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FINAL REMEDIAL INVESTIGATION AND FEASIBILITY STUDY REPORT AND DRAFT CLEANUP ACTION PLAN

MORNINGSIDE ACRES TRACTS
5001, 5015, AND 5021 RAINIER AVENUE SOUTH
SEATTLE, WASHINGTON

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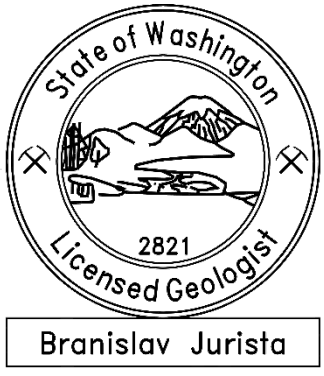

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ACRONYMS AND ABBREVIATIONS

1,2-DCA	1,2-dichloroethane
1,2-DCP	1,2-dichloropropane
1,1,2-TCA	1,1,2-trichloroethane
2022 RI/FS Report	*Remedial Investigation and Feasibility Study Report, Morningside Acres Tracts, 5001, 5015, and 5021 Rainier Avenue South, Seattle, Washington* dated June 20, 2022, prepared for Washin Murakami c/o Bakalian & Associates PS by Farallon Consulting, L.L.C.
AST	aboveground storage tank
bgs	below ground surface
BOLA	BOLA Architecture + Planning
BTEX	benzene, toluene, ethylbenzene, and xylenes
CFR	Code of Federal Regulations
cis-DCE	cis-1,2-dichloroethene
COC	constituent of concern
CSWGP	Construction Stormwater General Permit
DCA	disproportionate cost analysis
DCAP	Draft Cleanup Action Plan
DRO	total petroleum hydrocarbons as diesel-range organics
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
ESA	Environmental Site Assessment
Farallon	Farallon Consulting, L.L.C.
FS	Feasibility Study
G-Logics	G-Logics, Inc.
GRO	total petroleum hydrocarbons as gasoline-range organics
HVAC	heating, ventilation, and air conditioning
ID	identification
ISCR	in-situ chemical reduction
Kleinfelder	Kleinfelder, Inc.
LNAPL	light nonaqueous-phase liquid

µg/l	micrograms per liter
µg/m^3	micrograms per cubic meter
mg/kg	milligrams per kilogram
Middle Parcel	parcel at 5015 Rainier Avenue South
MTCA	Washington State Model Toxics Control Act Cleanup Regulation
NFA	No Further Action
North Parcel	parcel at 5001 Rainier Avenue South
NPDES	National Pollutant Discharge Elimination System
ORO	total petroleum hydrocarbons as oil-range organics
PCBs	polychlorinated biphenyls
PID	photoionization detector
PQL	practical quantitation limit
Property	Morningside Acres Tracts at 5001, 5015, and 5021 Rainier Avenue South in Seattle, Washington
RCW	Revised Code of Washington
RI	Remedial Investigation
Riley Group	The Riley Group, Inc.
ROW	right-of-way
SMC	Seattle Municipal Code
South Parcel	parcel at 5021 Rainier Avenue South
SVE	soil vapor extraction
TCE	trichloroethene
TEE	terrestrial ecological evaluation
TPH	total petroleum hydrocarbons
trans-DCE	trans-1,2-dichloroethene
UST	underground storage tank
VCP	Voluntary Cleanup Program
VOC	volatile organic compound
WAC	Washington Administrative Code
Wolfe Environmental	Wolfe Environmental Consulting, Inc.

1.0 INTRODUCTION

Farallon Consulting, L.L.C. (Farallon) has prepared this updated Final Remedial Investigation (RI) and Feasibility Study (FS) Report and Draft Cleanup Action Plan (RI/FS Report and DCAP) for the Morningside Acres Tracts at 5001, 5015, and 5021 Rainier Avenue South in Seattle, Washington (herein referred to as the Property). This updated Final RI/FS Report and DCAP incorporates two rounds of supplemental soil and groundwater investigations and analysis of new data following submittal of the June 20, 2022 RI/FS Report (Farallon 2022), as requested by the Washington Department of Ecology (Ecology) in response to a request for an opinion(s) regarding completion of the remedial investigation and approval of the DCAP pursuant to the Voluntary Cleanup Plan (VCP).

This updated and Final RI/FS and DCAP comprehensively documents the nature and extent of hazardous substances in soil and groundwater, evaluates and selects the preferred cleanup alternative, and describes the preliminary cleanup plan for the Property and the adjacent City of Seattle Rainier Avenue South right-of-way (ROW) (Figures 1 and 2). The affected areas with hazardous substances exceeding MTCA Method A or B cleanup levels are collectively referred to as the Site.

The Final RI/FS Report and DCAP incorporates the data and results from two additional investigations requested by Ecology, to confirm that hazardous substances present at the Property are fully delineated and the cleanup action contingencies addressed in the DCAP, which incorporated redevelopment of the Property in conjunction with remedial action, as described below. The RI/FS Report and DCAP thoroughly evaluates the potential impacts of the nature and extent of the hazardous substances contamination on human health and the environment, identifies applicable cleanup standards, analyzes and develops technically feasible cleanup alternatives for the affected media of concern, and presents the preferred cleanup action alternatives for the Site, with and without redevelopment of the Property. The RI/FS Report and DCAP was prepared in accordance with the Washington State Model Toxics Control Act Cleanup Regulation (MTCA), as established in Chapter 173-340 of the Washington Administrative Code (WAC 173-340).

The Property and a limited portion of the east-adjacent Rainier Avenue South ROW are impacted by hazardous substances associated with prior releases of volatile organic compounds (VOCs) and petroleum-related compounds from a former automotive repair facility in the warehouse building on the southern parcel at 5021 Rainier Avenue South (South Parcel), and former gasoline service stations on the northern parcel at 5001 Rainier Avenue South (North Parcel). The releases have also affected the soil and groundwater quality of the parcel at 5015 Rainier Avenue South (Middle Parcel), which is located between the South and North Parcels. In accordance with the requirements for performing an RI/FS per WAC 173-340-350, Farallon has evaluated the nature and extent of this contamination at and surrounding the Property. The releases include chemical concentrations of trichloroethene (TCE) and/or 1,2-dichloropropane (1,2-DCP) at the South Parcel, and 1,1,2-trichloroethane (1,1,2-TCA), benzene, and total petroleum hydrocarbons (TPH) as diesel-range organics (DRO), as oil-range organics (ORO), and as gasoline-range organics

(GRO) at the North Parcel, which individually exceed the MTCA Method A or B cleanup levels for soil and/or groundwater. cis-1,2-Dichloroethene (cis-DCE) and vinyl chloride on the South Parcel and 1,2-dichloroethane (1,2-DCA) on the South and North Parcels are present as a result of naturally occurring breakdown of TCE or 1,1,2-TCA (Figure 2).

The selected cleanup action for the Site will be conducted in accordance with MTCA and implemented as a permanent and final remedy for the contaminated soil and groundwater at the Property and adjacent Rainier Avenue South ROW to meet the requirements for cleanup specified in WAC 173-340-360(2) sufficient to obtain an unrestricted No Further Action (NFA) determination from Ecology upon performance and completion of the preferred cleanup action(s), and issuance of an NFA opinion by Ecology upon approval of this RI/FS Report and DCAP.

1.1 PURPOSE AND OBJECTIVE

The purpose of an RI is to collect the site characterization data necessary to develop and evaluate technically feasible cleanup action alternatives in accordance with WAC 173-340-360 through 173-340-390. The RI conducted by Farallon and summarized in this RI/FS Report and DCAP provided the data needed to evaluate technically feasible cleanup action alternatives.

The purpose of an FS is to develop and evaluate cleanup action alternatives to enable a cleanup action to be selected in accordance with WAC 173-340-350(8). The overall objective of the FS is to identify a preferred cleanup action alternative that will protect human health and the environment and constitute a permanent remedy for the Property and a portion of the east-adjacent Rainier Avenue South ROW pursuant to WAC 173-340-360(2). The FS conducted by Farallon and summarized in this RI/FS Report and DCAP identifies the preferred permanent cleanup action associated with the releases at the Property, which will protect human health and the environment, comply with the applicable soil, groundwater, and indoor air cleanup standards established at WAC 173-340-700 through 760, and comply with all applicable state and federal laws and other cleanup action requirements set forth in WAC 173-340-360(2).

1.2 REPORT ORGANIZATION

The remainder of this report is organized into the following sections:

- **Section 2**, **Property Description and Background**, provides a summary of the Property features, current and historical uses, geology and hydrogeology, and regulatory status.
- **Section 3**, **Remedial Investigation Activities**, describes the environmental investigations that were conducted to assess the presence, nature, and extent of hazardous substances in soil, groundwater, and air on and off the Property.
- **Section 4**, **Remedial Investigation Results**, presents groundwater-level data and describes the nature and extent of hazardous substances in soil, groundwater, and air on the Property.

- **Section 5**, **Conceptual Site Model**, presents the conceptual site model for the Property, including sources of contamination, contaminants and media of concern, and exposure pathways and receptors.
- **Section 6**, **Proposed Cleanup Standards**, identifies laws, regulations, and other requirements that are applicable or relevant and appropriate for the cleanup action to be conducted at the Site; summarizes the terrestrial ecological evaluation (TEE) conducted for the Property; and presents cleanup standards applicable to the constituents of concern (COCs) identified in soil and groundwater.
- **Section 7**, **Feasibility Study**, presents the cleanup action objectives for the Site, a screening evaluation of potentially applicable remediation technologies, a detailed evaluation of cleanup action alternatives, and the preferred cleanup action alternative for the Property.
- **Section 8, Draft Cleanup Action Plan,** presents a description of the preferred cleanup action and a discussion of compliance monitoring; and summarizes the primary activities and technical elements of the cleanup action.
- **Section 9**, **References**, lists the documents cited in this report.
- **Section 10**, **Limitations**, presents Farallon's standard limitations pertaining to the information and conclusions presented in this report.

2.0 PROPERTY DESCRIPTION AND BACKGROUND

This section provides a summary of the Property features, current and historical uses, geology and hydrogeology, and regulatory status. The documents relied upon for the following summary are cited below and listed in Section 9, References.

2.1 PROPERTY FEATURES

The Property consists of three contiguous tax parcels in Seattle, Washington (Figures 1 and 2): King County Parcel Nos. 5649600130 (5021 Rainier Avenue South) referred to as the South Parcel; 5649600133 (5015 Rainier Avenue South) referred to as the Middle Parcel; and 5649600135 (5001 Rainier Avenue South) referred to as the North Parcel. The combined area of the three parcels is 0.51 acre (King County Department of Assessments 2019). The Property is situated in a mixed-use area of Rainier Valley at an elevation of approximately 115 feet above mean sea level (U.S. Geological Survey 2017) and is relatively flat and level. The portion of Rainier Valley in which the Property is located is surrounded by hills to the east, south, and west. The hills rise to elevations ranging from approximately 220 to 340 feet above mean sea level. Drinking water for the Property and surrounding community is supplied by the City of Seattle.

The Property is zoned Neighborhood Commercial (NC2), which allows for commercial, residential and mixed uses pursuant to the Seattle Municipal Code (SMC 23.47A.004; Table A), subject to the historic building design review criteria established by the Columbia City Application Review Committee and the City of Seattle Landmarks Preservation Board, as discussed in Section 8. Both the 5015 and 5021 buildings appear on the Seattle Neighborhoods Historical Sites Survey and are eligible for Landmark status, as described in a report prepared by BOLA Architecture + Planning (BOLA 2007).

The entire footprint of the South Parcel (is developed with a one-story warehouse building constructed of brick, stucco, and wood constructed in the 1920s (City of Seattle, No Date). The original western portion of the building is configured as warehouse and large shop area with a vehicle ramp to a basement for vehicle parking and storage (formerly used by car dealerships); the warehouse building's eastern addition, adjacent to Rainier Avenue South, is configured as office space and a separately accessed commercial space that is currently leased as a bookstore (Figure 2). The Middle Parcel contains a one-story commercial building constructed of wood in approximately 1926 and an unpaved parking area to the south. The North Parcel was operated as one or more gasoline service stations until the 1970s; it currently is an asphalt-paved commercial parking lot.

Stormwater runoff from the three parcels and building roofs drains to the ground and enters catch basins that are connected to the City of Seattle stormwater drainage system along Rainier Avenue South. Additionally, some stormwater may infiltrate the subsurface in the unpaved parking lot on the Middle Parcel.

Adjacent properties to the south and west of the Property, to the north across South Hudson Street, and to the east across Rainier Avenue South are developed with commercial and residential buildings and parking lots.

2.2 CURRENT AND HISTORICAL USES OF THE PROPERTY

The current and historical uses of the Property's three tax parcels are summarized below.

2.2.1 South Parcel

The warehouse building, which occupies the entire South Parcel, has been largely vacant for over 10 years and currently is in disrepair. The building is 72 by 74 feet with a partial basement, main floor, and a flat roof that is approximately 16 feet high (BOLA 2007). A hazardous building materials survey was performed by Med-Tox Northwest of Auburn, Washington (2019) from August 1 through 6, 2019 to assist with Farallon's analysis of the feasibility for implementing the potential alternative remedial actions identified in the FS. The original western portion of the warehouse building was constructed in 1924; the building's eastern addition was constructed in 1926 (City of Seattle, No Date). Historically, the warehouse building has been used as an automotive maintenance and repair facility, further described below, automobile and boat dealerships, a plumbing supply business, a pool hall, a fitness center, and a bookstore, which is currently the only tenant. (The Riley Group, Inc. [Riley Group] 2013; Ecology 2015b).

Wash's Auto Repair, a vehicle repair and service facility, operated in the western portion of the building from approximately 1964 until 2012 (Wolfe Environmental Consulting [Wolfe Environmental] 2005; G-Logics, Inc. [G-Logics] 2007; Riley Group 2013). The facility included a mechanics' parts-washing sink, with an associated cleaning solvent aboveground storage tank (AST), and a used-oil AST, a hydraulic-oil AST, a heating-oil underground storage tank (UST), a fuel-oil burning furnace, a floor-drain sump, and an oil-water separator located in the eastern portion of the basement (Kleinfelder, Inc. [Kleinfelder] 2006a; G-Logics 2007; Riley Group 2013).

2.2.2 Middle Parcel

The Middle Parcel includes a wood-framed building that is currently operated as a convenience store. The southern half of the Middle Parcel is an unpaved lot that is fenced off from Rainier Avenue South The building was constructed in 1926 by the Columbia Lumber Company and used as a lumberyard officefrom 1926 until approximately 1965, an insurance agent office between approximately 1966 and 1980, and a convenience store since approximately 1980 until the present. During the time the building was used as a lumber yard office, the lumberyard was located on the adjacent property (or properties) to the west (Wolfe Environmental 2005; BOLA 2007).

2.2.3 North Parcel

The North Parcel is vacant and currently used as a commercial parking lot operated by Diamond Parking Service. No buildings are present on the parcel. Historically, two generations of gasoline

service stations operated at the North Parcel from at least 1927 until the early 1970s. Both service stations were leased and operated by Standard Oil of California and were branded as Standard or Chevron stations (Riley Group 2013).

The first-generation gasoline service station occupied the parcel from at least 1927 until approximately 1953. Gasoline USTs for the first-generation service station were on the eastern exterior of the station building, near Rainier Avenue South (Riley Group 2014). The second-generation gasoline service station occupied the parcel from 1954 until approximately 1972 and included at least three USTs (including one 2,000-gallon UST and one 6,000-gallon UST), four fuel dispensers, and a hydraulic hoist (Riley Group 2014). The second-generation service station building was on the southwestern portion of the North Parcel and the fuel dispensers were east-northeast of the station building, near Rainier Avenue South (Riley Group 2014) (Figure 2). The previous Phase I due diligence reports include Polk Directory and Yellow Pages references to the service station ownership and operations through the 1970s (Wolfe Environmental 2005). The second-generation service station reportedly was closed in the 1970s and the USTs were closed in-place and filled with sand at that time (Wolfe Environmental 2005; Riley Group 2014). The property subsequently was occupied by other businesses, including several automotive repair businesses in the mid- to late-1970s, before it was converted to a commercial parking lot (Wolfe Environmental 2005).

2.3 GEOLOGY AND HYDROGEOLOGY

Based on the field investigations conducted from 2006 through 2023, subsurface soil on the Property generally consists of interbedded silt, clay, silty sand, sand with fine gravel, and gravel. The lithology encountered during the subsurface investigations varied both laterally and vertically. Boring logs from the field investigations indicate that the silts and clays encountered during drilling generally were stiff to hard, and the sands were dense to very dense.

In most borings completed on the Property, shallow groundwater was encountered at depths between 6 and 20 feet below ground surface (bgs) during drilling. Measured depths to groundwater in the monitoring wells on the Property generally have ranged from approximately 6 to 11 feet bgs. However, the measured depths to groundwater in monitoring wells installed in the basement of the warehouse building on the South Parcel have ranged from approximately 0.5 foot to 3 feet below the basement floor. Groundwater elevation data indicate that the direction of groundwater flow on the Property varies spatially and temporally, ranging from south to north on the South Parcel, from southwest to northwest on the Middle Parcel, and from southeast to northwest on the North Parcel.

2.4 REGULATORY STATUS

The environmental investigations completed to date on the Property have been conducted as independent actions consistent with MTCA.

Ecology maintains information pertaining to properties with confirmed or suspected environmental contamination in various lists, databases, and reports. According to Ecology (2015a, 2015b) records, a release report of the discovery of contamination at the Property was submitted to Ecology in 2013 pursuant to WAC 173-340-300(2). Upon being reported to Ecology, the Middle and South Parcels were placed on the Confirmed and Suspected Contaminated Sites List and identified as Cleanup Site ID No. 12408 and the North Parcel was identified as Cleanup Site ID No. 12406. More recently in May 2023, the two sites have been combined into a single site by Ecology under the Cleanup Site ID No. 12408 and VCP ID No. NW3345 named Morningside Acres Site. According to the Ecology (2023c) Toxics Cleanup Program database, the status of the cleanup sites is "Cleanup Started."

The Site Hazard Assessments were completed by Ecology for the South, Middle, and North Parcels on August 19, 2015. Ecology estimates the potential threat to human health and/or the environment on a scale of 1 to 5, relative to all other Washington State sites assessed at the time the Site Hazard Assessments were completed. Based on the Site Hazard Assessment results, Ecology (2015a, 2015b) assigned a hazard ranking of 3 (i.e., "moderate risk") for the Property, where a hazard ranking of 1 represents the highest relative risk and 5 represents the lowest relative risk.

3.0 REMEDIAL INVESTIGATION ACTIVITIES

This section describes the environmental investigations that were conducted to assess the presence, nature, and extent of hazardous substances in soil, groundwater, and air on and off the Property. The initial environmental investigation included a Phase I Environmental Site Assessment (ESA) of the Property in 2005. Following the 2005 Phase I ESA, several field investigations were conducted during 2006 and 2007 (Kleinfelder 2006a, 2006b, 2006c; G-Logics 2007) for a potential purchaser to assess subsurface conditions on and off the Property. The sale was terminated when the real estate market crashed in 2008; the Phase II ESA reports and data were not disclosed to the Property owner at that time. Additional field investigations were conducted by the Property owner beginning in 2013 through the time of completion of this RI/FS Report and DCAP. The field investigations are summarized below. The locations of borings and groundwater monitoring wells installed and air samples collected during the field investigations are shown on Figure 3. The boring logs and groundwater monitoring well construction logs are provided in Appendix A.

Soil samples collected for VOC analysis were collected in accordance with U.S. Environmental Protection Agency (EPA) Method 5035A. Groundwater sampling generally was performed using a peristaltic pump and low-flow purging and sampling procedures. Soil and groundwater samples were delivered to the analytical laboratories in iced coolers using standard chain-of-custody protocols. Additional information regarding the field investigation procedures is provided in the referenced reports.

3.1 PHASE I ENVIRONMENTAL SITE ASSESSMENT (2005)

A Phase I ESA of the Property was conducted by Wolfe Environmental in 2005. The Phase I ESA consisted of a review of available records and interviews with the Property owner and local authorities regarding past activities on the Property. Wolfe Environmental's conclusions from the Phase I ESA (2005) are summarized below.

- Based on the presence (at the time the Phase I ESA was conducted) of an automotive maintenance and repair facility and associated ASTs, a basement floor-drain sump, an oil-water separator, and hazardous materials (e.g., automotive lubricants and fuels) on the South Parcel, Wolfe Environmental concluded that the Property may have been impacted by releases of hazardous substances associated with the automotive maintenance and repair facility;
- Based on the historical presence of USTs on the North Parcel that may have been closed in-place when the former gasoline service stations on the North Parcel were closed, and the historical presence of a lumberyard on and adjacent to the Middle Parcel, Wolfe Environmental concluded that the Property may have been impacted by releases of hazardous substances associated with the former gasoline service stations or the lumberyard; and
- Based on the presence (at the time the Phase I ESA was conducted) of a plastics manufacturing facility immediately west of the Property and a used car lot south of the Property, and the historical presence of a former dry cleaning facility across Rainier Avenue South to the east-southeast of the Property, Wolfe Environmental concluded that

the Property may have been impacted by releases of hazardous substances associated with these off-Property facilities.

Wolfe Environmental (2005) recommended sampling and analyzing soil near the southeastern corner of the Property for the presence of VOCs and groundwater for the presence of petroleum hydrocarbons on the North Parcel and adjacent to the automotive maintenance and repair facility on the South Parcel.

3.2 GEOPHYSICAL INVESTIGATION (2006)

A geophysical investigation was conducted in March 2006 (Kleinfelder 2006a) to search for potential undocumented, abandoned USTs and/or areas of previous significant excavation work on the Property. The investigation area included the parking lot, sidewalks, and accessible landscaped areas of the North Parcel and the unpaved parking lot on the Middle Parcel. No geophysical investigations were performed in buildings on the Property.

The investigation consisted of a reconnaissance survey using a magnetometer to identify possible conductive (e.g., ferrous metallic) subsurface materials, and a ground-penetrating radar survey to identify and estimate the dimensions and depth of possible subsurface objects and disturbed soil such as USTs, underground utilities, and historical excavation areas.

The geophysical investigation identified three anomalies on the North Parcel:

- An anomaly measuring approximately 20 by 35 feet was identified on the northwestern corner of the parking lot. This anomaly was interpreted to possibly represent the location of closed-in-place USTs. However, because the anomaly was identified by ground-penetrating radar but not the magnetometer, this interpretation was considered uncertain.
- An anomaly measuring approximately 5 by 7 feet was identified near the northeastern corner of the parking lot. This anomaly was interpreted to possibly represent buried debris such as metal plating and/or reinforcing steel, concrete, or other types of construction debris. Kleinfelder (2006a) speculated that the anomaly may coincide with the location of former fuel dispensers or a sign foundation associated with the former gasoline service station(s).
- An anomaly measuring approximately 5 by 19 feet was identified on the eastern portion of the parking lot. This anomaly was interpreted to possibly represent buried debris such as metal plating and/or reinforcing steel, concrete, or other types of construction debris. Kleinfelder (2006a) speculated that the anomaly may coincide with the location of former fuel dispensers associated with the former gasoline service station(s).

The geophysical investigation did not identify any anomalies at the Middle Parcel.

3.3 LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT (2006)

As noted, a limited Phase II ESA was conducted in May and June 2006 in connection with a potential sale of the Property to assess the potential presence of GRO, DRO, ORO, mineral oil,

VOCs, and lead in soil and shallow groundwater (Kleinfelder 2006b). The limited Phase II ESA included the following activities:

- Advancing six borings (SB-1 through SB-4, GP-1, and GP-2) to total depths ranging from 13 to 29 feet bgs. Three borings were completed on the North Parcel and three were completed on the Middle Parcel.
- Completing five of the six borings as groundwater monitoring wells (MW-1 through MW-5). Two monitoring wells were installed on the North Parcel and three were installed on the Middle Parcel.
- Field screening soil encountered in the borings for potential indications of VOC and/or petroleum hydrocarbon contamination. Field screening consisted of observing soil for evidence of staining and screening for the presence of VOC vapors using a hand-held photoionization detector (PID).
- Collecting two soil samples from two borings (one sample each from borings GP-1 and GP-2) and analyzing the samples for VOCs by EPA Method 8260; GRO by Northwest Method NWTPH-Gx; DRO, ORO, and mineral oil by Northwest Method NWTPH-Dx; and/or lead by EPA Method 7420.
- Collecting four groundwater samples from three monitoring wells (MW-1, MW-4, and MW-5) (groundwater was not encountered in monitoring wells MW-2 or MW-3), and analyzing the samples for VOCs by EPA Method 8260, GRO by Northwest Method NWTPH-Gx, DRO and ORO by Northwest Method NWTPH-Dx, and/or dissolved lead by EPA Method 7421.
- Surveying the top-of-casing elevations of monitoring wells MW-1 through MW-5 relative to an arbitrary benchmark with an assumed elevation of 100 feet above mean sea level.

Drilling services were performed by Boart Longyear/Holt Drilling, Inc. of Fife, Washington. Laboratory analytical services were performed by ESN Northwest of Olympia, Washington and Advanced Analytical Laboratory of Redmond, Washington.

3.4 SUPPLEMENTAL PHASE II ENVIRONMENTAL SITE ASSESSMENT (2006)

A supplemental Phase II ESA was conducted in August 2006 (Kleinfelder 2006c) to further assess the potential presence of VOCs, GRO, DRO, ORO, mineral oil, and lead in soil and shallow groundwater on the Property. The supplemental Phase II ESA included the following activities:

- Advancing three borings (GP-3 through GP-5) to total depths ranging from 12 to 17 feet bgs. Two borings were completed on the South Parcel and one was completed on the North Parcel.
- Completing the three borings as groundwater monitoring wells (MW-6 through MW-8). Two monitoring wells were installed on the South Parcel and one was installed on the North Parcel.

- Field screening soil encountered in the borings for potential indications of VOC and/or petroleum hydrocarbon contamination. Field screening consisted of sheen testing, observing soil for evidence of staining or odors, and screening for the presence of VOC vapors using a hand-held PID.
- Collecting three soil samples from three borings (one sample each from borings GP-3 through GP-5) and analyzing the samples for VOCs by EPA Method 8260; GRO by Northwest Method NWTPH-Gx; DRO, ORO, and mineral oil by Northwest Method NWTPH-Dx; and lead by EPA Method 7420.
- Collecting four groundwater samples from four monitoring wells (MW-3 and MW-6 through MW-8) and analyzing the samples for VOCs by EPA Method 8260, GRO by Northwest Method NWTPH-Gx, DRO and ORO by Northwest Method NWTPH-Dx, and/or dissolved lead by EPA Method 7421.
- Surveying the top-of-casing elevations of monitoring wells MW-6 through MW-8 relative to an arbitrary benchmark with an assumed elevation of 100 feet above mean sea level.

Drilling services were performed by Boart Longyear/Holt Drilling, Inc. Laboratory analytical services were performed by ESN Northwest and Spectra Laboratories of Tacoma, Washington.

3.5 ADDITIONAL SUBSURFACE EXPLORATION (2007)

Additional subsurface exploration was conducted in January and February 2007, summarized in a report prepared by G-Logics (2007), to further characterize the nature and extent of chlorinated VOC and petroleum hydrocarbon contamination in soil and groundwater previously identified in the limited and supplemental Phase II ESAs conducted in 2006. The additional subsurface exploration included the following activities:

- Advancing 18 borings (GLP-01 through GLP-18) to total depths ranging from 6 to 26 feet bgs. Seven borings were completed on the South Parcel, two were completed on the Middle Parcel, seven were completed on the North Parcel, and two were completed immediately south of the South Parcel. A UST was encountered at a depth of approximately 18 inches below the basement floor of the warehouse building on the South Parcel, at the location of boring GLP-07 (Figure 3). The UST appeared to be used for the storage of heating oil.
- Completing 10 of the 18 borings as groundwater monitoring wells (MW-9 through MW-18). Three monitoring wells were installed on the South Parcel, two were installed on the Middle Parcel, three were installed on the North Parcel, and two were installed immediately south of the South Parcel.
- Field screening soil encountered in the borings for potential indications of VOC and/or petroleum hydrocarbon contamination. Field screening consisted of sheen testing and observing soil for evidence of staining or odors.
- Collecting 35 soil samples from 17 borings (1 to 3 samples each from borings GLP-01 through GLP-06 and GLP-08 through GLP-18) and analyzing the samples for VOCs by

EPA Method 8260B; GRO by Northwest Method NWTPH-Gx; DRO and ORO by Northwest Method NWTPH-Dx; and/or benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8021B.

- Collecting a sediment sample from the floor-drain sump in the basement of the warehouse building on the South Parcel and analyzing the sample for VOCs by EPA Method 8260B; GRO by Northwest Method NWTPH-Gx; DRO and ORO by Northwest Method NWTPH-Dx; polychlorinated biphenyls (PCBs) by EPA Method 8082; and arsenic, cadmium, chromium, lead, and mercury by EPA 7000 Series Methods.
- Collecting one reconnaissance groundwater sample from boring GLP-07 and analyzing the sample for VOCs by EPA Method 8260B; GRO by Northwest Method NWTPH-Gx; and DRO, ORO, and mineral oil by Northwest Method NWTPH-Dx.
- Collecting 17 groundwater samples from 17 monitoring wells (MW-1 through MW-4 and MW-6 through MW-18) and analyzing the samples for VOCs by EPA Method 8260B; GRO by Northwest Method NWTPH-Gx; and/or DRO, ORO, and mineral oil by Northwest Method NWTPH-Dx.
- Surveying the top-of-casing elevations of monitoring wells MW-1 through MW-18 relative to a benchmark with a known elevation above mean sea level (North American Vertical Datum of 1988).

Drilling services were performed by Cascade Drilling of Woodinville, Washington and Pacific Northwest Probe and Drilling of Milton, Washington. Laboratory analytical services were performed by Libby Environmental, Inc. of Olympia, Washington, and Advanced Analytical Laboratory.

3.6 GROUNDWATER SAMPLING (2013)

Groundwater samples were collected on behalf of the Property owner by the Riley Group in February 2013 from the existing monitoring wells on the Property from the existing wells on the Property installed by Kleinfelder in 2006 and G-Logics in 2007 to obtain current groundwater quality data following the previous groundwater sampling in 2006 and 2007. The February 2013 sampling event (Riley Group 2013) consisted of collecting 17 groundwater samples from 17 monitoring wells (MW-1 through MW-4 and MW-6 through MW-18; monitoring well MW-5 could not be located) and analyzing the samples for VOCs by EPA Method 8260C, GRO by Northwest Method NWTPH-Gx, and DRO and ORO by Northwest Method NWTPH-Dx.

In accordance with the Ecology (2011) *Guidance for Remediation of Petroleum Contaminated Sites*, a silica gel cleanup procedure was not used to remove non-petroleum organics from most of the groundwater samples analyzed by Northwest Method NWTPH-Dx. However, for comparison purposes, the groundwater samples collected from monitoring wells MW-6 and MW-9 on the North Parcel were analyzed both with and without silica gel cleanup, due to the potential presence of buried wood debris on the North and Middle Parcels (associated with the former lumberyard on and adjacent to the Middle Parcel) that could bias the NWTPH-Dx results.

Laboratory analytical services were performed by Friedman & Bruya, Inc. of Seattle, Washington.

3.7 SUPPLEMENTAL SOIL AND GROUNDWATER SAMPLING (2017 AND 2018)

In December 2017 and April, May, August, and October 2018, Farallon conducted supplemental soil and groundwater sampling on and off the Property. The purpose of the supplemental sampling was to further characterize the nature and extent of chlorinated VOC and petroleum hydrocarbon contamination identified on the Property during previous field investigations. The supplemental soil and groundwater sampling included the following activities:

- Advancing five borings (MW-19 through MW-21, FB-22, and FB-23) to total depths ranging from 20 to 45 feet bgs. Borings FB-22 and FB-23 were completed on the North Parcel, borings MW-19 and MW-21 were completed as groundwater monitoring wells on the Middle Parcel, and boring MW-20 was completed as a groundwater monitoring well to the east of the Property on the sidewalk along the eastern side of Rainier Avenue South across from the Middle Parcel.
- Field screening soil encountered in the borings for potential indications of VOC and/or petroleum hydrocarbon contamination. Field screening consisted of observing soil for evidence of staining or odors and screening for the presence of VOC vapors using a hand-held PID.
- Collecting 19 soil samples from 5 borings (3 to 4 samples each from borings MW-19 through MW-21, FB-22, and FB-23) and analyzing the samples for GRO by Northwest Method NWTPH-Gx, DRO and ORO by Northwest Method NWTPH-Dx, BTEX by EPA Method 8021B, and/or VOCs by EPA Method 8260C.
- Collecting 35 groundwater samples from 18 monitoring wells (MW-2 through MW-4, MW-6 through MW-9, and MW-11 through MW-21) and analyzing the samples for VOCs by EPA Method 8260C, GRO by Northwest Method NWTPH-Gx, DRO and ORO by Northwest Method NWTPH-Dx, BTEX by EPA Method 8021B, and/or 1,2-dibromoethane by EPA Method 8011. Sixteen groundwater samples were collected in December 2017, one was collected in May 2018, and eighteen were collected in October 2018.

Drilling services were performed by Holt Services, Inc. of Edgewood, Washington. Laboratory analytical services were performed by OnSite Environmental Inc. of Redmond, Washington. Farallon surveyed the top-of-casing elevations of monitoring wells MW-19 through MW-21 relative to a previously established benchmark with a known elevation above mean sea level (North American Vertical Datum of 1988) on May 9, 2019.

3.8 INDOOR AND OUTDOOR AIR SAMPLING (2019)

On July 16, 2019, pursuant to a request by Ecology (2019a), Farallon conducted crawl space, basement, indoor, and outdoor air sampling to evaluate potential impacts to indoor air quality due to the vapor intrusion risk posed by the soil and groundwater contamination. The investigation is

summarized in Farallon's 2019 letter report submitted to Ecology, which was accepted and approved.

As described in Farallon's letter report, on the day of sampling, none of the buildings on the Property had operational heating, ventilating, and air conditioning (HVAC) systems. The absence of a working HVAC system has the potential to bias results higher than those obtained under typical working conditions. Weather conditions, including barometric pressure, precipitation, and wind speed and direction, were monitored before and during sampling. These conditions also have the potential to affect the interpretation of sample results.

As depicted on Figure 3, indoor air sample IA-1 was collected from the first floor of the convenience store storage room at 5015 Rainier Avenue South. Indoor air samples IA-2 and IA-6 were collected from the first floor in the front and back of the commercially leased portion of the warehouse building at 5021 Rainier Avenue South, respectively. Indoor air samples IA-3 through IA-5 were collected from the basement crawl space at the front of the commercially leased portion of the warehouse building, the former automotive maintenance and repair facility basement, and the basement crawl space at the back of the commercially leased portion of the warehouse building, respectively (Figure 3). Indoor air samples IA-1 through IA-6 were collected within the typical average worker's breathing space at an elevation of approximately 4 to 6 feet above the floor.

Outdoor air sample OA-1 was collected at a central location at the Property between the convenience store and warehouse building at an elevation of approximately 4 feet above the ground surface to assess background ambient air concentrations (Figure 3). During the vapor intrusion assessment, concentrations of COCs detected in outdoor ambient air typically are subtracted from indoor air sampling data as background concentrations. Sampling was performed using 6-liter Summa canisters with flow controllers calibrated to collect an air sample over a period of approximately 8 hours, the equivalent of a typical work shift for a commercial business employee. Evaluation of vapor intrusion risk typically targets worker exposure under a commercial setting because the duration of a worker's time at a site usually is considerably longer than that of visitors and patrons. Sampling was discontinued after approximately 8 hours as intended. The final pressure measured in each Summa canister had the recommended vacuum in each canister that is necessary to ensure sample integrity.

Upon conclusion of indoor and outdoor air sample collection, the Summa canisters were labeled, sealed, packed into their original shipping containers, and returned to Friedman & Bruya, Inc. for laboratory analysis. The indoor and outdoor air samples were analyzed for volatile constituents of concern detected in groundwater samples at concentrations exceeding MTCA Method B screening levels for indoor air, including TCE, vinyl chloride, 1,2-DCA, and 1,2-DCP by EPA Method TO-15 Selective Ion Mode, and extractable petroleum hydrocarbons by Massachusetts Department of Environmental Protection Method MA-APH to achieve the reporting limits necessary for comparison to regulatory action levels for indoor air.

According to weather data obtained from the University of Washington Department of Atmospheric Sciences and the NASA Information Infrastructure Technology and Applications

Program (no date), weather conditions during sampling consisted of overcast clouds, with an average temperature of 78 degrees Fahrenheit. According to the Seattle-Tacoma International Airport weather station data for July 16, 2019, winds from the north to the south were estimated at approximately 5 miles per hour. Barometric pressure at the time of arrival at the Property and at the conclusion of sampling was approximately 30.0 inches of mercury with minor fluctuating trends throughout the day. Weather conditions during sampling were recorded to assist in the evaluation of factors that may affect sampling results. Weather conditions at the time of sampling were conducive to collecting representative indoor air samples and are not anticipated to have biased sample results.

3.9 HAZARDOUS BUILDING MATERIALS SURVEY

Med-Tox Northwest (2019) conducted a building materials survey from August 1 through 6, 2019 to identify potential hazardous materials present in the two buildings on the South and Middle Parcels. In part, this survey was used to assist in the FS analysis for selection of the preferred cleanup alternative for the Property. The survey included identification and testing for asbestos, lead-based paint, chlorofluorocarbons, PCBs, and mercury-containing materials that may be released during the proposed cleanup actions at or beneath the two buildings on the Property. WAC 296-155-775 requires identification and abatement of asbestos and hazardous materials and potential associated hazards prior to any renovation or building demolition activities. Asbestos was identified on duct insulation and flooring in the warehouse building on the South Parcel and assumed to be in the roofing material of the building. No asbestos-containing materials were identified in the building on the Middle Parcel.

Lead-based paint was identified on interior and exterior walls, ceiling, or trim at both buildings present on the Property. Chlorofluorocarbons were not identified but potentially may be present in one window-mounted air-conditioning unit observed in the Middle Parcel building. All light fixtures are assumed to contain PCBs and light tubes are assumed to contain mercury. PCBs were confirmed in paint present on surfaces at the South Parcel warehouse building, but not in the Middle Parcel building. Some areas of the buildings (e.g., attics and crawl spaces) and interiors of the walls were not accessible during the survey.

3.10 SUPPLEMENTAL SOIL AND GROUNDWATER SAMPLING (2021)

In April and August 2021, Farallon conducted supplemental soil and groundwater sampling on and off the Property. The purpose of the supplemental sampling was to further characterize the nature and extent of chlorinated VOC and petroleum hydrocarbon contamination identified on the Property during previous field investigations and to facilitate the planning and design of an interim remedial action to clean up the primary source of chlorinated VOCs. The supplemental soil and groundwater sampling including the following activities:

- Advancing six borings (FB-24 through FB-29) to total depths ranging from 8.5 to 15 feet below the basement floor on April 13 and 14, 2021. Borings FB-24 through FB-29 were

completed on the South Parcel in the basement of the warehouse building proximate to the former floor-drain sump.

- Field screening soil encountered in the borings for potential indications of VOC and/or petroleum hydrocarbon contamination. Field screening consisted of observing soil for evidence of staining or odors and screening for the presence of VOC vapors using a hand-held PID.
- Collecting 12 soil samples from 5 borings (2 to 3 samples each from borings FB-24 through FB-28) and analyzing the samples for VOCs by EPA Method 8260D. Soil samples from contingency boring FB-29 were not analyzed as the results from boring FB-25 provided sufficient information to define the extent of VOC contamination in soil in northerly direction.
- Collecting 17 groundwater samples from monitoring wells MW-2, MW-3, MW-6 through MW-9, and MW-11 through MW-21 and analyzing the samples for VOCs by EPA Method 8260D, GRO by Northwest Method NWTPH-Gx, DRO and ORO by Northwest Method NWTPH-Dx, and BTEX by EPA Method 8260D on August 9 and 10, 2021.

Drilling services were performed by Cascade Drilling of Woodinville, Washington. Laboratory analytical services were performed by OnSite Environmental Inc. of Redmond, Washington.

Results from prior investigations and the 2021 supplemental soil and groundwater sampling were summarized in the 2022 RI/FS Report, which was provided to Ecology for review and opinion on June 27, 2022 along with the application to enroll the Site into the VCP. Ecology accepted the Site into the VCP on October 25, 2022 (Ecology 2022a) and issued an opinion on December 12, 2022 (Ecology 2022b) requesting completion of additional characterization of hazardous substances at the Site.

3.11 SUPPLEMENTAL SOIL AND GROUNDWATER INVESTIGATIONS (2023)

Since submittal of the 2022 RI/FS Report and Ecology's acceptance of the Site into the VCP, Farallon has conducted two supplemental soil and groundwater investigations, as requested by Ecology in response to requests for an opinion that the RI/FS is complete and the preferred cleanup action will, upon completion, meet Ecology's cleanup regulations for issuance of an NFA determination. A description of the two supplemental investigations, consisting of 13 new borings and 6 additional groundwater monitoring wells, is described below.

The purpose of performing this additional work was to identify and develop contingencies for addressing the soil and groundwater data gaps regarding the horizontal and vertical distribution of chlorinated VOCs and petroleum hydrocarbons along the eastern and western Property boundaries. Limited impacted areas that could not be investigated at this time due to access restrictions will be further investigated, sampled, and remediated during excavation and redevelopment of the Property as described in the preferred cleanup action(s) in Sections 7 and 8 below.

Ecology's December 12, 2022 letter and opinion (Ecology 2022b) required collection of additional soil and groundwater data necessary for approval of the 2022 RI/FS Report. Farallon conducted supplemental investigations between February 13 and March 23, 2023 to evaluate the western extent of the chlorinated VOC and petroleum hydrocarbon impacts on the Property and the northern extent of the chlorinated VOC impacts in groundwater, and to determine whether chlorinated VOC impacts were commingling with petroleum hydrocarbon impacts on the North Parcel. The supplemental remedial investigation consisted of advancing boring FB-30 and installing permanent groundwater monitoring wells MW-22 through MW-24 at the locations shown on Figure 3. The rationale for each boring and monitoring well location consisted of the following:

- Monitoring wells MW-22 and MW-23 were installed to depths of 18 and 48 feet bgs, respectively, in the southwestern portion of the North Parcel. Soil and groundwater samples were collected from the shallow and deeper portions of the groundwater-bearing zone to evaluate whether petroleum hydrocarbon and chlorinated VOC contamination was migrating off the Property to the west-southwest.
- Boring FB-30 and monitoring well MW-24 were advanced to depths of 30 and 45 feet bgs, respectively, for collection of soil and groundwater samples to evaluate the northern extent of the chlorinated VOC plume in groundwater and potential commingling with petroleum hydrocarbon impacts on the North Parcel.

A deviation from the scope of work approved by Ecology included installation of a permanent deeper monitoring well (MW-24) instead of a temporary well for collection of reconnaissance groundwater samples due to a significantly slow recharge of groundwater during drilling. Farallon installed a deeper well screened from 35 to 45 feet bgs to provide for collection of groundwater samples to delineate the northern extent of the chlorinated VOC plume in groundwater.

The completed supplemental investigation summary was provided in the April 5, 2023 Remedial Investigation and Feasibility Study Addendum (Farallon 2023a), and summarized in Section 4, Remedial Investigation Results. The Remedial Investigation and Feasibility Study Addendum (Farallon 2023a) was provided to Ecology for review and opinion.

Ecology 's May 23, 2023 letter and opinion (Ecology 2023a) on the Remedial Investigation and Feasibility Study Addendum (Farallon 2023a) required limited further evaluation of the nature and extent of the petroleum hydrocarbon and chlorinated VOC contamination at the margins of the Property and along the Rainier Avenue South ROW, and how these data affect the future redevelopment of the Property in conjunction with performance of the recommended cleanup action.

Ecology identified the following data gaps requiring additional characterization of soil and groundwater at the Property, as described in the May 2023 letter and opinion (Ecology 2023a):

- The extent of TCE and vinyl chloride contamination in soil and groundwater east of shallow groundwater monitoring well MW-17 has not been defined.

- The lateral extent of DRO and ORO in groundwater south, east, and west of shallow monitoring well MW-6 has not been defined.
- The extent of GRO, DRO, ORO, and benzene in soil and groundwater east of boring FB-30 and shallow monitoring well MW-18 has not been defined.
- The extent of petroleum contamination in soil south of boring FB-23 has not been defined.
- The vertical extent of vinyl chloride contamination in soil in the vicinity of a former floor drain in the basement of the building on the South Parcel has not been defined. Ecology (2023a) granted that this data gap can be addressed after the building is removed during redevelopment.

To address data gaps identified by Ecology (2023a), Farallon completed an additional investigation in July 2023 that consisted of advancing borings FB-31 through FB-36 and installing permanent groundwater monitoring wells MW-25 through MW-27 at the locations shown on Figure 3. Prior to completing the additional investigation, Farallon (2023b) prepared a work plan detailing the scope of work to be performed. The scope of work for the additional investigation was approved by Ecology (2023b) in an email to Farallon dated July 10, 2023. The rationale for each boring and monitoring well location consisted of the following:

- Borings FB-31 through FB-35 were installed from depths of 17.5 to 20 feet bgs for collection of soil and reconnaissance groundwater samples to evaluate the extent of petroleum contamination in the vicinity of existing shallow monitoring well MW-6.
- Boring FB-35 was advanced at a 32.5 degree angle, the maximum angle the direct-push drill rig could achieve, with the boring surface location south of the convenience store building on the Middle Parcel and terminating at depth beneath the western portion of the convenience store building. Boring FB-35 was advanced to a total linear depth of 15 feet for collection of soil samples on the western property boundary of the Middle Parcel.
- Boring FB-36 was installed to a depth of 20 feet bgs for collection of soil samples on the southern portion of the North Parcel to evaluate the extent of petroleum contamination in soil south of soil boring FB-23.
- Shallow monitoring well MW-25 was installed east of the former dispenser islands on the South Parcel with a screen interval from 5 to 15 feet bgs to evaluate the eastern extent of petroleum contamination in soil and shallow groundwater east of soil borings FB-23 and FB 30.
- Monitoring wells MW-26 and MW-27 were installed as a nested groundwater monitoring well pair at the eastern Property boundary, east of the convenience store building at the South Parcel with screen intervals from 35 to 45 feet bgs and 8 to 18 feet bgs, respectively. The monitoring well pair was installed for collection of soil and groundwater samples to evaluate the eastern extent of chlorinated VOCs in soil and shallow and deeper groundwater east of monitoring well MW-17.

While marking for utilities prior to the July 2023 supplemental remedial investigation, Farallon observed a concrete patch in the parking lot on the North Parcel, northeast of the reported location of boring FB-23; no patch was observed at the location previously identified as boring FB-23. Boring FB-23 was advanced on August 29, 2018, and the review of aerial photos shows the concrete patch appearing after May 2018 and before May 2019. This information led to the conclusion that boring FB-23 location is approximately 10 feet to the northeast of the location previously reported in Farallon documents, as indicated on Figure 3. The results of the July 2023 additional investigation are provided in the August 8, 2023, Second Addendum to Remedial Investigation and Feasibility Study (Farallon 2023c), and summarized in Section 4, Remedial Investigation Results. The Second Addendum to Remedial Investigation and Feasibility Study (Farallon 2023c) was provided to Ecology for review and opinion.

4.0 REMEDIAL INVESTIGATION RESULTS

This section presents groundwater-level elevation data, describes the nature and extent of chlorinated VOC and petroleum contamination in soil and groundwater on the Property, and provides the results from the air sampling to evaluate the vapor intrusion pathway. The information presented in this section is based on the results from the subsurface investigations and vapor intrusion assessment described in Section 3, Remedial Investigation Activities, including the laboratory analytical results for the 94 soil and 120 groundwater samples analyzed for petroleum-related compounds and 77 soil and 110 groundwater samples analyzed for chlorinated VOC compounds, 1 sediment/sludge sample from the sump analyzed for petroleum-related and chlorinated VOC compounds, and 7 air samples analyzed for VOC compounds since 2006.

The nature and extent of chlorinated VOC and petroleum contamination was evaluated by screening the soil and groundwater analytical data against MTCA Method A and standard Method B (direct-contact pathway) cleanup levels (WAC 173-340-704 and 173-340-705). The nature and extent of these contaminants in soil and groundwater are described in Sections 4.2 and 4.3.

Four soil samples and five groundwater samples were analyzed for lead. Lead was not detected at concentrations exceeding the MTCA Method A cleanup level in soil and was not detected in groundwater.

Laboratory analytical reports from the field investigations conducted prior to 2017 are provided in previous reports prepared by Kleinfelder (2006b, 2006c), G-Logics (2007), and Riley Group (2013) and from the supplemental soil, groundwater, and air sampling conducted by Farallon from 2017 through 2023 were provided to Ecology in the 2022 RI/FS Report, Remedial Investigation and Feasibility Study Addendum (Farallon 2023b), and the Second Addendum to Remedial Investigation and Feasibility Study (Farallon 2023c).

4.1 GROUNDWATER LEVELS AND FLOW DIRECTION

Depth to groundwater was measured at monitoring wells during the field investigations using an electronic water-level meter (Table 1). Groundwater elevations were calculated by subtracting the measured depths to groundwater from the surveyed elevations of the tops of the monitoring well casings.

Figures 4A through 4D present groundwater elevation contour maps prepared using the groundwater-level data collected by Farallon in October 2018, August 2021, February 2023, and July 2023. The groundwater elevation contours for the four groundwater monitoring events consistently indicate that groundwater generally flows from south to north on the South Parcel, from southwest to northwest on the Middle Parcel, and from southeast to northwest on the North Parcel. The horizontal hydraulic gradient typically ranged from approximately 0.02 to 0.06 foot per foot during the four groundwater monitoring events.

4.2 NATURE AND EXTENT OF CONTAMINATION IN SOIL

4.2.1 Chlorinated Volatile Organic Compounds

TCE and/or its breakdown product, vinyl chloride, were detected at concentrations exceeding MTCA Method A or B cleanup levels in soil samples collected from beneath the warehouse basement floor on the South Parcel in boring GP-4 at a depth of 8 feet; boring GLP-13 at depths of 4, 8, and 12 feet; boring FB-26 at depths of 6 and 10 feet; boring FB-25 at a depth of 6 feet; and boring FB-28 at depths of 6 and 10 feet, adjacent to the floor-drain sump (Table 2, Figure 5). TCE and/or vinyl chloride also were detected at concentrations exceeding the MTCA Method A or B cleanup levels in soil samples collected from borings MW-17 and MW-19 at a depth of 15 feet bgs in the unpaved parking lot on the Middle Parcel (Table 2, Figure 5). cis-1,2-DCE and/or vinyl chloride also were detected at concentrations exceeding the MTCA Method B cleanup levels for saturated soil protective of groundwater in the soil samples collected from monitoring well boring MW-26 at depths of 15 and 25 feet bgs on the east side of the Middle Parcel adjacent to the Rainier Avenue South ROW.

At other depths within these borings and at other boring locations, chlorinated VOCs either were not detected in soil or were detected at concentrations less than MTCA Method A or B cleanup levels. The maximum concentration of TCE detected in soil was 0.88 milligrams per kilogram (mg/kg) in boring FB-26 and the maximum concentration of vinyl chloride detected in soil was 0.77 mg/kg in boring GLP-13, both of which are advanced beneath the warehouse. Figure 5 shows the estimated areal extent of TCE and vinyl chloride in soil at concentrations exceeding MTCA Method A or B cleanup levels. The horizontal extent of chlorinated VOCs in soil at concentrations exceeding the applicable MTCA Method A or Method B cleanup levels is defined by the analytical results for soil samples collected from borings GLP-9, GLP-11, and FB-27 to the south, from borings FB-24, GLP-13, GLP-12, and monitoring well boring MW-21 to the west, from borings FB-30 and monitoring well boring MW-24 to the north, and from borings GLP-11, GP-5, GP-2, and monitoring well boring MW-20 to the east. The chlorinated VOC concentrations in saturated soil at the 15 to 25 feet bgs interval on the Middle Parcel is likely caused by migration of chlorinated VOCs in groundwater that sorbed to soil, as shallow soil intervals do not appear to be affected by chlorinated VOCs at concentrations exceeding MTCA cleanup levels.

The soil analytical data from borings GP-4, GLP-13, FB-25, FB-26, and FB-28 suggest that TCE and vinyl chloride concentrations exceeding the MTCA Method A or B cleanup levels are present in soil at depths up to 12 feet beneath the basement floor. The basement floor is approximately 4 to 8 feet below the ground surface surrounding the warehouse. The vertical extent of vinyl chloride at concentrations exceeding the MTCA Method B cleanup levels for saturated soil protective of groundwater has not been fully defined in the vicinity of the former floor drain beneath the warehouse due to access restrictions. Ecology acknowledged this in its opinion letters (Ecology 2022b, 2023a) and confirmed that evaluation of the vertical distribution of vinyl chloride beneath the warehouse can be completed following demolition of the building for redevelopment in conjunction with the cleanup action, (Table 2, Figure 5). The vertical extent of chlorinated VOCs in soil at concentrations exceeding the applicable MTCA Method A or Method B cleanup levels

further down-gradient is defined by the analytical results for deeper soil samples collected from borings FB-26 and monitoring well borings MW-19 and MW-21.

Cross sections depicting the general lithology and hydrogeology of the Property and the estimated vertical extent of chlorinated VOC concentrations exceeding MTCA cleanup levels in soil and/or groundwater are presented on Figures 6 and 7. The locations of the cross sections are shown on Figure 3.

4.2.2 Petroleum Hydrocarbons

Two areas of petroleum-related contamination are present at the Morningside Acres Site, both of which are related to releases from the former gasoline service stations on the North Parcel (Figures 2, 8, 9, 10). The northern of the two petroleum-impacted areas contains GRO and benzene in soil at concentrations exceeding MTCA Method A cleanup levels, as evidenced by the analytical results for soil samples from borings FB-32, FB-33, and GP-3 (Table 3). Analytical results indicate that the extent of petroleum impacts in soil at concentrations exceeding MTCA Method A cleanup levels is defined by soil samples collected from boring FB-34 to the west, from boring FB-22 to the south, from borings GLP-02 and GLP-03 to the east, and from boring GP-1 to the north (Table 3; Figure 8).

The southern of the two petroleum-impacted areas on the North Parcel contains GRO, DRO+ORO, and benzene at concentrations exceeding MTCA Method A cleanup levels as evidenced by the analytical results for soil samples from borings FB-23 (note the revised location on Figures 2 and 8) and FB-30, and monitoring well borings GLP-05, GLP-18, and MW-25 (Table 3). At other boring locations, petroleum hydrocarbons either were not detected in soil or were detected at concentrations less than MTCA Method A cleanup levels. Analytical results indicate that petroleum impacts in soil at the southern petroleum-impacted area on the North Parcel do not extend onto the west-adjoining property. Petroleum contamination was not encountered in soil samples collected from borings FB-35 and FB-36, immediately adjacent to the west-adjoining property, and sampled at depths of up to 18 feet bgs (Table 3, Figure 8). The analytical results and the observation that boring FB-23 is approximately 10 feet to the northeast of the location shown on prior figures, confirms that the western and southern extent of petroleum contamination in soil is confined to the North Parcel and bounded by soil samples collected from borings FB-35 and FB-36 and monitoring well boring MW-23. The southern extent of contamination in soil at concentrations exceeding the MTCA Method A cleanup level in this area is defined by the analytical results for soil samples collected from boring GLP-6 and monitoring well boring MW-24, and the northern extent in soil is defined by the soil sample results for monitoring well boring GLP-04. The eastern extent of petroleum impacts in soil in this area has not been fully defined by existing data, as GRO in a soil sample collected from 10 feet bgs at the boring for monitoring well MW-25 at the eastern Property boundary exceeds the MTCA Method A cleanup level. Underground utilities in the Rainier Avenue South ROW precluded collection of additional soil samples to define the extent petroleum impacts exceeding MTCA cleanup levels in soil to the east. However, groundwater at the monitoring well MW-25 location was not impacted by GRO at

concentrations exceeding the MTCA Method A cleanup level, indicating that the limits of petroleum impacts in soil beneath the Rainier Avenue South ROW is likely limited.

The highest petroleum hydrocarbon concentrations in soil were detected in 2007 in boring GLP-05 at depths between 5 and 12 feet bgs. The maximum concentrations of DRO, ORO, GRO, and benzene detected in soil at this location were 3,520; 6,800; 4,800; and 1.15 mg/kg, respectively. Boring GLP-05 was completed as monitoring MW-10, which is likely within the footprint of the former first-generation service station building on the North Parcel that operated from at least 1927 until approximately 1953. The boring log for boring GLP-05 and monitoring well MW-10, completed in 2007, noted that a sheen and petroleum-like odors were observed at depths between 4 and 20 feet bgs (Appendix A). DRO+ORO was detected at concentrations exceeding the MTCA Method A cleanup level in soil samples collected from boring FB-30 at depths of 5 and 10 feet bgs, respectively. The vertical extent of GRO, DRO+ORO, and benzene in soil in this area is defined by the results for the soil samples collected from boring FB-30 at 19 feet bgs, boring FB-23 17 and 20 feet bgs, and from monitoring well borings MW-25 at 15 and 17 feet bgs and MW-24 at 40 and 45 feet bgs (Table 3). Cross sections depicting the general lithology and hydrogeology of the Property and the estimated vertical extent of DRO+ ORO, GRO, and/or benzene concentrations exceeding MTCA cleanup levels in soil and/or groundwater are presented on Figures 9 and 10. The locations of the cross sections are shown on Figure 3.

4.3 NATURE AND EXTENT OF CONTAMINATION IN GROUNDWATER

4.3.1 Chlorinated Volatile Organic Compounds

The chlorinated VOCs TCE, cis-DCE, 1,1,2-TCA, 1,2-DCA, vinyl chloride, and/or 1,2-DCP were detected at concentrations exceeding MTCA Method A or B cleanup levels in groundwater samples collected from borings FB-22 and FB-32 on the North Parcel and groundwater monitoring wells MW-3 through MW-5, MW-7, MW-11, MW-12, MW-16, MW-17, MW-19, MW-21, and MW-27 on the South and Middle Parcels (Table 4). Chlorinated VOCs were not detected in groundwater samples from any other borings or monitoring wells, including monitoring well MW-20, installed east of the Property across Rainier Avenue South. Figure 11 shows the estimated areal extent of chlorinated VOCs in groundwater at concentrations exceeding MTCA Method A or B cleanup levels based on the groundwater sampling conducted from 2006 through 2023.

The groundwater analytical data from monitoring wells on the Property indicate that chlorinated VOC concentrations exceeding MTCA Method A or B cleanup levels extend from the vicinity of monitoring well MW-12, near the southern Property boundary, and northward to the northern boundary of the Middle Parcel extending slightly into the Rainier Avenue South ROW in shallow groundwater (Figure 11). The chlorinated VOC plume does not appear to be present in deep groundwater in the Rainier Avenue South ROW, as indicated by the results for the groundwater sample collected at deep monitoring well MW-26 (Table 4, Figure 11). The chlorinated VOC vinyl chloride was detected in 2018 in a reconnaissance groundwater sample collected by Farallon at approximately 13 feet bgs in boring FB-22 on the North Parcel. Vinyl chloride or other chlorinated VOCs were not detected in groundwater samples collected from adjacent monitoring well MW-6

screened from 9 to 14 feet bgs or in any other monitoring wells or borings constructed on the North Parcel.

Although most of the groundwater monitoring wells on the Property are less than 20 feet deep, monitoring well MW-21, on the Middle Parcel, was screened from 35 to 45 feet bgs. Monitoring well MW-21 is the deepest monitoring well at the Property and was installed to evaluate the depth of groundwater contamination. Vinyl chloride was detected at a concentration of 7.9 micrograms per liter (µg/l) in a groundwater sample collected from monitoring well MW-21 in October 2018, which exceeds the MTCA Method A cleanup level (Table 4, Figure 11). This indicates that chlorinated VOC concentrations exceeding MTCA cleanup levels are present in groundwater to a depth of at least 35 to 45 feet bgs. The estimated vertical extent of chlorinated VOC concentrations exceeding MTCA cleanup levels in soil and groundwater is depicted on Figures 9 and 10. The locations of the cross-sections are shown on Figure 3.

A limited and isolated area of chlorinated VOC contamination was encountered in groundwater at the northwestern corner on the North Parcel during the July 2023 supplemental remedial investigation. The chlorinated VOCs 1,1,2-TCA and 1,2-DCA were detected at concentrations exceeding their respective MTCA Method B cleanup levels in a shallow reconnaissance groundwater sample collected at boring FB-32, but were not detected in soil samples collected at depths of 5, 10, and 15 feet bgs at boring FB-32 or at adjacent borings FB-22, GP-3, and GP-1 (Tables 2 and 4; Figures 5, 6, 7, and 11). The source of 1,1,2-TCA and 1,2-DCA has not been identified but is likely associated with releases from the first generation former service station proximate to boring FB-32 that occupied the North Parcel between approximately 1929 and 1950. The extent of 1,1,2-TCA and 1,2-DCA in groundwater at concentrations exceeding the applicable MTCA Method B cleanup levels is defined by the analytical results for groundwater samples collected at monitoring well MW-1 to the east, monitoring well MW-2 to the north, monitoring well MW-6 to the west, and monitoring wells MW-9, MW-22, and MW-23 to the south (Table 4).

4.3.2 Petroleum Hydrocarbons

DRO+ORO, and/or GRO were detected at concentrations exceeding MTCA Method A cleanup levels in reconnaissance groundwater samples collected from boring FB-22, FB-30, FB-31, FB-32 on the North Parcel and boring GLP-07 on the South Parcel, and in groundwater samples collected from monitoring wells MW-6, MW-9 and MW-10 on the North Parcel, and MW-11 on the South Parcel (Table 5). In addition, BTEX was detected at a concentration exceeding the MTCA Method A cleanup levels in a reconnaissance groundwater sample collected from boring FB-32 on the North Parcel. Benzene also was detected in a groundwater sample collected from monitoring well MW-19 in October 2018, but at a concentration less than the MTCA Method A cleanup level in August 2021, and was not detected in July 2023. At other boring and monitoring well locations, petroleum hydrocarbons either were not detected in groundwater or were detected at concentrations less than MTCA Method A cleanup levels. Figure 12 shows the estimated areal extent of DRO+ORO and GRO in groundwater at concentrations exceeding MTCA Method A cleanup levels.

The highest petroleum hydrocarbon concentrations in groundwater were detected at monitoring well MW-10, which is likely within the footprint of the former first-generation service station building that existed on the North Parcel. The maximum concentrations of DRO, ORO, and GRO detected in groundwater at monitoring well MW-10 in January 2007 were 283,000; 230,000; and 298,000 µg/l, respectively. In February 2013, DRO, ORO, and GRO were detected in groundwater at monitoring well MW-10 at significantly lower concentrations of 39,000; 53,000; and 1,700 µg/l, respectively (Table 5).

Light nonaqueous-phase liquid (LNAPL) was observed in monitoring well MW-10 during groundwater monitoring events in February 2007, December 2017, October 2018, August 2021, and in February, March, and July 2023. The thickness of the LNAPL was 0.82 feet when measured at monitoring well MW-10 on July 19, 2023 (Table 1). Two other LNAPL thickness measurements were recorded in the past at monitoring well MW-10. LNAPL thickness was measured at 0.42 feet on December 14, 2017 and at 0.21 feet on October 2, 2018. In addition, LNAPL globules were observed in groundwater at boring GLP-07 in 2007 at the location of the fuel-oil UST in the basement of the warehouse building on the South Parcel (Appendix A).

The extent of petroleum impacts in groundwater at concentrations exceeding MTCA Method A cleanup levels in the northern area of the North Parcel is defined by the analytical results for groundwater samples collected from boring FB-34 to the west; from monitoring wells MW-22, MW-23, and MW-9 to the south and southeast; from monitoring well MW-1 to the east; and from monitoring well MW-2 to the north (Table 5, Figure 12).

The extent of petroleum impacts in groundwater at concentrations exceeding MTCA Method A cleanup levels in the southern area of the North Parcel is defined by the analytical results for groundwater samples collected from boring FB-23 (note the revised location on Figure 8), and in monitoring wells MW-22 and MW-23 to the west; monitoring wells MW-13, MW-17, MW-19, and MW-24 to the south; monitoring well MW-25 to the east; and from monitoring wells MW-1, MW-9, and MW-18 to the north (Table 5, Figure 12). The analytical results for the groundwater sample collected at monitoring well MW-25 indicate that groundwater beneath the sidewalk in the Rainier Avenue South ROW is not adversely affected.

The extent of petroleum impacts in groundwater at concentrations exceeding MTCA Method A cleanup levels in the South Parcel is defined by the analytical results for groundwater samples collected from monitoring wells MW-14 to the south, MW-12 to the east, and MW-7 to the north (Table 5, Figure 12).

Cross sections depicting the general lithology and hydrogeology of the Property and the estimated vertical extent of DRO+ORO, GRO, and/or benzene concentrations exceeding MTCA cleanup levels in soil and groundwater are presented on Figures 9 and 10. The locations of the cross sections are shown on Figure 3.

4.4 SUMP SEDIMENT SAMPLE ANALYTICAL RESULTS

Chlorinated VOCs, petroleum hydrocarbons, and several metals were detected in the sediment sample collected from beneath the basement floor in the floor-drain sump of the warehouse building on the South Parcel in January 2007 (Tables 6 and 7). PCBs were not detected in the sump sediment sample.

4.5 INDOOR AND OUTDOOR AIR SAMPLE ANALYTICAL RESULTS

Concentrations of detected COCs in outdoor air were subtracted from indoor air concentrations. The corrected indoor air sampling results were then compared to MTCA Method B screening levels for indoor air for a commercial setting to evaluate whether the vapor intrusion is a complete pathway. The MTCA Method B screening levels modified for a commercial setting are the applicable screening levels to evaluate the vapor intrusion pathway under current use of the Property buildings.

4.5.1 Chlorinated Volatile Organic Compounds

1,2-DCA was detected at indoor-corrected concentrations of 0.36 and 0.59 micrograms per cubic meter ($\mu g/m^3$) in indoor air samples IA-1 (convenience store) and IA-6 (commercially leased portion of the warehouse building), respectively, which exceed the MTCA Method B indoor air screening level for commercial exposure calculated at 0.321 $\mu g/m^3$ (Table 8, Figure 3). 1,2-DCA also was detected at indoor-corrected concentration of 0.31 $\mu g/m^3$ in indoor air sample and IA-2 (commercially leased portion of the warehouse building), which is less than the MTCA Method B indoor air screening level for commercial exposure. 1,2-DCA was detected at an indoor-corrected concentration of 0.0 $\mu g/m^3$ in indoor air samples IA-3 through IA-5. 1,2-DCA was detected at a concentration of 0.057 $\mu g/m^3$ in the outdoor air control sample.

TCE was detected in the basement crawl space of the commercially leased portion of the warehouse building at indoor-corrected concentrations of 0.62, 0.59, and 0.69 $\mu g/m^3$ in indoor air samples IA-3, IA-4, and IA-5, respectively, which are less than the MTCA Method B indoor air screening level for commercial exposure of 1.1 $\mu g/m^3$ [1] (Table 8, Figure 3). TCE was not detected at a concentration exceeding the laboratory practical quantitation limit (PQL) in indoor air samples IA-1, IA-2, or IA-6, which were collected on the first floor of the commercially leased portion of the warehouse building and the convenience store, or in the outdoor air control sample.

[1] MTCA Method B cleanup level calculation with modified exposure parameters adjusted for commercial exposure per Section 750 of MTCA. MTCA Method B indoor air screening level for commercial use has been revised following issuance of Ecology's *Trichloroethylene (TCE): Deriving Cleanup Levels under the Model Toxics Control Act (MTCA), Supporting material for Cleanup Levels and Risk Calculation (CLARC)* dated January 2020. The calculated MTCA Method B indoor air screening level for commercial use of 1.9 $\mu g/m^3$ referenced in the letter regarding Vapor Intrusion Assessment, Morningside Acres Tracts, 5001, 5015 and 5021 Rainier Avenue South, Seattle, Washington dated September 5, 2019, prepared by Farallon (2019) and submitted to Ecology, has been recalculated to 1.1 $\mu g/m^3$ for this report.

Vinyl chloride was detected at an indoor-corrected concentration of 0.56 µg/m^3 in indoor air sample IA-4 (basement crawl space of the commercially leased portion of the warehouse building), which is less than the MTCA Method B indoor air screening level for commercial exposure (Table 8, Figure 3). Vinyl chloride was not detected at a concentration exceeding the laboratory PQL in any of the remaining indoor air samples or the outdoor air control sample.

1,2-DCP was not detected at a concentration exceeding the laboratory PQL in any of the indoor air samples or the outdoor air control sample (Table 8, Figure 3).

4.5.2 Petroleum Hydrocarbons

C5-C8 and C9-C12 aliphatics were detected at concentrations less than the MTCA Method B indoor air cleanup level for residential exposure scenario in all the indoor air samples and the outdoor air control sample (Table 9, Figure 3). The MTCA Method B screening level for a commercial setting has not been calculated for these compounds because the MTCA Method B cleanup levels for residential exposure are more conservative and had not been exceeded in any air sampling results. C9-10 aromatics were detected a concentration of 33 µg/m^3 in indoor air sample IA-4 (basement crawl space of the commercially leased portion of the warehouse building), which is less than the MTCA Method B indoor air cleanup level for residential exposure of 182 µg/m^3. C9-C10 aromatics were not detected a concentration exceeding the laboratory PQL in the remaining indoor air samples or the outdoor air control sample. The total corrected TPH values, which are the sum of the C5-C8 and C9-C12 aliphatics and the C9-C10 aromatics, were compared to the Property-specific cleanup level calculated in accordance with Ecology (2022c) Guidance for Evaluation Vapor Intrusion in Washington State. Total indoor-corrected TPH concentrations for each air sample were less than the calculated MTCA Method B site-specific cleanup level for residential exposure.

The laboratory analytical data package was reviewed by Farallon; laboratory quality assurance and quality control testing results indicated that the reported data were representative.

5.0 CONCEPTUAL SITE MODEL

This section presents the conceptual site model for the Property. The conceptual site model was developed based on the current and historical uses of the Property, the results from the RI, and the current and potential future land and resource uses in the vicinity of the Property.

5.1 SOURCES OF CONTAMINATION

No known sources of soil or groundwater contamination were identified near or hydraulically up-gradient of the Property during the 2005 Phase I ESA or subsequent soil and groundwater sampling activities from 2006 through 2023. The inferred sources of contamination at the Property are described below.

5.1.1 Chlorinated Volatile Organic Compound Contamination

The chlorinated VOC contamination identified in soil and groundwater on the Property appear to be associated with historical releases of chlorinated solvents such as TCE and 1,2-DCP during the former automotive maintenance and repair operations in the warehouse building on the South Parcel, when industrial solvents were used for parts cleaning or other purposes. As discussed in Section 4.4, Sump Sediment Sample Analytical Results, chlorinated VOCs were detected in the sediment sample collected in 2007 from the basement subsurface floor-drain sump in the warehouse building and in soil and groundwater proximate to the floor-drain sump. This suggests that releases of chlorinated solvents to soil and groundwater originated from the floor-drain sump. The presence of the TCE breakdown products cis-DCE, and vinyl chloride in soil and/or groundwater on the Property indicates that the chlorinated solvents have migrated from the floor-drain sump area and are undergoing natural degradation through reductive dechlorination as the solvents are transported away from the source areas via groundwater migration.

A limited and isolated area of chlorinated VOC contamination was encountered in groundwater at the northwestern corner on the North Parcel during the July 2023 supplemental remedial investigation. The chlorinated VOCs 1,1,2-TCA and 1,2-DCA were detected at concentrations exceeding their respective MTCA Method B cleanup levels in a shallow reconnaissance groundwater sample collected at boring FB-32, but were not detected in soil samples collected at that boring or at adjacent borings. The source of 1,1,2-TCA and 1,2-DCA has not been identified, but is likely associated with a releases from the first generation former service station proximate to boring FB-32 that occupied the North Parcel between approximately 1929 and 1950. It appears that 1,1,2-TCA has largely degraded to 1,2-DCA in groundwater at this location.

5.1.2 Petroleum Contamination

The likely sources of the petroleum hydrocarbon contamination identified in soil and groundwater on the Property are historical releases of petroleum fuels (e.g., diesel, gasoline, fuel oil) and lubricants (e.g., motor oil) associated with the former gasoline and vehicle service and repair station(s) and several underground petroleum fuel and heating oil storage tanks on the South and North Parcels at the Property.

5.2 CONSTITUENTS AND MEDIA OF CONCERN

For this RI/FS Report and DCAP, the COCs are defined as those hazardous substances that were detected in soil and/or groundwater at concentrations exceeding MTCA Method A or B cleanup levels. The COCs on the Property consist of chlorinated VOCs and petroleum hydrocarbons. The media of concern are defined as those environmental media in which the COCs were detected at concentrations exceeding MTCA Method A or B cleanup levels. The media of concern are soil, groundwater, and ambient air. The specific COCs in soil are:

- TCE;
- cis-DCE;
- trans-1,2-dichloroethene (trans-DCE);
- 1,2-DCA;
- Vinyl chloride;
- 1,2-DCP;
- DRO+ORO;
- GRO; and
- Benzene.

The specific COCs in groundwater are:

- TCE;
- cis-DCE;
- 1,1,2-TCA;
- 1,2-DCA;
- Vinyl chloride;
- 1,2-DCP;
- DRO+ORO;
- GRO; and
- BTEX.

The specific COCs in ambient air are:

- TCE;
- cis-DCE;
- 1,1,2-TCA;

- 1,2-DCA;
- Vinyl chloride;
- TPH; and
- Benzene, toluene, and xylenes.

5.3 EXPOSURE PATHWAYS AND RECEPTORS

Potential exposure pathways and receptors for the COCs identified in soil and groundwater include direct contact by humans and/or terrestrial ecological receptors (i.e., animals or plants) with contaminated soil or groundwater, and human contact with volatile COCs via vapor intrusion into occupied buildings on the Property. The potential human health and terrestrial ecological risks associated with the soil and groundwater contamination identified on the Property are discussed below.

5.3.1 Human Health Risks

The COCs identified in soil and groundwater on the Property do not pose a current risk to human health via direct contact, because currently there is no direct-contact exposure pathway to the COCs. The majority of the Property is covered by buildings or pavement, the COC concentrations exceeding MTCA cleanup levels were detected in subsurface soil at depths greater than 3 feet bgs. Drinking water for the Property and surrounding community is supplied by the City of Seattle, which obtains its municipal water supply from surface water sources at the Cedar River and Tolt River watersheds east of Seattle. Accordingly, there is no current risk of human exposure to the COCs in soil and groundwater via direct contact.

The chlorinated VOCs and volatile petroleum hydrocarbons identified in soil and groundwater potentially pose a vapor intrusion risk to occupants of current or future buildings on the Property. To assess the potential vapor intrusion risk, the concentrations of chlorinated VOCs and volatile petroleum hydrocarbons detected in shallow groundwater on the Property in 2017, 2018, and 2021 were compared to MTCA Method B groundwater screening levels for the vapor intrusion pathway (Ecology 2009), which are included in Tables 4 and 5 (soil screening levels for the vapor intrusion pathway have not been established under MTCA). The concentrations of TCE, 1,1,2-TCA, 1,2-DCA, vinyl chloride, 1,2-DCP, and/or benzene detected in groundwater in one or more reconnaissance groundwater samples or monitoring wells exceeded the MTCA Method B groundwater screening levels for vapor intrusion.

The results from the July 16, 2019 indoor and outdoor air sampling event demonstrate that concentrations of the COCs and total petroleum hydrocarbons in indoor air (corrected for contribution from the outside air) do not pose a current risk to occupants of the convenience store or bookstore in the leased portion of the warehouse. As shown on Tables 8 and 9, COC and total petroleum hydrocarbons concentrations in the indoor air samples do not exceed MTCA Method B indoor air cleanup levels for the commercial exposure scenario, with the exception of 1,2-DCA, which was detected in the back (west) room of the bookstore on the first floor of the warehouse and inside the convenience store. However, the 1,2-DCA corrected concentrations were not detected in

the basement of the leased portion in the warehouse; therefore, a vapor intrusion pathway from the subsurface to the basement to the first-floor indoor air is incomplete under current commercial use of this portion of the warehouse building and no further action regarding the indoor air risk is required at this location under MTCA. In addition, the indoor air pathway for 1,2-DCA detected inside the convenience store is incomplete because the concentrations in groundwater proximate to the convenience store are an order of magnitude less than the MTCA Method B groundwater screening level protective of indoor air. The 1,2-DCA concentrations in the convenience store are, more likely than not, also attributed to the same or similar source as the bookstore.

Existing data indicate that the vapor intrusion risk is minimal under the current commercial use of the warehouse and convenience store buildings, which Ecology (2019b) confirmed in its response to the sampling event, stating that no further assessment is needed regarding the short-term TCE toxicity at the Property. The selected cleanup action will focus on remediating soil and groundwater at the Property. The vapor intrusion pathway will be reevaluated following implementation of the cleanup action.

Potential future direct-contact risks to human health associated with the COCs identified in soil and groundwater include possible exposure of construction workers at the Property or utility workers in the east-adjacent Rainier Avenue South ROW to the COCs in soil or groundwater during future excavation activities, and possible exposure of local residents to COCs in groundwater, should local residents use groundwater as a drinking water source in the future. The latter exposure scenario is unlikely, as the City of Seattle is expected to continue supplying drinking water for the Property and surrounding community.

5.3.2 Terrestrial Ecological Risks

For sites where a hazardous substance has been released to soil, Ecology has developed procedures for evaluating the potential risk the release poses to terrestrial ecological receptors (WAC 173-340-7490). The purpose of the TEE is to (WAC 173-340-7490[1]):

- Determine whether a release of hazardous substances to soil may pose a threat to the terrestrial environment;
- Characterize existing or potential threats to terrestrial plants or animals exposed to hazardous substances in soil, as applicable; and
- Establish site-specific cleanup standards for the protection of terrestrial plants and animals, as necessary.

MTCA requires that one of the following actions be taken to address potential terrestrial ecological risks (WAC 173-340-7490[2]):

- Document a TEE exclusion using the criteria presented in WAC 173-340-7491;
- Conduct a simplified TEE in accordance with WAC 173-340-7492; or
- Conduct a site-specific TEE in accordance with WAC 173-340-7493.

Based on the criteria for TEE exclusion in WAC 173-340-7491(1)(c)(i), the releases at the Property are excluded from a TEE because there are less than 1.5 acres of contiguous undeveloped land within limits of the sites or within 500 feet of any area of the sites, as documented in Appendix B. No further consideration of terrestrial ecological risks is required under MTCA.

6.0 PROPOSED CLEANUP STANDARDS

MTCA requires that cleanup standards be established for sites where a release of a hazardous substance has been confirmed. As defined in WAC 173-340-200, establishing cleanup standards for a site requires specification of the following:

- Cleanup levels (i.e., hazardous substance concentrations in soil, water, air, or sediment that are determined to be protective of human health and the environment under specified exposure conditions).
- Points of compliance (i.e., the locations on the site where the cleanup levels must be attained).
- Additional regulatory requirements (if any) that apply to a cleanup action because of the type of action and/or the location of the site. These requirements are specified in applicable state and federal laws and are generally established in conjunction with the selection of a specific cleanup action.

Proposed cleanup standards for the COCs in groundwater and soil on the Property have been established in accordance with WAC 173-340-720 and 173-340-740, respectively.

6.1 PROPOSED SOIL CLEANUP STANDARDS

The following is a summary of the proposed cleanup standards for soil at the Property, including cleanup levels and points of compliance.

6.1.1 Soil Cleanup Levels

The proposed cleanup levels established for the majority of the COCs in soil are based on MTCA Method A soil cleanup levels for unrestricted land uses listed in in accordance with WAC 173-340-740(2) and Table 740-1 of WAC 173-340-900. Table 740-1 does not include a Method A cleanup level for vinyl chloride, cis-DCE, trans-DCE, 1,2-DCA, or 1,2-DCP. Accordingly, the proposed cleanup level established for vinyl chloride, cis-DCE, trans-DCE, 1,2-DCA, and 1,2-DCP is based on the MTCA Method B cleanup level for soil protective of groundwater.

The proposed MTCA cleanup levels for the COCs in soil at the Property are as follows:

- TCE – 0.03 mg/kg;
- cis-DCE – 0.079 mg/kg for vadose zone soil and 0.0052 mg/kg for saturated soil;
- trans-DCE – 0.52 mg/kg for vadose zone soil and 0.032 mg/kg for saturated soil;
- 1,2-DCA – 0.023 mg/kg for vadose zone soil and 0.0016 mg/kg for saturated soil;
- Vinyl chloride – 0.0017 mg/kg for vadose zone soil and 0.00009 mg/kg for saturated soil;
- 1,2-DCP – 0.025 mg/kg for vadose zone soil and 0.0017 mg/kg for saturated soil;

- DRO+ORO – 2,000 mg/kg;
- GRO – 30 mg/kg; and
- Benzene – 0.03 mg/kg.

6.1.2 Point of Compliance for Soil

The proposed point of compliance for soil is defined as all soil throughout the Site. This is the MTCA standard point of compliance for soil cleanup levels that are based on unrestricted land uses and protection of groundwater (WAC 173-340-740).

6.2 PROPOSED GROUNDWATER CLEANUP STANDARDS

The following is a summary of the proposed cleanup standards for groundwater at the Property, including cleanup levels and points of compliance.

6.2.1 Groundwater Cleanup Levels

The proposed cleanup levels established for most of the COCs in groundwater are based on the MTCA Method A cleanup levels for groundwater listed in Table 720-1 of WAC 173-340-900. Table 720-1 does not include Method A cleanup levels for cis-DCE or 1,2-DCP. Accordingly, the proposed cleanup levels established for cis-DCE and 1,2-DCP are based on the MTCA standard Method B cleanup levels for direct-contact exposures (ingestion and inhalation) (WAC 173-340-720[4][b][iii]).

The proposed cleanup levels for the COCs in groundwater at the Property are as follows:

- TCE – 5 µg/l;
- cis-DCE – 16 µg/l;
- 1,1,2-TCA – 0.77 µg/l;
- 1,2-DCA – 5 µg/l;
- Vinyl chloride – 0.2 µg/l;
- 1,2-DCP – 1.22 µg/l;
- DRO+ORO – 500 µg/l;
- GRO – 800 µg/l;
- Benzene – 5 µg/l;
- Toluene – 1,000 µg/l;
- Ethylbenzene – 700 µg/l; and
- Xylenes – 1,000 µg/l.

6.2.2 Point of Compliance for Groundwater

The proposed point of compliance for groundwater is throughout the Site from the uppermost level of the saturated zone (approximately 7 bgs) extending vertically to the lowest depth that could potentially be affected by the groundwater COCs. This is the MTCA standard point of compliance for groundwater defined in WAC 173-340-720(8)(b).

6.3 PROPOSED INDOOR AIR CLEANUP STANDARDS

The following is a summary of the proposed cleanup standards for indoor air at the Property, including cleanup levels and points of compliance.

6.3.1 Indoor Air Cleanup Levels

The proposed cleanup levels established for the COCs in indoor air are based on the MTCA Method B cleanup levels for indoor air. The COCs for indoor air include TCE, 1,2-DCA, and vinyl chloride.

The proposed cleanup levels for the COCs in indoor air at the Property are as follows:

- TCE – 0.33 µg/m^3;
- 1,2-DCA – 0.0962 µg/m^3; and
- Vinyl chloride – 0.28 µg/m^3.

6.3.2 Point of Compliance for Indoor Air

The proposed point of compliance for indoor air is ambient air throughout the Property. This is the MTCA standard point of compliance for indoor air defined in WAC 173-340-750(6).

7.0 FEASIBILITY STUDY

This section presents the cleanup action objectives for the Site, applicable or relevant and appropriate requirements, a screening evaluation of potentially applicable remediation technologies, and a detailed evaluation of cleanup action alternatives developed for the Site. The preferred cleanup action alternative for the Site is identified in Section 7.6.

7.1 CLEANUP ACTION OBJECTIVES

The cleanup action objectives for the Site include the following:

- Protect human health by preventing exposure to concentrations of COCs in soil, groundwater, and indoor air that may pose unacceptable risks under certain exposure scenarios; and
- Satisfy Ecology requirements for a Site-specific NFA determination.

The proposed soil, groundwater, and indoor air cleanup levels presented in Section 6, Proposed Cleanup Standards, are based on MTCA Method A or B cleanup levels, which Ecology considers to be protective of human health under MTCA default reasonable maximum exposure scenario assumptions (i.e., unrestricted land uses and use of groundwater as drinking water). Accordingly, the cleanup action objectives will be met when the cleanup action achieves the proposed cleanup standards.

The cleanup actions will include additional sampling and characterization to address the remaining data gaps and contingencies for cleanup of petroleum and chlorinated VOCs at the City of Seattle public ROW along Rainier Avenue South. These cleanup actions will be documented during redevelopment and remediation and serve as the basis for issuance of an NFA determination for the Site. The cleanup action objectives incorporate the contingencies for addressing the limited areas with data gaps and identifying the additional remedial measures necessary to complete the cleanup action.

7.2 REMEDIATION TECHNOLOGY SCREENING

In accordance with MTCA (WAC 173-340-350[8][b]), potentially applicable remediation technologies (cleanup action components) were screened with respect to Property-specific conditions and cleanup action requirements set forth in MTCA. The remediation technologies listed below were screened for their applicability to the soil and groundwater contamination identified at the Site. The planned cleanup of soil and groundwater contamination is expected to mitigate the potential for vapor intrusion.

- Institutional controls;
- Engineered controls;
- Monitored natural attenuation;

- Air sparging;
- Soil vapor extraction (SVE);
- In-situ chemical reduction (ISCR);
- In-situ chemical oxidation;
- In-situ enhanced bioremediation;
- In-situ thermal treatment; and
- Excavation and off-site disposal of soil.

Farallon screened each of these remediation technologies with respect to protectiveness, permanence, effectiveness, implementability, and cost (Table 10). For each technology, a numerical score was assigned to each screening criterion based on how favorably the technology was expected to perform relative to the other technologies. The technologies with the highest combined scores were retained and assembled into cleanup action alternatives. Lower-scoring technologies were not retained.

The technologies that were retained and assembled into cleanup action alternatives consist of:

- Air sparging;
- SVE;
- ISCR;
- In-situ enhanced bioremediation; and
- Excavation and off-site disposal of soil.

These technologies are briefly described below.

7.2.1 Air Sparging and Soil Vapor Extraction

Air sparging typically is used in combination with SVE. Air sparging and SVE involve the installation of a series of air sparge and SVE wells. An air compressor is used to inject air through the air sparge wells into groundwater and saturated soil in contaminant source areas and/or within the down-gradient contaminant plume to increase volatilization rates of dissolved and sorbed VOCs. An SVE blower is used to apply a vacuum to SVE wells installed in the vadose zone near the air sparge wells. The applied vacuum draws air containing VOC vapors into the SVE wells. The VOC vapors are extracted from the subsurface and treated, as necessary, prior to discharge to the atmosphere. SVE also can be effective in mitigating potential intrusion of VOC vapors into buildings above or near areas of subsurface VOC contamination.

7.2.2 In-Situ Chemical Reduction

ISCR involves injecting a reducing agent such as aqueous zero-valent iron into the subsurface through direct-push borings or injection wells. The reducing agent creates strong reducing

conditions and abiotically degrades targeted contaminants to nonhazardous or less-toxic compounds by breaking chemical bonds in the contaminant's molecular structure. ISCR typically requires supporting equipment such as polyethylene mixing tanks, mixing and injection pumps, and a distribution system of manifolded pipes or hoses to convey the substrate to the injection borings or wells.

7.2.3 In-Situ Enhanced Bioremediation

In-situ enhanced bioremediation involves the injection of bioremediation-enhancing amendments into the subsurface. Typical amendments used for this application include materials that provide microbial nutrients such as hydrogen or oxygen and/or a microbial inoculum. The injected amendments stimulate microbial activity in contaminated zones and/or increase the population of microbes that degrade contaminants, thereby accelerating the rate of contaminant degradation to non-toxic compounds. The amendments typically are injected through a series of direct-push borings or injection wells. In-situ enhanced bioremediation typically requires supporting equipment such as polyethylene mixing tanks, mixing and injection pumps, and a distribution system of manifolded pipes or hoses to convey the amendments to the injection borings or wells.

7.2.4 Excavation and Off-Site Disposal of Soil

Excavation and off-site disposal of soil involves excavating and removing contaminated soil and disposing of the soil at a permitted facility off the Property. Excavation would require significant shoring, which may not be feasible unless the buildings are removed. Excavation of soil from the saturated soil zone below the groundwater table typically requires construction dewatering with temporary on-site storage and/or treatment of extracted groundwater. If contaminated groundwater is encountered during excavation of saturated-zone soil, it can be removed in conjunction with construction dewatering operations.

7.3 CLEANUP ACTION ALTERNATIVES

The technologies retained from the remediation technology screening were assembled into three cleanup action alternatives for the Property. Each cleanup action will achieve the MTCA cleanup action requirements. Alternatives 1 and 2 assume the buildings on the Property will remain and the cleanup would be conducted without any redevelopment of the Property. Alternative 3 assumes that the buildings on the Property would be demolished and cleanup would be conducted in conjunction with redevelopment. The three alternatives are described below.

7.3.1 Alternative 1 – Source Area Excavation with Air Sparging and Soil Vapor Extraction

Alternative 1 involves excavation and off-Property disposal of contaminated source area soil, combined with air sparging and SVE to treat contaminated groundwater. Excavation would require significant structural shoring of the existing buildings. Such construction and potential modifications to the existing buildings on the South and Middle Parcels will require submittal and approval of an application to the Columbia City Application Review Committee, followed by a review by the City of Seattle Landmarks Preservation Board and issuance of Certificate of Approval, as described in detail in Alternative 3. Alternative 1 will necessitate the approval of a

site plan and the issuing of a Utilities Major Permit by the Seattle Department of Transportation before beginning any work conducted in the Rainier Avenue South ROW. Contaminated soil exceeding cleanup standards would be excavated and removed from the Site to the greatest degree technically feasible. Contaminated soil would be removed from three identified contaminant source areas: the area on the South Parcel affected by chlorinated VOCs and petroleum hydrocarbons and the two areas on the North Parcel affected by petroleum hydrocarbons and/or chlorinated VOCs (Figure 13). If contaminated groundwater (including petroleum LNAPL) is encountered in the excavations, it would be removed during the soil excavation and construction dewatering activities.

The excavation activities on the South Parcel would remove contaminated source area soil centered around the basement floor-drain sump and fuel-oil UST to a depth of approximately 20 feet bgs, or approximately 12 feet below the basement floor slab of the existing warehouse building (Figure 13). Due to limited access to the basement and low overhead clearance, there is a significant potential for structural damage to the main floor support system. Excavation activities on the South Parcel would require asbestos, lead, and PCB abatement as identified in the hazardous building materials report (Med-Tox Northwest 2019). If the warehouse building is not removed, extensive structural shoring to support the building and excavation wall will be required to remove the contaminated soil under Alternative 1. Approximately 560 cubic yards of soil would be excavated from the South Parcel using a small, limited-access excavator and a low-profile truck due to limited access to the basement. It is assumed that construction dewatering would be required, and that excavation and construction dewatering would remove all groundwater containing petroleum hydrocarbon concentrations exceeding cleanup levels proximate to the fuel-oil UST (including petroleum LNAPL, if present).

The excavations on the North Parcel would remove contaminated source area soil centered around boring FB-32 and monitoring well MW-10 to depths of approximately 12.5 and 15 feet bgs, respectively (Figure 13). The southern of the two excavations on the North Parcel would expand into the Rainier Avenue South ROW. The extent of contaminated soil in the ROW will be fully defined prior to designing the shoring and implementing excavation. It is expected that approximately 2,300 cubic yards of soil would likely be excavated from the two excavation areas on the North Parcel. It is assumed that dewatering groundwater during the excavation work would be required, and structural shoring would be necessary to protect undisturbed portions of the sidewalk, the building on the Middle Parcel, and the building on the west-adjacent property. It also is assumed that excavation and construction dewatering would remove all groundwater on the North Parcel containing petroleum hydrocarbons exceeding cleanup levels (including petroleum LNAPL, if present). The residual chlorinated VOC concentrations would be treated as described below.

Excavated contaminated soil (and petroleum LNAPL, if encountered) would be disposed of at a permitted facility off the Property. The source area excavations would be backfilled with clean structural fill.

Following source area excavation and backfilling activities, an air sparging and SVE pilot test would be completed to design the air sparge and SVE remediation systems. The air sparge and SVE remediation system would be installed and operated on the three parcels and the portion of the affected Rainier Avenue South ROW to treat chlorinated VOC concentrations exceeding cleanup levels in groundwater over a depth interval of approximately 10 to 40 feet bgs (Figure 13). The air sparging and SVE conveyance piping would be routed underground to an on-Property air sparging and SVE system equipment compound. It is assumed that the air sparging and SVE system would operate for 5 years with periodic performance groundwater monitoring (i.e., 10 monitoring events total) followed by 1 year of quarterly confirmation groundwater monitoring and issuance of an NFA determination by Ecology.

If contamination exceeding MTCA cleanup levels remains in the Rainier Avenue South ROW following cleanup activities, an environmental covenant restricting withdrawal and use of contaminated groundwater within the ROW will be prepared for review and approval by the City of Seattle and Ecology. The environmental covenant may also include engineering controls to prevent potential exposure to residual contamination in soil within the ROW.

7.3.2 Alternative 2 – Source Area Excavation with In-Situ Chemical Reduction and In-Situ Enhanced Bioremediation

Alternative 2 is identical to Alternative 1 involving structural shoring to support existing buildings that will remain on the Property and adjacent properties, except that ISCR and in-situ enhanced bioremediation would be used to treat contaminated groundwater instead of air sparging and SVE (Figure 14). Alternative 2 will also require approval from the City of Seattle Landmarks Preservation Board and Columbia City Application Review Committee, in addition to issuance of a Utilities Major Permit from the Seattle Department of Transportation after approval of a site plan for any work conducted in the Rainier Avenue South ROW. Following the required permitting, extensive shoring, and source area excavations, and an ISCR and bioremediation pilot test and design, an ISCR agent and a bioremediation reagent would be injected over a depth interval of approximately 10 to 40 feet bgs on the Middle and South Parcels to treat chlorinated VOC concentrations exceeding cleanup levels in groundwater (Figure 14). It is assumed that the injections would be performed using direct-push methodology, and that two ISCR and enhanced bioremediation injection events would be conducted.

Alternative 2 assumes that performance groundwater monitoring would be conducted semiannually for 7 years (i.e., 14 monitoring events total), followed by 1 year of quarterly confirmational groundwater monitoring and issuance of an NFA determination by Ecology.

If contamination exceeding MTCA cleanup levels remains in the Rainier Avenue South ROW following cleanup activities, an environmental covenant restricting withdrawal and use of contaminated groundwater within the ROW will be prepared for review and approval by the City of Seattle and Ecology. The environmental covenant may also include engineering controls to prevent potential exposure to residual contamination in soil within the ROW.

7.3.3 Alternative 3 – Source Area Excavation During Property Redevelopment, with In-Situ Chemical Reduction and In-Situ Enhanced Bioremediation

Alternative 3 is involves demolition and removal of the existing buildings on the South and Middle Parcels with source area soil excavation throughout the Property and a limited portion in the Rainier Avenue South ROW, followed by ISCR and in-situ enhanced bioremediation to treat contaminated groundwater. Similar to Alternative 2, implementing Alternative 3 will require approval from the City of Seattle Landmarks Preservation Board and the Columbia City Application Review Committee, in addition to issuance of a Utilities Major Permit from the Seattle Department of Transportation after approval of a site plan for any work conducted in the Rainier Avenue South ROW. The excavation and subsurface remedial work would be performed after demolition of the existing structures and excavation of contaminated soil in conjunction with the redevelopment of the Property (Figure 15). Additionally, it is assumed that ISCR and enhanced bioremediation injections on the Property would be performed using injection wells installed on the lowest level of a new building constructed during redevelopment, rather than using direct-push methodology. Prior to injections, an ISCR and enhanced bioremediation injection pilot test will be conducted to define the parameters to design the injection well placement and injection program.

Alternative 3 is contingent upon redevelopment of the Property, consistent with the building design review and approval procedures administered by the Columbia City Application Review Committee and City of Seattle Landmarks Preservation Board, as both the Middle and South Parcel buildings are located within the Columbia City Landmark District. SMC 25.12.670-700 requires issuance of a Certificate of Approval by the Seattle Landmarks Preservation Board for any alterations, demolition, restoration, or construction of these designated significant buildings, following the review and recommendation by the Columbia City Application Review Committee consistent with the design review guidelines and procedures specified in SMC 25.20.050-100. The request and proposal for issuance of a Certificate of Approval for demolition of the buildings associated with this remedial action may be combined with, and likely will be required to be submitted with, a design proposal for construction and redevelopment of the Property, which will also be necessary before issuance of any construction permits by the City of Seattle.

The cleanup and removal of impacted soil or groundwater during redevelopment would allow for a faster, more effective, and more efficient cleanup. Building removal is also expected to eliminate or minimize future liability and reduce the future operation and maintenance costs associated with the ongoing treatment of the subsurface contamination beneath the buildings on the South and Middle Parcels. This alternative also will resolve the additional costs and concerns associated with worker health and safety to perform Alternatives 1 and 2, along with the potential future building use and occupancy, due to the disrepair of the warehouse and exposure to hazardous substances in the buildings, including asbestos, PCBs, metals, and other contaminants.

Alternative 3 assumes the likely future development will include excavation throughout the Property to a depth of 12 feet bgs for one level of underground parking. The cost estimate for this alternative includes incremental costs for disposal of contaminated soil to a depth of 12 feet bgs, and full costs for excavation and disposal of contaminated soil between depths of 12 and 15 to

20 feet bgs. However, the necessary costs associated with structural shoring within the Property boundaries are not included in the cost estimate for this alternative, as structural shoring would be required and included as part of Property redevelopment. The extent of contaminated soil in the Rainier Avenue South ROW will be fully defined prior to implementing excavation. Alternative 3 assumes that impacted soil within the ROW would be excavated using trench boxes and backfilled with controlled-density fill.

Like Alternative 2, Alternative 3 assumes that performance groundwater monitoring would be conducted semiannually for 4 years (i.e., 8 monitoring events total), followed by 1 year of quarterly confirmational groundwater monitoring.

If contamination exceeding MTCA cleanup levels remains in the Rainier Avenue South ROW following cleanup activities, an environmental covenant restricting withdrawal and use of contaminated groundwater within the ROW will be prepared for review and approval by the City of Seattle and Ecology. The environmental covenant may also include engineering controls to prevent potential exposure to residual contamination in soil within the ROW.

7.4 DETAILED EVALUATION OF CLEANUP ACTION ALTERNATIVES

Cleanup actions conducted under MTCA must meet certain minimum requirements specified in WAC 173-340-360(2). The MTCA threshold requirements for cleanup actions are as follows (WAC 173-340-360[2][a]):

- Protect human health and the environment;
- Comply with cleanup standards;
- Comply with applicable state and federal laws; and
- Provide for compliance monitoring.

In addition to the threshold requirements, WAC 173-340-360(2)(b) specifies that cleanup actions conducted under MTCA must meet the following other minimum requirements:

- Use permanent solutions to the maximum extent practicable, as defined in WAC 173-340-360(3).
- Provide for a reasonable restoration time frame, as defined in WAC 173-340-360(4).
- Consider public concerns. Public notice and participation provisions of MTCA are specified in WAC 173-340-600.

Farallon evaluated the three cleanup action alternatives with respect to the above MTCA requirements, in accordance with applicable procedures specified in WAC 173-340-350(8) and 173-340-360. Details of the evaluation are presented in Table 11. Results of the detailed evaluation of alternatives are summarized below.

7.4.1 Threshold and Other Requirements

As shown in Table 11, all three alternatives satisfy MTCA threshold requirements for cleanup actions specified in WAC 173-340-360(2). Under the stated assumptions of the alternatives, Alternatives 1 through 3 are expected to protect human health and the environment, comply with cleanup standards and applicable laws, and provide for compliance monitoring. Additionally, all three alternatives provide a reasonable restoration time frame. Potential public concerns associated with the alternatives are identified in Table 11.

To further evaluate Alternatives 1 through 3 and select a preferred alternative for the Property, a MTCA disproportionate cost analysis (DCA) was conducted in accordance with WAC 173-340-360(3). The DCA process facilitates selection of the cleanup action alternative that is permanent to the maximum extent practicable. According to MTCA (WAC 173-340-200), an alternative is not considered practicable if the incremental costs of the alternative are disproportionate to the incremental degree of benefits provided by the alternative over other lower-cost alternatives. The DCA used the evaluation criteria defined in WAC 173-340-360(3)(f). The DCA methods and results are summarized below.

7.4.2 MTCA Disproportionate Cost Analysis

The DCA was conducted according to the methodology outlined in WAC 173-340-360(3)(e). Alternatives 1 through 3 were scored relative to the following six MTCA criteria for evaluating whether a cleanup action is permanent to the maximum extent practicable (WAC 173-340-360[3][f]):

- Protectiveness;
- Permanence;
- Long-Term Effectiveness;
- Management of Short-Term Risks;
- Technical and Administrative Implementability; and
- Consideration of Public Concerns.

A numerical score ranging from 0 to 10 was assigned to each of the above criteria based on best professional judgment, with 0 being least favorable and 10 being most favorable. The individual criteria scores for each alternative were multiplied by weighting factors ranging from 10 to 30 percent according to the relative importance of each criterion for evaluating permanence to the maximum extent practicable. The weighted criteria scores were then summed to obtain a total composite (weighted average) benefit score as shown in Table 11.

The seventh DCA evaluation criterion is cost. Screening-level cost estimates for Alternatives 1 through 3 are shown in Table 11. A breakdown of the estimated costs for each cleanup action alternative is provided in Table 12.

A comparison of Alternatives 1 through 3 with respect to each of the MTCA evaluation criteria is presented below, along with a summary of the alternative costs versus total composite benefit scores.

7.4.2.1 Protectiveness

Alternative 1 would provide a high level of protectiveness by removing source area soil exceeding cleanup standards, stripping and extracting volatile COCs from groundwater and vadose zone soil, and mitigating potential vapor intrusion. Alternatives 2 and 3, which also include removal of source area soil, would provide a slightly lower level of protectiveness associated with the subsequent use of ISCR and in-situ enhanced bioremediation for destruction of COCs in groundwater.

7.4.2.2 Permanence

All three alternatives would provide a high level of permanence by permanently removing source area soil exceeding cleanup standards and permanently reducing the mass and concentrations of COCs in groundwater through in-situ physical, chemical, and/or biological destructive processes. Excavated source area soil would be disposed of at a permitted facility off the Property.

7.4.2.3 Long-Term Effectiveness

All three alternatives would provide a high level of effectiveness over the long term by removing source area soil exceeding cleanup standards and reducing the mass and concentrations of COCs in groundwater.

7.4.2.4 Management of Short-Term Risks

All three alternatives would pose moderate short-term risk associated with the excavation, transport, and disposal of source area soil off the Property, and minor short-term risk associated with the installation and operation of the air sparging and SVE system or the injection of ISCR and enhanced bioremediation solutions into the subsurface. Alternative 3 would be implemented in conjunction with Property redevelopment activities that would present short-term risks due to the extensive Property clearing, building demolition, soil excavation, and trucking operations associated with redevelopment; however, these short-term risks are unrelated to the specific cleanup construction activities anticipated under Alternative 3.

7.4.2.5 Technical and Administrative Implementability

Although Alternatives 1 and 2 are technically feasible, implementing these alternatives would pose significant challenges. The source area excavation conducted on the South Parcel as part of Alternatives 1 and 2 would be difficult due to the low ceiling height in the existing warehouse building basement and unsafe conditions of the existing structure. This work would also require a comprehensive engineering analysis of the existing structural integrity of the warehouse building and public ROWs. Abatement of asbestos-containing

material, lead-based paint, and PCBs in roofing material, light ballasts, paints, and/or caulking would need to be performed to keep the warehouse building on the South Parcel in place. The building on the Middle Parcel would also require abatement of lead-based paint, which would weaken the walls of the building, making it unsafe to inhabit. Additionally, Alternatives 1 and 2 would require drilling or trenching through the floor(s) of the existing warehouse building on the South Parcel to install air sparge and SVE wells or ISCR and enhanced bioremediation injection points. Alternatives 1 or 2 also will require significant alterations to the existing buildings on the South and Middle Parcels for ongoing and future use, and will therefore require approval from the Columbia City Application Review Committee and the City of Seattle Landmarks Preservation Board, and as described above in Section 7.3. Given these technical and administrative requirements, Alternative 3 would be the safest and easiest alternative to implement, as the cleanup can be performed in conjunction with the building demolition and construction for redevelopment of the Property—provided the Property can be redeveloped in a reasonable timeframe with a design that is compatible with the Columbia City Application Review Committee and the City of Seattle Landmarks Preservation Board design standards (SMC 25.12 and SMC 25.20, respectively).

7.4.2.6 Consideration of Public Concerns

Alternatives 1 and 2 would require temporarily closing the commercially operated parking lot on the North Parcel, portion of the City of Seattle sidewalk in Rainier Avenue South, and convenience store on the Middle Parcel for soil excavation, air sparging and SVE system construction, and/or ISCR and enhanced bioremediation injections. The structural shoring, construction noise and vibration, soil loading operations, and truck traffic, and potential modifications and alterations of the buildings associated with these alternatives may generate public concerns and comments during review by the Columbia City Application Review Committee and the City of Seattle Landmarks Preservation Board. Public hearings associated with the review and approval process for issuance of a Certificate of Approval by the Columbia City Application Review Committee and the City of Seattle Landmarks Preservation Board may increase the level of public interest associated with redevelopment of the Property. Although Property redevelopment would require extensive structural shoring and generate significant construction noise, vibration, and truck traffic, public concerns about these construction impacts would primarily be associated with the redevelopment construction activities rather than the concurrent Alternative 3 cleanup action.

7.4.2.7 Cost

The estimated costs are $2,858,000 for Alternative 1, $2,946,000 for Alternative 2, and $1,515,000 for Alternative 3.

7.4.2.8 Summary of Costs Versus Total Composite Benefit Scores

The estimated costs and total composite benefit scores for Alternatives 1 through 3 are plotted on Figure 16. Alternative 3 has the highest total composite benefit score of the alternatives, and its estimated cost is lower than the estimated costs of Alternatives 1 and 2. Accordingly, the cleanup action described in Alternative 3 is the most permanent (to the maximum extent practicable) when implemented in conjunction with Property redevelopment, pursuant to WAC 173-340-360(3). If the cleanup action cannot be implemented in conjunction with Property redevelopment, Alternative 1, which has a slightly higher total composite benefit score at a lower cost than Alternative 2, is the second-most-permanent practicable alternative.

7.5 PREFERRED CLEANUP ACTION ALTERNATIVE

The preferred alternative is Alternative 3 – Source Area Excavation During Property Redevelopment, with In-Situ Chemical Reduction and In-Situ Enhanced Bioremediation. Subject to the submittal and approval of a redevelopment plan which meets the Columbia City Application Review Committee and the City of Seattle Landmarks Preservation Board design requirements for issuance of a Certificate of Approval, as described in Section 7.3 above, Alternative 3 meets MTCA minimum requirements for cleanup actions, including the requirement to use permanent solutions to the maximum extent practicable, has the lowest estimated cost and will minimize risks to public health and safety. Preferred Alternative 3 includes the following components:

- Permitting.
- Demolition of existing buildings on the Property.
- Decommissioning of existing monitoring wells on the Property.
- Completing data gap investigation in the Rainier Avenue South ROW.
- Shoring construction.
- Construction water management.
- Soil excavation and disposal.
- Conducting ISCR and bioremediation pilot test.
- Installation of groundwater treatment injection wells at affected portions on the Property and adjacent ROW.
- Conducting two ISCR and bioremediation injection events.
- Installation of compliance monitoring wells and performance and confirmation groundwater monitoring.
- Vapor intrusion assessment and potential installation of a vapor barrier on the foundation of the development building.
- Implementing potential environmental covenant and compliance monitoring.

The active elements of Alternative 3, including source removal excavation, conducting a pilot test, installation of the groundwater treatment injection wells, and conducting first of the two ISCR and bioremediation injection events will be implemented over a period of approximately 6 to 12 months. The second ISCR and bioremediation event will likely be implemented approximately 2 years after the initial injection event. For the purposes of this FS, active remediation is assumed to be completed in 3 years, followed by an additional 4 years of semiannual groundwater performance monitoring, and 1 year of quarterly groundwater confirmation monitoring. The total restoration time frame of 8 years is considered reasonable under MTCA.

In the event that the Alternative 3 cannot be implemented in a reasonable timeframe following the acceptance of the RI/FS Report and DCAP by Ecology, Alternative 1 – Source Area Excavation with Air Sparging and Soil Vapor Extraction will be the preferred alternative. Alternative 1 meets MTCA minimum requirements for cleanup actions and has a slightly higher MTCA composite benefit score at a lower cost compared to Alternative 2. Alternative 1 includes the following components:

- Permitting.
- Decommissioning of existing monitoring wells within limits of the proposed excavations on the Property.
- Completing data gap investigation in the Rainier Avenue South ROW.
- Shoring construction.
- Construction water management.
- Soil excavation and disposal.
- Conducting air sparge and SVE pilot test.
- Installation of air sparge and SVE wells and remediation system compound at affected portions on the Property and adjacent ROW.
- Operation of an air sparge and SVE system for 3 to 5 years.
- Installation of compliance monitoring wells and performance and confirmation groundwater monitoring.
- Implementing potential environmental covenant and compliance monitoring.

The active elements of Alternative 1, including source removal excavation, conducting a pilot test, installation of air sparge and SVE wells and remediation system compound, will be implemented over a period of approximately 6 to 12 months. For the purposes of this FS, active remediation is assumed to be completed in 5 years which will include semiannual groundwater performance monitoring during system operation, followed by 1 year of quarterly groundwater confirmation monitoring. The total restoration time frame of 6 years is considered reasonable under MTCA.

8.0 DRAFT CLEANUP ACTION PLAN

This section presents a description of the preferred cleanup action and a discussion of compliance monitoring; and summarizes the primary activities and technical elements of the cleanup action. However, redevelopment plans for the Property have not been finalized and deviations from the draft cleanup action plan for preferred Alternative 3 are possible.

8.1 DESCRIPTION OF THE CLEANUP ACTION(S)

Alternative 3 consists of source removal excavations of petroleum- and chlorinated VOC-impacted soil to the maximum extent practicable as part of redevelopment, installation of injection wells, performing two ISCR and bioremediation injection events to treat residual soil and groundwater impacts on the Property and adjacent ROW, and potentially implementing institutional and engineered controls. Implementation of Alternative 3 incorporates the Property redevelopment that consists of demolishing the existing structures on the Property and constructing a new building with one level of underground parking. Point of compliance groundwater monitoring wells will be installed after excavation and during foundation preparation for the new building. Groundwater will be monitored to confirm that the cleanup levels for groundwater are met at the point of compliance. The new building may include installation of a vapor barrier, pending additional vapor intrusion assessment, following completion of the soil excavation and initial groundwater monitoring. The conceptual layout for Alternative 3 is shown on Figure 15.

If the Property redevelopment does not occur in a reasonable time frame, Alternative 1 will be the preferred alternative. Alternative 1 consists of source removal excavations of petroleum- and chlorinated VOC-impacted soil to the maximum extent practicable, installation and operation of an air sparge and SVE system to treat residual soil and groundwater impacts on the Property and adjacent ROW, and potentially implementing institutional and engineered controls. Implementation of Alternative 1 does not incorporate the Property redevelopment and assumes that the existing structures on the Property will not be demolished. Point of compliance groundwater monitoring wells will be installed after excavation. Groundwater will be monitored to confirm that the cleanup levels for groundwater are met at the point of compliance. The conceptual layout for Alternative 1 is shown on Figure 13.

8.2 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

The evaluation of cleanup alternatives presented in this RI/FS Report and DCAP considered potentially applicable chemical-, action-, and location-specific requirements. Cleanup actions conducted under MTCA must comply with applicable state and federal laws (WAC 173-340-710[1]). MTCA defines applicable state and federal laws to include legally applicable requirements and those requirements that Ecology determines are relevant and appropriate requirements.

The following laws, regulations, and other requirements are considered applicable or relevant and appropriate requirements for the cleanup action to be conducted on the Site because they

encompass the cleanup action framework, including applicable or relevant cleanup standards, waste disposal criteria, documentation standards, and other applicable or relevant regulatory requirements.

- Model Toxics Control Act (Chapter 70.105D of the Revised Code of Washington [RCW 70.105D]).
- Washington State Model Toxics Control Act Cleanup Regulation (i.e., MTCA) (WAC 173-340).
- Water Quality Standards for Groundwaters of the State of Washington (WAC 173-200).
- Maximum Contaminant Levels (WAC 246-290-310).
- National Primary Drinking Water Regulations (Part 141 of Title 40 of the Code of Federal Regulations [40 CFR 141]).
- Hazardous Waste Management Act (RCW 70.105).
- Dangerous Waste Regulations (WAC 173-303).
- Solid Waste Management Laws and Regulations (RCW 70.95 and WAC 173-304, 173-350, and 173-351).
- Accreditation of Environmental Laboratories (WAC 173-50).
- State Environmental Policy Act (RCW 43.21C).
- State Environmental Policy Act Rules (WAC 197-11).
- Hazardous Waste Operations (WAC 296-843).
- Occupational Safety and Health Act (29 CFR 1910).
- Washington State General Occupational Health Standards (WAC 296-62).
- Safety Standards for Construction Work (WAC 296-155).
- Underground Storage Tanks (RCW 90.76).
- Underground Storage Tank Regulations (WAC 173-360A).
- Minimum Standards for Construction and Maintenance of Wells (WAC 173-160).
- Applicable local permits and ordinances required by the City of Seattle Municipal Code.
- Seattle Municipal Code (SMC 25.12—Landmarks) requirements for alterations, demolition, restoration, or construction of designated 'landmark' buildings; or sites greater than 25 years old with significant value, heritage, or cultural significance, which require issuance of a "Certificate of Approval" by the City of Seattle Landmarks Preservation Board before or in conjunction with any construction permitting for redevelopments (SMC 25.12.670-700). A separate Certificate of Approval must also be issued by the Columbia

City Application Review Committee consistent with the design review guidelines and procedures specified in SMC 25.20.050-100 for the Columbia City Landmark District.

- Seattle Municipal Code, 23.53 (Seattle Department of Transportation, 2016); Right of Way Construction, Utility Majors Permit, for excavation, shoring or remediation conducted in Rainier Avenue South ROW.

The following guidance documents are considered relevant to the Site cleanup:

- *Guidance for Remediation of Petroleum Contaminated Sites* revised June 2016, prepared by Ecology (2011);
- *Guidance for Site Checks and Site Assessments for Underground Storage Tanks* revised April 2003, prepared by Ecology (1991);
- *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action* March 2022, prepared by Ecology (2022c); and
- *Cleanup Action Plan Checklist* dated May 2016, prepared by Ecology.
- Seattle Department of Transportation (2016), Director's Rule 01-2017, describing the requirements that ROW permittees and contractors must meet when making or restoring openings within an ROW.

8.3 COMPONENTS OF THE CLEANUP ACTION FOR ALTERNATIVE 3

This section describes the main components of the cleanup action for Alternative 3. The excavation outlines and the preliminary conceptual design for Alternative 3 is depicted on Figure 15.

8.3.1 Permitting and Safety

- The cleanup action includes obtaining permits and authorizations required by state and local jurisdictions. This including obtaining a City of Seattle grading permit, coverage under the National Pollutant Discharge Elimination System (NPDES) Construction Stormwater General Permit (CSWGP), and a Utility Majors Permit, for excavation, shoring or remediation conducted in Rainier Avenue South ROW.

A Site-specific Health and Safety Plan that includes protection monitoring and measures to minimize potential short-term exposure during the excavation will be prepared to protect personnel during cleanup activities that involve potential exposure to hazardous materials (WAC 173-340-820).

8.3.2 Demolition of Existing Buildings

Existing buildings and subsurface utilities on the Property will be demolished as part of the redevelopment. Hazardous building materials abatement will be conducted by the demolition subcontractor.

8.3.3 Groundwater Monitoring Well Decommissioning

Monitoring wells located within the future building footprint will be decommissioned in accordance with the Minimum Standards for Construction and Maintenance of Wells (WAC 173-160) prior to the start of the cleanup action.

8.3.4 Data Gap Investigation

Full delineation of soil and groundwater impacted at concentrations exceeding MTCA cleanup levels will be completed within the City of Seattle Rainier Avenue South ROW prior to implementing shoring and soil excavation and groundwater treatment. The data gap investigation will include obtaining a street use permit from the City of Seattle to advance borings and install monitoring wells for collection of soil and groundwater samples to complete characterization in accordance with WAC 173-340-350.

8.3.5 Shoring

Shoring is required to protect the safety of personnel working in the excavation, the surrounding infrastructure in the ROW, and adjacent buildings from damage due to slope failure. Shoring will be installed around the perimeter of the Property and consist of soldier piles and wood lagging and a cutoff wall. The shoring will enable the removal of contaminated soil during redevelopment excavation to the maximum depth of approximately 20 feet bgs. Farallon assumes that excavation of contaminated soil in the portion of the Rainier Avenue South ROW can be accomplished using trench boxes.

8.3.6 Construction Water Management

Construction water generated on the Property will be conveyed to an on-Property construction stormwater treatment system in accordance with the requirements of a NPDES permit that will be obtained for the Property. The discharge from the construction stormwater treatment system will be monitored periodically and sampled for Indicator Levels in accordance with the requirements of the CSWGP.

8.3.7 Soil Excavation and Disposal

Farallon assumes that redevelopment of the Property will include a multistory building with one level of below-grade parking that will require soil excavation to approximately 12 feet bgs. Additional soil at depths greater than 12 feet bgs will be excavated at limited areas of the Property to remove soil containing COC concentrations exceeding MTCA cleanup levels, to the maximum extent practicable. The maximum depth of excavation will not be greater than 20 feet bgs. The excavation will be expanded to include impacted soil within the Rainier Avenue South ROW if necessary. The extent of soil impacts within the ROW will be fully defined prior to excavation. Contaminated soil will be excavated using an excavator, temporarily stockpiled, and loaded into trucks and trailers for transport off the Property for disposal under approved Subtitle D disposal profiles to approved facilities selected by the developer. Soil impacted by chlorinated VOCs will be transported and disposed of under the Contained-In Determination that will be issued by Ecology. Compliance soil samples will be collected from the base of the excavation and sidewalls

for compliance sampling. Performance monitoring will involve collecting in-situ samples for laboratory analysis to quantify concentrations of hazardous substances in soil. Discrete soil samples will be collected from the excavation areas to serve as confirmation samples where screening levels are attained. Confirmational monitoring for soil will be conducted once final limits of the excavation area are achieved. The preliminary excavation limits for Alternative 3 are depicted on Figure 15.

8.3.8 Unforeseen Conditions

Unforeseen conditions may be encountered during grading and excavation at a formerly developed property with a history of various uses. Unforeseen conditions that may be encountered during implementation of the cleanup action include but are not limited to discovery of USTs or contaminated media previously not identified by sampling conducted during the RI.

In the event that a UST(s) is encountered during construction excavation, the excavation or general contractor will temporarily suspend excavation activities proximate to the UST and immediately notify Farallon of the encounter. Each UST encountered will be permanently decommissioned by excavation and removal in accordance with Washington State Underground Storage Tank Regulations (WAC 173-360) and the *Guidance for Site Checks and Site Assessments for Underground Storage Tanks,* revised April 2003, prepared by Ecology (1991). A certified specialty subcontractor selected by the general contractor will provide a UST Decommissioner to conduct the UST decommissioning and removal activities, which will include inerting and rinsing the interior of the UST, as necessary, and removing the UST from the Property for recycling.

Farallon will support the permitting and inspection activities required for permanent decommissioning of USTs encountered during construction excavation, as needed. Farallon will provide a Washington State-certified Assessor to observe the UST decommissioning activities and will perform performance and/or confirmation soil sampling at the limits of soil excavation related to removal of the UST in accordance with Ecology regulations. Confirmation soil samples will be collected from the UST excavation and submitted for analysis for appropriate constituents based on field observations, Ecology UST Guidance, and regulatory requirements. Farallon will complete the *Underground Storage Tank – Site Check/Site Assessment Checklist* form (Ecology 1999) and submit it to Ecology following receipt of the confirmation soil sample analytical data. The results from the UST decommissioning activities will be incorporated into the Cleanup Action Report that will be prepared for the Property.

If field observations indicate the presence of potentially contaminated soil, groundwater, and/or stormwater related to USTs, or other potentially affected media during construction excavation, excavation work will stop pending characterization of the potentially contaminated media and development of an appropriate treatment and/or disposal alternative. The general contractor will direct the appropriate subcontractor(s) to implement the selected treatment and/or disposal remedy. Following characterization and delineation of contaminated media, the media will be removed or remediated to the maximum extent practicable.

The cleanup action also will include preparation of an Inadvertent Discovery Plan for procedures for the discovery of cultural resources and human skeletal remains. The Inadvertent Discovery Plan outlines the procedures to perform in the event of a discovery of archaeological materials or human remains, in accordance with applicable state and federal laws.

8.3.9 ISCR and Bioremediation Pilot Test

An ISCR and bioremediation pilot test will be conducted to develop and design the well spacing and injection program for the treatment of chlorinated VOC-impacted groundwater. The ISCR and bioremediation pilot test will consist of the following work elements:

- Baseline groundwater monitoring and sampling.
- Injection of an ISCR and enhanced bioremediation solution into the subsurface at a limited area of the Site up-gradient of a monitoring well known to be impacted by chlorinated VOCs. The ISCR portion of the solution will include an iron-based reagent that promotes biochemical in-situ chemical reduction of chlorinated compounds. The enhanced bioremediation portion of the solution will include an electron donor, which is a source of food for bacteria and include substances such as simple sugars, vegetable oils, and engineered compounds specifically designed to promote enhanced biodegradation for extended time frames, complemented with an additional amendment and inoculum of bacteria.
- Performance groundwater monitoring and sampling to evaluate the effectiveness of the enhanced bioremediation pilot test and reduction in concentrations of chlorinated VOCs.
- Development of a full-scale injection program at the conclusion of the enhanced bioremediation pilot test if the pilot test is successful.

8.3.10 Installation of Injection Wells

Based on the results of the ISCR and bioremediation pilot test, groundwater treatment injection wells will be installed on the South, Middle, and North Parcels and the adjacent Rainier Avenue South ROW during Property redevelopment. The on-Property injection wells are expected to be installed at the below-ground level of the parking garage at the locations accessible for injection of ISCR and bioremediation substrate. The injection wells will be installed with screens spanning from approximately 3 to 28 feet below the parking garage floor (15 to 40 feet bgs) and 10 to 40 feet in the ROW. The preliminary design for Alternative 3 includes installation of 46 injection wells, to be installed by a Washington State-licensed drilling contractor. Farallon will observe and document the well installation activities. The preliminary location of injection wells under Alternative 3 is depicted on Figure 15.

8.3.11 Injection Events

Two ISCR and enhanced bioremediation injection events will be conducted at the injection wells installed on the portions of the Property and adjacent ROW to treat concentrations of chlorinated VOCs exceeding cleanup levels in groundwater to a depth of up to 40 feet bgs. The extent of

groundwater impacts within the ROW will be fully defined prior to well installation and implementation of ISCR and enhanced bioremediation injection events. The ISCR and enhanced bioremediation injection cleanup action will treat chlorinated VOCs in groundwater within the footprint of the chlorinated VOC plumes. The first of the two injection events will be completed shortly after installation of the injection wells is completed. The second of the two injection events will likely occur approximately 2 years following the initial injection event. The performance of the cleanup action will be monitored by collecting and analyzing groundwater samples at the points of compliance monitoring wells.

8.3.12 Compliance Monitoring Well Installation

Following completion of excavation and redevelopment activities, compliance monitoring wells will be installed at the Property and potentially in the ROW to facilitate a long-term compliance groundwater monitoring program. A minimum of four compliance groundwater monitoring wells will be installed across the Property and potentially in the ROW by a Washington State-licensed drilling contractor.

8.3.13 Performance and Confirmation Groundwater Monitoring

Compliance groundwater monitoring will be conducted as part of the permanent cleanup action. Performance groundwater monitoring for COCs will be conducted semiannually for a period of up to 7 years during and after implementation of the ISCR and bioremediation injection program. Confirmation groundwater monitoring for COCs will be conducted quarterly for 1 year following completion of the performance groundwater monitoring.

Compliance groundwater monitoring events will include measurement of water levels and total monitoring well depths, and collection of groundwater samples using low-flow methodology from the proposed monitoring wells installed in the building foundation and the adjacent ROW. The results of the groundwater monitoring events will be used to assess groundwater flow, gradient, and quality at the Site to evaluate cleanup action progress. Groundwater samples will be collected directly from the pump outlet following stabilization of the geochemical parameters and analyzed for COCs.

8.3.14 Vapor Intrusion Evaluation and Barrier

Upon completion of redevelopment excavation activities, Farallon will compare groundwater analytical results to vapor intrusion screening values and vertical and horizontal separation distances established in the Ecology Vapor Intrusion Guidance (2022c). If necessary, Farallon will provide recommendations on potential soil gas sampling options and potential recommendations for installation of contaminant-specific vapor barrier(s) where COCs remain in soil and/or groundwater at concentrations exceeding vapor intrusion screening levels.

8.3.15 Environmental Covenant

An environmental covenant may be required to manage exposure to residual contamination, if contamination exceeding MTCA cleanup levels remains on portions of the Property and in the

Rainier Avenue South ROW following cleanup activities. An environmental covenant will be submitted to the City of Seattle to restrict withdrawal and use of contaminated groundwater within the ROW. The environmental covenant may also include engineering controls to prevent potential exposure to residual contamination in soil. The environmental covenant may be implemented on the Property to manage exposure to residual contamination on the Property.

8.4 COMPONENTS OF THE CLEANUP ACTION FOR ALTERNATIVE 1

In the event that the Alternative 3 cannot be implemented in a reasonable timeframe following the acceptance of the RI/FS Report and DCAP by Ecology, Alternative 1 – Source Area Excavation with Air Sparging and Soil Vapor Extraction will be the preferred alternative. This section describes the main components of the cleanup action for Alternative 1. The excavation outlines and the preliminary conceptual design for Alternative 1 is depicted on Figure 13.

8.4.1 Permitting and Safety

As with Alternative 3, the cleanup action for Alternative 1 includes obtaining permits and authorizations required by state and local jurisdictions. The permits and authorizations are the same for Alternatives 1 and 3.

8.4.2 Groundwater Monitoring Well Decommissioning

Monitoring wells located within the proposed excavation areas will be decommissioned in accordance with the Minimum Standards for Construction and Maintenance of Wells (WAC 173-160) prior to the start of the cleanup action.

8.4.3 Data Gap Investigation

Full delineation of soil and groundwater impacted at concentrations exceeding MTCA cleanup levels will be completed within the City of Seattle Rainier Avenue South ROW prior to implementing shoring and soil excavation and groundwater treatment. The data gap investigation will include obtaining a street use permit from the City of Seattle to advance borings and install monitoring wells for collection of soil and groundwater samples to complete characterization in accordance with WAC 173-340-350.

8.4.4 Shoring

Shoring is required to protect the safety of personnel working in the excavation, the surrounding infrastructure in the ROW, and adjacent buildings from damage due to slope failure. Shoring will be installed adjacent to the structures requiring bracing and consist of controlled-density-filled trenches to the maximum depth of 10 feet bgs and soldier piles and wood lagging and a cutoff wall for depths greater than 10 feet bgs. The shoring will enable the removal of contaminated soil during redevelopment excavation to the maximum depth of approximately 20 feet bgs. Shoring necessary for excavation of contaminated soil at the southern portion of the North Parcel will be expanded in the portion of the Rainier Avenue South ROW to accommodate removal of contaminated soil within the ROW.

8.4.5 Construction Water Management

Construction water generated on the Property will be conveyed to an on-Property construction stormwater treatment system in accordance with the requirements of a NPDES permit that will be obtained for the Property. The discharge from the construction stormwater treatment system will be monitored periodically and sampled for Indicator Levels in accordance with the requirements of the CSWGP.

8.4.6 Soil Excavation and Disposal

Excavations at three limited areas of the Property will be conducted to remove soil containing COC concentrations exceeding MTCA cleanup levels, to the maximum extent practicable. The maximum depth of excavation will not be greater than 20 feet bgs. The excavation will be expanded to include impacted soil within the Rainier Avenue South ROW, if necessary. The extent of soil impacts within the ROW would be fully defined prior to excavation. Contaminated soil will be excavated using an excavator, temporarily stockpiled, and loaded into trucks and trailers for transport off the Property for disposal under approved Subtitle D disposal profiles to approved facilities selected by the client. Soil impacted by chlorinated VOCs will be transported and disposed of under the Contained-In Determination that will be issued by Ecology. Compliance soil samples will be collected from the base of the excavation and sidewalls for compliance sampling. Performance monitoring will involve collecting in-situ samples for laboratory analysis to quantify concentrations of hazardous substances in soil. Discrete soil samples will be collected from the excavation areas to serve as confirmation samples where screening levels are attained. Confirmational monitoring for soil will be conducted once final limits of the excavation area are achieved. The preliminary excavation outlines under Alternative 1 are depicted on Figure 13.

8.4.7 Unforeseen Conditions

Unforeseen conditions may be encountered during grading and excavation at a formerly developed property with a history of various uses. Unforeseen conditions that may be encountered during implementation of the cleanup action include but are not limited to discovery of USTs or contaminated media previously not identified by sampling conducted during the RI. The unforeseen conditions for Alternative 1 are the same as for Alternative 3 and the reader can refer to Section 8.3.8 for details.

8.4.8 Air Sparge and SVE Pilot Test

An air sparge and SVE pilot test will be conducted to assess whether subsurface conditions are amenable for active air sparging and SVE application and to provide an engineering basis for a full-scale design for the well spacing and depth, and specifications for the air sparge and SVE remediation system components for the treatment of the residual concentrations of chlorinated VOCs in soil and groundwater. The air sparge and SVE pilot test will consist of the following work elements:

- Installation of a minimum of one air sparge and one SVE pilot test wells.

- The air sparge pilot test will consist of a two-stage pressure test. Two different pressure rates will be applied at the air sparge pilot test well and the flow response and pressure response will be monitored in a selected subset of monitoring wells on the Property.
- The SVE pilot test will consist of a two-stage vacuum response test. Two different vacuum rates will be applied at the SVE pilot test well and the flow response and pressure (vacuum) response will be monitored in a selected subset of monitoring wells on the Property.
- Farallon will collect samples of the extracted vapor at specific, predetermined times during the SVE pilot test to obtain data on the mass removal rate and concentrations of chlorinated VOCs. The vapor samples will be collected from a monitoring port to be installed on the SVE wellhead. Analytical results for the vapor emissions will be used to determine an appropriate emission treatment technology to meet the permitting requirements of the Puget Sound Clean Air Agency.
- Development of a full-scale injection program at the conclusion of the air sparge and SVE pilot test if the pilot test is successful.

8.4.9 Installation of Air Sparge and SVE Wells

Based on the results from the pilot test, air sparge and SVE wells will be installed on the South, Middle, and North Parcels and the adjacent Rainier Avenue South ROW. The air sparge and SVE wells on the South Parcel are expected to be installed at the basement level of the warehouse building and the air sparge and SVE wells on the Middle and North Parcels and in the ROW will be installed at the ground surface. The air sparge wells will be installed with short screens below the base of the impacted groundwater (slightly deeper than 40 feet bgs) and the SVE wells will be installed to screen the vadose zone. The preliminary design for Alternative 1 includes installation of 16 air sparge wells, five vertical SVE wells, and two horizontal SVE trenches, to be installed by a Washington State-licensed drilling contractor. The air sparge wells will be connected via piping installed within the trenches to a common manifold in the warehouse basement on the South Parcel. The air sparge manifold will be connected to a compressor. The SVE wells will be connected via piping installed within the trenches to a separate common manifold in the warehouse basement on the South Parcel. The SVE manifold will be connected to a vacuum blower. Farallon will observe and document the well, piping, and the compressor and vacuum blower installation activities. The preliminary locations of air sparge and SVE wells under the conceptual design for Alternative 1 are depicted on Figure 13.

8.4.10 Air Sparge and SVE System Operation

An air sparge and SVE remediation system will be installed in the warehouse basement at the South Parcel at the Property. The air sparge and SVE remediation system will be started following completion of installation activities. Operations and maintenance system Site visits will be performed monthly for up to 5 years and/or for the duration of system operations to inspect equipment, collect performance air and/or groundwater samples to evaluate system performance and confirm compliance with the regional air quality discharge regulations, and system optimization activities. The performance of the cleanup action will be monitored by collecting and

analyzing groundwater samples at remediation wells and the points of compliance monitoring wells.

8.4.11 Compliance Monitoring Well Installation

Following completion of excavation and redevelopment activities, compliance monitoring wells will be installed at the Property and potentially in the ROW to facilitate a long-term compliance groundwater monitoring program. A minimum of four compliance groundwater monitoring wells will be installed across the Property and potentially in the ROW by a Washington State-licensed drilling contractor.

8.4.12 Performance and Confirmation Groundwater Monitoring

Compliance groundwater monitoring will be conducted as part of the permanent cleanup action. Performance groundwater monitoring for COCs will be conducted semiannually for a period of up to 5 years during the operation of the air sparge and SVE system. Confirmation groundwater monitoring for COCs will be conducted quarterly for 1 year following completion of the performance groundwater monitoring. Compliance groundwater monitoring events will be completed as described in Section 8.3.13.

8.4.13 Vapor Intrusion Assessment

Cleanup of soil and groundwater contamination under either Alternative 3 or Alternative 1 is expected to result in mitigation of the vapor intrusion pathway. A follow-up vapor intrusion assessment will be conducted also, following completion of the cleanup action or portions of the cleanup action to confirm the vapor intrusion pathway is incomplete. As with Alternative 3, if the cleanup is not complete prior to installation of the new building, a vapor intrusion assessment will be completed, and mitigation measures implemented as necessary to protect building occupants from any potential contaminant vapors.

8.4.14 Environmental Covenant

An environmental covenant may be required to manage exposure to residual contamination, if contamination exceeding MTCA cleanup levels remains on portions of the Property and in the Rainier Avenue South ROW following cleanup activities. An environmental covenant will be submitted to the City of Seattle to restrict withdrawal and use of contaminated groundwater within the ROW. The environmental covenant may also include engineering controls to prevent potential exposure to residual contamination in soil. The environmental covenant may be implemented on the Property to manage exposure to residual contamination on the Property.

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10.0 LIMITATIONS

10.1 GENERAL LIMITATIONS

The conclusions contained in this report/assessment are based on professional opinions with regard to the subject matter. These opinions have been arrived at in accordance with currently accepted hydrogeologic and engineering standards and practices applicable to this location. The conclusions contained herein are subject to the following inherent limitations:

- **Accuracy of Information**. Farallon obtained, reviewed, and evaluated certain information used in this report/assessment from sources that were believed to be reliable. Farallon's conclusions, opinions, and recommendations are based in part on such information. Farallon's services did not include verification of its accuracy or authenticity. Should the information upon which Farallon relied prove to be inaccurate or unreliable, Farallon reserves the right to amend or revise its conclusions, opinions, and/or recommendations.
- **Reconnaissance and/or Characterization**. Farallon performed a reconnaissance and/or characterization of the Property that is the subject of this report/assessment to document current conditions. Farallon focused on areas deemed more likely to be affected by hazardous substances. Contamination may exist in other areas of the Property that were not investigated or were inaccessible. Site activities beyond Farallon's control could change at any time after the completion of this report/assessment.

For the foregoing reasons, Farallon cannot and does not warrant or guarantee that the Property is free of hazardous or potentially hazardous substances or conditions, or that latent or undiscovered conditions will not become evident in the future. Farallon's observations, findings, and opinions can be considered valid only as of the date of this report/assessment.

This report/assessment has been prepared in accordance with the contract for services between Farallon and Washin Murakami, and currently accepted industry standards. No other warranties, representations, or certifications are made.

10.2 LIMITATION ON RELIANCE BY THIRD PARTIES

Reliance by third parties is prohibited. This report/assessment has been prepared for the exclusive use of Washin Murakami to address the unique needs of Washin Murakami at the Morningside Acres Tracts at a specific point in time. Ecology is recognized as an intended user of this report/assessment, subject to the same limitations as Mr. Murakami.

This is not a general grant of reliance. No one other than Washin Murakami may rely on this report unless Farallon agrees in advance to such reliance in writing. Any unauthorized use, interpretation, or reliance on this report/assessment is at the sole risk of that party and Farallon will have no liability for such unauthorized use, interpretation, or reliance.

FIGURES

FINAL REMEDIAL INVESTIGATION AND FEASIBILITY STUDY REPORT
AND DRAFT CLEANUP ACTION PLAN
Morningside Acres Tracts
5001, 5015, and 5021 Rainier Avenue South
Seattle, Washington

Farallon PN: 1355-001

REFERENCE: 7.5 MINUTE USGS QUADRANGLE SEATTLE SOUTH, WASHINGTON, DATED 2013

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FIGURE 1

PROPERTY VICINITY MAP
MORNINGSIDE ACRES TRACTS
5001, 5015, AND 5021
RAINIER AVENUE SOUTH
SEATTLE, WASHINGTON

FARALLON PN: 1355-001

Drawn By: vpehlivan Checked By: RL Date: 12/7/2021 Disc Reference:

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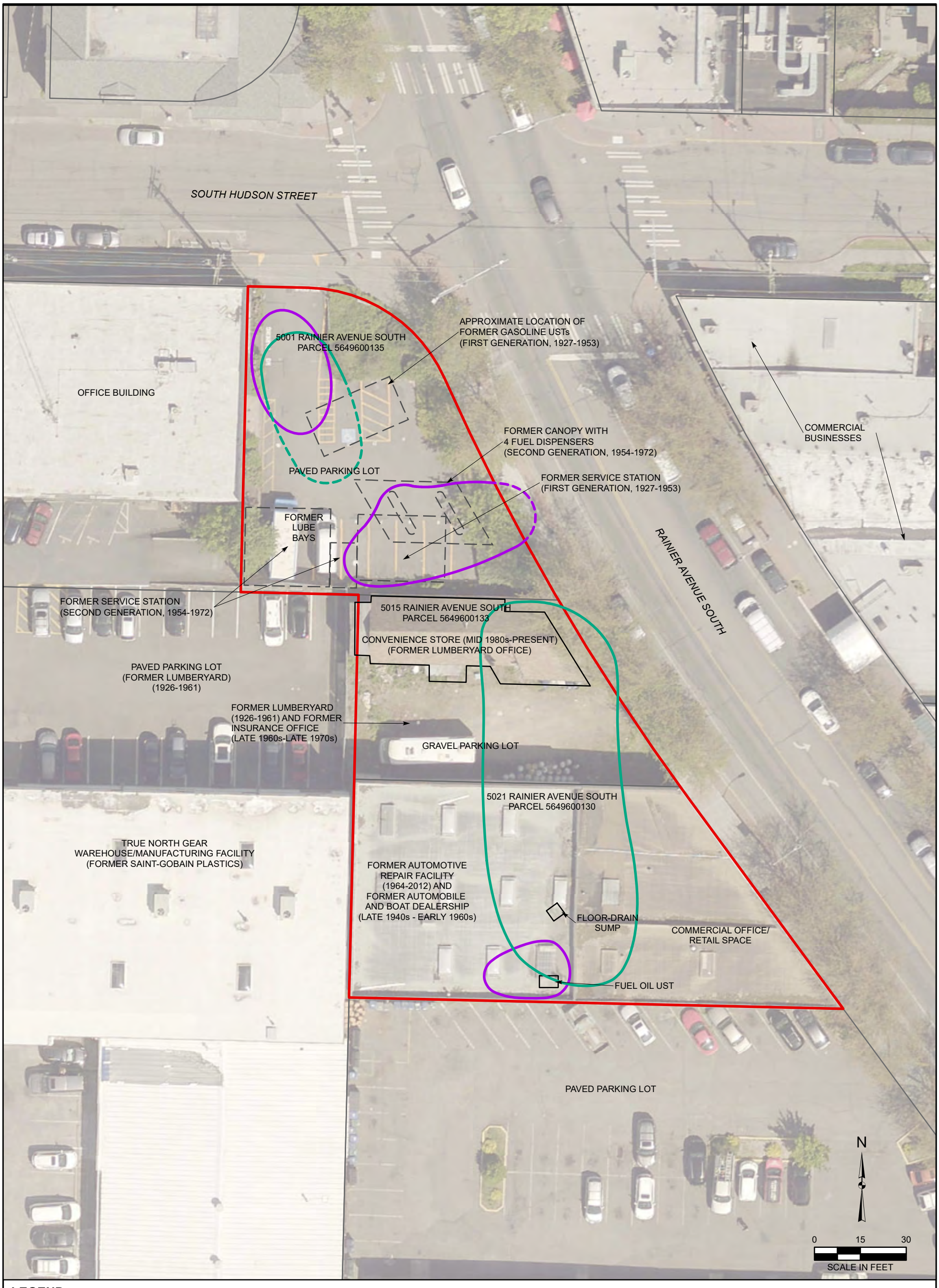

LEGEND

- APPROXIMATE EXTENT OF CHLORINATED VOC CONTAMINATION (DASHED WHERE INFERRED)
- APPROXIMATE EXTENT OF PETROLEUM CONTAMINATION (DASHED WHERE INFERRED)
- HISTORICAL GAS STATION FEATURE
- PROPERTY FEATURE
- PROPERTY BOUNDARY
- KING COUNTY PARCEL BOUNDARY

UST = UNDERGROUND STORAGE TANK
VOC = VOLATILE ORGANIC COMPOUND

NOTES:
1. ALL LOCATIONS ARE APPROXIMATE.
2. FIGURE WAS PRODUCED IN COLOR. GRAYSCALE COPIES MAY NOT REPRODUCE ALL ORIGINAL INFORMATION.

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FIGURE 2

CURRENT AND HISTORICAL PROPERTY FEATURES
MORNINGSIDE ACRES TRACTS
5001, 5015, AND 5021
RAINIER AVENUE SOUTH
SEATTLE, WASHINGTON

FARALLON PN: 1355-001

Drawn By: lmurock | Checked By: SB | Date: 8/2/2023 | Disc Reference:

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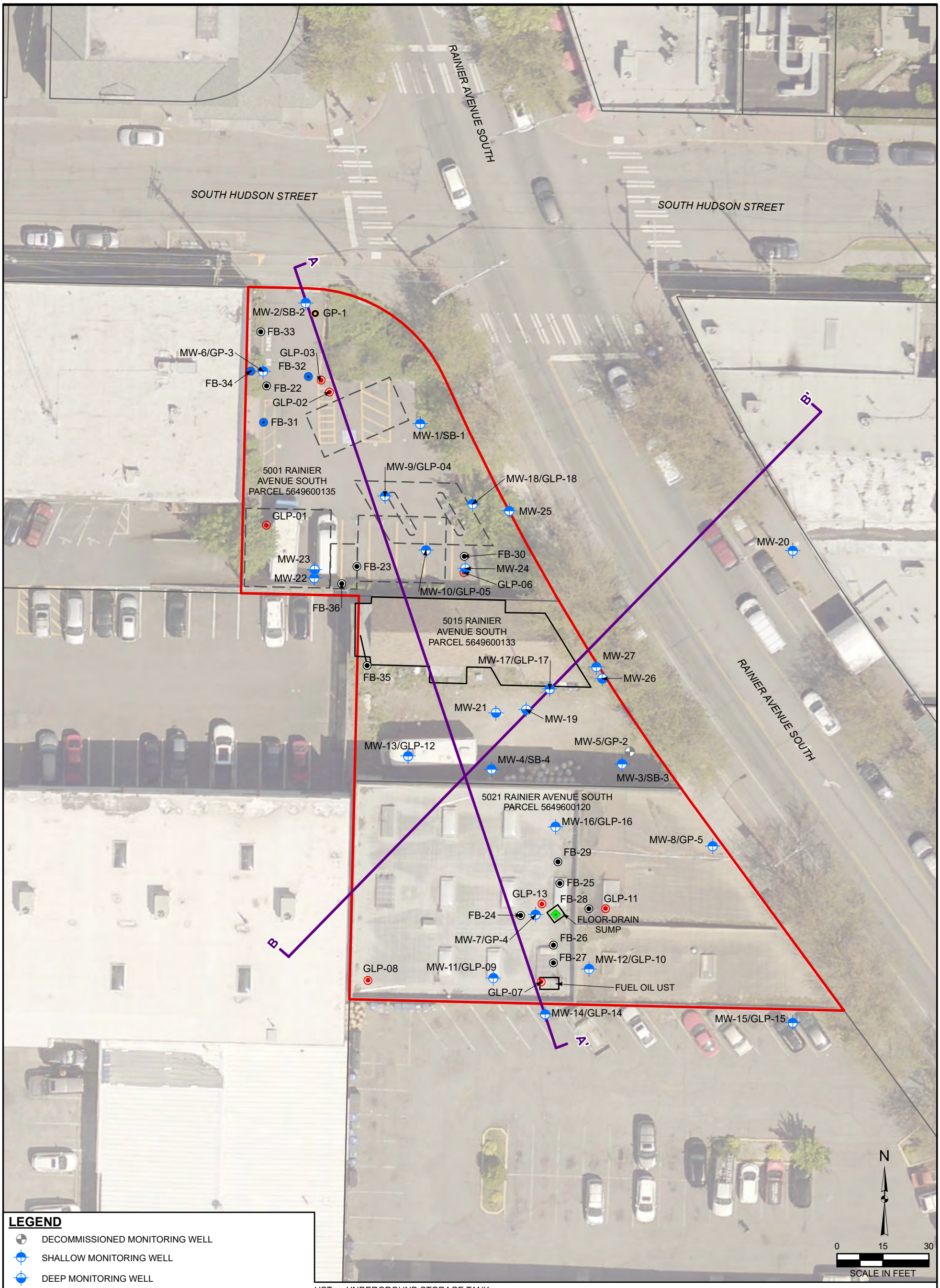

LEGEND

- DECOMMISSIONED MONITORING WELL
- SHALLOW MONITORING WELL
- DEEP MONITORING WELL
- BORING WITH RECONNAISSANCE GROUNDWATER SAMPLE (FARALLON)
- ANGLED BORING (FARALLON)
- BORING (FARALLON)
- BORING (G-LOGICS)
- BORING (KLEINFELDER)
- SUMP SEDIMENT SAMPLE
- A A' LINE OF CROSS SECTION
- HISTORICAL GAS STATION FEATURE
- PROPERTY FEATURE
- PROPERTY BOUNDARY
- KING COUNTY PARCEL BOUNDARY

UST = UNDERGROUND STORAGE TANK

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FIGURE 3

SAMPLING LOCATIONS
MORNINGSIDE ACRES TRACTS
5001, 5015, AND 5021
RAINIER AVENUE SOUTH
SEATTLE, WASHINGTON

FARALLON PN: 1355-001

Drawn By: aguse | Checked By: SB | Date: 10/18/2023 | Disc Reference:

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LEGEND

- MONITORING WELL
- PROPERTY BOUNDARY
- KING COUNTY PARCEL BOUNDARY
- 105.65 — APPROXIMATE GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
- (105.67) — GROUNDWATER ELEVATION (10/02/2018) MEASURED IN FEET ABOVE MEAN SEA LEVEL
- [103.72] — GROUNDWATER ELEVATION NOT USED IN CONTOURING
- [NM] — NOT MEASURED
- INFERRED GROUNDWATER FLOW DIRECTION

NOTES:
1. ALL LOCATIONS ARE APPROXIMATE.
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FIGURE 4A

GROUNDWATER ELEVATION CONTOUR MAP - OCTOBER 2018
MORNINGSIDE ACRES TRACTS
5001, 5015, AND 5021
RAINIER AVENUE SOUTH
SEATTLE, WASHINGTON

FARALLON PN: 1355-001

Drawn By: vpehlivan | Checked By: RL | Date: 1/5/2022 | Disc Reference:

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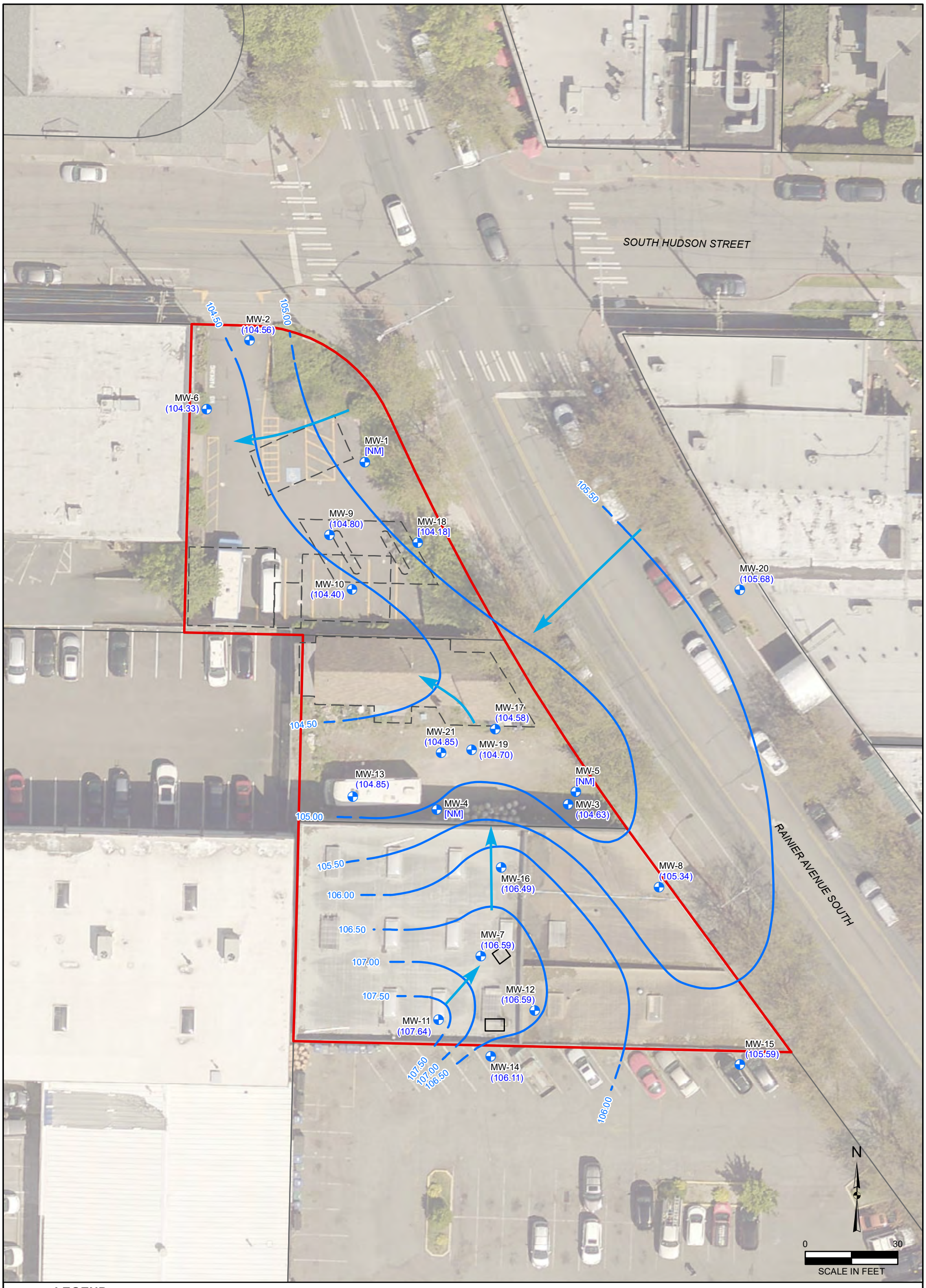

LEGEND

- MONITORING WELL
- PROPERTY BOUNDARY
- KING COUNTY PARCEL BOUNDARY
- 105.50 — APPROXIMATE GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
- (105.68) — GROUNDWATER ELEVATION (8/09/2021) MEASURED IN FEET ABOVE MEAN SEA LEVEL
- [104.18] — GROUNDWATER ELEVATION NOT USED IN CONTOURING
- [NM] — NOT MEASURED
- INFERRED GROUNDWATER FLOW DIRECTION

NOTES:
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FIGURE 4B

GROUNDWATER ELEVATION CONTOUR MAP - AUGUST 2021
MORNINGSIDE ACRES TRACTS
5001, 5015, AND 5021
RAINIER AVENUE SOUTH
SEATTLE, WASHINGTON

FARALLON PN: 1355-001

Drawn By: vpehlivan | Checked By: RL | Date: 1/5/2022 | Disc Reference:

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LEGEND

- BASEMENT INDOOR AIR SAMPLING LOCATION
- FIRST FLOOR INDOOR AIR SAMPLING LOCATION
- OUTDOOR AIR SAMPLING LOCATION
- DECOMMISSIONED MONITORING WELL
- MONITORING WELL
- BORING (FARALLON)
- BORING (G-LOGICS)
- BORING (KLEINFELDER)
- SUMP SEDIMENT SAMPLE
- PROPERTY BOUNDARY
- KING COUNTY PARCEL BOUNDARY
- UST = UNDERGROUND STORAGE TANK
- (107.87) GROUNDWATER ELEVATION MEASURED IN FEET REFERENCED TO NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
- [104.26] GROUNDWATER ELEVATION NOT USED IN CONTOURING
- 107.50 GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
- APPROXIMATE GROUNDWATER FLOW DIRECTION

NOTES:
1. ALL LOCATIONS ARE APPROXIMATE.
2. FIGURE WAS PRODUCED IN COLOR. GRAYSCALE COPIES MAY NOT REPRODUCE ALL ORIGINAL INFORMATION.

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FIGURE 4C

GROUNDWATER ELEVATION CONTOURS
FEBRUARY 2023
MORNINGSIDE ACRES TRACTS
5001, 5015, AND 5021
RAINIER AVENUE SOUTH
SEATTLE, WASHINGTON

FARALLON PN: 1355-001

Drawn By: aguse | Checked By: YP | Date: 10/18/2023 | Disc Reference:

Document Path: Q:\Projects\1355 Morningside\001 RainierAveS\Mapfiles\018\Figure-04C_GW_Contours_202302.mxd

LEGEND

- SHALLOW MONITORING WELL
- DEEP MONITORING WELL
- HISTORICAL GAS STATION FEATURE
- PROPERTY FEATURE
- PROPERTY BOUNDARY
- KING COUNTY PARCEL BOUNDARY
- LNAPL = LIGHT NONAQUEOUS PHASE LIQUID
- UST = UNDERGROUND STORAGE TANK
- (107.80) GROUNDWATER ELEVATION MEASURED IN FEET REFERENCED TO NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
- [105.30] GROUNDWATER ELEVATION NOT USED IN CONTOURING
- (NM) GROUNDWATER ELEVATION NOT MEASURED
- 107.50 GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
- APPROXIMATE GROUNDWATER FLOW DIRECTION

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FIGURE 4D

GROUNDWATER ELEVATION CONTOURS
JULY 2023
MORNINGSIDE ACRES TRACTS
5001, 5015, AND 5021
RAINIER AVENUE SOUTH
SEATTLE, WASHINGTON

FARALLON PN: 1355-001

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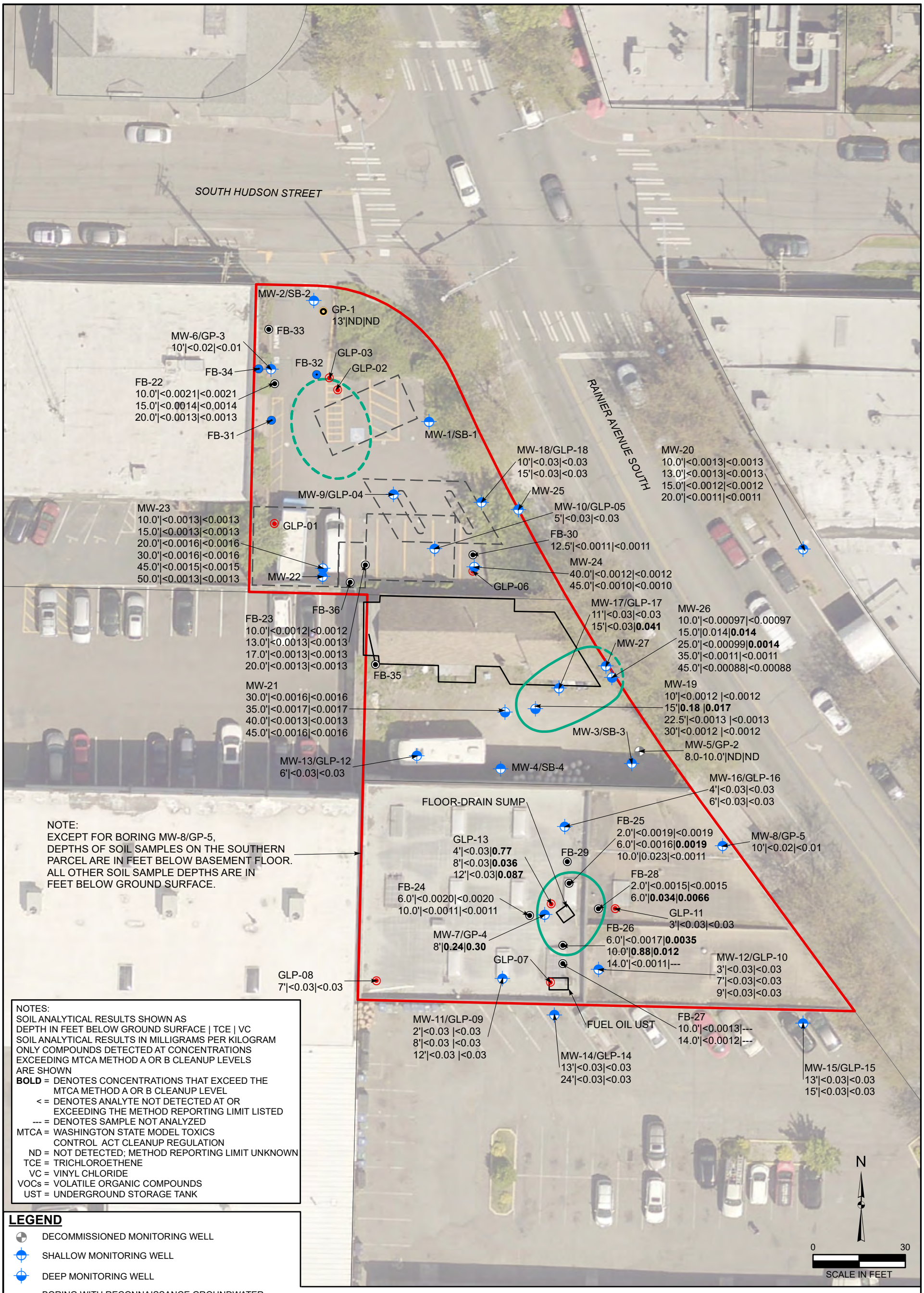

NOTE:
EXCEPT FOR BORING MW-8/GP-5, DEPTHS OF SOIL SAMPLES ON THE SOUTHERN PARCEL ARE IN FEET BELOW BASEMENT FLOOR. ALL OTHER SOIL SAMPLE DEPTHS ARE IN FEET BELOW GROUND SURFACE.

NOTES:
SOIL ANALYTICAL RESULTS SHOWN AS
DEPTH IN FEET BELOW GROUND SURFACE | TCE | VC
SOIL ANALYTICAL RESULTS IN MILLIGRAMS PER KILOGRAM
ONLY COMPOUNDS DETECTED AT CONCENTRATIONS EXCEEDING MTCA METHOD A OR B CLEANUP LEVELS ARE SHOWN
BOLD = DENOTES CONCENTRATIONS THAT EXCEED THE MTCA METHOD A OR B CLEANUP LEVEL
< = DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE METHOD REPORTING LIMIT LISTED
--- = DENOTES SAMPLE NOT ANALYZED
MTCA = WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION
ND = NOT DETECTED; METHOD REPORTING LIMIT UNKNOWN
TCE = TRICHLOROETHENE
VC = VINYL CHLORIDE
VOCs = VOLATILE ORGANIC COMPOUNDS
UST = UNDERGROUND STORAGE TANK

LEGEND

- DECOMMISSIONED MONITORING WELL
- SHALLOW MONITORING WELL
- DEEP MONITORING WELL
- BORING WITH RECONNAISSANCE GROUNDWATER SAMPLE (FARALLON)
- ANGLED BORING (FARALLON)
- BORING (FARALLON)
- BORING (G-LOGICS)
- BORING (KLEINFELDER)
- ESTIMATED EXTENT OF CHLORINATED VOCs IN SOIL EXCEEDING MTCA METHOD A OR B CLEANUP LEVELS (DASHED WHERE INFERRED)
- HISTORICAL GAS STATION FEATURE
- PROPERTY FEATURE
- PROPERTY BOUNDARY
- KING COUNTY PARCEL BOUNDARY

NOTES:
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FIGURE 5

ESTIMATED AREAL EXTENT OF CHLORINATED VOCs IN SOIL
MORNINGSIDE ACRES TRACTS 5001, 5015, AND 5021
RAINIER AVENUE SOUTH
SEATTLE, WASHINGTON

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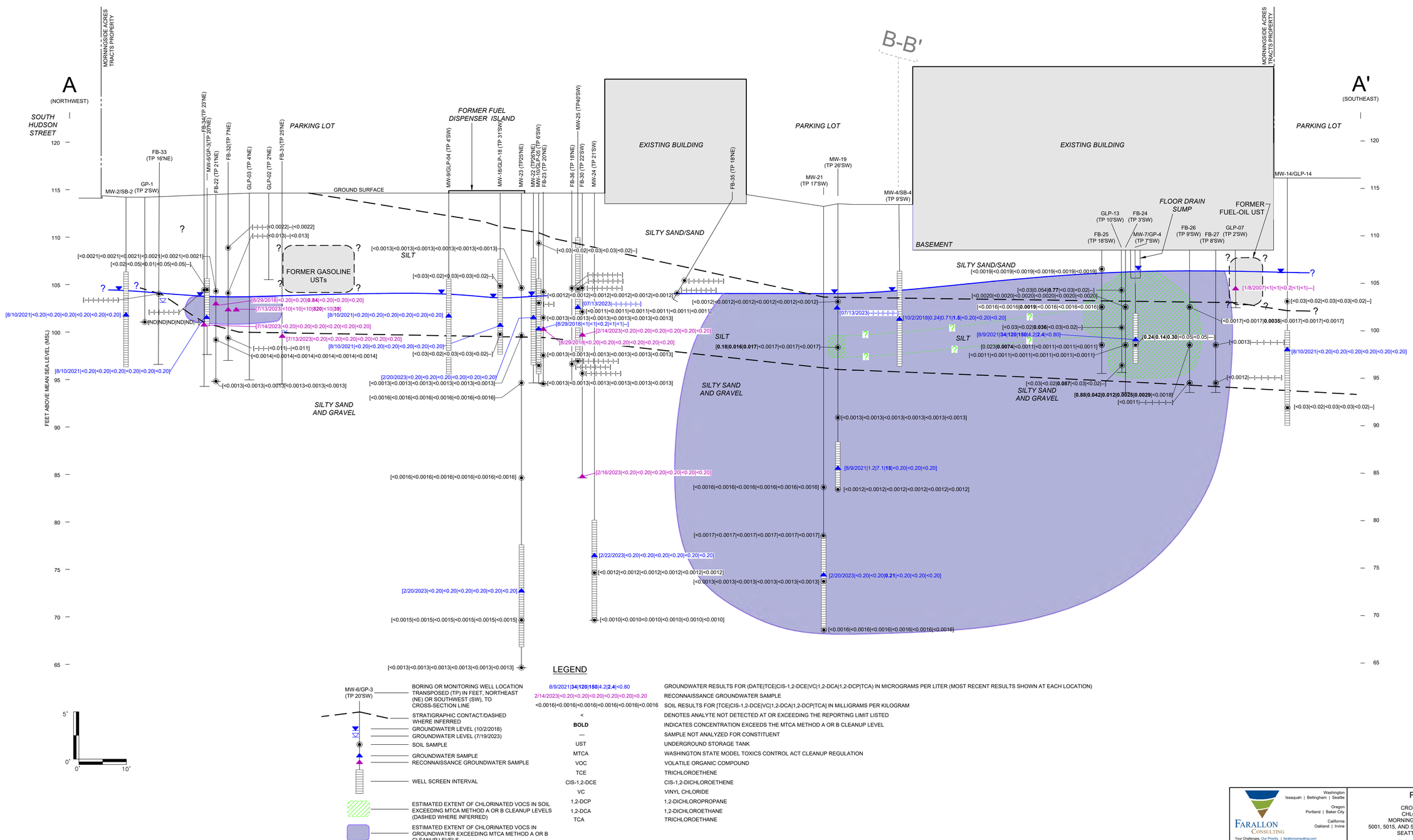
Document Path: Q:\Projects\1355 Morningside\001 RainierAveS\Mapfiles\018\Figure-05_Soil_VOCs.mxd



LEGEND

MW-6/GP-3 (TP 20'SW)	BORING OR MONITORING WELL LOCATION TRANSPOSED (TP) IN FEET, NORTHEAST (NE) OR SOUTHWEST (SW), TO CROSS-SECTION LINE
	STRATIGRAPHIC CONTACT/DASHED WHERE INFERRED
	GROUNDWATER LEVEL (10/2/2018)
	GROUNDWATER LEVEL (7/19/2023)
	SOIL SAMPLE
	GROUNDWATER SAMPLE
	RECONNAISSANCE GROUNDWATER SAMPLE
	WELL SCREEN INTERVAL
	ESTIMATED EXTENT OF CHLORINATED VOCS IN SOIL EXCEEDING MTCA METHOD A OR B CLEANUP LEVELS (DASHED WHERE INFERRED)
	ESTIMATED EXTENT OF CHLORINATED VOCS IN GROUNDWATER EXCEEDING MTCA METHOD A OR B CLEANUP LEVELS

8/9/2021|34|120|150|4.2|2.4|<0.80	GROUNDWATER RESULTS FOR (DATE|TCE|CIS-1,2-DCE|VC|1,2-DCA|1,2-DCP|TCA) IN MICROGRAMS PER LITER (MOST RECENT RESULTS SHOWN AT EACH LOCATION)
2/14/2023|<0.20|<0.20|<0.20|<0.20|<0.20|<0.20	RECONNAISSANCE GROUNDWATER SAMPLE
<0.0016|<0.0016|<0.0016|<0.0016|<0.0016|<0.0016	SOIL RESULTS FOR [TCE|CIS-1,2-DCE|VC|1,2-DCA|1,2-DCP|TCA] IN MILLIGRAMS PER KILOGRAM
<	DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED
BOLD	INDICATES CONCENTRATION EXCEEDS THE MTCA METHOD A OR B CLEANUP LEVEL
---	SAMPLE NOT ANALYZED FOR CONSTITUENT
UST	UNDERGROUND STORAGE TANK
MTCA	WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION
VOC	VOLATILE ORGANIC COMPOUND
TCE	TRICHLOROETHENE
CIS-1,2-DCE	CIS-1,2-DICHLOROETHENE
VC	VINYL CHLORIDE
1,2-DCP	1,2-DICHLOROPROPANE
1,2-DCA	1,2-DICHLOROETHANE
TCA	TRICHLOROETHANE

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FIGURE 6

CROSS-SECTION A-A'
CHLORINATED VOCs
MORNINGSIDE ACRES TRACTS
5001, 5015, AND 5021 RAINIER AVENUE SOUTH
SEATTLE, WASHINGTON

FARALLON PN:1355-001

Drawn By: RB Checked By: SB Date: 10/19/2023

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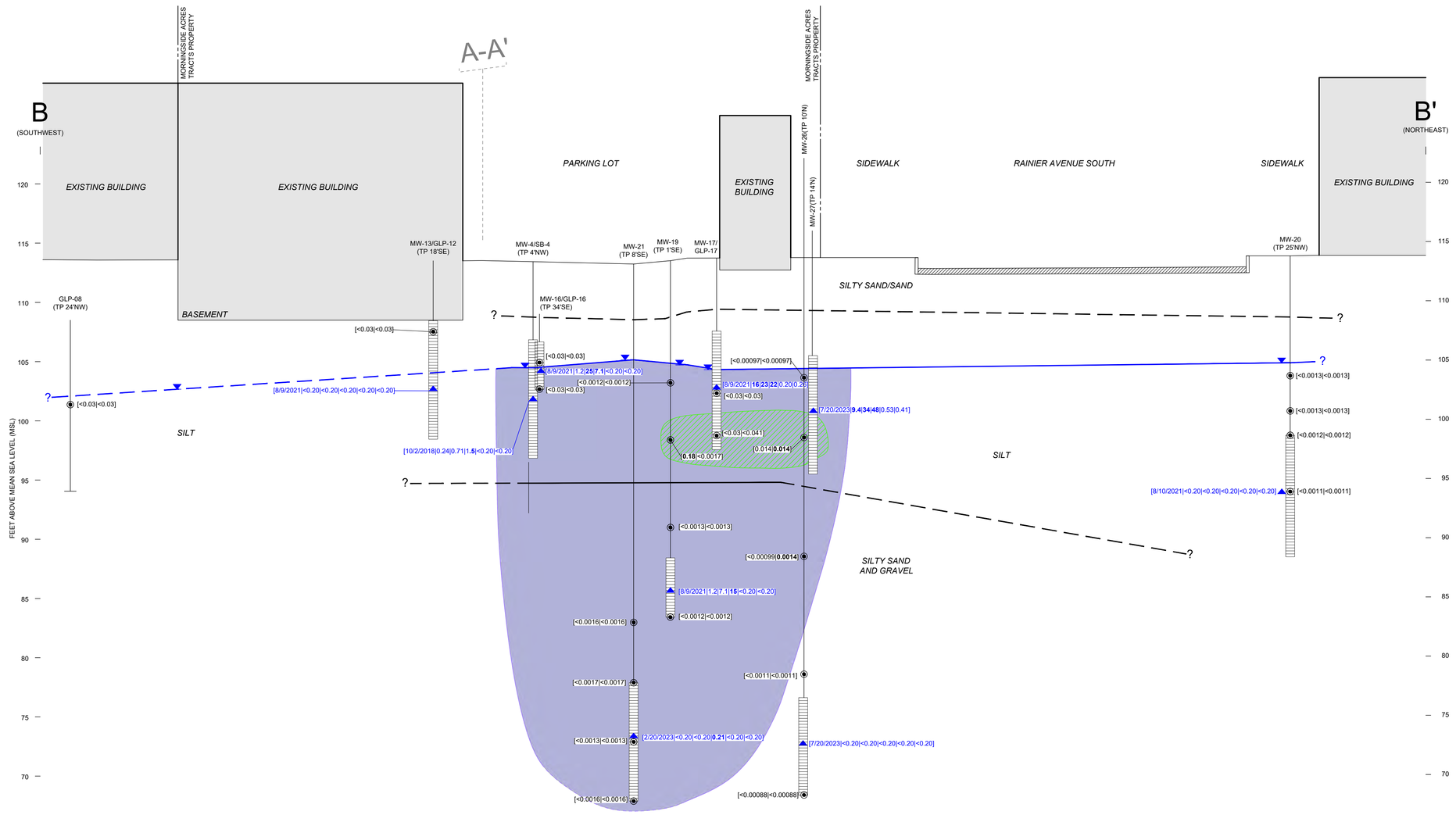

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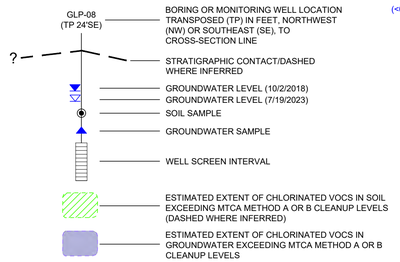

(<0.20|<0.20|<0.20|<0.20|<0.20)	GROUNDWATER RESULTS FOR (DATE|TCE|CIS-1,2-DCE|VC|1,2-DCA|1,2-DCP) IN MICROGRAMS PER LITER (MOST RECENT RESULTS SHOWN AT EACH LOCATION)
[<0.03|<0.03]	SOIL RESULTS FOR [TCE|VC] IN MILLIGRAMS PER KILOGRAM
<	DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED
BOLD	INDICATES CONCENTRATION EXCEEDS THE MTCA METHOD A OR B CLEANUP LEVELS
---	SAMPLE NOT ANALYZED FOR CONSTITUENT
UST	UNDERGROUND STORAGE TANK
MTCA	WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION
VOC	VOLATILE ORGANIC COMPOUND
TCE	TRICHLOROETHENE
CIS-1,2-DCE	CIS-1,2-DICHLOROETHENE
VC	VINYL CHLORIDE
1,2-DCP	1,2-DICHLOROPROPANE
1,2-DCA	1,2-DICHLOROETHANE

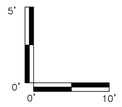

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FIGURE 7

CROSS-SECTION B-B'
CHLORINATED VOCs
MORNINGSIDE ACRES TRACTS
5001, 5015, AND 5021 RAINIER AVENUE SOUTH
SEATTLE, WASHINGTON
FARALLON PN:1355-001

Drawn By: RB Checked By: SB Date: 07/31/2023

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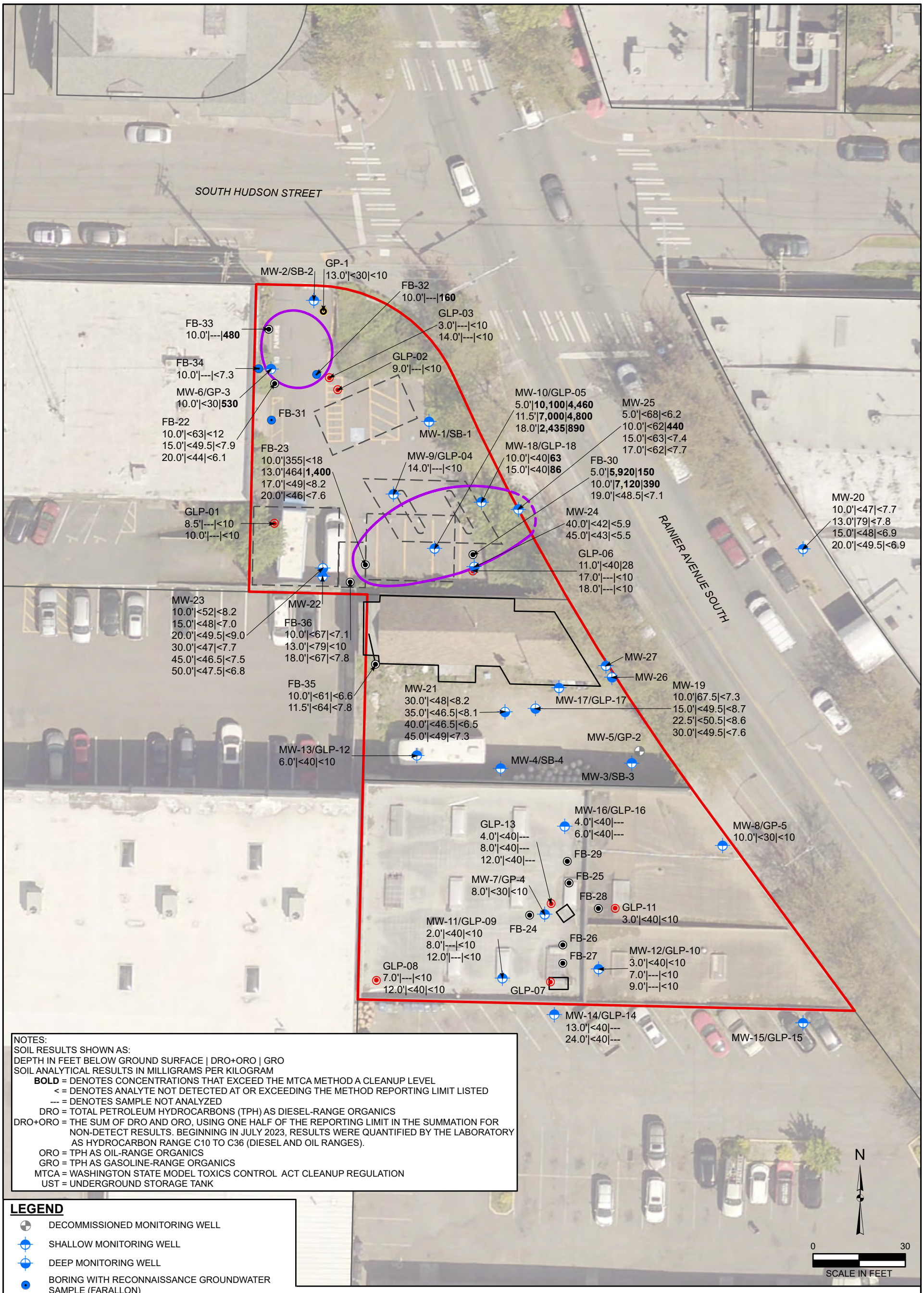

NOTES:
SOIL RESULTS SHOWN AS:
DEPTH IN FEET BELOW GROUND SURFACE | DRO+ORO | GRO
SOIL ANALYTICAL RESULTS IN MILLIGRAMS PER KILOGRAM
BOLD = DENOTES CONCENTRATIONS THAT EXCEED THE MTCA METHOD A CLEANUP LEVEL
< = DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE METHOD REPORTING LIMIT LISTED
--- = DENOTES SAMPLE NOT ANALYZED
DRO = TOTAL PETROLEUM HYDROCARBONS (TPH) AS DIESEL-RANGE ORGANICS
DRO+ORO = THE SUM OF DRO AND ORO, USING ONE HALF OF THE REPORTING LIMIT IN THE SUMMATION FOR NON-DETECT RESULTS. BEGINNING IN JULY 2023, RESULTS WERE QUANTIFIED BY THE LABORATORY AS HYDROCARBON RANGE C10 TO C36 (DIESEL AND OIL RANGES).
ORO = TPH AS OIL-RANGE ORGANICS
GRO = TPH AS GASOLINE-RANGE ORGANICS
MTCA = WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION
UST = UNDERGROUND STORAGE TANK

LEGEND

- DECOMMISSIONED MONITORING WELL
- SHALLOW MONITORING WELL
- DEEP MONITORING WELL
- BORING WITH RECONNAISSANCE GROUNDWATER SAMPLE (FARALLON)
- ANGLED BORING (FARALLON)
- BORING (FARALLON)
- BORING (G-LOGICS)
- BORING (KLEINFELDER)
- ESTIMATED EXTENT OF PETROLEUM IMPACTS IN SOIL EXCEEDING MTCA METHOD A CLEANUP LEVEL (DASHED WHERE INFERRED)
- HISTORICAL GAS STATION FEATURE
- PROPERTY FEATURE
- PROPERTY BOUNDARY
- KING COUNTY PARCEL BOUNDARY

NOTES:
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FIGURE 8

ESTIMATED AREAL EXTENT OF
PETROLEUM HYDROCARBONS IN SOIL
MORNINGSIDE ACRES TRACTS
5001, 5015, AND 5021
RAINIER AVENUE SOUTH
SEATTLE, WASHINGTON

FARALLON PN: 1355-001

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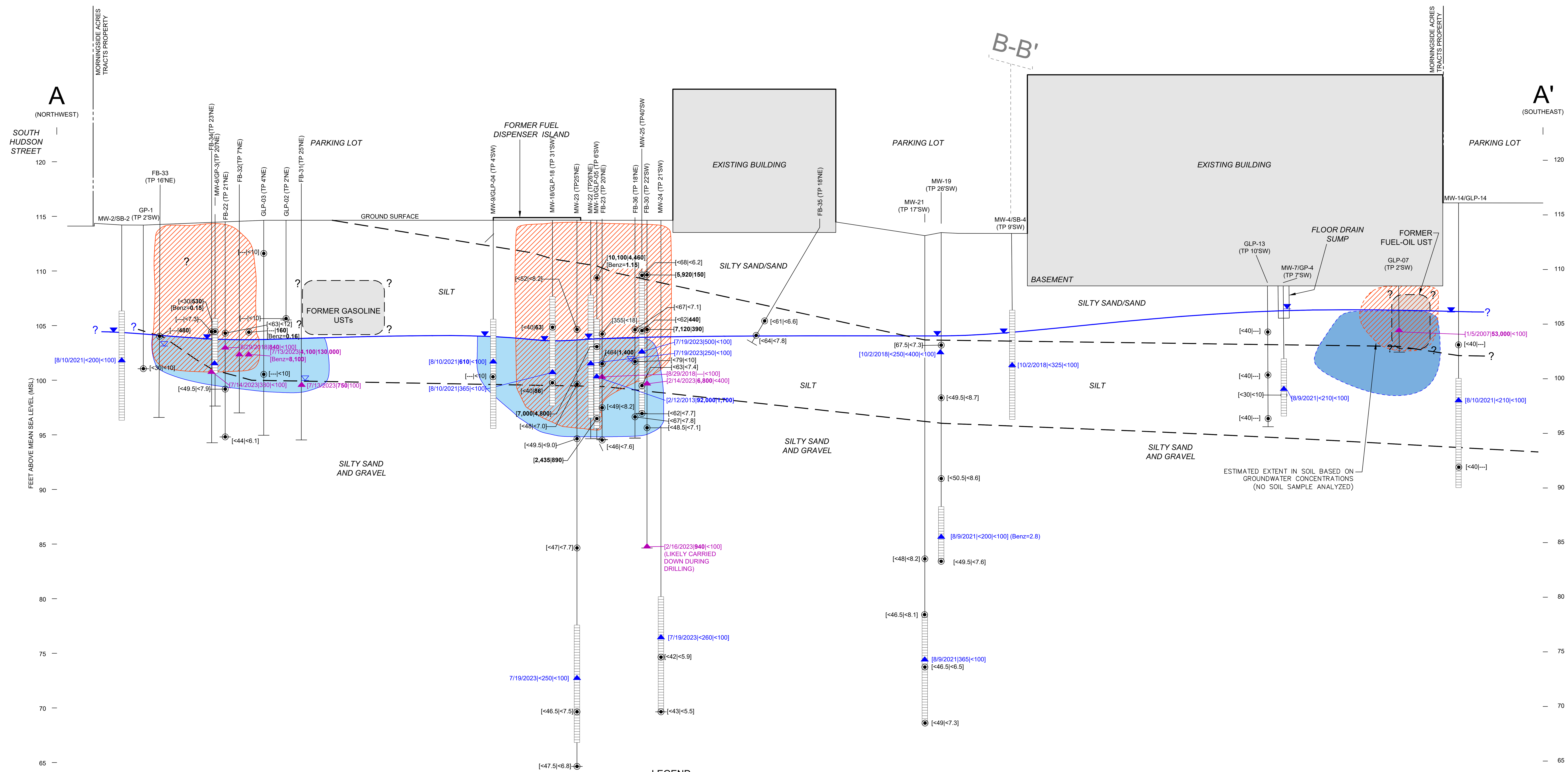

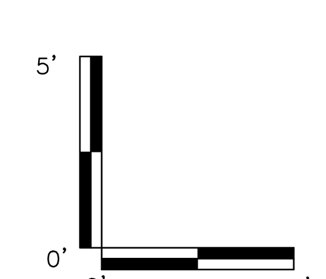

LEGEND

Symbol	Description
MW-6/GP-3 (TP 20'SW)	BORING OR MONITORING WELL LOCATION TRANSPOSED (TP) IN FEET, NORTHEAST (NE) OR SOUTHWEST (SW), TO CROSS-SECTION LINE
?	STRATIGRAPHIC CONTACT/DASHED WHERE INFERRED
	GROUNDWATER LEVEL (10/2/2018)
	GROUNDWATER LEVEL (7/19/2023)
	SOIL SAMPLE
	GROUNDWATER SAMPLE
	RECONNAISSANCE GROUNDWATER SAMPLE
	WELL SCREEN INTERVAL
	ESTIMATED EXTENT OF PETROLEUM HYDROCARBONS IN SOIL EXCEEDING MTCA METHOD A CLEANUP LEVELS (DASHED WHERE INFERRED)
	ESTIMATED EXTENT OF PETROLEUM HYDROCARBONS IN GROUNDWATER EXCEEDING MTCA METHOD A CLEANUP LEVELS (DASHED WHERE INFERRED)

Abbreviation	Description
[7/19/2023|<260|<100]	GROUNDWATER RESULTS FOR [DRO+ORO|GRO] IN MICROGRAMS PER LITER (MOST RECENT RESULTS SHOWN AT EACH LOCATION)
[2/16/2023|**940**|<100]	RECONNAISSANCE GROUNDWATER SAMPLE
[<79|<10]	SOIL RESULTS FOR [DRO+ORO|GRO] IN MILLIGRAMS PER KILOGRAM
<	DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED
DRO	TOTAL PETROLEUM HYDROCARBONS (TPH) AS DIESEL-RANGE ORGANICS
ORO	TPH AS OIL-RANGE ORGANICS
GRO	TPH AS GASOLINE-RANGE ORGANICS
BOLD	INDICATES CONCENTRATION EXCEEDS THE MTCA METHOD A CLEANUP LEVEL
---	SAMPLE NOT ANALYZED FOR CONSTITUENT
UST	UNDERGROUND STORAGE TANK
MTCA	WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION
Benz	BENZENE
DRO+ORO	THE SUM OF DRO AND ORO, USING ONE HALF OF THE REPORTING LIMIT IN THE SUMMATION FOR NON-DETECT RESULTS. BEGINNING IN JULY 2023, RESULTS WERE QUANTIFIED BY THE LABORATORY AS HYDROCARBON RANGE C10 TO C36 (DIESEL AND OIL RANGES).

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FIGURE 9

CROSS-SECTION A-A'
PETROLEUM HYDROCARBONS
MORNINGSIDE ACRES TRACTS
5001, 5015, AND 5021 RAINIER AVENUE SOUTH
SEATTLE, WASHINGTON

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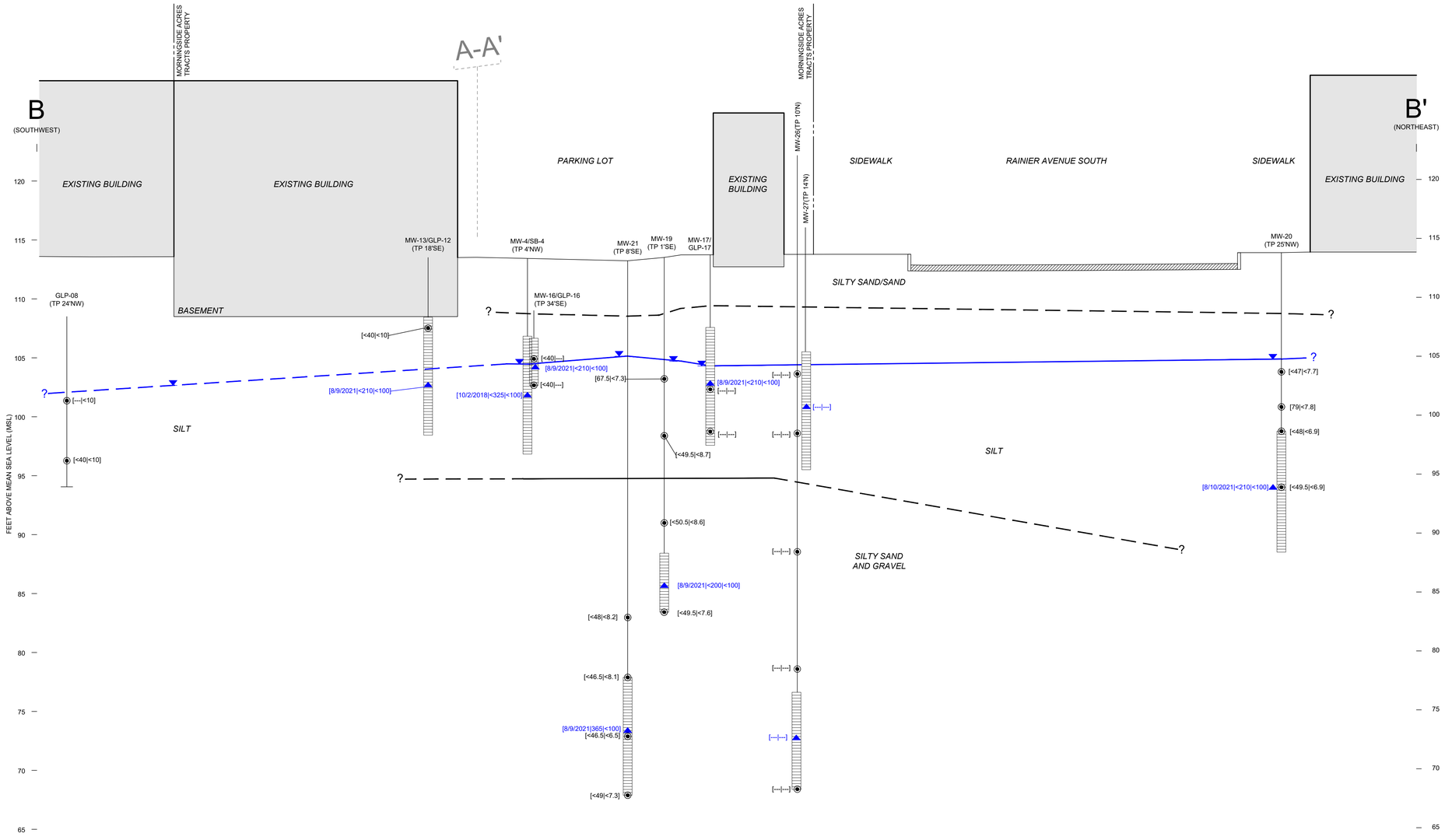

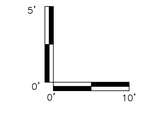

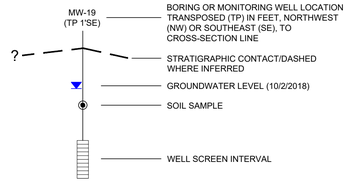

LEGEND

[8/9/2021|365|<100]	GROUNDWATER RESULTS FOR [DATE|DRO+ORO|GRO] IN MICROGRAMS PER LITER (MOST RECENT RESULTS SHOWN AT EACH LOCATION)
[<40|<10]	SOIL RESULTS FOR [DRO+ORO|GRO] IN MILLIGRAMS PER KILOGRAM
<	DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED
DRO	TOTAL PETROLEUM HYDROCARBONS (TPH) AS DIESEL-RANGE ORGANICS
ORO	TPH AS OIL-RANGE ORGANICS
GRO	TPH AS GASOLINE-RANGE ORGANICS
BOLD	INDICATES CONCENTRATION EXCEEDS THE MTCA METHOD A CLEANUP LEVEL
---	SAMPLE NOT ANALYZED FOR CONSTITUENT
UST	UNDERGROUND STORAGE TANK
MTCA	WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION
DRO+ORO	THE SUM OF DRO AND ORO, USING ONE HALF OF THE REPORTING LIMIT IN THE SUMMATION FOR NON-DETECT RESULTS. BEGINNING IN JULY 2023, RESULTS WERE QUANTIFIED BY THE LABORATORY AS HYDROCARBON RANGE C10 TO C36 (DIESEL AND OIL RANGES).

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FIGURE 10

CROSS-SECTION B-B'
PETROLEUM HYDROCARBONS
MORNINGSIDE ACRES TRACTS
5001, 5015, AND 5021 RAINIER AVENUE SOUTH
SEATTLE, WASHINGTON

FARALLON PN:1355-001

Drawn By: RB Checked By: BJ Date: 10/20/2023

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RAINIER AVENUE SOUTH

SOUTH HUDSON STREET

MW-2/SB-2
1/8/2007|<1.0|<1.0|<0.2|<1.0|<1.0
2/12/2013|<1|<1|<0.2|<1|<1
12/15/2017|<0.20|<0.20|<0.20|<0.20|<0.20
10/2/2018|<0.20|<0.20|<0.20|<0.20|<0.20
8/10/2021|<0.20|<0.20|<0.20|<0.20|<0.20

FB-32
7/13/2023|<10|<10|<10|**820**|<10|TCA:**39**

MW-6/GP-3
8/4/2006|ND|ND|ND|ND|ND
1/8/2007|<1.0|<1.0|<0.2|<1.0|<1.0
2/12/2013|<1|<1|<0.2|<1|<1
12/15/2017|<0.20|<0.20|<0.20|<0.20|<0.20
10/2/2018|<0.20|<0.20|<0.20|<0.20|<0.20
8/10/2021|<0.20|<0.20|<0.20|<0.20|<0.20

FB-33

GP-1

MW-1/SB-1
5/30/2006|ND|ND|ND|ND|ND
1/8/2007|<1.0|<1.0|<0.2|<1.0|<1.0
2/12/2013|<1|<1|<0.2|<1|<1
2/12/2013|<1|<1|<0.2|<1|<1

GLP-03

GLP-02

FB-34
7/14/2023|<0.20|<0.20|<0.20|<0.20|<0.20

FB-22
8/29/2018|<0.20|<0.20|**0.84**|<0.20|<0.20

MW-18/GLP-18
2/16/2007|<1.0|<1.0|<0.2|<1.0|<1.0
2/12/2013|<1|<1|<0.2|<1|<1
12/15/2017|<0.20|<0.20|<0.20|<0.20|<0.20
10/3/2018|<0.20|<0.20|<0.20|<0.20|<0.20
8/10/2021|<0.20|<0.20|<0.20|<0.20|<0.20

MW-20
5/10/2018|<0.20|<0.20|<0.20|<0.20|<0.20
10/3/2018|<0.20|<0.20|<0.20|<0.20|<0.20
8/10/2021|<0.20|<0.20|<0.20|<0.20|<0.20

FB-31
7/13/2023|<0.20|<0.20|<0.20|<0.20|<0.20

MW-10/GLP-05
1/8/2007|<1.0|<1.0|<0.2|<1.0|<1.0
2/12/2013|<1|<1|<0.2|<1|<1

MW-9/GLP-04
1/8/2007|<1.0|<1.0|<0.2|<1.0|<1.0
2/12/2013|<1|<1|<0.2|<1|<1
12/15/2017|<0.20|<0.20|<0.20|<0.20|<0.20
10/3/2018|<0.20|<0.20|<0.20|<0.20|<0.20
8/10/2021|<0.20|<0.20|<0.20|<0.20|<0.20

MW-25

FB-30
2/14/2023|<0.20|<0.20|<0.20|<0.20|<0.20 (15 FT BGS)
2/16/2023|<0.20|<0.20|<0.20|<0.20|<0.20 (30 FT BGS)

GLP-01

MW-24
2/22/2023|<0.20|<0.20|<0.20|<0.20|<0.20

MW-23
2/20/2023|<0.20|<0.20|<0.20|<0.20|<0.20

MW-17/GLP-17
2/16/2007|**109**|**77.3**|**155**|<1.0|<1.0
2/12/2013|**48**|**41**|**76**|<1|---
12/14/2017|**18**|**23**|**23**|0.31|0.32
12/14/2017|**17**|**23**|**22**|0.31|0.29
10/2/2018|**31**|**34**|**46**|0.41|0.41
8/9/2021|**16**|**23**|**22**|0.20|0.26

MW-22
2/20/2023|<0.20|<0.20|<0.20|<0.20|<0.20

GLP-06

MW-27
7/20/2023|**9.4**|**34**|**48**|0.53|0.41

FB-36

MW-26
7/20/2023|<0.20|<0.20|<0.20|<0.20|<0.20

FB-23
8/29/2018|<0.20|<0.20|<0.20|<0.20|<0.20

FB-35

MW-19
12/14/2017|**6.6**|**19**|**41**|<0.40|<0.40
10/2/2018|0.86|3.7|**8.5**|<0.20|<0.20
8/9/2021|1.2|7.1|**15**|<0.20|<0.20

MW-5/GP-2
6/9/2006|2.2|13|24|ND|ND

MW-3/SB-3
8/4/2006|ND|ND|**0.72**|ND|ND
1/8/2007|<1.0|3.3|**0.46**|<1.0|<1.0
2/12/2013|<1|1.4|<0.2|<1|---
12/15/2017|<0.20|0.48|<0.20|<0.20|<0.20
10/2/2018|<0.20|1.2|<0.20|<0.20|<0.20
8/9/2021|<0.20|0.51|<0.20|<0.20|<0.20

MW-21/FB-21
10/2/2018|1.2|2.6|**7.9**|<0.20|<0.20
8/9/2021|<0.20|0.55|**0.98**|<0.20|<0.20
2/20/2023|<0.20|<0.20|**0.21**|<0.20|<0.20

MW-16/GLP-16
2/16/2007|**30.2**|**27.9**|**7**|<1.0|<1.0
2/12/2013|2.4|**24**|**6.6**|<1|---
12/14/2017|1.7|**30**|**8.1**|<0.20|<0.20
10/3/2018|1.2|**25**|**7.0**|<0.20|<0.20
8/9/2021|1.2|**25**|**7.1**|<0.20|<0.20

MW-13/GLP-12
1/8/2007|<1.0|<1.0|<0.2|<1.0|<1.0
2/12/2013|<1|<1|<0.2|<1|---
12/14/2017|<0.20|<0.20|<0.20|<0.20|<0.20
10/2/2018|<0.20|<0.20|<0.20|<0.20|<0.20
8/9/2021|<0.20|<0.20|<0.20|<0.20|<0.20

MW-8/GP-5
8/4/2006|ND|ND|ND|ND|ND
1/8/2007|<1.0|<1.0|<0.2|<1.0|<1.0
2/12/2013|<1|<1|<0.2|<1|---
12/15/2017|<0.20|<0.20|<0.20|<0.20|<0.20
10/3/2018|<0.20|<0.20|<0.20|<0.20|<0.20
8/10/2021|<0.20|<0.20|<0.20|<0.20|<0.20

MW-4/SB-4
5/30/2006|ND|ND|**2.1**|ND|ND
6/9/2006|1.8|2.7|**16**|ND|ND
1/8/2007|<1.0|0.79|**4.0**|<1.0|<1.0
2/12/2013|<1|1.3|**7.0**|<1|---
12/14/2017|0.31|0.71|**1.5**|<0.20|<0.20
10/2/2018|0.24|0.71|**1.5**|<0.20|<0.20

MW-7/GP-4
8/4/2006|**51**|**160**|**260**|**11**|**3.4**
1/8/2007|**16**|**173**|**593**|**8.2**|<1.0
2/12/2013|**25**|**220**|**290**|**6.1**|<1
12/14/2017|**24**|**140**|**150**|**5.1**|**2.4**
12/14/2017|**24**|**140**|**140**|5|**2.3**
10/3/2018|**50**|**210**|**250**|**6.9**|**3.9**
8/9/2021|**34**|**120**|**150**|4.2|**2.4**

FB-29

FB-25

GLP-13

GLP-11

FB-28

Sump

FB-24

FB-26

GLP-07
1/8/2007|<1.0|<1.0|<0.2|<1.0|<1.0

FB-27

MW-12/GLP-10
1/8/2007|**12.2**|6.2|**1.2**|<1.0|<1.0
2/12/2013|**8.3**|6.7|**0.26**|<1|---
12/14/2017|**23**|**29**|**11**|0.57|0.52
10/3/2018|**38**|**46**|**13**|0.80|0.79
8/9/2021|**47**|**57**|**20**|0.91|0.75

GLP-08

MW-11/GLP-09
1/8/2007|0.9|1.2|1.4|<1.0|<1.0
2/12/2013|<1|<1|<0.2|<1|---
12/14/2017|<0.20|0.73|<0.20|<0.20|<0.20
10/3/2018|<0.20|1.0|<0.20|<0.20|<0.20
8/9/2021|<0.20|0.62|<0.20|<0.20|<0.20

MW-15/GLP-15
2/16/2007|<1.0|<1.0|<0.2|<1.0|<1.0
2/12/2013|<1|<1|<0.2|<1|---
12/14/2017|<0.20|<0.20|<0.20|<0.20|<0.20
10/3/2018|<0.20|<0.20|<0.20|<0.20|<0.20
8/9/2021|<0.20|<0.20|<0.20|<0.20|<0.20

MW-14/GLP-14
2/16/2007|<1.0|<1.0|<0.2|<1.0|<1.0
2/12/2013|<1|<1|<0.2|<1|---
12/15/2017|<0.20|<0.20|<0.20|<0.20|<0.20
10/3/2018|<0.20|<0.20|<0.20|<0.20|<0.20
8/10/2021|<0.20|<0.20|<0.20|<0.20|<0.20

N

0 30

SCALE IN FEET

NOTES:
DATE SAMPLED AND ANALYTICAL RESULTS AS:
SAMPLE DATE | TCE | cis-1,2-DCE | VC | 1,2-DCA | 1,2-DCP
GROUNDWATER ANALYTICAL RESULTS IN MICROGRAMS PER LITER.
ONLY COMPOUNDS DETECTED AT CONCENTRATIONS EXCEEDING MTCA METHOD A OR B CLEANUP LEVELS ARE SHOWN

BOLD = DENOTES CONCENTRATIONS THAT EXCEED THE WASHINGTON STATE MTCA METHOD A OR B CLEANUP LEVEL
< = DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE METHOD REPORTING LIMIT LISTED
FT BGS = FEET BELOW GROUND SURFACE
TCA = 1,1,2-TRICHLOROETHANE
TCE = TRICHLOROETHENE
CIS-1,2-DCE = CIS-1,2-DICHLOROETHENE
VC = VINYL CHLORIDE
1,2-DCA = 1,2-DICHLOROETHANE
1,2-DCP = 1,2-DICHLOROPROPANE
--- = DENOTES SAMPLE NOT ANALYZED
ND = NOT DETECTED; METHOD REPORTING LIMIT UNKNOWN
MTCA = WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION
VOCs = VOLATILE ORGANIC COMPOUNDS
UST = UNDERGROUND STORAGE TANK

LEGEND

- DECOMMISSIONED MONITORING WELL
- SHALLOW MONITORING WELL
- DEEP MONITORING WELL
- BORING WITH RECONNAISSANCE GROUNDWATER SAMPLE (FARALLON)
- ANGLED BORING (FARALLON)
- BORING (FARALLON)
- BORING (G-LOGICS)
- BORING (KLEINFELDER)
- ESTIMATED EXTENT OF CHLORINATED VOCs EXCEEDING MTCA METHOD A OR B CLEANUP LEVELS IN GROUNDWATER (BASED ON MOST RECENT DATA), DASHED WHERE INFERRED
- INFERRED GROUNDWATER FLOW DIRECTION
- HISTORICAL GAS STATION FEATURE
- PROPERTY FEATURE
- PROPERTY BOUNDARY
- KING COUNTY PARCEL BOUNDARY

NOTES:
1. ALL LOCATIONS ARE APPROXIMATE.
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FIGURE 11

ESTIMATED AREAL EXTENT OF CHLORINATED VOCS IN GROUNDWATER
MORNINGSIDE ACRES TRACTS
5001, 5015, AND 5021
RAINIER AVENUE SOUTH
SEATTLE, WASHINGTON

FARALLON PN: 1355-001

Drawn By: aguse | Checked By: SB | Date: 10/19/2023 | Disc Reference:

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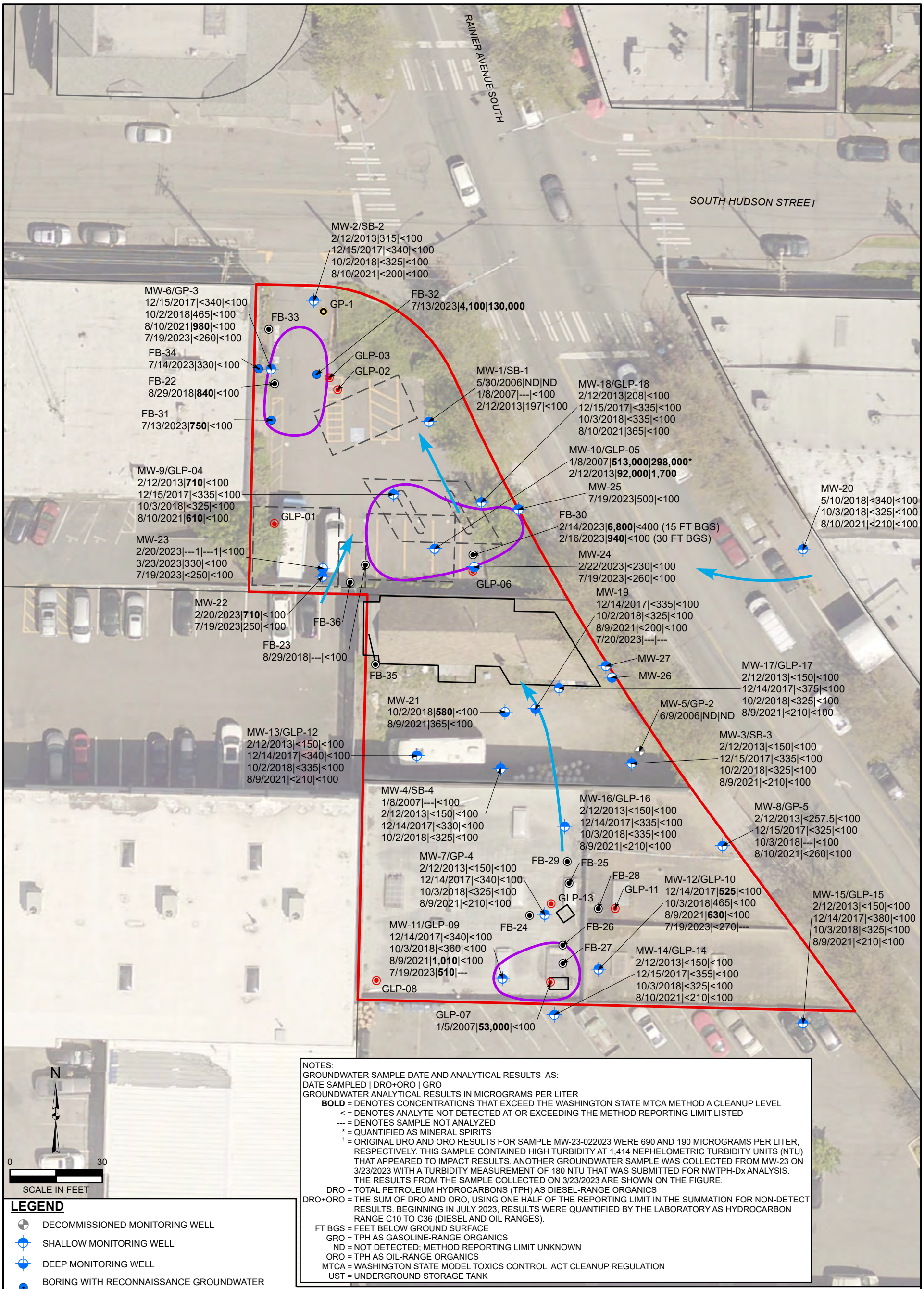

NOTES:
GROUNDWATER SAMPLE DATE AND ANALYTICAL RESULTS AS:
DATE SAMPLED | DRO+ORO | GRO
GROUNDWATER ANALYTICAL RESULTS IN MICROGRAMS PER LITER

BOLD = DENOTES CONCENTRATIONS THAT EXCEED THE WASHINGTON STATE MTCA METHOD A CLEANUP LEVEL
< = DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE METHOD REPORTING LIMIT LISTED
--- = DENOTES SAMPLE NOT ANALYZED
* = QUANTIFIED AS MINERAL SPIRITS
[1] = ORIGINAL DRO AND ORO RESULTS FOR SAMPLE MW-23-022023 WERE 690 AND 190 MICROGRAMS PER LITER, RESPECTIVELY. THIS SAMPLE CONTAINED HIGH TURBIDITY AT 1,414 NEPHELOMETRIC TURBIDITY UNITS (NTU) THAT APPEARED TO IMPACT RESULTS. ANOTHER GROUNDWATER SAMPLE WAS COLLECTED FROM MW-23 ON 3/23/2023 WITH A TURBIDITY MEASUREMENT OF 180 NTU THAT WAS SUBMITTED FOR NWTPH-Dx ANALYSIS. THE RESULTS FROM THE SAMPLE COLLECTED ON 3/23/2023 ARE SHOWN ON THE FIGURE.
DRO = TOTAL PETROLEUM HYDROCARBONS (TPH) AS DIESEL-RANGE ORGANICS
DRO+ORO = THE SUM OF DRO AND ORO, USING ONE HALF OF THE REPORTING LIMIT IN THE SUMMATION FOR NON-DETECT RESULTS. BEGINNING IN JULY 2023, RESULTS WERE QUANTIFIED BY THE LABORATORY AS HYDROCARBON RANGE C10 TO C36 (DIESEL AND OIL RANGES).
FT BGS = FEET BELOW GROUND SURFACE
GRO = TPH AS GASOLINE-RANGE ORGANICS
ND = NOT DETECTED; METHOD REPORTING LIMIT UNKNOWN
ORO = TPH AS OIL-RANGE ORGANICS
MTCA = WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION
UST = UNDERGROUND STORAGE TANK

LEGEND

- DECOMMISSIONED MONITORING WELL
- SHALLOW MONITORING WELL
- DEEP MONITORING WELL
- BORING WITH RECONNAISSANCE GROUNDWATER SAMPLE (FARALLON)
- ANGLED BORING (FARALLON)
- BORING (FARALLON)
- BORING (G-LOGICS)
- BORING (KLEINFELDER)
- ESTIMATED EXTENT OF PETROLEUM IMPACTS IN GROUNDWATER EXCEEDING MTCA METHOD A CLEANUP LEVEL (DASHED WHERE INFERRED)
- INFERRED GROUNDWATER FLOW DIRECTION
- HISTORICAL GAS STATION FEATURE
- PROPERTY FEATURE
- APPROXIMATE PROPERTY BOUNDARY
- KING COUNTY PARCEL BOUNDARY

NOTES:
1. ALL LOCATIONS ARE APPROXIMATE.
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FIGURE 12

ESTIMATED AREAL EXTENT OF
PETROLEUM HYDROCARBONS IN GROUNDWATER
MORNINGSIDE ACRES TRACTS
5001, 5015, AND 5021
RAINIER AVENUE SOUTH
SEATTLE, WASHINGTON

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SOUTH HUDSON STREET

RAINIER AVENUE SOUTH

MW-2
GP-1
FB-33
MW-6
FB-34
FB-32
GLP-03
FB-22
GLP-02
MW-1
FB-31
MW-9
MW-18
MW-25
GLP-01
MW-10
FB-30
MW-23
FB-23
MW-22
FB-36
GLP-06
MW-24
MW-20
FB-35
MW-27
MW-17
MW-26
MW-21
MW-19
MW-13
MW-5
MW-4
MW-3
MW-16
MW-8
FB-29
FB-25
GLP-13
FB-28
FB-24
GLP-11
FLOOR-DRAIN SUMP
MW-7
FB-26
MW-12
MW-11
GLP-08
FB-27
FUEL OIL UST
GLP-07
MW-14
MW-15

LEGEND

- BASEMENT INDOOR AIR
- FIRST FLOOR INDOOR AIR
- OUTDOOR AIR
- DECOMMISSIONED MONITORING WELL
- SHALLOW MONITORING WELL
- DEEP MONITORING WELL
- BORING WITH RECONNAISSANCE GROUNDWATER SAMPLE (FARALLON)
- ANGLED BORING (FARALLON)
- BORING (FARALLON)
- BORING (G-LOGICS)
- BORING (KLEINFELDER)
- SUMP SEDIMENT SAMPLE
- VERTICAL AIR SPARGE WELL
- VERTICAL SOIL VAPOR EXTRACTION WELLL
- HORIZONTAL SOIL VAPOR EXTRACTION WELL
- ASSUMED AIR SPARGE WELL AREA OF INFLUENCE
- ASSUMED SOIL VAPOR EXTRACTION WELL AREA OF INFLUENCE
- APPROXIMATE SOURCE AREA TO BE EXCAVATED (MAXIMUM EXCAVATION DEPTH = 15 FEET BELOW GROUND SURFACE)
- PROPERTY BOUNDARY
- KING COUNTY PARCEL BOUNDARY

NOTES:
1. ALL LOCATIONS ARE APPROXIMATE.
2. FIGURE WAS PRODUCED IN COLOR.
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N

0 15 30
SCALE IN FEET

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FIGURE 13

ALTERNATIVE 1
MORNINGSIDE ACRES TRACTS
5001, 5015, AND 5021
RAINIER AVENUE SOUTH
SEATTLE, WASHINGTON

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LEGEND

- BASEMENT INDOOR AIR
- FIRST FLOOR INDOOR AIR
- OUTDOOR AIR
- DECOMMISSIONED MONITORING WELL
- SHALLOW MONITORING WELL
- DEEP MONITORING WELL
- BORING WITH RECONNAISSANCE GROUNDWATER SAMPLE (FARALLON)
- ANGLED BORING (FARALLON)
- BORING (FARALLON)
- BORING (G-LOGICS)
- BORING (KLEINFELDER)
- SUMP SEDIMENT SAMPLE
- IN-SITU CHEMICAL REDUCTION/ENHANCED BIOREMEDIATION INJECTION POINT
- ASSUMED INJECTION AREA OF INFLUENCE
- APPROXIMATE SOURCE AREA TO BE EXCAVATED (MAXIMUM EXCAVATION DEPTH = 20 FEET BELOW GROUND SURFACE)
- PROPERTY BOUNDARY
- KING COUNTY PARCEL BOUNDARY

NOTES:
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FIGURE 14

ALTERNATIVE 2
MORNINGSIDE ACRES TRACTS
5001, 5015, AND 5021
RAINIER AVENUE SOUTH
SEATTLE, WASHINGTON

FARALLON PN: 1355-001

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LEGEND

- DECOMMISSIONED MONITORING WELL
- SHALLOW MONITORING WELL
- DEEP MONITORING WELL
- BORING WITH RECONNAISSANCE GROUNDWATER SAMPLE (FARALLON)
- ANGLED BORING (FARALLON)
- BORING (FARALLON)
- BORING (G-LOGICS)
- BORING (KLEINFELDER)
- IN-SITU CHEMICAL REDUCTION/ENHANCED BIOREMEDIATION INJECTION WELL
- ASSUMED INJECTION AREA OF INFLUENCE
- APPROXIMATE SOURCE AREA TO BE EXCAVATED (MAXIMUM EXCAVATION DEPTH = 20 FEET BELOW GROUND SURFACE)
- HISTORICAL GAS STATION FEATURE
- PROPERTY FEATURE
- PROPERTY BOUNDARY
- KING COUNTY PARCEL BOUNDARY

NOTES:
1. ALL LOCATIONS ARE APPROXIMATE.
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FIGURE 15

ALTERNATIVE 3
MORNINGSIDE ACRES TRACTS
5001, 5015, AND 5021
RAINIER AVENUE SOUTH
SEATTLE, WASHINGTON

FARALLON PN: 1355-001

Drawn By: aguse | Checked By: SB | Date: 10/19/2023 | Disc Reference:

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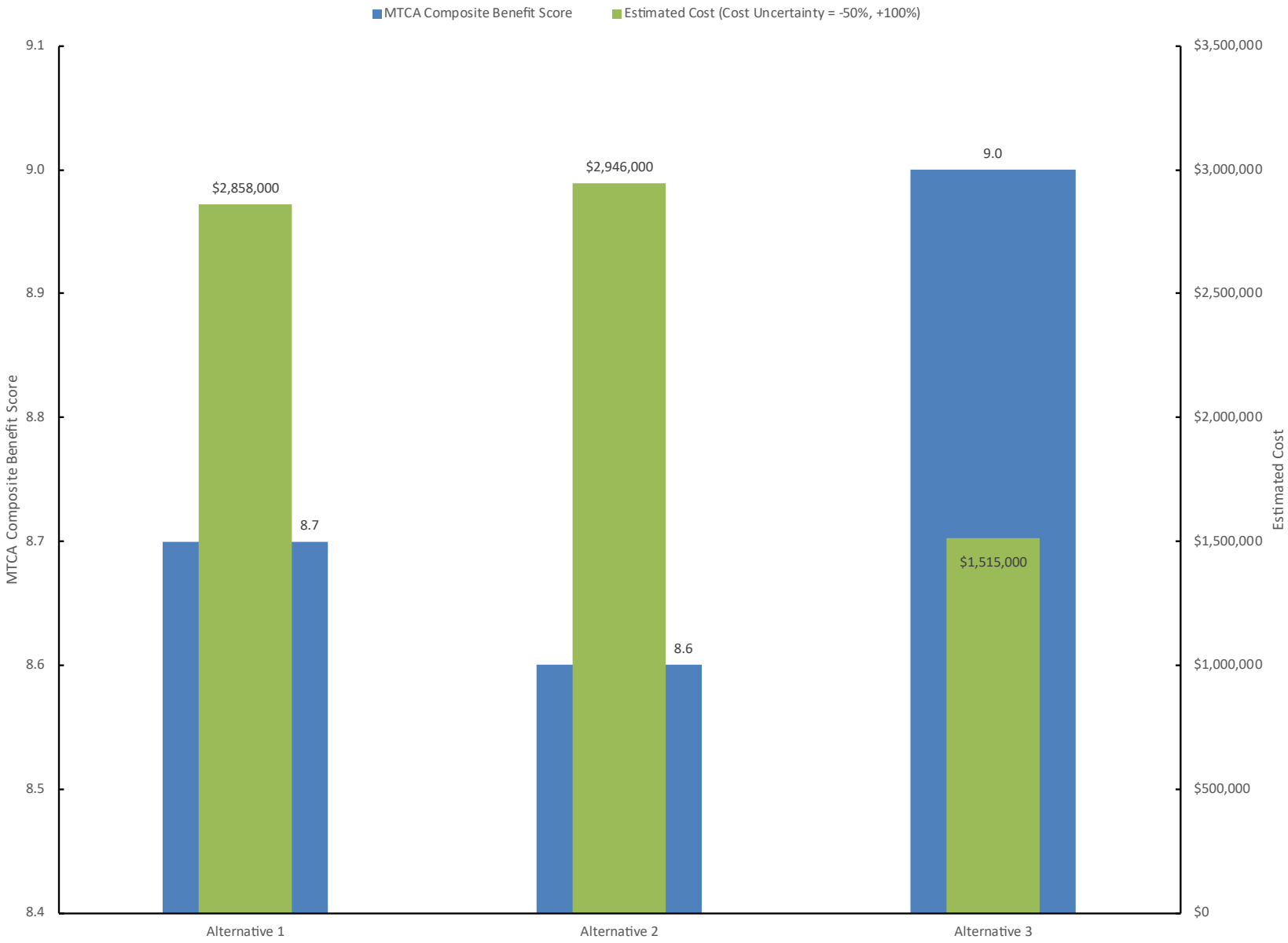

NOTES:
1. CHART WAS PRODUCED IN COLOR.
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   MTCA = WASHINGTON STATE MODEL TOXICS CONTROL ACT

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FIGURE 16

CLEANUP ACTION ALTERNATIVE COSTS
VERSUS BENEFITS
MORNINGSIDE ACRES TRACTS
5001, 5015, AND 5021
RAINIER AVENUE SOUTH
SEATTLE, WASHINGTON

FARALLON PN: 1355-001

Drawn By: jjones | Checked By: SB | Date: 10/19/2023 | Disc Reference:
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TABLES

FINAL REMEDIAL INVESTIGATION AND FEASIBILITY STUDY REPORT
AND DRAFT CLEANUP ACTION PLAN
Morningside Acres Tracts
5001, 5015, and 5021 Rainier Avenue South
Seattle, Washington

Farallon PN: 1355-001

Table 1
Groundwater Elevations
Morningside Acres Tracts
Seattle, Washington
Farallon PN: 1355-001

Location	Top of Casing Elevation (feet NAVD88)[1]	Screened Interval (feet)[2]	Screened Interval (feet NAVD88)[1]	Monitoring Date	Depth to Water (feet)[2]	Depth to LNAPL (feet)[2]	LNAPL Thickness (feet)[2]	Water Level Elevation (feet NAVD88)[1]
MW-1	114.87	8 - 18	106.9 - 96.9	1/5/2007	9.91	---	---	104.96
				1/10/2007	9.99	---	---	104.88
				2/20/2007	10.41	---	---	104.46
				2/12/2013	10.52	---	---	104.35
				8/9/2021	NM	---	---	---
				2/22/2023	9.70	---	---	105.17
				7/19/2023	10.40	---	---	104.47
MW-2	114.38	8 - 18	106.4 - 96.4	1/5/2007	16.07	---	---	98.31
				1/10/2007	Dry	---	---	---
				2/20/2007	15.66	---	---	98.72
				2/12/2013	9.43	---	---	104.95
				12/14/2017	9.41	---	---	104.97
				10/2/2018	9.71	---	---	104.67
				8/9/2021	9.82	---	---	104.56
				2/20/2023	9.38	---	---	105.00
				7/19/2023	9.76	---	---	104.62
MW-3	114.97	8 - 18	107.0 - 97.0	1/5/2007	9.79	---	---	105.18
				1/10/2007	12.11	---	---	102.86
				2/20/2007	10.55	---	---	104.42
				2/12/2013	9.48	---	---	105.49
				12/14/2017	9.78	---	---	105.19
				10/2/2018	10.83	---	---	104.14
				8/9/2021	10.34	---	---	104.63
				2/20/2023	9.22	---	---	105.75
				7/19/2023	10.10	---	---	104.87
MW-4	112.99	6.5 - 16.5	106.5 - 96.5	1/5/2007	7.26	---	---	105.73
				1/10/2007	7.25	---	---	105.74
				2/20/2007	7.39	---	---	105.60
				2/12/2013	7.44	---	---	105.55
				12/14/2017	7.87	---	---	105.12
				10/2/2018	8.48	---	---	104.51
				8/9/2021	NM	---	---	---
				2/22/2023	7.09	---	---	105.90
				7/19/2023	7.70	---	---	105.29
MW-5	114.85	9 - 13	105.9 - 101.9	1/5/2007	9.89	---	---	104.96
				1/10/2007	NM	---	---	---
				2/20/2007	NM	---	---	---
				2/12/2013	NM	---	---	---
				8/9/2021	NM	---	---	---
				2/20/2023	NM	---	---	---
				7/19/2023	NM	---	---	---
MW-6	115.15	9.5 - 14.5	105.7 - 100.7	1/5/2007	10.04	---	---	105.11
				1/10/2007	10.04	---	---	105.11
				2/20/2007	NM	---	---	---
				2/12/2013	10.51	---	---	104.64
				12/14/2017	10.77	---	---	104.38
				10/2/2018	11.20	---	---	103.95
				8/9/2021	10.82	---	---	104.33
				2/20/2023	9.80	---	---	105.35
				7/19/2023	10.47	---	---	104.68
MW-7	108.29	6.5 - 11.5	101.8 - 96.8	1/5/2007	1.10	---	---	107.19
				1/10/2007	0.98	---	---	107.31
				2/20/2007	1.09	---	---	107.20
				2/12/2013	1.07	---	---	107.22
				12/14/2017	1.46	---	---	106.83
				10/2/2018	2.21	---	---	106.08
				8/9/2021	1.70	---	---	106.59
				2/20/2023	0.78	---	---	107.51
				7/19/2023	1.42	---	---	106.87

Table 1
Groundwater Elevations
Morningside Acres Tracts
Seattle, Washington
Farallon PN: 1355-001

Location	Top of Casing Elevation (feet NAVD88)[1]	Screened Interval (feet)[2]	Screened Interval (feet NAVD88)[1]	Monitoring Date	Depth to Water (feet)[2]	Depth to LNAPL (feet)[2]	LNAPL Thickness (feet)[2]	Water Level Elevation (feet NAVD88)[1]
MW-8	116.28	9.5 - 14.5	106.8 - 101.8	1/5/2007	10.01	---	---	106.27
				1/10/2007	10.41	---	---	105.87
				2/20/2007	10.46	---	---	105.82
				2/12/2013	10.21	---	---	106.07
				12/14/2017	10.56	---	---	105.72
				10/2/2018	11.26	---	---	105.02
				8/9/2021	10.94	---	---	105.34
				2/20/2023	10.32	---	---	105.96
				7/19/2023	10.66	---	---	105.62
MW-9	114.65	9 - 19	105.7 - 95.7	1/5/2007	9.36	---	---	105.29
				1/10/2007	9.25	---	---	105.40
				2/20/2007	9.75	---	---	104.90
				2/12/2013	9.51	---	---	105.14
				12/14/2017	9.89	---	---	104.76
				10/2/2018	10.42	---	---	104.23
				8/9/2021	9.90	---	---	104.80
				2/20/2023	8.91	---	---	105.74
				7/19/2023	9.50	---	---	105.15
MW-10	114.58	9 - 19	105.6 - 95.6	1/5/2007	8.58	NM	NM	106.00
				1/10/2007	8.65	NM	NM	105.93
				2/20/2007	9.35	Present	NM	105.23
				2/12/2013	9.74	NM	NM	104.84
				12/14/2017	9.94	9.52	0.42	104.64
				10/2/2018	10.54	10.33	0.21	104.04
				8/9/2021	10.28	Present	NM	104.40
				2/20/2023	10.32	Present	NM	104.26
				3/16/2023	9.85	Present	NM	104.73
				7/19/2023	9.88	9.06	0.82	104.70
MW-11	108.47	3 - 13	105.5 - 95.5	1/10/2007	0.48	---	---	107.99
				2/20/2007	0.51	---	---	107.96
				2/12/2013	0.53	---	---	107.94
				12/14/2017	0.81	---	---	107.66
				10/2/2018	1.16	---	---	107.31
				8/9/2021	0.83	---	---	107.64
				2/20/2023	0.60	---	---	107.87
				7/19/2023	0.67	---	---	107.80
MW-12	109.17	3 - 8	106.2 - 101.2	1/10/2007	1.61	---	---	107.56
				2/20/2007	1.96	---	---	107.21
				2/12/2013	1.96	---	---	107.21
				12/14/2017	2.38	---	---	106.79
				10/2/2018	3.11	---	---	106.06
				8/9/2021	2.58	---	---	106.59
				2/20/2023	1.81	---	---	107.36
				7/19/2023	2.26	---	---	106.91
MW-13	111.82	5 - 15	106.8 - 96.8	1/10/2007	6.22	---	---	105.60
				2/20/2007	6.44	---	---	105.38
				2/12/2013	6.49	---	---	105.33
				12/14/2017	7.11	---	---	104.71
				10/2/2018	7.59	---	---	104.23
				8/9/2021	6.97	---	---	104.85
				2/22/2023	4.26	---	---	107.56
				7/19/2023	6.09	---	---	105.73
MW-14	115.89	16 - 26	99.9 - 89.9	2/20/2007	9.20	---	---	106.69
				2/12/2013	9.16	---	---	106.73
				12/15/2017	9.56	---	---	106.33
				10/2/2018	10.22	---	---	105.67
				8/9/2021	9.78	---	---	106.11
				2/20/2023	8.96	---	---	106.93
				7/19/2023	NM	---	---	NM

Table 1
Groundwater Elevations
Morningside Acres Tracts
Seattle, Washington
Farallon PN: 1355-001

Location	Top of Casing Elevation (feet NAVD88)[1]	Screened Interval (feet)[2]	Screened Interval (feet NAVD88)[1]	Monitoring Date	Depth to Water (feet)[2]	Depth to LNAPL (feet)[2]	LNAPL Thickness (feet)[2]	Water Level Elevation (feet NAVD88)[1]
MW-15	115.92	7 - 17	108.9 - 98.9	2/20/2007	9.69	---	---	106.23
				2/12/2013	9.47	---	---	106.45
				12/14/2017	9.91	---	---	106.01
				10/2/2018	10.73	---	---	105.19
				8/9/2021	10.33	---	---	105.59
				2/20/2023	9.81	---	---	106.11
				7/19/2023	10.35	---	---	105.57
MW-16	108.68	2 - 6	106.7 - 102.7	2/20/2007	1.65	---	---	107.03
				2/12/2013	1.65	---	---	107.03
				12/14/2017	2.05	---	---	106.63
				10/2/2018	2.70	---	---	105.98
				8/9/2021	2.19	---	---	106.49
				2/20/2023	1.36	---	---	107.32
				7/19/2023	1.86	---	---	106.82
MW-17	113.61	6 - 16	107.6 - 97.6	2/20/2007	8.62	---	---	104.99
				2/12/2013	8.63	---	---	104.98
				12/14/2017	8.92	---	---	104.69
				10/2/2018	9.38	---	---	104.23
				8/9/2021	9.03	---	---	104.58
				2/20/2023	8.02	---	---	105.59
				7/19/2023	8.67	---	---	104.94
MW-18	114.79	7 - 17	107.8 - 97.8	2/20/2007	10.38	---	---	104.41
				2/12/2013	10.47	---	---	104.32
				12/14/2017	10.67	---	---	104.12
				10/2/2018	11.18	---	---	103.61
				8/9/2021	10.72	---	---	104.18
				2/20/2023	9.07	---	---	105.72
				3/16/2023	9.77	---	---	105.02
				7/19/2023	10.32	---	---	104.47
MW-19	113.31	25 - 30	88.3 - 83.3	12/14/2017	8.43	---	---	104.88
				10/2/2018	8.94	---	---	104.37
				8/9/2021	8.61	---	---	104.70
				2/20/2023	7.72	---	---	105.59
				7/19/2023	8.28	---	---	105.03
MW-20	114.75	15 - 25	99.8 - 89.8	10/2/2018	8.83	---	---	105.92
				8/9/2021	9.07	---	---	105.68
				2/24/2023	8.72	---	---	106.03
				7/19/2023	9.17	---	---	105.58
MW-21	112.86	35 - 45	77.9 - 67.9	10/2/2018	8.52	---	---	104.34
				8/9/2021	8.01	---	---	104.85
				2/20/2023	7.29	---	---	105.57
				7/19/2023	8.15	---	---	104.71
MW-22	115.31	8-18	107.3 - 97.3	2/20/2023	9.46	---	---	105.85
				3/16/2023	9.45	---	---	105.86
				7/19/2023	9.90	---	---	105.41
MW-23	115.37	38-48	77.4 - 67.4	2/20/2023	42.23	---	---	73.14
				3/16/2023	30.50	---	---	84.87
				7/19/2023	10.34	---	---	105.03
MW-24	114.91	35-45	79.9 - 69.9	2/20/2023	13.37	---	---	101.54
				3/16/2023	9.14	---	---	105.77
				7/19/2023	9.61	---	---	105.30
MW-25	115.09	5-15	110.1 - 100.1	7/19/2023	10.16	---	---	104.93
MW-26	114.92	35-45	79.9 - 69.9	7/19/2023	10.11	---	---	104.81
MW-27	114.88	8-18	106.9 - 96.9	7/19/2023	10.29	---	---	104.59

Notes:

--- denotes LNAPL not present or groundwater elevation not calculated.

[1] In feet referenced to North American Vertical Datum of 1988 (NAVD88).

[2] In feet below top of well casing.

LNAPL = light non-aqueous phase liquid

NM = not measured

Table 2
Soil Analytical Results for Chlorinated VOCs
Morningside Acres Tracts
Seattle, Washington
Farallon PN: 1355-001

Location	Sampled By	Sample Identification	Sample Depth (feet bgs unless otherwise noted)	Zone	Sample Date	Analytical Results (milligrams per kilogram)[1]									
						PCE	TCE	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl Chloride	1,1-Dichloroethene	1,2-Dichloroethane	1,2-Dichloropropane	Chloroethane	1,1,2-Trichloroethane
GP-1	Kleinfelder	GP1-4@13'	13	Vadose	6/8/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	---
GP-2	Kleinfelder	GP2-3a	10	Vadose	6/8/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	---
GP-3	Kleinfelder	GP3-3a	10	Vadose	8/2/2006	< 0.02	< 0.02	< 0.05	< 0.05	< 0.01	< 0.05	< 0.05	< 0.05	< 0.05	---
GP-4	Kleinfelder	GP4-3a	8.0 feet bbf	Vadose	8/2/2006	< 0.02	**0.24**	**0.14**	< 0.05	**0.30**	< 0.05	< 0.05	< 0.05	< 0.05	---
GP-5	Kleinfelder	GP5-3a	10	Vadose	8/2/2006	< 0.02	< 0.02	< 0.05	< 0.05	< 0.01	< 0.05	< 0.05	< 0.05	< 0.05	---
GLP-05	G-Logics	GLP-05-05	5.0	Vadose	1/5/2007	< 0.02	< 0.03	< 0.02	< 0.02	< 0.03	< 0.05	< 0.03	< 0.02	< 0.06	---
GLP-08	G-Logics	GLP-08-7	7.0 feet bbf	Saturated	1/5/2007	< 0.02	< 0.03	< 0.02	< 0.02	< 0.03	< 0.05	< 0.03	< 0.02	< 0.06	---
GLP-09	G-Logics	GLP-09-2	2.0 feet bbf	Vadose	1/5/2007	< 0.02	< 0.03	< 0.02	< 0.02	< 0.03	< 0.05	< 0.03	< 0.02	< 0.06	---
	G-Logics	GLP-09-8	8.0 feet bbf	Vadose	1/5/2007	< 0.02	< 0.03	< 0.02	< 0.02	< 0.03	< 0.05	< 0.03	< 0.02	< 0.06	---
	G-Logics	GLP-09-12	12.0 feet bbf	Saturated	1/5/2007	< 0.02	< 0.03	< 0.02	< 0.02	< 0.03	< 0.05	< 0.03	< 0.02	< 0.06	---
GLP-10	G-Logics	GLP-10-3	3.0 feet bbf	Vadose	1/5/2007	< 0.02	< 0.03	< 0.02	< 0.02	< 0.03	< 0.05	< 0.03	< 0.02	< 0.06	---
	G-Logics	GLP-10-7	7.0 feet bbf	Saturated	1/5/2007	< 0.02	< 0.03	< 0.02	< 0.02	< 0.03	< 0.05	< 0.03	< 0.02	< 0.06	---
	G-Logics	GLP-10-9	9.0 feet bbf	Saturated	1/5/2007	< 0.02	< 0.03	< 0.02	< 0.02	< 0.03	< 0.05	< 0.03	< 0.02	< 0.06	---
GLP-11	G-Logics	GLP-11-3	3.0 feet bbf	Vadose	1/5/2007	< 0.02	< 0.03	< 0.02	< 0.02	< 0.03	< 0.05	< 0.03	< 0.02	< 0.06	---
GLP-12	G-Logics	GLP-12-6	6.0	Vadose	1/5/2007	< 0.02	< 0.03	< 0.02	< 0.02	< 0.03	< 0.05	< 0.03	< 0.02	< 0.06	---
GLP-13	G-Logics	GLP-13-4	4.0 feet bbf	Vadose	2/16/2007	< 0.02	< 0.03	0.054	< 0.02	**0.77**	< 0.05	< 0.03	< 0.02	< 0.06	---
	G-Logics	GLP-13-8	8.0 feet bbf	Vadose	2/16/2007	< 0.02	< 0.03	< 0.02	< 0.02	**0.036**	< 0.05	< 0.03	< 0.02	< 0.06	---
	G-Logics	GLP-13-12	12.0 feet bbf	Saturated	2/16/2007	< 0.02	< 0.03	< 0.02	< 0.02	**0.087**	< 0.05	< 0.03	< 0.02	< 0.06	---
	G-Logics	GLP-13-12 DUP	12.0 feet bbf	Saturated	2/16/2007	< 0.02	< 0.03	< 0.02	< 0.02	**0.092**	< 0.05	< 0.03	< 0.02	< 0.06	---
GLP-14	G-Logics	GLP-14-13	13.0	Saturated	2/16/2007	< 0.02	< 0.03	< 0.02	< 0.02	< 0.03	< 0.05	< 0.03	< 0.02	< 0.06	---
	G-Logics	GLP-14-24	24.0	Saturated	2/16/2007	< 0.02	< 0.03	< 0.02	< 0.02	< 0.03	< 0.05	< 0.03	< 0.02	< 0.06	---
GLP-15	G-Logics	GLP-15-13	13.0	Saturated	2/16/2007	< 0.02	< 0.03	< 0.02	< 0.02	< 0.03	< 0.05	< 0.03	< 0.02	< 0.06	---
	G-Logics	GLP-15-15	15.0	Saturated	2/16/2007	< 0.02	< 0.03	< 0.02	< 0.02	< 0.03	< 0.05	< 0.03	< 0.02	< 0.06	---
GLP-16	G-Logics	GLP-16-4	4.0 feet bbf	Saturated	2/16/2007	< 0.02	< 0.03	< 0.02	< 0.02	< 0.03	< 0.05	< 0.03	< 0.02	< 0.06	---
	G-Logics	GLP-16-6	6.0 feet bbf	Saturated	2/16/2007	< 0.02	< 0.03	< 0.02	< 0.02	< 0.03	< 0.05	< 0.03	< 0.02	< 0.06	---
GLP-17	G-Logics	GLP-17-11	11.0	Vadose	2/16/2007	< 0.02	< 0.03	< 0.02	< 0.02	< 0.03	< 0.05	< 0.03	< 0.02	< 0.06	---
	G-Logics	GLP-17-15	15.0	Saturated	2/16/2007	< 0.02	< 0.03	**0.027**	**0.039**	**0.041**	< 0.05	< 0.03	< 0.02	< 0.06	---
MTCA Method A Cleanup Level[2]						**0.05**	**0.03**	**160[3]**	**1,600[3]**	**0.67[3]**	**4,000[3]**	**11[3]**	**27.0[3]**	**NE**	**18[3]**
MTCA Method B Cleanup Levels for Soil Protective of Groundwater Vadose @ 13 Degrees Celsius[4]						**---**	**---**	**0.079**	**0.52**	**0.0017**	**0.046**	**0.023**	**0.025**	**NE**	**0.017**
MTCA Method B Cleanup Levels for Soil Protective of Groundwater Saturated[4]						**---**	**---**	**0.0052**	**0.032**	**0.00009**	**0.0025**	**0.0016**	**0.0017**	**NE**	**0.0011**

Table 2
Soil Analytical Results for Chlorinated VOCs
Morningside Acres Tracts
Seattle, Washington
Farallon PN: 1355-001

Location	Sampled By	Sample Identification	Sample Depth (feet bgs unless otherwise noted)	Zone	Sample Date	Analytical Results (milligrams per kilogram)[1]									
						PCE	TCE	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl Chloride	1,1-Dichloroethene	1,2-Dichloroethane	1,2-Dichloropropane	Chloroethane	1,1,2-Trichloroethane
GLP-18	G-Logics	GLP-18-10	10.0	Vadose	2/16/2007	< 0.02	< 0.03	< 0.02	< 0.02	< 0.03	< 0.05	< 0.03	< 0.02	< 0.06	---
	G-Logics	GLP-18-15	15.0	Saturated	2/16/2007	< 0.02	< 0.03	< 0.02	< 0.02	< 0.03	< 0.05	< 0.03	< 0.02	< 0.06	---
MW-19	Farallon	MW-19-10.0	10.0	Vadose	12/11/2017	< 0.0024	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0078	< 0.0012
	Farallon	MW-19-15.0	15.0	Saturated	12/11/2017	< 0.0033	**0.18**	**0.016**	0.0043	**0.017**	< 0.0017	< 0.0017	< 0.0017	< 0.011	< 0.0017
	Farallon	MW-19-22.5	22.5	Saturated	12/12/2017	< 0.0025	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0080	< 0.0013
	Farallon	MW-19-30.0	30.0	Saturated	12/12/2017	< 0.0025	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0080	< 0.0012
MW-20	Farallon	FB-20-10.0	10.0	Vadose	4/13/2018	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0084	< 0.0013
	Farallon	FB-20-13.0	13.0	Vadose	4/13/2018	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0085	< 0.0013
	Farallon	MW-20-15.0	15.0	Vadose	5/8/2018	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0060	< 0.0012
	Farallon	MW-20-20.0	20.0	Saturated	5/8/2018	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.0054	< 0.0011
MW-21	Farallon	MW-21-30	30.0	Saturated	8/28/2018	< 0.0016	< 0.0016	< 0.0016	< 0.0016	< 0.0016	< 0.0016	< 0.0016	< 0.0016	< 0.0078	< 0.0016
	Farallon	MW-21-35	35.0	Saturated	8/28/2018	< 0.0017	< 0.0017	< 0.0017	< 0.0017	< 0.0017	< 0.0017	< 0.0017	< 0.0017	< 0.0085	< 0.0017
	Farallon	MW-21-40	40.0	Saturated	8/28/2018	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0067	< 0.0013
	Farallon	MW-21-45	45.0	Saturated	8/28/2018	< 0.0016	< 0.0016	< 0.0016	< 0.0016	< 0.0016	< 0.0016	< 0.0016	< 0.0016	< 0.0078	< 0.0016
MW-23	Farallon	MW-23-10.0	10.0	Saturated	2/14/2023	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0064	< 0.0013
	Farallon	MW-23-15.0	15.0	Saturated	2/14/2023	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0064	< 0.0013
	Farallon	MW-23-20.0	20.0	Saturated	2/14/2023	< 0.0016	< 0.0016	< 0.0016	< 0.0016	< 0.0016	< 0.0016	< 0.0016	< 0.0016	< 0.0078	< 0.0016
	Farallon	MW-23-30.0	30.0	Saturated	2/14/2023	< 0.0016	< 0.0016	< 0.0016	< 0.0016	< 0.0016	< 0.0016	< 0.0016	< 0.0016	< 0.0081	< 0.0016
	Farallon	MW-23-45.0	45.0	Saturated	2/15/2023	< 0.0015	< 0.0015	< 0.0015	< 0.0015	< 0.0015	< 0.0015	< 0.0015	< 0.0015	< 0.0077	< 0.0015
	Farallon	MW-23-50.0	50.0	Saturated	2/15/2023	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0063	< 0.0013
MW-24	Farallon	FB-30-40.0	40.0	Saturated	2/16/2023	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0059	< 0.0012
	Farallon	FB-30-45.0	45.0	Saturated	2/16/2023	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0051	< 0.0010
MW-26	Farallon	MW-26-10.0	10.0	Vadose	7/18/2023	< 0.00097	< 0.00097	< 0.00097	< 0.00097	< 0.00097	< 0.00097	< 0.00097	< 0.00097	< 0.0049	< 0.00097
	Farallon	MW-26-15.0	15.0	Saturated	7/18/2023	< 0.0012	0.014	**0.015**	0.0017	**0.014**	< 0.0012	< 0.0012	< 0.0012	< 0.0058	< 0.0012
	Farallon	MW-26-25.0	25.0	Saturated	7/18/2023	< 0.00099	< 0.00099	0.0015	< 0.00099	**0.0014**	< 0.00099	< 0.00099	< 0.00099	< 0.0050	< 0.00099
	Farallon	MW-26-35.0	35.0	Saturated	7/18/2023	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.0054	< 0.0011
	Farallon	MW-26-45.0	45.0	Saturated	7/18/2023	< 0.00088	< 0.00088	< 0.00088	< 0.00088	< 0.00088	< 0.00088	< 0.00088	< 0.00088	< 0.0044	< 0.00088
FB-22	Farallon	FB-22-10	10.0	Vadose	8/29/2018	< 0.0021	< 0.0021	< 0.0021	< 0.0021	< 0.0021	< 0.0021	< 0.0021	< 0.0021	< 0.011	< 0.0021
	Farallon	FB-22-15	15.0	Saturated	8/29/2018	< 0.0014	< 0.0014	< 0.0014	< 0.0014	< 0.0014	< 0.0014	< 0.0014	< 0.0014	< 0.0068	< 0.0014
	Farallon	FB-22-20	20.0	Saturated	8/29/2018	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0063	< 0.0013
MTCA Method A Cleanup Level[2]						**0.05**	**0.03**	**160[3]**	**1,600[3]**	**0.67[3]**	**4,000[3]**	**11[3]**	**27.0[3]**	**NE**	**18[3]**
MTCA Method B Cleanup Levels for Soil Protective of Groundwater Vadose @ 13 Degrees Celsius[4]						**---**	**---**	**0.079**	**0.52**	**0.0017**	**0.046**	**0.023**	**0.025**	**NE**	**0.017**
MTCA Method B Cleanup Levels for Soil Protective of Groundwater Saturated[4]						**---**	**---**	**0.0052**	**0.032**	**0.00009**	**0.0025**	**0.0016**	**0.0017**	**NE**	**0.0011**

Table 2
Soil Analytical Results for Chlorinated VOCs
Morningside Acres Tracts
Seattle, Washington
Farallon PN: 1355-001

Location	Sampled By	Sample Identification	Sample Depth (feet bgs unless otherwise noted)	Zone	Sample Date	Analytical Results (milligrams per kilogram)[1]									
						PCE	TCE	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl Chloride	1,1-Dichloroethene	1,2-Dichloroethane	1,2-Dichloropropane	Chloroethane	1,1,2-Trichloroethane
FB-23	Farallon	FB-23-10	10.0	Vadose	8/29/2018	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0059	< 0.0012
	Farallon	FB-23-13	13.0	Vadose	8/29/2018	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0067	< 0.0013
	Farallon	FB-23-17	17.0	Vadose	8/29/2018	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0063	< 0.0013
	Farallon	FB-23-20	20.0	Saturated	8/29/2018	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0013	< 0.0066	< 0.0013
FB-24	Farallon	FB-24-6.0	6.0	Saturated	4/13/2021	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.010	< 0.0020
	Farallon	FB-24-10.0	10.0	Saturated	4/13/2021	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.0053	< 0.0011
FB-25	Farallon	FB-25-2.0	2.0	Vadose	4/13/2021	< 0.0019	< 0.0019	< 0.0019	< 0.0019	< 0.0019	< 0.0019	< 0.0019	< 0.0019	< 0.0094	< 0.0019
	Farallon	FB-25-6.0	6.0	Saturated	4/13/2021	< 0.0016	< 0.0016	< 0.0016	< 0.0016	**0.0019**	< 0.0016	< 0.0016	< 0.0016	< 0.0078	< 0.0016
	Farallon	FB-25-10.0	10.0	Saturated	4/13/2021	< 0.0011	0.023	**0.0074**	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.0056	< 0.0011
FB-26	Farallon	FB-26-6.0	6.0	Saturated	4/13/2021	< 0.0017	< 0.0017	< 0.0017	< 0.0017	**0.0035**	< 0.0017	< 0.0017	< 0.0017	< 0.0086	< 0.0017
	Farallon	FB-26-10.0	10.0	Saturated	4/13/2021	< 0.0018	**0.88**	**0.042**	< 0.0018	**0.012**	< 0.0018	**0.0025**	**0.0029**	< 0.0092	< 0.0018
	Farallon	FB-26-14.0	14.0	Saturated	4/13/2021	---	< 0.0011	---	---	---	---	---	---	---	---
FB-27	Farallon	FB-27-10.0	10.0	Saturated	4/13/2021	---	< 0.0013	---	---	---	---	---	---	---	---
	Farallon	FB-27-14.0	14.0	Saturated	4/13/2021	---	< 0.0012	---	---	---	---	---	---	---	---
FB-28	Farallon	FB-28-2.0	2.0	Vadose	4/14/2021	< 0.0015	< 0.0015	< 0.0015	< 0.0015	< 0.0015	< 0.0015	< 0.0015	< 0.0015	< 0.0075	< 0.0015
	Farallon	FB-28-6.0	6.0	Saturated	4/14/2021	< 0.0013	**0.034**	**0.039**	0.0080	**0.0066**	< 0.0013	< 0.0013	< 0.0013	< 0.0064	< 0.0013
FB-30	Farallon	FB-30-12.5	12.5	Saturated	2/14/2023	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.0011	< 0.0056	< 0.0011
FB-32	Farallon	FB-32-5.0	5.0	Vadose	7/13/2023	---	---	---	---	---	---	< 0.0022 J	---	---	< 0.0022 J
	Farallon	FB-32-10.0	10.0	Vadose	7/13/2023	---	---	---	---	---	---	< 0.013 J	---	---	< 0.013 J
	Farallon	FB-32-15.0	15.0	Saturated	7/13/2023	---	---	---	---	---	---	< 0.011 J	---	---	< 0.011 J
MTCA Method A Cleanup Level[2]						**0.05**	**0.03**	**160[3]**	**1,600[3]**	**0.67[3]**	**4,000[3]**	**11[3]**	**27.0[3]**	**NE**	**18[3]**
MTCA Method B Cleanup Levels for Soil Protective of Groundwater Vadose @ 13 Degrees Celsius[4]						**---**	**---**	**0.079**	**0.52**	**0.0017**	**0.046**	**0.023**	**0.025**	**NE**	**0.017**
MTCA Method B Cleanup Levels for Soil Protective of Groundwater Saturated[4]						**---**	**---**	**0.0052**	**0.032**	**0.00009**	**0.0025**	**0.0016**	**0.0017**	**NE**	**0.0011**

NOTES:

Results in **bold** and highlighted yellow denote concentrations exceeding MTCA cleanup levels. Green highlight indicates new 2023 analytical results.
< denotes concentration not detected at or exceeding the laboratory method reporting limit listed.
--- denotes sample not analyzed or not applicable.

[1]Analyzed by U.S. Environmental Protection Agency Method 8260/8260D.

[2]MTCA Method A Soil Cleanup Levels for Unrestricted Land Uses, Table 740-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, as revised 2013, unless otherwise noted.

[3]MTCA Method A cleanup level not established; the listed value is the Washington State Cleanup Levels and Risk Calculations (CLARC) MTCA Method B Standard Formula Value for Soil (Unrestricted Land Use) - Direct Contact (Ingestion Only), lowest of cancer or non-cancer values, from CLARC Master Spreadsheet dated January 2023, https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC

[4]Washington State Cleanup Levels and Risk Calculations (CLARC) under Washington State MTCA, Standard Method B Formula Values for Soil from CLARC Master spreadsheet, https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC

bbf = below basement floor
bgs = below ground surface
Farallon = Farallon Consulting, L.L.C.
G-Logics = G-Logics, Inc.
Kleinfelder = Kleinfelder, Inc.
MTCA = Washington State Model Toxics Control Act Cleanup Regulation
ND = analyte not detected; laboratory method reporting limit unknown
NE = not established
PCE = tetrachloroethene
TCE = trichloroethene
VOC = volatile organic compound
TCE = trichloroethene

Table 3
Soil Analytical Results for Petroleum Hydrocarbons and Lead
Morningside Acres Tracts
Seattle, Washington
Farallon PN: 1355-001

Location	Sampled By	Sample Identification	Sample Depth (feet bgs unless otherwise noted)	Sample Date	Analytical Results (milligrams per kilogram)										
					NWTPH-Dx					NWTPH-Gx	EPA Method 8021 or 8260				EPA 7000 Series Method
					Diesel	Mineral Oil	DRO	ORO	DRO+ORO (C10-C36)^	GRO	Benzene	Toluene	Ethylbenzene	Xylenes	Lead
GP-1	Kleinfelder	GP1-4@13'	13	6/8/2006	< 20	< 40	---	< 40[1]	< 30	< 10	< 0.02	< 0.05	< 0.05	< 0.05	< 5
GP-2	Kleinfelder	GP2-3a	8.0	6/8/2006	---	---	---	---	---	---	< 0.02	< 0.05	< 0.05	< 0.05	---
GP-3	Kleinfelder	GP3-3a	10	8/2/2006	< 20	< 40	---	< 40[1]	< 30	**530**	**0.15**	< 0.05	1.1	1.3	5.6
GP-4	Kleinfelder	GP4-3a	8.0 feet bbf	8/2/2006	< 20	< 40	---	< 40[1]	< 30	< 10	< 0.02	< 0.05	< 0.05	< 0.05	5.6
GP-5	Kleinfelder	GP5-3a	10	8/2/2006	< 20	< 40	---	< 40[1]	< 30	< 10	< 0.02	< 0.05	< 0.05	< 0.05	< 5
GLP-01	G-Logics	GLP-01-8.5	8.5	1/5/2007	---	---	---	---	---	< 10[2]	< 0.02	< 0.10	< 0.05	< 0.15	---
	G-Logics	GLP-01-10	10.0	1/5/2007	---	---	---	---	---	< 10[2]	< 0.02	< 0.10	< 0.05	< 0.15	---
GLP-02	G-Logics	GLP-02-09	9.0	1/5/2007	---	---	---	---	---	< 10[2]	< 0.02	< 0.10	< 0.05	< 0.15	---
GLP-03	G-Logics	GLP-03-03	3.0	1/5/2007	---	---	---	---	---	< 10[2]	< 0.02	< 0.10	< 0.05	< 0.15	---
	G-Logics	GLP-03-14	14.0	1/5/2007	---	---	---	---	---	< 10[2]	< 0.02	< 0.10	< 0.05	< 0.15	---
GLP-04	G-Logics	GLP-04-14	14.0	1/5/2007	---	---	---	---	---	< 10[2]	< 0.02	< 0.10	< 0.05	< 0.15	---
GLP-05	G-Logics	GLP-05-05	5.0	1/5/2007	< 25	---	**3,300[3]**	**6,800[1]**	**10,100**	**4,460[2]**	**1.15**	0.094	1.68	3.40	---
	G-Logics	GLP-05-05 DUP	5.0	1/5/2007	< 25	---	**3,630[3]**	**7,810[1]**	**11,440**	**---**	**---**	---	---	---	---
	G-Logics	GLP-05-11.5	11.5	1/5/2007	< 25	---	**3,520[3]**	**3,480[1]**	**7,000**	**4,800[2]**	< 0.02	< 0.10	0.90	1.85	---
	G-Logics	GLP-05-18	18.0	1/5/2007	< 25	---	785[3]	1,650[1]	**2,435**	**890[2]**	< 0.02	< 0.10	< 0.05	0.83	---
GLP-06	G-Logics	GLP-06-11	11.0	1/5/2007	< 25	---	< 40[3]	< 40[1]	< 40	28[2]	< 0.02	< 0.10	0.11	0.23	---
	G-Logics	GLP-06-17	17.0	1/5/2007	---	---	---	---	---	< 10[2]	< 0.02	< 0.10	< 0.05	< 0.15	---
	G-Logics	GLP-06-18	18.0	1/5/2007	---	---	---	---	---	< 10[2]	< 0.02	< 0.10	< 0.05	< 0.15	---
	G-Logics	GLP-06-18 DUP	18.0	1/5/2007	---	---	---	---	---	< 10[2]	< 0.02	< 0.10	< 0.05	< 0.15	---
GLP-08	G-Logics	GLP-08-7	7.0 feet bbf	1/5/2007	---	---	---	---	---	< 10[2]	< 0.02	< 0.02	< 0.03	< 0.03	---
	G-Logics	GLP-08-12	12.0 feet bbf	1/5/2007	< 25	---	< 40[3]	< 40[1]	< 40	< 10[2]	< 0.02	< 0.10	< 0.05	< 0.15	---
	G-Logics	GLP-08-12 DUP	12.0 feet bbf	1/5/2007	< 25	---	< 40[3]	< 40[1]	< 40	---	---	---	---	---	---
GLP-09	G-Logics	GLP-09-2	2.0 feet bbf	1/5/2007	< 25	---	< 40[3]	< 40[1]	< 40	< 10[2]	< 0.02	< 0.02	< 0.03	< 0.03	---
	G-Logics	GLP-09-8	8.0 feet bbf	1/5/2007	---	---	---	---	---	< 10[2]	< 0.02	< 0.02	< 0.03	< 0.03	---
	G-Logics	GLP-09-12	12.0 feet bbf	1/5/2007	---	---	---	---	---	< 10[2]	< 0.02	< 0.02	< 0.03	< 0.03	---
	G-Logics	GLP-09-12 DUP	12.0 feet bbf	1/5/2007	---	---	---	---	---	< 10[2]	< 0.02	< 0.10	< 0.05	< 0.15	---
GLP-10	G-Logics	GLP-10-3	3.0 feet bbf	1/5/2007	< 25	---	< 40[3]	< 40[1]	< 40	< 10[2]	< 0.02	< 0.02	< 0.03	< 0.03	---
	G-Logics	GLP-10-7	7.0 feet bbf	1/5/2007	---	---	---	---	---	< 10[2]	< 0.02	< 0.02	< 0.03	< 0.03	---
	G-Logics	GLP-10-9	9.0 feet bbf	1/5/2007	---	---	---	---	---	< 10[2]	< 0.02	< 0.02	< 0.03	< 0.03	---
MTCA Method A Cleanup Level[4]					**2,000**	**4,000**	**2,000**	**2,000[5]**	**2,000**	**30/100[6]**	**0.03**	**7**	**6**	**9**	**250**

Table 3
Soil Analytical Results for Petroleum Hydrocarbons and Lead
Morningside Acres Tracts
Seattle, Washington
Farallon PN: 1355-001

Location	Sampled By	Sample Identification	Sample Depth (feet bgs unless otherwise noted)	Sample Date	Analytical Results (milligrams per kilogram)										
					NWTPH-Dx					NWTPH-Gx	EPA Method 8021 or 8260				EPA 7000 Series Method
					Diesel	Mineral Oil	DRO	ORO	DRO+ORO (C10-C36)^	GRO	Benzene	Toluene	Ethylbenzene	Xylenes	Lead
GLP-11	G-Logics	GLP-11-3	3.0 feet bbf	1/5/2007	< 25	---	< 40[3]	< 40[1]	< 40	< 10[2]	< 0.02	< 0.02	< 0.03	< 0.03	---
GLP-12	G-Logics	GLP-12-6	6.0	1/5/2007	< 25	---	< 40[3]	< 40[1]	< 40	< 10[2]	< 0.02	< 0.02	< 0.03	< 0.03	---
	G-Logics	GLP-12-6 DUP	6.0	1/5/2007	< 25	---	< 40[3]	< 40[1]	< 40	< 10[2]	< 0.02	< 0.10	< 0.05	< 0.15	---
GLP-13	G-Logics	GLP-13-4	4.0 feet bbf	2/16/2007	< 25	---	< 40[3]	< 40[1]	< 40	---	< 0.02	< 0.02	< 0.03	< 0.03	---
	G-Logics	GLP-13-8	8.0 feet bbf	2/16/2007	< 25	---	< 40[3]	< 40[1]	< 40	---	< 0.02	< 0.02	< 0.03	< 0.03	---
	G-Logics	GLP-13-12	12.0 feet bbf	2/16/2007	< 25	---	< 40[3]	< 40[1]	< 40	---	< 0.02	< 0.02	< 0.03	< 0.03	---
	G-Logics	GLP-13-12 DUP	12.0 feet bbf	2/16/2007	---	---	---	---	---	---	< 0.02	< 0.02	< 0.03	< 0.03	---
GLP-14	G-Logics	GLP-14-13	13.0	2/16/2007	< 25	---	< 40[3]	< 40[1]	< 40	---	< 0.02	< 0.02	< 0.03	< 0.03	---
	G-Logics	GLP-14-24	24.0	2/16/2007	< 25	---	< 40[3]	< 40[1]	< 40	---	< 0.02	< 0.02	< 0.03	< 0.03	---
GLP-15	G-Logics	GLP-15-13	13.0	2/16/2007	---	---	---	---	---	---	< 0.02	< 0.02	< 0.03	< 0.03	---
	G-Logics	GLP-15-15	15.0	2/16/2007	---	---	---	---	---	---	< 0.02	< 0.02	< 0.03	< 0.03	---
GLP-16	G-Logics	GLP-16-4	4.0 feet bbf	2/16/2007	< 25	---	< 40[3]	< 40[1]	< 40	---	< 0.02	< 0.02	< 0.03	< 0.03	---
	G-Logics	GLP-16-6	6.0 feet bbf	2/16/2007	< 25	---	< 40[3]	< 40[1]	< 40	---	< 0.02	< 0.02	< 0.03	< 0.03	---
GLP-17	G-Logics	GLP-17-11	11.0	2/16/2007	---	---	---	---	---	---	< 0.02	< 0.02	< 0.03	< 0.03	---
	G-Logics	GLP-17-15	15.0	2/16/2007	---	---	---	---	---	---	< 0.02	< 0.02	< 0.03	< 0.03	---
GLP-18	G-Logics	GLP-18-10	10.0	2/16/2007	< 25	---	< 40[3]	< 40[1]	< 40	**63**	< 0.02	< 0.02	< 0.03	< 0.03	---
	G-Logics	GLP-18-15	15.0	2/16/2007	< 25	---	< 40[3]	< 40[1]	< 40	**86**	< 0.02	< 0.02	< 0.03	< 0.03	---
MW-19	Farallon	MW-19-10.0	10.0	12/11/2017	---	---	36	< 63	67.5	< 7.3	< 0.020	< 0.073	< 0.073	< 0.146	---
	Farallon	MW-19-15.0	15.0	12/11/2017	---	---	< 33	< 66	< 49.5	< 8.7	< 0.020	< 0.087	< 0.087	< 0.174	---
	Farallon	MW-19-22.5	22.5	12/12/2017	---	---	< 34	< 67	< 50.5	< 8.6	< 0.020	< 0.086	< 0.086	< 0.172	---
	Farallon	MW-19-30.0	30.0	12/12/2017	---	---	< 33	< 66	< 49.5	< 7.6	< 0.020	< 0.076	< 0.076	< 0.152	---
MW-20	Farallon	FB-20-10.0	10.0	4/13/2018	---	---	< 31	< 63	< 47	< 7.7	< 0.020	< 0.077	< 0.077	< 0.154	---
	Farallon	FB-20-13.0	13.0	4/13/2018	---	---	< 32	63	79	< 7.8	< 0.020	< 0.078	< 0.078	< 0.156	---
	Farallon	MW-20-15.0	15.0	5/8/2018	---	---	< 32	< 64	< 48	< 6.9	< 0.0012	< 0.0060	< 0.0012	< 0.0072	---
	Farallon	MW-20-20.0	20.0	5/8/2018	---	---	< 33	< 66	< 49.5	< 6.9	< 0.0011	< 0.0054	< 0.0011	< 0.0065	---
MW-21	Farallon	MW-21-30	30.0	8/28/2018	---	---	< 32	< 64	< 48	< 8.2	< 0.0016	< 0.0078	< 0.0016	< 0.0094	---
	Farallon	MW-21-35	35.0	8/28/2018	---	---	< 31	< 62	< 46.5	< 8.1	< 0.0017	< 0.0085	< 0.0017	< 0.0102	---
	Farallon	MW-21-40	40.0	8/28/2018	---	---	< 31	< 62	< 46.5	< 6.5	< 0.0013	< 0.0067	< 0.0013	< 0.0080	---
	Farallon	MW-21-45	45.0	8/28/2018	---	---	< 33	< 65	< 49	< 7.3	< 0.0016	< 0.0078	< 0.0016	< 0.0094	---
MTCA Method A Cleanup Level[4]					**2,000**	**4,000**	**2,000**	**2,000[5]**	**2,000**	**30/100[6]**	**0.03**	**7**	**6**	**9**	**250**

Table 3
Soil Analytical Results for Petroleum Hydrocarbons and Lead
Morningside Acres Tracts
Seattle, Washington
Farallon PN: 1355-001

Location	Sampled By	Sample Identification	Sample Depth (feet bgs unless otherwise noted)	Sample Date	Analytical Results (milligrams per kilogram)										
					NWTPH-Dx					NWTPH-Gx	EPA Method 8021 or 8260				EPA 7000 Series Method
					Diesel	Mineral Oil	DRO	ORO	DRO+ORO (C10-C36)^	GRO	Benzene	Toluene	Ethylbenzene	Xylenes	Lead
MW-23	Farallon	MW-23-10.0	10.0	2/14/2023	---	---	< 35	< 69	< 52	< 8.2	< 0.020	< 0.082	< 0.082	< 0.164	---
	Farallon	MW-23-15.0	15.0	2/14/2023	---	---	< 32	< 64	< 48	< 7.0	< 0.020	< 0.070	< 0.070	< 0.140	---
	Farallon	MW-23-20.0	20.0	2/14/2023	---	---	< 33	< 66	< 49.5	< 9.0	< 0.020	< 0.090	< 0.090	< 0.180	---
	Farallon	MW-23-30.0	30.0	2/14/2023	---	---	< 31	< 63	< 47	< 7.7	< 0.020	< 0.077	< 0.077	< 0.154	---
	Farallon	MW-23-45.0	45.0	2/15/2023	---	---	< 31	< 62	< 46.5	< 7.5	< 0.020	< 0.075	< 0.075	< 0.150	---
	Farallon	MW-23-50.0	50.0	2/15/2023	---	---	< 32	< 63	< 47.5	< 6.8	< 0.020	< 0.068	< 0.068	< 0.136	---
MW-24	Farallon	FB-30-40.0	40.0	2/16/2023	---	---	< 28	< 56	< 42	< 5.9	< 0.020	< 0.059	< 0.059	< 0.118	---
	Farallon	FB-30-45.0	45.0	2/16/2023	---	---	< 29	< 57	< 43	< 5.5	< 0.020	< 0.055	< 0.055	< 0.11	---
MW-25	Farallon	MW-25-5.0	5.0	7/14/2023	---	---	< 34 < 34 SG	< 68 < 68 SG	< 68 < 68 SG	< 6.2	< 0.020	< 0.062	< 0.062	< 0.124	---
	Farallon	MW-25-10.0	10.0	7/14/2023	---	---	< 31 < 31 SG	< 62 < 62 SG	< 62 < 62 SG	**440**	< 0.020	< 0.071	< 0.071	0.26	---
	Farallon	MW-25-15.0	15.0	7/14/2023	---	---	< 32 < 32 SG	< 63 < 63 SG	< 63 < 63 SG	< 7.4	< 0.020	< 0.074	< 0.074	< 0.148	---
	Farallon	MW-25-17.0	17.0	7/14/2023	---	---	< 31 < 31 SG	< 62 < 62 SG	< 62 < 62 SG	< 7.7	< 0.020	< 0.077	< 0.077	< 0.154	---
FB-22	Farallon	FB-22-10	10.0	8/29/2018	---	---	< 42	< 84	< 63	< 12	< 0.0021	< 0.011	< 0.0021	< 0.0131	---
	Farallon	FB-22-15	15.0	8/29/2018	---	---	< 33	< 66	< 49.5	< 7.9	< 0.0014	< 0.0068	< 0.0014	< 0.0082	---
	Farallon	FB-22-20	20.0	8/29/2018	---	---	< 29	< 59	< 44	< 6.1	< 0.0013	< 0.0063	< 0.0013	< 0.0076	---
FB-23	Farallon	FB-23-10	10.0	8/29/2018	---	---	320	< 70	355	< 18	< 0.0012	< 0.0059	< 0.0012	< 0.0071	---
	Farallon	FB-23-13	13.0	8/29/2018	---	---	430	< 68	464	**1,400**	< 0.0013	< 0.0067	< 0.0013	< 0.0080	---
	Farallon	FB-23-17	17.0	8/29/2018	---	---	< 33	< 65	< 49	< 8.2	< 0.0013	< 0.0063	< 0.0013	< 0.0076	---
	Farallon	FB-23-20	20.0	8/29/2018	---	---	< 31	< 61	< 46	< 7.6	< 0.0013	< 0.0066	< 0.0013	< 0.0079	---
FB-30	Farallon	FB-30-5.0	5.0	2/14/2023	---	---	520 N	**5,400**	**5,920**	**150**	< 0.020	< 0.081	< 0.081	0.15	---
	Farallon	FB-30-10.0	10.0	2/14/2023	---	---	820 N	**6,300**	**7,120**	**390**	< 0.020	< 0.076	0.12	0.21	---
	Farallon	FB-30-19.0	19.0	2/14/2023	---	---	< 32	< 65	< 48.5	< 7.1	< 0.020	< 0.071	< 0.071	< 0.142	---
FB-32	Farallon	FB-32-10.0	10.0	7/13/2023	---	---	---	---	---	**160**	**0.16**	2.1	1.2	5.6	---
FB-33	Farallon	FB-33-10.0	10.0	7/13/2023	---	---	---	---	---	**480**	< 0.020	< 0.062	0.092	0.29	---
FB-34	Farallon	FB-34-10.0	10.0	7/13/2023	---	---	---	---	---	< 7.3	< 0.020	< 0.073	< 0.073	< 0.146	---
FB-35	Farallon	FB-35-10.0	10.0	7/14/2023	---	---	< 31 < 31 SG	< 61 < 61 SG	< 61 < 61 SG	< 6.6	< 0.020	< 0.066	< 0.066	< 0.132	---
	Farallon	FB-35-11.5	11.5	7/14/2023	---	---	< 32 < 32 SG	< 64 < 64 SG	< 64 < 64 SG	< 7.8	< 0.020	< 0.078	< 0.078	< 0.156	---
MTCA Method A Cleanup Level[4]					**2,000**	**4,000**	**2,000**	**2,000[5]**	**2,000**	**30/100[6]**	**0.03**	**7**	**6**	**9**	**250**

Table 3
Soil Analytical Results for Petroleum Hydrocarbons and Lead
Morningside Acres Tracts
Seattle, Washington
Farallon PN: 1355-001

Location	Sampled By	Sample Identification	Sample Depth (feet bgs unless otherwise noted)	Sample Date	Analytical Results (milligrams per kilogram)										
					NWTPH-Dx					NWTPH-Gx	EPA Method 8021 or 8260				EPA 7000 Series Method
					Diesel	Mineral Oil	DRO	ORO	DRO+ORO (C10-C36)^	GRO	Benzene	Toluene	Ethylbenzene	Xylenes	Lead
FB-36	Farallon	FB-36-10.0	10.0	7/13/2023	---	---	< 33 < 33 SG	< 67 < 67 SG	< 67 < 67 SG	< 7.1	< 0.020	< 0.071	< 0.071	< 0.142	---
	Farallon	FB-36-13.0	13.0	7/13/2023	---	---	< 39 < 39 SG	< 79 < 79 SG	< 79 < 79 SG	< 10	< 0.021	< 0.10	< 0.10	< 0.20	---
	Farallon	FB-36-18.0	18.0	7/13/2023	---	---	< 33 < 33 SG	< 67 < 67 SG	< 67 < 67 SG	< 7.8	< 0.020	< 0.078	< 0.078	< 0.156	---
MTCA Method A Cleanup Level[4]					**2,000**	**4,000**	**2,000**	**2,000[5]**	**2,000**	**30/100[6]**	**0.03**	**7**	**6**	**9**	**250**

NOTES:

Results in **bold** and highlighted yellow denote concentrations exceeding MTCA cleanup levels. Green highlight indicates new 2023 analytical results.

< denotes concentration not detected at or exceeding the laboratory method reporting limit listed.

— denotes constituent not analyzed.

^ Results are DRO+ORO calculations. A value of half the detection limit was used for non-detect values. Beginning in July 2023, results were quantified by the laboratory as hydrocarbon range of C10 to C36 (diesel and oil ranges).

* denotes sample extract treated with a silica gel cleanup procedure prior to analysis

[1]Quantified as "oil."

[2]Quantified as "mineral spirits."

[3]Quantified as "kerosene."

[4]MTCA Method A Soil Cleanup Levels for Unrestricted Land Uses, Table 740-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, as revised 2013.

[5]Cleanup level for total petroleum hydrocarbons as heavy oil-orange organics.

[6]Cleanup level is 30 milligrams per kilogram if benzene is detected and 100 milligrams per kilogram if benzene is not detected.

bbf = below basement floor

bgs = below ground surface

DRO = total petroleum hydrocarbons as diesel-range organics

EPA = U.S. Environmental Protection Agency

Farallon = Farallon Consulting, L.L.C.

G-Logics = G-Logics, Inc.

GRO = total petroleum hydrocarbons as gasoline-range organics

Kleinfelder = Kleinfelder, Inc.

MTCA = Washington State Model Toxics Control Act Cleanup Regulation

N = hydrocarbons in the oil-range are impacting the diesel result

ND = analyte not detected; laboratory method reporting limit unknown

NWTPH-Dx = Northwest Method NWTPH-Dx

NWTPH-Gx = Northwest Method NWTPH-Gx

ORO = total petroleum hydrocarbons as oil-range organics

SG = result for sample analyzed with silica gel cleanup procedure

Table 4
Groundwater Analytical Results for Chlorinated VOCs
Morningside Acres Tracts
Seattle, Washington
Farallon PN: 1355-001

Sample Location	Sampled By	Sample Date	Sample Identification	Analytical Results (micrograms per liter)[1]									
				PCE	TCE	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	1,2-Dichloroethane	Vinyl Chloride	Chloroethane	1,2-Dichloropropane	1,1,2-Trichloroethane
Reconnaissance Groundwater Samples													
GLP-07	G-Logics	1/8/2007	GLP-07-010807	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 0.2	< 2.0	< 1.0	---
FB-22	Farallon	8/29/2018	FB-22-GW	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	**0.84**	< 1.0	< 0.20	< 0.20
FB-23	Farallon	8/29/2018	FB-23-GW	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
FB-30	Farallon	2/14/2023	FB-30-15.0-GW-021423	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
	Farallon	2/16/2023	FB-30-30.0-GW-021623	< 0.20 J	< 0.20 J	< 0.20 J	< 0.20 J	< 0.20 J	< 0.20 J	< 0.20 J	< 1.0 J	< 0.20 J	< 0.20
FB-31	Farallon	7/13/2023	FB-31-RGW	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
FB-32	Farallon	7/13/2023	FB-32-RGW	< 10	< 10	< 10	< 10	< 10	**820**	< 10	< 50	< 10	**39**
FB-34	Farallon	7/14/2023	FB-34-RGW	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
Monitoring Well Groundwater Samples													
MW-1	Kleinfelder	5/30/2006	MW-1-053006	ND	ND	ND	ND	ND	ND	ND	ND	ND	---
	G-Logics	1/8/2007	MW-1-010807	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 0.2	< 2.0	< 1.0	---
	RGI	2/12/2013	MW-1-021213	< 1	< 1	< 1	< 1	< 1	< 1	< 0.2	< 1	< 1	---
	RGI	2/12/2013	MW-100-021213	< 1	< 1	< 1	< 1	< 1	< 1	< 0.2	< 1	< 1	---
MW-2	G-Logics	1/8/2007	MW-2-010807	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 0.2	< 2.0	< 1.0	---
	RGI	2/12/2013	MW-2-021213	< 1	< 1	< 1	< 1	< 1	< 1	< 0.2	< 1	< 1	---
	Farallon	12/15/2017	MW-2-121517	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
	Farallon	10/2/2018	MW-2-100218	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
	Farallon	8/10/2021	MW-2-081021	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
MW-3	Kleinfelder	8/4/2006	MW-3-080406	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	**0.72**	< 1.0	< 1.0	---
	G-Logics	1/8/2007	MW-3-010807	< 1.0	< 1.0	3.3	< 1.0	< 2.0	< 1.0	**0.46**	11.2	< 1.0	---
	RGI	2/12/2013	MW-3-021213	< 1	< 1	1.4	< 1	< 1	< 1	< 0.2	< 1	---	---
	Farallon	12/15/2017	MW-3-121517	< 0.20	< 0.20	0.48	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
	Farallon	10/2/2018	MW-3-100218	< 0.20	< 0.20	1.2	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
	Farallon	8/9/2021	MW-3-080921	< 0.20	< 0.20	0.51	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
MW-4	Kleinfelder	5/30/2006	MW-4-053006	ND	ND	ND	ND	ND	ND	**2.1**	ND	ND	---
	Kleinfelder	6/9/2006	MW-4-061406	ND	1.8	2.7	ND	ND	ND	**16**	ND	ND	---
	G-Logics	1/8/2007	MW-4-010807	< 1.0	< 1.0	0.79 J	< 1.0	< 2.0	< 1.0	**4.0**	< 2.0	< 1.0	---
	RGI	2/12/2013	MW-4-021213	< 1	< 1	1.3	< 1	< 1	< 1	**7.0**	< 1	---	---
	Farallon	12/14/2017	MW-4-121417	< 0.20	0.31	0.71	< 0.20	< 0.20	< 0.20	**1.5**	< 1.0	< 0.20	< 0.20
	Farallon	10/2/2018	MW-4-100218	< 0.20	0.24	0.71	< 0.20	< 0.20	< 0.20	**1.5**	< 1.0	< 0.20	< 0.20
MW-5	Kleinfelder	6/9/2006	MW-5-061406	ND	2.2	13	ND	ND	ND	**24**	12	ND	---
MTCA Method A Cleanup Level[2]				**5**	**5**	**16[3]**	**160[3]**	**400[3]**	**5**	**0.2**	**NE**	**1.22[3]**	**0.77[3]**
MTCA Method B Vapor Intrusion Screening Level[4]				**25**	**1.4**	**180**	**77**	**130**	**3.5**	**0.33**	**15,000**	**10**	**5.1**

Table 4
Groundwater Analytical Results for Chlorinated VOCs
Morningside Acres Tracts
Seattle, Washington
Farallon PN: 1355-001

Sample Location	Sampled By	Sample Date	Sample Identification	Analytical Results (micrograms per liter)[1]									
				PCE	TCE	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	1,2-Dichloroethane	Vinyl Chloride	Chloroethane	1,2-Dichloropropane	1,1,2-Trichloroethane
MW-6	Kleinfelder	8/4/2006	MW-6-080406	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.2	< 1.0	< 1.0	---
	G-Logics	1/8/2007	MW-6-010807	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 0.2	< 2.0	< 1.0	---
	RGI	2/12/2013	MW-6-021213	< 1	< 1	< 1	< 1	< 1	< 1	< 0.2	< 1	< 1	---
	Farallon	12/15/2017	MW-6-121517	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
	Farallon	10/2/2018	MW-6-100218	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
	Farallon	8/10/2021	MW-6-081021	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
MW-7	Kleinfelder	8/4/2006	MW-7-080406	< 1.0	**51**	**160**	< 1.0	2.5	**11**	**260**	< 1.0	**3.4**	**---**
	G-Logics	1/8/2007	MW-7-010807	< 1.0	**16**	**173**	2.6	6.1	**8.2**	**593**	< 2.0	< 1.0	---
	RGI	2/12/2013	MW-7-021213	< 1	**25**	**220**	3.7	3.5	**6.1**	**290**	< 1	< 1	---
	Farallon	12/14/2017	MW-7-121417	< 1.0	**24**	**140**	3.7	2.9	**5.1**	**150**	< 5.0	**2.4**	< 1.0
	Farallon	12/14/2017	DUP-1-121417	< 1.0	**24**	**140**	3.5	2.7	5.0	**140**	< 5.0	**2.3**	< 1.0
	Farallon	10/3/2018	MW-7-100318	< 2.0	**50**	**210**	5.0	4.2	**6.9**	**250**	< 10	**3.9**	< 2.0
	Farallon	8/9/2021	MW-7-080921	< 0.80	**34**	**120**	2.6	2.5	4.2	**150**	< 4.0	**2.4**	< 0.80
MW-8	Kleinfelder	8/4/2006	MW-8-080406	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.2	< 1.0	< 1.0	---
	G-Logics	1/8/2007	MW-8-010807	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 0.2	< 2.0	< 1.0	---
	RGI	2/12/2013	MW-8-021213	< 1	< 1	< 1	< 1	< 1	< 1	< 0.2	< 1	---	---
	Farallon	12/15/2017	MW-8-121517	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
	Farallon	10/3/2018	MW-8-100318	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
	Farallon	8/10/2021	MW-8-081021	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
MW-9	G-Logics	1/8/2007	MW-9-010807	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 0.2	< 2.0	< 1.0	---
	RGI	2/12/2013	MW-9-021213	< 1	< 1	< 1	< 1	< 1	< 1	< 0.2	< 1	< 1	---
	Farallon	12/15/2017	MW-9-121517	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
	Farallon	10/3/2018	MW-9-100318	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
	Farallon	8/10/2021	MW-9-081021	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
MW-10	G-Logics	1/8/2007	MW-10-010807	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 0.2	< 2.0	< 1.0	---
	RGI	2/12/2013	MW-10-021213	< 1	< 1	< 1	< 1	< 1	< 1	< 0.2	< 1	< 1	---
MTCA Method A Cleanup Level[2]				**5**	**5**	**16[3]**	**160[3]**	**400[3]**	**5**	**0.2**	**NE**	**1.22[3]**	**0.77[3]**
MTCA Method B Vapor Intrusion Screening Level[4]				**25**	**1.4**	**180**	**77**	**130**	**3.5**	**0.33**	**15,000**	**10**	**5.1**

Table 4
Groundwater Analytical Results for Chlorinated VOCs
Morningside Acres Tracts
Seattle, Washington
Farallon PN: 1355-001

Sample Location	Sampled By	Sample Date	Sample Identification	Analytical Results (micrograms per liter)[1]									
				PCE	TCE	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	1,2-Dichloroethane	Vinyl Chloride	Chloroethane	1,2-Dichloropropane	1,1,2-Trichloroethane
MW-11	G-Logics	1/8/2007	MW-11-010807	< 1.0	0.9	1.2	< 1.0	< 2.0	< 1.0	**1.4**	< 2.0	< 1.0	---
	RGI	2/12/2013	MW-11-021213	< 1	< 1	< 1	< 1	< 1	< 1	< 0.2	< 1	---	---
	Farallon	12/14/2017	MW-11-121417	< 0.20	< 0.20	0.73	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
	Farallon	10/3/2018	MW-11-100318	< 0.20	< 0.20	1.0	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
	Farallon	8/9/2021	MW-11-080921	< 0.20	< 0.20	0.62	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
MW-12	G-Logics	1/8/2007	MW-12-010807	< 1.0	**12.2**	6.2	< 1.0	< 2.0	< 1.0	**1.2**	< 2.0	< 1.0	---
	RGI	2/12/2013	MW-12-021213	< 1	**8.3**	6.7	< 1	< 1	< 1	**0.26**	< 1	---	---
	Farallon	12/14/2017	MW-12-121417	< 0.20	**23**	**29**	2.7	0.72	0.57	**11**	< 1.0	0.52	< 0.20
	Farallon	10/3/2018	MW-12-100318	< 0.40	**38**	**46**	4.5	1.1	0.80	**13**	< 2.0	0.79	< 0.40
	Farallon	8/9/2021	MW-12-080921	< 0.40	**47**	**57**	4.7	1.2	0.91	**20**	< 2.0	0.75	< 0.40
MW-13	G-Logics	1/8/2007	MW-13-010807	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 0.2	< 2.0	< 1.0	---
	RGI	2/12/2013	MW-13-021213	< 1	< 1	< 1	< 1	< 1	< 1	< 0.2	< 1	---	---
	Farallon	12/14/2017	MW-13-121417	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
	Farallon	10/2/2018	MW-13-100218	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
	Farallon	8/9/2021	MW-13-080921	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
MW-14	G-Logics	2/16/2007	MW-14-021607	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 0.2	< 2.0	< 1.0	---
	RGI	2/12/2013	MW-14-021213	< 1	< 1	< 1	< 1	< 1	< 1	< 0.2	< 1	---	---
	Farallon	12/15/2017	MW-14-121517	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
	Farallon	10/3/2018	MW-14-100318	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
	Farallon	8/10/2021	MW-14-081021	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
MW-15	G-Logics	2/16/2007	MW-15-021607	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 0.2	< 2.0	< 1.0	---
	RGI	2/12/2013	MW-15-021213	< 1	< 1	< 1	< 1	< 1	< 1	< 0.2	< 1	---	---
	Farallon	12/14/2017	MW-15-121417	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
	Farallon	10/3/2018	MW-15-100318	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
	Farallon	8/9/2021	MW-15-080921	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
MTCA Method A Cleanup Level[2]				**5**	**5**	**16[3]**	**160[3]**	**400[3]**	**5**	**0.2**	**NE**	**1.22[3]**	**0.77[3]**
MTCA Method B Vapor Intrusion Screening Level[4]				**25**	**1.4**	**180**	**77**	**130**	**3.5**	**0.33**	**15,000**	**10**	**5.1**

Table 4
Groundwater Analytical Results for Chlorinated VOCs
Morningside Acres Tracts
Seattle, Washington
Farallon PN: 1355-001

Sample Location	Sampled By	Sample Date	Sample Identification	Analytical Results (micrograms per liter)[1]									
				PCE	TCE	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	1,2-Dichloroethane	Vinyl Chloride	Chloroethane	1,2-Dichloropropane	1,1,2-Trichloroethane
MW-16	G-Logics	2/16/2007	MW-16-021607	< 1.0	**30.2**	**27.9**	< 1.0	< 2.0	< 1.0	**7**	< 2.0	< 1.0	---
	RGI	2/12/2013	MW-16-021213	< 1	2.4	**24**	6.1	< 1	< 1	**6.6**	< 1	---	---
	Farallon	12/14/2017	MW-16-121417	< 0.20	1.7	**30**	7.2	0.55	< 0.20	**8.1**	< 1.0	< 0.20	< 0.20
	Farallon	10/3/2018	MW-16-100318	< 0.20	1.2	**25**	5.4	0.44	< 0.20	**7.0**	< 1.0	< 0.20	< 0.20
	Farallon	8/9/2021	MW-16-080921	< 0.20	1.2	**25**	4.7	0.41	< 0.20	**7.1**	< 1.0	< 0.20	< 0.20
MW-17	G-Logics	2/16/2007	MW-17-021607	< 1.0	**109**	**77.3**	< 1.0	5.6	< 1.0	**155**	< 2.0	< 1.0	---
	RGI	2/12/2013	MW-17-021213	< 1	**48**	**41**	17	2.5	< 1	**76**	9.2	---	---
	Farallon	12/14/2017	MW-17-121417	< 0.20	**18**	**23**	8.4	0.92	0.31	**23**	8	0.32	< 0.20
	Farallon	12/14/2017	DUP-2-121417	< 0.20	**17**	**23**	8.3	0.89	0.31	**22**	7.9	0.29	< 0.20
	Farallon	10/2/2018	MW-17-100218	< 0.40	**31**	**34**	15	2.3	0.41	**46**	22	0.41	< 0.40
	Farallon	8/9/2021	MW-17-080921	< 0.20	**16**	**23**	8.8	1.2	0.20	**22**	4.2	0.26	< 0.20
MW-18	G-Logics	2/16/2007	MW-18-021607	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	< 1.0	< 0.2	< 2.0	< 1.0	---
	RGI	2/12/2013	MW-18-021213	< 1	< 1	< 1	< 1	< 1	< 1	< 0.2	< 1	< 1	---
	Farallon	12/15/2017	MW-18-121517	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
	Farallon	10/3/2018	MW-18-100318	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
	Farallon	8/10/2021	MW-18-081021	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
MW-19	Farallon	12/14/2017	MW-19-121417	< 0.40	**6.6**	**19**	2.7	0.72	< 0.40	**41**	< 2.0	< 0.40	< 0.40
	Farallon	10/2/2018	MW-19-100218	< 0.20	0.86	3.7	0.21	< 0.20	< 0.20	**8.5**	< 1.0	< 0.20	< 0.20
	Farallon	8/9/2021	MW-19-080921	< 0.20	1.2	7.1	0.51	< 0.20	< 0.20	**15**	< 1.0	< 0.20	< 0.20
MTCA Method A Cleanup Level[2]				**5**	**5**	**16[3]**	**160[3]**	**400[3]**	**5**	**0.2**	**NE**	**1.22[3]**	**0.77[3]**
MTCA Method B Vapor Intrusion Screening Level[4]				**25**	**1.4**	**180**	**77**	**130**	**3.5**	**0.33**	**15,000**	**10**	**5.1**

Table 4
Groundwater Analytical Results for Chlorinated VOCs
Morningside Acres Tracts
Seattle, Washington
Farallon PN: 1355-001

Sample Location	Sampled By	Sample Date	Sample Identification	Analytical Results (micrograms per liter)[1]									
				PCE	TCE	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	1,2-Dichloroethane	Vinyl Chloride	Chloroethane	1,2-Dichloropropane	1,1,2-Trichloroethane
MW-20	Farallon	5/10/2018	MW-20-051018	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
	Farallon	10/3/2018	MW-20-100318	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
	Farallon	8/10/2021	MW-20-081021	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
MW-21	Farallon	10/2/2018	MW-21-100218	< 0.20 J	1.2 J	2.6 J	0.39 J	< 0.20 J	< 0.20 J	**7.9** J	< 1.0 J	< 0.20 J	< 0.20
	Farallon	8/9/2021	MW-21-080921	< 0.20	< 0.20	0.55	< 0.20	< 0.20	< 0.20	**0.98**	< 1.0	< 0.20	< 0.20
	Farallon	2/20/2023	MW-21-022023	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	**0.21**	< 1.0	< 0.20	< 0.20
MW-22	Farallon	2/20/2023	MW-22-022023	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
MW-23	Farallon	2/20/2023	MW-23-022023	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
MW-24	Farallon	2/22/2023	MW-24-022223	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
MW-26	Farallon	7/20/2023	MW-26-072023	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 1.0	< 0.20	< 0.20
MW-27	Farallon	7/20/2023	MW-27-072023	< 0.40	**9.4**	**34**	2.8	1.4	0.53	**48**	< 2.0	0.41	< 0.40
MTCA Method A Cleanup Level[2]				**5**	**5**	**16[3]**	**160[3]**	**400[3]**	**5**	**0.2**	**NE**	**1.22[3]**	**0.77[3]**
MTCA Method B Vapor Intrusion Screening Level[4]				**25**	**1.4**	**180**	**77**	**130**	**3.5**	**0.33**	**15,000**	**10**	**5.1**

NOTES:

Results in **bold** denote concentrations exceeding MTCA cleanup levels. Green highlight indicates new 2023 analytical results.

Results in shaded cells denote concentrations exceeding MTCA vapor intrusion screening levels.

< denotes concentration not detected at or exceeding the laboratory method reporting limit listed.

— denotes constituent not analyzed.

[1]Analyzed by U.S. Environmental Protection Agency Method 8260/8260D.

[2]MTCA Method A Cleanup Levels for Groundwater, Table 720-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, as revised 2013, unless otherwise noted.

[3]MTCA Method A cleanup level not established; the listed value is the Washington State Cleanup Levels and Risk Calculations (CLARC) MTCA Method B Standard Formula Value for Groundwater - Direct Contact (Ingestion and Inhalation Only), lowest of cancer or non-cancer values, from CLARC Master Spreadsheet, https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-

[4]Washington State CLARC MTCA Method B Standard Formula Value - Groundwater Screening Level for Vapor Intrusion Pathway, lowest of cancer or non-cancer values, from CLARC Master Spreadsheet, https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC

Farallon = Farallon Consulting, L.L.C.

G-Logics = G-Logics, Inc.

J = result is an estimate

Kleinfelder = Kleinfelder, Inc.

MTCA = Washington State Model Toxics Control Act Cleanup Regulation

ND = analyte not detected; laboratory reporting limit unknown

NE = not established

PCE = tetrachloroethene

RGI = The Riley Group, Inc.

TCE = trichloroethene

VOC = volatile organic compound

Table 5
Groundwater Analytical Results for Petroleum Hydrocarbons and 1,2-Dibromoethane
Morningside Acres Tracts
Seattle, Washington
Farallon PN: 1355-001

Sample Location	Sampled By	Sample Date	Sample Identification	Analytical Results (micrograms per liter)									
				NWTPH-Dx				NWTPH-Gx	EPA Method 8021 or 8260				EPA Method 8011
				DRO	Mineral Oil	ORO	DRO+ORO (C10-C36)^	GRO	Benzene	Toluene	Ethylbenzene	Xylenes	1,2-Dibromoethane
Reconnaissance Groundwater Samples													
GLP-07	G-Logics	1/5/2007	GLP-07-GW	**52,800**[1]	< 400	< 400[2]	**53,000**	< 100[3]	< 1.0	1.9	< 1.0	6.4	---
FB-22	Farallon	8/29/2018	FB-22-GW	330	---	**510**	**840**	< 100	< 0.20	< 1.0	< 0.20	< 0.60	---
FB-23	Farallon	8/29/2018	FB-23-GW	---	---	---	---	< 100	< 0.20	< 1.0	< 0.20	< 0.60	---
FB-30	Farallon	2/14/2023	FB-30-15.0-GW-021423	**1,100** N	---	**5,700**	**6,800**	< 400	< 4.0	< 4.0	< 4.0	< 8.0	---
	Farallon	2/16/2023	FB-30-30.0-GW-021623	**520**	---	420	**940**	< 100	< 1.0	< 1.0	< 1.0	< 2.0	---
FB-31	Farallon	7/13/2023	FB-31-RGW	440 < 130 SG	---	**670** < 200 SG	**750** < 260 SG	< 100	< 1.0	< 1.0	< 1.0	< 2.0	---
FB-32	Farallon	7/13/2023	FB-32-RGW	**4,600** M < 1,100 SG M1	---	**700** < 210 SG	**4,100** M < 970 SG M1	**130,000**	**8,100**	**20,000**	**1,800**	**9,600**	---
FB-34	Farallon	7/14/2023	FB-34-RGW	140 < 130 SG	---	390 < 210 SG	330 < 260 SG	< 100	< 1.0	< 1.0	< 1.0	< 2.0	---
Monitoring Well Groundwater Samples													
MW-1	Kleinfelder	5/30/2006	MW-1-053006	ND	---	ND	ND	ND	ND	ND	ND	ND	---
	G-Logics	1/8/2007	MW-1	---	---	---	---	< 100[3]	< 1.0	< 1.0	< 1.0	< 1.0	---
	RGI	2/12/2013	MW-1-021213	72	---	< 250	197	< 100	< 0.35	< 1	< 1	< 2	---
	RGI	2/12/2013	MW-100-021213	59	---	< 250	184	---	< 0.35	< 1	< 1	< 2	---
MW-2	G-Logics	1/8/2007	MW-2	---	---	---	---	< 100[3]	< 1.0	< 1.0	< 1.0	< 1.0	---
	RGI	2/12/2013	MW-2-021213	190	---	< 250	315	< 100	< 0.35	< 1	< 1	< 2	---
	Farallon	12/15/2017	MW-2-121517	< 260	---	< 420	< 340	< 100	< 1.0	< 1.0	< 1.0	< 2.0	---
	Farallon	10/2/2018	MW-2-100218	< 250	---	< 400	< 325	< 100	< 0.20	< 1.0	< 0.20	< 0.60	< 0.0097
	Farallon	8/10/2021	MW-2-081021	< 200	---	< 200	< 200	< 100	< 0.20	< 1.0	< 0.20	< 0.60	---
MW-3	Kleinfelder	8/4/2006	MW-3-080406	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---
	G-Logics	1/8/2007	MW-3	< 200[1]	< 400	< 400[2]	< 300	< 100[3]	< 1.0	< 1.0	< 1.0	< 1.0	---
	RGI	2/12/2013	MW-3-021213	< 50	---	< 250	< 150	< 100	< 0.35	< 1	< 1	< 2	---
	Farallon	12/15/2017	MW-3-121517	< 260	---	< 410	< 335	< 100	< 1.0	< 1.0	< 1.0	< 2.0	---
	Farallon	10/2/2018	MW-3-100218	< 250	---	< 400	< 325	< 100	< 0.20	< 1.0	< 0.20	< 0.60	< 0.0096
	Farallon	8/9/2021	MW-3-080921	< 210	---	< 210	< 210	< 100	< 0.20	< 1.0	< 0.20	< 0.60	---
MTCA Method A Cleanup Level[4]				**500**	**500**	**500**[5]	**500**	**800/1,000**[6]	**5**	**1,000**	**700**	**1,000**	**0.01**
MTCA Method B Vapor Intrusion Screening Level[7]				**NE**	**NE**	**NE**	**NE**	**NE**	**2.4**	**15,000**	**2,800**	**320**	**0.30**

Table 5
Groundwater Analytical Results for Petroleum Hydrocarbons and 1,2-Dibromoethane
Morningside Acres Tracts
Seattle, Washington
Farallon PN: 1355-001

				Analytical Results (micrograms per liter)									
				NWTPH-Dx				NWTPH-Gx	EPA Method 8021 or 8260				EPA Method 8011
Sample Location	Sampled By	Sample Date	Sample Identification	DRO	Mineral Oil	ORO	DRO+ORO (C10-C36)^	GRO	Benzene	Toluene	Ethylbenzene	Xylenes	1,2-Dibromoethane
MW-4	Kleinfelder	5/30/2006	MW-4-053006	ND	---	ND	ND	ND	ND	ND	ND	ND	---
	Kleinfelder	6/9/2006	MW-4-061406	---	---	---	---	---	ND	ND	ND	ND	---
	G-Logics	1/8/2007	MW-4	---	---	---	---	< 100[3]	< 1.0	< 1.0	< 1.0	< 1.0	---
	RGI	2/12/2013	MW-4-021213	< 50	---	< 250	< 150	< 100	< 0.35	< 1	< 1	< 2	---
	Farallon	12/14/2017	MW-4-121417	< 250	---	< 410	< 330	< 100	< 1.0	< 1.0	< 1.0	< 2.0	---
	Farallon	10/2/2018	MW-4-100218	< 250	---	< 400	< 325	< 100	< 0.20	< 1.0	< 0.20	< 0.60	< 0.0097
MW-5	Kleinfelder	6/9/2006	MW-5-061406	ND	---	ND	ND	ND	ND	ND	ND	ND	---
MW-6	Kleinfelder	8/4/2006	MW-6-080406	< 200[1]	< 400	< 400[2]	< 300	< 100[3]	< 1.0	< 1.0	< 1.0	< 1.0	---
	G-Logics	1/8/2007	MW-6	< 200[1]	< 400	< 400[2]	< 300	< 100[3]	< 1.0	< 1.0	< 1.0	< 1.0	---
	RGI	2/12/2013	MW-6-021213	**600** < 50 SG	---	430 < 250 SG	**1,030** < 150 SG	100	< 0.35	< 1	< 1	< 2	---
	Farallon	12/15/2017	MW-6-121517	< 260	---	< 420	< 340	< 100	< 1.0	< 1.0	< 1.0	< 2.0	---
	Farallon	10/2/2018	MW-6-100218	260	---	< 410	465	< 100	< 0.20	< 1.0	< 0.20	< 0.60	< 0.0097
	Farallon	8/10/2021	MW-6-081021	460	---	**520**	**980**	< 100	< 0.20	< 1.0	< 0.20	< 0.60	---
	Farallon	7/19/2023	MW-6-071923	< 210	---	240	< 260	< 100	< 1.0	< 1.0	< 1.0	< 2.0	---
MW-7	Kleinfelder	8/4/2006	MW-7-080406	< 200[1]	< 400	< 400[2]	< 300	< 100[3]	< 1.0	2.2	< 1.0	< 1.0	---
	G-Logics	1/8/2007	MW-7	< 200[1]	< 400	< 400[2]	< 300	< 100[3]	1.4	2.0	< 1.0	< 1.0	---
	RGI	2/12/2013	MW-7-021213	< 50	---	< 250	< 150	< 100	0.55	< 1	< 1	< 2	---
	Farallon	12/14/2017	MW-7-121417	< 260	---	< 420	< 340	< 100	< 1.0	< 1.0	< 1.0	< 2.0	---
	Farallon	12/14/2017	DUP-1-121417	< 260	---	< 420	< 340	< 100	< 1.0	< 1.0	< 1.0	< 2.0	---
	Farallon	10/3/2018	MW-7-100318	< 250	---	< 400	< 325	< 100	< 2.0	< 10	< 2.0	< 6.0	< 0.0097
	Farallon	8/9/2021	MW-7-080921	< 210	---	< 210	< 210	< 100	< 0.80	< 4.0	< 0.80	< 2.4	---
MW-8	Kleinfelder	8/4/2006	MW-8-080406	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---
	G-Logics	1/8/2007	MW-8	< 200[1]	< 400	< 400[2]	< 300	< 100[3]	< 1.0	< 1.0	< 1.0	< 1.0	---
	RGI	2/12/2013	MW-8-021213	< 85	---	< 430	< 257.5	< 100	< 0.35	< 1	< 1	< 2	---
	Farallon	12/15/2017	MW-8-121517	< 250	---	< 400	< 325	< 100	< 1.0	< 1.0	< 1.0	< 2.0	---
	Farallon	10/3/2018	MW-8-100318	---	---	---		< 100	< 0.20	< 1.0	< 0.20	< 0.60	---
	Farallon	8/10/2021	MW-8-081021	< 260	---	< 260	< 260	< 100	< 0.20	< 1.0	< 0.20	< 0.60	---
MTCA Method A Cleanup Level[4]				**500**	**500**	**500[5]**	**500**	**800/1,000[6]**	**5**	**1,000**	**700**	**1,000**	**0.01**
MTCA Method B Vapor Intrusion Screening Level[7]				**NE**	**NE**	**NE**	**NE**	**NE**	**2.4**	**15,000**	**2,800**	**320**	**0.30**

Table 5
Groundwater Analytical Results for Petroleum Hydrocarbons and 1,2-Dibromoethane
Morningside Acres Tracts
Seattle, Washington
Farallon PN: 1355-001

				Analytical Results (micrograms per liter)									
				NWTPH-Dx				NWTPH-Gx	EPA Method 8021 or 8260				EPA Method 8011
Sample Location	Sampled By	Sample Date	Sample Identification	DRO	Mineral Oil	ORO	DRO+ORO (C10-C36)^	GRO	Benzene	Toluene	Ethylbenzene	Xylenes	1,2-Dibromoethane
MW-9	G-Logics	1/8/2007	MW-9	---	---	---	---	< 100[3]	< 1.0	< 1.0	< 1.0	< 1.0	---
	RGI	2/12/2013	MW-9-021213	430 < 50 SG	---	280 < 250 SG	**710** < 150 SG	< 100	< 0.35	< 1	< 1	< 2	---
	Farallon	12/15/2017	MW-9-121517	< 260	---	< 410	< 335	< 100	< 1.0	< 1.0	< 1.0	< 2.0	---
	Farallon	10/3/2018	MW-9-100318	< 250	---	< 400	< 325	< 100	< 0.20	< 1.0	< 0.20	< 0.60	< 0.0098
	Farallon	8/10/2021	MW-9-081021	280	---	330	**610**	< 100	< 0.20	< 1.0	< 0.20	< 0.60	---
MW-10	G-Logics	1/8/2007	MW-10	**283,000**[1]	< 400	**230,000**[2]	**513,000**	**298,000**[8]	< 1.0	< 1.0	< 1.0	< 1.0	---
	RGI	2/12/2013	MW-10-021213	**39,000**	---	**53,000**	**92,000**	**1,700**	< 0.35	< 1	< 1	< 2	---
MW-11	G-Logics	1/8/2007	MW-11	< 200[1]	< 400	< 400[2]	< 300	< 100[3]	1.2	3.2	< 1.0	3.2	---
	RGI	2/12/2013	MW-11-021213	230	---	< 250	355	< 100	< 0.35	< 1	< 1	< 2	---
	Farallon	12/14/2017	MW-11-121417	< 260	---	< 420	< 340	< 100	< 1.0	< 1.0	< 1.0	< 2.0	---
	Farallon	10/3/2018	MW-11-100318	< 280	---	< 440	< 360	< 100	< 0.20	< 1.0	< 0.20	< 0.60	< 0.0098
	Farallon	8/9/2021	MW-11-080921	320	---	**690**	**1,010**	< 100	< 0.20	< 1.0	< 0.20	< 0.60	---
	Farallon	7/19/2023	MW-11-071923	220	---	**600**	**510**	---	< 1.0	< 1.0	< 1.0	< 2.0	---
MW-12	G-Logics	1/8/2007	MW-12	< 200[1]	< 400	< 400[2]	< 300	< 100[3]	< 1.0	< 1.0	< 1.0	< 1.0	---
	RGI	2/12/2013	MW-12-021213	88	---	< 250	213	< 100	< 0.35	< 1	< 1	< 2	---
	Farallon	12/14/2017	MW-12-121417	320	---	< 410	**525**	< 100	< 1.0	< 1.0	< 1.0	< 2.0	---
	Farallon	10/3/2018	MW-12-100318	260	---	< 410	465	< 100	< 0.40	< 2.0	< 0.40	< 1.20	< 0.0097
	Farallon	8/9/2021	MW-12-080921	400	---	230	**630**	< 100	< 0.40	< 2.0	< 0.40	< 1.20	---
	Farallon	7/19/2023	MW-12-071923	< 220	---	< 220	< 270	---	---	---	---	---	---
MW-13	G-Logics	1/8/2007	MW-13	---	---	---	---	< 100[3]	< 1.0	< 1.0	< 1.0	< 1.0	---
	RGI	2/12/2013	MW-13-021213	< 50	---	< 250	< 150	< 100	< 0.35	< 1	< 1	< 2	---
	Farallon	12/14/2017	MW-13-121417	< 260	---	< 420	< 340	< 100	< 1.0	< 1.0	< 1.0	< 2.0	---
	Farallon	10/2/2018	MW-13-100218	< 260	---	< 410	< 335	< 100	< 0.20	< 1.0	< 0.20	< 0.60	< 0.0099
	Farallon	8/9/2021	MW-13-080921	< 210	---	< 210	< 210	< 100	< 0.20	< 1.0	< 0.20	< 0.60	---
MTCA Method A Cleanup Level[4]				**500**	**500**	**500[5]**	**500**	**800/1,000[6]**	**5**	**1,000**	**700**	**1,000**	**0.01**
MTCA Method B Vapor Intrusion Screening Level[7]				**NE**	**NE**	**NE**	**NE**	**NE**	**2.4**	**15,000**	**2,800**	**320**	**0.30**

Table 5
Groundwater Analytical Results for Petroleum Hydrocarbons and 1,2-Dibromoethane
Morningside Acres Tracts
Seattle, Washington
Farallon PN: 1355-001

				Analytical Results (micrograms per liter)									
				NWTPH-Dx				NWTPH-Gx	EPA Method 8021 or 8260				EPA Method 8011
Sample Location	Sampled By	Sample Date	Sample Identification	DRO	Mineral Oil	ORO	DRO+ORO (C10-C36)^	GRO	Benzene	Toluene	Ethylbenzene	Xylenes	1,2-Dibromoethane
MW-14	G-Logics	2/16/2007	MW-14	< 200[1]	< 400	< 400[2]	< 300	---	< 1.0	< 1.0	< 1.0	< 1.0	---
	RGI	2/12/2013	MW-14-021213	< 50	---	< 250	< 150	< 100	< 0.35	< 1	< 1	< 2	---
	Farallon	12/15/2017	MW-14-121517	< 270	---	< 440	< 355	< 100	< 1.0	< 1.0	< 1.0	< 2.0	---
	Farallon	10/3/2018	MW-14-100318	< 250	---	< 400	< 325	< 100	< 0.20	< 1.0	< 0.20	< 0.60	< 0.0097
	Farallon	8/10/2021	MW-14-081021	< 210	---	< 210	< 210	< 100	< 0.20	< 1.0	< 0.20	< 0.60	---
MW-15	G-Logics	2/16/2007	MW-15	< 200[1]	< 400	< 400[2]	< 300	---	< 1.0	< 1.0	< 1.0	< 1.0	---
	RGI	2/12/2013	MW-15-021213	< 50	---	< 250	< 150	< 100	< 0.35	< 1	< 1	< 2	---
	Farallon	12/14/2017	MW-15-121417	< 290	---	< 470	< 380	< 100	< 1.0	< 1.0	< 1.0	< 2.0	---
	Farallon	10/3/2018	MW-15-100318	< 250	---	< 400	< 325	< 100	< 0.20	< 1.0	< 0.20	< 0.60	< 0.0098
	Farallon	8/9/2021	MW-15-080921	< 210	---	< 210	< 210	< 100	< 0.20	< 1.0	< 0.20	< 0.60	---
MW-16	G-Logics	2/16/2007	MW-16	< 200[1]	< 400	< 400[2]	< 300	< 100[3]	< 1.0	< 1.0	< 1.0	< 1.0	---
	RGI	2/12/2013	MW-16-021213	< 50	---	< 250	< 150	< 100	< 0.35	< 1	< 1	< 2	---
	Farallon	12/14/2017	MW-16-121417	< 260	---	< 410	< 335	< 100	< 1.0	< 1.0	< 1.0	< 2.0	---
	Farallon	10/3/2018	MW-16-100318	< 260	---	< 410	< 335	< 100	< 0.20	< 1.0	< 0.20	< 0.60	< 0.0098
	Farallon	8/9/2021	MW-16-080921	< 210	---	< 210	< 210	< 100	< 0.20	< 1.0	< 0.20	< 0.60	---
MW-17	G-Logics	2/16/2007	MW-17	< 200[1]	< 400	< 400[2]	< 300	---	< 1.0	< 1.0	< 1.0	< 1.0	---
	RGI	2/12/2013	MW-17-021213	< 50	---	< 250	< 150	< 100	< 0.35	< 1	< 1	< 2	---
	Farallon	12/14/2017	MW-17-121417	< 290	---	< 460	< 375	< 100	< 1.0	< 1.0	< 1.0	< 2.0	---
	Farallon	12/14/2017	DUP-2-121417	< 310	---	< 500	< 405	< 100	< 1.0	< 1.0	< 1.0	< 2.0	---
	Farallon	10/2/2018	MW-17-100218	< 250	---	< 400	< 325	< 100	< 0.40	< 2.0	< 0.40	< 1.20	< 0.0098
	Farallon	8/9/2021	MW-17-080921	< 210	---	< 210	< 210	< 100	< 0.20	< 1.0	< 0.20	< 0.60	---
MW-18	G-Logics	2/16/2007	MW-18	< 200[1]	< 400	< 400[2]	< 300	< 100[3]	< 1.0	< 1.0	< 1.0	< 1.0	---
	RGI	2/12/2013	MW-18-021213	83	---	< 250	208	< 100	< 0.35	< 1	< 1	< 2	---
	Farallon	12/15/2017	MW-18-121517	< 260	---	< 410	< 335	< 100	< 1.0	< 1.0	< 1.0	< 2.0	---
	Farallon	10/3/2018	MW-18-100318	< 260	---	< 410	< 335	< 100	< 0.20	< 1.0	< 0.20	< 0.60	< 0.0096
	Farallon	8/10/2021	MW-18-081021	< 210	---	260	365	< 100	< 0.20	< 1.0	< 0.20	< 0.60	---
MTCA Method A Cleanup Level[4]				**500**	**500**	**500[5]**	**500**	**800/1,000[6]**	**5**	**1,000**	**700**	**1,000**	**0.01**
MTCA Method B Vapor Intrusion Screening Level[7]				**NE**	**NE**	**NE**	**NE**	**NE**	**2.4**	**15,000**	**2,800**	**320**	**0.30**

Table 5
Groundwater Analytical Results for Petroleum Hydrocarbons and 1,2-Dibromoethane
Morningside Acres Tracts
Seattle, Washington
Farallon PN: 1355-001

				Analytical Results (micrograms per liter)									
				NWTPH-Dx				NWTPH-Gx	EPA Method 8021 or 8260				EPA Method 8011
Sample Location	Sampled By	Sample Date	Sample Identification	DRO	Mineral Oil	ORO	DRO+ORO (C10-C36)^	GRO	Benzene	Toluene	Ethylbenzene	Xylenes	1,2-Dibromoethane
MW-19	Farallon	12/14/2017	MW-19-121417	< 260	---	< 410	< 335	< 100	< 1.0	< 1.0	< 1.0	< 2.0	---
	Farallon	10/2/2018	MW-19-100218	< 250	---	< 400	< 325	< 100	**5.9**	< 1.0	< 0.20	< 0.60	< 0.0097
	Farallon	8/9/2021	MW-19-080921	< 200	---	< 200	< 200	< 100	2.8	< 1.0	< 0.20	< 0.60	---
	Farallon	7/20/2023	MW-19-072023	---	---	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	---
MW-20	Farallon	5/10/2018	MW-20-051018	< 260	---	< 420	< 340	< 100	< 0.20	< 1.0	< 0.20	< 0.60	---
	Farallon	10/3/2018	MW-20-100318	< 250	---	< 400	< 325	< 100	< 0.20	< 1.0	< 0.20	< 0.60	< 0.0098
	Farallon	8/10/2021	MW-20-081021	< 210	---	< 210	< 210	< 100	< 0.20	< 1.0	< 0.20	< 0.60	---
MW-21	Farallon	10/2/2018	MW-21-100218	380	---	< 400	**580**	< 100	< 0.20 J	< 1.0 J	< 0.20 J	< 0.60 J	< 0.010 J
	Farallon	8/9/2021	MW-21-080921	< 210	---	260	365	< 100	< 0.20	< 1.0	< 0.20	< 0.60	---
MW-22	Farallon	2/20/2023	MW-22-022023	260	---	450	**710**	< 100	< 1.0	< 1.0	< 1.0	< 2.0	---
	Farallon	7/19/2023	MW-22-071923	< 200 < 200 SG	---	270 < 200 SG	250 < 250 SG	< 100	< 1.0	< 1.0	< 1.0	< 2.0	---
MW-23	Farallon	2/20/2023[9] 3/23/2023	MW-23-022023[9] MW-23-230323	< 160[9]	---	250[9]	330[9]	< 100	< 1.0	< 1.0	< 1.0	< 2.0	---
	Farallon	7/19/2023	MW-23-071923	< 200	---	< 200	< 250	< 100	< 1.0	< 1.0	< 1.0	< 2.0	---
MW-24	Farallon	2/22/2023	MW-24-022223	< 230	---	< 230	< 230	< 100	< 1.0	< 1.0	< 1.0	< 2.0	---
	Farallon	7/19/2023	MW-24-071923	< 210	---	240	< 260	< 100	< 1.0	< 1.0	< 1.0	< 2.0	---
MW-25	Farallon	7/19/2023	MW-25-071923	380	---	420	500	< 100	< 1.0	< 1.0	< 1.0	< 2.0	---
MTCA Method A Cleanup Level[4]				**500**	**500**	**500[5]**	**500**	**800/1,000[6]**	**5**	**1,000**	**700**	**1,000**	**0.01**
MTCA Method B Vapor Intrusion Screening Level[7]				**NE**	**NE**	**NE**	**NE**	**NE**	**2.4**	**15,000**	**2,800**	**320**	**0.30**

NOTES:

Results in **bold** denote concentrations exceeding MTCA cleanup levels. Green highlight indicates new 2023 analytical results.
Results in shaded cells denote concentrations exceeding MTCA vapor intrusion screening levels.
< denotes concentration not detected at or exceeding the laboratory method reporting limit listed.
— denotes constituent not analyzed.
^ Results are DRO+ORO calculations. A value of half the detection limit was used for non-detect values. Beginning in July 2023, results were quantified by the laboratory as hydrocarbon range of C10 to C36 (diesel and oil ranges).

[1]Quantified as "diesel."

[2]Quantified as "oil."

[3]Quantified as "gasoline."

[4]MTCA Method A Cleanup Levels for Groundwater, Table 720-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, as revised 2013.

[5]Cleanup level for total petroleum hydrocarbons as heavy oil-range organics.

[6]Cleanup level is 800 micrograms per liter if benzene is detected and 1,000 micrograms per liter if benzene is not detected.

[7]Washington State CLARC MTCA Method B Standard Formula Value - Groundwater Screening Level for Vapor Intrusion Pathway, lowest of cancer or non-cancer values, from CLARC Master Spreadsheet dated July 2015, https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC

[8]Quantified as "mineral spirits."

[9]Original DRO and ORO results for sample MW-23-022023 were 690 and 190 micrograms per liter, respectively. This sample contained high turbidity at 1,414 nephelometric turbidity units (NTU) that appeared to impact results. Another groundwater sample was collected from MW-23 on 3/23/2023 with a turbidity measurement of 180 NTU that was submitted for NWTPH-Dx analysis. The results from the sample collected on 3/23/2023 are shown in the table.

BTEX = benzene, toluene, ethylbenzene, and xylenes
DRO = total petroleum hydrocarbons as diesel-range organics
EPA = U.S. Environmental Protection Agency
Farallon = Farallon Consulting, L.L.C.
G-Logics = G-Logics, Inc.
GRO = total petroleum hydrocarbons as gasoline-range organics
J = result is an estimate
Kleinfelder = Kleinfelder, Inc.
MTCA = Washington State Model Toxics Control Act Cleanup Regulation
M = hydrocarbons in the gasoline range are impacting the diesel range result
M1 = hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
N = hydrocarbons in the oil-range are impacting the diesel result
ND = analyte not detected; laboratory method reporting limit unknown
NE = not established
NWTPH-Dx = Northwest Method NWTPH-Dx
NWTPH-Gx = Northwest Method NWTPH-Gx
ORO = total petroleum hydrocarbons as oil-range organics
RGI = The Riley Group, Inc.
SG = result for sample analyzed with silica gel cleanup procedure

Table 6
Sediment Analytical Results for Petroleum Hydrocarbons, Metals, and PCBs
Morningside Acres Tracts
Seattle, Washington
Farallon PN: 1355-001

					Analytical Results (milligrams per kilogram)														
					NWTPH-Dx				NWTPH-Gx	EPA Method 8260				EPA 7000 Series Methods					EPA Method 8082
Location	Sampled By	Sample Identification	Sample Depth (feet bbf)	Sample Date	Diesel	Mineral Oil	DRO	ORO	GRO	Benzene	Toluene	Ethylbenzene	Xylenes	Arsenic	Cadmium	Chromium	Lead	Mercury	Polychlorinated Biphenyls (Aroclors)
Floor-Drain Sump	G-Logics	Sump	1.0	1/5/2007	< 25	---	< 40[1]	10,700[2]	11,800[3]	0.068	0.27	0.68	0.40	8.2	4.7	22	570	< 0.5	< 0.20

NOTES:

< denotes concentration not detected at or exceeding the laboratory method reporting limit listed.

— denotes constituent not analyzed.

[1]Quantified as "kerosene."

[2]Quantified as "oil."

[3]Quantified as "mineral spirits."

bbf = below basement floor

DRO = total petroleum hydrocarbons as diesel-range organics

EPA = U.S. Environmental Protection Agency

G-Logics = G-Logics, Inc.

GRO = total petroleum hydrocarbons as gasoline-range organics

NWTPH-Dx = Northwest Method NWTPH-Dx

NWTPH-Gx = Northwest Method NWTPH-Gx

ORO = total petroleum hydrocarbons as oil-range organics

Table 7
Sediment Analytical Results for Chlorinated VOCs
Morningside Acres Tracts
Seattle, Washington
Farallon PN: 1355-001

Location	Sampled By	Sample Identification	Sample Depth (feet bbf)	Sample Date	Analytical Results (milligrams per kilogram)[1]								
					PCE	TCE	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl Chloride	1,1-Dichloroethene	1,2-Dichloroethane	1,2-Dichloropropane	Chloroethane
Floor-Drain Sump	G-Logics	Sump	1.0	1/5/2007	2.46	32.9	2.99	< 0.02	0.055	< 0.05	< 0.03	< 0.02	< 0.06

NOTES:

< denotes concentration not detected at or exceeding the laboratory method reporting limit listed.

[1]Analyzed by U.S. Environmental Protection Agency Method 8260.

bbf = below basement floor
G-Logics = G-Logics, Inc.
PCE = tetrachloroethene
TCE = trichloroethene

Table 8
Air Sampling Analytical Results for HVOCs
Morningside Acres Tract
Seattle, Washington
Farallon PN: 1355-001

Sample Location	Sample Identification	Location Description	Sample Type	Sample Date	Sample Height (feet)[1]	Analytical Results (micrograms per cubic meter)[2]											
						1,2-Dichloroethane			Trichloroethene (TCE)			Vinyl Chloride			1,2-Dichloropropane		
						Indoor Air	Outdoor Air	Indoor Corrected[3]	Indoor Air	Outdoor Air	Indoor Corrected[3]	Indoor Air	Outdoor Air	Indoor Corrected[3]	Indoor Air	Outdoor Air	Indoor Corrected[3]
First Floor																	
IA-1	IA-1-071619	Convenience Store Storage Room	Indoor Air	7/16/2019	6	0.42	0.057	**0.36**	< 0.27	< 0.23	< 0.27	< 0.26	< 0.26	< 0.26	< 0.23	< 0.23	< 0.23
IA-2	IA-2-071619	Front of Bookstore	Indoor Air	7/16/2019	4	0.37	0.057	**0.31**	< 0.27	< 0.23	< 0.27	< 0.26	< 0.26	< 0.26	< 0.23	< 0.23	< 0.23
IA-6	IA-6-071619	Bookstore Back Room	Indoor Air	7/16/2019	6	0.65	0.057	**0.59**	< 0.27	< 0.23	< 0.27	< 0.26	< 0.26	< 0.26	< 0.23	< 0.23	< 0.23
Basement																	
IA-3	IA-3-071619	Front of Bookstore Basement	Indoor Air	7/16/2019	5	0.057	0.057	0.000	0.62	< 0.23	**0.62**	< 0.26	< 0.26	< 0.26	< 0.23	< 0.23	< 0.23
IA-4	IA-4-071619	Garage Basement	Indoor Air	7/16/2019	5	0.057	0.057	0.000	0.59	< 0.23	**0.59**	0.56	< 0.26	**0.56**	< 0.23	< 0.23	< 0.23
IA-5	IA-5-071619	Back of Bookstore Basement	Indoor Air	7/16/2019	6	0.057	0.057	0.000	0.69	< 0.23	**0.69**	< 0.26	< 0.26	< 0.26	< 0.23	< 0.23	< 0.23
Outdoor Air																	
OA-1	OA-1-071619	Outside Garage; upwind	Outdoor Air	7/16/2019	4	NA	0.057	NA	NA	< 0.23	NA	NA	< 0.26	NA	NA	< 0.23	NA
MTCA Method B Indoor Air Cleanup Level - Residential Exposure Scenario[4]						**0.0962**			**0.33**			**0.28**			**0.68**		
MTCA Method B Indoor Air Remediation Level - Commercial Exposure Scenario[5]						**0.321**			**1.1**			**0.90**			**---**		

NOTES:
Results in **bold** denote concentrations exceeding residential exposure screening levels. Results highlighted in yellow exceed commercial exposure screening levels.
< denotes analyte not detected at or exceeding the reporting limit listed.
HVOC = halogenated volatile organic compound
NA = not applicable

[1] Feet above ground surface.

[2] Analyzed by U.S. Environmental Protection Agency Method TO-15.

[3] Indoor air corrected value calculated by subtracting outdoor air result from indoor air sample result.

[4]Washington State Model Toxics Control Act Cleanup Regulation (MTCA) Method B Cleanup Level for Indoor Air, website link provided in Appendix B of the *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action* revised February 2016 and April 2018.

[5]MTCA Method B cleanup level calculation with modified exposure parameters adjusted for commercial exposure per Section 750 of MTCA. MTCA Method B indoor air screening level for commercial use has been revised following issuance of Ecology's *Trichloroethylene (TCE): Deriving Cleanup Levels under the Model Toxics Control Act (MTCA), Supporting materials for Cleanup Levels and Risk Calculation (CLARC)* , dated January 2020. The calculated MTCA Method B indoor air screening level for commercial use of 1.9 µg/m^3 referenced in the letter *Vapor Intrusion Assessment, Morningside Acres Tracts, 5001, 5015 and 5021 Rainier Avenue South, Seattle, Washington,* dated September 5, 2019, prepared by Farallon and submitted to Ecology (2019c), has been recalculated to 1.1 µg/m^3 for this report.

Table 9
Air Sampling Analytical Results for Petroleum Hydrocarbons
Morningside Acres Tract
Seattle, Washington
Farallon PN: 1355-001

Sample Location	Sample Identification	Location Description	Sample Type	Sample Date	Sample Height (feet)[1]	Analytical Results (micrograms per cubic meter)[2]									
						C5-C8 Aliphatics			C9-C12 Aliphatics			C9-C10 Aromatics			Total Corrected TPH[4]
						Indoor Air	Outdoor Air	Indoor Corrected[3]	Indoor Air	Outdoor Air	Indoor Corrected[3]	Indoor Air	Outdoor Air	Indoor Corrected[3]	
First Floor															
IA-1	IA-1-071619	Convenience Store Storage Room	Indoor Air	7/16/2019	6	100	68	32	72	63	9	< 25	< 25	< 25	41
IA-2	IA-2-071619	Front of Bookstore	Indoor Air	7/16/2019	4	180	68	112	73	63	10	< 25	< 25	< 25	122
IA-6	IA-6-071619	Bookstore Back Room	Indoor Air	7/16/2019	6	210	68	142	76	63	13	< 25	< 25	< 25	155
Basement															
IA-3	IA-3-071619	Front of Bookstore Basement	Indoor Air	7/16/2019	5	120	68	52	73	63	10	< 25	< 25	< 25	62
IA-4	IA-4-071619	Garage Basement	Indoor Air	7/16/2019	5	170	68	102	120	63	57	33	< 25	33	192
IA-5	IA-5-071619	Back of Bookstore Basement	Indoor Air	7/16/2019	6	100	68	32	85	63	22	< 25	< 25	< 25	54
Outdoor Air															
OA-1	OA-1-071619	Outside Garage; upwind	Outdoor Air	7/16/2019	4	NA	68	NA	NA	63	NA	NA	< 25	NA	131
MTCA Method B Indoor Air Cleanup Level - Residential Exposure Scenario[4]						**2,720**			**136**			**182**			**301[5]**

NOTES:

< denotes analyte not detected at or exceeding the reporting limit listed.

NA = not applicable

TPH = total petroleum hydrocarbons

[1] Feet above ground surface.

[2] Analyzed by Method MA-APH.

[3] Indoor air corrected value calculated by subtracting outdoor air result from indoor air sample result.

[4] Sum of indoor air corrected values.

[4]Washington State Model Toxics Control Act Cleanup Regulation (MTCA) Method B Cleanup Level for Indoor Air, website link provided in Appendix B of the *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action* revised February 2016 and April 2018.

[5]Site-specific cleanup level calculated following Washington State Department of Ecology Implementation Memorandum No. 18 regarding Petroleum Vapor Intrusion (PVI): Updated Screening Levels, and Assessing PVI Threats to Future Buildings dated January 10, 2018.

Table 10
Remediation Technology Screening
Morningside Acres Tracts
Seattle, Washington
Farallon PN: 1355-001

Remediation Technology	Media	Description	Protectiveness	Permanence	Effectiveness	Implementability	Cost	Total Score	Retained?	Screening Comment
Institutional Controls	Soil, Groundwater	Institutional controls are physical or administrative measures that limit exposure to contaminants (e.g., fences, environmental covenants).	2	1	2	3	5	13	**Yes**	Institutional controls can be effective when used in combination with other technologies to limit exposure to contaminants exceeding cleanup standards. The goal of the cleanup action is to achieve cleanup standards without reliance on institutional controls and this alternative is retained for any potential residual contamination following completion of any active remedial alternatives.
Engineered Controls	Soil, Groundwater	Engineered controls are technologies that limit exposure to contaminants (e.g., engineered caps, sub-slab depressurization systems).	3	2	2	3	3	13	No	Not a permanent solution. Effectiveness considered low due to the need for long-term monitoring to ensure the technology remains protective.
Monitored Natural Attenuation (MNA)	Groundwater	MNA involves monitoring contaminant concentrations and MNA parameters in groundwater to document decreasing contaminant concentrations through biodegradation and other natural attenuation processes.	1	3	1	5	4	14	No	The restoration time frame for MNA can be on the order of decades. Not a protective or effective technology in the short-term.
Air Sparging	Soil, Groundwater	Air sparging involves injecting pressurized air into groundwater to volatilize and remove volatile contaminants. Air sparging typically is used in combination with SVE, which captures the contaminant vapors released from groundwater. The resulting aerobic environment in the saturated and vadose zones supports degradation of contaminants amenable to aerobic biodegradation.	3	4	3	3	3	16	**Yes**	The effectiveness of air sparging can be limited by non-uniform air flow in the saturated zone. A pilot test would be needed to determine site-specific effectiveness.
Soil Vapor Extraction (SVE)	Soil, Groundwater	SVE removes volatile contaminants through application of a vacuum in the vadose zone to remove contaminant vapors from the subsurface. Although SVE is primarily used to extract adsorbed contaminants in the vadose zone, it can also provide limited extraction of dissolved volatile contaminants in unconfined groundwater by creating a vapor pressure gradient above the groundwater table. Treatment of SVE emissions often is required to comply with air pollution control regulations.	4	4	2	2	3	15	**Yes**	SVE could be applied to address vadose zone soil and prevent vapor intrusion into buildings. A pilot test would be needed to determine site-specific effectiveness; effectiveness for groundwater treatment (when not used in combination with air sparging) is limited. Shallow depth to groundwater beneath structures reduces implementability.
In-Situ Chemical Reduction (ISCR)	Soil, Groundwater	ISCR involves introducing a chemical reducing agent (such as zero-valent iron) into the subsurface to transform soil or groundwater contaminants into less toxic or less mobile forms through chemical reduction reactions. When the reducing agent is introduced via direct injection, effective subsurface distribution of the reducing agent typically requires closely spaced injection points in the target treatment zone.	4	4	3	4	3	18	**Yes**	Reducing agents commonly used for ISCR typically have greater longevity in the subsurface than oxidants used for in-situ chemical oxidation (ISCO), which can render ISCR more effective, protective, and permanent than ISCO. ISCR reactions can significantly reduce contaminant concentrations on a timescale of months.

Table 10
Remediation Technology Screening
Morningside Acres Tracts
Seattle, Washington
Farallon PN: 1355-001

Remediation Technology	Media	Description	Protectiveness	Permanence	Effectiveness	Implementability	Cost	Total Score	Retained?	Screening Comment
In-Situ Chemical Oxidation (ISCO)	Soil, Groundwater	ISCO involves injecting a chemical oxidant (such as permanganate, persulfate, or hydrogen peroxide) into the subsurface to transform soil or groundwater contaminants into less harmful chemical species through chemical oxidation reactions. Effective subsurface distribution of the oxidant typically requires closely spaced injection points in the target treatment zone.	3	3	2	3	3	14	No	The presence of naturally occurring organic matter and certain minerals in the subsurface can "consume" the oxidant, reducing the effectiveness of ISCO. Additionally, the longevity of chemical oxidants in the subsurface is typically less than that of reducing agents used for ISCR. Chemical oxidants typically also pose greater safety concerns during handling. Multiple injection events often are required to address contaminant rebound following initial concentration reductions.
In-Situ Enhanced Bioremediation	Soil, Groundwater	In-situ enhanced bioremediation involves injecting a reagent containing nutrients (e.g., oxygen, hydrogen) and/or microbes into the subsurface to enhance naturally occurring biodegradation of organic contaminants in soil and groundwater. Effective subsurface distribution of the reagent typically requires closely spaced injection points in the target treatment zone.	3	4	2	4	3	16	**Yes**	Case studies indicate that biodegradation of chlorinated volatile organic compounds such as tetrachloroethene and trichloroethene can become stalled before the parent compound completely degrades to harmless end products, which can lead to accumulation of more toxic daughter products such as vinyl chloride. Treatability studies and pilot tests often are required to determine site-specific effectiveness.
In-Situ Thermal Treatment	Soil, Groundwater	In-situ thermal treatment involves heating contaminated soil and groundwater (using electrical resistance heating, for example) to volatilize or otherwise mobilize contaminants so they can be recovered, treated, and/or disposed of as necessary.	4	4	4	1	1	14	No	In-situ thermal treatment could be effective in source areas because the technology treats soil and groundwater uniformly and works well in silty soil. However, costs per unit area treated are very high relative to other, less costly technologies. Thermal heating can result in soil temperatures exceeding 100 degrees Celsius, and may affect existing building structures and underground utilities. Implementation is complicated by the requirement of a fixed separation distance between electrodes and the significant equipment and infrastructure requirements. Safety issues complicate installations near or beneath occupied buildings.
Excavation and Off-Site Disposal of Soil	Soil	This technology involves excavating and disposing of contaminated soil at an off-site, permitted facility.	5	4	5	2	2	18	**Yes**	Excavation of contaminated soil in source areas would significantly reduce the restoration time frame. Protective measures such as dust suppression, covering of truck loads, and structural shoring would be necessary to mitigate short-term exposure risks and potential damage to existing buildings and infrastructure.

NOTE:
Scores: 1 = least favorable; 5 = most favorable.

Table 11
Evaluation of Cleanup Action Alternatives
Morningside Acres Tracts
Seattle, Washington
Farallon PN: 1355-001

Cleanup Action Alternative	Alternative 1 Source Area Excavation with Air Sparging and Soil Vapor Extraction	Score	Alternative 2 Source Area Excavation with In-Situ Chemical Reduction and In-Situ Enhanced Bioremediation	Score	Alternative 3 Source Area Excavation During Property Redevelopment, with In-Situ Chemical Reduction and In-Situ Enhanced Bioremediation	Score
Description	This alternative includes excavation and off-Property disposal of contaminated soil in source areas on the northern and southern parcels. Structural shoring would be used to protect existing buildings and infrastructure. Construction dewatering and treatment of extracted groundwater would be conducted as needed to facilitate excavation. It is assumed that construction dewatering would remove all groundwater exceeding cleanup levels on the northern parcel. The excavations would be backfilled with clean structural fill material. Following source area excavation, an air sparging and soil vapor extraction (SVE) system would be installed to treat residual groundwater contamination. The SVE system would prevent vapor intrusion into buildings. This alternative includes 5 years of groundwater performance monitoring and 1 year of confirmational groundwater monitoring.	--	This alternative includes excavation and off-Property disposal of contaminated soil in source areas on the northern and southern parcels. Structural shoring would be used to protect existing buildings and infrastructure. Construction dewatering and treatment of extracted groundwater would be conducted as needed to facilitate excavation. It is assumed that construction dewatering would remove all groundwater exceeding cleanup levels on the northern parcel. The excavations would be backfilled with clean structural fill material. Following source area excavation, a reducing agent and enhanced bioremediation reagent would be injected into the saturated soil zone to treat residual groundwater contamination. It is assumed that two direct-push injection events would be performed over 2 years. This alternative includes 7 years of groundwater performance monitoring and 1 year of confirmational groundwater monitoring.	--	This alternative includes excavation and off-Property disposal of contaminated soil in source areas on the northern and southern parcels during Property redevelopment. Costs for Property clearing, building demolition, structural shoring, and non-impacted soil removal above the planned redevelopment excavation depth would be covered by the redevelopment rather than incurred as cleanup costs. Incremental costs for managing contaminated soil above the planned redevelopment excavation depth, treating contaminated groundwater extracted during construction dewatering for redevelopment, and performing construction dewatering for soil removal below the planned redevelopment excavation depth are included in this alternative. The excavations would be backfilled with clean structural fill material. Following source area excavation, a reducing agent and enhanced bioremediation reagent would be injected into the saturated soil zone to treat residual groundwater contamination. It is assumed that two injection events would be performed over 2 years, using injection wells installed on the lowest level of the new building constructed during redevelopment. This alternative includes 7 years of groundwater performance monitoring and 1 year of confirmational groundwater monitoring.	--
Threshold Cleanup Action Requirements						
Protective of Human Health and the Environment	**Yes** - Alternative would protect human health and the environment.	--	**Yes** - Alternative will protect human health and the environment.	--	**Yes** - Alternative will protect human health and the environment.	--
Complies with Cleanup Standards	**Yes** - Alternative would achieve soil cleanup standards immediately in the excavated source areas. Groundwater cleanup standards would be achieved through operation of the air sparging and SVE system.	--	**Yes** - Alternative would achieve soil cleanup standards immediately in the excavated source areas. Groundwater cleanup standards would be achieved through injection of a reducing agent and enhanced bioremediation reagents.	--	**Yes** - Alternative would achieve soil cleanup standards immediately in the excavated source areas. Groundwater cleanup standards would be achieved through injection of a reducing agent and enhanced bioremediation reagents.	--
Complies with Applicable State and Federal Laws	**Yes -** Alternative complies with applicable laws.	--	**Yes -** Alternative complies with applicable laws.	--	**Yes -** Alternative complies with applicable laws.	--
Provides for Compliance Monitoring	**Yes -** Alternative includes provisions for compliance monitoring.	--	**Yes -** Alternative includes provisions for compliance monitoring.	--	**Yes -** Alternative includes provisions for compliance monitoring.	--
Other Cleanup Action Requirements						
Uses Permanent Solutions to the Maximum Extent Practicable	(See "Evaluation of Permanence to the Maximum Extent Practicable" below.)	--	(See "Evaluation of Permanence to the Maximum Extent Practicable" below.)	--	(See "Evaluation of Permanence to the Maximum Extent Practicable" below.)	--
Provides for a Reasonable Restoration Time Frame	**Yes** - Source area soil will be removed by excavation over a period of 1 to 2 months. Residual groundwater contamination will be treated by air sparging and SVE and monitored over a 5 year period.	--	**Yes** - Source area soil will be removed by excavation over a period of 1 to 2 months. Residual groundwater contamination will be treated by in-situ chemical reduction and enhanced bioremediation injections and monitored over a 7 year period.	--	**Yes** - Source area soil will be removed by excavation over a period of 1 to 2 months. Residual groundwater contamination will be treated by in-situ chemical reduction and enhanced bioremediation injections and monitored over a 7 year period.	--
Considers Public Concerns	**Yes** - Potential public concerns are identified in the evaluation of permanence to the maximum extent practicable, below.	--	**Yes** - Potential public concerns are identified in the evaluation of permanence to the maximum extent practicable, below.	--	**Yes** - Potential public concerns are identified in the evaluation of permanence to the maximum extent practicable, below.	--

Table 11
Evaluation of Cleanup Action Alternatives
Morningside Acres Tracts
Seattle, Washington
Farallon PN: 1355-001

Cleanup Action Alternative	Alternative 1 Source Area Excavation with Air Sparging and Soil Vapor Extraction	Score	Alternative 2 Source Area Excavation with In-Situ Chemical Reduction and In-Situ Enhanced Bioremediation	Score	Alternative 3 Source Area Excavation During Property Redevelopment, with In-Situ Chemical Reduction and In-Situ Enhanced Bioremediation	Score
Evaluation of Permanence to the Maximum Extent Practicable[1]						
Protectiveness (30% Weighting Factor)	Alternative protects human health by achieving cleanup standards. Potential vapor intrusion risk would be mitigated by the SVE system.	10	Alternative protects human health by achieving cleanup standards.	9	Alternative protects human health by achieving cleanup standards.	9
Permanence (20% Weighting Factor)	Alternative will permanently remove contaminated soil through excavation and treat residual groundwater contamination through air sparging and SVE. Excavated contaminated soil, and reactive media used to treat SVE system emissions (if necessary), will be disposed of at a permitted facility off the Property.	9	Alternative will permanently remove contaminated soil through excavation and treat residual groundwater contamination through ISCR and enhanced bioremediation injections. Excavated contaminated soil will be disposed of at a permitted facility off the Property.	9	Alternative will permanently remove contaminated soil through excavation in conjunction with Property redevelopment and treat residual groundwater contamination through ISCR and enhanced bioremediation injections. Excavated contaminated soil will be disposed of at a permitted facility off the Property.	9
Long-Term Effectiveness (20% Weighting Factor)	Alternative provides long-term effectiveness by removing contaminated soil from source areas and treating residual groundwater contamination through air sparging and SVE.	10	Alternative provides long-term effectiveness by removing contaminated soil from source areas and treating residual groundwater contamination through ISCR and enhanced bioremediation injections.	10	Alternative provides long-term effectiveness by removing contaminated soil from source areas and treating residual groundwater contamination through ISCR and enhanced bioremediation injections.	10
Management of Short-Term Risks (10% Weighting Factor)	Alternative disturbs contaminated source area soil, posing moderate short-term risk to workers and the public during construction and soil transport off the Property. Structural risk to buildings and infrastructure is mitigated with engineered shoring. Operation of air sparging and SVE system poses little risk.	7	Alternative disturbs contaminated source area soil, posing moderate short-term risk to workers and the public during construction and soil transport off the Property. Structural risk to buildings and infrastructure is mitigated with engineered shoring. ISCR and enhanced bioremediation injections pose little risk.	7	Alternative disturbs contaminated source area soil, presenting short-term risk to workers and the public during construction and soil transport off the Property. Engineered shoring to protect buildings and infrastructure is installed as part of redevelopment. ISCR and enhanced bioremediation injections pose little risk.	7
Technical and Administrative Implementability (10% Weighting Factor)	Soil excavation and construction and operation of air sparging and SVE system in the building on the southern parcel would pose challenges due to access constraints and shallow depth to groundwater beneath the building. The SVE system may require permitting through the Puget Sound Clean Air Agency. The presence of dense/very dense sands and stiff/hard silts may limit the ability to inject air through the relatively short air sparge well screens.	6	Soil excavation in the building on the southern parcel would pose challenges due to access constraints. An Underground Injection Control permit would be required for ISCR and enhanced bioremediation injections.	7	Contaminated soil excavation and installation of ISCR and enhanced bioremediation injection wells would be performed in conjunction with Property redevelopment. Existing buildings would be demolished and structural shoring would be installed as part of redevelopment activities, eliminating access constraints. An Underground Injection Control permit would be required for ISCR and enhanced bioremediation injections.	9
Consideration of Public Concerns (10% Weighting Factor)	Construction noise, potential risks associated with structural shoring and soil excavation, truck traffic, and noise generated by the air sparging and SVE system may cause minor public concerns.	6	Construction noise, potential risks associated with structural shoring and soil excavation, and truck traffic may cause minor public concerns.	7	The greatest public concerns likely would be associated with redevelopment construction activities (i.e., noise, soil excavation, truck traffic, etc.). Incremental concerns associated with additional construction dewatering, excavation of source area soil, and loading and transport of contaminated soil off the Property are not expected to be significant.	9
MTCA Composite Benefit Score[1]	**8.7**	**--**	**8.6**	**--**	**9.0**	**--**
Screening-Level Cost Estimate (Cost Uncertainty = -50%, +100%)	**$2,858,000**	**--**	**$2,946,000**	**--**	**$1,515,000**	**--**

NOTES:

-- = not applicable

[1]Each of the six evaluation criteria for permanence to the maximum extent practicable was scored from 1 (least favorable) to 10 (most favorable). The MTCA Composite Benefit Score was calculated by summing the products of the scores and the weighting factors for the six criteria.

Table 12
Cleanup Action Alternatives Cost Summary
Morningside Acres Tracts
Seattle, Washington
Farallon PN: 1355-001

	Alternative 1 Source Area Excavation with Air Sparging and Soil Vapor Extraction	Alternative 2 Source Area Excavation with In-Situ Chemical Reduction and In-Situ Enhanced Bioremediation	Alternative 3 Source Area Excavation During Property Redevelopment, with In-Situ Chemical Reduction and In-Situ Enhanced Bioremediation
Estimated Restoration Time Frame	**6 years**	**8 years**	**8 years**
CAPITAL COSTS			
Construction Costs			
Site Preparation	$97,908	$89,976	$62,900
Remediation			
Structural Shoring, Soil Excavation and Disposal[1]	$862,371	$862,371	$383,491
Air Sparging and SVE System Installation	$403,733	$0	$0
ISCR/Enhanced Bioremediation Injections	$0	$589,300	$395,810
Site Restoration	$62,355	$59,897	$16,000
Subtotal Construction	$1,426,367	$1,601,544	$858,201
Contingency and Taxes			
Contingency Percent	30%	30%	20%
Contingency Cost	$428,000	$480,000	$172,000
Subtotal Construction and Contingency	$1,854,000	$2,082,000	$1,030,000
Washington and Local Sales Tax (6.5% + 3.6%)	$187,000	$210,000	$104,000
Total Construction Costs (incl. tax)	**$2,041,000**	**$2,292,000**	**$1,134,000**
Engineering Costs			
Project Management (6% pre-tax construction/contingency costs)	$111,200	$124,900	$61,700
Remedial Design, Permitting (12% of pre-tax construction/contingency costs)	$222,500	$249,800	$123,500
Construction Management (8% of pre-tax construction/contingency costs)	$148,300	$166,500	$82,300
Total Engineering Costs	**$482,000**	**$541,000**	**$268,000**
TOTAL CAPITAL COSTS	**$2,523,000**	**$2,833,000**	**$1,402,000**
ONGOING PERIODIC AND FUTURE COSTS			
Air Sparging and SVE System Operation and Maintenance	$244,860	$0	$0
Performance Groundwater Monitoring	$54,110	$75,754	$75,754
Confirmational Groundwater Monitoring	$21,644	$21,644	$21,644
Progress Reporting	$6,012	$7,816	$7,816
Voluntary Cleanup Program	$8,000	$8,000	$8,000
TOTAL ONGOING PERIODIC AND FUTURE COSTS	**$335,000**	**$113,000**	**$113,000**
ESTIMATED TOTAL COST	**$2,858,000**	**$2,946,000**	**$1,515,000**

NOTES:

[1]Includes construction dewatering and extracted groundwater treatment and discharge.

ISCR = in-situ chemical reduction
SVE = soil vapor extraction

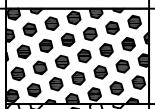
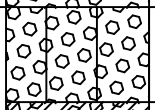
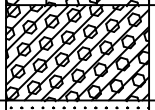
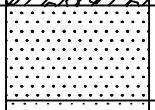
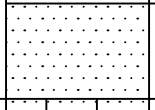
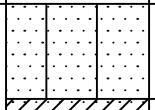
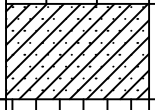
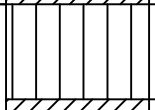
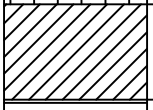
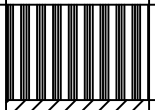
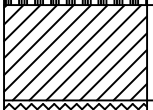
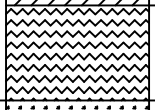
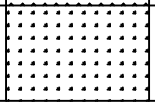
APPENDIX A
BORING AND MONITORING WELL CONSTRUCTION LOGS

FINAL REMEDIAL INVESTIGATION AND FEASIBILITY STUDY REPORT
AND DRAFT CLEANUP ACTION PLAN
Morningside Acres Tracts
5001, 5015, and 5021 Rainier Avenue South
Seattle, Washington

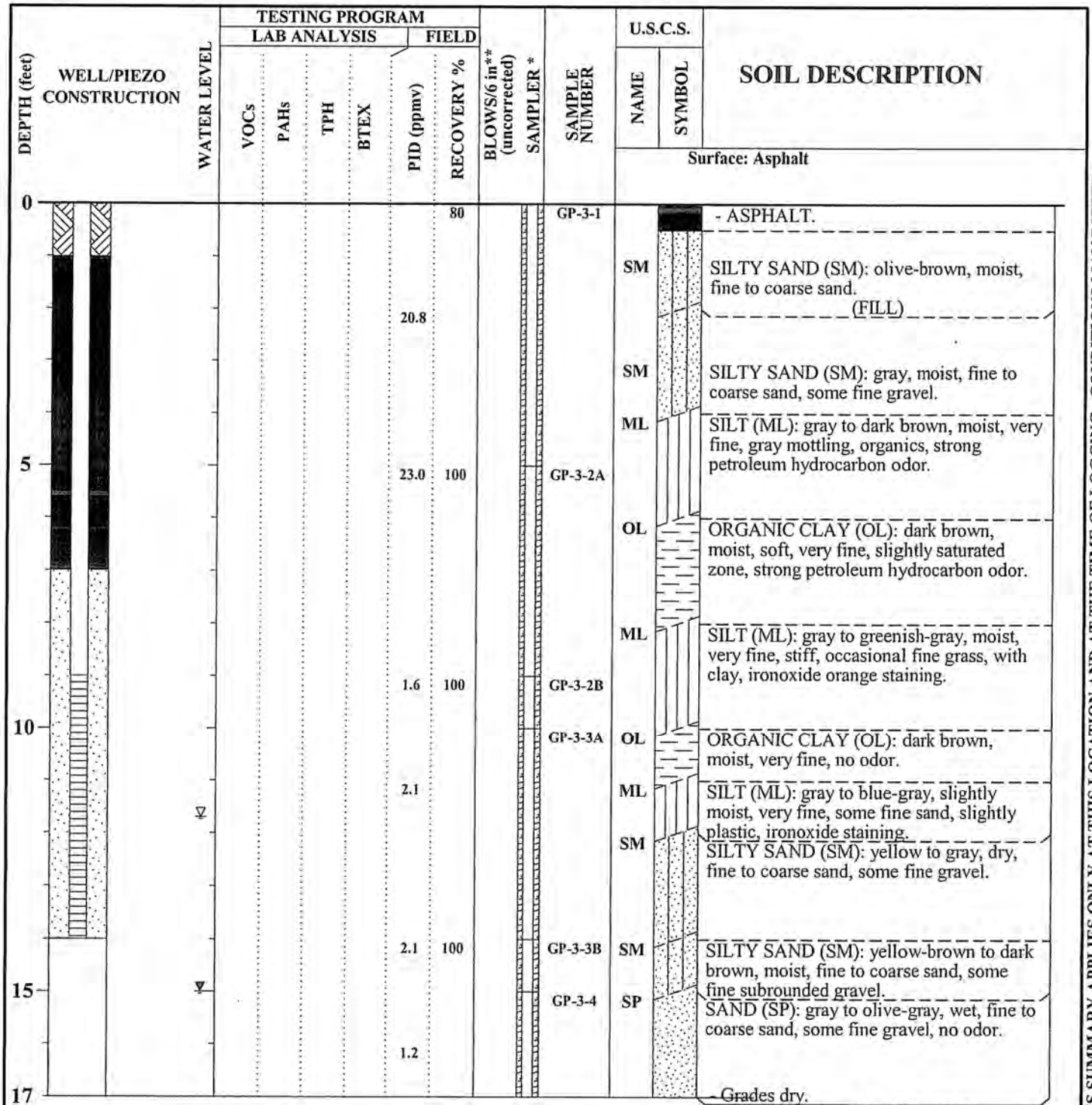
Farallon PN: 1355-001

Note: Logs for monitoring wells/borings MW-1/SB-1, MW-2/SB-2, MW-3/SB-3, MW-4/SB-4, GP-1, and MW-5/GP-2 installed in May and June 2006 (Kleinfelder 2006b) are unavailable.

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOIL	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, 0% TO 15% FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, 0% TO 15% FINES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, SILTY GRAVEL-SAND MIXTURES
				GC	CLAYEY GRAVELS, CLAYEY GRAVEL-SAND MIXTURES
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	SAND AND SANDY SOILS	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, 0% TO 15% FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, 0% TO 15% FINES
	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SILTY SAND-GRAVEL MIXTURES
				SC	CLAYEY SANDS, CLAYEY SAND-GRAVEL MIXTURES
FINE GRAINED SOIL	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS



THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

APPROV: _____

BY: _____

DATE STARTED: 8-2-06
LOGGED BY: A. Speransky
INTERPRETED BY: Frank Reinart

SURFACE ELEVATION (feet):
TOTAL DEPTH (feet): 17.0
DIAMETER OF BORING (in):

DRILLING METHOD: Geoprobe
DRILLER: Boart Longyear
CASING SIZE:

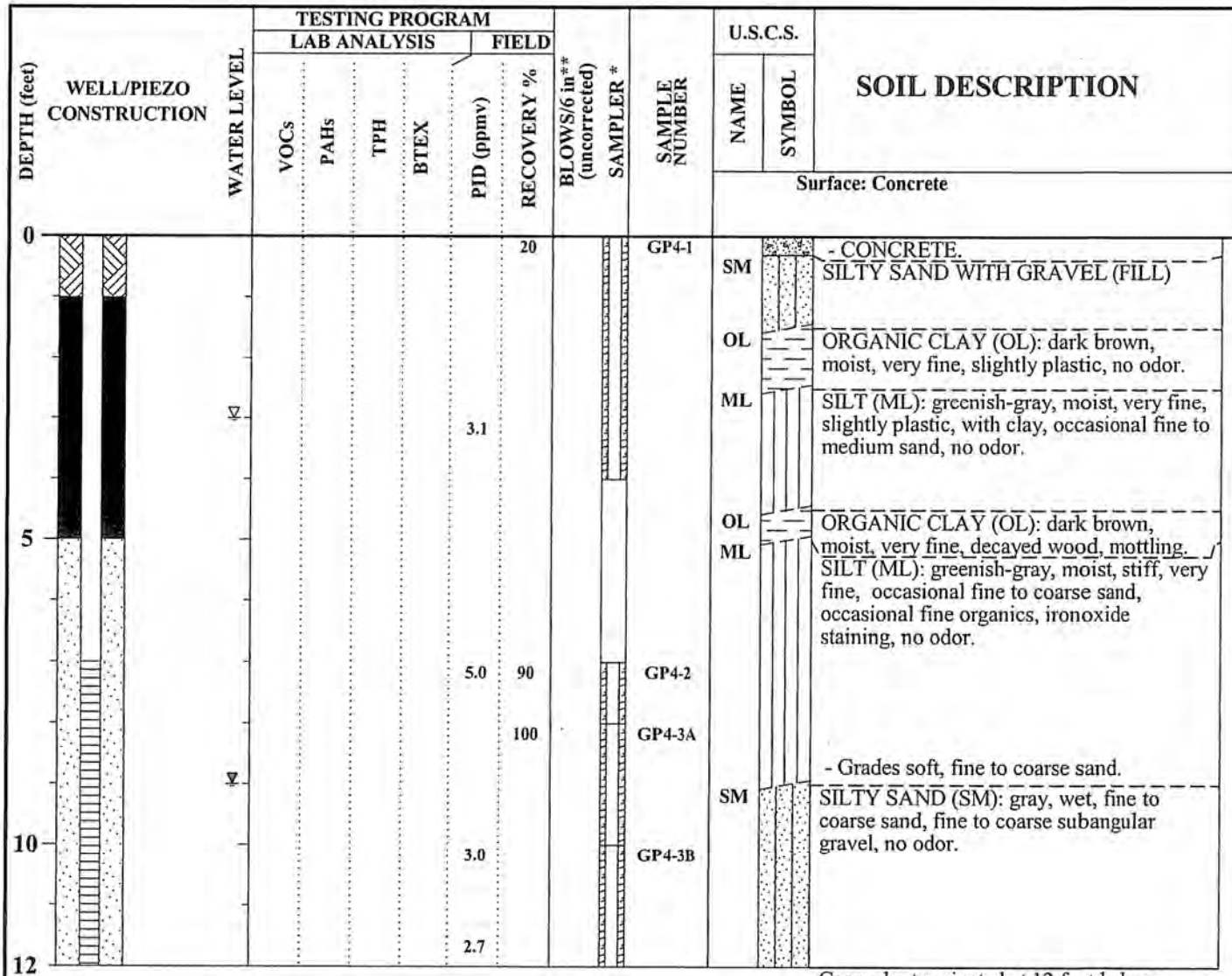
KLEINFELDER
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS
SOILS AND MATERIALS TESTING

PROJECT NUMBER: 67508

Rainier Avenue South
5001 Rainier Avenue South
Seattle, Washington
BORING LOG
GP-3/MW-6

Appendix
A - 2
PAGE 1 of 1

2000 ENVIRO WWELL 67508.GPJ 2000REV.GDT 8/24/06



Geoprobe terminated at 12 feet below ground surface. Groundwater was encountered at 9 feet bgs. during drilling and measured at 3 feet bgs after drilling. Geoprobe was completed as monitoring well MW-7 on 08/02/06.

DATE STARTED: 8-2-06
LOGGED BY: A. Speransky
INTERPRETED BY: Frank Reinart
SURFACE ELEVATION (feet):
TOTAL DEPTH (feet): 12.0
DIAMETER OF BORING (in):
DRILLING METHOD: Geoprobe
DRILLER: Boart Longyear
CASING SIZE:

KLEINFELDER
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS
SOILS AND MATERIALS TESTING
PROJECT NUMBER: 67508

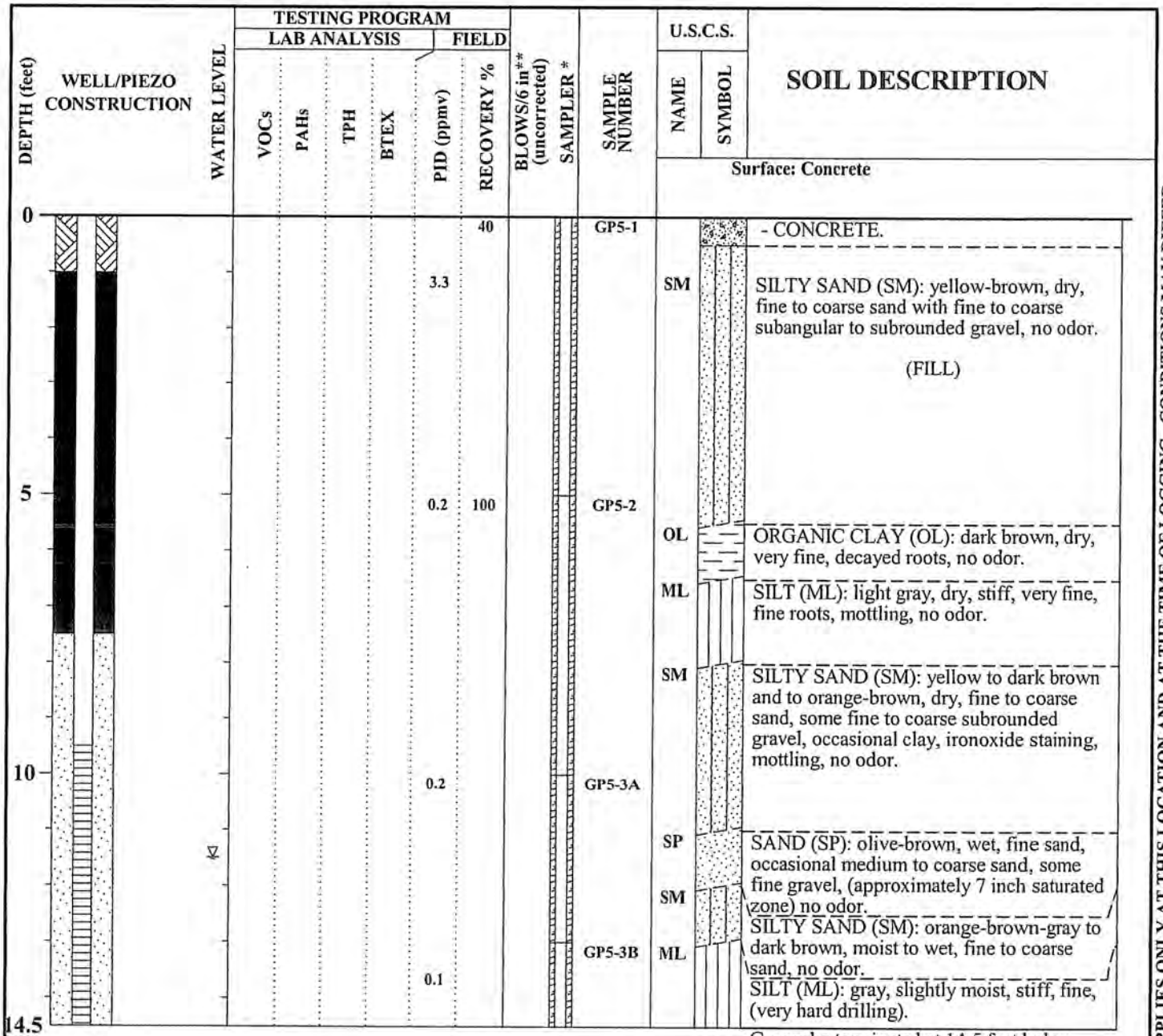
Rainier Avenue South
5001 Rainier Avenue South
Seattle, Washington
BORING LOG
GP-4/MW-7

Appendix
A - 3
PAGE 1 of 1

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

BY: _____ APPROV: _____

2000 ENVIRO WWELL 67508.GPJ 2000REV.GDT 8/24/06



DATE STARTED: 8-2-06
LOGGED BY: A. Speransky
INTERPRETED BY: Frank Reinart
SURFACE ELEVATION (feet):
TOTAL DEPTH (feet): 14.5
DIAMETER OF BORING (in):
DRILLING METHOD: Geoprobe
DRILLER: Boart Longyear
CASING SIZE:

KLEINFELDER
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS
SOILS AND MATERIALS TESTING
PROJECT NUMBER: 67508

Rainier Avenue South
5001 Rainier Avenue South
Seattle, Washington
BORING LOG
GP-5/MW-8

Appendix
A - 4
PAGE 1 of 1

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

BY: _____ APPROV: _____

2000 ENVIRO WWELL 67508.GPJ 2000REV.GDT 8/24/06

01-0466-a glp-1 boring_log.vsd

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
			3" Asphalt Concrete Pavement				
0			SAND, light brown, loose		SP		0
			Olive silty SAND with some gravels. Medium dense.		SW		
			1' brown layer	90			
5			Groundwater at 5'				5
			Becoming moist				
				30			
		GLP-01-8.5					
			Dry, blue-gray SILT, with some organics. Dense.				
10					ML		10
				80			
			Water found at 15 feet while drilling.	▽			
15				80			15
		GLP-01-17					
			Hard, very dense. E.O.B. at 20 feet, Dry at 19.5'	80	▽		
20							20
25							25
30							30

Depth in feet

Drilling Method: Direct-Push	**Date:** 1-5-2007	**Other Information:** No well constructed. Boring filled with bentonite chips and sealed at surface with asphalt patch
Drilling Company: Cascade Drilling	**Weather:** Overcast	
Boring Diameter: 2-inches	**Page** 1 of 1	
Logged By: R. Harrison		

g-logics

Boring/Well Log
Morningside Acres
5001 Rainier Avenue South
Seattle, WA

GLP-1

01-0466-a glp-2 boring_log.vsd

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
			3" Asphalt Concrete Pavement				
			Sandy Gravelly SILT to Silty Gravelly SAND		SW		
				95			
			Layer of Weathered Asphalt Concrete Pavement, difficult to determine thickness				
					SW		
		GLP-02-09	Very wet	60			
			Encountered Portland Cement Concrete @ 9.0'				
			E.O.B. at 9.0, refusal				

0 5 10 15 20 25 30

Depth in feet

Drilling Method: Direct-Push	Date: 1-5-2007	Other Information: Refusal at 9.0' due to encountering Portland cement concrete (slab?). Boring abandoned and backfilled with granular bentonite.
Drilling Company: Cascade Drilling	Weather: Overcast	
Boring Diameter: 2-inches	Page 1 of 1	
Logged By: R. Harrison		

g-logics

Boring/Well Log
Morningside Acres
5001 Rainier Avenue South
Seattle, WA

GLP-2

01-0466-a glp-3 boring_log.vsd

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
			3" Asphalt Concrete Pavement				
			SAND, light brown, loose		SP		
		GLP-03-03	Wet, but no water collects in borehole				
			Dry	80			
			SILT with trace organics	40			
				75	ML		
		GLP-03-14		75			
			Very dense silt at 19.0', dry below	50			
			Refusal at 19.5'				

0 5 10 15 20 25 30

Depth in feet

Drilling Method: Direct-Push	Date: 1-5-2007
Drilling Company: Cascade Drilling	Weather: Overcast
Boring Diameter: 2-inches	Page 1 of 1
Logged By: R. Harrison	

Other Information:
No well constructed. Boring filled with bentonite chips and sealed at surface with asphalt patch

g-logics

Boring/Well Log
Morningside Acres
5001 Rainier Avenue South
Seattle, WA

GLP-3

01-0466-a glp-4 mw-09 boring_log.vsd

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
			2" Asphalt Concrete Pavement				8" Dia. Seal 2" Dia. Boring
			Gravelly SAND, brown, loose		SP		Well Box Locking Well Cap
			SILT with some organics, blue-gray, very stiff	75	ML		Concrete Seal Bentonite Seal
			Moist Dry	75			0.75" PVC Blank
				90			10/20 Sand
		GLP-04-14	No sheen Groundwater at 14.5'	90			
				70			1.4" O.D. (0.75" I.D.) Pre-packed Well Screen
			Refusal @ 19.0'				

0 5 10 15 20 25 30

Depth in feet

Drilling Method: Direct-Push	Date: 1-5-2007	Other Information:
Drilling Company: NW Probe	Weather: Overcast, Rain	Elevation at top of well casing = 114.67'
Boring Diameter: 2-inches	Page 1 of 1	Reference: City of Seattle vertical datum (NAVD88)
Logged By: R. Harrison		

g-logics

Boring/Well Log
Morningside Acres
5001 Rainier Avenue South
Seattle, WA

GLP-04 / MW-9

01-0466-a glp-5 mw-10 boring_log.vsd

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
			3" Asphalt Concrete Pavement				8" Dia. Seal 2" Dia. Boring
0			Gravelly, silty SAND, brown, medium dense		SP		Well Box Locking Well Cap
				90		Sheen & Odor	Concrete Seal Bentonite Seal
			Sandy SILT, oily pocket, petroleum odor				
5		GLP-05-5	SILT, very dense		ML		0.75" PVC Blank
				80			
							10/20 Sand
10			Increasing sand content		ML/ SM		
		GLP-05-11.5	Wet, oily, sandy SILT with some gravels	100			
			SILT, no sand		ML		
			Orange/brown interbedded sandy SILT w/gravels		ML/ SM		
15			SILT, no sand, oily	100	ML		
			Groundwater at 17'				
		GLP-05-18		60			
20							1.4" O.D. (0.75" I.D.) Pre-packed Well Screen
25							
30	Depth in feet						

Drilling Method: Direct-Push	Date: 1-5-2007	Other Information:
Drilling Company: NW Probe	Weather: Overcast, Rain	Elevation at top of well casing = 114.65' Reference: City of Seattle vertical datum (NAVD88)
Boring Diameter: 2-inches	Page 1 of 1	
Logged By: R. Harrison		

g-logics

Boring/Well Log
Morningside Acres
5001 Rainier Avenue South
Seattle, WA

GLP-05 / MW-10

01-0466-a glp-6 boring_log.vsd

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
			3" Asphalt Concrete Pavement				
			SAND, light brown, loose	80	SP		
			Wet, no sheen or odor				
			SILT with organics	40	ML		
				75			
		GLP-06-17	Sheen present	75			
		GLP-06-18	Dry, fine sandy SILT, silty SAND, no odor	50	SM/ ML		

0 5 10 15 20 25 30

Depth in feet

Drilling Method: Direct-Push	Date: 1-5-2007
Drilling Company: Cascade Drilling	Weather: Overcast, Rain
Boring Diameter: 2-inches	Page 1 of 1
Logged By: R. Harrison	

Other Information:
No well constructed. Boring filled with bentonite chips and sealed at surface with asphalt patch

g-logics

Boring/Well Log
Morningside Acres
5001 Rainier Avenue South
Seattle, WA

GLP-6

01-0466-a glp-7 boring_log.vsd

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
			6" Portland Cement Concrete Slab				
			6" void beneath the concrete slab, standing water				
			SAND, poorly-graded, light brown, loose, (likely UST backfill material). Free-product (dark brown, possibly diesel) globules present on water.		SP		
			Note: Steel rod probe encountered UST at an approximate depth of 18-inches below finish-floor. UST appeared to be backfilled with sand.				

0 5 10 15 20 25 30

Depth in feet

Drilling Method: Steel-rod Probe	**Date:** 1-5-2007	**Other Information:** Drilling not conducted, sand was probed with a steel rod. Water sample collected. Concrete core was placed into hole and concrete was used to patch the hole.
Drilling Company: Cascade Drilling	**Weather:** Overcast, Rain	
Boring Diameter: 0.25"	**Page** 1 of 1	
Logged By: R. Harrison		

g-logics

Boring/Well Log
Morningside Acres
5001 Rainier Avenue South
Seattle, WA

GLP-7

01-0466-a glp-8 boring_log.vsd

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
			6" Portland Cement Concrete Slab				
0			Gravel and sand base course.		Fill		
			Dark olive/gray CLAY, moist				
			Color change to gray, still moist				
5		GLP-08-7	Wet, but no free-water produced	80	ML		
				100			
10		GLP-08-12	Very wet				
				100			
15							
20							
25							
30							

Depth in feet

Drilling Method: Direct-Push	Date: 1-8-2007	Other Information: Hand-dug to 2' depth. No well constructed. Boring filled with bentonite chips and sealed at surface with concrete patch.
Drilling Company: Cascade Drilling	Weather: Overcast	
Boring Diameter: 2-inches	Page 1 of 1	
Logged By: R. Harrison		

g-logics

Boring/Well Log
Morningside Acres
5001 Rainier Avenue South
Seattle, WA

GLP-8

01-0466-a glp-9 mw-11 boring log.vsd

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
			6" Portland Cement Concrete Slab				8" Dia. Seal 2" Dia. Boring
			6" thickness of gravel base course	Hand Dug	Fill		Well Box Locking Well Cap Concrete Seal
		GLP-09-2	Gray/Dark Olive CLAY, moist, soft				Bentonite Seal
			Color-change to light gray with brown mottling and dark olive streaks				0.75" PVC Blank
		GLP-09-8		80	CL		
				80			10/20 Sand
		GLP-09-12					
			Gravelly fine SAND and CLAY Refusal at 13'	60	SC		1.4" O.D. (0.75" I.D.) Pre-packed Well Screen

0 5 10 15 20 25 30

Depth in feet

Drilling Method: Direct-Push	Date: 1-8-2007	Other Information:
Drilling Company: NW Probe	Weather: Overcast	Hand-dug to 2' depth. Elevation at top of well casing = 108.44' Reference: City of Seattle vertical datum (NAVD88)
Boring Diameter: 2-inches	Page 1 of 1	
Logged By: R. Harrison		

g-logics

Boring/Well Log
Morningside Acres
5001 Rainier Avenue South
Seattle, WA

GLP-09 / MW-11

01-0466-a glp-10 mw-12 boring_log.vsd

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
			6" Portland Cement Concrete Slab				8" Dia. Seal 2" Dia. Boring
0			6" thickness of gravel base course	Hand Dug	Fill		Well Box Locking Well Cap Concrete Seal Bentonite Seal 0.75" PVC Blank
			Gray/Dark Olive CLAY, moist, stiff/dense				
		GLP-10-2	Possible sheen				
5			Mottling	80	CL		10/20 Sand
			Wet				
		GLP-10-7					
		GLP-10-8	Sandy SILT to silty SAND with some gravels		SM /ML		Sloughed/ collapsed material
			Refusal at 9'	80			
10				60			1.4" O.D. (0.75" I.D.) Pre-packed Well Screen
15							
20							
25							
30							

Depth in feet

Drilling Method: Direct-Push, Hand-Held	Date: 1-8-2007	Other Information:
Drilling Company: NW Probe	Weather: Overcast	Hand-dug to 2' depth.
Boring Diameter: 2-inches	Page 1 of 1	Elevation at top of well casing = 109.14'
Logged By: R. Harrison		Reference: City of Seattle vertical datum (NAVD88)

g-logics

Boring/Well Log
Morningside Acres
5001 Rainier Avenue South
Seattle, WA

GLP-10 / MW-12

01-0466-a glp-11 boring_log.vsd

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
			No Pavement or Surfacing (Crawlspace)				
			Gravelly, sandy SILT, medium dense, light brown	Hand Dug	Fill		
		GLP-11-3	Orange-brown mottling		SM / ML		
			Color change to gray, moist				
				90			
			Refusal at 6' (using hand-held percussive hammer)				

0 5 10 15 20 25 30

Depth in feet

Drilling Method: Direct-Push (hand-held)	Date: 1-8-2007	Other Information: Hand-dug to 2' depth. No well constructed. Boring filled with bentonite chips to the surface (in crawlspace).
Drilling Company: NW Probe	Weather: Overcast	
Boring Diameter: 2-inches	Page 1 of 1	
Logged By: R. Harrison		

g-logics

Boring/Well Log
Morningside Acres
5001 Rainier Avenue South
Seattle, WA

GLP-11

01-0466-a glp-12 mw-13 boring_log.vsd

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
			2" Sand and Gravel surfacing				8" Dia. Seal 2" Dia. Boring
0			Sandy, gravelly SILT, gray/brown, w/ orange mottling		SM		Well Box Locking Well Cap
				50			Concrete Seal
			Gray SILT, medium stiff		ML		Bentonite Seal
5		GLP-12-6	6" Olive SILT lens with organics				0.75" PVC Blank
			Gray SILT, medium stiff, with some gravels	25			
			Mottling				10/20 Sand
10				60 ▽			
		GLP-12-13	Wet at 12' Groundwater at 12'				
			Drilling becomes hard at 13', Light gray SILT, very dense, hard, dry	50			
15			Refusal @ 15'				1.4" O.D. (0.75" I.D.) Pre-packed Well Screen
20							
25							
30							

Depth in feet

Drilling Method: Direct-Push	Date: 1-8-2007	Other Information: Elevation at top of well casing = 111.79' Reference: City of Seattle vertical datum (NAVD88)
Drilling Company: NW Probe	Weather: Overcast	
Boring Diameter: 2-inches	Page 1 of 1	
Logged By: R. Harrison		

g-logics

Boring/Well Log
Morningside Acres
5001 Rainier Avenue South
Seattle, WA

GLP-12 / MW-13

01-0466-b glp-13 boring_log.vsd

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
			6" Portland Cement Concrete Slab				
			Gravel and sand base course.		Fill		Well not constructed
			Light gray CLAY, medium dense, moist		CL		
		GLP-13-4	Mottling				
			Color change to olive-brown.	90			
			Silty CLAY with trace fine sands.		SC/ CL		
			Increasing sand content with some gravels				
		GLP-13-8		80			
		GLP-13-13		60	SP/SC		
			Refusal, end of boring at 13'				

0 5 10 15 20 25 30

Depth in feet

Drilling Method: Direct-Push	Date: 2-16-2007
Drilling Company: Cascade Drilling	Weather: Overcast
Boring Diameter: 2-inches	Page 1 of 1
Logged By: R. Harrison	

Other Information:

Hand-dug to 2' depth.
No well constructed. Boring filled with bentonite chips and sealed at surface with concrete patch.

g-logics

Boring/Well Log
Morningside Acres
5001 Rainier Avenue South
Seattle, WA

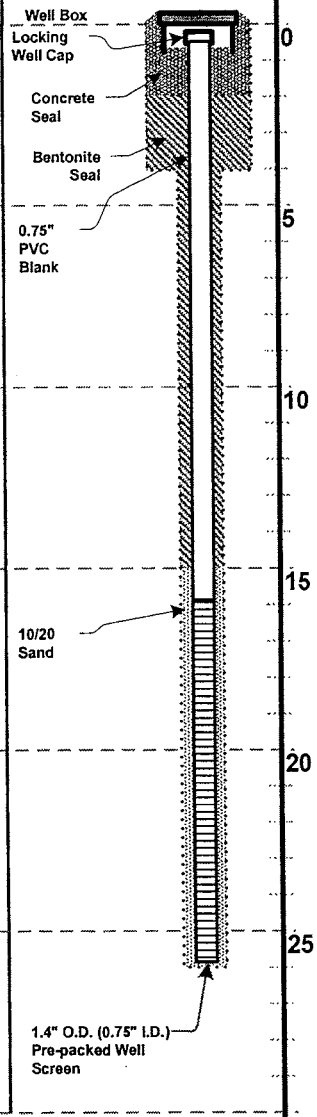
GLP-13

01-0466-b glp-14 mw-14 boring_log.vsd

Depth	BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)
0				Asphalt over concrete			
				SAND, yellow-brown, fine-grained, trace of silt, moist	100	SW	
			GLP-14-4	2"-thick gravel layer at 5'			
5				CLAY, gray, stiff, moist		CH	
				Color change to dark gray, some organics	100		
			GLP-14-8	No odor			
10					100		
			GLP-14-13	SILT, gray, wet, soft		ML	
				Groundwater at 13'			
15				No odor	100		
20					50		
			GLP-14-22	Clayey GRAVEL, wet, very dense, gray		GC	
			GLP-14-24	Sandy GRAVEL, wet, very dense, gray	80	GM	
				Silty SAND, fine to medium grain, very dense		SM	
25							
30							

Depth in feet

WELL CONSTRUCTION



Drilling Method: Direct-Push	Date: 2-16-2007	Other Information:
Drilling Company: NW Probe	Weather: Partly Cloudy	
Boring Diameter: 2-inches	Page 1 of 1	
Logged By: R. Harrison		

g-logics

Boring/Well Log
Morningside Acres
5001 Rainier Avenue South
Seattle, WA

GLP-14 / MW-14

01-0466-b glp-15 mw-15 boring log.vsd

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
			Asphalt				8" Dia. Seal 2" Dia. Boring
			Sand and Gravel FILL, yellow-brown		FILL		Well Box Locking Well Cap Concrete Seal
			Fill – containd clay tile, coal, gravels, sand, and wire	80			Bentonite Seal
			Color change to dark brown				0.75" PVC Blank
			Dry	90			
			CLAY, light gray, plastic		CH		
		GLP-15-13	Gravel with Clay and Sand, Brown, Mottling	80	GC/ SC		
		GLP-15-15	SILT, very dense, gray	50	ML		10/20 Sand 1.4" O.D. (0.75" I.D.) Pre-packed Well Screen
			Refusal, end of boring at 17'				

0 5 10 15 20 25 30 Depth in feet

Drilling Method: Direct-Push	**Date:** 2-16-2007	**Other Information:**
Drilling Company: Cascade	**Weather:** Partly Cloudy, 50F	Hand-dug to 2'
Boring Diameter: 2-inches	**Page** 1 of 1	
Logged By: R. Harrison		

g-logics

Boring/Well Log
Morningside Acres
5001 Rainier Avenue South
Seattle, WA

GLP-15 / MW-15

01-0466-b glp-16 mw-16 boring_log.vsd

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
			6" Portland Cement Concrete Slab				8" Dia. Seal 2" Dia. Boring
			Gravel and sand base course.		Fill		Well Box Locking Well Cap
			Light gray CLAY, medium dense, moist		CL		Concrete Seal
		GLP-16-4		25			Bentonite Seal
		GLP-16-6					0.75" PVC Blank 10/20 Sand
			Refusal, end of boring at 6', likely pushing a rock				1.4" O.D. (0.75" I.D.) Pre-packed Well Screen

0 5 10 15 20 25 30 Depth in feet

Drilling Method: Direct-Push	Date: 2-16-2007	Other Information:
Drilling Company: Cascade Drilling	Weather: Overcast	Hand-dug to 2' depth.
Boring Diameter: 2-inches	Page 1 of 1	
Logged By: R. Harrison		

g-logics

Boring/Well Log
Morningside Acres
5001 Rainier Avenue South
Seattle, WA

GLP-16 / MW-16

01-0466-b glp-17 mw-17 boring_log.vsd

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
			Gravel/Sand surface				8" Dia. Seal 2" Dia. Boring
			Sand and Gravel FILL, yellow-brown		FILL		Well Box Locking Well Cap
				60			Concrete Seal
							Bentonite Seal
			Clay lense		CL		
			SAND with gravels and clay, yellow-brown		GC/ SC		0.75" PVC Blank
				70			
		GLP-17-11	Moist				
				95			10/20 Sand
			Silty SAND to Sandy SILT, very fine sand, dense, light gray to gray		SM		
		GLP-17-15	SILT, very dense, gray	50	ML		
			Refusal, end of boring at 16'				1.4" O.D. (0.75" I.D.) Pre-packed Well Screen

0 5 10 15 20 25 30

Depth in feet

Drilling Method: Direct-Push	Date: 2-16-2007	Other Information:
Drilling Company: Cascade	Weather: Partly Cloudy, 50F	Augered to 4 feet
Boring Diameter: 2-inches	Page 1 of 1	
Logged By: R. Harrison		

g-logics

Boring/Well Log
Morningside Acres
5001 Rainier Avenue South
Seattle, WA

GLP-17 / MW-17

01-0466-b glp-18 mw-18 boring_log.vsd

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
			Planter/Landscaped				8" Dia. Seal 2" Dia. Boring
			Silty SAND with Gravels, FILL, olive-brown, loose	90	SP/ SM		Well Box Locking Well Cap Concrete Seal Bentonite Seal 0.75" PVC Blank
			CLAY with some gravels and sand, light gray to olive brown, coloring intermixed	100	CL/ SC		
		GLP-18-10	Odor				
			CLAY, light gray	90	CL		10/20 Sand
			Clay and gravels		GC		
		GLP-18-15	Very wet	75	ML		1.4" O.D. (0.75" I.D.) Pre-packed Well Screen
			Dense, hard, SILT				
			Refusal, end of boring at 17'				

0 5 10 15 20 25 30

Depth in feet

Drilling Method: Direct-Push	Date: 2-16-2007	Other Information:
Drilling Company: Cascade	Weather: Partly Cloudy, 50F	Augered to 4 feet
Boring Diameter: 2-inches	Page 1 of 1	
Logged By: R. Harrison		

g-logics

Boring/Well Log
Morningside Acres
5001 Rainier Avenue South
Seattle, WA

GLP-18 / MW-18

Log of Boring: MW-19

Client: Zeno Balkalian, P.S.
Project: Morningside Acres Tract
Location: Seattle, WA
Farallon PN: 1355-001
Logged By: A. Burns

Date/Time Started:	12/11/17 @ 10:00	**Sampler Type:**	1.5' SPT
Date/Time Completed:	12/12/17 @ 15:00	**Drive Hammer (lbs.):**	140
Equipment:	CME 85	**Depth of Water ATD (ft bgs):**	~12.5
Drilling Company:	Holt Drilling	**Total Boring Depth (ft bgs):**	30.0
Drilling Foreman:	John	**Total Well Depth (ft bgs):**	30.0
Drilling Method:	Hollow Stem Auger		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USCS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0.0-5.0': Cleared for utilities. No recovery. Cobbles throughout.								Concrete; Sand Pack
5		5.0-5.4': Silty SAND with gravel (45% sand, 30% silt, 25% gravel), fine to coarse sand, fine gravel, light tan, very loose, moist, no odor.	SM		66	3 2 2	0.3	MW-19-5.0		Bentonite
		5.4-6.0': SILT (100% silt), gray, soft, moist, no odor.	ML							
		6.0-6.5': No recovery.								
10		10.0-10.2': SILT (100% silt), gray, very stiff, moist, no odor.	ML		100	8 12 17	0.7	MW-19-10.0	X	Casing
		10.2-10.5': Silty SAND with gravel (45% sand, 30% silt, 25% gravel), fine to coarse sand, fine gravel, brown, medium dense, moist, no odor.	SM							
		10.5-11.5': Sandy SILT (65% silt, 30% sand, 5% gravel), fine sand and gravel, very stiff, brown to gray, moist, no odor.	ML							Water Level
15										

Well Construction Information

Monument Type:	Flush Mount	**Filter Pack:**	10-20 Sand	**Ground Surface Elevation (ft):**	NA
Casing Diameter (inches):	2	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (inches):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location:**	**X:** NA
Screened Interval (ft bgs):	25.0-30.0	**Boring Abandonment:**	NA		**Y:** NA

Log of Boring: MW-19

Client: Zeno Balkalian, P.S.
Project: Morningside Acres Tract
Location: Seattle, WA
Farallon PN: 1355-001
Logged By: A. Burns

Date/Time Started:	12/11/17 @ 10:00	**Sampler Type:**	1.5' SPT
Date/Time Completed:	12/12/17 @ 15:00	**Drive Hammer (lbs.):**	140
Equipment:	CME 85	**Depth of Water ATD (ft bgs):**	~12.5
Drilling Company:	Holt Drilling	**Total Boring Depth (ft bgs):**	30.0
Drilling Foreman:	John	**Total Well Depth (ft bgs):**	30.0
Drilling Method:	Hollow Stem Auger		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USCS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
15		15.0-15.2': Well-graded GRAVEL (100% gravel), fine to coarse gravel, gray, very dense, wet, no odor.	GW		100	22 50 for 6"	2.5	MW-19-15.0	X	
		15.2-16.0': SILT (90% silt, 10% sand), fine sand, gray, hard, wet, no odor.	ML							Casing
20		20.0-20.4': SILT (95% silt, 5% sand), trace fine gravel, fine sand, gray, hard, moist-wet, no odor.	ML		100	50 for 5"	0.1	MW-19-20.0		
		22.5-23.0': SILT (95% silt, 5% sand), trace fine gravel, fine sand, gray, hard, moist-wet, no odor.	ML		100	50 for 6"	0.9	MW-19-22.5	X	Bentonite
25		25.0-25.6': SILT (95% silt, 5% sand), trace fine gravel, fine sand, gray, hard, moist-wet, no odor.	ML		75	42 50 for 3"	0.4	MW-19-25.0		Sand Pack
		25.6-25.8': No recovery.								Screen
		28.5-30.0': SILT (90% silt, 10% sand), fine sand, gray, hard, moist-wet, no odor.	ML			23 50 for 5"	0.4	MW-19-30.0	X	
30										

Well Construction Information

Monument Type:	Flush Mount	**Filter Pack:**	10-20 Sand	**Ground Surface Elevation (ft):**	NA
Casing Diameter (inches):	2	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (inches):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location:**	**X:** NA
Screened Interval (ft bgs):	25.0-30.0	**Boring Abandonment:**	NA		**Y:** NA

Log of Boring: MW-20

Client: Mr. Washin Murakami
Project: Morningside Acres Tracts
Location: Seattle, WA
Farallon PN: 1355-001
Logged By: N. Turpen

Date/Time Started:	4/13/18 1110	**Sampler Type:**	SPT
Date/Time Completed:	5/8/18 1155	**Drive Hammer (lbs.):**	300
Equipment:	LDS 75 HT	**Depth of Water ATD (ft bgs):**	19.5
Drilling Company:	Holt Services Inc	**Total Boring Depth (ft bgs):**	25.0
Drilling Foreman:	Rayon Darling	**Total Well Depth (ft bgs):**	25.0
Drilling Method:	Hollow Stem Auger		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0.0-0.5': Asphalt, Airknife to 5.0' for utilities	AC							Concrete
		0.3-5.0': Well graded SAND with silt and gravel (10% silt, 75% sand, 15% gravel), fine to coarse sand, fine to medium gravel, brown, estimated loose, moist, no odor.	SW-SM		100					
5		5.0-5.1': Sandy SILT (60% silt, 30% sand, 10% gravel) fine sand and gravel, brown, estimated dense, moist, no odor	ML				0.3	FB-20-5.0	X	Bentonite
		5.1-10.0': No recovery, rock stuck in shoe			2					
10		10.0-13.0': Gravelly SILT (60% silt, 10% sand, 30% gravel), fine sand, fine to medium gravel, gray, estimated dense, dry, no odor.	ML		100		0.0	FB-20-10.0	X	
		13.0-14.5': No recovery, slough			100		0.0	FB-20-13.0	X	
15		14.5-16.0': Sandy SILT (70% silt, 30% sand) fine to coarse sand, gray, dry, hard, no odor.	ML		100	15/28/45	0.1	MW-20-15.0	X	
		16.0-18.0': Sandy SILT (70% silt, 30% sand) fine to coarse sand, gray, dry, hard, no odor.	ML		100					Sand
		18.0-20.0': Sandy SILT with gravel (50% silt, 30% sand, 20% gravel) fine to coarse sand, fine gravel, brown, wet, firm, no odor.	ML		100					
20		20.0-22.5': Sandy SILT with gravel (50% silt, 30% sand, 20% gravel) fine to coarse sand, fine gravel, brown, wet, firm, no odor.	ML		100	5/5/9	0.0	MW-20-20.0	X	Screen
		22.5-25.0': Sandy SILT with gravel (50% silt, 30% sand, 20% gravel) fine to coarse sand, fine gravel, brown, wet (moist 24.6'-25.0'), firm, no odor.	ML		100	19/25/33	0.0	MW-20-25.0	X	
25										

Well Construction Information

Monument Type:	Flush mount	**Filter Pack:**	Sand	**Ground Surface Elevation (ft):**	NA
Casing Diameter (inches):	2.0	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (inches):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location:**	**X:** NA
Screened Interval (ft bgs):	15-25	**Boring Abandonment:**	NA		**Y:** NA

Log of Boring: MW-21

Client: Mr. Washin Murakami
Project: Morningside Acres Tracts
Location: Seattle, WA
Farallon PN: 1355-001
Logged By: P. Garvin

Date/Time Started:	8/28/18 0916	**Sampler Type:**	1.5' SPT
Date/Time Completed:	8/28/18 1430	**Drive Hammer (lbs.):**	140
Equipment:	Mobile B59	**Depth of Water ATD (ft bgs):**	15.0
Drilling Company:	Holt Services Inc	**Total Boring Depth (ft bgs):**	45.4
Drilling Foreman:	Kevin Bacon	**Total Well Depth (ft bgs):**	45.0
Drilling Method:	Hollow Stem Auger		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USCS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0.0-5.0': Silty GRAVEL with sand (60% gravel, 20% sand, 20% silt) fine to coarse gravel, medium to coarse sand, brown, moist, no odor.	GM		--		0.1			Concrete
5		5.0-6.5': Silty SAND with gravel (55% sand, 30% silt, 15% gravel) medium to coarse sand, brown with reddish brown mottling, medium dense, no odor.	SM		--	7 9 10	0.0			Casing
10		10.0-11.5': Sandy SILT (60% silt, 40% sand) fine sand, gray, hard, moist, no odor.	ML		--	28 25 20	0.1			
15		15.0-15.4': Sandy SILT (60% silt, 40% sand) fine sand, gray, hard, wet, no odor.	ML		--	36 50 for 4"	0.0			Water Level Bentonite
20		20.0-20.9': Silty SAND (55% sand, 40% silt, 5% gravel) fine sand, gray, very dense, wet, no odor.	SM		--	30 50 for 5"	0.3			

Well Construction Information

Monument Type: Flush mount
Casing Diameter (inches): 2.0
Screen Slot Size (inches): 0.010
Screened Interval (ft bgs): 35-45

Filter Pack: Sand
Surface Seal: Concrete
Annular Seal: Bentonite
Boring Abandonment: NA

Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): NA
Surveyed Location: X: NA
Y: NA

Log of Boring: MW-21

Client: Mr. Washin Murakami
Project: Morningside Acres Tracts
Location: Seattle, WA
Farallon PN: 1355-001
Logged By: P. Garvin

Date/Time Started:	8/28/18 0916	**Sampler Type:**	1.5' SPT
Date/Time Completed:	8/28/18 1430	**Drive Hammer (lbs.):**	140
Equipment:	Mobile B59	**Depth of Water ATD (ft bgs):**	15.0
Drilling Company:	Holt Services Inc	**Total Boring Depth (ft bgs):**	45.4
Drilling Foreman:	Kevin Bacon	**Total Well Depth (ft bgs):**	45.0
Drilling Method:	Hollow Stem Auger		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USCS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
25		25.0-25.4': Silty SAND (55% sand, 40% silt, 5% gravel) fine sand, gray, very dense, wet, no odor.	SM		--	50 for 4.5"	0.5			Casing
30		30.0-30.4': Silty SAND (65% sand, 30% silt, 5% gravel) fine to coarse sand, gray, very dense, wet, no odor.	SM		--	50 for 6"	0.1	MW-21-30.0	X	Bentonite
35		35.0-35.4': Silty SAND (65% sand, 30% silt, 5% gravel) fine to coarse sand, gray, very dense, wet, no odor.	SM		--	50 for 5"	0.0	MW-21-35.0	X	Screen
40		40.0-40.4': Silty SAND (65% sand, 30% silt, 5% gravel) fine to coarse sand, gray, very dense, wet, no odor.	SM		--	50 for 5"	0.1 0.2	MW-21-40.0	X	Sand Pack
45		45.0-45.4': Silty SAND (65% sand, 30% silt, 5% gravel) fine to coarse sand, gray, wet, no odor.	SM		--	-	0.1	MW-21-45.0	X	Sand Pack

Well Construction Information

Monument Type: Flush mount
Casing Diameter (inches): 2.0
Screen Slot Size (inches): 0.010
Screened Interval (ft bgs): 35-45

Filter Pack: Sand
Surface Seal: Concrete
Annular Seal: Bentonite
Boring Abandonment: NA

Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): NA
Surveyed Location: X: NA
Y: NA

Log of Boring: FB-22

Client: Mr. Washin Murakami
Project: Morningside Acres Tracts
Location: Seattle, WA
Farallon PN: 1355-001
Logged By: P. Garvin

Date/Time Started:	8/29/18 1015	**Sampler Type:**	5' Macrocore
Date/Time Completed:	8/29/18 1045	**Drive Hammer (lbs.):**	Auto
Equipment:	Direct Probe Rig	**Depth of Water ATD (ft bgs):**	12.8
Drilling Company:	Holt Services Inc	**Total Boring Depth (ft bgs):**	20.0
Drilling Foreman:	Kevin Bacon	**Total Well Depth (ft bgs):**	20.0 (temp.)
Drilling Method:	Direct Push Rig		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USCS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0.0-1.0': Asphalt.	AC		--					Asphalt
		1.0-5.0': No recovery. Cleared to 5.0' bgs for utilities.								
5		5.0-9.0': No recovery. Slough.			--		0.5			
							0.5			
		9.0-10.0': Sandy SILT (70% silt, 30% sand) fine sand, gray, moist, no odor.	ML							
10		10.0-15.0': Sandy SILT (70% silt, 30% sand) fine sand, gray, moist, wet at 12.8', no odor.	ML		--		1.1	FB-22-10.0	X	Bentonite
							0.4			
								FB-22-GW	X	Water Level
15		15.0-20.0': Sandy SILT (60% silt, 30% sand, 10% gravel) fine to medium sand, gray, moist, wet at 16.0', no odor.	ML		--		0.5	FB-22-15.0	X	
							0.1			
20							0.2	FB-22-20.0	X	

Well Construction Information

Monument Type:	NA	**Filter Pack:**	NA	**Ground Surface Elevation (ft):**	NA
Casing Diameter (inches):	3/4" (temp.)	**Surface Seal:**	Asphalt	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (inches):	NA	**Annular Seal:**	NA	**Surveyed Location:**	**X:** NA
Screened Interval (ft bgs):	10-20 (temp.)	**Boring Abandonment:**	Bentonite		**Y:** NA

Log of Boring: FB-23

Client: Mr. Washin Murakami
Project: Morningside Acres Tracts
Location: Seattle, WA
Farallon PN: 1355-001
Logged By: P. Garvin

Date/Time Started:	8/29/18 830	**Sampler Type:**	5' Macrocore
Date/Time Completed:	8/29/18 900	**Drive Hammer (lbs.):**	Auto
Equipment:	Direct Probe Rig	**Depth of Water ATD (ft bgs):**	19.8
Drilling Company:	Holt Services Inc	**Total Boring Depth (ft bgs):**	20.0
Drilling Foreman:	Kevin Bacon	**Total Well Depth (ft bgs):**	20.0 (temp.)
Drilling Method:	Direct Push Rig		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USCS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0.0-1.0': Asphalt.	AC		--		0.2			Asphalt
		1.0-5.0': No recovery. Cleared to 5' for utilities.								
5		5.0-8.0': No recovery. Slough.			--		6.1			
							7.2			
		8.0-10.0': Sandy SILT (60% silt, 35% sand, 5% gravel) fine sand, gray, mosit, faint hydrocarbon odor.	ML							
10		10.0-13.0': Sandy SILT (60% silt, 30% snd, 10% gravel) fine sand, gray, moist, strong hydrocarbon odor.	ML		--		10.3	FB-23-10.0	X	Bentonite
		13.0-15.0': No recovery.						FB-23-13.0	X	
15		15.0-20.0': Sandy SILT (60% silt, 30% sand, 10% gravel) fine sand, gray, moist, wet at 19.8', faint hydrocarbon odor.	ML		--		1.5	FB-23-17.0	X	
								FB-23-GW	X	Water Level
20								FB-23-20.0	X	

Well Construction Information

Monument Type:	NA	**Filter Pack:**	NA	**Ground Surface Elevation (ft):**	NA
Casing Diameter (inches):	3/4" (temp.)	**Surface Seal:**	Asphalt	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (inches):	NA	**Annular Seal:**	NA	**Surveyed Location:**	**X:** NA
Screened Interval (ft bgs):	10-20 (temp.)	**Boring Abandonment:**	Bentonite		**Y:** NA

FARALLON CONSULTING

Log of Boring: FB-24

Client: Washin Murakami
Project: Morningside Acres
Location: 5001 Rainier Avenue S

Farallon PN: 1355-001

Logged By: Elise Bugge

Date/Time Started: 4/13/21 1130
Date/Time Completed: 4/13/21 0853
Equipment: GeoProbe Tractor Mount
Drilling Company: Cascade Drilling
Drilling Foreman: Tim Watson
Drilling Method: Direct Push

Sampler Type: 3' Macrocore
Drive Hammer (lbs.): Auto
Depth of Water ATD (ft bgs): ~3.0
Total Boring Depth (ft bgs): 15.0'
Total Well Depth (ft bgs): NA

Depth (feet bgs.)	Lithologic Description	USCS	% Recovery	PID (ppm)	Sample ID	Sample Analyzed
0	0.0-1.0': Concrete.	Cement	100			
	1.0-5.0': SILT with sand (70% silt, 30% sand), fine sand, brown, moist, wet at ~3.0', no odor, no sheen.	ML		0.0	FB-24-2.0	
5	5.0-9.0': SILT (100% silt), grey, wet, no odor, no sheen.	ML	100			
			100	0.0	FB-24-6.0	X
	9.0-12.0': Silty GRAVEL (70% gravel, 20% silt, 10% sand), fine to coarse gravel, coarse sand, grey, wet, no odor, no sheen.	GM	100			
10				0.0	FB-24-10.0	X
			100			
	12.-14.0': No recovery.					
	14.0-15.0': Poorly-graded SAND (100% sand, trace silt), fine sand, grey, wet, no odor, no sheen.	SP	100	0.0	FB-24-14.0	
15						
20						

Boring/Well Construction Details: Water Level; Bentonite

Well Construction Information

Monument Type: NA
Casing Diameter (inches): NA
Screen Slot Size (inches): NA
Screened Interval (ft bgs): NA

Filter Pack: NA
Surface Seal: NA
Annular Seal: NA
Boring Abandonment: NA

Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): NA
Surveyed Location: **X:** NA **Y:** NA
Unique Well ID: NA

FARALLON CONSULTING

Log of Boring: FB-25

Client: Washin Murakami
Project: Morningside Acres
Location: 5001 Rainier Avenue S

Farallon PN: 1355-001

Logged By: Elise Bugge

Date/Time Started: 4/13/21 1250
Date/Time Completed: 4/13/21 1130
Equipment: GeoProbe Tractor Mount
Drilling Company: Cascade Drilling
Drilling Foreman: Tim Watson
Drilling Method: Direct Push

Sampler Type: 3' Macrocore
Drive Hammer (lbs.): Auto
Depth of Water ATD (ft bgs): ~3.0
Total Boring Depth (ft bgs): 13.0'
Total Well Depth (ft bgs): NA

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	% Recovery	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0.0-1.0': Cement.	CEMENT	100				
		1.0-5.0': Sandy SILT (70% silt, 30% sand), fine sand, greyish-brown, moist, wet at ~3.0', no odor, no sheen.	ML		0.0	FB-25-2.0	X	Water Level
5		5.0-6.0': No recovery.		0				
		6.0-7.0': SILT (100% silt), grey, wet, no odor, no sheen.	ML	100	0.0	FB-25-6.0	X	Bentonite
		7.0-10.0': Silty SAND (70% sand, 20% silt, 10% gravel), coarse sand, fine gravel, grey, wet, no odor, no sheen.	SM	100				
10		10.0-12.0': Silty SAND (70% sand, 20% silt, 10% gravel), fine sand, fine gravel, grey, moist, no odor, no sheen.	SM		0.0	FB-25-10.0	X	
		12.0-13.0': Well-graded SAND. (100% sand), fine sand, grey, moist, no odor, no sheen.	SP	100				
					0.3	FB-25-13.0		
15								
20								

Well Construction Information

Monument Type: NA
Casing Diameter (inches): NA
Screen Slot Size (inches): NA
Screened Interval (ft bgs): NA

Filter Pack: NA
Surface Seal: NA
Annular Seal: NA
Boring Abandonment: NA

Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): NA
Surveyed Location: **X:** NA **Y:** NA
Unique Well ID: NA

FARALLON CONSULTING

Log of Boring: FB-26

Client: Washin Murakami
Project: Morningside Acres
Location: 5001 Rainier Avenue S

Farallon PN: 1355-001

Logged By: Elise Bugge

Date/Time Started: 4/13/21 1345
Date/Time Completed: 4/13/21 1459
Equipment: GeoProbe Tractor Mount
Drilling Company: Cascade Drilling
Drilling Foreman: Tim Watson
Drilling Method: Direct Push

Sampler Type: 3' Macrocore
Drive Hammer (lbs.): Auto
Depth of Water ATD (ft bgs): ~6.0
Total Boring Depth (ft bgs): 15.0'
Total Well Depth (ft bgs): NA

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USCS Graphic	% Recovery	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0.0-1.0': Cement	Cement		100				
		1.0-5.0': Silty SAND (70% sand, 30% silt), fine sand, brown, moist, no odor, no sheen.	SM			0.0	FB-26-2.0		
5		5.0-6.0': SILT (100% silt), grey, moist, no odor, no sheen.	ML		100				Bentonite
					66	0.0	FB-26-6.0	X	Water Level
		8.0-9.0': No recovery.							
		9.0-12.0': Silty GRAVEL (70% gravel, 20% silt, 10% sand), fine to coarse gravel, coarse sand, grey, wet, no odor, no sheen.	GM		100	0.0	FB-26-10.0	X	
10		12.0-14.0': Silty SAND (80% sand, 20% silt), fine sand, grey, wet, no odor, no sheen.	SM		66				
		14.0-15.0': No recovery.				0.0	FB-26-14.0		
15									
20									

Well Construction Information

Monument Type: NA
Casing Diameter (inches): NA
Screen Slot Size (inches): NA
Screened Interval (ft bgs): NA

Filter Pack: NA
Surface Seal: NA
Annular Seal: NA
Boring Abandonment: NA

Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): NA
Surveyed Location: **X:** NA **Y:** NA
Unique Well ID: NA

FARALLON CONSULTING

Log of Boring: FB-27

Client: Washin Murakami
Project: Morningside Acres
Location: 5001 Rainier Avenue S

Farallon PN: 1355-001

Logged By: Elise Bugge

Date/Time Started: 4/13/21 1500
Date/Time Completed: 4/13/21 1615
Equipment: GeoProbe Tractor Mount
Drilling Company: Cascade Drilling
Drilling Foreman: Tim Watson
Drilling Method: Direct Push

Sampler Type: 3' Macrocore
Drive Hammer (lbs.): Auto
Depth of Water ATD (ft bgs): ~3.0
Total Boring Depth (ft bgs): 15.0'
Total Well Depth (ft bgs): NA

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USCS Graphic	% Recovery	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0.0-1.0': Cement.	Cement		100				
		1.0-5.0': Sandy SILT (70% silt, 30% sand), fine sand, brown, moist, wet at ~3.0, no odor, no sheen.	ML			0.3	FB-27-2.0		Water Level
5		5.0-9.0': SILT (100% silt), grey, wet, no odor, no sheen.	ML		100				
					100	0.0	FB-27-6.0		Bentonite
		9.0-10.5': Silty GRAVEL (70% gravel, 20% silt, 10% sand), fine to coarse gravel, coarse sand, grey, wet, no odor, no sheen.	GM		50				
10						0.0	FB-27-10.0		
		10.5-12.0': No recovery.							
		12.0-14.0': (70% gravel, 20% silt, 10% sand), fine to coarse gravel, coarse sand, grey, wet, no odor, no sheen.	GM		66				
		14.0-15.0': No recovery.				0.0	FB-27-14.0		
15									
20									

Well Construction Information

Monument Type: NA
Casing Diameter (inches): NA
Screen Slot Size (inches): NA
Screened Interval (ft bgs): NA

Filter Pack: NA
Surface Seal: NA
Annular Seal: NA
Boring Abandonment: NA

Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): NA
Surveyed Location: **X:** NA **Y:** NA
Unique Well ID: NA

FARALLON CONSULTING

Log of Boring: FB-28

Client: Washin Murakami
Project: Morningside Acres
Location: 5001 Rainier Avenue S

Farallon PN: 1355-001

Logged By: Elise Bugge

Date/Time Started: 4/14/21 0800
Date/Time Completed: 4/14/21 0846
Equipment: Hand Auger
Drilling Company: Cascade Drilling
Drilling Foreman: Tim Watson
Drilling Method: Hand Auger

Sampler Type: NA
Drive Hammer (lbs.): NA
Depth of Water ATD (ft bgs): ~5.0
Total Boring Depth (ft bgs): 8.5'
Total Well Depth (ft bgs): NA

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USCS Graphic	% Recovery	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0.0-4.5': Sandy SILT (90% silt, 10% sand), fine sand, greyish brown, moist, no odor, no sheen.	ML		100	2.6	FB-28-2.0	X	Bentonite
5		0.0-6.0': Sandy SILT (60% sitl, 40% sand), fine sand, light brown, wet, no odor, no sheen.	ML		100				Water Level
		6.0-8.5: Well-graded GRAVEL with silt and sand (70% gravel, 20% sand, 10% silt), fine to coarse gravel, coarse sand, brown, wet, no odor, no sheen.	GW-GM		100	2.0	FB-28-6.0	X	
10									
15									
20									

Well Construction Information

Monument Type: NA
Casing Diameter (inches): NA
Screen Slot Size (inches): NA
Screened Interval (ft bgs): NA

Filter Pack: NA
Surface Seal: NA
Annular Seal: NA
Boring Abandonment: NA

Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): NA
Surveyed Location: **X:** NA **Y:** NA
Unique Well ID: NA

FARALLON CONSULTING

Log of Boring: FB-29

Client: Washin Murakami
Project: Morningside Acres
Location: 5001 Rainier Avenue S

Farallon PN: 1355-001

Logged By: Elise Bugge

Date/Time Started: 4/14/21 0905
Date/Time Completed: 4/14/21 1015
Equipment: GeoProbe Tractor Mount
Drilling Company: Cascade Drilling
Drilling Foreman: Tim Watson
Drilling Method: Direct Push

Sampler Type: 3' Macrocore
Drive Hammer (lbs.): Auto
Depth of Water ATD (ft bgs): ~3.0
Total Boring Depth (ft bgs): 12.5'
Total Well Depth (ft bgs): NA

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	% Recovery	PID (ppm)	Sample ID	Sample Analyzed
0		0.0-1.0': Cement.	Cement	100			
		1.0-5.0': Sandy SILT (70% silt, 30% sand), fine sand, greyish-brown, moist, no odor, no sheen.	ML		0.1	FB-29-2.0	
5		5.0-5.5': Silty SAND (60% sand, 30% silt, 10% gravel), fine sand, fine and coarse gravel, grey, wet, no odor, no sheen.	SM	50			
		5.5-6.0': No recovery.	SM	66	0.1	FB-29-6.0	
		6.0-8.0': Silty SAND (60% sand, 30% silt, 10% gravel), fine sand, fine and coarse gravel, grey, wet, no odor, no sheen.					
		8.0-9.0': No recovery.					
		9.0-12.0': silty SAND (80% sand, 20% silt), fine and coarse sand, grey, wet, no odor, no sheen.	SM	100	0.0	FB-29-10.0	
10		12.0-12.5': Well-graded GRAVEL with silt and sand (70% gravel, 20% sand, 10% silt), fine and coarse gravel, coarse sand, grey, wet, no odor, no sheen.	GW-GM	100	0.0	FB-29-12.5	
15							
20							

Bentonite

Water Level

Well Construction Information

Monument Type: NA
Casing Diameter (inches): NA
Screen Slot Size (inches): NA
Screened Interval (ft bgs): NA

Filter Pack: NA
Surface Seal: NA
Annular Seal: NA
Boring Abandonment: NA

Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): NA
Surveyed Location: **X:** NA **Y:** NA
Unique Well ID: NA

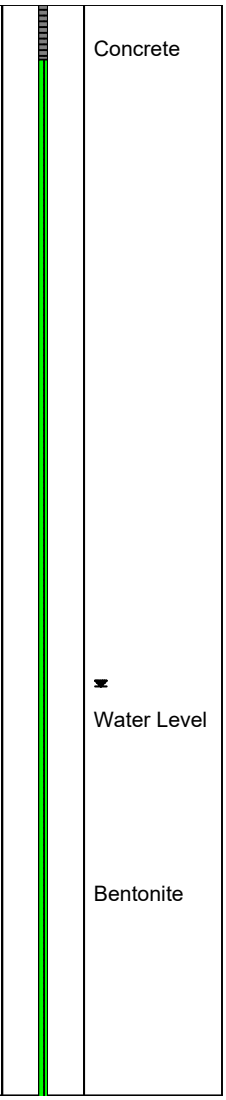
FARALLON CONSULTING

Log of Boring: FB-30

Client: Washin Murakami
Project: Morningside Acres Tract
Location: Seattle, WA
Farallon PN: 1355-001
Logged By: M. Ysaguirre
Reviewed By: Y. Pehlivan

Date/Time Started:	2/13/23 0840	**Depth to Water ATD (ft bgs):**	12.5
Date/Time Completed:	2/14/23 1600	**Boring Diameter (in):**	6.0
Drilling Company:	Holt	**Total Boring Depth (ft bgs):**	30.0
Drilling Method:	Sonic	**Constructed Well Depth (ft bgs):**	NA
Drilling Equipment:	TSI 150		
Drilling Operator:	Rodney LeBrosse Jr.		
Sampler Type:	5' Core Barrel		

Depth (ft bgs)	Sample Interval	Lithologic Description	USCS	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed
0		0.0-0.2': Asphalt. Clear to 5.0' bgs for utilities.	AC				
		0.2-5.4': Silty SAND (70% sand, 25% silt, 5% gravel), fine sand and gravel, dark gray, dry, petroleum-like odor.	SM	100	32.5	FB-30-2.5	
5				20	42.6	FB-30-5.0	X
		5.4-10.0': No recovery.					
10		10.0-14.0': Sandy SILT (60% silt, 30% sand, 10% gravel), fine sand and gravel, moderate plasticity, dark gray, wet, petroleum-like odor. Sheen present on water.	ML	100	55.3	FB-30-10.0	X
					20.3	FB-30-12.5	
		14.0-17.5': Silty GRAVEL (50% gravel, 40% silt, 10% sand), fine gravel and sand, dark gray, moist, dry at 16.0', no odor.	GM	100	0.5	FB-30-15.0-GW-021423	X
15		17.5-20.0': Silty SAND (50% sand, 40% silt, 10% gravel), fine sand and gravel, dark gray, dry, no odor.	SM		1.8		
20					1.1	FB-30-19.0	X



Well Construction Information

Monument Type:	NA	**Filter Pack:**	NA	**Ground Surface Elevation (ft):**	NA
Casing Diameter (in):	NA	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (in):	NA	**Annular Seal:**	NA	**Surveyed Location: X:** NA	**Y:** NA
Screened Interval (ft bgs):	NA	**Boring Abandonment:**	Bentonite	**Unique Well ID:** NA	

FARALLON CONSULTING

Log of Boring: FB-30

Client: Washin Murakami
Project: Morningside Acres Tract
Location: Seattle, WA
Farallon PN: 1355-001
Logged By: M. Ysaguirre
Reviewed By: Y. Pehlivan

Date/Time Started:	2/13/23 0840	**Depth to Water ATD (ft bgs):**	12.5
Date/Time Completed:	2/14/23 1600	**Boring Diameter (in):**	6.0
Drilling Company:	Holt	**Total Boring Depth (ft bgs):**	30.0
Drilling Method:	Sonic	**Constructed Well Depth (ft bgs):**	NA
Drilling Equipment:	TSI 150		
Drilling Operator:	Rodney LeBrosse Jr.		
Sampler Type:	5' Core Barrel		

Depth (ft bgs)	Sample Interval	Lithologic Description	USCS	USCS Graphic	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed	Boring/Well Construction Details
25		20.0-30.0': Silty SAND (50% sand, 40% silt, 10% gravel), fine sand and gravel, dark gray, dry, no odor.	SM		100	3.2			Bentonite
					100	3.0	FB-30-30.0-GW-021623		
30						2.6	FB-30-30.0	X	
35									
40									

Well Construction Information

Monument Type:	NA	**Filter Pack:**	NA	**Ground Surface Elevation (ft):**	NA
Casing Diameter (in):	NA	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (in):	NA	**Annular Seal:**	NA	**Surveyed Location: X:** NA	**Y:** NA
Screened Interval (ft bgs):	NA	**Boring Abandonment:**	Bentonite	**Unique Well ID:** NA	

FARALLON CONSULTING

Log of Boring: FB-31

Client: Washin Murakami
Project: Morningside Acres Tract
Location: Seattle, Washington

Farallon PN: 1355-001
Logged By: C. Van Stolk
Reviewed By: Y. Pehlivan

Date/Time Started:	7/13/23 1300	**Depth to Water ATD (ft bgs):**	14.2
Date/Time Completed:	7/13/23 1338	**Boring Diameter (in):**	2.0
Drilling Company:	Holt Services	**Total Boring Depth (ft bgs):**	20.0
Drilling Method:	Direct Push		
Drilling Equipment:	GP7822DT		
Drilling Operator:	Grady Green		
Sampler Type:	5' macrocore		

Depth (ft bgs)	Lithologic Description	USCS	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed
0	0.0 - 0.3': Asphalt.	AC				
	0.3 - 5.0': Sandy SILT, brown, gray, moist. Air knifed to 5.0' bgs.	ML				
5	5.0 - 10.0': SILT with sand (75% silt, 25% sand), fine to medium sand, gray, grayish brown and blueish gray, moist, organic odor, some organic material.	ML	100	1.3		
10	10.0 - 14.2': SILT (100% silt), gray with orange mottling to blueish gray, moist, organic odor, abundant organic material.	ML	100	1.1		
	14.2 - 15.0': Silty SAND with gravel (55% sand, 25% silt, 20% gravel), fine to medium sand, brownish gray, wet.	SM				
15	15.0 - 16.0': Silty SAND with gravel (60% sand, 20% silt, 20% gravel), fine to coarse sand, fine gravel, gray, wet.	SM	100	0.6		
	16.0 - 16.5': Poorly graded GRAVEL (100% gravel), fine gravel, gray, wet.	GP				
	16.5 - 20.0': Silty SAND (75% sand, 25% silt), fine to medium sand, gray, wet, no odor.	SM			FB-31-RGW	X
20				0.9		

Completion Information

Temporary Well Casing Diameter (in):	0.75	**Surface Seal:**	N/A
Temporary Well Screened Interval (ft bgs):	10.0 - 20.0	**Ground Surface Elevation (ft):**	N/A
Boring Abandonment:	Bentonite	**Surveyed Location:** **X:** N/A	**Y:** N/A

FARALLON CONSULTING

Log of Boring: FB-32

Client: Washin Murakami
Project: Morningside Acres Tract
Location: Seattle, Washington

Farallon PN: 1355-001
Logged By: C. Van Stolk
Reviewed By: Y. Pehlivan

Date/Time Started:	7/13/23 1135	**Depth to Water ATD (ft bgs):**	12.0
Date/Time Completed:	7/13/23 1200	**Boring Diameter (in):**	2.0
Drilling Company:	Holt Services	**Total Boring Depth (ft bgs):**	17.5
Drilling Method:	Direct Push		
Drilling Equipment:	GP7822DT		
Drilling Operator:	Grady Green		
Sampler Type:	5' macrocore		

Depth (ft bgs)	Lithologic Description	USCS	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed
0	0.0 - 0.3': Asphalt.	AC				
	0.3 - 5.0': Sandy SILT, brown, moist, wet at 3.5' bgs, petroleum-like odor. Air knifed to 5.0' bgs.	ML				
5	5.0 - 6.5': Sandy SILT with gravel (60% silt, 20% sand, 20% gravel), fine to coarse sand, gray, dry, petroleum-like odor, some organic material.	ML	30	417	FB-32-5.0	
	6.5 - 10.0': No Recovery.					
10	10.0 - 12.0': Sandy SILT with gravel (60% silt, 20% sand, 20% gravel), fine to coarse sand, gray, dry, strong petroleum-like odor, some organic material.	ML	100	328	FB-32-10.0	X
	12.0 - 13.0': SILT with sand (80% silt, 20% sand), fine to coarse sand, gray, wet, strong petroleum-like odor.	ML			FB-32-RGW	X
	13.0 - 14.0': Silty SAND with gravel (40% sand, 40% gravel, 20% silt), fine to coarse sand, fine and coarse gravel, brownish gray, wet, strong petroleum-like odor.	SM				
	14.0 - 15.0': Sandy SILT with gravel (60% silt, 20% sand, 20% gravel), fine to coarse sand, gray, dry, petroleum-like odor, some organic material.	ML				
15	15.0 - 17.5': Poorly graded GRAVEL with silt and sand (40% gravel, 30% silt, 30% sand), fine to coarse sand, fine and coarse gravel, dark brown, moist, petroleum-like odor.	GP	100	61.0	FB-32-15.0	
20						

Completion Information

Temporary Well Casing Diameter (in):	0.75	**Surface Seal:**	N/A
Temporary Well Screened Interval (ft bgs):	7.5 - 17.5	**Ground Surface Elevation (ft):**	N/A
Boring Abandonment:	Bentonite	**Surveyed Location:** **X:** N/A	**Y:** N/A

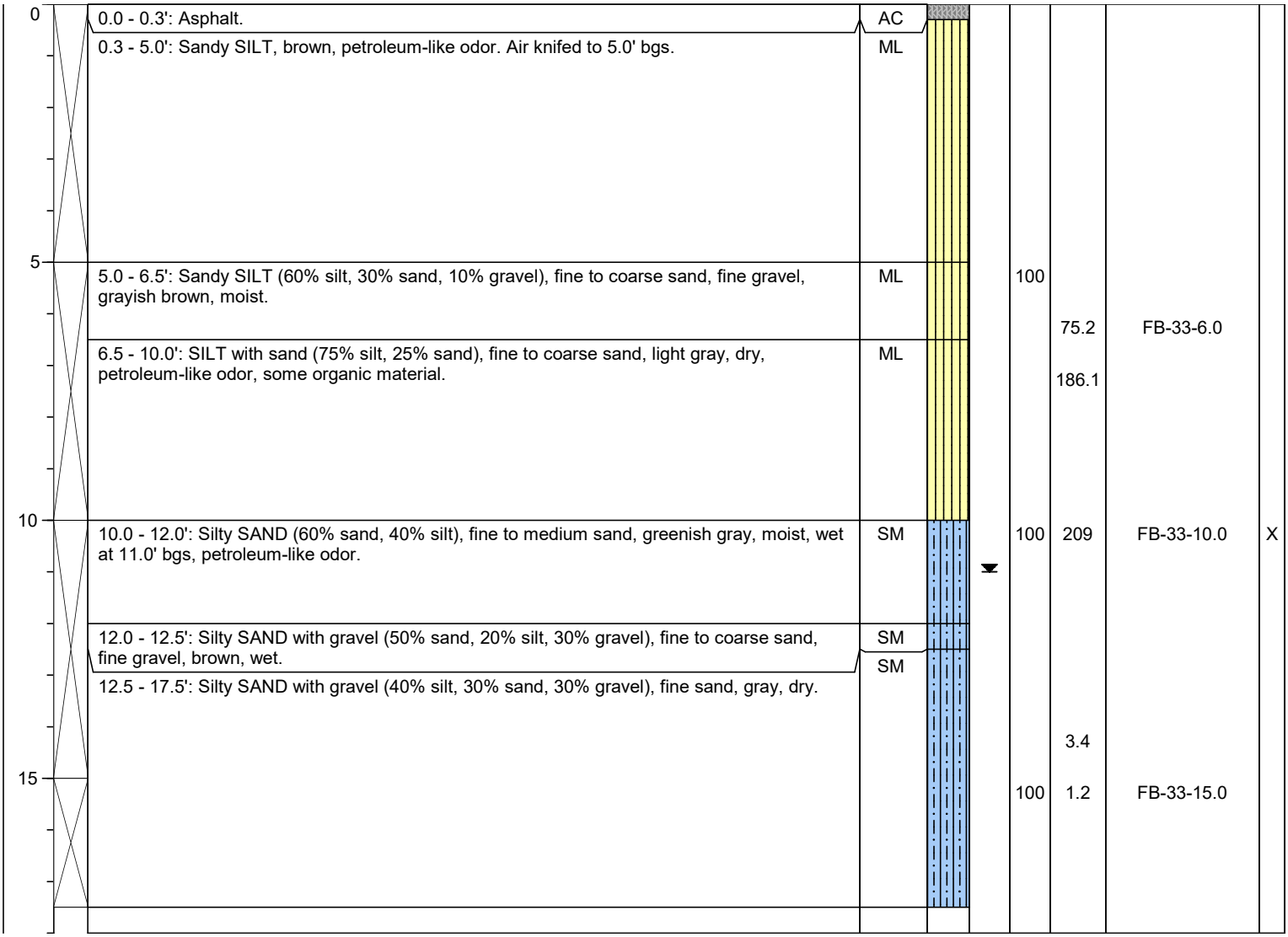
FARALLON CONSULTING

Log of Boring: FB-33

Client: Washin Murakami
Project: Morningside Acres Tract
Location: Seattle, Washington
Farallon PN: 1355-001
Logged By: C. Van Stolk
Reviewed By: Y. Pehlivan

Date/Time Started: 7/13/23 1044
Date/Time Completed: 7/13/23 1215
Drilling Company: Holt Services
Drilling Method: Direct Push
Drilling Equipment: GP7822DT
Drilling Operator: Grady Green
Sampler Type: 5' macrocore

Depth to Water ATD (ft bgs): 11.0
Boring Diameter (in): 2.0
Total Boring Depth (ft bgs): 17.5



Depth (ft bgs)	Sample Interval	Lithologic Description	USCS	USCS Graphic	Water Level	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed
0		0.0 - 0.3': Asphalt.	AC						
		0.3 - 5.0': Sandy SILT, brown, petroleum-like odor. Air knifed to 5.0' bgs.	ML						
5		5.0 - 6.5': Sandy SILT (60% silt, 30% sand, 10% gravel), fine to coarse sand, fine gravel, grayish brown, moist.	ML			100			
							75.2	FB-33-6.0	
		6.5 - 10.0': SILT with sand (75% silt, 25% sand), fine to coarse sand, light gray, dry, petroleum-like odor, some organic material.	ML				186.1		
10		10.0 - 12.0': Silty SAND (60% sand, 40% silt), fine to medium sand, greenish gray, moist, wet at 11.0' bgs, petroleum-like odor.	SM		▼	100	209	FB-33-10.0	X
		12.0 - 12.5': Silty SAND with gravel (50% sand, 20% silt, 30% gravel), fine to coarse sand, fine gravel, brown, wet.	SM						
		12.5 - 17.5': Silty SAND with gravel (40% silt, 30% sand, 30% gravel), fine sand, gray, dry.	SM				3.4		
15						100	1.2	FB-33-15.0	

Completion Information

Temporary Well Casing Diameter (in): N/A
Temporary Well Screened Interval (ft bgs): N/A
Boring Abandonment: Bentonite
Surface Seal: N/A
Ground Surface Elevation (ft): N/A
Surveyed Location: **X:** N/A **Y:** N/A

FARALLON CONSULTING

Log of Boring: FB-34

Client: Washin Murakami
Project: Morningside Acres Tract
Location: Seattle, Washington

Farallon PN: 1355-001
Logged By: C. Van Stolk
Reviewed By: Y. Pehlivan

Date/Time Started:	7/13/23 1530	**Depth to Water ATD (ft bgs):**	14.0
Date/Time Completed:	7/13/23 1555	**Boring Diameter (in):**	2.0
Drilling Company:	Holt Services	**Total Boring Depth (ft bgs):**	20.0
Drilling Method:	Direct Push		
Drilling Equipment:	GP7822DT		
Drilling Operator:	Grady Green		
Sampler Type:	5' macrocore		

Depth (ft bgs)	Lithologic Description	USCS	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed
0	0.0 - 0.2': Landscape topsoil.	TOP SOIL				
	0.2 - 5.0': Sandy SILT (80% silt, 20% sand), fine to coarse sand, tan, dry, slight petroleum-like odor. Air knifed to 5.0' bgs.	ML				
5	5.0 - 7.0': SILT (90% silt, 10% sand), fine to medium sand, gray with orange mottling, moist, some organic material.	ML	100		FB-34-8.0	
	7.0 - 8.3': Sandy SILT with gravel (65% silt, 20% sand, 15% gravel), fine to coarse sand, fine and coarse gravel, dark brown, moist, perched water at 8.0' bgs.	ML		0.6		
	8.3 - 10.0': SILT (90% silt, 10% sand), fine to medium sand, gray with orange mottling, moist, some organic material.	ML				
10	10.0 - 13.5': SILT (90% silt, 10% sand), fine to medium sand, gray with orange mottling, moist, some organic material.	ML	100	0.7	FB-34-10.0	X
	13.5 - 15.0': Silty SAND with gravel (50% sand, 20% silt, 30% gravel), fine to coarse sand, fine and coarse gravel, brown, moist, wet at 14.0' bgs.	SM				
15	15.0 - 20.0': Well graded GRAVEL with sand (70% gravel, 30% sand), fine to coarse sand, fine and coarse gravel, dark gray, wet, no odor, trace silt.	GW	100	0.7	FB-34-15.0	
					FB-34-RGW	X
20						

Completion Information

Temporary Well Casing Diameter (in):	0.75	**Surface Seal:**	N/A
Temporary Well Screened Interval (ft bgs):	10.0 - 20.0	**Ground Surface Elevation (ft):**	N/A
Boring Abandonment:	Bentonite	**Surveyed Location:** **X:** N/A	**Y:** N/A

Log of Boring: FB-35

Client:	Washin Murakami
Project:	Morningside Acres Tract
Location:	Seattle, Washington
Farallon PN:	1355-001
Logged By:	C. Van Stolk
Reviewed By:	Y. Pehlivan

Date/Time Started:	7/14/23 1620	**Depth to Water ATD (ft):**	5.6
Date/Time Completed:	7/14/23 1700	**Boring Diameter (in):**	2.0
Drilling Company:	Holt Services	**Total Boring Length (ft):**	15.0
Drilling Method:	Direct Push	**Bearing (degrees):**	100
Drilling Equipment:	GP 7822DT	**Angle From Vertical (degrees):**	32.5
Drilling Operator:	Grady Green		
Sampler Type:	5' macrocore		

Linear feet Logged	Vertical Depth (ft bgs)	Sample Interval	Lithologic Description	USCS	USCS Graphic	Water Level	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed
0	0		0.0 - 1.0': Concrete.				50			
			1.0 - 3.6': Silty SAND (65% sand, 25% silt, 10% gravel), fine to coarse sand, fine gravel, brown, moist, no odor.	SM						
			3.6 - 5.0': No Recovery.							
5	5		5.0 - 6.0': SILT (100% silt), gray, moist.	ML		▼	80			
			6.0 - 8.2': Well graded SAND (90% sand, 10% silt), fine to medium sand, gray with orange mottling, moist, wet at 5.6' bgs.	SW				0.7	FB-35-6.0	X
			8.2 - 9.3': Silty SAND (85% sand, 15% silt), fine sand, gray, moist, no odor.	SM						
			9.3 - 10.0': No Recovery.							
10	10		10.0 - 12.9': Silty SAND (70% sand, 30% silt), fine sand, gray, moist.	SM			80	0.9	FB-35-10.0	X
								0.3	FB-35-11.5	X
			12.9 - 14.4': SILT with sand (85% silt, 15% sand), fine sand, gray, dry.	ML						
			14.4 - 15.0': No Recovery. Refusal at 15' bgs due to hard silt.							
15										

Completion Information

Temporary Well Casing Diameter (in):	N/A	**Surface Seal:**	N/A
Temporary Well Screened Interval (ft):	N/A	**Ground Surface Elevation (ft):**	N/A
Boring Abandonment:	N/A	**Surveyed Location:** **X:** N/A	**Y:** N/A

FARALLON CONSULTING

Log of Boring: FB-36

Client: Washin Murakami
Project: Morningside Acres Tract
Location: Seattle, Washington
Farallon PN: 1355-001
Logged By: C. Van Stolk
Reviewed By: Y. Pehlivan

Date/Time Started: 7/14/23 1417
Date/Time Completed: 7/14/23 1440
Drilling Company: Holt Services
Drilling Method: Direct Push
Drilling Equipment: GP7822DT
Drilling Operator: Grady Green
Sampler Type: 5' macrocore

Depth to Water ATD (ft bgs): 13.0
Boring Diameter (in): 2.0
Total Boring Depth (ft bgs): 20.0

Depth (ft bgs)	Lithologic Description	USCS	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed
0	0.0 - 0.3': Asphalt.	AC				
	0.3 - 5.0': Silty SAND with gravel, brown, moist, no odor. Air knifed to 5.0' bgs.	SM				
5	5.0 - 6.8': Silty SAND with gravel (55% sand, 25% silt, 20% gravel), fine gravel, brown, moist. Charcoal debris present.	SM	70			
	6.8 - 7.5': Sandy SILT (65% silt, 35% sand), dark brown, moist, organic odor.	ML		2.6	FB-36-7.0	
	7.5 - 8.5': SILT (100% silt), gray, dry.	ML				
	8.5 - 10.0': No Recovery.					
10	10.0 - 11.5': Sandy SILT (65% silt, 35% sand), fine to medium sand, greenish gray, moist, some organic material.	ML	80	0.8	FB-36-10.0	
	11.5 - 12.0': Silty SAND (70% sand, 30% silt), fine to medium sand, brown, moist.	SM				
	12.0 - 14.0': SILT (100% silt), gray, moist, wet at 13.0' bgs.	ML		0.4	FB-36-13.0	X
	14.0 - 15.0': No Recovery.					
15	15.0 - 16.2': SILT (100% silt), gray, wet.	ML	100			
	16.2 - 20.0': Silty GRAVEL with sand (50% gravel, 25% silt, 25% sand), fine to coarse sand, fine and coarse gravel, gray, wet, dry at 19.0' bgs.	GM		1.0	FB-36-18.0	X
20						

Completion Information

Temporary Well Casing Diameter (in): N/A
Temporary Well Screened Interval (ft bgs): N/A
Boring Abandonment: Bentonite
Surface Seal: N/A
Ground Surface Elevation (ft): N/A
Surveyed Location: **X:** N/A **Y:** N/A

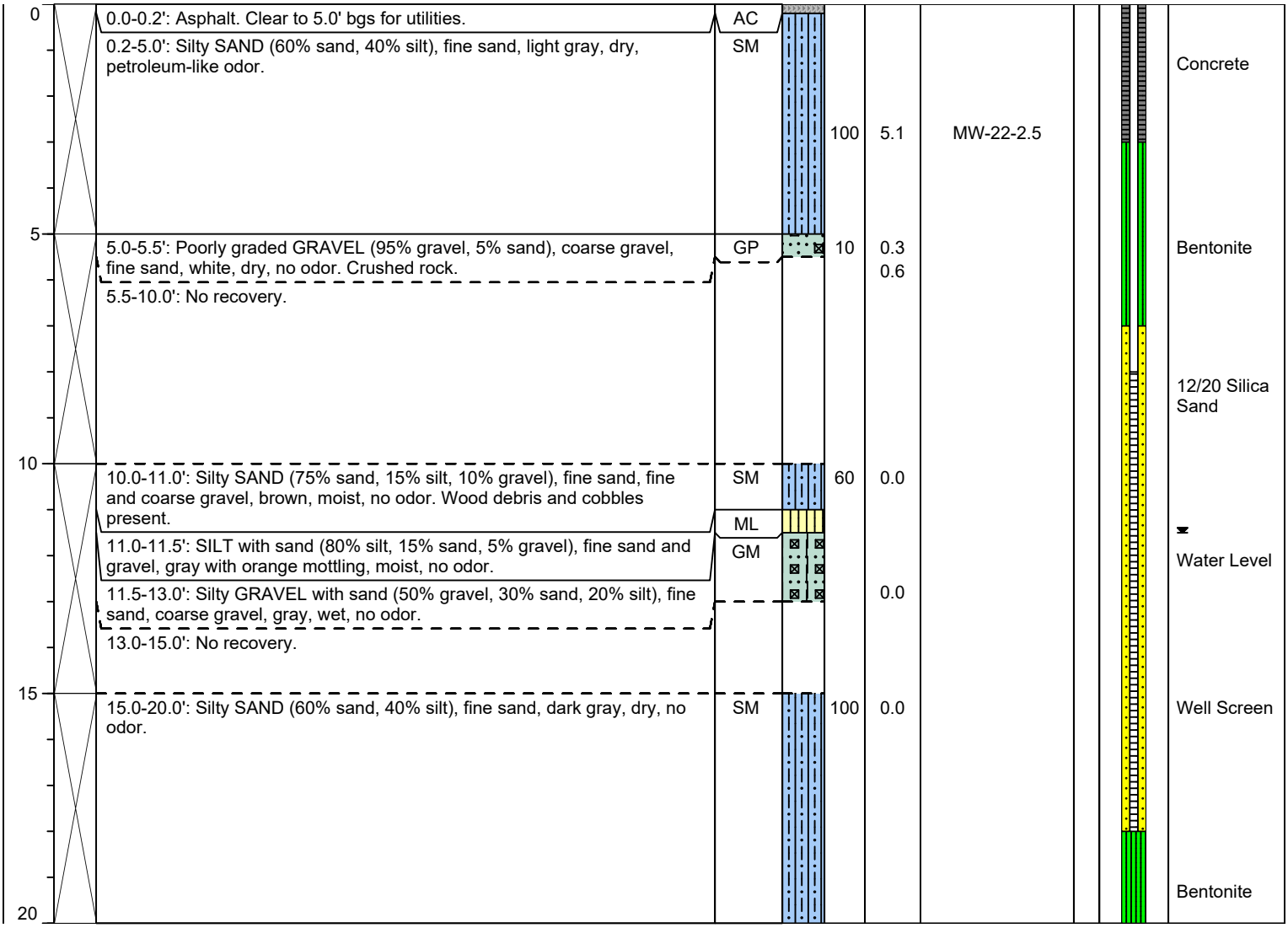
FARALLON CONSULTING

Log of Boring: MW-22

Client: Washin Murakami
Project: Morningside Acres Tract
Location: Seattle, WA
Farallon PN: 1355-001
Logged By: M. Ysaguirre
Reviewed By: Y. Pehlivan

Date/Time Started:	2/13/23 0915	**Depth to Water ATD (ft bgs):**	11.5
Date/Time Completed:	2/13/23 1510	**Boring Diameter (in):**	6.0
Drilling Company:	Holt	**Total Boring Depth (ft bgs):**	20.0
Drilling Method:	Sonic	**Constructed Well Depth (ft bgs):**	18.0
Drilling Equipment:	TSI 150		
Drilling Operator:	Rodney LeBrosse Jr.		
Sampler Type:	5' Core Barrel		

Depth (ft bgs)	Sample Interval	Lithologic Description	USCS	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed
0		0.0-0.2': Asphalt. Clear to 5.0' bgs for utilities.	AC				
		0.2-5.0': Silty SAND (60% sand, 40% silt), fine sand, light gray, dry, petroleum-like odor.	SM	100	5.1	MW-22-2.5	
5		5.0-5.5': Poorly graded GRAVEL (95% gravel, 5% sand), coarse gravel, fine sand, white, dry, no odor. Crushed rock.	GP	10	0.3		
		5.5-10.0': No recovery.			0.6		
10		10.0-11.0': Silty SAND (75% sand, 15% silt, 10% gravel), fine sand, fine and coarse gravel, brown, moist, no odor. Wood debris and cobbles present.	SM	60	0.0		
		11.0-11.5': SILT with sand (80% silt, 15% sand, 5% gravel), fine sand and gravel, gray with orange mottling, moist, no odor.	ML / GM				
		11.5-13.0': Silty GRAVEL with sand (50% gravel, 30% sand, 20% silt), fine sand, coarse gravel, gray, wet, no odor.			0.0		
		13.0-15.0': No recovery.					
15		15.0-20.0': Silty SAND (60% sand, 40% silt), fine sand, dark gray, dry, no odor.	SM	100	0.0		
20							



Well Construction Information

Monument Type:	Flush Mount	**Filter Pack:**	12/20 Silica Sand	**Ground Surface Elevation (ft):**	NA
Casing Diameter (in):	2.0	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (in):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location:**	**X:** 1282022.68 **Y:** 206449.02
Screened Interval (ft bgs):	8.0-18.0	**Boring Abandonment:**	NA	**Unique Well ID:**	NA

FARALLON CONSULTING

Log of Boring: MW-23

Client: Washin Murakami
Project: Morningside Acres Tract
Location: Seattle, WA
Farallon PN: 1355-001
Logged By: M. Ysaguirre
Reviewed By: Y. Pehlivan

Date/Time Started:	2/13/23 0940	**Depth to Water ATD (ft bgs):**	5.0
Date/Time Completed:	2/15/23 1355	**Boring Diameter (in):**	6.0
Drilling Company:	Holt	**Total Boring Depth (ft bgs):**	50.0
Drilling Method:	Sonic	**Constructed Well Depth (ft bgs):**	48.0
Drilling Equipment:	TSI 150		
Drilling Operator:	Rodney LeBrosse Jr.		
Sampler Type:	5' Core Barrel		

Depth (ft bgs)	Sample Interval	Lithologic Description	USCS	USCS Graphic	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0.0-0.2': Asphalt. Clear to 5.0' bgs for utilities.	AC						Concrete
		0.0 - 2.5': No recovery.							
		2.5-5.0': Poorly graded SAND with silt (90% sand, 10% silt), fine sand, dark brown, dry, no odor.	SP-SM						
5		5.0-7.0': Silty SAND (80% sand, 15% silt, 5% gravel), fine sand, fine and coarse gravel, brown, wet, no odor.	SM		80	0.8			Water Level
		7.0-9.0': Sandy SILT (70% silt, 25% sand, 5% gravel), fine sand and gravel, dark gray, dry, no odor.	ML			0.3			
		9.0-10.0': No recovery.							
10		10.0-11.0': Silty SAND (75% sand, 15% silt, 10% gravel), fine sand, fine and coarse gravel, brown, moist, no odor. Wood debris present.	SM		100	1.7	MW-23-10.0	X	
		11.0-11.5': SILT with sand (80% silt, 15% sand, 5% gravel), fine sand, coarse gravel, gray with orange mottling, moist, no odor.	ML						
		11.5-12.5': Silty GRAVEL with sand (50% gravel, 30% sand, 20% silt), coarse gravel, fine sand, gray, wet, no odor.	GM			0.5			Bentonite
		12.5-15.0': SILT (100% silt), dark gray, wet, faint petroleum-like odor.	ML						
15		15.0-20.0': Silty SAND with gravel (50% sand, 30% silt, 20% gravel), fine sand, fine and coarse gravel, gray, dry, no odor.	SM		100	20.5	MW-23-15.0	X	
						3.1			
20									

Well Construction Information

Monument Type:	Flush Mount	**Filter Pack:**	12/20 Silica Sand	**Ground Surface Elevation (ft):**	NA
Casing Diameter (in):	2.0	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (in):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location:**	**X:** 1282022.93 **Y:** 206453.44
Screened Interval (ft bgs):	38.0-48.0	**Boring Abandonment:**	NA	**Unique Well ID:**	NA

FARALLON CONSULTING

Log of Boring: MW-23

Client: Washin Murakami
Project: Morningside Acres Tract
Location: Seattle, WA
Farallon PN: 1355-001
Logged By: M. Ysaguirre
Reviewed By: Y. Pehlivan

Date/Time Started:	2/13/23 0940	**Depth to Water ATD (ft bgs):**	5.0
Date/Time Completed:	2/15/23 1355	**Boring Diameter (in):**	6.0
Drilling Company:	Holt	**Total Boring Depth (ft bgs):**	50.0
Drilling Method:	Sonic	**Constructed Well Depth (ft bgs):**	48.0
Drilling Equipment:	TSI 150		
Drilling Operator:	Rodney LeBrosse Jr.		
Sampler Type:	5' Core Barrel		

Depth (ft bgs)	Lithologic Description	USCS	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed
	20.0-20.5': Poorly graded SAND with gravel (80% sand, 20% gravel), fine sand, fine and coarse gravel, white, dry, no odor. Cobbles present.	SP	100	1.4	MW-23-20.0	X
	20.5-35.0': Silty SAND with gravel (50% sand, 30% silt, 20% gravel), fine sand, coarse gravel, dark gray, dry, no odor.	SM		3.3		
25			100	7.3		
				1.6		
30			100	2.0	MW-23-30.0	X
				5.8		
35	35.0-44.0': Sandy SILT (60% silt, 30% sand, 10% gravel), fine sand and gravel, low plasticity, gray, dry, no odor.	ML	100	2.6		
40						

Boring/Well Construction Details: Bentonite; 12/20 Silica Sand; Well Screen

Well Construction Information

Monument Type:	Flush Mount	**Filter Pack:**	12/20 Silica Sand	**Ground Surface Elevation (ft):**	NA
Casing Diameter (in):	2.0	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (in):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location:**	**X:** 1282022.93 **Y:** 206453.44
Screened Interval (ft bgs):	38.0-48.0	**Boring Abandonment:**	NA	**Unique Well ID:**	NA

FARALLON CONSULTING

Log of Boring: MW-23

Client: Washin Murakami
Project: Morningside Acres Tract
Location: Seattle, WA
Farallon PN: 1355-001
Logged By: M. Ysaguirre
Reviewed By: Y. Pehlivan

Date/Time Started:	2/13/23 0940	**Depth to Water ATD (ft bgs):**	5.0
Date/Time Completed:	2/15/23 1355	**Boring Diameter (in):**	6.0
Drilling Company:	Holt	**Total Boring Depth (ft bgs):**	50.0
Drilling Method:	Sonic	**Constructed Well Depth (ft bgs):**	48.0
Drilling Equipment:	TSI 150		
Drilling Operator:	Rodney LeBrosse Jr.		
Sampler Type:	5' Core Barrel		

Depth (ft bgs)	Sample Interval	Lithologic Description	USCS	USCS Graphic	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed	Boring/Well Construction Details
					75	4.6	MW-23-40.0		Well Screen
		44.0-45.0': No recovery.							
45		45.0-46.5': Sandy SILT (60% silt, 30% sand, 10% gravel), fine sand and gravel, low plasticity, gray, dry, no odor.	ML		75	15.9	MW-23-45.0	X	
		46.5-49.0': Sandy SILT (60% silt, 40% sand), fine sand, dark gray, dry, no odor.	ML						
		49.0-50.0': No recovery.							
50						0.0	MW-23-50.0	X	
55									
60									

Well Construction Information

Monument Type:	Flush Mount	**Filter Pack:**	12/20 Silica Sand	**Ground Surface Elevation (ft):**	NA
Casing Diameter (in):	2.0	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (in):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location: X:** 1282022.93	**Y:** 206453.44
Screened Interval (ft bgs):	38.0-48.0	**Boring Abandonment:**	NA	**Unique Well ID:**	NA

Log of Boring: MW-24

Client:	Washin Murakami
Project:	Morningside Acres Tract
Location:	Seattle, WA
Farallon PN:	1355-001
Logged By:	M. Ysaguirre
Reviewed By:	Y. Pehlivan

Date/Time Started:	2/13/23 0840	**Depth to Water ATD (ft bgs):**	12.5
Date/Time Completed:	2/16/23 1125	**Boring Diameter (in):**	6.0
Drilling Company:	Holt	**Total Boring Depth (ft bgs):**	45.0
Drilling Method:	Sonic	**Constructed Well Depth (ft bgs):**	45.0
Drilling Equipment:	TSI 150		
Drilling Operator:	Rodney LeBrosse Jr.		
Sampler Type:	5' Core Barrel		

Depth (ft bgs)	Sample Interval	Lithologic Description	USCS	USCS Graphic	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0.0-0.2': Asphalt. Clear to 5.0' bgs for utilities. Not logged between 0 to 30 feet bgs due to proximity to boring FB-30.	AC						Concrete
5									Bentonite
10									Water Level
15									Bentonite
20									

Well Construction Information

Monument Type:	Flush Mount	**Filter Pack:**	12/20 Silica Sand	**Ground Surface Elevation (ft):**	NA
Casing Diameter (in):	2.0	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (in):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location:**	**X:** 1282070.30 **Y:** 206450.60
Screened Interval (ft bgs):	35.0-45.0	**Boring Abandonment:**	NA	**Unique Well ID:**	NA

Log of Boring: MW-24

Client: Washin Murakami
Project: Morningside Acres Tract
Location: Seattle, WA
Farallon PN: 1355-001
Logged By: M. Ysaguirre
Reviewed By: Y. Pehlivan

Date/Time Started:	2/13/23 0840	**Depth to Water ATD (ft bgs):**	12.5
Date/Time Completed:	2/16/23 1125	**Boring Diameter (in):**	6.0
Drilling Company:	Holt	**Total Boring Depth (ft bgs):**	45.0
Drilling Method:	Sonic	**Constructed Well Depth (ft bgs):**	45.0
Drilling Equipment:	TSI 150		
Drilling Operator:	Rodney LeBrosse Jr.		
Sampler Type:	5' Core Barrel		

Depth (ft bgs)	Sample Interval	Lithologic Description	USCS	USCS Graphic	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed	Boring/Well Construction Details
25									Bentonite
30		30.0-40.0': Sandy SILT (60% silt, 35% sand, 5% gravel), fine to medium sand, fine gravel, moderate plasticity, gray, no odor.	ML		100	2.6	FB-30-30.0		
35					100	0.3			12/20 Silica Sand Well Screen
40									

Well Construction Information

Monument Type:	Flush Mount	**Filter Pack:**	12/20 Silica Sand	**Ground Surface Elevation (ft):**	NA
Casing Diameter (in):	2.0	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (in):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location:**	**X:** 1282070.30 **Y:** 206450.60
Screened Interval (ft bgs):	35.0-45.0	**Boring Abandonment:**	NA	**Unique Well ID:**	NA

FARALLON CONSULTING

Log of Boring: MW-24

Client: Washin Murakami
Project: Morningside Acres Tract
Location: Seattle, WA
Farallon PN: 1355-001
Logged By: M. Ysaguirre
Reviewed By: Y. Pehlivan

Date/Time Started:	2/13/23 0840	**Depth to Water ATD (ft bgs):**	12.5
Date/Time Completed:	2/16/23 1125	**Boring Diameter (in):**	6.0
Drilling Company:	Holt	**Total Boring Depth (ft bgs):**	45.0
Drilling Method:	Sonic	**Constructed Well Depth (ft bgs):**	45.0
Drilling Equipment:	TSI 150		
Drilling Operator:	Rodney LeBrosse Jr.		
Sampler Type:	5' Core Barrel		

Depth (ft bgs)	Sample Interval	Lithologic Description	USCS	USCS Graphic	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed	Boring/Well Construction Details
45		40.0-42.0': Silty SAND with gravel (40% sand, 40% silt, 20% gravel), fine to coarse sand and gravel, gray, dry, no odor.	SM		100	0.0	FB-30-40.0	X	Well Screen
		42.0-45.0': Silty SAND (50% sand, 45% silt, 5% gravel), fine to coarse sand, fine gravel, dark gray, dry, no odor.	SM			0.0	FB-30-45.0	X	
50									
55									
60									

Well Construction Information

Monument Type:	Flush Mount	**Filter Pack:**	12/20 Silica Sand	**Ground Surface Elevation (ft):**	NA
Casing Diameter (in):	2.0	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (in):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location: X:** 1282070.30	**Y:** 206450.60
Screened Interval (ft bgs):	35.0-45.0	**Boring Abandonment:**	NA	**Unique Well ID:**	NA

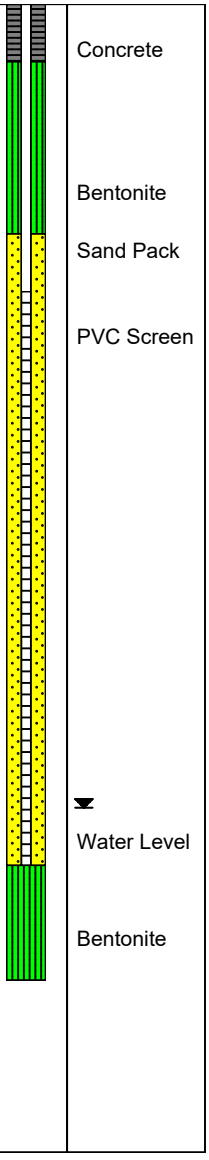
FARALLON CONSULTING

Log of Boring: MW-25

Client: Washin Murakami
Project: Morningside Acres Tract
Location: Seattle, Washington
Farallon PN: 1355-001
Logged By: C. Van Stolk
Reviewed By: Y. Pehlivan

Date/Time Started:	7/14/23 1110	**Depth to Water ATD (ft bgs):**	14.0
Date/Time Completed:	7/14/23 1138	**Boring Diameter (in):**	3.0
Drilling Company:	Holt Services	**Total Boring Depth (ft bgs):**	17.0
Drilling Method:	Direct Push	**Constructed Well Depth (ft bgs):**	15.0
Drilling Equipment:	GP7822DT		
Drilling Operator:	Grady Green		
Sampler Type:	5' macrocore		

Depth (ft bgs)	Sample Interval	Lithologic Description	USCS	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed
0		0.0 - 5.0': Silty SAND, brown, moist, some roots and organic material. Air knifed to 5.0' bgs.	SM				
5		5.0 - 6.8': Sandy SILT (80% silt, 20% sand), fine to medium sand, gray, brown, and black, moist, some organic material and wood debris.	ML	80	0.2	MW-25-5.0	X
		6.8 - 9.0': SILT (100% silt), gray, moist, some organic material.	ML				
		9.0 - 10.0': No Recovery.					
10		10.0 - 13.9': Silty SAND with gravel (40% sand, 30% gravel, 30% silt), fine to coarse sand, fine and coarse gravel, gray with orange-brown mottling, moist.	SM	100	29.4	MW-25-10.0	X
		13.9 - 15.0': Silty SAND (60% sand, 30% silt, 10% gravel), fine to medium sand, fine gravel, gray, wet.	SM		0.1		
15		15.0 - 15.6': Sandy SILT with gravel (50% silt, 30% sand, 20% gravel), fine to medium sand, fine gravel, dark gray, moist.	ML	100		MW-25-15.0	X
		15.6 - 17.0': SILT (100% silt), gray, dry. Refusal at 17.0' bgs.	ML				
					0.1	MW-25-17.0	X
20							



Well Construction Information

Monument Type:	Flush Mount	**Filter Pack:**	10/20 Sand	**Ground Surface Elevation (ft):**	N/A
Casing Diameter (in):	2.0	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	115.09
Screen Slot Size (in):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location: X:** N/A	**Y:** N/A
Screened Interval (ft bgs):	5.0 - 15.0	**Boring Abandonment:**	N/A	**Unique Well ID:**	BPL 565

FARALLON CONSULTING

Log of Boring: MW-26

Client: Washin Murakami
Project: Morningside Acres Tract
Location: Seattle, Washington
Farallon PN: 1355-001
Logged By: M. H. Nelson
Reviewed By: Y. Pehlivan

Date/Time Started:	7/17/23 1200	**Depth to Water ATD (ft bgs):**	4.0
Date/Time Completed:	7/18/23 1032	**Boring Diameter (in):**	8.0
Drilling Company:	Cascade	**Total Boring Depth (ft bgs):**	45.0
Drilling Method:	Hollow Stem Auger	**Constructed Well Depth (ft bgs):**	45.0
Drilling Equipment:	CME55		
Drilling Operator:	Wesley Kennedy		
Sampler Type:	18" Split Spoon		
Drive Hammer (lbs):	145		

Depth (ft bgs)	Sample Interval	Lithologic Description	USCS	USCS Graphic	Blow Counts	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0.0 - 0.3': Concrete.	AC			100				Concrete
		0.3 - 5.0': Silty SAND (50% sand, 40% silt, 10% gravel), medium sand, fine gravel, brown, dry, no odor. Air knifed to 5.0' bgs.	SM							Water Level
5								MW-26-5.0		Bentonite
										Blank Casing
10		10.0 - 11.0': Sandy SILT (65% silt, 25% sand, 10% gravel), fine to medium sand, fine gravel, brown, moist, faint odor.	ML		31 50/6	66		MW-26-10.0	X	
		11.0 - 11.5': No Recovery.								
15		15.0 - 16.5': Sandy SILT (50% silt, 50% sand), fine to medium sand, gray, wet, no odor, no staining.	ML		22 25 28	100		MW-26-15.0	X	
20										

Well Construction Information

Monument Type:	Flush Mount	**Filter Pack:**	10/20 Sand	**Ground Surface Elevation (ft):**	N/A
Casing Diameter (in):	2.0	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	N/A
Screen Slot Size (in):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location: X:** N/A	**Y:** N/A
Screened Interval (ft bgs):	35.0 - 45.0	**Boring Abandonment:**	N/A	**Unique Well ID:**	BPR 414

FARALLON CONSULTING

Log of Boring: MW-26

Client: Washin Murakami
Project: Morningside Acres Tract
Location: Seattle, Washington
Farallon PN: 1355-001
Logged By: M. H. Nelson
Reviewed By: Y. Pehlivan

Date/Time Started:	7/17/23 1200	**Depth to Water ATD (ft bgs):**	4.0
Date/Time Completed:	7/18/23 1032	**Boring Diameter (in):**	8.0
Drilling Company:	Cascade	**Total Boring Depth (ft bgs):**	45.0
Drilling Method:	Hollow Stem Auger	**Constructed Well Depth (ft bgs):**	45.0
Drilling Equipment:	CME55		
Drilling Operator:	Wesley Kennedy		
Sampler Type:	18" Split Spoon		
Drive Hammer (lbs):	145		

Depth (ft bgs)	Lithologic Description	USCS	Blow Counts	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed
	20.0 - 20.5': Sandy SILT (50% silt, 50% sand), fine to medium sand, gray, wet, no odor, no staining.	ML	50/4	33			
	20.5 - 21.5': No Recovery.						
25	25.0 - 26.0': Sandy SILT (50% silt, 50% sand), fine to medium sand, gray, wet, no odor, no staining	ML	47 50/6	60		MW-26-25.0	X
	26.0 - 26.5': No Recovery.						
30	30.0 - 31.0': Sandy SILT (50% silt, 50% sand), fine to medium sand, gray, wet, no odor, no staining	ML	100/ 6	60			
	31.0 - 31.5': No Recovery.						
35	35.0 - 35.5': SILT (95% silt, 5% sand), gray, low plasticity, dry, no odor.	ML	100/ 6	30		MW-26-35.0	X
	35.5 - 36.5': No Recovery.						
40							

Boring/Well Construction Details: Bentonite; Blank Casing; Sand Pack; PVC Screen

Well Construction Information

Monument Type:	Flush Mount	**Filter Pack:**	10/20 Sand	**Ground Surface Elevation (ft):**	N/A
Casing Diameter (in):	2.0	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	N/A
Screen Slot Size (in):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location: X:** N/A	**Y:** N/A
Screened Interval (ft bgs):	35.0 - 45.0	**Boring Abandonment:**	N/A	**Unique Well ID:**	BPR 414

FARALLON CONSULTING

Log of Boring: MW-26

Client: Washin Murakami
Project: Morningside Acres Tract
Location: Seattle, Washington
Farallon PN: 1355-001
Logged By: M. H. Nelson
Reviewed By: Y. Pehlivan

Date/Time Started:	7/17/23 1200	**Depth to Water ATD (ft bgs):**	4.0
Date/Time Completed:	7/18/23 1032	**Boring Diameter (in):**	8.0
Drilling Company:	Cascade	**Total Boring Depth (ft bgs):**	45.0
Drilling Method:	Hollow Stem Auger	**Constructed Well Depth (ft bgs):**	45.0
Drilling Equipment:	CME55		
Drilling Operator:	Wesley Kennedy		
Sampler Type:	18" Split Spoon		
Drive Hammer (lbs):	145		

Depth (ft bgs)	Sample Interval	Lithologic Description	USCS	USCS Graphic	Blow Counts	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed	Boring/Well Construction Details
		40.0 - 40.8': SILT with sand (85% silt, 15% sand), fine sand, gray, dry, faint odor.	ML		100/6	50				Sand Pack
		40.8 - 41.5': No Recovery.								PVC Screen
45		45.0 - 45.5': SILT (100% silt), gray, low plastcity, dry, moderate odor.	ML			33				Bentonite
		45.5 - 46.5': No Recovery.								
50										
55										
60										

Well Construction Information

Monument Type:	Flush Mount	**Filter Pack:**	10/20 Sand	**Ground Surface Elevation (ft):**	N/A
Casing Diameter (in):	2.0	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	N/A
Screen Slot Size (in):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location: X:** N/A	**Y:** N/A
Screened Interval (ft bgs):	35.0 - 45.0	**Boring Abandonment:**	N/A	**Unique Well ID:** BPR 414	

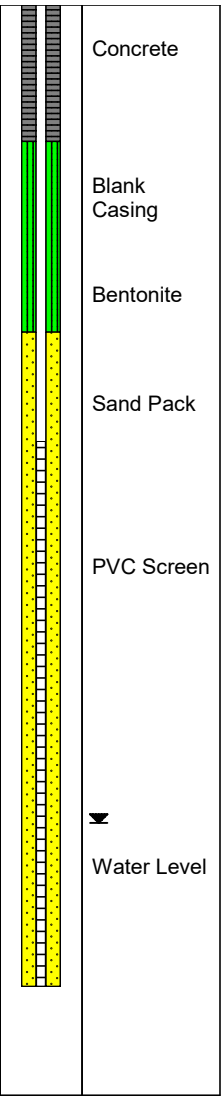
FARALLON CONSULTING

Log of Boring: MW-27

Client: Washin Murakami
Project: Morningside Acres Tract
Location: Seattle, Washington
Farallon PN: 1355-001
Logged By: M. H. Nelson
Reviewed By: Y. Pehlivan

Date/Time Started:	7/17/23 1055	**Depth to Water ATD (ft bgs):**	15.0
Date/Time Completed:	7/17/23 1609	**Boring Diameter (in):**	8.0
Drilling Company:	Holt Services	**Total Boring Depth (ft bgs):**	18.0
Drilling Method:	Hollow Stem Auger	**Constructed Well Depth (ft bgs):**	18.0
Drilling Equipment:	CME55		
Drilling Operator:	Wesley Kennedy		
Sampler Type:	18" Split Spoon		
Drive Hammer (lbs):	140		

Depth (ft bgs)	Lithologic Description	USCS	Blow Counts	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed
0	0.0 - 0.3': Concrete	CO					
	0.3 - 5.0': Air knifed to 5.0' bgs. Poorly graded SAND (95% sand, 5% silt), medium sand, brown dry, no odor.	SP					
5					7.8		
10	10.0 - 11.3': SILT with sand (75% silt, 10% sand, 5% gravel), dark brown with gray and black staining, dry, faint petroleum-like odor.	ML	38 50/6	100	2.8		
	11.3 - 11.5': No Recovery.						
15	15.0 - 16.0': Poorly graded SAND with SILT (90% sand, 10% silt), gray, wet, no odor.	SP-SM	21 24 27	100	0.4		
	16.0 - 16.5': No Recovery.						
	18.0 - 18.5': SILT (100% silt), gray, dry, no odor.	ML	50/6	100	2.8		
20							



Well Construction Information

Monument Type:	Flush Mount	**Filter Pack:**	10/20 Sand	**Ground Surface Elevation (ft):**	N/A
Casing Diameter (in):	2.0	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	114.88
Screen Slot Size (in):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location: X:** N/A	**Y:** N/A
Screened Interval (ft bgs):	8.0 - 18.0	**Boring Abandonment:**	N/A	**Unique Well ID:**	BPR-413

APPENDIX B
TERRESTRIAL ECOLOGICAL EVALUATION FORM

FINAL REMEDIAL INVESTIGATION AND FEASIBILITY STUDY REPORT
AND DRAFT CLEANUP ACTION PLAN
Morningside Acres Tracts
5001, 5015, and 5021 Rainier Avenue South
Seattle, Washington

Farallon PN: 1355-001

Voluntary Cleanup Program

Washington State Department of Ecology
Toxics Cleanup Program

TERRESTRIAL ECOLOGICAL EVALUATION FORM

Under the Model Toxics Control Act (MTCA), a terrestrial ecological evaluation is necessary if hazardous substances are released into the soils at a Site. In the event of such a release, you must take one of the following three actions as part of your investigation and cleanup of the Site:

1. Document an exclusion from further evaluation using the criteria in WAC 173-340-7491.
2. Conduct a simplified evaluation as set forth in WAC 173-340-7492.
3. Conduct a site-specific evaluation as set forth in WAC 173-340-7493.

When requesting a written opinion under the Voluntary Cleanup Program (VCP), you must complete this form and submit it to the Department of Ecology (Ecology). The form documents the type and results of your evaluation.

Completion of this form is not sufficient to document your evaluation. You still need to document your analysis and the basis for your conclusion in your cleanup plan or report.

If you have questions about how to conduct a terrestrial ecological evaluation, please contact the Ecology site manager assigned to your Site. For additional guidance, please refer to https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Terrestrial-ecological-evaluation.

Step 1: IDENTIFY HAZARDOUS WASTE SITE	
Please identify below the hazardous waste site for which you are documenting an evaluation.	
Facility/Site Names: Morningside Acres Tracts North, Morningside Acres Tracts South	
Facility/Site Addresses: 5001 Rainier Avenue South, 5015 and 5021 Rainier Avenue South	
Facility/Site Nos: 8101, 4321	VCP Project No.: To be determined

Step 2: IDENTIFY EVALUATOR			
Please identify below the person who conducted the evaluation and their contact information.			
Name: Robert Leet			Title: Senior Geologist
Organization: Farallon Consulting, L.L.C.			
Mailing address: 1809 7th Ave, Suite 1111			
City: Seattle		State: WA	Zip code: 98101
Phone: 425-295-6010	Fax: NA	E-mail: rleet@farallonconsulting.com	

Step 3: DOCUMENT EVALUATION TYPE AND RESULTS

A. Exclusion from further evaluation.

1. Does the Site qualify for an exclusion from further evaluation?

☒ Yes *If you answered **"YES,"** then answer **Question 2**.*

☐ No or Unknown *If you answered **"NO" or "UNKNOWN,"** then skip to **Step 3B** of this form.*

2. What is the basis for the exclusion? *Check all that apply. Then skip to **Step 4** of this form.*

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

☐ All soil contamination is, or will be,* at least 15 feet below the surface.

☐ All soil contamination is, or will be,* at least 6 feet below the surface (or alternative depth if approved by Ecology), 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 (such as buildings or paved roads) that prevent exposure to plants and wildlife, and institutional controls are used to manage remaining contamination.

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

☐ There is less than 0.25 acres of contiguous[#] undeveloped[±] land 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 containing any of the chemicals mentioned above, there is less than 1.5 acres of contiguous[#] undeveloped[±] land on or within 500 feet of any area of the Site. (See attached Figure C-1)

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

☐ Concentrations of hazardous substances in soil do not exceed natural background levels as described in WAC 173-340-200 and 173-340-709.

* An exclusion based on future land use must have a completion date for future development that is acceptable to Ecology.

[±] "Undeveloped land" is land that is not covered by building, roads, paved areas, or other barriers that would prevent wildlife from feeding on plants, earthworms, insects, or other food in or on the soil.

[#] "Contiguous" undeveloped land is an area of undeveloped land that is not divided into smaller areas of highways, extensive paving, or similar structures that are likely to reduce the potential use of the overall area by wildlife.

B. Simplified evaluation.

1. Does the Site qualify for a simplified evaluation?

☐ Yes *If you answered **"YES,"** then answer **Question 2** below.*

☐ No or Unknown *If you answered **"NO"** or **"UNKNOWN,"** then skip to **Step 3C** of this form.*

2. Did you conduct a simplified evaluation?

☐ Yes *If you answered **"YES,"** then answer **Question 3** below.*

☐ No *If you answered **"NO,"** then skip to **Step 3C** of this form.*

3. Was further evaluation necessary?

☐ Yes *If you answered **"YES,"** then answer **Question 4** below.*

☐ No *If you answered **"NO,"** then answer **Question 5** below.*

4. If further evaluation was necessary, what did you do?

☐ Used the concentrations listed in Table 749-2 as cleanup levels. *If so, then skip to **Step 4** of this form.*

☐ Conducted a site-specific evaluation. *If so, then skip to **Step 3C** of this form.*

5. If no further evaluation was necessary, what was the reason? *Check all that apply. Then skip to **Step 4** of this form.*

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

☐ Area of soil contamination at the Site is not more than 350 square feet.

☐ Current or planned land use makes wildlife exposure unlikely. Used Table 749-1.

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

☐ No potential exposure pathways from soil contamination to ecological receptors.

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

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 15 feet at concentrations that exceed the values listed in Table 749-2.

☐ No contaminant listed in 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 Table 749-2, and institutional controls are used to manage remaining contamination.

☐ No contaminant listed in 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 bioassays.

☐ No contaminant listed in 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 bioassays, and institutional controls are used to manage remaining contamination.

C. Site-specific evaluation. A site-specific evaluation process consists of two parts: (1) formulating the problem, and (2) selecting the methods for addressing the identified problem. Both steps require consultation with and approval by Ecology. *See* WAC 173-340-7493(1)(c).

1. Was there a problem? *See* WAC 173-340-7493(2).

☐ Yes *If you answered **"YES,"** then answer **Question 2** below.*

☐ No *If you answered **"NO,"** then identify the reason here and then skip to **Question 5** below:*

- ☐ No issues were identified during the problem formulation step.
- ☐ While issues were identified, those issues were addressed by the cleanup actions for protecting human health.

2. What did you do to resolve the problem? *See* WAC 173-340-7493(3).

- ☐ Used the concentrations listed in Table 749-3 as cleanup levels. *If so, then skip to **Question 5** below.*
- ☐ Used one or more of the methods listed in WAC 173-340-7493(3) to evaluate and address the identified problem. *If so, then answer **Questions 3 and 4** below.*

3. If you conducted further site-specific evaluations, what methods did you use?
Check all that apply. See WAC 173-340-7493(3).

- ☐ Literature surveys.
- ☐ Soil bioassays.
- ☐ Wildlife exposure model.
- ☐ Biomarkers.
- ☐ Site-specific field studies.
- ☐ Weight of evidence.
- ☐ Other methods approved by Ecology. If so, please specify:

4. What was the result of those evaluations?

- ☐ Confirmed there was no problem.
- ☐ Confirmed there was a problem and established site-specific cleanup levels.

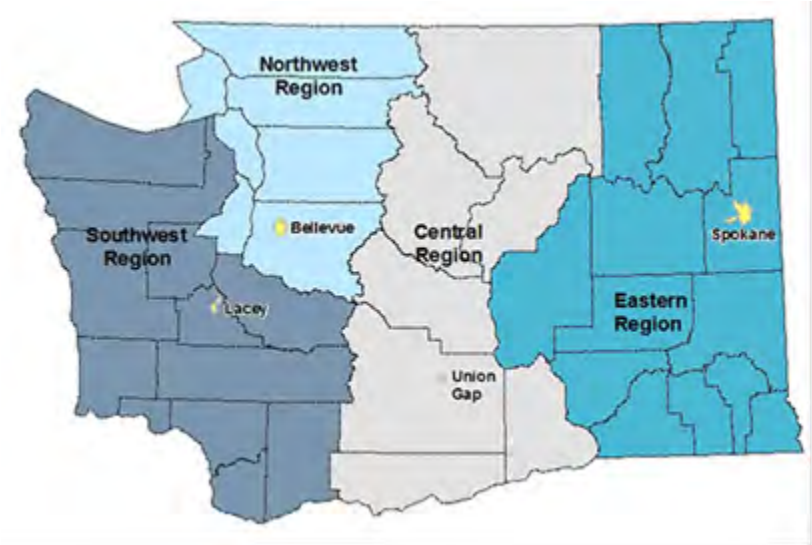
5. Have you already obtained Ecology's approval of both your problem formulation and problem resolution steps?

☐ Yes If so, please identify the Ecology staff who approved those steps:

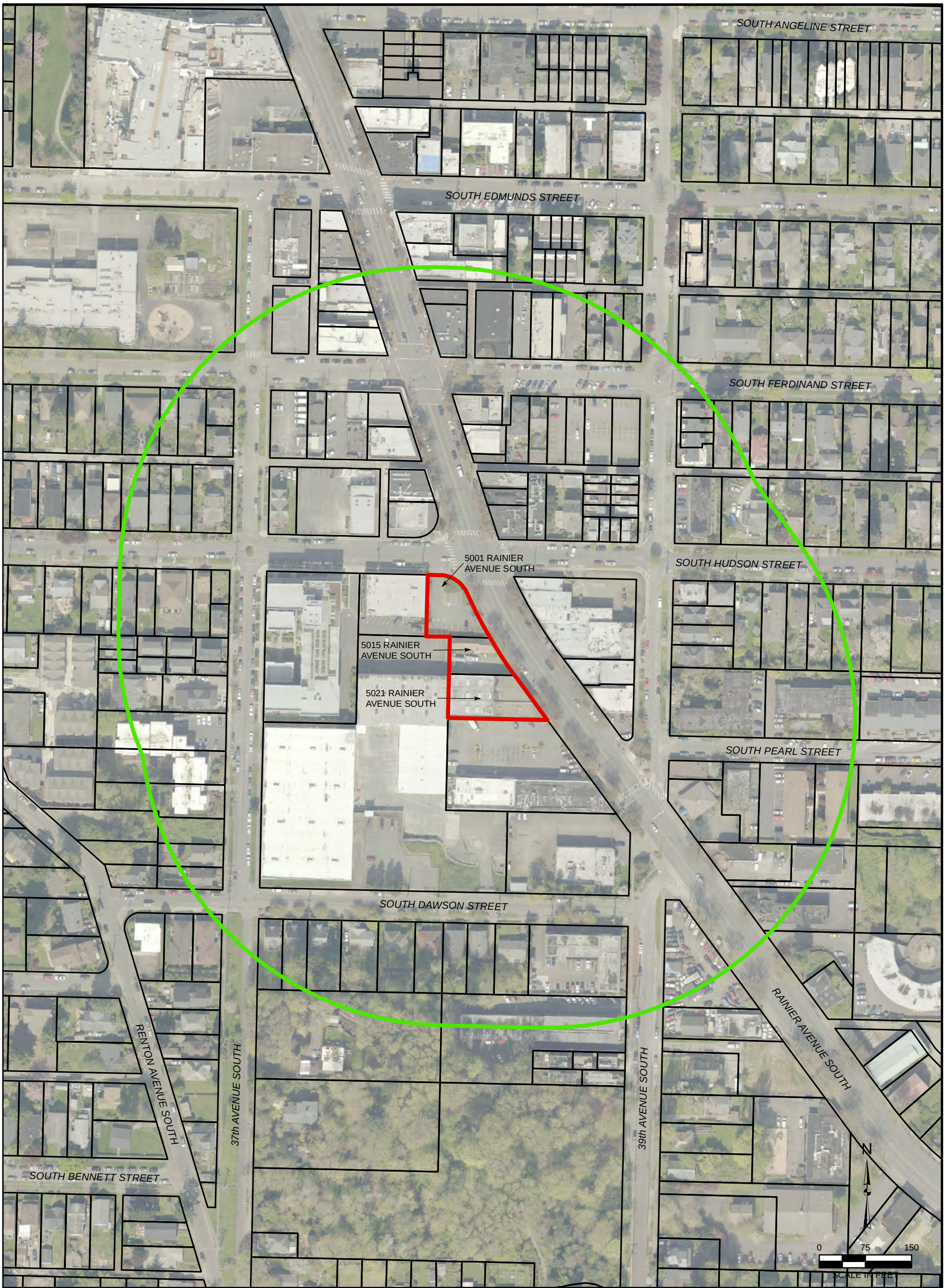
☐ No

Step 4: SUBMITTAL

Please mail your completed form to the Ecology site manager assigned to your Site. If a site manager has not yet been assigned, please mail your completed form to the Ecology regional office for the County in which your Site is located.



Northwest Region: Attn: VCP Coordinator 3190 160th Ave. SE Bellevue, WA 98008-5452	**Central Region:** Attn: VCP Coordinator 1250 West Alder St. Union Gap, WA 98903-0009
Southwest Region: Attn: VCP Coordinator P.O. Box 47775 Olympia, WA 98504-7775	**Eastern Region:** Attn: VCP Coordinator N. 4601 Monroe Spokane WA 99205-1295



LEGEND

- 500-FOOT TERRESTRIAL ECOLOGICAL EVALUATION EXCLUSION BOUNDARY
- PROPERTY BOUNDARY
- KING COUNTY PARCEL

NOTES:
1. ALL LOCATIONS ARE APPROXIMATE.
2. FIGURE WAS PRODUCED IN COLOR. GRAYSCALE COPIES MAY NOT REPRODUCE ALL ORIGINAL INFORMATION.

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FIGURE C-1

500-FOOT TERRESTRIAL ECOLOGICAL EVALUATION EXCLUSION BOUNDARY
MORNINGSIDE ACRES TRACTS
5001, 5015, AND 5021
RAINIER AVENUE SOUTH
SEATTLE, WASHINGTON

FARALLON PN: 1355-001

Drawn By: jjones | Checked By: RL | Date: 6/14/2019 | Disc Reference:

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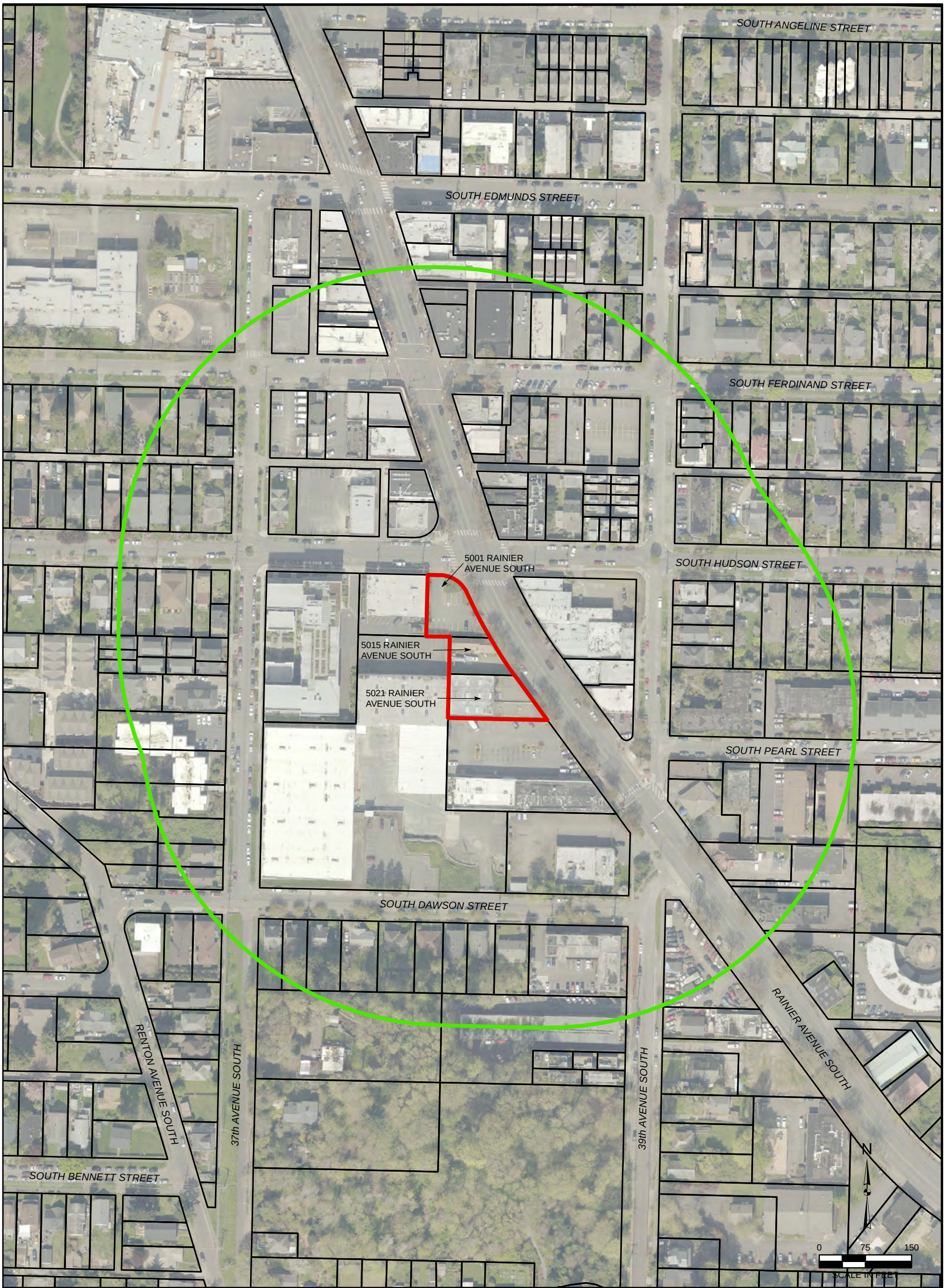

LEGEND

- 500-FOOT TERRESTRIAL ECOLOGICAL EVALUATION EXCLUSION BOUNDARY
- PROPERTY BOUNDARY
- KING COUNTY PARCEL

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FIGURE C-1

500-FOOT TERRESTRIAL ECOLOGICAL EVALUATION EXCLUSION BOUNDARY
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SEATTLE, WASHINGTON

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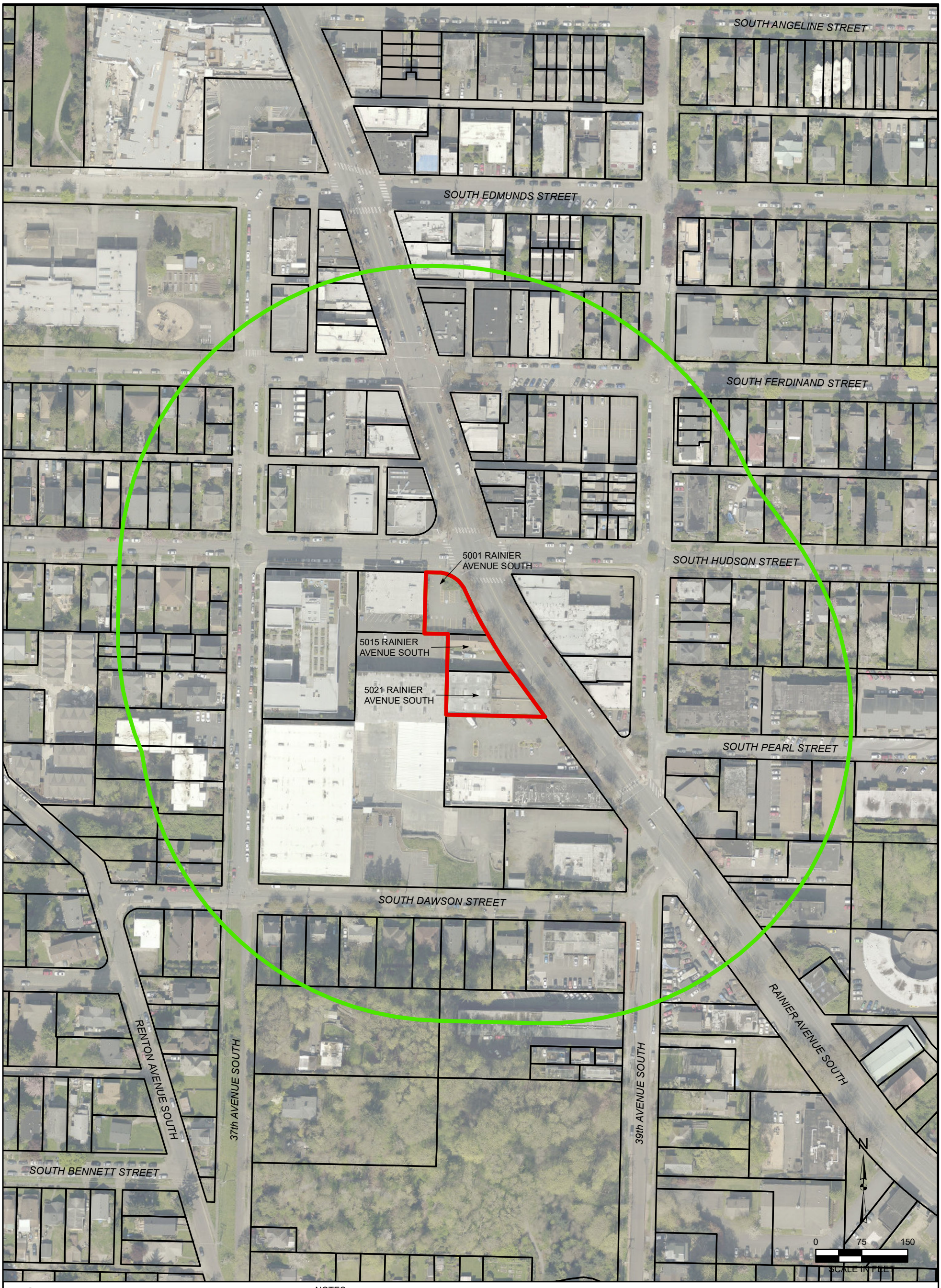

LEGEND

- 500-FOOT TERRESTRIAL ECOLOGICAL EVALUATION EXCLUSION BOUNDARY
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FIGURE C-1

500-FOOT TERRESTRIAL ECOLOGICAL EVALUATION EXCLUSION BOUNDARY
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RAINIER AVENUE SOUTH
SEATTLE, WASHINGTON

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