Final Public Review Draft
Cleanup Action Plan
UW Mount Baker Laundry Site/Mount Baker Station Development

2901 27th Avenue South, Seattle, Washington
Facility Site ID 19911937, Cleanup Site ID 17017

Toxics Cleanup Program

Washington Department of Ecology
Shoreline, Washington

April 2026

Document Information

This document is available in the Department of Ecology's UW Mount Baker Laundry cleanup site webpage[1].

Related Information

- Cleanup site ID: 17017
- Facility site ID: 19911937

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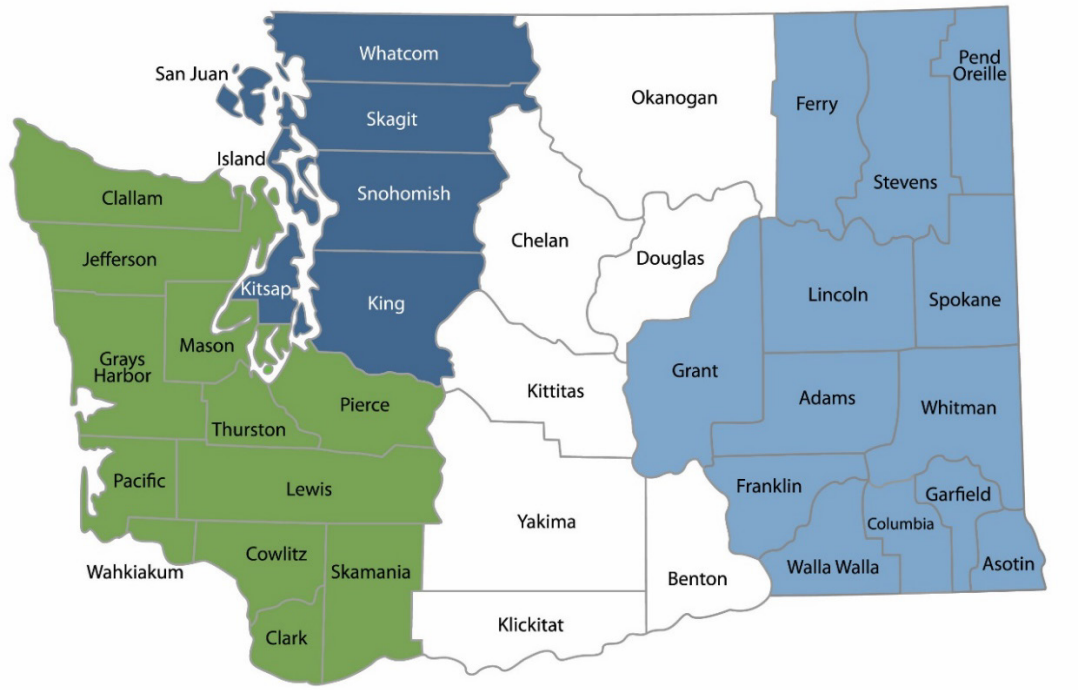
[1] https://apps.ecology.wa.gov/cleanupsearch/site/17017
[2] https://ecology.wa.gov/About-us/Who-we-are/Our-Programs/Toxics-Cleanup
[3] https://ecology.wa.gov/ADA

Department of Ecology's Region Offices

Map of Counties Served



Southwest Region 360-407-6300	Northwest Region 206-594-0000	Central Region 509-575-2490	Eastern Region 509-329-3400

Region	Counties served	Mailing Address	Phone
Southwest	Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Mason, Lewis, Pacific, Pierce, Skamania, Thurston, Wahkiakum	PO Box 47775 Olympia, WA 98504	360-407-6300
Northwest	Island, King, Kitsap, San Juan, Skagit, Snohomish, Whatcom	PO Box 330316 Shoreline, WA 98133	206-594-0000
Central	Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, Yakima	1250 W Alder St Union Gap, WA 98903	509-575-2490
Eastern	Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman	4601 N Monroe Spokane, WA 99205	509-329-3400
Headquarters	Across Washington	PO Box 47600 Olympia, WA 98504	360-407-6000

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Introduction

This report presents the Washington Department of Ecology's (Ecology) proposed cleanup action for the UW Mount Baker Laundry (Site). The general location of the Site is shown in Figure A.1. Site map in Appendix A.

Ecology is responsible for selecting the cleanup action and completing the Cleanup Action Plan (CAP). The selected cleanup action is intended to fulfill the requirements of the Model Toxics Control Act (MTCA) and is a required part of the cleanup process under the following regulations and statute:

- MTCA, Chapter 70A.305 Revised Code of Washington (RCW).
- MTCA Cleanup Regulation, Chapter 173-340 of the Washington Administrative Code (WAC).

The purpose of the CAP is to identify the proposed cleanup action for the Site and to provide an explanatory document for public review that:

- Describes the history of operations, ownership, and activities at the Site
- Summarizes nature and extent of contamination
- Summarizes the cleanup action alternatives considered in the remedy selection process
- Identifies site-specific cleanup levels (CULs) and points of compliance for each hazardous substance and medium of concern for the proposed cleanup action
- Identifies applicable state and federal laws for the proposed cleanup action
- Describes the selected cleanup action for the site and the rational for selecting this alternative
- Identifies residual contamination remaining on the site after cleanup and restrictions on future uses and activities at the site to ensure continued protection of human health and the environment
- Discusses any required compliance monitoring and institutional controls
- Presents the schedule for implementing the CAP

Declaration

Ecology has selected this remedy because it will be protective of human health and the environment. Furthermore, the selected remedy is consistent with the State of Washington's preference for permanent solutions, as stated in RCW 70A.305.040(1)(b). However, we will consider all public input before making the CAP final.

Applicability

Cleanup standards specified in this CAP are applicable only to the UW Mount Baker Site. They were developed as a part of an overall remediation process under Ecology oversight using the authority of MTCA and should not be considered as setting precedents for other sites.

Administrative Record

The documents used to make the decisions discussed in this CAP are on file in the administrative record for the Site. Major documents are listed in the References section. The entire administrative record for the Site is available for public review by appointment at Ecology's Northwest Regional Office, located at 15700 Dayton Ave N, Shoreline, Washington, 98133. Results from applicable studies and reports are summarized to provide background information pertinent to the CAP. These studies and reports include:

- Phase I Environmental Site Assessment, UW Laundry Property, 2901 27th Avenue South, Seattle, Washington. Prepared for City of Seattle. October, 2019.
- Phase II Environmental Site Assessment, UW Laundry Property, 2901 27th Avenue South, Seattle, Washington. Prepared for City of Seattle. December, 2019.
- Geotechnical Engineering Services Phase 1 Report, Mount Baker Transit Oriented Development, Seattle, Washington. Prepared for Mercy Housing Northwest. September, 2025.
- Agency Review Draft, Remedial Investigation/Feasibility Study, UW Mount Baker Laundry Study/Mount Baker Station Development, 2901 27th Avenue South, Seattle, Washington. Prepared for Washington State Department of Ecology on behalf of Mercy Housing. February, 2026.

Cleanup Process

Cleanup conducted under the MTCA process requires the PLPs or Ecology to prepare specific documents. These procedural tasks and resulting documents, along with the MTCA section requiring their completion, are listed below with a brief description of each task.

- Public Participation Plan (WAC 173-340-600) — summarizes the methods that will be implemented to encourage coordinated and effective public involvement. Ecology prepares this document.
- RI/FS (WAC 173-340-350) — documents the investigations and evaluations conducted at the Site from the discovery phase to the RI/FS document. The RI collects and presents information on the nature and extent of contamination and the risks posed by the contamination. The FS presents and evaluates Site cleanup alternatives and may propose a preferred cleanup alternative. The documents are usually prepared by the PLPs, accepted by Ecology, and undergo public comment.
- CAP (WAC 173-340-380) — sets cleanup standards for the Site, and selects the cleanup actions intended to achieve the cleanup standards. Ecology issues the document, and it undergoes public comment.
- Engineering Design Report, Construction Plans and Specifications (WAC 173-340-400) — outlines details of the selected cleanup action, including any engineered systems and design components from the CAP. These may include construction plans and specifications with technical drawings. The PLPs usually prepare the document, and Ecology approves it. Public comment is optional.

- Operation and Maintenance Plan(s) (WAC 173-340-400) — summarizes the requirements for inspection and maintenance of remediation operations. They include any actions required to operate and maintain equipment, structures, or other remedial systems. The PLPs usually prepare the document, and Ecology approves it.
- Cleanup Action Report (WAC 173-340-400) — provides details on the cleanup activities along with documentation of adherence to or variance from the CAP following implementation of the cleanup action. The PLPs usually prepare the document, and Ecology approves it.
- Compliance Monitoring Plan (WAC 173-340-410) — details the monitoring activities required to ensure the cleanup action is performing as intended. The PLPs usually prepare the document, and Ecology approves it.

Site Background

This section summarizes the Site's history, investigations of contamination issues, and physical characteristics.

History

The Mount Baker Station Development Property is located at 2901 27th Avenue South, Seattle, and is owned by the City of Seattle (King County Parcel Nos. 308500-2100, 713830-0015, and 713880-0025). The Property is currently zoned for commercial use and is occupied by asphalt parking lots, a concrete slab, and one vacant building. A location map and Site boundaries are provided as Figures A-1 and A-2.

The Property was originally developed by 1916 with a single-family residence in the northeastern portion, which was demolished by 1950. In 1957 a bowling alley (Building 1) was constructed on the northern portion of the Property and operated as Rainier Lanes until it was purchased by the University of Washington (UW) in 1983 and converted to the UW consolidated laundry, which operated as an industrial-sized laundry from at least 1983 until 2009. While the laundry did not conduct dry cleaning, records indicate that solvents and hazardous materials were removed from the Property approximately a decade after bowling alley operations ceased. A second building (Building 2) was built centrally in 1963 and occupied by A and P Food Stores, later Value Village, Grocery Outlet, and finally as the UW Kings Hall until its demolition in 2025 for planned redevelopment. A concrete slab remains at the former location of Building 2.

The UW Mount Baker Laundry Site is listed in the Washington State Department of Ecology's database of confirmed and suspected contaminated sites (Facility/Site ID No. 19911937; Cleanup Site ID No. 17017). Ecology's Contaminated Site Register includes all three City of Seattle owned parcels that make up the Property as part of the Site; however, contamination exceeding MTCA cleanup levels was not identified on Parcel 713830-0015 based on the findings of the RI, thus the Site is limited to King County Tax Parcels 308500-2100 and 713880-0025. The Site is enrolled in the Affordable Housing Cleanup Grant program administered by Ecology, as

Grant Number OTGP-2025-MHNW-00084. Mercy Housing Northwest and El Centro de la Raza intend to redevelop the Property into a mixed-use affordable family rental housing project. Mercy Housing Northwest and El Centro de la Raza have entered a partnership, MBTOD Phase One LLLP, and are negotiating a Prospective Purchaser Consent Decree (PPCD) with Ecology. The remedial actions described in this CAP would be conducted by those parties pursuant to the PPCD. The first phase of construction, including residential and early learning community space, is targeted to begin in 2026. Site cleanup will occur concurrently with initial redevelopment.

Surrounding property use is generally mixed-use, with retail, restaurants, office buildings, high-density residential structures, Seattle Parks and Recreation Department properties, and the Sound Transit Link Light Rail in proximity. Immediate neighbors include commercial buildings and South McClellan Street to the north, Cheasty Boulevard and mixed commercial/residential use to the south, 27th Avenue South with the Mount Baker Light Rail Station to the east, and Cheasty Greenspace to the west.

Environmental investigations, including a 2019 Phase II ESA and a 2025 Remedial Investigation , have identified contaminant impacts primarily in the northern and northeastern portions of the Site. These areas of the Site are identified as Remedial Areas 1 and 2 (see Figures A-2 and A-3). A cross section of Remedial Areas 1 and 2 is presented as Figure A-4. Contaminants of concern exceeding MTCA regulatory cleanup levels include lead, and oil-range total petroleum hydrocarbon (TPH-O) in soil. Concentrations of diesel-range total petroleum hydrocarbons (TPH-D) and TPH-O exceeded MTCA regulatory cleanup levels in some groundwater samples collected from soil borings; however, TPH-D and TPH-O have not been detected in groundwater samples collected from monitoring wells at the Site. The results of RI groundwater monitoring performed at the Site preliminarily demonstrate that shallow groundwater at the Site is not contaminated. This conclusion will be further informed by the results of additional RI groundwater monitoring.

These impacts are associated with historical operations, imported fill, and a former underground storage tank (UST).

Investigations

2019 Phase I ESA

Sound Earth Strategies, Inc. (SES) conducted a Phase I Environmental Site Assessment (ESA) in 2019 for King County Parcel Nos. 308500-2100 and 713880-0025 (SES, 2019a). The Phase I ESA identified the following recognized environmental conditions (RECs) in connection with Parcels:

- Fuel Oil UST on the Property. A 4,000-gallon fuel oil UST was reported to be present on the northern portion of the Property. No records of decommissioning were found. Database records list the installation date as January 1964, which is the default date for an unknown installation. Building records indicate that the UST was used to fuel two boilers located in the northern portion of Building 1; however, an interviewee indicated that the tank was used to store fuel for an offsite generator. The use and storage of fuel

oil on the Property is considered a REC for the Site. A ground penetrating radar (GPR) survey conducted during the Phase II ESA did not identify the UST.

- Bowling alley operations on the Property. Between 1957 and at least 1980, Building 1 was occupied by a bowling alley. During this era, chlorinated solvents and petroleum-based solvents were commonly used to clean equipment in bowling alleys. The possibility of a release during the use and storage of these materials is considered a REC for the Site.
- Laundry facility operations on the Property. Building 1 was converted to an industrial laundry facility in 1983, and operated until 2019. Interviewees state that no dry-cleaning operations occurred on the Property; however, records confirm that hazardous waste was removed from the Property while the laundry was operational. The former laundry operations are considered a REC for the Site.
- Fill material beneath the Property**.** Records indicate that 5,200 cubic yards of fill material were used during grading of the Property in approximately 1983. The source and quality of this fill material is unknown and constitutes a REC for the Property.

2019 Phase II ESA

In 2019, SES (2019b) conducted a limited subsurface investigation at the Property to investigate the RECs identified in the Phase I ESA. Eighteen soil borings (identified as P01 through P18) were advanced to depths of 15 to 25 feet below ground surface (bgs). The 2019 Phase II ESA boring locations are shown in Figure A-2. Soil samples were collected from each boring at depths of 5 to 20 feet bgs and analyzed for volatile organic compounds (VOCs), metals, cPAHs and petroleum hydrocarbons. Eleven grab groundwater samples were collected from the borings and analyzed for VOCs and petroleum hydrocarbons. A focused GPR survey was completed in an attempt to locate the UST situated on the northern portion of the Property, but the GPR survey did not identify the UST location.

- Soil - TPH-O was detected in the soil sample collected from 10 feet bgs in boring P13, located in the northeast corner of the Property, at a concentration of 3,700 milligrams per kilogram (mg/kg), which exceeds the MTCA Method A CUL of 2,000 mg/kg. TPH-D, TPH-O, and lead were detected at concentrations less than MTCA Method A CULs in several other soil samples. The TPH-impacted soil in the northeastern portion of the Property may be associated with the fill material placed at the Property in approximately 1983.
- Groundwater - TPH-D and TPH-O were detected in the grab groundwater sample collected from boring P13 at concentrations of 910 and 520 micrograms per liter (µg/L), respectively). These concentrations exceed the MTCA Method A CULs of 500 µg/L. The TPH-impacted groundwater in the northeastern portion of the Property may be associated with the fill material placed at the Property in approximately 1983. TPH-D was detected in the grab groundwater sample collected from boring P16, located adjacent to the 4,000-gallon fuel oil UST, at a concentration of 1,800 µg/L, which is greater than the MTCA Method A CUL of 500 µg/L. TPH was detected in several other grab groundwater samples, but at concentrations less than the applicable CULs. No other analytes were detected at concentrations greater than the laboratory recording

limits (RLs) in the 2019 Phase II ESA grab groundwater samples. The TPH-impacted groundwater at the location of boring P16 may be related to the adjacent UST.

2025 Remedial Investigation

In 2025, GeoEngineers conducted an RI at the Property in accordance with WAC 173-340-350(7) to characterize geological and hydrogeological conditions at the Site; evaluate potential environmental conditions resulting from historical operations at the Site; and further evaluate the nature and extent of environmental media with contaminants of concern (COCs) at concentrations greater than the MTCA Method A CULs at the Site. The findings of the RI are summarized in the "Remedial Investigation" section below and indicate that the majority of the Site is located within the Property boundary. Detailed results are also presented in the Agency Review Draft Remedial Investigation/Feasibility Study, which was submitted to Ecology's Toxics Cleanup Program in February 2026 (GeoEngineers 2026b). At the time of this report, Ecology's review and public comment periods were still pending.

2025 PPCD

The parties that may take an ownership interest in the Site and conduct cleanup and redevelopment are negotiating a Prospective Purchaser Consent Decree (PPCD) with Ecology. The remedial actions described in this CAP would be conducted by those parties pursuant to the PPCD.

Under the PPCD, MBTOD Phase One LLLP entered into a consent decree with Ecology, agreeing to conduct site investigations and implement necessary remedial actions under regulatory oversight. The PPCD enrollment ensures that the Site remediation and redevelopment activities will proceed in accordance with applicable state requirements, while also providing the property owner with assurances regarding future liability for cleanup actions completed under the PPCD.

Physical Characteristics

Topography and Climate

Topography

The Site topography generally descends from west to east, with the highest elevation at the southwest corner at approximately Elevation 90 feet and the lowest elevation at approximately Elevation 54 feet near the northeast corner (GeoEngineers 2026b).

Climate

The Seattle region has a maritime climate, with warm winters and cool summers. The average annual low temperature is 45 degrees Fahrenheit (°F) and 59°F is the average annual high temperature; Seattle receives 34 inches of precipitation on average every year, with the majority falling between the months of October and March (U.S. Climate Data 2024).

Regional Geology and Hydrogeology

Regional Geology

Subsurface investigations at the Site, including the installation of environmental and geotechnical borings and wells, indicate that soils generally consist of anthropogenic fill materials—such as sand with variable amounts of silt and gravel, silt, and occasional wood and brick fragments—extending to depths of up to 10 feet bgs. The fill overlies natural alluvial (recessional lacustrine) deposits composed mainly of clay with variable silt and sand, which in turn are underlain by Vashon-age glacial deposits of silt, sand, gravel, and clay (GeoEngineers 2025b, GeoEngineers 2026b).

Regional Hydrogeology

Shallow groundwater was encountered at depths ranging from approximately 3.7 to 11.9 feet bgs in monitoring wells screened within the upper 15 feet of soil, reflecting a perched aquifer above the low-permeability clay layer. The shallow aquifer generally flows to the southeast, consistent with regional trends, but localized confinement by fill material creates variations in groundwater levels across the Site. Deeper monitoring wells installed below the confining clay layer indicate the presence of a deeper, confined, and pressurized aquifer, which also exhibits a general eastward groundwater flow direction. These flow directions and observed gradients are consistent with those documented by quarterly groundwater monitoring events (GeoEngineers 2025b, GeoEngineers 2026b).

Remedial Investigation

An RI was performed to assess the nature and extent of contamination. Soil and groundwater were investigated to determine whether they were impacted by Site contaminants. Additional information regarding Site activities, sampling, analyses, and methodology is contained in the RI/FS (GeoEngineers 2026b).

Soil

In February, March, and December 2025, GeoEngineers conducted remedial investigation activities at the Property. A total of 42 soil samples were collected for chemical analysis from 18 borings advanced using direct-push and hollow-stem auger methods. Initial subsurface exploration included five direct-push borings, RI-DP1 through RI-DP5, inside Building 1 and five hollow-stem auger borings, RI-MW1 through RI-MW5, around the Property perimeter, with borings advanced to depths of up to 26.5 feet below ground surface (Figure A-2) (GeoEngineers 2025b, GeoEngineers 2026b). Additional samples were collected from geotechnical borings GEI-1 and GEI-2 and additional direct-push borings RI-DP6 through RI-DP12) advanced to further delineate COC extent near prior detections.

All soil samples were classified and screened in the field, and then submitted to an Ecology-certified laboratory for analysis. Analyses included gasoline-, diesel-, and oil-range hydrocarbons by Northwest Methods NWTPH-Gx and NWTPH-Dx, with and without silica gel

cleanup, VOCs (including benzene, toluene, ethylbenzene, and xylenes [BTEX]) by United States Environmental Protection Agency (EPA) Method 8260D, polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270E/SIM, and total Resource Conservation and Recovery Act (RCRA) 8 metals by EPA Methods 6000 and 7000, per the RI/FS Work Plan (GeoEngineers 2025a).

Lead was detected at concentrations exceeding the Washington MTCA Method A cleanup level in soil samples collected from boring RI-MW3 at 8.8 and 10.5 feet bgs and boring RI-DP8 at 10.5 feet bgs. All other metals either were detected at a concentration less than MTCA cleanup levels or were not detected, based on laboratory practical quantitation levels (PQLs), in the soil samples analyzed (GeoEngineers 2026b).

Total petroleum hydrocarbons as gasoline-, diesel, and oil-range organics; and PAHs either were detected at concentrations less than MTCA cleanup levels or were not detected, based on laboratory PQLs, in the soil samples analyzed.

VOCs were not detected at concentrations exceeding MTCA cleanup levels in soil samples collected at the Property (GeoEngineers 2026b). The VOC tetrachloroethene (PCE) was detected at a concentration of 0.0024 mg/kg in the soil sample collected at boring RI-DP3 at a depth of 4 feet bgs. This concentration is below the MTCA CUL of 0.05 mg/kg.

Groundwater

The groundwater investigation consisted of advancing collecting grab groundwater samples from temporary wells in direct push borings RI-DP1, RI-DP2, and RI-DP4 in February and March 2025 and measuring depth to groundwater and collecting groundwater samples from monitoring wells RI-MW1 through RI-MW5 during four consecutive quarterly groundwater monitoring events in 2025. During RI groundwater sampling, Ecology requested supplemental RI groundwater sampling for total and dissolved lead. This supplemental sampling is on-going at the time of publication of this plan. The results of the supplemental RI groundwater sampling will be presented in a future RI addendum that will further evaluate the soil to groundwater pathway.

A total of three grab groundwater and 27 groundwater samples were submitted to an Ecology-certified laboratory for analysis for gasoline-, diesel-, and oil-range hydrocarbons by Northwest Methods NWTPH-Gx and NWTPH-Dx, with and without silica gel cleanup, VOCs (including BTEX) by EPA Method 8260D, and total and dissolved lead by EPA Method 200.8, in accordance with the RI/FS Work Plan (GeoEngineers 2025a).

Petroleum hydrocarbons, lead, and VOCs, were not detected at concentrations exceeding MTCA Method A Cleanup Levels (GeoEngineers 2026b) in the samples. Benzene was detected in only the grab groundwater sample from RI-DP2; the detected concentration was 0.67 μg/L. Acetone was detected in two samples collected from RI-MW1 at a maximum concentration of 7.2 μg/L. PCE was detected in samples collected from RI-MW1, RI-MW3, and RI-MW4; the maximum detected concentration was 1.0 μg/L in the sample collected from RI-MW3. Trichloroethene (TCE) was detected in samples collected from RI-MW3; the maximum detected concentration was 0.48 μg/L. Cis-1,2-Dichloroethene was detected in one sample from RI-MW3 at a concentration of 0.34 μg/L. Groundwater sampling completed at the Site during the RI

indicates groundwater at the Site is not contaminated. Groundwater at the Site is being further evaluated during ongoing supplemental groundwater monitoring requested by Ecology.

Risks to Human Health and Environment

Historical property uses, including fill placement, laundry and bowling alley operations, and storage of fuel in a UST, have resulted in contamination exceeding MTCA CULs in two locations at the Site: Remedial Area 1 and Remedial Area 2. The locations of these areas are shown in Figure A-2. These areas are described as follows:

- Remedial Area 1 – This includes part of the northern portion of King County Parcel No. 308500-2100 where a UST is located and groundwater is impacted with TPH-D at concentrations greater than MTCA Method A CULs based on the results of grab groundwater samples collected from boring P16. The results of analysis of grab groundwater samples may not be representative of actual groundwater conditions due to the potential for suspended sediments to bias analytical results. TPH-D and TPH-O were not detected at concentrations exceeding MTCA CULs in the four quarterly RI groundwater samples collected from monitoring wells RI-MW1, which was installed in Remedial Area 1 (GeoEngineers 2026b). TPH-D, TPH-O, and BTEX constituents (i.e., benzene, toluene, ethylbenzene, and xylenes) were detected at concentrations less than MTCA Method A or B CULs in soil samples collected from Remedial Area 1.
- Remedial Area 2 – This includes part of the northeastern portion of King County Parcel No. 308500-2100 where groundwater is impacted with TPH-D and TPH-O at concentrations greater than MTCA Method A CULs based on the results of grab groundwater samples collected from boring P13. TPH-D and TPH-O were not detected at concentrations exceeding MTCA CULs in the four quarterly RI groundwater samples collected from monitoring wells RI-MW3, which was installed in Remedial Area 2 (GeoEngineers 2026b). Lead and TPH-O are present at concentrations greater than MTCA Method A CULs in soil in Remedial Area 2 at depths between approximately 8.8 and 10.5 feet bgs (GeoEngineers 2026b; SES 2019b). The concentrations of lead exceed the threshold that results in classification of this soil as hazardous waste under Washington State Dangerous Waste Regulations (WAC Chapter 173-303).

Potential Human Health and Environmental Risks

The following exposure pathways have been evaluated:

- Direct Contact with Contaminated Soil: Soil with concentrations of COCs exceeding MTCA CULs is limited to Remedial Area 2. This area is currently covered with buildings and/or hardscapes. Contaminated soil in Remedial Area 2 will be remediated to the extent practicable as part of the Cleanup Action. Engineered controls in the form of buildings and hardscapes will be implemented to prevent contact with any residual contaminated soil that may remain in place in Remedial Area 2. Institutional controls in the form of an environmental covenant will be implemented to ensure that the engineered controls are maintained.

- Soil Vapor to Indoor Air: The potential for vapor intrusion into the future buildings will be evaluated after the excavation for redevelopment has been completed. If necessary to prevent vapor intrusion, a soil vapor barrier and/or other engineered controls will be implemented beneath the future residential buildings. Institutional controls in the form of an environmental covenant will be implemented to ensure that the engineered controls are maintained.
- Soil-to-Groundwater Migration: Although contaminated soil is present in Cleanup Area 2 within the interval of the shallow groundwater table, RI groundwater sampling has indicated groundwater at the Site does not appear to be contaminated. This pathway does not present an unacceptable risk and a forthcoming RI addendum will assess whether groundwater conditions demonstrate that the soil to groundwater pathway is complete.
- Soil-to-Surface Water (Runoff): There are no surface water bodies at the Site. Soil with concentrations of COCs exceeding MTCA CULs in Remedial Area 2 and less than MTCA CULs in Remedial Area 1 currently is covered with buildings and/or hardscapes; therefore, the soil-to-surface water (runoff) pathway is incomplete. Erosion and sediment control best management practices (BMPs) will be implemented during the planned cleanup action and improvements such that all stormwater that may come into contact with soil with COCs during the cleanup action and improvements will be captured and, if necessary, treated and discharged under an appropriate permit or disposed of off-property. Remedial Areas 1 and 2 will be completely covered with buildings and/or hardscapes constructed as part of redevelopment of the Property; therefore, the soil to surface water exposure pathway will not be complete after the Cleanup Action is completed.
- Groundwater-to-Surface Water and Sediment: No surface water bodies are present at the Site and it is unlikely that groundwater from the Site contributes to Lake Washington, which is the nearest surface water body. Therefore, the groundwater-to-surface water pathway is incomplete.

Based on investigations conducted at the Property and described in the RI/FS, the presence of COCs at the Site is limited and discontinuous in nature (GeoEngineers 2026b). Planned remedial actions, combined with engineering and institutional controls, will effectively eliminate or minimize potential human health and environmental risks from soil and groundwater contamination at the Site.

Cleanup Standards

MTCA requires the establishment of cleanup standards for individual sites. The two primary components of cleanup standards are CULs and points of compliance. CULs determine the concentration at which a substance does not threaten human health or the environment. All media with concentrations of COCs exceeding a cleanup level is addressed through a cleanup remedy that prevents exposure to the contaminated material. Points of compliance represent the locations on the site where CULs must be met.

Overview

The process for establishing CULs involves the following:

- Determining if methods A, B, or C are applicable
- Developing CULs for individual contaminants in each media
- Determining which contaminants contribute the majority of the overall risk in each media (indicators)
- Adjusting the CULs downward for carcinogenic substances based on total site risk of 1×10^{-5}, and for a hazard index of 1 for non-carcinogenic substances, if necessary

MTCA provides three options for establishing CULs: methods A, B, and C.

- Method A may be used to establish CULs at routine sites or sites with relatively few hazardous substances.
- Method B is the standard method for establishing CULs and may be used to establish CULs at any site.
- Method C is a conditional method used when a CUL under Method A or B is technically impossible to achieve or may cause significantly greater environmental harm. Method C also may be applied to qualifying industrial properties.

Ecology's 2023 Silica Gel Guidance document specifies that for Sites with no detectable petroleum hydrocarbons when run with silica gel cleanup, TPH-D and TPH-O groundwater concentrations measured using the NWTPH-Dx method without SGC may be as high as 700 µg/L.

MTCA defines the factors used to determine whether a substance should be retained as an indicator for the Site. When defining CULs at a site contaminated with several hazardous substances, Ecology may eliminate contaminants contributing a small percentage of the overall threat to human health and the environment. WAC 173-340-703(2) indicates that a substance may be eliminated from further consideration based on:

- The toxicological characteristics of the substance which govern its ability to adversely affect human health or the environment relative to the concentration of the substance
- The chemical and physical characteristics of the substance which govern its tendency to persist in the environment
- The chemical and physical characteristics of the substance which govern its tendency to move into and through the environment
- The natural background concentration of the substance
- The thoroughness of testing for the substance
- The frequency of detection
- The degradation by-products of the substance

Site Use

The evaluation of CULs and ecological exposures depends on the nature of the Site use. Options under MTCA are either an unrestricted property or an industrial property. Industrial properties are defined in WAC 173-340-200; the definition includes properties characterized by

transportation areas and facilities zoned for industrial use. Industrial properties are further described in WAC 173-340-745(1) by the following factors:

- People do not normally live on industrial property
- Access by the general public is generally not allowed
- Food is not grown/raised
- Operations are characterized by chemical use/storage, noise, odors, and truck traffic
- Ground surface is mostly covered by buildings, paved lots and roads, and storage areas
- Presence of support facilities serving the industrial facility employees and not the general public

The Property is zoned for mixed-use development; therefore, MTCA Method A cleanup levels were selected as the applicable cleanup levels for the Site. Method A cleanup levels are unconditional standards established to be protective of unrestricted land use and do not rely on site-specific exposure assumptions or institutional controls.

Terrestrial Ecological Evaluation

WAC 173-340-7490 requires site managers to perform a terrestrial ecological evaluation (TEE) to determine the potential effects of soil contamination on ecological receptors. As part of the RI/FS, a simplified TEE was completed using MTCA Table 749-1. Based upon this evaluation, it was determined that the Site is unlikely to pose risks to terrestrial ecological receptors and therefore, in accordance with Ecology's TEE process, the simplified evaluation was ended. No further consideration of ecological impacts is required under MTCA. The TEE Form completed for the Site is provided in Appendix C.

Site Cleanup Levels

CULs under MTCA may be established under Method A, Method B or Method C. Per WAC 173-340-704(1), MTCA Method A CULs are appropriate for use at sites where:

- Few hazardous substances have been detected;
- The site is undergoing a routine cleanup action; and
- Numerical standards are available for applicable COCs and media of concern.

The Site qualifies for the use of Method A CULs, and the polar metabolite cleanup level for TPH in groundwater. The following CULs have been established for the Site:

Soil:

- TPH-D – 2,000 mg/kg (MTCA Method A)
- TPH-O – 2,000 mg/kg (MTCA Method A)
- Total TPH-D and TPH-O – 2,000 mg/kg (MTCA Method A)
- Lead – 250 mg/kg (MTCA Method A)

Groundwater:

- TPH-D – 700 µg/L (Polar metabolite cleanup level)

- TPH-O – 700 µg/L (Polar metabolite cleanup level)
- Total TPH-D and TPH-O – 700 µg/L (Polar metabolite cleanup level)
- Lead – 15 µg/L (MTCA Method A)

Points of Compliance

MTCA defines the point of compliance as the point or points where CULs shall be attained. Once CULs are met at the point of compliance, the Site is no longer considered a threat to human health or the environment.

WAC 173-340-740(6) gives the point of compliance requirements for soil. The standard point of compliance for soil CULs based on protection of the direct contact pathway is established at a depth of 15 feet. The standard point of compliance for soil CULs based on protection of groundwater is throughout the soil column.

The standard point of compliance for groundwater CULs will be all groundwater beneath the Site from the top of the saturated zone to the lowest depth that could be affected by the Site.

- The point of compliance for soil is defined as all soil at the Site where analytical results for in-situ soil samples have detected concentrations of COCs greater than the MTCA Method A CUL (i.e., the standard point of compliance under MTCA).
- The point of compliance for groundwater is the standard point of compliance defined in MTCA as all groundwater throughout the Site from the uppermost level of the saturated zone extending vertically to the lowest depth which could potentially be affected by COCs at the Site.

Cleanup Action Selection

Remedial Action Objectives

Remedial action objectives describe the actions necessary to protect human health and the environment by eliminating, reducing, or otherwise controlling risks posed through each exposure pathway and migration route. They are developed considering the characteristics of the contaminated media, the characteristics of the hazardous substances present, migration and exposure pathways, and potential receptor points.

The potential exposure pathways for soil and groundwater at the Site include the following:

Soil:

- Direct contact
- Soil vapor to indoor air

Groundwater:

- Direct contact

Given the potential exposure pathways, the following are the remedial action objectives for the Site:

- Prevent direct contact, ingestion, or inhalation of contaminated soil by humans;
- Prevent intrusion of petroleum vapors from soil to indoor air inside future buildings at concentrations that may pose an unacceptable risk for occupants of these buildings; and
- Prevent direct contact or ingestion of contaminated groundwater by humans.

Cleanup Action Alternatives

Cleanup alternatives to meet these remedial action objectives are evaluated as part of the RI/FS. The FS presented technology screening for selection of cleanup alternatives (Table B-1) and evaluated multiple alternatives for addressing all contaminated media at the Site (Table B-2).

Alternative 1: In-Situ Treatment and Engineering/Institutional Controls

Alternative 1 includes the following:

- Treating soil and groundwater contaminated with petroleum-related COCs in Remedial Area 1 and Remedial Area 2 using thermal remediation methods such as steam-enhanced extraction, electrical-resistance heating or thermal-conductive heating. This method involves the injection of energy into the subsurface to mobilize and recover volatile and semi-volatile organic compounds and petroleum hydrocarbons. Thermal treatment technologies would not address soil contaminated with lead.
- Conducting compliance monitoring to evaluate whether soil CULs are met within the treatment area.
- Addressing any residual COC-contaminated soil and groundwater that may remain in place after thermal treatment using the following methods:
    - Engineered controls in the form of planned improvements of the Site, including placement of clean backfill following soil cleanup, and other hardscapes to prevent contact with the residual COC-contaminated soil and groundwater.
    - For residual contaminated soil and groundwater that may remain on the Property, implementation of institutional controls in the form of an environmental covenant recorded against the title for the Property that requires implementation of an Environmental Media Management Plan (EMMP), maintaining hardscapes, and restrictions on the use of groundwater at the Site.
    - Coordination with the City of Seattle regarding the presence of residual COC-contaminated soil and groundwater within the public right-of-way (ROW) and the proposed use of institutional controls in the form of an environmental covenant that govern future utility or infrastructure work in the ROWs.

Alternative 2: Excavation and Off-Site Disposal and Engineering/ Institutional Controls

Alternative 2 includes the following:

- Decommissioning the UST by removal, excavation of soil contaminated with petroleum-related COCSs in Remedial Area 1, and disposal of the product recovered from the UST, the UST, and the excavated soil at a licensed facility. The depth of the excavation in Remedial Area 1 will be determined by the contractor and project engineer during excavation activities; however, it is anticipated that the depth will not exceed approximately 17.5 feet bgs, which is the depth at which an apparent semi-confining clay layer was identified during the RI. The areal extent of the excavation not anticipated to extend north of the UST in the direction of the City ROW based on the results of the RI. However, if remedial excavation is required in this area, the excavation prism for contaminated soil will not extend to beneath the north-adjacent City ROW due to potential for undermining and compromising the structural integrity of the road.
- Excavation to depths of approximately 13.5 feet bgs in Remedial Area 2 to remove accessible COC-contaminated soil and disposal of the excavated soil at a licensed facility. The areal extent of the excavation will not extend to beneath the east-adjacent City ROW due to potential for undermining and compromising the structural integrity of the road. Therefore, we anticipate that some residual contaminated soil may remain in place beneath the road.
- Addressing potential COC-contaminated groundwater by removing the apparent source, which is COC-impacted soil.
- Conducting compliance monitoring to evaluate whether soil CULs are met at the limits of the excavation.
- Addressing residual COC-contaminated soil and groundwater that may remain in place after removal using the following methods:
    - Applying a treatment chemical, such as PetroFix™ by Regenesis to the base of the excavation. It is expected that groundwater will come into contact with treatment chemical during seasonal high groundwater and degrade and entrain residual petroleum in groundwater. This method would be effective for treatment of both residual soil and groundwater contamination following excavation.
    - Engineered controls including placement of clean backfill following soil cleanup, planned buildings, and other hardscapes to prevent contact with the residual COC-contaminated soil and groundwater.
    - For residual contaminated soil and groundwater that may remain on the Property, implementation of institutional controls in the form of an environmental covenant recorded against the title for the Property that requires implementation of an EMMP, maintaining hardscapes, and restrictions on the use of groundwater at the Site.
    - Coordination with the City of Seattle regarding the presence of residual COC-contaminated soil and groundwater within the public ROW and the proposed

use of institutional controls in the form of an environmental covenant that govern future utility or infrastructure work in the ROWs.

Regulatory Requirements

MTCA sets forth the minimum requirements and procedures for selecting a cleanup action. A cleanup action must meet each of the minimum requirements specified in WAC 173-340-360(3).

General Requirements

WAC 173-340-360(3)(a) sets forth the following general requirements for the cleanup action:

- Protect human health and the environment, including likely vulnerable populations and overburdened communities
- Comply with cleanup standards (see pages 14 through 17)
- Comply with applicable state and federal laws (see pages 23 and 24)
- Prevent or minimize present and future releases and migration of hazardous substances
- Provide resilience to climate change impacts that have a high likelihood of occurring and severely compromising its long-term effectiveness
- Provide for compliance monitoring
- Not rely primarily on institutional controls and monitoring if it's technically possible to implement a more permanent cleanup action
- Not rely primarily on dilution and dispersion over active remediation, unless the incremental costs grossly exceed the incremental benefits
- Provide for a reasonable restoration time frame
- Use permanent solutions to the maximum extent practicable

Action-specific Requirements

WAC 173-340-360(3)(b) includes the following requirements that apply to the Site. The Site must:

- Use institutional controls (WAC 173-340-440)
- Provide financial assurances (WAC 173-340-440(11))
- Provide for periodic reviews (WAC 173-340-420(2))

Media-specific Requirements

WAC 173-340-360(3)(c) includes the following requirement that applies to the Site. A soil cleanup action must treat, remove, or contain contamination on properties that qualify as a residential area based on current use or potential future use based on local plans.

Determination of Reasonable Restoration Time Frame

An evaluation of whether a cleanup action alternative provides a reasonable restoration time frame must be conducted unless a model remedy is selected as the cleanup action. WAC 173-

340-360(4) provides evaluation factors to determine whether a cleanup action has a reasonable restoration time frame.

- Potential risks posed by the site to human health and the environment, including likely vulnerable populations and overburdened communities.
- Practicability of achieving a shorter restoration time frame. A restoration time frame is not reasonable if an active remedial measure with a shorter restoration time frame is practicable.
- Long-term effectiveness of the alternative. A longer restoration time frame may be reasonable if the alternative has a greater degree of long-term effectiveness than one that primarily relies on on-site or off-site disposal, isolation, or containment.
- Current and potential future use of the site, surrounding areas, and associated resources that are, or may be, affected by releases from the site.
- Availability of alternative water supplies.
- Likely effectiveness and reliability of institutional controls.
- Ability to control and monitor migration of hazardous substances from the site.
- Toxicity of the hazardous substances at the site.
- Natural processes that reduce concentrations of hazardous substances and have been documented to occur at the site or under similar site conditions.
- For Ecology-led and Ecology-supervised cleanup actions, public concerns identified under WAC 173-340-600 (13) and (14) and Indian Tribes' rights and interests.

Determining Permanent to the Maximum Extent Practicable

WAC 173-340-360(5) describes the requirements and procedures for determining whether a cleanup action uses permanent solutions to the maximum extent practicable (PMEP).
A permanent solution meets CULs without further action being required at the site other than the disposal of residue from treating hazardous substances.

To determine whether a cleanup action uses PMEP, a disproportionate cost analysis is conducted. This analysis compares the costs and benefits of the cleanup action alternatives and involves considering several factors, including:

- Protectiveness
- Permanence
- Long-term effectiveness
- Management of implementation risk
- Implementability
- Cost

The comparison of benefits and costs may be quantitative but will often be qualitative and require the use of best professional judgment.

The procedure to perform the PMEP analysis involves comparing the most permanent alternative to the next most permanent and determining if the costs outweigh the benefits in that pair. If they do, the less permanent alternative is compared to the next most permanent

alternative and compared again. This continues until the costs do not outweigh the benefits. This evaluation can be done quantitatively/graphically or can be done qualitatively.

Cleanup Action Expectations

WAC 173-340-370 sets forth the following expectations for developing cleanup action alternatives and selecting cleanup actions. These expectations represent the types of cleanup actions Ecology considers likely results of the remedy selection process; however, we recognize there may be some sites where cleanup actions conforming to these expectations are not appropriate.

- Treatment technologies will be emphasized at sites with liquid wastes, areas with high concentrations of hazardous substances, or with highly mobile and/or highly treatable contaminants
- To minimize the need for long-term management of contaminated materials, hazardous substances will be destroyed, detoxified, and/or removed to concentrations below CULs throughout sites with small volumes of hazardous substances
- Engineering controls, such as containment, may need to be used at sites with large volumes of materials with relatively low levels of hazardous substances where treatment is impracticable
- To minimize the potential for migration of hazardous substances, active measures will be taken to prevent precipitation and runoff from contacting contaminated soil or waste materials
- When hazardous substances remain on-site at concentrations that exceed CULs, they will be consolidated to the maximum extent practicable to minimize the potential for direct contact and migration of hazardous substances
- For sites adjacent to surface water, active measures will be taken to prevent/minimize releases to that water; dilution will not be the sole method for demonstrating compliance
- Natural attenuation of hazardous substances may be appropriate at sites under certain specified conditions (see WAC 173-340-370(7))
- Cleanup actions will not result in a significantly greater overall threat to human health and the environment than other alternatives

Applicable, Relevant, and Appropriate State and Federal Laws, and Local Requirements

WAC 173-340-710(1) requires all cleanup actions to comply with all applicable local, state, and federal law. It further states the term “applicable state and federal laws” shall include legally applicable requirements and requirements the department determines “…are relevant and appropriate requirements” (ARARs). This section discusses applicable state and federal law, ARARs, and local permitting requirements that were considered and were of primary importance in selecting cleanup requirements. If other requirements are identified later, they will be applied to the cleanup actions.

MTCA provides an exemption from the procedural requirements of several state laws and from any laws authorizing local government permits or approvals for remedial actions conducted under a consent decree, order, or agreed order (RCW 70A.305.090). However, the substantive requirements of a required permit must be met. The procedural requirements of the following state laws are exempted:

- Ch. 70A.15 RCW, Washington Clean Air Act
- Ch. 70A.205 RCW, Solid Waste Management—Reduction and Recycling
- Ch. 70A.300 RCW, Hazardous Waste Management
- Ch. 77.55 RCW, Construction Projects in State Waters
- Ch. 90.48 RCW, Water Pollution Control
- Ch. 90.58 RCW, Shoreline Management Act of 1971
- Any laws requiring or authorizing local government permits or approvals for the remedial action

WAC 173-340-710(4) sets forth the criteria Ecology evaluates when determining whether certain requirements are relevant and appropriate for a cleanup action. ARARs for the cleanup alternatives at this Site are discussed in the next section. Local laws, which may be more stringent than state and federal laws, will govern where applicable.

Evaluation of Cleanup Action Alternatives

The requirements and criteria outlined in the Regulatory Requirements section on pages 23 and 24 are used to conduct a comparative evaluation of the cleanup action alternatives and to select a cleanup action from those alternatives. Table B-2 provides a summary of the ranking of the cleanup alternatives against the various criteria.

Regulatory Requirements

General Requirements

Cleanup Alternatives 1 and 2 are designed to meet the general cleanup action requirements of WAC 173-340-360(3)(a). These alternatives are protective of human health and the environment, including likely vulnerable populations and overburdened communities, by actively reducing contaminant mass and exposure pathways through either in-place remediation or physical removal. Both alternatives are structured to comply with cleanup standards specified elsewhere in this document (see page 14) and all applicable state and federal laws (see pages 23 and 24), helping to ensure both immediate and long-term protectiveness. The selected approaches prevent or minimize the potential for present or future releases and migration of hazardous substances by utilizing permanent treatment and removal strategies, rather than relying primarily on institutional controls or monitoring.

To further support long-term effectiveness and resilience, each alternative incorporates engineered and institutional controls to remain protective in the face of climate change impacts, such as increased precipitation or groundwater fluctuations. Comprehensive compliance monitoring will be implemented to verify that cleanup levels are achieved and maintained throughout the remedial action and into the long-term stewardship phase.

Institutional controls and long-term monitoring are only used where complete removal or treatment of contamination is not technically practicable, specifically, where contamination remains beneath existing structures or site features. Neither alternative relies primarily on dilution or dispersion, and active remediation is implemented to the maximum extent practicable. The selected remedies provide for a reasonable restoration time frame and are consistent with the MTCA requirement for using permanent solutions to the maximum extent practicable.

Climate change impacts were estimated using the Climate Mapping for a Resilient Washington webtool,[4] funded by the State of Washington and developed by the University of Washington. The webtool generally predicts increases in temperature and precipitation. These will increase the chance for erosion, flooding events, and wildfire likelihood.

As discussed in the RI/FS, based on a review of information in the GIS Mapping Tool, it is unlikely that conditions at the Site would be impacted by climate change, therefore, the cleanup strategy for the Site will not be impaired by climate change (GeoEngineers 2026b).

There are three types of compliance monitoring: protection, performance, and confirmational. Protection monitoring is designed to protect human health and the environment during the construction and operation and maintenance phases of the cleanup action. Performance monitoring confirms the cleanup action has met cleanup and/or performance standards. Confirmational monitoring confirms the long-term effectiveness of the cleanup action once cleanup standards have been met or other performance standards have been attained.

Three types of compliance monitoring will be implemented during remedial actions in accordance with MTCA requirements (WAC 173-340-410):

Protection Monitoring: Conducted to ensure that human health and the environment are adequately protected throughout implementation of the interim action, as outlined in the site-specific Health and Safety Plan (HASP). The HASP complies with federal (29 CFR 1910.120 and 1926) and state (WAC 173-340-810 and WAC 296-62) regulations, identifying relevant physical, chemical, and biological hazards, and specifying monitoring protocols and controls. All personnel engaged in soil disturbance will have appropriate hazardous waste operations training.

Performance Monitoring: Conducted to verify that remedial actions meet applicable screening levels or other performance standards and demonstrate compliance with substantive regulatory requirements. Performance monitoring includes the collection and laboratory analysis of in-situ soil samples from excavation areas to determine whether contaminant concentrations exceed screening levels. These results inform decisions regarding excavation limits.

Confirmational Monitoring: Confirmational monitoring consists of collecting and analyzing in-situ soil samples from the base and sidewalls of the final excavation to verify attainment of

[4] https://cig.uw.edu/resources/analysis-tools/climate-mapping-for-a-resilient-washington/

cleanup goals; performance monitoring locations may also be used for confirmation if results indicate compliance at excavation boundaries.

The scope of work for projection, performance, and confirmational monitoring will be presented in a separate work plan approved by Ecology.

Action-specific Requirements

Cleanup Alternative 1 will comply with MTCA action-specific requirements by obtaining necessary air and water permits for thermal remediation, and managing treatment byproducts according to Dangerous Waste Regulations. Engineered controls in the form of placement of clean backfill following soil cleanup, the planned buildings, and site paving will be implemented and maintained to prevent exposure, and a recorded environmental covenant will restrict groundwater use and require adherence to the EMMP. Periodic inspections and reporting will ensure ongoing compliance with all action-specific requirements.

Cleanup Alternative 2 will meet action-specific requirements by conducting excavation and soil disposal in compliance with Dangerous Waste Regulations and municipal permits, following state protocols for UST removal, and acquiring discharge permits as needed. If necessary, treatment chemicals will be applied according to Ecology standards. Engineered controls will be implemented and maintained as necessary to limit exposure, and institutional controls will be implemented via an environmental covenant restricting groundwater use and requiring compliance with the EMMP. Inspection and reporting will ensure all requirements are consistently addressed.

Media-specific Requirements

Cleanup Alternative 1 meets MTCA media-specific requirements for soil and groundwater by targeting COC-contaminated media through in-situ thermal remediation. This treatment is designed to reduce concentrations of petroleum-related COCs including petroleum hydrocarbons and volatile and semi-volatile organic compounds in soil and groundwater to concentrations below applicable MTCA cleanup levels. Thermal treatment will not address lead-contaminated soil. Engineered controls, including planned building and site hardscapes, will prevent exposure to residual soil and groundwater contamination, while institutional controls will enforce use restrictions and contingency planning to protect human health and the environment. All remedial actions will be evaluated against MTCA media-specific cleanup levels, with regular monitoring to ensure that concentrations remain protective.

Cleanup Alternative 2 satisfies MTCA media-specific requirements by excavating and disposing of accessible COC-contaminated soil at a permitted facility, followed by placement of clean backfill, thereby directly removing impacted media and reducing contaminant concentrations to meet soil cleanup standards. Due to structural constraints, some residual contamination may remain in inaccessible soil and groundwater; this will be managed through in-situ treatment (application of PetroFix™ or similar reagent). Treatment will be carried out under protocols established by Ecology to demonstrate compliance with relevant media-specific cleanup levels for soil and groundwater. Engineered controls, including planned site improvements, will limit potential exposure, and institutional controls will ensure groundwater restrictions and

contingency planning are maintained. Routine monitoring and reporting will confirm ongoing compliance with MTCA media-specific requirements for all affected media.

Public Concerns and Tribal Rights and Interests

To understand Tribal and public concerns, Ecology presented the draft RI/FS and draft CAP for review and comment. If concerns are identified in comments received by Ecology, they will be summarized in the final CAP document.

Vulnerable Populations and Overburdened Communities

Consistent with WAC 173-340-380(5)(c), potential impacts to vulnerable populations and overburdened communities (VP/OC) were considered during evaluation of cleanup alternatives. Both cleanup alternatives were evaluated for potential for short-term and long-term impacts to nearby communities, including exposure to contaminated media, construction-related noise, dust, truck traffic, and disruption associated with implementation. Both cleanup alternatives were identified as protective of human health and the environment and are expected to minimize adverse impacts to nearby VP/OCs by reducing potential exposure pathways and limiting construction-related effects to the extent practicable through implementation of appropriate measures.

Determination of Reasonable Restoration Time Frame

WAC 173-340-360(4) describes the requirements and procedures for determining whether a cleanup action provides for a reasonable restoration time frame, as required under subsection (3)(a)(ix). The factors used to determine whether a cleanup action provides a reasonable restoration time frame are in WAC 173-340-360(4)(c).

Both cleanup alternatives will meet the requirements for cleanup actions under MTCA within approximately 1 year following the start of improvement activities (specifically, the estimated time for mass excavation, and environmental covenant filing), constituting a reasonable timeframe for restoration. MNA of COCs in groundwater may be conducted if warranted based on completion of the remaining RI groundwater monitoring, the results of which will be presented in a forthcoming RI addendum. The RI addendum will assess whether groundwater conditions empirically demonstrate that the soil-groundwater pathway is not complete. If required, MNA of COCs would be conducted quarterly during the initial year post-improvement, followed by semiannual groundwater monitoring for a period of 3 to 5 years.

Determining Permanent to the Maximum Extent Practicable

WAC 173-340-360(5) describes the procedure for determining PMEP, as required under subsection (3)(a)(x).

To determine whether a cleanup action uses PMEP, the disproportionate cost analysis specified in the regulation is used. The analysis compares the costs and benefits of the cleanup action alternatives and involves the consideration of several factors. The comparison of costs and benefits may be quantitative but will often be qualitative and require the use of best professional judgment.

Protectiveness

Protectiveness measures the degree to which existing risks are reduced, time required to reduce risk and attain cleanup standards, on- and off-site risks resulting from implementing the alternative, and improvement of overall environmental quality.

The cleanup action ensures protection of human health and the environment by addressing all relevant exposure pathways, including direct contact with soil containing COCs, soil to surface water, soil leaching to groundwater, and groundwater-to-surface water transport. The risk of exposure through direct contact is mitigated by removing contaminated soil to the extent practicable, minimizing the potential for construction workers or others to come into contact with COC-impacted soil or groundwater. Application of BMPs in accordance with a project-specific temporary erosion and sediment control plan will prevent movement of contaminated soil into surface water during remediation. The soil-to-groundwater exposure pathway is not considered a risk based on the results of the RI. The groundwater-to-surface water pathway will be managed through cleanup and monitoring to ensure continued protection.

Permanence

Permanence evaluates the degree to which the alternative reduces the toxicity, mobility, or mass of hazardous substances, including the adequacy of the alternative in destroying the hazardous substance(s), the reduction or elimination of releases or sources of releases, the degree of irreversibility of any treatment process, and the characteristics and quantity of any treatment residuals.

Alternative 1 will reduce the mass of soil and groundwater contaminated with petroleum-related COCs by permanently destroying these COCs within Cleanup Areas 1 and 2 to the extent practicable. Alternative 1 will not reduce toxicity, mobility, or mass of lead-contaminated soil in Cleanup Area 2. Some residual petroleum-contaminated soil and/or groundwater may remain in Cleanup Areas 1 and 2 and all lead-contaminated soil will remain in Cleanup Area 2.

Cleanup Alternative 2 is the more permanent of the cleanup alternatives evaluated. Cleanup Alternative 2 will permanently remove soil and groundwater contaminated with petroleum-related COCs from Cleanup Areas 1 and 2 and lead-contaminated soil from Cleanup Area 2 to the extent practicable. Some residual petroleum-contaminated soil and/or groundwater may remain in Cleanup Areas 1 and 2 and some lead-contaminated soil may remain in Cleanup Area 2.

Long-term Effectiveness

Long-term effectiveness measures the degree to which the alternative is likely to be effective over the long term, including for likely vulnerable populations and overburdened communities. It considers the degree of certainty, the reliability of the alternative during the period that hazardous substances will remain above cleanup levels, the resilience of the alternative to climate change impacts, the magnitude of residual risk after implementation, and the effectiveness of controls required to manage remaining wastes.

Alternative 1 achieves long-term effectiveness by significantly reducing the mass of petroleum-related COCs in soil and groundwater through in-situ thermal treatment. Potential exposure to

the residual petroleum-contaminated soil and/or groundwater and the lead-contaminated soil in Cleanup Area 2 will be managed by engineered controls, such as hardscape improvements, and by institutional controls, including an environmental covenant restricting groundwater use.

Alternative 2 also achieves long-term effectiveness by significantly reducing the mass of petroleum-related COCs in soil and groundwater through in-situ thermal treatment and relies on engineered/and institutional controls to manage potential exposure to the residual petroleum-contaminated soil and/or groundwater. However, Alternative 2 is considered to have greater long-term effectiveness than Alternative 1 because it utilizes PetroFix (or a similar compound) to promote further degradation of residual petroleum-related COCs and eliminates or reduces the mass of lead-contaminated soil in Cleanup Area 2.

Management of Implementation Risk

Short-term risk measures the risks related to an alternative during construction and implementation, including likely vulnerable populations and overburdened communities, and the effectiveness of measures that will be taken to manage such risks.

Implementation of Alternative 1 poses a relatively high short-term risk from the construction and operation of an in-situ thermal treatment system that applies heat and/or electrical energy to the subsurface. Controls would need to be implemented to limit the risk posed by the added heat and/or energy. Given the proximity of the Site to ROWs, thermal treatment of in-situ soil may potentially damage existing utilities located beneath the adjacent right-of-way.

Implementation of Alternative 2 poses a relatively low short-term risk. Alternative 2 utilizes routine excavation methods and does not require implementation of safety measures significantly more complex than those utilized for typical redevelopment projects, such as establishing exclusion zones, installing protective fencing, and controlling access to the Site.

Technical and Administrative Implementability

Implementability considers whether the alternative is technically possible; the availability of necessary off-site facilities, services, and materials; administrative and regulatory requirements; scheduling; size; complexity; monitoring requirements; access for operations and monitoring; and integrations with existing facility operations.

Alternative 1 demonstrates technical implementability by using established in-situ thermal remediation methods capable of mobilizing and removing volatile and semi-volatile organic compounds and petroleum hydrocarbons in soil and groundwater. Implementation requires specialized equipment, site-specific design, and coordination for subsurface energy delivery and recovery. Engineered controls, such as hardscape improvements, are readily constructed and maintained to prevent exposure, and institutional controls are administratively straightforward, involving recording an environmental covenant and ensuring compliance with the EMMP. Overall, Alternative 1 is technically and administratively implementable, although it relies on sustained operation, monitoring, and maintenance of controls over time to achieve ongoing compliance with MTCA requirements.

Alternative 2 demonstrates high technical implementability through standard excavation and off-site disposal practices, allowing direct removal of contaminated soil and accessible USTs.

These activities utilize conventional construction methods and established protocols for waste profiling, transportation, and disposal at licensed facilities. Partial UST removal and in-situ application of treatment chemicals, such as PetroFix™, may prompt additional coordination, but are also commonly implemented in remediation projects. Residual contamination is managed through MNA and exposure barriers created by site improvements. Administrative implementability is achieved by recording an environmental covenant and requiring adherence to the EMMP and groundwater use restrictions, consistent with MTCA requirements. Compared to Alternative 1, Alternative 2 is generally less complex to implement from both technical and administrative perspectives, due to reliance on standard construction practices and waste management procedures with less dependence on long-term engineered and institutional controls.

Cost

An evaluation of cleanup costs must include both construction and post-construction costs, including for the design life and in the future. Cleanup costs are estimated based on design assumptions for each alternative. Although the costs are estimates based on design assumptions that might change, the relative costs can be used for this evaluation. For a detailed description of the costs involved with each alternative, please refer to the FS.

Excavation and off-site disposal of contaminated soil has been identified as the more cost-effective remedial alternative for the Site, as it provides a permanent solution that minimizes the need for future remediation or ongoing maintenance. While application of chemical treatment and establishment of an environmental covenant with long-term monitoring represent additional costs, these measures are necessary for comprehensive risk management and ongoing compliance. The selected remedy balances up-front and long-term costs, offering a reliable and pragmatic approach to protectiveness and long-term site stewardship.

PMEP Evaluation and Results

Costs are disproportionate to the benefits if the incremental costs of an alternative are disproportionate to the incremental benefits of that alternative.

Alternative 1 requires specialized thermal remediation systems with substantial up-front capital costs and ongoing operational expenses. Although this approach achieves a notable reduction in contaminant mass and manages residual risk through long-term monitoring and controls, its incremental cost may not be justified by the level of improvement in protectiveness compared to other options, especially given ongoing dependency on institutional and engineered controls.

Alternative 2 relies on standard construction methods, removal and disposal of accessible contaminated soil, and limited use of in-situ chemical treatment. This results in lower technical complexity and fewer long-term management costs. While capital costs are significant, the approach produces direct and permanent source reduction, minimizes reliance on future monitoring and controls, and therefore presents more favorable cost-to-benefit ratios. Under MTCA, the incremental costs associated with Alternative 2 are not considered disproportionate in relation to its enhanced long-term effectiveness and permanence.

In conclusion, Alternative 2 offers a more proportionate balance between costs and benefits than Alternative 1, supporting MTCA's requirement that cost is not disproportionate to the overall protectiveness achieved.

Groundwater Cleanup Requirements

Cleanup actions that address groundwater must meet the requirements described in WAC 173-340-360(3)(c).

COCs (TPH) were detected at concentrations greater than MTCA cleanup levels in groundwater samples collected from temporary well points placed in borings completed at the Site in 2019. However, COCs were not detected at concentrations greater than MTCA cleanup levels in groundwater samples collected from monitoring wells installed at the Site during four quarters of RI groundwater sampling. Groundwater samples collected from monitoring wells are considered more representative of groundwater conditions than grab samples from open boreholes, and therefore the results of the RI indicate groundwater at the Site is not contaminated. The alternatives below are protective of groundwater and are presented as a conservative approach due to the results of the 2019 grab groundwater sampling.

Alternative 1 is expected to meet MTCA groundwater cleanup requirements by reducing contaminant concentrations through in-situ thermal treatment. Residual contamination is managed with engineered and institutional controls that restrict exposure and groundwater use. Achieving groundwater CULs may require extended timeframes, and effectiveness depends on ongoing monitoring and maintenance.

Alternative 2 is anticipated to more reliably meet MTCA groundwater cleanup requirements by removing contaminated soil, actively treating residual impacts with a chemical reagent, and then applying MNA. Engineered and institutional controls supplement protectiveness. This alternative is expected to achieve groundwater standards more efficiently, with lower reliance on long-term controls.

Cleanup Action Expectations

Cleanup action expectations are outlined in WAC 173-340-370 and are described in the previous section. The alternatives would address applicable expectations in the following manner:

Alternative 1 meets MTCA cleanup action expectations as follows:

- Reduces contaminant mass and toxicity: Uses in-situ thermal remediation to mobilize and recover petroleum-related COCs in subsurface soil and groundwater, thereby reducing both the mass and toxicity of hazardous substances present.
- Addresses risk to human health and the environment: Combines treatment, exposure barriers (engineered controls), and legal restrictions (institutional controls) to mitigate potential contact and environmental risks.
- Implements reliable long-term controls: Engineered site improvements and institutional controls through an environmental covenant ensure persistent protectiveness, addressing residual contaminants that remain after treatment.

- Restricts exposure pathways: Institutional controls restrict groundwater use at the Site, limiting migration pathways and potential future exposure in accordance with MTCA requirements.
- Provides for contingency planning: Ensures implementation of an EMMP to manage unexpected exposure or contaminant discovery during construction or future site activities.
- Meets applicable standards: Designed to achieve MTCA cleanup levels for soil and groundwater, or manage risk where residual contamination persists.

Alternative 2 meets MTCA cleanup action expectations as follows:

- Permanent source removal: Physically removes and disposes of accessible contaminated soil at a licensed facility, achieving permanent reduction of risk at the Site.
- Reduces contaminant mass and toxicity: Removes both primary sources of contamination and, to the extent practicable, abandoned USTs, further reducing site risk.
- Treats residual impacts: Applies treatment chemicals (e.g., PetroFix™) to the base of excavation to actively treat residual soil contamination.
- Implements reliable long-term controls: Uses engineered site improvements and institutional controls to prevent exposure to any residual contamination left in inaccessible areas.
- Restricts exposure pathways: Applies institutional controls to limit groundwater use and restrict access, aligning with MTCA requirements for exposure pathway management.
- Provides for contingency planning: Requires implementation of an Environmental Construction Contingency Plan (ECCP) for management of unforeseen site conditions or contamination.
- Meets applicable standards: Designed to meet or exceed MTCA cleanup levels for soil and groundwater, ensuring protectiveness over time.

These lists demonstrate that both alternatives meet MTCA cleanup action expectations through source reduction, exposure pathway management, reliable long-term controls, contingency planning, and compliance with applicable standards. Alternative 2 emphasizes greater permanence through physical removal and treatment, while Alternative 1 relies more on ongoing controls and monitoring.

ARARs

All alternatives would comply with applicable state and federal laws listed in Section 6.1 of the RI/FS in Appendix B. Local laws, which can be more stringent, will govern actions when applicable.

Decision

Based on the analysis above, Ecology selected Alternative #2 as the proposed remedial action for the Site.

Alternative 2—Excavation and Off-Site Disposal with Engineering and Institutional Controls is identified as the preferred cleanup alternative for the following reasons:

- Alternative 2 provides an effective and permanent remedy by removing accessible COC-impacted soil and addressing contaminated groundwater.
- Limiting excavation to accessible areas and implementing targeted engineering and institutional controls will prevent exposure to residual contamination and preserve adjacent open space, vegetation, and public amenities to the maximum extent practicable.
- The technologies and approaches included in Alternative 2 have been successfully implemented at comparable sites, are technically feasible within the planned redevelopment framework, and will result in a substantial reduction of contaminant mass at the Site.
- Implementation of Alternative 2 is not expected to result in significant short-term risks beyond those typically associated with construction activities in an urban setting, and such risks can be effectively managed through standard health and safety and construction management practices.

Selected Cleanup Action

Soil Cleanup: Excavation and Off-site Disposal

The selected remedy for addressing soil contamination includes mass excavation to remove soil containing COCs at concentrations exceeding the applicable MTCA Project Cleanup Levels (PCULs) to the extent practicable followed by placement of clean imported backfill.

Four areas of concern (AOCs) have been identified at the Property.

- AOC 1 (Remedial Area 1) – This includes part of the northern portion of the Property where a UST is present and soil is impacted with diesel- and oil-range total petroleum hydrocarbons (TPH-D), oil-range total petroleum hydrocarbons (TPH-O), polycyclic aromatic hydrocarbons (PAHs) and/or benzene, toluene, ethylbenzene, and xylenes (BTEX) constituents at concentrations greater or less than MTCA CULs.
- AOC 2 (Remedial Area 2) – This includes part of the northeastern portion of the Property where TPH-D and TPH-O contaminated soil is collocated with soil containing lead at concentrations exceeding MTCA CULs.
- AOC 3 – This includes the central portion of the Property where soil is impacted with cVOCs including but not limited to PCE at concentrations less than MTCA CULs.
- AOC 4 – This includes the northeastern portion of the Property where soil is impacted with cVOCs at concentrations less than MTCA CULs. AOC 4 overlaps remedial areas AOC 1 and AOC 2. The results of groundwater monitoring performed at the Site preliminarily demonstrate that shallow groundwater in AOC 4 is not impacted with cVOCs and/or petroleum-related contaminants. This preliminary conclusion will be further informed by the results of additional groundwater monitoring, which will be presented in a forthcoming addendum to the RIFS Report.

The approximate excavation extents for Remedial Areas 1 and 2 are shown in Figure A-3 and A-4. Soil management in AOC 3 and AOC 4 is not described/required under this cleanup action plan because COCs have not been identified at concentrations greater than MTCA cleanup levels in those areas.

Where practicable, the excavations will be completed without shoring using a slope of approximately 1.5 horizontal to 1 vertical (1.5H:1V). If these slopes are not achievable, then the excavations will be completed using shoring designed by the excavation contractor and approved by a Professional Engineer registered in Washington State.

Groundwater and stormwater encountered in the excavation cavity will be removed as necessary to complete the excavation using a sump pump and/or vacuum truck. The recovered water will be recycled by a licensed contractor or disposed of to the public sewer system in accordance with an appropriate permit issued under the King County Industrial Waste program.

Excavated soils with COC concentrations greater than PCULs will be transported off site and disposed of at a permitted facility in accordance with applicable local, state, and federal regulations.

Performance monitoring will be conducted to inform the excavation extents and confirmational monitoring will be conducted at the final excavation extents in accordance with the Compliance Monitoring Plan.

If residual soil with concentrations of petroleum-related COCs greater than PCULs is present at the final excavation extents based on the results of confirmational monitoring, then a chemical treatment (e.g., PetroFix™ or an Ecology-approved alternative) will be applied to the base of the excavations. Temporary BMPs, consistent with a site-specific Erosion and Sediment Control Plan, will be implemented during all construction and excavation activities to minimize the potential for migration of contaminated soil to stormwater and to ensure protection of human health and the environment during remedial activities.

Groundwater Cleanup: Treatment and Long-term Monitoring

Groundwater at the Site does not appear to be contaminated based on the results of four quarters of RI groundwater sampling. Supplemental groundwater assessment requested by Ecology is on-going. The results of that sampling will be presented in an RI addendum, which will assess whether groundwater conditions empirically demonstrate that the soil to groundwater pathway is not complete. The selected remedy for groundwater potentially contaminated with petroleum-related COCs includes removal of the apparent source (i.e., soil contaminated with petroleum-related COCs) and will be protective of groundwater via source removal. If residual groundwater with concentrations of petroleum-related COCs greater than PCULs is present in the final excavation cavity based on the results of compliance sampling, then a chemical treatment (e.g., PetroFix™ or an Ecology-approved alternative) will be applied to the base of the excavation.

Institutional Controls

Institutional controls are measures taken to limit or prohibit activities that may interfere with the integrity of a cleanup action or result in exposure to hazardous substances at the Site. These measures are required to assure the continued protection of human health and the environment and the integrity of the cleanup action when hazardous substances remain at the Site at concentrations exceeding applicable CULs. Institutional controls can include physical measures and legal and administrative mechanisms. WAC 173-340-440 provides information on institutional controls and the conditions under which they may be removed.

To ensure long-term protection of human health and the environment, institutional controls will be implemented at the Site in the form of an environmental covenant, consistent with WAC 173-340-440 if soil and/or groundwater with concentration of COCs greater than PCULs remains in place at the Site after completion of the excavation activities. The environmental covenant will be recorded with the property deed and will require implementation of an EMMP for any future intrusive work in areas where contamination remains in place. The covenant will also restrict the use of groundwater beneath the Site and ensure the safe management of any residual contamination that may remain following remedial activities. The EMMP will establish appropriate procedures and interim controls, such as work zone restrictions, dust suppression, and access controls, to mitigate exposure risks to construction workers and site users during maintenance or utility-related activities. The environmental covenant will be developed and submitted for recording within one year of completion of remedial excavation, and prior to occupancy of the Site.

Financial Assurances

WAC 173-340-440 states that financial assurance mechanisms shall be required at sites where the selected cleanup action includes engineered and/or institutional controls.

In accordance with MTCA requirements, financial assurance mechanisms will be established to ensure adequate resources are available for the long-term implementation and maintenance of institutional controls. Financial assurance is necessary to support ongoing groundwater monitoring, periodic review, and maintenance of institutional controls, as well as to provide for the implementation of any contingency actions that may be required to ensure the continued protectiveness of the cleanup action. The specific form and amount of financial assurance will be determined in consultation with Ecology and specified in the applicable legal agreement or enforcement order.

Periodic Review

Until CULs are met, WAC 173-340-420 states, at sites where a cleanup action requires an institutional control, a periodic review shall be completed no less frequently than every five years after the initiation of a cleanup action.

Consistent with MTCA requirements (WAC 173-340-420), periodic reviews will be conducted at the Site because contamination exceeding cleanup levels for unrestricted use will remain in

place, and institutional controls are required as part of the selected remedy. The purpose of these reviews is to determine whether the cleanup action continues to be protective of human health and the environment. Periodic reviews will be conducted at a minimum of every five years following the implementation of the cleanup action, or as otherwise directed by Ecology. The results of these reviews will be documented and submitted to Ecology in accordance with MTCA guidance.

References

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U.S. Climate Data. 2024. *Climate Seattle Washington*. <http://www.usclimatedata.com/climate/seattle/washington/united-states/uswa0395>.

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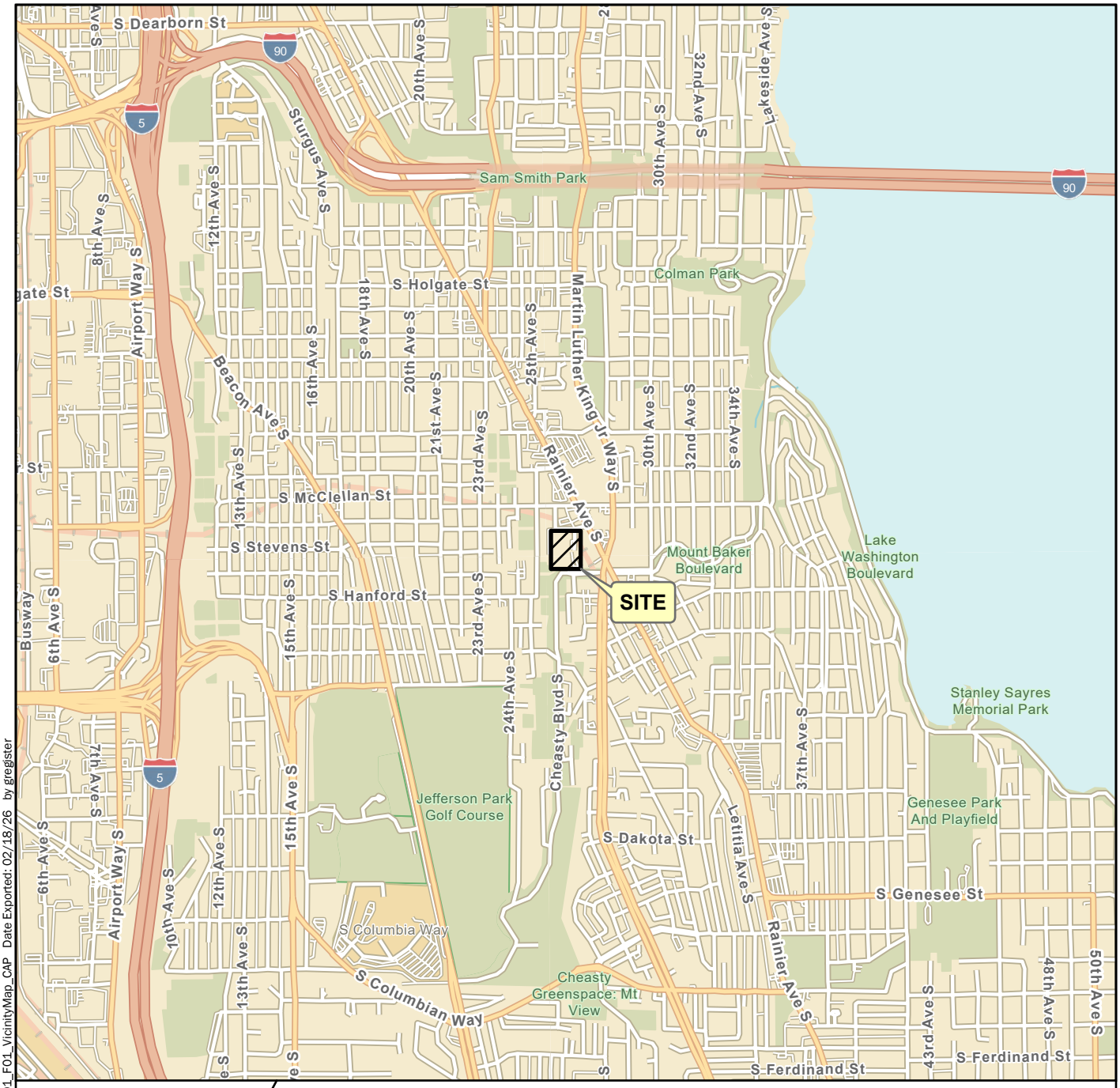
Appendix A. Figures



Vicinity Map

UW Mount Baker Laundry Site, CAP Report
Seattle, Washington

GeoEngineers

Figure A.1

Source(s):
- ESRI

Coordinate System: NAD 1983 UTM Zone 10N

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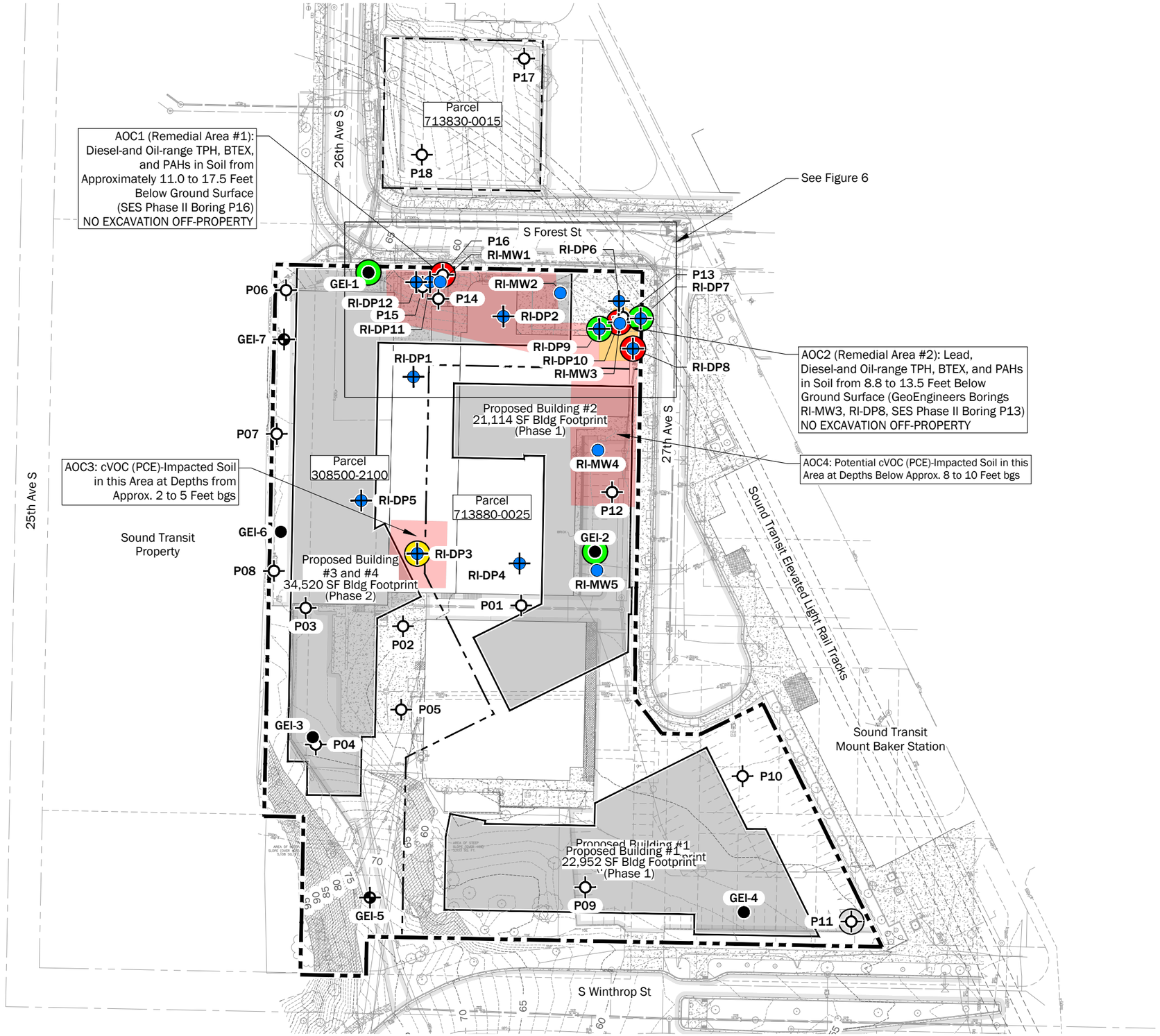


Legend

- Site Boundary
- Parcel Boundary
- Proposed Building
- Steep Slope Environmentally Critical Area (Defined as 40 Percent Slope or Steeper)
- GEI-1 — Geotechnical Boring with Monitoring Well by GeoEngineers, 2025
- GEI-5 — Geotechnical Boring by GeoEngineers, 2025
- RI-DP1 — Remedial Investigation Boring by GeoEngineers, 2025
- RI-MW-1 — Remedial Investigation Monitoring Well by GeoEngineers, 2025
- P01 — Phase II ESA Boring by SoundEarth, 2019
- Contaminants of Concern at Concentrations Exceeding Model Toxics Control Act (MTCA) Method A Cleanup Level
- Chlorinated Volatile Organic Compounds Detected
- Petroleum Related Compounds Detected at Concentration Less than Model Toxics Control Act (MTCA) Method A Cleanup Levels
- cPAHs Exceeded the Calculated Model Toxics Control Act (MTCA) Total Toxic Equivalent Concentration (TEQ) Due to Elevated Laboratory Reporting Limits. This Soil is not Identified as a Remedial Area.

Note(s):

1. SoundsEarth boring locations approximated based on report figures, boring logs, and field observations.
2. Exceedance at P11 of cPAH TEC due to diluted sample and elevated RLs.

Source: Survey from Bush, Roed and Hitchings, Inc., dated 10/18/2024

Coordinate System: WA State Plane, North Zone, NAD83, US Foot

N

0 80

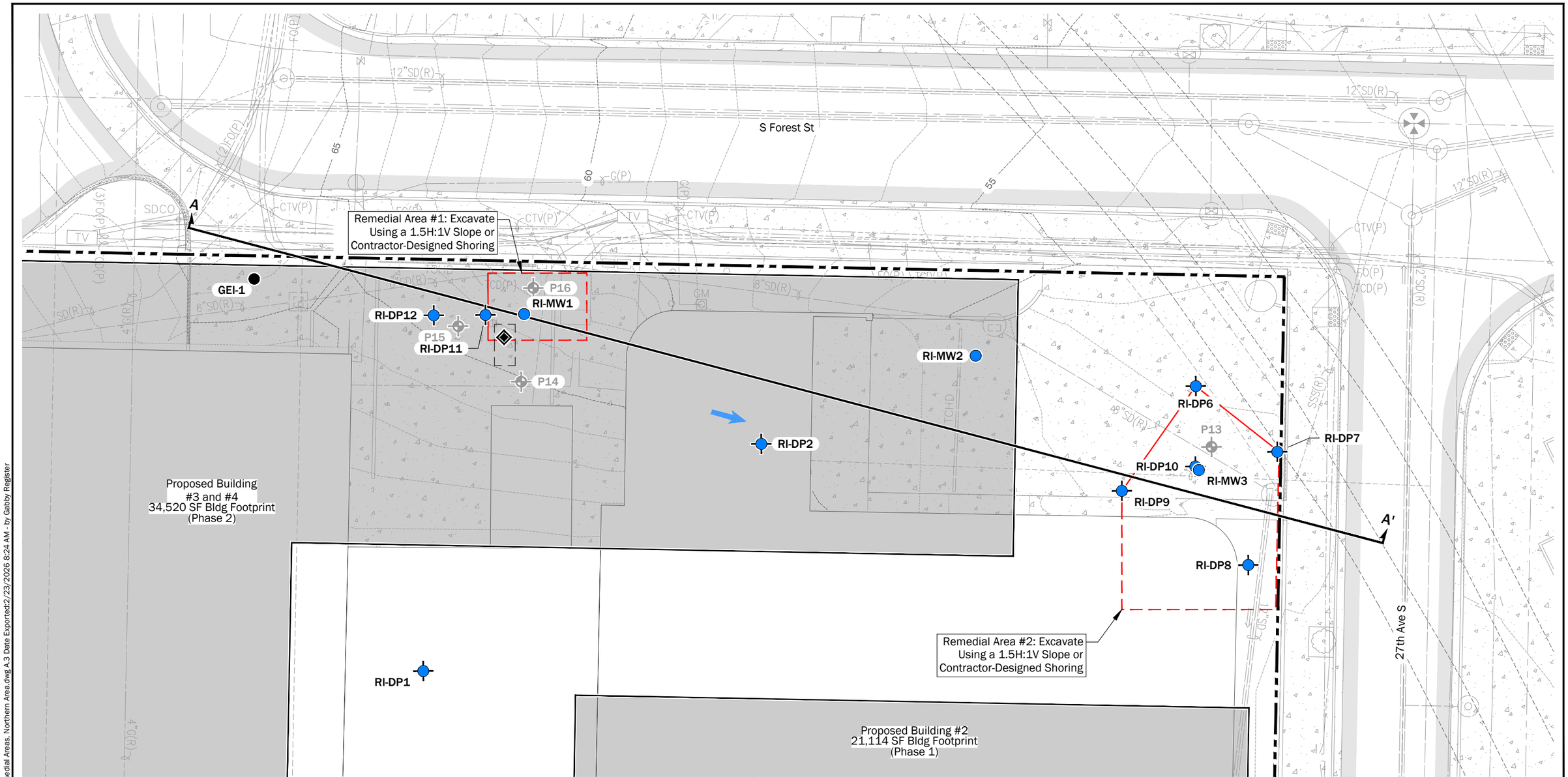
Feet

Areas of Concern

UW Mount Baker Laundry Site, RI-FS Report
Seattle, Washington

GeoEngineers

Figure A.2



Note(s):

1. Cleanup activities in the two remedial areas will follow procedures described in the Soil Management Plan.
2. Remedial area boundaries are estimated based on explorations performed by GoeEngineers (2025) and Sound Earth Strategies (2019).

Source: Survey from Bush, Roed and Hitchings, Inc., dated 10/18/2024

Coordinate System: WA State Plane, North Zone, NAD83, US Foot

Disclaimer: This figure was created for a specific purpose and project. Any use of this figure for any other project or purpose shall be at the user's sole risk and without liability to GeoEngineers. The locations of features shown may be approximate. GeoEngineers makes no warranty or representation as to the accuracy, completeness, or suitability of the figure, or data contained therein. The file containing this figure is a copy of a master document, the original of which is retained by GeoEngineers and is the official document of record.

Legend

- Site Boundary
- A' Cross Section Location
- Approximate Underground Storage Tank (UST)
- Proposed Building
- Estimated Groundwater Flow Direction
- UST Fill Port
- GEI-1 Geotechnical Boring with Monitoring Well by GeoEngineers, 2025
- RI-DP1 Remedial Investigation Boring by GeoEngineers, 2025
- RI-MW-1 Remedial Investigation Monitoring Well by GeoEngineers, 2025
- P13 Phase II ESA Boring by SoundEarth, 2019

Approximate Remedial Excavation Boundary

- Limit Delineated
- Limit Not Delineated

N

0 20
Feet

Remedial Areas, Northern Area

UW Mount Baker Laundry Site, CAP Report
Seattle, Washington

GeoEngineers

Figure A.3

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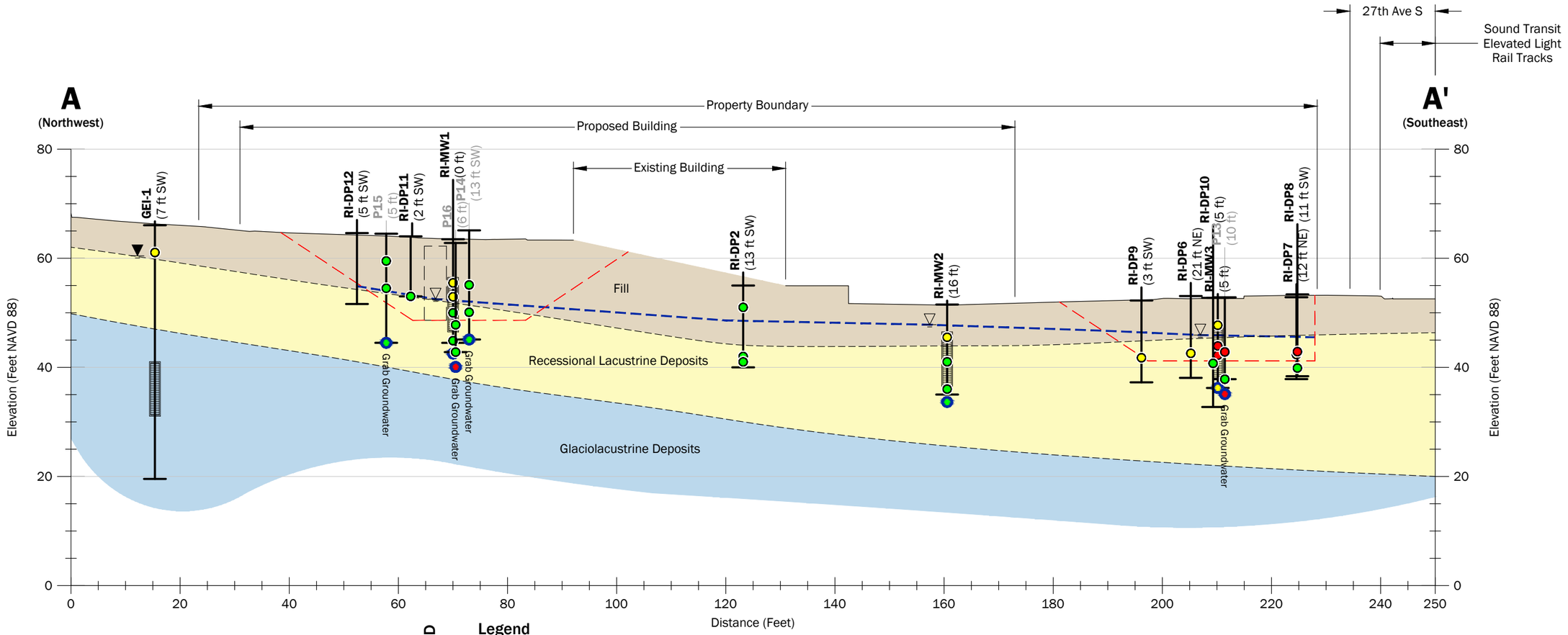

Legend

- Boring ID (Offset)
- Boring
- Inferred Soil Contact
- Approximate Shallow Groundwater Table
- Well Screen
- Shallow Groundwater Elevation
- Deep Groundwater Elevation
- Fill
- Recessional Lacustrine Deposits
- Glaciolacustrine Deposits
- Approximate Underground Storage Tank (UST)
- Approximate Remedial Excavation Boundary

Sampling Results Summary

- COC(s) Not Detected in Soil Sample
- COC(s) Detected in Soil Sample at Concentrations Less than MTCA Cleanup Level (CUL)
- COC(s) Detected in Soil Sample at Concentrations Greater than MTCA CUL
- Groundwater Sample

0 20 Horizontal Feet

0 20 Vertical Feet

Vertical Exaggeration = 1X

Note(s):

1. The subsurface conditions shown are based on interpolation between widely spaced explorations and should be considered approximate; actual subsurface conditions may vary from those shown.
2. DP7 is North, at the property line.
3. DP8 is South, along property line and building.
4. Where practical, excavations will be completed without shoring using a slope of approximately 1.5 horizontal to 1 vertical (1.5H:1V). If these slopes are not achievable, then the excavations will be completed using shoring designed by the excavation contractor and approved by a Professional Engineer registered in Washington State.

Datum: NAVD88

Cross Section A-A'

UW Mount Baker Laundry Site, CAP Report
Seattle, Washington

GeoEngineers

Figure A.4

Appendix B. Tables

Table 1

Technology Screening for Cleanup Alternatives

UW Mount Baker Laundry Site - RI/FS

Seattle, Washington

Remediation Technology	Description	Score									Rank	Retain (Y/N)
		Implementability	Protectiveness	Permanence	Effectiveness	Short-Term Risk Management	Restoration Time Frame	Consideration of Public Concerns	Cost	Total Score		
Monitored Natural Attenuation	Periodic sampling and analysis of soil and groundwater to evaluate degradation of COCs.	4	1	2	1	2	1	1	4	16	4	Y
Engineering and Institutional Controls	Utilizing buildings and other hardscapes planned for construction as part of property redevelopment as a barrier to prevent contact with COC-contaminated soil and groundwater. Recording an Environmental Covenant requiring implementation of a Environmental Media Management Plan (EMMP) and prohibiting the withdrawal of groundwater at the Site for beneficial use.	4	2	2	1	2	1	1	4	17	3	Y
In-situ Treatment	Treatment of COC-contaminated soil and groundwater using thermal remediation methods such as steam-enhanced extraction, electrical-resistance heating, or thermal-conductive heating. This method involves the injection of energy into the subsurface to mobilize and recover volatile organic compounds and petroleum hydrocarbons.	1	3	2	2	1	3	2	1	15	2	Y
Excavation and Off-Property Disposal	Excavation and off-site disposal of COC-contaminated soil and treatment of residual COC-contaminated soil and groundwater using a treatment chemical (e.g. PetroFix).	3	4	4	4	3	4	3	2	27	1	Y

Notes:

Scores = 0 least favorable, 4 most favorable.

Rank = Relative position to other technologies based on total score.

Total Score = Sum of individual scores.

COC = contaminant of concern.

N = Not retained for consideration in cleanup alternatives.

Y = Retained for consideration in cleanup alternatives.

Table 2

Alternatives Evaluation

UW Mount Baker Laundry Site - RI/FS

Seattle, Washington

	Cleanup Alternative 1 **In Situ Treatment and Engineering/Institutional Controls with Monitored Natural Attenuation**	**Cleanup Alternative 2** **Excavation and Off-Property Disposal and Engineering/Institutional Controls with Monitored Natural Attenuation**
Description	Treatment of soil and groundwater contaminated with only petroleum-related COCs (and not lead) using thermal remediation methods such as steam-enhanced extraction, electrical-resistance heating, or thermal-conductive heating. The planned hardscapes would be utilized to limit contact with any potential contamination remaining in place following redevelopment. An Environmental Covenant requiring implementation of a Environmental Media Management Plan for any residual COC-contaminated soil and groundwater that cannot be removed as part of the cleanup action excavation. Long-term groundwater monitoring would be conducted for MNA.	Excavation and off-site disposal of COC-contaminated soil during cleanup action activities. The planned hardscapes would be utilized to limit contact with any potential contamination remaining in place following the cleanup action and property improvements. An Environmental Covenant requiring implementation of a Environmental Media Management Plan for any residual COC-contaminated soil and groundwater that cannot be removed as part of the cleanup action excavation. A treatment chemical, such as PetroFixTM by Regenesis, will be applied to the base of the excavation to treat any residual COC-contaminated soil and/or groundwater. Long-term groundwater monitoring would be conducted for MNA.
THRESHOLD REQUIREMENTS		
Description	**Yes**—Cleanup alternative will protect human health and the environment. Worker protections will be needed in areas where COCs in soil are present at concentrations exceeding MTCA cleanup levels.	**Yes—**Cleanup alternative will protect human health and the environment. Worker protections will be needed in areas where COCs in soil are present at concentrations exceeding MTCA cleanup levels.
Compliant with Cleanup Standards	Yes—for only soil contaminated with petroleum-related COCs—Cleanup alternative will comply with cleanup standards for soil. Concentrations of petroluem-related COCs in soil will be reduced to below MTCA cleanup levels at the point of compliance. Residual COC-contaminated soil and groundwater would be addressed by No—for soil contaminated with lead—Cleanup alternative will NOT comply with cleanup standards for soil. Concentrations of lead in soil will NOT be reduced to below MTCA cleanup levels at the point of compliance. Lead-contaminated soil would be covered with an engineered cap.	Yes—Soil Only—Cleanup alternative will comply with cleanup standards. Concentrations of COCs in soil will be reduced to below MTCA cleanup levels at the point of compliance. Residual COC-contaminated soil and groundwater remaining would be treated with in-situ chemical treatment (PetroFix) followed by MNA and implementation of engineered and institutional controls.
Compliant with Applicable State and Federal Laws	**Yes**—Cleanup alternative will comply with applicable laws.	**Yes—**Cleanup alternative will comply with applicable laws.
Provision for Compliance Monitoring	Yes—Long-term compliance monitoring for groundwater at the Site will be required.	Yes—Long-term compliance monitoring for groundwater at the Site will be required.
OTHER REQUIREMENTS		
Permanent to the Maximum Extent Practicable (see detail below)	**Yes—**Cleanup alternative is permanent to the maximum extent practicable.	**Yes—**Cleanup alternative is permanent to the maximum extent practicable.
Reasonable Restoration Time Frame	**Yes**—Site restoration time frame is <1 year following the start of remediation activities, followed by long-term groundwater monitoring for a period of 3-5 years.	**Yes—**Site restoration time frame is <1 year following the start of remediation activities, followed by long-term groundwater monitoring for a period of 3-5 years.
EVALUATION CRITERIA FOR PERMANENCE TO THE MAXIMUM EXTENT PRACTICABLE		
Protectiveness (30% Weighted Factor)	Cleanup alternative will achieve overall protection. = 3	Cleanup alternative will achieve overall protection. = **4**
Permanence (20% Weighted Factor)	Cleanup alternative will remediate soil and groundwater contaminated with petroleum-related COCs at the property. However, lead-contaminated soil will remain at the property and residual petroleum-contaminated groundwater and/or soil may remain beneath the City of Seattle ROW. = 2	Cleanup alternative will remediate COC-contaminated soil at the property. However, COC-contaminated soil may remain beneath the City of Seattle ROW. COC-contaminated groundwater would likely attenuate at the property. = 4
Long-Term Effectiveness (20% Weighted Factor)	Cleanup alternative is a permanent solution for COC-contaminated soil. = 3	Removal is the most permanent solution for COC-contaminated soil. = 4
Short-Term Risk Management (10% Weighted Factor)	Cleanup alternative would pose a short-term risk for personnel performing field work and would require controls to eliminate the potential for impacts to the public. = **1**	Cleanup alternative would pose a limited short-term risk for personnel performing field work. = **4**
Technical and Administrative Implementability (10% Weighted Factor)	Cleanup alternative requires engineering component that may delay property improvements, with field work, reporting, and legal administrative matters. = **2**	Cleanup alternative requires some field work, reporting, and legal administrative matters. = **3**
Public Concerns (10% Weighted Factor)	Cleanup alternative may cause some public concern due to the remediation process. = **2**	Cleanup alternative may cause some limited public concern; however, complete removal of COC-contaminated soil is a remedy generally accepted by the public. = 4
Overall Score	**2.4**	**3.9**

Notes:

BTEX - benzene, toluene, ethylbenzene, and xylenes

COCs retained for evaluation through the focused feasibility study include total petroleum hydrocarbons as gasoline-range organics, and BTEX.

COCs = contaminant of concern

MTCA = Washington State Model Toxics Control Act Regulation

MNA = monitored natural attenuation

ROW = right-of-way

Appendix C. Terrestrial Ecological Evaluation

Terrestrial Ecological Evaluation Form

Washington State Department of Ecology – Toxics Cleanup Program

Under the Model Toxics Control Act[1] (MTCA), the Department of Ecology (Ecology) requires a terrestrial ecological evaluation (TEE) if hazardous substances are released to the soil at a site. In this case, you must take one of these three actions as part of your site investigation and cleanup.

1. Document an exclusion from further evaluation under WAC 173-340-7491.[2]
2. Conduct a simplified evaluation under WAC 173-340-7492.[3]
3. Conduct a site-specific evaluation under WAC 173-340-7493.[4]

This form documents the TEE type and results for your Site. You must fill out and submit this form to Ecology to complete your remedial investigation. Completing this form alone isn't enough to document your evaluation. You still need to document your analysis and the basis for your conclusion in a cleanup plan or report. For more information, contact the Ecology cleanup project manager assigned to your Site, visit our Terrestrial Ecological Evaluations[5] webpage, or see our draft TEE guidance.[6]

Part 1 Site name and identifying information

Identify the Site being documented for an evaluation.

Site name: **UW Mount Baker Laundry**

Site address: **2901 27th Avenue South, Seattle, Washington**

FSID:[a] **19911937** VCP ID:[b]

Part 2 Evaluator name and contact information

Provide the name and contact information for the person who conducted the evaluation.

Name: **Meredith Bush**

Title: **Staff Geologist**

Organization: **GeoEngineers, Inc.**

Mailing address: **2101 4th Avenue, Suite 950**

City: **Seattle** State: **Washington** Zip: **98121**

Email: **mbush@geoengineers.com** Phone: **206.239.3243**

[a] Facility/Site ID (FSID) assigned by Ecology

[b] Voluntary Cleanup Program (VCP) project ID assigned by Ecology

Part 3 Document evaluation type and results

3A Exclusion from further evaluation

3A-1 Does the Site qualify for an exclusion from further evaluation? (✓ one)

☐ Yes (go to next question).

☑ No or Unknown (go to Section 3B).

3A-2 What is the basis for the exclusion? (✓ all that apply, then skip to Part 4)

Point of compliance: WAC 173-340-7491(1)(a)

All soil contamination is, or will be, deeper than at least:*

☐ 15 feet below ground surface.

☐ 6 feet below ground surface or other Ecology-approved depth, and institutional controls are used to manage remaining contamination.

Barriers to exposure: WAC 173-340-7491(1)(b)

☐ All contaminated soil is, or will be, covered by physical barriers (e.g., buildings or pavement) that prevent exposure to plants and wildlife, and institutional controls are used to manage the remaining contamination.*

Undeveloped land: WAC 173-340-7491(1)(c)

☐ Less than 0.25 acres of contiguous# undeveloped land± are located on or within 500 feet of any area of the Site, and any of the following chemicals is present:

chlorinated dioxins or furans, PCB mixtures, DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosulfan, endrin, heptachlor, heptachlor epoxide, benzene hexachloride, toxaphene, hexachlorobenzene, pentachlorophenol, or pentachlorobenzene.

☐ For sites not impacted by any of these chemicals, less than 1.5 acres of contiguous undeveloped land exists on or within 500 feet of any area of the Site.

Background concentrations: WAC 173-340-7491(1)(d)

☐ Concentrations of hazardous substances in soil do not exceed natural background levels defined in WAC 173-340-200[7] and WAC 173-340-709.[8]

* An exclusion based on future land use must have an Ecology-acceptable completion date for any future development.

\# Contiguous undeveloped land is not fragmented into smaller areas by highways, extensive paving, or similar structures that could hinder wildlife access to such areas.

± Undeveloped land is not covered by buildings, roads, pavement, or other barriers that would prevent wildlife from feeding on plants and other food sources in or on the soil.

3B Simplified evaluation

3B-1 Does the Site qualify for a simplified evaluation? (✓ one)

- [x] Yes (go to next question).
- [ ] No or Unknown (skip to Section 3C).

3B-2 Did you conduct a simplified evaluation? (✓ one)

- [x] Yes (go to next question).
- [ ] No (skip to Section 3C).

3B-3 Was further evaluation necessary? (✓ one)

- [ ] Yes (go to next question).
- [x] No (go to Question 3B-5).

3B-4 If further evaluation was necessary, what did you do? (✓ one)

- [ ] Used the MTCA Table 749-2[9] concentrations as cleanup levels (skip to Part 4).
- [ ] Conducted a site-specific evaluation (skip to Section 3C).

3B-5 If no further evaluation was necessary, what was the reason? (✓ all that apply, then skip to Part 4).

Exposure analysis: WAC 173-340-7492(2)(a)

- [ ] The total area of Site soil contamination is not more than 350 square feet.
- [x] The current or planned land use makes wildlife exposure unlikely, based on MTCA Table 749-1.[10]

Pathway analysis: WAC 173-340-7492(2)(b)

- [ ] No potential exposure pathways from soil contamination to ecological receptors are complete.

Contaminant analysis: WAC 173-340-7492(2)(c)

- [ ] No contaminant listed in MTCA Table 749-2 is, or will be, present from ground surface to 15 feet deep at concentrations that exceed the values listed in MTCA Table 749-2.
- [ ] No contaminant listed in MTCA Table 749-2 is, or will be, present in the upper 6 feet (or alternative depth, if approved by Ecology) at concentrations that exceed the values listed in MTCA Table 749-2, and institutional controls are used to manage remaining contamination.
- [ ] No contaminant listed in MTCA Table 749-2 is, or will be, present in the upper 15 feet at concentrations likely to be toxic or have the potential to bioaccumulate, as determined using Ecology-approved bioassay results.
- [ ] No contaminant listed in MTCA Table 749-2 is, or will be, present in the upper 6 feet (or alternative depth, if approved by Ecology) at concentrations likely to be toxic or have the potential to bioaccumulate, as determined using Ecology-approved bioassay results, and institutional controls are used to manage remaining contamination.

3C Site-specific evaluation

A site-specific evaluation process consists of: 1) formulating the problem, and 2) selecting the methods for addressing the identified problem. Both parts require Ecology consultation and approval – see WAC 173-340-7493(1)(c). For more information, see our draft TEE guidance.

3C-1 Was there a problem? – see WAC 173-340-7493(2)? (✓ one)

- ☐ Yes (go to next question)
- ☐ No (select the reason here, then go to 3C-5):
  - ☐ No issues were identified during the problem formulation step.
  - ☐ Issues were identified and resolved by cleanup actions for protecting human health.

3C-2 What did you do to resolve the problem? – see WAC 173-340-7493(3)? (✓ one)

- ☐ Used concentrations listed in MTCA Table 749-3 as cleanup levels (go to Question 3C-5).
- ☐ Used one or more methods listed in WAC 173-340-7493(3) to evaluate and resolve the identified problem (go to next question).

3C-3 If you conducted further site-specific evaluations, what methods did you use – see WAC 173-340-7493(3)? (✓ all that apply)

- ☐ Literature surveys.
- ☐ Biomarkers.
- ☐ Site-specific field studies
- ☐ Soil bioassays.
- ☐ Weight of evidence.
- ☐ Wildlife exposure model

Other Ecology-approved methods – please specify:

3C-4 What was the result of those evaluations? (✓ one)

- ☐ No problems were identified.
- ☐ Identified a problem and established site-specific cleanup levels.

3C-5 Has Ecology approved both your problem formulation and problem resolution steps? (✓ one)

- ☐ Yes Identify the Ecology staff who approved those steps:
- ☐ No (go to Part 4).

Part 4 Submit to Ecology

Email this completed form to the cleanup site manager assigned to your site.

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[1] https://app.leg.wa.gov/WAC/default.aspx?cite=173-340&full=true
[2] https://app.leg.wa.gov/WAC/default.aspx?cite=173-340&full=true#173-340-7491
[3] https://app.leg.wa.gov/WAC/default.aspx?cite=173-340&full=true#173-340-7492
[4] https://app.leg.wa.gov/WAC/default.aspx?cite=173-340&full=true#173-340-7493
[5] https://ecology.wa.gov/regulations-permits/guidance-technical-assistance/terrestrial-ecological-evaluation
[6] https://apps.ecology.wa.gov/publications/SummaryPages/1909051.html
[7] https://app.leg.wa.gov/WAC/default.aspx?cite=173-340&full=true#173-340-200
[8] https://app.leg.wa.gov/WAC/default.aspx?cite=173-340&full=true#173-340-709
[9] https://app.leg.wa.gov/WAC/default.aspx?cite=173-340&full=true#173-340-900
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[11] mailto:VCP-NWRO@ecy.wa.gov
[12] mailto:VCP-SWRO@ecy.wa.gov
[13] mailto:VCP-CRO@ecy.wa.gov
[14] mailto:VCP-ERO@ecy.wa.gov
[15] https://ecology.wa.gov/about-us/accessibility-equity/accessibility