acts. After mutual negotiation of the parties, the Contractor waives immunity as to the Indemnified Parties under Title 51 RCW, "Industrial Insurance."
- E. Intellectual property indemnification. The Contractor will be liable for and shall defend (at the Contractor's sole cost, with legal counsel approved by Port), indemnify, and hold the Indemnified Parties harmless for Claims for infringement by the Contractor of copyrights or patent rights arising out of, or relating to, the Project.
- F. Labor peace indemnification. If the Contractor fails to satisfy its labor peace obligations under the Contract, the Contractor will be liable for and shall defend (at the Contractor's sole cost, with legal counsel approved by Port), indemnify, and hold harmless the Indemnified Parties for Claims brought against the Port by third parties (including but not limited to lessees, tenants, contractors, customers, licensees, and invitees of the Port) for injunctive relief or monetary loss.
- G. Cyber risk indemnification. Contractor shall defend, indemnify, and hold harmless the Indemnified Parties from and against any liability, expense, fines, penalties, cost, demand, or other obligation, resulting from or out of any cyber-related risk that includes theft, loss or misuse of data, release of private information as result of a network breach, penetration, compromise, or loss of IT systems control.
- H. Joinder. The Contractor agrees to being added by the Port as a party to any arbitration or litigation with third parties in which the Port alleges indemnification or seeks contribution from the Indemnitor. The Contractor shall cause each of its Subcontractors of any tier to similarly stipulate in their subcontracts; in the event any does not, the Contractor shall be liable in place of such Subcontractor(s) of any tier.
- I. Other. To the extent that any portion of this Section 3.14 is stricken by a court or arbitrator for any reason, all remaining provisions shall retain their vitality and effect. The obligations of the Contractor under this Section 3.14 shall not be construed to negate, abridge, or otherwise reduce any other right or obligations of indemnity which would otherwise exist. To the extent the wording of this Section 3.14 would reduce or eliminate an available insurance coverage, it shall be considered modified to the extent necessary so that the insurance coverage is not affected. This Section 3.14 shall survive completion, acceptance, final payment, and termination of the Contract.

3.15 WAIVER OF CONSEQUENTIAL DAMAGES

- A. Mutual waiver of consequential damages. The Contractor and Port waive claims against each other for consequential damages arising out of, or relating to, this Contract. This mutual waiver includes, but is not limited to: (1) damages incurred by the Port for rental expenses, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons, and (2) damages incurred by the Contractor for principal and home office overhead and expenses including, but not limited to, the compensation of personnel stationed there, for losses of financing, business, and reputation, for losses on other projects, for loss of profit, and for interest or financing costs. This mutual waiver includes, but is not limited to, all consequential damages due to either party's termination.
- B. Limitation. Nothing contained in this Section 3.15; however, shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents, to preclude damages specified in the Agreement, or to affect the Contractor's obligation to indemnify the Port for direct, indirect, or consequential damages alleged by a third party.

ARTICLE 4 - SUBCONTRACTORS AND SUPPLIERS

4.01 RESPONSIBILITY FOR ACTIONS OF SUBCONTRACTORS AND SUPPLIERS.

- A. Contractor responsible for Subcontractors. The Contractor is fully responsible to the Port for the acts and omissions of its Subcontractors of any tier and all persons either directly or indirectly employed by the Contractor or its Subcontractors.

4.02 AWARD OF CONTRACTS TO SUBCONTRACTORS AND SUPPLIERS

- A. Contractor to provide proposed Subcontractor information. The Contractor, within ten (10) days after the Port's notice of award of the Contract, shall provide the Engineer with the names of the persons or entities proposed to perform each of the principal portions of the Work (i.e., either a Subcontractor listed in a bid or proposal or a Subcontractor performing Work valued at least ten percent (10%) of the Contract Sum) and the proprietary names, and the suppliers of, the principal items or systems of materials and equipment proposed for the Work. No progress payment will become due until after this information has been furnished.
- B. Port to respond promptly with objections. The Port may respond promptly to the Contractor in writing stating: (1) whether the Port has reasonable objection to any proposed person or entity, or (2) whether the Port requires additional time for review. If the Port makes a reasonable objection, the Contractor shall replace the Subcontractor with no increase to the Contract Sum or Contract Time. Such a replacement shall not relieve the Contractor of its responsibility for the performance of the Work and compliance with all of the requirements of the Contract within the Contract Sum and Contract Time.
- C. Reasonable objection defined. "Reasonable objection" as used in this Section 4.02 includes, but is not limited to: (1) a proposed Subcontractor of any tier different from the entity listed with the bid, (2) lack of "responsibility" of the proposed Subcontractor, as defined by Washington law and the Bidding Documents, or lack of qualification or responsibility of the proposed Subcontractor based on the Contract or Bidding Documents, or (3) failure of the Subcontractor to perform satisfactorily in the Port's opinion (such as causing a material delay or submitting a claim that the Port considers inappropriate) on one or more projects for the Port within five (5) years of the bid date.
- D. No substitution allowed without permission. The Contractor shall not substitute a Subcontractor, person, or organization without the Engineer's written consent.

4.03 SUBCONTRACTOR AND SUPPLIER RELATIONS

- A. Contractor to schedule, supervise, and coordinate Subcontractors. The Contractor shall schedule, supervise, and coordinate the operations of all Subcontractors of any tier, including suppliers. The Contractor shall ensure that appropriate Subcontractors coordinate the Work of lower-tier Subcontractors.
- B. Subcontractors to be bound to Contract Documents. By appropriate agreement, the Contractor shall require each Subcontractor and supplier to be bound to the terms of the Contract Documents and to assume toward the Contractor, to the extent of their Work, all of the obligations that the Contractor assumes toward the Port under the Contract Documents. Each subcontract shall preserve and protect the rights of the Port and shall allow to the Subcontractor, unless specifically provided in the subcontract, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Port. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with lower-tier Subcontractors.
- C. Contractor to correct deficiencies in Subcontractor performance. When a portion of the Work subcontracted by the Contractor is not being prosecuted in accordance with the Contract Documents, or if such subcontracted Work is otherwise being performed in an unsatisfactory manner in the Port's opinion, the Contractor shall, on its own initiative or upon the written request of the Port, take immediate steps to correct the deficiency or remove the non-performing party from the Project. The Contractor shall replace inadequately performing Subcontractors upon request of the Port at no change in the Contract Sum or Contract Time.
- D. Contractor to provide subcontracts. Upon request, the Contractor will provide the Port copies of written agreements between the Contractor and any Subcontractor.

ARTICLE 5 - WORKFORCE AND NON-DISCRIMINATION REQUIREMENTS

5.01 COMPLIANCE WITH NON-DISCRIMINATION LAWS

- A. Contractor to comply with non-discrimination laws. The Contractor shall fully comply with all applicable laws, regulations, and ordinances pertaining to non-discrimination.
- B. Nondiscrimination Provision
 - 1. Nondiscrimination Requirement. During the term of this Contract, Contractor, including any subcontractor, shall not discriminate on the bases enumerated at RCW 49.60.530(3). In addition, Contractor, including any subcontractor, shall give written notice of this nondiscrimination requirement to any labor organizations with which Contractor, or subcontractor, has a collective bargaining or other agreement.
 - 2. Obligation to Cooperate. Contractor, including any subcontractor, shall cooperate and comply with any Washington state agency investigation regarding any allegation that Contractor, including any subcontractor, has engaged in discrimination prohibited by this Contract pursuant to RCW 49.60.530(3).

3. Default. Notwithstanding any provision to the contrary, POT may suspend Contractor, including any subcontractor, upon notice of a failure to participate and cooperate with any state agency investigation into alleged discrimination prohibited by this Contract, pursuant to RCW 49.60.530(3). Any such suspension will remain in place until POT receives notification that Contractor, including any subcontractor, is cooperating with the investigating state agency. In the event Contractor, or subcontractor, is determined to have engaged in discrimination identified at RCW 49.60.530(3), POT may terminate this Contract in whole or in part, and Contractor, subcontractor, or both, may be referred for debarment as provided in RCW 39.26.200. Contractor or subcontractor may be given a reasonable time in which to cure this noncompliance, including implementing conditions consistent with any court-ordered injunctive relief or settlement agreement.
4. Remedies for Breach. Notwithstanding any provision to the contrary, in the event of Contract termination or suspension for engaging in discrimination, Contractor, subcontractor, or both, shall be liable for contract damages as authorized by law including, but not limited to, any cost difference between the original contract and the replacement or cover contract and all administrative costs directly related to the replacement contract, which damages are distinct from any penalties imposed under Chapter 49.60, RCW. POT shall have the right to deduct from any monies due to Contractor or subcontractor, or that thereafter become due, an amount for damages Contractor or subcontractor will owe POT for default under this provision.

5.02 MWBE, VETERAN-OWNED, AND SMALL BUSINESS ENTERPRISE PARTICIPATION.

- A. In accordance with the legislative findings and policies set forth in RCW 39.19, the Port encourages participation in all of its contracts by MWBE firms certified by the Office of Minority and Women's Business Enterprises (OMWBE). Participation may be either on a direct basis in response to this invitation or as a subcontractor to a Bidder. However, unless required by federal statutes, regulations, grants, or contract terms referenced in the Contract Documents, no preference will be included in the evaluation of Bids, no minimum level of MWBE participation shall be required as a condition for receiving an award, and Bids will not be rejected or considered non-responsive on that basis. Any affirmative action requirements set forth in federal regulations or statutes included or referenced in the Contract Documents will apply.

The Port encourages participation in all of its contracts by Veteran-owned businesses (defined in RCW 43.60.010) and located at <http://www.dva.wa.gov/program/certified-veteran--and-servicemember-owned-businesses> and Small, Mini, and Micro businesses (defined in RCW 39.26.010)

5.03 APPRENTICESHIP PARTICIPATION

- A. In accordance with RCW 39.04.320, fifteen (15) percent Apprenticeship Participation is required for all projects estimated to cost one million (\$1,000,000) dollars or more.
- B. Apprentice participation, under this contract, may be counted towards the required percentage (%) only if the apprentices are from an apprenticeship program registered and approved by the Washington State Apprenticeship and Training Council (RCW 49.04 and WAC 296-05).
- C. Bidders may contact the Department of Labor and Industries, Specialty Compliance Services Division, Apprenticeship Section, P.O. Box 44530, Olympia, WA 98504-4530 by phone at (360) 902-5320, or e-mail at Apprentice@lni.wa.gov, to obtain information on available apprenticeship programs.

- D. For each project that has apprentice requirements, the contractor shall submit a "Statement of Apprentice and Journeyman Participation" on forms provided by the Port of Tacoma, with every request for project payment. The Contractor shall submit consolidated and cumulative data collected by the Contractor and collected from all subcontractors by the Contractor. The data to be collected and submitted includes the following:
1. Contractor name and address
 2. Contract number
 3. Project name
 4. Contract value
 5. Reporting period "Beginning Date" through "End Date"
 6. Name and registration number of each apprentice by contractor
 7. Total number of apprentices and labor hours worked by them, categorized by trade or craft.
 8. Total number of journeymen and labor hours worked by them, categorized by trade or craft
 9. Cumulative combined total of apprentice and journeymen labor hours
 10. Total percentage of apprentice hours worked
- E. No changes to the required percentage (%) of apprentice participation shall be allowed without written approval of the Port. In any request for the change, the Contractor shall clearly demonstrate a good faith effort to comply with the requirements for apprentice participation.
- F. Labor hours used in the 15% labor hour calculation will include all employees working on the project who are subject to prevailing wage laws. The definition of Labor Hours is further clarified to include working supervisor and foreman hours if they are covered under prevailing wage laws based on the time spent performing laborious activities. Simply adding supervisor or foreman to the employee's title does not exempt their hours from the calculation.
- G. During the life of the project, Apprentice Utilization is actively monitored through LNIs Prevailing Wage Intents and Affidavits (PWIA) system using the certified payroll calculated percentage. In addition, the affidavit calculated percentage shown in PWIA must be at least 15.0% to be compliant. All affidavits must be filed before determining if the Apprentice Utilization Requirement was met. Failure to achieve at least 15.0% apprentice Utilization as shown in PWIA for certified payrolls and affidavits will cause a penalty of \$500.00

ARTICLE 6 - CONTRACT TIME AND COMPLETION

6.01 CONTRACT TIME

- A. Contract Time is measured from Contract execution. Unless otherwise provided in the Agreement, the Contract Time is the period of time, including authorized adjustments, specified in the Contract Documents from the date the Contract is executed to the date Substantial Completion of the Work is achieved.

- B. Commencement of the Work. The Contractor shall begin Work in accordance with the notice of award and the notice to proceed and shall complete all Work within the Contract Time. When the Contractor's signed Agreement, required insurance certificate with endorsements, bonds, and other submittals required by the notice of award have been accepted by the Port, the Port will execute the Contract and, following receipt of other required pre-work submittals, will issue a notice to proceed to allow the Contractor to mobilize and commence physical Work at the Project site, as further described in these contract documents. No Work at the Project site may commence until the Port issues a notice to proceed.
- C. Contractor shall achieve specified completion dates. The Contractor shall achieve Substantial Completion within the Contract Time and shall achieve Final Completion within the time period thereafter stated in the Contract Documents.
- D. Time is of the essence. Time limits stated in the Contract Documents, including any interim milestones, are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

6.02 PROGRESS AND COMPLETION

- A. Contractor to maintain schedule. The Contractor's sequence and method of operations, application of effort, and work force shall at all times be created and implemented to ensure the orderly, expeditious, and timely completion of the Work and performance of the Contract. The Contractor shall furnish sufficient forces and shall work such hours, including extra shifts, overtime operations, and weekend and holiday work as may be necessary to ensure completion of the Work within the Contract Time and the approved Baseline Project Schedule.
- B. Contractor to take necessary steps to meet schedule. If the Contractor fails substantially to perform in a timely manner in accordance with the Contract Documents and, through the fault of the Contractor or Subcontractor(s) of any tier, fails to meet the Baseline Project Schedule, the Contractor shall take such steps as may be necessary to immediately improve its progress by increasing the number of workers, shifts, overtime operations, or days of work, or by other means and methods, all without additional cost to the Port. If the Contractor believes that any action or inaction of the Port constitutes acceleration, the Contractor shall immediately notify the Port in writing and shall not accelerate the Work until the Port either directs the acceleration in writing or denies the constructive acceleration.
- C. Liquidated damages not exclusive. Any provisions in the Contract Documents for liquidated damages shall not preclude other damages due to breaches of Contract of the Contractor.

6.03 SUBSTANTIAL COMPLETION

- A. Substantial Completion defined. Substantial Completion is the stage in the progress of the Work, or portion or phase thereof, when the Work or designated portion is sufficiently complete in accordance with the Contract Documents so that the Port can fully occupy or utilize the Work, or the designated portion thereof, for its intended use, all requirements in the Contract Documents for Substantial Completion have been achieved, and all required documentation has been properly submitted to the Port in accordance with the Contract Documents. All Work, other than incidental corrective or punch list Work and final cleaning, must be completed. The fact that the Port may occupy the Work or a designated portion thereof does not indicate that Substantial Completion has occurred or that the Work is acceptable in whole or in part.
- B. Work not Substantially Complete unless Final Completion attainable. The Work is not Substantially Complete unless the Port reasonably judges that the Work can achieve Final Completion within the period of time specified in the Contract Documents.

- C. Notice of Substantial Completion. When the Work or designated portion has achieved Substantial Completion, the Port will provide a notice to establish the date of Substantial Completion. The notice shall establish responsibilities of the Port and Contractor for security, maintenance, heat, utilities, damage to the Work, and insurance, and shall fix the time within which the Contractor shall finish all remaining Work. If the notice of Substantial Completion does not so state, all responsibility for the foregoing items shall remain with the Contractor until Final Completion.

6.04 COMPLETION OF PUNCH LIST

- A. Contractor shall complete punch list items prior to Final Completion. The Contractor shall cause punch list items to be completed prior to Final Completion. If, after Substantial Completion, the Contractor does not expeditiously proceed to correct punch list items or if the Port considers that the punch list items, are unlikely to be completed prior to the date established for Final Completion (or such other period of time as is specified in the Contract Documents), the Port may, upon seven (7) days' written notice to the Contractor, take over and perform some or all of the punch list items. The Port may also take over and complete any portion of the Work at any time following Substantial Completion and deduct the actual cost of performing the Work (including direct and indirect costs) from the Contract Sum. The Port's rights under this Section 6.04 are not obligations and shall not relieve the Contractor of its responsibilities under any other provisions of the Contract Documents.

6.05 FINAL COMPLETION

- A. Final Completion. Upon receipt of written notice from the Contractor that all punch list items and other Contract requirements are completed, the Contractor will notify the Port, and the Port will perform a final inspection. If the Port determines that some or all of the punch list items have not been addressed, the Contractor shall be responsible to the Port for all costs, including re-inspection fees, for any subsequent reviews to determine completion of the punch list. When the Port determines that all punch list items have been satisfactorily addressed, that the Work is acceptable under the Contract Documents, and that the Work has fully been performed, the Port will promptly notify the Contractor of Final Completion.
- B. Contractor responsible for costs if Final Completion is not timely achieved. In addition to any liquidated damages, the Contractor is liable for, and the Port may deduct from any amounts due the Contractor, all costs incurred by the Port for services performed after the contractual date of Final Completion, whether or not those services would have been performed prior to that date had Final Completion been timely achieved.
- C. Final Completion submittals. The Port is not obligated to accept the Project as complete until the Contractor has submitted all required submittals to the Port.
- D. Contractor responsible for the Work until Final Completion. The Contractor shall assume the sole risk of loss and responsibility for all Work under the Contract, and all materials to be incorporated in the Work, whether in storage or at the Project site, until Final Completion. Damage from any cause to either permanent or temporary Work, utilities, materials, equipment, existing structures, the site, or other property owned by the Port or others, shall be repaired by the Contractor to the reasonable satisfaction of the Port at no change in the Contract Sum.

6.06 FINAL ACCEPTANCE

- A. Final Acceptance. Final Acceptance is the formal action of the Port accepting the Project as complete. Public notification of Final Acceptance will be posted on the Port's external website (<http://www.portoftacoma.com/final-acceptance>).

- B. Final Acceptance not an acceptance of defective Work. Final Acceptance shall not constitute acceptance by the Port of unauthorized or defective Work, and the Port shall not be prevented from requiring the Contractor to remove, replace, repair, or dispose of unauthorized or defective Work or recovering damages due to the same.
- C. Completion of Work under RCW 60.28. Pursuant to RCW 60.28, "Lien for Labor, Materials, Taxes on Public Works," completion of the Contract Work shall occur upon Final Acceptance.

6.07 PORT'S RIGHT TO USE THE PREMISES

- A. Port has right to use and occupy Work. The Port reserves the right to occupy or use any part of the Work before or after Substantial Completion of some or all of the Work without relieving the Contractor of any of its obligations under the Contract. Such occupancy or use shall not constitute acceptance by the Port of any of the Work, and shall not cause any insurance to be canceled or lapse.
- B. No compensation due if Port elects to use and occupy Work. No additional compensation shall be due to the Contractor as a result of the Port's use or occupancy of the Work or a designated portion.

ARTICLE 7 - PAYMENT

7.01 ALL PAYMENTS SUBJECT TO APPLICABLE LAWS AND SCHEDULE OF VALUES

- A. Payment of the Contract Sum. The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Port to the Contractor for performance of the Work under the Contract Documents. Payments made to the Contractor are subject to all laws applicable to the Port and the Contractor. Payment of the Contract Sum constitutes full compensation to the Contractor for performance of the Work, including all risk, loss, damages, or expense of whatever character arising out of the nature or prosecution of the Work. The Port is not obligated to pay for extra work or materials furnished without prior written approval of the Port.
- B. Schedule of Values. All payments will be based upon an approved Schedule of Values. Prior to submitting its first Application for Payment, the Contractor shall submit a Schedule of Values to the Port allocating the entire Contract Sum to the various portions of the Work. The Schedule of Values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Port may require. This schedule, unless objected to by the Port, shall be used as a basis for reviewing the Contractor's applications for payment.

7.02 APPLICATIONS FOR PAYMENT

- A. Applications for Payment. Progress payments will be made monthly for Work duly certified, approved by the Engineer, and performed (based on the Schedule of Values and actual quantities of Work performed) during the calendar month preceding the Application for Payment. These amounts are paid in trust to the Contractor for distribution to Subcontractors to the extent, and in accordance with, the approved Application for Payment.

7.03 PROGRESS PAYMENTS

- A. Progress payments. Following receipt of a complete Application for Payment, the Engineer will either authorize payment or indicate in writing to the Contractor the specific reasons why the payment request is being denied, in whole or in part, and the remedial action the Contractor must take to receive the withheld amount. After a complete Application for Payment has been received and approved by the Port, payment will be made within thirty (30) days. Any payments made by, or through, or following receipt of, payment from third parties will be made in accordance with the third party's policies and procedures.
- B. Port may withhold payment. The Port may withhold payment in whole or in part as provided in the Contract Documents or to the extent reasonably necessary to protect the Port from loss or potential loss for which the Contractor is responsible, including loss resulting from the Contractor's acts and omissions.

7.04 PAYMENT BY CONTRACTOR TO SUBCONTRACTORS

- A. Payment to Subcontractors. With each Application for Payment, the Contractor shall provide a list of Subcontractors to be paid by the Contractor. No payment request shall include amounts the Contractor does not intend to pay to a Subcontractor because of a dispute or other reason. If, however, after submitting an Application for Payment, but before paying a Subcontractor, the Contractor discovers that part or all of a payment otherwise due to the Subcontractor is subject to withholding from the Subcontractor under the subcontract (such as for unsatisfactory performance or non-payment of lower-tier Subcontractors), the Contractor may withhold the amount as allowed under the subcontract, but it shall give the Subcontractor and the Port written notice of the remedial actions that must be taken and pay the Subcontractor within eight (8) working days after the Subcontractor satisfactorily completes the remedial action identified in the notice.
- B. Payment certification to be provided upon request. The Contractor shall provide, with each Application for Payment, a certification signed by Contractor attesting that all payments by the Contractor to Subcontractors from the last Application for Payment were made within ten (10) days of the Contractor's receipt of payment. The certification will also attest that the Contractor will make payment to Subcontractors for the current Application for Payment within ten (10) days of receipt of payment from the Port.

7.05 FINAL PAYMENT

- A. Final payment. Final applications for payment are due within seven (7) days following Final Completion. Final payment of the unpaid balance of the Contract Sum, except retainage, will be made following Final Completion and within thirty (30) days of the Contractor's submission of an approved final Application for Payment.
- B. Releases required for final payment. The final payment shall not become due until the Contractor delivers to the Port a complete release of all liens arising out of the Contract, as well as an affidavit stating that, to the best of Contractor's knowledge, its release includes all labor and materials for which a lien could be filed. If a Subcontractor of any tier refuses to furnish a release or waiver required by the Port, the Port may (a) retain in the fund, account, or escrow funds in such amount as to defray the cost of foreclosing the liens of such claims and to pay attorneys' fees, the total of which shall be no less than 150% of the claimed amount, or (b) accept a bond from the Contractor, satisfactory to the Port, to indemnify the Port against the lien. If any such lien remains unsatisfied after all payments from the retainage are made, the Contractor shall refund to the Port all moneys that the Port may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

- C. Contractor to hold Port harmless from liens. The Contractor shall defend (at the Contractor's sole cost, with legal counsel approved by Port), indemnify, and hold harmless the Port from any liens, claims, demands, lawsuits, losses, damages, disbursements, liabilities, obligations, fines, penalties, costs, and expenses, whether direct or indirect, including but not limited to, attorneys' fees and consultants' fees and other costs and expenses, except to the extent a lien has been filed because of the failure of the Port to make a contractually required payment.

7.06 RETAINAGE

- A. Retainage to be withheld. In accordance with RCW 60.28, a sum equal to five percent (5%) of each approved Application for Payment shall be retained. Prior to submitting its first Application for Payment, the Contractor shall exercise one of the options listed below:
 - 1. Retained percentages will be retained by the Port in a fund; or
 - 2. Deposited by the Port in an interest-bearing account or escrow account in a bank, mutual savings bank, or savings and loan association designated by the Contractor, not subject to withdrawal until after the final acceptance of said improvement or work as completed, or until agreed to by both parties; provided that interest on such account shall be paid to the Contractor. Contractor to complete and submit Port provided Retainage Escrow Agreement (Section 00 61 23.13); or
 - 3. If the Contractor provides a bond in place of retainage, it shall be in an amount equal to 5% of the Contract Sum plus Change Orders. The retainage bond shall be based on the form furnished in Section 00 61 23 or otherwise acceptable to the Port and duly completed and signed by a licensed surety or sureties registered with the Washington State Insurance Commissioner and on the currently authorized insurance list published by the Washington State Insurance Commissioner. The surety or sureties must be rated at least "A-, FSC(6)" or higher by A.M. Best Rating Guide and be authorized by the Federal Department of the Treasury. Attorneys-in-fact who sign the retainage bond must file with each bond a certified and effective Power of Attorney statement.
- B. Contractor may withhold retainage from Subcontractors. The Contractor or a Subcontractor may withhold not more than five percent (5%) retainage from the monies earned by any Subcontractor or lower-tier Subcontractor, provided that the Contractor pays interest to the Subcontractor at the same interest rate it receives from its reserved funds. If requested by the Port, the Contractor shall specify the amount of retainage and interest due a Subcontractor.
- C. Release of retainage. Retainage will be withheld and applied by the Port in a manner required by RCW 60.28 and released in accordance with the Contract Documents and statutory requirements. Release of the retainage will be processed in the ordinary course of business within sixty (60) days following Final Acceptance of the Work by the Port provided that no notice of lien has been given as provided in RCW 60.28, that no claims have been brought to the attention of the Port, that the Port has no claims under this Contract, and that release of retention has been duly authorized by the State. The following items must also be obtained prior to release of retainage: pursuant to RCW 60.28, a certificate from the Department of Revenue; pursuant to RCW 50.24, a certificate from the Department of Employment Security; and appropriate information from the Department of Labor and Industries including approved affidavits of wages paid for the Contractor and each subcontractor.

7.07 DISPUTED AMOUNTS

- A. Disputed amounts. If the Contractor believes it is entitled to payment for Work performed during the prior calendar month in addition to the agreed-upon amount, the Contractor may submit to the Port, along with the approved Application for Payment, a separate written payment request specifying the exact additional amount claimed to be due, the category in the Schedule of Values to which the payment would apply, the specific Work for which additional payment is sought, and an explanation of why the Contractor believes additional payment is due.

7.08 EFFECT OF PAYMENT

- A. Payment does not relieve Contractor of obligations. Payment to the Contractor of progress payments or final payment does not relieve the Contractor from its responsibility for the Work or its responsibility to repair, replace, or otherwise make good defective Work, materials, or equipment. Likewise, the making of a payment does not constitute a waiver of the Port's right to reject defective or non-conforming Work, materials, or equipment (even though they are covered by the payment), nor is it a waiver of any other rights of the Port.
- B. Acceptance of final payment waives claims. Acceptance of final payment by the Contractor, a Subcontractor of any tier, or a supplier shall constitute a waiver of claims except those previously made in writing and identified as unsettled in Contractor's final Application for Payment.
- C. Execution of Change Order waives claims. The execution of a Change Order shall constitute a waiver of claims by the Contractor arising out of the Work to be performed or deleted pursuant to the Change Order, except as specifically described in the Change Order.

7.09 LIENS

- A. Contractor to discharge liens. The Contractor shall promptly pay (and secure the discharge of any liens asserted by) all persons properly furnishing labor, equipment, materials, or other items in connection with the performance of the Work including, but not limited to, any Subcontractors of any tier.

ARTICLE 8 - CHANGES IN THE WORK

8.01 CHANGES IN THE WORK

- A. Changes in the Work authorized. Without invalidating the Contract and without notice to the Contractor's surety, the Port may authorize changes in the Work after execution of the Contract, including changes in the Contract Sum or Contract Time. Changes shall occur solely by Change Order, Unilateral Change Directive, or Minor Change in Work. All changes in the Work are effective immediately, and the Contractor shall proceed promptly to perform the change, unless otherwise provided in the Change Order or Directive.
- B. Changes in the Work Defined.
 - 1. A Change Order is a written instrument signed by the Port and Contractor stating their agreement to a change in the Work and the adjustment, if any, in the Contract Sum and/or Contract Time.
 - 2. A Unilateral Change Directive is a written instrument issued by the Port to transmit new or revised Drawings, issue additions or modifications to the Contract, furnish other direction and documents adjustment, if any, to the Contract Sum and/or Contract Time. A Unilateral Change Directive is signed only by the Port, without requiring the consent or signature of the Contractor.
 - 3. A Minor Change in the Work is a written order from the Port directing a change that does not involve an adjustment to the Contract Sum or the Contract Time.

- C. Request for Proposal: At any time, the Port may issue a Proposal Request directing the Contractor to propose a change to the Contract Sum and/or Contract Time, if any, based on a proposed change in the Work. The Contractor shall submit a responsive Change Order proposal as soon as possible, and no later than fourteen (14) days after receipt, in which the Contractor specifies in good faith the extent to which the Contract Sum and/or Contract Time would change. All cost components shall be limited to the manner described in Section 8.02(B). If the Contractor fails to timely respond to a Proposal Request, the Port may issue the change as a Unilateral Change Directive.
1. Fixed price method is default for Contractor Change Order proposal. When the Port has requested that the Contractor submit a Change Order proposal, the Port may specify the basis on which the Contract Sum will be adjusted by the Contractor. The Engineer's preference, unless otherwise indicated, is for changes in the Work to be priced using Lump Sums or Unit Prices or on a time and material (Force Account) basis if unit pricing or lump sums cannot be negotiated or determined. In all instances, however, proposed changes shall include a not-to-exceed price for the change and shall be itemized for evaluation purposes in accordance with Section 8.02(B), as requested by the Engineer.
 2. The Port may accept or reject the Contractor's Change Order proposal, request further documentation, or negotiate acceptable terms with the Contractor. If The Port and Contractor reach agreement on the terms of any change in the Work, including any adjustment in the Contract Sum or Contract Time, such agreement shall be incorporated in a Change Order.
 3. The Change Order shall constitute full payment and final settlement of all claims for time and for direct, indirect, and consequential costs, including costs of delays, inconvenience, disruption of schedule, or loss of efficiency or productivity, related to any Work either covered or affected by the Change Order, or related to the events giving rise to the request for equitable adjustment. The Port may reject a proposal, in which case the Port may either not effectuate the change or issue a Unilateral Change Directive. The Port will not make payment to the Contractor for any work until that work has been incorporated into an executed Change Order.
- D. Unforeseen Conditions: If the Contractor encounters conditions at the site that are: (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or any soils reports made available by the Port to the Contractor, or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall immediately provide oral notice to the Engineer before conditions are disturbed, followed within 24 hours by an initial written notice. The Contractor shall submit a detailed proposal no later than seven (7) days following discovery of differing site conditions. The Engineer will promptly investigate these conditions and, if the Engineer determines that they differ materially and cause an increase or decrease in the Contractor's cost or time required for performance of any part of the Work, will establish a change in the Contract Sum or Contract Time, or both, consistent with the requirements of the Contract Documents. If the Contractor disputes the Engineer's determination, the Contractor may proceed as provided in the dispute resolution procedure (Article 11). No increase to the Contract Sum or the Contract Time shall be allowed if the Contractor does not comply with the contractual requirements or if the Contractor knew, or reasonably should have known, of the concealed conditions prior to executing the Contract.

- E. Proceed Immediately: Pending agreement on the terms of the Change Order or upon determination of a differing site condition as defined in 8.01(D), the Engineer may direct Contractor to proceed immediately with the change in the Work. Contractor shall not proceed with any change in the Work until it has obtained the Engineer's written approval and documentation of the following:
1. The scope of work
 2. An agreed upon maximum not-to-exceed amount
 3. The method of final cost determination
 4. Estimated time to complete the changed work
 5. As a change in the Work is performed, unless the parties have signed a written Change Order to establish the cost of the change, the Contractor shall maintain an itemized accounting of all costs related to the change based on the categories in Section 8.02(B) and provide such data to the Port upon request. This includes, without limitation, invoices, including freight and express bills, and other support for all material, equipment, Subcontractor, and other charges related to the change and, for material furnished from the Contractor's own inventory, a sworn affidavit certifying the actual cost of such material. Failure to provide data to the Port within seven (7) days of a request constitutes a waiver of any claim. The Port may furnish any material or equipment to the Contractor that it deems advisable, and the Contractor shall have no claim for any costs or fee on such material or equipment.
- F. Procedure for Unilateral Change Directive. Whether or not the Port has rejected a Contractor's proposal, the Port may issue a Unilateral Change Directive and the Contractor shall promptly proceed with the specified Work. If the Contractor disagrees with a Unilateral Change Directive, the Contractor shall advise the Port in writing through a Change Order proposal within seven (7) days of receipt. The Contractor's Change Order proposal shall reasonably specify the reasons for any disagreement and the adjustment it proposes. Without this timely Change Order proposal, the Contractor shall conclusively be deemed to have accepted the Port's proposal.
- G. Payment pending final determination of Force Account work. Pending final determination of the total cost of Force Account Work, and provided that the Work to be performed under Force Account is complete and any reservations of rights have been signed by the Port, the Contractor may request payment for amounts not in dispute in the next Application for Payment accompanied by documentation indicating the parties' agreement. Work done on a Force Account basis must be approved in writing on a daily basis by the Engineer or the Engineer's designee and invoices shall be submitted with an Application for Payment within sixty (60) days of performance of the Work.

8.02 CHANGES IN THE CONTRACT SUM

- A. Port to Decide How Changes are Measured. The Port may elect, in its sole discretion, how changes in the Work will be measured for payment. Change in the Work may be priced on a lump sum basis, through Unit Prices, as Force Account, or by another method documented in the executed Change Order, Unilateral Change Directive, or Minor Change in the Work.
- B. Determination of Cost of Change. The total cost of any change in the Work, including a claim under Article 11, shall not exceed the prevailing cost for the Work in the locality of the Project. In all circumstances, the change in the Work shall be limited to the reasonable, actual cost of the following components:

1. Direct labor costs: These are the actual labor costs determined by the number of additional craft hours at their normal hourly rate necessary to perform a change in the Work. The hourly cost of labor will be based upon the following:
 - a. Basic wages and fringe benefits: The hourly wage (without markup or labor burden) and fringe benefits paid by the Contractor as established by the Washington Department of Labor and Industries or contributed to labor trust funds as itemized fringe benefits, whichever is applicable, not to exceed that specified in the applicable "Intent to Pay Prevailing Wage," for the laborers, apprentices, journeymen, and foremen performing or directly supervising the change in the Work on site. These wages do not include the cost of Contractor's project manager or superintendent or above, and the premium portion of overtime wages is not included unless pre-approved in writing by the Port. Costs paid or incurred by the Contractor for vacations, per diem, subsistence, housing, travel, bonuses, stock options, or discretionary payments to employees are not separately reimbursable. The Contractor shall provide to the Port copies of payroll records, including certified payroll statements for itself and Subcontractors of any tier, upon the Port's request.
 - b. Workers' insurance: Direct contributions to the State of Washington as industrial insurance; medical aid; and supplemental pension by class and rates established by the Washington Department of Labor and Industries.
 - c. Federal insurance: Direct contributions required by the Federal Insurance Compensation Act (FICA); Federal Unemployment Tax Act (FUTA); and State Unemployment Compensation Act (SUCA).
2. Direct material costs: This is an itemization, including material invoices, of the quantity and actual cost of additional materials necessary to perform the change in the Work. The cost will be the net cost after all discounts or rebates, freight costs, express charges, or special delivery costs, when applicable. No lump sum costs will be allowed unless approved in advance by the Port.
3. Construction equipment usage costs: This is an itemization of the actual length of time that construction equipment necessary and appropriate for the Work is used solely on the changed Work times the applicable rental cost as established by the lower of the local prevailing rates published in www.equipmentwatch.com, as modified by the AGC/WSDOT agreement, or the actual rate paid to an unrelated third party. If more than one rate is applicable, the lowest available rate will be utilized. Rates and quantities of equipment rented that exceed the local fair market rental costs shall be subject to the Port's prior written approval. Total rental charges for equipment or tools shall not exceed 75% of the fair market purchase value of the equipment or the tool. Actual, reasonable mobilization costs are permitted if the equipment is brought to the site solely for the change in the Work. Mobilization and standby costs shall not be charged for equipment already present on the site.

The rates in effect at the time of the performance of the changed Work are the maximum rates allowable for equipment of modern design, and in good working condition, and include full compensation for furnishing all fuel, oil, lubrication, repairs, maintenance, and insurance. No gas surcharges are payable. Equipment not of modern design and/or not in good working condition will have lower rates. Hourly, weekly, and/or monthly rates, as appropriate, will be applied to yield the lowest total cost.

4. Subcontractor costs: These are payments the Contractor makes to Subcontractors for changed Work performed by Subcontractors. The Subcontractors' cost of changed Work shall be determined in the same manner as prescribed in this Section 8.02 and, among other things, shall not include consultant costs, attorneys' fees, or claim preparation expenses.
5. Service provider costs: These are payments the Contractor makes to service providers for changed Work performed by service providers. The service providers' cost of changed Work shall be determined in the same manner as prescribed in this Section 8.02.
6. Markup: This is the maximum total amount for overhead, profit, and other costs, including office, home office and site overhead (including purchasing, project manager, superintendent, project engineer, estimator, and their vehicles and clerical assistants), taxes (except for sales tax on the Contract Sum), warranty, safety costs, printing and copying, layout and control, quality control/assurance, small or hand tools (a tool that costs \$500 or less and is normally furnished by the performing contractor), preparation of as-built drawings, impact on unchanged Work, Change Order and/or claim preparation, and delay and impact costs of any kind (cumulative, ripple, or otherwise), added to the total cost to the Port of any Change Order work. No markup shall be due, however, for direct settlements of Subcontractor claims by the Port after Substantial Completion. The markup shall be limited in all cases to the following schedule:
 - a. Direct labor costs -- 20% markup on the direct cost of labor for the party (Contractor or Subcontractor) providing labor related to the change in the Work;
 - b. Direct material costs -- 20% markup on the direct cost of material for the party (Contractor or Subcontractor) providing material related to the change in the Work;
 - c. Construction equipment usage costs -- 10% markup on the direct cost of equipment for the party (Contractor or Subcontractor) providing equipment related to the change in the Work;
 - d. Contractor markup on Subcontractor costs -- 10% markup for the Contractor on the direct cost (excluding markup) of a change in the Work performed by Subcontractors (and for Subcontractors, for a change in the Work performed by lower-tier Subcontractors); and
 - e. Service provider costs -- 5% markup for the Contractor on the direct cost (excluding markup) of a change in the Work performed by service providers.

The total summed markup of the Contractor and all Subcontractors of any tier shall not exceed 30% of the direct costs of the change in the Work. If the markup would otherwise exceed 30%, the Contractor shall proportionately reduce the markup for the Contractor and all Subcontractors of any tier.
7. Cost of change in insurance or bond premium. This is defined as:
 - a. Contractor's liability insurance: The actual cost (expressed as a percentage submitted with the certificate of insurance provided under the Contract Documents and subject to audit) of the Contractor's liability insurance arising directly from the changed Work; and
 - b. Public works bond: The actual cost (expressed as a percentage submitted under the Contract Documents and subject to audit) of the Contractor's performance and payment bond arising directly from the changed Work.

Upon request, the Contractor shall provide the Port with supporting documentation from its insurer or surety of any associated cost incurred. The cost of the insurance or bond premium together shall not exceed 2.0% of the cost of the changed Work.

8. Unit Prices. If Unit Prices are specified in the Contract Documents or established by agreement of the parties for certain Work, the Port may apply them to the changed Work. Unit Prices shall include pre-agreed rates for material quantities and shall include reimbursement for all direct and indirect costs of the Work, including overhead, profit, bond, and insurance costs arising out of, or related to, the Unit Priced item. Quantities must be supported by field measurement statements signed by the Port, and the Port shall have access as necessary for quantity measurement. The Port shall not be responsible for not-to-exceed limit(s) without its prior written approval.

8.03 CHANGES IN THE CONTRACT TIME

- A. Extension of the Contract Time. If the Contractor is delayed at any time in the commencement or progress of the Work by events for which the Port is responsible, by unanticipated abnormal weather (subject to Section 8.03(E) below), or by other causes not the fault or responsibility of the Contractor that the Port determines may justify a delay in the Contract Time, then the Contract Time shall be extended by Change Order for such reasonable time as the Port may determine. In no event, however, shall the Contractor be entitled to any extension of time absent proof of: (1) delay to an activity on the critical path of the Project, or (2) delay transforming an activity to the critical path, so as to actually delay the anticipated date of Substantial Completion.
- B. Allocation of responsibility for delay not caused by Port or Contractor. If a delay was not caused by the Port, the Contractor, or anyone acting on behalf of any of them, the Contractor is entitled only to an increase in the Contract Time but not an increase in the Contract Sum.
- C. Allocation of responsibility for delay caused by Port. If a delay was caused by the Port or someone acting on behalf of the Port and affected the critical path, the Contractor shall be entitled to a change in the Contract Time and Contract Sum in accordance with Section 8.02. The Contractor shall not recover damages, an equitable adjustment, or an increase in the Contract Sum or Contract Time from the Port; however, where the Contractor could reasonably have avoided the delay. The Port is not obligated directly or indirectly for damages for any delay suffered by a Subcontractor of any tier that does not increase the Contract Time.
- D. Allocation of responsibility for delay caused by Contractor. If a delay was caused by the Contractor, a Subcontractor of any tier, or anyone acting on behalf of any of them, the Contractor is not entitled to an increase in the Contract Time or in the Contract Sum.
- E. Adverse weather. If adverse weather is identified as the basis for a claim for additional time, the claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not reasonably have been anticipated and had an adverse effect on the critical path of construction, and that the Work was on schedule (or not behind schedule through the fault of the Contractor) at the time the adverse weather conditions occurred. Neither the Contract Time nor the Contract Sum will be adjusted for normal inclement weather. For a claim based on adverse weather, the Contractor shall be eligible only for a change in the Contract Time (but not a change in the Contract Sum) if the Contractor can substantiate that there was significantly greater than normal inclement weather considering the full term of the Contract Time.

- F. Damages for delay. In the event the Contractor (including any Subcontractors of any tier) is held to be entitled to damages from the Port for delay beyond the amount permitted in Section 8.02(B), the total combined damages to the Contractor and any Subcontractors of any tier for each day of delay shall be limited to the reasonable, actual costs of the delay for which the Port is wholly responsible. The limitation on damages set forth in this Section does not apply to any damages arising exclusively from delay to which the Contractor is entitled to recover under Section 8.03(F).
- G. Limitation on damages. The Contractor shall not be entitled to damages arising out of loss of efficiency; morale, fatigue, attitude, or labor rhythm; constructive acceleration; home office overhead; expectant under run; trade stacking; reassignment of workers; rescheduling of Work, concurrent operations; dilution of supervision; learning curve; beneficial or joint occupancy; logistics; ripple; season change; extended or increased overhead or general conditions; profit upon damages for delay; impact damages including cumulative impacts; or similar damages. Any effect that such alleged costs may have upon the Contractor or its Subcontractors of any tier is fully compensated through the markup on Change Orders paid through Section 8.02(B).

8.04 RESERVATION OF RIGHTS

- A. Reservations of rights void unless signed by Port. Reservations of rights will be deemed waived and are void unless any reserved rights are described in detail and are signed by the Contractor and the Port.
- B. Procedure for unsigned reservations of rights. If the Contractor adds a reservation of rights not signed by the Port to any Change Order, Unilateral Change Directive, Change Order proposal, Application for Payment, or any other document, all amounts and all Work therein shall be considered disputed and not payable until costs are re-negotiated or the reservation is withdrawn or changed in a manner satisfactory to, and signed by, the Port. If the Port makes payment based on a document that contains a reservation of rights not signed by the Port, and if the Contractor cashes such payment, then the reservation of rights shall be deemed waived, withdrawn, and of no effect.

8.05 UNIT PRICES

- A. Adjustment to Unit Prices. If Unit Prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed (less than eighty percent (80%) or more than one hundred and twenty percent (120%) of the quantity estimated) so that application of a Unit Price would be substantially unfair, the applicable Unit Price but not the Contract Time, shall be adjusted if the Port prospectively approves a Change Order revising the Unit Price.
- B. Procedure to change Unit Prices. The Contractor or Port may request a Change Order revising a Unit Price by submitting information to support the change. A proposed change to a Unit Price will be evaluated by the Port based on the change in cost resulting solely from the change in quantity, any change in production rate or method as compared to the original plan, and the share, if any, of fixed expenses properly chargeable to the item. If the Port and Contractor agree on the change, a Change Order will be executed. If the parties cannot agree, the Contractor shall comply with the dispute resolution procedures (Article 11).

ARTICLE 9 - SUSPENSION AND TERMINATION OF CONTRACT

9.01 PORT'S RIGHT TO SUSPEND WORK

- A. Port may suspend the Work. The Port may at any time suspend the Work, or any part thereof, by giving notice to the Contractor. The Work shall be resumed by the Contractor as soon as possible, but no later than fourteen (14) days after the date fixed in a notice to resume the Work. The Port shall reimburse the Contractor for appropriate and reasonable expenses consistent with Section 8.02 incurred by the Contractor as a result of the suspension, except where a suspension is the result of the Contractor repeatedly or materially failing to carry out or correct the Work in accordance with the Contract Documents, and the Contractor shall take all necessary steps to minimize expenses.
- B. Contractor obligations. During any suspension of Work, the Contractor shall take every precaution to prevent damage to, or deterioration of, the Work. The Contractor shall be responsible for all damage or deterioration to the Work during the period of suspension and shall, at its sole expense, correct or restore the Work to a condition acceptable to the Port prior to resuming Work.

9.02 TERMINATION OF CONTRACT FOR CAUSE BY THE PORT

- A. Port may terminate for cause. If the Contractor is adjudged bankrupt or makes a general assignment for the benefit of the Contractor's creditors, if a receiver is appointed due to the Contractor's insolvency, or if the Contractor, in the opinion of the Port, persistently or materially refuses or fails to supply enough properly skilled workmen or materials for proper completion of the Contract, fails to make prompt payment to Subcontractors or suppliers for material or labor, disregards laws, ordinances, or the instructions of the Port, fails to prosecute the Work continuously with promptness and diligence, or otherwise materially violates any provision of the Contract, then the Port, without prejudice to any other right or remedy, may terminate the Contractor after giving the Contractor seven (7) days' written notice (during which period the Contractor shall have the right to cure).
- B. Procedure following termination for cause. Following a termination for cause, the Port may take possession of the Project site and all materials and equipment, and utilize such materials and equipment to finish the Work. The Port may also exclude the Contractor from the Project site(s). If the Port elects to complete all or a portion of the Work, it may do so as it sees fit. The Port shall not be required to accept the lowest bid for completion of the Work and may choose to complete all or a portion of the Work using its own work force. If the Port elects to complete all or a portion of the Work, the Contractor shall not be entitled to any further payment until the Work is finished. If the expense of finishing the Work, including compensation for additional managerial and administrative services of the Port, exceeds the unpaid balance of the Contract Sum, the excess shall be paid by the Contractor.
- C. Port's remedies following termination for cause. The Port may exercise any rights, claims, or demands that the Contractor may have against third persons in connection with the Contract, and for this purpose the Contractor assigns and transfers to the Port all such rights, claims, and demands.
- D. Inadequate termination for cause converted to termination for convenience. If, after the Contractor has been terminated for cause, it is determined that inadequate "cause" for such termination exists, then the termination shall be considered a termination for convenience pursuant to Section 9.03.

9.03 TERMINATION OF CONTRACT FOR CONVENIENCE BY THE PORT

- A. Port may terminate for convenience. The Port may, at any time (without prejudice to any right or remedy of the Port), terminate all, or any portion of, the Contract for the Port's convenience and without cause. The Contractor shall be entitled to receive payment consistent with the Contract Documents only for Work properly executed through the date of termination, and costs necessarily incurred by reason of the termination (such as the cost of settling and paying claims arising out of the termination under subcontracts or orders), along with a fee of one percent (1%) of the Contract Sum not yet earned on the whole or part of the Work. The total amount to be paid to the Contractor shall not exceed the Contract Sum as reduced by the amount of payments otherwise made. The Port shall have title to all Work performed through the date of termination.

9.04 TERMINATION OF CONTRACT BY THE CONTRACTOR

- A. Contractor may terminate for cause. The Contractor may terminate the Contract if the Work is stopped for a period of sixty (60) consecutive days through no act or fault of the Contractor or a Subcontractor of any tier, for either of the following reasons:
 - 1. Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped; or
 - 2. An act of government, such as a declaration of national emergency, that requires all Work to be stopped.
- B. Procedure for Contractor termination. If one of the reasons described in Section 9.04A exists, the Contractor may, upon seven (7) days' written notice to the Port (during which period the Port has the opportunity to cure), terminate the Contract and recover from the Port payment for Work executed through the date of termination in accordance with the Contract Documents and for proven loss with respect to materials, equipment, tools, and construction equipment and machinery, including reasonable overhead and profit on Work executed and direct costs incurred by reason of such termination. The total recovery of the Contractor shall not exceed the unpaid balance of the Contract Sum.
- C. Contractor may stop the Work for failure of Port to pay undisputed amounts. The Contractor may stop Work under the Contract if the Port does not pay undisputed amounts due and owing to the Contractor within fifteen (15) days of the date established in the Contract Documents. If the Port fails to pay undisputed amounts, the Contractor may, upon fifteen (15) additional days' written notice to the Port, during which the Port can cure, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately, and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay, and start-up.

9.05 SUBCONTRACT ASSIGNMENT UPON TERMINATION

- A. Subcontracts assigned upon termination. Each subcontract is hereby assigned by the Contractor to the Port provided that:
 - 1. The Port requests that the subcontract be assigned.
 - 2. The assignment is effective only after termination by the Port and only for those subcontracts that the Port accepts in writing.
 - 3. The assignment is subject to the prior rights of the surety, if any, under any bond issued in accordance with the Contract Documents.

When the Port accepts the assignment of a subcontract, the Port assumes the Contractor's rights and obligations under the subcontract, but only for events and payment obligations that arise after the date of the assignment.

ARTICLE 10 - BONDS

10.01 CONTRACTOR PERFORMANCE AND PAYMENT BONDS

- A. Contractor to furnish performance and payment bonds. Within ten (10) days following its receipt of a notice of award, and as part of the Contract Sum, the Contractor shall secure and furnish duly executed performance and payment bonds using the forms furnished by the Port. The bonds shall be executed by a surety (or sureties) reasonably acceptable to the Port, admitted and licensed in the State of Washington, registered with the Washington State Insurance Commissioner, and possessing an A.M. Best rating of "A-, FSC (6)" or better and be authorized by the U.S. Department of the Treasury. Pursuant to RCW 39.08, the bonds shall be in an amount equal to the Contract Sum, and shall be conditioned only upon the faithful performance of the Contract by the Contractor within the Contract Time and upon the payment by the Contractor of all taxes, fees, and penalties to the State of Washington and all laborers, Subcontractors, and suppliers, and others who supply provisions, equipment, or supplies for the performance of the Work covered by this Contract. The bonds shall be signed by the person or persons legally authorized to bind the Contractor.
- B. On contracts of one hundred fifty thousand dollars or less, at the option of the contractor as defined in RCW 39.10.210, the Port may, in lieu of the bond, retain ten percent of the contract amount for a period of thirty days after date of final acceptance, or until receipt of all necessary releases from the department of revenue, the Employment Security Department, and the Department of Labor and Industries and settlement of any liens filed under chapter 60.28 RCW, whichever is later. The recovery of unpaid wages and benefits must be the first priority for any actions filed against retainage held by a state agency or authorized local government.

For contracts of one hundred fifty thousand dollars or less, the Port may accept a full payment and performance bond from an individual surety or sureties.
- C. Port may notify surety. If the Port makes or receives a claim against the Contractor, the Port may, but is not obligated to, notify the Contractor's surety of the nature and amount of the claim. If the claim relates to a possibility of a Contractor's default, the Port may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

ARTICLE 11 - DISPUTE RESOLUTION

11.01 NOTICE OF PROTEST AND CLAIM

- A. Dispute resolution procedure mandatory. All claims, direct or indirect, arising out of, or relating to, the Contract Documents or the breach thereof, shall be decided exclusively by the following alternative dispute resolution procedure, unless the parties mutually agree otherwise. If the Port and Contractor agree to a partnering process to assist in the resolution of disputes, the partnering process shall occur prior to, and not be in place of, the mandatory dispute resolution procedures set forth below.

- B. Notice of protest defined. Except for claims requiring notice before proceeding with the affected Work as otherwise described in the Contract Documents, the Contractor shall provide immediate oral notice of protest to the Engineer prior to performing any disputed Work and shall submit a written notice of protest to the Port within seven (7) days of the occurrence of the event giving rise to the protest that includes a clear description of the event(s). The protest shall identify any point of disagreement, those portions of the Contract Documents believed to be applicable, and an estimate of quantities and costs involved. When a protest relates to cost, the Contractor shall keep full and complete records and shall permit the Port to have access to those records at any time as requested by the Port.
- C. Claim defined. A claim is a demand by one of the parties seeking adjustment or interpretation of the Contract terms, payment of money, extension of time, or other relief with respect to the terms of the Contract Documents. The term "claim" also includes all disputes and matters in question between the Port and Contractor arising out of, or relating to, the Contract Documents. Claims must be initiated in writing and include a detailed factual statement and clear description of the claim providing all necessary dates, locations, and items of Work, the date or dates on which the events occurred that give rise to the claim, the names of employees or representatives knowledgeable about the claim, the specific provisions of the Contract Documents that support the claim, any documents or oral communications that support the claim, any proposed change in the Contract Sum (showing all components and calculations) and/or Contract Time (showing cause and analysis of the resultant delay in the critical path), and all other data supporting the claim. Claims shall also be submitted with a statement certifying, under penalty of perjury, that the claim as submitted is made in good faith, that the supporting cost and pricing data are true and accurate to the best of Contractor's knowledge and belief, that the claim is fully supported, and that the amount requested accurately reflects the adjustment in the Contract Sum or Contract Time for which Contractor believes the Port is liable. A claim shall be deemed to include all changes, direct and indirect, in cost and in time to which the Contractor and Subcontractors of any tier are entitled and may not contain reservations of rights without the Port's written approval; any unapproved reservations of rights shall be without effect.
- D. Claim procedure. The Contractor shall submit a written claim within thirty (30) days of providing written notice of protest. The Contractor may delay submitting supporting data by an additional thirty (30) days if it notifies the Port in its claim that substantial data must be assembled. Any claim of a Subcontractor of any tier may be brought only through, and after review by and concurrence of, the Contractor.
- E. Failure to comply with notice of protest and claim requirements waives claims. Any notice of protest by the Contractor and any claim of the Contractor, whether under the Contract or otherwise, must be made pursuant to, and in strict accordance with, the applicable provisions of the Contract. Failure to properly and timely submit a notice of protest or to timely submit a claim shall waive the claim. No act, omission, or knowledge, actual or constructive, of the Port shall waive the requirement for timely written notice of protest and a timely written claim, unless the Port and the Contractor sign an explicit, unequivocal written waiver approved by the Port. The Contractor expressly acknowledges and agrees that the Contractor's failure to timely submit required notices of protest and/or timely submit claims has a substantial impact upon, and prejudices, the Port. For the purpose of calculating time periods, an "event giving rise to a claim," among other things, is not a Request for Information, but rather is a response that the Contractor believes would change the Contract Sum and/or Contract Time.

- F. False claims. The Contractor shall not make any fraudulent misrepresentations, concealments, errors, omissions, or inducements to the Port in the formation or performance of the Contract. If the Contractor or a Subcontractor of any tier submits a false or frivolous claim to the Port, which for purposes of this Section 11.01(F) is defined as a claim based in whole or in part on a materially incorrect fact, statement, representation, assertion, or record, the Port shall be entitled to collect from the Contractor by offset or otherwise (without prejudice to any right or remedy of the Port) any and all costs and expenses, including investigation and consultant costs, incurred by the Port in investigating, responding to, and defending against the false or frivolous claim.
- G. Compliance with lien and retainage statutes required. If a claim relates to, or is the subject of, a lien or retainage claim, the party asserting the claim may proceed in accordance with applicable law to comply with the notice and filing deadlines prior to resolution of the claim by mediation or by litigation.
- H. Performance required pending claim resolution. Pending final resolution of a claim, the Contractor shall continue to perform the Contract and maintain the Baseline Project Schedule, and the Port shall continue to make payments of undisputed amounts due in accordance with the Contract Documents.

11.02 MEDIATION

- A. Claims must be subject to mediation. At any time following the Port's receipt of a written claim, the Port may require that an officer of the Contractor and the Port's designee (all with authority to settle) meet, confer, and attempt to resolve a claim. If the claim is not resolved during this meeting, the claim shall be subject to mandatory mediation as a condition precedent to the initiation of litigation. This requirement can be waived only by an explicit, written waiver signed by the Port and the Contractor.
- B. Mediation procedure. A request for mediation shall be filed in writing with the other party to the Contract, and the parties shall promptly attempt to agree upon a mediator. If the parties have not reached agreement within thirty (30) days of the request, either party may file the request with the American Arbitration Association, or such other alternative dispute resolution service to which the parties mutually agree, with a copy to the other party, and the mediation shall be administered by the American Arbitration Association (or other agreed service). The parties to the mediation shall share the mediator's fee and any filing fees equally. The mediation shall be held in Pierce County, Washington, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof. Unless the Port and the Contractor mutually agree in writing otherwise, all claims shall be considered at a mediation session that shall occur prior to Final Completion.

11.03 LITIGATION

- A. Claims not resolved by mediation are subject to litigation. Claims not resolved through mediation shall be resolved by litigation, unless the parties mutually agree otherwise. The venue for any litigation shall be Pierce County, Washington. The Contractor may bring no litigation on claims, unless such claims have been properly raised and considered in the procedures of this Article 11. The Contractor must demonstrate in any litigation that it complied with all requirements of this Article.

- B. Litigation must be commenced promptly. All unresolved claims of the Contractor shall be waived and released, unless the Contractor has complied with the requirements of the Contract Documents, and litigation is served and filed within 180 days of the date of Substantial Completion approved in writing by the Port or termination of the Contract. The pendency of mediation (the time period between receipt by the non-requesting party of a written mediation request and the date of mediation) shall toll these deadlines until the earlier of the mediator providing written notice to the parties of impasse, or thirty (30) days after the date of the mediation session.
- C. Port not responsible for attorneys' fees. Neither the Contractor nor a Subcontractor of any tier, whether claiming under a bond or lien statute or otherwise, shall be entitled to attorneys' fees directly or indirectly from the Port (but may recover attorneys' fees from the bond or statutory retainage fund itself to the extent allowable under law).
- D. Port may join Contractor in dispute. The Port may join the Contractor as a party to any litigation or arbitration involving the alleged fault, responsibility, or breach of contract of the Contractor or Subcontractor of any tier.

ARTICLE 12 - MISCELLANEOUS

12.01 GENERAL

- A. Rights and remedies are cumulative. The rights and remedies of the Port set forth in the Contract Documents are cumulative, and in addition to and not in limitation of, any rights and remedies otherwise available to the Port. The pursuit of any remedy by the Port shall not be construed to bar the Port from the pursuit of any other remedy in the event of similar, different, or subsequent breaches of this Contract. All such rights of the Port shall survive completion of the Project or termination of the Contractor.
- B. Reserved rights do not give rise to duty. The rights reserved or possessed by the Port to take any action shall not give rise to a duty for the Port to exercise any such right.

12.02 WAIVER

- A. Waiver must be in writing and authorized by Port. Waiver of any provisions of the Contract Documents must be in writing and authorized by the Port. No other waiver is valid on behalf of the Port.
- B. Inaction or delay not a waiver. No action, delay in acting, or failure to act by the Port shall constitute a waiver of any right or remedy of the Port, or constitute an approval or acquiescence of any breach or defect in the Work, nor shall any delay or failure of the Port to act waive or otherwise prejudice the right of the Port to enforce a right or remedy at any subsequent time.
- C. Claim negotiation not a waiver. The fact that the Port and the Contractor may consider, discuss, or negotiate a claim that has or may have been defective or untimely under the Contract, shall not constitute a waiver of the provisions of the Contract Documents, unless the Port and the Contractor sign an explicit, unequivocal waiver.

12.03 GOVERNING LAW

- A. Washington law governs. This Contract and the rights and duties of the parties hereunder shall be governed by the internal laws of the State of Washington, without regard to its conflict of law principles.

12.04 COMPLIANCE WITH LAW

- A. Contractor to comply with applicable laws. The Contractor shall at all times comply with all applicable Federal, State and local laws, ordinances, and regulations. This compliance shall include, but is not limited to, the payment of all applicable taxes, royalties, license fees, penalties, and duties.
- B. Contractor to provide required notices. The Contractor shall give notices required by all applicable Federal, State and local laws, ordinances, and regulations bearing on the Work.
- C. Contractor to confine operations at site to permitted areas. The Contractor shall confine operations at the Project site to areas permitted by applicable laws, ordinances, permits, rules and regulations, and lawful orders of public authorities and the Contract Documents.

12.05 ASSIGNMENT

- A. Assignment. The Port and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to the other party and to the partners, successors, assigns, and legal representatives of such other party. The Contractor may not assign, transfer, or novate all or any portion of the Contract, including but not limited to, any claim or right to the Contract Sum, without the Port's prior written consent. If the Contractor attempts to make an assignment, transfer, or novation without the Port's consent, the assignment shall be of no effect, and Contractor shall nevertheless remain legally responsible for all obligations under the Contract. The Contractor also shall not assign or transfer, to any third party, any claims it may have against the Port arising under the Contract or otherwise related to the Project.

12.06 TIME LIMIT ON CAUSES OF ACTION

- A. Time limit on causes of action. The Port and Contractor shall commence all causes of action, whether in contract, tort, breach of warranty, or otherwise, against the other arising out of, or related to, the Contract in accordance with the requirements of the dispute resolution procedure set forth in Article 11 of these General Conditions, within the time period specified by applicable law, and within the time limits identified in the Contract Documents. The Contractor waives all claims and causes of action not commenced in accordance with this Section 12.06.

12.07 SERVICE OF NOTICE

- A. Notice. Written notice under the Contract Documents by either the Contractor or Port may be served on the other party by personal service, electronic or facsimile transmission, or delivery service to the last address provided in writing to the other party. For the purpose of measuring time, notice shall be deemed to be received by the other party on the next business day following the sender's electronic or facsimile transmittal or delivery by delivery service.

12.08 RECORDS

- A. Contractor and Subcontractors to maintain records and cooperate with Port audit. The Contractor and Subcontractors of any tier shall maintain books, ledgers, records, documents, estimates, bids, correspondence, logs, schedules, emails, and other tangible and electronic data and evidence relating or pertaining to costs and/or performance of the Contract (“records”) to such extent, and in such detail, as will properly reflect and fully support compliance with the Contract Documents and with all costs, charges, and other amounts of whatever nature. The Contractor shall preserve these records for a period of six (6) years following the date of Final Acceptance under the Contract. Within seven (7) days of the Port’s request, both during the Project and for six (6) years following Final Acceptance, the Contractor and Subcontractors of any tier shall make available, at their office during normal business hours, all records for inspection, audit, and reproduction (including electronic reproduction) by the Port or its representatives; failure to fully comply with this requirement shall constitute a material breach of contract and a waiver of all claims by the Contractor and Subcontractors of any tier.
- B. Rights under RCW 42.56. The Contractor agrees, on behalf of itself and Subcontractors of any tier, that any rights under Chapter 42.56 RCW will commence at Final Acceptance, and that the invocation of such rights at any time by the Contractor or a Subcontractor of any tier, or their respective representatives, shall initiate an equivalent right to disclosures from the Contractor and Subcontractors of any tier for the benefit of the Port.

12.09 STATUTES

- A. Contractor to comply with Washington statutes. The Contractor shall abide by the provisions of all applicable statutes, regulations, and other laws. Although a number of statutes are referenced in the Contract Documents, these references are not meant to be, and are not, a complete list.
 - 1. Pursuant to RCW 39.06, “Registration, Licensing of Contractors,” the Contractor shall be registered and licensed as required by the laws of the State of Washington, including but not limited to RCW 18.27, “Registration of Contractors,” and shall satisfy all State of Washington bonding and insurance requirements. The Contractor shall also have a current state Unified Business Identifier number; have industrial insurance coverage for the Contractor’s employees working in Washington as required by Title 51 RCW; have an Employment Security Department number as required by Title 50 RCW; have a state excise tax registration number as required in Title 82 RCW; and not be disqualified from bidding on any public works contract under RCW 39.06.010 (unregistered or unlicensed contractors) or RCW 39.12.065(3) (prevailing wage violations).
 - 2. The Contractor shall comply with all applicable provisions of RCW 49.28, “Hours of Labor.”
 - 3. The Contractor shall comply with pertinent statutory provisions relating to public works of RCW 49.60, “Discrimination.”
 - 4. The Contractor shall comply with pertinent statutory provisions relating to public works of RCW 70.92, “Provisions in Buildings for Aged and Handicapped Persons,” and the Americans with Disabilities Act.
 - 5. Pursuant to RCW 50.24, “Contributions by Employers,” in general, and RCW 50.24.130 in particular, the Contractor shall pay contributions for wages for personal services performed under this Contract or arrange for an acceptable bond.
 - 6. The Contractor shall comply with pertinent provisions of RCW 49.17, “Washington Industrial Safety and Health Act,” and Chapter 296-155 WAC, “Safety Standards for Construction Work.”

7. Pursuant to RCW 49.70, "Worker and Community Right to Know Act," and WAC 296-62-054 et seq., the Contractor shall provide to the Port, and have copies available at the Project site, a workplace survey or material safety data sheets for all "hazardous" chemicals under the control or use of Contractor or any Subcontractor of any tier.
8. All products and materials incorporated into the Project as part of the Work shall be certified as "asbestos-free" and "lead-free" by United States standards, and shall also be free of all hazardous materials or substances. At the completion of the Project, the Contractor shall submit certifications of asbestos-free and of lead-free materials certifying that all materials and products incorporated into the Work meet the requirements of this Section, and shall also certify that materials and products incorporated into the Work are free of hazardous materials and substances.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes requirements for the Contractor's insurance.

1.02 SUBMITTAL REQUIREMENTS

- A. Evidence of the required insurance within ten (10) days of the issued Notice of Award to the Contractor.
- B. Updated evidence of insurance as required until final completion.

1.03 COMMERCIAL GENERAL LIABILITY (CGL) INSURANCE

- A. The Contractor shall secure and maintain until Final Completion, at its sole cost and expense, the following insurance in carriers reasonably acceptable to the Port, licensed in the State of Washington, registered with the Washington State Insurance Commissioner, and possessing an A.M. Best rating of "A-, FSC six (6)" or better.
- B. The Port of Tacoma (Port) will be included as additional insureds for both ongoing and completed operations by endorsement to the policy using ISO Form CG 20 10 11 85 or forms CG 20 10 04 13 and CG 20 37 04 13 (or equivalent coverage endorsements). The inclusion of the Port as additional insureds shall not create premium liability for the Port.

Also, by endorsement to the policy, there shall be:

- 1. An express waiver of subrogation in favor of the Port;
 - 2. A cross liabilities clause; and
 - 3. An endorsement stating that the Contractor's policy is primary and not contributory with any insurance carried by the Port.
- C. If the Contractor, Supplier, or Subcontractors will perform any work requiring the use of a licensed professional, per RCW 18, the Contractor shall provide evidence to the Port of professional liability insurance in amounts not less than \$1,000,000.
 - D. This insurance shall cover all of the Contractor's operations, of whatever nature, connected in any way with the Contract, including any operations performed by the Contractor's Subcontractors of any tier. **It is the obligation of the Contractor to ensure that all Subcontractors (at whatever level) carry a similar program that provides the identified types of coverage, limits of liability, inclusion of the Port as additional insured(s), waiver of subrogation and cross liabilities clause.** The Port reserves the right to reject any insurance policy as to company, form, or substance. Contractor's failure to provide, or the Port's acceptance of, the Contractor's certificate of insurance does not waive the Contractor's obligation to comply with the insurance requirements of the Contract as specifically described below:
 - 1. Commercial General Liability Insurance on an Occurrence Form Basis including, but not limited to:
 - a. Bodily Injury Liability;
 - b. Property Damage Liability;
 - c. Contractual Liability;
 - d. Products - Completed Operations Liability;

- e. Personal Injury Liability;
Alternatively, a Commercial General Liability (CGL) policy is acceptable if all of the above coverages are incorporated in the policy and there are no marine exclusions that will remove coverage for either vessels or work done by or above or around the water.
2. Comprehensive Automobile Liability including, but not limited to:
 - a. Bodily Injury Liability;
 - b. Property Damage Liability;
 - c. Personal Injury Liability;
 - d. Owned and Non-Owned Automobile Liability; and
 - e. Hired and Borrowed Automobile Liability.
3. Contractor's Pollution Liability (CPL) covering claims for bodily injury, property damage and cleanup costs, and environmental damages from pollution conditions arising from the performance of covered operations.
 - a. If the Work involves remediation or abatement of regulated waste to include, but not limited to asbestos containing materials, lead containing products, mercury, PCB, underground storage tanks, or other hazardous materials or substances, the CPL policy shall not exclude such coverage, or a specific policy covering such exposure shall be required from the Contractor and all Subcontractors performing such Work.
 - b. If the Work involves transporting regulated materials or substances or waste, a separate policy or endorsement to the CPL policy specifically providing coverage for liability and cleanup arising from an upset or collision during transportation of hazardous materials or substances shall be required from the Contractor and all Subcontractors performing such Work.
 - c. It is preferred that CPL insurance shall be on a true occurrence form without a sunset clause. However, if CPL insurance is provided on a Claims Made basis, the policy shall have a retroactive date prior to the start of this project, and this insurance shall be kept in force for at least three years after the final completion of this project. Alternatively, the contractor, at its option, may provide evidence of extended reporting period of not less than three (3) years in its place. The Contractor shall be responsible for providing the Port with certificates of insurance each year evidencing this coverage.
 - d. The Port shall be named as an additional insured(s) on the CPL policy.
4. Technology Professional Liability Errors and Omissions Insurance appropriate to the Consultant's profession and work hereunder, with limits not less than \$2,000,000 per occurrence. Coverage shall be sufficiently broad to respond to the duties and obligations as is undertaken by the Vendor in this agreement and shall include, but not be limited to, claims involving infringement of intellectual property, copyright, trademark, invasion of privacy violations, information theft, release of private information, extortion and network security. The policy shall provide coverage for breach response costs as well as regulatory fines and penalties as well as credit monitoring expenses with limits sufficient to respond to these obligations.

The policy shall include, or be endorsed to include, **property damage liability coverage** for damage to, alteration of, loss of, or destruction of electronic data and/or information "property" of the Agency in the care, custody, or control of the Vendor.

- E. Except where indicated above, the limits of all insurance required to be provided by the Contractor shall be not less than \$2,000,000 for each occurrence. If the coverage is aggregated, the coverage shall be not less than two times the per occurrence or per claim limit. However, coverage in the amounts of these minimum limits shall not be construed as to relieve the Contractor from liability in excess of such limits. Any additional insured endorsement shall NOT be limited to the amounts specified by this Contract, unless expressly waived in writing by the Port.
- F. Contractor shall certify that its operations are covered by the Washington State Worker's Compensation Fund. The Contractor shall provide its Account Number or, if self-insured, its Certificate of Qualification Number. The Contractor shall also provide evidence of Stop-Gap Employers' Liability Insurance.
- G. The Contractor shall furnish, within ten (10) days following issuance of the Notice of Award, a certificate of insurance satisfactory to the Port evidencing that insurance in the types and minimum amounts required by the Contract Documents has been secured. The Certificate of Insurance shall be signed by an authorized representative of the insurer together with a copy of the endorsement, which shows that the Port are named as additional insured(s).
- H. Contractor shall provide at least forty-five (45) days prior written notice to the Port of any termination or material change, or ten (10) day's-notice in the case of non-payment of premium(s).
- I. If the Contractor is required to make corrections to the Work after Final Completion, the Contractor shall obtain at its own expense, prior to the commencement of any corrective work, insurance coverage as required by the Contract Documents, which coverage shall be maintained until the corrections to the Work have been completed and accepted by the Port.

1.04 BUILDER'S RISK INSURANCE

- A. Until Final Completion of the Work, the construction Work is at the risk of the Contractor and no partial payment shall constitute acceptance of the Work or relieve the Contractor of responsibility of completing the Work under the Contract.
- B. To the extent the Work provided under this Contract does not include the construction, rehabilitation or repair of any dam, road or bridge, and whenever the estimated cost of the Work is less than \$5,000,000, the Port and Contractor acknowledge that the Port will purchase, or has purchased, from a company or companies lawfully authorized and admitted to do business in Washington, property insurance written on a Builder's Risk "all-risk" (including Earthquake and Flood with applicable sub-limits) or equivalent policy form to cover the course of construction in the amount of the full insurable value thereof. This property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made or until no person or entity other than the Port has an insurable interest in the property, whichever is later. Without further endorsement, the coverage afforded by this insurance includes the interests of the Port, the Contractor, and Subcontractors of any tier on the Project. Coverage for materials intended to be installed in the facility will be covered by the Builder's Risk policy. Losses up to the deductible amount, and payment of any deductible amount, shall be the responsibility of the Contractor. All tools and equipment not intended as part of the construction or installation (including but not limited to Contractor's equipment and tools) will NOT be covered by the policy.

- C. To the extent the Work provided under this Contract involves any dam, roadway or bridge, the value of which exceeds \$250,000, or whenever the estimated cost of the Work is equal to or greater than \$5,000,000, Contractor will purchase from a company or companies lawfully authorized and admitted to do business in Washington, property insurance written on a Builder's Risk "all-risk" (excluding Earthquake and Flood with applicable sub-limits) or equivalent policy form to cover the course of construction in the amount of the full insurable value thereof. This Builder's Risk insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made or until no person or entity other than the Port has an insurable interest in the property, whichever is later. Contractor shall provide evidence satisfactory to the Port confirming the coverage afforded by this insurance shall include the interests of the Port, the Contractor, and Subcontractors of any tier on the Project. Coverage for materials intended to be installed in the facility will be covered by the Builder's Risk policy purchased by the Contractor. Losses up to the deductible amount, and payment of any deductible amount, shall be the responsibility of the Contractor.

In all instances, the Contractor shall obtain property insurance for all Contractor-owned equipment and tools and, in the event of loss, payment of any deductible amount shall be the responsibility of the Contractor.

PART 2 - PRODUCTS - NOT USED

PART 3 - PRODUCTS - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 PREVAILING AND OTHER REQUIRED WAGES

- A. The Contractor shall pay (and shall ensure that all Subcontractors of any tier pay) all prevailing wages and other wages (such as Davis-Bacon Act wages) applicable to the Project.
- B. Pursuant to RCW 39.12, "Prevailing Wages on Public Works," no worker, laborer, or mechanic employed in the performance of any part of the Work shall be paid less than the "prevailing rate of wage" in effect as of the date that bids are due.
 - 1. Based on the Bid Date, the applicable effective date for prevailing wages for this Project is September 03, 2025.
- C. The State of Washington prevailing wage rates applicable for this public works Project, which is located in Pierce County, may be found at the following website address of the Department of Labor and Industries:

<https://fortress.wa.gov/lni/wagelookup/prvWagelookup.aspx>
- D. The schedule of the prevailing wage rates is made a part of the Contract Documents by reference as though fully set forth herein, and a printed copy of the applicable prevailing wage rates are also available for viewing at the Port Administration Building, located at 1 Sitcum Plaza, Tacoma, WA 98421 (253-383-5841). Upon request to the Procurement Department at procurement@portoftacoma.com, the Port will email or mail a hard copy of the applicable Journey Level prevailing wages for this Project.
- E. Questions relating to prevailing wage data should be addressed to the Industrial Statistician.
 - Mailing Address: Washington State Department of Labor and Industries
Prevailing Wage Office
P.O. Box 44540
Olympia, WA 98504
 - Telephone: (360) 902-5335
 - Facsimile: (360) 902-5300
 - 1. If there is any discrepancy between the provided schedule of prevailing wage rates and the published rates applicable under WAC 296-127-011, the applicable published rates shall apply with no increase in the Contract Sum. It is the Contractor's responsibility to ensure that the correct prevailing wage rates are paid.
- F. Statement to Pay Prevailing Wages
 - 1. Prior to any payment being made by the Port under this Contract, the Contractor, and each Subcontractor of any tier, shall file a Statement of Intent to Pay Prevailing Wages with the Department of Labor and Industries for approval.
 - 2. The statement shall include the hourly wage rate to be paid to each classification of workers entitled to prevailing wages, which shall not be less than the prevailing rate of wage, and the estimated number of workers in each classification employed on the Project by the Contractor or a Subcontractor of any tier, as well as the Contractor's contractor registration number and other information required by the Department of Labor and Industries.

3. The statement, and any supplemental statements, shall be filed in accordance with the requirements of the Department of Labor and Industries. No progress payment shall be made until the Port receives such certified statement.
- G. The Contractor shall post, in a location readily visible to workers, at the Project site: (i) a copy of the Statement of Intent to Pay Prevailing Wages approved by the Industrial Statistician of the Department of Labor and Industries and (ii) the address and telephone number of the Industrial Statistician of the Department of Labor and Industries to whom a complaint or inquiry concerning prevailing wages may be directed.
- H. If a State of Washington prevailing wage rate conflicts with another applicable wage rate (such as Davis-Bacon Act wage rate) for the same labor classification, the higher of the two shall govern.
- I. Pursuant to RCW 39.12.060, if any dispute arises concerning the appropriate prevailing wage rate for work of a similar nature, and the dispute cannot be adjusted by the parties in interest, including labor and management representatives, the matter shall be referred for arbitration to the Director of the Department of Labor and Industries, and his or her decision shall be final and conclusive and binding on all parties involved in the dispute.
- J. Immediately following the end of all Work completed under this Contract, the Contractor and each Subcontractor of any tier, shall file an approved Affidavit of Wages Paid with the Department of Labor and Industries.
- K. The Contractor shall defend (at the Contractor's sole cost, with legal counsel approved by Port), indemnify, and hold the Port harmless from all liabilities, obligations, claims, demands, damages, disbursements, lawsuits, losses, fines, penalties, costs, and expenses, whether direct, indirect, including, but not limited to, attorneys' fees and consultants' fees and other costs and expenses, from any violation or alleged violation by the Contractor or any Subcontractor of any tier of RCW 39.12 ("Prevailing Wages on Public Works") or RCW Title 51 ("Industrial Insurance"), including, but not limited to, RCW 51.12.050.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 REQUIREMENTS APPLICABLE PORT-WIDE

- A. The Contractor shall submit, prior to the start of Work, a list of emergency contact numbers for itself and its Subcontractors, Suppliers, and manufacturer representatives. Each person on the Project site shall have a valid identification card that is tamper proof with laminated photo identification, such as one (1) of the following:
1. State-issued Driver's license (also required if driving a vehicle)
 2. Card issued by a governmental agency
 3. Passport
 4. Pacific Maritime Association card
 5. Labor organization identification card
- B. Identification cards shall be visible while on the Project site or easily displayed when requested.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SCOPE

- A. The accompanying Drawings and Specifications show and describe the location and type of Work to be performed under this project. Work is more specifically defined on the drawings listed in Section 00 01 15.
 - 1. The Work under this contract is to provide, furnish and install all labor, materials and equipment required to complete the work, installed, tested, and ready for use, and as described in these documents.
 - 2. The Port Parcel 114 Site Cleanup Interim Action Excavation consists of: Dewatering, excavation and disposal of contaminated soils, treatment of in-situ soils with ferrous sulfate, amending gravel borrow before backfilling excavated areas and vegetation restoration.

1.02 LOCATION

- A. The work is located at:
1202 Taylor Way, Tacoma, WA 98401

1.03 PORT PROVIDED MATERIALS

- A. Port of Tacoma will furnish the Contractor with the following material:
 - 1. Ferrous Sulfate
- B. Reference Section 01 64 00 - Owner Provided Materials for coordination.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section specifies work sequence and constraints.
- B. The purpose of the milestones, sequence and limitations of construction are to ensure that the Contractor understands the requirements and limitations on its work by the specific characteristics of the Contract, schedules and conducts work in a manner consistent with achieving these purposes, and complies with the construction schedule, the specific sequence, constraints, milestones and limitations of work specified.
- C. Sequence of construction. Plan the sequence of construction to accommodate all the requirements of the specifications. The Contract Price shall include all specified requirements as described in this Section.

1.02 CONTRACTOR ACCESS AND USE OF PREMISES

- A. Activity Regulations
 - 1. Ensure Contractor personnel deployed to the project become familiar with and follow all regulations or restrictions established by the Engineer.
- B. Work Site Regulations
 - 1. Keep within the limits of work and assigned avenues of ingress and egress. Do not enter any areas outside the designated work and Staging location unless previously approved by the Engineer. The Contractor must comply with the following conditions:
 - a. Restore all common areas to a clean and useable condition that permits the resumption of Tenant operations after the Contractor ceases daily work.
 - b. Be responsible for control and security of Contractor-owned equipment and materials at the work site. Report to Port Security (phone (253) 383-9472) any missing/lost/stolen property.
 - c. Ensure all materials, tools and equipment will be removed from the site or secured within the designated laydown area at the end of each shift.

1.03 CONSTRAINTS - GENERAL

- A. Constraints for Work at Site
 - 1. To meet the project schedule, the contractor shall work every weekend until all the excavation is complete. The excavation of contaminated soil needs to be completed during the dryer days of the season.
 - 2. The contractor should anticipate encountering lagging boards and buried timber piles on the perimeter of the ditch. The number, size and embedment depth of the timber piles is not known. The contractor is to remove all encountered lagging boards and timber piles at a minimum, to the elevation of the excavation shown on the drawings. For bidding purposes, the contractor should anticipate two 40-yard dumpster loads of removed timber piles and lagging boards.
 - 3. The contractor is to locate, excavate and expose the capped sewer at the location shown on the drawings.

4. The Port has obtained a Waste Disposal Authorization (WDA 2896 Port of Tacoma - Parcel 114 Former PQ Products Site) from the Tacoma Pierce County Health Department. The Port will directly pay disposal fees to the County. The Contractor is to keep track of all disposal tickets and pass them onto the Port for processing and payment. All tickets must be signed by the Port's inspector or assigned representative to be considered and approved for payment. Tickets not signed by the Port's inspector or assigned Port representative, will not be paid.
5. Soils being disposed of are to pass the paint filter test [USEPA Method 9095B](#) to make sure there is no presence of free liquids in the waste sample / soils being disposed of. If the contractor transports soils with free liquid, and extra costs are charged to the Port by the Landfill for amending soils with free liquids, the extra charges will be passed onto the contractor and deducted from the contractor's final contract amount.

PART 2 - PRODUCTS

PART 3 - EXECUTION

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. Procedures for preparation and submittal of applications for progress payments.

1.02 PAYMENT PROCEDURES

- A. Monthly pay estimates shall clearly identify the work performed for the given time period based on the approved Schedule of Values.
 - 1. At the Pre-construction meeting, the Engineer and the Contractor shall agree upon a date each month when payment applications shall be submitted.
- B. For each pay estimate the Contractor shall submit the following:
 - 1. Completed Contractor invoice and updated Schedule of Values tracking sheet as required by Division 01 or as established by the Engineer.
 - 2. Baseline Project Schedule and narrative updated as required by Section 01 32 16 of the Project Manual.
 - 3. Completed "Amounts Paid to Subcontracts and Suppliers" showing total contract amount, amount paid this estimate, total paid to date, and balance owing.
 - 4. Completed "Conditional Release and Waiver of Liens and Claims."
 - 5. An estimated cashflow statement projecting the Contractor's monthly billings on the project shall be submitted with each payment application.
- C. Prior to submitting a payment application, the Contractor and Engineer shall meet each month to review the work accomplished to determine the actual quantities including labor, materials and equipment charges to be billed.
 - 1. Prior to the payment application meeting, the Contractor shall submit to the Engineer all measurement documentation as referenced in these contract documents; to include all measurement by weight, volume or field.
 - 2. For all change work being done on a force account basis, the Contractor shall submit prior to meeting with Engineer all Force Account back-up documentation as required to process the payment application where Force Account work is being billed. The Engineer and the Contractor shall review the documentation at the payment application meeting to verify quantities and review the work accomplished.
 - 3. The Contractor shall bring a copy of all documentation to the pay application meeting with the Engineer.
 - 4. The Contractor shall submit the updated baseline project schedule for review prior to submitting the payment application to ensure the payment processing is not held up due to necessary schedule revisions.
- D. Following the Engineers' review, the Contractor shall submit the agreed upon pay estimate electronically, with complete supporting documentation, using Microsoft Dynamics 365, or Cpinvoices cpinvoices@portoftacoma.com or as directed by Engineer.

1.03 PAYMENT PRICING

- A. Pricing for the various lump sum or unit prices in the Bid Form, as further specified herein, shall include all compensation to be received by the Contractor for furnishing all tools, equipment, supplies, and manufactured articles, and for all labor, operations, and incidentals appurtenant to the items of work being described, as necessary to complete the various items of the work in accordance with the requirements of the Contract Documents.
- B. Pricing also includes all costs of compliance with the regulations of public agencies having jurisdiction, including safety and health requirements of the Occupational Safety and Health Administration of the U.S. Department of Labor (OSHA).
- C. No separate payment will be made for any item that is not specifically set forth in the Bid Form, and all costs therefore shall be included in the prices named in the Bid Form for the various appurtenant items of work.
- D. All other work not specifically mentioned in the measurement and payment sections identified below shall be considered incidental to the work performed and merged into the various unit and lump sum prices bid. Payment for work under one item will not be paid for under any other item.
- E. The Port of Tacoma reserves the right to make changes should unforeseen conditions necessitate such changes. Where work is on a unit price basis, the actual quantities occasioned by such changes shall govern the compensation.

1.04 LUMP SUM MEASUREMENT

- A. Lump sum measurement will be for the entire item, unit of Work, structure, or combination thereof, as specified and as indicated in the Contractor's submitted bid.
 - 1. If the Contractor requests progress payments for lump sum items, such progress payments will be made in accordance with an approved Schedule of Values. The quantity for payment for completed work shall be an estimated percentage of the lump sum amount, agreed to between the Engineer and Contractor, payable in monthly progress payments in increments proportional to the work performed in amounts as agreed between the Engineer and the Contractor.

1.05 MEASUREMENT OF QUANTITIES FOR UNIT PRICES

- A. Measurement Standards:
 - 1. All Work to be paid for at a contract price per unit measurement, as indicated in the Contractor's submitted bid, will be measured by the Engineer in accordance with United States Standard Measures.
- B. Measurement by Weight:
 - 1. Reinforcing steel, steel shapes, castings, miscellaneous metal, metal fabrications, and similar items to be paid for by weight shall be measured by scale or by handbook weights for the type and quantity of material actually furnished and incorporated into the Work.

2. Unless shipped by rail, material to be measured and paid for by weight shall be weighed on sealed scales regularly inspected by the Washington State Department of Agriculture's Weights and Measures Section or its designated representative. Measurement shall be furnished by and at the expense of the Contractor. All weighing, measuring, and metering devices shall be suitable for the purpose intended and shall conform to the tolerances and specifications as outlined in Washington State Department of Transportation Standard Specifications, Division 1, General Requirements, Article 1-09.2, Weighing Equipment.
 3. Provide or utilize platform scales of sufficient size and capacity to permit the entire vehicle or combination of vehicles to rest on the scale platform while being weighed. Combination vehicles may be weighed as separate units provided they are disconnected while being weighed. Scales shall be inspected and certified as often as the Engineer may deem necessary to ascertain accuracy. Costs incurred as a result of regulating, adjusting, testing, inspecting, and certifying scales shall be borne by the Contractor.
 4. A licensed weighmaster shall weigh all Contractor-furnished materials. The Engineer may be present to witness the weighing and to check and compile the daily record of such scale weights. However, in any case, the Engineer will require that the Contractor furnish weight slips and daily summary weigh sheets. In such cases, furnish a duplicate weight slip or a load slip for each vehicle weighed, and deliver the slip to the Engineer at the point of delivery of the material.
 5. If the material is shipped by rail, the certified car weights will be accepted, provided only actual weight of material will be paid for and not minimum car weights used for assessing freight tariff. Car weights will not be acceptable for material to be passed through mixing plants. Material to be measured by weight shall be weighed separately for each bid item under which it is to be paid.
 6. Trucks used to haul material being paid for by weight shall be weighed empty daily and at such additional times as the Engineer may require. Each truck shall bear a plainly legible identification mark. The Engineer may require the weight of the material be verified by weighing empty and loaded trucks on such other scales as the Engineer may designate.
- C. Measurement by Volume:
1. Measurement by volume will be by the cubic dimension indicated in the Contractor's submitted bid. Method of volume measurement will be by the unit volume in place or removed as shown on the Contract Drawings or as specified.
 2. When material is to be measured and paid for on a volume basis and it is impractical to determine the volume by the specified method of measurement, or when requested by the Contractor in writing and accepted by the Engineer in writing, the material may be weighed in accordance with the requirements specified for weight measurement. Such weights will be converted to volume measurement for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the Resident Engineer and shall be agreed to by the Contractor before such method of measurement of pay quantities will be accepted.
- D. Measurement by Area: Measurement by area will be by the square dimension shown on the Contract Drawings or as specified. Method of square measurement will be as specified.
- E. Linear Measurement: Linear measurement will be by the linear dimension listed or indicated in the Contractor's submitted bid. Unless otherwise indicated, items, components, or Work to be measured on a linear basis will be measured at the centerline of the item in place.

F. Field Measurement for Payment:

1. The Contractor shall take all measurements by providing equipment, workers, and survey crews as required to measure quantities in accordance with the provisions for measurement specified herein. No allowance will be made for specified tolerances.
2. The Engineer will verify all quantities of Work performed by the Contractor on a unit-price basis, for progress payment purposes.

1.06 REJECTED, EXCESS, OR WASTED MATERIALS

- A. Quantities of material wasted or disposed of in a manner not called for under the Contract; rejected loads of material, including material rejected after it has been placed by reasons of the failure of the Contractor to conform to the provisions of the Contract; material not unloaded from the transporting vehicle; material placed outside the lines indicated on the Contract Drawings or established by the Engineer; or material remaining on hand after completion of the Work, will not be paid for, and such quantities shall not be included in the final total quantities. No additional compensation will be permitted for loading, hauling, and disposing of rejected material.

1.07 MEASUREMENT AND PAYMENT

A. Item #1: Mobilization and Demobilization

1. Payment for Mobilization and Demobilization shall be for preparatory work and operations performed by the Contractor including, but not limited to, those necessary for the movement of its personnel, equipment, supplies and incidentals to and from the project site; temporary facilities and controls; for the establishment and removal of its offices, buildings and other facilities necessary for work on the project; for other work and operations which it must perform or costs it must incur before beginning production work on the various items on the project site, and for removal of personnel, equipment, supplies, offices, building facilities, sheds, fencing, and other incidentals from the site.
2. Mobilization and Demobilization shall be paid at the lump sum price listed in the Contractor's submitted bid. Incremental payment shall be made for each location as follows:
 - a. 40% after completion of 5% of the total contract amount of other bid items have been earned.
 - b. 40% after completion of 20% of the total contract amount of other bid items have been earned.
 - c. 20% after completion of all work on the project has been completed, including cleanup and acceptance of the project by the Port.

B. Item #2: Project Administration

1. Item Description: The Work of this item includes all administrative costs associated with administering and supervising the project including, but not limited to supervision of personnel, coordination of all work activities, coordination of subcontractors and/or suppliers, preparation and transmittal of submittals, permit acquisitions, for premiums on bonds and insurance for the project, and project overhead.
2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.

3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted bid, in accordance with the approved Schedule of Values.
- C. Item #3: Clear and Grub Stormwater ditch
1. Item Description: The Work of this item includes all labor and materials required to removal and disposal of all vegetation, trees and stumps up 12 inches in diameter, by cutting and chipping as indicated on the Drawings and specifications.
 2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.
 3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted bid, in accordance with the approved Schedule of Values.
- D. Item #4: Excavate, Handle, and Dispose Contaminated Material.
1. Item Description: The Work of this item includes all labor, equipment, and supplies required for contaminated soils excavation including the anticipated over excavation on the project, segregation, stockpiling, solidifying if needed to reduce water content to make the soils transportable, loadable, and acceptable for disposal to a Subtitle D landfill. The Work includes paint filter testing, preparation and submittal of reports and certificates as specified in the Drawings and specifications.
 2. Measurement: This item will be measured per ton based on the weight of materials disposed of, as measured at the permitted Subtitle D landfill. Scales for weighing quantity shall be of the type that will print weigh tickets. A duplicate copy of each weigh ticket and a copy of the latest scale certification shall be furnished to the Engineer.
 3. Payment: This item will be paid for based on actual quantities for the period being billed and, in accordance with the approved Schedule of Values.
- E. Item #5: Amend Soils at Base of Boiler House Excavations
1. Item Description: The Work of this item includes all labor, equipment, and supplies necessary to mix Port supplied Ferrous Sulfate into the Boiler House Excavations' Subgrades before backfilling as per the project Drawings and specifications.
 2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.
 3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted bid, in accordance with the approved Schedule of Values.
- F. Item # 6: Furnish, Amend, and Place Amended Gravel Borrow Backfill.
1. Item Description: The Work of this item includes all the labor, equipment, supplies and materials needed for the onsite mixing of Gravel Borrow and Port supplied Ferrous Sulfate to produce Amended Gravel Borrow, and then placement and compaction of Amended Gravel Borrow in the Boiler House Excavations Area per Drawings and specifications.
 2. Measurement: This item will be measured per ton based on the weight of Gravel Borrow that is amended with Ferrous Sulfate and placed in the Boiler House Excavation Areas as measured by the supplier of the Gravel Borrow. Scales for weighing quantity shall be of the type that will print weigh tickets. A duplicate copy of each weigh ticket and a copy of the latest scale certification shall be furnished to the Engineer.

3. Payment: This item will be paid for at the unit price indicated on the bid form and actual quantities for the period being billed, and, in accordance with the approved Schedule of Values.

G. Item # 7: Furnish and Place Gravel Borrow Backfill

1. Description: The Work of this item includes all labor, materials and equipment required to furnish, transport, on-site stockpile, handle, place, and compact (unamended) Gravel Borrow and finish grading of Gravel Borrow per the project Drawings and specifications.
2. Measurement: This item will be measured per ton based on measured weight of Gravel Borrow material used. Measurement will be based on the furnished and accepted material from certified weight tickets or delivery receipts. Only material actually used for an approved purpose in accordance with these Specifications will be considered part of the measurement. Imported material that is not used and is hauled away shall be weighed and deducted from the amount brought on site.
3. Payment: This item will be paid for at the unit price indicated on the bid form and actual quantities for the period being billed and, in accordance with the approved Schedule of Values.

H. Item # 8: Water Management System

1. Description: The Work of this item includes but is not limited to all labor, equipment, supplies, and materials required to furnish, mobilize, install, test, decontaminate, and demobilize the water management system equipment (including properly disposing of all waste materials generated by water management), and operate the system including inspection and maintenance, assisting Engineer with sampling, and record keeping, per the project Drawings and specifications. The work also includes furnishing a dewatering and water management system that accomplishes, water extraction, treatment, and discharge, extracting groundwater from excavations and accumulated stormwater within the Project Limits, conveying that extracted water to the on-site water treatment system, treating that water to achieve specified pollution concentration limits (water quality limits), conveying treated water to the specified discharge point, and discharging it at rates not to exceed specified limits—all in accordance with requirements of the project's Special Approved Discharge (SAD) permit and other applicable laws and regulations.
2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.
3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted bid, in accordance with the approved Schedule of Values

I. Item # 9: Import and Place Compost Amended Topsoil 6" Depth

1. Description: The Work of this item includes all labor, materials and equipment required to furnish, transport, on-site stockpile, handle, and place compost amended topsoil per the project Drawings and specifications.
2. Measurement: This item will be measured per cubic yard of material used. Measurement will be based on the furnished and accepted material from certified weight tickets or delivery receipts. Only material actually used for an approved purpose in accordance with these Specifications will be considered part of the measurement. Imported material that is not used and is hauled away shall be deducted from the amount brought on site.

3. Payment: This item will be paid for at the unit price indicated on the bid form and actual quantities for the period being billed and, in accordance with the approved Schedule of Values.
- J. Item # 10: Seed / Vegetation Placement
1. Description: The Work of this item includes all labor, materials and equipment required to furnish, transport, on-site stockpile, handle, and place seed per the project Drawings and specifications.
 2. Measurement: This item will be measured per square yard area restored with seed. Measurement will be based on the furnished and accepted material from certified weight tickets or delivery receipts. Only material actually used for an approved purpose in accordance with these Specifications will be considered part of the measurement.
 3. Payment: This item will be paid for at the unit price indicated on the bid form and actual quantities for the period being billed and, in accordance with the approved Schedule of Values.
- K. Item # 11: All Other Work
1. Description: The work of this item includes but is not limited to all labor, equipment, supplies, and materials required to perform all the other work indicated on the project Drawings, and described in the project specifications and is not included in the other bid items. This includes but is not limited to construction staking; installation, maintenance and adjustment of temporary erosion and sediment control measures as noted on the Drawings, within these specifications and as required to comply with local and state regulations; asphalt pavement removal; chain-link fence removal; railroad track removal; seeding / vegetation restoration, and fine grade and compaction of Finish Grade.
 2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.
 3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted bid, in accordance with the approved Schedule of Values
- L. ALT-1: Excavation and Gravel Borrow Placement Work in Area on Parcel 117
1. Description: The Work of this item includes all labor, equipment, and supplies required for contaminated soils excavation, segregation, stockpiling, solidifying if needed to reduce water content to make the soils transportable, loadable, and acceptable for disposal to a Subtitle D landfill. The Work includes paint filter testing, preparation and submittal of reports and certificates as specified in the Drawings and specifications. The Work of this item also includes all labor, materials and equipment required to furnish, transport, on-site stockpile, handle, place, and compact (unamended) Gravel Borrow, and finish grading of Gravel Borrow, vegetation restoration and all other work per the project Drawings and specifications.
 2. Measurement: This item will be measured based on a percentage complete for the overall lump sum amount.
 3. Payment: This item will be paid for at the Contract lump sum price as specified in the Contractor's submitted bid, in accordance with the approved Schedule of Values

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

1.02 SUBMITTALS

- A. The Contractor shall submit for approval the following documentation to the Port for force account change orders:
 - 1. List of Labor Rates
 - a. For the Contractor and each subcontractor, a list of labor rates for each trade applicable to the scope of work to be performed. These submitted rates shall be broken down to include the base wage, fringes, FICA, SUTA, FUTA, industrial insurance, and medical aid premiums as stated in the General Conditions. The rates shall not contain any travel time, safety, loss efficiency factors, overhead, or profit. Rates shall be submitted for straight time, overtime, and double time in a form acceptable to the Engineer. Contractor shall provide proof of all labor rate costs as required by the Engineer, including the submission of a copy of the most current Workers Compensation Rate Notice from Labor & Industries and a copy of the Unemployment Insurance Tax Rate notice from the Employment Security Department.
 - 1) If labor rates change during the course of the project or additional labor rates become required to complete the work, the Contractor shall submit new rates for approval.
 - 2. List of Equipment.
 - a. Submit for the Contractor and each subcontractor, a list of equipment and rates applicable to the scope of work to be performed. The equipment rates shall conform to the rates shown on Equipment Watch. A separate page from equipment watch detailing the hourly rate shall be submitted as backup documentation for each piece of equipment.
 - 1) If the list of equipment and/or equipment rates changes during the course of the project or additional equipment becomes required to complete the work, the Contractor shall submit a new list and rates for approval.

1.03 METHOD TO CALCULATE ADJUSTMENTS TO CONTRACT PRICE

- A. One of the following methods shall be used:
 - 1. Unit Price Method;
 - 2. Firm Fixed Price Method (Lump Sum); or,
 - 3. Time and Materials Method (Force Account).
- B. The Port preferred methods are firm fixed price or unit prices.

1.04 MINOR CHANGES IN THE WORK

- A. Engineer will issue a written directive authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time.

1.05 PROPOSAL REQUESTS

- A. Port-Initiated Proposal Requests: The Engineer will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
1. Work Change Proposal Requests issued by Engineer are not instructions either to stop work in progress or to execute the proposed change.
 2. Contractor shall submit a written proposal within the time specified in the General Conditions. The proposal shall represent the Contractor's offer to perform the requested work, and the pricing set forth within the proposal shall represent full, complete, and final compensation for the proposed change and any impacts to any other Contract Work, including any adjustments in the Contract Time.
 - a. Include a breakdown of the changed work in sufficient detail that permits the Engineer to substantiate the costs.
 - 1) Generally, the cost breakdown should be divided into the time and materials categories listed in the General Conditions under Article 8.02.B for either Lump Sum Proposals or Force Account Proposals.
 - 2) For Unit Price Proposals, include the quantity and description of all work involved in the unit pricing being proposed, along with a not to exceed total cost.
 - b. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
- B. Contractor-Initiated Proposals: If latent or differing site conditions require modifications to the Contract, the Contractor may initiate a claim by submitting a request for a change to the Engineer.
1. Notify the Engineer immediately upon finding differing conditions prior to disturbing the site.
 2. Provide follow-up written notification and differing site conditions proposal within the time frames set forth in the General Conditions.
 3. Provide the differing site condition change proposal in the same or similar manner as described above under 1.05.A.
 4. Comply with requirements in Section 00 26 00 Substitution Procedures if the proposed change requires substitution of one product or system for product or system specified.
 5. Proposal Request Form: Use form acceptable to Engineer.

1.06 PROCEEDING WITH CHANGED WORK

- A. The Engineer may issue a directive instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order per the General Conditions, Article 8.01.E.
1. The directive will contain a description of change in the Work and a not-to-exceed amount. It will designate the method to be followed to determine the change in the Contract Sum or the Contract Time.

1.07 CHANGE ORDER PROCEDURES

- A. Issuance of Change Order
-

1. On approval of the Contractor's proposal, and following successful negotiations, the Engineer will issue a Change Order for signature by the Contractor and execution by the Engineer.
 - a. The Contractor shall sign and return the Change Order to the Engineer within **four (4) days** following receipt of the Change Order from the Engineer. If the Contractor fails to return the signed Change Order within the allotted time, the Engineer may issue a Unilateral Change Directive.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. This section includes specifications for preparation, format, and submittal of Schedule of Values.
- B. The Schedule of Values will establish unit prices for individual items of work.
- C. The Schedule of Values will be the basis for payment of contract work.

1.02 PREPARATION

- A. To facilitate monthly pay requests, develop the Schedule of Values based on the Contractor's submitted Bid Items. The Schedule of Values shall be used to provide an allocation of the Work for measurement and payment to a level of detail to ensure accurate payment for the Work accomplished. The Schedule of Values is based on unit priced bid items and a breakdown of each lump-sum bid item. The total dollars for the Schedule of Values shall total the bid amount.
- B. Obtain the agreement of the Contract Administrator and Engineer on the Schedule of Values. No payment will be made prior to an agreed upon Schedule of Values.
- C. Include an updated version of the Schedule of Values as changes occur. Update the Schedule of Values to include:
 - 1. Dollars earned and percent complete for the current progress payment period,
 - 2. Dollars earned and percent complete to-date, excluding the current progress payment period,
 - 3. Total dollars earned and percent complete to-date,
 - 4. Total dollars remaining, and
 - 5. Changes resulting from Change Orders.
- D. The total value of the line items in the Schedule of Values plus any approved Change Orders shall be equal to the current approved contract price.
- E. The value of stored material shall be identified in the Schedule of Values with both a material-purchase activity and a separate corresponding installation activity in the Construction Schedule(s).
- F. Include as exhibits, drawings or sketches as necessary, to better define the limits of pay items that are in close proximity and that have no clear boundary in the Contract Drawings.

1.03 SUBMITTAL

- A. Submit preliminary Schedule of Values within 10 days of the effective date of the Notice to Proceed.
- B. Submit corrected Schedule of Values within 10 days upon receipt of reviewed Schedule of Values.
- C. At the Contract administrator or Engineer's request, submit documentation substantiating the cost allocations for line items within the Schedule of Values.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 SCHEDULE OF VALUES

- A. Submit the Schedule of Values in a form acceptable to the Contract Administrator and Engineer.
- B. Provide updated Schedule of Values as required by the Contract Administrator or Engineer, and as indicated in the Contract Documents.

END OF SECTION

PART 1 - GENERAL

1.01 SCOPE

- A. The purpose of this section is to provide the framework for communication between the Port and the Contractor by defining the types and timing of administrative tasks, including meetings and other items related to communications.

1.02 NOTICE TO PROCEED

- A. Contract execution will be made per the requirements of the Contract Documents. Once the contract has been executed and all pre-work submittals have been received, the Engineer will issue a Notice to Proceed (NTP).
 - 1. In certain instances, the Engineer may issue to the Contractor a Limited NTP for specified elements of the work described in these Contract Documents.
- B. The Contractor shall submit all pre-work submittals within 5 days of contract execution.
 - 1. No contract time extension shall be granted for any delays in issuance of the NTP by the Engineer due to the Contractor's failure to provide acceptable submittals required by the Contract Documents.

1.03 COORDINATION

- A. The Contractor shall coordinate all its activities through the Engineer.
- B. The Contractor shall coordinate construction operations as required to execute the Work efficiently, to obtain the best results where installation of one part of the Work depends on other portions.

1.04 PROJECT MEETINGS

- A. Pre-Construction Meeting
 - 1. After execution of the contract, but prior to commencement of any work at the site, a mandatory one time meeting will be scheduled by the Engineer to discuss and develop a mutual understanding relative to the administration of the safety program, preparation of the Schedule of Values, change orders, RFI's, submittals, scheduling prosecution of the work. Major subcontractors who will engage in the work shall attend.
 - 2. Suggested Agenda: The agenda will include items of significance to the project.
 - 3. Location of the Pre-Construction Meeting will be held at the Port of Tacoma Administration Building located at One Sitcum Plaza.
- B. Weekly Progress Meetings – Progress meetings include the Contractor, Engineer, consultants and others affected by decisions made.
 - 1. The Engineer will arrange meetings, prepare standard agenda with copies for participants, preside at meetings, record minutes and distribute copies within ten working days to the Contractor, meeting participants, and others affected by decisions made.
 - a. The Engineer will approve submitted meeting minutes in writing within 10 working days.
 - 2. Attendance is required for the Contractor's job superintendent, major subcontractors and suppliers, Engineer, and representatives of the Port as appropriate to the agenda topics for each meeting.

3. Standard Agenda

- a. Review minutes of previous meeting
- b. Review of work progress
- c. Field observations, problems, and decisions
- d. Identification of problems that impede planned progress
- e. Maintenance of Progress Schedule (3 weeks ahead; 1 week back)
- f. Corrective measures to regain projected schedules
- g. Planned progress during succeeding work period
- h. Coordination of projected progress
- i. Maintenance of quality and work standards
- j. Effect of proposed changes on progress schedule and coordination
- k. Demonstration that the project record drawings are up-to-date
- l. Other business relating to the work

C. Cost Meeting

1. A separate cost meeting may be set up by the Engineer to discuss RFI's (or any other issues) that may cause scope, schedule or monetary changes to the contracts in more detail than necessary at the progress meeting. The Engineer will arrange, host and provide an agenda for cost meetings. Attendees would include the Engineer, Contractor's job superintendent and others as invited.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. The Port and Contractor shall use the Port Contract Management application (e-Builder / Trimble Unity Construct®) for electronic information exchange throughout the duration of the Contract, as later described.
 - 1. e-Builder / Trimble Unity Construct® is a web-based application accessed via the web.
 - 2. The Contractor will receive up to two separate user accounts for access to e-Builder / Trimble Unity Construct®.
 - 3. The joint use of this system is to facilitate and coordinate the electronic exchange of Requests for Information, Submittals, Change Order Proposals, Pay Applications, and project specific correspondence.

1.02 USER ACCESS LIMITATIONS

- A. Contractor's access to e-Builder / Trimble Unity Construct® is granted and controlled by the Engineer.
 - 1. The users assigned by the Contractor to use e-Builder / Trimble Unity Construct® shall be competent and experienced with the practices commonly employed in the industry for electronically submitting requests for information, submittals, product data, shop drawings and related items as required by the contract and the methods commonly used for project correspondence transmission and filing.
 - 2. Any users assigned by the Contractor whom the Engineer determines is incapable of performing the prescribed tasks in an accurate, competent and efficient manner will be removed upon request from the Engineer. The qualifications and identity of a replacement user shall be submitted within 24 hours for consideration by the Engineer. Once accepted by the Engineer, the user account will be modified accordingly.

1.03 CONTRACTOR TECHNOLOGY REQUIREMENTS

- A. The Contractor is responsible for providing and maintaining web enabled devices capable of running the desktop version of the e-Builder / Trimble Unity Construct® website effectively.

1.04 CONTRACTOR SOFTWARE REQUIREMENTS

- A. The Contractor is responsible for providing and maintaining the following:
 - 1. An office suite that is Microsoft Office 2013 compatible for generation and manipulation of correspondence.
 - 2. A program capable of editing, annotating and manipulating Adobe pdf files for inserting the Contractor's review stamp, clouding and adding notation to the files as necessary for review by the Engineer.

1.05 CONTRACTOR RESPONSIBILITY

- A. Provide all the equipment, internet connections, software, personnel and expertise required to support the use of e-Builder / Trimble Unity Construct® as described in the Contract documents.

1.06 PORT RESPONSIBILITY

- A. Provide the Contractor with the following:

1. All forms necessary for application to obtain permissions to access e-Builder / Trimble Unity Construct® as described above.
2. Information, basic user guides and requirements on methods for using e-Builder / Trimble Unity Construct®.
3. Instruction for the Contractor's staff utilizing e-Builder / Trimble Unity Construct®.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 UTILIZATION OF E-BUILDER®

- A. The Contractor shall provide required information in a timely manner that also supports the project schedule and meets the requirements of the Contract.
- B. The Contractor shall provide and maintain competent and qualified personnel to perform the various tasks required to support the work within e-Builder / Trimble Unity Construct®.
- C. The Port will not be liable for any delays associated from the usage of e-Builder / Trimble Unity Construct® including, but not limited to: slow response time, Port maintenance and off-line periods, connectivity problems or loss of information. Under no circumstances shall the usage of e-Builder / Trimble Unity Construct® software be grounds for a time extension or cost adjustment to the contract.

END OF SECTION

PART 1 GENERAL

1.01 SUMMARY

- A. This section includes the requirements to provide a preliminary schedule and construction progress schedule, bar chart type.

1.02 SUBMITTALS

- A. Within 10 days following execution of the contract, submit a baseline project schedule defining planned operations.
- B. If the baseline project schedule requires revision after review, submit revised baseline project schedule within 10 days.
- C. Within 20 days after review of baseline project schedule, submit draft of proposed complete baseline project schedule for review.
- D. Submit updated progress schedule monthly to the Engineer with each pay application as required in Section 01 20 00 Price and Payment Procedures.

1.03 QUALITY ASSURANCE

- A. Scheduler: Contractor's personnel or Consultant specializing in Critical Path Method (CPM) scheduling with one year's minimum experience in scheduling construction work of a complexity comparable to this Project, and having use of computer facilities capable of delivering a detailed graphic printout within 48 hours of request.

1.04 SCHEDULE FORMAT

- A. The baseline project schedule shall be produced using the CPM format.
- B. Listings: In chronological order according to the start date for each activity. Identify each activity with the applicable specification section number.
- C. Sheet Size: Multiples of 11 x 17 (280 x 432 mm).

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 BASELINE SCHEDULE

- A. Prepare baseline project schedule in the form of a horizontal bar chart.
- B. The baseline project schedule shall include all the activities listed in the Schedule of Values and be directly related to items listed in the Bid Form. The Contractor is encouraged to add sufficient activities to facilitate a clear understanding of the means and methods planned for the various work items.
- C. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction and critical path. At a minimum it shall include and show the following:
 - 1. A time scale showing the elementary work items needed to complete the work;
 - 2. Estimated time durations for each activity, defined as any single identifiable work step within the project;
 - 3. A graphical network diagram showing the logical sequence of activities, their precedence relationships, and estimated float or leeway available for each;

4. The different categories of work as distinguished by crew requirements, equipment requirements, and construction materials; and
 5. The different areas of responsibility, such as distinctly separate or subcontracted work, and identifiable subdivisions of work.
- D. It shall be maintained and updated as necessary to accurately reflect past progress and the most probable future progress.
 - E. Activities shown shall include submittals, milestones, and sufficient task breakdown for major components of work.
 - F. Identify work of separate stages and other logically grouped activities.
 - G. Provide sub-schedules to define critical portions of the entire schedule.
 - H. Provide separate schedule of submittal dates for shop drawings, product data, samples, owner-furnished products, products identified, and dates reviewed submittals will be required from the Engineer. Indicate decision dates for selection of finishes.

3.02 PROGRESS SCHEDULE

- A. From the regularly-maintained baseline project schedule, progress schedules showing a three-week look-ahead, one-week look-back, shall be submitted and distributed at the weekly progress meetings. The progress schedule shall represent a practical plan to complete the work shown within the contract work window presented. At a minimum, the presentation, typically a Gantt-style chart, shall convey the task durations, a logical work sequence, task interdependencies, and identify important or critical constraints.
- B. Submittal and distribution of progress schedules will be understood to be the Contractor's representation that the scheduled work meets the requirements of the contract documents and that the work will be executed in the manner and sequence presented, and over the durations indicated.
- C. The scheduling, coordination, and execution of construction in accordance with the contract documents are the responsibility of the Contractor. The Contractor shall involve, coordinate, and resolve scheduling with all subcontractors, material suppliers, or others affected in development of the progress schedules.
- D. The progress schedule shall be used for coordination purposes for inspection and testing purposes as well as validation of work progress against the baseline schedule.

3.03 UPDATING SCHEDULE

- A. Maintain schedules to record actual start and finish dates of completed activities.
- B. Indicate progress of each activity to date of revision, with projected completion date of each activity.
- C. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.
- D. Indicate changes required to maintain Date of Substantial Completion.
- E. Submit reports required to support recommended changes.
- F. Contractor shall submit an updated progress schedule with each pay application and include a written narrative describing the overall progress of the work. The narrative shall include the following key aspects:

1. Progress in the last period.
2. Critical Path progress and schedule concerns.
3. Changes to schedule logic or sequencing of the work.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. This section includes the requirements to provide a submittal log and project submittals.

1.02 SUBMITTAL LOG

- A. Contractor shall, within 14 days of contract execution prepare and submit for Engineer approval a detailed log of all the submittals required under this Contract, along with any other submittals identified by the Port or Contractor. The log shall include, but not be limited to, schedules, required construction Work plans, equipment and material cut sheets, shop drawings, project record documents, test results, survey records, record drawings, results of QC testing, and all other items for which a submittal is required. The submittal log shall be organized by CSI Specification Division, and Section number and include the following information:
 - 1. Item Description
 - 2. Category
 - 3. Specification Section information of the applicable section
 - 4. After the submittal log is reviewed and approved by the Engineer, it shall become the basis for the submittal of all items by Contractor.

1.03 COMPLIANCE

- A. Failure to comply with these requirements shall be deemed as the Contractor's agreement to furnish the exact materials specified or materials selected by the Engineer based on these specifications.

1.04 SHOP DRAWINGS AND MANUFACTURERS' LITERATURE

- A. The Port will not accept shop drawings that prohibit the Port from making copies for its own use.
- B. Shop drawings shall be prepared accurately and to a scale sufficiently large to indicate all pertinent features of the products and the method of fabrication, connection, erection, or assembly with respect to the Work.
- C. All drawings submitted to the Engineer for approval shall be drawn to scale as ANSI D.
- D. Required electronic formats for these drawings are as follows:
 - 1. AutoCad DWG
 - 2. PDF - Formatted to print to half-scale using 11x17 paper
- E. Catalog cuts or brochures shall show the type, size, ratings, style, color, manufacturer, and catalog number of each item and be complete enough to provide for positive and rapid identification in the field. General catalogs or partial lists will not be accepted. Manufacturers' original electronic files are required for submitting.

1.05 SUBMITTAL REVIEW

- A. After review of each of Contractor's submittals, the submittal will be returned to Contractor with a form indicating one or more of the following:

1. No Exceptions Taken - Means, accepted subject to its compatibility with future submittals and additional partial submittals for portions of the work not covered in this submittal. But it does not constitute approval or deletion of specified or required items not shown in the partial submittal.
 2. Make Corrections Noted - Same as Item 1, except that minor corrections as noted shall be made by Contractor.
 3. Reviewed - Submittal has been reviewed by the Port, does not constitute approval, and the Contractor is responsible for requirements in submittal.
 4. Review as Noted - Submittal has to be reviewed by the Port with comments as noted.
 5. Revise and Resubmit - Means, rejected because of major inconsistencies or errors. Resolve or correct before next submittal.
 6. Rejected - Means, submitted material does not conform to the Contract Documents in a major respect (e.g., wrong material, size, capacity, model, etc.).
- B. Submittals marked "No Exceptions Taken," "Make Corrections Noted," or "Reviewed as Noted" authorizes Contractor to proceed with construction covered by those data sheets or shop drawings with corrections, if any, incorporated.
- C. When submittals or prints of shop drawings have been marked "Revise and Resubmit" or "Rejected," Contractor shall make the necessary corrections and submit required copies. Every revision shall be shown by number, date, and subject in a revision block, and each revised shop drawing shall have its latest revision numbers and items clearly indicated by clouding around the revised areas on the shop drawing.
- D. Submittals authorized by the Engineer do not in any case supersede the Contract Documents. The approval by the Engineer shall not relieve the Contractor from responsibility to conform to the Drawings or Specifications, or correct details when in error, or ensure the proper fit of parts when installed. A favorable review by the Port of shop drawings, method of work, or information regarding material and equipment Contractor proposes to furnish shall not relieve Contractor of its responsibility for errors therein and shall not be regarded as assumption of risk or liability by the Port or its officers, employees, or representatives. Contractor shall have no claim under the Contract on account of failure or partial failure, or inefficiency or insufficiency of any plan or method of work, or material and equipment so accepted. Favorable review means that the Port has no objection to Contractor using, upon its own full responsibility, the plan or method of work proposed, or furnishing the material and equipment proposed.
- E. It is considered reasonable that the Contractor's submittals shall be complete and acceptable by at least the second submission of each submittal. The Port reserves the right to deduct monies from payments due Contractor to cover additional costs for review beyond the second submission.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 PREPARATION OF SUBMITTALS

- A. The Contractor shall submit all shop drawings, catalog cuts, brochures and physical samples using Trinity Unity Construct (a web based construction management software). All post-document-generated notations such as notes, arrows, stamps, clouding, or other items, are required to be shown directly on the submittal document. **Each submittal shall be accompanied by a transmittal developed within the Trinity Unity Construct software.**

- B. A separate submittal shall be prepared for each product or procedure and shall be further identified by referencing the Specification Section and paragraph number and each submittal shall be numbered consecutively.
- C. Product submittals that cannot be accomplished electronically shall be submitted electronically without attachments, marked as being hand delivered, and accompanied by a printed version of a transmittal.
- D. Shop and detail drawings shall be submitted in related packages. All equipment or material details which are interdependent, or are related in any way, must be submitted indicating the complete installation. Submittals shall not be altered once marked "No Exceptions Taken" Revisions shall be clearly marked and dated. Major revisions must be submitted for approval.
- E. The Contractor shall thoroughly review all shop and detail drawings, prior to submittal, to assure coordination with other parts of the work.
- F. Components or materials which require shop drawings and which arrive at the job site prior to approval of shop drawings shall be considered as not being made for this project and shall be subject to rejection and removal from the premises.
- G. All submittal packages including, but not limited to, product data sheets, mix designs, shop drawings and other required information for submittal must be submitted, reviewed and approved before the relevant scheduled task may commence. It is the responsibility of the Contractor to provide the submittal information which may drive a task on the construction schedule to submit items well enough in advance as to provide adequate time for review and comment from the Engineer without adversely impacting the construction schedule.
- H. When completing the Trinity Unity Construct submittal form, a Date Due field is required to be completed. This field is intended to inform the Port of the urgency of the submittal. Failure of the Port to return the submittal by the date provided by the Contractor will not be considered grounds for a contract time extension.

3.02 PRE-WORK SUBMITTALS

- A. Prior to issuance of Notice to Proceed, the following submittals must be submitted and returned to the Contractor as No Exceptions Taken, Make Corrections Noted, Reviewed, or Reviewed as Noted.
 - 1. Per 00 72 00 and 01 32 16, Baseline Project Schedule
 - 2. Per 00 73 63, Emergency Contact Numbers
 - 3. Per 01 35 29, Health and Safety Plan (HASP)
 - 4. Per 01 35 29, Spill Prevention and Countermeasures Plan (SPCC)
 - 5. Per 01 35 47, List of equipment and written certification

3.03 MAINTENANCE OF SUBMITTAL LOG

- A. Prepare and submit for Port review a detailed submittal log conforming to the requirements of paragraph 1.02 of this section. When approved by the Engineer, use the submittal log to track the transmittal of submittals to the Engineer, the receipt of submittal comments from the Engineer, and all subsequent action with respect to each submittal. Provide an updated copy of the submittal log to the Engineer during each weekly progress meeting, unless otherwise approved by the Engineer.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. The work includes the requirements for health and safety provisions necessary for all work at the site for this project. The work also includes compliance with all laws, regulations and ordinances with respect to safety, noise, dust, fire and police action, civil disobedience, security or traffic.
- B. Some of the work tasks may place workers in the potential position of coming into contact with regulated building materials, waste, or environmental media. Detailed information regarding the known nature and extent of refuse and regulated materials in the project area is included in Section 00 31 26 Existing Hazardous Material Information.
- C. The Contractor shall monitor site conditions for indications of identified and other potentially hazardous, dangerous, and/or regulated materials (suspicious material). Indicators of suspicious material include, but are not limited to, refuse, oily sheen or coloring on soil or water, or oily or chemical odors. If suspicious materials are encountered, the Contractor shall stop all work in that area and notify the Engineer immediately.
- D. Landfill have the potential to create hazardous conditions if not controlled or recognized. Some of the hazards include:
 - 1. Fires that may start spontaneously from exposed and/or decomposed refuse.
 - 2. Fires and explosions that may occur from the presence of methane gas.
 - 3. Landfill gases and other trace gases may cause an oxygen deficiency in confined spaces such as trenches, vaults, conduits, and structures.
 - 4. Hydrogen sulfide, a highly toxic and flammable gas, and/or other toxic gases may be present.
 - 5. Possible caving of trenches and excavations when working over or in refuse fills.

1.02 SUBMITTALS

- A. Prior to Notice to Proceed, the Contractor shall provide a site specific Health and Safety Plan (HASP), which meets all the requirements of local, state and federal laws, rules and regulations. The HASP shall address all requirements for general health and safety and shall include, but not be limited to:
 - 1. Description of work to be performed and anticipated chemical and/or physical hazards associated with the work;
 - 2. Map of the site(s) illustrating the location of the anticipated hazards and areas of control for those hazards (including containments, exclusion/work zones, and contaminant reduction/decontamination zones);
 - 3. Hazardous material inventory and safety data sheets (SDSs) for all chemicals which will be brought on site;
 - 4. Signage appropriate to warn site personnel and visitors of anticipated site hazards;
 - 5. Documentation that the necessary workers have completed the required Hazardous Waste Operations and Emergency Response (HAZWOPER) training;

6. Engineering controls/equipment to be used to protect against anticipated hazards, especially high potential of hydrogen (pH) in the ground water and soil. Contractor personnel shall take measures to prevent standing in muddy soil onsite due to the presence of high pH in the soil. In some areas, the pH is as high as 11. Personnel are to avoid handling soil with bare hands and should have proper Personal Protective Equipment (PPE) to prevent soil coming into direct contact with skin.
 7. Personal protective equipment and clothing including head, foot, skin, eye, and respiratory protection;
 8. Procedures which will be used for:
 - a. Lockout/Tagout,
 - b. Fall protection,
 - c. Trenching and shoring,
 - d. Hot work,
 - e. Explosive conditions due to methane,
 - f. Oxygen deficient conditions,
 - g. Suspicious materials and/or unidentified materials,
 - h. Confined-space entry (could include dewatering storage tanks, manholes, or other items),
 - i. Confined-space rescue, and
 - j. Odorous conditions and toxic gases;
 9. Site housekeeping procedures and personal hygiene practices;
 10. Personnel and equipment decontamination plan;
 11. Railroad safety procedures;
 12. Administrative controls;
 13. Emergency plan including locations of and route to nearest hospital;
 14. Medical surveillance program for site personnel before, during, and after completion of site work;
 15. Recordkeeping including:
 - a. Documentation of appropriate employee training (e.g., Hazardous Waste Operations and Emergency Response [HAZWOPER] 40-hour training for staff involved with excavation and handling of soil),
 - b. Respirator fit testing, and
 16. Name and qualification of person preparing the HASP and person designated to implement and enforce the HASP;
 17. Name and qualifications for Certified Safety Professional (CSP) or Certified Industrial Hygienist (CIH) and a copy of the CIH's or CSP's certification and resume;
 18. Excavation, stockpiling, and truck loading procedures;
 19. Lighting and sanitation; and
-

20. Signatory page for site personnel to acknowledge receipt, understanding, and agreement to comply with the HASP.
- B. Prior to the start of any Work, the Contractor shall provide a site specific Spill Prevention, Control and Countermeasures (SPCC) Plan, which meets all the requirements of local, state and federal laws, rules and regulations.
- C. Contractor may submit the HASP and SPCC Plan as one comprehensive document or may submit the plans as separate documents.

1.03 POTENTIAL CHEMICAL HAZARDS

A. Site Contaminants

1. The Contractor must provide site workers with Hazard Communication standard information for potential site contaminants (in accordance with WAC 296-843). The Contractor shall ensure that all site workers are aware of and understand this information. Additional information shall also be provided by the Contractor, as necessary, to meet the Hazard Communication Standard and HASP requirements as noted in WAC 296-901-14010 and 296-843. Workers shall be instructed on basic methods or techniques to assist in detecting suspicious material.

B. Potential Exposures Routes

1. Inhalation: Airborne dusts, fibers, particulates, or vapors may be released during site activities. Inhalation of airborne inorganic arsenic may occur.
2. Skin and Eye Contact: Dusts generated during site work activities may settle on the skin or clothing of site workers. Also, workers may contact potentially regulated sediments, or water, in the normal course of their work. Precautions to prevent skin or eye contact with hazardous materials will be included in the HASP. Arsenic exposure may cause skin irritation.
3. Ingestion: Inadvertent transfer of site contaminants from hands or other objects to the mouth could occur if site workers eat, drink, smoke, chew tobacco, or engage in similar activities in work areas. This could result in ingestion of site contaminants. Precautions to prevent accidental or inadvertent ingestion of hazardous materials will be included in the HASP.

- C. Chemical hazards may also result from Contractor operations resulting in inadvertent release of fuel, oil, or other chemicals in a manner that would expose workers.

- D. High potential of hydrogen (pH) in ground water.

1.04 POTENTIAL PHYSICAL AND OTHER HAZARDS

- A. The Work of the Contractor is described elsewhere in these specifications. Precautions to prevent all anticipated physical and other hazards, including heavy equipment and vessels, shall be addressed in the HASP.
- B. Specific aspects of construction resulting in physical hazards anticipated for this project include, but are not limited to the following:
 1. Work over or adjacent to water, presenting hazards of falling into water, hypothermia from exposure to the elements, and drowning;
 2. Operation of marine equipment, including winches, dredges, and related equipment, entrapment, ensnarement, and being struck by moving parts hazards;

3. Completion of diver surveys with specific health and safety elements;
 4. Major hazards associated with earthwork impacts from moving construction vehicles and trucks, noise, thermal stress, contact with unguarded machines, excavation hazards (i.e., cave-in, utility, etc.), strains from heavy lifting, and reduced visibility and communications difficulties in work area; and
 5. Operation of equipment, including excavators, loaders, and related equipment, presenting hazards of entrapment, ensnarement, and being struck by moving parts.
- C. Other anticipated physical hazards:
1. Heat stress, such as that potentially caused by impermeable clothing (may reduce the cooling ability of the body due to evaporation reduction);
 2. Cold stress, such as that potentially caused during times when temperatures are low, winds are high, especially when precipitation occurs during these conditions;
 3. Biological hazards, such as mold, insect stings, or bites, poisonous plants (i.e., poison oak, sumac, etc.); and
 4. Trips and falls.
- D. Firewatch Procedures
1. A firewatch is implemented to ensure the fire-safety of a building, structure or area in the event of any act (e.g., hot work) or situation instigating an increased risk of fire. The term "firewatch" is used to describe a dedicated person or persons whose sole responsibility is to look for fires within an established area.
 2. A firewatch is required when all hot work is being performed.
 3. The firewatch is to perform the following functions:
 - a. Firewatch personnel are to keep diligent watch for fires in the general area where the work is being performed.
 - b. Firewatch personnel are to be familiar with facilities and procedures for sounding an alarm in the event of a fire.
 - c. Firewatch personnel are to have fire extinguishing equipment readily available and be trained in its use, including practice on test fires.
 - d. Firewatch personnel are to inspect the site prior to hot work activities to ensure that combustibles are removed or covered and that any nearby holes or penetrations in the ground and walls are sealed or covered with fire-safe materials.
 - e. Firewatch personnel are to watch for fires in all exposed areas. If a fire is located, firewatch personnel are to sound the evacuation alarm immediately and after that try to extinguish the fire, only when obviously within the capacity of the equipment available.
 - f. The firewatch is to be maintained for at least 120 minutes after completion of hot work such as cutting, welding, or other open flame operations, in order to detect and extinguish smoldering and flaming fires. During this time, the work area and other adjacent areas where sparks or flame may have traveled are to be searched for signs of combustion.

PART 2 - PRODUCTS

2.01 SAFETY SIGNAGE

- A. The Contractor shall provide signage at strategic locations within the project site to alert jobsite workers and visitors of the remediation work, associated hazards, and required precautions.

2.02 PRODUCTS SPECIFIED FOR HEALTH AND SAFETY

- A. Provide the equipment and supplies necessary to support the work as described in the site-specific HASP. Equipment and supplies may include, but are not limited to:
 - 1. All chemicals to be used on site;
 - 2. A hazardous materials inventory and SDSs for the chemicals brought on site;
 - 3. Fencing and barriers;
 - 4. Warning signs and labels;
 - 5. Trenching equipment;
 - 6. Fire extinguishers;
 - 7. Equipment to support hot work;
 - 8. Equipment to support lockout/tagout procedures;
 - 9. Scaffolding and fall protection equipment;
 - 10. Personal protective equipment (hard hats, foot gear, skin, eye, and respiratory protection);
 - 11. Area and personnel exposure monitoring equipment;
 - 12. Demolition equipment and supplies;
 - 13. Decontamination equipment and supplies;
 - 14. First aid equipment;
 - 15. Spill response and spill prevention equipment; and
 - 16. Field documentation logs/supplies.

PART 3 - EXECUTION

3.01 WORK AREA PREPARATION

- A. Contractor shall comply with health and safety rules, regulations, ordinances promulgated by the local, state, and federal government, the various construction permits, and other sections of the Contract Documents. Such compliance shall include, but not be specifically limited to: any and all protective devices, equipment and clothing; guards; restraints; locks; latches; switches; and other safety provisions that may be required or necessitated by state and federal safety regulations. The Contractor shall determine the specific requirements for safety provisions and shall have inspections and reports by the appropriate safety authorities to be conducted to ensure compliance with the intent of the regulations.
- B. Contractor shall inform employees, subcontractors and their employees of the potential danger in working with any potentially regulated materials, equipment, soils and groundwater at the project site.
 - 1. In addition, the Engineer will submit a copy of the Contractor's HASP to Ecology for review. Ecology and the Engineer will review but not approve HASP.

- C. All Contractor employees expected to work at the jobsite or individuals entering the jobsite shall read the Contractor HASP before they enter the jobsite, and will sign a statement provided by the Contractor that they have read and understand the HASP. A copy of the Contractor's HASP shall be readily available at the site at all times the work is being performed.
- D. The Contractor's HASP shall be amended as needed by the CIH or CSP to include special work practices warranted by jobsite conditions actually encountered. Special practices could include provisions for decontamination of personnel and equipment, and the use of special equipment not covered in the initial plan.
- E. Contractor shall perform whatever work is necessary for safety and be solely and completely responsible for conditions of the job site, including safety of all persons (including employees of the Engineer, Engineer's Representative, and Contractor) and property during the Contract period. This requirement applies continuously and is not limited to normal working hours.
- F. The Engineer's review of the Contractor's performance does not include an opinion regarding the adequacy of, or approval of, the Contractor's safety supervisor, the site-specific HASP, safety program or safety measures taken in, on, or near the job site.
- G. Accidents causing death, injury, or damage must be reported immediately to the Engineer and the Port Security Department in person or by telephone or messenger. In addition, promptly report in writing to the Engineer all accidents whatsoever arising out of, or in connection with, the performance of the work whether on, or adjacent to, the site, giving full details and statements of witnesses.
- H. If a claim is made by anyone against the Contractor or any subcontractor on account of any accident, the Contractor shall promptly report the facts in writing within 24 hours after occurrence, to the Engineer, giving full details of the claim.

3.02 SITE SAFETY AND HEALTH OFFICER

- A. Contractor shall provide a person designated as the Site Safety and Health Officer, who is thoroughly trained in rescue procedures, has a minimum current 40-hour HAZWOPER certification (minimum), and trained to use all necessary safety equipment, air monitoring equipment, and gas detectors. The person must be available and/or present at all times while work is being performed, and conduct testing, as necessary.
- B. The Site Safety and Health Officer shall be empowered with the delegated authority to order any person or worker on the project site to follow the safety rules. Failure to observe these rules is sufficient cause for removal of the person or worker(s) from this project.
- C. The Site Safety and Health Officer is responsible for determining the extent to which any safety equipment must be utilized, depending on conditions encountered at the site.

3.03 SPILL PREVENTION AND CONTROL

- A. The Contractor shall be responsible for prevention, containment and cleanup of spilling petroleum and other chemicals/hazardous materials used in the Contractor's operations. All such prevention, containment and cleanup costs shall be borne by the Contractor.
- B. The Contractor is advised that discharge of oil, fuel, other petroleum, or any chemicals/hazardous materials from equipment or facilities into state waters or onto adjacent land is not permitted under state water quality regulations.

- C. In the event of a discharge of oil, fuel or chemicals/hazardous materials into waters, or onto land with a potential for entry into waters, containment and cleanup efforts shall begin immediately and be completed as soon as possible, taking precedence over normal work. Cleanup shall include proper disposal of all spilled material and used cleanup materials.
- D. The Contractor shall, at a minimum, take the following measures regarding spill prevention, containment and cleanup:
 - 1. Fuel hoses, lubrication equipment, hydraulically operated equipment, oil drums and other equipment and facilities shall be inspected regularly for drips, leaks or signs of damage, and shall be maintained and stored properly to prevent spills. Proper security shall be maintained to discourage vandalism.
 - 2. All land-based chemical, oil and products' storage tanks shall be diked, contained and/or located so as to prevent spills from escaping into the water. Dikes and containment area surfaces shall be lined with impervious material to prevent chemicals or oil from seeping through the ground and dikes.
 - 3. All visible floating sheen shall be immediately contained with booms, dikes or other appropriate means and removed from the water prior to discharge into state waters. All visible spills on land shall be immediately contained using dikes, straw bales or other appropriate means and removed using sand, sawdust or other absorbent material, which shall be properly disposed of by the Contractor. Waste materials shall be temporarily stored in drums or other leak-proof containers after cleanup and during transport to disposal. Waste materials shall be disposed offsite in accordance with applicable local, state and federal regulations.
 - 4. In the event of any oil or product discharges into public waters, or onto land with a potential for entry into public waters, the Contractor shall immediately notify the Port Security at their listed 24-hour response number:
 - a. Port Security: 253-383-9472
- E. The Contractor shall maintain the following materials (as a minimum) at each of the project sites:
 - 1. Oil-absorbent booms: 100 feet;
 - 2. Oil-absorbent pads or bulk material, adequate for coverage of 200 square feet of surface area;
 - 3. Oil-skimming system; and
 - 4. Oil dry-all, gloves, and plastic bags.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section discloses procedures to follow if unknown regulated materials are encountered.

1.02 NOTIFICATION AND SUSPENSION

- A. In the event the Contractor detects the presence of potentially regulated materials not previously identified in this specification, the Contractor shall stop work and immediately notify the Port. Following such notification by the Contractor, the Port shall in turn notify the various governmental and regulatory agencies concerned with the presence of regulated materials, if warranted. Depending upon the type of materials identified, the Port may suspend work in the vicinity of the discovery under the provisions of General Conditions.
 - 1. Following completion of any further testing necessary to determine the nature of the materials involved, the Port will determine how the material shall be managed. Although the actual procedures used in resuming the work shall depend upon the nature and extent of the regulated material, the following alternate methods of operation are foreseen as possible:
 - a. Contractor to resume work as before the suspension.
 - b. Contractor to move its operations to another portion of the work until measures to eliminate any hazardous conditions can be developed and approved by the appropriate regulatory agencies.
 - c. The Port to direct the Contractor to dispose or treat the material in an approved manner.
 - d. The Port to terminate or modify the Contract accordingly, for unforeseen conditions.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. Soils that cannot be reused onsite and are anticipated to be exported to an off-site facility must have a completed soil profile prior to export. The Port will conduct testing of material as defined further in this specification.
- B. Soils excavated within the project area, as shown on the drawings, are anticipated to be free of regulated material; however, should the Contractor identify soil that cannot be disposed of under the provided Waste Disposal Authorization, the Contractor shall notify the Engineer to determine if the soil requires special handling.
 - 1. Soil with unexpected regulated material, as identified by visual and/or olfactory methods, shall be segregated from other excavated material until such time as appropriate testing and analysis can be completed by the Port. Upon completion of the soil profile, the Engineer will inform the Contractor of any special handling requirements based on the results.
 - 2. Soil beyond construction excavation limits will not require excavation unless free draining product is observed or other special conditions exist; in which case the Engineer will direct the Contractor in additional excavation. Soils determined to require special handling will be hauled and disposed of at an approved disposal facility.
- C. No soil shall be removed from the site without prior notification to the Engineer. The notification shall include:
 - 1. An estimate of the number of truck-trips, the haul destination, and the period in which these trips will be made (e.g., 20 truck-trips to the Waste Management Facility over the two-week period beginning on March 1, 2012).

1.02 DEFINITIONS

- A. Olfactory Indications (methods): Of or relating to the sense of smell. Soils containing petroleum and other volatile constituents typically exhibit characteristic odors that can be detected (and sometimes identified) by smell.
- B. Regulated Material: Any chemical, physical, biological, or radiological substance that does not occur naturally in the environment, or that occurs at concentrations higher than natural background levels, and is regulated by agencies as to the disposal/recycling facility(ies) the material can and cannot go (i.e., EPA, Department of Ecology, Tacoma-Pierce County Health Department).
- C. Soil (waste) Profile: A characterization of the chemical and physical properties of soil material designated for off-site disposal, including the presence of pollutants and their concentrations as measured by approved laboratory analytical methods. A profile is required by the receiving permitted disposal or recycling facility.
- D. Special Handling: Refers to hauling and disposal of soils that cannot be reused in place as backfill or as general fill at another (off-site) location due to the presence of pollutants in concentrations above allowable limits. Such soils must be hauled to and managed at a permitted disposal facility.

- E. Type A Regulated Soil: Soil that must be removed from the Project site and has been determined by the Engineer to contain pollutants in concentrations that exceed state or federal dangerous or hazardous designations (respectively), or other special Port-determined criteria. Type A Regulated Soil requires disposal at an approved Subtitle C hazardous waste landfill.
- F. Type B Regulated Soil: Soil that must be removed from the Project site and has been determined by the Engineer to contain pollutants in concentrations that are below dangerous or hazardous levels, but could negatively impact the quality of air, waters of the state, soils or sediments, or pose a threat to the health of humans or other living organisms, depending on where the soil is disposed. Type B Regulated Soil requires disposal an approved Subtitle D solid waste landfill.
- G. Type C Regulated Soil: Soil that must be removed from the Project site and has been determined by Engineer to contain unknown constituent(s) and/or in unknown concentration(s) and requires further analysis and characterization. Type C Regulated soil will require disposal at an approved Subtitle C hazardous waste landfill or Subtitle D solid waste landfill if additional soil characterization indicates special handling is required.
- H. Type D Soil: Soil determined by the Engineer not to require special handling with regard to this Contract. Classification of material as Type D Soil by the Port is not a certification nor does it release the Contractor of liability or obligation to meet any disposal or storage facility acceptance or testing requirements.
- I. Unexpected Regulated Material: Regulated material unexpectedly found in an excavation or in other locations where there is no prior knowledge, information, or history to indicate possible spills or releases of regulated material.
- J. Visual Indications (methods): A preliminary evaluation of the potential presence of contamination based on visual observation. For example, soils containing petroleum are frequently discolored or stained relative to non-petroleum impacted native soils or clean fill.

1.03 HEALTH AND SAFETY

- A. The Contractor is required to implement all health and safety provisions as required by Specification 01 35 29 – Health, Safety and Emergency Response. These provisions include any special monitoring, personal protective equipment, or work plans to accommodate regulated soil or material special handling. Use of environmental characterization data may not be appropriate for health and safety purposes.

1.04 SUBMITTALS

- A. Prior to excavation of any subsurface materials, the Contractor shall submit a Soils Management Plan to the Engineer. The Soils Management Plan must be approved by the Engineer prior to any excavation of subsurface materials. The Soils Management Plan must include the following:
 - 1. Identification of all soil disposal facilities anticipated to be used for soils that are determined to be Type A or Type B Regulated Soil.
 - 2. Identification of all fill sites, disposal/recycling facilities and/or end uses anticipated to be used for soil determined to be Type D Soil in accordance with paragraph 3.02 of this section.
 - 3. General description of how equipment operators, safety staff and other applicable on-site personnel will identify and respond to soil containing potentially regulated material.

4. Contractor shall coordinate with the Engineer to facilitate handling of regulated soil in accordance with this specification.
 5. Description of all haul routes to be used on the project.
- B. A completed soil profile prior to export to an off-site receiving facility.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 EXCAVATION/TESTING

- A. The field-testing for soil to be exported offsite will be performed by the Port and will result in the following classification of material:
1. Type A Regulated Soil as defined in 1.02(E) of this Section
 2. Type B Regulated Soil as defined in 1.02(F) of this Section
 3. Type C Regulated Soil as defined in 1.02(G) of this Section
 4. Type D Soil as defined in 1.02(H) of this Section
- B. Contractor shall give Port no less than one week notice for sampling export soil prior to disposal offsite. Contractor shall anticipate at least 3 business days for lab results.
- C. Laboratory turnaround times may require additional time for analytical results; therefore, Contractor should coordinate with Engineer well in advance of anticipated disposal date. Samples that are required to have "rush" analysis performed due to the Contractor's failure to disclose the anticipated disposal date shall have the difference in service fees paid by the Contractor, or the Contractor may delay the disposal until the standard analysis turnaround time is complete, at no additional cost to the Port.

3.02 TRANSPORTATION AND OFF-SITE DISPOSAL OF SOILS

- A. The Contractor shall be responsible for handling, re-handling, loading, transporting, and legal off-site removal of all waste materials and excavated soils not reused onsite.
1. Contractor shall ensure that transport truck gross weight meets federal and/or state Department of Transportation (DOT) requirements and the requirements of the receiving facility, whichever is more stringent.
 2. Contractor shall take measures to prevent debris from being spilled from trucks or tracked from the site to local streets. Contractor shall sweep streets adjacent to the site as necessary or as directed by the Engineer.
 3. Contractor shall ensure that any vehicle transporting materials offsite are properly labeled and placarded in accordance with federal and state DOT requirements.
- B. Type A Regulated and Type B Regulated Soil shall be hauled to an approved facility by the Contractor for disposal.
- C. Type C Regulated Soil is of unknown origin or special circumstances. Type C Regulated Soil shall be hauled to an on-site segregated stockpile area. The Contractor shall protect the material from weather and other disturbances once stockpiled. The Port will inform the Contractor of the soil profile following additional analysis of the suspect material (as needed), and the soil will be categorized as either Type A Regulated, Type B Regulated or Type D Soil and disposed of accordingly.

- D. Type D Soil that is not reused onsite shall be hauled by the Contractor to a site determined by the Contractor. If the receiving/disposal facility requires additional testing or certification of this soil, Contractor shall complete these requirements, at no additional cost to the Port. The Port will not certify or declare the material suitable for unrestricted use.

3.03 OTHER REQUIREMENTS

- A. Type A, Type B or Type C Regulated Soil may be, upon approval of the Engineer, temporarily stockpiled within the construction area. Contractor shall place an impervious liner beneath the soil and securely cover the stockpile with waterproof covering (e.g., plastic sheeting). Additional measures (e.g., berm, jersey barriers, silt fence, etc.) may be required to minimize soil runoff from the stockpile area. The soil shall be removed prior to completion of Work.
- B. Contractor shall provide the Engineer with all hauling receipts (or copies of receipts) from the disposal facility for all Type A, Type B or Type C Regulated Soil at least weekly.
- C. The Engineer may shut down excavation activities should unexpected regulated material be encountered during excavation.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. The Work includes the requirements to provide air and noise control measures until Final Completion of the Work.

1.02 SUBMITTALS

- A. Prior to Notice to Proceed, the Contractor shall submit a list of equipment to be used on the project and written certification that all equipment on the list and any additional equipment, including Contractor's, subcontractors or supplier's equipment, shall meet the requirements of 3.01 below.

PART 2 - PRODUCTS - NOT USED

PART 3 – EXECUTION

3.01 AIR POLLUTION CONTROL

- A. The Contractor shall meet or exceed EPA Tier 2 off-road diesel engine emission standards for off-road equipment \geq 25hp and meet or exceed EPA 1994 on-road diesel engine emission standards for on-road equipment except as follows:
 - 1. Equipment being used in an emergency or public safety capacity
- B. The Contractor shall not discharge smoke, dust, and other hazardous materials into the atmosphere that violate local, state or federal regulations.
- C. No vehicles can idle for more than 5 consecutive minutes, except as follows:
 - 1. Idling is required to bring or maintain the equipment to operating temperature;
 - 2. Engine idling is necessary to accomplish work for which the equipment was designed (i.e. operating a crane); or
 - 3. Idling vehicles being used in an emergency or public safety capacity.
- D. The Contractor shall minimize nuisance dust by cleaning, sweeping, vacuum sweeping, sprinkling with water, or other means. Equipment for this operation shall be on the job site or available at all times.

3.02 NOISE CONTROL

- A. The Contractor shall comply with all local controls and noise level rules, regulations and ordinances which apply to work performed pursuant to the Contract.
- B. All internal combustion engines used on the job shall be equipped with a muffler of a type recommended by the manufacturer.

END OF SECTION

PART 1 – GENERAL

1.01 SUMMARY

- A. The Work shall consist of the procedures to be followed in the event that cultural and/or historical resources are inadvertently discovered during the projects activities.
- B. The project is located in an area previously inventoried for cultural and historical resources; however it is possible that additional, previously unidentified archaeological resources and/or skeletal remains could be inadvertently discovered during project activities. In the event that prehistoric, historic-era archaeological materials or skeletal remains are discovered, the appropriate protection measures and protocols described in this section must be followed.
- C. The Port will provide archaeological monitoring by or under the guidance of a professional archaeologist (archaeologist).

1.02 REFERENCES

- A. The rules, requirements, and regulations that apply to this Work include, but are not necessarily limited to the following:
 - 1. Port of Tacoma Cultural Resource Programmatic Management Plan - Appendix D

1.03 AUTHORITY OF ARCHAEOLOGIST

- A. At any time, when the archaeologist determines that possible cultural resources or skeletal remains might be present, they have the authority to stop work, secure the area of the find and determine a work stoppage zone. This area shall remain protected until further decisions can be made regarding the work site.
- B. The archaeologist will stand in close proximity of the construction equipment to view subsurface deposits as they are exposed and will be in close communication with the equipment operators to ensure adequate opportunity for observation and documentation. The monitor will coordinate the depths of the lifts with the Port and the Contractor.
- C. The archaeologist will be provided the opportunity to screen excavated sediments and matrix samples when this is judged to be useful.
- D. Archaeological monitoring will proceed until it can be determined by the archaeologists that skeletal remains or other cultural resources are not likely to be impacted by construction activities.

PART 2 – PRODUCTS – NOT USED.

PART 3 – EXECUTION

3.01 PROTOCOLS FOR DISCOVERY OF ARCHAEOLOGICAL RESOURCES

- A. In the event that archaeological resources are encountered within the project, the following actions will be taken:
 - 1. All ground disturbing and construction activity at the specific location will stop and the area will be protected via temporary fencing or other appropriate measures.
 - 2. The Contractor's work supervisor will be notified immediately.
 - 3. Contact the PORT's Engineer and Environmental Project Manager immediately.
 - 4. A work stoppage zone, as determined by the Archaeologist and PORT, will be established.

5. The PORT's Environmental Project Manager will contact the appropriate agencies where the discovery is located as well as the Washington State Department of Archaeology and Historic Preservation (DAHP) the Puyallup Tribe (TRIBE) and the U.S. Army Corps of Engineers (Corp).
6. The Work Stoppage Zone will remain protected until further decisions can be made regarding the area.
7. The Contractor will be allowed to continue ground disturbing and other construction activities outside of the established work stoppage zone.

3.02 PROTOCOLS FOR DISCOVERY OF HUMAN REMAINS

- A. In the event of that human remains are encountered within the project, the following actions, consistent with RCWs 68.50.645, 27.44.055 and 68.60.055 will be taken:
 1. All ground disturbing and construction activity at the specific location will stop and the area will be protected via temporary fencing or other appropriate measures. The remains will not be touched, moved or further disturbed.
 2. The Contractor's work supervisor will be notified immediately.
 3. Contact the Port's Engineer and Environmental Project Manager immediately.
 4. The Environmental Project Manager will notify the county medical examiner / coroner and local law enforcement.
 5. A Work Stoppage Zone will be determined and remain protected until further decisions can be made regarding the area.
 6. The Contractor will be allowed to continue ground disturbing and other construction activities outside of the established work stoppage zone.

3.03 PROTOCOLS FOR CONFIDENTIALITY

- A. In the event of that human remains or cultural resources are discovered within the project area, the Port and the Contractor shall keep and maintain all information regarding any discovery confidential.
 1. At no time shall the Contractor contact the media, any third party or otherwise share information regarding the discovery with any member of the public.
 2. If the Contractor is contacted by the media or the public regarding any discovery, they shall refrain from comment, and contact the Port's Environmental Project Manager immediately.

END OF SECTION

PART 1 - GENERAL

1.01 PERMITS, CODES, AND REGULATIONS

- A. The following permits/approvals have been applied for (or are on file) and incorporated into the Contract:
 - 1. Waste Disposal Authorization (WDA) - Appendix B
 - 2. Specific Approved Discharge (SAD) Permit - Appendix C
 - 3. Site Development Permit (SDEV) - Appendix F
 - 4. State Environmental Policy Act (SEPA) Compliance - Appendix G
 - 5. Critical Area Development Permit - Appendix L
- B. Conform with the requirements of listed permits and additional or other applicable permits, codes, and regulations as may govern the Work.
- C. Obtain and pay fees for licenses, permits, inspections, and approvals required by laws ordinances, and rules of appropriate governing or approving agencies necessary for proper completion of Work (other than those listed under item 1.01.A above and Special Inspections called for by the International Building Code).
- D. Conform with current applicable codes, regulations and standards, which is the minimum standard of quality for material and workmanship. Provide labor, materials, and equipment necessary for compliance with code requirements or interpretations, although not specifically detailed in Drawings or specifications. Be familiar with applicable codes and standards prior to bidding.
- E. Process through Engineer, request to extend, modify, revise, or renew any of the permits (listed in 1.01.A above). Furnish requests in writing and include a narrative description and adequate Drawings to clearly describe and depict proposed action. Do not contact regulatory agency with requests for permit extensions, modifications, revisions, or renewals without the prior written consent of the Engineer.

1.02 VARIATIONS WITH CODES, REGULATIONS AND STANDARDS

- A. Nothing in the Drawings and specifications permits Work not conforming to codes, permits, or regulations. Promptly submit written notice to the Engineer of observed variations or discrepancies between the Contract Documents and governing codes and regulations.
- B. Appropriate modifications to the Contract Documents will be made by Change Order to incorporate changes to Work resulting from code and/or regulatory requirements. Contractor assumes responsibility for Work contrary to such requirements if Work proceeds without notice.
- C. Contractor is not relieved from complying with requirements of Contract Documents which may exceed, but not conflict with requirements of governing codes.

PART 2 - PRODUCTS - NOT USED

PART 3 – EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. This section includes requirements relating to referenced standards.

1.02 QUALITY ASSURANCE

- A. For products or workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard of date of issue specified in this section, except where a specific date is established by applicable code.
- C. Should specified reference standards conflict with Contract Documents, request clarification from the Engineer before proceeding.
- D. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of the Engineer shall be altered by the Contract Documents by mention or inference otherwise in any reference document.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 QUALITY CONTROL FOR COMPLIANCE:

- A. The Contractor shall perform such detailed examination, inspection, quality control and assurance of the Work as to ensure that the Work is progressing and is being completed in strict accordance with the Contract Documents. The Contractor shall plan and lay out all Work in advance of operations so as to coordinate all Work without delay or revision. The Contractor shall be responsible for inspection of portions of the Work already performed to determine that such portions are in proper condition to receive subsequent Work. Under no conditions shall a portion of Work proceed prior to preparatory work having been satisfactorily completed. The Contractor shall ensure that the responsible Subcontractor has carefully examined all preparatory work and has notified the Contractor (who shall promptly notify the Port in writing) of any defects or imperfections in preparatory work that will, in any way, affect completion of the Work.

1.02 QUALITY ASSURANCE - CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform Work by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on shop Drawings or as instructed by the manufacturer.
- G. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.03 TOLERANCES

- A. Monitor fabrication and installation tolerance control of Products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Engineer before proceeding.
- C. Adjust Products to appropriate dimensions; position before securing Products in place.

1.04 TESTING SERVICES

- A. Tests, inspections and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities.
 - 1. Neither observations by an inspector retained by the Port, the presence or absence of such inspector at the site, nor inspections, tests, or approvals by others, shall relieve the Contractor from any requirement of the Contract Documents, nor is any such inspector authorized to change any term or condition of the Contract Documents.

- B. Necessary materials testing shall be performed by an independent testing laboratory during the execution of the Work and paid for by the Port of Tacoma, unless otherwise specified. Access to the area necessary to perform the testing and/or to secure the material for testing, shall be provided by the Contractor.
- C. Testing does not relieve Contractor from performing work to contract requirements.
- D. Re-testing required because of non-conformance to specified requirements will be charged to the Contractor by deducting testing charges from the Contract Sum via Change Order.
- E. Material testing for initial material approval will be performed by an independent, certified laboratory and paid for by the Contractor. These tests must be dated within six (6) months of the submittal date.
- F. Subsequent sampling and testing, required as the work progresses to ensure continual control of materials and compliance with all requirements of the Contract documents, shall be the responsibility of the Port, except as required by other sections of these Specifications.

1.05 MANUFACTURER'S FIELD SERVICES

- A. When specified in individual specification sections, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up equipment, test, and adjust and balance equipment as applicable, and to initiate instructions when necessary.
- B. Submit qualifications of observer to Engineer 30 days in advance of required observations. Observer subject to approval of Engineer.
- C. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. This section includes requirements relating to the following:
 - 1. Temporary utilities,
 - 2. Temporary sanitary facilities,
 - 3. Temporary Controls: Barriers, enclosures, and fencing, and

1.02 TEMPORARY UTILITIES

- A. Provide and pay for all electrical power, lighting, water, heating and cooling, and ventilation required for construction purposes. Contractor is responsible for getting required permits and meters from the City of Tacoma.

1.03 TEMPORARY SANITARY FACILITIES

- A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.
- B. Maintain daily in clean and sanitary condition.
- C. At end of construction, return facilities to same or better condition as originally found.

1.04 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public, to allow for Port's use of site, and to protect existing facilities and adjacent properties from damage from construction operations and demolition.
- B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building.
- C. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.05 FENCING

- A. Provide 6 ft. (1.8 m) high fence around laydown are; equip with vehicular gates with locks.

1.06 EXTERIOR ENCLOSURES

- A. Provide temporary insulated weather tight closure of exterior openings to accommodate acceptable working conditions and protection for Products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.

1.07 INTERIOR ENCLOSURES

- A. Provide temporary partitions and ceilings as indicated to separate work areas from the Port-occupied areas, to prevent penetration of dust and moisture into the Port-occupied areas, and to prevent damage to existing materials and equipment.
- B. Construction: Framing and reinforced polyethylene sheet materials with closed joints and sealed edges at intersections with existing surfaces

1.08 TREE AND VEGETATION PROTECTION

- A. The Contractor shall carefully protect existing trees and vegetation noted to remain from damage by construction activities.
- B. All trees and vegetation noted to remain shall have 4' high, high visibility fence installed at the drip line of the tree or vegetation or as noted and shown on the Drawings.
- C. If a tree or vegetation designated for protection is damaged or destroyed in the course of the Work, the Contractor shall replace it with new comparable in species and size as required by the Engineer. Where it is necessary to replace trees or vegetation damaged by construction, the Contractor shall bear all expenses associated with replacement and establishment of the replacement vegetation.
- D. The contractor shall provide any necessary irrigation and other care necessary to warrant the replacement vegetation for two growing seasons (April through September) following replacement.

1.09 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary utilities, equipment, facilities, materials, prior to final inspection.
- B. Clean and repair damage caused by installation or use of temporary work.
- C. Restore existing facilities used during construction to original condition.
- D. Restore new permanent facilities used during construction to specified condition.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. This section includes requirements relating to the following:
 - 1. Access roads
 - 2. Parking
 - 3. Construction parking controls
 - 4. Traffic Control
 - 5. Flares and lights
 - 6. Haul routes
 - 7. Maintenance
 - 8. Removal, repair
 - 9. Mud from site vehicles

PART 2 - PRODUCTS

2.01 SIGNS, SIGNALS, AND DEVICES

- A. Post Mounted and Wall Mounted Traffic Control and Informational Signs, as specified.
- B. Traffic Cones and Drums, Flares and Lights: As approved by local jurisdictions.
- C. Flag Person Equipment: As required by local jurisdictions.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Clear areas, provide surface and storm drainage of road, parking, area premises, and adjacent areas.

3.02 ACCESS TO SITE

- A. Contractor shall conduct all business through the gate assigned by the Engineer.
 - 1. The Contractor may be required to relocate entry and related work areas as required by Port Operations.
- B. Provide unimpeded access for emergency vehicles. Maintain 20 foot (6 m) width driveways with turning space between and around combustible materials.
- C. Provide and maintain access to fire hydrants free of obstructions.

3.03 PARKING

- A. All Contractor's employee cars and work vehicles will be parked on-site as designated by the Engineer.

3.04 CONSTRUCTION PARKING CONTROL

- A. Control vehicular parking to prevent interference with public traffic and parking, access by emergency vehicles, and Port operations.
- B. Prevent parking on or adjacent to access roads or in non-designated areas.

3.05 TRAFFIC CONTROL

- A. Provide trained and equipped flag persons to regulate traffic when construction operations or traffic encroach on public traffic lanes.
- B. The Contractor shall erect and maintain all construction signs, warning signs, detour signs, flaggers and other traffic control devices necessary for the safe ingress and egress of the Project Site. Traffic control shall include but is not limited to:
 - 1. Flaggers to direct traffic as required by Tacoma Rail to accommodate the Contractor's work.
 - 2. The Contractor shall be liable for injuries and damages to persons and property suffered by reason of the Contractor's operations or any negligence in connection therewith.
 - 3. Flagging, signs, and all other traffic control devices furnished or provided shall conform to established WSDOT and City of Tacoma standards. No work shall be done on or adjacent to the above locations until all necessary signs and traffic control devices are in place. During the course of the work, the Contractor shall be responsible for providing and maintaining adequate traffic control measures for the protection of the Contractor's work and the public.

3.06 FLARES AND LIGHTS

- A. Use flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.

3.07 HAUL ROUTES

- A. Confine construction traffic to designated haul routes.
- B. Provide traffic control at critical areas of haul routes to regulate traffic, to minimize interference with public traffic.

3.08 MAINTENANCE

- A. Maintain traffic and parking areas in a sound condition free of excavated material, construction equipment, Products, mud, snow, and ice.
- B. Maintain existing paved areas used for construction. Promptly repair breaks, potholes, low areas, standing water, and other deficiencies, to maintain paving and drainage in original, or specified, condition.

3.09 REMOVAL, REPAIR

- A. Repair existing facilities damaged by use, to original condition.
- B. Repair damage caused by installation.

3.10 PUBLIC STREET AND ONSITE ROADWAY CLEANING

- A. The Contractor shall be responsible for preventing dirt and dust escaping from trucks and other vehicles operating on or departing the project site by sweeping, covering dusty loads, washing truck tires, and all other reasonable methods.
- B. When trucks and other equipment are operating on paved public streets and site roadways/paved surfaces, the Contractor will be required to clean said streets, roadways, and other paved surfaces at least daily, and at other times if required by the Engineer.

- C. In the event that the above requirements are violated and no action is taken by the Contractor after notification of infraction by the Engineer, the Port reserves the right to have the streets, roadways, and other paved surfaces in question cleaned by others and have the expense of the operation charged to the Contractor.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. The Work shall consist of planning, installing, inspecting, maintaining and removing Temporary Erosion and Sediment Control (TESC) Best Management Practices (BMPs) to prevent pollution of air and water, and control, respond to, and dispose of eroded sediment and turbid water during the term of the Contract. Contractor shall implement BMPs to ensure, without exception, there is no discharge of stormwater or sediment from the Project Limits.
- B. The Port has developed a Construction Stormwater Pollution Prevention Plan (SWPPP) (attached in Appendix E) as part of the National Pollution Discharge Elimination System (NPDES) stormwater permit requirements for the project site. The Contractor can choose to adopt, adjust, and implement as their own, or can develop their own SWPPP subject to Engineer approval. The Contractor's implementation of the SWPPP and BMPs will comply with City of Tacoma (City) requirements and will ensure no stormwater or sediment leave the Project Limits throughout completion of the soil removal action. The Contractor SWPPP shall meet or exceed the control measures required by the Washington Department of Ecology (Ecology). The SWPPP describes the proposed construction activities and all Temporary and Permanent Erosion and Sediment Control (ESC) measures, pollution prevention measures, inspection/monitoring activities, and recordkeeping that will be implemented during the proposed construction project. The Contractor shall have on-site or on-call at all times an individual who is a certified erosion and sediment control lead (CESCL).
 - 1. The SWPPP consists of planning, installing, inspecting, maintaining, and removing TESC BMPs per Volume II of the Stormwater Management Manual for Western Washington (2024). The BMPs are to prevent pollution of air and water, and control, respond to, and dispose of eroded sediment and turbid water during the term of the Contract.
 - 2. The Contractor may submit an alternative SWPPP than the one that is provided by the Port; however the SWPPP shall address all elements of the Port's SWPPP. The Contractor will be responsible for updating the SWPPP to reflect required changes to BMPs, as needed, to comply with the Contract documents at no additional cost to the Port.
- C. Unless otherwise noted in the SWPPP, the work shall include but is not limited to the following:
 - 1. Catch Basin Protection
 - 2. High Visibility Filter Fabric Fencing
 - 3. High Visibility Construction Fencing
 - 4. Wheel Wash
 - 5. Street Sweeping
 - 6. Dust Control
 - 7. Temporary Dewatering Discharges
 - 8. Materials on Hand
 - 9. Sawcutting
- D. These TESC requirements shall apply to all areas associated with the Work including but not limited to the following:
 - 1. Work areas

2. Equipment and material storage areas
 3. Staging areas
 4. Stockpiles
 5. Discharge points within or adjacent to the work areas that are impacted by stormwater runoff from the Project Limits.
- E. Acceptance of TESC plans does not constitute an approval of permanent Work or drainage design (e.g., size and location of roads, pipes, channels, utilities, etc.).

1.02 REFERENCES

- A. The rules, requirements, and regulations that apply to this Work include, but are not necessarily limited to the following:
1. Department of Ecology, "Stormwater Management Manual for Western Washington," 2024.
 2. Washington State Department of Transportation 2023 Standard Specification M41-10, Division 8-01 Erosion Control and Water Pollution control.
 3. City of Tacoma "Surface Water Management Manual," Tacoma Public Works, Environmental Services, July 2021.
 4. Washington State Department of Ecology NPDES Phase 1 Municipal Stormwater General Permit, August 1, 2024.

1.03 SUBMITTALS

- A. Material Safety Data Sheet (MSDS) for dust palliative products.
- B. Product Data: Submit data on the following:
1. Catch Basin Protection
 2. High Visibility Filter Fabric Fencing
 3. High Visibility Construction Fencing
- C. Excavation and Water Management Plan
- D. Copies of all required TESC site stormwater monitoring and testing documentation, field and site log books and all inspection observation/corrective reports stated herein, within the SWPPP, and on the Drawings.
- E. Project CESCL personnel certifications.

1.04 AUTHORITY OF ENGINEER

- A. In the event that the Contractor's activities are causing off-site discharge of stormwater/sediment or contamination of adjacent streams or other watercourses, lakes, ponds, and other areas of water impoundment, the Engineer has the authority to limit the surface area of erodible earth material exposed by clearing and grubbing, excavation, borrow and fill operations, and to direct the Contractor to provide immediate permanent or temporary pollution control measures to minimize adverse impacts.
- B. In the event that areas adjacent to the work area are suffering degradation due to erosion, sediment deposit, water flows, or other causes, the Engineer may stop construction activities until the situation is rectified.

PART 2 PRODUCTS

2.01 CATCH BASIN PROTECTION

- A. Catch Basin Protection Inserts shall be DrainGuard Oil and Sediment Catch Basin Inserts, 11091, as manufactured by Advanced Environmental, or Engineer-approved equal.
- B. Gravel Backfill Aggregate: Shall comply with WSDOT 9-03.14 (1) modified from 7% to 5% passing the No. 200 sieve.
- C. Weep Hole Geotextile Fabric: Comply with filter fabric fence geotextile fabric requirements.

2.02 HIGH VISIBILITY FILTER FABRIC FENCE

- A. High-visibility filter fabric fence shall be a minimum of 5 feet (152.4 cm) in height, high visibility orange, UV-stabilized, and shall meet the geotextile fabric requirements in Section B below. See WSDOT Standard Plan I-30-16.
- B. The geotextile shall meet the following standards. All geotextile properties listed below are minimum average roll values (i.e., the test result for all sampled roll in a lot shall meet or exceed the values shown in the table below):

Geotextile Fabric Properties	
	0.02 inch (0.6 mm) maximum for slit film woven (#30 sieve).
Polymeric Mesh AOS (((ASTM D4751)))	0.01 inch (0.3 mm) maximum for all other geotextile types (#50 sieve).
	0.01 inch (0.15 mm) minimum for all fabric types (#100 sieve).
Water Permittivity (ASTM D4491)	0.02 sec-1 minimum
Grab Tensile Strength (ASTM D4632)	180 lbs. Minimum for extra strength fabric.
Grab Tensile Strength (ASTM D4632)	100 lbs minimum for standard strength fabric.
Grab Tensile Strength (ASTM D4632)	30% maximum
Ultraviolet Resistance (ASTM D4355)	70% minimum

2.03 HIGH VISIBILITY CONSTRUCTION FENCE

- A. High-visibility construction fence shall be high visibility orange, UV stabilized, high density polyethylene or polypropylene mesh. See WSDOT Standard Plan I-30-10.

2.04 DUST CONTROL

- A. Dust palliative for dust control proposed by the Contractor and approved by the Engineer.

2.05 WHEEL WASH

- A. The Contractor shall install a portable, self-contained, pressure wheel wash facility, as shown in the Contract Drawings, similar in function to the following portable pressure wash systems:

1. Rain For Rent online Wheel Wash system.
2. ACF West portable wheel wash systems.

B. The Contractor shall obtain Engineer's approval for selected wheel wash system.

2.06 STORMWATER DITCH OUTLET PLUG

- A. Stormwater Ditch outlet plug shall be of the mechanical type (e.g., Fernco) or pneumatic type (e.g., an inflatable packer) and shall be compatible with the field-verified diameter and material of the Stormwater Ditch Outlet pipe, which is understood to be 8-inch diameter concrete pipe.

PART 3 EXECUTION

3.01 GENERAL

- A. In the event of conflict between these requirements and pollution control laws, rules, or regulations of other federal, state, or local agencies, the more restrictive laws, rules, or regulations shall apply as determined by the Engineer.
- B. No discharge of water or sediment from the Project Limits shall be allowed, except for water that is collected, treated, and discharged to City of Tacoma sanitary sewer in compliance with the project-specific Special Authorization to Discharge obtained from City of Tacoma (see 31 23 19 Dewatering).
- C. The Contractor shall be solely responsible for all damages and fines incurred because of Contractor, subcontractor, or supplier actions in implementing the requirements of this Section.
- D. The Contractor shall be solely responsible for schedule impacts incurred because of Contractor, subcontractor, or supplier actions in implementing the requirements of this Section.
- E. The Port of Tacoma has completed a Construction SWPPP document for this project, which is included as Appendix E. Comply with the Construction SWPPP, and the contract document requirements.

3.02 TEMPORARY EROSION AND SEDIMENT CONTROL IMPLEMENTATION

- A. The Contractor is responsible for implementing the project SWPPP requirements. The Contractor shall address the following issues as part of implementing the BMPs.
1. The SWPPP document requirements are minimum requirements for the anticipated site conditions during the construction period. During the construction period, the Contractor shall, at no additional cost to the Port, upgrade the TESC measures as needed for unexpected storm events and modify these facilities for changing site conditions (such as relocation of ditches and silt fences, etc.) and update the SWPPP to document the modifications made.
 2. The Contractor shall inspect the TESC measures daily and maintain these facilities to ensure continued proper functioning during the construction period. The Contractor shall provide copies to the Port of these written records of these inspections weekly.
 3. Areas of exposed soils, including embankments, which will not be disturbed for two days shall immediately be stabilized by the Contractor with the approved TESC measures (seeding, mulching, plastic covering, etc.)
 4. Areas needing TESC measures not requiring immediate attention shall be addressed by the Contractor at the Port's discretion.

5. Catch basins within the Project Limits shall be cleaned when the depth of debris reaches 30% of the sump depth or the debris surface is six (6) inches below the outlet pipe. All catch basins, manholes, and conveyance lines shall be cleaned by the Contractor at the completion of the project. The cleaning process shall not flush sediment-laden water into a downstream system.
- B. SWPPP Document Narrative: In the event the Contractor elects to develop a separate Construction SWPPP, the following topics shall be addressed in the Contractor's Construction SWPPP at a minimum.
 1. Project Description
 2. Erosion Control Specialist
 3. Site Characteristics and Factors Affecting Erodibility
 4. Soils
 - a. documents available that describe soil types in the project area (geotechnical reports, soil surveys, past projects).
 - b. the native soil types (hydrologic groups) on the project and the associated locations
 - c. the impact by these various soil types (cohesion) on erosion potential
 - d. soil type and impact on infiltration
 - e. soil particle size and impact on sediment control BMP effectiveness
 - f. groundwater seepage impact in the project area
 5. Precipitation
 - a. precipitation frequency, intensity, and duration affecting the project area
 - b. work activity variation during wet and dry seasons
 - c. timing, phasing or cover requirements' impact on the project
 - d. BMPs to be installed for this project
 6. Topography
 - a. potential risks that exist associated with size, gradient and stability of slopes in the project area
 - b. land features that, if used, reduce the risk of turbid water discharges (i.e., closed depressions, flat areas or gently sloped/heavily vegetated areas where water can disperse and infiltrate)
 7. Vegetation
 - a. vegetated areas be preserved to protect soil and provide an area for dispersal/infiltration
 - b. vegetation removal be completed in phases to protect soil and provide an area for dispersal/infiltration during the wet season
 8. Areas on or Adjacent to Critical Areas
 9. Adjacent Areas
 - a. Existing neighboring land use activities and proximity to the project

- b. impact on the project by the adjacent properties
- c. impact on neighboring properties by this project
- 10. Construction Phasing
- 11. Construction Schedule
- 12. Financial/Ownership Responsibilities
- 13. Engineering Calculations
- C. Drawings
 - 1. Site Map(s)
 - 2. Conveyance Systems
 - 3. Location of Detention BMPs
 - 4. Erosion and Sediment Control (ESC) Measures
 - 5. Detailed drawings
 - 6. Other Pollutant BMPs
 - 7. Monitoring Locations
 - 8. Attach TESC drawings to Contractor submittal

3.03 TEMPORARY EROSION AND SEDIMENT CONTROL IMPLEMENTATION

- A. The Contractor is responsible for implementing the SWPPP including contract TESC BMPs.
- B. The Contractor shall ensure that water or a dust palliative and a dispensing methodology is available as needed for project use. It is the responsibility of the Contractor to develop and adhere to appropriate safety measures pertaining to the palliative use.
- C. The Contractor shall maintain the required TESC installations for function and operation throughout the project duration. The Contractor shall record all maintenance observations and corrective measures in the project log book.
- D. In the event that temporary erosion and pollution control measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of the Work as scheduled or as directed by the Engineer, such work shall be performed by the Contractor at its own expense.
- E. Prior to final payment, the Contractor shall remove all TESC facilities, install permanent site surfacing improvements, permanent BMPs and site surfacing with minimal disturbance and shall clean stormwater facilities prior to work completion.
- F. Upon completion of TESC facility removal work, the Contractor shall dispose of all unsuitable soils, waste material, trash, debris and removed TESC materials at approved landfill.

3.04 CONSTRUCTION ENTRANCE/EXIT

- A. Install in accordance with the Contract Document requirements.
- B. Restrict traffic to the construction entrance/exit.

- C. Maintain the construction entrance/exit quarry spalls by removing collected sedimentation in the quarry spall pad and dispose of the spalls and sediment onsite. Install new spalls in the construction entrance exit pad. The Contractor shall modify the entrance during the progress of the work at no additional cost to the Port.

3.05 WHEEL WASH

- A. The Contractor shall install, operate and maintain the portable wheel wash per the manufacturer's specifications and as indicated in the Contract Documents. The Contractor shall be responsible for disposal of water in accordance with all laws.
- B. The Contractor shall modify wheel wash as required during the progress of work to prevent track out of material from the site at no additional cost to the Port.
- C. All vehicles that enter the work area, shall be required to pass over the wheel wash prior to leaving the site.

3.06 WATTLES

- A. Install in accordance with Contract Document requirements.
- B. Dig narrow trenches perpendicular to the gradient or slope on contour to a depth of 4 inches (for 8 inch (203.2 mm) diameter wattles) or 5 inches (127 mm) on soils with gradual slopes.
- C. For biofiltration swale installations, install the 10 foot (304.8 cm) wattle length across the channel bottom, on top of the channel topsoil, prior to channel seeding and subsequent erosion control blanket installation. Wattles are not removed.
- D. Install stakes at each end of the wattle, and at 4-foot centers along entire length of wattle.
- E. At a minimum, wooden stakes shall be approximately 3/4 x 3/4 x 24 inches (609.6 mm).
- F. Stakes shall be driven through the middle of the wattle, leaving 2 to 3 inches (76.2 mm) of the stake protruding above the wattle.

3.07 SILT FENCE

- A. Install in accordance with the Contract Document requirements.
- B. Locate all sewn seams at support posts. Alternatively, two sections of silt fence can be overlapped, provided the Contractor can demonstrate, to the satisfaction of the Engineer, that the overlap is long enough and that the adjacent fence sections are close enough together to prevent silt laden water from escaping through the fence at the overlap.
- C. Attach the filter fabric on the up-slope side of the posts and secure with staples, wire, or in accordance with the manufacturer's recommendations. Attach the filter fabric to the posts in a manner that reduces the potential for tearing.
- D. Support filter fabric with wire or plastic mesh, dependent on the properties of the geotextile selected for use. Fasten the mesh securely to the up-slope side of the posts with the filter fabric up-slope of the mesh. The strength of the wire or polymeric mesh shall be equivalent to or greater than 180 lbs. grab tensile strength. The polymeric mesh shall be as resistant to the same level of ultraviolet radiation as the filter fabric it supports.
- E. Bury the bottom of the filter fabric 4-inches min. below the ground surface. Backfill and tamp soil in place over the buried portion of the filter fabric, so that no flow can pass beneath the fence and scouring cannot occur. When wire or polymeric back-up support mesh is used, the wire or polymeric mesh shall extend into the ground 3-inches minimum depth.

3.08 EROSION CONTROL BLANKET

- A. Install in accordance with the Contract Documents requirements.
- B. Slope surface shall be free of rocks, clods, sticks and grass.
- C. Apply permanent seeding per Drawing and specification requirements prior to erosion control blanket installation. Install required biofiltration swale plantings after the erosion control blanket installation. Install plantings by excavating through the erosion control blanket with hand shovel equipment.
- D. Dig a small trench, approximately 12-inches wide by 6-inches deep along the top of the slope. Cover with soil to secure.
- E. Install the leading edge of the blanket into the small trench, backfill the trench with soil and staple approximately every 18-inches.
 - 1. NOTE: Staples are metal, "U"-shaped, and a minimum of 6-inches long. Longer staples are used in sandy soils. Biodegradable stakes are also available and shall be used where applicable.
 - 2. NOTE: The blanket rests against the installer's legs. Staples are installed as the blanket is unrolled. It is critical that the proper staple pattern in used for the blanket being installed. The blanket shall not be allowed to roll down the slope on its own as this stretches the blanket, making it impossible to maintain soil contact
- F. Roll the blanket slowly down the slope as the installer walks backwards. Blankets shall have good contact with the soil.
- G. If the blanket is not long enough to cover the entire slope length, the trailing edge of the upper blanket shall overlap the leading edge of the lower blanket and be stapled. On steeper slopes, this overlap shall be installed in a small trench, covered with soil and stapled.
- H. Provide overlap in accordance with manufacturer's recommendations or 6", whichever is greater.
- I. Maintenance Standards
 - 1. Good contact with the ground shall be maintained, and erosion shall not occur beneath the blanket.
 - 2. Repair or staple all areas of the blanket that are damaged or not in close contact with the ground.
 - 3. If erosion occurs due to poorly controlled drainage, fix the problem and protect the eroded area.

3.09 CATCH BASIN PROTECTION

- A. Install in accordance with the Contract Documents requirements.

3.10 STOCKPILE PROTECTION

- A. Install in accordance with the Contract Documents requirements.

3.11 STORMWATER DITCH OUTLET PLUG

- A. The Contractor shall install the Stormwater Ditch outlet plug prior to the start of earth-moving activities, in accordance with Section 2.06.

- B. The Contractor shall visually inspect the plug daily during periods when any portion of the Ditch contains standing water.
- C. If there any evidence that the outlet plug is not functioning as required (i.e., is leaking water), the Contractor shall take immediate steps to reconfigure or replace the outlet plug, and shall achieve a water-tight (non-leaking) condition, as approved by the Engineer, within 24 hours of determining failure.

3.12 OTHER TESC OR BMP'S

- A. Street Sweeping: Provide street sweeping when sediments are observed on Taylor Way.
- B. BMP C150 Materials on Hand: Keep quantities of additional erosion-prevention and sediment-control materials on the project site at all times to be used for regular BMP maintenance and emergency situations such as heavy rains. Having these materials on-site reduces the time needed to implement BMPs when inspections indicate that existing BMPs are not meeting the TESC requirements and the overall objective of preventing any discharge of stormwater or sediment from the Project Limits. Additional TEC materials on hand can include, but not be limited to, the following:
 - 1. Plastic Covering, 6 mil (0.1524 mm)
 - 2. Geotextile fabric
 - 3. Silt fencing
 - 4. Wattles
 - 5. Catch basin inserts
 - 6. Fill sandbags
 - 7. Rip rap rock material
- C. BMP C160: Certified Erosion and Sediment Control Lead (CESCL): Provide a CESCL for the project duration.
 - 1. The CESCL shall have a current certificate proving attendance in an erosion and sediment control training course that meets the minimum CESCL training and certification requirements established by Ecology.
 - 2. The CESCL shall have authority to act on behalf of the Contractor and shall be available, on call, 24 hours per day throughout the period of construction.
 - 3. The Construction SWPPP shall include the name, telephone number, fax number, and address of the designated CESCL.
 - 4. Duties and responsibilities of the CESCL shall include, but are not limited to, the following:
 - a. Maintaining a permit file on site at all times which includes the SWPPP and any associated permits and drawings.
 - b. Directing BMP installation, inspection, maintenance, modification, and removal.
 - c. Updating all project drawings and the Construction SWPPP with TESC-related changes made.
 - d. Keeping daily logs and inspection reports in accordance with Ecology requirements.
 - 5. Facilitate, participate in, and take corrective actions resulting from inspections performed by outside agencies or the Port.

6. Keep an inventory of onsite materials on hand.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. This section includes the requirements to provide product data under the applicable specification section.

1.02 SUBMITTALS

- A. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- B. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- C. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
 - 1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

PART 2 - PRODUCTS

2.01 NEW PRODUCTS

- A. Provide new products unless specifically required or permitted by the Contract Documents.

2.02 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

PART 3 - EXECUTION

3.01 TRANSPORTATION AND HANDLING

- A. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.
- B. Transport and handle products in accordance with manufacturer's instructions.
- C. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.
- D. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- E. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.
- F. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.02 STORAGE AND PROTECTION

- A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.
- B. Store and protect products in accordance with manufacturers' instructions.
- C. Store with seals and labels intact and legible.
- D. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.
- E. For exterior storage of fabricated products, place on sloped supports above ground.
- F. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- G. Prevent contact with material that may cause corrosion, discoloration, or staining.
- H. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- I. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION

PART 1 - GENERAL

1.01 SCOPE

- A. The purpose of this section is to provide the framework for transferring Port provided equipment and materials to the Contractor in a safe, timely and effective manner.

1.02 SUBMITTALS

- A. Submit an inspection report or log to the Engineer of the inspection performed on the equipment and materials before acceptance by the Contractor. Flag any equipment or materials identified as being in unsatisfactory condition before moving or relocating it from the Location Area described below. Document unsatisfactory condition of equipment photographically, using digital media.

1.03 COORDINATION

- A. The materials will be available by October 6th, 2025

1.04 LOCATION

- A. The materials are located at 802 Port of Tacoma Rd, Tacoma, WA 98421

PART 2 - PRODUCTS

2.01 ITEMS

- A. Assume all items are in satisfactory condition unless otherwise indicated. Report in writing to the Engineer equipment found to be in unsatisfactory condition.

No.	Description	Quantity	Manufacturer/Supplier
1	Ferrous Sulfate, Monohydrate in super sacks	128,000 lbs	Cascade Columbia Distribution

PART 3 - EXECUTION

3.01 REMOVAL OF EQUIPMENT FROM STORAGE LOCATION

- A. Protect, transport and install where indicated within the Contract Documents.

3.02 PROTECTION

- A. Equipment
 - 1. Tightly cover and protect equipment against dirt, moisture or impact, mechanical and chemical damage.
 - 2. Repair
 - a. Repair or replace Port provided property damaged by the Contractor.

3.03 RELOCATION

- A. Install in accordance with the Contract Documents.

3.04 FIELD QUALITY CONTROL

- A. Equipment Inspection
 - 1. Examine each piece or component for visual defects.

B. Tests

1. Test each piece or component to ensure that it is operational in conformance with the Contract Documents.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. This section includes construction waste management requirements.

1.02 DESCRIPTION OF WORK

- A. The work includes demolition and removal within the project areas as shown on the drawings. The work also includes waste generated by construction activities, materials, packaging, scraps, and garbage.
- B. Soils excavated within the projects areas, as shown on the drawings, are anticipated contain contamination as shown on the drawings. Should the Contractor, using visual and olfactory methods, identify potentially other contaminated soil, the Contractor shall notify the Engineer to determine if the soil requires special handling. This material shall be segregated from other excavated material. It shall be stockpiled on plastic and covered with plastic until such time as appropriate testing and analysis can be completed by the Engineer. Upon completion of the testing and analysis the Engineer will direct the Contractor concerning the disposition of the material. Soil beyond construction excavation limits will not require excavation unless free draining product is observed or other special conditions exist in which case the Engineer will direct the Contractor in additional excavation. Soils determined to be contaminated will be hauled and disposed of at a locations designated in the following paragraphs.

1.03 DEFINITIONS

- A. Co-mingled or Off-site Separation: Collecting all material types into a single bin or mixed collection system and separating the waste materials into recyclable material types at an off-site facility.
- B. Construction, Demolition and Land-Clearing (CDL) Waste: Includes all nonhazardous solid wastes resulting from construction, remodeling, alterations, repair, demolition, and land clearing. Includes material that is recycled, reused, salvaged or disposed as garbage.
- C. Hazardous/Dangerous Waste: As defined by Chapter 70.105.010 Revised Code of Washington and 40 Code of Federal Register 261 and by Washington Administrative Code 173-303.
- D. Proper Disposal: As defined by the jurisdiction receiving the waste.
- E. Recyclable Materials: Products and materials that can be recovered and remanufactured into new products.
- F. Recycling: The process of sorting, cleaning, treating and reconstituting materials for the purpose of using the material in the manufacture of a new product. Can be conducted on-site (as in the grinding of concrete).
- G. Recycling Facility: An operation that is permitted to accept materials for the purpose of processing the materials into an altered form for the manufacture of a new product.
- H. Salvage for Reuse: Existing usable product or material that can be saved and reused in some manner on the project site or other projects off-site.
- I. Salvage for Resale: Existing usable product or material that can be saved and removed intact (as is) from the project site to another site for resale to others without remanufacturing.
- J. Source-Separated Materials: Materials that are sorted at the site into separate containers for the purpose of reuse or recycling.

- K. Sources Separation: Sorting the recovered materials into specific material types with no, or a minimum amount of, contamination on site.
- L. Time-Based Separation: Collecting waste during each phase of construction or deconstruction that results in primarily one major type of recovered material. The material is removed before it becomes mixed with the material from the next phase of construction.
- M. Garbage: Product or material typically considered to be trash or debris that is unable to be salvaged for resale, salvaged and reused, returned, or recycled.
- N. Olfactory Indications (methods): Of or relating to the sense of smell. Soils contaminated with petroleum and other volatile constituents typically exhibit characteristic odors that can be detected (and sometimes identified) by smell.
- O. PID: Photo Ionization Detector. A field instrument that is used to detect the presence of and give a relative indication of the concentration of vapors emitted from volatile constituents (contamination) in environmental media (soil and water).
- P. Soil (waste) Profile: A characterization of the chemical and physical properties of a waste material including the types of contaminants and their concentrations as measured by approved laboratory analytical methods. A profile is required by the receiving permitted disposal or recycling facility.
- Q. Special Handling: Refers to hauling and disposal of soils that, because they are contaminated, cannot be reused in place as backfill or as general fill at another location. Such soils must be hauled to and managed at a permitted disposal or recycling facility.
- R. Type A Contaminated Soil: Soil that must be removed from the Project site and has been determined by the Engineer to contain petroleum hydrocarbons in concentrations exceeding state or federal cleanup standards or special Port determined criteria. Type A soil requires disposal at an approved facility.
- S. Type B Contaminated Soil: Soil that must be removed from the Project site and has been determined by the Engineer to contain petroleum hydrocarbons or other contaminants in concentrations that will require disposal or recycling at one of the approved facility.
- T. Type C Contaminated Soil: Soil determined by Engineer to contain unknown constituent(s) and requires further testing and classification. Type C soil requires disposal at one of the approved facility.
- U. Type D Material: Material including soil, determined by the Engineer not to require special handling with regard to this Contract. Classification of material as Type D material by the Port is not a certification nor does it release the Contractor of liability or obligation to meet any disposal or storage facility acceptance or testing requirements.
- V. Unanticipated Contamination: Contamination unexpectedly found in an excavation or in other locations where there is no prior knowledge, information, or history to indicate possible spills or releases of contamination.
- W. Visual Indications (methods): A preliminary evaluation of the potential presence of contamination based on visual observation. For example, fuel contaminated soils are frequently discolored or stained relative to non-petroleum impacted native soils or clean fill.

1.04 SUBMITTALS

- A. Waste Management Plan
- B. Waste Management Final Report

- C. Soils Management Plan
- D. Soils Hauling Receipts

1.05 PERFORMANCE GOALS

- A. General: Divert CDL waste to the maximum extent practicable from the landfill by one or a combination of the following activities:
 - 1. Salvage
 - 2. Reuse
 - 3. Source separated CDL recycling
 - 4. Co-mingled CDL recycling
- B. CDL waste materials that can be salvaged, resold, reused or recycled, include, but are not limited to the following:
 - 1. Clean dimensional wood, pallet wood, plywood, OSB, and particleboard
 - 2. Asphalt
 - 3. Concrete and concrete masonry units
 - 4. Ferrous and non-ferrous metals
 - 5. Field office waste paper, aluminum cans, glass, plastic, and cardboard
- C. Hazardous/Dangerous Wastes, contaminated soils and other hazardous materials such as paints, solvents, adhesives, batteries, and fluorescent light bulbs and ballasts shall be disposed of at applicable permitted facilities.

1.06 WASTE MANAGEMENT PLAN

- A. Submit a Waste Management Plan within 10 days after the notice to proceed and not less than 5 days before any demolition activities in accordance with these specifications. Provide a Waste Management Plan in a format as approved by the Engineer.
- B. The Waste Management Plan shall include the following:
 - 1. Name of designated Waste Management Coordinator.
 - 2. A list of waste materials, including estimated types and quantities, of the waste that will be generated. Indicate salvaged for resale, salvaged for reuse, recycled, or disposed for each item.
 - 3. Identify waste handling methods to be used, including one or more of the following:
 - a. Method 1 - Contractor or subcontractor(s) hauls recyclable materials to an approved recycling facility.
 - b. Method 2 - Contracting with diversion/recycling hauler to haul recyclable material to an approved recycling or material recovery facility.
 - c. Method 3 - Recyclable material reuse on-site.
 - d. Method 4 - Recyclable material salvage for resale.
 - e. Method 5 - Contractor or subcontractor hauls waste to an approved disposal facility.

4. Identification of each recycling, disposal, or material recovery facility to be utilized, including name, address and types of materials being recycled at each facility.
 5. Description of the method to be employed in collecting, and handling, waste materials.
 6. Description of methods to communicate Waste Management Plan to personnel and subcontractors.
 7. Actions that will be taken to reduce solid waste generation.
- C. Revise and resubmit Waste Management plan as required by the Engineer. Approval of the Contractor's Plan does not relieve the Contractor of responsibility for compliance with all applicable laws and regulations. Distribute copies of the Waste Management Plan to each subcontractor.

1.07 WASTE MANAGEMENT FINAL REPORT

- A. Provide a Waste Management Final Report, in a format approved by the Engineer. The Waste Management Final Report shall list the following for the project:
1. A record of each waste material type and quantity recycled, reused, salvaged, or disposed from the Project. Include total quantity of waste material removed from the site and hauled to a landfill.
 2. Percentage of total waste material generated that was recycled, reused, or salvaged.
- B. Quantities shall be reported by weight (tons) unless otherwise approved by the Engineer.
- C. Submit copies of manifests, weight tickets, recycling/disposal receipts or invoices, which validate the calculations or a signed certification of completeness and accuracy of the final quantities reported.

1.08 SOILS MANAGEMENT PLAN

- A. A minimum of 10 days prior to excavation of any subsurface materials, submit a Soils Management Plan to the Engineer. The Soils Management Plan must be approved by the Engineer prior to any excavation of subsurface materials. Include the following in the Soils Management Plan:
1. Identification of all soil disposal/recycling facilities to be used on the project for Type A and B Contaminated Soil.
 2. Identification of all fill sites, disposal facilities and/or end uses of material determined to be Type D Material.
 3. Contingency for delivery and placement of Type C Contaminated Soil at an onsite Soil Stockpile area.
 4. Contingency for managing debris encountered during excavation that may disqualify soil for disposal or recycle at the approve facilities.
 5. General description of how equipment operators, safety personnel and other applicable Contractor shall coordinate with the Engineer to facilitate handling of contaminated soil in accordance with this specification.
 6. Description of all haul routes to be used on the project.
- B. Include in the Two Week Look Ahead Schedule specific time frames for excavation. Each excavation activity shall be given an individual line item description, time frame and duration.

- C. Notify the Engineer prior to hauling contaminated soil to the soil disposal facility. The notification shall include:
 - 1. An estimate of the number of truck-trips, the haul destination, and the period in which these trips will be made (e.g., 20 truck-trips to the Waste Management Facility over the two-week period beginning on March 1, 2012).

1.09 QUALITY ASSURANCE

- A. Regulatory Requirements: The Contractor shall maintain compliance with all applicable Federal, State, or Local laws that apply to Construction Waste Management and material salvage, reuse, recycling and disposal.
- B. Disposal Sites, Recyclers and Waste Materials Processors: All facilities utilized for management of any materials covered under this specification must maintain all necessary permits as required by federal, state and local jurisdictions.

1.10 HEALTH AND SAFETY

- A. The Contractor is required to implement all health and safety provisions as required by Specification 01 35 29 - Health, Safety and Emergency Response Procedures.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 WASTE DISPOSAL

- A. Source-Separated CDL Recycling: Provide individual containers for separate types of CDL waste to be recycled, clearly labeled with a list of acceptable and unacceptable materials.
- B. Co-Mingled CDL Recycling: Provide containers for co-mingled CDL waste to be recycled, clearly labeled with a list of acceptable and unacceptable materials.
- C. Landfill: Provide containers for CDL waste that is to be disposed of in a landfill clearly labeled as such.
- D. Removal of CDL Waste from Project Site: Transport CDL waste off Port's property and provide legal disposal.

3.02 SOIL DISPOSAL

- A. Excavation/Testing: The field-testing for contaminated soil will be performed by the Port and will result in the following classification of material as defined in paragraph DEFINITIONS of this section:
 - 1. Type A Contaminated Soil.
 - 2. Type B Contaminated Soil.
 - 3. Type C Contaminated Soil.
 - 4. Type D Material.
- B. Disposition of Material
 - 1. Type A and B Contaminated Soil: Material determined to be Type A or B Contaminated Soil shall be hauled by the Contractor to an approved facility for disposal.

2. Type C Material: Material determined to be Type C is of unknown origin or special circumstances. Material determined to be Type C contaminated soils shall be hauled to an onsite Soil Stockpile Site area. The Contractor shall protect the material once stockpiled. The Port will direct the Contractor on the disposition of the material following the analysis of the suspect material.
3. Type D Material: Material determined not to require special handling (Type D) shall be hauled by the Contractor to a site determined by the Contractor. If testing or certification of this material is required by the receiving site, the Contractor shall complete these requirements. The Port will not certify or declare the material suitable for unrestricted use.

C. Other Requirements

1. Cover all soil stockpiles and maintain stockpile areas in accordance with SECTION 01 57 13 - Temporary Erosion and Sediment Control and Construction Stormwater Pollution Prevention.
2. Material determined to be Type A, Type B or Type C contaminated material may be, upon approval of the Engineer, temporarily stockpiled within the construction area. Provide an impervious liner beneath this soil and securely cover with a waterproof covering. Remove the material prior to completion of work in the work area.
3. Submit all hauling receipts (or copies of receipts) from the receiving facility for all Type A, Type B or Type C Contaminated soil at least weekly.
4. The Engineer may require shut down of excavation should unforeseen condition warrant.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures
 - 2. Final completion procedures
 - 3. Warranties
 - 4. As-Built Drawings

1.02 ACTION SUBMITTALS

- A. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

1.03 PROJECT SUBMITTALS

- A. Submittal of Project Warranties
- B. Record Drawings
 - 1. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous recordkeeping requirements and submittals in connection with various construction activities.
- C. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.04 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request:
 - 1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Port unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 2. Submit closeout submittals specified in individual Sections, including specific warranties, operation and maintenance manuals, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 3. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by the Contract Document or Engineer. Label with manufacturer's name and model number where applicable.
 - 4. Submit test/adjust/balance records.
 - 5. Submit changeover information related to Port's occupancy, use, operation, and maintenance.

- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request:
1. Make final changeover of permanent locks and deliver keys to Port
 2. Complete startup and testing of systems and equipment
 3. Perform preventive maintenance on equipment used prior to Substantial Completion
 4. Instruct Port's personnel in operation, adjustment, and maintenance of products, equipment, and systems
 5. Advise Port of changeover in heat and other utilities
 6. Terminate and remove temporary facilities from Project site
 7. Complete final cleaning requirements
- D. Submit a written request for inspection to determine Substantial Completion a minimum of 7 days prior to the date the work will be completed and ready for final inspection and tests. On receipt of request, Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. Engineer will prepare the Notice of Substantial Completion after inspection or will notify Contractor of items, either on the Contractor's list or additional items identified by the Engineer, that must be completed or corrected before notice will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 2. Results of completed inspection will form the basis of requirements for final completion.

1.05 PUNCH LIST (LIST OF INCOMPLETE ITEMS)

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of Construction.
1. Organize list of spaces in sequential order.
 2. Organize items applying to each space by major elements.

1.06 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete and submit the following:
1. Submittal of all remaining items, including as-built documents, final completion construction photographic documentation, damage or settlement surveys, surveys, and similar final record information and all other submittals defined in the Contract Documents.
 2. List of Incomplete Items: Submit copy of Engineer's Substantial Completion inspection list of items to be completed or corrected (Punch List). Copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
- B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 7 days prior to date the work will be complete and ready for final inspection and tests. On receipt of request, the Engineer will either proceed with inspection or notify contractor of unfulfilled requirements.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

C. Execution of all Change Orders.

1.07 FINAL ACCEPTANCE PROCEDURES

A. Submittals Prior to Final Acceptance:

1. Receipt and approval of application for final payment; due within seven (7) days of receipt of Final Completion by the Engineer;
2. Contractor's signed waiver and release of claims on the Engineer provided form;
3. Contractor's submittal of list of all suppliers and subcontractors and the total amounts paid to each on the Engineer provided form; and
4. Contractor's submittal of a list of all subcontractors and suppliers requiring Affidavits of Wages paid on the Contract and certify that each of companies will submit an approved Affidavit of Wages paid to the Port within 30 days.

B. The Engineer will issue the Final Acceptance Memo upon receipt of the required submittals.

PART 2 - PRODUCTS

2.01 CONTRACTOR'S WARRANTY

- A. The Contractor warrants the labor, materials and equipment delivered under the contract to be free from defects in design, material, or workmanship, and against damage caused prior to final inspection. Unless otherwise specified, this warranty extends for a period of one (1) year from the date of Substantial Completion.
1. Time of Submittal: Submit written warranties on request of Engineer for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit the Port's rights under warranty.
 2. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Port or Port tenants during construction.
 3. Submit Warranties to the Engineer as a submittal, as described in 01 33 00 – Submittal Procedures.
- B. In the event of equipment failure, during such time or in such a location that immediate repairs are mandatory, the Contractor shall respond promptly (within 48 hours), irrespective of day of the week. If the Contractor is not available, the Port will affect repairs. The Contractor shall then reimburse the Port for parts and labor necessary to correct deficiencies as defined within the warranty clause and time.

2.02 AS-BUILT DRAWINGS

- A. Project As-Built Drawings: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
- B. Project As-Built Drawings shall be compiled by the Contractor and submitted to the Engineer for translation to the Record Drawings on a monthly basis.
1. The Project As-Built Drawings will be submitted on paper full-sized (ANSI D) copy.

2. Drawings shall be kept current and shall be done at the time the material and equipment is installed. Annotations to the record documents shall be made with an erasable colored pencil conforming to the following color code:
 - a. Additions – Red
 - b. Deletions – Green
 - c. Comments – Blue
 - d. Dimensions – Graphite
3. Project As-Built Drawings must be complete and accepted by the Engineer before Final Completion is issued.
4. As-Built Drawings shall be in accordance with horizontal and vertical control as shown on the drawings.

PART 3 – EXECUTION

3.01 MAINTENANCE OF AS-BUILT DRAWINGS

- A. The Contractor shall maintain at the Project site, in good order for ready reference by the Engineer, one complete copy of the Contract Documents, including Addenda, Change Orders, other documents issued by the Port, a current Progress Schedule, and approved Submittals. The Contractor shall also generate and keep on site all documents and reports required by applicable permits.
- B. The Contractor's As-Built Drawings shall be updated to record all changes made during construction. The location of all existing or new underground piping, valves and utilities, and obstructions located during the Work shall be appropriately marked until the Contractor incorporates the actual field dimensions and coordinates into the as-built drawings. The as-built drawings shall be updated at least weekly and before elements of the Work are covered or hidden from view. After the completion of the Work, the as-built drawings shall be provided to the Port.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY OF WORK

- A. Extent of Work: The extent and location of the "Demolition" Work is indicated on the Drawings. The Work includes the requirements for the removal, wholly or in part and satisfactory disposal of fences, pavements, structures, or other features identified within the specifications and Drawings. The Drawings should be used for guidance only and to indicate typical general construction features of the various types of structures and is not to be construed as definitive or adequate to supplant the actual on-site inspection by the Contractor.

1.02 GOVERNING CODES, STANDARDS, AND REFERENCES

- A. U.S. Department of Labor Occupational Safety & Health Administration
 - 1. OSHA Standard 1926.850(a), Preparatory Operations
- B. Pierce County burning of debris
- C. Puget Sound Clean Air Agency

1.03 SUBMITTALS

- A. Furnish manufacturers' technical literature, standard details, product specifications, and installation instructions for all products.
- B. Submittals shall include the following:
 - 1. Demolition plan.
 - 2. Proposed landfills and recyclers.

PART 2 - MATERIALS – NOT USED

PART 3 - EXECUTION

3.01 PROJECT INFORMATION

- A. The Contractor represents that it has visited the site to become familiar with the quantity and character of all materials to be demolished. The Contractor agrees that the premises were made available prior to deadline for submission of bids for whatever inspection and tests the Contractor deemed appropriate in preparation of bids.

3.02 PREPARATION FOR EXECUTION OF WORK

- A. The Contractor shall submit to the Port of Tacoma a demolition plan.
- B. Products that are required to accomplish, or to be incorporated into, the Work of this section shall be as selected by the Contractor, subject to the approval of the engineer.

3.03 DEMOLITION OF FENCES AND STRUCTURES

- A. Completely remove and dispose of fences, pavement, and other obstructions. All pavements designated for removal shall be broken up, loaded and disposed of by the Contractor. Care shall be taken in removing the pavement, so that damage does not occur to the existing pavement which is to remain in place and that all removals are accomplished by making a neat full depth vertical saw cut at the boundaries of the area to be removed. Adjacent materials designated to remain that are damaged by the Contractor due to their operations shall be replaced at no additional cost to the Port.

- B. Special operations necessary for the removal of an existing structure or obstruction shall be subject to the approval of the Engineer.

3.04 DISPOSAL

- A. General: All materials, except those indicated as Port of Tacoma salvage, and except those materials containing substances classified as hazardous or potentially hazardous by local, state or Federal regulating agencies, shall upon their demolition become the property of the Contractor. All such material, including those containing hazardous or potentially hazardous substances shall be removed and promptly disposed of legally away from the site and on property not owned by the Port of Tacoma, except as otherwise provided in these specifications. No material shall be disposed of in adjoining waterways or in the fill. Burning of materials in these areas falls under the jurisdiction of the Pierce County regulations and is generally forbidden under all circumstances.
- B. Cleanup: After removal of structures, clean and grade the area. There shall be no debris, rubble, or litter left at the site from any of the demolition operations and the site shall be clean.
- C. The Port of Tacoma encourages the salvage and recycling of materials from demolished structures. The Contractor shall salvage or recycle, in an acceptable manner to environmental agencies and the Port of Tacoma, at their option any of the materials designated for disposal.
- D. Non-salvageable or non-recyclable demolition, contaminated soils and creosote debris shall be transported to a Port approved lined landfill with a Leachate Collection System.

END OF SECTION

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. The work includes excavation, handling, transport, and off-site disposal of contaminated soil, mixing treatment reagent into Subgrade and into backfill in one excavation area, backfilling, grading, compaction, and restoration of excavation areas. While not anticipated, the Contractor may encounter buried process piping, utilities, or debris that would require removal and/or cutting and capping.

1.02 SITE CONDITIONS

- A. Appendix A includes a summary of subsurface conditions (soil and groundwater) pertinent to the Work. The appendix includes a brief description of Site stratigraphy and groundwater levels in the shallow-water bearing zone (fill unit) in which excavation will occur, tabulated data for shallow-zone water levels, tabulated analytical data for shallow-zone groundwater near the excavation areas (2010-2023), figures depicting locations of Site explorations, a subsurface geologic cross section through the three excavation areas, and interpreted shallow-zone groundwater elevations (2013-2023), as well as a compilation of exploration logs for the site. Also refer to Section 31 23 19 Dewatering.
- B. Prior to start of any earthwork, Contractor shall verify the location of existing utilities within the Project Limits including use an independent private locate company. Those utilities which are to remain shall be protected from damage and remain operational. Damage to utilities which are to remain shall be repaired by the Contractor at its own expense.

1.03 DEFINITIONS

- A. Amended Gravel Borrow: Gravel Borrow with Ferrous Sulfate added as specified.
- B. Contaminated Soil: Soil to be removed that requires special handling and disposal at a Subtitle D landfill. Contaminated Soil handling and disposal requirements are defined in Section 3.02.
- C. Ferrous Sulfate: Powdered or granular ferrous sulfate monohydrate, which will be supplied by Port of Tacoma.
- D. Finish Grade. Grade elevation after placement and compaction of all backfill materials in excavation areas.
- E. Gravel Borrow: Virgin native aggregate that complies with requirements of WSDOT 9-03.14 (1) modified from 7% to 5% passing the No. 200 sieve.
- F. Over-Excavation: Excavation conducted beyond the minimum specified excavation extents as directed by Engineer based on chemical testing results or other criteria.
- G. Subgrade: Grade elevation at the final limits of excavation prior to backfill.

1.04 QUALITY ASSURANCE

- A. Compaction Control Tests: The Engineer will provide and pay for on-site field compaction control tests in accordance with the applicable provisions of these specifications.
- B. Perform Work in accordance with Washington State Department of Transportation 2025 Standard Specifications, 2021 City of Tacoma Stormwater Management Manual, and Port of Tacoma requirements.
- C. Maintain one copy of each document on site.

1.05 SUBMITTALS

- A. Source characterization, testing, reporting, and certification for all off-site borrow materials to be used for excavation backfill.
- B. Prior to start of construction the Contractor shall prepare and submit for Engineer approval an Excavation and Water Management Plan that addresses management of all excavated materials to include:
 - 1. Proposed areas and methods for stockpiling Contaminated Soil.
 - 2. Construction methods, and management procedures, as well as methods and equipment to be used for transporting material from the excavation locations to the stockpile area, and for loading material for off-Site transport. This includes but is not limited to:
 - a. Excavation methods and equipment to be used;
 - b. Means and methods to plug inactive utilities at excavation extents if such utilities are encountered;
 - c. Means and methods of conveying and treating, and discharging to designated locations any excavation dewatering water and water accumulating in stockpile areas in accordance with requirements in these specifications;
 - d. Methods of placing and compacting backfill materials, both above and below the groundwater table;
 - e. Means and methods for amending the Subgrade soils and the backfill material for the Boiler House Area Excavations; and
 - f. Quality control/quality assurance.
 - 3. The plan shall list name, location, and applicable state and federal identification numbers of the off-Site facilities to be used for disposition of excavated material from this project.
 - 4. The plan shall specify the haul route for trucks to use for each off-Site facility, hauling materials to and from the Project Limits, and shall identify means of providing traffic control at the construction entrance while trucks are entering/existing.
 - 5. The Contractor is responsible for independently developing a workable construction approach and schedule to meet all contract performance requirements and describing them in detail in the Excavation and Water Management Plan.
 - 6. Refer to the Submittals subsection of Section 31 23 19 Dewatering for required water management-related components of the Excavation and Water Management Plan.
- C. Reports
 - 1. The Contractor shall be responsible for maintaining adequate records and documentation to support information provided to the Engineer during construction.
- D. Certificates
 - 1. The Contractor shall submit copies of trip and tonnage tickets and Certificates of Disposal signed by the receiving disposal facility for any waste transported from the Project Limits.

PART 2 – PRODUCTS

2.01 GRAVEL BORROW

- A. Gravel Borrow shall be virgin aggregate and not include any recycled material. It shall be free from various types of wood waste or other deleterious materials, and shall comply with requirements of WSDOT 9-03.14 (1) modified from 7% to 5% passing the No. 200 sieve.
 - 1. Gravel Borrow shall be characterized as specified in Sections 2.03 and 2.04 at the Contractor's expense.

2.02 FERROUS SULFATE

- A. Ferrous Sulfate shall be powder or granular ferrous sulfate monohydrate, and will be supplied by the Port of Tacoma.

2.03 OFF-SITE BORROW SOURCE CHARACTERIZATION

- A. Characterization of the off-site source of borrow to be imported as backfill shall be performed by the Contractor as specified in Section 2.04 to assure that imported materials are native, virgin materials, free of contaminants, including debris or recycled materials, and meet the requirements of the contract documents.
- B. The Engineer maintains the right to reject any materials that have been determined to be substandard for any reason. In the event of rejection, it shall be the responsibility of the Contractor to remove all rejected material from the site at no cost to the Port of Tacoma.
- C. Inspection of Materials at the Jobsite
 - 1. The Contractor shall visually inspect import material upon delivery to the site. Materials shall be inspected for presence of foreign, recycled, or reprocessed material. The Engineer may, at any and all times, perform an independent inspection and/or testing of the material. Engineer may reject imported materials due to the presence of deleterious substances or as a result of substandard test results.

2.04 CHARACTERIZATION TESTING, REPORTING, AND CERTIFICATION OF OFF-SITE MATERIAL

- A. The Contractor shall provide characterization and testing as described below for off-site borrow materials imported for use. Testing results shall meet the Port of Tacoma Import Material Screening Criteria (tabulated below) to be considered acceptable.
- B. The Contractor is responsible for all testing costs associated with characterization of off-site borrow materials.
- C. Each source of borrow material shall be tested once per year for physical properties to assure compliance with physical (geotechnical) requirements of WSDOT Standard Specifications.
- D. Each source of borrow shall be chemically tested for metals, chemical compounds and hydrocarbons once for every 500 cubic yards of material to be imported.
- E. The Contractor shall provide the following information with each sample submitted:
 - 1. Material source
 - 2. Sampling locations
 - 3. Sampling dates
 - 4. Chain of custody for analytical laboratory (chemical) testing

- F. Contractor’s certification that the samples submitted are representative of the materials that shall be imported and used at the site.
- G. Characterization Testing shall include:
 - 1. Physical Properties:
 - a. Grain Size Distribution (ASTM D 422-63)
 - b. Maximum Dry Density (((ASTM D1557)))
 - 2. Concentrations of chemicals listed in Table 31 00 00 - 1 – Import Material Screening Criteria:
 - a. Table 31 00 00 - 1 – Import Material Screening Criteria

CHEMICAL / METAL NAME	CRITERIA (MG/KG)
TOTAL PETROLEUM HYDROCARBONS (TPH) (NWTPH METHODS)	
GASOLINE-RANGE TPH	2,000
DIESEL- AND OIL- RANGE TPH	2,000
VOLATILE ORGANIC COMPOUNDS (EPA METHOD 8260)	
BENZENE	0.004
ETHYLBENZENE	6
TOLUENE	4.7
XYLENES	9
TETRACHLOROETHYLENE (PCE)	0.05
METALS (EPA METHOD 6010/6020/7041)	
ARSENIC	13.8
CADMIUM	2
CHROMIUM (III) (TOTAL)	2,000
CHROMIUM (VI)	19
COPPER	143
LEAD	250
MERCURY	2
NICKEL	418
ZINC	5,981
SEMI-VOLATILE ORGANIC COMPOUNDS (EPA METHOD 8270)	
ACENAPHTHENE	97.9
ANTHRACENE	2,275
BENZOANTHRACENE	0.13
BENZOAPYRENE	0.1
BENZOFLUORANTHENE	0.44
BENZOKFLUORANTHENE	13.7
BENZOIC ACID	257
BENZYL ALCOHOL	8,000
BIS(2-ETHYLHEXYL) PHTHALATE	13.9

CHRYSENE	95.5
BENZYL BUTYL PHTHALATE	12.8
CRESOL; O-	2.3
CRESOL; P-	8,000
DIBENZO, HANTHRACENE	0.1
DIBENZOFURAN	80
DI-BUTYL PHTHALATE	56.5
DICHLOROBENZENE; 1,2-	8.4
DICHLOROBENZENE; 1,4	0.2
DIETHYL PHTHALATE	72.2
DIMETHYLPHENOL; 2,4-	1.3
DI-N-OCTYL PHTHALATE	800
FLUORANTHENE	631
FLUORINE	101
HEXACHLOROBENZENE	0.09
HEXACHLOROBUTADIENE	0.6
INDENOL 1,2,3-CDPYRENE	1.2
METHYL NAPHTHALENE; 2-	320
NAPHTHALENE	0.006
NITROSODIPHENYLAMINE; N-	0.0009

PENTACHLOROPHENOL	0.003
PHENOL	11
PYRENE	655
TRICHLOROBENZENE; 1,2,4-	0.06

PART 3 – EXECUTION

3.01 GENERAL

- A. Excavating, amendment mixing, backfilling, and grading shall be completed within the tolerances established or within reasonably close conformity with the alignment grade and cross sections indicated on the Drawings or as established within these specifications.

3.02 CONTAMINATED SOIL EXCAVATION

- A. The Work consists of removing Contaminated Soil to the minimum extents of excavation shown on Drawings followed by Engineer’s performance sampling of soils within the excavation to determine whether and how much Over-Excavation is required to remove additional Contaminated Soil to meet regulatory cleanup requirements.
- B. The Work includes on-Site handling and stockpiling of the excavated material as necessary for loading and hauling to disposal facility. Dewatering may be required for excavation below the water table so as to maintain unsaturated conditions (no standing water) within the excavation (See 31 23 19 Dewatering). The excavations will be backfilled and compacted using imported aggregate to meet the specified Finish Grade as described in Section 3.04.
- C. Excavation:
 - 1. Excavation material shall be moved with the use of mechanical equipment, such as excavators, loaders, etc., but shall not include drilling and blasting, drilling and line breaking, or sluicing.
 - 2. Excavation beyond the minimum excavation extents (Over-Excavation), as directed by Engineer, shall be as follows unless otherwise specified by the Engineer:
 - a. The length of excavation sidewall specified by Engineer shall be over-excavated 1 foot (30.48 cm) laterally, followed by Engineer’s re-sampling.
 - b. The area of excavation bottom specified by Engineer shall be over-excavated 0.5 feet (15.24 cm) vertically, followed by Engineer’s re-sampling.
- D. Protect excavated material from contamination by other materials and from weather damage by covering with waterproof sheeting and other effective means. Any material not properly protected that becomes unsuitable or contaminated shall be replaced as necessary at no additional cost to the Port.
- E. Separate stockpiles shall be employed for imported material to be used as backfill versus contaminated soil for export.

- F. At end of project, Contractor shall remove from the site, at no cost to the Port, any unused backfill material remaining in temporary stockpiles.
- G. Each portion of an excavation shall be left open the minimum of amount of time practical—subject to the Engineer’s sampling and decision regarding excavation completion (reaching final lateral and vertical extents) for that portion—before being backfilled so as to minimize the area of open excavation at any time.
- H. Excavation Side Slopes. Because any portion of an excavation will be open for the minimum time practical, the Contractor shall maintain temporary sidewall slopes for each portion of the excavations as steep as practical in order to limit the quantity of soil to be excavated and managed—subject to not causing unstable slope conditions that either impair the ability to efficiently remove Contaminated Soil or create a physical safety risk for worker personnel. The stability of open-cut slopes is a function of many factors, including soil type, groundwater level, slope inclination, and nearby surface loads. The use of inadequately designed open cuts could endanger personnel. If personnel are required to enter excavations, temporary slopes and, if needed, shoring systems shall be in accordance with Washington Administrative Code (WAC) 296-155, Part N.
- I. Control of Water Level in Excavations. The Contractor shall control groundwater inflow during excavation, Engineer performance sampling, and backfilling activities below the water table as needed to maintain unsaturated conditions (i.e., no standing water) within the excavation and to allow on-site handling and off-site transport of unsaturated soil. If needed, Contractor can set excavated soil on the edge of the excavation from which it came to allow drainage from the soils to drain back into the excavation; however, if that is done, the drainage must be controlled and directed into the excavation, and not to any area surrounding the excavation. All water generated during performance of Work shall be managed in accordance with Section 31 23 19 Dewatering.
- J. Engineer’s Sampling in Excavations. Engineer’s performance sampling will be conducted at the excavation limits as minimum extents are reached in each area to facilitate efficiently obtaining lab results and providing direction to the Contractor regarding any need for Over-Excavation in an area. Contractor shall coordinate with Engineer for chemical sampling of soils on the excavation bottom and sidewalls to verify compliance with Project cleanup levels. At Engineer’s request, Contractor shall use a clean excavator bucket free of contamination to collect samples and otherwise provide assistance with sample collection. The excavation adjacent to each sample location for which lab results are pending shall be kept open for up to 3 business days to allow the Engineer time to sample, conduct lab analysis, review data, and provide direction to Contractor regarding whether Over-Excavation is required at each location. Under no circumstances will additional payment be made for the Contractor’s coordination of sampling in excavations. No additional payment will be made for the Contractor’s time spent awaiting sample results. The Contractor shall conduct other Work while awaiting sample results.

- K. Anticipate Low Rate of Excavation in Some Areas. Due to the uncertainties in the extent of contamination and the requirement for the Engineer's performance sampling to verify excavation lateral and vertical limits, the Engineer will direct the excavation to proceed slowly and carefully. In addition, multiple rounds of Engineer's sampling may be required, during which time the Contractor shall need to keep portions of excavations open and equipment available. Contractor is responsible to Over-Excavate portions of the excavations, including dewatering as needed to maintain unsaturated conditions, as directed by Engineer based on testing results, and the quantities of Over-Excavation at any one time and location may be very small. Therefore, the rate of excavation production will be lower than on projects that do not have these constraints. Under no circumstances will additional payment be made based on Contractor's lower-than-anticipated production rates.

3.03 SOIL AND DEBRIS MANAGEMENT AND DISPOSITION

- A. The Work consists of managing material generated from excavation, all of which will be considered Contaminated Soil unless otherwise determined by the Engineer.
- B. Contractor has the discretion to direct load Contaminated Soil for transport to the Subtitle D landfill, or temporarily stockpile it in the constructed stockpile area. The Contractor is responsible for accumulating, stockpiling, transporting and final disposition of all removed soil and debris in accordance with all applicable laws, regulations, and receiving facility permits.
- C. Stockpiling of Excavated Materials
1. The Contractor shall establish stockpiling/staging locations for Contaminated Soil as identified in their Excavation and Water Management Plan. The individual stockpile areas may be moved within the Project Limits throughout the duration of the Work as needed. However, stockpiles shall be constructed within the suggested construction staging area shown on Drawings unless otherwise approved by Engineer. In no case shall any stockpile be located within 25 feet (762 cm) of the Excavation Limits.
 2. Areas designated for stockpiling shall be cleared of surficial debris before stockpiling thereon. Materials shall be stockpiled in a manner to minimize stormwater accumulation and not be detrimental to completion of the Work in any way. Stockpiles shall be constructed to isolate stockpiled materials from the environment and encourage drainage of water. Stockpiles shall be underlain by a polyethylene geomembrane sheeting (e.g., Visqueen) with a minimum thickness of 6 mils (0.1524 mm). Adjacent polyethylene sections shall be continuously overlapped by a minimum of 2 feet (60.96 cm). It is not necessary to seam adjacent polyethylene sections below the stockpiles. The ground surface on which the sheeting will be placed shall be free of objects that could damage the sheeting. Alternatively, a layer of geotextile or plywood may be placed beneath the sheeting to protect it.
 3. Berms shall be constructed around each stockpile area containing Contaminated Soil to a minimum height of 6 inches (152.4 mm) and shall contain sufficient area to allow for ponding and control of stormwater within it. The geomembrane liners of Contaminated Soil stockpiles shall be bathtub construction to collect excess water, unless an alternative method is approved by Engineer. Liquid accumulating in stockpile areas shall be collected and disposed of in accordance with Section 31 23 19 Dewatering.
 4. Whenever a stockpile is not being actively used, it shall be covered to protect against erosion by wind and rain, and to prevent precipitation from entering the stockpile. Stockpile covers shall be polyethylene geomembrane with a minimum thickness of 6 mils (0.1524 mm). The stockpile cover shall be anchored to prevent it from being removed by wind.

D. Off-Site Waste Disposition

1. Unless otherwise proposed by the Contractor and approved by the Engineer, all excavated material shall be considered Contaminated Soil, and shall be disposed offsite at the LRI Subtitle D Landfill in Puyallup, Washington. The Engineer has profiled and obtained pre-approval for disposal of Contaminated Soil at LRI under Tacoma-Pierce County Health Department Waste Disposal Authorization (WDA) No. 2896. Appendix B provides a copy of WDA No. 2896.

E. Trucking

1. Contractor's truck traffic shall use only arterial streets designated by the City of Tacoma as truck routes. Trucks hauling all material from the Project Limits shall be covered immediately after loading and shall remain covered until they off-load at the designated facility for disposition.

3.04 SUBGRADE AMENDMENT, BACKFILL AMENDMENT, BACKFILL, AND COMPACTION

- A. Following excavation to Engineer-designated final extents in the Boiler House Area Excavations, Ferrous Sulfate will be used to amend the upper 2 feet (60.96 cm) of Subgrade exposed at the bottom of the excavations, as shown on Drawings and described below. Amended Gravel Borrow will be used to backfill the bottom 4 feet (121.92 cm) of Boiler House Area Excavations as described below. Soil amendment with Ferrous Sulfate will assist with neutralizing alkaline-pH groundwater in this area following completion of the interim action. The ferrous sulfate will be supplied by the Engineer
- B. The remainder of the Boiler House Excavation Areas and all other excavation areas will be backfilled to the Finish Grades shown on Drawings. All backfill material (both Amended Gravel Borrow and Gravel Borrow) shall be placed and compacted as backfill progresses. Sections 32 92 19 and 31 05 16 describe requirements for placement of topsoil for surface restoration and re-vegetation of the Stormwater Ditch excavated areas.
- C. Prior to excavation backfill of the Boiler House Area Excavations, the 2 feet (60.96 cm) of in-place soil below Subgrade of the excavations will be amended by uniformly adding and mixing by mechanical methods 36,000 pounds of Ferrous Sulfate such that the Ferrous Sulfate is distributed evenly, vertically and laterally, among the upper 2 feet of the excavation bottom. While the lateral area of the final Boiler House Area Excavations Subgrade may increase from the minimum extents shown on Plan C2.0, due to Over-Excavation, the 36,000 pounds of Ferrous Sulfate used to amend the Subgrade will not change and shall be evenly distributed across the final Subgrade area. The Contractor shall include in the Excavation and Water Management Plan a description of the means and methods to be used to amend the Boiler House Area Excavations Subgrade as specified.

- D. Amended Gravel Borrow will be used to backfill the bottom 4 feet (121.92 cm) of Boiler House Area Excavations above the amended Subgrade. A total of 96,000 pounds of Ferrous Sulfate will be used to produce approximately 1,220 tons of backfill, which will be placed and compacted to backfill the bottom of the Boiler House Area Excavations. The Amended Gravel Borrow may be prepared in batches outside the Boiler House Area Excavations and subsequently placed and compacted, or it may be prepared within the excavations, placed, and compacted—as long as the Contractor can prevent settling or sorting of the Ferrous Sulfate within the Amended Gravel Borrow prior to compaction. The Contractor shall include in the Excavation and Water Management Plan a description of the means and methods to be used to produce and place Amended Gravel Borrow as specified. The Contractor and Engineer will agree on a methodology to uniformly mix the required quantities of Ferrous Sulfate and Gravel Borrow to produce Amended Gravel Borrow backfill; an on-site scale is not required for this process.
- E. Ferrous Sulfate shall be stored and handled per manufacturer recommendations and in accordance with the information provided on the Ferrous Sulfate SDS provided in Appendix I. Storage methods must ensure that the Ferrous Sulfate remains dry until it is mixed into soil.
- F. Gravel Borrow and Amended Gravel Borrow shall be compacted to a firm and unyielding condition and a minimum density of 90 percent of the maximum dry density as determined by ASTM International D1557. Backfill shall be placed in lifts with a loose thickness no greater than 12 inches (304.8 mm) when using relatively large compaction equipment, such as a vibrating plate attachment to an excavator (hoe pack) or a drum roller. If small, hand-operated compaction equipment is used to compact, lifts shall not exceed 6 inches (152.4 mm) in loose thickness.
- G. The Port of Tacoma will subcontract a qualified third-party geotechnical testing company to verify adequate compaction of the Gravel Borrow using a nuclear densometer. Three compaction tests will be performed for the uppermost 2 feet (60.96 cm) of compacted backfill in each of the excavation areas, distributed across each area as approved by Engineer. Engineer will communicate compaction testing results to Contractor.
- H. If compaction testing results indicate inadequate compaction has been achieved, Contractor shall conduct additional compaction measures for that area to the satisfaction of Engineer, including, at Engineer discretion, use of compaction testing for the reworked area.
- I. For the Stormwater Ditch area excavation, backfill shall be completed to satisfaction of Engineer prior to placement of topsoil for restoration purposes (Sections 32 92 19 and 31 05 16).

END OF SECTION

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

- A. Section includes:
 - 1. Aggregate materials.

1.02 REFERENCES

- A. Washington Administrative Code (WAC) 173.
- B. Revised Code of Washington (RCW) 70.
- C. MTCA Method A.
- D. EPA Methods 1311 and 6010.
- E. U.S. Composting Council.
- F. WSDOT Test Method T113.
- G. 2024 WSDOT Standard Specifications
- H. ASTM International:
 - 1. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - 2. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³).

1.03 DEFINITIONS

- A. Reference Specification Section 31 20 00 Earthwork.

1.04 SUBMITTALS

- A. Section 01 30 00 Submittal Procedures: Comply with requirements for submittals.
- B. Aggregate Materials Source: Submit name of imported materials suppliers.
- C. Import Aggregate Material Certifications: All imported aggregates shall be provided with certifications certifying that each aggregate does not consist of contaminated soils, petroleum products or dangerous wastes.
 - 1. If the aggregate product consists of no recycled products and consists of only virgin soils, then the aggregate supplier shall provide certification stating that the aggregate products consist of virgin soils/rock and provide WSDOT Aggregate Source Approval (ASA) Qualified Product Listing (QPL) source certification for all import materials. The supplier shall also provide a written description of the aggregate manufacturing process, from the mine source to project delivery. The description shall include stockpiling at the source, the source of wash water used if applicable, and chain of material custody.
 - 2. If the aggregate products consist of recycled products, the products shall comply with following requirements with following requirements:
 - a. Recycled asphalt pavement (RAP), Recycled Concrete Rubble (RCR), asphalt shingles, steel or glass products are prohibited.
 - b. Prior to incorporating recycled materials into the work or storage on the job site, the Contractor shall provide a certification on the source of all materials.

- c. Recycled materials that are not from Port of Tacoma sources shall not be incorporated into the work or imported to the job site until the Contractor provides testing and certification for toxicity characteristics to the Engineer with subsequent Engineer approval. The Contractor shall provide the following:
 - 1) Identification of the recycled materials proposed for use.
 - 2) Sampling documentation no older than 90 days from the date the recycled material is proposed to be placed on the project. Documentation shall include a minimum of five samples tested for total lead content by EPA Method 6010. Total lead test results shall not exceed 250 ppm. Samples that exceed 100 ppm must then be prepared by EPA Method 1311, the Toxicity Characteristic Leaching Procedure (TCLP), where liquid extract is analyzed by EPA Method 6010B. The TCLP test must be below 5.0 ppm.
 - 3) Certification that the recycled materials are not Washington State Dangerous Wastes per the Dangerous Waste Regulations, WAC 173-303 and RCW 70.105 requirements. The products shall be chemically tested to determine the waste constituents and the levels found. Soils must have levels below published threshold limits.
 - 4) Certify that soils that soils are below MTCA Method A Table 740-1 for soil contaminants, metals, polycyclic aromatic hydrocarbons (c-PAH's) and total petroleum hydrocarbons (TPH) constituents.
- 3. Gradation Analysis. Submit gradation analysis certification documents from a qualified laboratory indicating and interpreting test results for compliance of specified aggregate materials. The testing, test results and documentation certificate shall be for this specific project.
- 4. Provide documentation from a qualified testing agency indicating and interpreting test results for compliance of specified soil materials. The testing, test results and documentation shall be for this specific project. Analytical results of chemical testing of import materials as described in Section 01 45 00 – Quality Control.
- D. Import Aggregate Material Certificates: One certificate shall be provided for each of the following:
 - 1. Gravel Borrow.
 - 2. Compost Amended Topsoil.

1.05 QUALITY ASSURANCE

- A. Furnish each aggregate material from single source throughout the Work.
 - 1. Regional Materials: Furnish materials extracted, processed, and manufactured within 500 miles (804.67 kilometers) of Project site.
- B. All imported aggregates shall not include dangerous/hazardous waste, solid waste, chemical waste, metals and hydrocarbon products in accordance with WAC 173-303, RCW 70.105 and MTCA Method A, Table 740-1 requirements are shown in Appendix K:(source: WAC 173-340-900)
- C. All imported aggregates shall be approved by the Engineer. No mixing of soils consisting of solid waste, dangerous waste, chemical waste, hydrocarbon products or organics shall be allowed subsequent to submittal approvals.

PART 2 PRODUCTS

2.01 IMPORT MATERIAL CHARACTERIZATION

- A. The following activities shall be performed by the Contractor as specified below to ensure imported materials are natural, native, virgin materials, meet chemical standards detailed herein, including recycled materials, and meet contract specifications.
- B. The Port maintains the right to reject all materials determined to be substandard for reason. In the event of rejection, it shall be the responsibility of the Contractor to remove all rejected material from the site at the Contractor's expense.
- C. A characterization of all import material shall be performed by the Contractor prior to delivery or on-site placement. The characterization shall include site inspection, source identification, sieve analysis, and chemical testing, as appropriate.
- D. Source Identification – Prior to import material sampling, the Contractor shall provide documentation of origin of the material and maps identifying specific location of the source.
- E. Inspection of Source
 - 1. The material source shall be inspected by the Contractor. During the inspection, the Contractor shall assure that the materials to be delivered to the site will meet the appropriate specifications.
 - 2. The Contractor shall provide the Engineer two weeks' notice of such inspections. At their discretion, the Engineer may accompany the Contractor to witness such inspections. This witnessing shall in no way release the Contractor from complying with the specifications and in no way shall be construed as approval of a particular source of material.
 - 3. The Engineer or Ecology may choose to inspect the source at their convenience and may collect and analyze samples of the proposed material.
- F. Inspection of Materials at the Site
 - 1. The Contractor shall visually inspect barge loads or truckloads of imported material upon delivery. The Contractor shall inspect the material for presence of foreign, recycled, or reprocessed material.
 - 2. The Engineer may at all times perform independent inspections. Material may be rejected due to identification of material that does not meet these specifications or as a result of substandard test results. Materials may be segregated for testing based on appearance or odor. Segregated material may be tested according to designated procedures at the discretion of the Engineer.

2.02 IMPORT MATERIAL GRADATION

- A. Gravel Borrow: Aggregate for gravel borrow shall consist of granular material, free from wood, bark, or other extraneous material. In accordance with WSDOT Standard Specification 9-03.14(1), modified from 7% to 5% passing the No. 200 sieve, per the following gradation requirements:

Sieve Size	Percent Passing
4"	99-100
2"	75-100
No. 4	50-80
No. 40	30 maximum

No. 200	5.0 maximum
Sand Equivalent	50 minimum
All percentages are by weight	

B. Compost Amended Topsoil: Shall consist of a blend of topsoil and compost products, in conformance with City of Tacoma BMP L613 Post Construction Soil Quality and Depth Option 4 – Imported Topsoil, Standard Plan No. GSI-01d.

1. Topsoil; Topsoil shall not contain recycled materials, foreign materials, or Noxious and Nuisance weeds of any Class designated by authorized State or County officials.
Aggregate shall not comprise more than 10% by volume and shall not be greater than 2 inches (50.8 mm) in diameter. Topsoil shall be native topsoil taken from within the project limits from strippings, from other designated sources or from offsite sources. The offsite source shall be approved prior to delivery. The offsite topsoil shall be a three-way loam mix passing the 1/2" sieve.
2. Compost. Compost products shall be the result of the biological degradation and transformation of organic materials under controlled conditions designed to promote aerobic decomposition. Compost shall be stable with regard to oxygen consumption and carbon dioxide generation. Compost shall be mature with regard to its suitability for serving as a soil amendment as defined below. The compost shall have a moisture content that has no visible free water or dust produced when handling the material. Compost production and quality shall comply with WAC 173-350. Compost products shall meet the following physical criteria:

- a. Compost material shall be tested in accordance with U.S. Composting Council Testing Methods for the Examination of Compost and Composting (TMECC) 02.02-B, "Sample Sieving for Aggregate Size Classification".
- b. Medium compost shall meet the following gradation:

Sieve Size	Percent Passing	
	Minimum	Maximum
1"	100	
5/8"	85	100
1/4"	70	85

- 1) All percentages are by weight.
- c. Note: Maximum particle length of 4 inches (101.6 mm). Medium compost shall have a carbon to nitrogen ratio (C:N) between 18:1 and 35:1. The carbon to nitrogen ratio shall be calculated using the dry weight of "Organic Carbon" using TMECC 04.01A divided by the dry weight of "Total N" using TMECC 04.02D.
- d. The pH shall be between 6.0 and 8.5 when tested in accordance with U.S. Composting Council TMECC 04.11-A, "1:5 Slurry pH".
- e. Physical contaminants, defined in WAC 173-350 (e.g. plastic, concrete, ceramics, metal) shall be less than 0.5 percent by weight as determined by U.S. Composting Council TMECC 03.08-A "Classification of Inerts by Sieve Size".
- f. Minimum organic matter shall be 40 percent by dry weight basis as determined by U.S. Composting Council TMECC 05.07A "Loss-On-Ignition Organic Matter Method (LOI)".

- g. Soluble salt contents shall be less than 4.0 mmhos/cm when tested in accordance with U.S. Composting Council TMECC 04.10 "Electrical Conductivity".
- h. Maturity shall be greater than 80 percent in accordance with U.S. Composting Council TMECC 05.05-A, "Germination and Root Elongation".
- i. Stability shall be 7-mg CO₂-C/g OM/day or below in accordance with U.S. Composting Council TMECC 05.08-B "Carbon Dioxide Evolution Rate".
- j. The compost product shall originate from organic feedstocks as defined in WAC 173-350 as "Wood waste", "Yard debris", "post-consumer food waste", "pre-consumer animal-based wastes", and/or "pre-consumer vegetative waste". The Contractor shall provide a list of feedstock sources by percentage in the final compost product.
- k. The Engineer may also evaluate compost for maturity using U.S. Composting Council TMECC 05.08-E "Solvita® Maturity Index". Fine compost shall score a number 6 or above on the Solvita® Compost Maturity Test. Medium and Coarse compost shall score a 5 or above on the Solvita® Compost Maturity Test.

2.03 SOURCE QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Testing and inspection services.
- B. Testing and Analysis: Perform in accordance with ASTM D1557.
- C. When tests indicate materials do not meet specified requirements, change material and retest.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Prepare grades to receive aggregates in accordance with Section 31 00 00 Earthwork requirements.

3.02 EARTHWORK

- A. Earthwork: Trench excavation, dewatering, bedding and backfill requirements are detailed on the Drawings and specified in Section 31 00 00 Earthwork.

3.03 STOCKPILING

- A. Stockpile satisfactory soil materials on site in accordance with Plan and Specification Section 31 00 00 Earthwork requirements. Protect stockpiles from erosion and weather in accordance with Section 01 57 13 Erosion Controls requirements.
- B. Stockpile unsuitable hazardous materials on impervious material and cover to prevent erosion and leaching, until disposed of.
- C. Cleanup soil stockpiles and grade the earth to the required grades after stockpiled soils have been used.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Removing surface debris.
 - 2. Removing designated paving and fencing.
 - 3. Removing designated trees, shrubs, and other plant life.
 - 4. Removing abandoned utilities.
 - 5. Disposal.
- B. Related Sections:
 - 1. Section 31 00 00 - Earthwork.
 - 2. Section 31 05 16 - Aggregates for Earthwork.

1.02 DEFINITIONS

- A. Clearing: Remove and dispose of all unwanted material from the surface, such as trees, brush, down timber or other natural vegetation and material.
- B. Grubbing: Remove and dispose of all unwanted vegetative matter from underground, such as, stumps, roots, buried logs or other debris.
- C. Debris: All unusable natural material produced by clearing and grubbing.
- D. Demolish / Demolition: Removal and disposal of the identified item in its entirety from the site.
- E. Disposal: Loading, handling, transportation and deposition of the demolished item to an approved offsite location / source.

1.03 SUBMITTALS

- A. Section 01 30 00 - Submittal Procedures: Requirements for submittals.

1.04 QUALITY ASSURANCE

- A. Conform to applicable provisions of Specifications herein and to the Drawing requirements.

1.05 SUMMARY

- A. Permits: See General Conditions. Unless otherwise required in the General Conditions, the Contractor shall pick up all permits necessary for project work and abide by all requirements thereof.
- B. Schedule: Coordinate this work with critical time schedule established for construction and take necessary measures to ensure schedule is met. Coordinate with Project Sequencing/Scheduling requirements.
- C. Layout: Layout of all work under this Section shall be made at Contractor's cost by a Washington State Licensed Land Surveyor who is acceptable to the Engineer.
- D. Adjustments: If any discrepancies are found by the Surveyor between the Drawings and actual conditions at the site, the Engineer reserves the right to make such minor adjustments in the work specified as necessary to accomplish the intent of the Contract Documents, without increased cost to the Port of Tacoma.

- E. Pre-work Meeting: The Contractor shall schedule and coordinate a preconstruction meeting with the City of Tacoma Site Development Inspector prior to commencing any project work. Comply with inspection requirements.

PART 1 - PRODUCTS

2.01 MATERIALS

- A. Materials: Conform to Section 31 00 00 - Earthwork.

PART 2 - EXECUTION

3.01 GENERAL

- A. Project Phasing and Sequencing: General project phasing and sequencing requirements are described in the civil Drawings and specifications. The Contractor shall comply with all general and supplemental project phasing and sequencing requirements.
- B. Traffic: Conduct site clearing, grubbing and demolition operations to ensure minimum interference with roads and other adjacent property. Do not close or obstruct streets or other occupied or used facilities without permission from authorities having jurisdiction.
- C. Explosives: Use of explosives for clearing and grubbing work will not be permitted.
- D. Clearing, Grubbing and Demolition Excavation and Backfill: Required excavations to perform clearing, grubbing and demolition work shall conform to Section 31 00 00 - Earthwork requirements. Excavation and backfill work shall be incidental to Site Clearing, Grubbing and Demolition work.

3.02 EXAMINATION

- A. Verify existing plant life designated to remain is tagged or identified.
- B. Identify waste area and salvage area for placing removed materials.

3.03 PREPARATION

- A. Call Utility Line Information service at 1-800-424-5555 and private locates not less than two working days before performing Work.
- B. Request underground utilities to be located and marked within and surrounding construction areas.
- C. Locate and flag clearing limits. Contractor shall limit their work to areas requiring clearing and grubbing only. Contractor shall refrain from entering areas not being worked in and shall repair all such disturbed areas.
- D. Identify waste area prior to placement of removed materials.
- E. Verify TESC BMP installations prior to execution. Coordinate with Section 01 57 13 Temporary Erosion Sedimentation Control requirements.

3.04 PROTECTION

- A. Locate, identify, and protect utilities indicated to remain, from damage.
- B. Protect trees, plant growth, and features designated to remain, as final landscaping.
- C. Protect bench marks, survey control points, and existing structures from damage or displacement.

- D. Soil Protection: Existing soils exposed as a result of Clearing and Grubbing work shall be protected from the weather.

3.05 CLEARING AND GRUBBING

- A. General: Remove trees, shrubs, grass, organics and other vegetation, improvements or obstructions interfering with construction within the Clearing and Grubbing limits. Take possession of timber within clearing and grubbing limits. Promptly remove such items off premises. Removal includes digging out stumps and roots in their entirety. Install stormwater pollution prevention measures prior to clearing and grubbing work.
- B. Safety: Ensure safe passage of persons around area of clearing and grubbing. Conduct operations to prevent injury to adjacent buildings, structures, other facilities and persons and protect portions of existing facilities designated to remain.
- C. Protection of Existing Trees and Vegetation: Protect existing trees and other vegetation indicated to remain in place with six foot chain link fencing against unnecessary cutting, breaking or skinning of roots, skinning and bruising of bark, smothering of trees by stockpiling construction materials or excavated materials within drip line, excess foot or vehicular traffic or parking of vehicles within drip line.
- D. Damage: Repair or replace trees and vegetation indicated to remain that are damaged by construction operations, in a manner acceptable to Engineer. Employ licensed arborist to repair damages to trees and shrubs. Replace trees that cannot be repaired and restored to full growth status as determined by arborist. Provide replacement trees that match existing in like kind (species and size).
- E. Pruning: Carefully and cleanly cut roots and branches of trees indicated to be left standing, where such roots and branches obstruct new construction.
- F. Existing Facilities or Improvements: Provide protection necessary to prevent damage to existing facilities or improvements either on adjoining property or on Owner's property. Restore damaged facilities or improvements to their original condition, as acceptable to parties having jurisdiction. Clean the adjacent structures and facilities of dust, dirt and debris caused by clearing and grubbing operations as directed by Engineer or governing authorities. Return adjacent areas to existing condition prior to the start of work.
- G. Backfill: Fill depressions caused by clearing and grubbing operations with satisfactory soil materials in accordance with Section 31 00 00 - Earthwork requirements.

3.06 REMOVAL

- A. Remove debris, rock, and extracted plant life from site.
- B. Partially remove paving and fencing as indicated on Drawings. Neatly saw cut edges at right angle to surface.
- C. Remove abandoned utilities. Indicated removal termination point for underground utilities on Record Documents.
- D. Continuously clean-up and remove waste materials from site. Do not allow materials to accumulate on site.
- E. Do not burn or bury materials on site. Leave site in clean condition.
- F. Apply Herbicide to any stumps to prohibit growth.

3.07 DEMOLITION

- A. Remove debris, rock and extracted plant life from site as noted on Drawings.
- B. Partially remove paving, curbs and sidewalk as indicated on Drawings. Neatly saw cut edges at right angle to surface.
- C. Pavement demolition:
 - 1. General: Demolish and dispose designated asphalt pavement designated on the Drawings. Make a vertical saw cut between any existing pavement that is to remain and the portion to be demolished. Replace any existing pavement, sidewalk or curb designated to remain that is damaged during the demolition work at no expense to the Owner. Coordinate demolition activities with Section 31 00 00 - Earthwork requirements.
- D. Continuously cleanup and remove waste materials from site. Do not allow materials to accumulate on site.
- E. Remove designated fencing and gates, including the concrete bases in their entirety.

3.08 CONSTRUCTION WASTE MANAGEMENT PLAN IMPLEMENTATION

- A. Disposal of Waste Material: Burning is not permitted onsite. Remove waste material promptly from Owner's property. Dispose in accordance with local, State and Federal Regulations.
- B. Do not burn or bury materials onsite. Leave site in clean condition.

END OF SECTION

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

- A. This Work includes all necessary measures to keep excavations unsaturated (no standing water) during excavation and backfilling. The Work covered by this specification consists of providing all supervision, labor, materials, and equipment required to dewater excavations.

1.02 SITE CONDITIONS

- A. The Contractor should anticipate encountering groundwater in excavations. The Port has conducted subsurface investigations that generally characterize the soil and groundwater physical conditions within the Project Limits. Appendix A provides a summary of subsurface conditions (soil and groundwater) pertinent to the Work. Appendix A includes a brief description of Site stratigraphy and groundwater levels in the shallow-water bearing zone pertinent for dewatering, tabulated data for shallow-zone water levels, tabulated analytical data for shallow-zone groundwater near the excavation areas (2010-2023 sampling), figures depicting locations of Site explorations, a subsurface geologic cross section, and interpreted shallow-zone groundwater elevations (2013-2023 measurements), and a compilation of exploration logs for the Site.
- B. All water removed from excavations shall be discharged to the City of Tacoma (City) sanitary sewer in accordance with all conditions of the project-specific Special Authorization to Discharge #25-002 (SAD) obtained by the Port of Tacoma. A copy of the SAD is included as Appendix C.
- C. The location for discharge of dewatering water to City sanitary sewer is a former side-sewer connection that was abandoned following building decommissioning as shown on the Drawings.
- D. If the conditions of the sewer become critical and the City orders the Contractor to stop discharging dewatered water into the onsite sewer at no fault of the Contractor, the Contractor will haul the dewatered and treated water offsite or as directed by the Engineer on a change order basis.

1.03 QUALITY CONTROL

- A. It shall be the sole responsibility of the Contractor to control the rate and effect of the dewatering operations in such a manner as to avoid all objectionable settlement and subsidence, and to comply with all discharge requirements of SAD #25-002.
- B. All dewatering operations shall be adequate to ensure the integrity of the finished project and shall be the responsibility of the Contractor.

1.04 SUBMITTALS

- A. Prior to start of construction, the Contractor shall submit for Engineer approval an Excavation and Water Management Plan that addresses the methods proposed for dewatering excavations and handling the dewatering discharge in accordance with the SAD, and in conjunction with Contractor's excavation means and methods.
- B. The dewatering-related components of the Excavation and Water Management Plan shall at a minimum describe:

1. Planned means and methods of excavation dewatering including equipment to be used for water extraction, pumping, conveyance, treatment, and storage equipment to be used for excavation dewatering and management of the water, including record keeping. This includes but is not limited to water tankage, treatment to achieve the SAD's pollutant concentration limits, conveyance, and connection and discharge to the City sanitary sewer, as well as metering of discharge flow rate and quantity—all in accordance with the SAD.
 2. Water treatment best management practices including use of absorbents to remove petroleum sheens, if present, on the water surface within excavations, on accumulated stormwater outside excavation areas, or in storage tanks in the water treatment system. Because alkaline groundwater is present in some excavation areas (up to pH 12 measured in Boiler House area groundwater), the treatment system must have the capability to neutralize alkaline pH if needed to meet pH limits of the SAD prior to discharge.
 3. Water discharge location in accordance with the SAD and method for conveying water to it.
 4. Sequence of installation and removal for dewatering measures including decontamination and demobilization of the system.
- C. Refer to the Submittals subsection of Section 31 00 00 Earthwork for required excavation and backfill components of the Excavation and Water Management Plan.
- D. The Contractor shall provide to the Engineer all documentation required under the SAD, as well as an independently certified calibration record for the flow meter being used. The Contractor shall provide to Engineer daily records specifying from which excavation(s) dewatering was conducted, and maximum flow rate (gallons per minute) and daily discharge volume (gallons per day).

PART 2 – EXECUTION

2.01 GENERAL

- A. The Contractor shall design, furnish, and operate an integrated dewatering and water treatment system that works in conjunction with the Contractor's means and methods for completing the required excavation and backfilling. At a minimum, the water treatment system components shall include:
1. A chambered weir tank(s), with minimum 20,000 gallons of usable detention capacity, that effectively removes any floating sheens and minimizes settleable solids in water discharged.
 2. A calibrated, non-resettable, totalizing flow meter, certified accurate to within 10 gallons (for every 1,000 gallons discharged), for measuring the instantaneous rate (gpm) and quantity (gallons) of water discharged to sewer each day.
 3. A spigot at the downstream of the treatment system from which the Engineer will collect samples of the treatment system effluent water throughout dewatering and discharge operations.
 4. Other treatment equipment and media as needed to meet the pollutant concentration limits established in the SAD.
- B. Contractor shall construct a water-tight connection from the water treatment system to the on-site end of buried side-sewer pipe shown on Plan sheet D1.0. Upon termination of water discharge to the pipe, Contractor shall affix a water-tight removable cap (e.g., Fernco or equivalent as approved by Engineer) to the end of the pipe, and then backfill the excavation in which it is exposed.

- C. Groundwater shall be removed from the excavation as necessary to achieve unsaturated conditions (no standing water) within the excavation, which will assist excavation and materials handling, allow for Engineer's verification sampling of the excavation, and facilitate compaction of backfill material.
- D. Contractor shall be prepared to operate the dewatering and water treatment system continuously (24 hours per day) as needed to efficiently complete the excavation process. Contractor is made aware that, as per the SAD, the City may require Contractor to reduce the discharge flow rate or cease discharge entirely during heavy rain events.
- E. Contractor shall visually inspect the entire water management system (extraction, conveyance, treatment, discharge) daily for leaks when in operation. If a leak is observed, the system shall be shut down until the leaks are repaired to Engineer's satisfaction.
- F. Throughout the excavation and backfill process, the Contractor shall limit the area of open excavation to reduce dewatering rates/volumes to the maximum extent practical and comply with SAD discharge quantity limits.
- G. All stormwater that does not infiltrate and accumulates within the Project Limits, including within the stockpile areas, shall be collected, treated, and discharged in accordance with all requirements of the SAD and the contract documents.
- H. All water pumped from the excavations or from areas of accumulated stormwater shall be treated on-site to achieve the SAD's pollutant concentration limits and other requirements for discharge and then conveyed to the specified location for discharge to City sewer. No water shall be discharged anywhere but City sanitary sewer.
- I. Pretreatment will be required to remove sheen and excess solids when Petroleum sheens are present on water surfaces within the excavation, on accumulated stormwater outside excavations, or within water storage tanks. Sheens shall be removed using absorbent pads or other means as soon as observed, and used absorbent pads shall be disposed of properly.
- J. All water generated during the Work shall be managed in such a manner to comply with all requirements of the SAD, and to not create a nuisance or menace to public health nor cause damage to adjacent property.
- K. Operation and maintenance of the dewatering and water treatment system, including proper off-Site disposal of any waste materials generated, is solely the Contractor's responsibility. The Contractor shall be responsible for cleaning up any spills or leaks to the satisfaction of the Engineer.

END OF SECTION

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

- A. Section Includes:
 - 1. Providing and placing compost amended topsoil
 - 2. Final grade compost amended topsoil for finish landscaping
 - 3. Fertilizing
 - 4. Seeding
 - 5. Maintenance.

1.02 DEFINITIONS

- A. Weeds: Include Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, and Brome Grass, Scotch Broom, Blackberry, Butterfly Bush, Poison Hemlock and Japanese Knotweed.
- B. Import Topsoil: topsoil that is amended with compost per Section 31 05 16 Aggregates.

1.03 SUBMITTALS

- A. Submit seed mix, fertilizer, and other accessories.
- B. Submit seed vendor licenses and endorsements for approval. All seed vendors shall have a business license issued by the Washington State Department of Licensing with a "seed dealer" endorsement.
- C. Submit gradation analysis for the following materials:
 - 1. Import Topsoil
- D. Submit Certifications of Compliance documents that materials meet or exceed specified requirements.
- E. Submit company qualifications, experience and personnel used for Engineer approval.
- F. Submit import materials source for Engineer approval.
- G. Submit import topsoil subgrade pH analysis.

1.04 CLOSEOUT SUBMITTALS

- A. Provide seed lot bag tags.

1.05 QUALITY ASSURANCE

- A. Provide topsoil and compost material from single source throughout the Work.
- B. Provide seed mixture in containers showing percentage of seed mix, germination percentage, inert matter percentage, weed percentage, year of production, net weight, date of packaging, and location of packaging.

1.06 QUALIFICATIONS

- A. Seed Supplier: Company specializing in manufacturing Products specified in this section with minimum three years' experience.

- B. Installer: Company specializing in performing work of this section with minimum three years of experience.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver seed mixture in sealed containers. Seed in damaged packaging is not acceptable.
- B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.
- C. Deliver compost amended topsoil and stockpile in onsite locations in quantities to execute the work, being careful not to contaminate stockpiled import topsoils with existing onsite soils prior to installation.

PART 2 PRODUCTS

2.01 TOPSOIL MATERIALS

- A. Per Section 31 05 16 Aggregates.

2.02 SEED MIXES

- A. General: Specified seed mixes shall conform to the standards for “Certified” grade seed or better as outlined by the State of Washington Department of Agriculture “Rules for Seed Certification”, latest edition. Seed shall be furnished in standard containers on which shall be shown the following information:
 - 1. Common and botanical names of seed.
 - 2. Lot number.
 - 3. Net weight.
 - 4. Pure live seed.
- B. Seed which has become wet, moldy, or otherwise damaged in transit or storage will not be accepted.
- C. Provide seed mixes in accordance with the following requirements:
 - 1. Provide erosion control seed mix in accordance with the following requirements:

Erosion Control Seed Mix			
Common Name	% Weight	% Purity	% Germination
Scientific Name			
Creeping Red Fescue	40 - 50	92	85
Festuca rubra var. rubra			
Perennial Ryegrass	40 - 50	98	90
Lolium perenne			
Redtop or Colonial Bentgrass	5 - 10	92	85
Agrostis alba or Agrostis capillaris			
No Clover	0		

2.03 ACCESSORIES

- A. Fertilizer: Commercial grade; recommended for vegetation establishment; of proportion necessary to eliminate deficiencies of topsoil as indicated in analysis conforming to requirements. Fertilizer shall be a standard commercial grade of organic or inorganic fertilizer. It may be separate or in a mixture containing the percentage of total nitrogen, available phosphoric acid, and water-soluble potash in the amounts specified. All fertilizers shall be furnished in standard unopened containers with weight, name of plant nutrients, and manufacturer’s guaranteed statement of analysis clearly marked, all in accordance with State and Federal laws.
- B. Tackifier: Tackifiers shall organic based, derived from natural plant sources and shall have an MSDS that demonstrates to the satisfaction of the Engineer that the product is not harmful to plants, animals, and aquatic life. The tackifier shall contain no growth or germination-inhibiting materials and shall not reduce infiltration rates. Tackifiers shall hydrate in water and readily blend with other slurry materials requirements and comply with the following requirements:

Properties	Test Method	Requirements
Heavy Metals	EPA 6020A Total Metals	Antimony – < 4 mg/kg
		Arsenic – < 6 mg/kg
		Barium – < 80 mg/kg
		Boron – < 100 mg/kg
		Cadmium – < 2 mg/kg
		Chromium – < 2 mg/kg
		Copper – < 5 mg/kg
		Lead – < 5 mg/kg
		Mercury – < 2 mg/kg
		Nickel – < 2 mg/kg
		Selenium – < 10 mg/kg
Solvents	EPA 8260B	Strontium – < 30 mg/kg
		Zinc – < 5 mg/kg
		Benzene – < 0.03 mg/kg
		Methylene chloride – < 0.02 mg/kg
		Naphthalene – < 5 mg/kg

		<p>Tetrachloroethylene – < 0.05 mg/kg</p> <p>Toluene – < 7 mg/kg</p> <p>Trichloroethylene – < 0.03 mg/kg</p> <p>Xylenes – < 9 mg/kg</p>
Acute Toxicity	EPA-821-R-02-012 Methods for Measuring Acute Toxicity of Effluents. Test leachate from recommended application rate receiving 2 inches (50.8 mm) of rainfall per hour using static test for No-Observed-Adverse-Effect Concentration (NOEC).	Four replicates are required with no statistically significant reduction in survival in 100 percent leachate for a Daphnid at 48 hours and Oncorhynchus mykiss (rainbow trout) at 96 hours.
Viscosity	ASTM D 2364. Testing shall be performed by an accredited, independent laboratory	4000 cPs minimum

- C. Mulch: Mulch shall be a blend of angular, loose, long, thin wood pieces that are frayed, with a high length-to-width ratio, and it shall be derived from native conifer or deciduous trees. The mulch wood strand shall have lengths between 1/16 and 3/4 inch (19.05 mm). The mulch shall not contain salt, preservatives, glue, resin, tannin, growth inhibiting agents or other compounds in quantities that would be detrimental to plant life. Sawdust or wood chips or shavings will not be acceptable. Mulch shall conform to the following requirements:
1. Comply with Performance in Protecting Slopes from Rainfall Induced Erosion requirements in ASTM D 6459. Test in one soil type. Soil tested shall be sandy loam as defined by the NRCS Soil Texture Triangle.
 2. The maximum C Factor = 0.01 using Revised Universal Soil Loss Equation (RUSLE).
- D. Water: Clean, fresh and free of substances or matter capable of inhibiting vigorous growth of grass.

2.04 SOURCE QUALITY CONTROL

- A. Analyze the existing common soils at the topsoil subgrade for pH.
- B. Analyze compost amended topsoil to ascertain percentage of nitrogen, phosphorus, potash, soluble salt content, organic matter content, and pH value of topsoil. The import topsoil shall match the existing topsoil subgrade pH.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify prepared topsoil subgrade is ready to receive the Work of this section.

3.02 PREPARATION

- A. Protect existing facilities.
- B. Verify required underground utilities are available, in proper location, and ready for use.
- C. Remove foreign materials, weeds and undesirable plants and their roots.

3.03 INSTALLATION

- A. Sequencing:
 - 1. The Contractor scarify the existing subgrade located in seeded area prior to placement of topsoil
 - 2. Place compost amended topsoil in these areas immediately. The topsoil subgrade shall not be exposed for more than one day.
 - 3. Install seeding.
- B. Placing Compost Amended Topsoil:
 - 1. Place compost amended topsoil at required locations to the depths and cross sectional.
 - 2. Do not place topsoil on muddy or excessively wet subgrade. Place topsoil during dry weather.
 - 3. Do not mix or contaminate the import topsoil with existing site soils prior to placement of the topsoil.
 - 4. Remove existing roots, weeds, rocks, and foreign material while spreading.
 - 5. Fine grade topsoil to eliminate rough or low areas. Maintain profiles and contour of subgrade.
 - 6. The soil shall be in a weed free and bare condition.
- C. Seeding/Hydroseeding:
 - 1. The Contractor shall notify the Engineer not less than 48 hours in advance of any seeding operation and shall not begin the Work until areas prepared or designated for seeding have been approved. Following the Engineer's approval, seeding of the approved slopes shall begin immediately.
 - 2. Do not hydroseed or sow seed immediately following rain, when ground is too dry, or when winds are over 12 mph.
 - 3. Seed or seed and fertilizer may be sown by one of the following methods:
 - a. An approved hydro seeder that utilizes water as the carrying agent, and maintains continuous agitation through paddle blades. It shall have an operating capacity sufficient to agitate, suspend, and mix into a homogeneous slurry the specified amount of seed and water or other material. Distribution and discharge lines shall be large enough to prevent stoppage and shall be equipped with a set of hydraulic discharge spray nozzles that will provide a uniform distribution of the slurry.
 - b. Areas in which the above methods are impractical may be seeded by approved hand methods. When seeding by hand, the seed shall be incorporated into the top ¼ inch of soil by hand raking or other method that is approved by the Engineer.
 - 4. Apply seed at the following rates:

Seed Mix Number	Seeding Rate
Erosion Control seed mix	180 pounds per acre

5. Apply mulch at the following rates:

Seed Mix Number	Mulch Rate
Erosion Control seed mix	3,000 pounds per acre

6. Apply fertilizers at recommended rates. All fertilizers shall not vary the underlying soil subgrade pH.
7. Apply tackifiers with hydro seeder methods at recommended rates. Tackifiers are not required when seed is installed via approved power-drawn drills and seeders.
8. Seed, fertilizer and tackifier may be applied in one application provided that the fertilizer is placed in the hydro seeder tank no more than 1 hour prior to application.
9. Do not seed areas in excess of that which can be covered with erosion control blanket material on same day or unless weather permits with Engineer approval.
10. After application, apply water with fine spray immediately after each area has been mulched. Saturate to 4 inches (101.6 mm) of soil.
- D. Mulching: Mulch shall be provided with hydro seeder and hand installation methods at the rates indicated herein and shall be spread on seeded areas within 24 hours after seeding. Mulch shall adhere to the soil and create a blanket like mass within 2 hours of application and shall bond with the soil surface to create a continuous, porous, absorbent, and flexible erosion-resistant blanket that allows for seed germination and plant growth.
1. Seed mix areas utilizing hydro seeder installation methods shall apply 25% - 30% of the required mulch in the may mix the required mulch in the hydro seeder tank with the seed, fertilizer and tackifier to produce one even lift. Then the remaining mulch shall be mixed in the hydro seeder tank with water to produce an even second lift or mulch cover lift installation over the first lift within the time frame specified herein.

3.04 TOLERANCES

- A. Top of Topsoil: Plus or minus 1/2 inch (12.7 mm) of finish grade.

3.05 PROTECTION OF INSTALLED WORK

- A. Prohibit construction traffic over topsoil and seeded areas.

3.06 MAINTENANCE

- A. Provide all water needed for establishment and maintenance of vegetated areas.
- B. Mow grass at regular intervals to maintain at a minimum height of 4 inches (101.6 mm) and a maximum height of 6 inches (152.4 mm). Do not cut more than 1/3 of grass blade at each mowing. Perform first mowing when seedlings are 40 percent higher than desired height.
- C. Immediately remove clippings after mowing and trimming. Do not let clippings lay in clumps.
- D. Neatly trim edges and hand clip where necessary.
- E. Water to prevent grass and soil from drying out.
- F. Control growth of weeds. Apply herbicides. Remedy damage resulting from improper use of herbicides.

- G. Immediately reseed areas showing bare spots.
- H. Repair washouts or gullies.
- I. Protect seeded areas during maintenance period.

3.07 PROTECTION

- A. The Contractor shall protect vegetation located outside of the work area, unless directed by the Engineer to facilitate the Work.
- B. If vegetation outside of the work area is damaged or destroyed by construction, the Contractor shall replace it with comparable species and grade as required by the Engineer.
- C. Vegetation located within the work area, either alive or dead, shall be removed by the Contractor and disposed of at an approved landfill.

END OF SECTION

Appendix A

Site Subsurface Conditions

Site Subsurface Conditions

Stratigraphy

The general geologic setting of the subject property is the Tacoma Tideflats' Blair-Hylebos peninsula, which was created in the 1920s by placement of approximately 16 to 20 feet of fill dredged during deepening and widening of the Blair and Hylebos Waterways. Black silty fine sand interpreted as dredged fill has been encountered to depths of 12 to 15 feet below ground surface (bgs) at the Site. The dredged fill material was placed directly on top of a thick (greater than 200 feet) sequence of stratified deltaic deposits that ultimately overlie a thicker sequence of glacial and interglacial deposits (Hart Crowser, 1974). The fill and native deltaic materials may appear similar unless the dredge fill also contains debris. The underlying native deltaic deposits consist of sand and silty sand with interbedded silts and peat. Glacial deposits are found below the deltaic deposits.

Based on extensive subsurface exploration at the property (Figure 1 shows exploration locations), the shallow fill unit encountered across the Site generally consists of 1 to 2 feet of sandy gravel to gravely sand with scattered fragments of brick and wood. A layer of imported sand and quarry spalls (6 to 12 inches in thickness) is present across much of the property's interior to provide a firmer surface for movement of equipment and freight. In the Debris Fill area along the south edge of the Property (Figure 1), test pits and soil borings identified burnt trash, brick, cans, glass, charred timbers, and gelatinous beige-gray-white material presumed to be sodium silicate process materials. Presumed sodium silicate process material and scattered debris also occur within shallow soils of the Stormwater Ditch bordering the south end of the property.

The saturated portion of the fill unit is referred to as the shallow water-bearing zone.

Beneath the fill unit is the former tidal flat surface (native soil) comprised primarily of soft silt with varying amounts of sand and organic matter. In three borings on the property, MW-5D, MW-12D, and MW-16, that fully penetrated the silt unit, its thickness ranged between 5 and 7 feet. Beneath the silt unit is an alluvial sand unit with variable silt content that extends deeper than the 25-foot depth of exploration. The deeper alluvial sand unit is referred to as the intermediate water-bearing zone.

All excavation and dewatering for this Project will occur within the shallow water-bearing zone (fill unit), so further discussion in this appendix is limited to that water-bearing unit.

Attachment A includes geologic logs describing the subsurface materials encountered in explorations on the property. Figure 2 is a north-south-trending cross section depicting subsurface conditions across the center of the Site; the location of the cross-section alignment is shown on Figure 1.

Groundwater Levels for Shallow Water-Bearing Zone (Fill Unit)

Regional groundwater flow across the Blair-Hylebos peninsula is generally semiradial, flowing toward the nearest waterway with a groundwater divide near the middle of the long axis of the peninsula. Groundwater flow diverges from the divide toward the

Hylebos Waterway on the north and the Blair Waterway on the south. Regional information indicates the presence of multiple hydrostratigraphic units within the combined fill and underlying deltaic deposits.

On the property, the water table within the fill unit is present at depths of about 1 to 5 feet bgs, depending on location and season. Over the period of water level monitoring (2010-2023), groundwater elevations varied seasonally between about 2.0 and 3.5 feet. Table 1 presents the monitoring well survey data, depth-to-water measurements, and groundwater elevations for all measurement events. Note that monitoring wells within and adjacent to planned interim action excavation areas have been decommissioned prior to interim action mobilization.

Figure 3 depicts the fill unit water table elevation contours and inferred horizontal groundwater flow directions (arrows) for October 2013 (dry season) and January 2014 (wet season) conditions. Figure 4 depicts the same information for April 2017 (wet season) and September 2017 (dry season) conditions. Figure 5 depicts the same information for October 2022 (dry season) and January 2023 (wet season) conditions, with the benefit that additional shallow-zone wells had been installed.

Based on the 2022-2023 water level data, the shallow groundwater flow direction over much of the property is predominantly toward the west and the south; however, there is also an eastern component of flow from an area of high groundwater elevation centered around wells MW-7S and MW-8S (Figure 5). Based on review of water level data from nearby sites, the Property is likely located on or near the regional groundwater divide aligned near the middle of the Blair-Hylebos peninsula. While shallow groundwater levels fluctuate seasonally (Table 1), the shallow groundwater flow directions vary little seasonally based on the available data.

Shallow Groundwater Quality Data for Wells Near Excavation Areas

Table 2 provides existing groundwater quality data (2010-2023) for wells completed in the shallow-water bearing zone adjacent to the interim action excavation areas. The wells are grouped by the excavation area they located are in or adjacent to. The sample analyses include total petroleum hydrocarbons (TPH), the volatile organic compounds benzene, toluene, ethylbenzene, and xylenes (BTEX), polycyclic aromatic hydrocarbons (PAHs), and field parameters.

Attachments

- Table 1 - Groundwater Elevations for Shallow Water-Bearing Zone
- Table 2 - Groundwater Analytical Data for Wells In/Near Excavation Areas
- Figure 1 - Site Explorations
- Figure 2 - Cross Section A-A'
- Figure 3 - Seasonal Shallow Groundwater Elevation Contours (2013-2014)
- Figure 4 - Seasonal Shallow Groundwater Elevation Contours (2017)
- Figure 5 - Seasonal Shallow Groundwater Elevation Contours (2022-2023)
- Attachment A - Exploration Logs

Table 1. Groundwater Elevations in Shallow Water-Bearing Zone

Parcel 114, Tacoma, WA

Monitoring Well ID	Northing ¹	Easting ¹	Ground Surface Elevation ²	Top of Casing Elevation ²	Water Level Measurement Date	Depth to Water (Feet BTOC)	Groundwater Level Elevation ²
MW-1S	713344	1169850	14.7	14.28	9/15/10	2.90	11.38
					10/23/13	1.90	12.38
					1/21/14	1.49	12.79
					4/25/17	0.61	13.67
					9/27/17	3.52	10.76
					10/26/22	NM	NM
					1/20/23	0.92	13.36
MW-2S	713298	1169769	14.4	14.07	9/15/10	3.32	10.96
					10/23/13	2.57	11.50
					1/21/14	2.88	11.19
					4/25/17	3.01	11.06
					9/27/17	4.55	9.52
					10/24/22	4.69	9.38
					1/20/23	2.30	11.77
MW-3S	713284	1169823	14.5	14.17	9/15/10	2.94	11.23
					10/23/13	1.98	12.19
					1/21/14	1.69	12.48
					4/25/17	1.04	13.13
					9/27/17	3.65	10.52
					10/24/22	3.69	10.48
					1/20/23	1.32	12.85
MW-4S	713278	1169885	14.8	14.51	9/15/10	3.24	11.27
					10/23/13	2.25	12.26
					1/21/14	1.89	12.62
					4/25/17	1.31	13.20
					9/27/17	4.16	10.35
					10/24/22	NM	NM
					1/20/23	1.69	12.82
MW-5S	713249	1169812	14.5	14.06	9/15/10	3.14	10.92
					10/23/13	2.45	11.61
					1/21/14	2.23	11.83
					4/25/17	2.04	12.02
					9/27/17	4.46	9.60
					10/24/22	4.55	9.51
					1/20/23	2.19	11.87
MW-6S	713304	1169929	15.1	14.56	10/23/13	1.95	12.61
					1/21/14	1.42	13.14
					4/25/17	0.51	14.05
					9/27/17	3.56	11.00
					10/21/22	3.80	10.76
					1/20/23	0.90	13.66
MW-7S	713326	1169910	15.1	14.55	10/23/13	2.01	12.54
					1/21/14	1.56	12.99
					4/25/17	0.51	14.04
					9/27/17	3.76	10.79
					10/21/22	3.78	10.77
					1/17/23	0.54	14.01

Table 1. Groundwater Elevations in Shallow Water-Bearing Zone

Parcel 114, Tacoma, WA

Monitoring Well ID	Northing ¹	Easting ¹	Ground Surface Elevation ²	Top of Casing Elevation ²	Water Level Measurement Date	Depth to Water (Feet BTOC)	Groundwater Level Elevation ²
MW-8S	713396	1169894	14.8	14.41	10/23/13	1.83	12.58
					1/21/14	1.31	13.10
					4/25/17	0.36	14.05
					9/27/17	3.44	10.97
					10/25/22	3.59	10.82
					1/17/23	0.38	14.03
MW-9S	713469	1169790	14.7	14.24	10/23/13	2.05	12.19
					1/21/14	1.63	12.61
					4/25/17	0.80	13.44
					9/27/17	3.58	10.66
					10/24/22	3.70	10.54
					1/17/23	0.85	13.39
MW-10S	713504	1170043	15.3	14.88	10/23/13	2.41	12.47
					1/21/14	1.80	13.08
					4/25/17	0.54	14.34
					9/27/17	3.93	10.95
					10/20/22	4.10	10.78
					1/18/23	0.53	14.35
MW-11S	713576	1169849	15.2	14.85	10/23/13	2.65	12.20
					1/21/14	2.21	12.64
					4/25/17	1.05	13.80
					9/27/17	4.09	10.76
					10/25/22	4.28	10.57
					1/18/23	1.30	13.55
MW-12S	713537	1169717	15.5	14.98	10/23/13	3.08	11.90
					1/21/14	2.72	12.26
					4/25/17	1.80	13.18
					9/27/17	4.46	10.52
					10/24/22	4.75	10.23
					1/18/23	2.20	12.78
MW-13S	713515	1169545	15.8	15.54	10/23/13	4.38	11.16
					1/21/14	4.14	11.40
					4/25/17	3.50	12.04
					9/27/17	5.53	10.01
					10/24/22	5.60	9.94
					1/18/23	3.60	11.94
MW-14S	713645	1169574	16.0	15.49	10/23/13	4.33	11.16
					1/21/14	3.99	11.50
					4/25/17	2.93	12.56
					9/27/17	NM	NM
					10/24/22	NM	NM
					1/19/23	3.43	12.06
MW-15S	713357	1169748	14.4	13.97	10/23/13	1.98	11.99
					1/21/14	1.62	12.35
					4/25/17	1.09	12.88
					9/27/17	3.38	10.59
					10/24/22	3.54	10.43
					1/18/23	1.09	12.88

Aspect Consulting

6/19/2025

Table 1

Table 1. Groundwater Elevations in Shallow Water-Bearing Zone

Parcel 114, Tacoma, WA

Monitoring Well ID	Northing ¹	Easting ¹	Ground Surface Elevation ²	Top of Casing Elevation ²	Water Level Measurement Date	Depth to Water (Feet BTOC)	Groundwater Level Elevation ²
MW-16S	713380	1169826	14.7	14.30	10/23/13	2.18	12.12
					1/21/14	1.65	12.65
					4/25/17	1.61	12.69
					9/27/17	3.72	10.58
					10/24/22	3.58	10.72
					1/17/23	0.75	13.55
MW-17S	713387	1170026	15.2	14.59	10/25/22	5.02	9.57
					1/18/23	0.65	13.94
MW-18S	713244	1170008	14.4	14.09	10/25/22	4.32	9.77
					1/18/23	1.01	13.08
MW-19S	713116	1169825	18.3	17.48	10/25/22	9.22	8.26
					1/19/23	5.80	11.68
MW-20S	713215	1169721	18.9	18.42	10/25/22	9.58	8.84
					1/19/23	7.80	10.62
MW-21S	713285	1169635	18.9	18.34	10/25/22	9.60	8.74
					1/19/23	6.85	11.49
MW-22S	713466	1169462	18.7	18.15	10/25/22	8.48	9.67
					1/19/23	8.30	9.85
MW-23S	713510	1169622	16.1	15.63	10/25/22	5.62	10.01
					1/19/23	3.37	12.26
MW-24S	713648	1169678	15.5	15.08	10/25/22	5.15	9.93
					1/18/23	2.81	12.27
MW-25S	713723	1169474	15.0	14.51	10/25/22	5.39	9.12
					1/19/23	3.40	11.11

Notes:

- 1 - Washington State Plane South coordinate system (feet), North American Datum of 1983 with 1991 adjustments (NAD 83/91).
- 2 - Elevations (feet) are referenced to North American Vertical Datum of 1988 (NAVD 88). Elevations relative to MLLW datum are 2.4 feet higher than shown here.
- BTOC - below top of casing
- NM - No water level measurement could be collected (refer to text).

Table 2. Groundwater Analytical Data for Wells In/Near Excavation Areas

Project No. 120051, Former PQ Corporation Site, Tacoma, WA

Analyte	Unit	Wells In/Near Debris Fill Area											
		MW-1S 09/15/2010	MW-1S 10/24/2013	MW-1S 01/22/2014	MW-1S 04/25/2017	MW-1S 09/28/2017	MW-1S 01/20/2023	MW-2S 09/15/2010	MW-2S 10/24/2013	MW-2S 01/22/2014	MW-2S 04/25/2017	MW-2S 09/28/2017	MW-2S 10/24/2022
Total Petroleum Hydrocarbons (TPH)													
Gasoline-Range Organics	ug/L	50 U	250 U	250 U	--	--	80	250 U	270	--	--	160	180
Diesel-Range Organics	ug/L	130 U	100 U	100 U	--	50 U	180	100 U	100 U	--	--	110	110
Oil-Range Organics	ug/L	250 U	200 U	200 U	--	250 U	360	200 U	200 U	--	--	250 U	250 U
Diesel- + Oil-Range Organics	ug/L	250 U	200 U	200 U	--	250 U	540	200 U	200 U	--	--	235	235
BTE													
Benzene	ug/L	2.0 U	0.20 U	0.20 U	--	--	2.0 U	0.28	0.26	--	--	1 U	1 U
Ethylbenzene	ug/L	2.0 U	0.20 U	0.20 U	--	--	2.0 U	0.60	0.88	--	--	1.5	1.4
Toluene	ug/L	2.0 U	0.20 U	0.20 U	--	--	2.0 U	0.20 UJ	0.20 U	--	--	1 U	1 U
Total Xylenes	ug/L	4.0 U	0.40 U	0.40 U	--	--	4.0 U	5.9	10.3	--	--	10	11
Polycyclic Aromatic Hydrocarbons (PAHs)													
1-Methylnaphthalene	ug/L	0.020 U	0.010 U	0.010 U	--	0.2 U	3.4	1.9	1.9	--	--	1 U	0.2 U
2-Methylnaphthalene	ug/L	0.020 U	0.010 U	0.010 U	--	0.2 U	2.5	0.24	0.28	--	--	1 U	0.2 U
Acenaphthene	ug/L	0.020 U	0.010 U	0.010 U	--	0.02 U	0.83	0.56	0.48	--	--	0.1 U	0.2
Acenaphthylene	ug/L	0.020 U	0.010 U	0.010 U	--	0.02 U	0.045	0.010 UJ	0.010 U	--	--	0.1 U	0.02 U
Anthracene	ug/L	0.020 U	0.010 U	0.010 U	--	0.02 U	0.063	0.037	0.024	--	--	0.1 U	0.02 U
Benzo(g,h,i)perylene	ug/L	0.020 U	0.010 UJ	0.010 U	--	0.04 U	0.023	0.010 UJ	0.010 U	--	--	0.2 U	0.04 U
Carbazole	ug/L	--	--	--	--	--	--	--	--	--	--	--	--
Dibenzofuran	ug/L	0.020 U	0.010 U	0.010 U	--	--	0.095	0.044	0.033	--	--	1 U	--
Fluoranthene	ug/L	0.020 U	0.010 U	0.010 U	--	0.02 U	0.23	0.11	0.069	--	--	0.1 U	0.064 J
Fluorene	ug/L	0.020 U	0.010 U	0.010 U	--	0.02 U	0.33	0.18	0.15	--	--	0.1 U	0.057 J
Naphthalene	ug/L	0.048	0.027	0.015	--	0.2 U	5.7	2.5	2.4	--	--	1 U	0.2 U
Phenanthrene	ug/L	0.020 U	0.010 U	0.010 U	--	0.02 U	0.40	0.25	0.16	--	--	0.13 U	0.094 J
Pyrene	ug/L	0.020 U	0.010 U	0.010 U	--	0.02 U	0.28	0.16	0.097	--	--	0.1 U	0.081
Total gPAHs TEQ	ug/L	0.0151 U	0.00755 U	0.00755 U	--	0.02 U	0.03267	0.00866	0.00831	--	--	0.1 U	0.01817 J

Table 2. Groundwater Analytical Data for Wells In/Near Excavation Areas

Project No. 120051, Former PQ Corporation Site, Tacoma, WA

Analyte	Unit	Wells In/Near Debris Fill Area																					
		MW-1S 09/15/2010	MW-1S 10/24/2013	MW-1S 01/22/2014	MW-1S 04/25/2017	MW-1S 09/28/2017	MW-1S 01/20/2023	MW-2S 09/15/2010	MW-2S 10/24/2013	MW-2S 01/22/2014	MW-2S 04/25/2017	MW-2S 09/28/2017	MW-2S 10/24/2022	MW-2S 01/20/2023									
Dissolved Metals																							
Antimony	ug/L	2.8										4.0											
Arsenic	ug/L	18	15.4	12.6	8.08	17.6						11	5.6	2.2	1.75	9.78							
Beryllium	ug/L	0.41 U										0.41 U											
Cadmium	ug/L	0.44 U	0.1 U	0.1 U								0.44 U	0.1	0.1 U									
Chromium	ug/L	57	13	18.3	3.26	3.90						6.8	15	8.8	10.2	24.6							
Copper	ug/L	67	9.6	0.5 U	6.97	12.2 J						91	15.1	0.5 U	11.7	29.3 J							
Lead	ug/L	19	1.6	0.3	1.07	1.32						28	23.8	3.5	3.57	40.1							
Mercury	ug/L	0.20 U	0.113	0.0298	0.11 J	0.089						0.20 U	0.02 U	0.02 U	0.1 U	0.020 U							
Nickel	ug/L	1.7 U	2.0	0.6	1.24	1.82						4.8	4.0	2.2	2.7	5.39							
Selenium	ug/L	3.1 U										3.1 U											
Silver	ug/L	0.36 U										0.36 U											
Sodium	ug/L			213000										263000									
Thallium	ug/L	1.8 U										1.8 U											
Zinc	ug/L	14 U	6	4 U	5.29	8.00 U						28	11	6	6.14	18.3							
Total Metals																							
Antimony	ug/L	2.5										4.3											
Arsenic	ug/L	18										11										7.35 J	5.33 J
Beryllium	ug/L	0.41 U										0.41 U											
Cadmium	ug/L	0.44 U										0.44 U											
Chromium	ug/L	69										10											
Copper	ug/L	3.9										24										27.9	28.7
Lead	ug/L	0.62 U										2.7										13.6	12.1
Mercury	ug/L	0.21										0.20 U										0.02 U	0.02 U
Nickel	ug/L	1.7 U										4.4										5 U	4.84
Selenium	ug/L	3.1 U										3.1 U											
Silver	ug/L	0.36 U										0.36 U											
Thallium	ug/L	1.8 U										1.8 U											
Zinc	ug/L	14 U										18										25 U	10.5
Field Parameters and Conventional																							
Temperature	deg C	19.8	15.5	8.7	12.8	20.1						19.3	16.0	11.2	12.5	18.2					16.1	10.7	
Specific Conductance	uS/cm	747	975	819	496.8	615						1087	968	993	1320	893					1290	1120	
Dissolved Oxygen	mg/L	1.26	4.13	7.22	4.41	0.73						0.09	0.28	0.38	0.02	0.21					0.50	0.05	
pH	Site Units	10.1	9.78	9.83	9.3	9.95						9.5	9.05	9.09	9.5	9.21					8.64	9.0	
ORP	mV	-270	-100	50	110	-20						-360	-240	-60	-230	0					-190	-70	
Eh	mV	-60	120	270	320	190						-140	-20	160	-20	210					30	140	
Turbidity	NTU	14.4	20.3	16.4	12.9	22.9						88.8	21.2	3.8	5.42	8.9					9.26	6	
Total Suspended Solids	mg/L	--	1.3	1.1 U	--	--						--	2.0	1.0 U	--	--					--	--	

Table 2. Groundwater Analytical Data for Wells In/Near Excavation Areas

Project No. 120051, Former PQ Corporation Site, Tacoma, WA

Analyte	Unit	Wells In/Near Debris Fill Area												
		MW-3S 09/15/2010	MW-3S 10/24/2013	MW-3S 01/22/2014	MW-3S 04/25/2017	MW-3S 09/28/2017	MW-3S 10/24/2022	MW-3S 01/20/2023	MW-4S 09/15/2010	MW-4S 10/24/2013	MW-4S 01/22/2014	MW-4S 04/25/2017	MW-4S 09/27/2017	MW-4S 01/20/2023
Total Petroleum Hydrocarbons (TPH)														
Gasoline-Range Organics	ug/L	50 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U
Diesel-Range Organics	ug/L	130 U	100 U	100 U	100 U	100 U	100 U	130 U	100 U	100 U	100 U	100 U	100 U	100 U
Oil-Range Organics	ug/L	250 U	200 U	200 U	200 U	200 U	200 U	250 U	200 U	200 U	200 U	200 U	200 U	200 U
Diesel- + Oil-Range Organics	ug/L	250 U	200 U	200 U	200 U	200 U	200 U	250 U	200 U	200 U	200 U	200 U	200 U	200 U
BTE														
Benzene	ug/L	2.0 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	2.0 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Ethylbenzene	ug/L	2.0 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	2.0 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Toluene	ug/L	2.0 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	2.0 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Total Xylenes	ug/L	4.0 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	4.0 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U
Polycyclic Aromatic Hydrocarbons (PAH)														
1-Methylnaphthalene	ug/L	0.020 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.020 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
2-Methylnaphthalene	ug/L	0.020 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.020 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Acenaphthene	ug/L	0.020 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.020 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Acenaphthylene	ug/L	0.020 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.020 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Anthracene	ug/L	0.020 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.020 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Benzo(g,h,i)perylene	ug/L	0.066	0.011	0.010 U	0.010 U	0.010 U	0.010 U	0.029	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Carbazole	ug/L	---	---	---	---	---	---	---	---	---	---	---	---	---
Dibenzofuran	ug/L	0.020 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.020 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Fluoranthene	ug/L	0.020 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.020 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Fluorene	ug/L	0.020 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.020 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Naphthalene	ug/L	0.055	0.040	0.013	0.010 U	0.010 U	0.010 U	0.027	0.10	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Phenanthrene	ug/L	0.021	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.020 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Pyrene	ug/L	0.020 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.020 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Total gPAHs TEQ	ug/L	0.0151 U	0.00755 U	0.00755 U	0.00755 U	0.00755 U	0.00755 U	0.0151 U	0.00755 U	0.00755 U	0.00755 U	0.00755 U	0.00755 U	0.00755 U

Table 2. Groundwater Analytical Data for Wells In/Near Excavation Areas

Project No. 120051, Former PQ Corporation Site, Tacoma, WA

Analyte	Unit	Wells In/Near Debris Fill Area																					
		MW-3S 09/15/2010	MW-3S 10/24/2013	MW-3S 01/22/2014	MW-3S 04/25/2017	MW-3S 09/28/2017	MW-3S 10/24/2022	MW-3S 01/20/2023	MW-4S 09/15/2010	MW-4S 10/24/2013	MW-4S 01/22/2014	MW-4S 04/25/2017	MW-4S 09/27/2017	MW-4S 01/20/2023									
Dissolved Metals																							
Antimony	ug/L	3.7											0.60 U										
Arsenic	ug/L	20	2.8	2.9	3.1	7.60							35	7.4	3.3	3.46	26.7						
Beryllium	ug/L	0.41 U											0.41 U										
Cadmium	ug/L	0.44 U	0.1 U										0.44 U	0.1 U	0.1 U								
Chromium	ug/L	93	4	7	2.63	3.19							2.5	1 U	0.5	0.5 U	31.2						
Copper	ug/L	22	3.2	0.5 U	62.5	8.74 J							20	2.6	0.5 U	1.78	37.9 J						
Lead	ug/L	7.2	0.5	0.1 U	0.288	2.53							6.2	0.3	0.1 U	0.1 U	6.44						
Mercury	ug/L	0.20 U	0.0331	0.0211	0.1 U	0.079							0.20 U	0.02 U	0.02 U	0.1 U	0.069						
Nickel	ug/L	1.7 U	0.8	0.5 U	2.04	1.95							1.7 U	1.2	1.1	0.854	11.0						
Selenium	ug/L	3.1 U											3.1 U										
Silver	ug/L	0.36 U											0.36 U										
Sodium	ug/L																						
Sodium	ug/L																						
Thallium	ug/L	1.8 U											1.8 U										
Zinc	ug/L	14 U	4 U	4 U	4 U	8.00 U							14 U	4 U	4 U	4 U	8.00 U						
Total Metals																							
Antimony	ug/L	3.4											0.60 U										
Arsenic	ug/L	19											34										2.29 J
Beryllium	ug/L	0.41 U											0.41 U										
Cadmium	ug/L	0.44 U											0.44 U										
Chromium	ug/L	91											1.6										
Copper	ug/L	4.9											6.1										7.23
Lead	ug/L	0.62 U											0.62 U										1 U
Mercury	ug/L	0.20 U											0.20 U										0.021
Nickel	ug/L	1.7 U											1.7 U										3.47
Selenium	ug/L	3.1 U											3.1 U										
Silver	ug/L	0.36 U											0.36 U										
Thallium	ug/L	1.8 U											1.8 U										
Zinc	ug/L	14 U											14 U										26.7
Field Parameters and Conventional																							
Temperature	deg C	19.4	14.6	8.6	12.4	18.3	15.7	8.3	20.2	16.0	10.1	12.7	18.6	8.1									
Specific Conductance	uS/cm	765	365.8	470.1	417.2	801	916	211	296	377	433.4	288.1	1057	345									
Dissolved Oxygen	mg/L	0.76	2.51	7.14	0.87	0.42	1.33	9.01	0.63	0.44	2.01	0.46	0.18	2.17									
pH	Std Units	9.4	9.74	9.92	9.8	9.87	9.47	9.5	9.3	7.26	6.97	7.2	8.5	6.8									
ORP	mV	-90	20	0	90	-10	-850	110	-270	70	90	100	-70	160									
Eh	mV	130	230	220	300	210	-640	320	-50	290	310	310	140	370									
Turbidity	NTU	31.7	4.60	4.69	2.49	4.8	5.49	12	16.9	3.13	13.8	1.59	4.1	14									
Total Suspended Solids	mg/L	--	1.1 U	1.1 U	--	--	--	--	--	1.1 U	1.1 U	--	--	--									

Table 2. Groundwater Analytical Data for Wells In/Near Excavation Areas

Project No. 120051, Former PQ Corporation Site, Tacoma, WA

Analyte	Unit	Wells In/Near Debris Fill Area							
		MW-5S 09/15/2010	MW-5S 10/24/2013	MW-5S 01/22/2014	MW-5S 04/25/2017	MW-5S 09/28/2017	MW-5S 10/24/2022	MW-5S 01/20/2023	
Total Petroleum Hydrocarbons (TPH)									
Gasoline-Range Organics	ug/L	80	250 U	250 U	---	---	---	---	---
Diesel-Range Organics	ug/L	330	100 U	100 U	---	---	---	---	160
Oil-Range Organics	ug/L	900	200 U	200 U	---	---	---	---	470
Diesel- + Oil-Range Organics	ug/L	1230	200 U	200 U	---	---	---	---	960
BTE									
Benzene	ug/L	2.0 U	0.20 UJ	0.20 U	---	---	---	---	---
Ethylbenzene	ug/L	2.0 U	0.20 U	0.20 U	---	---	---	---	---
Toluene	ug/L	2.0 U	0.20 UJ	0.20 U	---	---	---	---	---
Total Xylenes	ug/L	4.0 U	0.40 U	0.40 U	---	---	---	---	---
Polycyclic Aromatic Hydrocarbons (PAH)									
1-Methylnaphthalene	ug/L	0.91	0.10	0.054	---	---	---	---	0.2 U
2-Methylnaphthalene	ug/L	0.59	0.067	0.030	---	---	---	---	0.2 U
Acenaphthene	ug/L	0.31	0.047	0.035	---	---	---	---	0.04
Acenaphthylene	ug/L	0.020 U	0.010 U	0.010 U	---	---	---	---	0.02 U
Anthracene	ug/L	0.043	0.010 U	0.010 U	---	---	---	---	0.02 U
Benzo(g,h,i)perylene	ug/L	0.059	0.017	0.014	---	---	---	---	0.04 U
Carbazole	ug/L	---	---	---	---	---	---	---	---
Dibenzofuran	ug/L	0.074	0.010 U	0.010 U	---	---	---	---	0.2 U
Fluoranthene	ug/L	0.22	0.025	0.015	---	---	---	---	0.02 U
Fluorene	ug/L	0.26	0.014	0.010 U	---	---	---	---	0.022 J
Naphthalene	ug/L	0.36	0.21	0.19	---	---	---	---	0.2 U
Phenanthrene	ug/L	0.36	0.034	0.016	---	---	---	---	0.03
Pyrene	ug/L	0.27	0.061 J	0.028	---	---	---	---	0.031
Total gPAHs TEQ	ug/L	0.037	0.00774	0.00764	---	---	---	---	0.02 U

Table 2. Groundwater Analytical Data for Wells In/Near Excavation Areas

Project No. 120051, Former PQ Corporation Site, Tacoma, WA

Analyte	Unit	Wells In/Near Debris Fill Area									
		MW-5S 09/15/2010	MW-5S 10/24/2013	MW-5S 01/22/2014	MW-5S 04/25/2014	MW-5S 09/28/2017	MW-5S 10/24/2022	MW-5S 01/20/2023			
Dissolved Metals											
Antimony	ug/L	5.1	---	---	---	---	---	---	---	---	---
Arsenic	ug/L	24	6.8	3.7	2.37	20.3	74.6 J	---	---	---	---
Beryllium	ug/L	0.41 U	---	---	---	---	---	---	---	---	---
Cadmium	ug/L	0.66	1.0	0.8	---	---	---	---	---	---	---
Chromium	ug/L	43	100	40.6	13.6	11.1	---	---	---	---	---
Copper	ug/L	50	77.4	22.1	5.26	26.0 J	65.9	190	67.1	---	---
Lead	ug/L	260	284	103	51	63.7	190	---	---	---	---
Mercury	ug/L	0.20 U	0.792	0.403	0.1 U	0.020 U	0.17	---	---	---	---
Nickel	ug/L	11	15.0	5.6	4.52	8.03	19.3	---	---	---	---
Selenium	ug/L	3.1 U	---	---	---	---	---	---	---	---	---
Silver	ug/L	0.36 U	---	---	---	---	---	---	---	---	---
Sodium	ug/L	---	---	426000	---	---	---	---	---	---	---
Thallium	ug/L	1.8 U	---	---	---	---	---	---	---	---	---
Zinc	ug/L	260	500	163	86.7	22.3	112	---	---	---	---
Total Metals											
Antimony	ug/L	7.6	---	---	---	---	---	---	---	---	---
Arsenic	ug/L	24	---	---	---	---	133 J	---	---	---	5.16 J
Beryllium	ug/L	0.41 U	---	---	---	---	---	---	---	---	---
Cadmium	ug/L	0.85	---	---	---	---	---	---	---	---	---
Chromium	ug/L	120	---	---	---	---	---	---	---	---	---
Copper	ug/L	49	---	---	---	---	132	86.6	---	---	---
Lead	ug/L	290	---	---	---	---	376	151	---	---	---
Mercury	ug/L	2.7	---	---	---	---	0.56	0.02 U	---	---	---
Nickel	ug/L	19	---	---	---	---	31.1	12.5	---	---	---
Selenium	ug/L	3.1 U	---	---	---	---	---	---	---	---	---
Silver	ug/L	0.36 U	---	---	---	---	---	---	---	---	---
Thallium	ug/L	1.8 U	---	---	---	---	---	---	---	---	---
Zinc	ug/L	290	---	---	---	---	203	218	---	---	---
Field Parameters and Conventional											
Temperature	deg C	18.4	15.0	8.8	12.2	18.4	14.9	8.5	---	---	---
Specific Conductance	uS/cm	1548	1765	1611	833	1107	1368	1235	---	---	---
Dissolved Oxygen	mg/L	0.97	0.06	0.55	0.12	0.21	0.18	0.12	---	---	---
pH	Std Units	9.6	9.82	9.77	9.9	10.14	9.65	9.3	---	---	---
ORP	mV	-280	-40	-200	-190	-20	-220	-190	---	---	---
Eh	mV	-60	170	10	20	190	-10	20	---	---	---
Turbidity	NTU	163	14.7	13.9	5.29	35.0	71.7	11	---	---	---
Total Suspended Solids	mg/L	---	2.4	1.7	---	---	---	---	---	---	---

Table 2. Groundwater Analytical Data for Wells In/Near Excavation Areas

Project No. 120051, Former PQ Corporation Site, Tacoma, WA

Analyte	Unit	Wells In/Near Boiler Area										
		MW-9S 10/24/2013	MW-9S 01/21/2014	MW-9S 04/26/2017	MW-9S 09/28/2017	MW-9S 10/24/2022	MW-9S 01/17/2023	MW-12S 10/23/2013	MW-12S 01/21/2014	MW-12S 04/25/2017	MW-12S 09/27/2017	MW-12S 10/24/2022
Total Petroleum Hydrocarbons (TPH)												
Gasoline-Range Organics	ug/L	620	250 U	100 U	993	100 U	100 U	250 U	250 U	250 U	100 U	100 U
Diesel-Range Organics	ug/L	3400	920	1740	572	1700	2000	100 U	100 U	100 U	680	210
Oil-Range Organics	ug/L	290	200 U	200 U	200 U	600	310	200 U	200 U	200 U	740	250 U
Diesel- + Oil-Range Organics	ug/L	3690	1020	1840	672	2300	2310	200 U	200 U	200 U	1420	335
BTE												
Benzene	ug/L	1.0 UJ	0.27	--	--	1 U	1 U	0.20 UJ	0.20 UJ	0.20 U	1 U	1 U
Ethylbenzene	ug/L	1.1	0.27	--	--	1.5	1 U	0.22	0.20 U	0.20 U	1 U	1 U
Toluene	ug/L	2.2	0.79	--	--	3.3	1 U	0.27	0.20 U	0.20 U	1 U	1 U
Total Xylenes	ug/L	4.7	1.35	--	--	7.7	3 U	0.23	0.40 U	0.40 U	3 U	3 U
Polycyclic Aromatic Hydrocarbons (PAH)												
1-Methylnaphthalene	ug/L	4.2	0.99 J	0.601 J	5.02	7	0.1 U	0.18	0.62	0.62	1	0.1 U
2-Methylnaphthalene	ug/L	5.5	2.6	0.697 J	7.18	8.4	0.1 U	0.011	0.90	0.90	1.9	0.11
Acenaphthene	ug/L	3.8	0.96 J	1.35	5.96	7	0.041	0.71	0.56	0.56	1	0.096
Acenaphthylene	ug/L	0.11	0.040	0.026	0.110 U	0.13	0.01 U	0.013	0.010 U	0.010 U	0.02 U	0.01 U
Anthracene	ug/L	0.15	0.076	0.077	0.517	0.14	0.049	0.013	0.011	0.011	0.02 U	0.01 U
Benzo(g,h,i)perylene	ug/L	0.20	0.13	0.063 J	0.110 U	0.061	0.076	0.055	0.054	0.054	0.059	0.02 U
Carbazole	ug/L	--	--	0.562	9.01	--	--	--	--	--	--	--
Dibenzofuran	ug/L	1.6	0.45	0.515	3.12	3.1	0.01 U	0.14	0.19	0.19	0.77	0.041
Fluoranthene	ug/L	0.13	0.068	0.078	0.809	0.097	0.022	0.012	0.010 U	0.010 U	0.024	0.01 U
Fluorene	ug/L	1.6	0.41	0.622 J	3.37	3.1	0.01 U	0.36	0.26	0.26	0.74	0.052
Naphthalene	ug/L	240	62	4.81 J	0.62	110	0.1 U	25 J	20	20	17	2.4
Phenanthrene	ug/L	0.77	0.27 J	0.366 J	3.61	1.5	0.035 J	0.26	0.16	0.16	0.5	0.03 J
Pyrene	ug/L	0.16 J	0.088	0.116	0.395	0.093	0.054	0.023 J	0.016	0.016	0.033	0.015
Total gPAHs TEQ	ug/L	0.09324	0.06938	0.03184	0.07755 U	0.0406	0.06274	0.01585	0.01385	0.01385	0.0189	0.01 U

Table 2. Groundwater Analytical Data for Wells In/Near Excavation Areas

Project No. 120051, Former PQ Corporation Site, Tacoma, WA

Analyte	Unit	Wells In/Near Boiler Area										
		MW-9S 10/24/2013	MW-9S 01/21/2014	MW-9S 04/26/2017	MW-9S 09/28/2017	MW-9S 10/24/2022	MW-9S 01/17/2023	MW-12S 10/23/2013	MW-12S 01/21/2014	MW-12S 04/25/2017	MW-12S 09/27/2017	MW-12S 10/24/2022
Dissolved Metals												
Antimony	ug/L											
Arsenic	ug/L	81.6	165	10.8	28.6							
Beryllium	ug/L											
Cadmium	ug/L	0.1 U	0.1 U									
Chromium	ug/L	60	30	7.52	6.34							
Copper	ug/L	21.3	8	4.77	8.12 J	14.1						
Lead	ug/L	1.8	0.3	0.285	1.26							
Mercury	ug/L	0.158	0.13	0.1 U	0.020 U							
Nickel	ug/L	2.4	2.2	0.5 U	1.00 U							
Selenium	ug/L											
Silver	ug/L											
Sodium	ug/L		526000									
Thallium	ug/L											
Zinc	ug/L	5	7	4 U	8.00 U							
Total Metals												
Antimony	ug/L											
Arsenic	ug/L					23.3 J						16.5
Beryllium	ug/L											
Cadmium	ug/L											
Chromium	ug/L											
Copper	ug/L											
Lead	ug/L											
Mercury	ug/L											
Nickel	ug/L											
Selenium	ug/L											
Silver	ug/L											
Thallium	ug/L											
Zinc	ug/L											
Field Parameters and Conventional												
Temperature	deg C	15.4	9.5	12.3	20.0	15.8	10.3	10.3	13.6	8.6	12.1	20.6
Specific Conductance	uS/cm	2046	1928	557.8	866	709	268	268	970	893	367.1	538.5
Dissolved Oxygen	mg/L	2.19	2	0.91	0.18	0.23	7.06	7.06	3.47	3.85	3.53	0.26
pH	Std Units	10.57	10.95	11.2	10.89	10.73	10.2	10.2	10.67	10.39	10.0	10.12
ORP	mV	-190	-100	-120	-60	-260	70	70	10	-100	-20	20
Eh	mV	20	110	90	150	-40	290	290	220	120	200	240
Turbidity	NTU	49.0	25.1	20.4	11.1	20.2	54	54	49.0	22.1	21.4	34.6
Total Suspended Solids	mg/L	44.0	9.1						28.4	7.7		

Table 2. Groundwater Analytical Data for Wells In/Near Excavation Areas

Project No. 120051, Former PQ Corporation Site, Tacoma, WA

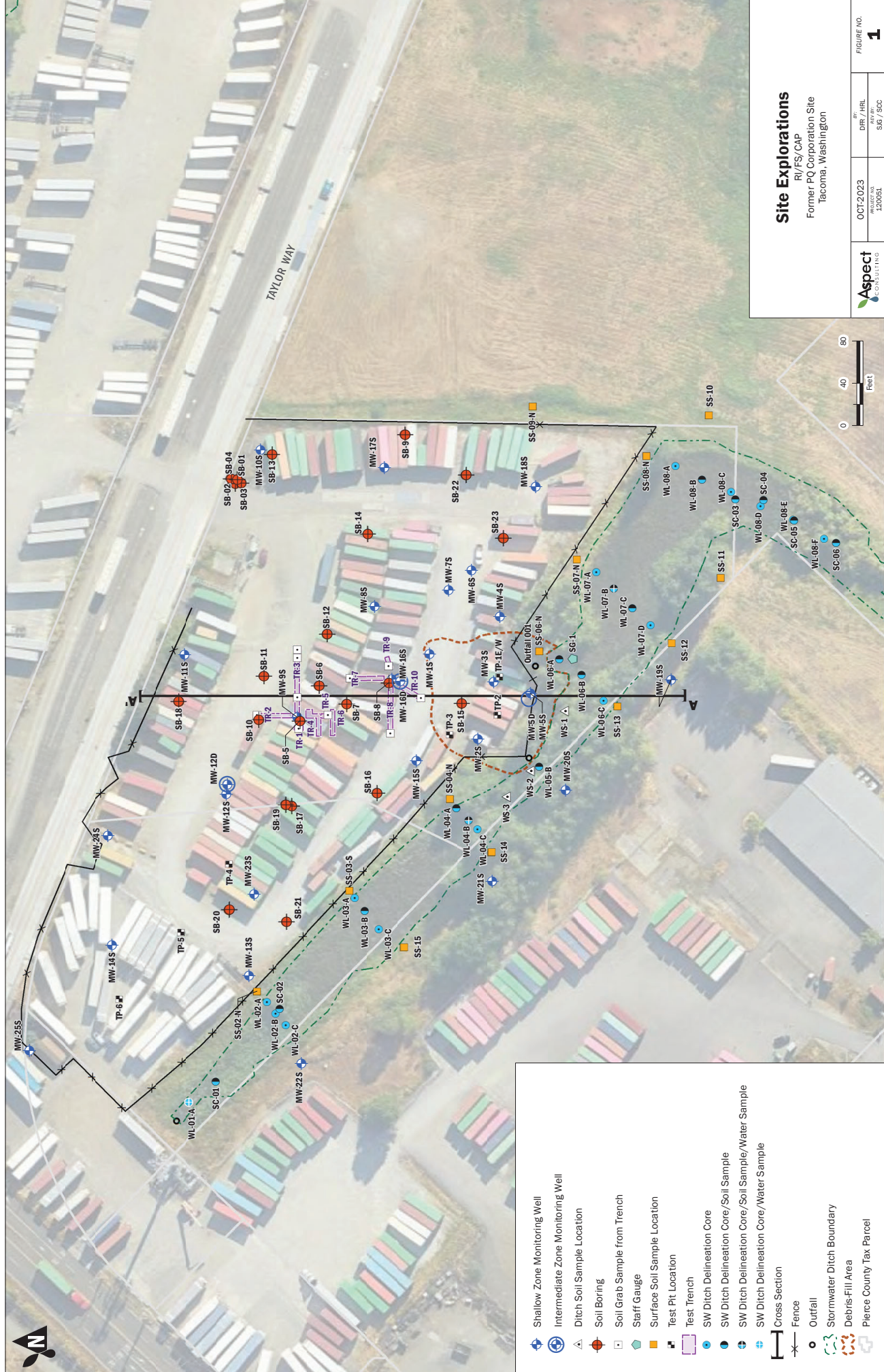
Analyte	Unit	Wells In/Near Boiler Area						
		MW-16S 10/24/2013	MW-16S 01/22/2014	MW-16S 04/26/2017	MW-16S 09/28/2017	MW-16S 10/24/2022	MW-16S 01/17/2023	
Total Petroleum Hydrocarbons (TPH)								
Gasoline-Range Organics	ug/L	1800	780	132	1120	100 U	140	
Diesel-Range Organics	ug/L	310	100 U	100 U	204	1700	530	
Oil-Range Organics	ug/L	200 U	200 U	200 U	200 U	1700	480	
Diesel- + Oil-Range Organics	ug/L	410	200 U	200 U	304	3400	1010	
BTE								
Benzene	ug/L	2.0 U	0.20 U	--	--	1 U	1 U	
Ethylbenzene	ug/L	2.0 U	1.1	--	--	1 U	1 U	
Toluene	ug/L	2.1	0.77	--	--	1 U	1 U	
Total Xylenes	ug/L	9.5	6.3	--	--	4	3 U	
Polycyclic Aromatic Hydrocarbons (PAH)								
1-Methylnaphthalene	ug/L	22	0.31	0.01 U	17.1	5.4	0.1 U	
2-Methylnaphthalene	ug/L	25	0.020	0.01 U	25.3	6.5	0.1 U	
Acenaphthene	ug/L	21	9.0	0.14	14.2	6	0.28	
Acenaphthylene	ug/L	0.26	0.18	0.024	0.142	0.2 U	0.086	
Anthracene	ug/L	0.87	1.3	0.083	1.10	0.33	0.095	
Benzo(g,h,i)perylene	ug/L	0.089	0.066	0.031	0.050 U	0.4 U	0.021	
Carbazole	ug/L	--	--	0.176	11.4	--	--	
Dibenzofuran	ug/L	8.3	0.89	0.029	6.71	2.1	0.01 U	
Fluoranthene	ug/L	1.6	2.0	0.84	1.36	0.85	0.42	
Fluorene	ug/L	7.9	9.2	0.084	6.99	2.9	0.3	
Naphthalene	ug/L	730	260	0.018	317	73	0.1 U	
Phenanthrene	ug/L	1.4	3.3	0.058	4.74	1.5	0.036 J	
Pyrene	ug/L	1.2	1.6	1.12	1.44	0.93	0.48	
Total gPAHs TEQ	ug/L	0.2921	0.2161	0.13195	0.15718	0.163	0.08675	

Table 2. Groundwater Analytical Data for Wells In/Near Excavation Areas

Project No. 120051, Former PQ Corporation Site, Tacoma, WA

Analyte	Unit	Wells In/Near Boiler Area						
		MW-16S 10/24/2013	MW-16S 01/22/2014	MW-16S 04/26/2017	MW-16S 09/28/2017	MW-16S 10/24/2022	MW-16S 01/17/2023	
Dissolved Metals								
Antimony	ug/L	82.8	55	43.5	70.2			
Arsenic	ug/L							
Beryllium	ug/L							
Cadmium	ug/L	0.1	0.1 U					
Chromium	ug/L	9	17	5.56	1.00 U			
Copper	ug/L	21.0	0.5 U	5.06	8.18 J			
Lead	ug/L	9.6	0.5	1.53	6.99			
Mercury	ug/L	0.637	0.18	0.21 J	0.155			
Nickel	ug/L	8.2	2.5	0.584	3.24			
Selenium	ug/L							
Silver	ug/L							
Sodium	ug/L		520000					
Thallium	ug/L							
Zinc	ug/L	6	4 U	4 U	8.00 U			
Total Metals								
Antimony	ug/L							
Arsenic	ug/L							
Beryllium	ug/L					44.7 J		31.7
Cadmium	ug/L							
Chromium	ug/L							
Copper	ug/L							
Lead	ug/L							
Mercury	ug/L							
Nickel	ug/L							
Selenium	ug/L							
Silver	ug/L							
Thallium	ug/L							
Zinc	ug/L							
Field Parameters and Conventional								
Temperature	deg C	16.3	10.3	11.7	19.4	16.3	10.1	
Specific Conductance	uS/cm	2728	1923	1343	2089	1842	988	
Dissolved Oxygen	mg/L	0.53	6.47	0.5	0.1	0.13	2.35	
pH	Std Units	11.5	11.55	12.4	12.11	11.88	11.4	
ORP	mV	-200	40	-20	-80	-280	-30	
Eh	mV	20	260	10	140	-60	190	
Turbidity	NTU	25.6	7.68	3.51	2.9	11.6	9	
Total Suspended Solids	mg/L	12.7	4.0					

Notes:
Bold = detected.
 -- = not analyzed.
 U = Not detected at associated reporting limit.
 J = estimated concentration.
 ug/L = micrograms per liter.



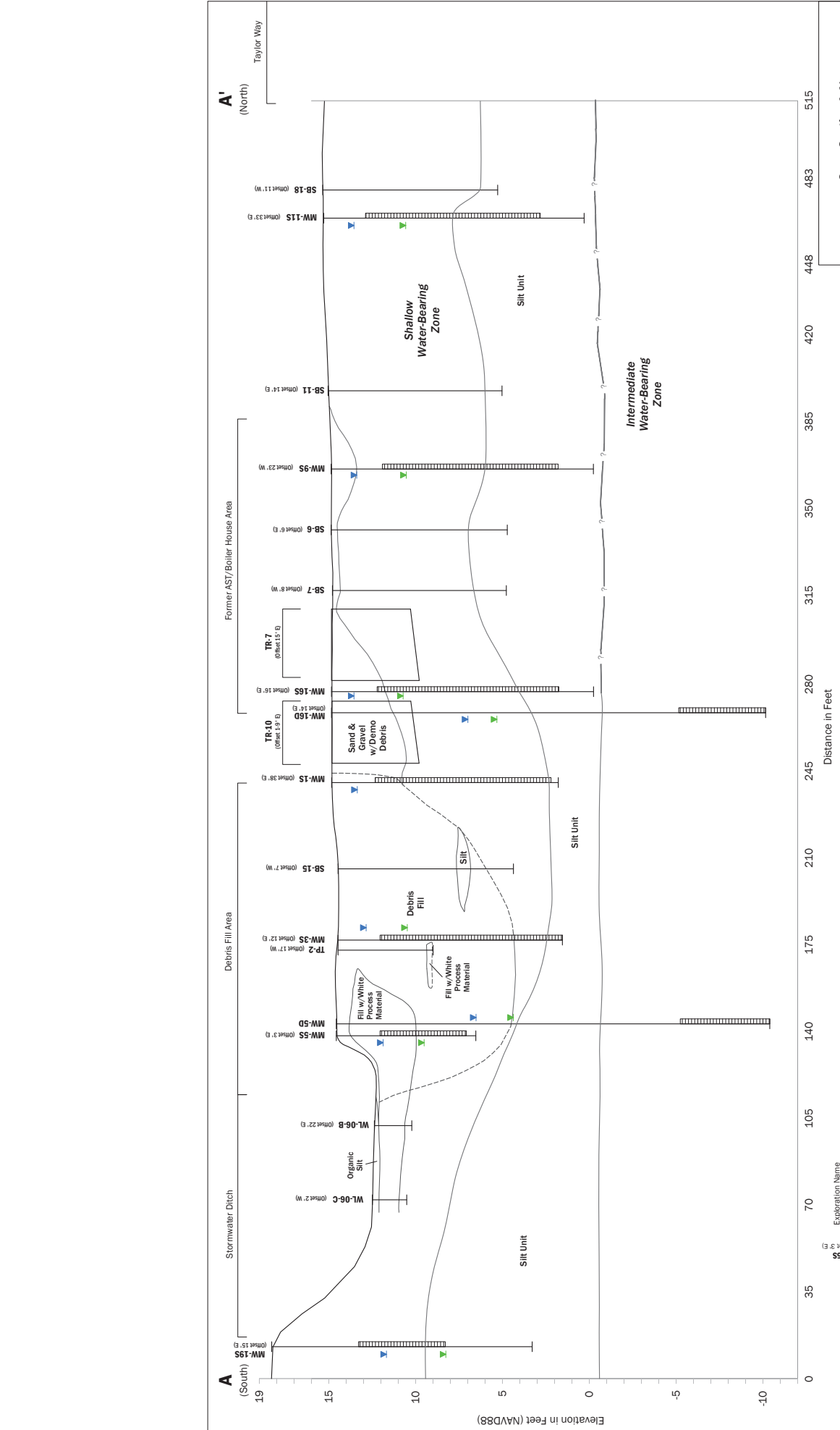
Site Explorations

R/FS/CAP
Former PQ Corporation Site
Tacoma, Washington



REV	DIR / IIRL	FIGURE NO.
01	SB / SSC	1
OCT2023		
REVISED 12/05/23		

- Shallow Zone Monitoring Well
- Intermediate Zone Monitoring Well
- Ditch Soil Sample Location
- Soil Boring
- Soil Grab Sample from Trench
- Staff Gauge
- Surface Soil Sample Location
- Test Pit Location
- Test Trench
- SW Ditch Delineation Core/Soil Sample
- SW Ditch Delineation Core/Soil Sample/Water Sample
- SW Ditch Delineation Core/Water Sample
- Cross Section
- Fence
- Outfall
- Stormwater Ditch Boundary
- Debris-Fill Area
- Pierce County Tax Parcel



A (South) **A'** (North)

Stormwater Ditch Debris Fill Area Former AST/Boiler House Area Taylor Way

MW-199 (Othrd 15' E) WL-06-C (Othrd 2' W) MW-50 (Othrd 3' E) TP-2 (Othrd 17' W) MW-15 (Othrd 38' E) MW-16D (Othrd 14' E) MW-16S (Othrd 18' E) TP-7 (Othrd 15' E) SB-7 (Othrd 8' W) SB-6 (Othrd 6' E) MW-9S (Othrd 23' W) SB-11 (Othrd 14' E) MW-11S (Othrd 33' E) SB-18 (Othrd 11' W)

Organic Silt Debris Fill Silt Silt Unit Intermediate Water-Bearing Zone Shallow Water-Bearing Zone Silt Unit

Fill w/ White Process Material Fill w/ White Process Material Sand & Gravel w/ Debris Debris

Elevation in Feet (NAVD88) Distance in Feet

Horizontal Scale: 1" = 28'
 Vertical Scale: 1" = 4'
 Vertical Exaggeration 7x

0 28 56 Feet

Exploration Name (Othrd Distance and Direction)
 MW-55 (Othrd 2' E) Well Screen Interval
 January 2023 Water Level Elevation October 2022 Water Level Elevation

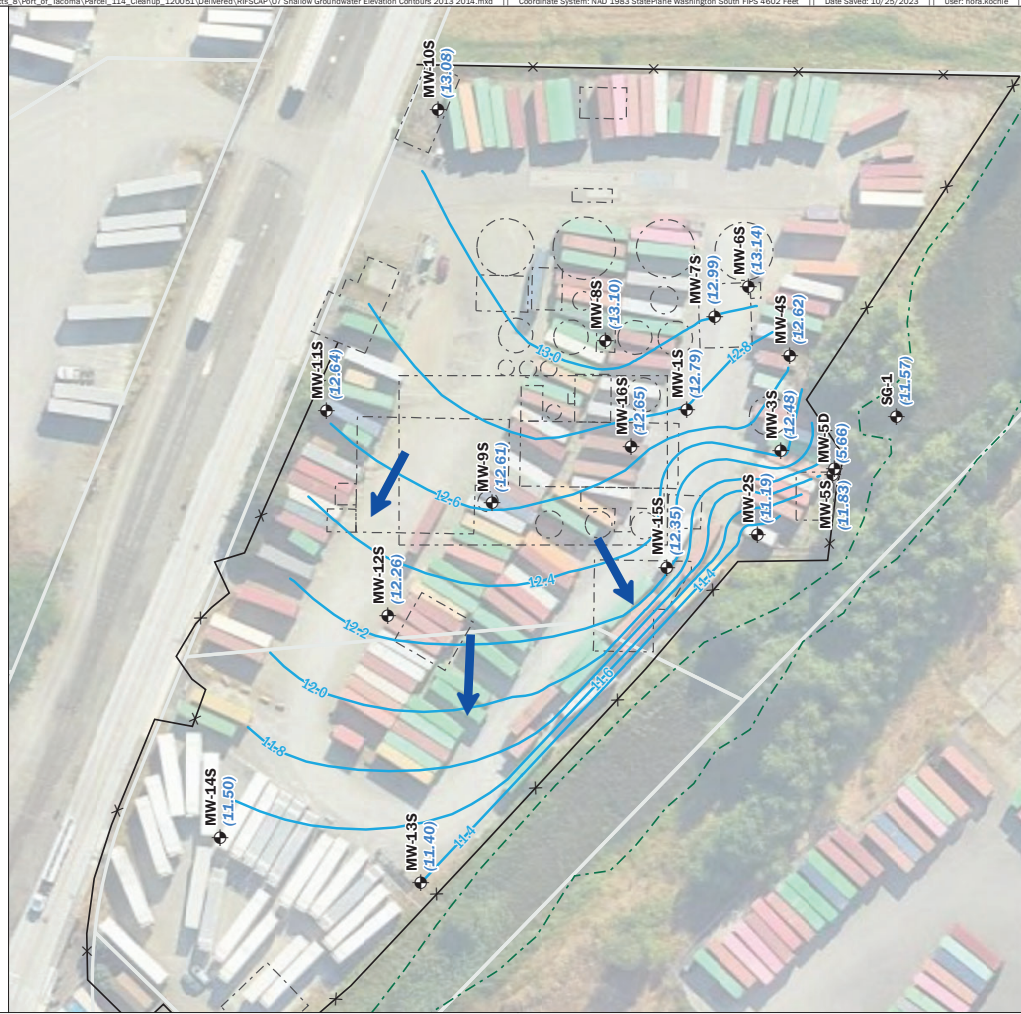
Cross Section A-A'
 RI/RS Corp.
 Former PO Corporation Site
 Tacoma, Washington

Oct-2023 KEB/SCC
 120051 MME/SCC

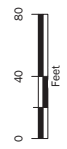
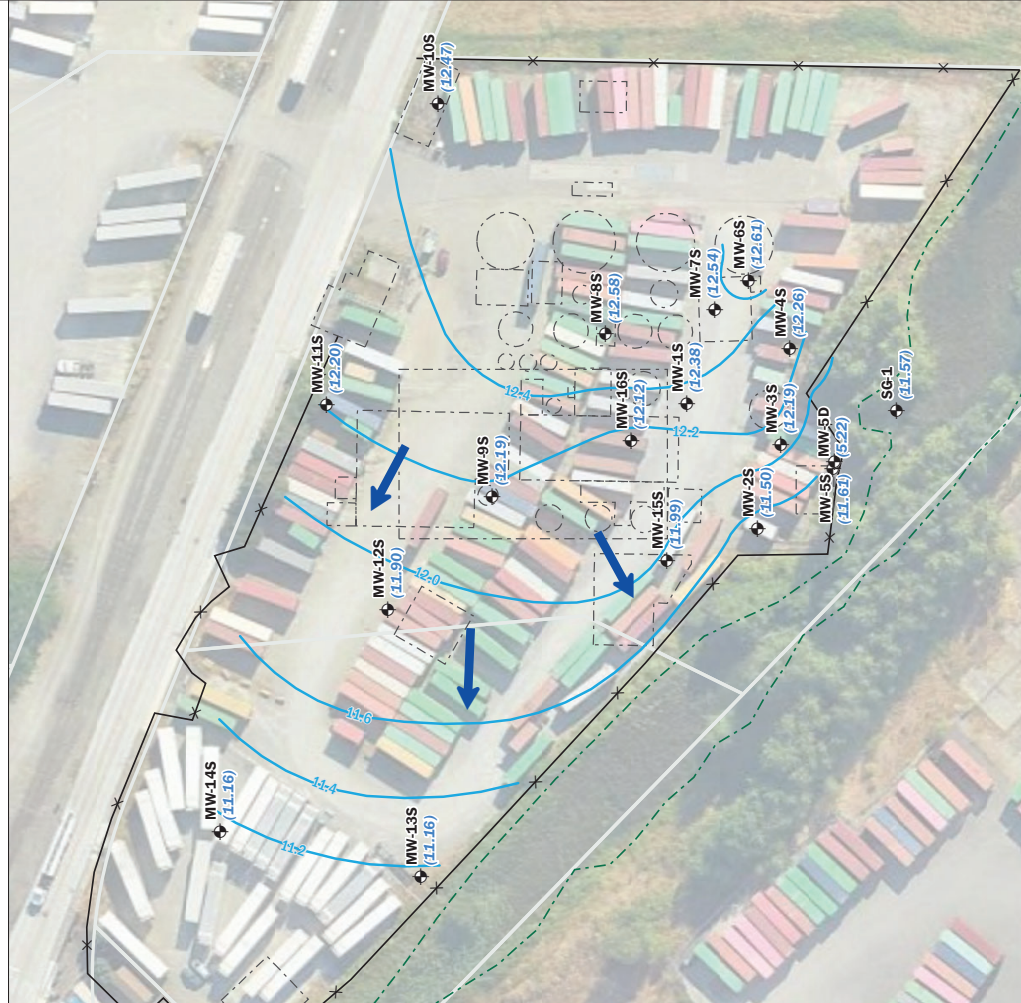
FIGURE NO.
2

Note: Elevations are relative to NAVD88 vertical datum. Elevations relative to MLLW vertical datum are 2.4 feet higher.
 Note: Cross Section location is depicted on Figure 5

January 2014



October 2013



Note: Well MW-5D is in the deeper groundwater zone, so it is not included for contouring shallow groundwater elevations.

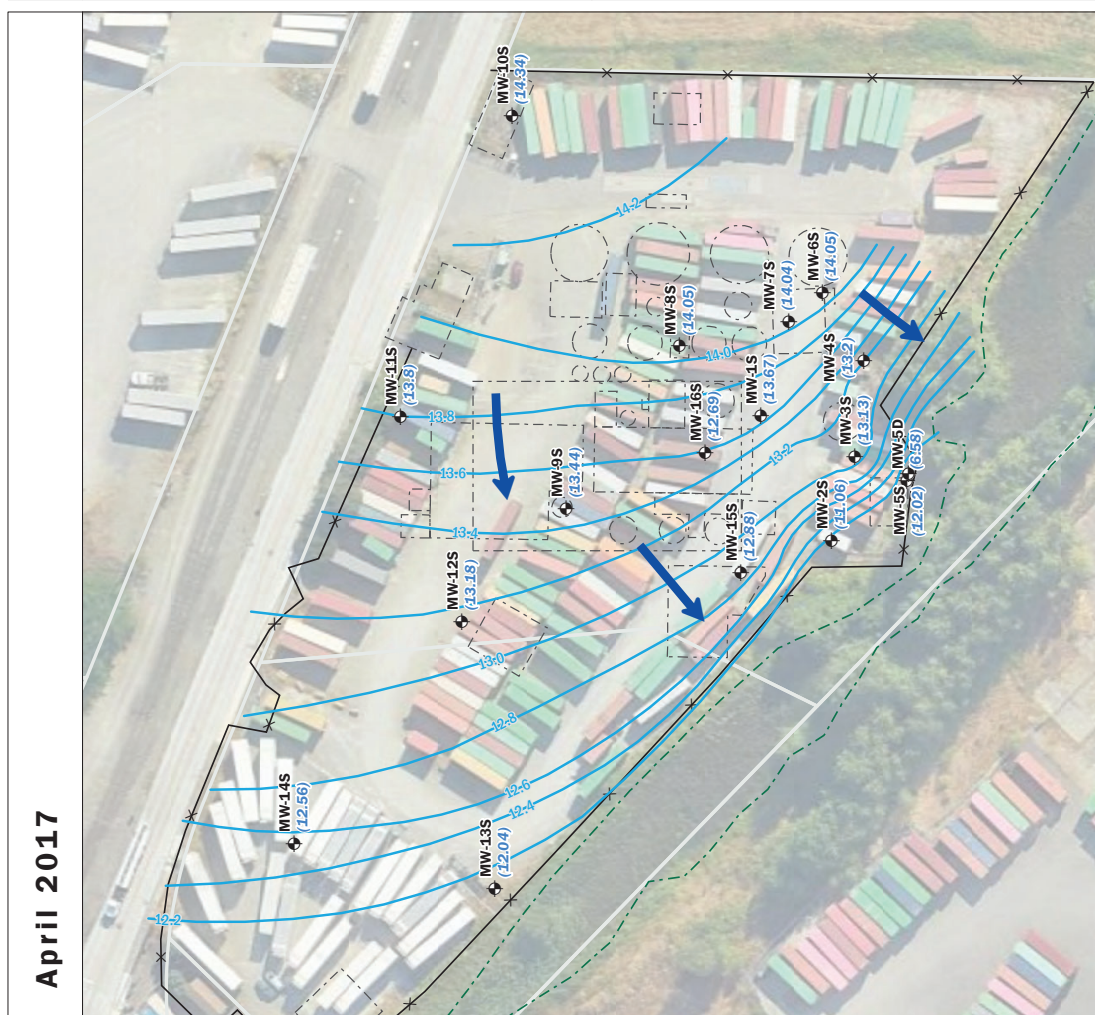
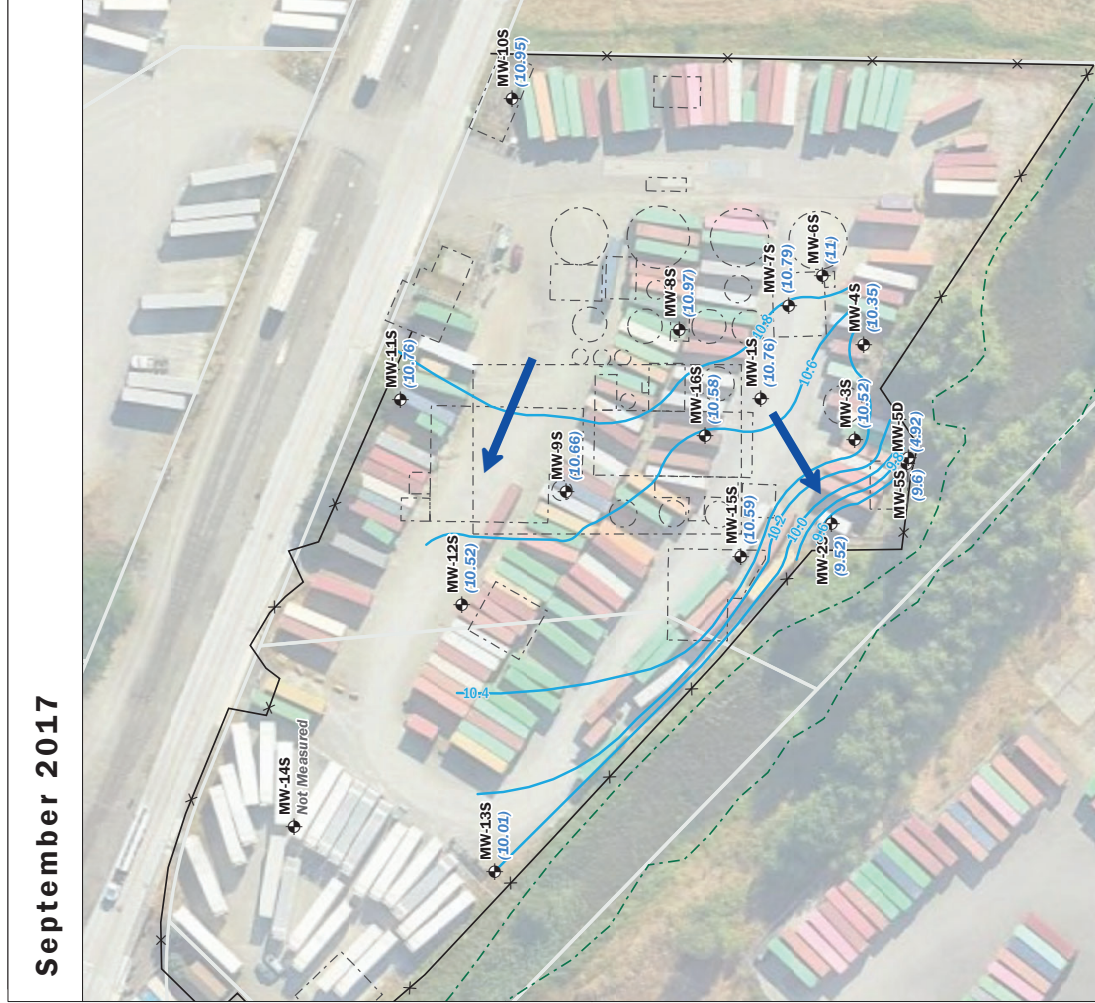
Note: Elevations are relative to NAVD88 vertical datum. Elevations relative to MLLW vertical datum are 2.4 feet higher.

- Generalized Groundwater Flow Direction for Shallow Groundwater Zone
- Groundwater Elevation Contour for Shallow Groundwater Zone
- Monitoring Well
- Fence
- Former Structure
- Stormwater Ditch Boundary
- Pierce County Tax Parcel

Seasonal Shallow Groundwater Elevation Contours (2013-2014)

RI/FSY/CAP
Former PQ Corporation Site
Tacoma, Washington

	REVISED	BY	FIGURE NO.
	OCT2023	AGS / RMP	3



September 2017

April 2017



Note: Well MW-5D is in the deeper groundwater zone, so it is not included for contouring shallow groundwater elevations.
 Note: Elevations are relative to NAVD88 vertical datum. Elevations relative to MLLW vertical datum are 2.4 feet higher.

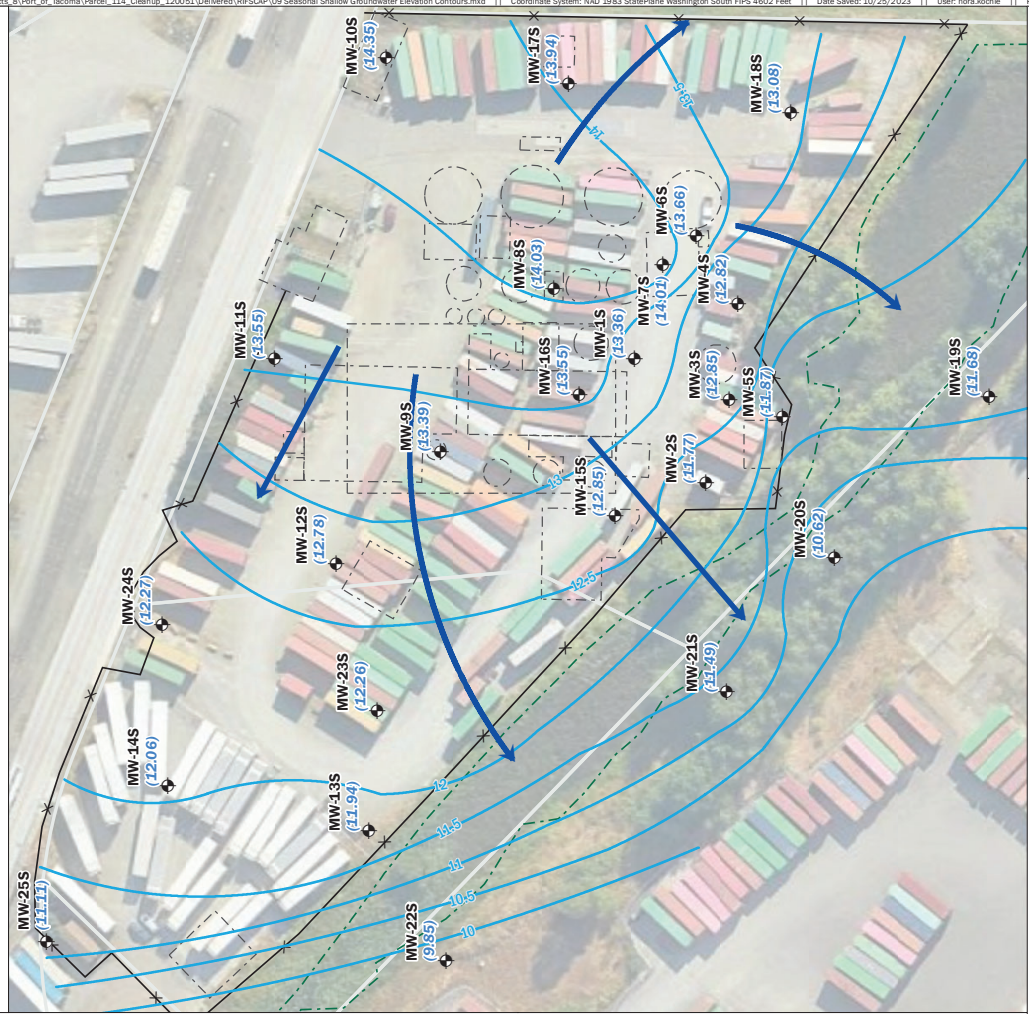
- Generalized Groundwater Flow Direction for Shallow Groundwater Zone
- Groundwater Elevation Contour for Shallow Groundwater Zone
- Monitoring Well
- Fence
- Former Structure
- Stormwater Ditch Boundary
- Pierce County Tax Parcel

Seasonal Shallow Groundwater Elevation Contours (2017)

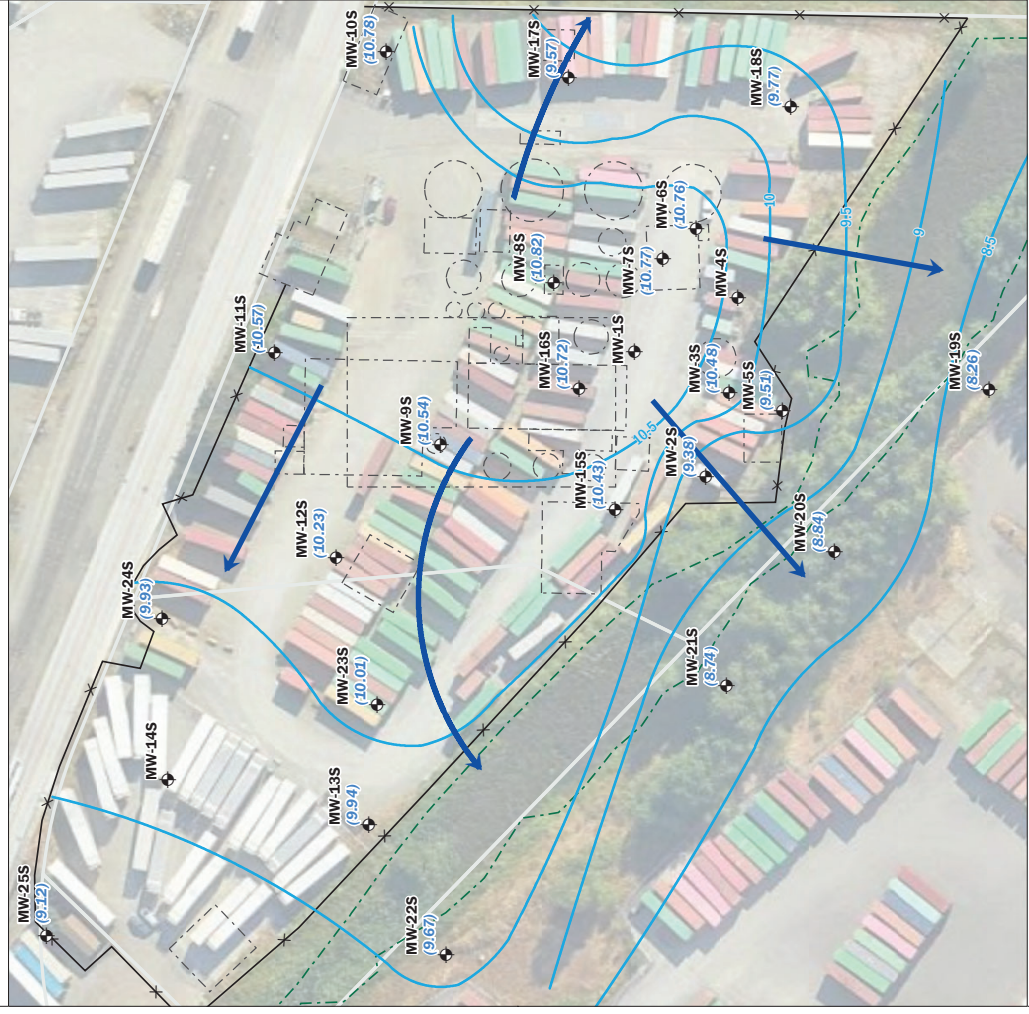
RI/FS/CAP
 Former PQ Corporation Site
 Tacoma, Washington

	REVISED	BY	FIGURE NO.
	OCT2023	AGS / RMP	4

January 2023



October 2022



Note: Well MW-5D is in the deeper groundwater zone, so it is not included for contouring shallow groundwater elevations.
 Note: Elevations are relative to NAVD88 vertical datum. Elevations relative to MLLW vertical datum are 2.4 feet higher.

- Generalized Groundwater Flow Direction for Shallow Groundwater Zone
- Groundwater Elevation Contour for Shallow Groundwater Zone
- Monitoring Well
- Fence
- Former Structure
- Stormwater Ditch Boundary
- Pierce County Tax Parcel

Seasonal Shallow Groundwater Elevation Contours (2022-2023)

Former PQ Corporation Site
 Tacoma, Washington

Aspect CONSULTING	DATE	REV	BY
	OCT2023	12095L	MMR/NLK
FIGURE NO.			5

ATTACHMENT A

Exploration Logs

Coarse-Grained Soils - More than 50% ¹ Retained on No. 200 Sieve	Gravels - More than 50% ¹ of Coarse Fraction Retained on No. 4 Sieve	≤ 5% Fines	GW	Well-graded GRAVEL Well-graded GRAVEL WITH SAND
			GP	Poorly-graded GRAVEL Poorly-graded GRAVEL WITH SAND
			GM	SILTY GRAVEL SILTY GRAVEL WITH SAND
	Sands - 50% ¹ or More of Coarse Fraction Passes No. 4 Sieve	≥ 15% Fines	GC	CLAYEY GRAVEL CLAYEY GRAVEL WITH SAND
			SW	Well-graded SAND Well-graded SAND WITH GRAVEL
			SP	Poorly-graded SAND Poorly-graded SAND WITH GRAVEL
Fine-Grained Soils - 50% ¹ or More Passes No. 200 Sieve	Sands - 50% ¹ or More of Coarse Fraction Passes No. 4 Sieve	≤ 5% Fines	SM	SILTY SAND SILTY SAND WITH GRAVEL
			SC	CLAYEY SAND CLAYEY SAND WITH GRAVEL
			Silt and Clays Liquid Limit Less than 50%	ML
	CL	LEAN CLAY SANDY or GRAVELLY LEAN CLAY LEAN CLAY WITH SAND LEAN CLAY WITH GRAVEL		
	OL	ORGANIC SILT SANDY or GRAVELLY ORGANIC SILT ORGANIC SILT WITH SAND ORGANIC SILT WITH GRAVEL		
	Silt and Clays Liquid Limit 50% or More	MH	ELASTIC SILT SANDY or GRAVELLY ELASTIC SILT ELASTIC SILT WITH SAND ELASTIC SILT WITH GRAVEL	
CH		FAT CLAY SANDY or GRAVELLY FAT CLAY FAT CLAY WITH SAND FAT CLAY WITH GRAVEL		
OH		ORGANIC CLAY SANDY or GRAVELLY ORGANIC CLAY ORGANIC CLAY WITH SAND ORGANIC CLAY WITH GRAVEL		
Highly Organic Soils			PT	PEAT and other mostly organic soils

"WITH SILT" or "WITH CLAY" means 5 to 15% silt and clay, denoted by a "-" in the group name; e.g., SP-SM • "SILTY" or "CLAYEY" means >15% silt and clay • "WITH SAND" or "WITH GRAVEL" means 15 to 30% sand and gravel. • "SANDY" or "GRAVELLY" means >30% sand and gravel. • "Well-graded" means approximately equal amounts of fine to coarse grain sizes • "Poorly graded" means unequal amounts of grain sizes • Group names separated by "/" means soil contains layers of the two soil types; e.g., SM/ML.

Soils were described and identified in the field in general accordance with the methods described in ASTM D2488. Where indicated in the log, soils were classified using ASTM D2487 or other laboratory tests as appropriate. Refer to the report accompanying these exploration logs for details.

1. Estimated or measured percentage by dry weight
2. (SPT) Standard Penetration Test (ASTM D1586)
3. Determined by SPT, DCPT (ASTM STP399) or other field methods. See report text for details.

MC	=	Natural Moisture Content	GEOTECHNICAL LAB TESTS
GS	=	Grain Size Distribution	
FC	=	Fines Content (% < 0.075 mm)	
GH	=	Hydrometer Test	
AL	=	Atterberg Limits	
C	=	Consolidation Test	
Str	=	Strength Test	
OC	=	Organic Content (% Loss by Ignition)	
Comp	=	Proctor Test	
K	=	Hydraulic Conductivity Test	
SG	=	Specific Gravity Test	

Organic Chemicals			CHEMICAL LAB TESTS
BTEX	=	Benzene, Toluene, Ethylbenzene, Xylenes	
TPH-Dx	=	Diesel and Oil-Range Petroleum Hydrocarbons	
TPH-G	=	Gasoline-Range Petroleum Hydrocarbons	
VOCs	=	Volatile Organic Compounds	
SVOCs	=	Semi-Volatile Organic Compounds	
PAHs	=	Polycyclic Aromatic Hydrocarbon Compounds	
PCBs	=	Polychlorinated Biphenyls	
Metals			
RCRA8	=	As, Ba, Cd, Cr, Pb, Hg, Se, Ag, (d = dissolved, t = total)	
MTCA5	=	As, Cd, Cr, Hg, Pb (d = dissolved, t = total)	
PP-13	=	Ag, As, Be, Cd, Cr, Cu, Hg, Ni, Pb, Sb, Se, Tl, Zn (d=dissolved, t=total)	

PID	=	Photoionization Detector	FIELD TESTS
Sheen	=	Oil Sheen Test	
SPT ²	=	Standard Penetration Test	
NSPT	=	Non-Standard Penetration Test	
DCPT	=	Dynamic Cone Penetration Test	

Descriptive Term	Size Range and Sieve Number	COMPONENT DEFINITIONS
Boulders	= Larger than 12 inches	
Cobbles	= 3 inches to 12 inches	
Coarse Gravel	= 3 inches to 3/4 inches	
Fine Gravel	= 3/4 inches to No. 4 (4.75 mm)	
Coarse Sand	= No. 4 (4.75 mm) to No. 10 (2.00 mm)	
Medium Sand	= No. 10 (2.00 mm) to No. 40 (0.425 mm)	
Fine Sand	= No. 40 (0.425 mm) to No. 200 (0.075 mm)	
Silt and Clay	= Smaller than No. 200 (0.075 mm)	

% by Weight	Modifier	% by Weight	Modifier	ESTIMATED¹ PERCENTAGE	
<1	=	Subtrace	15 to 25 =		Little
1 to <5	=	Trace	30 to 45 =		Some
5 to 10	=	Few	>50 =		Mostly

Dry	=	Absence of moisture, dusty, dry to the touch	MOISTURE CONTENT
Slightly Moist	=	Perceptible moisture	
Moist	=	Damp but no visible water	
Very Moist	=	Water visible but not free draining	
Wet	=	Visible free water, usually from below water table	

Non-Cohesive or Coarse-Grained Soils			RELATIVE DENSITY
Density³	SPT² Blows/Foot	Penetration with 1/2" Diameter Rod	
Very Loose	= 0 to 4	≥ 2'	
Loose	= 5 to 10	1' to 2'	
Medium Dense	= 11 to 30	3" to 1'	
Dense	= 31 to 50	1" to 3"	
Very Dense	= > 50	< 1"	

Cohesive or Fine-Grained Soils			CONSISTENCY
Consistency³	SPT² Blows/Foot	Manual Test	
Very Soft	= 0 to 1	Penetrated >1" easily by thumb. Extrudes between thumb & fingers.	
Soft	= 2 to 4	Penetrated 1/4" to 1" easily by thumb. Easily molded.	
Medium Stiff	= 5 to 8	Penetrated >1/4" with effort by thumb. Molded with strong pressure.	
Stiff	= 9 to 15	Indented ~1/4" with effort by thumb.	
Very Stiff	= 16 to 30	Indented easily by thumbnail.	
Hard	= > 30	Indented with difficulty by thumbnail.	

GEOLOGIC CONTACTS		
Observed and Distinct	Observed and Gradual	Inferred

	Exploration Log Key
---	---------------------

Logo

ERM
 915 118th Avenue SE, Suite 130
 Bellevue, WA 98005
 Telephone: 425-462-8591
 Fax: 425-455-3573

WELL NUMBER MW-1S

CLIENT PQ Corporation PROJECT NAME Limited Site Investigation
 PROJECT NUMBER 120558 PROJECT LOCATION Tacoma, Washington
 DATE STARTED 9/9/10 COMPLETED 9/9/10 GROUND ELEVATION _____ HOLE SIZE 8.25 inches
 DRILLING CONTRACTOR Cascade Drilling GROUND WATER LEVELS:
 DRILLING METHOD Hollow Stem Auger ∇ AT TIME OF DRILLING 3.00 ft
 LOGGED BY C. Gorman CHECKED BY _____ AT END OF DRILLING ---
 NOTES _____ AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data	WELL DIAGRAM
0				(SP) Black, medium grained sand with concrete debris, moist.		
4.0		SP		(SP) Black, medium grained sand with trace gravel, wet, no odors.	PID = 0	
5		SP		(SP) Black, medium grained sand with trace gravel, wet, no odors.	PID = 0	
8.0		SM		(SM) Black silty fine sand, wet, sulfur odor.		
8.5		SP		(SP) Black, medium grained sand, wet, sulfur odor.		
10		SP		(SP) Black, medium grained sand, wet, sulfur odor.		
12.5		ML		(ML) Gray clayey silt, saturated.		
13.0				Bottom of borehole at 13.0 feet.		

GENERAL BH / TP / WELL - GINT STD US.GDT - 11/17/10 14:53 - C:\PROGRAM FILES\GINT\PROJECTS\PQ CORP.GPJ

Logo

ERM
 915 118th Avenue SE, Suite 130
 Bellevue, WA 98005
 Telephone: 425-462-8591
 Fax: 425-455-3573

WELL NUMBER MW-2S

CLIENT PQ Corporation PROJECT NAME Limited Site Investigation
 PROJECT NUMBER 120558 PROJECT LOCATION Tacoma, Washington
 DATE STARTED 9/9/10 COMPLETED 9/9/10 GROUND ELEVATION _____ HOLE SIZE 8.25 inches
 DRILLING CONTRACTOR Cascade Drilling GROUND WATER LEVELS:
 DRILLING METHOD Hollow Stem Auger ∇ AT TIME OF DRILLING 3.50 ft
 LOGGED BY C. Gorman CHECKED BY _____ AT END OF DRILLING ---
 NOTES _____ AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data	WELL DIAGRAM
0						
		SP		(SP) Black, medium grained sand with debris (concrete and brick), moist. Two - three inches of sodium silicate at approximately 2 feet.	PID = 104	
4.0		SP		(SP) Black, medium grained sand, wet.	PID = 34.6	
5.5		SP		(SP) Black, medium grained sand, with trace black silt.		
7.0		SM		(SM) Black, silty fine sand, saturated, heavy petroleum sheen.		
13.0						

Bottom of borehole at 13.0 feet.

GENERAL BH / TP / WELL - GINT STD US.GDT - 11/17/10 14:53 - C:\PROGRAM FILES\GINT\PROJECTS\PQ CORP.GPJ

Logo

ERM
 915 118th Avenue SE, Suite 130
 Bellevue, WA 98005
 Telephone: 425-462-8591
 Fax: 425-455-3573

WELL NUMBER MW-3S

CLIENT PQ Corporation PROJECT NAME Limited Site Investigation
 PROJECT NUMBER 120558 PROJECT LOCATION Tacoma, Washington
 DATE STARTED 9/9/10 COMPLETED 9/9/10 GROUND ELEVATION _____ HOLE SIZE 8.25 inches
 DRILLING CONTRACTOR Cascade Drilling GROUND WATER LEVELS:
 DRILLING METHOD Hollow Stem Auger ∇ AT TIME OF DRILLING 3.00 ft
 LOGGED BY C. Gorman CHECKED BY _____ AT END OF DRILLING ---
 NOTES _____ AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data	WELL DIAGRAM
0				(SP) Black, medium grained sand, moist. No odors. Sheen observed on water surface.		<p>Labels in diagram: Cement Seal Bentonite Seal 2" Well Pipe 2/12 Silica Sand .010 inch Well Screen</p>
4.0		SP	∇	(SP) As above, with cobbles.	PID = 0	
5		SP			PID = 0	
7.0		SP		(SP) Black medium grained sand, wet, wood debris between 8.5 feet to 10 feet.		
10		SP				
13.0						

Bottom of borehole at 13.0 feet.

GENERAL BH / TP / WELL - GINT STD US.GDT - 11/17/10 14:53 - C:\PROGRAM FILES\GINT\PROJECTS\I\Q CORP.GPJ

Logo

ERM
915 118th Avenue SE, Suite 130
Bellevue, WA 98005
Telephone: 425-462-8591
Fax: 425-455-3573

WELL NUMBER MW-4S

CLIENT PQ Corporation PROJECT NAME Limited Site Investigation

PROJECT NUMBER 120558 PROJECT LOCATION Tacoma, Washington

DATE STARTED 9/9/10 COMPLETED 9/9/10 GROUND ELEVATION _____ HOLE SIZE 8.25 inches

DRILLING CONTRACTOR Cascade Drilling GROUND WATER LEVELS:

DRILLING METHOD Hollow Stem Auger ∇ AT TIME OF DRILLING 3.00 ft

LOGGED BY C. Gorman CHECKED BY _____ AT END OF DRILLING ---

NOTES _____ AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data	WELL DIAGRAM
0						
5		SP		(SP) Black, medium grained sand, moist. Sulfur odor between 7 feet and 10 feet. ∇	PID = 0 PID = 0	
10		ML		(ML) Gray, clayey silt, saturated.		

Bottom of borehole at 13.0 feet.






















GENERAL BH / TP / WELL - GINT STD US.GDT - 11/17/10 14:53 - C:\PROGRAM FILES\GINT\PROJECTS\I\Q CORP.GPJ

Logo

ERM
 915 118th Avenue SE, Suite 130
 Bellevue, WA 98005
 Telephone: 425-462-8591
 Fax: 425-455-3573

WELL NUMBER MW-5D

CLIENT PQ Corporation PROJECT NAME Limited Site Investigation
 PROJECT NUMBER 120558 PROJECT LOCATION Tacoma, Washington
 DATE STARTED 9/10/10 COMPLETED 9/10/10 GROUND ELEVATION _____ HOLE SIZE 8.25 inches
 DRILLING CONTRACTOR Cascade Drilling GROUND WATER LEVELS:
 DRILLING METHOD Hollow Stem Auger ∇ AT TIME OF DRILLING 3.00 ft
 LOGGED BY C. Gorman CHECKED BY _____ AT END OF DRILLING ---
 NOTES _____ AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data	WELL DIAGRAM
0						
1.0				Brick and black medium grained sand with gravel, moist.		
3.0				Gravel and sodium silicate, wet.		
3.0				(ML) Gray silty-fine clayey sand (moist). 7 feet to 8.5 as above, with wood debris.	PID = 0	
5		ML			PID = 0	
10.0				(ML) Gray silty-fine clayey sand with interbedded lenses of medium sand, moist.		
10.0		ML				
15						
16.0				(SP) Black medium sand, wet.		
16.0		SP				
19.0				(SP) Black medium sand with thin interbedded lenses of gray silty-fine clayey sand, wet.		
19.0		SP				
22.0				(SP) Black medium sand with sea shells, wet.		
22.0		SP				
25.0						
25.0		SP				

Bottom of borehole at 25.0 feet.


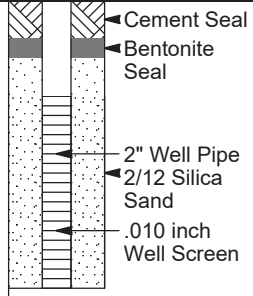





GENERAL BH / TP / WELL - GINT STD US.GDT - 11/17/10 14:54 - C:\PROGRAM FILES\GINT\PROJECTS\PQ CORP.GPJ

Logo

ERM
 915 118th Avenue SE, Suite 130
 Bellevue, WA 98005
 Telephone: 425-462-8591
 Fax: 425-455-3573

WELL NUMBER MW-5S

CLIENT PQ Corporation PROJECT NAME Limited Site Investigation
 PROJECT NUMBER 120558 PROJECT LOCATION Tacoma, Washington
 DATE STARTED 9/10/10 COMPLETED 9/10/10 GROUND ELEVATION _____ HOLE SIZE 8.25 inches
 DRILLING CONTRACTOR Cascade Drilling GROUND WATER LEVELS:
 DRILLING METHOD Hollow Stem Auger ∇ AT TIME OF DRILLING 3.00 ft
 LOGGED BY C. Gorman CHECKED BY _____ AT END OF DRILLING ---
 NOTES _____ AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	Environmental Data	WELL DIAGRAM
0						
		SP		1.0 (SP) Black medium sand, moist.	PID = 0 PID = 3.8	
				Sodium silicate		
				3.0 ∇ Gravel and sand with sodium silicate, wet.		
5				5.5 (SM) Black silty fine sand, wet.		
		SM				
				8.0		

Bottom of borehole at 8.0 feet.



Monitoring Well Construction Log

Project Number
120051

Well Number
MW-6S

Sheet
1 of 1

Project Name: Former PQ Corporation Site

Ground Surface Elev. 15.05

Location: 1202 Taylor Way, Tacoma, WA

Top of Casing Elev. 14.56

Driller/Method: Holt Services / Direct Push

Depth to Water (ft BGS)

Sampling Method: Continuous Core

Start/Finish Date 10/17/2013

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	Depth (ft)
	10-in flush mount monument, thermos cap, concrete surface seal (0-1 ft)			0			Moist, brown, sandy GRAVEL (GP); medium to coarse sand with cobbles	
	10/17/2013		MW-6S-1-1.5	0				
	3/8-in hydrated bentonite chips (1-1.5 ft)	S-1					Wet, brown, black and red SAND (SP); fine to medium sand, trace coarse sand	
	2-in diameter PVC blank (0-2.5 ft)		MW-6S-2-4				Wet, black and red SAND (SP); fine to medium sand	
5				0				5
10	10/20 pre-packed silica sand filter pack (1.5-12.5 ft)	S-2		0			Wet, gray, interbedded, silty SAND and SILT (ML/SM)	
	2-in diameter PVC pre-packed 10 slot screen (2.5-12.5 ft)		MW-6S-7-9				Wet, black and red SAND (SP); fine to medium sand	
10				0				10
		S-3		0			Wet, gray, sandy SILT (ML); fine sand, hydrogen sulfide odor	
				0			Wet, black and red SAND (SP); fine to medium sand	
15	Formation heave (12.5-15 ft)			0				15
							Bottom of boring at 15 ft bgs	
							Ecology Well Tag BIJ-779	

Sampler Type:

- No Recovery
- Continuous Core

PID - Photoionization Detector

- Static Water Level
- Water Level (ATD)

Logged by: **SDM**

Approved by: **DFR**



Monitoring Well Construction Log

Project Number
120051

Well Number
MW-7S

Sheet
1 of 1

Project Name: **Former PQ Corporation Site**

Ground Surface Elev. 15.05

Location: 1202 Taylor Way, Tacoma, WA

Top of Casing Elev. 14.55

Driller/Method: Holt Services / Direct Push

Depth to Water (ft BGS)

Sampling Method: Continuous Core

Start/Finish Date 10/17/2013

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	Depth (ft)
0	10-in flush mount monument, thermos cap, concrete surface seal (0-1 ft)						Moist, dark brown, gravelly SAND (SW); fine to coarse sand	
0	3/8-in hydrated bentonite chips (1-2 ft)							
0	10/17/2013							
0	2-in diameter PVC blank (0-3 ft)	S-1	MW-7S-1-1.5	0				
0				0			Wet	
0			MW-7S-2-4	0				
0	10/20 pre-packed silica sand filter pack (2-13 ft)			0				
5				0			Wet, black and red, SAND (SP); medium to coarse sand, trace brown gravel	5
0	2-in diameter PVC pre-packed 10 slot screen (3-13 ft)	S-2		0			Wet, interbedded, black and red SAND (SP) and gray-brown, disturbed, silty SAND (SM)	
0				0			Wet, gray-brown, sandy SILT (ML); fine sand with organics (fibrous roots), hydrogen sulfide odor, disturbed	
0			MW-7S-7-9	0			Wet, black and red, SAND (SP); fine to medium sand	
0				0				
0				0				
0		S-3		0			Wet, gray, SILT (ML); scattered organics (fibrous roots)	
0	Formation heave (13-15 ft)			0				
15							Bottom of boring at 15 ft bgs	15
							Ecology Well Tag BIJ-778	

Sampler Type:

- No Recovery
- Continuous Core

PID - Photoionization Detector

- Static Water Level
- Water Level (ATD)

Logged by: **SDM**

Approved by: **DFR**



Monitoring Well Construction Log

Project Number
120051

Well Number
MW-8S

Sheet
1 of 1

Project Name: Former PQ Corporation Site

Ground Surface Elev. 14.83

Location: 1202 Taylor Way, Tacoma, WA

Top of Casing Elev. 14.41

Driller/Method: Holt Services / Direct Push

Depth to Water (ft BGS)

Sampling Method: Continuous Core

Start/Finish Date 10/16/2013

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	Depth (ft)
0	10-in flush mount monument, thermos cap, concrete surface seal (0-1 ft)		MW-8S-1-1.5	0		Moist, dark brown, gravelly SAND (SW); fine to coarse sand		
0	10/16/2013			0		Wet, black and red, slightly silty SAND (SP); fine to medium sand		
0	3/8-in hydrated bentonite chips (1-1.5 ft)	S-1	MW-8S-2-4	0				
0	2-in diameter PVC blank (0-2.5 ft)			0				5
0	10/20 pre-packed silica sand filter pack (1.5-12.5 ft)	S-2		0		Light gray silt lens		
0	2-in diameter PVC pre-packed 10 slot screen (2.5-12.5 ft)		MW-8S-8-10	0		Wet, brown-gray, silty SAND (SM); fine sand, organics (wood and fibrous roots), hydrogen sulfide odor		
0				0		No sample recovery 10 to 15 feet		10
0		S-3						
0	Formation heave (12.5-15 ft)							
0								15
0							Bottom of boring at 15 ft bgs	
0							Ecology Well Tag BIJ-775	

Sampler Type:

- No Recovery
- Continuous Core

PID - Photoionization Detector

- Static Water Level
- Water Level (ATD)

Logged by: SDM

Approved by: DFR



Monitoring Well Construction Log

Project Number
120051

Well Number
MW-9S

Sheet
1 of 1

Project Name: Former PQ Corporation Site

Ground Surface Elev. 14.69

Location: 1202 Taylor Way, Tacoma, WA

Top of Casing Elev. 14.24

Driller/Method: Holt Services / Direct Push

Depth to Water (ft BGS)

Sampling Method: Continuous Core

Start/Finish Date 10/15/2013

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	Depth (ft)
0	10-in flush mount monument, thermos cap, concrete surface seal (0-1 ft)		MW-9S-0.5	0			Slightly moist, brown and gray, sandy GRAVEL (GW); fine to coarse sand, 1-6 inch chunks of brick and concrete	
	3/8-in hydrated bentonite chips (1-2 ft)		MW-9S-1-2					
	10/15/2013							
	2-in diameter PVC blank (0-3 ft)	S-1		0			Wet, black and red SAND (SP); medium to coarse sand, slight petroleum odor	
5	10/20 pre-packed silica sand filter pack (2-13 ft)		MW-9S-3-5	0			Wet, black and red, slightly silty SAND (SW); fine to medium sand, slight petroleum odor from 2-7 ft, strong odor at 4 ft	5
	2-in diameter PVC pre-packed 10 slot screen (3-13 ft)	S-2		0			Wet, light gray-brown, SILT (ML); disturbed	
							Wet, black and red, SAND (SP); fine to medium sand	
							Wet, light gray-brown, SILT (ML)	
							Wet, black and red, SAND (SP); fine to medium sand	
10				0			Wet, gray SILT (ML) and silty SAND (SM); hydrogen sulfide odor	10
		S-3		0			Wet, black and red, SAND (SP); fine to medium sand	
	Formation heave (13-15 ft)			0			Wet, gray-brown, SILT (ML); hydrogen sulfide odor, organics (roots)	
15				0			Bottom of boring at 15 ft bgs	15
							Ecology Well Tag BIJ-772	

Sampler Type:

- No Recovery
- Continuous Core

PID - Photoionization Detector

- Static Water Level
- Water Level (ATD)

Logged by: SDM

Approved by: DFR



Monitoring Well Construction Log

Project Number
120051

Well Number
MW-10S

Sheet
1 of 1

Project Name: **Former PQ Corporation Site**

Ground Surface Elev. 15.25

Location: 1202 Taylor Way, Tacoma, WA

Top of Casing Elev. 14.88

Driller/Method: Holt Services / Direct Push

Depth to Water (ft BGS)

Sampling Method: Continuous Core

Start/Finish Date 10/16/2013

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	Depth (ft)
15	10-in flush mount monument, thermos cap, concrete surface seal (0-1 ft) 3/8-in hydrated bentonite chips (1-2 ft) 10/16/2013					ASPHALT		
	2-in diameter PVC blank (0-2.75 ft)	S-1	MW-10S-2-4	0		Moist, brown, slightly silty, sandy, GRAVEL (GW); with cobbles		
	10/20 pre-packed silica sand filter pack (2 -12.75 ft)			0		Wet, black and red, slightly silty SAND (SP)		
5			MW-10S-4.5-6			Silty sand (SM) lens at 3 ft		5
10	2-in diameter PVC pre-packed 10 slot screen (2.75 -12.75 ft)	S-2	MW-10S-7-9	0		Stained black from 4.5 to 6.5 ft, slightly silty		10
		S-3		0		Wet, gray-brown, slightly sandy SILT (ML); with scattered organics, hydrogen sulfide odor, interbedded with SAND (SP); medium sand and black/mottled, organic SILT (OL)		
15	Formation heave (12.75-15 ft)			0		Wet, black, organic SILT (OL); with numerous organics (fibrous roots)		15
						Bottom of boring at 15 ft bgs		
						Ecology Well Tag BIJ-774		

Sampler Type:

- No Recovery
- Continuous Core

PID - Photoionization Detector

- Static Water Level
- Water Level (ATD)

Logged by: **SDM**

Approved by: **DFR**



Monitoring Well Construction Log

Project Number
120051

Well Number
MW-11S

Sheet
1 of 1

Project Name: **Former PQ Corporation Site**

Ground Surface Elev. 15.24

Location: 1202 Taylor Way, Tacoma, WA

Top of Casing Elev. 14.85

Driller/Method: Holt Services / Direct Push

Depth to Water (ft BGS)

Sampling Method: Continuous Core

Start/Finish Date 10/16/2013

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	Depth (ft)
15	10-in flush mount monument, thermos cap, concrete surface seal (0-1 ft) 3/8-in hydrated bentonite chips (1-1.5 ft) 2-in diameter PVC blank (0-2.5 ft) 10/16/2013	S-1	MW-11S-1-1.5	0		ASPHALT	Slightly moist, brown, gravelly SAND (SW) with cobbles; fine to coarse sand	
5	10/20 pre-packed silica sand filter pack (1.5-12.5 ft)	S-2	MW-11S-3-5	0		Wet	Wet, black and red, SAND (SP); fine to medium sand, trace coarse sand	5
10	2-in diameter PVC pre-packed 10 slot screen (2.5-12.5 ft)	S-3	MW-11S-7-9	0			Wet, dark gray, interbedded, SILT (ML) and black and red, SAND (SP); hydrogen sulfide odor	10
15	Formation heave (12.5-15 ft)			0			Bottom of boring at 15 ft bgs	15
							Ecology Well Tag BIJ-773	

Sampler Type:

- No Recovery
- Continuous Core

PID - Photoionization Detector

- Static Water Level
- Water Level (ATD)

Logged by: **SDM**

Approved by: **DFR**



Former PQ Corporation - 120051

Monitoring Well Log

Project Address & Site Specific Location

Coordinates (Lat, Lon WGS84)

Exploration Number

1202 Taylor Way, Tacoma, WA 98421., Central of Taylor Way property

47.2744, -122.3963

MW-12D

Contractor

Equipment

Sampling Method

Ground Surface Elev.

Ecology Well Tag No.
BPP-990

Holocene

Direct push rig

Percussion hammer

14.7'

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev.

Depth to Water (Below GS)

Casey & Don

Direct push

10/17/2022

14.24'

9.1' (Static)

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
0		8-in flush mount monument set in concrete			PID=0 Sheen=None		SAND WITH SILT AND GRAVEL (SP-SM); slightly moist, light brown; fine to medium sand with few fines; fine subrounded to subangular gravel.	
5		3/8-in hydrated bentonite chip seal, NSF 60			PID=0 Sheen=None		SAND (SP); wet, dark gray with red particles; fine to medium sand with trace fines. 1-2" of sodium silicate layer; 2" of silt lense below.	
10		2-in, threaded schedule 40 PVC well casing			PID=0 Sheen=None		becomes wet	
15		12/20 silica sand filter pack			PID=0 Sheen=None		begins transitioning to fine sand with silt	
20		2-in, prepacked 0.010-in (10-slot) slotted schedule 40 PVC screen			PID=0 Sheen=None		SILT WITH SAND (ML); dark brown; silt with fine sand & wood debris. 4" sand lense	
25		Bottom plug			PID=0 Sheen=None		become wet; water has a brown color.	
					PID=0 Sheen=None		SILT (ML); wet, dark gray; woody/peat material. Native	
					PID=0 Sheen=None		SAND WITH SILT (SP-SM); wet, dark gray; fine sand with few fines & trace coarse sand. < 1" trace fine sand layers < 1" trace fine sand layers 2 - 3" of wood/organic material	
					PID=0 Sheen=None		SAND (SP); wet, dark gray; fine to medium sand with few fines. small silt lense (< 1")	
							Bottom of exploration at 25 ft. bgs.	

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINT\PROJECTS\PQ CORP (PORT OF TOCOMA) - 120051 (NEW).GPJ April 20, 2023

Legend

- No Soil Sample Recovery
- Continuous core 1.85" ID

Water Level

Static Water Level

See Exploration Log Key for explanation of symbols

Logged by: MMR
Approved by: SJG 04/20/23

Exploration Log
MW-12D

Sheet 1 of 1



Monitoring Well Construction Log

Project Number
120051

Well Number
MW-12S

Sheet
1 of 1

Project Name: **Former PQ Corporation Site**

Ground Surface Elev. 15.47

Location: 1202 Taylor Way, Tacoma, WA

Top of Casing Elev. 14.98

Driller/Method: Holt Services / Direct Push

Depth to Water (ft BGS)

Sampling Method: Continuous Core

Start/Finish Date 10/15/2013

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	Depth (ft)
15	10-in flush mount monument, thermos cap, concrete surface seal (0-1 ft) 3/8-in hydrated bentonite chips (1-2 ft) 2-in diameter PVC blank (0-3 ft)	S-1	MW-12S-1-2	0			Slightly moist, brown, sandy GRAVEL (GW) Moist, brown, SAND (SP); fine to medium sand Moist, white, crystalline Sodium Silicate SAND (SP); fine sand	
5	10/20 pre-packed silica sand filter pack (2-13 ft) 2-in diameter PVC pre-packed 10 slot screen (3-13 ft)	S-2	MW-12S-6-8	0		Wet Black		5
10	Formation heave (13-15 ft)	S-3		0		Wet, gray and brown, silty SAND (SM); with numerous organics (fibrous roots), fine sand 1/2 inch organic silt lens at 10 ft 1/2 inch organic silt lens with roots at 12 ft		10
15				0		Wet, gray, SILT (ML); hydrogen sulfide odor Wet, black and red SAND (SW); fine to coarse sand, trace shell fragments Bottom of boring at 15 ft bgs Ecology Well Tag BIJ-771		15

Sampler Type:

- No Recovery
- Continuous Core

PID - Photoionization Detector

- Static Water Level
- Water Level (ATD)

Logged by: **SDM**

Approved by: **DFR**



Monitoring Well Construction Log

Project Number
120051

Well Number
MW-13S

Sheet
1 of 1

Project Name: Former PQ Corporation Site

Ground Surface Elev. 15.83

Location: 1202 Taylor Way, Tacoma, WA

Top of Casing Elev. 15.54

Driller/Method: Holt Services / Direct Push

Depth to Water (ft BGS)

Sampling Method: Continuous Core

Start/Finish Date 10/15/2013

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	Depth (ft)
15	10-in flush mount monument, thermos cap, concrete surface seal (0-1 ft) 3/8-in hydrated bentonite chips (1-2 ft) 2-in diameter PVC blank (0-3 ft)	S-1	MW-13S-1.5-3	0		Moist, brown, sandy GRAVEL (GW) with cobbles; fine to coarse sand		
5	10/15/2013 10/20 pre-packed silica sand filter pack (2-13 ft)		MW-13S-3-5	0		Moist, red-brown SAND (SP) with coarse sand sized brick fragments; fine to medium sand, trace coarse sand		5
10	2-in diameter PVC pre-packed 10 slot screen (3-13 ft)	S-2	MW-13S-6-8	0		Wet, black and red, slightly silty SAND (SP); fine to medium sand		
10				0		Wet, gray, SILT (ML)		
5		S-3		0		Wet, black and red, SAND (SW); fine to coarse sand		10
15	Formation heave (13-15 ft)			0		Wet, gray, SILT (ML)		15
0						Bottom of boring at 15 ft bgs		
						Ecology Well Tag BIJ-770		

Sampler Type:

- No Recovery
- Continuous Core

PID - Photoionization Detector

- Static Water Level
- Water Level (ATD)

Logged by: SDM

Approved by: DFR



Monitoring Well Construction Log

Project Number
120051

Well Number
MW-14S

Sheet
1 of 1

Project Name: Former PQ Corporation Site

Ground Surface Elev. 15.96

Location: 1202 Taylor Way, Tacoma, WA

Top of Casing Elev. 15.49

Driller/Method: Holt Services / Direct Push

Depth to Water (ft BGS)

Sampling Method: Continuous Core

Start/Finish Date 10/15/2013

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	Depth (ft)
15	10-in flush mount monument, thermos cap, concrete surface seal (0-1 ft) 3/8-in hydrated bentonite chips (1-2 ft)						Slightly moist, gray-brown, gravelly SAND (SW); fine to coarse sand with cobbles	
	2-in diameter PVC blank (0-3 ft)	S-1	MW-14S-2-4	0			Moist, red-brown, SAND (SP); fine to medium sand, trace coarse sand	
5	10/15/2013						Wet, black, slightly silty SAND (SP); fine to medium sand with scattered organics (fibrous roots)	5
10	10/20 pre-packed silica sand filter pack (2-13 ft)	S-2	MW-14S-5-7	0	0			
	2-in diameter PVC pre-packed 10 slot screen (3-13 ft)		MW-14S-7-9	0				
10				0				10
5		S-3		0			Wet, brown, SILT (ML)	
	Formation heave (13-15 ft)			0			Trace white medium sand and 0.5 inch woodchips Wet, black and red SAND (SP); fine to medium sand	
15				0			Bottom of boring at 15 ft bgs	15
0							Ecology Well Tag BIJ-769	

Sampler Type:

- No Recovery
- Continuous Core

PID - Photoionization Detector

- Static Water Level
- Water Level (ATD)

Logged by: SDM

Approved by: DFR



Monitoring Well Construction Log

Project Number
120051

Well Number
MW-15S

Sheet
1 of 1

Project Name: Former PQ Corporation Site

Ground Surface Elev. 14.43

Location: 1202 Taylor Way, Tacoma, WA

Top of Casing Elev. 13.97

Driller/Method: Holt Services / Direct Push

Depth to Water (ft BGS)

Sampling Method: Continuous Core

Start/Finish Date 10/17/2013

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	Depth (ft)
0	10-in flush mount monument, thermos cap, concrete surface seal (0-1 ft)						Moist, brown, sandy, GRAVEL (GW); fine to coarse sand, with organics (roots)	
0	10/17/2013						Moist, brown to black and red, slightly gravelly, SAND (SP); fine to medium sand, trace coarse sand	
0	3/8-in hydrated bentonite chips (1-1.5 ft)	S-1	MW-15S-1-1.5	0			Wet	
0	2-in diameter PVC blank (0-2.5 ft)						Wet, black and red SAND (SP); frequent pockets of silty sand or silt	5
5	10/20 pre-packed silica sand filter pack (1.5-12.5 ft)	S-2	MW-15S-2-4	0			Hydrogen sulfide odor from 6 to 15 ft	
5	2-in diameter PVC pre-packed 10 slot screen (2.5-12.5 ft)							
10		S-3		0			Trace organics (coarse sand sized shell fragments) from 12 to 13 ft	10
10								
15	Formation heave (12.5-15 ft)			0				15
15							Bottom of boring at 15 ft bgs	
							Ecology Well Tag BIJ-777	

MONITORING WELL FORMER PQ CORPORATION SITE.GPJ April 23, 2014

Sampler Type:

- No Recovery
- Continuous Core

PID - Photoionization Detector

- Static Water Level
- Water Level (ATD)

Logged by: SDM

Approved by: DFR



Former PQ Corporation - 120051

Monitoring Well Log

Project Address & Site Specific Location
1202 Taylor Way, Tacoma, WA 98421., Central of Taylor Way property

Coordinates (Lat, Lon WGS84)
47.2740, -122.3959

Exploration Number

MW-16D
Ecology Well Tag No.
BPP-989

Contractor

Equipment

Sampling Method

Ground Surface Elev.

Holocene

Direct push rig

Percussion hammer

14.5'

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev.

Casey & Don

Direct push

10/17/2022

13.83'

Depth to Water (Below GS)

8.5' (Static)

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
0		8-in flush mount monument set in concrete			PID=0 Sheen=None		SAND WITH SILT AND GRAVEL (SP-SM); slightly moist, medium brown; fine to medium sand with few fines; little subrounded to subangular fine gravel.	
0		3/8-in hydrated bentonite chip seal, NSF 60			PID=0 Sheen=None PID=1.2 Sheen=None		1.5" white process material	
5							SAND (SP); wet, dark gray/black with red; fine to coarse sand; few fines; few subrounded to subangular fine gravel.	5
5							wet; white process material.	
5					PID=1.5 Sheen=None		woody debris, strong hydro-carbon like odor	
5					PID=1.5 Sheen=None		2" silt lense	
5		▼ 10/24/2022			PID=1.6 Sheen=None		gravel content decreases to subtrace	
5					PID=1.8 Sheen=None		gravel content increases to few	10
10		2-in. threaded schedule 40 PVC well casing			PID=0.4 Sheen=None		SILT (ML); wet, gray; silt with subtrace fine sand; very soft; hydrocarbon-like odor.	
10					PID=0.3 Sheen=None			
10					PID=0.3 Sheen=None PID=0.3 Sheen=None			15
15					PID=0 Sheen=None PID=0 Sheen=None		SAND (SP); wet, dark gray with red; fine to coarse sand with few fines.	
15		12/20 silica sand filter pack					SANDY SILT (ML); wet, gray; silt with little fine sand & trace gravel.	
20					PID=0 Sheen=None PID=0 Sheen=None		SAND (SP); wet, black with red; fine to coarse sand with few fines.	20
20		2-in, prepacked 0.010-in (10-slot) slotted schedule 40 PVC screen						
25		Bottom plug					Bottom of exploration at 25 ft. bgs.	25

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINT\PROJECTS\PQ CORP (PORT OF TOCOMA) - 120051 (NEW).GPJ April 20, 2023

Legend

- No Soil Sample Recovery
- Continuous core 1.85" ID

Water Level

▼ Static Water Level

See Exploration Log Key for explanation of symbols

Logged by: MMR
Approved by: SJG 04/20/23

Exploration Log
MW-16D

Sheet 1 of 1



Monitoring Well Construction Log

Project Number
120051

Well Number
MW-16S

Sheet
1 of 1

Project Name: Former PQ Corporation Site

Ground Surface Elev. 14.69

Location: 1202 Taylor Way, Tacoma, WA

Top of Casing Elev. 14.3

Driller/Method: Holt Services / Direct Push

Depth to Water (ft BGS)

Sampling Method: Continuous Core

Start/Finish Date 10/16/2013

Depth / Elevation (feet)	Borehole Completion	Sample Type/ID	Tests	PID (ppm)	Blows/ 6"	Material Type	Description	Depth (ft)
0	10-in flush mount monument, thermos cap, concrete surface seal (0-1 ft)		MW-16S-0.5-1	0			Moist, brown, sandy, GRAVEL (GP); fine to medium gravel, trace organics (chunks of brick and wood), trace sodium silicate at 1 ft	
10/16/2013	3/8-in hydrated bentonite chips (1-1.5 ft)	S-1	MW-16S-2-4	0			Wet, brown to black and red, SAND (SP); trace brown silt	
10	2-in diameter PVC blank (0-2.5 ft)			0			Petroleum odor and sheen from 3.75-4 ft White sludge at 4 ft	
5	10/20 pre-packed silica sand filter pack (1.5-12.5 ft)	S-2					Slight petroleum odor and lenses of staining from 5-6.5 ft	5
10	2-in diameter PVC pre-packed 10 slot screen (2.5-12.5 ft)		MW-16S-8-10				Lens of white, coarse, crystalline sodium silicate sand Wet, black and red, SAND (SP); fine to medium sand, trace brown silt Slight petroleum odor from 8-10 ft	10
15	Formation heave (12.5-15 ft)	S-3						15
-5							Bottom of boring at 15 ft bgs Ecology Well Tag BIJ-776	

MONITORING WELL FORMER PQ CORPORATION SITE.GPJ April 23, 2014

Sampler Type:

- No Recovery
- Continuous Core

PID - Photoionization Detector

- Static Water Level
- Water Level (ATD)

Logged by: SDM

Approved by: DFR



Former PQ Corporation - 120051

Monitoring Well Log

Project Address & Site Specific Location

Coordinates (Lat, Lon WGS84)

Exploration Number

1202 Taylor Way, Tacoma, WA 98421., East of Taylor Way property

47.2741, -122.3950

MW-17S

Contractor

Equipment

Sampling Method

Ground Surface Elev.

**Ecology Well Tag No.
BPP-999**

Holocene

Direct push rig

Percussion hammer

15.2'

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev.

Depth to Water (Below GS)

Casey & Don

Direct push

10/19/2022

14.59'

5' (Static)

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
15		8-in flush mount monument set in concrete	1	MW17S-0-1	PID=0 Sheen=None		SAND WITH SILT AND GRAVEL (SP-SM); Asphalt/Fill	
		3/8-in hydrated bentonite chip seal, NSF 60			PID=0 Sheen=None PID=0 Sheen=None		SAND (SP); slightly wet, brown; fine to coarse sand with few fines.	
		2-in, threaded schedule 40 PVC well casing					becomes very moist, black with red	
		10/20 silica sand filter pack						
5		▼ 10/25/2022						5
		2-in, threaded schedule 40 PVC well casing	2	MW-17S-5-6	PID=0 Sheen=None		becomes moist; few fines.	
		10/20 silica sand filter pack						
		2-in, prepacked 0.010-in (10-slot) slotted schedule 40 PVC screen			PID=0 Sheen=None		SILT WITH SAND (ML); wet, dark gray; fine to medium sand with little fines;	
		Bottom plug			PID=0.1 Sheen=None PID=0 Sheen=None		wood debris	
10			3	MW-17S-10-11	PID=0 Sheen=None		SILT (ML); wet, dark gray; silt with trace fine sand; low plasticity.	10
					PID=0 Sheen=None			
					PID=0 Sheen=None PID=0 Sheen=None			
15							Bottom of exploration at 15 ft. bgs.	15

Legend

- ☐ No Soil Sample Recovery
- ▨ Continuous core 1.85" ID

Water Level

▼ Static Water Level

See Exploration Log Key for explanation of symbols

Logged by: MMR
Approved by: SJG 04/20/23

**Exploration Log
MW-17S**

Sheet 1 of 1

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINT\PROJECTS\PQ CORP (PORT OF TOCOMA) - 120051 (NEW).GPJ April 20, 2023



Former PQ Corporation - 120051

Monitoring Well Log

Project Address & Site Specific Location
1202 Taylor Way, Tacoma, WA 98421., SE corner of Taylor Way property

Coordinates (Lat, Lon WGS84)
47.2735, -122.3962

Exploration Number

MW-18S
Ecology Well Tag No.
BPPP-998

Contractor

Equipment

Sampling Method

Ground Surface Elev.

Holocene

Direct push rig

Percussion hammer

14.4'

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev.

Depth to Water (Below GS)

Casey & Don

Direct push

10/19/2022

14.09'

4.3' (Static)

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
		8-in flush mount monument set in concrete	1	MW-18S-0-1	PID=0 Sheen=None		SAND WITH SILT AND GRAVEL (SP-SM); Fill; brick/cement debris.	
		3/8-in hydrated bentonite chip seal, NSF 60			PID=0 Sheen=None		SAND (SP); slightly moist, brown with red; fine to coarse sand with few fines.	
		2-in, threaded schedule 40 PVC well casing			PID=0 Sheen=None		sand becomes fine, 1 cm of interbedded coarse layer	
10		▼ 10/25/2022						
5		10/20 silica sand filter pack	2	MW-18S-5-6	PID=0 Sheen=None		1-3" silt lenses between 5-8 ft; woody material.	5
		2-in, prepacked 0.010-in (10-slot) slotted schedule 40 PVC screen			PID=0 Sheen=None		fine to coarse sand.	
5					PID=0 Sheen=None		sand becomes fine.	10
10		Bottom plug	3	MW-18S-8-9	PID=0 Sheen=None		SILT (ML); wet, dark gray; silt with trace fine sand; low plasticity.	
					PID=0 Sheen=None			
					PID=0 Sheen=None			
15							Bottom of exploration at 15 ft. bgs.	15

Legend

- ☐ No Soil Sample Recovery
- ▨ Continuous core 1.85" ID

Water Level

▼ Static Water Level

See Exploration Log Key for explanation of symbols

Logged by: MMR
Approved by: SJG 04/20/23

Exploration Log
MW-18S

Sheet 1 of 1

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINT\PROJECTS\PQ CORP (PORT OF TOCOMA) - 120051 (NEW).GPJ April 20, 2023



Former PQ Corporation - 120051

Monitoring Well Log

Project Address & Site Specific Location
1202 Taylor Way, Tacoma, WA 98421., On Alexander Ave property

Coordinates (Lat, Lon WGS84)
47.2733, -122.3958

Exploration Number

MW-19S

Contractor

Equipment

Sampling Method

Ground Surface Elev.

Holocene

Direct push rig

Percussion hammer

18.3'

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev.

Depth to Water (Below GS)

Casey & Don

Direct push

10/18/2022

17.48'

9.2' (Static)

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
20		Steel protective casing						
0		Concrete surface seal					SAND WITH SILT (SP-SM); Topsoil	0
15		3/8-in hydrated bentonite chip seal, NSF 60 2-in. threaded schedule 40 PVC well casing			PID=0.1 Sheen=None PID=0.1 Sheen=None PID=0.1 Sheen=None		SAND WITH SILT (SP-SM); slightly moist, light brown; fine to medium sand with few fines; few sub-rounded to sub-angular fine gravel; some wood debris.	
5		10/20 silica sand filter pack					1 ft recovery from hand clearing < 1" fine sand lense; few fines.	5
10		2-in. prepacked 0.010-in (10-slot) slotted schedule 40 PVC screen			PID=6.8 Sheen=None		SAND (SP); moist, black with red; fine to coarse sand with few fines.	
10		10/26/2022			PID=1.4 Sheen=None		1.5" silt lense wood debris	
10		Bottom plug			PID=1.2 Sheen=None		SILT (ML); wet, gray; silt with few fine sand lenses (< 1"); soft; low plasticity. begins fining downwards	10
5					PID=0.7 Sheen=None PID=0.2 Sheen=None PID=0.2 Sheen=None		< 1" fine sand lense	
5					PID=0.1 Sheen=None		< 1" fine sand lense	
5					PID=0.1 Sheen=None PID=0.1 Sheen=None		< 1" fine sand lense	
15							Bottom of exploration at 15 ft. bgs.	15

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINT\PROJECTS\PQ CORP (PORT OF TOCOMA) - 120051 (NEW).GPJ April 20, 2023

Legend

- No Soil Sample Recovery
- Continuous core 1.85" ID

Water Level

Static Water Level

See Exploration Log Key for explanation of symbols

Logged by: MMR
Approved by: SJG 04/20/23

Exploration Log MW-19S

Sheet 1 of 1



Former PQ Corporation - 120051

Monitoring Well Log

Project Address & Site Specific Location

Coordinates (Lat, Lon WGS84)

Exploration Number

1202 Taylor Way, Tacoma, WA 98421., On Alexander Ave. property

47.2736, -122.3963

MW-20S

Contractor

Equipment

Sampling Method

Ground Surface Elev.

Holocene

Direct push rig

Percussion hammer

18.9'

Ecology Well Tag No. BPP-992

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev.

Depth to Water (Below GS)

Casey & Don

Direct push

10/18/2022

18.42'

9.6' (Static)

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
20		Steel protective casing						
0		Concrete surface seal						0
		8-in flush mount monument set in concrete						
		3/8-in hydrated bentonite chip seal, NSF 60			PID=0.1 Sheen=sheen		SAND WITH SILT AND GRAVEL (SP-SM); Topsoil	
		2-in, threaded schedule 40 PVC well casing			PID=0.1 Sheen=sheen		SAND WITH SILT AND GRAVEL (SP-SM); slightly moist, light gray; fine to coarse sand with some fines; some fine subrounded to subangular gravel.	
15		10/20 silica sand filter pack			PID=0.1 Sheen=sheen			
5		2-in, prepacked 0.010-in (10-slot) slotted schedule 40 PVC screen					trace subrounded gravel fill debris	5
10		Bottom plug			PID=0 Sheen=sheen		SILT WITH SAND (ML); wet, light grayish blue; fine to medium sand; subrounded to subangular fine gravel.	
10		▼ 10/25/2022			PID=0.1 Sheen=sheen		2" wood debris	
10					PID=0 Sheen=sheen		SAND (SP); wet, dark gray; fine sand with few fines. < 1" silt lense	
10							SILT (ML); wet, dark gray; silt with trace, fine sand lenses in upper 1 ft; low plasticity.	10
5					PID=0 Sheen=sheen			
15					PID=0 Sheen=sheen			
							Bottom of exploration at 15 ft. bgs.	15

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINT\PROJECTS\PQ CORP (PORT OF TOCOMA) - 120051 (NEW).GPJ April 20, 2023

Legend

- No Soil Sample Recovery
- Continuous core 1.85" ID

Water Level

▼ Static Water Level

See Exploration Log Key for explanation of symbols

Logged by: MMR
Approved by: SJG 04/20/23

Exploration Log
MW-20S

Sheet 1 of 1



Former PQ Corporation - 120051

Monitoring Well Log

Project Address & Site Specific Location

Coordinates (Lat, Lon WGS84)

Exploration Number

1202 Taylor Way, Tacoma, WA 98421., On Alexander Ave. property

47.2737, -122.3966

MW-21S

Contractor

Equipment

Sampling Method

Ground Surface Elev.

Holocene

Direct push rig

Percussion hammer

18.9'

Ecology Well Tag No. BPP-993

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev.

Depth to Water (Below GS)

Casey & Don

Direct push

10/18/2022

18.34'

6.7' (Static)

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
20		Steel protective casing						
0		Concrete surface seal					SAND WITH SILT AND GRAVEL (SP-SM); Topsoil	0
		8-in flush mount monument set in concrete			PID=0 Sheen=None		SAND WITH GRAVEL (SP); slightly moist, light yellow-brown; fine to mediums sand; fine subrounded to subangular gravel.	
		3/8-in hydrated bentonite chip seal, NSF 60			PID=0 Sheen=None			
		2-in, threaded schedule 40 PVC well casing			PID=0 Sheen=None			
15		10/20 silica sand filter pack			PID=0 Sheen=None			
5					PID=0 Sheen=None		SAND WITH SILT AND GRAVEL (SP-SM); slightly moist, light brown; fine to medium sand with little fines; little fine subrounded to subangular gravel.	5
		▼ 10/25/2022			PID=0 Sheen=None		SAND WITH SILT (SP-SM); wet, dark gray; fine sand with few fines.	
		2-in, prepacked 0.010-in (10-slot) slotted schedule 40 PVC screen			PID=0 Sheen=None			
10					PID=0.1 Sheen=None		silt content increases	10
10		Bottom plug			PID=0.1 Sheen=None		SILT (ML); wet, dark gray; silt with trace fine sand.	
					PID=0.1 Sheen=None			
					PID=0.1 Sheen=None			
5					PID=0.1 Sheen=None			
					PID=0.1 Sheen=None			
15							Bottom of exploration at 15 ft. bgs.	15

Legend

- ☐ No Soil Sample Recovery
- ▣ Continuous core 1.85" ID

Water Level

▼ Static Water Level

See Exploration Log Key for explanation of symbols

Logged by: MMR
Approved by: SJG 04/20/23

Exploration Log
MW-21S

Sheet 1 of 1

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINT\PROJECTS\PQ CORP (PORT OF TOCOMA) - 120051 (NEW).GPJ April 20, 2023



Former PQ Corporation - 120051

Monitoring Well Log

Project Address & Site Specific Location

Coordinates (Lat, Lon WGS84)

Exploration Number

1202 Taylor Way, Tacoma, WA 98421., On Alexander Ave. property

47.2742, -122.3973

MW-22S

Contractor

Equipment

Sampling Method

Ground Surface Elev.

Holocene

Direct push rig

Percussion hammer

18.7'

Ecology Well Tag No. BPP-994

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev.

Depth to Water (Below GS)

Casey & Don

Direct push

10/18/2022

18.15'

5.6' (Static)

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
20		Steel protective casing						
0		Concrete surface seal 8-in flush mount monument set in concrete		MW-22S-0-1			SAND WITH SILT AND GRAVEL (SP-SM); Topsoil; handcleared.	0
15		3/8-in hydrated bentonite chip seal, NSF 60 2-in, threaded schedule 40 PVC well casing			PID=0.1 Sheen=None		SAND WITH SILT AND GRAVEL (SP-SM); slightly moist, light gray; fine to coarse sand with little fines; fine subrounded to subangular gravel.	
5		10/20 silica sand filter pack					2" gravel lense	
5		10/25/2022		MW-22S-5-6	PID=0.4 Sheen=None		SAND (SP); wet, black with red; fine to coarse sand; fining downwards.	5
10		2-in, prepacked 0.010-in (10-slot) slotted schedule 40 PVC screen			PID=2.5 Sheen=None		wood debris	
10		Bottom plug		MW-22S-8.5-9.5	PID=0.4 Sheen=None PID=0.2 Sheen=None PID=0.2 Sheen=None		sand becomes fine	
10					PID=0.2 Sheen=None		SILT (ML); wet, dark gray; silt with trace fine sand, trace wood and organic material.	10
5					PID=0.1 Sheen=None			
5					PID=0.1 Sheen=None		sand content increases to few	
15					PID=0.1 Sheen=None			
15							Bottom of exploration at 15 ft. bgs.	15

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINT\PROJECTS\PQ CORP (PORT OF TOCOMA) - 120051 (NEW).GPJ April 20, 2023

Legend

- No Soil Sample Recovery
- Continuous core 1.85" ID

Water Level

Static Water Level

See Exploration Log Key for explanation of symbols

Logged by: MMR
Approved by: SJG 04/20/23

Exploration Log
MW-22S

Sheet 1 of 1



Former PQ Corporation - 120051

Monitoring Well Log

Project Address & Site Specific Location

Coordinates (Lat, Lon WGS84)

Exploration Number

1202 Taylor Way, Tacoma, WA 98421., NW of Taylor Way property

47.2743, -122.3967

MW-23S

Contractor

Equipment

Sampling Method

Ground Surface Elev.

Holocene

Direct push rig

Percussion hammer

16.1'

Ecology Well Tag No. BPP-997

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev.

Depth to Water (Below GS)

Casey & Don

Direct push

10/19/2022

15.63'

5.6' (Static)

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
15		8-in flush mount monument set in concrete	1	MW-23S-0-1	PID=0 Sheen=None		SAND WITH SILT AND GRAVEL (SP-SM); Topsoil	
		3/8-in hydrated bentonite chip seal, NSF 60			PID=0 Sheen=None		SAND (SP); slightly moist, brown; fine to coarse sand with few fines; trace fine subrounded to subangular gravel; red sand particles.	
		2-in, threaded schedule 40 PVC well casing			PID=0 Sheen=None			
5		10/24/2022					sand becomes black with red	5
10		10/20 silica sand filter pack	2	MW-23S-5-6	PID=0 Sheen=None		sand becomes fine; < 1" silt lense.	
		2-in, prepacked 0.010-in (10-slot) slotted schedule 40 PVC screen			PID=0 Sheen=None		SILT (ML); wet, gray; silt with wood debris; low plasticity.	
10		Bottom plug	3	MW-23S-8-9	PID=0 Sheen=None		SAND (SP); wet, black with red; fine to coarse sand with few fines.	10
5					PID=0 Sheen=None		SILT (ML); wet, dark gray; silt with trace fine sand; soft; low plasticity. small silt lense (< 2")	
15					PID=0 Sheen=None		Bottom of exploration at 15 ft. bgs.	15

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINT\PROJECTS\PQ CORP (PORT OF TOCOMA) - 120051 (NEW).GPJ April 20, 2023

Legend

- No Soil Sample Recovery
- Continuous core 1.85" ID

Water Level

Static Water Level

See Exploration Log Key for explanation of symbols

Logged by: MMR
Approved by: SJG 04/20/23

Exploration Log
MW-23S

Sheet 1 of 1



Former PQ Corporation - 120051

Monitoring Well Log

Project Address & Site Specific Location

Coordinates (Lat, Lon WGS84)

Exploration Number

1202 Taylor Way, Tacoma, WA 98421., NE corner of Taylor Way property

47.2747, -122.3965

MW-24S

Contractor

Equipment

Sampling Method

Ground Surface Elev.

Holocene

Direct push rig

Percussion hammer

15.5'

Ecology Well Tag No. BPP-996

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev.

Depth to Water (Below GS)

Casey & Don

Direct push

10/19/2022

15.08'

5.2' (Static)

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
15		8-in flush mount monument set in concrete					SAND WITH SILT AND GRAVEL (SP-SM); gravel; engineered fill.	
		3/8-in hydrated bentonite chip seal, NSF 60			PID=0 Sheen=None		SAND (SP); slightly moist, brown with red; fine to coarse sand with few fines.	
		2-in, threaded schedule 40 PVC well casing			PID=0 Sheen=None			
		10/20 silica sand filter pack			PID=0 Sheen=None			
5		▼ 10/24/2022						5
10		2-in, prepacked 0.010-in (10-slot) slotted schedule 40 PVC screen			PID=0 Sheen=None		becomes black with red sand	
		Bottom plug			PID=0 Sheen=None		silt lense (< 1"); organic debris.	
10					PID=0 Sheen=None		SAND WITH SILT (SP-SM); wet, dark gray; fine sand with little fines; no plasticity. silt lenses (< 1") between 8 - 8.5 ft	10
5					PID=0 Sheen=None		SILT (ML); wet, dark gray; silt with trace fine sands; low plasticity.	
15					PID=0 Sheen=None			
0							Bottom of exploration at 15 ft. bgs.	15

Legend

- ☐ No Soil Sample Recovery
- ▨ Continuous core 1.85" ID

Water Level

▼ Static Water Level

See Exploration Log Key for explanation of symbols

Logged by: MMR
Approved by: SJG 04/20/23

**Exploration Log
MW-24S**

Sheet 1 of 1

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINT\PROJECTS\PQ CORP (PORT OF TOCOMA) - 120051 (NEW).GPJ April 20, 2023



Former PQ Corporation - 120051

Monitoring Well Log

Project Address & Site Specific Location
1202 Taylor Way, Tacoma, WA 98421., NE corner of Taylor Way property

Coordinates (Lat, Lon WGS84)
47.2749, -122.3973

Exploration Number

MW-25S

Contractor

Equipment

Sampling Method

Ground Surface Elev.

Holocene

Direct push rig

Percussion hammer

15'

Ecology Well Tag No.
BPP-995

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev.

Depth to Water (Below GS)

Casey & Don

Direct push

10/19/2022

14.51'

5.4' (Static)

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
		8-in flush mount monument set in concrete					ASPHALT; asphalt	
							SAND WITH SILT AND GRAVEL (SP-SM); Topsoil	
					PID=0.1 Sheen=None		SAND (SP); slightly moist, dark brown; fine to coarse sand with few fines; subtrace sub rounded to subangular fine gravel.	
					PID=0.1 Sheen=None			
					PID=0.1 Sheen=None		becomes moist; red sand particles.	
		3/8-in hydrated bentonite chip seal, NSF 60						
		2-in, threaded schedule 40 PVC well casing						
5	10	▼ 10/25/2022						5
		10/20 silica sand filter pack						
					PID=0 Sheen=None		fine to coarse sand with subtrace gravel	
					PID=0 Sheen=None		becomes wet; sand becomes black with red	
					PID=0 Sheen=None		2" lense of coarse, black & white sand	
					PID=0 Sheen=None PID=0.1 Sheen=None		SILT WITH SAND (ML); wet, dark gray; silt with little fine sand; low plasticity.	
10	5						little fine to medium sand	10
		2-in, prepacked 0.010-in (10-slot) slotted schedule 40 PVC screen						
					PID=0 Sheen=None		SAND (SP); wet, black with red; fine to coarse sand with few fines. < 1" silt lense	
					PID=0.2 Sheen=None		shell debris	
		Bottom plug						
							SILT (ML); wet, dark gray; silt with trace fine sand lense at 12.5 ft; loose soft.	
15	0						Bottom of exploration at 15 ft. bgs.	15

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINT\PROJECTS\PQ CORP (PORT OF TOCOMA) - 120051 (NEW).GPJ April 20, 2023

Legend

- ☐ No Soil Sample Recovery
- ▨ Continuous core 1.85" ID

Water Level

▼ Static Water Level

See Exploration Log Key for explanation of symbols

Logged by: MMR
Approved by: SJG 04/20/23

Exploration Log
MW-25S

Sheet 1 of 1



Former PQ Corporation - 120051

Environmental Exploration Log

Project Address & Site Specific Location

1202 Taylor Ave., 5 feet E of MW-9S

Coordinates

NA

Exploration Number

SB-05

Contractor

Holt Services, Inc.

Equipment

Direct push rig

Sampling Method

Percussion hammer

Ground Surface (GS) Elev.

NA

Operator

Mike

Exploration Method(s)

Direct push

Work Start/Completion Dates

4/5/2017

Top of Casing Elev.

NA

Depth to Water (Below GS)

2' (ATD)

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
		Original soil					Very moist, gray, gravelly, silty SAND (SM); fine to coarse sand, fine angular crushed concrete.	
1					pH= 10.17		Very moist, dark brown SAND (SP); trace silt, predominantly fine to medium sand, moderate petroleum-like odor.	1
2		▽ 4/5/2017			pH= 10.31		Becomes wet.	2
3		Backfilled with 3/8-inch bentonite chips	S1		pH= 10.01		Grades to dark gray.	3
4								4
5					pH= 10.52			5
6					pH= 10.46			6
7					pH= 10.51			7
8			S2		pH= 11.08		Wet, dark gray, silty SAND (SM) interbedded with sandy SILT (ML); fine to medium sand, scattered rare root fiber organics, with very thin beds.	8
9					pH= 11.01			9
10				SB-5-9-10 pH	pH= 11.22		Bottom of exploration at 10 ft. bgs.	10
11								11

Legend

- No Soil Sample Recovery
- Continuous core 1.85" ID

Water Level

▽ Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: MML
Approved by:

**Exploration Log
SB-05**

Sheet 1 of 1



Former PQ Corporation - 120051

Environmental Exploration Log

Project Address & Site Specific Location

Coordinates

Exploration Number

1202 Taylor Ave., 35 feet SE of SB-5

NA

SB-06

Contractor

Equipment

Sampling Method

Ground Surface (GS) Elev.

Holt Services, Inc.

Direct push rig

Percussion hammer

NA

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev.

Depth to Water (Below GS)

Mike

Direct push

4/5/2017

NA

1.75' (ATD)

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
0		Original soil			pH= 8.72		Very moist, gray, gravelly, silty SAND (SM); fine to coarse sand, fine subangular crushed concrete.	
1					pH= 11.22		Very moist, dark brown SAND (SP); trace silt, predominantly fine to medium sand, strong petroleum-like odor.	1
2		▽ 4/5/2017			pH= 10.31		Becomes wet with strong sheen.	2
3		Backfilled with 3/8-inch bentonite chips	S1		pH= 10.58		Grades to dark gray.	3
4								4
5				SB-6-1-9 pH	pH= 10.47		Weak to moderate sheen between 2 and 8 ft bgs.	5
6					pH= 10.55			6
7					pH= 10.45			7
8			S2		pH= 10.66		Very moist, gray brown, sandy SILT (ML); fine sand, low plasticity.	8
9					pH= 10.81			9
10					pH= 10.83		Bottom of exploration at 10 ft. bgs.	10
11								11

Legend

- No Soil Sample Recovery
- Continuous core 1.85" ID

Water Level

▽ Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: MML
Approved by:

Exploration Log SB-06

Sheet 1 of 1



Former PQ Corporation - 120051

Environmental Exploration Log

Project Address & Site Specific Location

1202 Taylor Ave., 40 feet S of MW-9S

Coordinates

NA

Exploration Number

SB-07

Contractor

Holt Services, Inc.

Equipment

Direct push rig

Sampling Method

Percussion hammer

Ground Surface (GS) Elev.

NA

Operator

Mike

Exploration Method(s)

Direct push

Work Start/Completion Dates

4/5/2017

Top of Casing Elev.

NA

Depth to Water (Below GS)

2' (ATD)

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
0		Original soil			pH= 10.72		Very moist, gray brown, gravelly, silty SAND (SM); fine to coarse sand, fine subangular crushed concrete, crushed brick.	0
1					pH= 10.22		Very moist, dark brown SAND (SP); trace silt, predominantly fine to medium sand.	1
2		4/5/2017			pH= 10.31		Wet at 2 ft bgs	2
3		Backfilled with 3/8-inch bentonite chips	S1		pH= 10.47			3
4								4
5					pH= 10.27		Slight organic odor.	5
6					pH= 10.41			6
7					pH= 10.66			7
8					pH= 10.86		Moist, gray brown, sandy SILT (ML); fine sand, rare organic root fibers.	8
9				SB-7-8-9 pH	pH= 10.71		Very moist, black and red SAND (SP); trace silt, predominantly fine to medium sand.	9
10					pH= 10.44		Bottom of exploration at 10 ft. bgs.	10
11								11

Legend

- No Soil Sample Recovery
- Continuous core 1.85" ID

Water Level

Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: MML
Approved by:

Exploration Log SB-07

Sheet 1 of 1



Former PQ Corporation - 120051

Environmental Exploration Log

Project Address & Site Specific Location
1202 Taylor Ave., 5 feet NW of MW-16S

Coordinates

Exploration Number

NA

SB-08

Contractor

Equipment

Sampling Method

Ground Surface (GS) Elev.

Holt Services, Inc.

Direct push rig

Percussion hammer

NA

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev.

Depth to Water (Below GS)

Mike

Direct push

4/5/2017

NA

1.5' (ATD)

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
0		Original soil			pH= 10.78		Moist, gray brown, gravelly, silty SAND (SM); fine to coarse sand, fine subangular crushed concrete, silt lens above lower contact, with no odor.	0
1					pH= 10.71		Very moist, dark brown SAND (SP); trace silt, predominantly fine to medium sand, with frequent shell fragments, no odor.	1
2		▽ 4/5/2017			pH= 11.11		Becomes wet.	2
3		Backfilled with 3/8-inch bentonite chips	S1					3
4								4
5				SB-8-2.5-10 pH	pH= 10.78			5
6					pH= 10.66			6
7					pH= 10.62			7
8			S2		pH= 10.74			8
9					pH= 10.75		Wet, brown gray, sandy gravelly SILT (ML); fine sand, with rare root fibers, no odor.	9
10					pH= 10.85		Very moist, black and red SAND (SP); trace silt, predominantly fine to medium sand, with trace shell fragments, no odor.	10
11							Bottom of exploration at 10 ft. bgs.	11

Legend

- No Soil Sample Recovery
- Continuous core 1.85" ID

Water Level

▽ Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: MML
Approved by:

**Exploration Log
SB-08**

Sheet 1 of 1



Former PQ Corporation - 120051

Environmental Exploration Log

Project Address & Site Specific Location

Coordinates

Exploration Number

1202 Taylor Ave., 10 feet W of eastern property fence

NA

SB-09

Contractor

Equipment

Sampling Method

Ground Surface (GS) Elev.

Holt Services, Inc.

Direct push rig

Percussion hammer

NA

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev.

Depth to Water (Below GS)

Mike

Direct push

4/5/2017

NA

1.5' (ATD)

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
		Aphalt cold patch					4-inch thick Asphalt; with 2-inches of crushed gravel sub-layer.	
1					pH= 8.29		Very moist, dark brown SAND (SP); trace silt, predominantly fine to medium sand, 1-inch silt lens at 1 ft bgs with no odor.	1
					pH= 8.09			
2		▽ 4/5/2017					Becomes wet.	2
			S1		pH= 8.44			
3		Backfilled with 3/8-inch bentonite chips					Half-inch sandy silt lens.	3
					pH= 9.62			
4								4
5				SB-9-3 pH				5
					pH= 8.54			
6								6
					pH= 8.63			
7								7
			S2		pH= 9.34			
8								8
					pH= 9.56			
9								9
					pH= 8.94		Wet, gray brown, sandy SILT (ML); fine sand, low plasticity, with shell fragments.	
10								10
					pH= 8.06		Bottom of exploration at 10 ft. bgs.	
11								11

Legend

- ☐ No Soil Sample Recovery
- ▨ Continuous core 1.85" ID

Water Level

▽ Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: MML
Approved by:

**Exploration Log
SB-09**

Sheet 1 of 1

ASPECT STANDARD EXPLORATION LOG TEMPLATE: P:\GINT\PROJECTS\PQ CORP (PORT OF TOCOMA)-120051.GPJ February 28, 2018



Former PQ Corporation - 120051

Environmental Exploration Log

Project Address & Site Specific Location

Coordinates

Exploration Number

1202 Taylor Ave., 35 feet North of SB-5

NA

SB-10

Contractor

Equipment

Sampling Method

Ground Surface (GS) Elev.

Holt Services, Inc.

Direct push rig

Percussion hammer

NA

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev.

Depth to Water (Below GS)

Mike

Direct push

4/5/2017

NA

1.5' (ATD)

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
1		Original soil	S1	SB-10-2-3 pH	pH= 11.06	Moist, brown, gravelly, silty SAND (SM); fine to coarse sand, with no odor.	Very moist, brown SAND (SP); trace silt, predominantly fine to medium sand, with no odor.	1
2		▽ 4/5/2017			pH= 10.13			Becomes wet.
3		Backfilled with 3/8-inch bentonite chips	S2		pH= 10.02	Grades to gray brown.		3
4								
5					pH= 10.04	1-inch silt lens.		5
6					pH= 10.19			6
7					pH= 10.33	Moist, gray brown, sandy SILT (ML); fine sand, low plasticity.		7
8					pH= 10.54			8
9					pH= 10.61	Bottom of exploration at 10 ft. bgs.		9
10					pH= 10.63			10
11								11

Legend

- No Soil Sample Recovery
- Continuous core 1.85" ID

Water Level

▽ Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: MML
Approved by:

Exploration Log SB-10

Sheet 1 of 1



Former PQ Corporation - 120051

Environmental Exploration Log

Project Address & Site Specific Location

1202 Taylor Ave., 35 feet W of SB-10

Coordinates

NA

Exploration Number

SB-11

Contractor

Holt Services, Inc.

Equipment

Direct push rig

Sampling Method

Percussion hammer

Ground Surface (GS) Elev.

NA

Operator

Mike

Exploration Method(s)

Direct push

Work Start/Completion Dates

4/5/2017

Top of Casing Elev.

NA

Depth to Water (Below GS)

1.5' (ATD)

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
0		Original soil			pH= 10.01		Wet, brown, gravelly, silty SAND (SM); fine to medium sand, fine subangular gravel.	
1					pH= 9.73		Very moist to wet, brown SAND (SP); predominantly fine to medium sand, with no odor.	1
2		▽ 4/5/2017			pH= 10.05		Becomes wet.	2
3		Backfilled with 3/8-inch bentonite chips	S1					3
4								4
5					pH= 10.05			5
6					pH= 9.96			6
7					pH= 10.08			7
8			S2		pH= 10.13			8
9					pH= 10.58		Wood chunk at contact.	9
10					pH= 10.55		Moist, gray brown, sandy SILT (ML); fine sand, low plasticity.	10
11							Bottom of exploration at 10 ft. bgs.	11

Legend

- ☐ No Soil Sample Recovery
- ▣ Continuous core 1.85" ID

Water Level

▽ Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: MML
Approved by:

Exploration Log SB-11

Sheet 1 of 1



Former PQ Corporation - 120051

Environmental Exploration Log

Project Address & Site Specific Location

Coordinates

Exploration Number

1202 Taylor Ave., 35 feet E of SB-6

NA

SB-12

Contractor

Equipment

Sampling Method

Ground Surface (GS) Elev.

Holt Services, Inc.

Direct push rig

Percussion hammer

NA

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev.

Depth to Water (Below GS)

Mike

Direct push

4/5/2017

NA

1' (ATD)

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
		Original soil			pH= 10.50		Wet, brown, gravelly, silty SAND (SM); fine to medium sand, fine subangular gravel, wood at 0.25 feet bgs, with no odor.	
1		▽ 4/5/2017			pH= 10.10		Very moist to wet, brown SAND (SP); predominantly fine to medium sand, with no odor.	1
2			S1		pH= 10.40			2
3		Backfilled with 3/8-inch bentonite chips			pH= 10.35			3
4								4
5					pH= 10.32		Becomes gray brown.	5
6					pH= 10.34			6
7			S2		pH= 10.43			7
8					pH= 10.59		Wet, dark gray, silty SAND (SM) interbedded with sandy SILT (ML); fine to medium sand, with very thin beds.	8
9					pH= 10.74			9
10					pH= 10.65		Wet, gray brown, sandy SILT (ML); trace clay, fine sand, low plasticity.	10
							Bottom of exploration at 10 ft. bgs.	
11								11

Legend

- No Soil Sample Recovery
- Continuous core 1.85" ID

Water Level

▽ Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: MML
Approved by:

Exploration Log SB-12

Sheet 1 of 1



Former PQ Corporation - 120051

Environmental Exploration Log

Project Address & Site Specific Location
1202 Taylor Ave., 5 feet S of MW-10S

Coordinates

Exploration Number

NA

SB-13

Contractor

Equipment

Sampling Method

Ground Surface (GS) Elev.

Holt Services, Inc.

Direct push rig

Percussion hammer

NA

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev.

Depth to Water (Below GS)

Mike

Direct push

4/5/2017

NA

1.5' (ATD)

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
1		Asphalt cold patch			pH= 8.26		4-inch thick Asphalt; with 2-inches of crushed gravel sub-layer.	1
1					pH= 8.65		Very moist, brown SAND (SP); trace silt, predominantly fine to medium sand, with no odor.	1
2		▽ 4/5/2017					Becomes wet.	2
3		Backfilled with 3/8-inch bentonite chips	S1					3
5				SB-13-5-6 pH	pH= 8.21		Becomes gray brown.	5
6					pH= 8.35			6
7			S2		pH= 8.47			7
8					pH= 8.68			8
9					pH= 9.08			9
10							Bottom of exploration at 10 ft. bgs.	10
11								11

Legend

- No Soil Sample Recovery
- ▣ Continuous core 1.85" ID

Water Level

▽ Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: MML
Approved by:

**Exploration Log
SB-13**

Sheet 1 of 1



Former PQ Corporation - 120051

Environmental Exploration Log

Project Address & Site Specific Location

Coordinates

Exploration Number

1202 Taylor Ave., 10 feet W of weigh station platform

NA

SB-14

Contractor

Equipment

Sampling Method

Ground Surface (GS) Elev.

Holt Services, Inc.

Direct push rig

Percussion hammer

NA

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev.

Depth to Water (Below GS)

Mike

Direct push

4/5/2017

NA

1.5' (ATD)

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
0		Original soil					Very moist, brown, sandy Topsoil; fine to medium sand, with root mass organics.	0
1				SB-14-1-2 pH	pH= 9.22		Very moist, brown SAND (SP); predominantly fine to medium sand, with no odor.	1
2		▽ 4/5/2017	S1		pH= 9.63		Becomes wet.	2
3		Backfilled with 3/8-inch bentonite chips			pH= 9.68			3
4								4
5					pH= 9.58		Becomes gray.	5
6					pH= 9.58			6
7			S2		pH= 9.63		Wet, gray brown, sandy SILT (ML); fine sand, low plasticity, with rare root fiber organics.	7
8					pH= 9.89			8
9					pH= 8.46			9
10					pH= 8.20		Bottom of exploration at 10 ft. bgs.	10
11								11

Legend

- No Soil Sample Recovery
- Continuous core 1.85" ID

Water Level

▽ Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: MML
Approved by:

**Exploration Log
SB-14**

Sheet 1 of 1



Former PQ Corporation - 120051

Environmental Exploration Log

Project Address & Site Specific Location
1202 Taylor Ave., 20 feet SW of MW-1S

Coordinates

NA

Exploration Number

SB-15

Contractor

Holt Services, Inc.

Equipment

Direct push rig

Sampling Method

Percussion hammer

Ground Surface (GS) Elev.

NA

Operator

Mike

Exploration Method(s)

Direct push

Work Start/Completion Dates

4/5/2017

Top of Casing Elev.

NA

Depth to Water (Below GS)

1.5' (ATD)

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
		Asphalt cold patch					4-inch thick Asphalt; with 2-inches of crushed gravel sub-layer.	
1					pH= 8.86		Very moist, brown SAND (SP); predominantly fine to medium sand, scattered very thin beds of brown SILT (ML); with no odor.	1
		▽ 4/5/2017					Becomes wet.	
2			S1		pH= 9.39			2
3		Backfilled with 3/8-inch bentonite chips			pH= 9.55			3
4								4
5					pH= 8.98		Becomes gray.	5
6					pH= 10.07			6
7			S2		pH= 9.89		Wet, gray brown, sandy SILT (ML); fine sand, low plasticity.	7
8					pH= 9.97		Wet, dark gray SAND (SP); predominantly fine to medium sand, with no odor.	8
9					pH= 9.75			9
10					pH= 9.58		Bottom of exploration at 10 ft. bgs.	10
11								11

Legend

- No Soil Sample Recovery
- Continuous core 1.85" ID

Water Level

▽ Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: MML
Approved by:

Exploration Log SB-15

Sheet 1 of 1



Former PQ Corporation - 120051

Environmental Exploration Log

Project Address & Site Specific Location
1202 Taylor Ave., 30 feet NW of MW-15S

Coordinates

Exploration Number

NA

SB-16

Contractor

Equipment

Sampling Method

Ground Surface (GS) Elev.

Holt Services, Inc.

Direct push rig

Percussion hammer

NA

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev.

Depth to Water (Below GS)

Mike

Direct push

4/5/2017

NA

1.5' (ATD)

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
		Original soil			pH= 8.77		Very moist, brown, sandy Topsoil; fine to medium sand, with root mass organics.	
1					pH= 8.80		Very moist, brown SAND (SP); trace silt, predominantly fine to medium sand, with no odor.	1
		▽ 4/5/2017					Becomes wet.	
2					pH= 8.94			2
		Backfilled with 3/8-inch bentonite chips	S1					
3					pH= 9.88			3
4								4
			S2					
5					pH= 9.61		Grades to gray brown.	5
6					pH= 9.72			6
7					pH= 10.02		1-inch tan silt lens.	7
8					pH= 10.22		1-inch graybrown silt lens.	8
9					pH= 10.12			9
10					pH= 10.28		Bottom of exploration at 10 ft. bgs.	10
11								11

Legend

- No Soil Sample Recovery
- Continuous core 1.85" ID

Water Level

▽ Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: MML
Approved by:

Exploration Log SB-16

Sheet 1 of 1



Former PQ Corporation - 120051

Environmental Exploration Log

Project Address & Site Specific Location

Coordinates

Exploration Number

1202 Taylor Ave., 45 feet SW of MW-12S

NA

SB-17

Contractor

Equipment

Sampling Method

Ground Surface (GS) Elev.

Holt Services, Inc.

Direct push rig

Percussion hammer

NA

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev.

Depth to Water (Below GS)

Mike

Direct push

4/5/2017

NA

1.5' (ATD)

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
0		Original soil			pH= 8.56		Very moist, brown, sandy Topsoil; fine to medium sand, with root mass organics.	
1					pH= 8.29		Moist, brown SAND (SP); trace silt, predominantly fine to medium sand, with no odor.	1
2		▽ 4/5/2017			pH= 8.94		Becomes wet.	2
3		Backfilled with 3/8-inch bentonite chips	S1		pH= 10.09			3
4								4
5					pH= 9.84		Grades to gray brown.	5
6					pH= 10.06			6
7					pH= 10.20			7
8					pH= 10.44		Very moist, gray brown, silty SAND (SM); predominantly fine to medium sand, with no odor.	8
9					pH= 10.38		Wet, gray brown, sandy SILT (ML); fine sand, low plasticity.	9
10					pH= 10.42		Wet, gray brown SAND (SP); trace silt, predominantly fine to medium sand, with no odor.	10
11							Bottom of exploration at 10 ft. bgs.	11

Legend

- No Soil Sample Recovery
- Continuous core 1.85" ID

Water Level

▽ Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: MML
Approved by:

Exploration Log SB-17

Sheet 1 of 1



Former PQ Corporation - 120051

Environmental Exploration Log

Project Address & Site Specific Location
1202 Taylor Ave., 40 feet W of MW-11S

Coordinates

NA

Exploration Number

SB-18

Contractor

Holt Services, Inc.

Equipment

Direct push rig

Sampling Method

Percussion hammer

Ground Surface (GS) Elev.

NA

Operator

Mike

Exploration Method(s)

Direct push

Work Start/Completion Dates

4/5/2017

Top of Casing Elev.

NA

Depth to Water (Below GS)

1.5' (ATD)

Depth (feet)	Elev. (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
0		Original soil					4-inch thick Asphalt; with 2-inches of crushed gravel sub-layer.	
1					pH= 8.03		Very moist, gray, gravelly, silty SAND (SM); fine to coarse sand, fine subangular gravel.	1
2		▽ 4/5/2017			pH= 8.63		Very moist, brown SAND (SP); trace silt, predominantly fine to medium sand, with no odor. Becomes wet.	2
3		Backfilled with 3/8-inch bentonite chips	S1					3
4								4
5					pH= 8.31		Becomes gray.	5
6					pH= 9.18			6
7					pH= 9.68			7
8			S2		pH= 9.90			8
9					pH= 10.08		Wet, gray brown, very silty SAND (SM); fine sand, low plasticity.	9
10					pH= 9.84		Bottom of exploration at 10 ft. bgs.	10
11								11

Legend

- ☐ No Soil Sample Recovery
- ▨ Continuous core 1.85" ID

Water Level

▽ Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: MML
Approved by:

Exploration Log SB-18

Sheet 1 of 1



Former PQ Corporation - 120051

Environmental Exploration Log

Project Address & Site Specific Location
1202 Taylor Way, Tacoma, WA 98421., Central of Taylor Way property

Coordinates

Exploration Number

NA

SB-19

Contractor

Equipment

Sampling Method

Ground Surface Elev.

Holocene

Direct push rig

Percussion hammer

14.6' (est)

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev.

Depth to Water (Below GS)

Casey & Don

Direct push

10/18/2022

NA

3.5' (ATD)

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
		Original soil					SAND WITH GRAVEL (SP); Topsoil	
			1	SB-19-0-1	PID=0 Sheen=None		SAND (SP); moist, black with red specs; fine to coarse sand, with few fines.	
			2	SB-19-2.5-3.5	PID=0 Sheen=None PID=0 Sheen=None		becomes wet	
		10/18/2022						
5							coarse sand with trace gravel	5
			3	SB-19-5.5-6.5	PID=0 Sheen=None PID=0 Sheen=None		SILT (ML); wet, gray; silt with little fine sand.	
		Backfilled with 3/8-inch benotoite chips						
5								
10							SAND (SP); no plasticity; medium to coarse sand with trace fines.	10
							wet, black with red; fine to coarse sand with few fines.	
							SILT (ML); wet, dark gray; silt with trace fine sand.	
15							Bottom of exploration at 15 ft. bgs.	15

Legend

- No Soil Sample Recovery
- Continuous core 1.85" ID

Water Level

Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: MMR
Approved by: SJG 04/20/23

Exploration Log SB-19

Sheet 1 of 1

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINT\PROJECTS\PQ CORP (PORT OF TOCOMA) - 120051 (NEW).GPJ April 20, 2023



Former PQ Corporation - 120051

Environmental Exploration Log

Project Address & Site Specific Location
1202 Taylor Way, Tacoma, WA 98421., NW corner of Taylor Way property

Coordinates

NA

Exploration Number

SB-20

Contractor

Holocene

Equipment

Direct push rig

Sampling Method

Percussion hammer

Ground Surface Elev.

16' (est)

Operator

Casey & Don

Exploration Method(s)

Direct push

Work Start/Completion Dates

10/17/2022

Top of Casing Elev.

NA

Depth to Water (Below GS)

7' (ATD)

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
15		Original soil		SB-20-0-1	PID=0 Sheen=None		GRAVEL (GP); Fill	
					PID=0 Sheen=None		SAND (SP); slightly moist, light brown; fine to coarse sand with few fines; trace fine, subrounded to subangular gravel.	
					PID=0 Sheen=None			
					PID=0 Sheen=None		moisture content increase to moist; gravel reduced to none.	
5		Backfilled with 3/8-inch bentonite chips			PID=0 Sheen=None		trace fines	5
10		10/17/2022		SB-20-6.5-7.5	PID=0 Sheen=None		becomes wet	
					PID=0 Sheen=None			
10				SB-20-10-11	PID=0 Sheen=None		1" silt lense	10
5					PID=0 Sheen=None		trace fine subrounded gravel	
					PID=0 Sheen=None			
15							Bottom of exploration at 15 ft. bgs.	15

NEW STANDARD EXPLORATION LOG TEMPLATE P:\GINT\PROJECTS\PQ CORP (PORT OF TOCOMA) - 120051 (NEW)\GPJ April 20, 2023

Legend

- No Soil Sample Recovery
- Continuous core 1.85" ID

Water Level

∇ Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: MMR
Approved by: SJG 04/20/23

Exploration Log
SB-20

Sheet 1 of 1



Former PQ Corporation - 120051

Environmental Exploration Log

Project Address & Site Specific Location
1202 Taylor Way, Tacoma, WA 98421., N corner of Taylor Way property

Coordinates

Exploration Number

NA

SB-21

Contractor

Equipment

Sampling Method

Ground Surface Elev.

Holocene

Direct push rig

Percussion hammer

16' (est)

Operator

Exploration Method(s)

Work Start/Completion Dates

Top of Casing Elev.

Depth to Water (Below GS)

Casey & Don

Direct push

10/17/2022

NA

7' (ATD)

Depth (feet)	Elev. (feet)	Exploration Notes and Completion Details	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
15		Original soil	1	SB-21-0-1	PID=0 Sheen=None	GRAVEL (GP); Gravel roadbed		
					PID=0 Sheen=None PID=0 Sheen=None	SAND (SP); slightly moist; dark gray; fine to coarse sand with few fines and trace gravel.		
5		Backfilled with 3/8-inch bentonite chips			PID=0 Sheen=None	moisture content increase to moist; few fines.		5
10		10/17/2022	2	SB-21-6.5-7.5	PID=0 Sheen=None	becomes wet		
10			3	SB-21-10-11	PID=0 Sheen=None PID=0 Sheen=None PID=0 Sheen=None PID=0 Sheen=None	2" silt layer; red sand content increases; sand size increases to fine to coarse.		10
15						Bottom of exploration at 15 ft. bgs.		15

Legend

- No Soil Sample Recovery
- Continuous core 1.85" ID

Water Level

Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: MMR
Approved by: SJG 04/20/23

Exploration Log
SB-21

Sheet 1 of 1

Table A-1 - Trench Logs
120051, Former PQ Corporation Site, Tacoma, Washington

Exploration ID	Date	Depth Below Existing Grade in Feet	Description of Materials Observed	Soil Sample	
				ID	Depth Below Existing Grade in Feet
TR-1 (west of MW-9S)					
TR-1	10/21/13	0 - 1.5	Moist, brown, sandy Gravel with abundant bricks and concrete		
TR-1	10/21/13	1.5 - 3	Moist to wet, black and brown Sand; concrete slabs to at 2' and 2.5' bgs, petroleum like odor and sheen on east sidewall, no odor on west side wall, sample collected from west sidewall, intending to bound extent of contamination	TR-1-3	3 - 3
TR-2 (north of MW-9S)					
TR-2	10/21/13	0 - 1.5	Moist, brown, sandy Gravel with abundant bricks and concrete		
TR-2	10/21/13	1.5 - 4	Moist to wet, black and brown Sand; wet at 3.5' bgs, stained black with slight sheen from 3' to 4' bgs, petroleum and mothball like odor from 3' to 4' bgs. Trench extends north until odor no longer present, sample was collected from north sidewall where no odor was present, intending to bound extent of contamination	TR-2-4	3.5 - 4
TR-3 (east of MW-9S)					
Section 1 (from 6' to 30' east of MW-9S)					
TR-3 (Section 1)	10/21/13	0 - 1.5	Moist, brown, sandy Gravel with abundant bricks and concrete		
TR-3 (Section 1)	10/21/13	1.5 - 6.5	Moist to wet, black and brown Sand; petroleum like odor and sheen at 3' to 6.5' bgs, wet at 3.5' bgs		
TR-3 (section 1)	10/21/13	6.5 - 7	Wet, grey, silty sand, no odor or sheen	TR-3A-7	6 - 7
Section 2 (from 30' to 57' east of MW-9S)					
TR-3 (Section 2)	10/21/13	0 - 1.5	Moist, brown, sandy Gravel; abundant bricks and concrete; numerous vertical creosote-treated wood piles		
TR-3 (Section 2)	10/21/13	1.5 - 3.5	Moist to wet, black and brown Sand; petro like odor and sheen at 3' to 3.5' bgs, wet at 3.5' bgs; numerous vertical creosote-treated wood piles	TR-3B-3.5	3.5 - 3.5
Section 3 (from 57' to 65' east of MW-9S)					
TR-3 (Section 3)	10/21/13	0 - 4	Moist to wet, brown, sandy Gravel; abundant bricks and concrete, no sheen or odor, wet at 3.5' bgs	TR-3C-3.5-4	3.5 - 4

Table A-1 - Trench Logs
120051, Former PQ Corporation Site, Tacoma, Washington

Exploration ID	Date	Depth Below Existing Grade in Feet	Description of Materials Observed	Soil Sample	
				ID	Depth Below Existing Grade in Feet
TR-4 (south of MW-9S)					
Section 1 (From 8' to 20' south of MW-9S)					
TR-4 (Section 1)	10/21/13	0 - 1.5	Moist, brown, sandy Gravel with abundant bricks and concrete		
TR-4 (Section 1)	10/21/13	1.5 - 4	Moist to wet, black and brown Sand; wet at 3.5' bgs, stained from 1' to 3.5' bgs with petroleum like odor, pocket of light brown oily product seeping from east sidewall on top of water table		
Section 2 (aligned north south along east side wall of TR-4 Section 1)					
TR-4 (Section 2)	10/21/13	0 - 1.5	Moist, brown, sandy Gravel with abundant bricks and concrete		
TR-4 (Section 2)	10/21/13	1.5 - 4	Moist to wet, brown to red and black Sand; no odor or sheen along east sidewall		
Section 3 (from southernmost end of TR-4 Section 1 to 20' east of TR-4 Section 1)					
TR-4 (Section 3)	10/21/13	0 - 1.5	Moist, brown, sandy Gravel with abundant bricks and concrete		
TR-4 (Section 3)	10/21/13	1.5 - 4	Moist to wet, brown to red and black Sand; black staining at 3' bgs from TR-4 Section 1 to 10' east of TR-4 Section 1		
TR-5 (south of TR-4)					
TR-5	10/22/14	0 - 1.5	Moist, brown, sandy Gravel with abundant bricks and concrete		
TR-5	10/22/14	1.5 - 3.5	Moist to wet, brown to red and black Sand; wet at 3' bgs, slight-petroleum like odor at 3' bgs, collected sample at southernmost end of trench, no odor or sheen at southern end of trench, PID=0.0, east-west aligned 2" metal pipe at 1.5' bgs	TR-5-3	3 - 3
TR-6 (south of TR-5)					
TR-6	10/22/14	0 - 1.5	Moist, brown, sandy Gravel with abundant bricks and concrete		
TR-6	10/22/14	1.5 - 3.5	Moist to wet, brown to red and black Sand; wet at 3' bgs, east-west-aligned 2" metal pipe at 1.5' bgs, no odor or sheen		

Table A-1 - Trench Logs
120051, Former PQ Corporation Site, Tacoma, Washington

Exploration ID	Date	Depth Below Existing Grade in Feet	Description of Materials Observed	Soil Sample	
				ID	Depth Below Existing Grade in Feet
TR-7 (north of MW-16S)					
Section 1 (From 8' to 34' north of MW-16S)					
TR-7 (Section 1)	10/22/14	0 - 5	Moist to wet, brown, sandy Gravel with abundant cobble sized chunks of Brick, concrete and wood, water at 4' bgs, sheen and petroleum like odor 4' to 5', PID = 3.5 to 7		
Section 2 (From 34' north of MW-16S to 42' north of MW-16S)					
TR-7 (Section 2)	10/22/14	0 - 4.5	Moist to wet, brown to red and black Sand; wet at 4' bgs	TR-7-4	4 - 4.5
TR-8 (west of MW-16S)					
Section 1 (From 7' to 22' west of MW-16S)					
TR-8 (Section 1)	10/22/14	0 - 5	Moist to wet, brown, sandy Gravel; with abundant cobble sized chunks of Brick, concrete and wood, water at 4' bgs		
Section 2 (From 22' to 27' west of MW-16S)					
TR-8 (Section 2)	10/22/14	0 - 1.5	Moist, brown, sandy Gravel with abundant bricks and concrete		
TR-8 (Section 2)	10/22/14	1.5 - 5	Moist to wet, brown to red and black Sand; wet at 4' bgs, stained gray from 3.5' to 4.5' bgs with petroleum like odor, PID = 13.		
Section 3 (From 27' to 54' west of MW-16S)					
TR-8 (Section 3)	10/22/14	0 - 1.5	Moist, brown, sandy Gravel with abundant bricks and concrete		
TR-8 (Section 3)	10/22/14	1.5 - 5	Moist to wet, brown to red and black Sand; wet at 4' bgs, 1" stained gray lens with slight odor at 4' bgs, PID = 1.5 at east end of Section 2, PID= 0.4 at western sidewall 4' bgs	TR-8-4	3.5 - 4.5
TR-9 (west of MW-9S)					
TR-9	10/22/14	0 - 1.5	Moist, brown, sandy Gravel with abundant bricks and concrete		
TR-9	10/22/14	1.5 - 5	Moist to wet, brown to red and black Sand; wet at 4' bgs, water perched on a lens of silt at 3' bgs in northeast sidewall, no odor or staining	TR-9-4	4 - 4.5

Table A-1 - Trench Logs
 120051, Former PQ Corporation Site, Tacoma, Washington

Exploration ID	Date	Depth Below Existing Grade in Feet	Description of Materials Observed	Soil Sample	
				ID	Depth Below Existing Grade in Feet
TR-10 (southwest of MW-16S)					
Section 1 (From 11' to 28' southwest of MW-16S)					
TR-10 (Section 1)	10/22/14	0 - 4.5	Moist to wet, brown, sandy Gravel with abundant cobble sized chunks of Brick, concrete and wood, water at 3.5' bgs, petroleum like odor 3.5' to 4.5' bgs, PID = 4.9, silty sand lens at 4.5' bgs		
TR-10 (Section 1)	10/22/14	4.5 - 6.5	Wet, red and black Sand; no odor		
Section 2 (From 28' to 36' southwest of MW-16S)					
TR-10 (Section 2)	10/22/14	0 - 1.5	Moist, brown, sandy Gravel with abundant bricks and concrete		
TR-10 (Section 2)	10/22/14	1.5 - 5	Moist to wet, brown to red and black Sand; wet at 3.5' bgs, slight odor at northeast end of trench section, no odor at southwest end of trench section	TR-10-3.5	3.5 - 4

Table A-2. Logs for Soil Cores SC-01 through SC-06 within Stormwater Ditch (October 2022)

Project No. 120051, Former PQ Corporation Site, Tacoma, WA

Core Location	Sample Interval (Inches bgs)	Notes
SC-01	4-20	Collected field duplicate sample (SC-1001-4-20)
	20-27	Full drive penetration to 36 inches, this is the bottom depth shortened due to compaction.
SC-02	2-4	None
	4-20	None
SC-03	20-28	Full drive penetration to 36 inches, this is the bottom depth shortened due to compaction.
	1-12	Refusal at 12 inches after 4 attempts. All attempts similar, refusal at obvious mat of white process material.
SC-04	0-6	None
	6-12	None
SC-05	12-15	Refusal at 15 inches This location is very close to -03 and we saw very similar results in coring and refusal depth/material. Refusal at obvious mat of white process material.
	0-11	Obvious presence of white process material.
SC-06	11-29	Full drive penetration to 36 inches, this is the bottom depth shortened due to compaction.
	0-5	None
	5-15	Refusal at 15 inches after 3 attempts. All attempts similar, refusal at approximately same depth and no obvious obstructions, although we were in the vicinity of willow trees.

Notes:

Soil cores performed and logged by Anchor QEA (October 27 and 28, 2022).

bgs: Below ground surface.

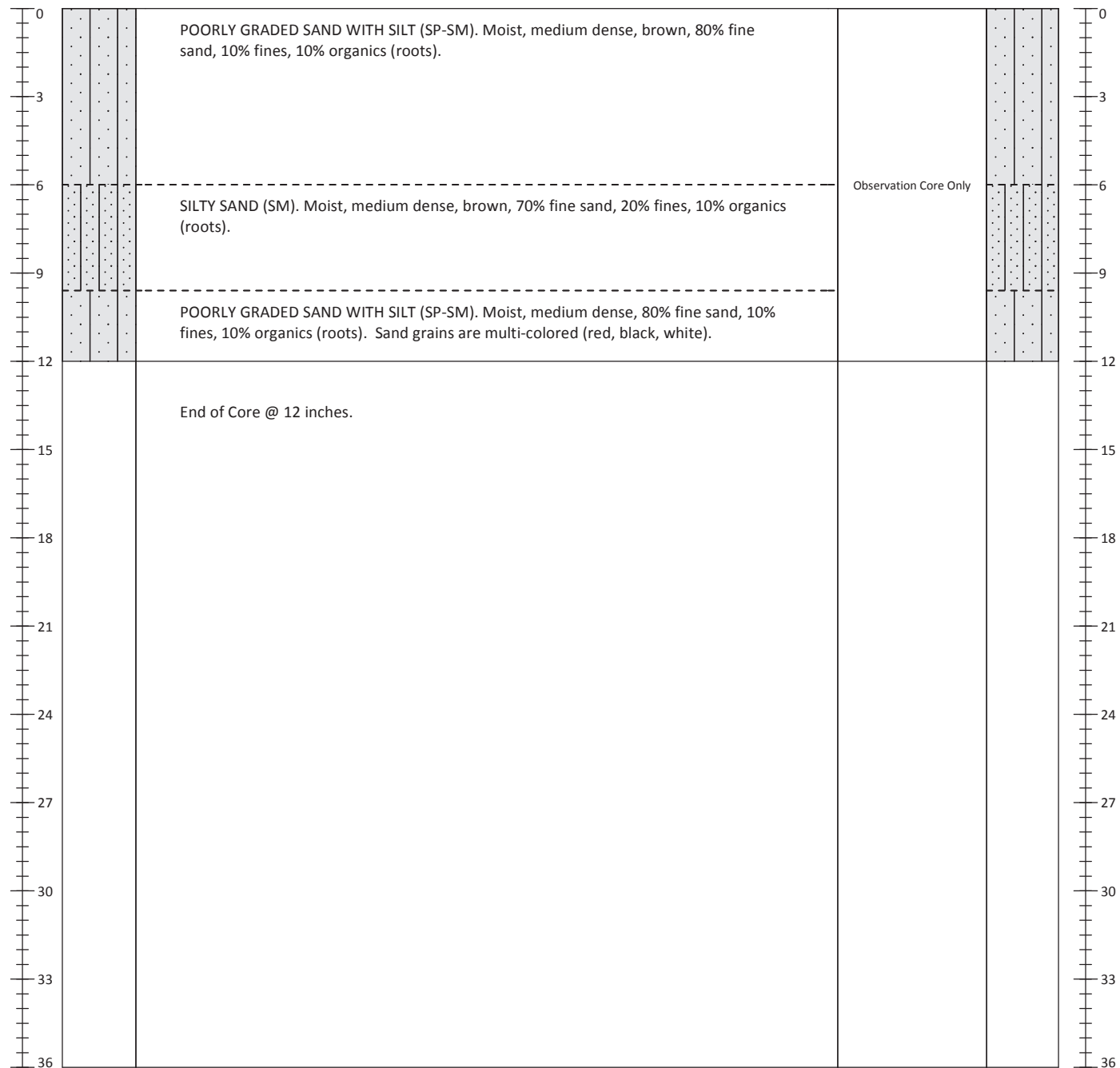
Core Log WL-01-A

Sheet 1 of 1

Project: Parcel 114 RI/FS	Location: Tacoma, WA	Tube Length (inch): 48
Project #: 120204-02.02	Surface Water Elevation (MLLW): NA	Penetration Depth (inch): 18
Client: Port of Tacoma	Water Depth (inch): NA	Field Recovery Length (inch): 13
Collection Date: 10/1/2013	Mudline Elevation (ft): NA	Process Date: 10/1/2013
Contractor: Anchor QEA	N/LAT: 713565.831 E/LONG: 1169427.939	Process Method: Cut tube
Vessel: NA	Horiz. Datum: NAD 83 State Plane WA South US feet	Logged By: EM
Operator: NA	Method/Tube ID: Direct Push / 3 inch	

Recovered Depth (inch)	Lithologic Symbol	Sediment Description	Sample ID: Analysis	Lithologic Symbol	Recovered Depth (inch)
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Samples and Descriptions are in Recovered Depths.
Classification Scheme: USCS



POORLY GRADED SAND WITH SILT (SP-SM). Moist, medium dense, brown, 80% fine sand, 10% fines, 10% organics (roots).

SILTY SAND (SM). Moist, medium dense, brown, 70% fine sand, 20% fines, 10% organics (roots).

POORLY GRADED SAND WITH SILT (SP-SM). Moist, medium dense, 80% fine sand, 10% fines, 10% organics (roots). Sand grains are multi-colored (red, black, white).

Observation Core Only

Notes: 1. Attempt 1.



Calculated Recovery
Recovery Length/Penetration Depth:
72 %

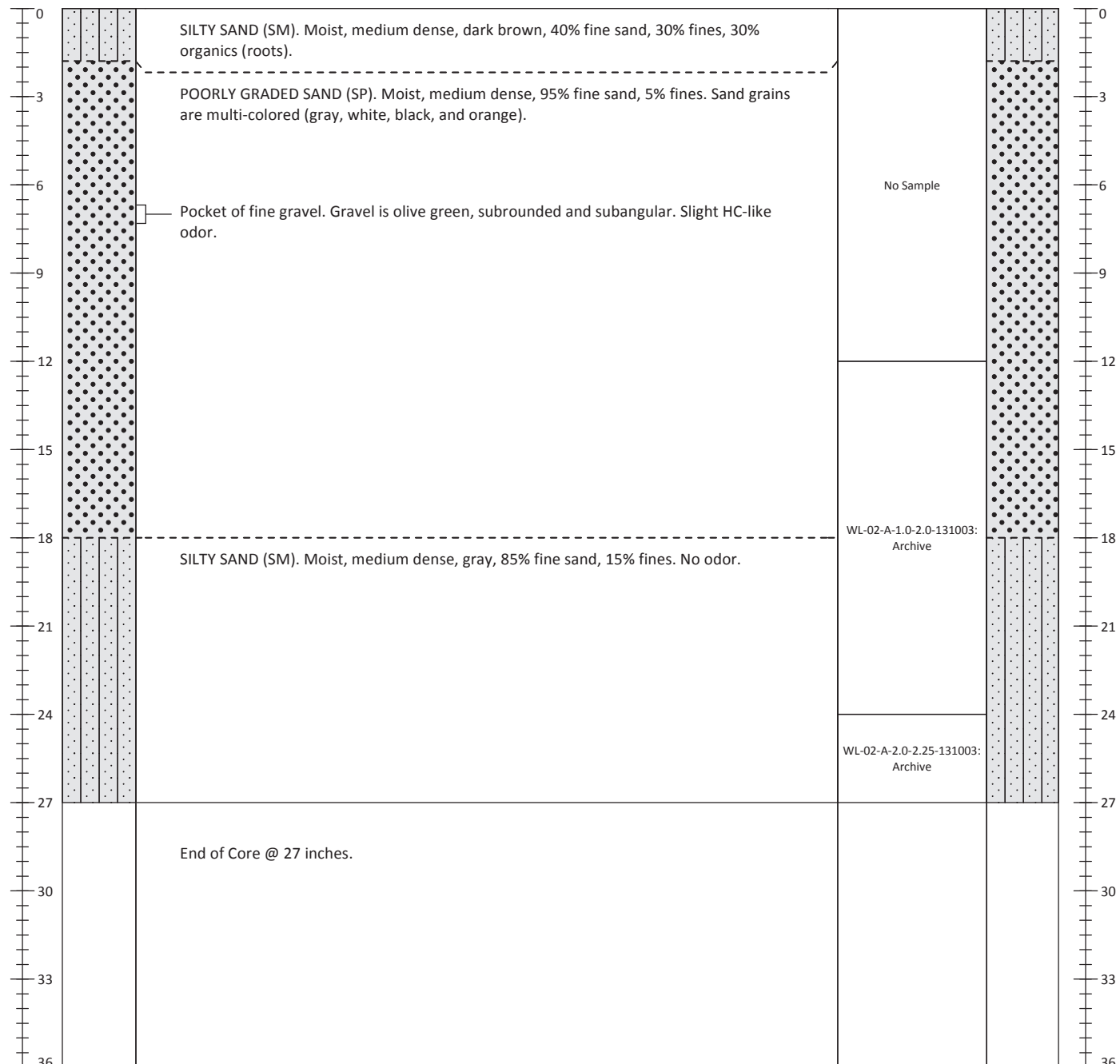
Core Log

WL-02-A

Sheet 1 of 1

Project: Parcel 114 RI/FS	Location: Tacoma, WA	Tube Length (inch): 48
Project #: 120204-02.02	Surface Water Elevation (MLLW): NA	Penetration Depth (inch): 36
Client: Port of Tacoma	Water Depth (inch): NA	Field Recovery Length (inch): 28
Collection Date: 10/2/2013	Mudline Elevation (ft): NA	Process Date: 10/3/2013
Contractor: Anchor QEA	N/LAT: 713492.912 E/LONG: 1169523.507	Process Method: Cut tube
Vessel: NA	Horiz. Datum: NAD 83 State Plane WA South US feet	Logged By: EM
Operator: NA	Method/Tube ID: Direct Push / 3 inch	

Recovered Depth (inch)	Lithologic Symbol	Sediment Description	Sample ID: Analysis	Lithologic Symbol	Recovered Depth (inch)
		Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS			



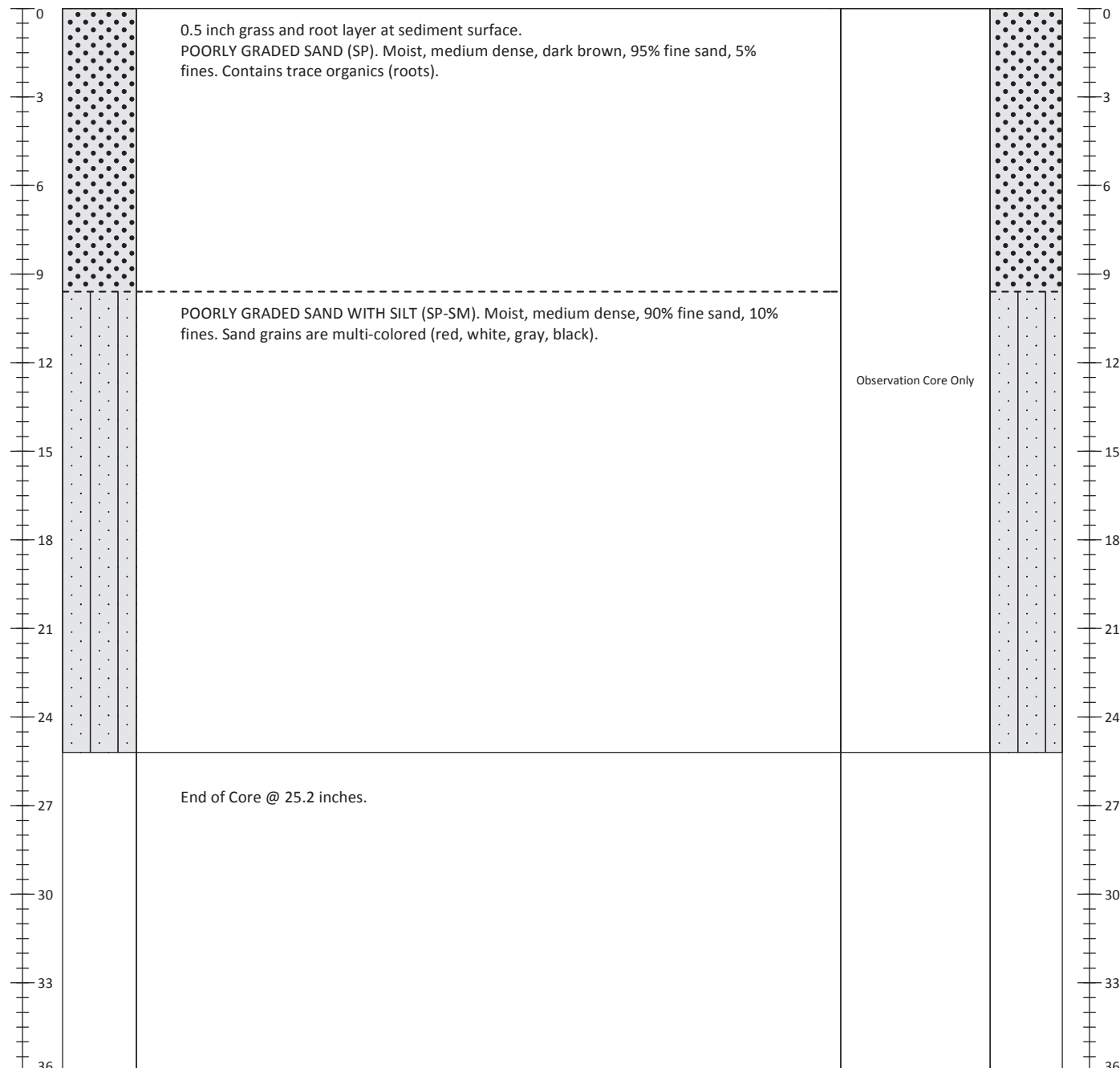
ANCHOR QEA 720 Olive Way, Suite 1900 Seattle, WA 98101 206-287-9130	Notes: 1. Attempt 1.	Calculated Recovery Recovery Length/Penetration Depth: 78 %
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Core Log WL-02-B

Sheet 1 of 1

Project: Parcel 114 RI/FS	Location: Tacoma, WA	Tube Length (inch): 48
Project #: 120204-02.02	Surface Water Elevation (MLLW): NA	Penetration Depth (inch): 32
Client: Port of Tacoma	Water Depth (inch): NA	Field Recovery Length (inch): 26
Collection Date: 10/2/2013	Mudline Elevation (ft): NA	Process Date: 10/3/2013
Contractor: Anchor QEA	N/LAT: 713488.754 E/LONG: 1169516.257	Process Method: Cut tube
Vessel: NA	Horiz. Datum: NAD 83 State Plane WA South US feet	Logged By: EM
Operator: NA	Method/Tube ID: Direct Push / 3 inch	

Recovered Depth (inch)	Lithologic Symbol	Sediment Description	Sample ID: Analysis	Lithologic Symbol	Recovered Depth (inch)
		Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS			



<p>206-287-9130</p>	<p>Notes: 1. Attempt 1. 2. 3 inches of sand were lost from bottom of core tube during core removal from sediment.</p>	<p>Calculated Recovery Recovery Length/Penetration Depth: 81 %</p>
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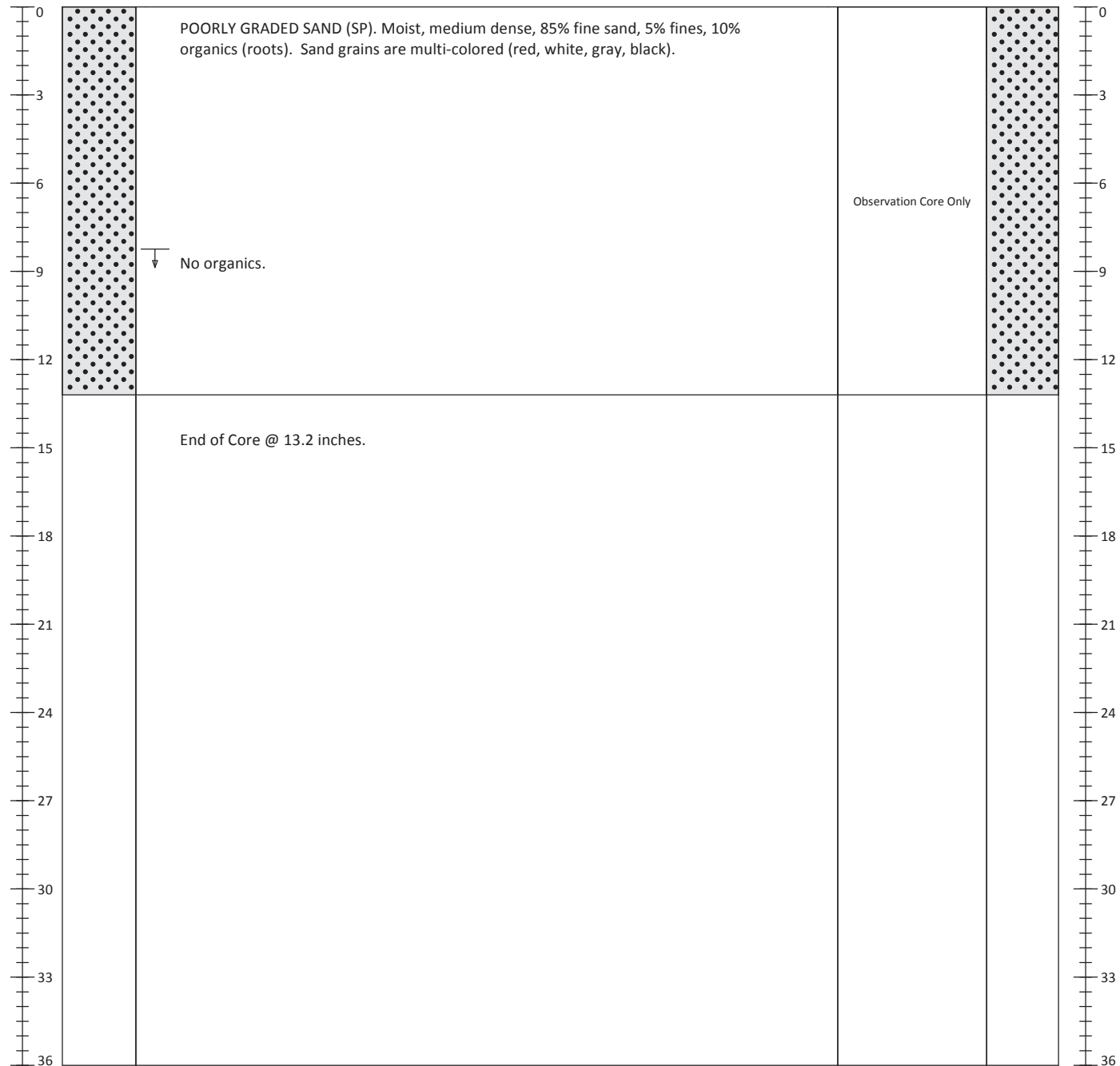
Core Log

WL-02-C

Sheet 1 of 1

Project: Parcel 114 RI/FS	Location: Tacoma, WA	Tube Length (inch): 36
Project #: 120204-02.02	Surface Water Elevation (MLLW): NA	Penetration Depth (inch): 18
Client: Port of Tacoma	Water Depth (inch): NA	Field Recovery Length (inch): 13
Collection Date: 10/2/2013	Mudline Elevation (ft): NA	Process Date: 10/2/2013
Contractor: Anchor QEA	N/LAT: 713478.388 E/LONG: 1169505.258	Process Method: Cut tube
Vessel: NA	Horiz. Datum: NAD 83 State Plane WA South US feet	Logged By: NB
Operator: NA	Method/Tube ID: Direct Push / 2 inch	

Recovered Depth (inch)	Lithologic Symbol	Sediment Description	Sample ID: Analysis	Lithologic Symbol	Recovered Depth (inch)
		Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS			



<p>720 Olive Way, Suite 1900 Seattle, WA 98101 206-287-9130</p>	<p>Notes: 1. Attempt 1. 2. Slight rainbow sheen observed on surface water following core removal from sediment.</p>	<p>Calculated Recovery Recovery Length/Penetration Depth:</p> <p>72 %</p>
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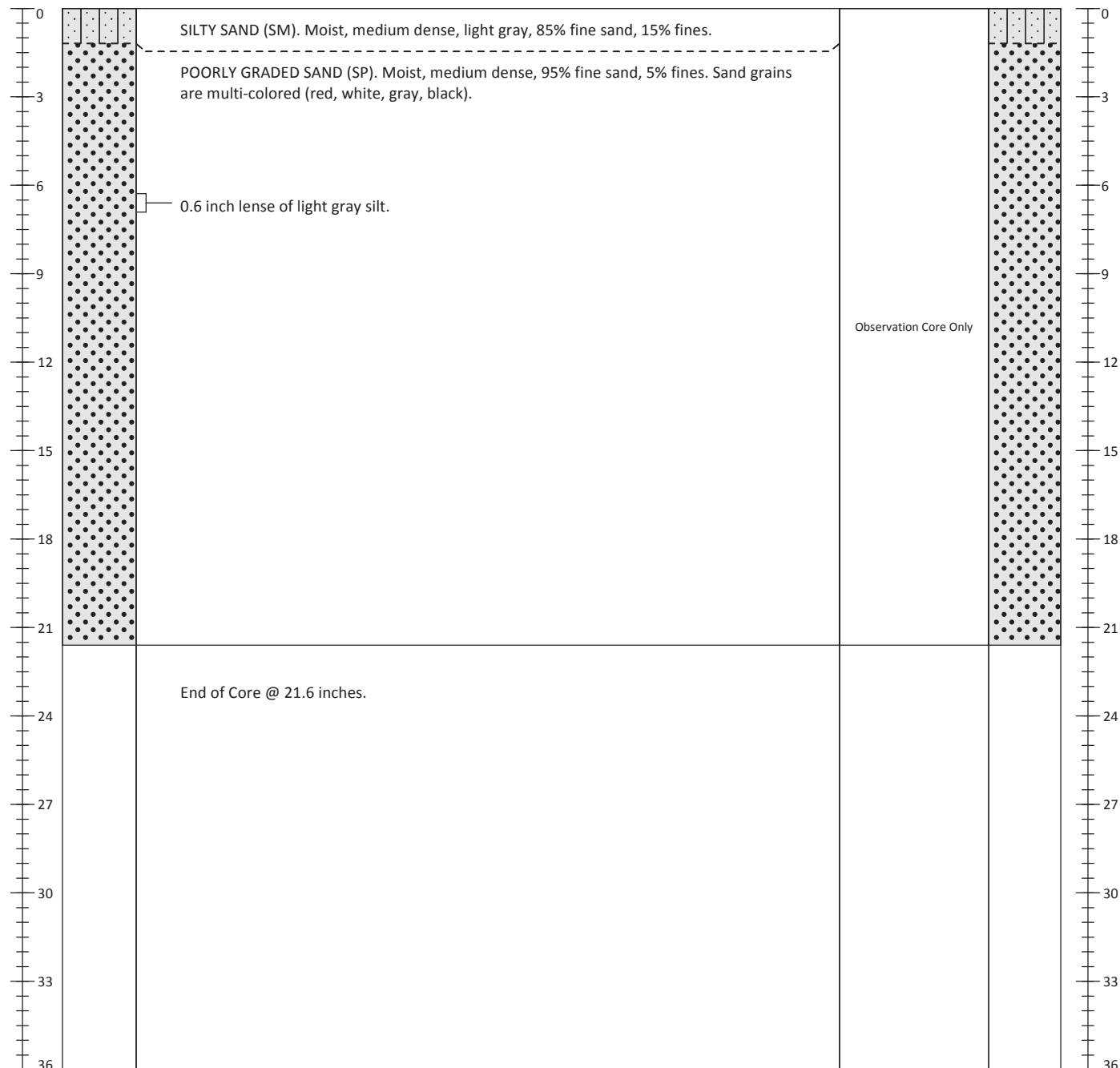
Core Log

WL-03-A

Sheet 1 of 1

Project: Parcel 114 RI/FS	Location: Tacoma, WA	Tube Length (inch): 36
Project #: 120204-02.02	Surface Water Elevation (MLLW): NA	Penetration Depth (inch): 26
Client: Port of Tacoma	Water Depth (inch): 2	Field Recovery Length (inch): 23
Collection Date: 10/3/2013	Mudline Elevation (ft): NA	Process Date: 10/3/2013
Contractor: Anchor QEA	N/LAT: 713412.865 E/LONG: 1169619.667	Process Method: Cut tube
Vessel: NA	Horiz. Datum: NAD 83 State Plane WA South US feet	Logged By: JW, DG
Operator: NA	Method/Tube ID: 2	

Recovered Depth (inch)	Lithologic Symbol	Sediment Description	Sample ID: Analysis	Lithologic Symbol	Recovered Depth (inch)
		Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS			



<p>720 Olive Way, Suite 1900 Seattle, WA 98101 206-287-9130</p>	<p>Notes: 1. Attempt 1. 2. Cored through moderately dense Typha spp. root layer.</p>	<p>Calculated Recovery Recovery Length/Penetration Depth: 88 %</p>
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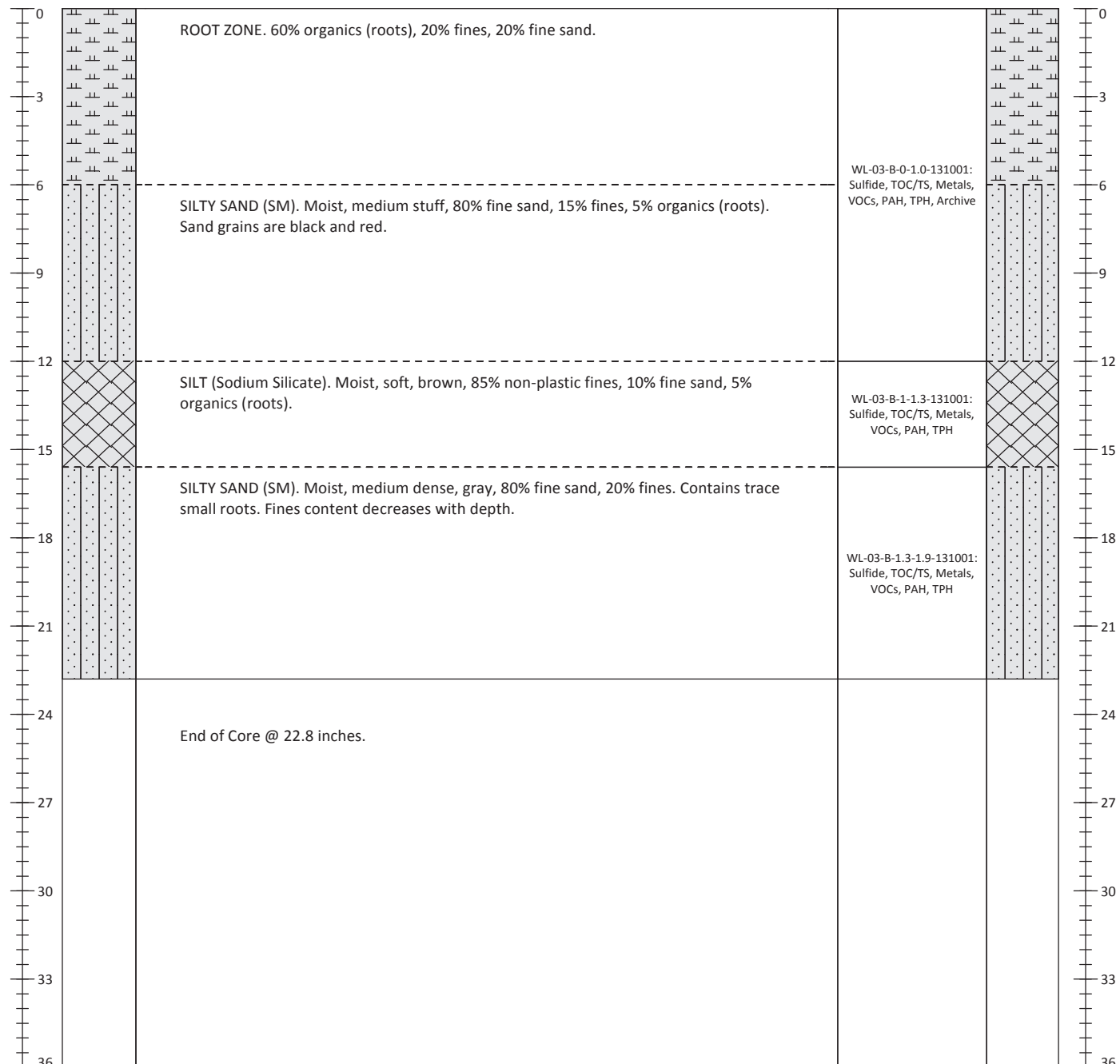
Core Log

WL-03-B

Sheet 1 of 1

Project: Parcel 114 RI/FS	Location: Tacoma, WA	Tube Length (inch): 48
Project #: 120204-02.02	Surface Water Elevation (MLLW): NA	Penetration Depth (inch): 30
Client: Port of Tacoma	Water Depth (inch): NA	Field Recovery Length (inch): 23
Collection Date: 10/1/2013	Mudline Elevation (ft): NA	Process Date: 10/1/2013
Contractor: Anchor QEA	N/LAT: 713402.980 E/LONG: 1169610.374	Process Method: Cut tube
Vessel: NA	Horiz. Datum: NAD 83 State Plane WA South US feet	Logged By: EM
Operator: NA	Method/Tube ID: Direct Push / 3 inch	

Recovered Depth (inch)	Lithologic Symbol	Sediment Description	Sample ID: Analysis	Lithologic Symbol	Recovered Depth (inch)
Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS					



ANCHOR QEA 720 Olive Way, Suite 1900 Seattle, WA 98101 206-287-9130	Notes: <ol style="list-style-type: none"> 1. Attempt 1. 2. Cored through moderately dense Typha spp. root layer. 3. Slight rainbow sheen observed on surface water following core removal from sediment. 	Calculated Recovery Recovery Length/Penetration Depth: 77 %
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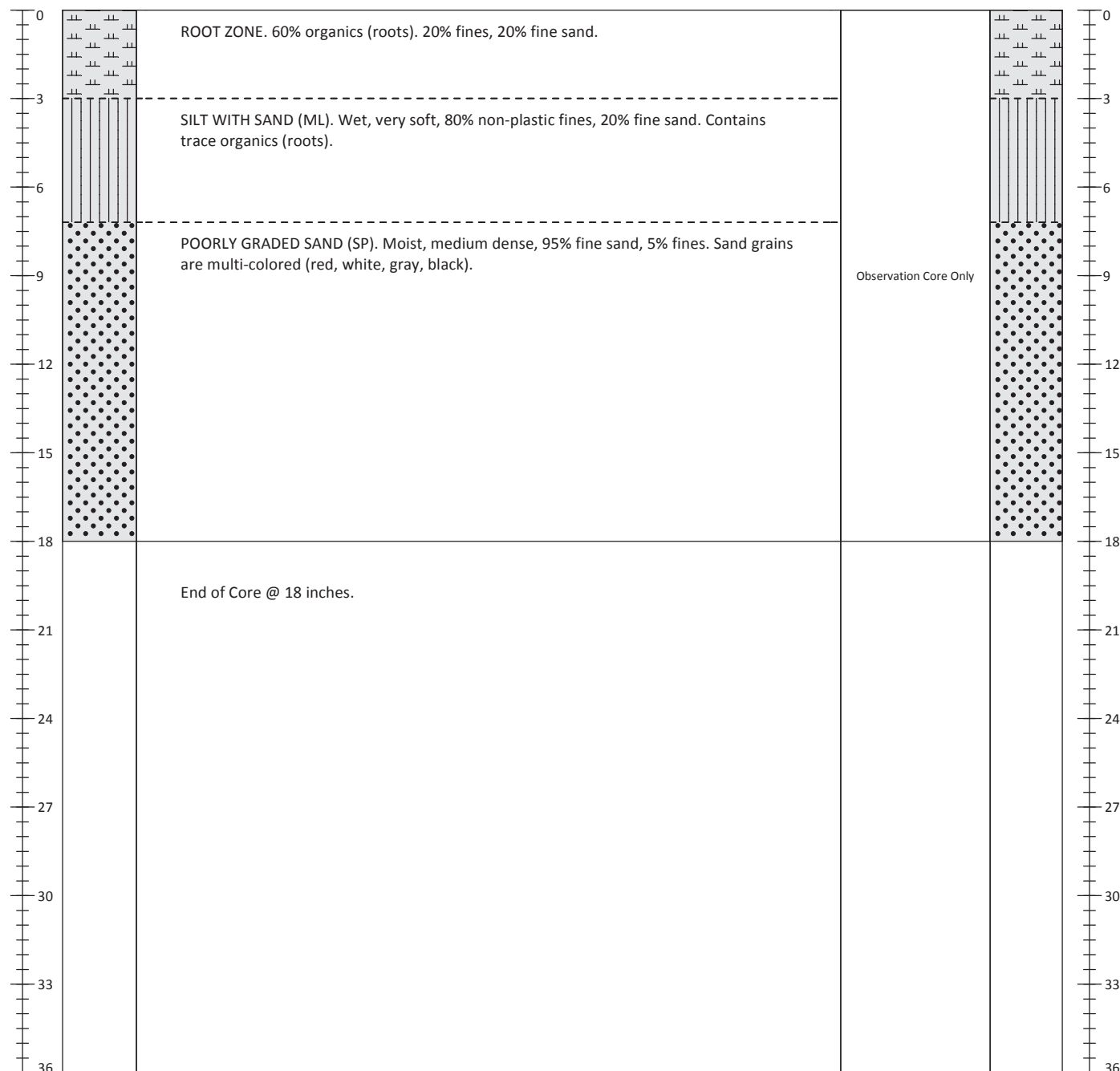
Core Log

WL-03-C

Sheet 1 of 1

Project: Parcel 114 RI/FS	Location: Tacoma, WA	Tube Length (inch): 36
Project #: 120204-02.02	Surface Water Elevation (MLLW): NA	Penetration Depth (inch): 27
Client: Port of Tacoma	Water Depth (inch): 2	Field Recovery Length (inch): 18
Collection Date: 10/3/2013	Mudline Elevation (ft): NA	Process Date: 10/3/2013
Contractor: Anchor QEA	N/LAT: 713390.405 E/LONG: 1169596.999	Process Method: Cut tube
Vessel: NA	Horiz. Datum: NAD 83 State Plane WA South US feet	Logged By: NB
Operator: NA	Method/Tube ID: Direct Push / 2 inch	

Recovered Depth (inch)	Lithologic Symbol	Sediment Description	Sample ID: Analysis	Lithologic Symbol	Recovered Depth (inch)
		Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS			



<p>720 Olive Way, Suite 1900 Seattle, WA 98101 206-287-9130</p>	<p>Notes: 1. Attempt 1. 2. Cored through moderately dense Typha spp. root layer.</p>	<p>Calculated Recovery Recovery Length/Penetration Depth: 67 %</p>
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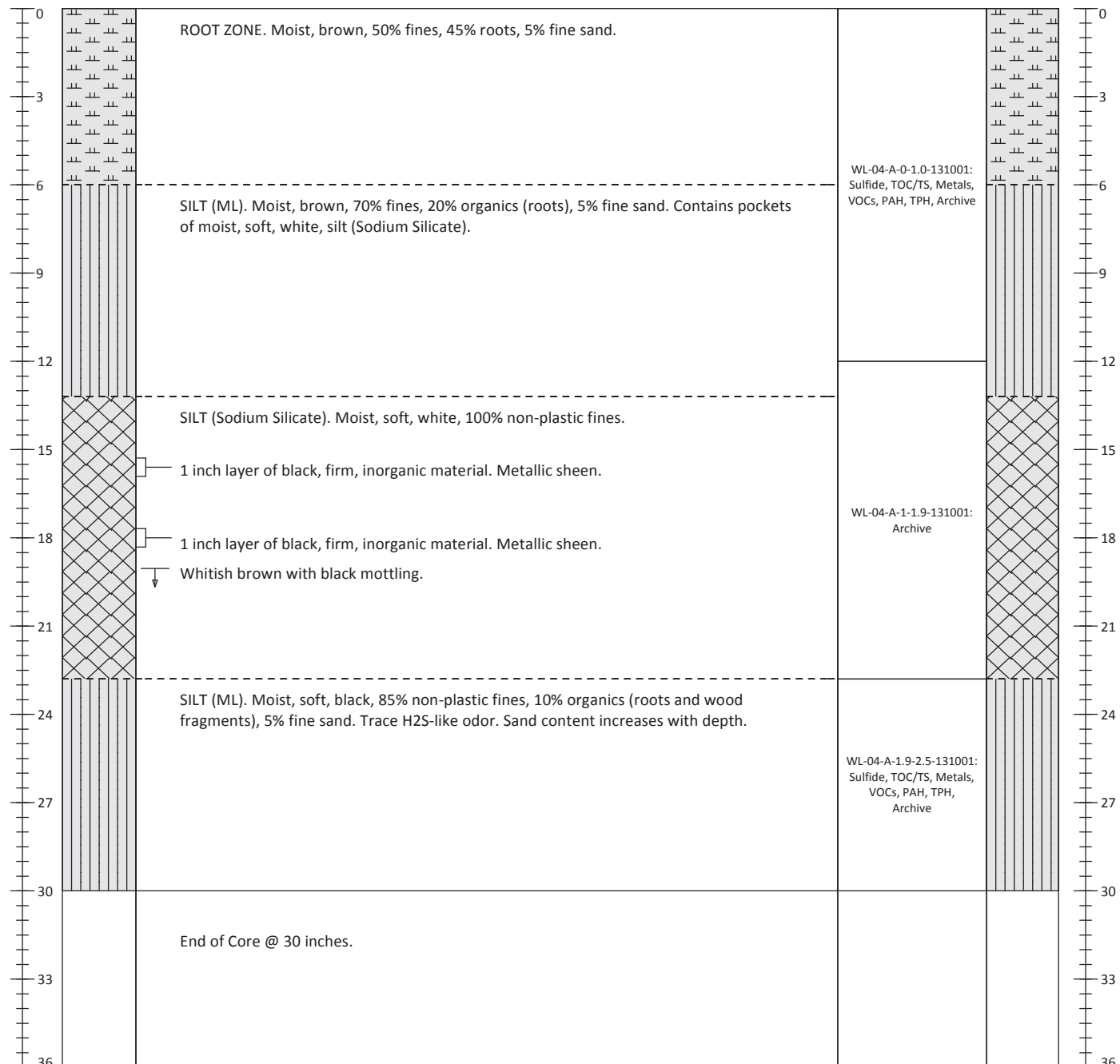
Core Log

WL-04-A

Sheet 1 of 1

Project: Parcel 114 RI/FS	Location: Tacoma, WA	Tube Length (inch): 48
Project #: 120204-02.02	Surface Water Elevation (MLLW): NA	Penetration Depth (inch): 44
Client: Port of Tacoma	Water Depth (inch): NA	Field Recovery Length (inch): 30
Collection Date: 10/1/2013	Mudline Elevation (ft): NA	Process Date: 10/1/2013
Contractor: Anchor QEA	N/LAT: 713317.242 E/LONG: 1169700.878	Process Method: Cut tube
Vessel: NA	Horiz. Datum: NAD 83 State Plane WA South US feet	Logged By: JW, DG
Operator: NA	Method/Tube ID: Direct Push / 3 inch	

Recovered Depth (inch)	Lithologic Symbol	Sediment Description	Sample ID: Analysis	Lithologic Symbol	Recovered Depth (inch)
		Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS			



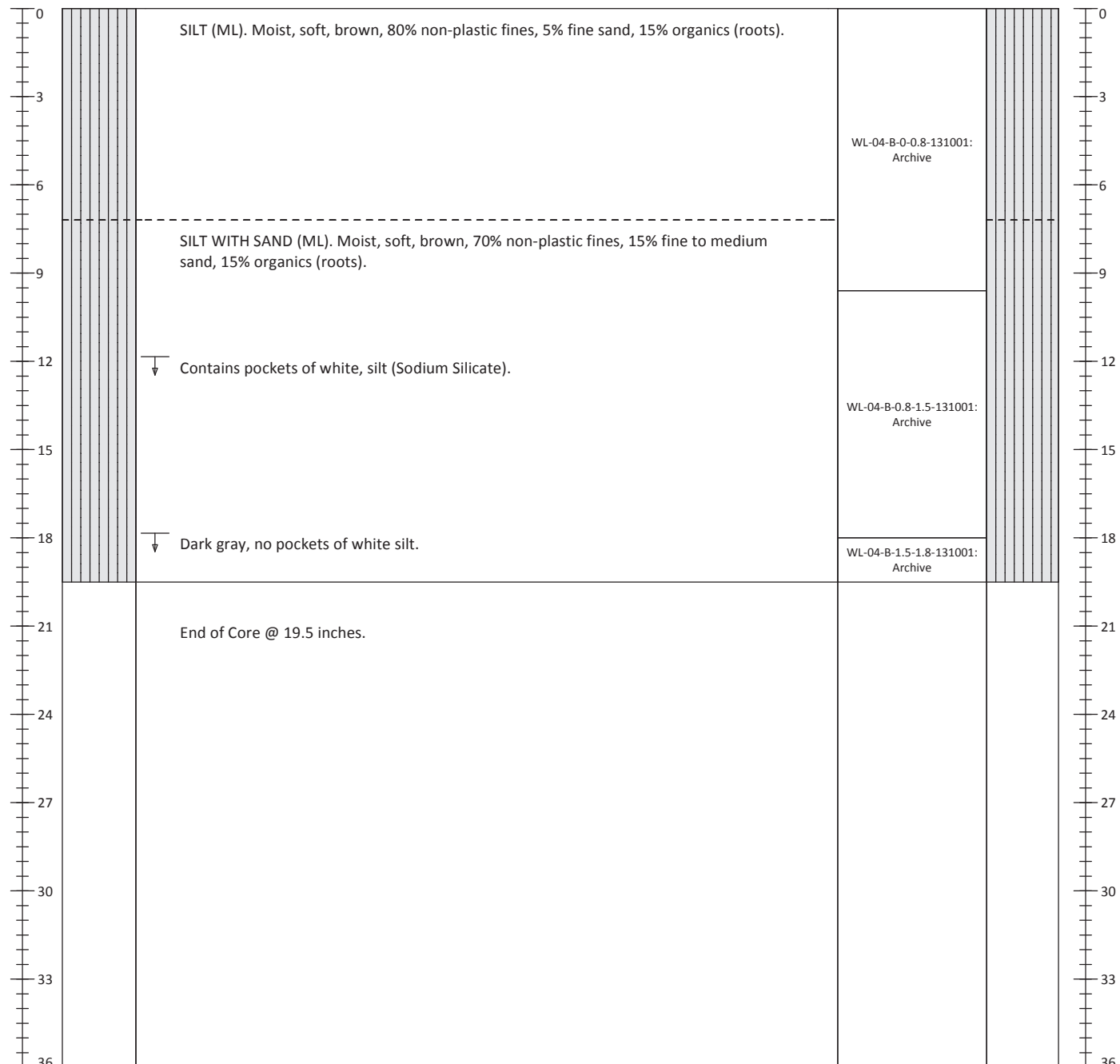
ANCHOR QEA 720 Olive Way, Suite 1900 Seattle, WA 98101 206-287-9130	Notes: 1. Attempt 1.	Calculated Recovery Recovery Length/Penetration Depth: 68 %
---	-----------------------------	---

Core Log WL-04-B

Sheet 1 of 1

Project: Parcel 114 RI/FS	Location: Tacoma, WA	Tube Length (inch): 48
Project #: 120204-02.02	Surface Water Elevation (MLLW): NA	Penetration Depth (inch): 21
Client: Port of Tacoma	Water Depth (inch): NA	Field Recovery Length (inch): 19.5
Collection Date: 10/1/2013	Mudline Elevation (ft): NA	Process Date: 10/1/2013
Contractor: Anchor QEA	N/LAT: 713307.629 E/LONG: 1169692.299	Process Method: Cut tube
Vessel: NA	Horiz. Datum: NAD 83 State Plane WA South US feet	Logged By: JW, DG
Operator: NA	Method/Tube ID: Direct Push / 3 inch	

Recovered Depth (inch)	Lithologic Symbol	Sediment Description	Sample ID: Analysis	Lithologic Symbol	Recovered Depth (inch)
		Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS			



ANCHOR QEA 720 Olive Way, Suite 1900 Seattle, WA 98101 206-287-9130	Notes: 1. Attempt 1. 2. Cored through moderately dense Typha spp. root layer.	Calculated Recovery Recovery Length/Penetration Depth: 93 %
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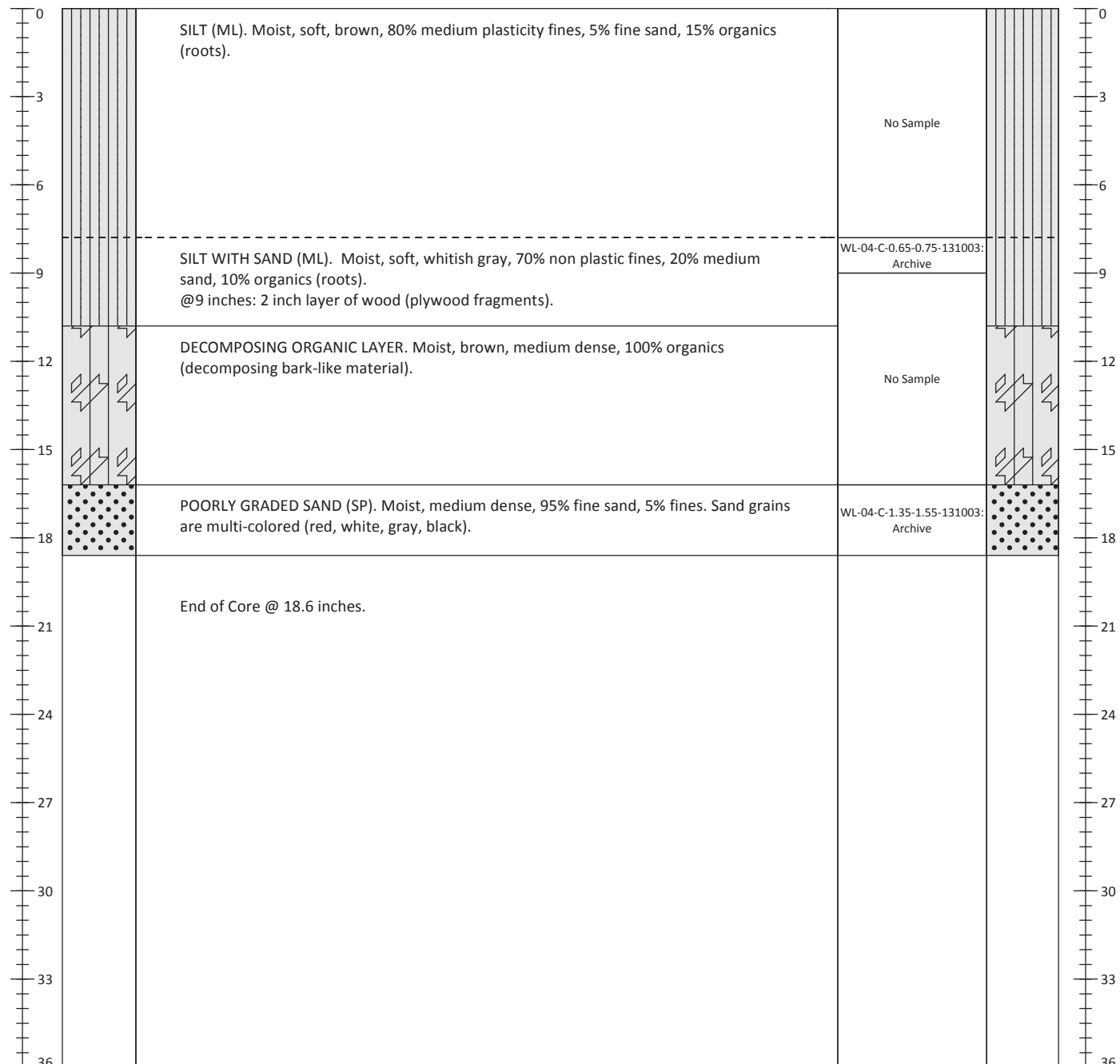
Core Log

WL-04-C

Sheet 1 of 1

Project: Parcel 114 RI/FS	Location: Tacoma, WA	Tube Length (inch): 36
Project #: 120204-02.02	Surface Water Elevation (MLLW): NA	Penetration Depth (inch): 34
Client: Port of Tacoma	Water Depth (inch): NA	Field Recovery Length (inch): 18.6
Collection Date: 10/3/2013	Mudline Elevation (ft): NA	Process Date: 10/3/2013
Contractor: Anchor QEA	N/LAT: 713293.424 E/LONG: 1169687.529	Process Method: Cut tube
Vessel: NA	Horiz. Datum: NAD 83 State Plane WA South US feet	Logged By: NB
Operator: NA	Method/Tube ID: Direct Push / 2 inch	

Recovered Depth (inch)	Lithologic Symbol	Sediment Description	Sample ID: Analysis	Lithologic Symbol	Recovered Depth (inch)
Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS					



<p>720 Olive Way, Suite 1900 Seattle, WA 98101 206-287-9130</p>	Notes: 1. Attempt 1. 2. Cored through moderately dense Typha spp. root layer.	Calculated Recovery Recovery Length/Penetration Depth: 55 %
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Core Log

WL-05-B

Sheet 1 of 1

Project: Parcel 114 RI/FS	Location: Tacoma, WA	Tube Length (inch): 48
Project #: 120204-02.02	Surface Water Elevation (MLLW): NA	Penetration Depth (inch): 20
Client: Port of Tacoma	Water Depth (inch): 12	Field Recovery Length (inch): 10.8
Collection Date: 10/2/2013	Mudline Elevation (ft): NA	Process Date: 10/2/2013
Contractor: Anchor QEA	N/LAT: 713244.969 E/LONG: 1169747.49	Process Method: Cut tube
Vessel: NA	Horiz. Datum: NAD 83 State Plane WA South US feet	Logged By: JW, DG
Operator: NA	Method/Tube ID: 3	

Recovered Depth (inch)	Lithologic Symbol	Sediment Description	Sample ID: Analysis	Lithologic Symbol	Recovered Depth (inch)
		Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS			

0 3 6 9 12 15 18 21 24 27 30 33 36	0 3 6 9 12 15 18 21 24 27 30 33 36	<p style="margin: 0;">SILT (ML). Moist, soft, dark brown, 70% non-plastic fines, 5% fine sand, 25% organics (roots).</p> <hr style="border-top: 1px dashed black;"/> <p style="margin: 0;">SILT (ML). Moist, soft, gray, 75% fines, 10% fine sand, 5% fine to coarse gravel, 10% organics (roots). Gravel is angular, rounded to subrounded, and up to 1 inch. Contains pockets of soft, white, silt (sodium silicate) and firm white angular fragments of inorganic material.</p> <p style="margin: 0; text-align: center;">End of Core @ 10.8 inches.</p>	<p style="margin: 0; font-size: small;">WL-05-B-0-0.25-131002: Archive</p> <p style="margin: 0; font-size: small;">WL-05-B-0.25-0.9-131002: Sulfide, TOC/TS, Metals, VOCs, PAH, TPH</p>	0 3 6 9 12 15 18 21 24 27 30 33 36
--	--	---	---	--

<p style="margin: 0; font-size: small;">720 Olive Way, Suite 1900 Seattle, WA 98101 206-287-9130</p>	<p style="margin: 0; font-size: x-small;">Notes: 1. Attempt 2. 2. Cored through moderately dense Typha spp. root layer.</p>	<p style="margin: 0; font-weight: bold; font-size: small;">Calculated Recovery</p> <p style="margin: 0; font-size: x-small;">Recovery Length/Penetration Depth:</p> <p style="margin: 0; font-weight: bold; font-size: x-small;">54 %</p>
--	--	---

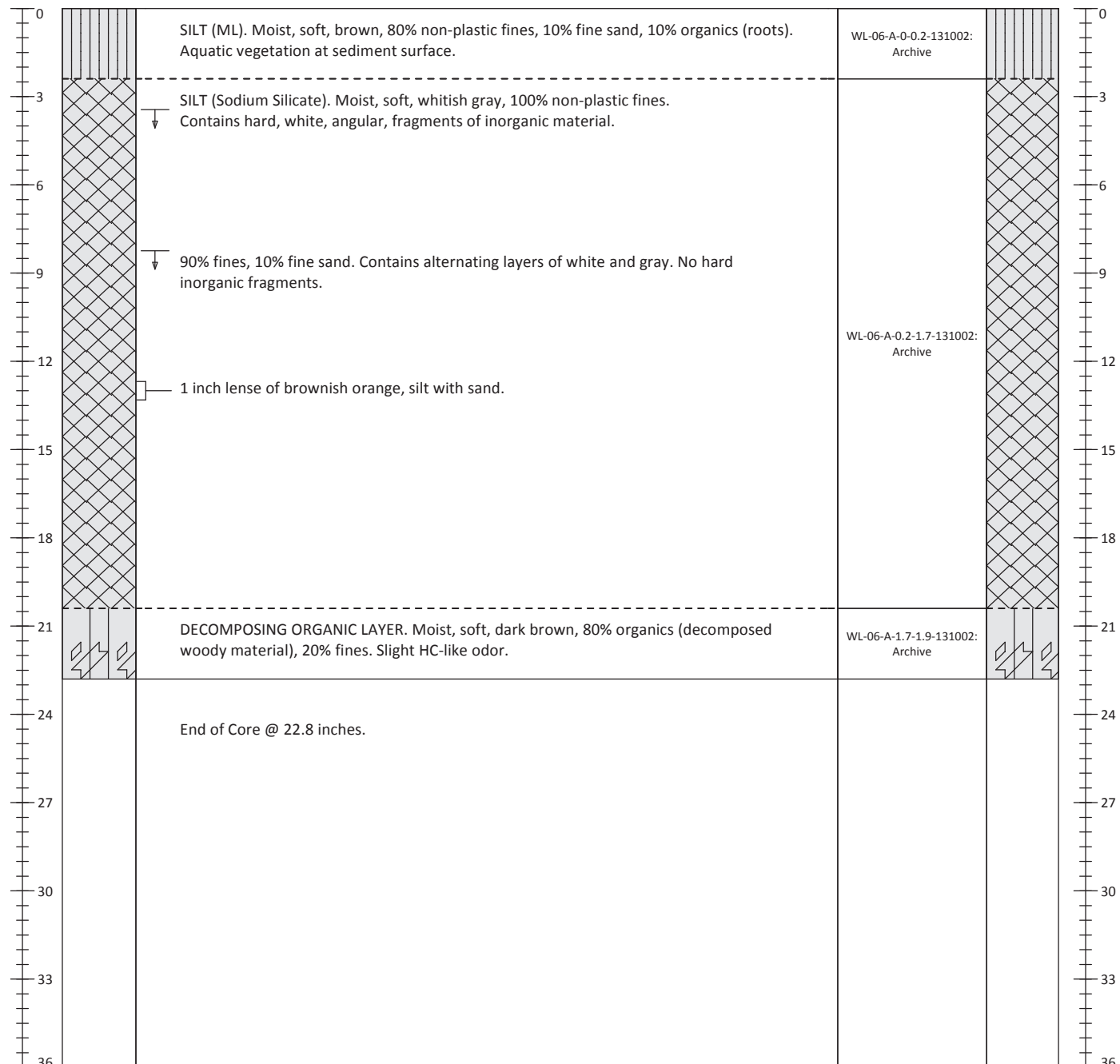
Core Log

WL-06-A

Sheet 1 of 1

Project: Parcel 114 RI/FS	Location: Tacoma, WA	Tube Length (inch): 48
Project #: 120204-02.02	Surface Water Elevation (MLLW): NA	Penetration Depth (inch): 31
Client: Port of Tacoma	Water Depth (inch): 6	Field Recovery Length (inch): 22.8
Collection Date: 10/2/2013	Mudline Elevation (ft): NA	Process Date: 10/2/2013
Contractor: Anchor QEA	N/LAT: 713219.453 E/LONG: 1169846.777	Process Method: Cut tube
Vessel: NA	Horiz. Datum: NAD 83 State Plane WA South US feet	Logged By: EM
Operator: NA	Method/Tube ID: Direct Push / 3 inch	

Recovered Depth (inch)	Lithologic Symbol	Sediment Description	Sample ID: Analysis	Lithologic Symbol	Recovered Depth (inch)
		Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS			



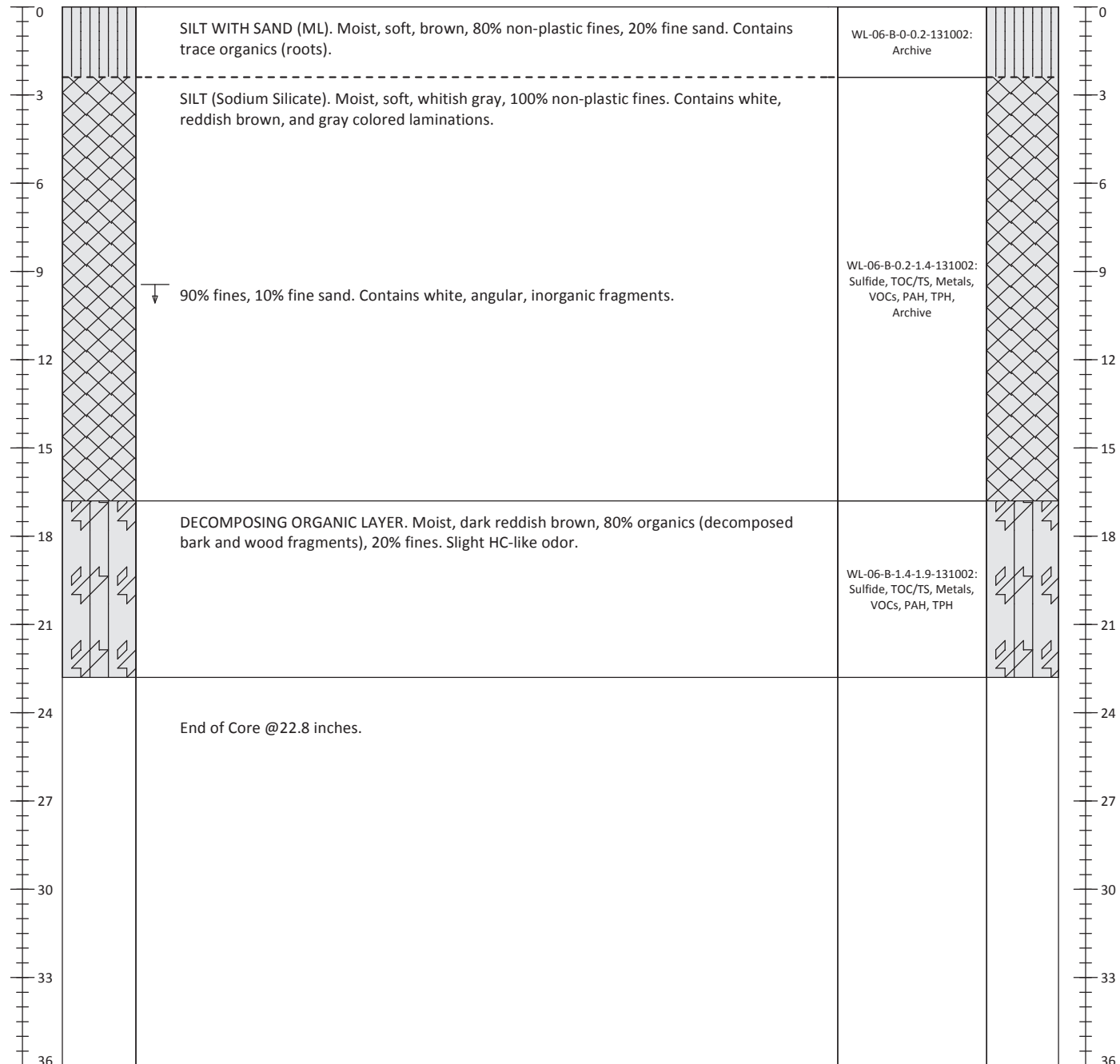
Core Log

WL-06-B

Sheet 1 of 1

Project: Parcel 114 RI/FS	Location: Tacoma, WA	Tube Length (inch): 48
Project #: 120204-02.02	Surface Water Elevation (MLLW): NA	Penetration Depth (inch): 32
Client: Port of Tacoma	Water Depth (inch): NA	Field Recovery Length (inch): 22.8
Collection Date: 10/2/2013	Mudline Elevation (ft): NA	Process Date: 10/2/2013
Contractor: Anchor QEA	N/LAT: 713200.076 E/LONG: 1169833.897	Process Method: Cut tube
Vessel: NA	Horiz. Datum: NAD 83 State Plane WA South US feet	Logged By: EM
Operator: NA	Method/Tube ID: Direct Push / 3 inch	

Recovered Depth (inch)	Lithologic Symbol	Sediment Description	Sample ID: Analysis	Lithologic Symbol	Recovered Depth (inch)
Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS					



Notes: 1. Attempt 1.
2. Slight rainbow sheen observed on surface water following core removal from sediment.

Calculated Recovery
Recovery Length/Penetration Depth:
71 %

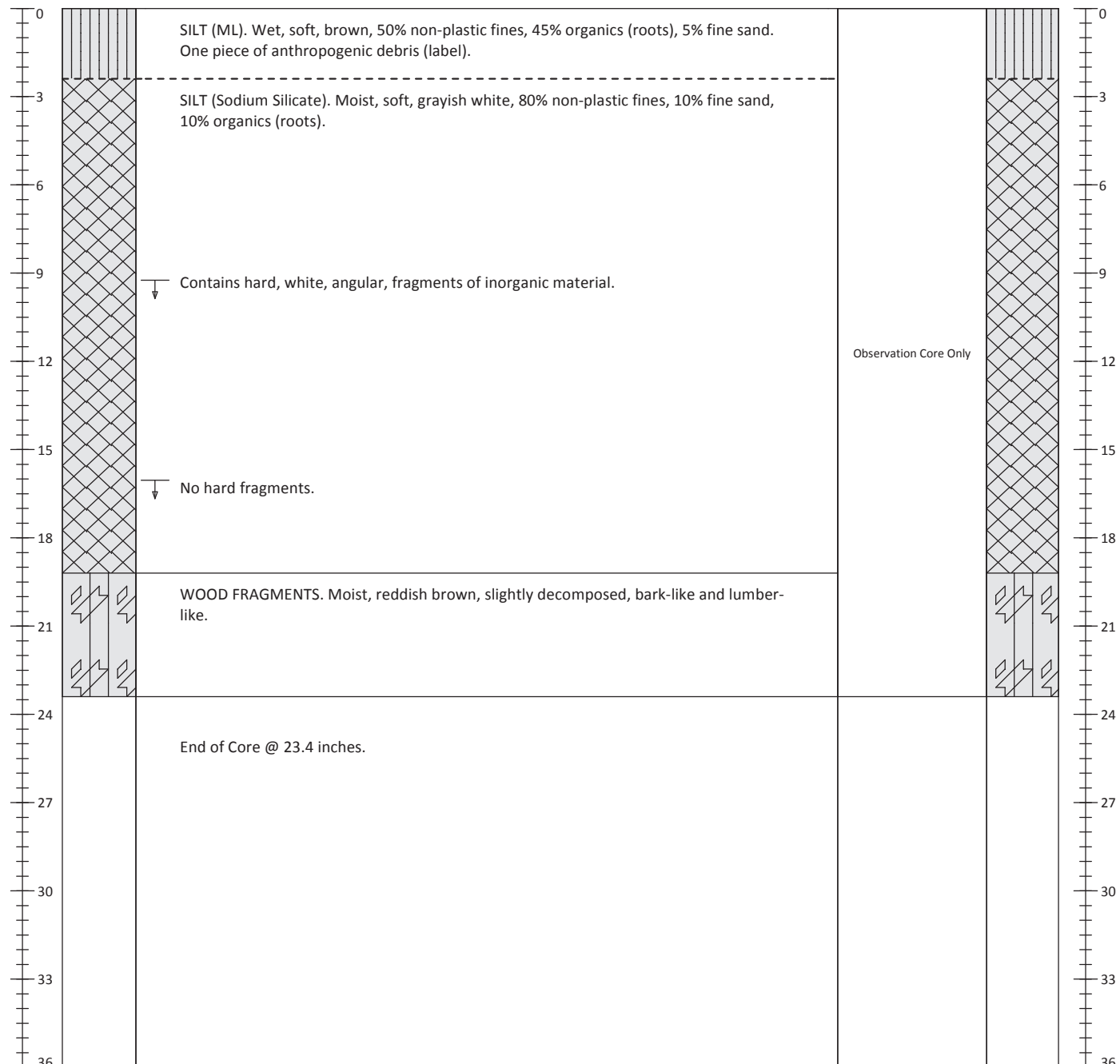
Core Log

WL-06-C

Sheet 1 of 1

Project: Parcel 114 RI/FS	Location: Tacoma, WA	Tube Length (inch): 36
Project #: 120204-02.02	Surface Water Elevation (MLLW): NA	Penetration Depth (inch): 36
Client: Port of Tacoma	Water Depth (inch): NA	Field Recovery Length (inch): 23.4
Collection Date: 10/2/2013	Mudline Elevation (ft): NA	Process Date: 10/2/2013
Contractor: Anchor QEA	N/LAT: 713183.135 E/LONG: 1169820.618	Process Method: Cut tube
Vessel: NA	Horiz. Datum: NAD 83 State Plane WA South US feet	Logged By: EM
Operator: NA	Method/Tube ID: Direct Push / 2 inch	

Recovered Depth (inch)	Lithologic Symbol	Sediment Description	Sample ID: Analysis	Lithologic Symbol	Recovered Depth (inch)
		Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS			



<p>720 Olive Way, Suite 1900 Seattle, WA 98101 206-287-9130</p>	<p>Notes: 1. Attempt 1 and 2 observed together.</p>	<p>Calculated Recovery Recovery Length/Penetration Depth:</p> <p>65 %</p>
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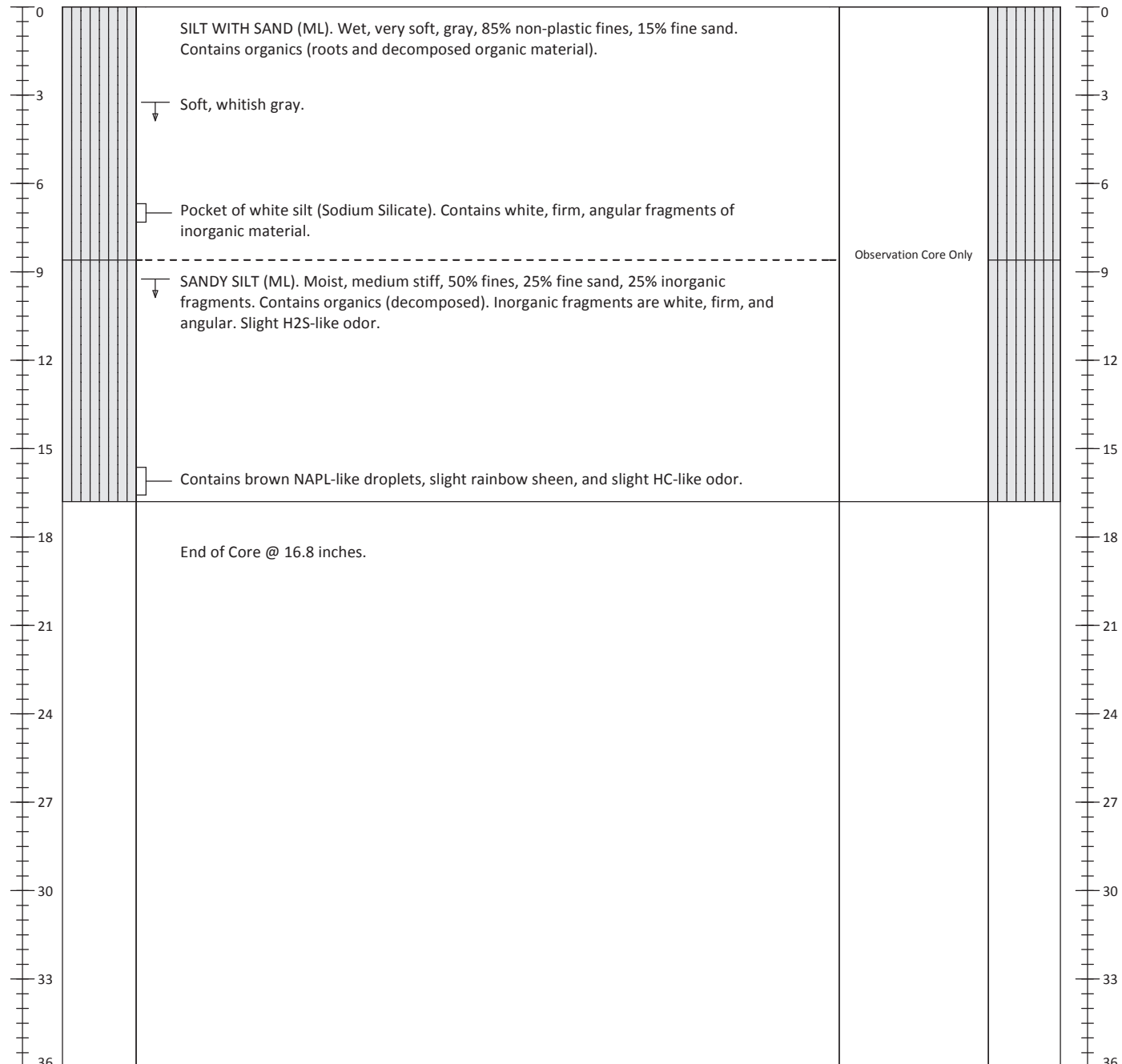
Core Log

WL-07-A

Sheet 1 of 1

Project: Parcel 114 RI/FS	Location: Tacoma, WA	Tube Length (inch): 48
Project #: 120204-02.02	Surface Water Elevation (MLLW): NA	Penetration Depth (inch): 24
Client: Port of Tacoma	Water Depth (inch): 18	Field Recovery Length (inch): 16.8
Collection Date: 10/2/2013	Mudline Elevation (ft): NA	Process Date: 10/2/2013
Contractor: Anchor QEA	N/LAT: 713187.09 E/LONG: 1169930.186	Process Method: Cut tube
Vessel: NA	Horiz. Datum: NAD 83 State Plane WA South US feet	Logged By: EM
Operator: NA	Method/Tube ID: Direct Push / 3 inch	

Recovered Depth (inch)	Lithologic Symbol	Sediment Description	Sample ID: Analysis	Lithologic Symbol	Recovered Depth (inch)
		Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS			



<p>720 Olive Way, Suite 1900 Seattle, WA 98101 206-287-9130</p>	<p>Notes: 1. Attempt 1.</p>	<p>Calculated Recovery Recovery Length/Penetration Depth:</p> <p>70 %</p>
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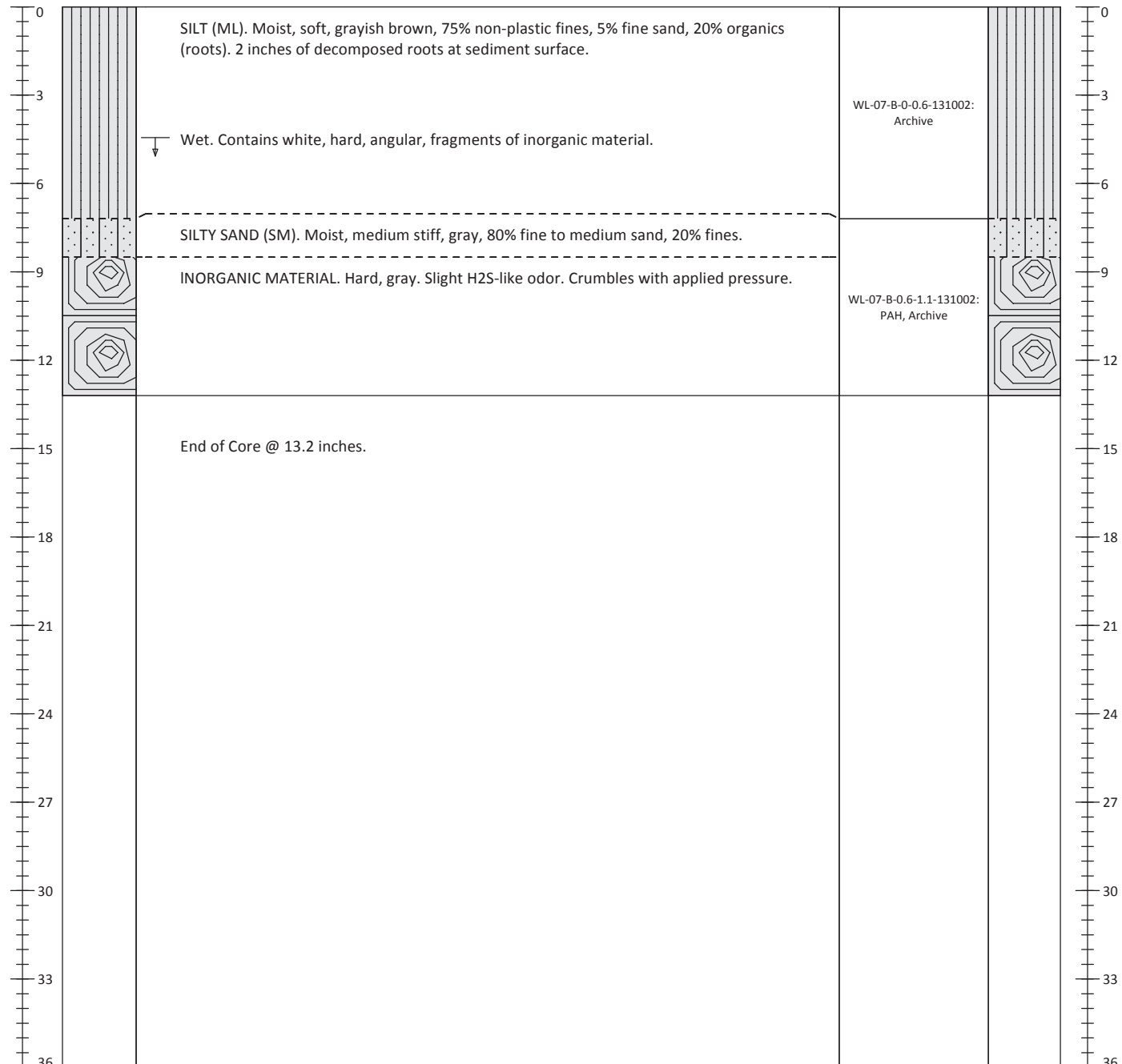
Core Log

WL-07-B

Sheet 1 of 1

Project: Parcel 114 RI/FS	Location: Tacoma, WA	Tube Length (inch): 48
Project #: 120204-02.02	Surface Water Elevation (MLLW): NA	Penetration Depth (inch): 24
Client: Port of Tacoma	Water Depth (inch): 15	Field Recovery Length (inch): 13.2
Collection Date: 10/2/2013	Mudline Elevation (ft): NA	Process Date: 10/2/2013
Contractor: Anchor QEA	N/LAT: 713161.123 E/LONG: 1169911.291	Process Method: Cut tube
Vessel: NA	Horiz. Datum: NAD 83 State Plane WA South US feet	Logged By: EM
Operator: NA	Method/Tube ID: Direct Push / 3 inch	

Recovered Depth (inch)	Lithologic Symbol	Sediment Description	Sample ID: Analysis	Lithologic Symbol	Recovered Depth (inch)
		Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS			



<p>ANCHOR QEA 720 Olive Way, Suite 1900 Seattle, WA 98101 206-287-9130</p>	<p>Notes: 1. Attempt 1. 2. Cored through moderately dense Typha spp. root layer.</p>	<p>Calculated Recovery Recovery Length/Penetration Depth: 55 %</p>
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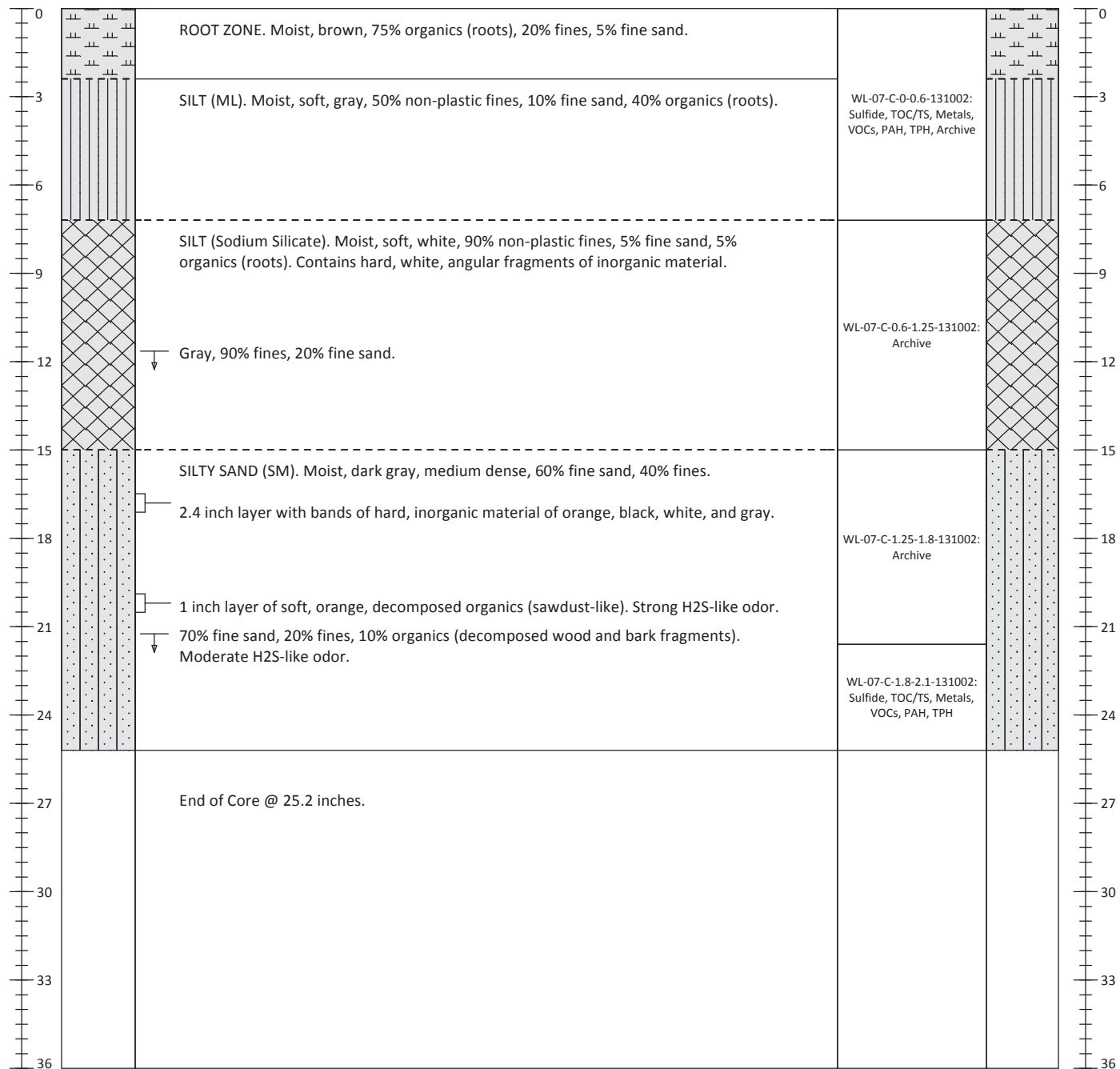
Core Log

WL-07-C

Sheet 1 of 1

Project: Parcel 114 RI/FS	Location: Tacoma, WA	Tube Length (inch): 48
Project #: 120204-02.02	Surface Water Elevation (MLLW): NA	Penetration Depth (inch): 25
Client: Port of Tacoma	Water Depth (inch): NA	Field Recovery Length (inch): 25.2
Collection Date: 10/2/2013	Mudline Elevation (ft): NA	Process Date: 10/2/2013
Contractor: Anchor QEA	N/LAT: 713152.551 E/LONG: 1169900.692	Process Method: Cut tube
Vessel: NA	Horiz. Datum: NAD 83 State Plane WA South US feet	Logged By: EM
Operator: NA	Method/Tube ID: Direct Push / 3 inch	

Recovered Depth (inch)	Lithologic Symbol	Sediment Description	Sample ID: Analysis	Lithologic Symbol	Recovered Depth (inch)
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Notes: 1. Attempt 2.
2. Cored through moderately dense Typha spp. root layer.

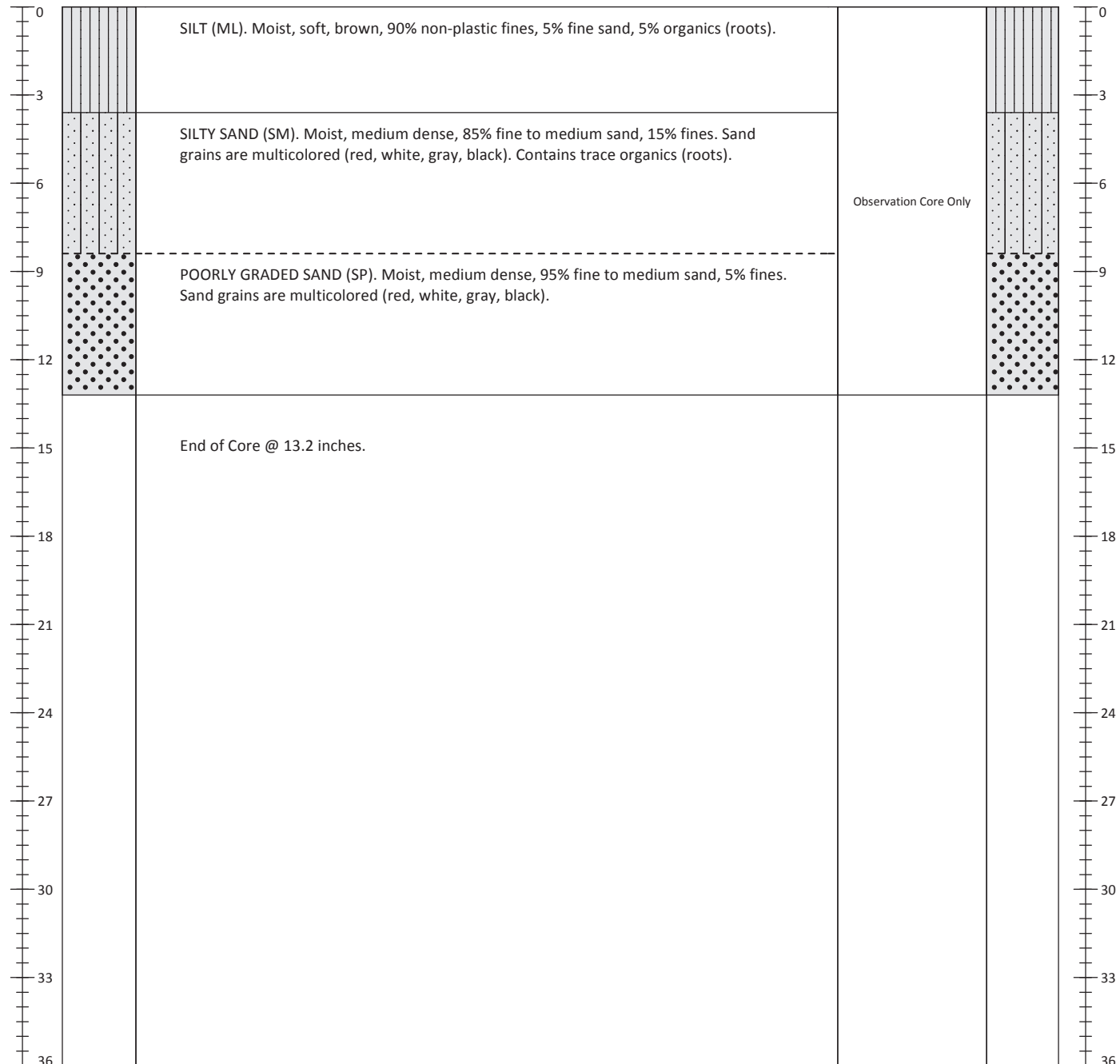
Calculated Recovery
Recovery Length/Penetration Depth:
100 %

Core Log WL-07-D

Sheet 1 of 1

Project: Parcel 114 RI/FS	Location: Tacoma, WA	Tube Length (inch): 48
Project #: 120204-02.02	Surface Water Elevation (MLLW): NA	Penetration Depth (inch): 25
Client: Port of Tacoma	Water Depth (inch): NA	Field Recovery Length (inch): 13.2
Collection Date: 10/2/2013	Mudline Elevation (ft): NA	Process Date: 10/2/2013
Contractor: Anchor QEA	N/LAT: 713139.135 E/LONG: 1169887.200	Process Method: Cut tube
Vessel: NA	Horiz. Datum: NAD 83 State Plane WA South US feet	Logged By: EM
Operator: NA	Method/Tube ID: Direct Push / 3 inch	

Recovered Depth (inch)	Lithologic Symbol	Sediment Description	Sample ID: Analysis	Lithologic Symbol	Recovered Depth (inch)
		Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS			



ANCHOR QEA 720 Olive Way, Suite 1900 Seattle, WA 98101 206-287-9130	Notes: 1. Attempt 1.	Calculated Recovery Recovery Length/Penetration Depth: 53 %
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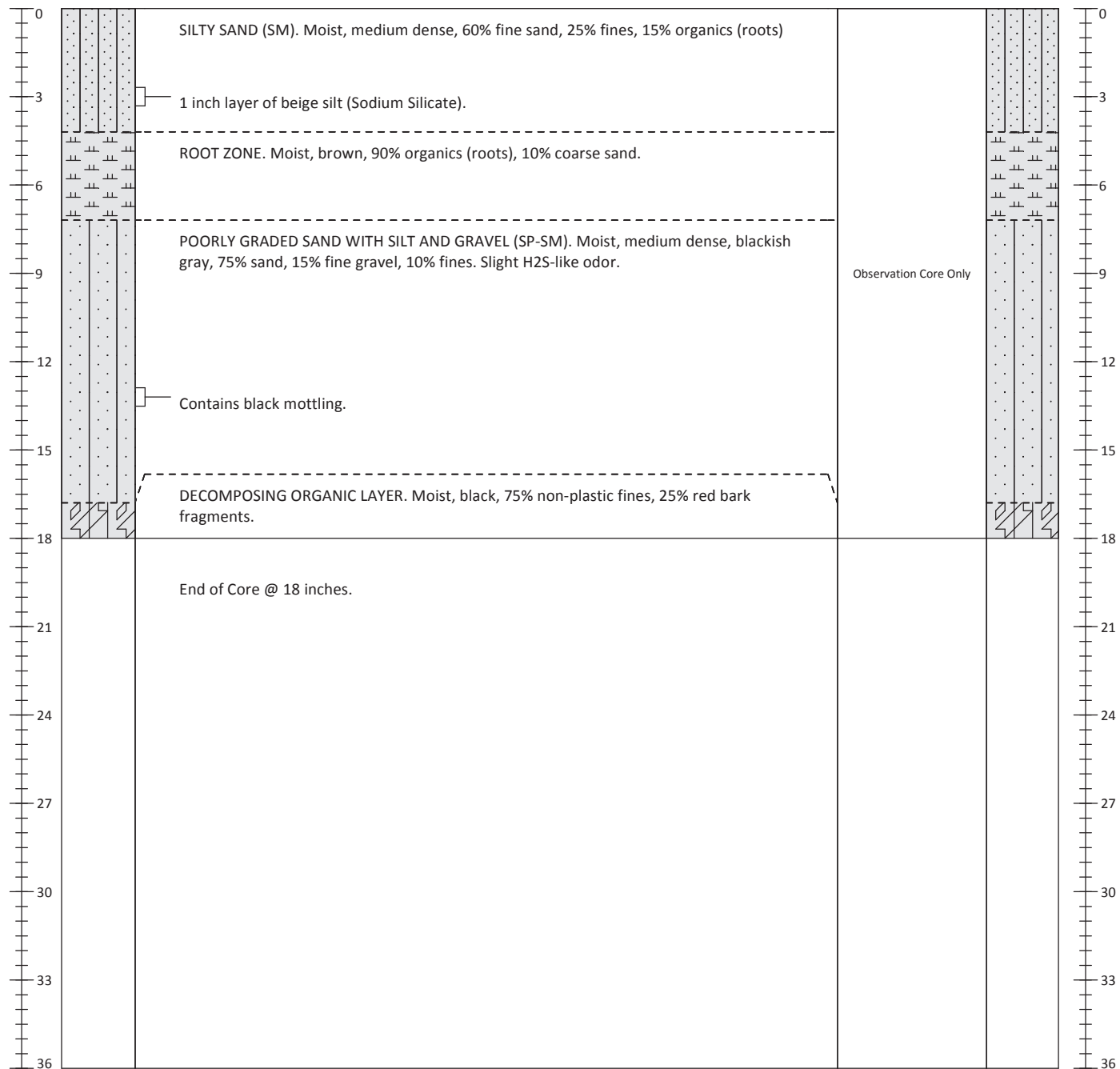
Core Log

WL-08-A

Sheet 1 of 1

Project: Parcel 114 RI/FS	Location: Tacoma, WA	Tube Length (inch): 36
Project #: 120204-02.02	Surface Water Elevation (MLLW): NA	Penetration Depth (inch): 36
Client: Port of Tacoma	Water Depth (inch): 6	Field Recovery Length (inch): 18
Collection Date: 10/3/2013	Mudline Elevation (ft): NA	Process Date: 10/3/2013
Contractor: Anchor QEA	N/LAT: 713109.224 E/LONG: 1170035.420	Process Method: Cut tube
Vessel: NA	Horiz. Datum: NAD 83 State Plane WA South US feet	Logged By: NB
Operator: NA	Method/Tube ID: Direct Push / 2 inch	

Recovered Depth (inch)	Lithologic Symbol	Sediment Description	Sample ID: Analysis	Lithologic Symbol	Recovered Depth (inch)
Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS					



ANCHOR QEA 720 Olive Way, Suite 1900 Seattle, WA 98101 206-287-9130	Notes: <ol style="list-style-type: none"> 1. Attempt 1. 2. Cored through moderately dense Typha spp. root layer. 3. Core Nose Observation: Moist, firm, dark gray, SILT. 	Calculated Recovery Recovery Length/Penetration Depth: 50 %
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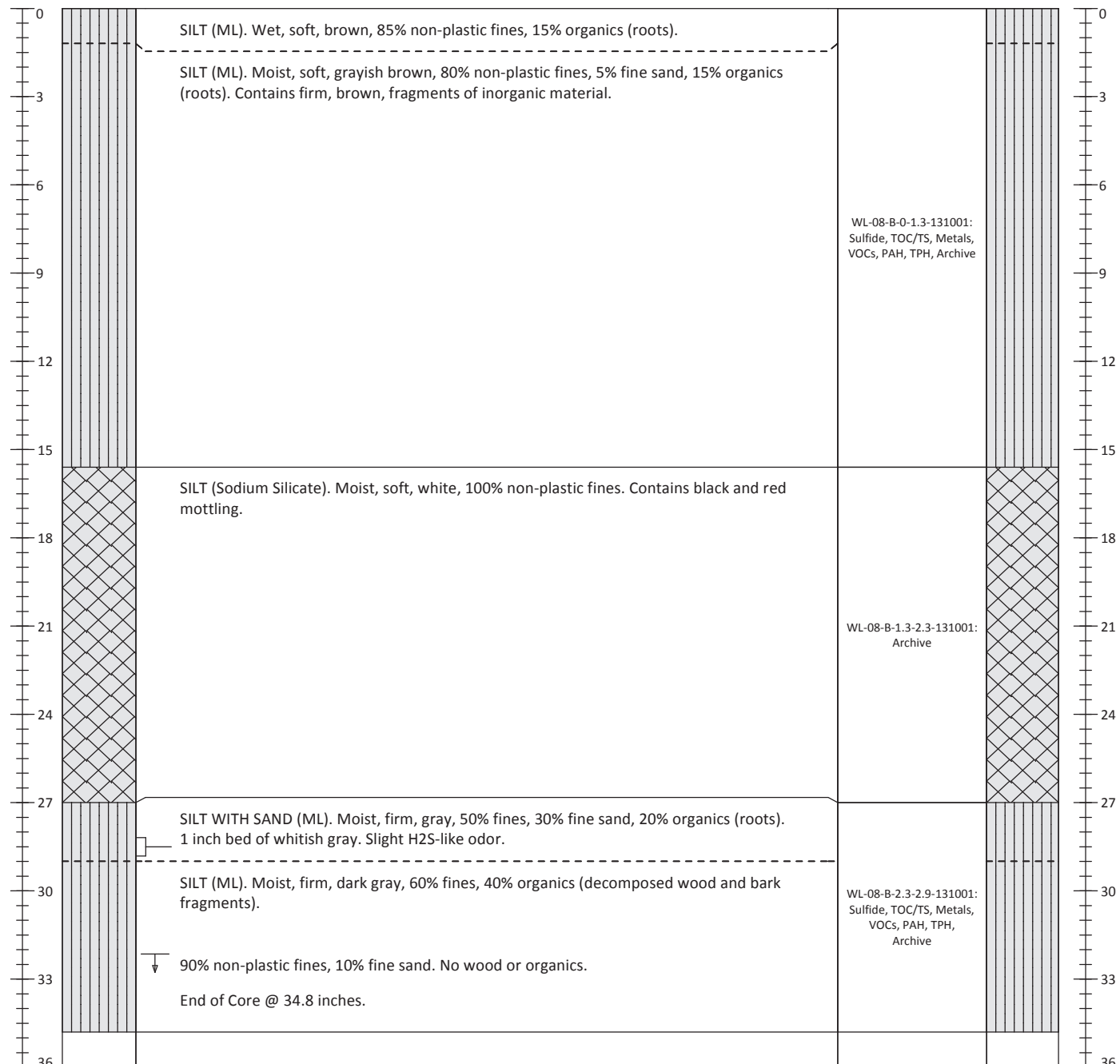
Core Log

WL-08-B

Sheet 1 of 1

Project: Parcel 114 RI/FS	Location: Tacoma, WA	Tube Length (inch): 48
Project #: 120204-02.02	Surface Water Elevation (MLLW): NA	Penetration Depth (inch): 42
Client: Port of Tacoma	Water Depth (inch): NA	Field Recovery Length (inch): 34.8
Collection Date: 10/1/2013	Mudline Elevation (ft): NA	Process Date: 10/1/2013
Contractor: Anchor QEA	N/LAT: 713083.199 E/LONG: 1170021.977	Process Method: Cut tube
Vessel: NA	Horiz. Datum: NAD 83 State Plane WA South US feet	Logged By: EM
Operator: NA	Method/Tube ID: Direct Push / 3 inch	

Recovered Depth (inch)	Lithologic Symbol	Sediment Description	Sample ID: Analysis	Lithologic Symbol	Recovered Depth (inch)
Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS					



ANCHOR QEA 720 Olive Way, Suite 1900 Seattle, WA 98101 206-287-9130	Notes: 1. Attempt 2. 2. Cored through moderately dense Typha spp. root layer.	Calculated Recovery Recovery Length/Penetration Depth: 83 %
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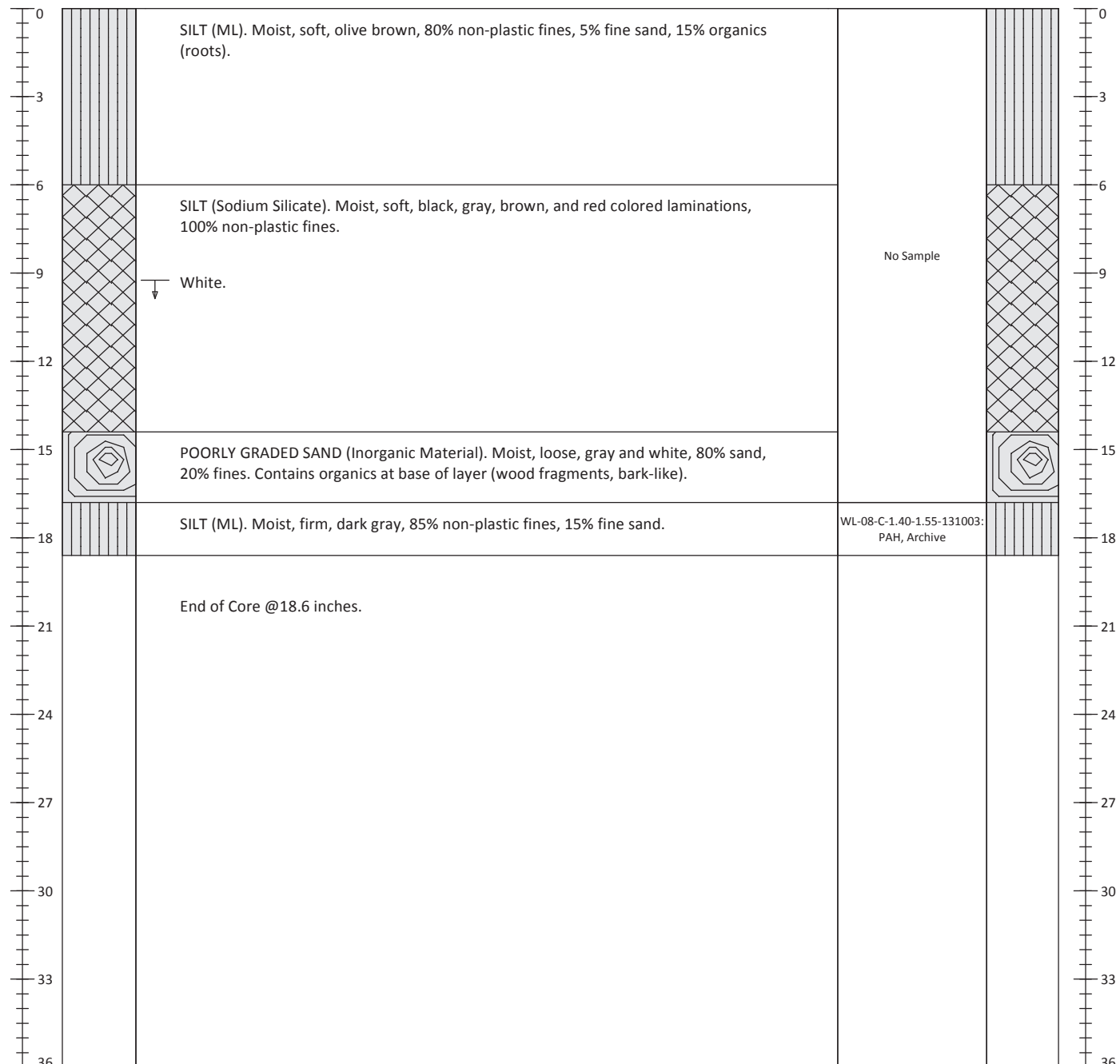
Core Log

WL-08-C

Sheet 1 of 1

Project: Parcel 114 RI/FS	Location: Tacoma, WA	Tube Length (inch): 36
Project #: 120204-02.02	Surface Water Elevation (MLLW): NA	Penetration Depth (inch): 36
Client: Port of Tacoma	Water Depth (inch): NA	Field Recovery Length (inch): 20
Collection Date: 10/3/2013	Mudline Elevation (ft): NA	Process Date: 10/3/2013
Contractor: Anchor QEA	N/LAT: 713059.438 E/LONG: 1170006.137	Process Method: Cut tube
Vessel: NA	Horiz. Datum: NAD 83 State Plane WA South US feet	Logged By: NB
Operator: NA	Method/Tube ID: Direct Push / 2 inch	

Recovered Depth (inch)	Lithologic Symbol	Sediment Description	Sample ID: Analysis	Lithologic Symbol	Recovered Depth (inch)
Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS					



ANCHOR QEA 720 Olive Way, Suite 1900 Seattle, WA 98101 206-287-9130	Notes: 1. Attempt 1. 2. Manually removed 2 inches of Typha spp. root layer to begin drive.	Calculated Recovery Recovery Length/Penetration Depth: 56 %
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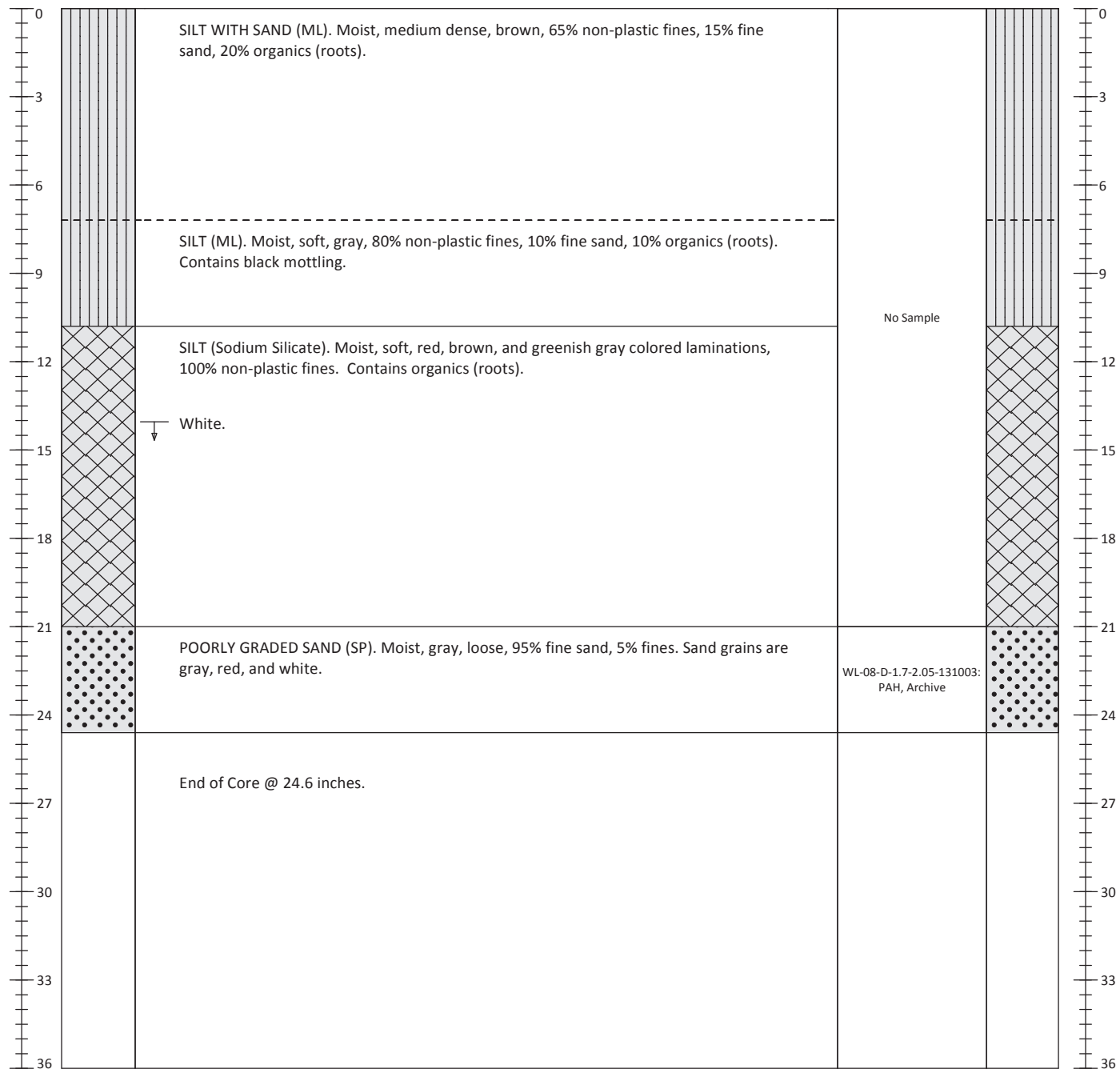
Core Log

WL-08-D

Sheet 1 of 1

Project: Parcel 114 RI/FS	Location: Tacoma, WA	Tube Length (inch): 36
Project #: 120204-02.02	Surface Water Elevation (MLLW): NA	Penetration Depth (inch): 36
Client: Port of Tacoma	Water Depth (inch): 12	Field Recovery Length (inch): 24.6
Collection Date: 10/3/2013	Mudline Elevation (ft): NA	Process Date: 10/3/2013
Contractor: Anchor QEA	N/LAT: 713027.507 E/LONG: 1169992.172	Process Method: Cut tube
Vessel: NA	Horiz. Datum: NAD 83 State Plane WA South US feet	Logged By: NB
Operator: NA	Method/Tube ID: Direct Push / 2 inch	

Recovered Depth (inch)	Lithologic Symbol	Sediment Description	Sample ID: Analysis	Lithologic Symbol	Recovered Depth (inch)
		Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS			



<p>720 Olive Way, Suite 1900 Seattle, WA 98101 206-287-9130</p>	<p>Notes: 1. Attempt 1. 2. Cored through moderately dense Typha spp. root layer.</p>	<p>Calculated Recovery Recovery Length/Penetration Depth: 68 %</p>
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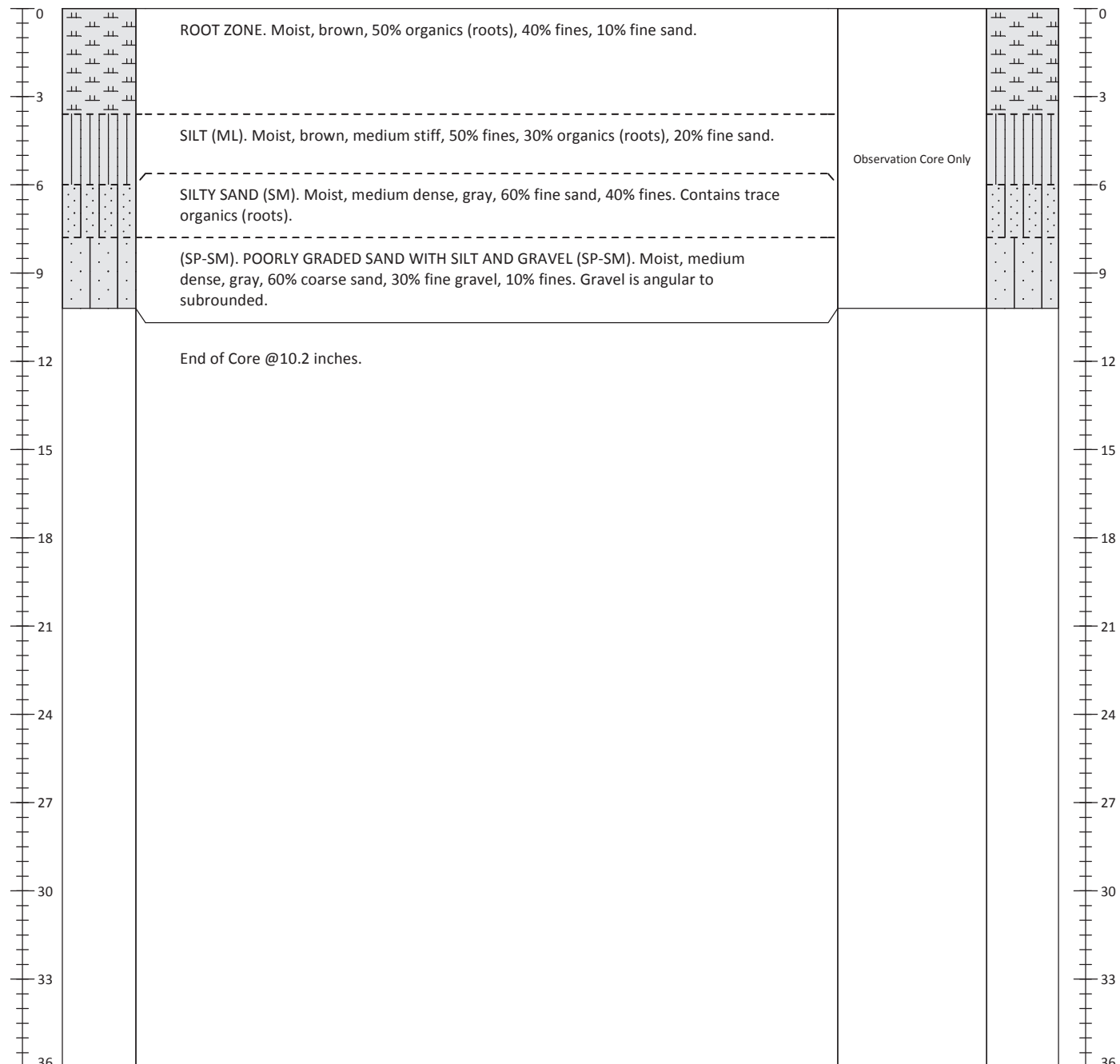
Core Log

WL-08-E

Sheet 1 of 1

Project: Parcel 114 RI/FS	Location: Tacoma, WA	Tube Length (inch): 36
Project #: 120204-02.02	Surface Water Elevation (MLLW): NA	Penetration Depth (inch): 15
Client: Port of Tacoma	Water Depth (inch): 2	Field Recovery Length (inch): 10.2
Collection Date: 10/3/2013	Mudline Elevation (ft): NA	Process Date: 10/3/2013
Contractor: Anchor QEA	N/LAT: 712996.247 E/LONG: 1169982.377	Process Method: Cut tube
Vessel: NA	Horiz. Datum: NAD 83 State Plane WA South US feet	Logged By: EM, JW
Operator: NA	Method/Tube ID: Direct Push / 2 inch	

Recovered Depth (inch)	Lithologic Symbol	Sediment Description	Sample ID: Analysis	Lithologic Symbol	Recovered Depth (inch)
Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS					



ANCHOR QEA 720 Olive Way, Suite 1900 Seattle, WA 98101 206-287-9130	Notes: 1. Attempt 1. 2. Cored through moderately dense Typha spp. root layer.	Calculated Recovery Recovery Length/Penetration Depth: 68 %
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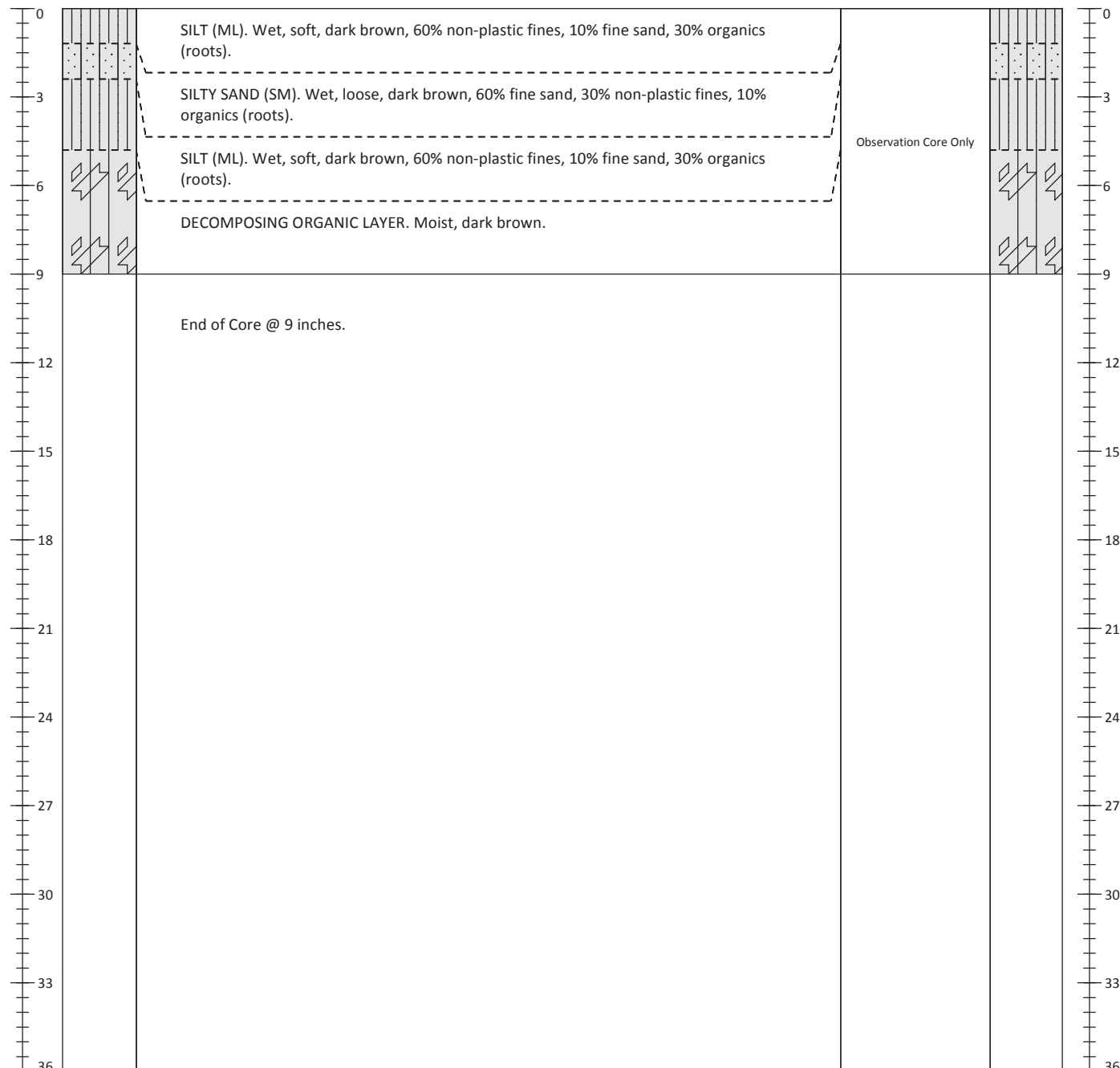
Core Log

WL-08-F

Sheet 1 of 1

Project: Parcel 114 RI/FS	Location: Tacoma, WA	Tube Length (inch): 36
Project #: 120204-02.02	Surface Water Elevation (MLLW): NA	Penetration Depth (inch): 9
Client: Port of Tacoma	Water Depth (inch): 2	Field Recovery Length (inch): 9
Collection Date: 10/3/2013	Mudline Elevation (ft): NA	Process Date: 10/3/2013
Contractor: Anchor QEA	N/LAT: 712967.896 E/LONG: 1169965.326	Process Method: Cut tube
Vessel: NA	Horiz. Datum: NAD 83 State Plane WA South US feet	Logged By: EM
Operator: NA	Method/Tube ID: Direct Push / 2 inch	

Recovered Depth (inch)	Lithologic Symbol	Sediment Description	Sample ID: Analysis	Lithologic Symbol	Recovered Depth (inch)
		Samples and Descriptions are in Recovered Depths. Classification Scheme: USCS			



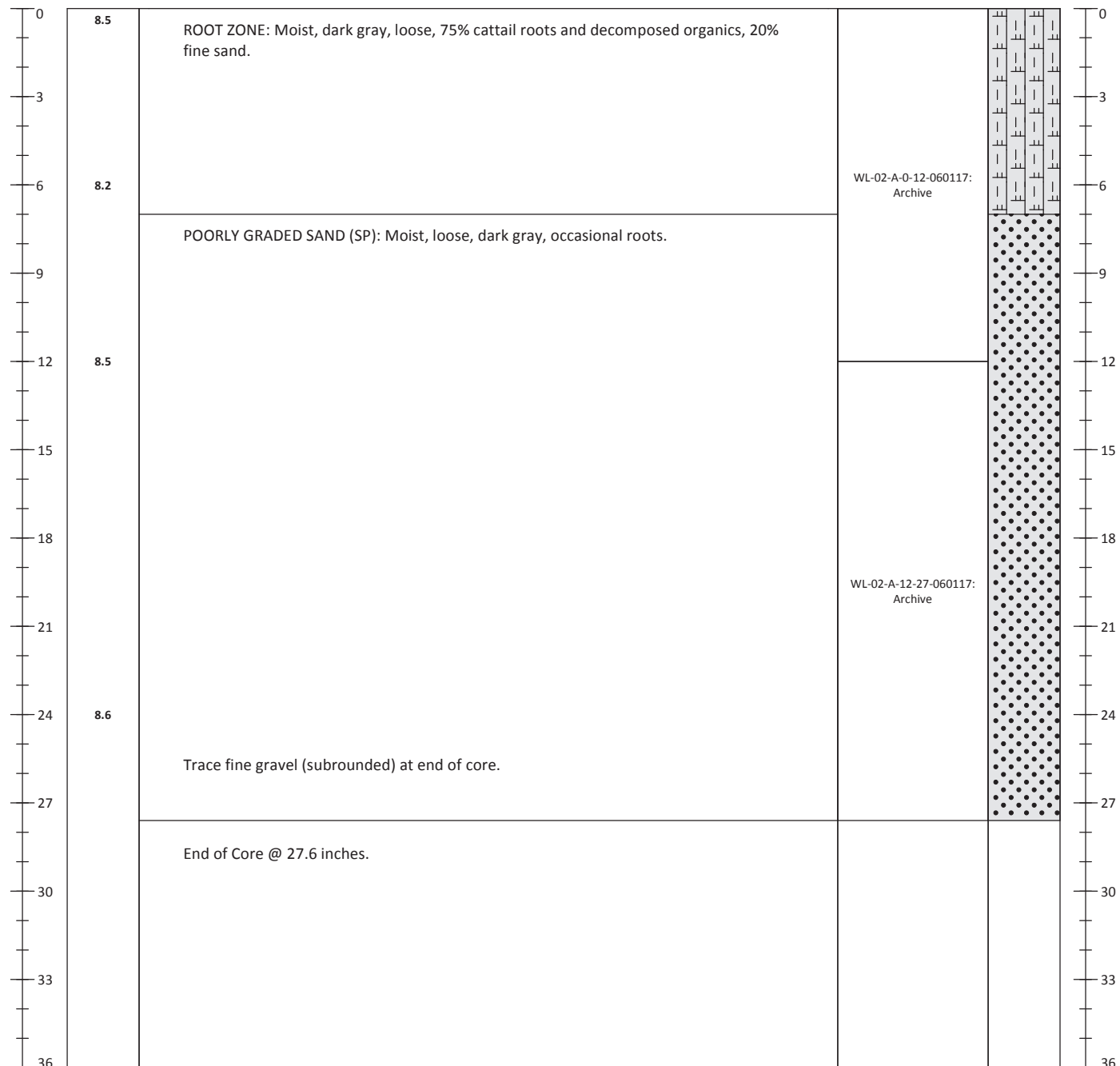
<p>720 Olive Way, Suite 1900 Seattle, WA 98101 206-287-9130</p>	<p>Notes:</p> <ol style="list-style-type: none"> 1. Attempt 3. 2. Cored through moderately dense Typha spp. root layer. 3. Material below core is sandy gravel. 	<p>Calculated Recovery</p> <p>Recovery Length/Penetration Depth:</p> <p>100 %</p>
---	---	---

Core Log WL-02-A

Sheet 1 of 1

Project: Parcel 114 RI/FS	Location: Tacoma, WA	Tube Length (inch): 36
Project #: 120204-02.02	Surface Water Elevation (MLLW): NA	Penetration Depth (inch): 34
Client: Port of Tacoma	Water Depth (inch): NA	Field Recovery Length (inch): 27.6
Collection Date: 6/1/2017	Mudline Elevation (ft): NA	Process Date: 6/1/2017
Contractor: Anchor QEA	N/LAT: 713496.26 E/LONG: 1169519.426	Process Method: Cut tube
Vessel: NA	Horiz. Datum: NAD 83 State Plane WA South US feet	Logged By: EM
Operator: NA	Method/Tube ID: Direct Push / 2 inch	

Recovered Depth (inch)	pH	Sediment Description Samples and Descriptions are in Recovered Depths	Sample ID: Analysis	Lithologic Symbol	Recovered Depth (inch)
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Notes: 1. Attempt 2

Calculated Recovery
Recovery Length/Penetration Depth:
81 %

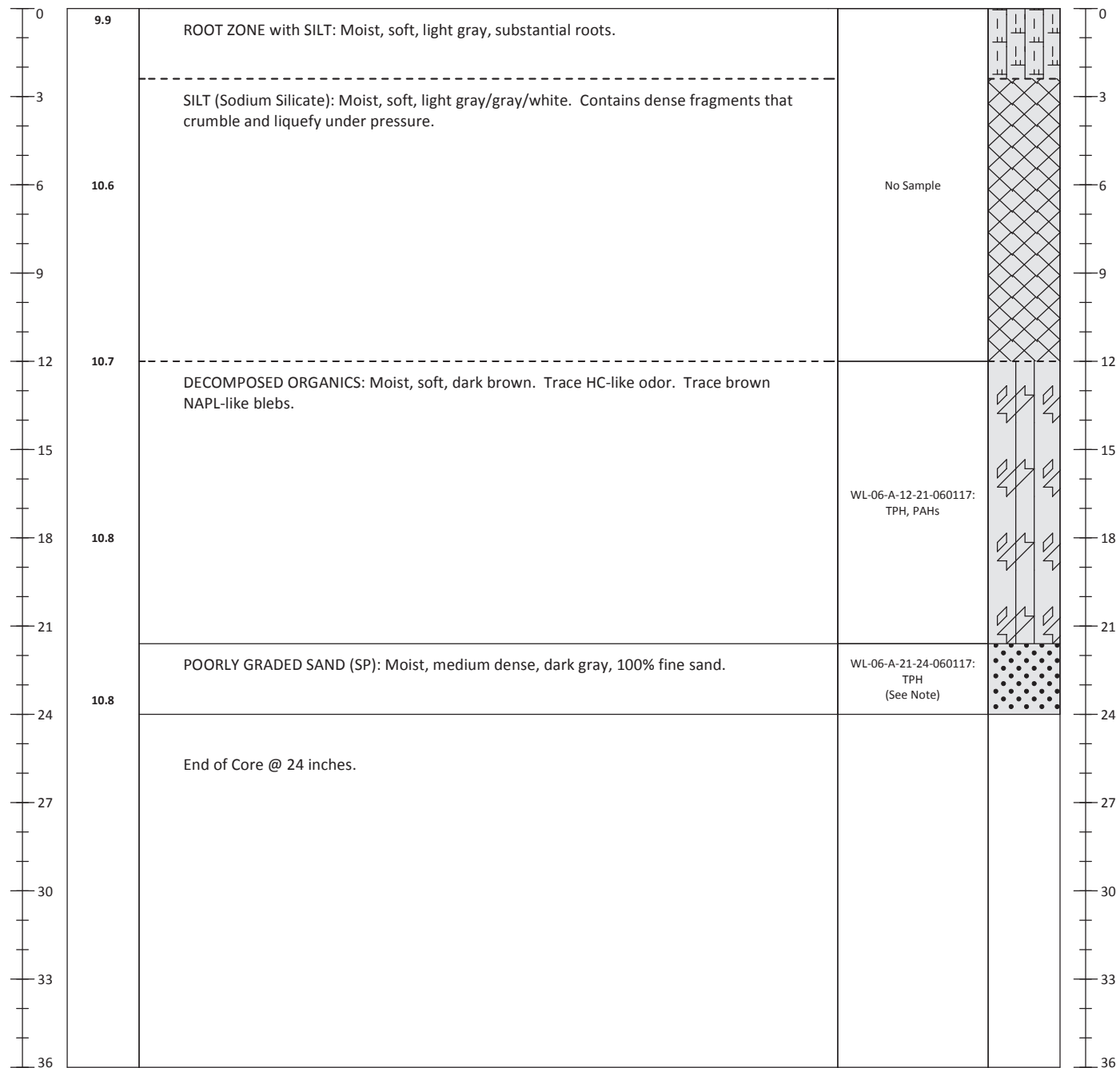
Core Log

WL-06-A

Sheet 1 of 1

Project: Parcel 114 RI/FS	Location: Tacoma, WA	Tube Length (inch): 36
Project #: 120204-02.02	Surface Water Elevation (MLLW): NA	Penetration Depth (inch): 35
Client: Port of Tacoma	Water Depth (inch): NA	Field Recovery Length (inch): 24
Collection Date: 6/1/2017	Mudline Elevation (ft): NA	Process Date: 6/1/2017
Contractor: Anchor QEA	N/LAT: 713222.229 E/LONG: 1169845.663	Process Method: Cut tube
Vessel: NA	Horiz. Datum: NAD 83 State Plane WA South US feet	Logged By: EM
Operator: NA	Method/Tube ID: Direct Push / 2 inch	

Recovered Depth (inch)	pH	Sediment Description Samples and Descriptions are in Recovered Depths	Sample ID: Analysis	Lithologic Symbol	Recovered Depth (inch)
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Notes: 1. Attempt 1
2. Sediment interval from 21-24 inches composited with similar lithological unit from 6-10 inches in Attempt 2 to achieve adequate sample volume for analysis.

Calculated Recovery
Recovery Length/Penetration Depth:
69 %

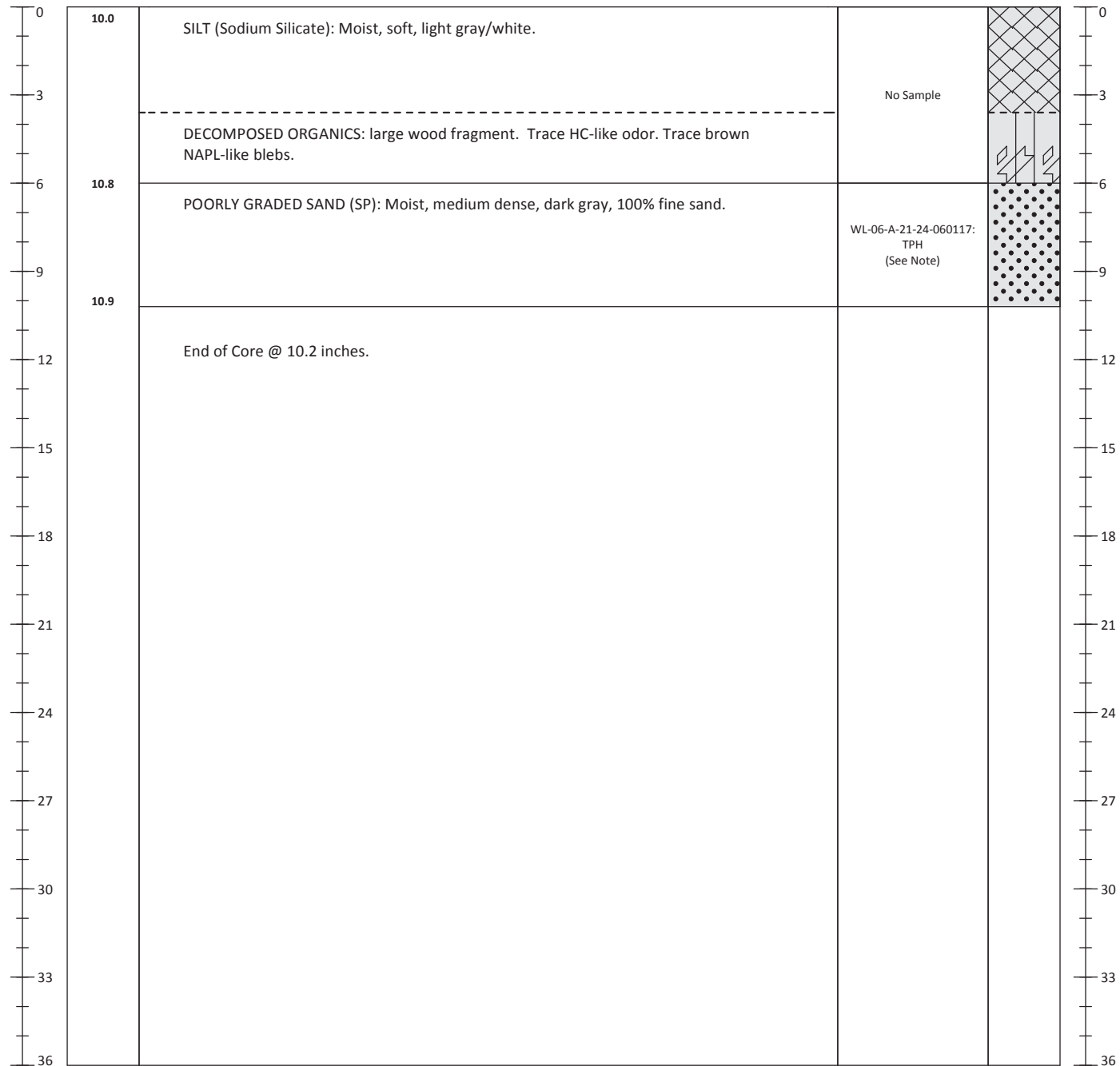
Core Log


WL-06-A - Attempt 2

Sheet 1 of 1

Project: Parcel 114 RI/FS	Location: Tacoma, WA	Tube Length (inch): 36
Project #: 120204-02.02	Surface Water Elevation (MLLW): NA	Penetration Depth (inch): 36
Client: Port of Tacoma	Water Depth (inch): NA	Field Recovery Length (inch): 10
Collection Date: 6/1/2017	Mudline Elevation (ft): NA	Process Date: 6/1/2017
Contractor: Anchor QEA	N/LAT: 713215.71 E/LONG: 1169848.161	Process Method: Cut tube
Vessel: NA	Horiz. Datum: NAD 83 State Plane WA South US feet	Logged By: EM
Operator: NA	Method/Tube ID: Direct Push / 2 inch	

Recovered Depth (inch)	pH	Sediment Description Samples and Descriptions are in Recovered Depths	Sample ID: Analysis	Lithologic Symbol	Recovered Depth (inch)
------------------------	----	--	------------------------	----------------------	------------------------



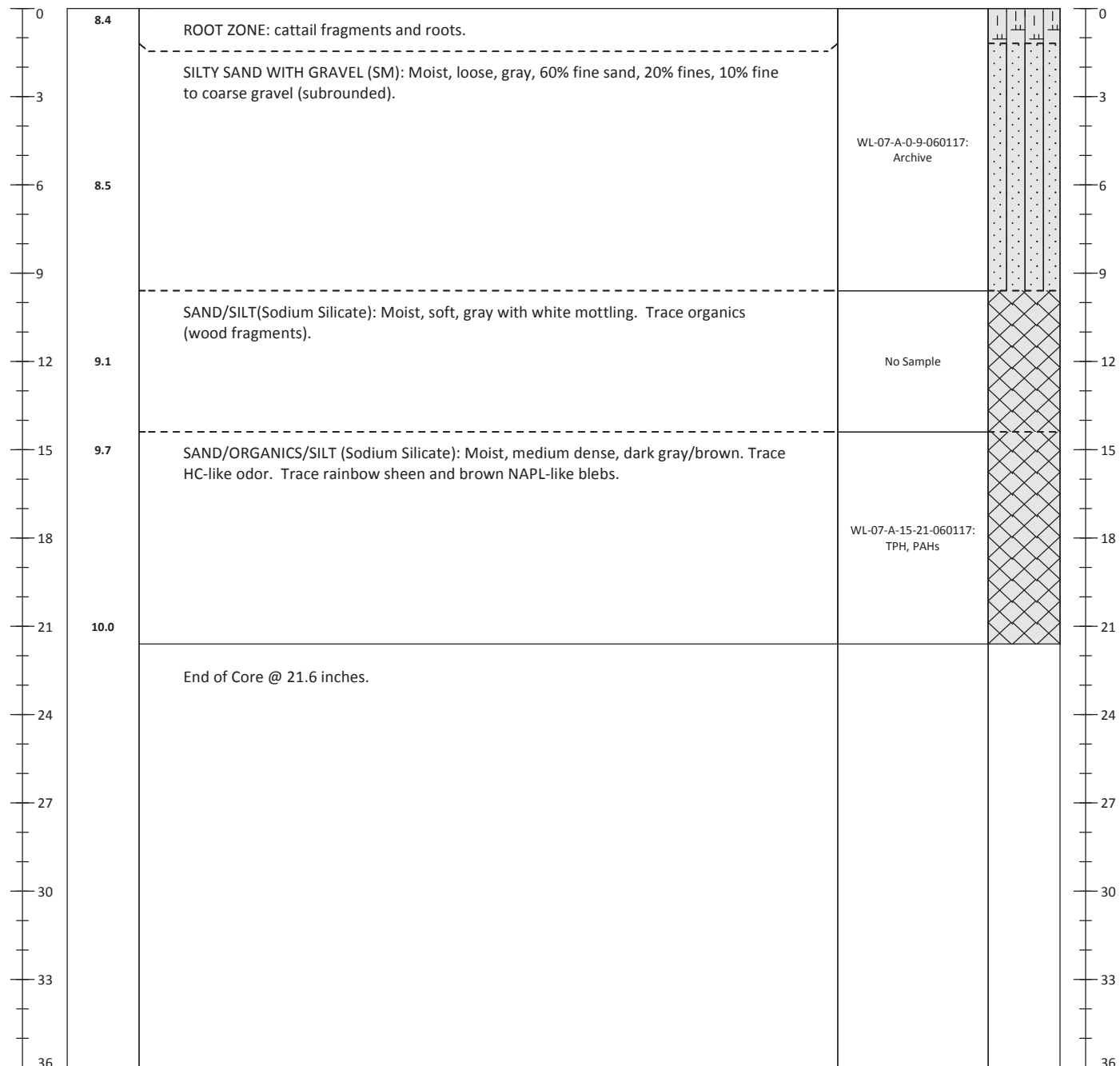
 720 Olive Way, Suite 1900 Seattle, WA 98101 206-287-9130	Notes: 1. Attempt 2 2. Sediment interval from 6-10 inches composited with similar lithological unit from 21-24 inches in Attempt 1 to achieve adequate sample volume for analysis.	Calculated Recovery Recovery Length/Penetration Depth: 28 %
---	--	---

Core Log WL-07-A

Sheet 1 of 1

Project: Parcel 114 RI/FS	Location: Tacoma, WA	Tube Length (inch): 36
Project #: 120204-02.02	Surface Water Elevation (MLLW): NA	Penetration Depth (inch): 34
Client: Port of Tacoma	Water Depth (inch): NA	Field Recovery Length (inch): 22
Collection Date: 6/1/2017	Mudline Elevation (ft): NA	Process Date: 6/1/2017
Contractor: Anchor QEA	N/LAT: 713191.522 E/LONG: 1169931.125	Process Method: Cut tube
Vessel: NA	Horiz. Datum: NAD 83 State Plane WA South US feet	Logged By: EM
Operator: NA	Method/Tube ID: Direct Push / 2 inch	

Recovered Depth (inch)	pH	Sediment Description Samples and Descriptions are in Recovered Depths	Sample ID: Analysis	Lithologic Symbol	Recovered Depth (inch)
------------------------	----	--	------------------------	----------------------	------------------------



 <p>720 Olive Way, Suite 1900 Seattle, WA 98101 206-287-9130</p>	<p>Notes: Attempt 1</p>	<p>Calculated Recovery Recovery Length/Penetration Depth: 65 %</p>
---	-------------------------	---

Test Pit Logs

from Parametrix (2009)

PQ Corporation Plant
 555-1712-054-06/01
 Port of Tacoma
 S Matthews, 8/11/09
 Kelly Excavating

TP-1 dimensions 9ft. x 2ft. x 4.5ft.

Depth in feet	Description	Sample location and ID
0-0.35	Asphalt and sand and gravel.	
0.35-1	Well graded sand (SW), grey brown, dry.	
1-1.5	Well graded sand with silt and gravel (SW-SM), light grey, dry.	
1.5-2.5	Well graded sand with silt and gravel (SW-SM), dark grey, dry, wood piles, burn odor, hydrocarbon odor (3 ppm).	
2.5-3.7	Sand and silt (SM) grey brown, dry	
3.7-4.5	Silt and clay with gravel, (SM), tan/white, brick fragments, wood, wet, hydrocarbon odor, (26.8 ppm), water level at 4.3 ft., hydrocarbon drops (black) on water.	4ft. (east wall) (TP- 1 4') and 4ft. W (west wall) (TP-1 4;W).



PQ Corporation Plant
 555-1712-054-06/01
 Port of Tacoma
 S Matthews, 8/11/09
 Kelly Excavating

TP-2 -dimensions 11ft. x 2ft. x 5.5ft.

Depth in feet	Description	Sample location and ID
0-0.7	Gravel and sand (GW) grey, dry.	
0.7-2.7	Well graded sand with gravel, brick debris, tan, ash with burnt odor 2 ppm.	
2.7-5	Well graded sand with gravel, grey, brick debris, burnt trash, cans, glass, brick, burnt wood, hydrocarbon odor, water, black floating product (35 ppm).	TP-2 3'
5-5.5	Well graded sand with gravel, dark grey, charred trash, cans, glass, brick, charred dimensional lumber, piling fragments, hydrocarbon odor, white clayey material, water level at 5.2 ft. (10 ppm).	TP-2 5'



PQ Corporation Plant
 555-1712-054-06/01
 Port of Tacoma
 S Matthews, 8/11/09
 Kelly Excavating

TP-3- dimensions 10ft. x 2ft. x 4.8ft. – Test pit cuts across timber wall

Depth in feet	Description	Sample location and ID
0-0.35	Asphalt and sand and gravel.	
0.35-1	Well graded sand with gravel (SW), grey, dry, creosote treated poles (vertical), timber wall (2 ppm).	
1-1.5	Silty sand and gravel (SM) brown, dry, on west side of wall.	TP-3 1.5'
1.5-1.8	Well graded sand and gravel (SW) pink brown, large glass fragments, dry.	
1.8-3	Well graded sand and gravel (SW), tan, cobble size glass and brick fragments.	TP-3 2.5'
3-4.8	Silty sand (SM) grey, pockets of white clayey material, dimensional lumber fragments, planks and pilings, (352 ppm,), wet.	



PQ Corporation Plant
 555-1712-054-06/01
 Port of Tacoma
 S Matthews, 8/11/09
 Kelly Excavating

TP-4 –dimensions 13ft. x 2ft. x 6ft.

Depth in feet	Description	Sample location and ID
0-0.4	Gravel and sand (GW), dark brown, dry.	
0.4-1.2	Well graded sand and gravel (SW-GW), light brown to brown, cobbles, dry.	TP4-1.5'
1.2-1.7	Well graded sand (SW) grey to dark grey, dry (0 ppm).	
1.7-2.4	Poorly graded sand (SP), light grey, fine to medium sand, dry.	TP4-2'
2.4-6	Well graded sand (SW) dark brown, trace gravel, dry (0 ppm), Water level at 5.5 ft.	TP-4 3'



PQ Corporation Plant
 555-1712-054-06/01
 Port of Tacoma
 S Matthews, 8/11/09
 Kelly Excavating

TP-5 – dimensions 12ft. x 2ft. x 9ft.

Depth in feet	Description	Sample location and ID
0-0.3	Gravel and sand (GW), dark brown, dry	
0.3-1.1	Well graded sand and gravel (SW-GW), red brown, dry, (0 ppm).	
1.1-4.5	Well graded sand and gravel (SW), dark brown, cobbles, dry.	
4.5-8.5	Poorly graded sand (SP), brown, medium sand, trace gravel, moist, water level at 6 ft. (0 ppm).	TP-5 5'
8.5-9	Silty sand (SM), grey, clay.	



PQ Corporation Plant
 555-1712-054-06/01
 Port of Tacoma
 S Matthews, 8/11/09
 Kelly Excavating

TP-6 – dimensions-12ft. x 2ft. x 10ft.




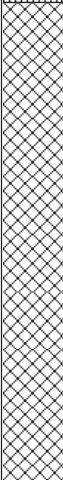



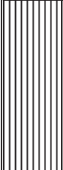
Depth in feet	Description	Sample location and ID
0-0.3	Asphalt and gravel.	
0.3- 1	Well graded sand and gravel (SW-GW), grey.	
1-1.4	Poorly graded sand (SP) light grey, fine to medium sand.	
1.4-10	Well graded sand and gravel (SW), brown.	TP-6 5'
	Water level at 10 ft.	



Project Name: PQ Corporation Plant
Project #: 555-1712-054-06-01
Location: Tacoma, Washington
Coordinates: 47° 16' 22" N 122° 23' 45" W

Drilling Method: Push Core
Logged by: Jesse Bennett
Checked by: Mike Marshall, L.G.

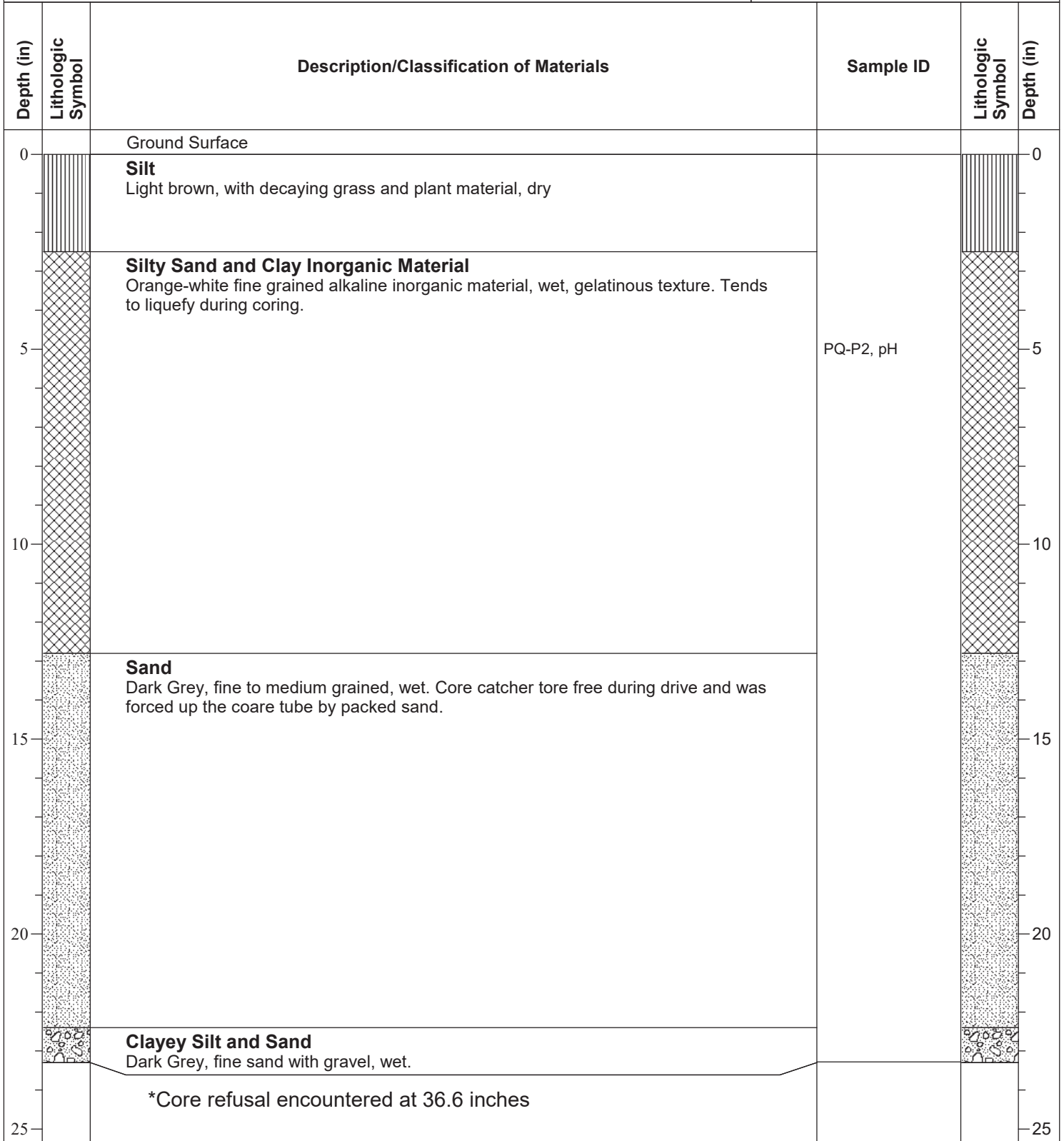
Drilling Dates: 8-11-2009
Coring Depth: 32.6 inches
Estimated Recovery: 55.21%
Ground Elevation: 14 feet (MLLW)

Depth (in)	Lithologic Symbol	Description/Classification of Materials	Sample ID	Lithologic Symbol	Depth (in)
0		Ground Surface			0
		Silt Light brown, with decaying grass and plant material, wet			0
		Inorganic Material Gray-white to beige-white, inorganic clayey material, wet, gelatinous texture, alkaline material. Tends to liquefy during coring.	PQ-P1, pH		5
10		Silty Clay Pale orange, wet, small pieces of wood. Slight hydrocarbon odor.			10
15		Silt Black, small pieces of wood. Hydrocarbon odor.	PQ-P1, TPH		15
20					20
25		*Core refusal encountered at 32.6 inches			25

Project Name: PQ Corporation Plant
Project #: 555-1712-054-06-01
Location: Tacoma, Washington
Coordinates: 47° 16' 27" N 122° 23' 46" W

Drilling Method: Push Core
Logged by: Jesse Bennett
Checked by: Mike Marshall, L.G.

Drilling Dates: 8-11-2009
Coring Depth: 36.6 inches
Estimated Recovery: 63.66%
Ground Elevation: 14 feet (MLLW)



Project Name: PQ Corporation Plant
Project #: 555-1712-054-06-01
Location: Tacoma, Washington
Coordinates: 47° 16' 32" N 122° 23' 53" W

Drilling Method: Push Core
Logged by: Jesse Bennett
Checked by: Mike Marshall, L.G.

Drilling Dates: 8-11-2009
Coring Depth: 24.4 inches
Estimated Recovery: 49.18%
Ground Elevation: 14 feet (MLLW)

Depth (in)	Lithologic Symbol	Description/Classification of Materials	Sample ID	Lithologic Symbol	Depth (in)
0		Ground Surface			0
		Sandy Silt Light brown, with decaying grass and plant material, dry, fine to coarse sand.	PQ-P3, pH		
		Granular Inorganic Material Orange-white-tan, plant pieces, wet at base.			
		Sandy Silt Black, wet.			
10					10
15					15
20					20
25		*Core refusal encountered at 24.4 inches			25

Appendix B

Waste Disposal Authorization (WDA)



Tacoma - Pierce County

Health Department

Healthy People in Healthy Communities

www.tpchd.org

WDA 2896

WASTE DISPOSAL AUTHORIZATION

 Non-Asbestos New Asbestos Amendment

- A. Generator Name: Port of Tacoma – Parcel 114 Former PQ Products Site
- B. Generator Address: 1114 and 1202 Taylor Way, Tacoma
- C. Transporter Name: TBD
- D. Technical Contact: Marc Chalfant Aspect Consulting Phone: 406-581-1321
- E. Waste Description: Contaminated Soil
 Sludge Solid PCS Other
- F. Approved Quantity: 15,000 Tons
- G. Actual Quantity (Filled in upon disposal): _____
- H. Multiple Loads: Yes No
- I. Dates of Disposal: July 3, 2025 through December 31, 2025
- J. Testing: RCRA 8 Total Metals (plus Be, Cu, Ni, TI, Zn), NWTPH-Dx, NWTPH-Gx, VOCs, SVOCs, PCBs, pH
- K. Reviewed by Department of Ecology: Yes No
- L. Disposal/Transportation Requirements: **A copy of this WDA must be transported with EACH load of waste and presented to the LRI Landfill Scalehouse Operator.** If odors are not excessive and the soils physical characteristics are suitable for utilization as a daily cover then the soils may be used as alternative daily cover. Loads shall be covered during transport to the landfill to prevent fugitive emissions of contaminated soils. Load sizes shall comply with conditional-use and solid waste permit criteria.
- M. Facility: **(XX) LRI Landfill (304th Street LF), 30919 Meridian Street, Eatonville, WA**

CERTIFICATION

Use of this document to deliver waste to the landfill noted above, certifies that the generator and/or applicant;

- Agree that the information submitted is true, accurate and complete to the best of their knowledge and that all known and suspected hazards have been disclosed.
- Agree that the generator and/or transporter will abide by all conditions specified in line (L) or any attachments.

If the generator and/or applicant do not agree to the above certification, this authorization is null and void.

AUTHORIZED BY:

Trevor Priestley, TPCHD

(253) 649-1842

Cc: LRI LF Scalehouse via email

APPROVED

July 3, 2025

TACOMA-PIERCE COUNTY HEALTH DEPARTMENT

ENVIRONMENTAL HEALTH DIVISION

For Official Use Only

Appendix C

Specific Approved Discharge (SAD) Permit



City of Tacoma
Environmental Services Department

Environmental Compliance: (253) 502-2222
Operations: (253) 591-5595
Email: sad@cityoftacoma.org

SPECIAL APPROVED DISCHARGE AUTHORIZATION
TO THE CITY OF TACOMA'S SANITARY SEWER SYSTEM
Tacoma Municipal Code, Subchapter 12.08B.250 and 12.08C.360

The Special Approved Discharge (SAD) Authorization is issued solely to the Authorized Discharger named in the Authorization and is subject to the conditions set forth in this authorization for discharge to the City of Tacoma's Sanitary Sewer System.

I. GENERAL INFORMATION		
SAD # 25-002	Effective Date: 8-1-2025	Expiration Date: 7-31-2026
Authorized Discharger: Port of Tacoma		
Company Representative: Annita Fichthorn		
Address of Company: P.O. Box 1837		
City: Tacoma	State: WA	Zip: 98401
Phone #: 253-830-5379	Email: afichthorn@nwseaportalliance.com	
Name of Property Owner: Port of Tacoma		
Address of Property Owner: P.O. Box 1837		
City: Tacoma	State: WA	Zip: 98401
Phone #:	Email:	

II. PROJECT INFORMATION
Project Name: PQ Products Cleanup Interim Action
Discharge Type: Sanitary
Flow rate (Gallons Per Minute): 100 GPM (max for project)
Discharge Location: Private side sewer on property
Address of Discharge Location: 1202 Taylor Way
Project Narrative: The Port of Tacoma is removing 6 feet of contaminated soil from 1202 Taylor Way. During excavation dewatering will be required and contaminated groundwater and contact stormwater is expected. This authorization allows the discharge of the contaminated water to the sanitary sewer following the approval from the Control Authority. This is a for fee authorization.

III. AUTHORIZATION GENERAL CONDITIONS
1. Duty to Comply The Authorized Discharger shall comply with TMC Subchapters 12.08B and 12.08C, Authorization Terms and Conditions, and the Special Approved Discharge Authorization Policy.
2. Dilution Prohibition The Authorized Discharger shall not, in any way, dilute a discharge as a substitute to achieve compliance with the Special Approved Discharge Authorization.
3. Calibration and Maintenance of Equipment The Authorized Discharger shall provide, calibrate, inspect, and maintain all flow measuring, discharge, sampling, monitoring, and pretreatment equipment accurately and reliably.

Authorized Dischargers shall not interfere with to cause damage or make unauthorized alterations to any monitoring or pretreatment equipment.

Records of maintenance and calibration shall be maintained.

4. Flow Measurement

The Authorized Discharger shall use approved flow measurement devices and methods and meter all discharge flows unless other authorization has been granted by the Control Authority.

The Authorized Discharger shall control and monitor the flow of water in the upstream and downstream system to ensure that the capacity of the City of Tacoma's Municipal Sewer System is not exceeded as a result of the additional flow caused by the discharge.

The Authorized Discharger may be required to reduce the flow rate of the discharge or cease discharging during heavy rain events which may overburden the sanitary sewer system.

5. Discharge Parameters

The Authorized Discharger shall meet prescribed discharge parameters as outlined in section IV of the Special Approved Discharge Authorization in order to discharge to the City of Tacoma's Municipal Sewer System.

6. Discharge Contingencies

The Authorized Discharger shall cease discharge when a violation of the Special Approved Discharge Authorization General Conditions is suspected or detected; or when directed by the City of Tacoma.

The Authorized Discharger shall observe and monitor the discharge for unusual color, odor, and/or sheen. If any of these conditions are observed, the discharge shall be ceased and the Control Authority shall be notified.

7. Access

The Authorized Discharger shall provide access at reasonable times to the Control Authority for the purposes of inspection to evaluate compliance with the Special Approved Discharge Authorization.

8. Authorization Duration

Special Approved Discharge Authorizations shall be issued for no longer than one (1) year. Conditions of the Authorization may be subject to change by the Director at any time during the life of the Authorization.

9. Project Completion Notification

The Authorized Discharger shall submit notification in writing to the Control Authority upon completion of the project.

10. Authorization Transfer

A Special Approved Discharge Authorization may not be transferred, reassigned, or sold.

11. Severability

If any provision of the Special Approved Discharge Authorization, TMC Subchapters 12.08B and 12.08C, or the application thereof to any person or circumstance is held invalid, the remainder of the Special Approved Discharge Authorization or TMC Subchapters 12.08B and 12.08C, or the application of such provision to other persons or circumstances, shall not be affected thereby.

12. Property Rights

The issuance of the Special Approved Discharge Authorization does not convey to the Authorized Discharger any property rights, either real or personal or convey any exclusive privileges. Nor does such issuance authorize any injury to private property, any invasion of personal rights, or any violation of federal, state or local laws.

13. Authorization Termination

The Director may terminate the Special Approved Discharge Authorization for violation of the Authorization's terms and conditions or for violation of TMC, Subchapters 12.08B and 12.08C provisions.

IV. DISCHARGE PARAMETERS

Parameter	Discharge Limit		Approved Analytical Method	
			EPA	Standard
Arsenic	0.23	mg/L	200.7, 200.8	
Cadmium	0.103	mg/L	200.7, 200.8	
Chromium	4.74	mg/L	200.7, 200.8	
Copper	1.46	mg/L	200.7, 200.8	
Lead	0.427	mg/L	200.7, 200.8	
Mercury	0.033	mg/L	245.1; 245.2	
Molybdenum	0.55	mg/L	200.7, 200.8	
Nickel	1.12	mg/L	200.7, 200.8	
Selenium	0.14	mg/L	200.7, 200.8	
Silver	0.64	mg/L	200.7, 200.8	
Zinc	2.44	mg/L	200.7, 200.8	
BTEX	0.750	mg/L	624	
Benzene	0.050	mg/L	624	
pH	5.0-11.0	Units		4500HB-2000
Flow	100	gpm		
TTO - SVOA,VOA	2.13	mg/L	624/625	
SGT-HEM	50	mg/L	1664A; 1664B (measured as silica gel treated, hexane extractable materials (SGT-HEM))	
TSS	225	mg/L		2540D-1997

V. DISCHARGE REQUEST

Discharging to the municipal sewer system without prior permission from the Control Authority is prohibited.

Batch Dischargers

For discharges that occur by batch, the Authorized Discharger shall submit a Batch Discharge Request form. A copy of the analytical results from a certified laboratory and a chain of custody shall be attached and emailed to: SAD@cityoftacoma.org. Once reviewed, the Control Authority will return the approved email and the Authorized Discharger may commence the discharge between the hours of 7:30 a.m. and 5:00 p.m.

Continuous Dischargers

For discharges that occur on a continuous basis, the Authorized Discharger shall submit a copy of analytical data results from a certified laboratory and chain of custody to email: SAD@cityoftacoma.org. Once reviewed, the Control Authority will return the approved email and the Authorized Discharger may commence the discharge.

VI. DISCHARGE RECORDS

The Authorized Discharger shall submit discharge records for the previous month, including no discharge notification to the Control Authority by the 15th of each month.

1. The Authorized Discharger shall notify the Control Authority within twenty-four (24) hours of any changes to the site contact.

2. The Authorized Discharger shall notify the Control Authority within twenty-four (24) hours of any significant change to the quality or volume of the discharge or changes that affect the potential for slug load to the Municipal Sewer System.
3. The Authorized Discharger shall submit a formal written notification to the Control Authority within five (5) days of the occurrence describing the following:
 - a. What was discharged
 - b. Volume of the discharge
 - c. Circumstances of the discharge
 - d. Duration of the discharge including beginning and end times and dates
 - e. Corrective actions to prevent reoccurrence
4. The Authorized Discharger shall notify the Control Authority within twenty-four (24) hours of becoming aware of any of the following violations:
 - a. Discharges prohibited by Tacoma Municipal Code, Subchapters 12.08B and 12.08C, except where authorized by the Special Approved Discharge Authorization
 - b. Exceedance of wastewater discharge limits as established in the Special Approved Discharge Authorization
 - c. Failure to perform any Best Management Practices included in the Special Approved Discharge Authorization
 - d. Bypass of any part of a required pretreatment system.
5. The Authorized Discharger shall submit a formal written report to the Control Authority within five (5) days after becoming aware of the violation. The report shall include the following information:
 - a. Description of the violation, including the cause, date and time of the violation
 - b. Date and time the discharge was stopped
 - c. Measures taken to correct the violation
 - d. Measures taken to prevent future violations

BILLING INFORMATION

The Authorized Discharger must pay the applicable fees and maintain payments as provided in Tacoma Municipal Code, Subchapter 12.08B.250. The Authorized Discharger, from which material in violation of Subchapter 12.08C is discharged into the City of Tacoma’s Municipal Sewer System shall be liable to pay any supplemental charges the City of Tacoma incurs to respond to such violation as referenced in Subchapter 12.08B.500.

ENFORCEMENT PROVISION

Violations of this Authorization or Tacoma Municipal Code, Subchapters 12.08B and 12.08C may result in termination of the Special Approved Discharge Authorization and/or enforcement action in accordance with the policies and procedures contained in Tacoma’s Enforcement Response Plan for wastewater, or Tacoma’s Stormwater Compliance Policy for stormwater.

Date: _____

By: _____
 Kurt Fremont
 Business Operations Division Manager
 Environmental Services

Date: _____

By: _____
 Authorized Representative

Appendix D

Cultural Resource Programmatic Management Plan

Port of Tacoma
Cultural Resource Programmatic Management Plan



ATCRC Report # PI-22-23
November 4, 2024

Prepared For:
Port of Tacoma

Prepared By:
Jackey Anderson, M.S., RPA;
Lindsey Holdener, M.S. (candidate);
Carson Golden, M.S., RPA;
Colin Higashi, B.S.;
Brenna Tennant, B.S.;
Jennifer Chambers, M.S., RPA (editor); and,
Sarah J. Amell, M.M.A., RPA (Principal Investigator)



Aqua Terra Cultural Resource Consultants
Mailing Address: 8525 Stoney Creek Lane SW
Olympia, WA 98512
Website: www.AquaTerraCRC.com

Port of Tacoma Inadvertent Discovery Plan

The following Inadvertent Discovery Plan (IDP) outlines the procedures to be implemented if cultural resource materials are inadvertently discovered during construction, in accordance with state and federal laws. The separate protocol for discovery of human skeletal remains is also described below. The IDP shall be kept at the project site during all project activities. All staff, contractors, and consultants should be familiar with its contents and know where to find it.

1. RECOGNIZING CULTURAL RESOURCES

A cultural resource is an item of historical, traditional, or cultural importance. The item could be prehistoric or historic (older than 50 years). Examples might include:

- An accumulation of shell (shell-midden) with associated bone, stone, antler or wood artifacts, burned rocks or charcoal.
- Animal bones that have been modified or associated with other artifacts.
- An area of charcoal or very dark stained soil with associated artifacts.
- Artifacts made of chipped or ground stone (i.e. an arrowhead, adze or maul) or an accumulation (more than one) of stone flakes (lithic debitage).
- Basketry, cedar garments, fish weir stakes or items made of plant materials.
- Clusters of tin cans or bottles, logging or agricultural equipment that appear to be older than 50 years.
- Buried railroad tracks, decking, or other industrial materials.

NRHP Eligibility

To be eligible for the National Register of Historic Places (NRHP) cultural resources identified during construction must be 50 years of age or older, meet one or more of the four criteria listed below, and retain sufficient physical integrity to convey historical significance (36 CFR 60.4). A building, site, object, or structure may be considered for inclusion in the NRHP if it meets at least one of the following criteria:

1. The property is associated with events that have made a significant contribution to the broad patterns of our history.
2. The property is associated with the lives of persons significant in our past.
3. The property embodies the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components might lack individual distinction.

4. The property has yielded, or might be likely to yield, information important in prehistory or history.

The following archaeological resources will indicate potentially NRHP-eligible deposits and will be assumed NRHP-eligible until determined otherwise by the State Historic Preservation Officer (SHPO):

- Precontact deposits (such as midden) associated with Native American use or occupation.
- Historic-era artifacts from NRHP-eligible (or potentially NRHP eligible) deposits.
- Historic era non-Native American artifacts from non-eligible contexts, only if they are diagnostic or have educational value.
- Historic features consisting of stratified deposits with artifact concentrations that appear to be spatially or temporally distinct. This includes refuse deposits, privies, or discrete accumulations.
- Courses of brick or other architectural materials that are part of a building foundation or pavement in their original position.

Examples of deposits that will not be considered NRHP-eligible include:

- Isolated or loose construction materials (brick, mortar, window glass), bottles, cans, located within fill sediments (not located in primary context).
- Mass deposits of lumber, concrete, granite, coal, etc.
- Pilings, decking, trestle, and railroad track, unless of clearly unique construction.
- Historic-era artifacts not associated with a feature or stable surface.

Artifacts or deposits that are not potentially eligible, as described above, will only be noted in daily field logs, photographed, and documented on scaled site plans (if possible). The procedures for an inadvertent discovery will not be implemented for artifacts or deposits that are not potentially eligible for listing in the NRHP (including the stop-work clause, noted in the procedure below).

Examples of Potentially NRHP-Eligible Cultural Resources



Precontact Shell Midden



Precontact Animal Bone Tools



Precontact Stone Tools



Precontact Shell Midden



1885 Fish Weir (WA State Library)

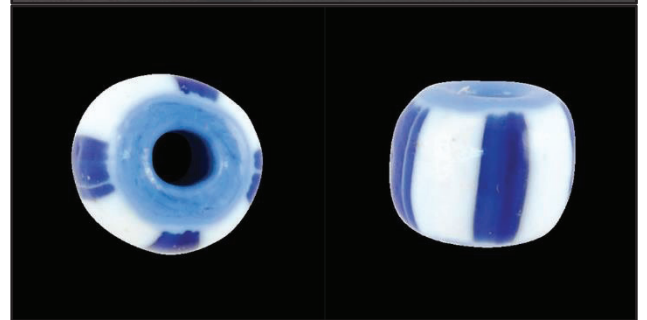


Historic house ruins



Historic Hearth Feature from Fort Vancouver

**Images Public Domain from National Park Service unless noted*



Historic Artifacts (from top to bottom: ceramic plate, glass bead, glass bottle)

2. PROTOCOL FOR DISCOVERY OF CULTURAL RESOURCES (EXCEPT FOR HUMAN SKELETAL REMAINS DISCOVERY)

STEP 1: STOP WORK & PROTECT THE DISCOVERY

If any employee, contractor, or subcontractor believes that a cultural resource has been uncovered during the project activities they shall instruct all work within 30 feet of the discovery to stop. If that perimeter impedes on health, safety, environmental, or legal requirements, the perimeter will be as near to 30 feet as practical. The discovery location should be secured at all times. The discovering party, or their direct on-site supervisor, shall implement Step 2.

STEP 2: NOTIFY MONITOR and PORT OF TACOMA (Port)

The discovering party shall notify the project’s archaeological monitor (if applicable) and Port. If there is a cultural resource monitoring plan in place, the monitor will follow its provisions for monitoring (i.e. determine if the inadvertent discovery is an intact archaeological deposit) and proceed to Step 3 for notifications.

Port of Tacoma (Port)

<p><u>Engineering Contact (if PM unknown):</u> Thais Howard Director of Engineering 253.888.4718 desk / 253.209.3086 cell thoward@nwseaportalliance.com 253.383.5841 receptionist</p>	<p><u>Environmental Contact:</u> Mark Rettmann Environmental Project Manager 253-592-6716 desk and cell (no text) mrettmann@portoftacoma.com</p>
---	--

STEP 3: Port WILL NOTIFY PTOI HPD

Puyallup Tribe of Indians (PTOI) Historic Preservation Department (HPD)

<p><u>Primary Contact:</u> Brandon Reynon Archaeologist/Historic Preservation Department 253-573-7965 (desk) / 253-442-9361 (cell) brandon.reynon@puyalluptribe-nsn.gov</p>	<p><u>Alternative Contact:</u></p>	<p><u>Alternative Contact:</u> Mike Shong Archaeologist 253-573-7897 (desk) / 253-339-1967 (cell) Mike.Shong@puyalluptribe-nsn.gov</p>
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STEP 4: PORT WILL NOTIFY DAHP and/or FEDERAL LEAD AGENCY (when applicable) – Except for discovery of human skeletal remains (see protocol below in section 3)

The Washington State Department of Archaeology and Historic Preservation (DAHP) will review eligibility criteria, make a recommendation to the artifact or deposits potential eligibility, and will proceed with agency and tribal notification as necessary (so long as the artifact or deposit is determined eligible). After consultation, DAHP will complete a written plan of action describing the treatment of cultural resources pursuant to 43 CFR Part 10 and will execute their prescribed duties within that plan of action.

DAHP

<u>Primary Contact:</u> Rob Whitlam, Ph.D. DAHP, State Archaeologist 360-890-2615 Rob.Whitlam@dahp.wa.gov	<u>Alternative Contact:</u> Allyson Brooks, Ph.D. DAHP, SHPO 360-586-3066 Allyson.Brooks@dahp.wa.gov	<u>Alternate Contact:</u> Stephanie Jolivette Local Gov't Archaeologist 360-628-2755 Stephanie.Jolivette@dahp.wa.gov
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3. PROTOCOL FOR DISCOVERY OF HUMAN SKELETAL REMAINS

In the event that human remains are discovered during the construction, the following procedures are to be followed to ensure compliance with RCW 68.60: Abandoned and Historic Cemeteries and Historic Graves, and RCW 27.44: Indian Graves and Records. Washington State law requires immediate notification of known or suspected human remains to county and/or municipal law enforcement agencies, county medical examiner or coroner’s offices, DAHP, and federal and local agencies involved directly with the project or having jurisdiction over the subject properties.

If ground-disturbing activities encounter human skeletal remains during construction, then all activity that may cause further disturbance to those remains must immediately cease and the area of the find must be secured and protected from further disturbance. Any human remains that are discovered will be treated with dignity and respect. The remains should not be touched, moved, or further disturbed. If, however, handling of human remains is unavoidable, the archaeological monitor and/or professional archaeologist will use cloth gloves. All remains will remain covered with a tarp that will not be removed until such time that the coroner or DAHP assumes jurisdiction of the find.

Upon the discovery of human skeletal remains, the above Steps 1-3 will be implemented. The Port will notify and report to the County Sheriff, County Medical Examiner, and the Port Security in the most expeditious manner possible. The County Medical Examiner will determine if the remains are human and whether the discovery constitutes a crime scene. If the remains are determined to not be a crime scene, the County Medical Examiner will notify DAHP. The DAHP will be responsible for informing the affiliated tribes regarding the discovery. Contact information for the County Medical Examiner and the DAHP is provided below.

CONTACT INFORMATION IF HUMAN SKELETAL REMAINS ARE DISCOVERED

Port to contact the following in the most expeditious manner possible:

<u>Pierce County Sheriff:</u> Ed Troyer Non-emergency (253)798-7530	<u>Pierce County Medical Examiner:</u> Karen Cline-Parhamovich, DO (253) 798-6494
<u>Port Security:</u> Fabulich Center, 3600 Port of Tacoma Rd, 24 hr, 7 days a week 253-383-9472	

The County Medical Examiner will contact DAHP if they determine the remains are not a crime scene/non-forensic and DAHP will be responsible for informing the affiliated tribes regarding the discovery.

<p><u>Primary DAHP</u>: Guy Tasa, Ph.D. State Physical Anthropologist (360) 790-1633 Guy.Tasa@dahp.wa.gov</p>	<p><u>Alternative DAHP</u>: Jackie Berger, Ph.D., RPA Assistant State Physical Anthropologist (360) 890-2633 Jackie.Berger@dahp.wa.gov</p>
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4. PROCEEDING WITH CONSTRUCTION

Project construction outside the discovery location may continue while documentation and assessment of the cultural resources proceed. A Cultural Resources Specialist (either from DAHP, a consulting Tribe, or a professional consultant) must determine the boundaries of the discovery location. In consultation with DAHP and affected tribes, the project lead will determine the appropriate level of documentation and treatment of the resource. If federal agencies are involved, the agencies will make the final determinations about treatment and documentation.

Construction may continue at the discovery location only after the process outlined in this plan is followed, and DAHP (and the federal agencies, if any) determine that compliance with state and federal laws is complete.

5. CONFIDENTIALITY

All parties, including Port and its employees, contractors, and consultants, shall keep inadvertent discoveries confidential. Parties shall not contact the press, post social media, or share information with any third party or member of the public. Prior to releasing any information about the inadvertent discovery, the Port, concerned Tribe(s), and DAHP will concur on the procedures and the level of information which may be released, as allowed by law.

Appendix E

Stormwater Pollution Prevention Plan (SWPPP)

Stormwater Pollution Prevention Plan (SWPPP)

for
**Interim Action Excavation
Parcel 114 Site Cleanup**

Prepared for:
Port of Tacoma
One Sitcum Plaza
Tacoma, WA 98421

Owner
Port of Tacoma

Site Operator
Port of Tacoma

Contractor
TBD

Project Site Location:
1114 and 1202 Taylor Way
Tacoma, WA 98421

Certified Erosion and Sediment Control Lead (CESCL)

Name	Organization	Contact Phone Number
TBD	TBD	TBD

Name	CSWPP Plan Prepared By Organization	Contact Phone Number
Will Guyton, CESCL	Aspect Consulting	(509) 960-7470

Preparation Date:
June 23, 2025

Approximate Construction Dates:
Begin Construction: September 2025
End Construction: November 2025

Note: This SWPPP will be finalized, including potential modifications, once the Contractor is selected and the Project schedule is known.

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CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN

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List of Acronyms and Abbreviations

Acronym / Abbrev.	Explanation
303(d)	Section of the Clean Water Act pertaining to Impaired Waterbodies
BFO	Bellingham Field Office of the Department of Ecology
BMP(s)	Best Management Practice(s)
CESCL	Certified Erosion and Sediment Control Lead
City	City of Tacoma
CO₂	Carbon Dioxide
cPAH(s)	Carcinogenic polycyclic aromatic hydrocarbon(s)
CSWGP	Construction Stormwater General Permit
CWA	Clean Water Act
DMR	Discharge Monitoring Report
DO	Dissolved Oxygen
Ecology	Washington State Department of Ecology
EPA	United States Environmental Protection Agency
ERTS	Environmental Report Tracking System
ESC	Erosion and Sediment Control
GULD	General Use Level Designation
MTCA	Model Toxics Control Act
NPDES	National Pollutant Discharge Elimination System
NTU	Nephelometric Turbidity Units
NWRO	Northwest Regional Office of the Department of Ecology
pH	Power of Hydrogen
Port	Port of Tacoma
RCW	Revised Code of Washington
SPCC	Spill Prevention, Control, and Countermeasure
su	Standard Units
SWMMWW	Stormwater Management Manual for Western Washington
SWPPP	Stormwater Pollution Prevention Plan
TESC	Temporary Erosion and Sediment Control
TMDL	Total Maximum Daily Load
WAC	Washington Administrative Code
WSDOT	Washington Department of Transportation
WWHM	Western Washington Hydrology Model

1 Introduction

This Surface Water Pollution Prevention Plan (SWPPP) and associated documents have been prepared for the Interim Action Excavation project at the Port of Tacoma's Parcel 114 (site). The site address is 1114 and 1202 Taylor Way, Tacoma, Washington. The construction activities will include the excavation and off-site disposal of contaminated soils, and backfill and grading of the excavation areas to accommodate site drainage.

The purpose of this SWPPP is to describe the proposed construction activities and temporary erosion and sediment control (TESC) measures, pollution prevention measures, inspection/monitoring activities, and recordkeeping that will be implemented during construction of the project. The objectives of the SWPPP are to:

1. Implement best management practices (BMPs) to prevent erosion and sedimentation, and to identify, reduce, eliminate, or prevent stormwater contamination and water pollution from construction activity.
2. Prevent violations of surface water quality, groundwater quality, or sediment management standards. In order to prevent violations, the construction Contractor will have spill kits on-site, the on-site Contractor employees will be trained in their proper use, and equipment will be maintained as appropriate to minimize spill risks.

This SWPPP was prepared using the Washington State Department of Ecology (Ecology) SWPPP template, downloaded from the Ecology website June 11, 2025. This SWPPP generally follows the requirements outlined in the *Construction Stormwater General Permit (CSWGP)* and *Stormwater Management Manual for Western Washington (SWMMWW)*.

2 Project Information

Project/Site Name: Parcel 114 Interim Action Excavation

Street/Location: 1114 and 1202 Taylor Way

City: Tacoma **State:** WA **Zip code:** 98421

Subdivision: N/A

Receiving Waterbody: None.

2.1 Existing Conditions

Total acreage (including support activities, such as off-site equipment staging yards, material storage areas, borrow areas).

Total acreage: 4.26 Acres

- Disturbed acreage:** 2.23 Acres
- Existing structures:** An existing truck scale and scattered remnants of historical structures (pavements, concrete foundation elements, etc.) are located on top of or adjacent to contaminated soils to be removed. The driveway access is on the north end of the site at Taylor Way.
- Landscape topography:** The project site and surrounding properties occur on the Hylebos peninsula within the Tacoma tideflats and, therefore, have relatively flat topography. The project site has a gentle generally southward slope toward a constructed stormwater ditch occupying its southernmost portion.
- Drainage patterns:** Under existing conditions, the site is generally flat with stormwater runoff generally sheet flowing southward into the stormwater ditch.
- Existing Vegetation:** The site is an industrialized area within the Port of Tacoma (Port) primarily consisting of unvegetated impervious surfaces, including compacted gravel; however, a 6- to 9-inch-thick veneer of less-compacted aggregate occurs much of the site outside of designated travel ways. Vegetation (reed canary grass and small alder trees) occurs around the perimeter of and within the stormwater ditch.
- Critical Areas:** Blair Waterway and Hylebos Waterway located more than 800 feet from the construction limits.

List of known impairments for 303(d) listed or Total Maximum Daily Load (TMDL) for the receiving waterbody: Based on review of Ecology's 303(d) list, the Hylebos Waterway in the vicinity of the project site currently has no Category 5 listings, and is part of the Commencement Bay dioxin TMDL. The adjacent Blair Waterway is not on the 303(d) list.

Summary of Potential Site Pollutant Constituents: Contaminants present in site soils at concentrations exceeding Model Toxics Control Act (MTCA) soil cleanup levels include carcinogenic polycyclic aromatic hydrocarbons (cPAHs) and metals (cadmium, chromium, copper, nickel, and zinc). Since groundwater monitoring began in 2010, contaminants in site groundwater that have exceeded MTCA groundwater cleanup levels based on surface water protection include total petroleum hydrocarbons, naphthalene, cPAHs, arsenic, copper, lead, mercury, nickel, and zinc. The goal of the project is to remove contaminated soil to achieve both protection for industrial soil direct contact and source control for hydrocarbons and metals so as to accelerate the time frame needed for those contaminants in groundwater to reach cleanup standards.

2.2 Proposed Construction Activities

The Port is completing interim remedial cleanup activities at Parcel 114 (aka the Former PQ Corporation site). Parcel 114 is slated to be redeveloped in conjunction with adjacent properties, but this project, and this SWPPP, do not address subsequent redevelopment construction.

The cleanup action will involve excavation and proper off-site disposal of contaminated soil, with concurrent dewatering, as needed, to facilitate soil removal and handling. As such, the activities will achieve permanent removal of the vast majority if not all contaminated soil at the site.

Work performed by the Contractor will consist of providing all labor, supervision, material, and equipment necessary for all excavation, dewatering, materials handling (including temporary stockpiling), transportation for off-site disposal, and backfill/grading and site restoration (vegetation for erosion control) activities as specified by the Contract. The work includes implementing TESC BMPs to prevent any off-site runoff of stormwater or sediment (including vehicle track out). The Work also includes extracting, treating as needed, and discharging to City of Tacoma (City) sanitary sewer (in accordance with a City Special Authorization to Discharge) all groundwater produced by excavation dewatering, as well as any accumulation of on-site stormwater (e.g., within lined stockpile areas).

It is the Contractor's responsibility to furnish, install, protect, and maintain construction stormwater and erosion controls, soil protection, and pollutant prevention and countermeasures. These controls will prevent erosion and prevent conveyance of pollutants and sediment into surface waters, drainage systems, and environmentally critical areas. All work performed by the Contractor and their subcontractors will be performed per Contract Specifications.

At the conclusion of the interim cleanup project, the remediated site surface will primarily consist of a compacted aggregate surface that will direct on-site stormwater into an existing swale, before discharging through an existing outfall. Final stabilization will consist of excavation areas backfilled with compacted aggregate that is covered with topsoil mix per City requirements and graded to drain to the existing stormwater ditch, which will remain a topographically low feature.

3 Construction Stormwater BMPs

The SWPPP is a living document reflecting current conditions and changes throughout the life of the project. These changes may be informal (i.e., hand-written notes and deletions). Update the SWPPP when the Certified Erosion and Sediment Control Lead (CESCL) has noted a deficiency in BMPs or deviation from original design.

3.1 The 13 Elements

3.1.1 Element 1: Preserve Vegetation / Mark Clearing Limits

To protect adjacent properties and to reduce the area of soil exposed to construction, the limits of construction that are not bordered by existing fencing will be marked with temporary construction fencing or with Silt Fence (BMP C233) before land-disturbing activities begin, in accordance with the Contract Specifications. No work or disturbance is to take place outside the marked limits.

Alternate BMPs for marking clearing limits may be recommended by the CESCL in the event the BMP(s) listed above are deemed ineffective or inappropriate. To avoid potential erosion and sediment control issues, the Contractor will promptly initiate the implementation of one or more alternative BMPs after the first sign that existing BMPs are ineffective.

List and describe BMPs:

BMP C103: High-Visibility Fence (Plastic and Metal)

BMP C233: Silt Fence

Installation Schedules: Prior to beginning land disturbing activities, including clearing and grading, clearly mark all clearing limits within the construction area.

Inspection and Maintenance plan: BMPs and site conditions will be inspected weekly. Maintenance should occur as soon as a deficiency is observed.

Responsible Staff: The Contractor will be solely responsible to establish and maintain BMPs. The CESCL will be responsible for ensuring BMPs are constructed per plan. If revisions are needed, the CESCL will provide recommendations to the Contractor to relocate or add additional facilities. If changes are made, this SWPPP will be updated by the CESCL.

3.1.2 Element 2: Establish Construction Access

Vehicles tracking sediment off-site will be prohibited. Vehicle access to the site will be limited to one Stabilized Construction Entrance (see Site Map located in Appendix A). The Contractor will also install and operate a wheel wash and conduct regular sweeping and cleaning to further prevent tracking sediment off-site.

The Contractor is responsible for ensuring there will be no track-out from the site including sediment, debris, water, and dust. Brooms, sweepers, and street washing are techniques that should be considered. Sediment and debris collected through sweeping will be stockpiled in the appropriate sediment storage area for testing and disposal (see Elements 5 and 9). Street wash wastewater will be controlled by pumping to on-site storage tanks for testing and disposal (see Elements 9 and 10) to prevent discharging into storm drain systems tributary to state surface waters.

The Contractor is responsible for ensuring that no loading or unloading of materials be performed outside of the construction site to prevent off-site discharge of construction-related stormwater and sediment.

List and describe BMPs:

BMP C105: Stabilized Construction Entrance

BMP C106: Wheel Wash

BMP C140: Dust Control

Installation Schedules: Installation of the construction entrance and mobilization of equipment to eliminate track-out and provide dust abatement should be on-site prior to start of the project earthwork and should remain on-site throughout the duration of the Work.

Inspection and Maintenance plan: Sediment accumulation should be checked daily and maintained weekly. Dust abatement should occur anytime there is an activity generating fugitive dust approaching the Project Limits. It should be confirmed that loading and unloading of all materials is performed inside the Project Limits.

Responsible Staff: The Contractor for the Work will be responsible to establish BMPs. The CESCL will be responsible for ensuring BMPs are constructed per plan. If revisions are needed, the CESCL will provide recommendations to the Contractor to relocate or add additional facilities. If changes are made, this SWPPP will be updated by the CESCL.

3.1.3 Element 3: Control Flow Rates

Flow control measures are intended to protect properties and waterways downstream of the construction site from erosion due to increases in volume, velocity, and peak flow rate of stormwater runoff from the project site.

To protect the properties and waterways downstream of the project Site, all stormwater within the Project Limits will infiltrate or be contained and collected for treatment as described in Element 10. There is no expected increase in construction stormwater compared to the existing pre-construction conditions.

Will you construct stormwater retention and/or detention facilities?

Yes No

Will you use permanent infiltration ponds or other low impact development (example: rain gardens, bio-retention, porous pavement) to control flow during construction?

Yes No

List and describe BMPs: N/A

Installation Schedules: N/A

Inspection and Maintenance plan: BMPs and site conditions will be inspected weekly. Maintenance should occur as soon as a deficiency is observed.

Responsible Staff: The Contractor for each phase of work will be responsible to establish BMPs. The CESCL will be responsible for ensuring BMPs are constructed per plan. If revisions are needed, the CESCL will provide recommendations to the Contractor to relocate or add additional facilities. If changes are made, this SWPPP will be updated by the CESCL.

3.1.4 Element 4: Install Sediment Controls

Silt Fence (BMP C233) or Compost Sock will be installed and maintained, as shown on the Site Map in Attachment A and as directed by the CESCL, to further prevent sediment from leaving the Project Limits. Sediment-laden water from within the work zone will be contained within an excavation area and collected for treatment following Elements 3 and 10.

In addition, sediment will be removed from paved areas in and adjacent to construction work areas manually or using mechanical sweepers, as needed, to minimize tracking of sediments on vehicle tires out of the site and to minimize wash-off of sediments from adjacent streets in runoff. Any sediment track out from the site onto surrounding roads will be immediately removed in accordance with the Construction Specifications.

List and describe BMPs:

BMP C233: Silt Fence

Compost Sock

Installation Schedules: The BMPs noted above should be installed prior to any soil disturbing activities.

Inspection and Maintenance plan: BMPs and site conditions will be inspected weekly. Maintenance should occur as soon as a deficiency is observed.

Responsible Staff: The Contractor for each phase of work will be responsible to establish BMPs. The CESCL will be responsible for ensuring BMPs are constructed per plan. If revisions are needed, the CESCL will provide recommendations to the Contractor to relocate or add additional facilities. If changes are made, this SWPPP will be updated by the CESCL.

3.1.5 Element 5: Stabilize Soils

As needed, site management personnel will assess weather and site conditions on a daily basis to determine if water needs to be applied for dust control, or if specific areas require additional BMP implementation to protect against soil erosion from rain or wind. Soil exposure within the Project Limits must be minimized to the maximum extent practical. Final stabilization of exposed or unworked soils within the Project Limits will occur as soon as work within the immediate area is complete.

The specific BMPs to be used for stabilizing soils or stockpiles on this project include: Temporary and Permanent Seeding (BMP C120), Mulching (BMP C121), Plastic Covering (BMP C123), Dust Control (BMP C140), and Wattles (BMP C235).

If Contractor chooses to temporarily stockpile removed materials prior to off-site transport, the Contractor will construct a bermed and lined stockpile area(s) for contaminated material. If inert debris (e.g., uncontaminated concrete) is also excavated, a separate stockpile area must be created for that material, so as to not mix it with contaminated material. Stockpile areas will be in Engineer-approved locations away from storm inlets and at least 25 feet away from the project limits. Material will be transported on-site and off-site in a way so as to prevent spillage of material.

Each stockpile will be underlain by a polyethylene geomembrane sheeting with a minimum thickness of 6 mils, with adjacent sheeting sections continuously overlapped by a minimum of 2 feet. The ground surface on which the sheeting will be placed will be free of objects that could damage the sheeting. Alternatively, a layer of geotextile or plywood may be placed beneath the sheeting to protect it. Berms will be constructed around each stockpile area to a minimum height of 6 inches and will contain sufficient area to allow for ponding and control of stormwater accumulating within it. Base liners of stockpiles will be bathtub construction to collect excess water, unless an alternative method is approved by Engineer. Liquid accumulating in contaminated material stockpile areas will be collected and disposed of in accordance with Elements 9 and 10.

Each soil stockpile will be covered by a polyethylene geomembrane of minimum 6-mil thickness to prevent precipitation from entering the stockpiled soil. Each stockpile cover will be anchored (e.g., using sand bags) sufficiently to prevent it from being removed by wind. Soil stockpiles will be covered when not in use and as needed during periods of rain and wind to prevent transport of soil. The stockpile management measures will be inspected regularly and maintained as needed as long as the stockpile remains at the site.

Alternate BMPs for stabilizing soil may be recommended by the CESCL in the event the BMP(s) listed above are deemed ineffective or inappropriate. To avoid potential erosion and sediment control issues, the Contractor will promptly initiate the implementation of one or more alternative BMPs after the first sign that existing BMPs are ineffective.

West of the Cascade Mountains Crest

Season	Dates	Number of Days Soils Can be Left Exposed
During the Dry Season	May 1 – September 30	7 days
During the Wet Season	October 1 – April 30	2 days

Soils must be stabilized at the end of the shift before a holiday or weekend if needed based on the weather forecast.

Anticipated project dates:

Start date: September 2025

End date: November 2025

Will you construct during the wet season?

Yes No

List and describe BMPs:

BMP C120: Temporary and Permanent Seeding

BMP C121: Mulching

BMP C123: Plastic Covering

BMP C140: Dust Control

BMP C235: Wattles

Installation Schedules: Disturbed areas or bare soils will be temporarily stabilized to prevent transport of sediment, rutting, dust, and over saturation. When cleanup activities are complete, then the area of disturbance should be permanently stabilized.

Inspection and Maintenance Plan: BMPs and site conditions will be inspected weekly. Maintenance should occur as soon as a deficiency is observed.

If dust is generated, then the dust generating activity should either cease or water should be supplied to the exposed soil.

Responsible Staff: The Contractor for each phase of work will be responsible to establish BMPs. The CESCL will be responsible for ensuring that BMPs are constructed per plan. If revisions are needed, the CESCL will provide recommendations to the Contractor to relocate or add additional facilities. If changes are made, this SWPPP will be updated by the CESCL.

3.1.6 Element 6: Protect Slopes

Will steep slopes be present at the site during construction?

Yes No

The ground surfaces that will be disturbed are generally flat, all excavations will be internally draining, and no increase in runoff is expected due to cleanup construction activities. Slope protection is not applicable to the site.

3.1.7 Element 7: Protect Drain Inlets

A temporary plug will be installed in the outlet pipe of the catch basin at the downstream end of the existing stormwater ditch to prevent off-site discharge of stormwater via that pipe during construction (see Site Map located in Appendix A). A large portion of the stormwater ditch will be excavated for cleanup purposes, and any water within that excavation, or stormwater accumulating in the ditch away from the excavation area, will be collected, treated, and discharged per Element 10. As an added precaution, Storm Drain Inlet Protection (BMP C220) may be implemented for off-site drainage inlets, if present, that could potentially be impacted by sediment-laden runoff from the cleanup construction Work.

List and describe BMPs:

BMP C220: Storm Drain Inlet Protection

Temporary Storm Drain Plug

Installation Schedules: Plugging of the stormwater ditch outlet pipe (catch basin), and protection of off-site drainage inlets if present, will occur during installation of the other preconstruction erosion control BMPs.

Inspection and Maintenance plan: BMPs and site conditions will be inspected weekly. Maintenance should occur as soon as a deficiency is observed.

Responsible Staff: The Contractor for each phase of work will be responsible to establish BMPs. The CESCL will be responsible for ensuring that BMPs are constructed per plan. If revisions are needed, the CESCL will provide recommendations to the Contractor to relocate or add additional facilities. If changes are made, this SWPPP will be updated by the CESCL.

3.1.8 Element 8: Stabilize Channels and Outlets

This element is not applicable. There are no on-site conveyance channels to stabilize. See Element 7 for plugging of the existing stormwater ditch outlet pipe (catch basin).

3.1.9 Element 9: Control Pollutants

The following pollutants are anticipated to be present on-site:

Table 1. Pollutants

Pollutant (and source, if applicable)
Potential contaminants present in site soils and groundwater include heavy metals (arsenic, copper, lead, mercury, nickel, zinc), total petroleum hydrocarbons, and polycyclic aromatic hydrocarbons (PAHs).
Source of pollutants during the project will be Contractor handling of contaminated materials being excavated for off-site disposal.

By removing contaminated soils, the project will prevent, reduce, or eliminate the discharge of pollutants to the stormwater system or waters of the state.

Potential hazardous materials used during construction include fuel, lubricants, solvents, etc. to be used for equipment maintenance. Temporary storage areas will be located away from vehicular traffic, near the construction entrance(s), and away from storm drains. Chemicals will be kept in their original labeled containers. Hazardous material storage on-site will be minimized and handled as infrequently as possible. Material Safety Data Sheets (MSDS) will be available on-site for all hazardous materials stored or used on site by Contractor.

The project will utilize BMP C153 Material Delivery, Storage, and Containment. Good housekeeping and preventative measures will be taken to ensure that the project location will be kept clean, well-organized, and free of debris to the maximum extent practical.

Spill cleanup procedures will be posted on-site. In case of a spill of hazardous substances, Contractor will contact the Division of Emergency Management (800-258-5990). Spills will be cleaned up immediately with proper off-site disposal of contaminated materials.

No fueling, maintenance, or repair of construction equipment and vehicles will be conducted on-site, except in cases of emergency.

If required, BMPs to be implemented to control specific sources of pollutants are:

Vehicles, construction equipment, and/or petroleum product storage/dispensing:

- If emergency repairs must be performed on-site, temporary plastic will be placed beneath and, if raining, over the vehicle.
- Surfaces will be cleaned immediately following any discharge or spill incident.

Excavation dewatering water:

- Dewatering BMPs and BMPs specific to the excavation (including handling of contaminated soils) are discussed under Element 10.

Sanitary wastewater:

- Portable sanitation facilities will be firmly secured, regularly maintained, and emptied, when necessary.

**PARCEL 114 INTERIM ACTION EXCAVATION PROJECT
CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN**

- Wastewater from wheel wash will be pumped and stored in on-site storage tanks, where it will be tested and treated, as needed, to meet requirements for off-site disposal as part of Wheel Wash implementation (BMP C106) and as described in Elements 9 and 10.

Solid Waste:

- Solid waste other than soil and inert debris generated during excavation will be stored in secure, clearly marked containers.

Other:

- Other BMPs will be administered, as necessary, to address any additional pollutant sources on-site.

All pollutants, including waste materials and inert demolition debris, that are generated on-site will be handled and disposed of in a manner that does not cause contamination of ground or surface waters. Good housekeeping and preventative measures will be implemented to ensure that the site will be kept clean, well-organized, and free of debris.

List and describe BMPs:

BMP C106: Wheel Wash

BMP C153: Material Delivery, Storage, and Containment

BMP C250: Construction Stormwater Chemical Treatment (if required)

BMP C251: Construction Stormwater Filtration (if required)

Installation Schedules: BMPs to control pollutants will be installed and implemented prior to the start of construction and throughout construction activities.

Inspection and Maintenance plan: BMPs and site conditions will be inspected weekly. Maintenance should occur as soon as a deficiency is observed.

Responsible Staff: The Contractor for each phase of work will be responsible to establish BMPs. The CESCL will be responsible for ensuring BMPs are constructed per plan. If revisions are needed, the CESCL will provide recommendations to the Contractor to relocate or add additional facilities. If changes are made, this SWPPP will be updated by the CESCL.

Will maintenance, fueling, and/or repair of heavy equipment and vehicles occur on-site?

Yes No

Will wheel wash or tire bath system BMPs be used during construction?

Yes No

Will pH-modifying sources be present on-site?

Yes No

Table 2. pH-Modifying Sources

<input type="checkbox"/>	None
<input checked="" type="checkbox"/>	Bulk cement (removal)
<input type="checkbox"/>	Cement kiln dust
<input type="checkbox"/>	Fly ash
<input type="checkbox"/>	Other cementitious materials
<input type="checkbox"/>	New concrete washing or curing waters
<input type="checkbox"/>	Waste streams generated from concrete grinding and sawing
<input type="checkbox"/>	Exposed aggregate processes
<input type="checkbox"/>	Dewatering concrete vaults
<input type="checkbox"/>	Concrete pumping and mixer washout waters
<input type="checkbox"/>	Recycled concrete
<input checked="" type="checkbox"/>	Other (i.e., calcium lignosulfate) [please describe: Sodium silicate process materials (e.g., soda ash) will likely be excavated with contaminated soil for off-site disposal]

3.1.10 Element 10: Control Dewatering

The Port will obtain a Special Approved Discharge (SAD) Authorization from the City to allow discharge of pretreated excavation dewatering water, and stormwater if needed, generated during the interim cleanup action. All water collected from excavation dewatering activities, and any stormwater that cannot be infiltrated or that accumulates within the stockpile areas or within the existing drainage ditch when its outlet pipe is plugged, will be collected and pretreated on-site using a temporary treatment system appropriately sized by the Contractor to accommodate required dewatering water flow rates, and meet the flow and water quality requirements of the SAD. After settling of suspended solids and other treatment, as needed, the water will be discharged to the City’s wastewater treatment plant via their sanitary sewer in accordance with the SAD requirements. Treated water not in compliance with the City discharge limits will be rerun through the treatment system, with treatment adjustments, as needed, until passing discharge limits. Alternatively, it can be containerized, characterized, and sent for off-Site disposal. No dewatering water or other sediment-laden water will be allowed to enter surface waters.

Prior to construction, the Contractor will submit a dewatering plan for Engineer approval that includes the proposed methods for storage, testing, treatment, and disposal of collected excavation dewatering water and stormwater.

The Contractor will remove solids from on-site storage tanks and treatment systems and perform other maintenance of treatment systems as necessary to maintain their efficiency and sufficient dewatering capacity. The Contractor will comply with local, state, and federal laws and conditions of the SAD regarding sedimentation and water quality control for off-site disposal of construction-generated water.

Table 3. Dewatering BMPs

X	On-site water treatment with discharge to City sanitary sewer system
X	Containerize on-site and transport off-site for disposal at permitted facility

Installation Schedules: Beginning of Project.

Inspection and Maintenance plan: Daily inspection and maintenance during construction activities.

Responsible Staff: The Contractor will be responsible to establish BMPs. The CESCL will be responsible for ensuring BMPs are constructed per plan. If revisions are needed, the CESCL will provide recommendations to the Contractor to relocate or add additional facilities. If changes are made, this SWPPP will be updated by the CESCL.

3.1.11 Element 11: Maintain BMPs

All TESC BMPs will be maintained and repaired as needed to ensure continued performance of their intended function.

Maintenance and repair will be conducted in accordance with each particular BMP specification (see Volume II of the SWMMWW).

Visual monitoring of all BMPs installed at the site will be conducted at least once every calendar week and within 24 hours of any rain event to ensure no discharge of construction-related stormwater occurs.

All TESC BMPs will be removed within 30 days after final site stabilization is achieved or after the temporary BMPs are no longer needed.

Trapped sediment will be stabilized and stockpiled on-site for removal per Element 5. Disturbed soil resulting from removal of either BMPs or vegetation will be permanently stabilized.

In addition, protection must be provided for all BMPs installed for the permanent control of stormwater from sediment and compaction. BMPs that are to remain in place following completion of construction will be examined and restored to full operating condition. If sediment enters these BMPs during construction, the sediment will be removed and stockpiled on-site for removal following Element 5, and the facility will be returned to conditions specified in the construction documents.

3.1.12 Element 12: Manage the Project

The project will be managed based on the following principles:

- Projects will be phased to the maximum extent practicable and seasonal work limitations will be taken into account.
- Inspection, maintenance and repair of all BMPs will occur as needed to ensure performance of their intended function.
- Maintain an updated SWPPP.

As site work progresses, the SWPPP will be modified routinely to reflect changing site conditions. The SWPPP will be reviewed monthly to ensure the content is current. The following management BMPs apply to this site:

Table 4 – Management

X	Design the project to fit the existing topography, soils, and drainage patterns
	Emphasize erosion control rather than sediment control
X	Minimize the extent and duration of the area exposed
	Keep runoff velocities low
X	Retain sediment on-site
X	Thoroughly monitor site and maintain all TESC measures
X	Schedule major earthwork during the dry season to the extent practical
	Other (please describe)

3.1.13 Element 13: Protect Low Impact Development (LID) BMPs

This element does not apply. No LID BMPs will be impacted or constructed.

4 Pollution Prevention Team

Table 5. Team Information

Title	Name(s)	Agency / Firm	Phone
CESCL	TBD		
Engineer's Representative	TBD		
Emergency Owner Contact	Elly Bulega, PE	Port of Tacoma	(253) 678-6130
Emergency Contractor Contact	TBD		
Non-Emergency Contractor Contact	TBD		
Monitoring Personnel	TBD		
Ecology Regional Office	Ecology Northwest Regional Office		206-594-0000

5 Monitoring and Sampling Requirements

Monitoring includes visual inspection of the site and sampling for water quality parameters of concern. For convenience, a Site Inspection Form is included in Appendix B.

During construction, site inspections will be conducted at least once every calendar week and within 24 hours following any rain event greater than 0.1 inch to ensure no discharge of construction-related stormwater occurs. For sites that are temporarily stabilized and inactive, the required frequency is reduced to once per calendar month.

5.1 Stormwater Quality Sampling

All stormwater captured and all dewatering water will be treated on-site and discharged to the City's sanitary sewer in accordance with the SAD. Refer to the SAD for water quality sampling and analysis requirements for discharge.

6 Discharges to 303(d) or TMDL Waterbodies

6.1 303(d) Listed Waterbodies

Is the receiving water 303(d) (Category 5) listed for turbidity, fine sediment, phosphorus, or pH?

Yes No

If yes, list the impairment(s):

6.2 TMDL Waterbodies

Based on review of Ecology's TMDL list, Hylebos Waterway, near the project site, is currently shown as part of the Commencement Bay dioxin TMDL.

7 Reporting and Record Keeping

7.1 Record Keeping

7.1.1 Site Logbook

A site logbook will be maintained for all on-site inspection and sampling activities and will include:

- A record of the implementation of the SWPPP and other permit requirements
- Site inspections
- Sampling logs
- Sampling data

The site logbook must be maintained, remain on-site, and be made available upon request to Ecology or the local jurisdiction.

7.1.2 Records Retention

Records will be retained during the life of the project and for a minimum of three (3) years following final stabilization of the Project Site.

Documentation to be retained on-site:

- SWPPP
- Site Logbook
- City of Tacoma SAD

Documentation will be provided within 14 days of receipt of a written request from Ecology. A copy of the SWPPP or access to the SWPPP will be provided to the public when requested in writing.

7.1.3 Updating the SWPPP

The SWPPP will be modified if:

- Found ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site.

**PARCEL 114 INTERIM ACTION EXCAVATION PROJECT
CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN**

- There is a change in design, construction, operation, or maintenance at the construction site that has, or could have, a significant effect on the discharge of pollutants to waters of the State.

The SWPPP will be modified within seven (7) days if inspection(s) or investigation(s) determine additional or modified BMPs are necessary for compliance. An updated timeline for BMP implementation will be prepared.

APPENDIX A

Site Map

APPENDIX B

Site Inspection Form

Construction Stormwater Site Inspection Form

D. Check the observed status of all items. Provide "Action Required" details and dates.

Element #	Inspection	BMPs Inspected			BMP needs maintenance	BMP failed	Action required (describe in section F)
		yes	no	n/a			
1 Clearing Limits	Before beginning land disturbing activities are all clearing limits, natural resource areas (streams, wetlands, buffers, trees) protected with barriers or similar BMPs? (high visibility recommended)						
2 Construction Access	Construction access is stabilized with quarry spalls or equivalent BMP to prevent sediment from being tracked onto roads?						
	Sediment tracked onto the road way was cleaned thoroughly at the end of the day or more frequent as necessary.						
3 Control Flow Rates	Are flow control measures installed to control stormwater volumes and velocity during construction and do they protect downstream properties and waterways from erosion?						
	If permanent infiltration ponds are used for flow control during construction, are they protected from siltation?						
4 Sediment Controls	All perimeter sediment controls (e.g. silt fence, wattles, compost socks, berms, etc.) installed, and maintained in accordance with the Stormwater Pollution Prevention Plan (SWPPP).						
	Sediment control BMPs (sediment ponds, traps, filters etc.) have been constructed and functional as the first step of grading.						
	Stormwater runoff from disturbed areas is directed to sediment removal BMP.						
5 Stabilize Soils	Have exposed un-worked soils been stabilized with effective BMP to prevent erosion and sediment deposition?						

Construction Stormwater Site Inspection Form

Element #	Inspection	BMPs Inspected			BMP needs maintenance	BMP failed	Action required (describe in section F)
		yes	no	n/a			
5 Stabilize Soils Cont.	Are stockpiles stabilized from erosion, protected with sediment trapping measures and located away from drain inlet, waterways, and drainage channels?						
	Have soils been stabilized at the end of the shift, before a holiday or weekend if needed based on the weather forecast?						
6 Protect Slopes	Has stormwater and ground water been diverted away from slopes and disturbed areas with interceptor dikes, pipes and or swales?						
	Is off-site storm water managed separately from stormwater generated on the site?						
	Is excavated material placed on uphill side of trenches consistent with safety and space considerations?						
	Have check dams been placed at regular intervals within constructed channels that are cut down a slope?						
7 Drain Inlets	Storm drain inlets made operable during construction are protected.						
	Are existing storm drains within the influence of the project protected?						
8 Stabilize Channel and Outlets	Have all on-site conveyance channels been designed, constructed and stabilized to prevent erosion from expected peak flows?						
	Is stabilization, including armoring material, adequate to prevent erosion of outlets, adjacent stream banks, slopes and downstream conveyance systems?						
9 Control Pollutants	Are waste materials and demolition debris handled and disposed of to prevent contamination of stormwater?						
	Has cover been provided for all chemicals, liquid products, petroleum products, and other material?						
	Has secondary containment been provided capable of containing 110% of the volume?						
	Were contaminated surfaces cleaned immediately after a spill incident?						
	Were BMPs used to prevent contamination of stormwater by a pH modifying sources?						

Construction Stormwater Site Inspection Form

Element #	Inspection	BMPs Inspected			BMP needs maintenance	BMP failed	Action required (describe in section F)
		yes	no	n/a			
9 Cont.	Wheel wash wastewater is handled and disposed of properly.						
10 Control Dewatering	Concrete washout in designated areas. No washout or excess concrete on the ground.						
	Dewatering has been done to an approved source and in compliance with the SWPPP.						
	Were there any clean non turbid dewatering discharges?						
11 Maintain BMP	Are all temporary and permanent erosion and sediment control BMPs maintained to perform as intended?						
12 Manage the Project	Has the project been phased to the maximum degree practicable?						
	Has regular inspection, monitoring and maintenance been performed as required by the permit?						
	Has the SWPPP been updated, implemented and records maintained?						
13 Protect LID	Is all Bioretention and Rain Garden Facilities protected from sedimentation with appropriate BMPs?						
	Is the Bioretention and Rain Garden protected against over compaction of construction equipment and foot traffic to retain its infiltration capabilities?						
	Permeable pavements are clean and free of sediment and sediment laden-water runoff. Muddy construction equipment has not been on the base material or pavement.						
	Have soiled permeable pavements been cleaned of sediments and pass infiltration test as required by stormwater manual methodology?						
	Heavy equipment has been kept off existing soils under LID facilities to retain infiltration rate.						

E. Check all areas that have been inspected. ✓

All in place BMPs All disturbed soils All concrete wash out area All material storage areas
 All discharge locations All equipment storage areas All construction entrances/exits

Construction Stormwater Site Inspection Form

F. Elements checked "Action Required" (section D) describe corrective action to be taken. List the element number; be specific on location and work needed. Document, initial, and date when the corrective action has been completed and inspected.

Element #	Description and Location	Action Required	Completion Date	Initials

Attach additional page if needed

Sign the following certification:

"I certify that this report is true, accurate, and complete, to the best of my knowledge and belief"

Inspected by: (print) _____ (Signature) _____ Date: _____

Title/Qualification of Inspector: _____

Appendix F

Site Development (SDEV) Permit



CITY OF TACOMA

Planning and Development Services
(253) 591-5030

747 Market St. 3rd Floor
Tacoma, WA 98402
Inspections (253) 573-2587

Site Development Permit #SDEV25-0199

Issued Date: 08/13/2025

Expiration Date: 02/09/2026

SITE INFORMATION

Address: 1202 TAYLOR WAY

Parcel: 0321263016

PERMIT ISSUED TO

PORT OF TACOMA
REAL ESTATE DEPT
TACOMA, WA 98401

LICENSED CONTRACTOR

PORT OF TACOMA
REAL ESTATE DEPT
TACOMA, WA 98401

PROPERTY OWNER

PORT OF TACOMA
REAL ESTATE DEPT
TACOMA, WA 98401

PERMIT INFORMATION

Project Description: Excavate and dispose contaminated material beneath former PQ Corporation Site. Backfill with clean fill material to match pre-excavation elevations.

Permit Fee: \$175.50

Project Coordinator: Noah Yacker

Related Site Record: N/A

Related Land Use Record: LU25-0135

CONDITIONS OF APPROVAL

Per redlined approval comments on plans, and as coordinated with Applicant, mobilization onsite is not allowed until after precon meeting and permit transfer to Port's selected contractor, after bidding process and contract award is complete. Confirmed with Port 08/12/2025: 'intend to be out to bid and award contract within 6 months of permit issuance.' to ensure permit remains active.

Discovery of archaeological/cultural sites during construction

In the event of an unanticipated discovery of suspected archaeological materials or human remains during the course of construction, all work within 30 feet of the discovery site shall cease immediately and the project management personnel must follow procedures outlined in the City of Tacoma standard Unanticipated Discovery Plan (UDP). All project management personnel should access and familiarize themselves with the UDP steps and requirements prior to the start of construction, and shall inform workers and equipment operators of the UDP as well.

The UDP can be accessed here: <https://cityoftacoma.org/culturalResources/>

To schedule or manage inspections by phone (253) 573-2587 or online at aca-prod.accela.com/TACOMA/

PRINTED PERMIT AND APPROVED PLANS MUST BE KEPT ON SITE DURING CONSTRUCTION

All plumbing, heating, and electrical work will be performed by either the home owner or by a contractor licensed to do the same. Separate permits are required for other work, including but not limited to, sanitary and storm sewer, sidewalk, curb and gutter, driveways, parking lot paving, street improvements, fire protection, and signs. Plumbing and mechanical permits can be incorporated into some permits.



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747 Market St. 3rd Floor
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Inspections (253) 573-2587

Site Development Permit #SDEV25-0199

Issued Date: 08/13/2025

Expiration Date: 02/09/2026

VALUATIONS

Estimated Valuation:

\$4,000,000

PROJECT DETAILS

Company Job ID Number:

POT 92839

Night or Weekend Work:

NO

Pre-Application Number:

N/A



CITY OF TACOMA

Planning and Development Services
(253) 591-5030

747 Market St. 3rd Floor
Tacoma, WA 98402
Inspections (253) 573-2587

Site Development Permit #SDEV25-0199

Issued Date: 08/13/2025

Expiration Date: 02/09/2026

Row

APPROVED REVIEWERS

Category	Approved By	Email	Phone Number
Building Review	Chris Seaman	cseaman@tacoma.gov	253-591-5503
Critical Areas Review	Dori Tolbert	dtolbert@tacoma.gov	
Critical Areas Review	Karla Kluge	kkluge@tacoma.gov	253-365-4932
Document Review	Joy Rodriguez	jrodrigu@tacoma.gov	253-312-3513
Fire Protection Review	Derek Gust	dgust@tacoma.gov	
Flood Hazard Review	Karla Kluge	kkluge@tacoma.gov	253-365-4932
Flood Hazard Review	Noah Yacker	nyacker@tacoma.gov	253-651-5309
Historic Review	Reuben McKnight	reuben.mcknight@tacoma.gov	253-686-8468
Land Use Review	Shanta Frantz	sfrantz@tacoma.gov	253-260-0769
Other Agency Review	James Pasley	jpasley@tacoma.gov	
Real Property Review	Carleen Bruner	cbruner@tacoma.gov	253-591-5570
Site Development Review	Joy Rodriguez	jrodrigu@tacoma.gov	253-312-3513
Tacoma Power Review	Justin Hang	jhang@tacoma.gov	253-502-8164
Tacoma Water Review	Katherine Belin	kbelin@cityoftacoma.org	253-651-2331
Traffic Review	Jennifer Kammerzell	jkammerzell@tacoma.gov	253-591-5511
Water Quality Review	Scott Hallenberg	shallenb@tacoma.gov	253-502-8215

GENERAL:

PERMISSION IS HEREBY GIVEN TO DO THE DESCRIBED WORK, AS NOTED ON THE REVERSE SIDE, ACCORDING TO THE CONDITIONS HEREON AND ACCORDING TO THE APPROVED PLANS AND SPECIFICATIONS PERTAINING THERETO, SUBJECT TO COMPLIANCE WITH THE ORDINANCES OF THE CITY OF TACOMA.,

YOUR ATTENTION IS CALLED TO THE FACT THAT IT SHALL BE THE DUTY OF THE PERMITEE (General Contractor) to assure that all necessary inspections are called for and approved by the City Inspectors.

YOUR ATTENTION IS CALLED to the fact that in addition to the called for inspections specified by the applicable codes, the Building Official may make or require any other inspections of any construction work necessary to ascertain compliance with the provisions of City Codes and other laws which are enforced by the City of Tacoma.

YOUR ATTENTION IS CALLED to the fact that in addition to regularly scheduled inspections during construction there shall be a final inspection and approval on all buildings or structures when completed and ready for occupancy. AU required off-site improvements (curbs, sidewalks, storm sewers, etc.) must be completed at time a final inspection and prior to occupancy of building. Construction of off-site improvements requires scheduled inspections during construction in addition to the final inspection.

SPECIAL PERMITS

The holder of Special Permits agrees to the following stipulations:

1. To complete the work encompassed by the Special Permit in accordance with the current edition of the WSDOTIAFWA Standard Specifications as amended by the City of Tacoma General Special Provisions and in accordance with any special provisions or conditions set forth before final acceptance as required by the provisions of the Street Obstruction Bond.
2. To indemnify and hold the City of Tacoma harmless from any and all damages done to any person or property which may arise from the construction encompassed by the Special Permit.
3. To submit for review and approval to the Traffic Engineer a traffic control plan developed in accordance with the "Manual on Uniform Traffic Control Devices" {MUTCD}. The traffic control plan shall show pedestrian access through the work zone.
4. To protect the public by placing adequate barricades, signs, cones, lights or other traffic control devices in accordance with the approved traffic control plan. It is understood that traffic lane closures and or sidewalk closures are limited to that which is specifically permitted herein. No other closures will be allowed without prior written approval of the City Engineer.
5. To provide and maintain protected pedestrian and ADA compliant disability access on walkways at all times.
6. The City of Tacoma does not guarantee sewer location or depth information. It shall be the permittee's responsibility to verify sewer and sewer stub locations and depths.
7. To restore Rights-of-Way in accordance with the City's Rights-of-Way Restoration Policy and City of Tacoma Standard Plans
8. Trench backfill within all improved streets or streets proposed for improvement shall be full depth bank run gravel or approved equal by the Construction Division.
9. All cuts in arterial streets shall be patched and maintained with Hot Mix Asphalt until permanent repairs are completed. All cuts in residential streets or alleys shall be patched and maintained with cold mix asphalt until permanent repairs are made. Permanent repairs shall be per current City of Tacoma Standard Plans. Streets and alleys shall be permanently repaired within 30 days.
10. To be responsible for the preservation of any utilities within the construction area.

CALL TOLL FREE BEFORE YOU DIG -1-800-424-5555 (Utilities Underground Location Center)

11. 24 Hour notice is required prior to any inspection. Construction Division 253-591-5760, Traffic SignaVStreetlight 253-591-5287.
12. The Special Permit Expiration date is 30 days from the issue date unless otherwise noted.

9.08.070 Revocation of permits and removal of development.

All permits and/or development granted under the provisions of this chapter may, in any case, be revoked by the Director of Planning and Development Services, or designee, upon 30 days' notice, or without notice in case any such use or occupation shall become dangerous or any structure or obstruction permitted shall become insecure or unsafe, or shall not be constructed, maintained, or used in accordance with the provisions of this chapter. The development shall be removed at the expense of the permittee and/or adjacent property owner.

If any such structure, obstruction, use, or occupancy is not discontinued on notice to do so by the Director of Planning and Development Services, the City may forthwith remove such structure or obstruction from such place, or make such repairs upon such structure or obstruction as may be necessary to render the same secure and safe, at the expense of the permittee or successor, and such expense, together with the cost of its collection, may be collected in the manner provided by law. As an alternative, the City may enforce under Title 8.

(Ord. 28501 Ex. A; passed Apr. 10, 2018; Ord. 22865 § 1; passed Jan. 18, 1983; Ord. 21035 § 1; passed Apr. 5, 1977)



Stormwater Site Plan (SSP) Report

Port of Tacoma Cleanup Extraction

Prepared For

SDEV25-0199

Project Location

1202 Taylor Way, Tacoma, WA, 98401-1837

Pierce County TPN 0321263016

Port Parcel 114

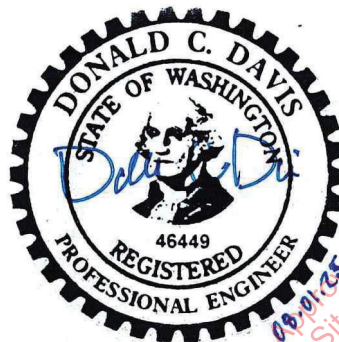
Stormwater Site Plan Prepared By

Name	Organization	Contact Telephone Number	Email Address
Don Davis, P.E.	Sitts & Hill Engineers, Inc.	(253)474-9449	dond@sittshill.com

Date Prepared

06/06/2025

(Insert Professional Engineer Certification and Stamp, if necessary).



08-07-2025
Site Development
SDEV25-0199

City of Tacoma
Reviewed for Code Compliance
7/30/2025

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1. Project Information

A. Project Contacts

See Title Page for Stormwater Site Plan Development Team

B. Property Owner

Name	Organization	Mailing Address	Contact Telephone Number	Email Address
Elly Bulega	Port of Tacoma	1 Sitcum Plaza Tacoma, WA 98421	(253)428-8638	ebulega@portoftacoma.com

C. Applicant (if different than Property Owner)

Name	Organization	Mailing Address	Contact Telephone Number	Email Address
Don Davis, P.E.	Sitts & Hill Engineers, Inc.	4815 Center St. Tacoma, WA 98409	(253)474-9449	dond@sittshill.com

D. Associated Permits

- i) Associated City of Tacoma Permit Number(s)
TBD
- ii) Other Federal, State, or Local Associated Permit Types and Numbers
TBD

E. Vesting

- i) City of Tacoma Stormwater Management Manual Edition Used
July 2021
- ii) If using a manual other than the most current version, provide vesting justification:
N/A

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Site Development
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2. Project Overview

A. Provide a brief description of the proposed project.

The project is to remove contaminated soil on Port of Tacoma (PoT) property. Excavated material will be replaced with clean material to restore the disturbed areas as vegetated surfacing.

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Site Development
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3. Existing Project Site Conditions

A. Answer the following questions, provide additional description, and provide figures (if necessary) to describe the existing site conditions.

i) Describe in one or two sentences the existing project site use:

The project site currently includes semi-trailer parking and the drainage ditch it discharges into.

ii) Describe in words or show on a figure the stormwater runoff patterns (natural and artificial) and the points where stormwater enters and exits the project site.

Stormwater presently runs off of the gravel-surfaced parking into a drainage ditch. From the drainage ditch, it enters an artificial system located in Taylor Way and E 11th St, which ultimately discharges into the Hylebos Waterway.

iii) Answer the following questions to help describe the existing site conditions. If Answer is Yes, include an associated figure(s) that shows location. Answers must be based upon site reconnaissance and readily available mapping data. See SWMM – Volume 2, Chapter 3 for resources.

Questions	Answer	Data Source(s)
Are groundwater protection areas located on the project site or within 500 feet of the project site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	
Are wetlands and/or their buffers located on the project site or within 500 feet of the project site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	
Are steep slopes located on the project site or within 500 feet of the project site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	
Are floodplains located on the project site or within 500 feet of the project site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	
Are streams located on the project site or within 500 feet of the project site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	
Are creeks located on the project site or within 500 feet of the project site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	
Are ravines located on the project site or within 500 feet of the project site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	

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Are springs located on the project site or within 500 feet of the project site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	
Are any other sensitive areas or critical areas located on the project site or within 500 feet of the project site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	
Are any structures located on the project site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	
Are any fuel tanks or other storage tanks (above or below-ground) located on the project site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	
Are any groundwater wells located on the project site or within 100 feet of the project site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	
Are any septic systems located on the project site or within 100 feet of the project site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	
Are any Superfund sites located on the project site or within 100 feet of the project site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	
Are any Flood Hazard Areas located on the project site or within 100 feet of the project site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	
Is the project located in the South Tacoma Groundwater Protection District?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	
Are any public or private easements located on the project site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	

iv) Additional Information

The site is presently a mix of gravel surfacing and vegetated drainage ditch.

(Insert associated figure(s) (if applicable) below)

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B. Existing Project Site Condition Basin Map

- i) Provide an existing conditions basin map

Outline and square footage of hard surface areas.

Outline and square footage of vegetation areas.

Outline and square footage of native vegetation areas.

Outline and square footage of pasture areas.

Outline and square footage of lawn/landscaped areas.

Outline of Threshold Discharge Areas.

*Each area should have a separate color or shading to clearly distinguish one area from another. Map, tables, and coloring/shading shall appropriately correspond.

Figure 1 – Existing Project Site Conditions Maps

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C. Downstream Flowpath – Existing Condition

Provide a map showing the downstream flowpath from the project site to the Puget Sound – including all receiving waterbodies along the flowpath. Assume that stormwater does not infiltrate along the flowpath and will ultimately reach the Puget Sound. Include a separate map for each TDA or if each flowpath can be clearly distinguished, one map will suffice. Clearly show the ¼ mile point for determining TDA.

Figure 2 – Downstream Flowpath

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Figure 2 – Downstream Flowpath

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4. Proposed Project Site Conditions

A. Describe in words and provide figure(s) to describe the proposed project site conditions.

- i) Describe in one or two sentences the proposed project site use:

The disturbed areas will be restored with vegetated surfacing upon completion of soil remediation. The area will no longer be used for storage of trailers. The drainage ditch will be restored to match its precondition function.

- ii) Describe in words or show on a figure the stormwater runoff patterns (natural and artificial) and the points where stormwater enters and exits the project site.

Stormwater enters the project from adjacent gravel surfacing. The neighboring parcels, as well as the project site, discharge into the drainage ditch. The drainage ditch then discharges into an artificial stormwater system at the westernmost point of the ditch.

- iii) Provide a figure showing:

- the proposed improvements (buildings, sidewalks, parking lots, utilities, etc.),
- fuel tanks (above and below ground) that are proposed or will remain in place, proposed groundwater wells on the project site
- proposed septic systems
- proposed public and private easements

No improvements are proposed. See Figure 3.

- iv) Additional Information

Finished surface conditions will approximately match existing project site conditions, with clean subgrade material. See Figure 3.

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B. Proposed Project Site Condition Basin Map

Outline and square footage of new hard surface areas.

Outline and square footage of replaced hard surface areas.

Outline and square footage of new pollution generating hard surface areas.

Outline and square footage of replaced pollution generating hard surface areas.

Outline and square footage of hard surface areas to remain unaltered. Include grind/overlay areas, as applicable.

Outline and square footage of areas converted from vegetation to lawn/landscaped areas.

Outline and square footage of areas converted from native vegetation to pasture.

Outline and square footage of pollution generating pervious surfaces.

Outline and square footage of vegetation areas to remain unaltered.

Outline and square footage of native vegetation areas to remain unaltered.

Outline and square footage of pasture areas to remain unaltered.

Outline and square footage of lawn/landscaped areas to remain unaltered.

Outline of Threshold Discharge Areas.

*Each area should have a separate color or shading to clearly distinguish one area from another. Map, tables, and coloring/shading shall appropriately correspond.

Figure 3 - Proposed Condition and Basin Map

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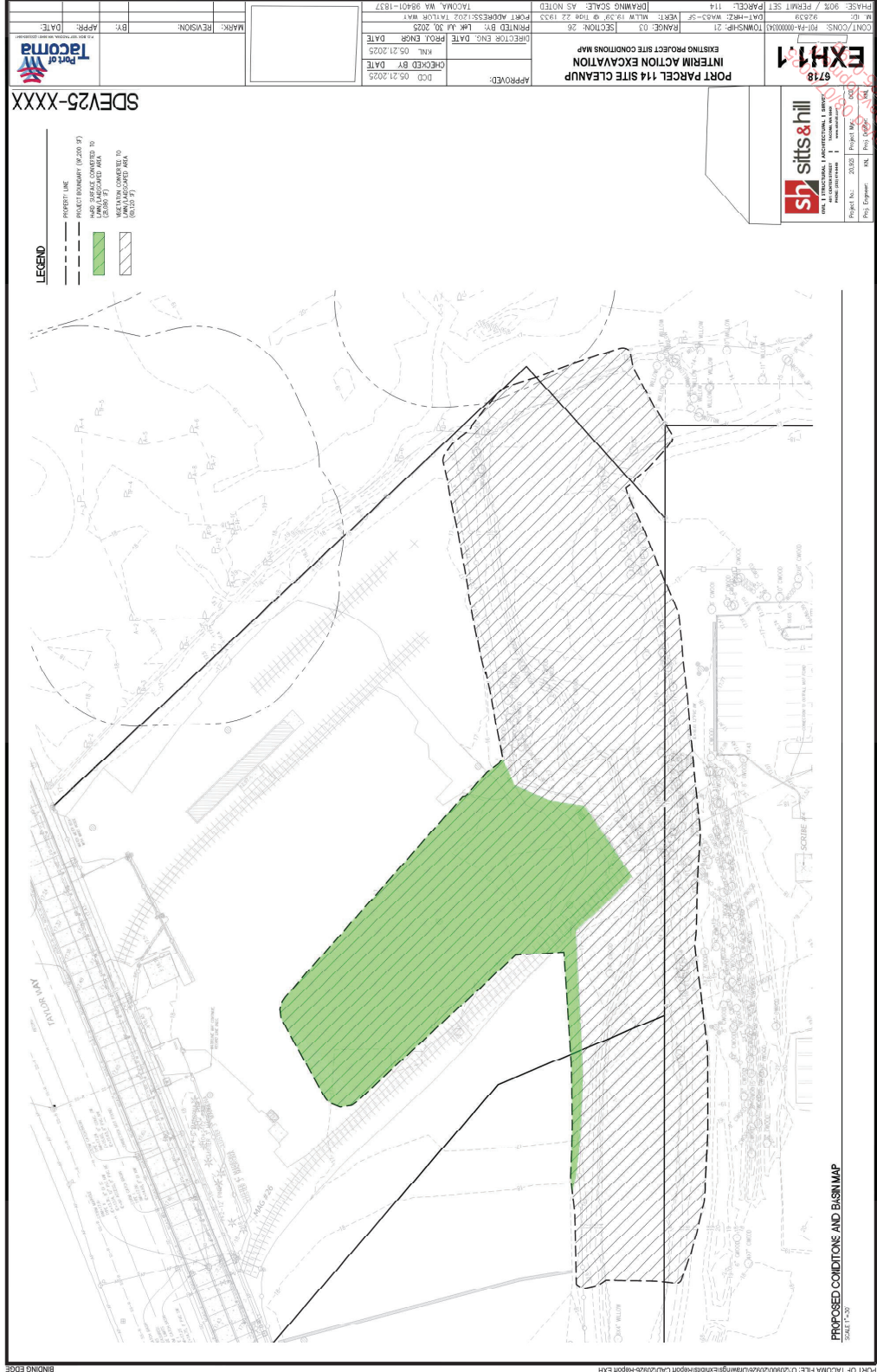


Figure 3 - Proposed Condition and Basin Map

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C. Downstream Flowpath – Proposed Condition

Only needed for proposed condition if TDAs change from existing to proposed condition.
*** Provide a map showing the downstream flowpath from the project site to the Puget Sound – including all receiving waterbodies along the flowpath. Assume that stormwater does not infiltrate along the flowpath and will ultimately reach the Puget Sound. Include a separate map for each TDA or if each flowpath can be clearly distinguished, one map will suffice. Clearly show the ¼ mile point for determining TDA.

The downstream flow path will be identical to the existing downstream flow path shown in Figure 2.

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5. Minimum Requirement Determination

A. Table 1 – Project Thresholds

Table 1 – Project Surface Thresholds

Surface Type	Onsite	Offsite	Total	Project Notes
Total Project Site Area (ft ²)	97,200	0	97,200	
Total Site Area (ft ²)	174,020	0	174,020	
Existing Hard Surface Area (ft ²)	28,080	0	28,080	
Existing Native Vegetation Area (ft ²)	0	0	0	
Existing Vegetation Area (ft ²)	69,120	0	69,120	
Existing Lawn/Landscaped Area (ft ²)	0	0	0	
Existing Pasture Area (ft ²)	0	0	0	
Existing Hard Surface Coverage (%)	29%	0%	29%	
New Pollution Generating Hard Surface Area (ft ²)	0	0	0	
New Non-Pollution Generating Hard Surface Area (ft ²)	0	0	0	
Total New Hard Surface Area (ft ²)	0	0	0	
Replaced Pollution Generating Hard Surface Area (ft ²)	0	0	0	
Replaced Non-Pollution Generating Hard Surface Area (ft ²)	0	0	0	
Total Replaced Hard Surface Area (ft ²)	0	0	0	
Total of New Plus Replaced Hard Surface Area (ft ²)	0	0	0	
Total of New Plus Replaced Pollution Generating Hard Surface Area (ft ²)	0	0	0	
Amount of Vegetation Converted to Lawn/Landscaped Area (ft ²)	69,120	0	69,120	

Amount of Native Vegetation Converted to Pasture (ft ²)	0	0	0
Total of New Plus Replaced Hard Surfaces and Converted Vegetation Areas (ft ²)	69,120	0	69,120
Total of New Hard Surfaces and Converted Vegetation Areas (ft ²)	69,120	0	69,120
Amount of Existing Hard Surface Converted to Vegetation (ft ²)	28,080	0	28,080
Amount of Native Vegetation to Remain (ft ²)	0	0	0
Amount of Existing Vegetation to Remain (ft ²)	0	0	0
Amount of Existing Hard Surface to Remain (ft ²)	0	0	0
Amount of Existing Lawn/Landscaped to Remain (ft ²)	0	0	0
Amount of Existing Pasture to Remain (ft ²)	0	0	0
Amount of Land Disturbing Activity (ft ²)	97,200	0	97,200
Value of Proposed Improvements (\$)	TBD	TBD	TBD
Assessed value of Existing Project Site Improvements (\$)	\$4,340,300	\$0	\$4,340,300
Proposed Improvements Compared to Existing Project Site Improvements (%)	TBD	TBD	TBD

B. Table 2 – Receiving Waterbody Table

Table 2 – Receiving Waterbody Table

Receiving Waterbody Name	Type of Receiving Waterbody
Hylebos Waterway	Marine

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C. Table 3 – Minimum Requirements Required

Table 3 – Minimum Requirements Required

Applicable Minimum Requirements	Applicable Surface Type Requiring Mitigation
MR#1-9	New and Replaced Hard Surfaces and Converted Vegetation Areas

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D. Table 4 – Cumulative Impact

Table 4 – Cumulative Impacts

Year of Improvements	Associated Permit Number	Project Description	MRs Required	New Hard Surfaces (ft ²)	New Pollution Generating Hard Surfaces (ft ²)	Replaced Hard Surfaces (ft ²)	Replaced Pollution Generating Hard Surfaces (ft ²)	Total Converted Vegetation Areas (ft ²)	Notes
2009/2010	N/A	Construction of a new storage structure.	-	450	0	0	0	0	Est. from Google Earth
2010/2011	N/A	Removal of the existing storage structure.	-	0	0	450	0	0	Est. from Google Earth

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Cumulative Impacts Discussion

The site was fully developed before 2003. Beginning in 2009, and lasting through 2011, the storage structures on-site were demolished and removed.

E. Flowcharts

Following the Manual flow charts, included below as Figure 4, the project must follow Minimum Requirements #1-9 for all new plus replaced hard surfaces and converted vegetation areas.

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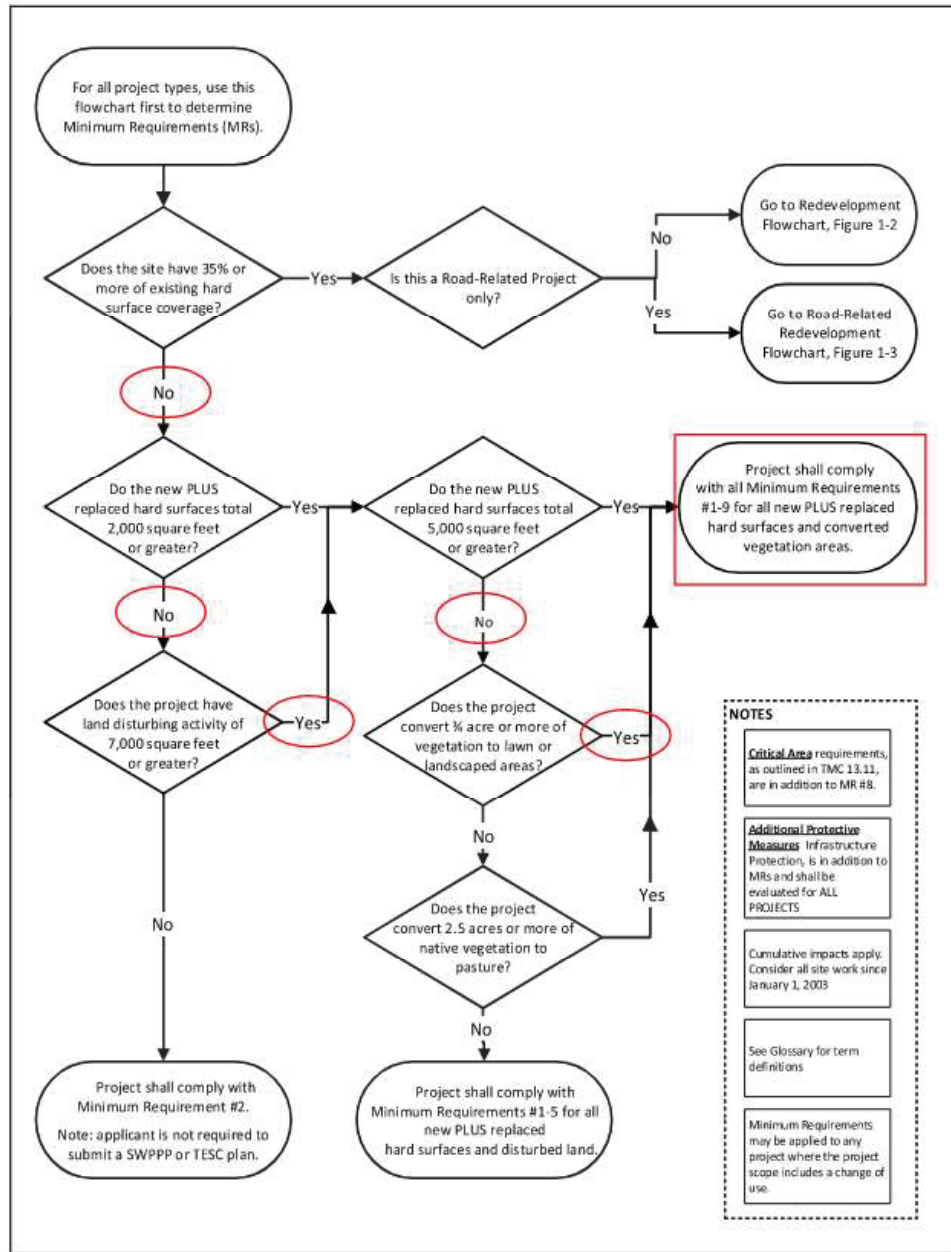


Figure 1 - 1: All Projects and New Development Flowchart

Figure 4 – All Projects and New Development Flowchart

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6. Discussion of Minimum Requirements

A. Minimum Requirement #1 – Preparation of a Stormwater Site Plan

This Stormwater Site Plan Report and the Port Parcel 114 Site Cleanup Interim Action Excavation Construction Drawings are being used to meet Minimum Requirement #1.

Description of Site Appropriate Development Principles

Where practicable, projects shall use the following site appropriate development principles. Put a checkmark next to the principles that will be used for the project. Project design is not required to be changed in order to accommodate site appropriate development principles, but where feasible, these principles must be used. If none of the site development principles are feasible, place a checkmark next to that box below.

- Minimization of land disturbance by fitting development to the natural terrain.
- Minimization of land disturbance by confining construction to the smallest area feasible and away from critical areas.
- Preservation of natural vegetation.
- Locating impervious surfaces over less permeable soils.
- Clustering buildings.
- Minimizing impervious surfaces.
- Site appropriate development principles are not practicable because of project design.

B. Minimum Requirement #2 – Construction Stormwater Pollution Prevention Plan

The Construction Stormwater Pollution Prevention Plan is available as a stand-alone document as part of the Permit submittal.

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C. Minimum Requirement #3 – Source Control

i. Description of Final Site Use

The project site will be left vacant after remediation. Stormwater will continue to flow through the drainage ditch from presently tributary surfaces.

ii. Source Control BMPs

Table 5 - Source Control Selection Worksheet

BMP	Property/Site Type or Activity Type	Potential Pollutant(s) Associated with Activity or Pollutant that BMP is being used for.
BMP S102: Formation of a Pollution Prevention team	All commercial and industrial sites.	
BMP S103: Preventative Maintenance/Good Housekeeping	All commercial and industrial sites.	
BMP S105: Employee Training	All commercial and industrial sites.	
BMP S106: Inspections	All commercial and industrial sites.	
BMP S107: Record Keeping	All commercial and industrial sites.	
BMP S137: Maintenance of Ditches and Culverts	Maintenance of ditches and culverts that are designed for or can transport stormwater.	Litter, eroded soil, oils, vegetative particles, and heavy metals
BMP S139: Stormwater System Maintenance	All properties with stormwater systems.	Excess sediment, oils, hydrocarbons and sediment
BMP S143: Landscaping and Lawn/Vegetation Management	Properties and areas in the ROW that have landscaping and/or lawn areas.	Toxic organic compounds, heavy metals, oils, total suspended solids, coliform bacteria, fertilizers, and pesticides.

D. Minimum Requirement #4 – Preserving Drainage Patterns and Outfalls

i. Description of Drainage Patterns and Outfalls

Existing topography of the project site will be largely maintained in the finished condition. Therefore, all drainage paths and outfalls will be the same between existing and proposed conditions.

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E. Minimum Requirement #5 – Onsite Stormwater Management

This project will utilize: LID Performance Method

i. If using the LID Performance Standard

- State the BMPs being used for compliance. Provide the BMP name(s) and number(s).
- State that BMP L613: Post-Construction Soil Quality and Depth is being used.
- Provide sizing calculations for all BMPs proposed.
- Provide the modeling report showing that with the use of BMPs, the LID Performance Standard is met. Include modeling report as appendix to this document.

This project is flow-control exempt; therefore, it may use any flow control BMP to meet LID performance requirements. The project site is also located in the “40% Total Impervious Area as of 1985” area, and can therefore use the existing land cover for flow control. To satisfy the LID performance standard, stormwater discharge durations shall match the developed conditions to predeveloped conditions. In the proposed condition, all disturbed areas will be restored with vegetated surfacing (BMP L613: Post-Construction Soil Quality and Depth) which will not increase the on-site hard surfaces. Refer to Figure 5 and 6 for Overall Basin Map in the Existing and Proposed Conditions, respectively, and Section D of this report for the WWHM modeling report demonstrating compliance with the LID performance standard.

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F. Minimum Requirement #6 – Stormwater Treatment

i. Description of Compliance Need

This project is required to meet this Minimum Requirement for all new and replaced hard surfaces and converted vegetation areas. All new and replaced hard surfaces and converted vegetation areas for this project will be non-pollution generating surfaces (vegetated surfacing) tributary to the existing drainage ditch. Therefore, no treatment is proposed as part of this project.

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G. Minimum Requirement #7 – Flow Control

i. Description of Compliance Need

This project is required to fulfill this Minimum Requirement. However, as the TDA for this project discharges into a flow-control exempt waterbody, this project is exempt from providing flow control.

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H. Minimum Requirement #8 – Wetlands Protection

i. Description of Compliance Need

This project is required to fulfill this Minimum Requirement for all new and replaced hard surfaces and converted vegetative areas. This project does not discharge directly, or indirectly, to a wetland, nor will a wetland be affected by runoff from this project.

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I. Minimum Requirement #9 – Operation and Maintenance

This project is required to fulfill this Minimum Requirement for all new and replaced hard surfaces and converted vegetative areas. There are no structures or improvements requiring regular operation and/or maintenance as part of this project. Therefore, an Operation and Maintenance Manual is not provided.

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7. Additional Protective Measure – Infrastructure Protection

A. Description of Compliance Need

Surface and runoff characteristics are not expected to change, therefore infrastructure protection is not required as part of this project.

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8. Conveyance System Design

A. Include all information necessary to show how the conveyance system was designed.

No conveyance system is proposed as part of this project.

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Appendices

A. Soils Report

The Soils Report is available as a stand-alone document as part of the Permit submittal. It is titled: N/A No Soils report has been prepared for this project.

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B. Wetland Delineation Report

A Wetland Delineation Report was not created as part of this project.

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C. Stormwater Treatment Calculations

Stormwater calculations were not performed as part of this project.

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D. Flow Control Calculations

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WWHM2012
PROJECT REPORT

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General Model Information

WWHM2012 Project Name: 20926 WWHM

Site Name: POT Parcel 114

Site Address:

City:

Report Date: 7/30/2025

Gage:

Data Start: 10/01/1901

Data End: 09/30/2059

Timestep: 15 Minute

Precip Scale: 1.000

Version Date: 2024/06/28

Version: 4.3.1

POC Thresholds

Low Flow Threshold for POC1: 50 Percent of the 2 Year

High Flow Threshold for POC1: 50 Year

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Landuse Basin Data
Predeveloped Land Use

Basin 1

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
C, Forest, Flat	2.22
C, Pasture, Flat	15.45
C, Lawn, Flat	2.23
Pervious Total	19.9
Impervious Land Use	acre
ROADS FLAT	5.54
Impervious Total	5.54
Basin Total	25.44

Element Flow Components:

Surface	Interflow	Groundwater
Component Flows To:		
POC 1	POC 1	

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Mitigated Land Use

Basin 1

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
C, Lawn, Flat	2.03
C, Pasture, Flat	17.66
C, Forest, Flat	0.83
Pervious Total	20.52
Impervious Land Use	acre
ROADS FLAT	4.92
Impervious Total	4.92
Basin Total	25.44

Element Flow Components:
Surface Interflow Groundwater
Component Flows To:
POC 1 POC 1

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Routing Elements
Predeveloped Routing

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Mitigated Routing

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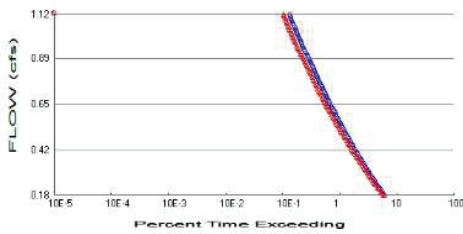
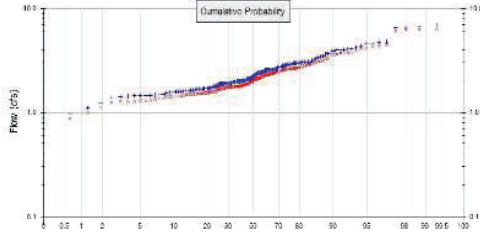
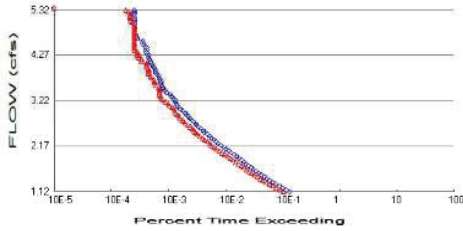
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Analysis Results

POC 1



+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1

Total Pervious Area: 19.9
Total Impervious Area: 5.54

Mitigated Landuse Totals for POC #1

Total Pervious Area: 20.52
Total Impervious Area: 4.92

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	2.247624
5 year	3.097355
10 year	3.727595
25 year	4.604345
50 year	5.318203
100 year	6.086113

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	2.044102
5 year	2.830318
10 year	3.41559
25 year	4.232193
50 year	4.898811
100 year	5.617389

Annual Peaks

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Annual Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1902	2.305	2.047
1903	2.565	2.280
1904	4.015	3.729
1905	1.492	1.370
1906	1.457	1.294
1907	2.702	2.508
1908	1.870	1.700
1909	1.985	1.824
1910	2.618	2.435
1911	2.398	2.170
1912	6.570	6.322
1913	1.548	1.484
1914	6.933	6.176
1915	1.563	1.430
1916	2.464	2.190
1917	0.974	0.882
1918	1.964	1.746
1919	1.458	1.334
1920	1.985	1.814
1921	1.898	1.762
1922	2.888	2.668
1923	1.919	1.760
1924	2.846	2.528
1925	1.396	1.280
1926	2.309	2.052
1927	1.894	1.684
1928	1.779	1.637
1929	2.972	2.647
1930	2.949	2.623
1931	1.700	1.575
1932	1.837	1.680
1933	1.917	1.775
1934	3.398	3.148
1935	1.469	1.369
1936	2.030	1.838
1937	2.868	2.661
1938	1.655	1.533
1939	1.681	1.495
1940	2.947	2.621
1941	2.896	2.574
1942	2.779	2.552
1943	2.361	2.128
1944	3.831	3.558
1945	2.396	2.129
1946	2.234	2.037
1947	1.450	1.290
1948	2.517	2.369
1949	3.034	2.698
1950	1.703	1.513
1951	2.574	2.286
1952	4.669	4.385
1953	4.089	3.813
1954	1.912	1.746
1955	1.478	1.314
1956	1.450	1.287
1957	1.722	1.554

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1958	3.120	2.953
1959	2.849	2.661
1960	1.590	1.416
1961	4.744	4.228
1962	1.999	1.786
1963	1.412	1.254
1964	4.608	4.130
1965	2.488	2.324
1966	1.750	1.588
1967	2.728	2.497
1968	1.957	1.757
1969	1.961	1.788
1970	2.493	2.301
1971	2.533	2.346
1972	6.692	5.983
1973	3.473	3.088
1974	2.782	2.508
1975	3.974	3.707
1976	3.623	3.335
1977	1.237	1.113
1978	3.000	2.795
1979	2.213	1.971
1980	2.575	2.357
1981	2.025	1.806
1982	1.668	1.491
1983	2.671	2.449
1984	2.576	2.354
1985	3.174	2.915
1986	1.711	1.592
1987	2.964	2.793
1988	1.675	1.550
1989	1.611	1.499
1990	2.034	1.877
1991	2.513	2.238
1992	2.255	2.072
1993	2.554	2.271
1994	2.403	2.226
1995	1.562	1.422
1996	2.733	2.592
1997	1.894	1.721
1998	2.577	2.382
1999	2.105	1.872
2000	2.168	1.982
2001	1.587	1.451
2002	3.981	3.711
2003	2.015	1.874
2004	2.426	2.173
2005	4.607	4.372
2006	2.127	1.892
2007	2.550	2.287
2008	2.071	1.856
2009	1.636	1.500
2010	1.992	1.778
2011	1.998	1.775
2012	2.147	1.958
2013	2.022	1.827
2014	1.704	1.529
2015	3.871	3.580

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2016	1.776	1.578
2017	2.925	2.599
2018	3.045	2.904
2019	4.317	4.102
2020	2.617	2.397
2021	2.276	2.102
2022	3.055	2.717
2023	3.677	3.267
2024	6.473	6.181
2025	1.908	1.695
2026	2.112	1.939
2027	2.345	2.083
2028	0.919	0.846
2029	1.933	1.777
2030	3.023	2.685
2031	1.107	1.010
2032	1.608	1.428
2033	2.015	1.790
2034	1.578	1.411
2035	3.040	2.856
2036	1.871	1.750
2037	2.120	1.884
2038	2.763	2.558
2039	4.056	3.605
2040	1.822	1.657
2041	2.117	1.888
2042	3.037	2.887
2043	2.567	2.281
2044	2.020	1.848
2045	1.682	1.530
2046	1.769	1.597
2047	1.950	1.732
2048	1.610	1.430
2049	2.403	2.137
2050	2.131	1.940
2051	3.344	3.094
2052	1.911	1.698
2053	1.637	1.524
2054	4.135	3.781
2055	1.987	1.789
2056	2.569	2.282
2057	1.429	1.306
2058	2.407	2.141
2059	3.271	3.014

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	6.9328	6.3225
2	6.6924	6.1812
3	6.5697	6.1757
4	6.4731	5.9829
5	4.7441	4.3849
6	4.6690	4.3719
7	4.6079	4.2280
8	4.6069	4.1299
9	4.3168	4.1018
10	4.1349	3.8130

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11	4.0886	3.7814
12	4.0564	3.7293
13	4.0151	3.7114
14	3.9808	3.7071
15	3.9737	3.6050
16	3.8711	3.5796
17	3.8312	3.5580
18	3.6766	3.3353
19	3.6230	3.2674
20	3.4732	3.1479
21	3.3981	3.0935
22	3.3437	3.0876
23	3.2705	3.0136
24	3.1740	2.9527
25	3.1202	2.9153
26	3.0554	2.9036
27	3.0449	2.8874
28	3.0395	2.8559
29	3.0368	2.7947
30	3.0339	2.7934
31	3.0226	2.7173
32	3.0000	2.6978
33	2.9718	2.6853
34	2.9642	2.6678
35	2.9488	2.6610
36	2.9467	2.6610
37	2.9248	2.6472
38	2.8960	2.6229
39	2.8877	2.6208
40	2.8684	2.5995
41	2.8488	2.5921
42	2.8461	2.5739
43	2.7822	2.5575
44	2.7793	2.5518
45	2.7627	2.5285
46	2.7334	2.5083
47	2.7284	2.5075
48	2.7020	2.4972
49	2.6713	2.4492
50	2.6181	2.4353
51	2.6166	2.3966
52	2.5765	2.3820
53	2.5761	2.3694
54	2.5745	2.3566
55	2.5738	2.3538
56	2.5693	2.3458
57	2.5671	2.3244
58	2.5647	2.3013
59	2.5537	2.2866
60	2.5496	2.2859
61	2.5334	2.2821
62	2.5174	2.2808
63	2.5127	2.2801
64	2.4933	2.2707
65	2.4879	2.2379
66	2.4639	2.2255
67	2.4258	2.1902
68	2.4071	2.1729

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69	2.4028	2.1704
70	2.4027	2.1410
71	2.3977	2.1369
72	2.3957	2.1291
73	2.3608	2.1281
74	2.3451	2.1016
75	2.3089	2.0829
76	2.3054	2.0716
77	2.2759	2.0516
78	2.2548	2.0472
79	2.2336	2.0367
80	2.2132	1.9823
81	2.1676	1.9708
82	2.1469	1.9581
83	2.1308	1.9399
84	2.1272	1.9393
85	2.1203	1.8922
86	2.1172	1.8885
87	2.1122	1.8838
88	2.1048	1.8767
89	2.0708	1.8744
90	2.0338	1.8715
91	2.0297	1.8557
92	2.0251	1.8481
93	2.0222	1.8377
94	2.0202	1.8270
95	2.0154	1.8242
96	2.0147	1.8143
97	1.9991	1.8062
98	1.9981	1.7900
99	1.9918	1.7893
100	1.9867	1.7885
101	1.9850	1.7861
102	1.9850	1.7779
103	1.9644	1.7769
104	1.9606	1.7754
105	1.9572	1.7750
106	1.9501	1.7622
107	1.9325	1.7605
108	1.9190	1.7569
109	1.9174	1.7502
110	1.9124	1.7459
111	1.9114	1.7458
112	1.9079	1.7324
113	1.8981	1.7208
114	1.8945	1.7001
115	1.8941	1.6981
116	1.8707	1.6947
117	1.8704	1.6843
118	1.8374	1.6802
119	1.8219	1.6566
120	1.7789	1.6372
121	1.7762	1.5971
122	1.7688	1.5921
123	1.7505	1.5876
124	1.7222	1.5776
125	1.7114	1.5752
126	1.7036	1.5536

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127	1.7030	1.5503
128	1.6995	1.5328
129	1.6815	1.5304
130	1.6811	1.5286
131	1.6754	1.5240
132	1.6683	1.5128
133	1.6550	1.5003
134	1.6370	1.4990
135	1.6357	1.4953
136	1.6114	1.4914
137	1.6098	1.4840
138	1.6083	1.4509
139	1.5899	1.4303
140	1.5875	1.4297
141	1.5783	1.4284
142	1.5631	1.4220
143	1.5617	1.4159
144	1.5476	1.4105
145	1.4920	1.3703
146	1.4777	1.3694
147	1.4687	1.3335
148	1.4583	1.3135
149	1.4569	1.3058
150	1.4502	1.2943
151	1.4496	1.2901
152	1.4291	1.2875
153	1.4120	1.2796
154	1.3957	1.2544
155	1.2367	1.1128
156	1.1071	1.0102
157	0.9739	0.8825
158	0.9193	0.8462

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LID Duration Flows
The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.1798	339384	328803	96	Pass
0.1893	319828	308914	96	Pass
0.1989	303706	292460	96	Pass
0.2084	287142	275674	96	Pass
0.2180	273402	261380	95	Pass
0.2275	258832	246644	95	Pass
0.2370	245259	232960	94	Pass
0.2466	233846	221658	94	Pass
0.2561	221990	209636	94	Pass
0.2656	212018	199664	94	Pass
0.2752	201548	189249	93	Pass
0.2847	192628	180440	93	Pass
0.2942	183487	170966	93	Pass
0.3038	175509	163155	92	Pass
0.3133	167199	154956	92	Pass
0.3228	160108	147975	92	Pass
0.3324	152573	140441	92	Pass
0.3419	146258	134236	91	Pass
0.3514	139554	127643	91	Pass
0.3610	133737	122048	91	Pass
0.3705	127698	116175	90	Pass
0.3801	121992	110580	90	Pass
0.3896	117062	105760	90	Pass
0.3991	111909	100774	90	Pass
0.4087	107422	96563	89	Pass
0.4182	102657	92020	89	Pass
0.4277	98669	88198	89	Pass
0.4373	94403	84098	89	Pass
0.4468	90746	80663	88	Pass
0.4563	86868	77007	88	Pass
0.4659	83544	73904	88	Pass
0.4754	80054	70636	88	Pass
0.4849	77062	67866	88	Pass
0.4945	73794	64819	87	Pass
0.5040	70636	61883	87	Pass
0.5135	68087	59445	87	Pass
0.5231	65262	56730	86	Pass
0.5326	62935	54503	86	Pass
0.5422	60442	52049	86	Pass
0.5517	58171	50005	85	Pass
0.5612	55733	47766	85	Pass
0.5708	53656	45922	85	Pass
0.5803	51395	43883	85	Pass
0.5898	49456	42149	85	Pass
0.5994	47478	40182	84	Pass
0.6089	45739	38598	84	Pass
0.6184	43916	36941	84	Pass
0.6280	42387	35540	83	Pass
0.6375	40609	34077	83	Pass
0.6470	38991	32631	83	Pass
0.6566	37573	31512	83	Pass
0.6661	36110	30249	83	Pass
0.6756	34875	29163	83	Pass

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0.6852	33506	27977	83	Pass
0.6947	32415	27024	83	Pass
0.7043	31174	25977	83	Pass
0.7138	30149	25041	83	Pass
0.7233	28986	24088	83	Pass
0.7329	28038	23296	83	Pass
0.7424	27019	22387	82	Pass
0.7519	26132	21651	82	Pass
0.7615	25141	20836	82	Pass
0.7710	24227	20061	82	Pass
0.7805	23407	19374	82	Pass
0.7901	22554	18681	82	Pass
0.7996	21844	18088	82	Pass
0.8091	21097	17401	82	Pass
0.8187	20459	16831	82	Pass
0.8282	19784	16183	81	Pass
0.8378	19124	15673	81	Pass
0.8473	18482	15063	81	Pass
0.8568	17939	14598	81	Pass
0.8664	17296	14088	81	Pass
0.8759	16753	13645	81	Pass
0.8854	16166	13102	81	Pass
0.8950	15640	12654	80	Pass
0.9045	15102	12210	80	Pass
0.9140	14559	11762	80	Pass
0.9236	14099	11401	80	Pass
0.9331	13623	11008	80	Pass
0.9426	13230	10665	80	Pass
0.9522	12792	10277	80	Pass
0.9617	12393	9955	80	Pass
0.9712	11994	9606	80	Pass
0.9808	11678	9302	79	Pass
0.9903	11268	9014	79	Pass
0.9999	10897	8748	80	Pass
1.0094	10565	8471	80	Pass
1.0189	10244	8233	80	Pass
1.0285	9906	7950	80	Pass
1.0380	9606	7701	80	Pass
1.0475	9269	7451	80	Pass
1.0571	8992	7224	80	Pass
1.0666	8737	7003	80	Pass
1.0761	8449	6775	80	Pass
1.0857	8210	6565	79	Pass
1.0952	7950	6349	79	Pass
1.1047	7739	6183	79	Pass
1.1143	7496	5967	79	Pass
1.1238	7291	5784	79	Pass

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Duration Flows
The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
1.1238	7291	5784	79	Pass
1.1662	6371	5017	78	Pass
1.2085	5562	4324	77	Pass
1.2509	4910	3739	76	Pass
1.2933	4269	3295	77	Pass
1.3356	3729	2889	77	Pass
1.3780	3273	2545	77	Pass
1.4204	2948	2275	77	Pass
1.4628	2638	2022	76	Pass
1.5051	2368	1803	76	Pass
1.5475	2146	1605	74	Pass
1.5899	1920	1433	74	Pass
1.6322	1727	1300	75	Pass
1.6746	1579	1163	73	Pass
1.7170	1412	1057	74	Pass
1.7593	1269	943	74	Pass
1.8017	1166	843	72	Pass
1.8441	1050	749	71	Pass
1.8864	963	674	69	Pass
1.9288	874	605	69	Pass
1.9712	789	543	68	Pass
2.0135	698	489	70	Pass
2.0559	635	434	68	Pass
2.0983	569	381	66	Pass
2.1406	521	350	67	Pass
2.1830	463	314	67	Pass
2.2254	419	293	69	Pass
2.2677	377	267	70	Pass
2.3101	345	238	68	Pass
2.3525	320	219	68	Pass
2.3948	296	197	66	Pass
2.4372	265	177	66	Pass
2.4796	243	166	68	Pass
2.5219	227	157	69	Pass
2.5643	209	147	70	Pass
2.6067	187	134	71	Pass
2.6490	173	123	71	Pass
2.6914	167	111	66	Pass
2.7338	157	105	66	Pass
2.7761	143	99	69	Pass
2.8185	134	90	67	Pass
2.8609	125	86	68	Pass
2.9033	117	80	68	Pass
2.9456	110	75	68	Pass
2.9880	101	72	71	Pass
3.0304	90	69	76	Pass
3.0727	83	65	78	Pass
3.1151	79	58	73	Pass
3.1575	77	56	72	Pass
3.1998	73	50	68	Pass
3.2422	72	44	61	Pass
3.2846	67	42	62	Pass
3.3269	63	41	65	Pass

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3.3693	60	39	65	Pass
3.4117	52	39	75	Pass
3.4540	49	39	79	Pass
3.4964	45	39	86	Pass
3.5388	44	38	86	Pass
3.5811	42	34	80	Pass
3.6235	41	32	78	Pass
3.6659	41	32	78	Pass
3.7082	40	31	77	Pass
3.7506	38	28	73	Pass
3.7930	38	27	71	Pass
3.8353	35	25	71	Pass
3.8777	33	25	75	Pass
3.9201	33	25	75	Pass
3.9624	32	25	78	Pass
4.0048	30	23	76	Pass
4.0472	29	23	79	Pass
4.0895	27	23	85	Pass
4.1319	27	19	70	Pass
4.1743	26	19	73	Pass
4.2166	25	17	68	Pass
4.2590	25	16	64	Pass
4.3014	24	16	66	Pass
4.3437	23	16	69	Pass
4.3861	23	14	60	Pass
4.4285	23	14	60	Pass
4.4709	22	14	63	Pass
4.5132	20	14	70	Pass
4.5556	20	14	70	Pass
4.5980	20	14	70	Pass
4.6403	16	14	87	Pass
4.6827	15	14	93	Pass
4.7251	15	14	93	Pass
4.7674	14	14	100	Pass
4.8098	14	14	100	Pass
4.8522	14	14	100	Pass
4.8945	14	14	100	Pass
4.9369	14	14	100	Pass
4.9793	14	14	100	Pass
5.0216	14	13	92	Pass
5.0640	14	12	85	Pass
5.1064	14	12	85	Pass
5.1487	14	12	85	Pass
5.1911	14	12	85	Pass
5.2335	14	12	85	Pass
5.2758	14	11	78	Pass
5.3182	14	10	71	Pass

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Water Quality

Water Quality BMP Flow and Volume for POC #1

On-line facility volume: 0 acre-feet

On-line facility target flow: 0 cfs.

Adjusted for 15 min: 0 cfs.

Off-line facility target flow: 0 cfs.

Adjusted for 15 min: 0 cfs.

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LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Total Volume Infiltrated		0.00	0.00	0.00		0.00	0.00	0%	No Treat Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Passed

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Model Default Modifications

Total of 0 changes have been made.

PERLND Changes

No PERLND changes have been made.

IMPLND Changes

No IMPLND changes have been made.

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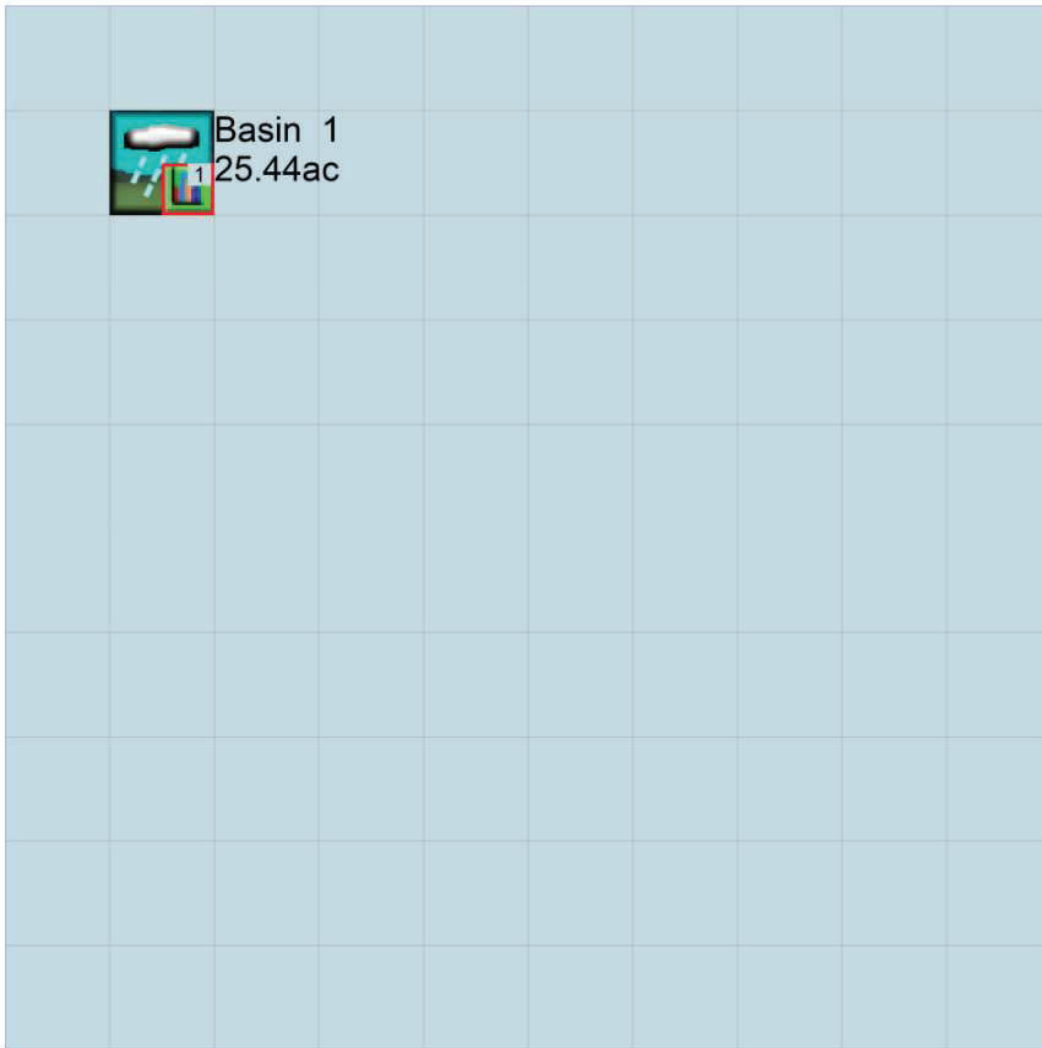
*Appendix
Predeveloped Schematic*



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Mitigated Schematic



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Predeveloped UCI File

RUN

```

GLOBAL
  WWHM4 model simulation
  START 1901 10 01      END 2059 09 30
  RUN INTERP OUTPUT LEVEL 3 0
  RESUME 0 RUN 1      UNIT SYSTEM 1
END GLOBAL

```

```

FILES
<File> <Un#> <-----File Name----->***
<-ID->      ***
WDM        26 20926 WWHM.wdm
MESSU      25 Pre20926 WWHM.MES
           27 Pre20926 WWHM.L61
           28 Pre20926 WWHM.L62
           30 POC20926 WWHM1.dat
END FILES

```

```

OPN SEQUENCE
  INGRP          INDELT 00:15
  PERLND        10
  PERLND        13
  PERLND        16
  IMPLND        1
  COPY          501
  DISPLY        1
END INGRP
END OPN SEQUENCE
DISPLY
DISPLY-INFO1
# - #<-----Title----->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
1   Basin 1          MAX          1   2   30   9
END DISPLY-INFO1
END DISPLY
COPY
TIMESERIES
# - # NPT NMN ***
1   1   1
501 1   1
END TIMESERIES
END COPY
GENER
OPCODE
#   # OPCD ***
END OPCODE
PARM
#   #           K ***
END PARM
END GENER
PERLND
GEN-INFO

```

```

# - #<-----Title----->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
1   Basin 1          MAX          1   2   30   9
END DISPLY-INFO1
END DISPLY
COPY
TIMESERIES
# - # NPT NMN ***
1   1   1
501 1   1
END TIMESERIES
END COPY
GENER
OPCODE
#   # OPCD ***
END OPCODE
PARM
#   #           K ***
END PARM
END GENER
PERLND
GEN-INFO

```

```

<PLS ><-----Name----->NBLKS   Unit-systems   Printer ***
# - #                               User t-series Engl Metr ***
                               in out          ***
10  C, Forest, Flat              1  1  1  1  27  0
13  C, Pasture, Flat              1  1  1  1  27  0
16  C, Lawn, Flat                 1  1  1  1  27  0
END GEN-INFO
*** Section PWATER***

```

```

ACTIVITY
<PLS > ***** Active Sections *****
# - # ATMP SNOW PWAT SED PST PWG PQAL MSTL PEST NITR PHOS TRAC ***
10  0  0  1  0  0  0  0  0  0  0  0  0
13  0  0  1  0  0  0  0  0  0  0  0  0
16  0  0  1  0  0  0  0  0  0  0  0  0
END ACTIVITY

```

20926 WWHM

7/30/2025 9:46:53 AM

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```

PRINT-INFO
<PLS > ***** Print-flags ***** PIVL PYR
# - # ATMP SNOW PWAT SED PST PWG PQAL MSTL PEST NITR PHOS TRAC *****
10      0      0      4      0      0      0      0      0      0      0      0      1      9
13      0      0      4      0      0      0      0      0      0      0      0      1      9
16      0      0      4      0      0      0      0      0      0      0      0      1      9
END PRINT-INFO

```

```

PWAT-PARM1
<PLS > PWATER variable monthly parameter value flags ***
# - # CSNO RTOP UZFG VCS VUZ VNN VIFW VIRC VLE INFC HWT ***
10      0      0      0      0      0      0      0      0      0      0      0
13      0      0      0      0      0      0      0      0      0      0      0
16      0      0      0      0      0      0      0      0      0      0      0
END PWAT-PARM1

```

```

PWAT-PARM2
<PLS > PWATER input info: Part 2 *****
# - # **FOREST LZSN INFILT LSUR SLSUR KVARV AGWRC
10      0      4.5 0.08 400 0.05 0.5 0.996
13      0      4.5 0.06 400 0.05 0.5 0.996
16      0      4.5 0.03 400 0.05 0.5 0.996
END PWAT-PARM2

```

```

PWAT-PARM3
<PLS > PWATER input info: Part 3 *****
# - # **PETMAX PETMIN INFEXP INFILD DEEPFR BASETP AGWETP
10      0      0      2      2      0      0      0
13      0      0      2      2      0      0      0
16      0      0      2      2      0      0      0
END PWAT-PARM3

```

```

PWAT-PARM4
<PLS > PWATER input info: Part 4 *****
# - # CEPSC UZSN NSUR INTFW IRC LZETP ***
10      0.2 0.5 0.35 6 0.5 0.7
13      0.15 0.4 0.3 6 0.5 0.4
16      0.1 0.25 0.25 6 0.5 0.25
END PWAT-PARM4

```

```

PWAT-STATE1
<PLS > *** Initial conditions at start of simulation
ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
# - # *** CEPS SURS UZS IFWS LZS AGWS GWVS
10      0      0      0      0      2.5 1 0
13      0      0      0      0      2.5 1 0
16      0      0      0      0      2.5 1 0
END PWAT-STATE1

```

END PERLND

IMPLND

```

GEN-INFO
<PLS ><-----Name-----> Unit-systems Printer ***
# - # User t-series Engl Metr ***
1 ROADS/FLAT 1 1 1 27 0
END GEN-INFO
*** Section IWATER***

```

```

ACTIVITY
<PLS > ***** Active Sections *****
# - # ATMP SNOW IWAT SLD IWG IQAL ***
1 0 0 1 0 0 0
END ACTIVITY

```

```

PRINT-INFO
<ILS > ***** Print-flags ***** PIVL PYR
# - # ATMP SNOW IWAT SLD IWG IQAL *****
1 0 0 4 0 0 4 1 9

```

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```

END PRINT-INFO

IWAT-PARM1
<PLS > IWATER variable monthly parameter value flags ***
# - # CSNO RTOP VRS VNN RTLI ***
1 0 0 0 0 0
END IWAT-PARM1

IWAT-PARM2
<PLS > IWATER input info: Part 2 ***
# - # *** LSUR SLSUR NSUR RETSC
1 400 0.01 0.1 0.1
END IWAT-PARM2

IWAT-PARM3
<PLS > IWATER input info: Part 3 ***
# - # ***PETMAX PETMIN
1 0 0
END IWAT-PARM3

IWAT-STATE1
<PLS > *** Initial conditions at start of simulation
# - # *** RETS SURS
1 0 0
END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source-> <--Area--> <-Target-> MBLK ***
<Name> # <-factor-> <Name> # Tbl# ***
Basin 1***
PERLND 10 2.22 COPY 501 12
PERLND 10 2.22 COPY 501 13
PERLND 13 15.45 COPY 501 12
PERLND 13 15.45 COPY 501 13
PERLND 16 2.23 COPY 501 12
PERLND 16 2.23 COPY 501 13
IMPLND 1 5.54 COPY 501 15

*****Routing*****
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name> # <Name> # #<-factor->strg <Name> # # <Name> # # ***
COPY 501 OUTPUT MEAN 1 1 48.4 DISPLY 1 INPUT TIMSER 1

<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name> # <Name> # #<-factor->strg <Name> # # <Name> # # ***
END NETWORK

RCHRES
GEN-INFO
RCHRES Name Nexits Unit Systems Printer ***
# - #<-----><----> User T-series Engl Metr LKFG ***
in out ***

END GEN-INFO
*** Section RCHRES***

ACTIVITY
<PLS > ***** Active Sections *****
# - # HYFG ADFG CNFG HTEG SDFG GQFG OXFG NUFG PKFG PHFG ***
END ACTIVITY

PRINT-INFO
<PLS > ***** Print-flags ***** PIVL PYR
# - # HYDR ADCA CONS HEAT SED GQL OXRX NUTR PLNK PHCB PIVL PYR *****

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```

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```

END PRINT-INFO

HYDR-PARM1
RCHRES  Flags for each HYDR Section          ***
# - # VC A1 A2 A3 ODFVFG for each *** ODGTFG for each  FUNCT for each
      FG FG FG FG possible exit *** possible exit    possible exit
      * * * * * * * * * * * * * * * * * * * * * * *
END HYDR-PARM1

HYDR-PARM2
# - # FTABNO      LEN      DELTH      STCOR      KS      DB50      ***
<-----><-----><-----><-----><-----><-----><----->
END HYDR-PARM2
HYDR-INIT
RCHRES  Initial conditions for each HYDR section          ***
# - # *** VOL      Initial value of COLIND      Initial value of OUTDGT
      *** ac-ft      for each possible exit      for each possible exit
<-----><-----><-----><-----><-----> *** <-----><-----><-----><----->
END HYDR-INIT
END RCHRES

SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name> # <Name> # tem strg<-factor->strg <Name> # # <Name> # # ***
WDM      2 PREC ENGL      1 PERLND  1 999 EXTNL PREC
WDM      2 PREC ENGL      1 IMPLND  1 999 EXTNL PREC
WDM      1 EVAP ENGL      1 PERLND  1 999 EXTNL PETINP
WDM      1 EVAP ENGL      1 IMPLND  1 999 EXTNL PETINP
END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name> # <Name> # #<-factor->strg <Name> # <Name> tem strg strg***
COPY 501 OUTPUT MEAN 1 1 48.4 WDM 501 FLOW ENGL REPL
END EXT TARGETS

MASS-LINK
<Volume> <-Grp> <-Member-><--Mult--> <Target> <-Grp> <-Member->***
<Name> # <Name> # #<-factor-> <Name> <Name> # #***
MASS-LINK 12
PERLND PWATER SURO 0.083333 COPY INPUT MEAN
END MASS-LINK 12

MASS-LINK 13
PERLND PWATER IFWO 0.083333 COPY INPUT MEAN
END MASS-LINK 13

MASS-LINK 15
IMPLND IWATER SURO 0.083333 COPY INPUT MEAN
END MASS-LINK 15

END MASS-LINK
END RUN

```

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Mitigated UCI File

RUN

```

GLOBAL
  WWHM4 model simulation
  START 1901 10 01      END 2059 09 30
  RUN INTERP OUTPUT LEVEL 3 0
  RESUME 0 RUN 1      UNIT SYSTEM 1
END GLOBAL

```

```

FILES
<File> <Un#> <-----File Name----->***
<-ID->      ***
WDM        26 20926 WWHM.wdm
MESSU      25 Mit20926 WWHM.MES
           27 Mit20926 WWHM.L61
           28 Mit20926 WWHM.L62
           30 POC20926 WWHM1.dat
END FILES

```

```

OPN SEQUENCE
  INGRP          INDELT 00:15
  PERLND        16
  PERLND        13
  PERLND        10
  IMPLND        1
  COPY          501
  DISPLY        1
END INGRP
END OPN SEQUENCE
DISPLY
DISPLY-INFO1
# - #<-----Title----->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
1   Basin 1          MAX          1   2   30   9
END DISPLY-INFO1
END DISPLY
COPY
TIMESERIES
# - # NPT NMN ***
1   1   1
501 1   1
END TIMESERIES
END COPY
GENER
OPCODE
#   # OPCD ***
END OPCODE
PARM
#   #           K ***
END PARM
END GENER
PERLND
GEN-INFO
<PLS ><-----Name----->NBLKS   Unit-systems   Printer ***
# - #                               User t-series Engl Metr ***
                               in out          ***
16  C, Lawn, Flat                1  1  1  1  27  0
13  C, Pasture, Flat              1  1  1  1  27  0
10  C, Forest, Flat               1  1  1  1  27  0
END GEN-INFO
*** Section PWATER***

```

```

# - #<-----Title----->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
1   Basin 1          MAX          1   2   30   9
END DISPLY-INFO1
END DISPLY

```

```

TIMESERIES
# - # NPT NMN ***
1   1   1
501 1   1
END TIMESERIES

```

```

GENER
OPCODE
#   # OPCD ***
END OPCODE
PARM
#   #           K ***
END PARM

```

```

GEN-INFO
<PLS ><-----Name----->NBLKS   Unit-systems   Printer ***
# - #                               User t-series Engl Metr ***
                               in out          ***
16  C, Lawn, Flat                1  1  1  1  27  0
13  C, Pasture, Flat              1  1  1  1  27  0
10  C, Forest, Flat               1  1  1  1  27  0
END GEN-INFO
*** Section PWATER***

```

```

ACTIVITY
<PLS > ***** Active Sections *****
# - # ATMP SNOW PWAT SED PST PWG PQAL MSTL PEST NITR PHOS TRAC ***
16  0  0  1  0  0  0  0  0  0  0  0  0
13  0  0  1  0  0  0  0  0  0  0  0  0
10  0  0  1  0  0  0  0  0  0  0  0  0
END ACTIVITY

```

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```

PRINT-INFO
<PLS > ***** Print-flags ***** PIVL PYR
# - # ATMP SNOW PWAT SED PST PWG PQAL MSTL PEST NITR PHOS TRAC *****
16      0      0      4      0      0      0      0      0      0      0      0      1      9
13      0      0      4      0      0      0      0      0      0      0      0      1      9
10      0      0      4      0      0      0      0      0      0      0      0      1      9
END PRINT-INFO

```

```

PWAT-PARM1
<PLS > PWATER variable monthly parameter value flags ***
# - # CSNO RTOP UZFG VCS VUZ VNN VIFW VIRC VLE INFC HWT ***
16      0      0      0      0      0      0      0      0      0      0      0
13      0      0      0      0      0      0      0      0      0      0      0
10      0      0      0      0      0      0      0      0      0      0      0
END PWAT-PARM1

```

```

PWAT-PARM2
<PLS > PWATER input info: Part 2 *****
# - # **FOREST LZSN INFILT LSUR SLSUR KVARV AGWRC
16      0      4.5      0.03      400      0.05      0.5      0.996
13      0      4.5      0.06      400      0.05      0.5      0.996
10      0      4.5      0.08      400      0.05      0.5      0.996
END PWAT-PARM2

```

```

PWAT-PARM3
<PLS > PWATER input info: Part 3 *****
# - # **PETMAX PETMIN INFEXP INFILD DEEPFR BASETP AGWETP
16      0      0      2      2      0      0      0
13      0      0      2      2      0      0      0
10      0      0      2      2      0      0      0
END PWAT-PARM3

```

```

PWAT-PARM4
<PLS > PWATER input info: Part 4 *****
# - # CEPSC UZSN NSUR INTFW IRC LZETP ***
16      0.1      0.25      0.25      6      0.5      0.25
13      0.15      0.4      0.3      6      0.5      0.4
10      0.2      0.5      0.35      6      0.5      0.7
END PWAT-PARM4

```

```

PWAT-STATE1
<PLS > *** Initial conditions at start of simulation
ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
# - # *** CEPS SURS UZS IFWS LZS AGWS GWVS
16      0      0      0      0      2.5      1      0
13      0      0      0      0      2.5      1      0
10      0      0      0      0      2.5      1      0
END PWAT-STATE1

```

END PERLND

IMPLND

```

GEN-INFO
<PLS ><-----Name-----> Unit-systems Printer ***
# - # User t-series Engl Metr ***
1 ROADS/FLAT 1 1 1 27 0
END GEN-INFO
*** Section IWATER***

```

```

ACTIVITY
<PLS > ***** Active Sections *****
# - # ATMP SNOW IWAT SLD IWG IQAL ***
1 0 0 1 0 0 0
END ACTIVITY

```

```

PRINT-INFO
<ILS > ***** Print-flags ***** PIVL PYR
# - # ATMP SNOW IWAT SLD IWG IQAL *****
1 0 0 4 0 0 4 1 9

```

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```

END PRINT-INFO

IWAT-PARM1
<PLS > IWATER variable monthly parameter value flags ***
# - # CSNO RTOP VRS VNN RTLI ***
1 0 0 0 0 0
END IWAT-PARM1

IWAT-PARM2
<PLS > IWATER input info: Part 2 ***
# - # *** LSUR SLSUR NSUR RETSC
1 400 0.01 0.1 0.1
END IWAT-PARM2

IWAT-PARM3
<PLS > IWATER input info: Part 3 ***
# - # ***PETMAX PETMIN
1 0 0
END IWAT-PARM3

IWAT-STATE1
<PLS > *** Initial conditions at start of simulation
# - # *** RETS SURS
1 0 0
END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source-> <--Area--> <-Target-> MBLK ***
<Name> # <-factor-> <Name> # Tbl# ***
Basin 1***
PERLND 16 2.03 COPY 501 12
PERLND 16 2.03 COPY 501 13
PERLND 13 17.66 COPY 501 12
PERLND 13 17.66 COPY 501 13
PERLND 10 0.83 COPY 501 12
PERLND 10 0.83 COPY 501 13
IMPLND 1 4.92 COPY 501 15

*****Routing*****
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name> # <Name> # #<-factor->strg <Name> # # <Name> # # ***
COPY 501 OUTPUT MEAN 1 1 48.4 DISPLY 1 INPUT TIMSER 1

<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name> # <Name> # #<-factor->strg <Name> # # <Name> # # ***
END NETWORK

RCHRES
GEN-INFO
RCHRES Name Nexits Unit Systems Printer ***
# - #<-----><----> User T-series Engl Metr LKFG ***
in out ***

END GEN-INFO
*** Section RCHRES***

ACTIVITY
<PLS > ***** Active Sections *****
# - # HYFG ADFG CNFG HTEG SDFG GQFG OXFG NUGF PKFG PHFG ***
END ACTIVITY

PRINT-INFO
<PLS > ***** Print-flags ***** PIVL PYR
# - # HYDR ADCA CONS HEAT SED GQL OXRX NUTR PLNK PHCB PIVL PYR *****

```

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```

END PRINT-INFO

HYDR-PARM1
RCHRES  Flags for each HYDR Section          ***
# - #   VC A1 A2 A3   ODFVFG for each *** ODGTFG for each   FUNCT for each
      FG FG FG FG   possible exit *** possible exit   possible exit
      * * * * *   * * * * *   * * * * *   * * * * *   * * * * *
END HYDR-PARM1

HYDR-PARM2
# - #   FTABNO          LEN          DELTH          STCOR          KS          DB50          ***
<-----><-----><-----><-----><-----><-----><----->          ***
END HYDR-PARM2
HYDR-INIT
RCHRES  Initial conditions for each HYDR section          ***
# - #   *** VOL          Initial value of COLIND          Initial value of OUTDGT
      *** ac-ft          for each possible exit          for each possible exit
<-----><-----><-----><-----><----->          *** <-----><-----><-----><-----><----->
END HYDR-INIT
END RCHRES

SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name> # <Name> # tem strg<-factor->strg <Name> # # <Name> # # ***
WDM      2 PREC      ENGL      1          PERLND  1 999 EXTNL  PREC
WDM      2 PREC      ENGL      1          IMPLND  1 999 EXTNL  PREC
WDM      1 EVAP      ENGL      1          PERLND  1 999 EXTNL  PETINP
WDM      1 EVAP      ENGL      1          IMPLND  1 999 EXTNL  PETINP
END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name> # <Name> # #<-factor->strg <Name> # <Name> tem strg strg***
COPY     1 OUTPUT  MEAN  1 1      48.4    WDM     701 FLOW    ENGL    REPL
COPY     501 OUTPUT  MEAN  1 1      48.4    WDM     801 FLOW    ENGL    REPL
END EXT TARGETS

MASS-LINK
<Volume> <-Grp> <-Member-><--Mult--> <Target> <-Grp> <-Member->***
<Name> # <Name> # #<-factor-> <Name> <-Grp> <Name> # #***
MASS-LINK 12
PERLND PWATER SURO 0.083333 COPY INPUT MEAN
END MASS-LINK

MASS-LINK 13
PERLND PWATER IFWO 0.083333 COPY INPUT MEAN
END MASS-LINK

MASS-LINK 15
IMPLND IWATER SURO 0.083333 COPY INPUT MEAN
END MASS-LINK

END MASS-LINK

END RUN

```

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Predeveloped HSPF Message File

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Mitigated HSPF Message File

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E. Wetlands Protection Calculations

Wetland Protection Calculations were not performed as part of this project.

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F. Infrastructure Protection Calculations

Infrastructure Protection Calculations were not performed as part of this project.

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G. Emerging Technology Use Level Designations

No Emerging Technology is proposed for use in this project.

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H. Relevant Historical Reports

No Historical Reports are included as part of this project.

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Stormwater Pollution Prevention Plan (SWPPP)

for
**Interim Action Excavation
Parcel 114 Site Cleanup**

Prepared for:
Port of Tacoma
One Sitcum Plaza
Tacoma, WA 98421

Owner
Port of Tacoma

Site Operator
Port of Tacoma

Contractor
TBD

Project Site Location:
1114 and 1202 Taylor Way
Tacoma, WA 98421

Certified Erosion and Sediment Control Lead (CESCL)

Name	Organization	Contact Phone Number
TBD	TBD	TBD

Name	CSWPP Plan Prepared By Organization	Contact Phone Number
Will Guyton, CESCL	Aspect Consulting	(509) 960-7470

Preparation Date:
June 23, 2025

Approximate Construction Dates:
Begin Construction: September 2025
End Construction: November 2025

Note: This SWPPP will be finalized, including potential modifications, once the Contractor is selected and the Project schedule is known.

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PARCEL 114 INTERIM ACTION EXCAVATION PROJECT
CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN

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List of Acronyms and Abbreviations

Acronym / Abbrev.	Explanation
303(d)	Section of the Clean Water Act pertaining to Impaired Waterbodies
BFO	Bellingham Field Office of the Department of Ecology
BMP(s)	Best Management Practice(s)
CESCL	Certified Erosion and Sediment Control Lead
City	City of Tacoma
CO₂	Carbon Dioxide
cPAH(s)	Carcinogenic polycyclic aromatic hydrocarbon(s)
CSWGP	Construction Stormwater General Permit
CWA	Clean Water Act
DMR	Discharge Monitoring Report
DO	Dissolved Oxygen
Ecology	Washington State Department of Ecology
EPA	United States Environmental Protection Agency
ERTS	Environmental Report Tracking System
ESC	Erosion and Sediment Control
GULD	General Use Level Designation
MTCA	Model Toxics Control Act
NPDES	National Pollutant Discharge Elimination System
NTU	Nephelometric Turbidity Units
NWRO	Northwest Regional Office of the Department of Ecology
pH	Power of Hydrogen
Port	Port of Tacoma
RCW	Revised Code of Washington
SPCC	Spill Prevention, Control, and Countermeasure
su	Standard Units
SWMMWW	Stormwater Management Manual for Western Washington
SWPPP	Stormwater Pollution Prevention Plan
TESC	Temporary Erosion and Sediment Control
TMDL	Total Maximum Daily Load
WAC	Washington Administrative Code
WSDOT	Washington Department of Transportation
WWHM	Western Washington Hydrology Model

1 Introduction

This Surface Water Pollution Prevention Plan (SWPPP) and associated documents have been prepared for the Interim Action Excavation project at the Port of Tacoma's Parcel 114 (site). The site address is 1114 and 1202 Taylor Way, Tacoma, Washington. The construction activities will include the excavation and off-site disposal of contaminated soils, and backfill and grading of the excavation areas to accommodate site drainage.

The purpose of this SWPPP is to describe the proposed construction activities and temporary erosion and sediment control (TESC) measures, pollution prevention measures, inspection/monitoring activities, and recordkeeping that will be implemented during construction of the project. The objectives of the SWPPP are to:

1. Implement best management practices (BMPs) to prevent erosion and sedimentation, and to identify, reduce, eliminate, or prevent stormwater contamination and water pollution from construction activity.
2. Prevent violations of surface water quality, groundwater quality, or sediment management standards. In order to prevent violations, the construction Contractor will have spill kits on-site, the on-site Contractor employees will be trained in their proper use, and equipment will be maintained as appropriate to minimize spill risks.

This SWPPP was prepared using the Washington State Department of Ecology (Ecology) SWPPP template, downloaded from the Ecology website June 11, 2025. This SWPPP generally follows the requirements outlined in the *Construction Stormwater General Permit (CSWGP)* and *Stormwater Management Manual for Western Washington (SWMMWW)*.

2 Project Information

Project/Site Name: Parcel 114 Interim Action Excavation

Street/Location: 1114 and 1202 Taylor Way

City: Tacoma **State:** WA **Zip code:** 98421

Subdivision: N/A

Receiving Waterbody: None.

2.1 Existing Conditions

Total acreage (including support activities, such as off-site equipment staging yards, material storage areas, borrow areas).

Total acreage: 4.26 Acres

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- Disturbed acreage:** 2.23 Acres
- Existing structures:** An existing truck scale and scattered remnants of historical structures (pavements, concrete foundation elements, etc.) are located on top of or adjacent to contaminated soils to be removed. The driveway access is on the north end of the site at Taylor Way.
- Landscape topography:** The project site and surrounding properties occur on the Hylebos peninsula within the Tacoma tideflats and, therefore, have relatively flat topography. The project site has a gentle generally southward slope toward a constructed stormwater ditch occupying its southernmost portion.
- Drainage patterns:** Under existing conditions, the site is generally flat with stormwater runoff generally sheet flowing southward into the stormwater ditch.
- Existing Vegetation:** The site is an industrialized area within the Port of Tacoma (Port) primarily consisting of unvegetated impervious surfaces, including compacted gravel; however, a 6- to 9-inch-thick veneer of less-compacted aggregate occurs much of the site outside of designated travel ways. Vegetation (reed canary grass and small alder trees) occurs around the perimeter of and within the stormwater ditch.
- Critical Areas:** Blair Waterway and Hylebos Waterway located more than 800 feet from the construction limits.

List of known impairments for 303(d) listed or Total Maximum Daily Load (TMDL) for the receiving waterbody: Based on review of Ecology's 303(d) list, the Hylebos Waterway in the vicinity of the project site currently has no Category 5 listings, and is part of the Commencement Bay dioxin TMDL. The adjacent Blair Waterway is not on the 303(d) list.

Summary of Potential Site Pollutant Constituents: Contaminants present in site soils at concentrations exceeding Model Toxics Control Act (MTCA) soil cleanup levels include carcinogenic polycyclic aromatic hydrocarbons (cPAHs) and metals (cadmium, chromium, copper, nickel, and zinc). Since groundwater monitoring began in 2010, contaminants in site groundwater that have exceeded MTCA groundwater cleanup levels based on surface water protection include total petroleum hydrocarbons, naphthalene, cPAHs, arsenic, copper, lead, mercury, nickel, and zinc. The goal of the project is to remove contaminated soil to achieve both protection for industrial soil direct contact and source control for hydrocarbons and metals so as to accelerate the time frame needed for those contaminants in groundwater to reach cleanup standards.

2.2 Proposed Construction Activities

The Port is completing interim remedial cleanup activities at Parcel 114 (aka the Former PQ Corporation site). Parcel 114 is slated to be redeveloped in conjunction with adjacent properties, but this project, and this SWPPP, do not address subsequent redevelopment construction.

The cleanup action will involve excavation and proper off-site disposal of contaminated soil, with concurrent dewatering, as needed, to facilitate soil removal and handling. As such, the activities will achieve permanent removal of the vast majority if not all contaminated soil at the site.

Work performed by the Contractor will consist of providing all labor, supervision, material, and equipment necessary for all excavation, dewatering, materials handling (including temporary stockpiling), transportation for off-site disposal, and backfill/grading and site restoration (vegetation for erosion control) activities as specified by the Contract. The work includes implementing TESC BMPs to prevent any off-site runoff of stormwater or sediment (including vehicle track out). The Work also includes extracting, treating as needed, and discharging to City of Tacoma (City) sanitary sewer (in accordance with a City Special Authorization to Discharge) all groundwater produced by excavation dewatering, as well as any accumulation of on-site stormwater (e.g., within lined stockpile areas).

It is the Contractor's responsibility to furnish, install, protect, and maintain construction stormwater and erosion controls, soil protection, and pollutant prevention and countermeasures. These controls will prevent erosion and prevent conveyance of pollutants and sediment into surface waters, drainage systems, and environmentally critical areas. All work performed by the Contractor and their subcontractors will be performed per Contract Specifications.

At the conclusion of the interim cleanup project, the remediated site surface will primarily consist of a compacted aggregate surface that will direct on-site stormwater into an existing swale, before discharging through an existing outfall. Final stabilization will consist of excavation areas backfilled with compacted aggregate that is covered with topsoil mix per City requirements and graded to drain to the existing stormwater ditch, which will remain a topographically low feature.

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3 Construction Stormwater BMPs

The SWPPP is a living document reflecting current conditions and changes throughout the life of the project. These changes may be informal (i.e., hand-written notes and deletions). Update the SWPPP when the Certified Erosion and Sediment Control Lead (CESCL) has noted a deficiency in BMPs or deviation from original design.

3.1 The 13 Elements

3.1.1 Element 1: Preserve Vegetation / Mark Clearing Limits

To protect adjacent properties and to reduce the area of soil exposed to construction, the limits of construction that are not bordered by existing fencing will be marked with temporary construction fencing or with Silt Fence (BMP C233) before land-disturbing activities begin, in accordance with the Contract Specifications. No work or disturbance is to take place outside the marked limits.

Alternate BMPs for marking clearing limits may be recommended by the CESCL in the event the BMP(s) listed above are deemed ineffective or inappropriate. To avoid potential erosion and sediment control issues, the Contractor will promptly initiate the implementation of one or more alternative BMPs after the first sign that existing BMPs are ineffective.

List and describe BMPs:

BMP C103: High-Visibility Fence (Plastic and Metal)

BMP C233: Silt Fence

Installation Schedules: Prior to beginning land disturbing activities, including clearing and grading, clearly mark all clearing limits within the construction area.

Inspection and Maintenance plan: BMPs and site conditions will be inspected weekly. Maintenance should occur as soon as a deficiency is observed.

Responsible Staff: The Contractor will be solely responsible to establish and maintain BMPs. The CESCL will be responsible for ensuring BMPs are constructed per plan. If revisions are needed, the CESCL will provide recommendations to the Contractor to relocate or add additional facilities. If changes are made, this SWPPP will be updated by the CESCL.

3.1.2 Element 2: Establish Construction Access

Vehicles tracking sediment off-site will be prohibited. Vehicle access to the site will be limited to one Stabilized Construction Entrance (see Site Map located in Appendix A). The Contractor will also install and operate a wheel wash and conduct regular sweeping and cleaning to further prevent tracking sediment off-site.

The Contractor is responsible for ensuring there will be no track-out from the site including sediment, debris, water, and dust. Brooms, sweepers, and street washing are techniques that should be considered. Sediment and debris collected through sweeping will be stockpiled in the appropriate sediment storage area for testing and disposal (see Elements 5 and 9). Street wash wastewater will be controlled by pumping to on-site storage tanks for testing and disposal (see Elements 9 and 10) to prevent discharging into storm drain systems tributary to state surface waters.

The Contractor is responsible for ensuring that no loading or unloading of materials be performed outside of the construction site to prevent off-site discharge of construction-related stormwater and sediment.

List and describe BMPs:

BMP C105: Stabilized Construction Entrance

BMP C106: Wheel Wash

BMP C140: Dust Control

Installation Schedules: Installation of the construction entrance and mobilization of equipment to eliminate track-out and provide dust abatement should be on-site prior to start of the project earthwork and should remain on-site throughout the duration of the Work.

Inspection and Maintenance plan: Sediment accumulation should be checked daily and maintained weekly. Dust abatement should occur anytime there is an activity generating fugitive dust approaching the Project Limits. It should be confirmed that loading and unloading of all materials is performed inside the Project Limits.

Responsible Staff: The Contractor for the Work will be responsible to establish BMPs. The CESCL will be responsible for ensuring BMPs are constructed per plan. If revisions are needed, the CESCL will provide recommendations to the Contractor to relocate or add additional facilities. If changes are made, this SWPPP will be updated by the CESCL.

3.1.3 Element 3: Control Flow Rates

Flow control measures are intended to protect properties and waterways downstream of the construction site from erosion due to increases in volume, velocity, and peak flow rate of stormwater runoff from the project site.

To protect the properties and waterways downstream of the project Site, all stormwater within the Project Limits will infiltrate or be contained and collected for treatment as described in Element 10. There is no expected increase in construction stormwater compared to the existing pre-construction conditions.

Will you construct stormwater retention and/or detention facilities?

Yes No

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Will you use permanent infiltration ponds or other low impact development (example: rain gardens, bio-retention, porous pavement) to control flow during construction?

Yes No

List and describe BMPs: N/A

Installation Schedules: N/A

Inspection and Maintenance plan: BMPs and site conditions will be inspected weekly. Maintenance should occur as soon as a deficiency is observed.

Responsible Staff: The Contractor for each phase of work will be responsible to establish BMPs. The CESCL will be responsible for ensuring BMPs are constructed per plan. If revisions are needed, the CESCL will provide recommendations to the Contractor to relocate or add additional facilities. If changes are made, this SWPPP will be updated by the CESCL.

3.1.4 Element 4: Install Sediment Controls

Silt Fence (BMP C233) or Compost Sock will be installed and maintained, as shown on the Site Map in Attachment A and as directed by the CESCL, to further prevent sediment from leaving the Project Limits. Sediment-laden water from within the work zone will be contained within an excavation area and collected for treatment following Elements 3 and 10.

In addition, sediment will be removed from paved areas in and adjacent to construction work areas manually or using mechanical sweepers, as needed, to minimize tracking of sediments on vehicle tires out of the site and to minimize wash-off of sediments from adjacent streets in runoff. Any sediment track out from the site onto surrounding roads will be immediately removed in accordance with the Construction Specifications.

List and describe BMPs:

BMP C233: Silt Fence

Compost Sock

Installation Schedules: The BMPs noted above should be installed prior to any soil disturbing activities.

Inspection and Maintenance plan: BMPs and site conditions will be inspected weekly. Maintenance should occur as soon as a deficiency is observed.

Responsible Staff: The Contractor for each phase of work will be responsible to establish BMPs. The CESCL will be responsible for ensuring BMPs are constructed per plan. If revisions are needed, the CESCL will provide recommendations to the Contractor to relocate or add additional facilities. If changes are made, this SWPPP will be updated by the CESCL.

3.1.5 Element 5: Stabilize Soils

As needed, site management personnel will assess weather and site conditions on a daily basis to determine if water needs to be applied for dust control, or if specific areas require additional BMP implementation to protect against soil erosion from rain or wind. Soil exposure within the Project Limits must be minimized to the maximum extent practical. Final stabilization of exposed or unworked soils within the Project Limits will occur as soon as work within the immediate area is complete.

The specific BMPs to be used for stabilizing soils or stockpiles on this project include: Temporary and Permanent Seeding (BMP C120), Mulching (BMP C121), Plastic Covering (BMP C123), Dust Control (BMP C140), and Wattles (BMP C235).

If Contractor chooses to temporarily stockpile removed materials prior to off-site transport, the Contractor will construct a bermed and lined stockpile area(s) for contaminated material. If inert debris (e.g., uncontaminated concrete) is also excavated, a separate stockpile area must be created for that material, so as to not mix it with contaminated material. Stockpile areas will be in Engineer-approved locations away from storm inlets and at least 25 feet away from the project limits. Material will be transported on-site and off-site in a way so as to prevent spillage of material.

Each stockpile will be underlain by a polyethylene geomembrane sheeting with a minimum thickness of 6 mils, with adjacent sheeting sections continuously overlapped by a minimum of 2 feet. The ground surface on which the sheeting will be placed will be free of objects that could damage the sheeting. Alternatively, a layer of geotextile or plywood may be placed beneath the sheeting to protect it. Berms will be constructed around each stockpile area to a minimum height of 6 inches and will contain sufficient area to allow for ponding and control of stormwater accumulating within it. Base liners of stockpiles will be bathtub construction to collect excess water, unless an alternative method is approved by Engineer. Liquid accumulating in contaminated material stockpile areas will be collected and disposed of in accordance with Elements 9 and 10.

Each soil stockpile will be covered by a polyethylene geomembrane of minimum 6-mil thickness to prevent precipitation from entering the stockpiled soil. Each stockpile cover will be anchored (e.g., using sand bags) sufficiently to prevent it from being removed by wind. Soil stockpiles will be covered when not in use and as needed during periods of rain and wind to prevent transport of soil. The stockpile management measures will be inspected regularly and maintained as needed as long as the stockpile remains at the site.

Alternate BMPs for stabilizing soil may be recommended by the CESCL in the event the BMP(s) listed above are deemed ineffective or inappropriate. To avoid potential erosion and sediment control issues, the Contractor will promptly initiate the implementation of one or more alternative BMPs after the first sign that existing BMPs are ineffective.

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West of the Cascade Mountains Crest

Season	Dates	Number of Days Soils Can be Left Exposed
During the Dry Season	May 1 – September 30	7 days
During the Wet Season	October 1 – April 30	2 days

Soils must be stabilized at the end of the shift before a holiday or weekend if needed based on the weather forecast.

Anticipated project dates:

Start date: September 2025

End date: November 2025

Will you construct during the wet season?

Yes No

List and describe BMPs:

BMP C120: Temporary and Permanent Seeding

BMP C121: Mulching

BMP C123: Plastic Covering

BMP C140: Dust Control

BMP C235: Wattles

Installation Schedules: Disturbed areas or bare soils will be temporarily stabilized to prevent transport of sediment, rutting, dust, and over saturation. When cleanup activities are complete, then the area of disturbance should be permanently stabilized.

Inspection and Maintenance Plan: BMPs and site conditions will be inspected weekly. Maintenance should occur as soon as a deficiency is observed.

If dust is generated, then the dust generating activity should either cease or water should be supplied to the exposed soil.

Responsible Staff: The Contractor for each phase of work will be responsible to establish BMPs. The CESCL will be responsible for ensuring that BMPs are constructed per plan. If revisions are needed, the CESCL will provide recommendations to the Contractor to relocate or add additional facilities. If changes are made, this SWPPP will be updated by the CESCL.

3.1.6 Element 6: Protect Slopes

Will steep slopes be present at the site during construction?

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Yes No

The ground surfaces that will be disturbed are generally flat, all excavations will be internally draining, and no increase in runoff is expected due to cleanup construction activities. Slope protection is not applicable to the site.

3.1.7 Element 7: Protect Drain Inlets

A temporary plug will be installed in the outlet pipe of the catch basin at the downstream end of the existing stormwater ditch to prevent off-site discharge of stormwater via that pipe during construction (see Site Map located in Appendix A). A large portion of the stormwater ditch will be excavated for cleanup purposes, and any water within that excavation, or stormwater accumulating in the ditch away from the excavation area, will be collected, treated, and discharged per Element 10. As an added precaution, Storm Drain Inlet Protection (BMP C220) may be implemented for off-site drainage inlets, if present, that could potentially be impacted by sediment-laden runoff from the cleanup construction Work.

List and describe BMPs:

BMP C220: Storm Drain Inlet Protection

Temporary Storm Drain Plug

Installation Schedules: Plugging of the stormwater ditch outlet pipe (catch basin), and protection of off-site drainage inlets if present, will occur during installation of the other preconstruction erosion control BMPs.

Inspection and Maintenance plan: BMPs and site conditions will be inspected weekly. Maintenance should occur as soon as a deficiency is observed.

Responsible Staff: The Contractor for each phase of work will be responsible to establish BMPs. The CESCL will be responsible for ensuring that BMPs are constructed per plan. If revisions are needed, the CESCL will provide recommendations to the Contractor to relocate or add additional facilities. If changes are made, this SWPPP will be updated by the CESCL.

3.1.8 Element 8: Stabilize Channels and Outlets

This element is not applicable. There are no on-site conveyance channels to stabilize. See Element 7 for plugging of the existing stormwater ditch outlet pipe (catch basin).

3.1.9 Element 9: Control Pollutants

The following pollutants are anticipated to be present on-site:

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Table 1. Pollutants

Pollutant (and source, if applicable)
Potential contaminants present in site soils and groundwater include heavy metals (arsenic, copper, lead, mercury, nickel, zinc), total petroleum hydrocarbons, and polycyclic aromatic hydrocarbons (PAHs).
Source of pollutants during the project will be Contractor handling of contaminated materials being excavated for off-site disposal.

By removing contaminated soils, the project will prevent, reduce, or eliminate the discharge of pollutants to the stormwater system or waters of the state.

Potential hazardous materials used during construction include fuel, lubricants, solvents, etc. to be used for equipment maintenance. Temporary storage areas will be located away from vehicular traffic, near the construction entrance(s), and away from storm drains. Chemicals will be kept in their original labeled containers. Hazardous material storage on-site will be minimized and handled as infrequently as possible. Material Safety Data Sheets (MSDS) will be available on-site for all hazardous materials stored or used on site by Contractor.

The project will utilize BMP C153 Material Delivery, Storage, and Containment. Good housekeeping and preventative measures will be taken to ensure that the project location will be kept clean, well-organized, and free of debris to the maximum extent practical.

Spill cleanup procedures will be posted on-site. In case of a spill of hazardous substances, Contractor will contact the Division of Emergency Management (800-258-5990). Spills will be cleaned up immediately with proper off-site disposal of contaminated materials.

No fueling, maintenance, or repair of construction equipment and vehicles will be conducted on-site, except in cases of emergency.

If required, BMPs to be implemented to control specific sources of pollutants are:

Vehicles, construction equipment, and/or petroleum product storage/dispensing:

- If emergency repairs must be performed on-site, temporary plastic will be placed beneath and, if raining, over the vehicle.
- Surfaces will be cleaned immediately following any discharge or spill incident.

Excavation dewatering water:

- Dewatering BMPs and BMPs specific to the excavation (including handling of contaminated soils) are discussed under Element 10.

Sanitary wastewater:

- Portable sanitation facilities will be firmly secured, regularly maintained, and emptied, when necessary.

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- Wastewater from wheel wash will be pumped and stored in on-site storage tanks, where it will be tested and treated, as needed, to meet requirements for off-site disposal as part of Wheel Wash implementation (BMP C106) and as described in Elements 9 and 10.

Solid Waste:

- Solid waste other than soil and inert debris generated during excavation will be stored in secure, clearly marked containers.

Other:

- Other BMPs will be administered, as necessary, to address any additional pollutant sources on-site.

All pollutants, including waste materials and inert demolition debris, that are generated on-site will be handled and disposed of in a manner that does not cause contamination of ground or surface waters. Good housekeeping and preventative measures will be implemented to ensure that the site will be kept clean, well-organized, and free of debris.

List and describe BMPs:

BMP C106: Wheel Wash

BMP C153: Material Delivery, Storage, and Containment

BMP C250: Construction Stormwater Chemical Treatment (if required)

BMP C251: Construction Stormwater Filtration (if required)

Installation Schedules: BMPs to control pollutants will be installed and implemented prior to the start of construction and throughout construction activities.

Inspection and Maintenance plan: BMPs and site conditions will be inspected weekly. Maintenance should occur as soon as a deficiency is observed.

Responsible Staff: The Contractor for each phase of work will be responsible to establish BMPs. The CESCL will be responsible for ensuring BMPs are constructed per plan. If revisions are needed, the CESCL will provide recommendations to the Contractor to relocate or add additional facilities. If changes are made, this SWPPP will be updated by the CESCL.

Will maintenance, fueling, and/or repair of heavy equipment and vehicles occur on-site?

Yes No

Will wheel wash or tire bath system BMPs be used during construction?

Yes No

Will pH-modifying sources be present on-site?

Yes No

Table 2. pH-Modifying Sources

<input type="checkbox"/>	None
<input checked="" type="checkbox"/>	Bulk cement (removal)
<input type="checkbox"/>	Cement kiln dust
<input type="checkbox"/>	Fly ash
<input type="checkbox"/>	Other cementitious materials
<input type="checkbox"/>	New concrete washing or curing waters
<input type="checkbox"/>	Waste streams generated from concrete grinding and sawing
<input type="checkbox"/>	Exposed aggregate processes
<input type="checkbox"/>	Dewatering concrete vaults
<input type="checkbox"/>	Concrete pumping and mixer washout waters
<input type="checkbox"/>	Recycled concrete
<input checked="" type="checkbox"/>	Other (i.e., calcium lignosulfate) [please describe: Sodium silicate process materials (e.g., soda ash) will likely be excavated with contaminated soil for off-site disposal]

3.1.10 Element 10: Control Dewatering

The Port will obtain a Special Approved Discharge (SAD) Authorization from the City to allow discharge of pretreated excavation dewatering water, and stormwater if needed, generated during the interim cleanup action. All water collected from excavation dewatering activities, and any stormwater that cannot be infiltrated or that accumulates within the stockpile areas or within the existing drainage ditch when its outlet pipe is plugged, will be collected and pretreated on-site using a temporary treatment system appropriately sized by the Contractor to accommodate required dewatering water flow rates, and meet the flow and water quality requirements of the SAD. After settling of suspended solids and other treatment, as needed, the water will be discharged to the City’s wastewater treatment plant via their sanitary sewer in accordance with the SAD requirements. Treated water not in compliance with the City discharge limits will be rerun through the treatment system, with treatment adjustments, as needed, until passing discharge limits. Alternatively, it can be containerized, characterized, and sent for off-Site disposal. No dewatering water or other sediment-laden water will be allowed to enter surface waters.

Prior to construction, the Contractor will submit a dewatering plan for Engineer approval that includes the proposed methods for storage, testing, treatment, and disposal of collected excavation dewatering water and stormwater.

The Contractor will remove solids from on-site storage tanks and treatment systems and perform other maintenance of treatment systems as necessary to maintain their efficiency and sufficient dewatering capacity. The Contractor will comply with local, state, and federal laws and conditions of the SAD regarding sedimentation and water quality control for off-site disposal of construction-generated water.

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Table 3. Dewatering BMPs

X	On-site water treatment with discharge to City sanitary sewer system
X	Containerize on-site and transport off-site for disposal at permitted facility

Installation Schedules: Beginning of Project.

Inspection and Maintenance plan: Daily inspection and maintenance during construction activities.

Responsible Staff: The Contractor will be responsible to establish BMPs. The CESCL will be responsible for ensuring BMPs are constructed per plan. If revisions are needed, the CESCL will provide recommendations to the Contractor to relocate or add additional facilities. If changes are made, this SWPPP will be updated by the CESCL.

3.1.11 Element 11: Maintain BMPs

All TESC BMPs will be maintained and repaired as needed to ensure continued performance of their intended function.

Maintenance and repair will be conducted in accordance with each particular BMP specification (see Volume II of the SWMMWW).

Visual monitoring of all BMPs installed at the site will be conducted at least once every calendar week and within 24 hours of any rain event to ensure no discharge of construction-related stormwater occurs.

All TESC BMPs will be removed within 30 days after final site stabilization is achieved or after the temporary BMPs are no longer needed.

Trapped sediment will be stabilized and stockpiled on-site for removal per Element 5. Disturbed soil resulting from removal of either BMPs or vegetation will be permanently stabilized.

In addition, protection must be provided for all BMPs installed for the permanent control of stormwater from sediment and compaction. BMPs that are to remain in place following completion of construction will be examined and restored to full operating condition. If sediment enters these BMPs during construction, the sediment will be removed and stockpiled on-site for removal following Element 5, and the facility will be returned to conditions specified in the construction documents.

3.1.12 Element 12: Manage the Project

The project will be managed based on the following principles:

- Projects will be phased to the maximum extent practicable and seasonal work limitations will be taken into account.
- Inspection, maintenance and repair of all BMPs will occur as needed to ensure performance of their intended function.
- Maintain an updated SWPPP.

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As site work progresses, the SWPPP will be modified routinely to reflect changing site conditions. The SWPPP will be reviewed monthly to ensure the content is current. The following management BMPs apply to this site:

Table 4 – Management

X	Design the project to fit the existing topography, soils, and drainage patterns
	Emphasize erosion control rather than sediment control
X	Minimize the extent and duration of the area exposed
	Keep runoff velocities low
X	Retain sediment on-site
X	Thoroughly monitor site and maintain all TESC measures
X	Schedule major earthwork during the dry season to the extent practical
	Other (please describe)

3.1.13 Element 13: Protect Low Impact Development (LID) BMPs

This element does not apply. No LID BMPs will be impacted or constructed.

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4 Pollution Prevention Team

Table 5. Team Information

Title	Name(s)	Agency / Firm	Phone
CESCL	TBD		
Engineer's Representative	TBD		
Emergency Owner Contact	Elly Bulega, PE	Port of Tacoma	(253) 678-6130
Emergency Contractor Contact	TBD		
Non-Emergency Contractor Contact	TBD		
Monitoring Personnel	TBD		
Ecology Regional Office	Ecology Northwest Regional Office		206-594-0000

5 Monitoring and Sampling Requirements

Monitoring includes visual inspection of the site and sampling for water quality parameters of concern. For convenience, a Site Inspection Form is included in Appendix B.

During construction, site inspections will be conducted at least once every calendar week and within 24 hours following any rain event greater than 0.1 inch to ensure no discharge of construction-related stormwater occurs. For sites that are temporarily stabilized and inactive, the required frequency is reduced to once per calendar month.

5.1 Stormwater Quality Sampling

All stormwater captured and all dewatering water will be treated on-site and discharged to the City's sanitary sewer in accordance with the SAD. Refer to the SAD for water quality sampling and analysis requirements for discharge.

6 Discharges to 303(d) or TMDL Waterbodies

6.1 303(d) Listed Waterbodies

Is the receiving water 303(d) (Category 5) listed for turbidity, fine sediment, phosphorus, or pH?

Yes No

If yes, list the impairment(s):

6.2 TMDL Waterbodies

Based on review of Ecology's TMDL list, Hylebos Waterway, near the project site, is currently shown as part of the Commencement Bay dioxin TMDL.

7 Reporting and Record Keeping

7.1 Record Keeping

7.1.1 Site Logbook

A site logbook will be maintained for all on-site inspection and sampling activities and will include:

- A record of the implementation of the SWPPP and other permit requirements
- Site inspections
- Sampling logs
- Sampling data

The site logbook must be maintained, remain on-site, and be made available upon request to Ecology or the local jurisdiction.

7.1.2 Records Retention

Records will be retained during the life of the project and for a minimum of three (3) years following final stabilization of the Project Site.

Documentation to be retained on-site:

- SWPPP
- Site Logbook
- City of Tacoma SAD

Documentation will be provided within 14 days of receipt of a written request from Ecology. A copy of the SWPPP or access to the SWPPP will be provided to the public when requested in writing.

7.1.3 Updating the SWPPP

The SWPPP will be modified if:

- Found ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site.

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- There is a change in design, construction, operation, or maintenance at the construction site that has, or could have, a significant effect on the discharge of pollutants to waters of the State.

The SWPPP will be modified within seven (7) days if inspection(s) or investigation(s) determine additional or modified BMPs are necessary for compliance. An updated timeline for BMP implementation will be prepared.

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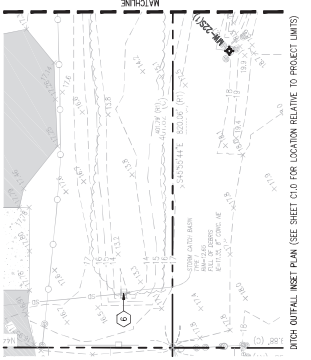
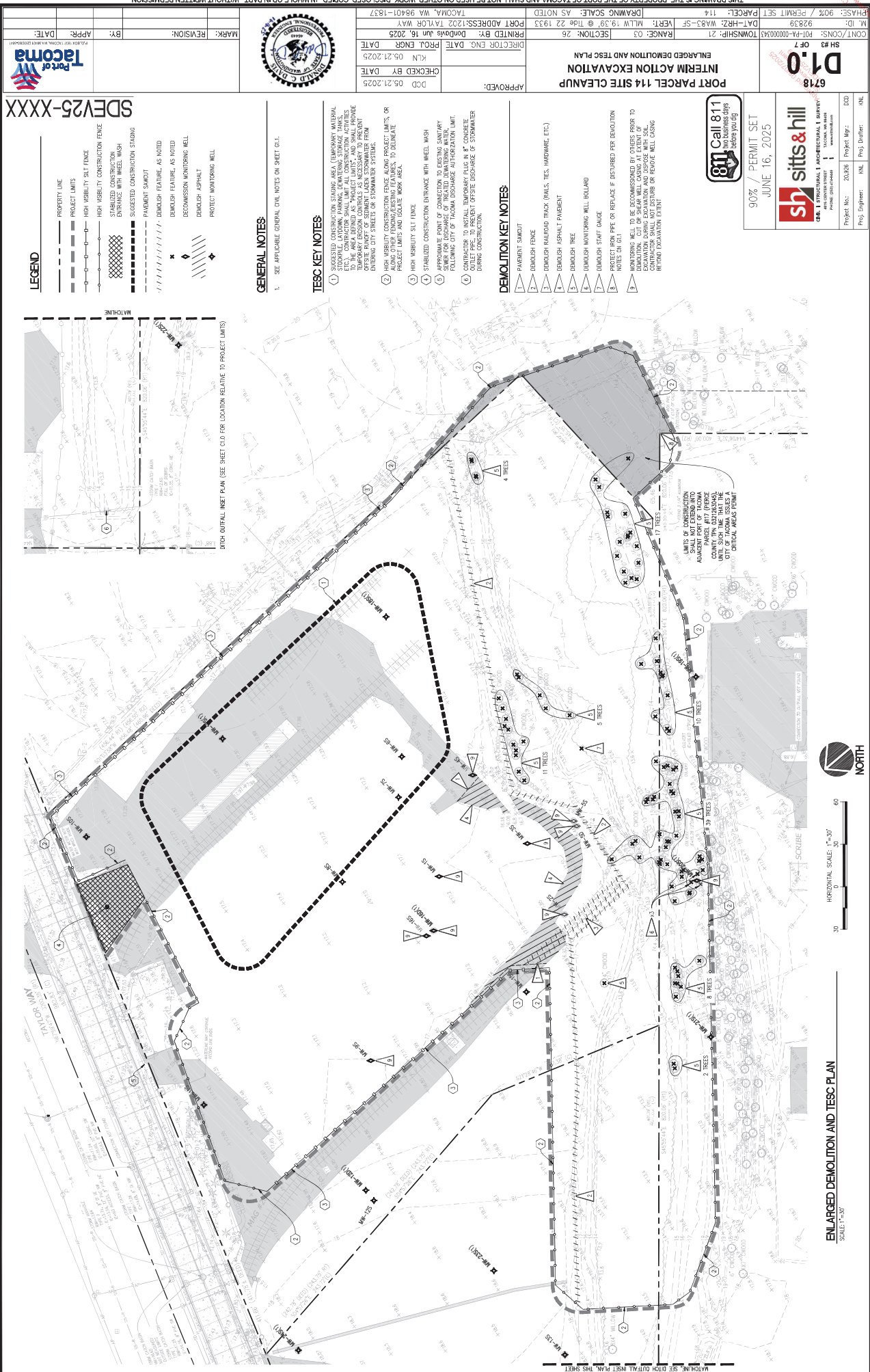
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APPENDIX A

Site Map

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- LEGEND**
- PROPERTY LINE
 - PROJECT LIMITS
 - HIGH VISIBILITY SILT FENCE
 - STABILIZED CONSTRUCTION ENTRANCE WITH WHEEL WASH
 - SUGGESTED CONSTRUCTION STAGING
 - PAVEMENT SMOOT
 - DEMOLISH FEATURE, AS NOTED
 - DEMOLITION MONITORING WELL
 - DEMOLISH ASPHALT
 - PROJECT MONITORING WELL

GENERAL NOTES

1. SEE APPLICABLE GENERAL CIVIL NOTES ON SHEET G1.1.

TESC KEY NOTES

1. STABILIZED CONSTRUCTION ENTRANCE WITH WHEEL WASH SHALL BE INSTALLED AT ALL STAGING AREAS AND STAGING AREAS SHALL BE LIMITED TO THE CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL LIMIT ALL CONSTRUCTION ACTIVITIES TO THE TESC AREAS. CONTRACTOR SHALL MAINTAIN TEMPORARY EROSION CONTROLS AS NECESSARY TO PREVENT EXISTING PAVEMENT SURFACES FROM BEING DAMAGED BY EXCESSIVE WATER RUNOFF AND STORMWATER FROM EXISTING PAVEMENT SURFACES.
2. HIGH VISIBILITY CONSTRUCTION FENCE SHALL BE PLACED ALONG PROJECT LIMITS, OR PROJECT LIMITS AND ISOLATE WORK AREA.
3. HIGH VISIBILITY SILT FENCE.
4. STABILIZED CONSTRUCTION ENTRANCE WITH WHEEL WASH.
5. APPROXIMATE POINT OF CONNECTION TO EXISTING SANITARY SEWER FOR DISCHARGE OF TREATED DEMOLITION WATER, FOLLOWING CITY OF TACOMA DISCHARGE AUTHORIZATION LIMIT.
6. CONTRACTOR TO INSTALL TEMPORARY FLAG IN # CONCRETE FOUNDATION WITH 18" DIAMETER 12" SPACING OF STORMWATER DURING CONSTRUCTION.

DEMOLITION KEY NOTES

1. DEMOLISH MONITORING WELL BOLLARD
2. DEMOLISH MONITORING WELL BOLLARD
3. DEMOLISH MONITORING WELL BOLLARD
4. DEMOLISH MONITORING WELL BOLLARD
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100. DEMOLISH MONITORING WELL BOLLARD

DEMOLITION KEY NOTES

LIMITS OF CONSTRUCTION SHALL BE AS SHOWN ON THIS PLAN. CONTRACTOR SHALL MAINTAIN CONSTRUCTION LIMITS UNTIL SUCH TIME THAT THE CITY OF TACOMA ISSUES A GENERAL PERMIT FORM.

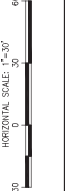
Call 811
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90% / PERMIT SET
 JUNE 16, 2025

sh sitts & hill
 CHARTERED SURVEYORS
 CHARTERED ARCHITECTURAL SURVEYORS
 CHARTERED ENGINEERS

Project No: 20256 Project Mgr: RDD
 Proj. Engineer: RNL Proj. Drafter: RNL

ENLARGED DEMOLITION AND TESC PLAN
 SCALE: 1"=30'



CONTRACT NO.: 01-14-000000403	SHEET NO.: 01 OF 7	DATE: JUN 16, 2025	PROJECT: 90% / PERMIT SET
M.I.D.: 92839	TOWNSHIP: 21	RANGE: 03	SECTION: 26
DATE: JUN 16, 2025	DESIGNED BY: DAVENPORT	CHECKED BY: DATE: JUN 16, 2025	APPROVED: DATE: JUN 16, 2025
PROJECT ADDRESS: 2022 TAYLOR WAY	TACOMA, WA 98401-1837	DRIVING SCALE: AS NOTED	VERT: MLLW @ 19.39' @ TIDE 22 1933
PORT ADDRESS: 2022 TAYLOR WAY	TACOMA, WA 98401-1837	PRINTED BY: DATE: JUN 16, 2025	SECTION: 26
PROJECT NO.: 20256	PROJECT MGR: RDD	PROJECT ENGINEER: RNL	PROJECT DRAFTER: RNL

PORT PARCEL 114 SITE CLEANUP
INTERIM ACTION EXCAVATION
ENLARGED DEMOLITION AND TESC PLAN

D1.0
 6718
 OF 7

THIS DRAWING IS THE PROPERTY OF THE PORT OF TACOMA AND SHALL NOT BE USED ON OTHER WORK, DISCLOSED, COPIED, IN WHOLE OR IN PART, WITHOUT WRITTEN PERMISSION



90% / PERMIT SET
 JUNE 16, 2025

Call 811
 811 Call 811
 811 Call 811

Project No: 20256 Project Mgr: RDD
 Proj. Engineer: RNL Proj. Drafter: RNL

ENLARGED DEMOLITION AND TESC PLAN
 SCALE: 1"=30'

HORIZONTAL SCALE: 1"=30'
 0 30 60

NORTH

LIMITS OF CONSTRUCTION SHALL BE AS SHOWN ON THIS PLAN. CONTRACTOR SHALL MAINTAIN CONSTRUCTION LIMITS UNTIL SUCH TIME THAT THE CITY OF TACOMA ISSUES A GENERAL PERMIT FORM.

DEMOLITION KEY NOTES

GENERAL NOTES

TESC KEY NOTES

LEGEND

DITCH OUTLINE INSET PLAN (SEE SHEET G1.0 FOR LOCATION RELATIVE TO PROJECT LIMITS)

PROPERTY LINE
 PROJECT LIMITS
 HIGH VISIBILITY SILT FENCE
 STABILIZED CONSTRUCTION ENTRANCE WITH WHEEL WASH
 SUGGESTED CONSTRUCTION STAGING
 PAVEMENT SMOOT
 DEMOLISH FEATURE, AS NOTED
 DEMOLITION MONITORING WELL
 DEMOLISH ASPHALT
 PROJECT MONITORING WELL

1. SEE APPLICABLE GENERAL CIVIL NOTES ON SHEET G1.1.

1. STABILIZED CONSTRUCTION ENTRANCE WITH WHEEL WASH SHALL BE INSTALLED AT ALL STAGING AREAS AND STAGING AREAS SHALL BE LIMITED TO THE CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL LIMIT ALL CONSTRUCTION ACTIVITIES TO THE TESC AREAS. CONTRACTOR SHALL MAINTAIN TEMPORARY EROSION CONTROLS AS NECESSARY TO PREVENT EXISTING PAVEMENT SURFACES FROM BEING DAMAGED BY EXCESSIVE WATER RUNOFF AND STORMWATER FROM EXISTING PAVEMENT SURFACES.

2. HIGH VISIBILITY CONSTRUCTION FENCE SHALL BE PLACED ALONG PROJECT LIMITS, OR PROJECT LIMITS AND ISOLATE WORK AREA.

3. HIGH VISIBILITY SILT FENCE.

4. STABILIZED CONSTRUCTION ENTRANCE WITH WHEEL WASH.

5. APPROXIMATE POINT OF CONNECTION TO EXISTING SANITARY SEWER FOR DISCHARGE OF TREATED DEMOLITION WATER, FOLLOWING CITY OF TACOMA DISCHARGE AUTHORIZATION LIMIT.

6. CONTRACTOR TO INSTALL TEMPORARY FLAG IN # CONCRETE FOUNDATION WITH 18" DIAMETER 12" SPACING OF STORMWATER DURING CONSTRUCTION.

DEMOLITION KEY NOTES

1. DEMOLISH MONITORING WELL BOLLARD

2. DEMOLISH MONITORING WELL BOLLARD

3. DEMOLISH MONITORING WELL BOLLARD

4. DEMOLISH MONITORING WELL BOLLARD

5. DEMOLISH MONITORING WELL BOLLARD

APPENDIX B

Site Inspection Form

Approved 08/07/2025
Site Development
SDEV25-0199

City of Tacoma
Reviewed for Code Compliance

Construction Stormwater Site Inspection Form

Project Name _____ **Permit #** _____ **Inspection Date** _____ **Time** _____

Name of Certified Erosion Sediment Control Lead (CESCL) or qualified inspector if *less than one acre*

Print Name: _____

Approximate rainfall amount since the last inspection (in inches): _____

Approximate rainfall amount in the last 24 hours (in inches): _____

Current Weather Clear Cloudy Mist Rain Wind Fog

A. Type of inspection: Weekly | Post Storm Event Other

B. Phase of Active Construction (check all that apply):

Pre Construction/installation of erosion/sediment controls	<input type="checkbox"/>	Clearing/Demo/Grading	<input type="checkbox"/>	Infrastructure/storm/roads	<input type="checkbox"/>
Concrete pours	<input type="checkbox"/>	Vertical Construction/buildings	<input type="checkbox"/>	Utilities	<input type="checkbox"/>
Offsite improvements	<input type="checkbox"/>	Site temporary stabilized	<input type="checkbox"/>	Final stabilization	<input type="checkbox"/>

C. Questions:

- | | | | |
|--|-----|----|--|
| 1. Were all areas of construction and discharge points inspected? | Yes | No | |
| 2. Did you observe the presence of suspended sediment, turbidity, discoloration, or oil sheen | Yes | No | |
| 3. Was a water quality sample taken during inspection? (<i>refer to permit conditions S4 & S5</i>) | Yes | No | |
| 4. Was there a turbid discharge 250 NTU or greater, or Transparency 6 cm or less?* | Yes | No | |
| 5. If yes to #4 was it reported to Ecology? | Yes | No | |
| 6. Is pH sampling required? pH range required is 6.5 to 8.5. | Yes | No | |

If answering yes to a discharge, describe the event. Include when, where, and why it happened; what action was taken, and when.

*If answering yes to # 4 record NTU/Transparency with continual sampling daily until turbidity is 25 NTU or less/ transparency is 33 cm or greater.

Sampling Results: _____ Date: _____

Parameter	Method (circle one)	Result			Other/Note
		NTU	cm	pH	
Turbidity	tube, meter, laboratory				
pH	Paper, kit, meter				

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Construction Stormwater Site Inspection Form

D. Check the observed status of all items. Provide "Action Required" details and dates.

Element #	Inspection	BMPs Inspected			BMP needs maintenance	BMP failed	Action required (describe in section F)
		yes	no	n/a			
1 Clearing Limits	Before beginning land disturbing activities are all clearing limits, natural resource areas (streams, wetlands, buffers, trees) protected with barriers or similar BMPs? (high visibility recommended)						
2 Construction Access	Construction access is stabilized with quarry spalls or equivalent BMP to prevent sediment from being tracked onto roads?						
	Sediment tracked onto the road way was cleaned thoroughly at the end of the day or more frequent as necessary.						
3 Control Flow Rates	Are flow control measures installed to control stormwater volumes and velocity during construction and do they protect downstream properties and waterways from erosion?						
	If permanent infiltration ponds are used for flow control during construction, are they protected from siltation?						
4 Sediment Controls	All perimeter sediment controls (e.g. silt fence, wattles, compost socks, berms, etc.) installed, and maintained in accordance with the Stormwater Pollution Prevention Plan (SWPPP).						
	Sediment control BMPs (sediment ponds, traps, filters etc.) have been constructed and functional as the first step of grading.						
	Stormwater runoff from disturbed areas is directed to sediment removal BMP.						
5 Stabilize Soils	Have exposed un-worked soils been stabilized with effective BMP to prevent erosion and sediment deposition?						

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Construction Stormwater Site Inspection Form

Element #	Inspection	BMPs Inspected			BMP needs maintenance	BMP failed	Action required (describe in section F)
		yes	no	n/a			
5 Stabilize Soils Cont.	Are stockpiles stabilized from erosion, protected with sediment trapping measures and located away from drain inlet, waterways, and drainage channels?						
	Have soils been stabilized at the end of the shift, before a holiday or weekend if needed based on the weather forecast?						
6 Protect Slopes	Has stormwater and ground water been diverted away from slopes and disturbed areas with interceptor dikes, pipes and or swales?						
	Is off-site storm water managed separately from stormwater generated on the site?						
	Is excavated material placed on uphill side of trenches consistent with safety and space considerations?						
	Have check dams been placed at regular intervals within constructed channels that are cut down a slope?						
7 Drain Inlets	Storm drain inlets made operable during construction are protected.						
	Are existing storm drains within the influence of the project protected?						
8 Stabilize Channel and Outlets	Have all on-site conveyance channels been designed, constructed and stabilized to prevent erosion from expected peak flows?						
	Is stabilization, including armoring material, adequate to prevent erosion of outlets, adjacent stream banks, slopes and downstream conveyance systems?						
9 Control Pollutants	Are waste materials and demolition debris handled and disposed of to prevent contamination of stormwater?						
	Has cover been provided for all chemicals, liquid products, petroleum products, and other material?						
	Has secondary containment been provided capable of containing 110% of the volume?						
	Were contaminated surfaces cleaned immediately after a spill incident?						
	Were BMPs used to prevent contamination of stormwater by a pH modifying sources?						

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Construction Stormwater Site Inspection Form

Element #	Inspection	BMPs Inspected			BMP needs maintenance	BMP failed	Action required (describe in section F)
		yes	no	n/a			
9 Cont.	Wheel wash wastewater is handled and disposed of properly.						
10 Control Dewatering	Concrete washout in designated areas. No washout or excess concrete on the ground.						
	Dewatering has been done to an approved source and in compliance with the SWPPP.						
	Were there any clean non turbid dewatering discharges?						
11 Maintain BMP	Are all temporary and permanent erosion and sediment control BMPs maintained to perform as intended?						
12 Manage the Project	Has the project been phased to the maximum degree practicable?						
	Has regular inspection, monitoring and maintenance been performed as required by the permit?						
	Has the SWPPP been updated, implemented and records maintained?						
13 Protect LID	Is all Bioretention and Rain Garden Facilities protected from sedimentation with appropriate BMPs?						
	Is the Bioretention and Rain Garden protected against over compaction of construction equipment and foot traffic to retain its infiltration capabilities?						
	Permeable pavements are clean and free of sediment and sediment laden-water runoff. Muddy construction equipment has not been on the base material or pavement.						
	Have soiled permeable pavements been cleaned of sediments and pass infiltration test as required by stormwater manual methodology?						
	Heavy equipment has been kept off existing soils under LID facilities to retain infiltration rate.						

E. Check all areas that have been inspected. ✓

All in place BMPs All disturbed soils All concrete wash out area All material storage areas
 All discharge locations All equipment storage areas All construction entrances/exits

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Construction Stormwater Site Inspection Form

F. Elements checked "Action Required" (section D) describe corrective action to be taken. List the element number; be specific on location and work needed. Document, initial, and date when the corrective action has been completed and inspected.

Element #	Description and Location	Action Required	Completion Date	Initials

Attach additional page if needed

Sign the following certification:

"I certify that this report is true, accurate, and complete, to the best of my knowledge and belief"

Inspected by: (print) _____ (Signature) _____ Date: _____

Title/Qualification of Inspector: _____

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 Site Development
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Appendix G

State Environmental Policy Act (SEPA) Determination of Nonsignificance (DNS)

**DETERMINATION OF NONSIGNIFICANCE
WAC 197-11-970**

Project Name: Neptune Environmental Clean-up and Pre-development Improvements

Description of proposal: The proposed project prepares 30-acres of undeveloped and underdeveloped land at the Port of Tacoma on the Blair-Hylebos Peninsula, referred to as the Neptune Development Site, for future industrial development. The Project includes three onsite elements including invasive snail eradication; Model Toxics Control Act cleanup of two sites on the Washington State Department of Ecology's Confirmed and Suspected Contaminated Sites List, and pad-ready development consisting of demolition of existing structures and fill and grading the entire Site. The Project includes wetland mitigation that will occur at two off-site Port-owned properties and potential use of advanced mitigation credits from the Port's Lower Wapato Creek Advance Mitigation Site.

No other site development or improvements are proposed as part of the current action. Future industrial development will be evaluated and permitted separately.

Proponent: Port of Tacoma

Location of proposal, including street address, if any: The project is located at 1212 Taylor Way, Tacoma WA 98401 between Taylor Way and E Alexander Ave.


Lead agency: Port of Tacoma

The lead agency for this proposal has determined that the project does not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under Revised Code of Washington (RCW) 43.21C.030(2)(c). This decision was made after reviewing a completed environmental checklist and other information on file with the lead agency. Additional project and/or State Environmental Policy Act (SEPA) information is available upon request at the Port of Tacoma's Administration building, located at One Sitcum Plaza, Tacoma, WA 98421 or at the Port's website at: <https://www.portoftacoma.com/environment/state-environmental-policy-act>.

Comments: This Determination of Non-Significance (DNS) is issued under Chapter 197-11-340(2) Washington Administrative Code (WAC). Pursuant to Port policy, all interested parties shall have 14 calendar days to comment on the proposed SEPA threshold determination. The lead agency will not act on this proposal for 14 days from the start date of the comment period described below. Comments shall be submitted to the Port of Tacoma, Environmental Programs, C/O Heather Curbow at One Sitcum Plaza, Tacoma, WA 98421 or at the Port's website: <https://www.portoftacoma.com/environment/state-environmental-policy-act>.

Responsible Official: Jason Jordan, Sr. Director, Environmental and Planning Services

Signature:

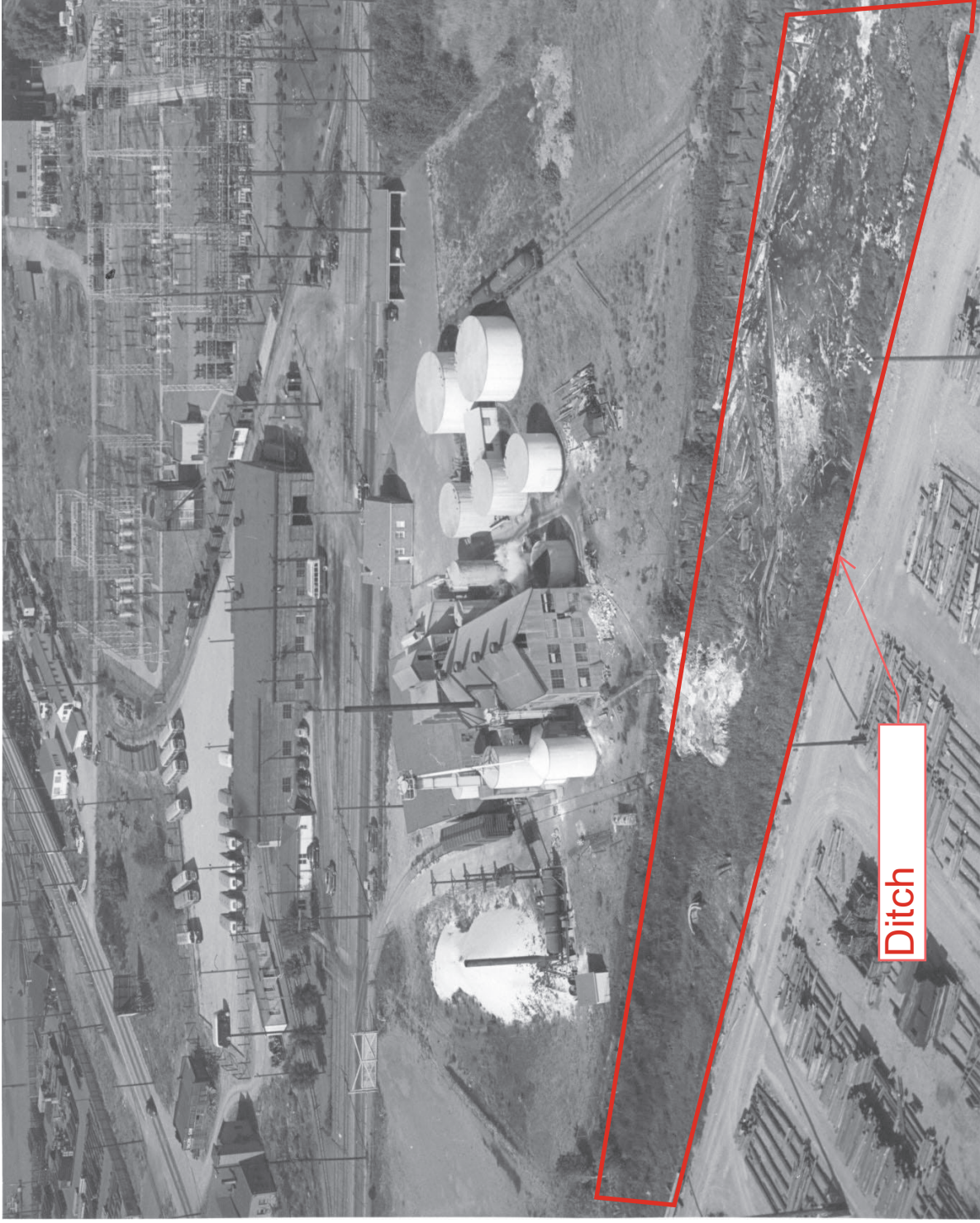

Jason Jordan (Jul 18, 2025 11:43 PDT)

Comment Start Date: July, 29 2025

Comment End Date: August 12, 2025

Appendix H

Picture of Piles
Around Ditch



Turner, Richards Studio, Tacoma

Photo of PQ site showing timber and pilings around the ditch.

Appendix I

Ferrous Sulfate Safety Data Sheets

Safety Data Sheet

Issue Date: 21-Feb-2018

Revision Date: 08-Feb-2019

Version 4

1. IDENTIFICATION

Product Identifier

Product Name Ferrous Sulfate Heptahydrate

Other means of identification

SDS # VLS-252

Product Code FFN-05024

Synonyms Copperas, Iron (II) Sulfate.

UN/ID No UN3077

Recommended use of the chemical and restrictions on use

Recommended Use Fertilizer, industrial and animal feed.

Details of the supplier of the safety data sheet

Supplier Address

Verdesian Life Sciences, U.S., LLC.
1001 Winstead Drive, Suite 480
Cary, NC 27513

Emergency Telephone Number

Company Phone Number Business Phone: (800) 868-6446

Fax: (919) 535-3652

Emergency Telephone (24 hr) INFOTRAC 1-352-323-3500 (International)

1-800-535-5053 (North America)

2. HAZARDS IDENTIFICATION

Appearance Blue-green crystals

Physical state Solid

Odor No odor

Classification

Acute toxicity - Oral	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A

Signal Word

Warning

Hazard statements

Harmful if swallowed

Causes skin irritation

Causes serious eye irritation



Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling
 Do not eat, drink or smoke when using this product
 Wear protective gloves/eye protection/face protection

Precautionary Statements - Response

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
 If eye irritation persists: Get medical advice/attention
 IF ON SKIN: Wash with plenty of water and soap
 Take off contaminated clothing and wash it before reuse
 If skin irritation occurs: Get medical advice/attention
 IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell
 Rinse mouth

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms Copperas, Iron (II) Sulfate.

Chemical Name	CAS No.	Weight-%
Ferrous sulfate heptahydrate	7782-63-0	100

If Chemical Name/CAS No is "proprietary" and/or Weight-% is listed as a range, the specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

First Aid Measures

Eye Contact Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Skin Contact Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical advice/attention.

Inhalation Remove to fresh air.

Ingestion Call a poison center or doctor/physician if you feel unwell. Rinse mouth.

Most important symptoms and effects

Symptoms Harmful if swallowed. Causes skin irritation. Causes serious eye irritation.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Use extinguishing media suitable for surrounding materials. Dry chemical, carbon dioxide, foam, water spray or fog.

Unsuitable Extinguishing Media Not determined.

Specific Hazards Arising from the Chemical

None known

Hazardous Combustion Products May produce gases such as oxides of sulfur and iron.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions Avoid dust formation. Use personal protective equipment as required.

Environmental precautions

Environmental precautions Prevent material from entering public sewer systems or any waterways. Do not flush to drain. See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Clean-Up Carefully sweep, scoop or vacuum and place in suitable container. Avoid generating dust or accumulating dust. Avoid dust dispersal in the air (i.e. cleaning dust surfaces with compressed air). If possible, complete cleanup on a dry basis. Spilled material can be a slipping hazard. Eliminate flames, sparks, excessive temperatures and oxidizing agents. Non-sparking tools should be used.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on Safe Handling Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/eye protection/face protection. Avoid breathing dusts. Avoid contact with skin and eyes. Minimize dust generation and accumulation.

Conditions for safe storage, including any incompatibilities

Storage Conditions Store in closed, properly labeled containers in a cool, ventilated area. Do not transfer contents to bottles or other unlabeled containers. Keep away from heat, open flames and oxidizing agents.

Incompatible Materials Oxidizing agents. Bases. Acids.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Ferrous sulfate heptahydrate 7782-63-0	TWA: 1 mg/m ³ Fe	(vacated) TWA: 1 mg/m ³ Fe	TWA: 1 mg/m ³ Fe

Appropriate engineering controls

Engineering Controls Ensure ventilation and dust-handling systems prevent the escape of dust into work areas and there is no leakage from equipment.

Individual protection measures, such as personal protective equipment

Eye/Face Protection To avoid contact with eyes, wear chemical goggles or shield safety glasses. An emergency eyewash or water supply should be readily accessible to the work area.

Skin and Body Protection	To avoid contact with skin, wear long pants, long-sleeved shirt, socks, shoes and chemical-resistant gloves. An emergency shower or water supply should be readily accessible to the work area.
Respiratory Protection	Nuisance dust mask 3M type 8710 or equivalent. (Recommended).
General Hygiene Considerations	Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Solid	Odor	No odor
Appearance	Blue-green crystals	Odor Threshold	No data available
Color	Blue-green		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	3.0-4.0	
Melting point / freezing point	No data available	
Boiling Point / Boiling Range	No data available	
Flash Point	No data available	
Evaporation Rate	No data available	
Flammability (Solid, Gas)	No data available	
Flammability Limit in Air		
Upper Flammability Limit	No data available	
Lower Flammability Limit	No data available	
Vapor Pressure	No data available	
Vapor Density	No data available	
Relative Density	No data available	
Water Solubility	33 g/100 g H ₂ O	@ 20°C (68°F)
Solubility in other solvents	No data available	
Partition Coefficient	No data available	
Autoignition temperature	No data available	
Decomposition Temperature	No data available	
Kinematic Viscosity	No data available	
Dynamic Viscosity	No data available	
Explosive Properties	Dust can form an explosive mixture with air	
Oxidizing Properties	Not determined	

Other Information

Bulk Density	10,040 kg/m ³
---------------------	--------------------------

10. STABILITY AND REACTIVITY

Reactivity

No data available.

Chemical Stability

Stable under recommended storage conditions.

Possibility of Hazardous Reactions

None under normal processing.

Hazardous Polymerization	Will not occur.
---------------------------------	-----------------

Conditions to Avoid

Minimize dust generation and accumulation. Incompatible Materials.

Incompatible Materials

Oxidizing agents. Bases. Acids.

Hazardous Decomposition Products

May produce gases such as oxides of sulfur and iron.

11. TOXICOLOGICAL INFORMATION**Information on likely routes of exposure****Product Information**

Eye Contact Avoid contact with eyes.

Skin Contact Avoid contact with skin.

Inhalation Do not inhale.

Ingestion Harmful if swallowed.

Component Information

Not available

Information on physical, chemical and toxicological effects

Symptoms Please see section 4 of this SDS for symptoms.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation Causes serious eye irritation.

Carcinogenicity Based on the information provided, this product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.

Numerical measures of toxicity

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral) 500.00 mg/kg

12. ECOLOGICAL INFORMATION**Ecotoxicity**

The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Component Information

Not available

Persistence/Degradability

Not determined.

Bioaccumulation

Not determined.

Mobility

Not determined

Other Adverse Effects

Not determined

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods

Disposal of Wastes	Disposal should be in accordance with applicable regional, national and local laws and regulations.
Contaminated Packaging	Disposal should be in accordance with applicable regional, national and local laws and regulations.

14. TRANSPORT INFORMATION

<u>Note</u>	Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances.
<u>DOT</u>	DOT in packages less than 1,000 lbs Not regulated DOT in packages greater than 1,000 lbs
UN/ID No	UN3077
Proper Shipping Name	Environmentally hazardous substances, solid, n.o.s. (Ferrous Sulfate Heptahydrate)
Hazard Class	9
Packing Group	III
Reportable Quantity (RQ)	1,000 lbs.
<u>IATA</u>	Not regulated
<u>IMDG</u>	Not regulated

15. REGULATORY INFORMATION

International Inventories

Chemical Name	TSCA	DSL/NDSL	EINECS/E LINCS	ENCS	IECSC	KECL	PICCS	AICS
Ferrous sulfate heptahydrate	Active			X	X		X	X

Legend:

- TSCA* - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

US Federal Regulations

CERCLA

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Ferrous sulfate heptahydrate 7782-63-0	1000 lb		RQ 1000 lb final RQ RQ 454 kg final RQ

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

CWA (Clean Water Act)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Ferrous sulfate heptahydrate				X

US State Regulations**California Proposition 65**

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Ferrous sulfate heptahydrate 7782-63-0		X	X

16. OTHER INFORMATION**NFPA****Health Hazards**

2

Flammability

0

Instability

0

Special Hazards

No data available

HMIS**Health Hazards**

Not determined

Flammability

Not determined

Physical hazards

Not determined

Personal Protection

Not determined

Issue Date:

21-Feb-2018

Revision Date:

08-Feb-2019

Revision Note:

Regulatory update

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

Safety Data Sheet

Issue Date: 21-Feb-2018

Revision Date: 11-June-2019

Version 6

1. IDENTIFICATION

Product Identifier

Product Name Ferrous Sulfate Monohydrate

Other means of identification

SDS # VLS-254

Product Code FFN-05055

Synonyms Copperas, Iron (II) Sulfate.

UN/ID No UN3077

Recommended use of the chemical and restrictions on use

Recommended Use Fertilizer, industrial and animal feed.

Details of the supplier of the safety data sheet

Supplier Address

Verdesian Life Sciences, U.S., LLC.
1001 Winstead Drive, Suite 480
Cary, NC 27513

Emergency Telephone Number

Company Phone Number Business Phone: (800) 868-6446

Fax: (919) 535-3652

Emergency Telephone (24 hr) INFOTRAC 1-352-323-3500 (International)

1-800-535-5053 (North America)

2. HAZARDS IDENTIFICATION

Appearance gray crystals

Physical state Solid

Odor acidic/ sour

Classification

Acute toxicity - Oral	Category 4
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A

Signal Word

Warning

Hazard statements

Harmful if swallowed

Causes skin irritation

Causes serious eye irritation



Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling
 Do not eat, drink or smoke when using this product
 Wear protective gloves/eye protection/face protection

Precautionary Statements - Response

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
 If eye irritation persists: Get medical advice/attention
 IF ON SKIN: Wash with plenty of water and soap
 Take off contaminated clothing and wash it before reuse
 If skin irritation occurs: Get medical advice/attention
 IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell
 Rinse mouth

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms Copperas, Iron (II) Sulfate.

Chemical Name	CAS No.	Weight-%
Iron (II) Sulfate monohydrate	17375-41-6	>99

**If Chemical Name/CAS No is "proprietary" and/or Weight-% is listed as a range, the specific chemical identity and/or percentage of composition has been withheld as a trade secret. **

4. FIRST AID MEASURES

First Aid Measures

Eye Contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Skin Contact	Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical advice/attention.
Inhalation	Remove to fresh air.
Ingestion	Call a poison center or doctor/physician if you feel unwell. Rinse mouth.

Most important symptoms and effects

Symptoms Harmful if swallowed. Causes skin irritation. Causes serious eye irritation.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Use extinguishing media suitable for surrounding materials. Dry chemical, carbon dioxide, foam, water spray or fog.

Unsuitable Extinguishing Media Not determined.

Specific Hazards Arising from the Chemical

None known.

Hazardous Combustion Products May produce gases such as oxides of sulfur and iron.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions Avoid dust formation. Use personal protective equipment as required.

Environmental precautions

Environmental precautions Prevent material from entering public sewer systems or any waterways. Do not flush to drain. See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Clean-Up Carefully sweep, scoop or vacuum and place in suitable container. Avoid generating dust or accumulating dust. Avoid dust dispersal in the air (i.e. cleaning dust surfaces with compressed air). If possible, complete cleanup on a dry basis. Spilled material can be a slipping hazard. Eliminate flames, sparks, excessive temperatures and oxidizing agents. Non-sparking tools should be used.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on Safe Handling Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/eye protection/face protection. Avoid breathing dusts. Avoid contact with skin and eyes. Minimize dust generation and accumulation.

Conditions for safe storage, including any incompatibilities

Storage Conditions Store in closed, properly labeled containers in a cool, ventilated area. Do not transfer contents to bottles or other unlabeled containers. Keep away from heat, open flames and oxidizing agents.

Incompatible Materials Oxidizing agents. Bases. Acids.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Iron (II) Sulfate monohydrate 17375-41-6	TWA: 1 mg/m ³ Fe	(vacated) TWA: 1 mg/m ³ Fe	TWA: 1 mg/m ³ Fe

Appropriate engineering controls

Engineering Controls Ensure ventilation and dust-handling systems prevent the escape of dust into work areas and there is no leakage from equipment.

Individual protection measures, such as personal protective equipment

Eye/Face Protection	To avoid contact with eyes, wear chemical goggles or shield safety glasses. An emergency eyewash or water supply should be readily accessible to the work area.
Skin and Body Protection	To avoid contact with skin, wear long pants, long-sleeved shirt, socks, shoes and chemical-resistant gloves. An emergency shower or water supply should be readily accessible to the work area.
Respiratory Protection	Nuisance dust mask 3M type 8710 or equivalent. (Recommended).
General Hygiene Considerations	Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES**Information on basic physical and chemical properties**

Physical state	Solid	Odor	Acidic/ sour
Appearance	Gray crystals	Odor Threshold	No data available
Color	Gray		
<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>	
pH	3.0-4.0		
Melting point / freezing point	No data available		
Boiling Point / Boiling Range	No data available		
Flash Point	No data available		
Evaporation Rate	No data available		
Flammability (Solid, Gas)	No data available		
Flammability Limit in Air			
Upper Flammability Limit	No data available		
Lower Flammability Limit	No data available		
Vapor Pressure	No data available		
Vapor Density	No data available		
Relative Density	No data available		
Water Solubility	33 g/100 g H ₂ O	@ 20°C (68°F)	
Solubility in other solvents	No data available		
Partition Coefficient	No data available		
Autoignition temperature	No data available		
Decomposition Temperature	No data available		
Kinematic Viscosity	No data available		
Dynamic Viscosity	No data available		
Explosive Properties	Dust can form an explosive mixture with air		
Oxidizing Properties	Not determined		
<u>Other Information</u>			
Bulk Density	10,040 kg/m ³		

10. STABILITY AND REACTIVITY**Reactivity**

No data available.

Chemical Stability

Stable under recommended storage conditions.

Possibility of Hazardous Reactions

None under normal processing.

Hazardous Polymerization Will not occur.

Conditions to Avoid

Minimize dust generation and accumulation. Incompatible Materials.

Incompatible Materials

Oxidizing agents. Bases. Acids.

Hazardous Decomposition Products

May produce gases such as oxides of sulfur and iron.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure**Product Information**

Eye Contact Avoid contact with eyes.

Skin Contact Avoid contact with skin.

Inhalation Do not inhale.

Ingestion Harmful if swallowed.

Component Information

Not available

Information on physical, chemical and toxicological effects

Symptoms Please see section 4 of this SDS for symptoms.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation Causes serious eye irritation.

Carcinogenicity Based on the information provided, this product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.

Numerical measures of toxicity

The following values are calculated based on chapter 3.1 of the GHS document.

ATEmix (oral) 500.00 mg/kg

12. ECOLOGICAL INFORMATION

Ecotoxicity

The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Component Information

Not available

Persistence/Degradability

Not determined.

Bioaccumulation

Not determined.

Mobility

Not determined

Other Adverse Effects

Not determined

13. DISPOSAL CONSIDERATIONS**Waste Treatment Methods****Disposal of Wastes**

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated Packaging

Disposal should be in accordance with applicable regional, national and local laws and regulations.

14. TRANSPORT INFORMATION**Note**

Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances.

DOTDOT in packages less than 1,000 lbs
Not regulated

DOT in packages greater than 1,000 lbs

UN/ID No

UN3077

Proper Shipping Name

Environmentally hazardous substances, solid, n.o.s. (Ferrous Sulfate Monohydrate)

Hazard Class

9

Packing Group

III

Reportable Quantity (RQ)

1,000 lbs.

IATA

Not regulated

IMDG

Not regulated

15. REGULATORY INFORMATION**International Inventories**

Chemical Name	TSCA	DSL/NDSL	EINECS/E LINCS	ENCS	IECSC	KECL	PICCS	AICS
Iron (II) Sulfate monohydrate	Active							X

Legend:*TSCA - United States Toxic Substances Control Act Section 8(b) Inventory**DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List**EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances**ENCS - Japan Existing and New Chemical Substances**IECSC - China Inventory of Existing Chemical Substances**KECL - Korean Existing and Evaluated Chemical Substances**PICCS - Philippines Inventory of Chemicals and Chemical Substances**AICS - Australian Inventory of Chemical Substances*

US Federal Regulations**CERCLA**

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355).

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

US State Regulations**California Proposition 65**

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Iron (II) Sulfate monohydrate 17375-41-6			X

16. OTHER INFORMATION

<u>NFPA</u>	Health Hazards	Flammability	Instability	Special Hazards
	2	0	0	No data available
<u>HMIS</u>	Health Hazards	Flammability	Physical hazards	Personal Protection
	Not determined	Not determined	Not determined	Not determined

Issue Date: 21-Feb-2018
Revision Date: 11-June-2019
Revision Note: Regulatory update

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End of Safety Data Sheet

Appendix J

Existing Capped Side Sewer Photos

Capped Sewer Photos

The horizontal pipes are approximately 4' below grade.
The capped vertical pipe is approximately 2' below grade.







Appendix K

WAC 173-340-900
(RCW 70.105 and
MTCA Method A,
Table 740-1
requirements)

WAC 173-340-900 Tables.

Table 708-1: Toxicity Equivalency Factors for Chlorinated dibenzo-p-dioxins and Chlorinated Dibenzofurans Congeners

CAS Number	Hazardous Substance	Toxicity Equivalency Factor (unitless) ⁽¹⁾
Dioxin Congeners		
1746-01-6	2,3,7,8-Tetrachloro dibenzo-p-dioxin	1
40321-76-4	1,2,3,7,8-Pentachloro dibenzo-p-dioxin	1
39227-28-6	1,2,3,4,7,8-Hexachloro dibenzo-p-dioxin	0.1
57653-85-7	1,2,3,6,7,8-Hexachloro dibenzo-p-dioxin	0.1
19408-74-3	1,2,3,7,8,9-Hexachloro dibenzo-p-dioxin	0.1
35822-46-9	1,2,3,4,6,7,8-Heptachloro dibenzo-p-dioxin	0.01
3268-87-9	1,2,3,4,6,7,8,9-Octachloro dibenzo-p-dioxin	0.0003
Furan Congeners		
51207-31-9	2,3,7,8-Tetrachloro dibenzofuran	0.1
57117-41-6	1,2,3,7,8-Pentachloro dibenzofuran	0.03
57117-31-4	2,3,4,7,8-Pentachloro dibenzofuran	0.3
70648-26-9	1,2,3,4,7,8-Hexachloro dibenzofuran	0.1
57117-44-9	1,2,3,6,7,8-Hexachloro dibenzofuran	0.1
72918-21-9	1,2,3,7,8,9-Hexachloro dibenzofuran	0.1
60851-34-5	2,3,4,6,7,8-Hexachloro dibenzofuran	0.1
67562-39-4	1,2,3,4,6,7,8-Heptachloro dibenzofuran	0.01
55673-89-7	1,2,3,4,7,8,9-Heptachloro dibenzofuran	0.01
39001-02-0	1,2,3,4,6,7,8,9-Octachloro dibenzofuran	0.0003

⁽¹⁾ Source: Van den Berg et al. 2006. The 2005 World Health Organization Re-evaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds. Toxicological Sciences 2006 93(2):223-241; doi:10.1093/toxsci/kfl055.

Table 708-2: Toxicity Equivalency Factors for Minimum Required Carcinogenic Polyaromatic Hydrocarbons (cPAHs) under WAC 173-340-708 (e)

CAS Number	Hazardous Substance	TEF (unitless) ⁽¹⁾
50-32-08	benzo[a]pyrene	1
56-55-3	benzo[a]anthracene	0.1
205-99-2	benzo[b]fluoranthene	0.1
207-08-9	benzo[k]fluoranthene	0.1
218-01-9	chrysene	0.01
53-70-3	dibenz[a, h]anthracene	0.1
193-39-5	indeno[1,2,3-cd]pyrene	0.1

⁽¹⁾ Source: Cal-EPA, 2005. Air Toxics Hot Spots Program Risk Assessment Guidelines, Part II Technical Support Document for Describing Available Cancer Potency Factors. Office of Environmental Health Hazard Assessment, California Environmental Protection Agency. May 2005.

Table 708-3: Toxicity Equivalency Factors for Carcinogenic Polyaromatic Hydrocarbons (cPAHs) that May be Required under WAC 173-340-708 (8) (e) (v)

CAS Number	Hazardous Substance	TEF (unitless) ⁽¹⁾
205-82-3	benzo(j)fluoranthene	0.1

CAS Number	Hazardous Substance	TEF (unitless) ⁽¹⁾
224-42-0	dibenz[a, j]acridine	0.1
226-36-8	dibenz[a, h]acridine	0.1
194-59-2	7H-dibenzo[c, g]carbazole	1
192-65-4	dibenzo[a, e]pyrene	1
189-64-0	dibenzo[a, h]pyrene	10
189-55-9	dibenzo[a, i]pyrene	10
191-30-0	dibenzo[a, l]pyrene	10
3351-31-3	5-methylchrysene	1
5522-43-0	1-nitropyrene	0.1
57835-92-4	4-nitropyrene	0.1
42397-64-8	1,6-dinitropyrene	10
42397-65-9	1,8-dinitropyrene	1
7496-02-8	6-nitrochrysene	10
607-57-8	2-nitrofluorene	0.01
57-97-6	7,12-dimethylbenzanthracene	10
56-49-5	3-methylcholanthrene	1
602-87-9	5-nitroacenaphthene	0.01

(1) Source: Cal-EPA, 2005. Air Toxics Hot Spots Program Risk Assessment Guidelines, Part II Technical Support Document for Describing Available Cancer Potency Factors. Office of Environmental Health Hazard Assessment, California Environmental Protection Agency. May 2005.

Table 708-4: Toxicity Equivalency Factors for Dioxin-Like Polychlorinated Biphenyls (PCBs)

CAS Number	Hazardous Substance	TEF (unitless) ⁽¹⁾
Dioxin-Like PCBs		
32598-13-3	3,3',4,4'-Tetrachlorobiphenyl (PCB 77)	0.0001
70362-50-4	3,4,4',5- Tetrachlorobiphenyl (PCB 81)	0.0003
32598-14-4	2,3,3',4,4'-Pentachlorobiphenyl (PCB 105)	0.00003
74472-37-0	2,3,4,4',5-Pentachlorobiphenyl (PCB 114)	0.00003
31508-00-6	2,3',4,4',5-Pentachlorobiphenyl (PCB 118)	0.00003
65510-44-3	2',3,4,4',5-Pentachlorobiphenyl (PCB 123)	0.00003
57465-28-8	3,3',4,4',5-Pentachlorobiphenyl (PCB 126)	0.1
38380-08-4	2,3,3',4,4',5-Hexachlorobiphenyl (PCB 156)	0.00003
69782-90-7	2,3,3',4,4',5'-Hexachlorobiphenyl (PCB 157)	0.00003
52663-72-6	2,3',4,4',5,5'-Hexachlorobiphenyl (PCB 167)	0.00003
32774-16-6	3,3',4,4',5,5'-Hexachlorobiphenyl (PCB 169)	0.03
39635-31-9	2,3,3',4,4',5,5'-Heptachlorobiphenyl (PCB 189)	0.00003

(1) Source: Van den Berg et al. 2006. The 2005 World Health Organization Re-evaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds. Toxicological Sciences 2006 93(2):223-241; doi:10.1093/toxsci/kfl055.

**Table 720-1
Method A Cleanup Levels for Groundwater.^a**

Hazardous Substance	CAS Number	Cleanup Level
Arsenic	7440-38-2	5 ug/liter ^b
Benzene	71-43-2	5 ug/liter ^c
Benzo(a)pyrene	50-32-8	0.1 ug/liter ^d
Cadmium	7440-43-9	5 ug/liter ^e
Chromium (Total)	7440-47-3	50 ug/liter ^f
DDT	50-29-3	0.3 ug/liter ^g
1,2 Dichloroethane (EDC)	107-06-2	5 ug/liter ^h
Ethylbenzene	100-41-4	700 ug/liter ⁱ
Ethylene dibromide (EDB)	106-93-4	0.01 ug/liter ^j
Gross Alpha Particle Activity		15 pCi/liter ^k
Gross Beta Particle Activity		4 mrem/yr ^l
Lead	7439-92-1	15 ug/liter ^m
Lindane	58-89-9	0.2 ug/liter ⁿ
Methylene chloride	75-09-2	5 ug/liter ^o
Mercury	7439-97-6	2 ug/liter ^p
MTBE	1634-04-4	20 ug/liter ^q
Naphthalenes	91-20-3	160 ug/liter ^r
PAHs (carcinogenic)		See benzo(a)pyrene ^d
PCB mixtures		0.1 ug/liter ^s
Radium 226 and 228		5 pCi/liter ^t
Radium 226		3 pCi/liter ^u
Tetrachloroethylene	127-18-4	5 ug/liter ^v
Toluene	108-88-3	1,000 ug/liter ^w
Total Petroleum Hydrocarbons ^x		
[Note: Must also test for and meet cleanup levels for other petroleum components—see footnotes!]		
Gasoline Range Organics		
	Benzene present in groundwater	800 ug/liter
	No detectable benzene in groundwater	1,000 ug/liter
Diesel Range Organics		
	Heavy Oils	500 ug/liter
	Mineral Oil	500 ug/liter
1,1,1 Trichloroethane	71-55-6	200 ug/liter ^y
Trichloroethylene	79-01-6	5 ug/liter ^z
Vinyl chloride	75-01-4	0.2 ug/liter ^{aa}
Xylenes	1330-20-7	1,000 ug/liter ^{bb}

Footnotes:

- a Caution on misusing this table.** This table has been developed for specific purposes. It is intended to provide conservative cleanup levels for drinking water beneficial uses at sites undergoing routine cleanup actions or those sites with relatively few hazardous substances. This table may not be appropriate for defining cleanup levels at other sites. For these reasons, the values in this table should not automatically be used to define cleanup levels that must be met for financial, real estate, insurance coverage or placement, or similar transactions or purposes. Exceedances of the values in this table do not necessarily mean the groundwater must be restored to those levels at all sites. The level of restoration depends on the remedy selected under WAC 173-340-350 through 173-340-390.
- b Arsenic.** Cleanup level based on background concentrations for state of Washington.
- c Benzene.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.61).
- d Benzo(a)pyrene.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.61), adjusted to a 1×10^{-5} risk. If other carcinogenic PAHs are suspected of being present at the site, test for them and use this value as the total concentration that all carcinogenic PAHs must meet using the toxicity equivalency methodology in WAC 173-340-708(8).
- e Cadmium.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.62).
- f Chromium (Total).** Cleanup level based on concentration derived using Equation 720-1 for hexavalent chromium. This is a total value for chromium III and chromium VI. If just chromium III is present at the site, a cleanup level of 100 ug/l may be used (based on WAC 246-290-310 and 40 C.F.R. 141.62).
- g DDT (dichlorodiphenyltrichloroethane).** Cleanup levels based on concentration derived using Equation 720-2.
- h 1,2 Dichloroethane (ethylene dichloride or EDC).** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.61).
- i Ethylbenzene.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.61).

- j Ethylene dibromide (1,2 dibromoethane or EDB).** Cleanup level based on concentration derived using Equation 720-2, adjusted for the practical quantitation limit.
- k Gross Alpha Particle Activity, excluding uranium.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.15).
- l Gross Beta Particle Activity, including gamma activity.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.15).
- m Lead.** Cleanup level based on applicable state and federal law (40 C.F.R. 141.80).
- n Lindane.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.61).
- o Methylene chloride (dichloromethane).** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.61).
- p Mercury.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.62).
- q Methyl tertiary-butyl ether (MTBE).** Cleanup level based on federal drinking water advisory level (EPA-822-F-97-009, December 1997).
- r Naphthalenes.** Cleanup level based on concentration derived using Equation 720-1. This is a total value for naphthalene, 1-methyl naphthalene and 2-methyl naphthalene.
- s PCB mixtures.** Cleanup level based on concentration derived using Equation 720-2, adjusted for the practical quantitation limit. This cleanup level is a total value for all PCBs.
- t Radium 226 and 228.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.15).
- u Radium 226.** Cleanup level based on applicable state law (WAC 246-290-310).
- v Tetrachloroethylene.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.61).
- w Toluene.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.61).
- x Total Petroleum Hydrocarbons (TPH).** TPH cleanup values have been provided for the most common petroleum products encountered at contaminated sites. Where there is a mixture of products or the product composition is unknown, samples must be tested using both the NWTPH-Gx and NWTPH-Dx methods and the lowest applicable TPH cleanup level must be met.
 - **Gasoline range organics** means organic compounds measured using method NWTPH-Gx. Examples are aviation and automotive gasoline. The cleanup level is based on protection of groundwater for noncarcinogenic effects during drinking water use. Two cleanup levels are provided. The higher value is based on the assumption that no benzene is present in the groundwater sample. If any detectable amount of benzene is present in the groundwater sample, then the lower TPH cleanup level must be used. No interpolation between these cleanup levels is allowed. The groundwater cleanup level for any carcinogenic components of the petroleum [such as benzene, EDB and EDC] and any noncarcinogenic components [such as ethylbenzene, toluene, xylenes and MTBE], if present at the site, must also be met. See Table 830-1 for the minimum testing requirements for gasoline releases.
 - **Diesel range organics** means organic compounds measured using NWTPH-Dx. Examples are diesel, kerosene, and #1 and #2 heating oil. The cleanup level is based on protection from noncarcinogenic effects during drinking water use. The groundwater cleanup level for any carcinogenic components of the petroleum [such as benzene and PAHs] and any noncarcinogenic components [such as ethylbenzene, toluene, xylenes and naphthalenes], if present at the site, must also be met. See Table 830-1 for the minimum testing requirements for diesel releases.
 - **Heavy oils** means organic compounds measured using NWTPH-Dx. Examples are #6 fuel oil, bunker C oil, hydraulic oil and waste oil. The cleanup level is based on protection from noncarcinogenic effects during drinking water use, assuming a product composition similar to diesel fuel. The groundwater cleanup level for any carcinogenic components of the petroleum [such as benzene, PAHs and PCBs] and any noncarcinogenic components [such as ethylbenzene, toluene, xylenes and naphthalenes], if present at the site, must also be met. See Table 830-1 for the minimum testing requirements for heavy oil releases.
 - **Mineral oil** means non-PCB mineral oil, typically used as an insulator and coolant in electrical devices such as transformers and capacitors measured using NWTPH-Dx. The cleanup level is based on protection from noncarcinogenic effects during drinking water use. Sites using this cleanup level must analyze groundwater samples for PCBs and meet the PCB cleanup level in this table unless it can be demonstrated that: (1) The release originated from an electrical device manufactured after July 1, 1979; or (2) oil containing PCBs was never used in the equipment suspected as the source of the release; or (3) it can be documented that the oil released was recently tested and did not contain PCBs. Method B (or Method C, if applicable) must be used for releases of oils containing greater than 50 ppm PCBs. See Table 830-1 for the minimum testing requirements for mineral oil releases.
- y 1,1,1 Trichloroethane.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.61).
- z Trichloroethylene.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.61).
- aa Vinyl chloride.** Cleanup level based on applicable state and federal law (WAC 246-290-310 and 40 C.F.R. 141.61), adjusted to a 1×10^{-5} risk.
- bb Xylenes.** Cleanup level based on xylene not exceeding the maximum allowed cleanup level in this table for total petroleum hydrocarbons and on prevention of adverse aesthetic characteristics. This is a total value for all xylenes.

Table 740-1
Method A Soil Cleanup Levels for
Unrestricted Land Uses.^a

Hazardous Substance	CAS Number	Cleanup Level
Arsenic	7440-38-2	20 mg/kg ^b
Benzene	71-43-2	0.03 mg/kg ^c
Benzo(a)pyrene	50-32-8	0.1 mg/kg ^d
Cadmium	7440-43-9	2 mg/kg ^e
Chromium		
Chromium VI	18540-29-9	19 mg/kg ^{f1}
Chromium III	16065-83-1	2,000 mg/kg ^{f2}
DDT	50-29-3	3 mg/kg ^g
Ethylbenzene	100-41-4	6 mg/kg ^h
Ethylene dibromide (EDB)	106-93-4	0.005 mg/kg ⁱ
Lead	7439-92-1	250 mg/kg ^j
Lindane	58-89-9	0.01 mg/kg ^k
Methylene chloride	75-09-2	0.02 mg/kg ^l
Mercury (inorganic)	7439-97-6	2 mg/kg ^m
MTBE	1634-04-4	0.1 mg/kg ⁿ

Hazardous Substance	CAS Number	Cleanup Level
Naphthalenes	91-20-3	5 mg/kg ^o
PAHs (carcinogenic)		See benzo(a)pyrene ^d
PCB Mixtures		1 mg/kg ^p
Tetrachloroethylene	127-18-4	0.05 mg/kg ^q
Toluene	108-88-3	7 mg/kg ^f
Total Petroleum Hydrocarbons ^s		
[Note: Must also test for and meet cleanup levels for other petroleum components—see footnotes!]		
Gasoline Range Organics		
Gasoline mixtures without benzene and the total of ethylbenzene, toluene and xylene are less than 1% of the gasoline mixture		100 mg/kg
All other gasoline mixtures		30 mg/kg
Diesel Range Organics		2,000 mg/kg
Heavy Oils		2,000 mg/kg
Mineral Oil		4,000 mg/kg
1,1,1 Trichloroethane	71-55-6	2 mg/kg ^t
Trichloroethylene	79-01-6	0.03 mg/kg ^u
Xylenes	1330-20-7	9 mg/kg ^v

Footnotes:

- a Caution on misusing this table.** This table has been developed for specific purposes. It is intended to provide conservative cleanup levels for sites undergoing routine cleanup actions or for sites with relatively few hazardous substances, and the site qualifies under WAC 173-340-7491 for an exclusion from conducting a simplified or site-specific terrestrial ecological evaluation, or it can be demonstrated using a terrestrial ecological evaluation under WAC 173-340-7492 or 173-340-7493 that the values in this table are ecologically protective for the site. This table may not be appropriate for defining cleanup levels at other sites. For these reasons, the values in this table should not automatically be used to define cleanup levels that must be met for financial, real estate, insurance coverage or placement, or similar transactions or purposes. Exceedances of the values in this table do not necessarily mean the soil must be restored to these levels at a site. The level of restoration depends on the remedy selected under WAC 173-340-350 through 173-340-390.
- b Arsenic.** Cleanup level based on direct contact using Equation 740-2 and protection of groundwater for drinking water use using the procedures in WAC 173-340-747(4), adjusted for natural background for soil.
- c Benzene.** Cleanup level based on protection of groundwater for drinking water use, using the procedures in WAC 173-340-747 (4) and (6).
- d Benzo(a)pyrene.** Cleanup level based on direct contact using Equation 740-2. If other carcinogenic PAHs are suspected of being present at the site, test for them and use this value as the total concentration that all carcinogenic PAHs must meet using the toxicity equivalency methodology in WAC 173-340-708(8).
- e Cadmium.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4), adjusted for the practical quantitation limit for soil.
- f1 Chromium VI.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).
- f2 Chromium III.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4). Chromium VI must also be tested for and the cleanup level met when present at a site.
- g DDT (dichlorodiphenyltrichloroethane).** Cleanup level based on direct contact using Equation 740-2.
- h Ethylbenzene.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).
- i Ethylene dibromide (1,2 dibromoethane or EDB).** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4), adjusted for the practical quantitation limit for soil.
- j Lead.** Cleanup level based on preventing unacceptable blood lead levels.
- k Lindane.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4), adjusted for the practical quantitation limit.
- l Methylene chloride (dichloromethane).** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).
- m Mercury.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).
- n Methyl tertiary-butyl ether (MTBE).** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).
- o Naphthalenes.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4). This is a total value for naphthalene, 1-methyl naphthalene and 2-methyl naphthalene.
- p PCB Mixtures.** Cleanup level based on applicable federal law (40 C.F.R. 761.61). This is a total value for all PCBs.
- q Tetrachloroethylene.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).
- r Toluene.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).
- s Total Petroleum Hydrocarbons (TPH).** TPH cleanup values have been provided for the most common petroleum products encountered at contaminated sites. Where there is a mixture of products or the product composition is unknown, samples must be tested using both the NWTPH-Gx and NWTPH-Dx methods and the lowest applicable TPH cleanup level must be met.

- **Gasoline range organics** means organic compounds measured using method NWTPH-Gx. Examples are aviation and automotive gasoline. The cleanup level is based on protection of groundwater for noncarcinogenic effects during drinking water use using the procedures described in WAC 173-340-747(6). Two cleanup levels are provided. The lower value of 30 mg/kg can be used at any site. When using this lower value, the soil must also be tested for and meet the benzene soil cleanup level. The higher value of 100 mg/kg can only be used if the soil is tested and found to contain no benzene and the total of ethylbenzene, toluene and xylene are less than 1% of the gasoline mixture. No interpolation between these cleanup levels is allowed. In both cases, the soil cleanup level for any other carcinogenic components of the petroleum [such as EDB and EDC], if present at the site, must also be met. Also, in both cases, soil cleanup levels for any noncarcinogenic components [such as toluene, ethylbenzene, xylenes, naphthalene, and MTBE], also must be met if these substances are found to exceed groundwater cleanup levels at the site. See Table 830-1 for the minimum testing requirements for gasoline releases.
- **Diesel range organics** means organic compounds measured using method NWTPH-Dx. Examples are diesel, kerosene, and #1 and #2 heating oil. The cleanup level is based on preventing the accumulation of free product on the groundwater, as described in WAC 173-340-747(10). The soil cleanup level for any carcinogenic components of the petroleum [such as benzene and PAHs], if present at the site, must also be met. Soil cleanup levels for any noncarcinogenic components [such as toluene, ethylbenzene, xylenes and naphthalenes], also must be met if these substances are found to exceed the groundwater cleanup levels at the site. See Table 830-1 for the minimum testing requirements for diesel releases.
- **Heavy oils** means organic compounds measured using NWTPH-Dx. Examples are #6 fuel oil, bunker C oil, hydraulic oil and waste oil. The cleanup level is based on preventing the accumulation of free product on the groundwater, as described in WAC 173-340-747(10) and assuming a product composition similar to diesel fuel. The soil cleanup level for any carcinogenic components of the petroleum [such as benzene, PAHs and PCBs], if present at the site, must also be met. Soil cleanup levels for any noncarcinogenic components [such as toluene, ethylbenzene, xylenes and naphthalenes], also must be met if found to exceed the groundwater cleanup levels at the site. See Table 830-1 for the minimum testing requirements for heavy oil releases.
- **Mineral oil** means non-PCB mineral oil, typically used as an insulator and coolant in electrical devices such as transformers and capacitors, measured using NWTPH-Dx. The cleanup level is based on preventing the accumulation of free product on the groundwater, as described in WAC 173-340-747(10). Sites using this cleanup level must also analyze soil samples and meet the soil cleanup level for PCBs, unless it can be demonstrated that: (1) The release originated from an electrical device that was manufactured after July 1, 1979; or (2) oil containing PCBs was never used in the equipment suspected as the source of the release; or (3) it can be documented that the oil released was recently tested and did not contain PCBs. Method B must be used for releases of oils containing greater than 50 ppm PCBs. See Table 830-1 for the minimum testing requirements for mineral oil releases.
- t **1,1,1 Trichloroethane.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).
- u **Trichloroethylene.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).
- v **Xylenes.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4). This is a total value for all xylenes.

Table 745-1
Method A Soil Cleanup Levels for Industrial
Properties.^a

Hazardous Substance	CAS Number	Cleanup Level
Arsenic	7440-38-2	20 mg/kg ^b
Benzene	71-43-2	0.03 mg/kg ^c
Benzo(a)pyrene	50-32-8	2 mg/kg ^d
Cadmium	7440-43-9	2 mg/kg ^e
Chromium		
Chromium VI	18540-29-9	19 mg/kg ^{f1}
Chromium III	16065-83-1	2,000 mg/kg ^{f2}
DDT	50-29-3	4 mg/kg ^g
Ethylbenzene	100-41-4	6 mg/kg ^h
Ethylene dibromide (EDB)	106-93-4	0.005 mg/kg ⁱ
Lead	7439-92-1	1,000 mg/kg ^j
Lindane	58-89-9	0.01 mg/kg ^k
Methylene chloride	75-09-2	0.02 mg/kg ^l
Mercury (inorganic)	7439-97-6	2 mg/kg ^m
MTBE	1634-04-4	0.1 mg/kg ⁿ
Naphthalene	91-20-3	5 mg/kg ^o
PAHs (carcinogenic)		See benzo(a)pyrene ^d
PCB Mixtures		10 mg/kg ^p
Tetrachloroethylene	127-18-4	0.05 mg/kg ^q
Toluene	108-88-3	7 mg/kg ^r
Total Petroleum Hydrocarbons ^s		
[Note: Must also test for and meet cleanup levels for other petroleum components—see footnotes!]		
Gasoline Range Organics		

Hazardous Substance	CAS Number	Cleanup Level
Gasoline mixtures without benzene and the total of ethylbenzene, toluene and xylene are less than 1% of the gasoline mixture		100 mg/kg
All other gasoline mixtures		30 mg/kg
Diesel Range Organics		2,000 mg/kg
Heavy Oils		2,000 mg/kg
Mineral Oil		4,000 mg/kg
1,1,1 Trichloroethane	71-55-6	2 mg/kg ^t
Trichloroethylene	79-01-6	0.03 mg/kg ^u
Xylenes	1330-20-7	9 mg/kg ^v

Footnotes:

- a Caution on misusing this table.** This table has been developed for specific purposes. It is intended to provide conservative cleanup levels for sites undergoing routine cleanup actions or for industrial properties with relatively few hazardous substances, and the site qualifies under WAC 173-340-7491 for an exclusion from conducting a simplified or site-specific terrestrial ecological evaluation, or it can be demonstrated using a terrestrial ecological evaluation under WAC 173-340-7492 or 173-340-7493 that the values in this table are ecologically protective for the site. This table may not be appropriate for defining cleanup levels at other sites. For these reasons, the values in this table should not automatically be used to define cleanup levels that must be met for financial, real estate, insurance coverage or placement, or similar transactions or purposes. Exceedances of the values in this table do not necessarily mean the soil must be restored to these levels at a site. The level of restoration depends on the remedy selected under WAC 173-340-350 through 173-340-390.
- b Arsenic.** Cleanup level based on protection of groundwater for drinking water use, using the procedures in WAC 173-340-747(4), adjusted for natural background for soil.
- c Benzene.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747 (4) and (6).
- d Benzo(a)pyrene.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4). If other carcinogenic PAHs are suspected of being present at the site, test for them and use this value as the total concentration that all carcinogenic PAHs must meet using the toxicity equivalency methodology in WAC 173-340-708(8).
- e Cadmium.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4), adjusted for the practical quantitation limit for soil.
- f1 Chromium VI.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).
- f2 Chromium III.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4). Chromium VI must also be tested for and the cleanup level met when present at a site.
- g DDT (dichlorodiphenyltrichloroethane).** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).
- h Ethylbenzene.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).
- i Ethylene dibromide (1,2 dibromoethane or EDB).** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4), adjusted for the practical quantitation limit for soil.
- j Lead.** Cleanup level based on direct contact.
- k Lindane.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4), adjusted for the practical quantitation limit.
- l Methylene chloride (dichloromethane).** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).
- m Mercury.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).
- n Methyl tertiary-butyl ether (MTBE).** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).
- o Naphthalenes.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4). This is a total value for naphthalene, 1-methyl naphthalene and 2-methyl naphthalene.
- p PCB Mixtures.** Cleanup level based on applicable federal law (40 C.F.R. 761.61). This is a total value for all PCBs. This value may be used only if the PCB contaminated soils are capped and the cap maintained as required by 40 C.F.R. 761.61. If this condition cannot be met, the value in Table 740-1 must be used.
- q Tetrachloroethylene.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).
- r Toluene.** Cleanup level based on protection of groundwater for drinking water use, using the procedure described in WAC 173-340-747(4).
- s Total Petroleum Hydrocarbons (TPH).** TPH cleanup values have been provided for the most common petroleum products encountered at contaminated sites. Where there is a mixture of products or the product composition is unknown, samples must be tested using both the NWTPH-Gx and NWTPH-Dx methods and the lowest applicable TPH cleanup level must be met.
 - **Gasoline range organics** means organic compounds measured using method NWTPH-Gx. Examples are aviation and automotive gasoline. The cleanup level is based on protection of groundwater for noncarcinogenic effects during drinking water use using the procedures described in WAC 173-340-747(6). Two cleanup levels are provided. The lower value of 30 mg/kg can be used at any site. When using this lower value, the soil must also be tested for and meet the benzene soil cleanup level. The higher value of 100 mg/kg can only be used if the soil is tested and found to contain no benzene and the total of ethylbenzene, toluene and xylene are less than 1% of the gasoline mixture. No interpolation between these cleanup levels is allowed. In both cases, the soil cleanup level for any other carcinogenic components of the petroleum [such as EDB and EDC], if present at the site, must also be met. Also, in both cases, soil cleanup levels for any noncarcinogenic components [such as toluene, ethylbenzene, xylenes, naphthalene, and MTBE], also must be met if these substances are found to exceed groundwater cleanup levels at the site. See Table 830-1 for the minimum testing requirements for gasoline releases.
 - **Diesel range organics** means organic compounds measured using method NWTPH-Dx. Examples are diesel, kerosene, and #1 and #2 heating oil. The cleanup level is based on preventing the accumulation of free product on the groundwater, as described in WAC 173-340-747(10). The soil cleanup level for any carcinogenic components of the petroleum [such as benzene, and PAHs], if present at the site, must also be met. Soil cleanup levels for any noncarcinogenic components [such as toluene, ethylbenzene, xylenes and naphthalenes], also must be met if these substances are found to exceed the groundwater cleanup levels at the site. See Table 830-1 for the minimum testing requirements for diesel releases.

- **Heavy oils** means organic compounds measured using NWTPH-Dx. Examples are #6 fuel oil, bunker C oil, hydraulic oil and waste oil. The cleanup level is based on preventing the accumulation of free product on the groundwater, as described in WAC 173-340-747(10) and assuming a product composition similar to diesel fuel. The soil cleanup level for any carcinogenic components of the petroleum [such as benzene, PAHs and PCBs], if present at the site, must also be met. Soil cleanup levels for any noncarcinogenic components [such as toluene, ethylbenzene, xylenes and naphthalenes], also must be met if found to exceed the groundwater cleanup levels at the site. See Table 830-1 for the minimum testing requirements for heavy oil releases.
- **Mineral oil** means non-PCB mineral oil, typically used as an insulator and coolant in electrical devices such as transformers and capacitors, measured using NWTPH-Dx. The cleanup level is based on preventing the accumulation of free product on the groundwater, as described in WAC 173-340-747(10). Sites using this cleanup level must also analyze soil samples and meet the soil cleanup level for PCBs, unless it can be demonstrated that: (1) The release originated from an electrical device that was manufactured after July 1, 1979; or (2) oil containing PCBs was never used in the equipment suspected as the source of the release; or (3) it can be documented that the oil released was recently tested and did not contain PCBs. Method B or C must be used for releases of oils containing greater than 50 ppm PCBs. See Table 830-1 for the minimum testing requirements for mineral oil releases.
- t **1,1,1 Trichloroethane.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).
- u **Trichloroethylene.** Cleanup level based on protection of groundwater for drinking water use, using the procedures described in WAC 173-340-747(4).
- v **Xylenes.** Cleanup level based on protection of groundwater for drinking water use, using the procedure in WAC 173-340-747(4). This is a total value for all xylenes.

Table 747-1
Soil Organic Carbon-Water Partitioning
Coefficient (K_{oc}) Values:
Nonionizing Organics.

Hazardous Substance	K_{oc} (ml/g)
ACENAPHTHENE	4,898
ALDRIN	48,685
ANTHRACENE	23,493
BENZ(a)ANTHRACENE	357,537
BENZENE	62
BENZO(a)PYRENE	968,774
BIS(2-CHLOROETHYL)ETHER	76
BIS(2-ETHYLHEXYL)PHTHALATE	111,123
BROMOFORM	126
BUTYL BENZYL PHTHALATE	13,746
CARBON TETRACHLORIDE	152
CHLORDANE	51,310
CHLOROBENZENE	224
CHLOROFORM	53
DDD	45,800
DDE	86,405
DDT	677,934
DIBENZO(a,h)ANTHRACENE	1,789,101
1,2-DICHLOROBENZENE (o)	379
1,4-DICHLOROBENZENE (p)	616
DICHLOROETHANE-1,1	53
DICHLOROETHANE-1,2	38
DICHLOROETHYLENE-1,1	65
trans-1,2 DICHLOROETHYLENE	38
DICHLOROPROPANE-1,2	47
DICHLOROPROPENE-1,3	27
DIELDRIN	25,546
DIETHYL PHTHALATE	82
DI-N-BUTYLPHthalate	1,567
EDB	66
ENDRIN	10,811

Hazardous Substance	K _{oc} (ml/g)
ENDOSULFAN	2,040
ETHYL BENZENE	204
FLUORANTHENE	49,096
FLUORENE	7,707
HEPTACHLOR	9,528
HEXACHLOROBENZENE	80,000
α-HCH (α-BHC)	1,762
β-HCH (β-BHC)	2,139
γ-HCH (LINDANE)	1,352
MTBE	11
METHOXYCHLOR	80,000
METHYL BROMIDE	9
METHYL CHLORIDE	6
METHYLENE CHLORIDE	10
NAPHTHALENE	1,191
NITROBENZENE	119
PCB-Arochlor 1016	107,285
PCB-Arochlor 1260	822,422
PENTACHLOROBENZENE	32,148
PYRENE	67,992
STYRENE	912
1,1,2,2,-TETRACHLOROETHANE	79
TETRACHLOROETHYLENE	265
TOLUENE	140
TOXAPHENE	95,816
1,2,4-TRICHLOROBENZENE	1,659
TRICHLOROETHANE -1,1,1	135
TRICHLOROETHANE-1,1,2	75
TRICHLOROETHYLENE	94
o-XYLENE	241
m-XYLENE	196
p-XYLENE	311

Sources: Except as noted below, the source of the K_{oc} values is the 1996 EPA Soil Screening Guidance: Technical Background Document. The values obtained from this document represent the geometric mean of a survey of values published in the scientific literature. Sample populations ranged from 1-65. EDB value from ATSDR Toxicological Profile (TP 91/13). MTBE value from USGS Final Draft Report on Fuel Oxygenates (March 1996). PCB-Arochlor values from 1994 EPA Draft Soil Screening Guidance.

**Table 747-2
Predicted Soil Organic Carbon-Water
Partitioning Coefficient (K_{oc}) as a
Function of pH: Ionizing Organics.**

Hazardous Substance	K _{oc} Value (ml/g)		
	pH = 4.9	pH = 6.8	pH = 8.0
Benzoic acid	5.5	0.6	0.5
2-Chlorophenol	398	388	286
2,4-Dichlorophenol	159	147	72
2,4-Dinitrophenol	0.03	0.01	0.01
Pentachlorophenol	9,055	592	410
2,3,4,5-Tetrachlorophenol	17,304	4,742	458

Hazardous Substance	K _{oc} Value (ml/g)		
	2,3,4,6-Tetrachlorophenol	4,454	280
2,4,5-Trichlorophenol	2,385	1,597	298
2,4,6-Trichlorophenol	1,040	381	131

Source: 1996 EPA Soil Screening Guidance: Technical Background Document. The predicted K_{oc} values in this table were derived using a relationship from thermodynamic equilibrium considerations to predict the total sorption of an ionizable organic compound from the partitioning of its ionized and neutral forms.

**Table 747-3
Metals Distribution Coefficients (K_d).**

Hazardous Substance	K _d (L/kg)
Arsenic	29
Cadmium	6.7
Total Chromium	1,000
Chromium VI	19
Copper	22
Mercury	52
Nickel	65
Lead	10,000
Selenium	5
Zinc	62

Source: Multiple sources compiled by the department of ecology.

**Table 747-4
Petroleum EC Fraction Physical/Chemical Values.**

Fuel Fraction	Equivalent Carbon Number ¹	Water Solubility ² (mg/L)	Mol. Wt. ³ (g/mol)	Henry's Constant ⁴ (cc/cc)	GFW ⁵ (mg/mol)	Density ⁶ (mg/l)	Soil Organic Carbon-Water Partitioning Coefficient K _{oc} ⁷ (L/kg)
ALIPHATICS							
EC 5 - 6	5.5	36.0	81.0	33.0	81,000	670,000	800
EC > 6 - 8	7.0	5.4	100.0	50.0	100,000	700,000	3,800
EC > 8 - 10	9.0	0.43	130.0	80.0	130,000	730,000	30,200
EC > 10 - 12	11.0	0.034	160.0	120.0	160,000	750,000	234,000
EC > 12 - 16	14.0	7.6E-04	200.0	520.0	200,000	770,000	5.37E+06
EC > 16 - 21	19.0	1.3E-06	270.0	4,900	270,000	780,000	9.55E+09
EC > 21 - 34	28.0	1.5E-11	400.0	100,000	400,000	790,000	1.07E+10
AROMATICS							
EC > 8 - 10	9.0	65.0	120.0	0.48	120,000	870,000	1,580
EC > 10 - 12	11.0	25.0	130.0	0.14	130,000	900,000	2,510
EC > 12 - 16	14.0	5.8	150.0	0.053	150,000	1,000,000	5,010
EC > 16 - 21	19.0	0.51	190.0	0.013	190,000	1,160,000	15,800
EC > 21 - 34	28.0	6.6E-03	240.0	6.7E-04	240,000	1,300,000	126,000
TPH COMPONENTS							
Benzene	6.5	1,750	78.0	0.228	78,000	876,500	62.0
Toluene	7.6	526.0	92.0	0.272	92,000	866,900	140.0
Ethylbenzene	8.5	169.0	106.0	0.323	106,000	867,000	204.0
Total Xylenes ⁸ (average of 3)	8.67	171.0	106.0	0.279	106,000	875,170	233.0
n-Hexane ⁹	6.0	9.5	86.0	74.0	86,000	659,370	3,410
MTBE ¹⁰		50,000	88.0	0.018	88,000	744,000	10.9
Naphthalenes	11.69	31.0	128.0	0.0198	128,000	1,145,000	1,191

Sources:

- 1 **Equivalent Carbon Number.** Gustafson, J.B. et al., *Selection of Representative TPH Fractions Based on Fate and Transport Considerations. Total Petroleum Hydrocarbon Criteria Working Group Series, Volume 3 (1997)* [hereinafter *Criteria Working Group*].
- 2 **Water Solubility.** For aliphatics and aromatics EC groups, *Criteria Working Group*. For TPH components except n-hexane and MTBE, *1996 EPA Soil Screening Guidance: Technical Background Document*.
- 3 **Molecular Weight.** *Criteria Working Group*.
- 4 **Henry's Constant.** For aliphatics and aromatics EC groups, *Criteria Working Group*. For TPH components except n-hexane and MTBE, *1996 EPA Soil Screening Guidance: Technical Background Document*.
- 5 **Gram Formula Weight (GFW).** Based on 1000 x Molecular Weight.
- 6 **Density.** For aliphatics and aromatics EC groups, based on correlation between equivalent carbon number and data on densities of individual hazardous substances provided in *Criteria Working Group*. For TPH components except n-hexane and MTBE, *1996 EPA Soil Screening Guidance: Technical Background Document*.
- 7 **Soil Organic Carbon-Water Partitioning Coefficient.** For aliphatics and aromatics EC groups, *Criteria Working Group*. For TPH components except n-hexane and MTBE, *1996 EPA Soil Screening Guidance: Technical Background Document*.
- 8 **Total Xylenes.** Values for total xylenes are a weighted average of m, o and p xylene based on gasoline composition data from the *Criteria Working Group* (m = 51% of total xylene; o = 28% of total xylene; and p = 21% of total xylene).
- 9 **n-Hexane.** For values other than density, *Criteria Working Group*. For the density value, *Hawley's Condensed Chemical Dictionary*, 11th ed., revised by N. Irving Sax and Richard J. Lewis (1987).
- 10 **MTBE.** *USGS Final Report on Fuel Oxygenates* (March 1996).

**Table 747-5
Residual Saturation Screening Levels
for TPH.**

Fuel	Screening Level (mg/kg)
Weathered Gasoline	1,000
Middle Distillates (e.g., Diesel No. 2 Fuel Oil)	2,000
Heavy Fuel Oils (e.g., No. 6 Fuel Oil)	2,000
Mineral Oil	4,000
Unknown Composition or Type	1,000

Note: The residual saturation screening levels for petroleum hydrocarbons specified in Table 747-5 are based on coarse sand and gravelly soils; however, they may be used for any soil type. Screening levels are based on the presumption that there are no preferential pathways for NAPL to flow downward to groundwater. If such pathways exist, more stringent residual saturation screening levels may need to be established.

**Table 749-1
Simplified Terrestrial Ecological
Evaluation - Exposure Analysis Procedure
under WAC 173-340-7492 (2) (a) (ii).^a**

Estimate the area of contiguous (connected) undeveloped land on the site or within 500 feet of any area of the site to the nearest 1/2 acre (1/4 acre if the area is less than 0.5 acre). "Undeveloped land" means land that is not covered by existing buildings, roads, paved areas or other barriers that will prevent wildlife from feeding on plants, earthworms, insects or other food in or on the soil.	
1) From the table below, find the number of points corresponding to the area and enter this number in the box to the right.	
Area (acres)	Points
0.25 or less	4
0.5	5
1.0	6
1.5	7
2.0	8
2.5	9
3.0	10
3.5	11
4.0 or more	12

2) Is this an industrial or commercial property? See WAC 173-340-7490 (3)(c). If yes, enter a score of 3 in the box to the right. If no, enter a score of 1.
3) Enter a score in the box to the right for the habitat quality of the site, using the rating system shown below ^b . (High = 1, Intermediate = 2, Low = 3)
4) Is the undeveloped land likely to attract wildlife? If yes, enter a score of 1 in the box to the right. If no, enter a score of 2. See footnote c.
5) Are there any of the following soil contaminants present: Chlorinated dibenzo-p-dioxins/dibenzofurans, PCB mixtures, DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosulfan, endrin, heptachlor, benzene hexachloride, toxaphene, hexachlorobenzene, pentachlorophenol, pentachlorobenzene? If yes, enter a score of 1 in the box to the right. If no, enter a score of 4.
6) Add the numbers in the boxes on lines 2 through 5 and enter this number in the box to the right. If this number is larger than the number in the box on line 1, the simplified terrestrial ecological evaluation may be ended under WAC 173-340-7492 (2)(a)(ii).

Footnotes:

- a It is expected that this habitat evaluation will be undertaken by an experienced field biologist. If this is not the case, enter a conservative score (1) for questions 3 and 4.
- b Habitat rating system. Rate the quality of the habitat as high, intermediate or low based on your professional judgment as a field biologist. The following are suggested factors to consider in making this evaluation:
Low: Early successional vegetative stands; vegetation predominantly noxious, nonnative, exotic plant species or weeds. Areas severely disturbed by human activity, including intensively cultivated croplands. Areas isolated from other habitat used by wildlife.
High: Area is ecologically significant for one or more of the following reasons: Late-successional native plant communities present; relatively high species diversity; used by an uncommon or rare species; priority habitat (as defined by the Washington department of fish and wildlife); part of a larger area of habitat where size or fragmentation may be important for the retention of some species.
Intermediate: Area does not rate as either high or low.
- c Indicate "yes" if the area attracts wildlife or is likely to do so. Examples: Birds frequently visit the area to feed; evidence of high use by mammals (tracks, scat, etc.); habitat "island" in an industrial area; unusual features of an area that make it important for feeding animals; heavy use during seasonal migrations.

**Table 749-2
Priority Contaminants of Ecological Concern
for Sites that Qualify for the Simplified
Terrestrial Ecological Evaluation Procedure.**

Priority contaminant	Soil concentration (mg/kg)	
	Unrestricted land use ^b	Industrial or commercial site
METALS^c		
Antimony	See note d	See note d
Arsenic III	20 mg/kg	20 mg/kg
Arsenic V	95 mg/kg	260 mg/kg
Barium	1,250 mg/kg	1,320 mg/kg
Beryllium	25 mg/kg	See note d
Cadmium	25 mg/kg	36 mg/kg
Chromium (total)	42 mg/kg	135 mg/kg
Cobalt	See note d	See note d
Copper	100 mg/kg	550 mg/kg
Lead	220 mg/kg	220 mg/kg
Magnesium	See note d	See note d
Manganese	See note d	23,500 mg/kg
Mercury, inorganic	9 mg/kg	9 mg/kg
Mercury, organic	0.7 mg/kg	0.7 mg/kg
Molybdenum	See note d	71 mg/kg
Nickel	100 mg/kg	1,850 mg/kg

Priority contaminant	Soil concentration (mg/kg)	
	Unrestricted land use ^b	Industrial or commercial site
Selenium	0.8 mg/kg	0.8 mg/kg
Silver	See note d	See note d
Tin	275 mg/kg	See note d
Vanadium	26 mg/kg	See note d
Zinc	270 mg/kg	570 mg/kg
PESTICIDES		
Aldicarb/aldicarb sulfone (total)	See note d	See note d
Aldrin	0.17 mg/kg	0.17 mg/kg
Benzene hexachloride (including lindane)	10 mg/kg	10 mg/kg
Carbofuran	See note d	See note d
Chlordane	1 mg/kg	7 mg/kg
Chlorpyrifos/chlorpyrifos-methyl (total)	See note d	See note d
DDT/DDD/DDE (total)	1 mg/kg	1 mg/kg
Dieldrin	0.17 mg/kg	0.17 mg/kg
Endosulfan	See note d	See note d
Endrin	0.4 mg/kg	0.4 mg/kg
Heptachlor/heptachlor epoxide (total)	0.6 mg/kg	0.6 mg/kg
Hexachlorobenzene	31 mg/kg	31 mg/kg
Parathion/methyl parathion (total)	See note d	See note d
Pentachlorophenol	11 mg/kg	11 mg/kg
Toxaphene	See note d	See note d
OTHER CHLORINATED ORGANICS		
Chlorinated dibenzofurans (total)	3E-06 mg/kg	3E-06 mg/kg
Chlorinated dibenzo-p-dioxins (total)	5E-06 mg/kg	5E-06 mg/kg
Hexachlorophene	See note d	See note d
PCB mixtures (total)	2 mg/kg	2 mg/kg
Pentachlorobenzene	168 mg/kg	See note d
OTHER NONCHLORINATED ORGANICS		
Acenaphthene	See note d	See note d
Benzo(a)pyrene	30 mg/kg	300 mg/kg
Bis (2-ethylhexyl) phthalate	See note d	See note d
Di-n-butyl phthalate	200 mg/kg	See note d
PETROLEUM		
Gasoline Range Organics	200 mg/kg	12,000 mg/kg except that the concentration shall not exceed residual saturation at the soil surface.
Diesel Range Organics	460 mg/kg	15,000 mg/kg except that the concentration shall not exceed residual saturation at the soil surface.

Footnotes:

- a** Caution on misusing these chemical concentration numbers. These values have been developed for use at sites where a site-specific terrestrial ecological evaluation is not required. They are not intended to be protective of terrestrial ecological receptors at every site. Exceedances of the values in this table do not necessarily trigger requirements for cleanup action under this chapter. The table is not intended for purposes such as evaluating sludges or wastes. This list does not imply that sampling must be conducted for each of these chemicals at every site. Sampling should be conducted for those chemicals that might be present based on available information, such as current and past uses of chemicals at the site.

- b Applies to any site that does not meet the definition of industrial or commercial.
- c For arsenic, use the valence state most likely to be appropriate for site conditions, unless laboratory information is available. Where soil conditions alternate between saturated, anaerobic and unsaturated, aerobic states, resulting in the alternating presence of arsenic III and arsenic V, the arsenic III concentrations shall apply.
- d Safe concentration has not yet been established. See WAC 173-340-7492 (2)(c).

Table 749-3

Ecological Indicator Soil Concentrations (mg/kg) for Protection of Terrestrial Plants and Animals^a. For chemicals where a value is not provided, see footnote b.

Note: These values represent soil concentrations that are expected to be protective at any MTCA site and are provided for use in eliminating hazardous substances from further consideration under WAC 173-340-7493 (2)(a)(i). Where these values are exceeded, various options are provided for demonstrating that the hazardous substance does not pose a threat to ecological receptors at a site, or for developing site-specific remedial standards for eliminating threats to ecological receptors. See WAC 173-340-7493 (1)(b)(i), 173-340-7493 (2)(a)(ii) and 173-340-7493(3).

Hazardous Substance ^b	Plants ^c	Soil biota ^d	Wildlife ^e
METALS^f:			
Aluminum (soluble salts)	50		
Antimony	5		
Arsenic III			7
Arsenic V	10	60	132
Barium	500		102
Beryllium	10		
Boron	0.5		
Bromine	10		
Cadmium	4	20	14
Chromium (total)	42 ^g	42 ^g	67
Cobalt	20		
Copper	100	50	217
Fluorine	200		
Iodine	4		
Lead	50	500	118
Lithium	35 ^g		
Manganese	1,100 ^g		1,500
Mercury, inorganic	0.3	0.1	5.5
Mercury, organic			0.4
Molybdenum	2		7
Nickel	30	200	980
Selenium	1	70	0.3
Silver	2		
Technetium	0.2		
Thallium	1		
Tin	50		
Uranium	5		
Vanadium	2		
Zinc	86 ^g	200	360
PESTICIDES:			
Aldrin			0.1
Benzene hexachloride (including lindane)			6
Chlordane		1	2.7
DDT/DDD/DDE (total)			0.75
Dieldrin			0.07

Hazardous Substance^b	Plants^c	Soil biota^d	Wildlife^e
Endrin			0.2
Hexachlorobenzene			17
Heptachlor/ heptachlor epoxide (total)			0.4
Pentachlorophenol	3	6	4.5
OTHER CHLORINATED ORGANICS:			
1,2,3,4- Tetrachlorobenzene		10	
1,2,3- Trichlorobenzene		20	
1,2,4- Trichlorobenzene		20	
1,2-Dichloropropane		700	
1,4-Dichlorobenzene		20	
2,3,4,5- Tetrachlorophenol		20	
2,3,5,6- Tetrachloroaniline	20	20	
2,4,5- Trichloroaniline	20	20	
2,4,5- Trichlorophenol	4	9	
2,4,6- Trichlorophenol		10	
2,4-Dichloroaniline		100	
3,4-Dichloroaniline		20	
3,4-Dichlorophenol	20	20	
3-Chloroaniline	20	30	
3-Chlorophenol	7	10	
Chlorinated dibenzofurans (total)			2E-06
Chloroacetamide		2	
Chlorobenzene		40	
Chlorinated dibenzo- p-dioxins (total)			2E-06
Hexachlorocyclopent adiene	10		
PCB mixtures (total)	40		0.65
Pentachloroaniline		100	
Pentachlorobenzene		20	
OTHER NONCHLORINATED ORGANICS:			
2,4-Dinitrophenol	20		
4-Nitrophenol		7	
Acenaphthene	20		
Benzo(a)pyrene			12
Biphenyl	60		
Diethylphthalate	100		
Dimethylphthalate		200	
Di-n-butyl phthalate	200		
Fluorene		30	
Furan	600		
Nitrobenzene		40	
N- nitrosodiphenylamin e		20	
Phenol	70	30	
Styrene	300		

Hazardous Substance ^b	Plants ^c	Soil biota ^d	Wildlife ^e
Toluene	200		
PETROLEUM:			
Gasoline Range Organics		100	5,000 mg/kg except that the concentration shall not exceed residual saturation at the soil surface.
Diesel Range Organics		200	6,000 mg/kg except that the concentration shall not exceed residual saturation at the soil surface.

Footnotes:

- a Caution on misusing ecological indicator concentrations. Exceedances of the values in this table do not necessarily trigger requirements for cleanup action under this chapter. Natural background concentrations may be substituted for ecological indicator concentrations provided in this table. The table is not intended for purposes such as evaluating sludges or wastes. This list does not imply that sampling must be conducted for each of these chemicals at every site. Sampling should be conducted for those chemicals that might be present based on available information, such as current and past uses of chemicals at the site.
- b For hazardous substances where a value is not provided, plant and soil biota indicator concentrations shall be based on a literature survey conducted in accordance with WAC 173-340-7493(4) and calculated using methods described in the publications listed below in footnotes c and d. Methods to be used for developing wildlife indicator concentrations are described in Tables 749-4 and 749-5.
- c Based on benchmarks published in *Toxicological Benchmarks for Screening Potential Contaminants of Concern for Effects on Terrestrial Plants: 1997 Revision*, Oak Ridge National Laboratory, 1997.
- d Based on benchmarks published in *Toxicological Benchmarks for Potential Contaminants of Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process*, Oak Ridge National Laboratory, 1997.
- e Calculated using the exposure model provided in Table 749-4 and chemical-specific values provided in Table 749-5. Where both avian and mammalian values are available, the wildlife value is the lower of the two.
- f For arsenic, use the valence state most likely to be appropriate for site conditions, unless laboratory information is available. Where soil conditions alternate between saturated, anaerobic and unsaturated, aerobic states, resulting in the alternating presence of arsenic III and arsenic V, the arsenic III concentrations shall apply.
- g Benchmark replaced by Washington state natural background concentration.

**Table 749-4
Wildlife Exposure Model for Site-specific Evaluations.^a**

Plant	
K _{Plant}	Plant uptake coefficient (dry weight basis)
	Units: mg/kg plant/mg/kg soil
	Value: chemical-specific (see Table 749-5)
Soil biota	
Surrogate receptor: Earthworm	
BAF _{Worm}	Earthworm bioaccumulation factor (dry weight basis)
	Units: mg/kg worm/mg/kg soil
	Value: chemical-specific (see Table 749-5)
Mammalian predator	
Surrogate receptor: Shrew (<i>Sorex</i>)	
P _{SB (shrew)}	Proportion of contaminated food (earthworms) in shrew diet
	Units: unitless
	Value: 0.50
FIR _{Shrew, DW}	Food ingestion rate (dry weight basis)
	Units: kg dry food/kg body weight - day
	Value: 0.45
SIR _{Shrew, DW}	Soil ingestion rate (dry weight basis)
	Units: kg dry soil/kg body weight - day
	Value: 0.0045
RGAF _{Soil, shrew}	Gut absorption factor for a hazardous substance in soil expressed relative to the gut absorption factor for the hazardous substance in food.

	Units: unitless
	Value: chemical-specific (see Table 749-5)
T_{Shrew}	Toxicity reference value for shrew
	Units: mg/kg - day
	Value: chemical-specific (see Table 749-5)
Home range	0.1 Acres
Avian predator	
Surrogate receptor: American robin (<i>Turdus migratorius</i>)	
$P_{\text{SB (Robin)}}$	Proportion of contaminated food (soil biota) in robin diet
	Unit: unitless
	Value: 0.52
$\text{FIR}_{\text{Robin, DW}}$	Food ingestion rate (dry weight basis)
	Units: kg dry food/kg body weight - day
	Value: 0.207
$\text{SIR}_{\text{Robin, DW}}$	Soil ingestion rate (dry weight basis)
	Units: kg dry soil/kg body weight - day
	Value: 0.0215
$\text{RGAF}_{\text{Soil, robin}}$	Gut absorption factor for a hazardous substance in soil expressed relative to the gut absorption factor for the hazardous substance in food.
	Units: unitless
	Value: chemical-specific (see Table 749-5)
T_{Robin}	Toxicity reference value for robin
	Units: mg/kg - day
	Value: chemical-specific (see Table 749-5)
Home range	0.6 Acres
Mammalian herbivore	
Surrogate receptor: Vole (<i>Microtus</i>)	
$P_{\text{Plant, vole}}$	Proportion of contaminated food (plants) in vole diet
	Units: unitless
	Value: 1.0
$\text{FIR}_{\text{Vole, DW}}$	Food ingestion rate (dry weight basis)
	Units: kg dry food/kg body weight - day
	Value: 0.315
$\text{SIR}_{\text{Vole, DW}}$	Soil ingestion rate (dry weight basis)
	Units: kg dry soil/kg body weight - day
	Value: 0.0079
$\text{RGAF}_{\text{Soil, vole}}$	Gut absorption factor for a hazardous substance in soil expressed relative to the gut absorption factor for the hazardous substance in food.
	Units: unitless
	Value: chemical-specific (see Table 749-5)
T_{Vole}	Toxicity reference value for vole
	Units: mg/kg - day
	Value: chemical-specific (see Table 749-5)
Home range	0.08 Acres
Soil concentrations for wildlife protection^b	
(1) Mammalian predator:	

$SC_{MP} = (T_{Shrew}) / [(FIR_{Shrew, DW} \times P_{SB (shrew)} \times BAF_{Worm}) + (SIR_{Shrew, DW} \times RGAF_{Soil, shrew})]$
(2) Avian predator: $SC_{AP} = (T_{Robin}) / [(FIR_{Robin, DW} \times P_{SB (Robin)} \times BAF_{Worm}) + (SIR_{Robin, DW} \times RGAF_{Soil, robin})]$
(3) Mammalian herbivore: $SC_{MH} = (T_{Vole}) / [(FIR_{Vole, DW} \times P_{Plant, vole} \times K_{Plant}) + (SIR_{Vole, DW} \times RGAF_{Soil, vole})]$

Footnotes:

- a Substitutions for default receptors may be made as provided for in WAC 173-340-7493(7). If a substitute species is used, the values for food and soil ingestion rates, and proportion of contaminated food in the diet, may be modified to reasonable maximum exposure estimates for the substitute species based on a literature search conducted in accordance with WAC 173-340-7493(4). Additional species may be added on a site-specific basis as provided in WAC 173-340-7493 (2)(a). The department shall consider proposals for modifications to default values provided in this table based on new scientific information in accordance with WAC 173-340-702(14).
- b Use the lowest of the three concentrations calculated as the wildlife value.

**Table 749-5
Default Values for Selected Hazardous Substances for use with the Wildlife Exposure Model in Table 749-4.^a**

Hazardous Substance	Toxicity reference value (mg/kg - d)				
	BAF _{Worm}	K _{Plant}	Shrew	Vole	Robin
METALS:					
Arsenic III	1.16	0.06	1.89	1.15	
Arsenic V	1.16	0.06	35	35	22
Barium	0.36		43.5	33.3	
Cadmium	4.6	0.14	15	15	20
Chromium	0.49		35.2	29.6	5
Copper	0.88	0.020	44	33.6	61.7
Lead	0.69	0.0047	20	20	11.3
Manganese	0.29		624	477	
Mercury, inorganic	1.32	0.0854	2.86	2.18	0.9
Mercury, organic	1.32		0.352	0.27	0.064
Molybdenum	0.48	1.01	3.09	2.36	35.3
Nickel	0.78	0.047	175.8	134.4	107
Selenium	10.5	0.0065	0.725	0.55	1
Zinc	3.19	0.095	703.3	537.4	131
PESTICIDES:					
Aldrine	4.77	0.007 ^b	2.198	1.68	0.06
Benzene hexachloride (including lindane)	10.1				7
Chlordane	17.8	0.011 ^b	10.9	8.36	10.7
DDT/DDD/DDE	10.6	0.004 ^b	8.79	6.72	0.87
Dieldrin	28.8	0.029 ^b	0.44	0.34	4.37
Endrin	3.6	0.038 ^b	1.094	0.836	0.1
Heptachlor/heptachlor epoxide	10.9	0.027 ^b	2.857	2.18	0.48
Hexachlorobenzene	1.08				2.4
Pentachlorophenol	5.18	0.043 ^b	5.275	4.03	
OTHER CHLORINATED ORGANICS:					
Chlorinated dibenzofurans	48				1.0E-05
Chlorinated dibenzo-p-dioxins	48	0.005 ^b	2.2E-05	1.7E-05	1.4E-04
PCB mixtures	4.58	0.087 ^b	0.668	0.51	1.8
OTHER NONCHLORINATED ORGANICS:					

Hazardous Substance	Toxicity reference value (mg/kg - d)				
	BAF _{Worm}	K _{Plant}	Shrew	Vole	Robin
Benzo(a)pyrene	0.43	0.011	1.19	0.91	

Footnotes:

- a** For hazardous substances not shown in this table, use the following default values. Alternatively, use values established from a literature survey conducted in accordance with WAC 173-340-7493(4) and approved by the department.
- K_{Plant}:** Metals (including metalloid elements): 1.01
Organic chemicals: $K_{Plant} = 10^{(1.588 - (0.578 \log K_{ow}))}$,
where $\log K_{ow}$ is the logarithm of the octanol-water partition coefficient.
- BAF_{Worm}:** Metals (including metalloid elements): 4.6
Nonchlorinated organic chemicals:
 $\log K_{ow} < 5$: 0.7
 $\log K_{ow} > 5$: 0.9
Chlorinated organic chemicals:
 $\log K_{ow} < 5$: 4.7
 $\log K_{ow} > 5$: 11.8
- RGAF_{Soil}** (all receptors): 1.0
Toxicity reference values (all receptors): Values established from a literature survey conducted in accordance with WAC 173-340-7493(4).
Site-specific values may be substituted for default values, as described below:
- K_{Plant}** Value from a literature survey conducted in accordance with WAC 173-340-7493(4) or from empirical studies at the site.
BAF_{Worm} Value from a literature survey conducted in accordance with WAC 173-340-7493(4) or from empirical studies at the site.
RGAF_{Soil} (all receptors): Value established from a literature survey conducted in accordance with WAC 173-340-7493(4).
Toxicity reference values (all receptors): Default toxicity reference values provided in this table may be replaced by a value established from a literature survey conducted in accordance with WAC 173-340-7493(4).
- b** Calculated from $\log K_{ow}$ using formula in footnote a.

**Table 830-1
Required Testing for Petroleum Releases.**

	Gasoline Range Organics (GRO) (1)	Diesel Range Organics (DRO) (2)	Heavy Oils (DRO) (3)	Mineral Oils (4)	Waste Oils and Unknown Oils (5)
Volatile Petroleum Compounds					
Benzene	X ⁽⁶⁾	X ⁽⁷⁾			X ⁽⁸⁾
Toluene	X ⁽⁶⁾	X ⁽⁷⁾			X ⁽⁸⁾
Ethyl benzene	X ⁽⁶⁾	X ⁽⁷⁾			X ⁽⁸⁾
Xylenes	X ⁽⁶⁾	X ⁽⁷⁾			X ⁽⁸⁾
n-Hexane	X ⁽⁹⁾				
Fuel Additives and Blending Compounds					
Dibromoethane, 1-2 (EDB); and Dichloroethane, 1-2 (EDC)	X ⁽¹⁰⁾				X ⁽⁸⁾
Methyl tertiary-butyl ether (MTBE)	X ⁽¹¹⁾				X ⁽⁸⁾
Total lead & other additives	X ⁽¹²⁾				X ⁽⁸⁾
Other Petroleum Components					
Carcinogenic PAHs		X ⁽¹³⁾	X ⁽¹³⁾		X ⁽⁸⁾
Naphthalenes	X ⁽¹⁴⁾	X ⁽¹⁴⁾	X ⁽¹⁴⁾		X ⁽¹⁴⁾
Other Compounds					
Polychlorinated Biphenyls (PCBs)			X ⁽¹⁵⁾	X ⁽¹⁵⁾	X ⁽⁸⁾
Halogenated Volatile Organic Compounds (VOCs)					X ⁽⁸⁾
Other	X ⁽¹⁶⁾	X ⁽¹⁶⁾	X ⁽¹⁶⁾	X ⁽¹⁶⁾	X ⁽¹⁶⁾
Total Petroleum Hydrocarbons Methods					

	Gasoline Range Organics (GRO) (1)	Diesel Range Organics (DRO) (2)	Heavy Oils (DRO) (3)	Mineral Oils (4)	Waste Oils and Unknown Oils (5)
TPH Analytical Method for Total TPH (Method A Cleanup Levels) (17)	NWTPH-Gx	NWTPH-Dx	NWTPH-Dx	NWTPH-Dx	NWTPH-Gx & NWTPH-Dx
TPH Analytical Methods for TPH fractions (Methods B or C) (17)	VPH	EPH	EPH	EPH	VPH and EPH

Use of Table 830-1: An "X" in the box means that the testing requirement applies to groundwater and soil if a release is known or suspected to have occurred to that medium, unless otherwise specified in the footnotes. A box with no "X" indicates (except in the last two rows) that, for the type of petroleum product release indicated in the top row, analyses for the hazardous substance(s) named in the far-left column corresponding to the empty box are not typically required as part of the testing for petroleum releases. However, such analyses may be required based on other site-specific information. Note that testing for Total Petroleum Hydrocarbons (TPH) is required for every type of petroleum release, as indicated in the bottom two rows of the table. The testing method for TPH depends on the type of petroleum product released and whether Method A or Method B or C is being used to determine TPH cleanup levels. See WAC 173-340-830 for analytical procedures. **The footnotes to this table are important for understanding the specific analytical requirements for petroleum releases.**

Footnotes:

- (1) The following petroleum products are common examples of GRO: automotive and aviation gasolines, mineral spirits, stoddard solvents, and naphtha. To be in this range, 90 percent of the petroleum components need to be quantifiable using the NWTPH-Gx; if NWTPH-HCID results are used for this determination, then 90 percent of the "area under the TPH curve" must be quantifiable using NWTPH-Gx. Products such as jet fuel, diesel No. 1, kerosene, and heating oil may require analysis as both GRO and DRO depending on the range of petroleum components present (range can be measured by NWTPH-HCID). (See footnote 17 on analytical methods.)
- (2) The following petroleum products are common examples of DRO: Diesel No. 2, fuel oil No. 2, light oil (including some bunker oils). To be in this range, 90 percent of the petroleum components need to be quantifiable using the NWTPH-Dx quantified against a diesel standard. Products such as jet fuel, diesel No. 1, kerosene, and heating oil may require analysis as both GRO and DRO depending on the range of petroleum components present as measured in NWTPH-HCID.
- (3) The following petroleum products are common examples of the heavy oil group: Motor oils, lube oils, hydraulic fluids, etc. Heavier oils may require the addition of an appropriate oil range standard for quantification.
- (4) Mineral oil means non-PCB mineral oil, typically used as an insulator and coolant in electrical devices such as transformers and capacitors.
- (5) The waste oil category applies to waste oil, oily wastes, and unknown petroleum products and mixtures of petroleum and nonpetroleum substances. Analysis of other chemical components (such as solvents) than those listed may be required based on site-specific information. Mixtures of identifiable petroleum products (such as gasoline and diesel, or diesel and motor oil) may be analyzed based on the presence of the individual products, and need not be treated as waste and unknown oils.
- (6) When using Method A, testing soil for benzene is required. Furthermore, testing groundwater for BTEX is necessary when a petroleum release to groundwater is known or suspected. If the groundwater is tested and toluene, ethyl benzene or xylene is in the groundwater above its respective Method A cleanup level, the soil must also be tested for that chemical. When using Method B or C, testing the soil for BTEX is required and testing for BTEX in groundwater is required when a release to groundwater is known or suspected.
- (7)(a) For DRO releases from other than home heating oil systems, follow the instructions for GRO releases in Footnote (6).
- (b) For DRO releases from typical home heating oil systems (systems of 1,100 gallons or less storing heating oil for residential consumptive use on the premises where stored), testing for BTEX is not usually required for either groundwater or soil. Testing of the groundwater is also not usually required for these systems; however, if the groundwater is tested and benzene is found in the groundwater, the soil must be tested for benzene.
- (8) Testing is required in a sufficient number of samples to determine whether this chemical is present at concentrations of concern. If the chemical is found to be at levels below the applicable cleanup level, then no further analysis is required.
- (9) Testing for n-hexane is required when VPH analysis is performed for Method B or C. In this case, the concentration of n-hexane should be deleted from its respective fraction to avoid double-counting its concentration. n-Hexane's contribution to overall toxicity is then evaluated using its own reference dose.
- (10) Volatile fuel additives (such as dibromoethane, 1 - 2 (EDB) (CAS# 106-93-4) and dichloroethane, 1 - 2 (EDC) (CAS# 107-06-2)) must be part of a volatile organics analysis (VOA) of GRO contaminated groundwater. If any is found in groundwater, then the contaminated soil must also be tested for these chemicals.
- (11) Methyl tertiary-butyl ether (MTBE) (CAS# 1634-04-4) must be analyzed in GRO contaminated groundwater. If any is found in groundwater, then the contaminated soil must also be tested for MTBE.
- (12)(a) For automotive gasoline where the release occurred prior to 1996 (when "leaded gasoline" was used), testing for lead is required unless it can be demonstrated that lead was not part of the release. If this demonstration cannot be made, testing is required in a sufficient number of samples to determine whether lead is present at concentrations of concern. Other additives and blending compounds of potential environmental significance may need to be considered for testing, including: tertiary-butyl alcohol (TBA); tertiary-amyl methyl ether (TAME); ethyl tertiary-butyl ether (ETBE); ethanol; and methanol. Contact the department for additional testing recommendations regarding these and other additives and blending compounds.
- (b) For aviation gasoline, racing fuels and similar products, testing is required for likely fuel additives (especially lead) and likely blending compounds, no matter when the release occurred.
- (13) Testing for carcinogenic PAHs is required for DRO and heavy oils, except for the following products for which adequate information exists to indicate their absence: Diesel No. 1 and 2, home heating oil, kerosene, jet fuels, and electrical insulating mineral oils. The carcinogenic PAHs include benzo(a)pyrene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, benzo(k)fluoranthene, benzo(a)anthracene, and benzo(b)fluoranthene.
- (14)(a) Except as noted in (b) and (c), testing for the noncarcinogenic PAHs, including the "naphthalenes" (naphthalene, 1-methyl-naphthalene, and 2-methyl-naphthalene) is not required when using Method A cleanup levels, because they are included in the TPH cleanup level.
- (b) Testing of soil for naphthalenes is required under Methods B and C when the inhalation exposure pathway is evaluated.
- (c) If naphthalenes are found in groundwater, then the soil must also be tested for naphthalenes.
- (15) Testing for PCBs is required unless it can be demonstrated that: (1) The release originated from an electrical device manufactured for use in the United States after July 1, 1979; (2) oil containing PCBs was never used in the equipment suspected as the source of the release (examples of equipment where PCBs are likely to be found include transformers, electric motors, hydraulic systems, heat transfer systems, electromagnets, compressors, capacitors, switches and miscellaneous other electrical devices); or, (3) the oil released was recently tested and did not contain PCBs.
- (16) Testing for other possible chemical contaminants may be required based on site-specific information.

- (17) The analytical methods NWTPH-Gx, NWTPH-Dx, NWTPH-HCID, VPH, and EPH are methods published by the department of ecology and available on the department's internet website: <http://www.ecy.wa.gov/programs/tcp/cleanup.html>.

[Statutory Authority: RCW 70.105D.030(2). WSR 07-21-065 (Order 06-10), § 173-340-900, filed 10/12/07, effective 11/12/07. Statutory Authority: Chapter 70.105D RCW. WSR 01-05-024 (Order 97-09A), § 173-340-900, filed 2/12/01, effective 8/15/01.]

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency.

Appendix L

Critical Areas
Development
Permit (To be
issued at a later
date)