FARALLON
CONSULTING

REMEDIAL INVESTIGATION WORK PLAN

BLOCK 38 WEST SITE
500 THROUGH 536 WESTLAKE AVENUE NORTH
SEATTLE, WASHINGTON

Agreed Order No. DE 17963
Facility Site Identification No. 62773
Cleanup Site Identification No. 15008

Submitted by:
Farallon Consulting, L.L.C.
975 5th Avenue Northwest
Issaquah, Washington 98027

Farallon PN: 397-019

For:
City Investors IX LLC
505 5th Avenue South
Seattle, Washington 98104

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Prepared by:

Suzy Stumpf

Suzy Stumpf, P.E.
Principal Engineer

SUZANNE E. STUMPF
49307

Reviewed by:

Clifford T. Schmitt

Clifford T. Schmitt, L.G., L.H.G.
Principal Hydrogeologist

Hydrogeologist
1462
Clifford Thomas Schmitt

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ACRONYMS AND ABBREVIATIONS

1999 EA Update	letter regarding Preliminary Environmental Assessment Update, Westlake Avenue Property (428, 500, 510, and 520 Westlake Avenue North), Seattle, Washington dated April 5, 1999, from Hart Crowser, Inc. to City Investors VII LLC c/o Foster Pepper & Shefelman
2019 Ecology Letter	letter regarding Early Notice of Release of Hazardous Substances and Preliminary Determination of Liability for Release at the Block 38 West Contaminated Site dated August 13, 2019, from the Washington State Department of Ecology to City Investors IX LLC
AIBS	Allen Institute for Brain Science
AIBS Building Site	the property at 601 Westlake Avenue also known as the Block 43 Property
American Linen CVOC Plume	a plume comprised of groundwater contaminated with CVOCs emanating from and down-gradient of the former American Linen Supply Co. facility at 700 Dexter Avenue North in Seattle, Washington
American Linen Supply Co. Dexter Avenue Site (American Linen Site)	the site encompassing contaminated soil and groundwater on and off the American Linen Supply Co. – Dexter Avenue property at 700 Dexter Avenue North
AO	Agreed Order No. DE 17963 (AO) between the Washington State Department of Ecology and City Investors IX LLC

Auto Service Company	the property at 630 Westlake Avenue North that comprises the northern portion of the Block 37 Property
bgs	below ground surface
Block 37 Property	the property commonly known as 630 Westlake Avenue North located one block north of the Block 38 West Property across Mercer Street
Block 38 East Property	the eastern half of the block between Mercer Street to the north, Westlake Avenue North to the west, Republican Street to the south, and a north-south–trending alley owned by the City of Seattle that bisects Block 38
Block 38 West Property	the western half of the block between Mercer Street to the north, Westlake Avenue North to the west, Republican Street to the south, and a north-south–trending alley owned by the City of Seattle that bisects Block 38, comprising King County Parcel Nos. 1983200196, 1983200180, and 1983200170
Block 38 West Site	as defined under the AO, is where a hazardous substance, other than a consumer product in consumer use, has been deposited, stored, disposed of, placed, or otherwise come to be located and is generally located at 500 through 536 Westlake Avenue North in Seattle, Washington
BTEX	benzene, toluene, ethylbenzene, and xylenes
CFR	Code of Federal Regulations
City Investors	City Investor IX LLC
COCs	constituents of concern

Contaminated Soil	soil with COCs detected at concentrations exceeding applicable screening levels
COPCs	constituents of potential concern
cPAHs	carcinogenic polycyclic aromatic hydrocarbons
CVOCs	chlorinated volatile organic compounds
draft RI/FS Work Plan	*Revised Agency Review Draft Remedial Investigation/Feasibility Study Work Plan, American Linen Supply Co – Dexter Avenue Site, 700 Dexter Avenue North, Seattle, Washington* dated April 15, 2019, prepared by PES Environmental, Inc.
DRO	total petroleum hydrocarbons as diesel-range organics
Ecology	Washington State Department of Ecology
Ecology Guidance	*Guidance for Remediation of Petroleum Contaminated Sites* revised June 2016, prepared by the Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
Farallon	Farallon Consulting, L.L.C.
Former American Linen Property	the location of the former American Linen Supply Co. facility at 700 Dexter Avenue in Seattle, Washington
FS	feasibility study
GRO	total petroleum hydrocarbons as gasoline-range organics

IAWP	*Interim Action Work Plan, Block 38 West, 536 Westlake Avenue North, Seattle, Washington* dated November 8, 2019, prepared by Farallon Consulting, L.L.C.
Impacted Soil	soil with detectable concentrations of COCs and COPCs, including Contaminated Soil
independent interim action	the independent interim action conducted pursuant to the IAWP under the auspices of Ecology
Interurban Exchange 2 Site	the former Jenks Service Station facility and a former fuel yard at 535 Terry Avenue North on the Block 38 East Property
mg/kg	milligrams per kilogram
µg/l	micrograms per liter
MTCA	Washington State Model Toxics Control Act Cleanup Regulation
NAVD88	North American Vertical Datum of 1988
North Building City Place III Site	the property at 1001 and 1021 Mercer Street
OnSite	OnSite Environmental Inc. of Redmond, Washington
ORO	total petroleum hydrocarbons as oil-range organics
PAHs	polycyclic aromatic hydrocarbons
PCE	tetrachloroethene
RCW	Revised Code of Washington
Republican Street	

Drain	the 72-inch-diameter King County sewer main line in the Republican Street right-of-way and its backfill
RI	remedial investigation
Rosen Site	the area encompassing impacts from a reported release from a former heating oil underground storage tank associated with the Rosen building at 960 Republican Street on the Block 38 East Property
SEPA	State Environmental Policy Act
SVOCs	semivolatile organic compounds
TCE	trichloroethene
TEC	toxic equivalent concentration
total cPAHs TEC	a toxic equivalent concentration using a method prescribed by MTCA (WAC 173-340-708[e])
UST	underground storage tank
VOCs	volatile organic compounds
WAC	Washington Administrative Code
Westlake 76 Station Site	the southern portion of the Block 37 Property at 600 Westlake Avenue, adjacent rights-of-way, and adjacent properties where hazardous substances released from the former service station have come to be located

1.0 INTRODUCTION

Farallon Consulting, L.L.C. (Farallon) has prepared this Remedial Investigation Work Plan (RI Work Plan) on behalf of City Investors IX L.L.C. (City Investors IX) to describe the work elements necessary to evaluate the nature and extent of contamination at the Block 38 West Site. This RI Work Plan was prepared in accordance with the requirements of Section VII.A, Work to be Performed, under Agreed Order No. DE 17963 (AO) between the Washington State Department of Ecology (Ecology) and City Investors IX.

The Block 38 West Site as defined under the AO is where a hazardous substance, other than a consumer product in consumer use, has been deposited, stored, disposed of, or placed, or otherwise come to be located. The Site is generally located at 500 through 536 Westlake Avenue North in Seattle, Washington (Block 38 West Property)(Figures 1 and 2). The Block 38 West Property comprises the western half of the block between Mercer Street to the north, Westlake Avenue North to the west, Republican Street to the south, and to the east a north-south–trending alley owned by the City of Seattle that bisects the block. The eastern half of the same block is referred to as the Block 38 East Property; the whole block comprising the Block 38 West and Block 38 East Properties and the alley is referred to as Block 38. The RI Work Plan elements will be performed consistent with the requirements of the Washington State Model Toxics Control Act Cleanup Regulation (MTCA), as established in Chapter 173-340-350 of the Washington Administrative Code (WAC 173-340-350).

Subsurface investigations have been conducted at the Block 38 West Site since 1994. Based on the results of these subsurface investigations, petroleum hydrocarbons and polycyclic aromatic hydrocarbons (PAHs) have been detected at concentrations exceeding regulatory screening levels in soil and/or groundwater at the Block 38 West Site.

This RI Work Plan references components of the *Interim Action Work Plan, Block 38 West Property, 500 through 536 Westlake Avenue North, Seattle, Washington* dated November 8, 2019 prepared by Farallon (IAWP) such as the Site-specific Health and Safety Plan. The implementation of the IAWP (independent interim action) has provided substantial data for the Block 38 West

Property that forms the basis of the preliminary conceptual site model and has been used to identify data gaps for the RI.

1.1 PURPOSE AND OBJECTIVE

The purpose of this RI Work Plan is to identify the work elements necessary to define the nature and extent of contamination at the Block 38 West Site in order to support the preparation of the Remedial Investigation Report (RI Report) and to support the evaluation of cleanup action alternatives under the Feasibility Study. This RI Work Plan summarizes the subsurface investigations and interim actions completed through February 2022, presents the preliminary conceptual site model, and describes the data collection needed to address data gaps identified for the Block 38 West Site. The RI Work Plan elements presented under Section 8 will be implemented in accordance with the schedule to be approved by Ecology.

Remedial investigation activities planned for the Block 38 West Site will meet the requirements of MTCA as defined in WAC 173-340-350. The scope of the remedial investigation was developed in accordance with Ecology requirements and guidance, including MTCA. The scope of the remedial investigation was discussed during communications among City Investors IX, Farallon, and Ecology, which included a site meeting conducted on March 12, 2020; Key Project Meetings on June 16 and 17, 2020; and various meetings and correspondence from March 2020 through May 2022 to clarify the remedial investigation scope of work, approvals for certain remedial investigation activities concurrent with redevelopment activities, and approval of the alley interim action from June 2020 through May 2022. On May 3, 2022, Ecology confirmed the remedial investigation data gaps, scope of work, and required laboratory analyses to be incorporated into this RI Work Plan.

Information obtained during the implementation of the independent interim action and remedial investigation will be used for the remedial investigation, feasibility study, and final cleanup process for the Block 38 West Site.

1.2 DOCUMENT ORGANIZATION

This RI Work Plan has been organized into the following sections:

- **Section 2**, **Block 38 West Site Description and Background**, provides the Block 38 West Property description and history, a summary of current and historical uses of adjacent and surrounding lands, potential off-Property sources of contamination, regulatory history, and the geology and hydrogeology of the South Lake Union region.
- **Section 3, Summary of Previous Investigations and Remedial Actions**, provides a summary of previous investigations and interim actions performed at the Block 38 West Site.
- **Section 4, Independent Interim Action**, describes the implementation of the independent interim action, results of performance and confirmation soil samples and groundwater monitoring, foundation elements, unanticipated conditions, status and schedule for the remaining work elements, scope of work for Block 38 West Property preparation and mobilization, installation of dewatering wells, dewatering and treatment activities, contaminated soil excavation, and waterproof concrete construction and vapor barrier installation.
- **Section 5, Alley Area Interim Action**, describes the implementation of the interim action performed in conjunction with improvements to the alley associated with the redevelopment of the Block 38 West Property and the results of performance and confirmation soil samples.
- **Section 6**, **Preliminary Conceptual Site Model**, discusses the constituents of potential concern (COPCs), media of concern, screening levels for the cleanup action, confirmed and suspected source areas, nature and extent of contamination, and contaminant fate and transport at the Block 38 West Site.
- **Section 7**, **Data Gaps**, describes the areas where additional delineation of soil and/or groundwater impacts is required to define the nature and extent of contamination at the Block 38 West Site.

- **Section 8, Remedial Investigation Work Elements**, describes the objectives of the RI, and scope of work elements necessary to evaluate the nature and extent of contamination at the Block 38 West Site.

- **Section 9**, **Reporting and Schedule**, describes reporting requirements and provides a schedule for remaining independent interim action elements and the proposed RI Work Plan elements.

- **Section 10**, **References**, lists the documents cited in this RI Work Plan.

- **Section 11**, **Limitations**, provides Farallon's standard limitations applicable to this RI Work Plan.

2.0 BLOCK 38 WEST SITE DESCRIPTION AND BACKGROUND

This section provides the Block 38 West Site description and regulatory history, a summary of current and historical uses of the Block 38 West Property, adjacent and surrounding lands and potential off-Site sources, the regulatory history, and the geology and hydrogeology of the South Lake Union region.

2.1 BLOCK 38 WEST PROPERTY DESCRIPTION

The Block 38 West Property is in a commercial and light industrial area zoned as mixed residential and commercial in the South Lake Union area (SM-SLU 175/85-280) approximately 1 mile north of downtown Seattle. According to the King County GIS Center (2018), the Block 38 West Property comprises King County Parcel No. 1983200196 on the northern portion of the Block 38 West Property (534 and 536 Westlake Avenue North), King County Parcel No. 1983200180 on the central portion of the Block 38 West Property (520 Westlake Avenue North), and King County Parcel No. 1983200170 on the southern portion of the Block 38 West Property (500 and 510 Westlake Avenue North) (Figure 2).

The Block 38 West Property totals approximately 1.06 acres of land that previously was developed with structures formerly used for retail, temporary office space, storage, and parking. The former Block 38 West Property structures were demolished as part of the current redevelopment. Adjacent street elevations vary from an approximate elevation of 41 feet North American Vertical Datum of 1988 (NAVD88) on Republican Street adjoining the southern portion of the Block 38 West Property to an approximate elevation of 31 feet NAVD88 on Mercer Street adjoining the northern portion of the Block 38 West Property (Figure 2). The alley bisecting Block 38 is accessed from either Republican Street or Mercer Street and descends from street level to an approximate elevation of 25 feet NAVD88, and is used for vehicle access to parking garages on the Block 38 West Property and Block 38 East Property. A historical timber-framed trestle extends north from Republican Street into the alley approximately 120 feet; its constructed height was approximately 18 feet higher than the ground surface of the southern portion of the alley (Figure 2). The trestle was constructed for support of the rail spur that extended out to the former south shoreline of Lake Union (Farallon 2018). As discussed below, the northern portion of the Block 38 West Property historically was marshland along the southern shore of Lake Union.

2.2 BLOCK 38 WEST PROPERTY HISTORY

The Block 38 West Property historically was undeveloped marshland that extended along the southern shore of Lake Union and onto the north-adjacent property in the late 1880s, as detailed in the draft Phase I Environmental Site Assessment Report prepared by Farallon (2019b) (2019 Phase I Report) and the Preliminary Environmental Assessment Update letter (Hart Crowser, Inc. 1999) (1999 EA Update). Historical operations at the Block 38 West Property have included the following:

- A lumber storage yard across the majority of the Block 38 West Property from the 1890s until approximately 1920;
- Small commercial operations (e.g., a blacksmith shop, a wagon shop) in pile-supported buildings on the southern parcel in the early 1900s, which were replaced in 1919 by a two-story masonry building with a basement level at 500 and 510 Westlake Avenue North;
- Retail and commercial operations (i.e., auto parts, appliances, school and office supplies, furniture storage, clothing, and outdoor equipment) at 500 and 510 Westlake Avenue North from the 1920s to 2019;
- Commercial operations (i.e., a horse stable and wagon house, a blacksmith shop, a wagon shop, an auto repair facility, and a veterinary hospital) from the early 1900s until 1950s on the central parcel at 520 Westlake Avenue North, which were replaced in 1964 with a two-story building with rooftop parking through 2019;
- Retail operations at 520 Westlake Avenue from 1964 to 2019; and
- Warehouse storage starting in the early 1920s and transitioning into commercial and retail operations, including a commercial printer, on the northern parcel at 534 and 536 Westlake Avenue North to 2019.

The structures on the Block 38 West Property that were used as retail, temporary office space, storage, and parking remained unchanged from 1969 through August 2019. The structures were demolished in late 2019 and early 2020 as part of the redevelopment of the Block 38 West Property.

Historical operations resulted in the release of hazardous substances that caused contamination of soil and/or groundwater at the Block 38 West Property. Ecology listed the Block 38 West Site (includes the Block 38 West Property) as a contaminated site with Facility Site ID No. 62773 and Cleanup Site ID No. 15008 in 2019.

2.3 BLOCK 38 WEST PROPERTY CURRENT LAND USE

The Block 38 West Property redevelopment included construction of a multi-story mixed-use building with 12 stories above street level and four levels of underground parking. The finished floor elevation of the lowest level of parking is -3.25 feet NAVD88, with the bottom of footing elevation for the majority of the foundation at approximately -6.5 feet NAVD88. The excavation extended deeper in areas for footings or elevator pits. The mass excavation and installation of building superstructure has been completed. On April 1, 2022, the City of Seattle issued a temporary certificate of occupancy for the new building.

2.4 ADJACENT AND SURROUNDING LAND USES

This section summarizes the current and historical uses of the properties that surround the Block 38 West Property.

2.4.1 North – Block 37 Property

The Block 37 Property at 600 through 630 Westlake Avenue North is located one block north of the Block 38 West Property across Mercer Street (Figure 2). The Block 37 Property has primarily been used for commercial and industrial purposes since 1885. Historical operations included a lumber mill, a planing mill, lumber storage, two gasoline service stations, a creamery, a brewery, a restaurant, boat maintenance, cabinet manufacturing, and auto service and detailing. The Block 37 Property was developed with numerous commercial buildings until 2006 and all structures were removed by 2009. Currently, the Block 37 Property is used for temporary construction offices, equipment storage, and parking.

Historical operations resulted in releases of hazardous substances that caused contamination of soil and groundwater at the Block 37 Property and surrounding public rights-of-way. This property is currently associated with the Block 37 Site listed in Ecology's contaminated sites database as Facility Site ID No. 46445353 and Cleanup Site ID 6134. The Block 37 Site includes two sites previously identified by Ecology as the TOSCO 25535330857 Site (associated with a former gas station at 600 Westlake Avenue North) and the Auto Service Company Site (associated with a former gas station and auto maintenance facility at 630 Westlake Avenue North).

Cleanup actions at the Block 37 Site are being performed under Agreed Order No. DE 19430, effective May 4, 2021, between Ecology, Phillips 66 Company, and City Investors XI, L.L.C. Based on confirmed releases to soil and groundwater at the Block 37 Site and surrounding public rights-of-way, the Block 37 Site is a potential source of contamination for the Block 38 West Site.

2.4.2 East – Block 38 East Property

The Block 38 East Property at 535 Terry Avenue North and 960 Republican Street is east-adjacent to and separated by an alley from the Block 38 West Property (Figure 2). The Block 38 East Property totals approximately 1.08 acres of land that have primarily been used for commercial and light industrial purposes since the late 1800s and comprises King County Parcel Nos. 1983200150 and 1983200160.

Historical operations on the northern portion of the property (535 Terry Avenue North) included a lumber mill and yard, gasoline service station, and fuel yard associated with coal storage through the 1950s. By the late 1960s, the northern portion of the property was a parking lot until redeveloped in 2009 with a five-story commercial office building known as the Interurban Exchange 2 Building.

Historical operations on the southern portion of the property (960 Republican Street) included lumber storage until the late 1920s when a three-story commercial office building was built. The building, known as the Rosen Building, was used as a warehouse for electrical appliances and general storage through the 1960s and currently is a medical and dental office. Figure 2 shows the location of historical features and lot configuration on the Block 38 East Property.

Historical operations resulted in releases of hazardous substances that caused contamination of soil and groundwater at the Block 38 East Property. This property is currently associated with the Rosen Property Site, also known as the Interurban Exchange 2 Site, listed in Ecology's contaminated sites database as Facility Site ID No. 2500 and Cleanup Site ID 5123.

On May 28, 2009, the Rosen Property Site received a property-specific No Further Action determination from Ecology. Based on confirmed releases to soil and groundwater at the Rosen Property Site and residual soil contamination with detections of petroleum hydrocarbons, carcinogenic polycyclic aromatic hydrocarbons (cPAHs), and metals exceeding regulatory screening levels at the western boundary of the Block 38 East Property, the Rosen Property Site is a potential source of contamination for the Block 38 West Site. Figure 2 shows the location of historical features and lot configuration on the Block 38 East Property.

2.4.3 South – 428 Westlake LLC and Firestone Tire & Rubber Co. Properties

The 428 Westlake LLC Property at 428 Westlake Avenue North is one block south of the Block 38 West Site and occupies the northern half of the block (Figure 2). The 428 Westlake LLC Property totals approximately 0.44 acre of land that has primarily been used for commercial and light industrial purposes since the 1960s and is comprised of King County Parcel No. 1983200245.

The 428 Westlake LLC Property was undeveloped prior to the 1960s and occupied by a used car dealership until the 1980s, and then a commercial parking lot into the early 2000s. The 428 Westlake LLC Property was redeveloped in 2003 to 2004 with a six-story commercial office building with four levels of below grade parking.

Historical operations resulted in releases of hazardous substances that caused contamination of soil at the 428 Westlake LLC Site, and 428 Westlake LLC Site being listed in Ecology's contaminated sites database as Facility Site ID No. 861982 and Cleanup Site ID No. 485. On May 23, 2005, the 428 Westlake LLC Site received a No Further Action determination from Ecology and a restrictive covenant was recorded for petroleum-contaminated soil that was left in-place on the southwestern portion of the 428 Westlake LLC Site and a 2-foot-wide zone that extends into the City of Seattle right-of-way. Based on a localized release to soil and no documented impacts to groundwater, the

428 Westlake LLC Site is not considered a potential source of contamination for the Block 38 West Site.

The Firestone Tire & Rubber Co. Property at 400 Westlake Avenue North is one block south of the Block 38 West Site and occupies the southern half of the block (Figure 2). The Firestone Tire & Rubber Co. Property totals approximately 0.44 acre of land that has primarily been used for commercial and light industrial purposes since the 1950s and is comprised of King County Parcel No. 1983200230.

The Firestone vehicle service building and former gasoline retail station reportedly was constructed in 1929 and remained a tire and vehicle service station until approximately 2017. In its original configuration, the Firestone vehicle service building's southwestern corner was reportedly open to vehicular traffic and contained fuel dispensers. The Firestone Tire & Rubber Co. Property is currently being redeveloped with a 15-story commercial office building with a parking garage.

Historical operations resulted in releases of hazardous substances that caused contamination of soil and suspected contamination of groundwater at the Firestone Tire & Rubber Co. Property, and the Firestone Tire & Rubber Co. Property being listed in Ecology's contaminated sites database as Facility Site ID No. 32145888 and Cleanup Site ID No. 12005. Based on the confirmed groundwater flow direction in the Shallow Water-Bearing Zone from north to south at the Block 38 West Site, releases to soil and/or groundwater at the Firestone Tire & Rubber Co. Property are not considered a potential source of contamination for the Block 38 West Site.

2.4.4 West – Amazon VI Property

The Amazon VI Property at 515 Westlake Avenue North is one block west of the Block 38 West Site and occupies the majority of the block (Figure 2). The Amazon VI Property totals approximately 1.91 acres of land that has primarily been used for commercial and light industrial purposes since the 1950s and is comprised of King County Parcel Nos. 1983200065 and 1983200075.

A 2,500-gallon heating oil underground storage tank (UST) was removed along with petroleum-contaminated soil in March 2013. The Amazon VI Property was redeveloped in 2013 with a six-story commercial office building with a parking garage.

Historical operations resulted in releases of hazardous substances that caused contamination of soil at the Amazon VI Property, and the Amazon VI Property being listed in Ecology's contaminated sites database as Facility Site ID No. 7811 and Cleanup Site ID No. 12471. On October 16, 2004, the Amazon VI Site received a No Further Action determination from Ecology. Based on a localized release to soil and no documented impacts to groundwater, the Amazon VI Property is not considered a potential source of contamination for the Block 38 West Site.

2.5 ADDITIONAL SURROUNDING PROPERTIES

This section summarizes the current and historical uses of properties where releases of hazardous substances occurred and have the potential to affect groundwater at the Block 38 West Site.

2.5.1 Former American Linen Supply Co – Former American Linen Property

The former American Linen Supply Co. facility at 700 Dexter Avenue North in Seattle, Washington (King County Parcel No. 224900-0285) currently owned by BMR-Dexter LLC (Former American Linen Property) has documented releases of chlorinated volatile organic compounds (CVOCs) and petroleum hydrocarbons to soil and groundwater, with impacts to regional groundwater quality in the South Lake Union area. The American Linen CVOC Plume comprises groundwater contaminated with CVOCs emanating from and down-gradient of the Former American Linen Property.

Historical operations at the Former American Linen Property included operation of a commercial laundry and dry cleaner businesses from approximately 1946 through the mid-1990s. The Former American Linen Property was redeveloped in 2019 to 2020 with a 14-story commercial and medical office building with three levels of below grade parking. Releases that occurred on the Former American Linen Property during the period of operation included contaminated soil with CVOCs, including PCE; trichloroethene; isomers of dichloroethene, primarily cis-1,2-

dichloroethene (cDCE); and vinyl chloride, at concentrations exceeding site-specific screening levels for the American Linen Site to depths greater than 100 feet below ground surface (bgs).

The area encompassing contaminated soil and groundwater on and off property at 700 Dexter Avenue North, including the American Linen CVOC Plume, is referred to as the American Linen Supply Co. Dexter Avenue Site, listed in Ecology's contaminated sites database as Facility Site ID No. 3573 and Cleanup Site ID No. 12004. The cleanup of the American Linen Supply Co. Dexter Avenue Site is being conducted under Agreed Order No DE 14302.

Based on the confirmed presence of the American Linen CVOC Plume adjacent to the Block 38 West Site, the American Linen Site is considered a potential source of groundwater contamination for the Block 38 West Site.

2.6 REGULATORY HISTORY

Based on the letter regarding Early Notice of Release of Hazardous Substances and Preliminary Determination of Liability for Release at the Block 38 West Contaminated Site dated August 13, 2019, from Ecology to City Investors IX (2019 Ecology Letter), regulatory interaction, reporting, and concurrence from all parties involved are required to support the regulatory closure process. Ecology listed the Block 38 West Site (which includes the Block 38 West Property) as a contaminated site with Facility Site ID No. 62773 and Cleanup Site ID No. 15008 in August 2019. Ecology and City Investors IX executed the AO for the Block 38 West Site on April 20, 2020. The AO requires City Investors IX to, among other things, prepare a work plan to conduct a remedial investigation, conduct a remedial investigation and feasibility study, and prepare a draft Cleanup Action Plan for the Block 38 West Site. In addition, and as noted above, the remaining elements of the independent interim action described in the IAWP at the time the AO was issued are being performed under the auspices of the AO.

On December 9, 2019, City Investors IX notified Ecology of a newly discovered release at the Block 38 West Site. The general contractor for the redevelopment, GLY Construction (GLY), had notified Farallon on November 22, 2019 regarding the discovery of a black liquid discharging from a side sewer line at the Block 38 West Property while inspecting side sewer utilities in the alley

(Figure 3). The side sewer line where the liquid was observed extended west onto the Block 38 West Property[1] and was not documented on Seattle Public Utilities maps. The side sewer line was encountered at an approximate elevation of 23 feet NAVD88. Farallon personnel collected a sample of the liquid for laboratory analysis for hydrocarbon identification by Northwest Total Petroleum Hydrocarbon-Hydrocarbon Identification (NWTPH-HCID). The sample result indicated the presence of total petroleum hydrocarbons as gasoline-, diesel-, and oil-range organics (GRO, DRO, and ORO) in the liquid, with ORO identified as the main component. The side sewer line was capped at the eastern Block 38 West Property boundary and the length of the line was inspected to the maximum extent practicable. Additionally, several test pits were advanced after building demolition, but no source of the petroleum hydrocarbons encountered in the side sewer line was identified. No further evidence of a release associated with the side sewer line was encountered during the independent interim action.

On February 4, 2020, Ecology was notified through email correspondence that a previously unknown UST (identified as UST01) and associated product fuel line had been discovered on January 21, 2020 in the northwestern corner of the Block 38 West Property. Email correspondence included a description of the decommissioning and removal of UST01 and the product fuel line, a summary of soil laboratory analytical results, and UST site assessment. The removal of UST01 is discussed in further detail in Section 5.5.

On February 11, 2020, Ecology was notified through email correspondence that a second previously unknown UST (identified as UST02) had been discovered on February 5, 2020 in the northwestern corner of the Block 38 West Property. Email correspondence included a description of the decommissioning and removal of UST02 and a summary of the UST site assessment. The removal of UST02 is discussed in further detail in Section 4.6, UST Decommissioning.

On February 11, 2021, Ecology provided email approval of the Sampling and Analysis Plan (Farallon 2021b) and approval to proceed with the scope of work described in the Alley Interim

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[1] This side sewer extended onto King County Parcel No. 1983200170 on the southern portion of the Block 38 West Property (500 and 510 Westlake Avenue North).

Action Work Plan (Farallon 2021a). Implementation of the Alley Interim Action Work Plan is discussed in Section 5, Alley Area Interim Action.

On June 18, 2021, City Investors IX requested approval of a portion of the remedial investigation scope of work from Ecology for the installation of four monitoring wells, FMW-150 through FMW-153, screened within the Intermediate Water-Bearing Zone through the building foundation. Ecology granted approval on June 22, 2021. Installation of these wells is discussed in further detail in Section 3.3, Subsurface Investigations – Farallon Consulting, 2014 through 2022.

On July 20, 2021, City Investors IX requested approval from Ecology for the reuse of water resource protection wells, OW-1 through OW-5, screened within the Intermediate Water-Bearing Zone for ongoing water level elevations and future compliance groundwater monitoring activities. Ecology granted approval on July 27, 2021.

On September 14, 2021, Ecology agreed that its suggested contingency monitoring well locations did not have to be included in the remedial investigation scope of work, but may be required based on the evaluation of initial sampling data, and if required, an Addendum to the RI Work Plan can be submitted. Ecology also approved the reuse of observation monitoring wells OW-1 through OW-5 as groundwater monitoring wells for the remedial investigation once properly converted and developed, and granted the authorization to proceed with the installation of three monitoring wells in the Shallow Water-Bearing Zone and one monitoring well in the Intermediate Water-Bearing Zone (FMW-154 through FMW-157 in the alley; see Section 3.3, Subsurface Investigations – Farallon Consulting, 2014 through 2022 for more details).

On November 19, 2021, Ecology approved via email the advancement and sampling of borings FB-18 and FB-19 west of test pit location TP-12, and borings FB-17 and FB-20 west and north of the former UST fuel product line. On February 3, 2022, Ecology approved via email the installation of boring FB-21 north of the alley. Of these locations, FB-17 has not yet been advanced; the others are discussed in further detail in Section 3.3, Subsurface Investigations – Farallon Consulting, 2014 through 2022.

On May 3, 2022, Ecology's letter clarified the final scope of work for the remedial investigation, including boring and monitoring well locations and the proposed analytes for soil and groundwater samples.

2.7 GEOLOGY AND HYDROGEOLOGY

The Puget Sound region is underlain by Quaternary sediments deposited by a number of glacial episodes. Deposition occurred prior to, during, and following glacial advances and retreats, creating the existing subsurface conditions. The naturally occurring sediments in the South Lake Union area consist primarily of interlayered and/or sequential deposits of alluvial clays, silts, and sands that typically are situated over deposits of glacial till that consist of silty sand to sandy silt with gravel. Outwash sediments consisting of sands, silts, clays, and gravels were deposited by rivers, streams, and post-glacial lakes during glacial advances and recessions. Advance outwash sediments have been largely over-consolidated by the overriding ice sheets. These advance outwash sediments are overlain by a till-like layer and/or recessional outwash sediments that are less consolidated (Galster and Laprade 1991).

The Block 38 West Property is approximately 600 feet south of Lake Union. According to a U.S. Geological Survey (1909) Seattle Special quadrangle map, the original shoreline of Lake Union extended farther south than its current location, to as far as the current location of Mercer Street. In the late 1800s and the early 1900s, the southern end of Lake Union was filled with sawdust and wood waste generated by lumber mill operations and with other fill materials. The historical use of Block 38 as a lumber mill and for lumber storage resulted in deposition of wood waste across Block 38. Field observations made during subsurface investigations conducted by Farallon and others confirmed a wood debris layer was present beneath the Block 38 West Property prior to the redevelopment excavation.

Cross sections depicting the general lithology and hydrogeology of the Block 38 West Property are presented on Figures 19 through 22, which are based on field observations made during the subsurface investigations conducted by Farallon and others and documented in boring logs (Appendix A). The locations of the cross sections are shown on Figure 3 along with sampling locations from the subsurface investigations. According to Farallon observations made during subsurface investigations conducted on adjacent properties and at the Block 38 West Property and a review of boring logs from geotechnical drilling (GeoEngineers, Inc. [GeoEngineers] 2018), three general stratigraphic units were present at the Block 38 West Property and immediate vicinity prior to excavation:

- The shallowest unit consists of fill material with recent deposits, including lacustrine sediments, and comprises silt, sandy silt, and sand with variable gravel content. In some areas, this shallowest unit includes wood waste, peat, and organic silt. The shallowest unit was present across the Block 38 West Property prior to remedial and mass excavations conducted as part of redevelopment activities.
- The fill and recent deposits are underlain by a dense stratum of heterogeneous glacially consolidated deposits comprising dense sand and variable silt and gravel content and very stiff to hard silt with variable sand and gravel content. According to GeoEngineers (2018), the recent glacially consolidated soil contact typically slopes down to the north toward Lake Union. Prior to remedial and mass excavations conducted as part of redevelopment activities at the Block 38 West Property, the contact occurred between approximate elevations of 11 to -6 feet NAVD88.
- A poorly graded dense advance glacial outwash sand with minor silt is encountered below the intermediate unit of glacially consolidated soil at elevations ranging from -30 to -40 feet NAVD88. The sand and gravel layer that was observed in the boring for monitoring well FMW-130 at an elevation of -22 feet NAVD88 is likely the transition zone between the intermediate unit of glacially consolidated soil and the poorly graded dense advance glacial outwash sand. In some areas where the intermediate glacially consolidated unit is thin or absent, the top of the outwash sand is encountered at shallower depths. The glacial outwash has been noted to be underlain by very dense fine-grained soil during drilling of borings several hundred feet northwest of the Block 38 West Property.

Three general water-bearing zones are present at the Block 38 West Property:

- The uppermost water-bearing zone encountered in the fill and underlying recent deposits is referred to as the Shallow Water-Bearing Zone. The Shallow Water-Bearing Zone at the

Block 38 West Property varies in thickness from approximately 5 to 15 feet and was encountered at depths ranging from approximately 5 to 8 feet bgs. Monitoring wells formerly located at the Block 38 West Property were screened within the Shallow Water-Bearing Zone, with the exception of monitoring wells FMW-130, FMW-136, FMW-144 through FMW-147, and FMW-149, which were screened in glacially consolidated deposits comprising the Intermediate Water-Bearing Zone described below, and monitoring wells FMW-137 and FMW-138, which are screened in the outwash sand deposits comprising the Deep Outwash Aquifer that is also described below.

- A deeper water-bearing zone below the Shallow Water-Bearing Zone, referred to as the Intermediate Water-Bearing Zone, is present in the glacially consolidated soil at the Block 38 West Property encountered at approximate elevations of 5 to 10 feet NAVD88 (at depths of approximately 15 to 20 feet bgs). The Intermediate Water-Bearing Zone is continuous across the Block 38 West Property. Based on previous subsurface investigations, the Shallow Water-Bearing Zone at the Block 38 West Property is in direct communication with the Intermediate Water-Bearing Zone (i.e., there is no aquitard separating these groundwater-bearing zones).
- The third water-bearing zone is referred to as the Deep Outwash Aquifer, the top of which is present at approximate elevations of -30 and -40 feet NAVD88 (approximately 55 to 65 feet bgs) in dense advance outwash sand deposits consisting of sand with minor silt. The Deep Outwash Aquifer is continuous across the Block 38 West Property. The thickness of the Deep Outwash Aquifer at the Block 38 West Site is not known. Based on previous subsurface investigations, the Intermediate Water-Bearing Zone at the Block 38 West Property is in direct communication with the Deep Outwash Aquifer (i.e., there is no aquitard separating these groundwater-bearing zones).

3.0 SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS

Subsurface investigations and/or remedial actions have been conducted at the Block 38 West Site since 1994. This section summarizes the activities and results from previous investigations and remedial actions conducted at the Block 38 West Site. Results of the subsurface investigations conducted at the Block 38 West Site are summarized below. The objectives of the subsurface investigations were to obtain lithologic, hydrogeologic, and analytical data to characterize environmental conditions.

Boring locations associated with these investigations are shown on Figure 3. Soil and groundwater data are summarized on Figures 3 through 23, presented in Tables 1 through 11, and discussed below. Copies of boring logs are provided in Appendix A and laboratory analytical reports are provided in Appendix B.

Results of subsurface investigations and remedial actions conducted on adjacent properties that may impact the Block 38 West Site are summarized in Section 3.4.

3.1 PHASE II SOIL INVESTIGATION – DAMES & MOORE, 1994

The 1999 EA Update referenced previous work performed, including a Phase II soil investigation performed by Dames & Moore on the Block 38 West Property in 1994. The 1994 soil investigation reportedly was performed in the area where a 1,500-gallon heating oil UST was removed in 1989 from the sidewalk north-adjacent to Republican Street, along the southern portion of the Block 38 West Property (Figure 2). The results from the 1994 soil investigation indicated that no petroleum-affected soil was present beneath the former heating oil UST; groundwater reportedly was not encountered. Information regarding the sample locations during that investigation was not provided in the documents available for review.

3.2 GEOTECHNICAL INVESTIGATION – GEOENGINEERS, 2018

GeoEngineers performed geotechnical engineering services at the Block 38 West Property in August 2018. The results of the geotechnical investigation were summarized in the draft

Geotechnical Engineering Services, Block 38, Seattle, Washington dated October 17, 2018, prepared by GeoEngineers (2018) (2018 Geotechnical Report).

The 2018 Geotechnical Report summarized the subsurface conditions that were observed during the advancement of borings FB-01 through FB-06 and borings for monitoring wells FMW-132 through FMW-136 (Figure 3; further discussed in Section 3.3). The borings were completed to depths ranging from 10.0 to 51.5 feet bgs. Soil samples collected during the advancement of the borings were evaluated for moisture content, fines content, organic content, and Atterberg limits. Based on the evaluation of the geotechnical data collected for the Block 38 West Property, the following soil conditions were identified by GeoEngineers:

- **Fill:** Fill generally consisted of very loose to medium dense silty sand with variable gravel, rubble (brick) and wood fragments, and soft to medium stiff silt and sandy silt. Wood waste was present in the lower portion of the fill soil from approximate elevation 24 to 1 feet NAVD88. The thickness of fill at the Block 38 West Property was observed to be up to approximately 17 feet.

- **Peat/Organic Silt Layer:** A layer of organic material was encountered below the fill and generally consisted of very soft to stiff peat, organic silt, and organic clay. The peat/organic silt layer was observed to be up to 9 feet thick and generally did not extend below an approximate elevation of 5 to 10 feet NAVD88.

- **Recent Deposits:** Recent deposits were encountered below the peat/organic silt layer and generally consisted of medium dense sand with variable silt and gravel content and medium stiff to very stiff silt with variable sand content. The thickness of the recent deposits was observed to be up to approximately 18 feet.

- **Glacially Consolidated Soil:** Glacially consolidated soil was encountered below the recent deposits and generally consisted of dense to very dense sand with variable silt and gravel content and very stiff to hard silt with variable sand and gravel content. Glacially consolidated soil represents competent foundation-bearing soil. The contact to glacially consolidated soil typically slopes down to the north toward Lake Union. The contact elevation to glacially consolidated soil ranges from approximate elevations of -6 to -11 feet NAVD88.

According to the 2018 Geotechnical Report, GeoEngineers estimated the regional water table at an elevation of 20 feet NAVD88 based on observed groundwater conditions in monitoring wells installed on adjacent properties and GeoEngineers' experience in the South Lake Union area. GeoEngineers further stated that the regional water table in the vicinity of the Block 38 West Property is influenced by recharge from Queen Anne Hill and Capitol Hill, infiltration of surface water, temporary dewatering activities, and changes in the water level in Lake Union. The 2018 Geotechnical Report also states that the 72-inch-diameter King County sewer main line in the Republican Street right-of-way and its backfill (Republican Street Drain), south of the Block 38 West Property, influence groundwater levels locally through leakage into the drain (Figures 19 and 20).

3.3 SUBSURFACE INVESTIGATIONS – FARALLON CONSULTING, 2014 THROUGH 2022

Farallon conducted various subsurface investigations at and adjacent to the Block 38 West Site between 2014 and 2022. The objectives of the subsurface investigations were to obtain lithologic, hydrogeologic, and analytical data to characterize environmental conditions at the Block 38 West Site, and, in part, to facilitate implementation of the independent interim remedial action conducted during the planned redevelopment project under the auspices of the AO. These activities are summarized below.

- **2014 Subsurface Investigation**

  The 2014 subsurface investigation included the installation of a single boring completed as monitoring well FMW-130 in the Intermediate Water-Bearing Zone (Figure 3). Monitoring well FMW-130 was installed in July 2014 using a sonic drill rig operated by Cascade Drilling, L.P. of Woodinville, Washington. Monitoring well FMW-130 was installed to a depth of 60 feet bgs. A reconnaissance groundwater sample was collected from the Shallow Water-Bearing Zone during the advancement of the boring for monitoring well FMW-130. A temporary well screen was set at a depth of 15 to 20 feet bgs (elevation 6.9 to -3.1 feet

NAVD88) prior to collection of the reconnaissance groundwater sample. The permanent well screen for monitoring well FMW-130 was set at a depth of 45 to 55 feet bgs (elevation -22.8 to -32.8 feet NAVD88). Following installation of monitoring well FMW-130, development activities were conducted that included purging of approximately 255 gallons of water from the monitoring well casing. Select soil, reconnaissance groundwater, and groundwater samples were submitted for laboratory analysis for one or more of the following: GRO, DRO, and ORO; benzene, toluene, ethylbenzene, and xylenes (BTEX); PAHs and other semivolatile organic compounds (SVOCs); and volatile organic compounds (VOCs), including CVOCs.

- **2017 Groundwater Monitoring**

  Monitoring well FMW-130 was sampled on July 3, 2017 using U.S. Environmental Protection Agency (EPA) low-flow groundwater sampling procedures. The groundwater sample analytical methods are described in the 2017 Groundwater Monitoring event summarized in the 2019 IAWP (Farallon 2019c) and the sample was analyzed for the following constituents: GRO; BTEX; and CVOCs.

- **2018 Subsurface Investigations and Groundwater Monitoring**

  Subsurface investigation activities conducted in 2018 included advancement of six borings (FB-01 through FB-06); collection of reconnaissance groundwater samples from borings FB-01, FB-03, and FB-05; and installation and development of five monitoring wells (FMW-132 through FMW-136) in August 2018; installation of monitoring wells FMW-137 and FMW-138 in November 2018; and groundwater monitoring activities in August and December 2018. The methodology for the 2018 subsurface investigation of the Shallow and Intermediate Water-Bearing Zones is summarized in the 2019 IAWP (Farallon 2019c).

  In August 2018, borings FB-01 through FB-06 and monitoring wells FMW-132 through FMW-135 were installed to assess soil and groundwater conditions in the Shallow Water-Bearing Zone and FMW-136 was installed to assess soil and groundwater conditions in the Intermediate Water-Bearing Zone (Figure 3). The 11 borings were drilled to depths ranging from 10 to 51.5 feet bgs. Monitoring wells FMW-132 through FMW-135 were screened in the Shallow Water-Bearing Zone at depths ranging from approximately 5 to 17 feet bgs (elevations between 20.7 and 8.4 feet NAVD88), and monitoring well FMW-136 was screened in the Intermediate Water-Bearing Zone at a depth of 30 to 40 feet bgs (elevation of -5 to -15 feet NAVD88).

Select soil samples were analyzed for the following constituents using the previously identified analytical methods, unless indicated otherwise: GRO; DRO and ORO; BTEX; CVOCs; PAHs and other SVOCs; and arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver by EPA Series Methods 200/6000/7000.

In November 2018, Deep Outwash Aquifer monitoring wells FMW-137 and FMW-138 were installed proximate to the northeastern and southeastern corners of the Block 38 West Property to evaluate groundwater quality in the Deep Outwash Aquifer (Figure 3). Monitoring well FMW-137 was screened at a depth of 72 to 85 feet bgs (elevation of -42 to -55 feet NAVD88) and monitoring well FMW-138 was screened at a depth of 90 to 100 feet bgs (elevation of -50 to -60 feet NAVD88). The methodology for the 2018 subsurface investigation and groundwater monitoring of the Deep Outwash Aquifer is summarized in the 2019 IAWP (Farallon 2019c).

Monitoring wells FMW-130 and FMW-132 through FMW-136 were sampled on August 30 and December 28, 2018; and monitoring wells FMW-137 and FMW-138 were sampled on November 20 and December 28, 2018. All of the wells were sampled using EPA low-flow groundwater sampling procedures. Reconnaissance groundwater samples and the groundwater samples collected from monitoring wells FMW-130 and FMW-132 through FMW-136 were analyzed for GRO, DRO, ORO, BTEX, PAHs and other SVOCs, and CVOCs; the samples from FMW-137 and FMW-138 were only analyzed for CVOCs.

- **2019 Subsurface Investigations and Groundwater Monitoring**

  Supplemental subsurface investigation activities conducted in 2019 included advancement of 10 utility potholes (NGas-1, NGas-2, PH-1, PH-2, PH-4, PH-11, PH-11A, PH-12, PH-13, and PH-13A) in January 2019; three borings (FB-07 through FB-09) and installation of five monitoring wells (FMW-144 through FMW-147 and FMW-149) in December 2019; and groundwater monitoring activities (Figure 3). Monitoring well FMW-148 was damaged during installation and was not developed or sampled prior to being properly decommissioned in accordance with WAC 173-160, *Minimum Standards for Construction and Maintenance of Wells*.

Select soil samples collected during the January 2019 subsurface investigation were submitted for analysis from utility potholes PH-4, PH-11A, PH-12, and PH-13 for one or more of the following based on field observations (visual and olfactory evidence of contamination, and volatile organic vapor concentrations as measured using a photoionization detector): GRO; DRO and ORO; BTEX; and PAHs, including cPAHs and naphthalene. Select soil samples (FB-07 through FB-09, FMW-144 through FMW-149) and groundwater samples (FMW-144 through FMW-147 and FMW-149) from the December 2019 subsurface investigation were submitted for analysis for one or more of the following constituents: GRO; DRO and ORO; BTEX; CVOCs; and PAHs and other SVOCs.

Groundwater monitoring events were conducted in March, May, July, October, November, and December 2019. Groundwater monitoring events were conducted at monitoring wells FMW-130 and FMW-132 through FMW-136 in March 2019, at monitoring wells FMW-137 and FMW-138 in May and July 2019, and at monitoring wells FMW-144 through FMW-147 and FMW-149 in December 2019. Groundwater monitoring events were conducted at monitoring wells FMW-137 and FMW-138 in October and November 2019. Groundwater sampling was conducted using EPA low-flow groundwater sampling procedures. Samples were analyzed for one or more of the following constituents using the previously identified analytical methods: GRO; DRO and ORO; BTEX; CVOCs; and cPAHs and other SVOCs.

- **2019 to 2020 Test Pit Investigation**

Between October 2019 and February 2020, test pits TP-1 through TP-18 were advanced at the Block 38 West Property to support and update the existing conceptual site model, support soil profiles for disposal, and collect performance or confirmation soil samples during the independent interim action (Figure 3). The test pits were advanced by Hos Bros. of Woodinville, Washington using the bucket of an excavator. Soil samples were collected from test pits TP-2, TP-3, TP-7, and TP-10 through TP-18 based on visual and olfactory field observations and submitted or laboratory analysis for one or more of the following constituents: GRO; DRO and ORO; VOCs, including CVOCs and/or BTEX; PAHs, including cPAHs and total naphthalenes; total lead; 1,2-dibromoethane and 1,2-dichloroethane; polychlorinated biphenyls; and methyl tertiary-butyl ether.

- **2020 Subsurface Investigation and Monitoring Well Installation**

  Between June and July 2020, four new monitoring wells, FMW-150 through FMW-153, were installed at the Block 38 West Property (Figure 3). The monitoring wells were installed concurrent with the redevelopment of the Block 38 West Property through the basement slab of the P4 parking garage level. Monitoring wells FMW-150 through FMW-153 were screened in the Intermediate Water-Bearing Zone at depths of approximately 2 to 7 feet below the P4 parking garage slab (approximate elevations between -8.5 and -14.3 feet NAVD88). The monitoring well casings for FMW-150 through FMW-153 were extended up to the P1 parking garage level, above the pre-redevelopment static water elevation of the Intermediate Water-Bearing Zone. Soil samples were not retained during the well installation and no groundwater was present at the time of installation to allow for well development. Once groundwater elevations recover to static levels, the monitoring wells will be developed prior to compliance groundwater monitoring events.

  On November 24, 2021, borings FB-18 and FB-19 were advanced west of former soil sample location TP-12 along the western sidewalk at the Block 38 West Property (Figure 3). Borings FB-18 and FB-19 were advanced to a depth of 25 feet bgs (elevation 10.0 feet NAVD88). Select soil samples from borings FB-18 and FB-19 were submitted for analysis for cPAHs.

- **2022 Subsurface Investigation and Monitoring Well Installation**

  On February 5 and 6, 2022, Shallow Water-Bearing Zone monitoring wells FMW-154 through FMW-156 and Intermediate Water-Bearing Zone monitoring well FMW-157 were installed and developed in the alley west of and adjacent to the Block 38 West Property. In addition to the monitoring well installation, boring FB-20 was advanced north of mass excavation grid N1 and boring FB-21 was advanced north of the alley (Figure 3). Monitoring wells FMW-154 through FMW-157 were screened at the following depths:

    - FMW-154: 10 to 15 feet bgs (elevation 12.8 to 7.8 feet NAVD88);
    - FMW-155: 10 to 15 feet bgs (elevation 13.9 to 8.9 feet NAVD88);
    - FMW-156: 15 to 20 feet bgs (elevation 10.7 to 5.7 feet NAVD88); and
    - FMW-157: 30 to 40 feet bgs (elevation -4.1 to -14.1 feet NAVD88).

  Borings FB-20 and FB-21 were advanced to depths of 25 and 10 feet bgs (elevations 21.0 and 7.0 feet NAVD88), respectively.

  Select soil samples from borings FB-20 and/or FB-21 were submitted for analysis for DRO, ORO, and/or cPAHs. Groundwater samples were not collected from monitoring wells FMW-154 through FMW-157.

The results of these investigations confirmed the presence of GRO, DRO, ORO, BTEX, and PAHs (including cPAHs) in soil at the Block 38 West Site, primarily within the upper 15 feet of fill material. Detected concentrations of ORO, total naphthalenes, and cPAHs appeared to be the most prominent throughout the Block 38 West Site, with maximum concentrations of ORO at 9,000 milligrams per kilogram (mg/kg), total naphthalenes at 14.3 mg/kg, and toxic equivalent concentrations of cPAHs at 21 mg/kg. Other compounds were detected in soil, but at a lower frequency and at relatively low concentrations. The lateral distribution of concentrations is illustrated on Figures 4 through 10 and vertical distribution is illustrated on Figures 19 through 23.

Groundwater level measurements and corresponding elevations from the monitoring events are presented in Table 6, and interpreted groundwater elevation contours and flow direction in the Shallow Water-Bearing Zone are shown on Figure 11. These investigations also confirmed detectable petroleum hydrocarbons in groundwater within the Shallow and Intermediate Water-Bearing Zones beneath the Block 38 West Site. The lateral distribution of detected compounds is illustrated on Figures 12 through 17 and vertical distribution is illustrated on Figures 18 through 23.

3.4 SUPPORTING DATA FROM ADJACENT PROPERTY INVESTIGATIONS

The properties discussed in more detail below have documented releases and remedial actions that abut or are within 100 feet of the Block 38 West Site.

Boring locations associated with these investigations are shown on Figure 3. Soil and groundwater data are summarized on Figures 3 through 23, presented in Tables 1 through 11, and discussed below.

3.4.1 North - Block 37 Property

Historical operations on the Block 37 Property resulted in the release of hazardous substances to soil and groundwater beneath the Block 37 Property, adjacent rights-of-way, and some adjacent properties. The Westlake 76 Station facility was present on the southwestern portion of the Block 37 Property (Figure 2). The Westlake 76 Station facility was constructed in 1965 and comprised four 10,000-gallon fuel USTs, a waste oil UST, a heating oil UST, four hydraulic hoists, two pump islands, product dispensers, and an associated station building. The USTs were permanently decommissioned and removed from the Block 37 Property when the Westlake 76 Station facility was demolished in September 2008 (Stantec 2008).

A release of approximately 80,000 gallons of premium leaded gasoline from the Westlake 76 Station facility was reported in May 1980. A release of approximately 600 gallons of gasoline was reported from a product line that was broken by a contractor during the removal of waste oil and heating oil USTs from the Westlake 76 Station facility in May 2001.

Releases from the Westlake 76 Station facility have impacted soil and groundwater on the southern portion of the Block 37 Property, adjacent rights-of-way, and adjacent properties (ATC 2018) (Appendix B). Based on subsurface investigations completed, GRO, benzene, ethylbenzene, total xylenes, and/or total naphthalenes were detected at concentrations exceeding MTCA screening levels in soil samples collected from the borings advanced for monitoring wells MW-71 through MW-73 at elevations ranging from 20.4 to 10.4 feet NAVD88 in 2005 (Figures 4 through 9; Tables 1 and 2). Based on subsurface investigations, GRO, ORO, total DRO+ORO, benzene, total naphthalenes, and/or MTBE were detected at concentrations exceeding MTCA Method A and/or Method B screening levels in groundwater samples collected from monitoring wells MW-41 and/or MW-95 from 1991 to 2006 and monitoring wells MW-71 through MW-173 from 2005 to 2010 (Figures 12 through 17; Tables 7 through 9). Impacts to soil and groundwater from the Westlake 76 Station facility were documented under and south of Mercer Street adjacent to the north and northwest Block 38 West Property boundary as early as 1991 with groundwater impacts documented through 2010 (ATC 2018).

Based on the results of previous investigations and remedial actions conducted by others (ATC 2018), the Block 37 Site constituents of potential concern (COPCs) for soil and groundwater include GRO; BTEX; and lead. However, in an opinion letter dated August 21, 2018, Ecology (2018) identified the following COPCs for the Westlake 76 Station Site:

- GRO, total petroleum hydrocarbons as diesel-range and oil-range organics (DRO and ORO), BTEX, naphthalene, cPAHs, and lead in soil; and
- GRO, DRO, ORO, BTEX, methyl tert-butyl ether, naphthalene, and lead in groundwater.

Ecology (2018) determined that further action was necessary to evaluate COPCs in soil in the rights-of-way and that additional soil and groundwater data were necessary to define the full horizontal and vertical extent of contamination.

3.4.2 East – Block 38 East Property

Historical operations on the Block 38 East Property resulted in the release of hazardous substances to soil and groundwater beneath the Block 38 East Property, adjacent rights-of-way, and adjacent properties (Figure 2). Documented releases are associated with the former Jenks Service Station facility (Lot 1) and a former fuel yard that consisted of coal storage and distribution (Lots 2 through 5), where the Interurban Exchange 2 Building is currently located. A reported release from a former heating oil UST (Lot 6) also occurred at the Rosen Building (Lots 6 and 7). Figure 2 shows the location of historical features on the Block 38 East Property and lot configuration.

A summary of environmental investigations and remedial actions completed (GeoEngineers 1999, 2008) follows.

Due to the significant amount of data associated with the Rosen Property Site, only select analytical results for soil samples collected from the western sidewall of the remedial excavation that occurred on Lots 1 through 5 (i.e., adjacent to the alley) are summarized on Figures 3 through 10, presented in Tables 1 through 3, and discussed below.

3.4.2.1 Block 38 East Property – Lots 1 through 5

Releases of petroleum hydrocarbons, metals (lead and cadmium), and PAHs, including naphthalenes and cPAHs, were confirmed prior to development and construction of the Interurban Exchange 2 Building. Farallon understands that an interim action was conducted in conjunction with redevelopment of the northern and central portions of the Block 38 East Property in 2008, which resulted in the removal of impacted soil and groundwater at Lots 1 through 5. Based on the results of the interim action confirmation soil sampling, GRO, DRO, and ORO were detected at concentrations exceeding MTCA Method A cleanup levels in soil samples collected from the northern sidewall of the excavation on Lot 1, and cPAHs were detected at concentrations exceeding the MTCA Method A cleanup level on the western and southern sidewalls of the excavation on Lots 3 through 5 (GeoEngineers 2008, Appendix C). GRO and BTEX were detected at concentrations exceeding MTCA Method A cleanup levels in groundwater samples collected from dewatering wells on the northern shoring wall during the remedial excavation. No information regarding additional groundwater monitoring on or off the Block 38 East Property post-interim action was available.

The interim action was limited to the area of redevelopment and construction on Lots 1 through 5 of the Block 38 East Property, and impacted soil remained in the adjacent rights-of-way to the north and west, and potentially at Lot 6 (discussed below) on the southern portion of the Block 38 East Property. Based on confirmation samples from the excavation, GRO remained in the west sidewall near the northern end of the alley at a concentration of 11 mg/kg (sidewall sample EX-11-W21; Figure 4; Table 1) and cPAHs remained in the west sidewall along the central portion of the alley at total toxic equivalent concentrations ranging from 0.07 to 6 mg/kg (EX-19-W5, EX-20-W1.5, EX-40-EL22, and EX-41-EL22; Figure 10; Table 2). Lead also remained in the west sidewall along the central portion of the alley at concentrations ranging from 64 to 1,800 mg/kg (EX-19-W5, EX-20-W1.5, EX-39-EL23, EX-40-EL22, and EX-41-EL22; Table 5).

GeoEngineers (2008) observed that three distinct stratigraphic layers had existed under Lots 3 through 5, and that soil samples with PAHs or metals detected at concentrations exceeding MTCA Method A cleanup levels had been within the upper soil fill layer. The three layers were described as follows:

- An upper fill layer consisting of sand, silt, wood chips, and coal fragments from the ground surface to a depth of 4 to 6 feet bgs (approximate elevation of 25 to 21 feet NAVD88);
- Underlying wood debris consisting of wood chips and logs that ranged from 7 to 10 feet thick (approximate elevation of 21 to 14 feet NAVD88); and
- Native silt and sand encountered beneath the wood debris layer (elevations deeper than an approximate elevation of 14 feet NAVD88).

Ecology (2009) issued a property-specific No Further Action determination based upon the results of the 2008 remedial action conducted by GeoEngineers (2008) at Lots 1 through 5 on the East property. The No Further Action determination was property-specific to Lots 1 through 5 (the portion of the East property containing the Interurban Exchange 2 Building) and Ecology had indicated that “further remedial action is still necessary elsewhere at the Site.”

3.4.2.2 Block 38 East Property – Lots 6 and 7

A release from a heating oil UST on Lot 6 associated with the Rosen Building was confirmed during the permanent decommissioning and removal of the UST in 1994 (GeoEngineers 1999). Residual DRO and ORO were detected in soil samples collected north of the former heating oil UST excavation area at concentrations exceeding MTCA cleanup levels established in 1994 but less than current MTCA Method A cleanup levels. The volume of soil associated with the former heating oil UST release that was excavated and disposed of off the Rosen Property Site was not documented. Petroleum hydrocarbons were reported as non-detect in a groundwater sample collected from a monitoring well north of the former heating oil UST excavation area. Based on the information available, it is not clear whether the monitoring well was down-gradient of the UST excavation area. No other information pertaining to this UST release was available for review.

3.4.3 Former American Linen Supply Co. Property

The American Linen CVOC Plume comprises groundwater contaminated with CVOCs emanating from and down-gradient of the former American Linen Supply Co. facility at 700 Dexter Avenue North in Seattle, Washington, currently owned by BMR-Dexter LLC (Former American Linen Property). The site encompassing contaminated soil and groundwater on and off property at 700 Dexter Avenue North, including the American Linen CVOC Plume, is referred to as the American Linen Supply Co. – Dexter Avenue Site (American Linen Site). As described in the *Final Remedial Investigation/Feasibility Study Work Plan, American Linen Supply Co – Dexter Avenue Site, 700 Dexter Avenue North, Seattle, Washington* dated December 4, 2019, prepared by PES Environmental, Inc. (2019) (Final RI/FS Work Plan), commercial laundry and dry cleaning businesses operated on the Former American Linen Property beginning in approximately 1946 and continued through the mid-1990s. Releases that occurred on the Former American Linen Property during the period of operation contaminated soil with CVOC concentrations as PCE, TCE, isomers of DCE, and vinyl chloride that exceed the site-specific screening levels for the American Linen Site to depths greater than 100 feet bgs.

Under static conditions, contaminated groundwater from the Shallow Water-Bearing Zone, Intermediate Water-Bearing Zone, and Deep Outwash Aquifer flows from the Former American Linen Property to the east and southeast with a downward vertical gradient and then to the south at the distal end of the American Linen CVOC Plume over an approximate distance of 1,100 linear feet. The lateral and vertical extent of the American Linen CVOC Plume has not been fully characterized, but exceeds 500 feet in width and approximately 100 feet in vertical thickness at areas down-gradient of the Former American Linen Property. The aerial extent of the American

Linen CVOC Plume that exceeds site-specific screening levels for the American Linen Site encompasses the majority of the Former American Linen Property and extends east-northeast past 8th and 9th Avenues onto Blocks 77 (900 Roy Steet to 731 Westlake Avenue) and 79 (701, 721, 739, and 753 9th Avenue North), south and southeast across Roy Street onto Blocks 49 and 84,[2] and east across Westlake Avenue North beyond the Block 43 Property and onto the western portion of the Block 37 Property.

American Linen CVOC Plume impacts to the lower portion of the Intermediate Water-Bearing Zone and Deep Outwash Aquifer groundwater at concentrations less than MTCA screening levels extend as far south as the Block 38 West Property; however, the full extent of groundwater impacts at concentrations less than MTCA screening levels has not been identified. A temporary increase in CVOC concentrations was observed in dewatering wells located off property and adjacent to the northwestern corner of the Block 38 West Property, likely due to construction dewatering events that occurred on the Block 38 West Property and at least one other property that underwent redevelopment in the nearby South Lake Union area.

cDCE and/or vinyl chloride associated with the American Linen CVOC Plume were detected at concentrations exceeding MTCA screening levels in Deep Outwash Aquifer groundwater samples collected from monitoring wells MW128 and FMW-131 on the Block 37 Property[3], north-adjacent to the Block 38 West Property, during groundwater monitoring events conducted between 2014 and 2018 (Final RI/FS Work Plan Figure 37; Table 14). cDCE was detected at concentrations less than the MTCA Method B cleanup level in Deep Outwash Aquifer groundwater samples collected from monitoring wells FMW-137 and FMW-138 during groundwater sampling events performed from November 2018 through July 2019 on the Block 38 West Property (Appendix D). Historical groundwater sampling of the Shallow Water-Bearing Zone on the Block 37 and Block 38 West Properties (including monitoring wells FMW-130 and FMW-132 through FMW-135) (Table 9) indicates that no sources of CVOCs to groundwater existed on the Block 38 West Property.

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[2] Block 77 is located at 900 Roy Street to 731 Westlake Avenue North, and Block 79 is located at 701 through 753 9th Avenue North. Block 49 is located at 801 Roy Street, and Block 84 is located at 800 Mercer Street.

[3] Concentrations of cDCE and vinyl chloride were also detected in groundwater samples collected from monitoring well GEI-2, which is screened from the Intermediate Water-Bearing Zone into the top of the Deep Outwash Aquifer.

Available analytical data for groundwater samples collected from the lower portion of the Intermediate Water-Bearing Zone indicate that cDCE impacts are likely associated with the American Linen CVOC Plume.

4.0 INDEPENDENT INTERIM ACTION

Investigations conducted at the Block 38 West Property have identified hazardous substances in soil and groundwater at concentrations exceeding applicable screening levels. Screening levels were established as a conservative basis for defining the extent of contamination for each hazardous substance exceeding concentrations of potentially applicable cleanup levels and affected media at the Block 38 West Site. Hazardous substances targeted for this independent interim action were selected based on the compounds detected in soil or groundwater samples collected from the Block 38 West Property at concentrations exceeding the screening levels. The hazardous substances identified for soil were GRO, DRO, ORO, benzene, total naphthalenes, and cPAHs. The hazardous substances identified for groundwater were DRO, ORO, benzene, and total naphthalenes. Screening levels and COPCs are discussed in further detail under Section 6.0, Preliminary Conceptual Site Model.

The independent interim action reduced the threat to human health and the environment by removal of impacted soil, the Shallow Water-Bearing Zone, and the upper portion of the Intermediate Water-Bearing Zone from within the property boundary as part of the Block 38 West Property redevelopment project. Components of the independent interim action included excavation of impacted soil to eliminate source material, construction dewatering and treatment of contaminated groundwater, installation of a vapor barrier around the entire perimeter and below the building foundation, and construction of the exterior walls and floor slab for the underground portion of the building using waterproof concrete.

Redevelopment of the Block 38 West Property began in late October 2019 and entailed construction of a multi-story mixed-use building with 12 stories above street level and 4 levels of underground parking. The finish floor elevation of the lowest level of parking is -3.25 feet NAVD88. Construction of the new building required mass excavation across the entire Block 38 West Property to approximate elevation -6.5 feet NAVD88 or approximately 30 to 35 feet below existing grade. Excavation for elevator cores and deeper structural features extended below the mass excavation subgrade. The excavation sidewalls were retained using soldier pile and lagging shoring methods in conjunction with four rows of tiebacks.

4.1 INDEPENDENT INTERIM ACTION OBJECTIVES

The objective of the independent interim action was to reduce the threat to human health and the environment at the Block 38 West Property. Impacted soil was transported off the Block 38 West Property for disposal at permitted treatment, storage, and disposal facilities. The interim action removed the Shallow Water-Bearing Zone and the upper portion of the Intermediate Water-Bearing Zone beneath the Block 38 West Property. The extraction and treatment of contaminated groundwater was designed to prevent impacted groundwater from entering the Block 38 West Property and to remove contaminant mass from groundwater with dissolved hazardous substances withdrawn by permitted construction dewatering. The new building foundation design included the installation of a vapor barrier around the entire perimeter and beneath the building foundation to mitigate the potential vapor intrusion exposure pathway.

The independent interim action was conducted to meet the requirements of MTCA as defined in WAC 173-340-430. The scope of work for the independent interim action was developed in accordance with Ecology requirements and guidance, including MTCA. The independent interim action will be part of the final cleanup action, but does not foreclose reasonable alternatives for the final cleanup action at the Block 38 West Site based upon known conditions at the Block 38 West Site.

4.2 CONSTRUCTION DEWATERING AND TREATMENT

To facilitate redevelopment of the Block 38 West Property, construction dewatering was required. The construction dewatering system was implemented per the Middour Consulting LLC (2018) groundwater control plan and specifications to draw groundwater below the maximum excavation depth required for the redevelopment design (Appendix E). The final groundwater control plan design included nineteen 12-inch-diameter dewatering wells (DW-1 through DW-17), and two 6-inch-diameter dewatering wells (DW-18A and DW-18B) (Figure 3). The dewatering wells were installed in 30- to 36-inch-diameter boreholes drilled around the perimeter of the Block 38 West Property and screened from an elevation of 10 to -30 feet NAVD88 to extract groundwater at a combined rate of about 800 gallons per minute after approximately 1 week of pumping, tapering to approximately 540 gallons per minute after a period of approximately 1 month of operation.

Each well was equipped with a pump capable of initially discharging up to 100 gallons per minute under 70 feet of total dynamic head.

The construction dewatering wells were installed during December 2019 and January 2020. The construction dewatering wells on the northern and western portions of the Block 38 West Property started pumping in early January 2020 and the dewatering wells on the eastern and southern portions of the Block 38 West Property started pumping in late January 2020. Initially the system was producing approximately 650 to 700 gallons per minute and was reduced to approximately 350 gallons per minute in May 2020 before being shut down in March 2021.

The construction dewatering system was able to achieve drawdown to an approximate elevation of -10 feet NAVD88 across the Block 38 West Property, within the Intermediate Water-Bearing Zone, for a period of up to approximately 12 to 15 months. The groundwater elevation was monitored around the perimeter of the building by the geotechnical engineer through a series of five observation wells (OW-1 through OW-5) (Figure 3) that are generally screened from elevation -10 to -20 feet NAVD88 (Table 6). The dewatering system was operated continuously until the excavation was completed, the exterior walls and the floor slab were constructed with a vapor barrier around the entire building envelope and waterproof concrete below the water table, and sufficient structural weight of the building or other measures to secure the building were in place to counteract buoyancy.

The water treatment system was constructed per plans and specifications provided by WaterTectonics of Everett, Washington and is present on the Block 37 Property (Appendix F). The water treatment system was connected to the dewatering wells via headers and conveyance lines under Mercer Street. The construction dewatering system had three separate water conveyance lines: a west conveyance line associated with dewatering wells on the western and northern Block 38 West Property boundaries; an east conveyance line associated with dewatering wells on the eastern and southern Block 38 West Property boundaries; and a stormwater conveyance line. The water treatment system was comprised of baffled sedimentation tanks, an air stripper and associated vapor-phase granular activated carbon and potassium permanganate zeolite vessels, liquid-phase granular activated carbon vessels, and contingency measures for pH balancing to treat the groundwater extracted from the Block 38 West Property.

The water treatment system treated groundwater extracted from the Shallow and Intermediate Water-Bearing Zones and the Deep Outwash Aquifer, and any stormwater generated during construction activities, sufficient to achieve permit requirements prior to discharge to Lake Union or, alternatively, to meet criteria for discharge to the municipal sanitary sewer. Compliance discharge water samples were collected in accordance with Ecology's Administrative Order Docket No. 16629 for National Pollutant Discharge Elimination System (NPDES) Construction Stormwater General Permit and King County Industrial Waste (KCIW) Discharge Authorization No. 4493-02. The COPCs listed in the NPDES Construction Stormwater General Permit or KCIW discharge limits were reported either non-detect at the laboratory practical quantitation limit (PQL) or less than the established NPDES or KCIW discharge limits, as applicable, in effluent water samples collected from the combined outfall of the water treatment systems.

The construction dewatering and treatment system was shut down on March 24, 2021. The 19 dewatering wells (DW-1 through DW-17, DW-18A, and DW-18B) associated with the construction dewatering system were decommissioned on April 26, 2021. During the system operation between January 2020 and March 2021, a total of approximately 186,500,000 gallons of water from the construction dewatering system and stormwater were collected, treated, and discharged via a private stormwater lateral to the City of Seattle stormwater system and approximately 2,545,000 gallons of water from the construction dewatering system and stormwater were collected, treated, and discharged via the municipal sanitary sewer. Compliance discharge water samples were routinely collected in accordance with the NPDES Construction Stormwater General Permit and KCIW Discharge Authorization.

As part of the independent interim action and as presented in the IAWP, performance groundwater monitoring was conducted during construction dewatering activities at, and in the vicinity of, the Block 38 West Property for the Deep Outwash Aquifer. The purpose of the performance groundwater monitoring was to monitor concentrations of CVOCs in groundwater associated with the American Linen CVOC Plume and further described in the Technical Memorandum regarding

Groundwater Monitoring Program, South Lake Union Block 38 West Property dated January 13, 2020, and provided in Appendix D. The data collected during the groundwater monitoring program also was used to assess treatment options for extracted groundwater and make any necessary modifications to the dewatering treatment system to ensure permit compliance. Groundwater performance monitoring continued throughout construction dewatering operations with the last performance monitoring event conducted in February 2021 (Appendix D).

4.3 MONITORING WELL DECOMMISSIONING

The monitoring wells on the Block 38 West Property that were installed during the subsurface investigations were decommissioned by a licensed well driller in accordance with the Washington State Water Well Construction Act (RCW 18.104) and WAC 173-160-460. Malcolm Drilling of Kent, Washington decommissioned monitoring wells FMW-130, FMW-132, and FMW-133 on November 4, 2019, and FMW-134 and FMW-136 on February 13, 2020. Anderson Environmental Contracting, LLC of Kelso, Washington decommissioned monitoring well FMW-148 on December 23, 2019 and decommissioned monitoring wells FMW-135, FMW-144 through FMW-147, and FMW-149 on January 8, 2020. A summary of monitoring well construction details and date of decommissioning is provided in Table 11.

4.4 EXCAVATION AND OFF-PROPERTY DISPOSAL OF CONTAMINATED SOIL

Based on previous investigations and performance soil samples collected during the independent interim action, soil with detectable concentrations of hazardous substances extended to an approximate elevation of 0 feet NAVD88 for the northern half of the Block 38 West Property and 5 to 10 feet NAVD88 across the majority of the Block 38 West Property. Soil encountered with detectable concentrations of hazardous substances (i.e., whether exceeding or less than screening levels) were managed and disposed of off the Block 38 West Property as a nonhazardous waste at a permitted landfill.

Installation of shoring piles started in November 2019 and was completed in January 2020. Mass excavation activities started in January 2020 and were completed in June 2020. Approximately 64,200 tons of soil containing detectable concentrations of hazardous substances and wood and organic debris was removed from the Block 38 West Property through June 26, 2020. Of this total, approximately 44,000 tons of soil contained hazardous substances at concentrations exceeding the screening levels. Approximately 50 percent of the 44,000 tons (23,000 tons) of soil with hazardous substances at concentrations exceeding the screening levels was associated with wood and organic debris encountered across the Block 38 West Property.

Excavation of soil with detectable concentrations of hazardous substances removed during construction of the building required special handling and disposal measures beyond those used for handling and disposing of clean soil. Soil with detectable concentrations of hazardous substances was excavated, segregated, stored temporarily, and disposed of off the Block 38 West Property in accordance with Washington State Solid Waste Management Laws and Regulations (RCW 70A.205 and WAC 173-351 and 173-304) and the *Guidance for Remediation of Petroleum Contaminated Sites* revised June 2016 (Ecology 2016) (Ecology Guidance). Management of soil with detectable concentrations of hazardous substances was conducted concurrently with other construction activities such as shoring, dewatering, and excavation of clean soil that met criteria for reuse as clean fill or other acceptance criteria for disposal at an off-Property facility; and was conducted in accordance with the procedures described in the 2019 IAWP (Farallon 2019c).

Performance soil samples were collected by Farallon at the Block 38 West Property during previous investigations and during the independent interim action. Performance soil sampling points were used as confirmation soil sampling points where analytical results for performance soil samples confirmed that screening levels were attained above or at the final limits of the excavation.

4.5 UTILITY DECOMMISSIONING – SIDE SEWER LINE

A side sewer line on the southeastern portion of the Block 38 West Property was encountered at an approximate elevation of 23 feet NAVD88 during demolition and utility capping activities by GLY in November 2019 (Figures 3 and 20). GLY notified Farallon regarding the discovery of a black liquid discharging from a side sewer line at the Block 38 West Property while inspecting side sewer utilities in the east-adjacent alley. The side sewer line where the liquid was observed extended west onto the Block 38 West Property[4] and was not documented on Seattle Public Utilities maps. When GLY exposed the side sewer line on the Block 38 West Property, the side sewer line was breached and Farallon personnel collected a sample of the liquid for laboratory analysis. The sample result indicated the presence of total petroleum hydrocarbons in the liquid.

GLY capped the side sewer line at the eastern Block 38 West Property boundary and inspected the length of the line to the maximum extent practicable. The side sewer was approximately 45 feet north of the southeastern boundary of the Block 38 West Property and traced approximately 35 feet to the west until an obstruction in the side sewer line was encountered or the line had previously collapsed. Test pits were advanced in the vicinity in December 2019 to evaluate the source of separate-phase petroleum hydrocarbons that were observed in the side sewer line. Test pits TP-4 through TP-6 were advanced to evaluate the extent of the sanitary sewer line to the west. No obvious signs of contamination were observed based on field screening and no soil samples were submitted for analysis. No source of the separate-phase hydrocarbons contained within the side sewer line was observed. Test pit TP-7 was advanced adjacent to the area where the sanitary sewer line was plugged with bentonite and previous field screening indicated a sheen on soil proximate to where the side sewer line had collapsed when exposed. The analytical results for COPCs in soil were less than screening levels (Figures 3 through 9; Tables 1 through 5). No source of the petroleum hydrocarbons contained within the side sewer line was identified during subsequent demolition and excavation activities. Additional field screening in the southeastern portion of the Block 38 West Property did not indicate a release of petroleum hydrocarbons to soil or groundwater.

4.6 UST DECOMMISSIONING

As noted in Section 2.6, Regulatory History, two previously unidentified USTs containing bunker oil and a fuel product line were encountered in the northwest corner of the Block 38 West Property and were associated with the former mechanical equipment area located west-adjacent to the former building and in the Westlake Avenue North right-of-way (Figures 3 and 24). The

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[4] This side sewer extended onto King County Parcel No. 1983200170 on the southern portion of the Block 38 West Property (500 and 510 Westlake Avenue North).

mechanical equipment area dimensions were approximately 60 feet north-south by 15 feet east-west, and the concrete subgrade structure was located beneath the Westlake Avenue North sidewalk and connected to the basement of the former building, which housed mechanical equipment servicing the former building utilities. As part of the Block 38 West Property redevelopment, the mechanical equipment was decommissioned and removed, and in February 2020 the mechanical equipment area was backfilled with controlled density fill. UST01 was discovered on January 21, 2020 during the removal of the concrete foundation and was approximately 1,200-gallons in volume. UST02 was discovered on February 5, 2020 during mass excavation activities in the northwest corner and approximately 10 feet west of UST01 along the western shoring wall and located approximately 5 feet below the former concrete foundation. UST02 was approximately 2,200-gallons in volume.

A product sample was collected from UST01 and UST02 and submitted to OnSite for evaluation of total petroleum hydrocarbons to assist with UST decommissioning activities. The product in UST01 and UST02 was confirmed as bunker fuel oil by OnSite. City Investors IX selected a specialty subcontractor to conduct the UST decommissioning and removal activities, which included inerting and rinsing the interior of the USTs, as necessary, and removing the USTs from the Property for recycling. The UST decommissioning services were provided by Construction Group International of Woodinville, Washington, (CGI) and both USTs were permanently decommissioned by excavation and removal in accordance with Washington State *Underground Storage Tank Regulations* (WAC 173-360) and Ecology PCS Guidance.

Mr. Brad Reilly served as the Washington State UST Decommissioning Supervisor (Certification No.8289423). Mr. Reilly confirmed that USTs containing bunker fuel oil were exempt from filing a 30-day UST Closure Notice with Ecology. Mr. Greg Peters (Certification No. 8883066) and Ms. Anastasia Burns (Certification No. 8456246) of Farallon served as the Washington State UST Site Assessors and conducted the site assessments in accordance with the Ecology *Guidance for Site Checks and Site Assessments for Underground Storage Tanks* dated February 1991, revised April

2003 (Ecology Guidance Document). The UST decommissioning process included the following activities:

- Flushing the product lines to transfer any residual fuel in the lines back into the UST;
- Cleaning and triple-rinsing the UST interior and transporting the wash water off the property for disposal;
- Obtaining a Decommissioning Permit from the Seattle Fire Department and arranging for Seattle Fire Department inspection to authorize removal of the UST;
- Testing the internal atmosphere of the UST by a Marine Chemist in preparation for removal;
- Uncovering the UST and excavating around the sides of the UST, and lifting the UST from the excavation for inspection;
- Collecting site assessment soil samples from the four sidewalls of the UST excavation and from the bottom of the excavation; and
- Over-excavation and collecting additional soil samples from the sidewalls and/or bottom of the excavation where applicable.

A description of the site assessment activities and observations are presented below. A copy of UST decommissioning records provided by CGI are included in Appendix G.

4.6.1 UST01

UST01 was discovered on January 21, 2020 in the northwest portion of the Block 38 West Property (grid M1; Figures 3 and 24[5]) during removal of the concrete foundation and the start of excavation activities. At the time of discovery Farallon staff observed black liquid in soil following the removal of the overlying concrete slab.

Farallon observed the decommissioning and removal of the approximately 1,200-gallon UST on January 27, 2020. Farallon completed a UST Site Assessment and holes were observed on the west

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[5] Grid areas are shown on Figure 21.

and east ends of the UST01. Field screening indicated localized impacts to soil below and adjacent to the west and east sides of the UST01. One soil sample was collected directly beneath the UST and four sidewall samples from the final limits of the UST excavation (Figures 3 and 21). In-place soil observed during the UST excavation was generally poorly graded sand with gravel. Groundwater was not encountered to the maximum depth of the excavation during removal of the tank at approximately elevation 17 feet NAVD88.

Site assessment soil samples were submitted to OnSite for laboratory analysis. Samples were analyzed for one or more of the following constituents using the previously identified analytical methods, unless indicated otherwise: GRO, DRO, ORO, BTEX, cPAHs, naphthalenes, select VOCs, PCBs, and lead. The analytical results for UST01 are summarized in Tables 1 through 5 and Figure 24.

As part of the site assessment soil adjacent to UST01 was field screened for indications of a release. Based on field observations a soil sample, M1-TANK-24.5, was collected from the area adjacent to UST01 to evaluate COCs and other required analyses per the Ecology Guidance Document associated with unknown UST contents. The results of the product sample confirmed the contents of UST01 as bunker fuel oil and the remaining site assessment compliance soil samples collected from below and all four sides of the UST01 excavation were focused on heavy end petroleum hydrocarbons, DRO, ORO and PAHs. Total DRO+ORO, DRO, ORO, naphthalenes, PCBs and lead were detected at concentrations less than the screening levels in the bottom sample and were reported at the laboratory PQL in the remaining sidewall soil samples collected from UST01 excavation. 1-methylnaphthalene was detected at a concentration exceeding the screening level in the bottom sample and reported at the PQL in the other sidewall soil samples collected from the UST01 excavation. cPAHs were detected at concentrations less than the screening level in soil samples collected from the bottom of the excavation, east sidewall, and south sidewall and reported at the PQL in the other sidewall soil samples collected from the UST01 excavation.

4.6.2 Fuel Product Line

A product line apparently associated with UST01 and UST02 was discovered on January 31, 2020 in the west sidewall of the excavation directly west of UST01. The line extended north to the northwestern corner of the former building foundation (Figures 3 and 24). When the west sidewall was exposed for the installation of wood timber lagging Farallon staff observed that shoring piles (W50 through W54) and the casing for dewatering well DW-17 had intersected and damaged the product fuel line during installation. Other than the section where the product line was damaged with the dewatering well installation Farallon staff observed minor staining around the joints and connection fittings. The piping in the west sidewall was removed on February 3, 2020 to the extent practicable by Hos Bros. and performance soil samples were collected to meet the site assessment requirements in the Ecology Guidance Document. Soil sidewall samples from mass excavation soil sampling grids N1, M1, and L1 and soil samples collected from boring FB-20 north of soil sampling grid N1 defined soil impacted to the north and south and vertically in the western sidewall for DRO, ORO, total DRO+ORO, naphthalene, 2-methylnaphthalene. The western extent of impacts associated with the UST product line was defined in mass excavation soil sampling grid N1-WSW3 approximately 2 feet west of the Block 38 West Property boundary. Impacts documented around the UST product line in mass excavation soil sampling grid N1 west sidewall indicates that the releases associated with the product line are localized. The extent of impacted soil associated with the UST product line to the west of soil sidewall sample M1-WSW at elevation 20 and 15 feet NAVD88 has been identified as a data gap and will be further characterized during the remedial investigation.

4.6.3 UST02

UST02 was discovered on February 5, 2020 by Hos Bros. during excavation activities in the northwest corner of the Block 38 West Property approximately 10 feet west of the UST01 location and the top of UST02 was encountered at approximately elevation 19 feet NAVD88 (grid M1; Figures 3 and 21). A section of the UST was damaged during excavation activities resulting in a thick, black oily liquid with strong petroleum-like odors flowing out from the UST02. The area around UST02 was bermed to contain the product release, excavated, and stockpiled for off-Property disposal. Farallon collected a sample of the product from UST02 and submitted it to OnSite for hydrocarbon identification and OnSite confirmed the product was bunker fuel oil. Soil samples were also collected around UST02 to evaluate for the previously unidentified petroleum release.

Farallon observed the decommissioning and removal of the 2,200-gallon UST02 on February 7, 2020. Farallon completed a UST Site Assessment and holes were observed on all sides of the UST after removal. Field screening indicated localized impacts to soil below and adjacent to the northern, western, and eastern sides of the UST. Two soil samples were collected directly beneath the UST and four sidewall samples from the final limits of the UST excavation. In-place soil observed during the UST02 excavation was generally layers of silty sand and organic peat-like material. Groundwater was not encountered to the maximum depth of the excavation during removal of the tank at approximate elevation 14 feet NAVD88.

UST site assessment soil samples were submitted to OnSite for laboratory analysis. Soil samples were analyzed for one or more of the following constituents using the previously identified analytical methods: GRO, DRO, ORO, BTEX, cPAHs, naphthalenes, and PCBs. The analytical results for UST02 are summarized in Tables 1 through 5 and Figure 21.

Based on field observations performance soil samples were collected adjacent to UST02 to evaluate COCs and other required analyses per the Ecology Guidance Document associated with bunker fuel oil. PCBs were reported at concentrations less than the laboratory PQLs, and BTEX, DRO, ORO, and total DRO+ORO were detected at concentrations less than screening levels in performance and confirmation samples collected from beneath and along all four sides of UST02. GRO was detected at a concentration exceeding the screening level in a performance soil sample collected from the east side of UST02; however, the sample was flagged by the laboratory as the hydrocarbon range being indicative of heavier fuels being present in the sample impacting the gasoline result. GRO was not detected at a concentration exceeding the laboratory PQL in the other performance soil sample collected from UST02 excavation. Naphthalenes were detected at concentrations exceeding the screening levels in one of two bottom soil samples and in soil samples collected from the northern, eastern, and western sidewalls of the UST02 excavation. cPAHs were detected at concentrations exceeding the screening levels in one of two bottom soil samples and in soil samples collected from the northern, eastern, and western sidewalls of the UST02 excavation.

4.7 VAPOR BARRIER INSTALLATION AND WATERPROOF FOUNDATION

A chemical resistant vapor barrier was installed across the entire building perimeter from the top of the shoring wall to the base of the mat slab foundation and horizontally across the entire building foundation, which was placed prior to the mat slab foundation concrete pour (Figure 25). The exterior foundation walls and floor slab of the underground portion of the building were constructed of waterproof concrete below the water table. No provisions for drainage were needed. The vapor barrier will prevent future migration of and potential exposure to contaminated groundwater and associated soil vapor, if present, from properties adjacent to or in the vicinity of the Block 38 West Property. In addition to the vapor barrier, the thickness of the mat slab foundation and high-performance waterproof concrete that reduces water vapor transmissivity will augment the attenuation of soil vapor, if present.

The vapor barrier specified for the Block 38 West Property building construction was Drago Wrap from Stego Industries, LLC of San Clemente, California (Appendix H). Drago Wrap is specifically engineered to mitigate environmental contaminants and is rated for the identified hazardous substances for the Block 38 West Site and CVOCs that are present adjacent to the Block 38 West Property in deeper groundwater. Drago Wrap is a 20 mil, multi-layered plastic extrusion meeting the standards of ASTME1745 for water vapor retarders in contact with soil or granular fill under concrete slabs, meets standard methane and radon gas specifications, and is rated for environmental contaminants such as petroleum hydrocarbons and CVOCs (Appendix H). Drago Wrap was installed per the manufacturer's specifications and the installer detailed penetrations and terminations per the manufacturer's specifications.

In general, the mat slab is a minimum of 48 inches thick with the top 12 inches being comprised of high-performance waterproof concrete (Hycrete) across the entire Block 38 West Property. The mat slab increases in thickness for various foundation elements up to 63 to 75 inches in the central and northern portions of the foundation. Vertical foundation walls have a 16-inch-thick foundation wall comprised of Hycrete that extends to an elevation of 20 feet NAVD88, which is approximately 2 feet above the water table elevation at approximately 18 feet NAVD88. Above the water table, the foundation materials transitioned from waterproof concrete to concrete with drainage board and bentonite waterproof panels in certain below-grade garage walls where occupied space occurs such as mechanical, electrical, and storage rooms. The drainage board extended 4 feet below the water table to an elevation of 14 feet NAVD88.

The waterproofing product specified for the Block 38 West Property building foundation was the Hycrete W1000 System from Hycrete of Seattle, Washington. Hycrete is an admixture that is combined with cement to create a hydrophobic concrete by combining the metallic ions in the cement with the hycrete admixture, forming water-insoluble polymers blocking water from concrete pore space. The Hycrete W1000 System has less than 1 percent capillary absorption in concrete, which is the main water transport mechanism in concrete, and it also bonds to steel reinforcement within concrete, providing a protective covering to prevent corrosion.

5.0 ALLEY AREA INTERIM ACTION

Investigations conducted at the alley identified hazardous substances in soil at concentrations exceeding applicable screening levels. The objective of the interim action was to reduce the threat to human health and the environment and to correct a problem that will likely cost substantially more to address if not completed during the alley improvements. In accordance with the AO, this work was conducted as a formal interim action under Ecology oversight and consistent with the Ecology-approved *Interim Action Work Plan, Alley Area of Block 38 West Site between Republican Street and Mercer Street, Seattle, Washington* dated February 3, 2021 prepared by Farallon (2021) (Alley IAWP).

5.1 EXCAVATION AND OFF-PROPERTY DISPOSAL OF CONTAMINATED SOIL

Based on previous investigations and performance soil samples collected during the interim action, soil containing detectable concentrations of hazardous substances extended to an approximate elevation of 17.5 to 15 feet NAVD88 at the alley (Figure 23). The construction excavation activities within the alley extended to a depth of approximately 5 feet bgs or an elevation of 25 to 18 feet NAVD88 (north to south) in order to place structural backfill to support the new concrete road surface and access utilities. Groundwater was not encountered during the alley excavation activities.

Performance soil samples were collected by Farallon at the alley during previous investigations and during the interim action. Performance soil sampling points were used as confirmation soil sampling points where analytical results for performance soil samples confirmed that screening levels were attained before or at the final limits of the excavation.

Construction excavation activities started in February 2021 and were completed in July 2021. Approximately 2,400 tons of soil containing detectable concentrations of hazardous substances and wood and organic debris was removed from the alley through July 23, 2021.

Excavation soil with detectable concentrations of hazardous substances removed during alley improvements required special handling and disposal measures beyond those used for handling and disposing of clean soil. Soil with detectable concentrations of hazardous substances was excavated, segregated, stored temporarily, and disposed of off the property in accordance with Washington State Solid Waste Management Laws and Regulations (RCW 70A.205 and WAC 173-351 and 173-304) and Ecology Guidance. Management of soil with detectable concentrations of hazardous substances was conducted concurrently with other construction activities such as shoring, dewatering, and excavation of clean soil that meets criteria for reuse as clean fill or other acceptance criteria for disposal at an off-Property facility; and was conducted in accordance with the procedures described in the Alley IAWP.

5.2 UTILITY AND STRUCTURAL IMPROVEMENTS

The alley improvements occurred over six phases to limit disruptions to operating businesses on the Block 38 East Property. Phases 1 and 2 involved connecting the sewer line from the Block 38 West Property to the existing 6-inch-diameter sewer line that runs south in the alley toward Republican Street. During Phases 1 and 2 of construction activities, 30-inch-diameter rigid inclusions (structural columns) were installed in a grid pattern to a minimum elevation of 4 feet NAVD88 to support construction of a ramp to connect the alley to Republican Street. Phases 3 through 6 involved minor improvements that required excavation of soil to a depth of approximately 5 feet bgs. Structural fill was imported and was finished with a 6-inch-thick concrete surface.

6.0 PRELIMINARY CONCEPTUAL SITE MODEL

A preliminary conceptual site model was developed for the Block 38 West Property based on the historical and recent investigations, interim actions, and other information summarized in Sections 2 through 5 of this RI Work Plan. The preliminary conceptual site model is dynamic and will be refined throughout the remedial investigation process as additional information becomes available.

6.1 MEDIA OF CONCERN

The confirmed media of concern at the Block 38 West Site, which will be evaluated during the remedial investigation, are soil and groundwater. Indoor air and surface water (via stormwater discharge) will be retained as media of potential concern until sufficient information has been collected during the RI to demonstrate that these pathways are incomplete.

6.2 POTENTIAL RECEPTORS AND EXPOSURE PATHWAYS

The potential exposure risks to human health and the environment associated with the presence of hazardous substances in soil and groundwater at the Block 38 West Site were evaluated and presented on Figure 26. This subsection presents the evaluation and conclusions pertaining to the potential exposure pathways at the Block 38 West Site (Figure 26).

6.2.1 Soil to Groundwater

Based on the results of subsurface sampling and analysis, the soil to groundwater pathway is potentially complete. The independent interim action and alley interim action conducted at the Block 38 West Site removed soil with hazardous substances detected at concentrations exceeding screening levels, eliminating the soil to groundwater pathway from the Block 38 West Property. The soil to groundwater pathway is potentially complete in the alley and rights-of-way adjacent to the Block 38 West Property and will be evaluated as part of the remedial investigation activities.

6.2.2 Soil Direct Contact

Soil containing hazardous substances detected at concentrations exceeding screening levels was removed from within the limits of the Block 38 West Property and within the construction excavation extent in the alley but may be present beyond the limits of the construction excavation in the alley and adjacent rights-of-way. The standard point of compliance for the direct contact exposure pathway for soil is a depth of 15 feet bgs for human health and 6 feet bgs for terrestrial receptors (WAC 173-340-740[6][d] and WAC 173-340-7490[4][b]). Hazardous substances at concentrations exceeding screening levels were detected in shallow soil, less than 15 feet bgs, ranging in elevation from 20 to 15 feet NAVD88 adjacent to the northwestern corner of the Block 38 West Property and beyond the limits of the alley interim action.

Hazardous substances remaining in soil at the Block 38 West Site post-independent interim action and alley interim action presents a risk of direct contact with soil, which comprises both the dermal contact and ingestion pathways, if the improvements covering the contamination such as the current building foundation, pavement, and sidewalks that effectively eliminate the direct contact exposure pathway are removed.

6.2.3 Groundwater Ingestion/Drinking Water Beneficial Use

Groundwater conditions post-independent interim action and alley interim action will be evaluated as part of the remedial investigation activities. Direct contact with shallow groundwater during ground intrusive construction work is considered a potential exposure pathway, which comprises both dermal contact and incidental ingestion. Groundwater in the vicinity of the Block 38 West Site is not a current source of drinking water and its use as such in the future is very unlikely. There are no drinking water production wells proximate to the Block 38 West Site. Service water is collected in the Tolt and Cedar River watersheds and provided by the City of Seattle. Regardless, future use of groundwater as a drinking water source must be presumed, consistent with WAC 173-340-720(1)(a). Therefore, ingestion of contaminated groundwater (drinking water) is a potential future exposure pathway. If remedial investigation activities confirm impacts to groundwater at concentrations exceeding final cleanup levels, an institutional control may need to be implemented to restrict future groundwater use.

6.2.4 Groundwater to Surface Water and Sediment

COPCs have been detected at concentrations exceeding screening levels in groundwater samples collected on the Block 38 West Site, but the groundwater to surface water and sediment pathway is considered to be incomplete based on the confirmed groundwater flow direction to the south, away from Lake Union (Figure 11).

6.2.5 Vapor Inhalation

Based on the results of subsurface investigations and interim actions completed at the Block 38 West Site, there is potential for a vapor intrusion risk from naphthalenes, which were detected at concentrations exceeding groundwater screening levels protective of indoor air in groundwater samples on the southwestern portion of the Block 38 West Property. The independent interim action included the installation of a chemical resistant vapor barrier as a preemptive vapor intrusion mitigation measure. The barrier material, which is rated for petroleum hydrocarbons and other VOCs, will eliminate and/or reduce the potential vapor inhalation pathway for future building occupants.

6.2.6 Terrestrial Ecological Evaluation

A Terrestrial Ecological Evaluation (TEE) is required by WAC 173-340-7490 at any site where there has been a release of a hazardous substance to soil. The regulation requires that one of the following actions be taken:

- Documenting a TEE exclusion using the criteria presented in WAC 173-340-7491;
- Conducting a simplified TEE in accordance with WAC 173-340-7492; or
- Conducting 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 Block 38 West Site is excluded from a TEE because there is less than 1.5 acres of contiguous undeveloped land on the Site or within 500 feet of any area of the Site; the Site is not contaminated with the hazardous substances listed in WAC 173-340-7491(1)(c)(ii); and based on the criteria in WAC 173-340-7491(1)(b), all soil contaminated with hazardous substances is, or will be, covered by buildings, paved roads, pavement, or other physical barriers that will prevent plants or wildlife from being exposed to the soil contamination. No further consideration of ecological impacts is required under MTCA. The Ecology Terrestrial Ecological Evaluation Form is provided in Appendix I.

6.3 SCREENING LEVELS

Screening levels are established based on the potential exposure pathways and receptors (identified in Section 6.2) to identify a conservative basis for defining the extent of contamination for each hazardous substance and medium at a site. The screening levels may or may not be selected as the final cleanup levels in the Cleanup Action Plan. Table 12 provides a summary of potential exposure pathways and applicable screening levels established using MTCA Method B for hazardous substances detected in soil and/or groundwater at the Block 38 West Site. Consistent with MTCA, Method A values are used as a surrogate for Method B for compounds that do not have established Method B values; this generally applies to petroleum hydrocarbon mixtures (GRO, DRO and ORO).

The proposed screening levels for compounds detected in groundwater at the Block 38 West Site are based on exposure pathways that include groundwater as drinking water and groundwater protective of the vapor intrusion pathway (for volatile compounds). Where applicable, some of the groundwater screening level values are based on the applicable federal maximum contaminant level (MCL) for drinking water and adjusted to a cancer risk that does not exceed one in one hundred thousand (WAC 173-340-720[7][b]). The risk-based groundwater screening level for arsenic is also adjusted up to natural background[6] in accordance with WAC 173-340-720(7)(c).

6.4 CONSTITUENTS OF POTENTIAL CONCERN

COPCs were selected based on the known historical uses of the Block 38 West Property and surrounding historical land use, historical fill known to have been placed in this area, former USTs encountered, and the potential for releases of contaminants at concentrations exceeding screening levels.

COPCs retained for the Block 38 West Site consist of those hazardous substances which were detected in soil or groundwater samples collected from the Block 38 West Site and surrounding

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[6] Based on Puget Sound Lowland natural background concentration for arsenic from *Natural Background Groundwater Arsenic Concentrations in Washington State, Study Results,* Washington State Department of Ecology, Publication No. 14-09-044, dated January 2022.

areas at concentrations exceeding the screening levels identified in Section 6.3 and summarized in Table 12.

The COPCs for soil are:

- GRO;
- Total DRO+ORO;
- Benzene;
- Naphthalene;
- 1-Methylnaphthalene;
- 2-Methylnaphthalene;
- Benzo(a)pyrene;
- Total cPAHs TEC; and
- Metals as barium and mercury.

The COPCs for groundwater are:

- GRO;
- Total DRO+ORO;
- Benzene;
- Naphthalene;
- 1-Methylnaphthalene; and
- Metals as barium and mercury.

Chloroform was detected at a concentration exceeding the screening level in a groundwater sample collected from monitoring well FMW-136 on August 30, 2018. Chloroform was detected in two other groundwater samples and in the water sample collected from the potable water supply, which was used during drilling (Farallon 2018). Chloroform is a by-product of the treatment of municipal water supplies and a common contaminant in analytical laboratories; therefore, chloroform was not retained as a COPC for groundwater for the Block 38 West Site. Potable water was introduced to the subsurface during drilling to help control heaving sands and was subsequently recovered during well development. Potable water also can be introduced to the subsurface from leaking water supply and/or sewer lines.

cDCE was detected at concentrations less than the MTCA Method B cleanup level in the Intermediate Water-Bearing Zone and Deep Outwash Aquifer beneath the Block 38 West Property prior to startup of the construction dewatering system. Soil laboratory analytical results and historical groundwater sampling of the Shallow Water-Bearing Zone on the Block 38 West Property indicates that no sources of CVOCs to groundwater are present on the Block 38 West Property. Available analytical data for groundwater samples collected from the lower portion of the Intermediate Water-Bearing Zone and/or Deep Outwash Aquifer indicate that cDCE impacts are likely associated with the American Linen CVOC Plume; therefore, CVOCs were not retained as a COPC for groundwater for the Block 38 West Site. City Investors IX has agreed to conduct a single groundwater monitoring event in the Deep Outwash Aquifer to assess groundwater conditions post-construction dewatering events that occurred at the Block 38 West Property and at other properties undergoing development in the nearby South Lake Union area.

Metals (cadmium and lead) were detected at concentrations exceeding screening levels in a single test pit in the alley (TP-10-4), in soil samples collected from the east sidewall from the interim action in the alley (G/A5-ESW, H/A5-ESW, I/A5-ESW, and J/A5-ESW), and in soil samples collected from the west sidewall of the remedial excavation on the Rosen Property Site Lots 1 through 5 (EX-40-EL22, EX-41-EL22, and P-4-3.5). Arsenic was detected at a concentration exceeding a screening level in a single boring in the alley (FB-14). The soil laboratory analytical results for the Block 38 West Property indicates that no shallow sources of metals are present on the Block 38 West Property. Available analytical data for soil samples collected from the Rosen Property Site Lots 1 through 5 indicate that metals impacts are likely associated with the Rosen Property Site; therefore, metals including arsenic, cadmium, and lead were not retained as COPCs for soil and/or groundwater for the Block 38 West Site. Metals (barium and mercury) were detected at concentrations exceeding screening levels in soil samples collected at elevations ranging from

17 to 10 feet NAVD88 from borings FB-01, FB-02, FB-03, FB-04, FMW-133, and FMW-135, with mercury only being detected in a soil sample collected at an elevation of 15 feet NAVD88 from a single boring, FB-02 (Table 5). Although no shallow sources of metals as barium and mercury other than fill material were identified for the Block 38 West Property, barium and mercury were retained as COPCs for soil and/or groundwater for the Block 38 West Site.

6.5 CONFIRMED AND SUSPECTED SOURCES OF CONTAMINATION

The inferred sources of contamination at the Block 38 West Site are presented below. Adjacent properties with documented and confirmed releases of COPCs associated with historical operations described in Sections 2 and 3 that potentially have migrated near or to the Block 38 West Site via air deposition, soil, surface water runoff, and/or groundwater transport are also summarized below. Although the final determination of sources will be defined in later reports, this section presents preliminary conclusions regarding contaminant sources based upon data gathered during the independent interim action and alley interim action.

6.5.1 Block 38 West Property

Based on the results of subsurface investigations and the independent interim action completed to date by Farallon, the following historical operations and/or features were confirmed as sources of soil and/or groundwater contamination at the Block 38 West Property: historical placement of impacted fill soil; impacted fill soil located within wood debris associated with the former lumber mill operations on Block 38; former timber pilings associated with historical buildings; oil encountered in a sanitary sewer line at the southeastern portion of the Block 38 West Property (efforts to evaluate the sanitary sewer line indicated no specific point of release or former feature to which the sanitary sewer line was connected to); a coal fill layer ranging in thickness from 4 to 6 inches encountered across the east-central and northern portions of the Block 38 West Property at approximate elevation 20 feet NAVD88; and localized impacts associated with former bunker fuel oil USTs encountered in the northwestern portion of the Block 38 West Property. The 1-methylnaphthalene in soil detected at elevations 20 to 15 feet NAVD88 and cPAH impacts in soil detected between elevations 25 and 15 feet NAVD88 adjacent to UST01 and UST02 were similarly observed over the majority of the northern portion of the Block 38 West Property and are associated with fill material. Accordingly, Farallon does not attribute naphthalenes and/or cPAH concentrations detected in soil adjacent to UST01, the fuel product line, and UST02 to be solely related to the release of bunker fuel oil.

Farallon observed that the fill soil layer varied in thickness from 5 to 10 feet, with a coal fill layer observed at shallow depths during the mass excavation and in the east-central mass excavation sidewall. The coal fill layer is likely attributed to former coal storage associated with the former fuel yard on the Block 38 East Property (Lots 2 through 5) as discussed in Section 2.4.2. Beneath the fill soil layer the wood debris layer varied in thickness from 10 to 20 feet, thickest along the north and northeastern Block 38 West Property boundaries, and is attributed to former lumber mill operations and lumber storage on Block 38 and former timber pilings associated with historical buildings. Accordingly, silt and underlying silty sand could potentially contain COPCs associated with fill and wood debris (Farallon 2018).

6.5.2 Alley

Based on the results of subsurface investigations, the independent interim action, and alley interim action the following historical features were confirmed as sources of soil contamination at the alley: historical placement of impacted fill soil; wood debris associated with the former lumber mill operations on Block 38; a coal fill layer encountered in the southern and central portions of the alley likely associated with the former coal storage and distribution operations on the Block 38 East Property; and localized impacts associated with former railroad trestle and former timber pilings.

The alley interim action was conducted in conjunction with the Block 38 West Property redevelopment and removed an impacted fill layer consisting of sand, silt, coal fragments, and wood chips and organic material from approximate elevation of 25 to 18 feet NAVD88. The impacted fill layer is likely attributed to historical fill operations at Block 38 along the original southern shoreline of Lake Union. The alley interim action removed soil with detectable concentrations of COPCs to the north up to the Mercer Street right-of-way, to the east within 1 to 2 feet of the Block 38 East Property boundary, to the south up to Republican Street right-of-way, and to the west up to the eastern shoring wall on the Block 38 West Property (Figure 23).

Based on previous subsurface investigations conducted in the alley the vertical limits of COPCs were defined (Figures 4 through 10). Soil performance samples collected at the limits of the construction excavation in the alley confirmed the lateral limits of COPCs in soil to the south. Soil excavation performance and confirmation samples from the east excavation sidewall at the Block 38 West Property confirmed the lateral limits of COPCs to the west. Soil samples collected from the north sidewall of the construction excavation (location N/A5-NSW) detected cPAHs at concentrations exceeding screening levels at an elevation of 28 feet NAVD88 and less than screening levels at an elevation of 26 feet NAVD88. Boring FB-21 was advanced in February 2022 approximately 8 feet to the north of soil sampling location N/A5-NSW to evaluate soil conditions in the Mercer Street right-of-way. cPAHs were detected with a total cPAH TEC concentration exceeding the screening level in the soil sample collected from FB-21 at an elevation of 28 feet NAVD88, and all cPAHs were less than the screening levels at an elevation of 26 feet NAVD88. Soil samples collected from the east sidewall of the alley excavation (locations A/A5-ESW, C/A5-ESW, E/A5-ESW, G/A5-ESW, H/A5-ESW, I/A5-ESW, J/A5-ESW, L/A5-ESW, M/A5-ESW, and N/A5-ESW) confirmed that ORO, total DRO+ORO, naphthalenes, and/or cPAHs remain at concentrations exceeding applicable screening levels in the wedge of soil that remains between the alley and the Block 38 East Property.

Potential impacts from the alley to groundwater will be further evaluated under the RI for the Block 38 West Site.

6.5.3 North - Block 37 Site

GRO, BTEX, DRO, ORO, kerosene, naphthalene, methyl tert-butyl ether, cPAHs, and lead were detected at concentrations exceeding the applicable MTCA cleanup levels in soil and/or groundwater at the former Westlake 76 Station facility, with confirmed impacts to the adjacent Mercer Street and Westlake Avenue North rights-of-way proximate to the Block 38 West Property. Ecology (2018) determined that further remedial action was necessary at the Westlake 76 Station Site. Remedial actions completed at the former Westlake 76 Station facility have reduced the mass associated with former releases at the facility and beneath the Mercer Street right-of-way. Although impacts to soil and groundwater associated with the Westlake 76 Station facility have been documented proximate to the north and northwest property boundary of the Block 38 West

Property (sampling locations MW-71 and MW-72), soil samples collected from the northern and northwestern sidewalls of the mass excavation (locations N1-NSW, N2-NSW, N3-NSW, N3-NSW2, N4-NSW) did not detect petroleum hydrocarbon constituents at concentrations exceeding screening levels except in a localized area associated with a former UST product line, as described above.

Potential residual impacts from the Block 37 Site to groundwater will be further evaluated under the RI for the Block 37 Site.

6.5.4 East – Rosen Property Site

Based on the results of subsurface investigations completed to date and the independent interim action, the following historical operations and/or features were confirmed as sources of soil and/or groundwater contamination at Lots 1 through 5 of the Block 38 East Property: historical placement of impacted fill soil; wood debris associated with the former lumber mill operations on Block 38; USTs associated with the former gasoline service station; and the fuel yard associated with coal storage.

Releases of petroleum hydrocarbons, metals (lead and cadmium), and PAHs, including naphthalenes and cPAHs, were confirmed on Lots 1 through 5 at the Block 38 East Property. An impacted fill layer consisting of sand, silt, wood chips, and coal fragments was observed from approximate elevation of 25 to 21 feet NAVD88 and a wood debris layer was encountered at elevations ranging from 21 to 14 feet NAVD88 across Lots 1 through 5 and may be attributed to historical fill operations at this city block along the original southern shoreline of Lake Union. ORO, total DRO+ORO, naphthalenes, cPAHs and/or metals (lead and cadmium) were detected at concentrations exceeding screening levels in the west sidewall of the excavation on Lots 1 through 5 from elevations 23 to 19 feet NAVD88 (locations EX-19-W5, EX-20-W1.5, EX-38-EL23, EX-39-EL23, EX-40-EL22, EX-41-EL22). The alley interim action left a wedge of soil, due to existing utility infrastructure, with ORO, total DRO+ORO, naphthalenes, and/or cPAHs detected at concentrations exceeding applicable screening levels from elevation 25 to 17.5 feet NAVD 88 between the alley and the Block 38 East Property (locations A/A5-ESW, C/A5-ESW, E/A5-ESW, G/A5-ESW, H/A5-ESW, I/A5-ESW, J/A5-ESW, L/A5-ESW, M/A5-ESW, and N/A5-ESW).

A release from a heating oil UST associated with the Rosen Building on Lot 6 of the Block 38 East Property was confirmed during the permanent decommissioning and removal of the UST in 1994 (GeoEngineers 1999). Available information indicates that residual DRO and ORO were detected in soil samples collected north of the former heating oil UST excavation area, which exceeded MTCA cleanup levels at that time but do not exceed current MTCA Method A cleanup levels and reportedly were not detected in groundwater (GeoEngineers 1999). Based on the information available, it is not clear whether the monitoring well was down-gradient of the UST excavation area.

DRO and ORO were detected at relatively low concentrations (72 and 470 mg/kg, respectively) in a soil sample collected at an elevation of 20 feet NAVD88 from boring FB-11 advanced west of the former heating oil UST in the alley, which was removed as part of the alley interim action excavation.

Potential impacts from the Block 38 East Property to groundwater will be further evaluated under the RI for the Block 38 West Site.

6.5.5 South - Firestone Tire & Rubber Co. Property

Based on the results of subsurface investigations and UST decommissioning and removal, the following historical operations and/or features were confirmed as sources of soil and/or groundwater contamination at the Firestone Tire & Rubber Co. Property: historical placement of impacted fill soil; USTs associated with the former gasoline service station; and former vehicle maintenance activities.

Releases of petroleum hydrocarbons were confirmed during the UST decommissioning activities; however, petroleum hydrocarbons were not detected at concentrations exceeding applicable MTCA cleanup levels and groundwater was not encountered during the UST decommissioning. An independent cleanup is currently in progress at the Firestone Tire & Rubber Co. Property, which includes the mass excavation of soil for a subgrade parking garage and associated construction dewatering system that reportedly operated from December 2020 through September 2021.

Based on groundwater elevations being monitored at the Block 38 West Property, static groundwater conditions were not achieved at the Block 38 West Property until December 2021, a few months after the construction dewatering system on the Firestone Tire & Rubber Co. Property ceased operations (Table 6). A summary of the groundwater elevations surrounding the Block 38 West Property and in the vicinity of the Block 38 West Property are provided in Appendix D.

Potential impacts to groundwater quality post-construction dewatering events at and in the vicinity of the Block 38 West Property will be evaluated during a single post-construction dewatering groundwater performance monitoring event described in Section 8.4 and the Technical Memorandum regarding Groundwater Monitoring Program (Farallon 2020a, Appendix D).

6.5.6 Additional Surrounding Sites

This section summarizes nearby properties with documented and confirmed releases of hazardous substances associated with historical operations described in Section 2 that potentially have migrated near or to the Block 38 West Property via groundwater transport.

6.5.6.1 American Linen CVOC Plume

The American Linen Supply Co. – Dexter Avenue Site has confirmed releases of CVOCs to soil and groundwater at concentrations exceeding site-specific screening levels for the American Linen Site. Confirmed impacts to groundwater associated with the American Linen CVOC Plume extend northeast from 700 Dexter Avenue North Property past Valley Street, south across Roy Street, and east across Westlake Avenue North onto the western portion of the Block 37 Property. Prior to construction dewatering at the Block 38 West Property, the American Linen CVOC Plume impacted groundwater beneath the Block 38 Property at concentrations less than the screening levels in the lower portion of the Intermediate Water-Bearing Zone and Deep Outwash Aquifer.

cDCE was detected at concentrations up to 1.3 micrograms per liter (µg/l) in the Intermediate Water-Bearing Zone and Deep Outwash Aquifer beneath the Block 38 West Property prior to startup of the construction dewatering system. Historical groundwater sampling of the Shallow Water-Bearing Zone on the Block 38 West Property (including monitoring wells FMW-130 [reconnaissance sample] and FMW-132 through FMW-135) (Table 9) indicates that no shallow sources of CVOCs to groundwater are present on the Block 38 West Property. Available analytical data for groundwater samples collected from the lower portion of the Intermediate Water-Bearing Zone and/or Deep Outwash Aquifer indicate that cDCE impacts are likely associated with the American Linen CVOC Plume or potentially other off-site sources.

Given that the static (non-pumping) groundwater flow direction in the Deep Outwash Aquifer at and immediately up-gradient of the Block 38 West Property is southerly and that concentrations of CVOCs exceeding the applicable screening levels currently being used for the American Linen CVOC Plume are present east of 9th Avenue North, migration of the American Linen CVOC Plume to the Block 38 West Site was confirmed with performance groundwater monitoring of the Deep Outwash Aquifer during construction dewatering. The purpose of performance groundwater monitoring conducted during construction dewatering at the Block 38 West Property was to monitor concentrations of CVOCs in groundwater associated with the American Linen CVOC Plume and as further described in the Technical Memorandum regarding Groundwater Monitoring Program, South Lake Union Block 38 West Property dated January 13, 2020 (Farallon 2020a). A summary of the performance groundwater monitoring scope and schedule, groundwater elevations, and laboratory analytical results for CVOCs in groundwater samples collected is provided in Appendix D.

Current impacts from the American Linen CVOC Plume will be assessed at the Block 38 West Site by evaluating groundwater conditions in the Deep Outwash Aquifer post-construction dewatering events that occurred on the Block 38 West Property and at least one other property that underwent redevelopment in the nearby South Lake Union Area and as described in Section 8.4 and the Technical Memorandum regarding Groundwater Monitoring Program (Farallon 2020a, Appendix D).

The planned post-dewatering groundwater monitoring event as described in the Technical Memorandum regarding Groundwater Monitoring Program (Farallon 2020a) has not yet occurred because the groundwater elevations and flow did not return to static (natural) conditions until December 2021 due to construction dewatering that occurred at the Firestone Tire and Rubber Co. Site to the south of the Block 38 West Site; and due to ongoing discussions with Ecology regarding the scope of work for the remedial investigation. This monitoring event will be performed as part of the remedial investigation.

6.6 NATURE AND EXTENT OF CONTAMINATION

Based on the results of the subsurface investigations performed by Farallon from 2014 through 2019 and the results of the independent interim action, the nature and extent of contamination within the Block 38 West Property has been defined. Further investigation is required to evaluate the nature and extent of shallow fill soil contamination and groundwater impacts to the west, south, and east of the Block 38 West Property and to evaluate groundwater quality in the Intermediate Water-Bearing Zone post-independent interim action at the Block 38 West Property to support the RI for the Block 38 West Site.

Figures 4 through 10 show the nature and extent of soil impacts by COPCs and Figures 11 through 17 show groundwater flow direction and the extent of groundwater impacts by COPCs. Figures 18 through 23 show the nature and extent of contamination at the Block 38 West Site in vertical cross sections. Tables 1 through 11 summarize analytical results for COPCs detected in soil and groundwater samples collected at the Block 38 West Property, the alley, and the western sidewall of the Block 38 East Property, and groundwater elevations and monitoring well construction details.

6.6.1 Soil

The majority of COPCs detected at concentrations exceeding screening levels were encountered from approximate elevations 23 to 15 feet NAVD88, extending deeper to elevation 10 feet NAVD88 in localized areas and within the fill soil and/or organic debris material across the Block 38 West Property. The independent interim action and alley interim action conducted in conjunction with the redevelopment of the Block 38 West Property has removed the fill soil, wood debris, and soil with COPCs detected at concentrations exceeding screening levels from within the limits of the Block 38 West Property and adjacent alley, respectively.

GRO was detected at concentrations of 83 and 31 mg/kg, which exceed the screening level, in soil samples collected from boring FMW-145 at a depth of 13 feet bgs (elevation of 9.9 feet NAVD88) and at a depth of 1 foot bgs (elevation of 22.7 feet NAVD88), respectively, in independent interim action soil sampling grid H4 (Figure 4; Table 1) on the Block 38 West Property. GRO was either detected at concentrations less than the screening level or reported non-detect at the laboratory PQL in the remaining soil performance and confirmation soil samples collected on the Block 38 West Property during the independent interim action (Figure 4, Table 1). GRO was detected at a concentration of 2,100 mg/kg, which exceeds the screening level, in a soil sample collected from utility pothole PH-12 at an elevation of 21 feet NAVD88 in the alley (Figure 4, Table 1). The lateral extent of GRO impacts to soil adjacent to PH-12 have been defined by borings B-6, FB-12, FB-13, and alley excavation confirmation samples (E/A5-ESW and F/A5-B) (Figure 4). The vertical limits of GRO impacts to soil at PH-12 in the alley was defined by alley excavation confirmation sample E/A5-B (Figure 4).

Benzene was detected at a concentration of 0.12 mg/kg, which exceeds the screening level, in a soil sample collected from boring FB-08 at a depth of 2.5 feet bgs (elevation of 21.2 feet NAVD88) (Figure 5; Table 1). The lateral extent of benzene impacts to soil adjacent to FB-08 have been defined by borings FB-02 and FMW-132 and excavation confirmation samples I3-B, J2-B, K2-B, FB-12, FB-13, and alley excavation confirmation samples (E/A5-ESW and F/A5-B) (Figure 5). Benzene was either detected at concentrations less than the screening level or reported non-detect at the laboratory PQL in the remaining soil performance and confirmation soil samples collected on the Block 38 West Property during the independent interim action, in the alley, and from the northwestern sidewall of the Block 38 East Property (Figure 5, Table 1).

Total DRO+ORO were detected at a concentration of 15,600 mg/kg in a soil sample collected from test pit TP-2 at an elevation of 15 feet NAVD88 and at 6,500 and 23,800 mg/kg in soil samples collected from western sidewall samples UST-01-Line at an elevation of 21 feet NAVD88 and N1-WSW at an elevation of 17 feet NAVD88, respectively, which exceed the screening level

(Figures 6 through 8; Table 1). The impacts in the northwestern corner of the Block 38 West Property are likely associated with the former bunker fuel oil USTs and the former fuel product line apparently associated with the former USTs. The lateral and vertical limits of total DRO+ORO detected at concentrations exceeding screening levels in soil in this area have been defined within the limits of the Block 38 West Property and removed as part of the independent interim action. The lateral limits of total DRO+ORO contamination associated with former bunker fuel oil USTs have been defined to the north by FB-20 and N1-WSW, and to the west by N1-WSW but not west of M1-WSW. The lateral limits of total DRO+ORO impacts west of M1-WSW is a data gap and will be further assessed in the remedial investigation.

Total DRO+ORO were detected at a concentration exceeding the screening level in soil samples collected from monitoring well FMW-134 in the southwestern portion of the Block 38 West Property at an elevation of 20 feet NAVD88. The lateral and vertical limits of total DRO+ORO detected at concentrations exceeding screening levels in soil in this area have been defined within the limits of the Block 38 West Property and removed as part of the independent interim action. The lateral limits of total DRO+ORO at elevation 20 feet NAVD88 beyond the property boundary is considered a data gap and will be further assessed in the remedial investigation.

Total DRO+ORO were detected at concentrations exceeding the screening level in soil samples collected from the east-central portion of the Block 38 West Property, including boring FB-08 at an elevation of 21.2 feet NAVD88, monitoring well FMW-132 at an elevation of 20.7 feet NAVD88, and in soil performance samples collected from mass excavation soil sampling grids I3, K3, H4, and J4 at an elevation of 20 feet NAVD88. The impacts observed on the east-central portion of the Block 38 West Property at an elevation of 20 feet NAVD88 are likely associated with the former coal fill layer documented in this area at an elevation of 20 feet NAVD88 (see Section 6.5.1). The lateral and vertical limits of total DRO+ORO detected at concentrations exceeding screening levels in soil have been defined within the Block 38 West Property and removed as part of the independent interim action (Figures 6 through 8; Table 1).

Total DRO+ORO were detected at concentrations exceeding the screening level in soil samples collected from utility pothole PH-12, boring FB-13, and alley interim action confirmation samples

E/A5-B, G/A5-ESW, H/A5-ESW, and I/A5-ESW at elevations ranging from 22.5 to 17.5 feet NAVD88 in the central portion of the alley (Figures 6 through 8 and 23; Table 1). The lateral extent of total DRO+ORO impacts in soil adjacent to PH-12 and in the central portion of the alley has been defined (Figures 6 through 8 and 23). The vertical limits of total DRO+ORO impacts in the central portion of the alley are defined by FB-12, FB-13, and FB-14 and alley interim action confirmation samples H/A5-B and I/A5-B, at an elevation ranging from 17.5 to 15 feet NAVD88 (Figures 8 and 23). The impacts observed in the central portion of the alley at elevations ranging from 22.5 to 17.5 feet NAVD88 are likely associated with the former coal fill layer and impacted fill soil within wood debris documented in the alley at elevations ranging from 22 to 15 feet NAVD88 (Figure 23). The vertical limits at PH-12 and G/A5-B are estimated to be approximately 15 feet NAVD88 based on the subsurface investigations and alley interim action completed (Figures 8 and 23).

Naphthalene, 1-methylnaphthalene, and/or 2-methylnaphthalene were detected at concentrations exceeding screening levels in soil samples collected from western sidewall samples UST-01-Line at an elevation of 21 feet NAVD88 and in mass excavation soil sampling grids M1-WSW and N1-WSW at elevation of 20 feet NAVD88, proximate to former bunker fuel oil USTs (UST01-B, UST02-N, UST02-E, UST02-B1, UST02-N1, UST02-E1, and UST02-W1), and to the north off of and adjacent to the Block 38 West Property in boring FB-20 at an elevation of 15 feet NAVD88 (Figure 9; Table 2).

Naphthalene, 1-methylnaphthalene, and/or 2-methylnaphthalene were detected at concentrations exceeding the screening level in soil samples generally collected from the northwestern, central, and southwestern portions of the Block 38 West Property from soil samples collected from borings FB-01, FB-02, FB-04, and FB-08 at elevations ranging from 21 to 5 feet NAVD88, respectively, in a soil samples collected from FMW-130 through FMW-134 at an elevations ranging from 20 to 5 feet NAVD88, and in mass excavation soil sampling grids C3, D4, G3, H3, I3, J2, K2, K3, and K4 at an approximate elevations of 20 to 10 feet NAVD88 on the Block 38 West Property. (Figure 9; Table 2).

In the central portion of the alley naphthalene, 1-methylnaphthalene, and/or 2-methylnaphthalene were detected at concentrations exceeding screening levels in soil samples collected from borings FB-13, FB-14, and FB-21 at elevations ranging from 28 to 17.5 feet NAVD88 and excavation performance samples E/A5-B, E/A5-ESW, G/A5-ESW, H/A5-ESW, and I/A5-B at elevations ranging from 22.5 to 17.5 feet NAVD88 (Figure 9; Table 2). Naphthalene, 1-methylnaphthalene, and/or 2-methylnaphthalene detected in soil at concentrations exceeding the screening levels were excavated and removed from within the Block 38 West Property boundary and from within the limits of the alley excavation.

Naphthalene, 1-methylnaphthalene, and/or 2-methylnaphthalene were detected at concentrations exceeding the screening levels in soil samples collected along the northwestern corner of the Block 38 West Property and along the eastern sidewall of the alley construction excavation (Figure 9; Table 2). Naphthalene, 1-methylnaphthalene, and/or 2-methylnaphthalene either were detected at concentrations less than the screening level or reported non-detect at the laboratory PQL in the remaining soil performance and confirmation soil samples collected on the Block 38 West Property during the independent interim action, and in the alley and the western sidewall of the Block 38 East Property (Figure 9; Table 2). The extent of naphthalenes need to be defined to the west of soil sampling grids M1 and N1 and to the south and west of FMW-134 (Figure 9). This is identified as a data gap and will be further assessed in the remedial investigation.

cPAHs were detected at concentrations exceeding the screening level in soil samples collected from the north-, east-, and west-central portions of the Block 38 West Property from elevations 22 to 15 feet NAVD88, and extending deeper to an elevation of 12 feet NAVD88 at a localized area adjacent to boring FB-04; in soil samples collected at an approximate elevation of 20 feet NAVD88 throughout the alley; in soil samples collected from borings FB-10 through FB-16 at elevations 22.5 to 17.5; and in soil samples collected at elevations ranging from 23 to 19 feet NAVD88, in the western sidewall of the mass excavation on the Block 38 East Property (Figure 10, Table 2). cPAHs detected at concentrations exceeding the screening levels in soil were excavated and removed from within the Block 38 West Property boundary and from within the limits of the alley excavation (Figure 10). The lateral and vertical extent of cPAHs west of TP-12 near the west property boundary have been defined by borings FB-18 and FB-19, and the extent north of the former UST product line by boring FB-20 (Figure 10, Table 2). The vertical extent of cPAHs was defined east of the Block 38 West Property during the alley interim action by borings FB-10 through FB-16 and FB-21. The lateral extent of cPAHs east of the Block 38 West Property were defined to the south by alley interim action soil confirmation sample A/A5-SSW. The eastern extent of cPAHs was defined by western sidewall samples of the Block 38 East Property mass excavation EX-19, EX-20, EX-38 through EX-41 (Appendix C). The extent of cPAHs west of mass excavation soil sampling grid M1 need to be defined (Figure 10). This is identified as a data gap and will be further assessed in the remedial investigation.

PCBs, metals, and other VOCs analyzed were either detected at concentrations less than the screening levels or reported non-detect at the laboratory PQLs in the remaining soil samples collected during the subsurface investigation and independent interim action (Tables 3 through 5), except for the following: barium was detected at concentrations exceeding the screening level in soil samples collected from borings FB-01 through FB-04 and monitoring wells FMW-133 and 135; and mercury was detected at a concentration exceeding the screening level in the sample from FB-02 (Table 5). The soil to groundwater pathway for barium and mercury is identified as a data gap and will be further assessed in the remedial investigation.

Based on the results of the independent interim action, all analytes were reported non-detect at the laboratory PQLs in all soil samples collected at an approximate elevation of -7 to -10 feet NAVD88 within the Block 38 West Property boundary, which is below the new building foundation. This demonstrates that soil with COPC concentrations exceeding the screening levels has been defined vertically and laterally within the Block 38 West Property and contaminated soil was permanently removed from within the Block 38 West Property boundary (Figures 19 through 22). The extent of COPCs exceeding the screening levels west of Block 38 West Property mass excavation soil sampling grid M1, west of FB-03, west and south of FMW-134, and east of FB-02 will be further assessed in the remedial investigation for the Block 38 West Site.

6.6.2 Groundwater

Groundwater flow direction and groundwater analytical results are summarized on Figures 11 through 18. Groundwater elevations, analytical results for groundwater samples, and monitoring well construction details are presented in Tables 6 through 11 and described below. Groundwater elevations and groundwater analytical results associated with the Deep Outwash Aquifer performance groundwater monitoring are provided in Appendix D.

6.6.2.1 Groundwater Elevation Shallow Water-Bearing Zone

Groundwater elevation contours were developed using the groundwater elevation data collected during the 2018 and 2019 groundwater monitoring events. Depth to water in monitoring wells FMW-130 and FMW-132 through FMW-136 ranged from 4.42 to 8.66 feet bgs (Table 6). Based on the depth-to-water measurements, calculated groundwater elevations ranged from 17.38 to 18.66 feet NAVD88 at the Block 38 West Property (Table 6). The inferred groundwater flow direction for the Shallow Water-Bearing Zone was southwest during the March 26, 2019 monitoring event, with an average horizontal hydraulic gradient of approximately 0.006 foot per foot, consistent with prior monitoring events (Figure 11).

Groundwater flow direction in the vicinity of the Block 38 West Property has been affected in recent years by transient conditions related to construction dewatering activities in the South Lake Union area, and likely on a more consistent basis due to the presumed effects of groundwater infiltration into the Republican Street Drain structure or backfill (see 72″ sewer structure shown on Figures 19 and 20). According to GeoEngineers (2018), the Shallow Water-Bearing Zone is influenced by recharge from Queen Anne Hill and Capitol Hill, infiltration of surface water, temporary dewatering activities, and changes in the water level in Lake Union. The Lake Union sewer tunnel located in Republican Street influences groundwater levels locally through leakage into the tunnel (GeoEngineers 2018). The invert elevation of the reinforced concrete pipe of the Republican Street Drain at a manhole immediately southwest of the Block 38 West Property is at an approximate elevation of 14 feet NAVD88 (approximately 27 feet bgs) (GeoEngineers 2018) (Figures 19 and 20).

6.6.2.2 Groundwater Elevation Intermediate Water-Bearing Zone

Groundwater elevations in the Intermediate Water-Bearing Zone ranged from 17.25 to 17.07 feet NAVD88 on December 26, 2019 when groundwater samples were collected for the subsurface investigation. Groundwater elevation contours were developed using depth-to-water measurement events on December 23, 26, 30, and 31, 2019. Depth to groundwater in monitoring wells FMW-144 through FMW-147 and FMW-149 ranged from 5.42 to 19.18 feet bgs (Table 6). Based on the depth-to-water measurements, calculated groundwater elevations ranged from 16.81 to 17.48 feet NAVD88 at the Block 38 West Property during the subsurface investigation (Table 6).

The groundwater levels measured in wells screened in the Intermediate Water-Bearing Zone during the December 2019 groundwater measurement events indicate the inferred groundwater flow direction for the Intermediate Water-Bearing Zone was highly variable and ranged to the east, southeast, northeast, west, and southwest. The average horizontal hydraulic gradient was low, ranging from approximately 0.001 to 0.013 foot per foot. Thus, even slight variations in groundwater levels at each monitoring well, on the order of a 0.1- to 0.2-foot change over a period of a few days, could result in a substantial difference in the groundwater-level contours and inferred groundwater flow direction. The high variability of the inferred groundwater flow direction during the subsurface investigation was attributed to the recent demolition of the cap (buildings) on the Block 38 West Property and the significant amount of groundwater recharge during a rainfall event in which over 2.5 inches of precipitation was observed in the Seattle area[7]. Prior groundwater-level measurement events at monitoring wells screened in the Shallow Water-Bearing Zone and Intermediate Water-Bearing Zone suggest there is little to no vertical gradient between these units.

6.6.2.3 Groundwater Elevation Deep Outwash Aquifer

The groundwater flow direction for the Deep Outwash Aquifer at and immediately up-gradient of the Block 38 West Property was estimated from measurements during March 2019, a period when no construction dewatering was occurring in the South Lake Union area (Figure D-1), to be from north to south. This assessment was based on groundwater

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[7] Total rainfall is based on National Weather Service information accessed on January 17, 2020 at https://w2.weather.gov/climate/index.php?wfo=sew.

levels for monitoring wells screened at similar elevations (e.g., monitoring wells MW-113, MW-128, FMW-129, FMW-131, HMW-1D, FMW-137, FMW-138, FMW-140, GEI-2, IA-1, and IA-4)[8] (Figure D-1).

Groundwater elevations observed in the Deep Outwash Aquifer monitoring wells FMW-137 and FMW-138 on the northeastern and southeastern portions of the Block 38 West Property ranged from a depth of 12.08 to 24.50 feet bgs (Table 6). Based on the depth-to-water measurements, calculated groundwater elevations ranged from 15.94 to 18.01 feet NAVD88 at the Block 38 West Property during the subsurface investigation (Table 6).

6.6.2.4 Shallow Water-Bearing Zone Contamination

The extent of COPCs in the Shallow Water-Bearing Zone at concentrations exceeding screening levels appeared to be localized based on reconnaissance groundwater samples collected from FB-03 and FMW-130 and groundwater samples collected from monitoring wells FMW-132 through FMW-135 (Figures 12 through 18). Shallow Water-Bearing Zone monitoring wells were not installed outside the Block 38 West Property during the subsurface investigations performed by Farallon.

GRO was detected at a concentration of 140 µg/l in the groundwater sample collected from monitoring well FMW-134, which is less than the screening level (Figure 12; Table 7). Preliminary laboratory analytical results indicated that GRO was detected at concentrations exceeding the screening level in the reconnaissance groundwater sample collected from monitoring well FMW-130 (2,100 µg/l) and groundwater samples collected from monitoring well FMW-134 (1,100 µg/l). However, upon further evaluation the laboratory analytical reports indicated that the GRO concentration exceeding the screening level detected in the groundwater sample collected from monitoring well FMW-130 was not typical of a gasoline product, and the GRO concentration detected in the reconnaissance groundwater sample collected from the boring for monitoring well FMW-134 was

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[8] Farallon has performed an assessment of groundwater flow direction in the Deep Outwash Aquifer but that assessment and the resulting conclusion are beyond the scope of this RI Work Plan and will be presented in connection with the RI.

attributed to a single peak on the chromatogram that was in the range of naphthalene[9,10]. GRO was not detected at concentrations exceeding laboratory reporting limits in the remaining groundwater samples collected at the Block 38 West Property (Figure 12, Table 7).

Benzene was detected at a concentration of 5.1 µg/l, exceeding the screening level of 2.4 µg/l, in the reconnaissance groundwater sample collected from the boring for monitoring well FMW-130 at a depth of 15 to 20 feet bgs (elevation of 7.2 to 2.2 feet NAVD88) in July 2014. Toluene, ethylbenzene, and xylenes were not detected at concentrations exceeding screening levels. Reconnaissance groundwater samples are typically more turbid, with a greater density of suspended solids, and COCs sorb onto the suspended soil particles, resulting in concentrations reported for groundwater samples that typically are biased high and not representative of groundwater quality. BTEX was not detected at concentrations exceeding laboratory reporting limits in the remaining groundwater samples collected at the Block 38 West Property (Figure 13; Table 7). Based on the localized area of benzene impacts to and the removal of the Shallow Water-Bearing Zone in the proximity of FMW-130 during the independent interim action, the extent of benzene impacts in the Shallow Water-Bearing Zone if present is likely limited in nature. Potential benzene impacts to groundwater post independent interim action will be assessed in the Shallow Water-Bearing Zone as part of the remedial investigation.

DRO+ORO were detected at a total concentration of 1,150 µg/l in a reconnaissance groundwater sample collected from boring FB-03 and at total concentrations ranging from 260 to 1,170 µg/l in groundwater samples collected from four monitoring wells FMW-132 through 135 (Figures 14 through 16; Table 7). Total DRO+ORO was detected at concentrations exceeding the screening level of 500 µg/l in groundwater samples collected

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[9] The laboratory report indicated that the concentration of petroleum hydrocarbons characterized as GRO in the groundwater sample from FMW-134 was attributed to a single peak on the chromatogram, which was in the range of naphthalene. Naphthalene was quantified at a concentration of 290 µg/l in this groundwater sample. Total naphthalenes was quantified at 312 µg/l.

[10] The laboratory report indicated that the concentration of petroleum hydrocarbons characterized as GRO in the reconnaissance groundwater sample from FMW-130 was not similar to a typical gas.

from two locations: the reconnaissance groundwater sample collected from boring FB-03, and the groundwater samples collected from monitoring well FMW-134. The laboratory reports indicated that the DRO results may be impacted by hydrocarbons detected in the gasoline range (i.e., GRO) in the two groundwater samples collected from monitoring well FMW-134 on August 30, 2018 and March 26, 2019, respectively. Total DRO+ORO were not detected at concentrations exceeding laboratory reporting limits in the remaining groundwater samples collected at the Block 38 West Property (Figures 14 through 16; Table 7).

Naphthalene and/or 1-methylnaphthalene were detected at concentrations exceeding the screening levels in a reconnaissance groundwater sample collected from FMW-130 and in groundwater samples collected from monitoring well FMW-134 (Figure 17; Table 8).

Total cPAHs TEC was detected at concentrations less than the screening levels or reported at the laboratory PQL in all of the groundwater samples collected at the Block 38 West Property (Figure 18, Table 8).

Other VOCs analyzed were either detected at concentrations less than the screening level or reported non-detect at the laboratory PQLs in the reconnaissance and groundwater samples collected during the subsurface investigations (Table 9).

Removal of the source of contamination on the Block 38 West Property and alley is anticipated to improve groundwater quality laterally off the Block 38 West Property in the Shallow Water-Bearing Zone. Based on the subsurface investigations conducted at the Block 38 West Property, the extent of COPCs exceeding screening levels in the Shallow Water-Bearing Zone to be evaluated as a data gap include: GRO and benzene in groundwater east of the FMW-130 reconnaissance groundwater sample, total DRO+ORO in groundwater south and southwest of FMW-134 and west of reconnaissance groundwater sample FB-03, and total naphthalenes in groundwater south and southwest of FMW-134 and east of the FMW-130 reconnaissance groundwater sample. Groundwater quality in the alley will be further assessed in the remedial investigation for the Block 38 West Site.

6.6.2.5 Intermediate Water-Bearing Zone Contamination

The extent of COPCs in the Intermediate Water-Bearing Zone at concentrations exceeding screening levels are located on the eastern portion of the Block 38 West Property based on groundwater samples collected from monitoring wells FMW-130, FMW-136, FMW-144 through FMW-147, and FMW-149 (Figures 11 through 18). Monitoring wells were not installed outside the Block 38 West Property during the subsurface investigations performed by Farallon.

The lateral extent of total DRO+ORO in the Intermediate Water-Bearing Zone at concentrations exceeding the screening level is bounded to the south by monitoring well FMW-136 and to the west by monitoring wells FMW-144 and FMW-149, and is not bounded off the Block 38 West Property to the east (Figures 14 through 16; Table 7). The vertical limits of total DRO+ORO impacts in the Intermediate Water-Bearing Zone are bounded by FMW-130.

Naphthalene and 1-methylnaphthalene were detected at concentrations exceeding the groundwater screening levels in groundwater samples collected from monitoring well FMW-146 (Figure 17; Table 8).

GRO, benzene, and cPAHs TEC were detected at concentrations less than the screening levels or reported at the laboratory PQL in all of the groundwater samples collected at the Block 38 West Property (Figures 12, 13, and 18; Tables 7 and 8).

PCBs and other VOCs analyzed were either detected at concentrations less than the screening levels or reported non-detect at the laboratory PQLs in the reconnaissance and groundwater samples collected during the subsurface investigations (Tables 9 and 10).

Source removal on the Block 38 West Property will improve groundwater quality in the upper portion of the Intermediate Water-Bearing Zone. The nature and extent of total DRO+ORO and naphthalenes concentrations exceeding screening levels in the Intermediate Water-Bearing Zone post-independent interim action will be assessed in the remedial investigation for the Block 38 West Site.

7.0 DATA GAPS

The subsurface investigations and independent interim action conducted at the Block 38 West Site have defined the lateral and vertical extent of COPCs in soil and groundwater within the Block 38 West Property boundary. The data gaps discussed below include evaluating groundwater conditions in the Shallow Water-Bearing Zone and Intermediate Water-Bearing Zone beneath the recently constructed building foundation and characterizing residual soil and groundwater contamination that may remain at the Site beyond the Block 38 West Property boundary.

7.1 SOIL

7.1.1 UST Product Line Area

Based on review of soil analytical data associated with the decommissioning and removal of UST01 and UST02 and removal of the associated fuel product line from the northwestern corner of the Block 38 West Property, the lateral extent of total DRO+ORO in soil at an elevation of 15 feet NAVD88, and cPAHs in soil at an elevation of 20 feet NAVD88 has not been defined to the west, and 1-methylnaphthalene in soil at an elevation of 20 to 15 feet NAVD88 has not been defined to the west and north.

The lateral extent of total DRO+ORO and cPAHs is defined to the north by N1-WSW, N1-WSW3, and FB-20. The lateral limits of impacted soil need to be defined to the west of the Block 38 West Property (Figure 27). The western extent of impacts associated with the UST product line was defined in mass excavation soil sampling grid N1-WSW3 approximately 2 feet west of the Block 38 West Property boundary. The lateral limits of soil impacted with 1-methylnaphthalene is defined to northwest by N1-NSW, east by UST01-W1, and the south by M1-WSW2. The lateral limits of impacted soil need to be defined to the west of the Block 38 West Property (Figure 27). Impacts documented around the UST product line in mass excavation soil sampling grid N1 western sidewall indicates that the releases associated with the product line are localized.

7.1.2 Southwest Property Corner

Data gaps exist near the southwest corner of the Block 38 West Property for total DRO+ORO, naphthalenes, and cPAHs in shallow soil. Total DRO+ORO was detected at a concentration exceeding the screening level in a soil sample collected from monitoring well FMW-134 at an elevation of 20.4 feet NAVD88. Naphthalenes and cPAHs were not analyzed in the soil sample from that elevation, but were analyzed in a deeper sample from FMW-134 collected at an elevation of 10.4 feet NAVD88. 1-methylnaphthalene was detected at a concentration exceeding the screening level in a soil sample collected from FMW-134 at an elevation of 10.4 feet NAVD88 (Figure 9; Table 2). The lateral extent of total DRO+ORO, naphthalenes, and cPAHs in soil has not been defined to the west and south of FMW-134.

7.2 GROUNDWATER

Previous subsurface investigations documented localized petroleum hydrocarbon impacts to the Shallow and Intermediate Water-Bearing Zones at the Block 38 West Property. The nature and extent of groundwater impacts will be further evaluated post-independent interim action to support the RI and evaluation of cleanup alternatives for the Block 38 West Site.

7.2.1 Shallow Water-Bearing Zone

The lateral extent of total DRO+ORO in the Shallow Water-Bearing Zone at concentrations exceeding screening levels is not bounded west of boring FB-03 or south and west of former monitoring well FMW-134 (Figures 13, 16, and 17). The lateral extent of naphthalenes in the Shallow Water-Bearing Zone at concentrations exceeding screening levels is not bounded south and west of former monitoring well FMW-134 or east of former monitoring well FMW-130 (Figure 17). Benzene also was detected at a concentration exceeding the groundwater screening level protective of indoor air in the reconnaissance groundwater sample collected from FMW-130 (Figure 13). Monitoring wells screened in the Shallow Water-Bearing Zone were not installed outside of the Block 38 West Property during the subsurface investigations and independent interim action performed by Farallon. The independent interim action removed the Shallow Water-Bearing Zone within the Block 38 West Property boundary; however, the nature and extent of groundwater impacts in the Shallow Water-Bearing Zone beyond the Block 38 West Property to the west, south, and east need to be defined.

The proposed monitoring well locations in the Shallow Water-Bearing Zone will allow Farallon to evaluate the lateral extent of GRO, total DRO+ORO, benzene, and/or naphthalenes to the west and south of former monitoring well FMW-134 and west of boring FB-03, and the lateral extent of naphthalenes to the south and west of former monitoring well FMW-134 and GRO and benzene east of former monitoring well FMW-130 (Figure 27). Based on COPC concentrations in soil samples collected from the eastern sidewall of the Block 38 West Property, alley, and western sidewall of the Block 38 East Property, a series of monitoring wells were installed in the alley, as approved by Ecology in July 2021 (see Section 2.6), to evaluate groundwater quality in the Shallow Water-Bearing Zone (Figure 27).

7.2.2 Intermediate Water-Bearing Zone

Total DRO+ORO were detected at concentrations exceeding the screening level in groundwater samples collected from former monitoring wells FMW-145, FMW-146 and FMW-147 screened in the Intermediate Water-Bearing Zone and beneath the building footprint. The horizontal extent of total DRO+ORO impacts to groundwater in the Intermediate Water-Bearing Zone is defined by former monitoring wells FMW-136 to the south and FMW-144 and FMW-149 to the west, and is bounded vertically by former monitoring well FMW-130 (Figures 14, 15, and 16). 1-methylnaphthalene also was detected at concentrations exceeding the groundwater screening levels in a groundwater sample collected from FMW-146 (Figure 17).

Based on a meeting with Ecology on June 17, 2020, four monitoring wells, FMW-150 through FMW-153, were installed within the building foundation to evaluate the potential impacts north, west, and southwest of former monitoring wells FMW-146 and FMW-147; this network of monitoring wells is considered representative of groundwater quality beneath the building foundation (Figure 27). Additional monitoring wells outside the building foundation are proposed to the south to replace former monitoring wells FMW-136 and FMW-149 (FMW-G) and FMW-149 (FMW-E) and to the southwest of former monitoring well FMW-144 (FMW-B)(Figure 27). A series of monitoring wells were installed in the alley, including former construction observation wells OW-1 and OW-2 and new well FMW-157, to evaluate groundwater quality east of monitoring wells FMW-146 and FWM-147 (Figure 27).

8.0 REMEDIAL INVESTIGATION WORK ELEMENTS

The work elements to complete the remedial investigation at the Block 38 West Site were designed to address the data gaps presented in Section 7.0. This section discusses the objectives of the RI work elements and the rationale for the proposed boring and monitoring well locations. The Sampling and Analysis Plan (SAP), including quality assurance protocols, is included as Appendix J. The current Health and Safety Plan for the Block 38 West Site is included as Appendix K.

8.1 REMEDIAL INVESTIGATION OBJECTIVE

The objective of the remedial investigation is to collect data necessary to adequately characterize the Block 38 West Site for the purpose of developing and evaluating cleanup action alternatives (WAC 173-340-350(7)(a)) by addressing the identified data gaps. The remedial investigation will be performed consistent with the requirements of WAC 173-340-350(7) and in accordance with the rationale and sampling methods presented in the SAP, including quality assurance protocols prepared in accordance with WAC 173-340-820 and 173-204-600 (Appendix J).

8.2 UST PRODUCT LINE RELEASE CHARACTERIZATION

Proposed boring location FB-17 will be used to evaluate the extent of documented concentrations of total DRO+ORO and cPAHs in soil exceeding screening levels at the western sidewall of mass excavation soil sampling grid M1 (Figure 27). According to existing soil laboratory analytical data associated with the decommissioning and removal of UST01 and UST02 and removal of the associated fuel product line from the northwestern corner of the Block 38 West Property, the lateral extent of total DRO+ORO in soil at an elevation of 15 feet NAVD88 and cPAHs in soil at an elevation of 20 feet NAVD88 (and deeper) has not been characterized to the west.

Farallon field staff will observe and log subsurface conditions during boring advancement. Standard operating procedures are provided in the attached SAP (Appendix J). The information recorded for each boring log includes soil types encountered, visual and olfactory observations (e.g., staining, odor, etc.), and volatile organic vapor concentrations as measured using a photoionization detector. Boring locations will be mapped in the field by GPS, by measuring to a known feature, or captured by the monitoring well survey.

Work will be conducted within the public right-of-way under a City of Seattle Street Use permit for the Block 38 West Site and during times selected to minimize limiting access to the Westlake Avenue North right-of-way. Soil samples will be collected every 5 feet to an elevation of 10 feet NAVD88 (10 to 15 feet bgs) and retained for potential laboratory analysis for one or more of the following analytes using the previously identified analytical methods, unless indicated otherwise: DRO and ORO; and cPAHs.

The analytical results of the soil samples will be used to support the remedial investigation and conceptual site model for the Block 38 West Site.

8.3 MONITORING WELL INSTALLATION

The following sections provide a summary of the data gaps for the Shallow and Intermediate Water-Bearing Zones to be further assessed during the remedial investigation for the Block 38 West Site.

8.3.1 Shallow Water-Bearing Zone Monitoring Wells

The proposed monitoring well locations in the Shallow Water-Bearing Zone are based on reconnaissance groundwater sample location FB-03 and the location of former monitoring well FMW-134, which had total DRO+ORO detections at concentrations exceeding the screening level in groundwater samples on the west-central and southwestern portion of the Block 38 West Property, respectively (Figure 27). Total DRO+ORO also exceeded the screening level in shallow soil at FMW-134 and naphthalenes were detected at this location in the saturated zone.

A Shallow Water-Bearing Zone monitoring well is proposed west of location FB-03 and three Shallow Water-Bearing Zone monitoring wells are proposed to the west and south of former monitoring well FMW-134. No monitoring wells are proposed within the building foundation to evaluate the extent of impacts associated with former monitoring well FMW-130, since the Shallow Water-Bearing Zone no longer exists on the Block 38 West Property. However, existing monitoring well FMW-154, installed in the adjacent alley in February 2022, will be used to evaluate the eastern extent of residual impacts in the Shallow Water-Bearing Zone.

The proposed and existing Shallow Water-Bearing Zone monitoring wells will comprise a network of seven monitoring wells to evaluate groundwater quality based on the presence of COPCs detected at concentrations exceeding screening levels in soil and/or groundwater at the Block 38 West Property, alley, and Block 38 East Property.

Soil samples will be collected from the new well borings every 5 feet to an elevation of 5 feet NAVD88 (25 to 35 feet bgs) and retained for potential laboratory analysis for one or more of the following analytes using the previously identified analytical methods, unless indicated otherwise: total DRO+ORO, naphthalenes, and cPAHs.

8.3.2 Intermediate Water-Bearing Zone Monitoring Wells

The proposed monitoring well locations in the Intermediate Water-Bearing Zone are based on the former location of monitoring wells FMW-145, FMW-146 and FMW-147, which had concentrations of total DRO+ORO and/or naphthalenes in groundwater samples exceeding screening levels (Figure 27). The three proposed monitoring wells to the west and south of the Block 38 West Property and previously installed monitoring wells surrounding the Block 38 West Property will evaluate total DRO+ORO and naphthalenes in groundwater post independent interim action. The proposed and existing Intermediate Water-Bearing Zone monitoring wells will comprise a network of 11 monitoring wells at the Block 38 West Site to evaluate the groundwater quality and flow conditions in the Intermediate Water-Bearing Zone post-independent interim action on the Block 38 West Property.

8.3.3 Deep Outwash Aquifer Monitoring Wells

The proposed monitoring well location in the Deep Outwash Aquifer is to evaluate groundwater conditions post-construction dewatering events that occurred at the Block 38 West Property and at other properties that underwent redevelopment in the nearby South Lake Union area (Figure 27). The proposed and existing Deep Outwash Aquifer monitoring wells will comprise a network of three monitoring wells at the Block 38 West Site to evaluate the groundwater quality and flow conditions in the Deep Outwash Aquifer post-independent interim action on the Block 38 West Property.

8.3.4 Monitoring Well Installation

Farallon field staff will observe and log subsurface conditions during monitoring well installation. Standard operating procedures are provided in the attached SAP (Appendix J). The information recorded for each boring log includes soil types encountered, visual and olfactory observations (e.g., staining, odor, etc.), and volatile organic vapor concentrations as measured using a photoionization detector. The proposed monitoring wells will be advanced using a sonic drilling rig, with soil samples collected continuously during drilling.

Table 13 provides a summary of media and COPCs to be evaluated for the proposed monitoring wells in the Shallow and Intermediate Water-Bearing Zones and Deep Outwash Aquifer.

Groundwater monitoring wells will be constructed in accordance with WAC 173-160-400 and will meet Washington State requirements for resource protection well construction. Monitoring wells will be installed using polyvinyl chloride with a 0.010-inch slotted well screen. Monitoring well screen intervals for the Shallow Water-Bearing Zone monitoring wells will be set from approximate elevation 20 to 5 feet NAVD88. Monitoring well screen intervals for the Intermediate Water-Bearing Zone monitoring wells will be set from approximate elevation -3 to -13 feet NAVD88 and similar to the screened intervals at former monitoring wells FMW-146 and FMW-147 (Figure 27). Monitoring well screen interval for the Deep Outwash Aquifer monitoring well will be set from approximate elevation -45 to -55 feet NAVD88 (Figure 27).

Each monitoring well filter pack will consist of 10/20 Colorado Silica Sand emplaced in the borehole annulus up to 1 foot above the top of the screen. The borehole will be sealed to within 2 feet of the surface with hydrated bentonite chips. The monitoring wells will be completed with flush-mounted steel monuments set in concrete.

New monitoring wells will be developed using a submersible pump. Each monitoring well will be developed until the majority of fine-grained sediment has been removed from the well screen and adjacent sand pack. Each monitoring well will be surveyed to the Washington State Plane North coordinates system and the top of casing elevations to NAVD88 by a Washington State Professionally Licensed Land Surveyor.

8.3.5 Laboratory Analysis

Table 13 provides a summary of media and COPCs to be evaluated for the proposed monitoring wells in the Shallow and Intermediate Water-Bearing Zones. Soil samples may be analyzed for one or more of the following constituents using the previously identified analytical methods: GRO; total DRO+ORO; and PAHs, including naphthalenes and cPAHs. Groundwater samples from the Shallow Water-Bearing Zone may be analyzed for one or more of the following constituents using the previously identified analytical methods: GRO; total DRO+ORO; and PAHs, including naphthalenes and cPAHs, and metals (barium and mercury). Groundwater samples from the Intermediate Water-Bearing Zone may be analyzed for one or more of the following constituents using the previously identified analytical methods: total DRO+ORO and naphthalenes. Groundwater samples collected from the Deep Outwash Aquifer will be analyzed by EPA Method 8260D for CVOCs.

8.4 GROUNDWATER MONITORING

Performance and compliance groundwater monitoring activities will commence upon Ecology's approval and installation of the proposed monitoring wells.

The proposed monitoring well network will consist of 7 monitoring wells screened in the Shallow Water-Bearing Zone, 11 monitoring wells screened in the Intermediate Water-Bearing Zone, and 3 monitoring wells[11] screened in the Deep Outwash Aquifer.

Monitoring wells will be sampled using EPA low-flow groundwater sampling procedures and analyzed for one or more constituents using the previously identified analytical methods. Monitoring wells screened in the Shallow Water-Bearing Zone will be analyzed for one or more of the following constituents: GRO, total DRO+ORO; benzene; and PAHs, including naphthalenes

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[11] Includes existing monitoring wells FMW-137 and FMW-138 and a planned monitoring well adjacent to the northwestern corner of the Block 38 West Property.

and cPAHs. Groundwater samples from four of the shallow monitoring wells[12] (FMW-A, FMW-154, FMW-155, and FMW-156) will also be analyzed for barium using EPA Method 6020B, and samples from one of the wells[13] will be analyzed for mercury using EPA Method 6020B (FMW-155). Monitoring wells screened in the Intermediate Water-Bearing Zone will be analyzed for one or more of the following constituents: total DRO+ORO and naphthalenes. In the event that total DRO+ORO or naphthalenes are present at concentrations exceeding groundwater screening levels, the potential for commingling of these COPCs with the American Linen CVOC Plume will be assessed at these monitoring wells and groundwater samples will be analyzed for CVOCs by EPA Method 8260D.

Groundwater conditions will be assessed in the Deep Outwash Aquifer at the Block 38 West Site post-construction dewatering events that occurred at the Block 38 West Property and in the nearby South Lake Union Area. Monitoring wells screened in the Deep Outwash Aquifer will be analyzed for CVOCs by EPA Method 8260D. Details of groundwater sampling procedures and laboratory analyses are discussed in more detail in the SAP (Appendix J).

8.5 PERMITTING

The necessary permits have been obtained from the City of Seattle for work in the Westlake Avenue North and Republican Street rights-of-way. Adjacent property owners will be notified of the proposed field activities and schedules.

---

[12] Includes Shallow Water-Bearing Zone monitoring wells located closest to previous borings FB-01, FB-02, FB-03, and FB-04 where barium exceeded the leaching screening level in saturated soil.

[13] Includes previously installed Shallow Water-Bearing Zone monitoring well FMW-155 located near former boring location FB-02 where mercury exceeded the leaching screening level in saturated soil.

9.0 REPORTING AND SCHEDULE

Reporting for the remedial investigation component of the work specified under Section VII of the AO is described below. In addition to the reporting described below, monthly progress reports will continue to be prepared to provide a summary of: activities performed for the remedial investigation during the reporting period; deviations from the scope of work; changes in key personnel involved with the work; deviations from the schedule and resolution; a summary of sampling and testing reports; work planned and deliverables for the next reporting period; and public or regulatory communications. Also, the schedule for transmittal of data and remedial investigation-related documents to Ecology as specified in Exhibit C of the AO is provided below.

9.1 EIM DATA SUBMITTALS

Submittals to the Environmental Information Management (EIM) database in accordance with WAC 173-340-840(5) and the AO will be completed for the following:

- Soil and groundwater analytical data previously collected for the Block 38 West Site during the subsurface investigations described in Sections 3 and 4 (uploaded in July 2020);
- Soil analytical data associated with the independent interim action through June 2020 (uploaded in July 2020);
- Soil analytical data associated with the interim action in the alley (uploaded in September 2021);
- Soil and groundwater analytical data collected for the remedial investigation; and
- Groundwater analytical data collected for the Deep Outwash Aquifer Groundwater Performance Monitoring Program in conjunction with the independent interim action.

Farallon will prepare location and environmental results data tables formatted to EIM specifications and submit them to Ecology's EIM system for review and upload into the EIM database. Farallon anticipates one round of comments from Ecology and corresponding edits to the submitted tables prior to final upload into the database.

9.2 FINAL RI WORK PLAN

Upon receipt of Ecology's comments on the revised Agency Review Draft RI Work Plan, the Final RI Work Plan will be prepared and submitted to Ecology. Implementation of the remedial investigation field program will commence upon Ecology's approval of the final RI Work Plan.

9.3 REMEDIAL INVESTIGATION REPORTS

An Agency Review Draft Remedial Investigation Report and Final Remedial Investigation Report will be prepared as required by the AO and in accordance with the requirements of WAC 173-340-350 and Ecology's Guidance Document and Toxics Cleanup Program Remedial Investigation (RI) Checklist dated May 2016, revised June 2020. The Remedial Investigation Report will summarize the existing data and the field work completed to characterize the Site; define the COCs; and describe the sources of COCs, the nature and extent of COCs that exceed the screening levels, and the fate and transport of the COCs. The Remedial Investigation Report will include maps and figures that convey information pertaining to the nature and extent of contamination, and groundwater elevation contours and flow direction. The Remedial Investigation Report format will be consistent with the format specified in WAC 173-340-840.

9.4 SCHEDULE

Below is a summary of the schedule for the reporting requirements to Ecology per Exhibit C of the AO.

Progress Reports. Due to Ecology the 15th of each month to summarize the activities of the prior month.

Agency Review Draft RI Work Plan and EIM Data Submittal. 90 calendar days from April 20, 2020 (July 16, 2020).

Final RI Work Plan. 30 calendar days after receipt of Ecology comments on the Agency Review Draft RI Work Plan.

Remedial Investigation Field Investigations Completed. 180 days (6 months) after completion of the Independent Interim Action and/or upon Ecology's approval to proceed with remedial investigation work plan.

Agency Review Draft Remedial Investigation Report. 90 days (3 months) following receipt of remedial investigation validated data.

Public Review Draft Remedial Investigation Report. 45 days after receipt of Ecology comments on the Agency Review Draft Remedial Investigation Report.

Final Remedial Investigation Report. 30 days after receipt of Ecology comments and subsequent to public comment.

10.0 REFERENCES

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11.0 LIMITATIONS

11.1 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.

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

11.2 LIMITATION ON RELIANCE BY THIRD PARTIES

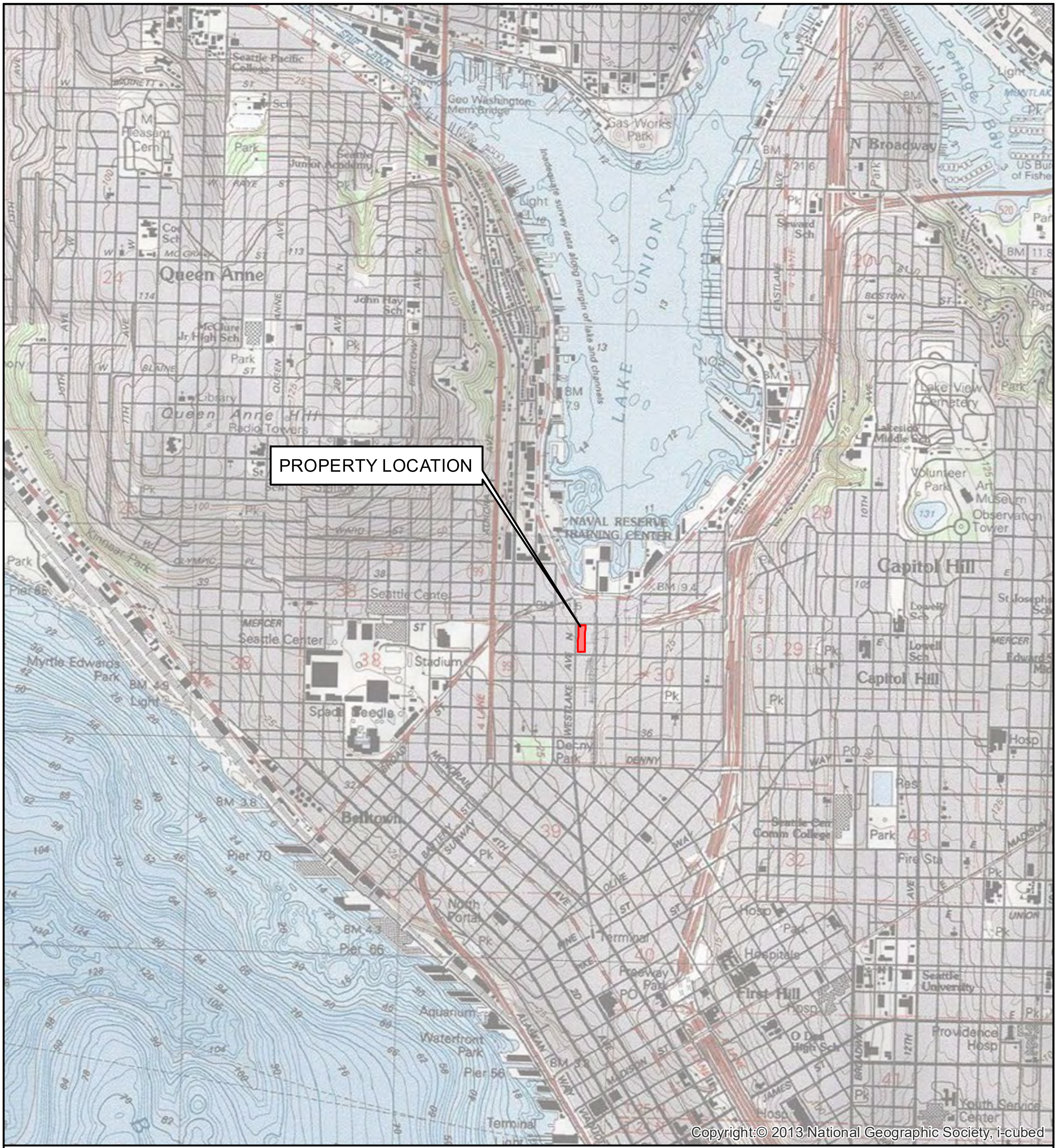
Reliance by third parties is prohibited. This work plan has been prepared for the exclusive use of City Investors IX LLC to address the unique needs of City Investors IX LLC at the Block 38 West Property at a specific point in time.

This is not a general grant of reliance. No one other than City Investors IX LLC 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

REMEDIAL INVESTIGATION WORK PLAN
Block 38 West Property
500 through 536 Westlake Avenue North
Seattle, Washington

Farallon PN: 397-019



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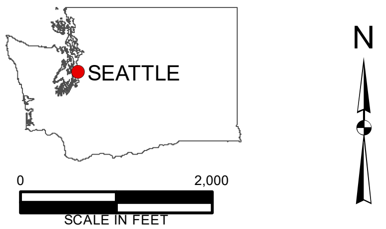

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FIGURE 1

VICINITY MAP
BLOCK 38 WEST SITE
SEATTLE, WASHINGTON

FARALLON PN: 397-019

Drawn By: jjones | Checked By: SS | Date: 11/18/2021 | Disc Reference:

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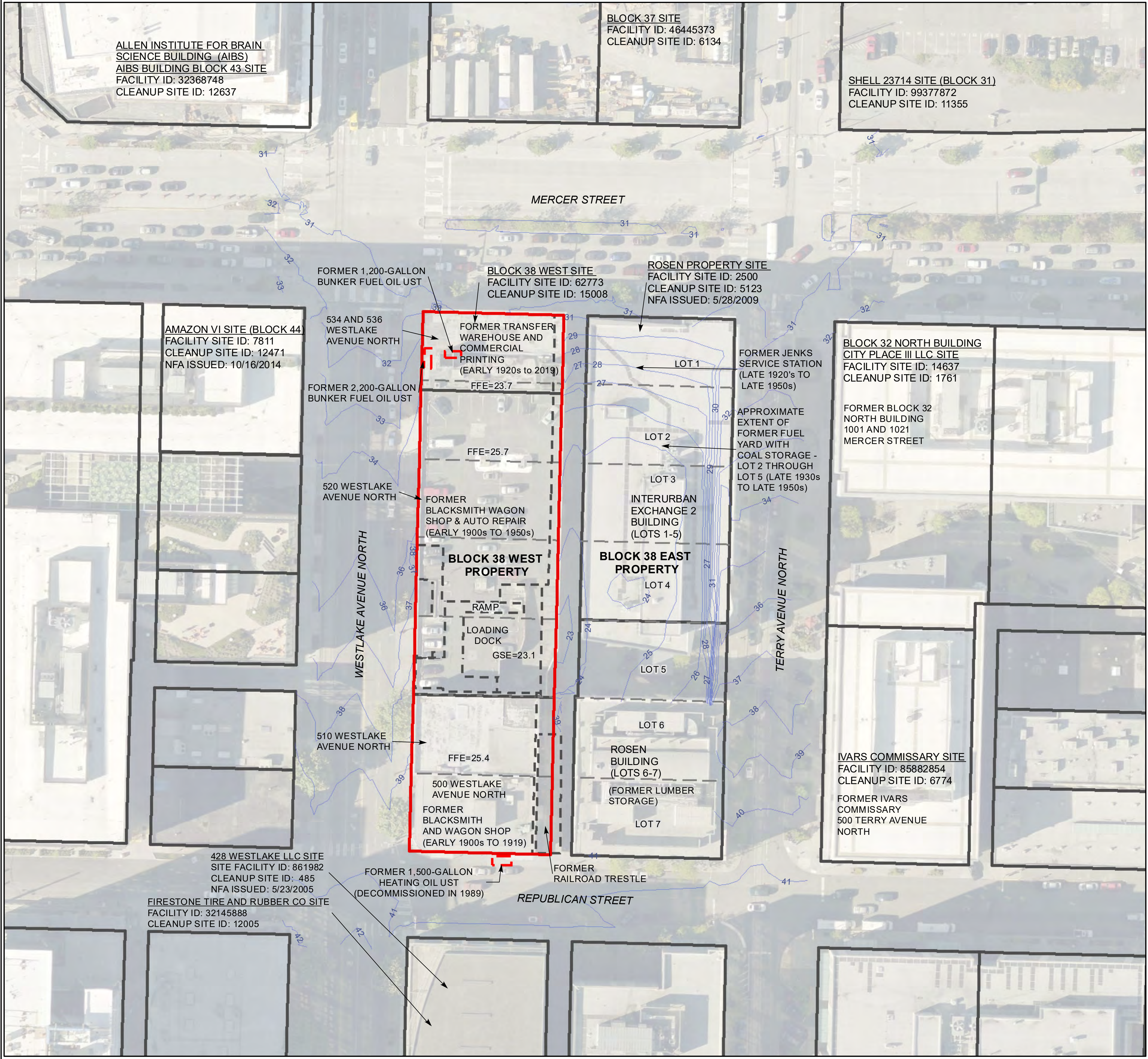

LEGEND

- ▪ PILE
- - - BUILDING FEATURES (BUILDINGS ON BLOCK 38 WEST PROPERTY DEMOLISHED IN 2019)
- — — LOT LINE
- 30 GROUND SURFACE ELEVATION CONTOUR
- 🟥 PROPERTY BOUNDARY
- ⬛ KING COUNTY PARCEL BOUNDARY

NOTES:
LOADING DOCK HIGHER THAN GSE
ELEVATION SOURCE: BUSH, ROED, & HITCHINGS, INC. (2014)
ELEVATION DATA PRESENTED IN FEET ABOVE MEAN SEA LEVEL IN THE NORTH AMERICAN VERTICAL DATUM OF 1988

FFE = APPROXIMATE FINISH FLOOR ELEVATIONS OF GROUND FLOOR OF FORMER BUILDING
GSE = APPROXIMATE GROUND SURFACE ELEVATION OF FORMER LOADING DOCK AREA
UST = UNDERGROUND STORAGE TANK

N

0 80
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FIGURE 2

SITE PLAN WITH HISTORICAL FEATURES BLOCK 38 WEST SITE SEATTLE, WASHINGTON

FARALLON PN: 397-019

Drawn By: jjones
Checked By: SS
Date: 5/18/2022
Disc Reference:
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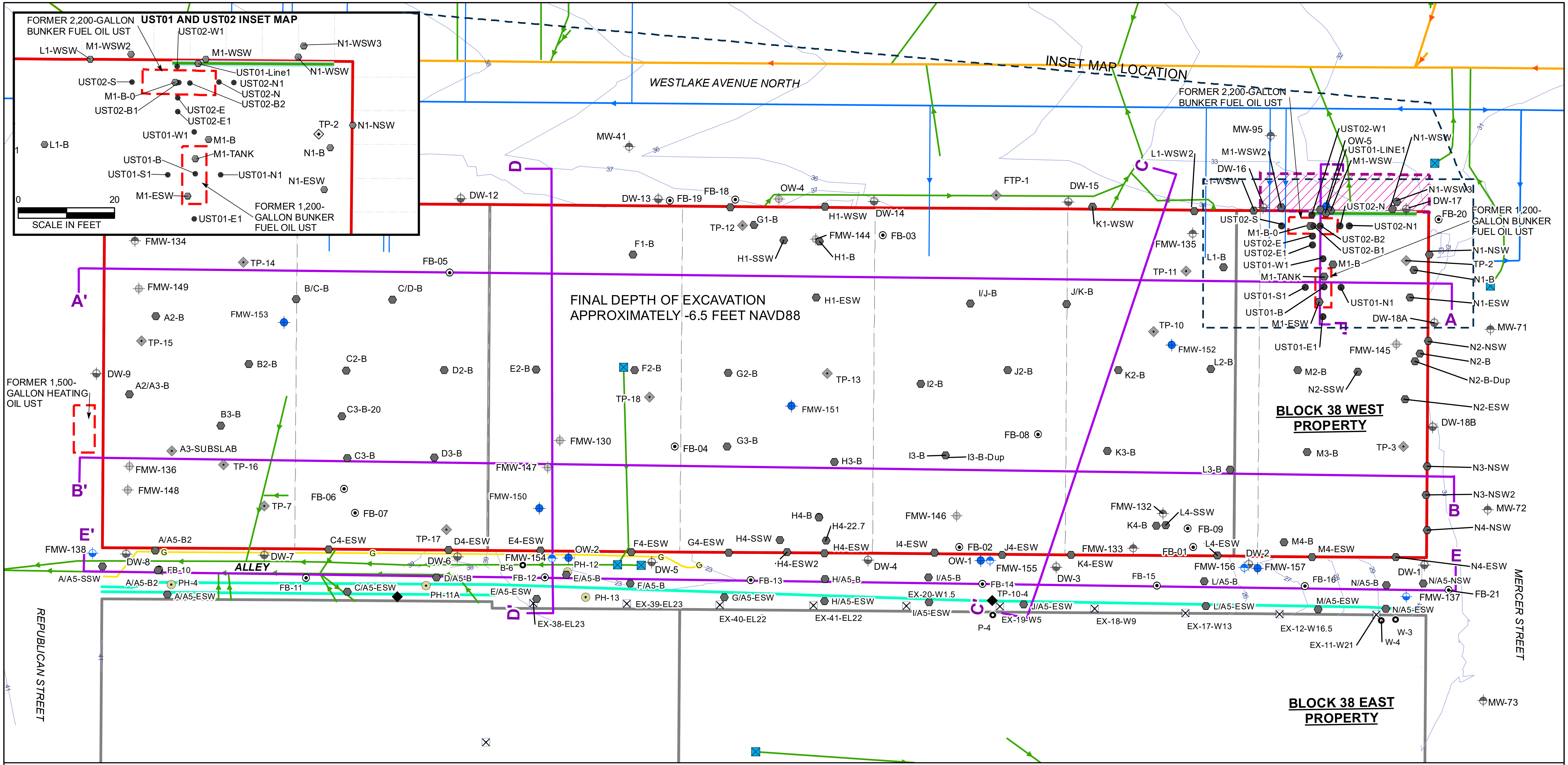

LEGEND

- SHALLOW WATER-BEARING ZONE MONITORING WELL
- DEWATERING WELL
- DEEP OUTWASH AQUIFER WELL
- DECOMMISSIONED SHALLOW WATER-BEARING ZONE MONITORING WELL
- INTERMEDIATE WATER-BEARING ZONE MONITORING WELL / OBSERVATION WELL
- DECOMMISSIONED INTERMEDIATE WATER-BEARING ZONE MONITORING WELL
- ⦿ BORING (FARALLON)
- ○ BORING (GEOENGINEERS)
- ✕ EXCAVATION BORING (FARALLON)
- ◆ TEST PIT (GEOENGINEERS)
- POTHOLE (FARALLON)
- ● UST SAMPLE LOCATION (FARALLON)
- EXCAVATION SAMPLE LOCATION (FARALLON)
- TEST PIT (FARALLON)

- PIPING DISCOVERED IN SIDEWALL [BELIEVED TO BE ASSOCIATED WITH DISCOVERED USTs]
- PROPERTY BOUNDARY
- FORMER UNDERGROUND STORAGE TANKS (USTs)
- MECHANICAL EQUIPMENT AREA DECOMMISSIONED AND FILLED WITH CDF
- KING COUNTY PARCELS
- LOT LINE
- A A' LINE OF CROSS SECTION

- CATCH BASIN
- COMBINED SEWER LATERAL
- WATER LINE
- COMBINED MAIN
- FIBER OPTIC LINE
- G NEW GAS LINE

NOTES:
1. ALL LOCATIONS ARE APPROXIMATE.
2. FIGURES WERE PRODUCED IN COLOR. GRAYSCALE COPIES MAY NOT REPRODUCE ALL ORIGINAL INFORMATION.
3. CDF = CONTROLLED DENSITY FILL
4. ELEVATION DATA PRESENTED IN FEET ABOVE MEAN SEA LEVEL IN THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) ELEVATION SOURCE: BUSH, ROED, & HITCHINGS, INC. (2014)

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FIGURE 3

SITE PLAN
BLOCK 38 WEST SITE
SEATTLE, WASHINGTON

FARALLON PN: 397-019

Drawn By: jjones
Checked By: SS
Date: 6/9/2022
Disc Reference:
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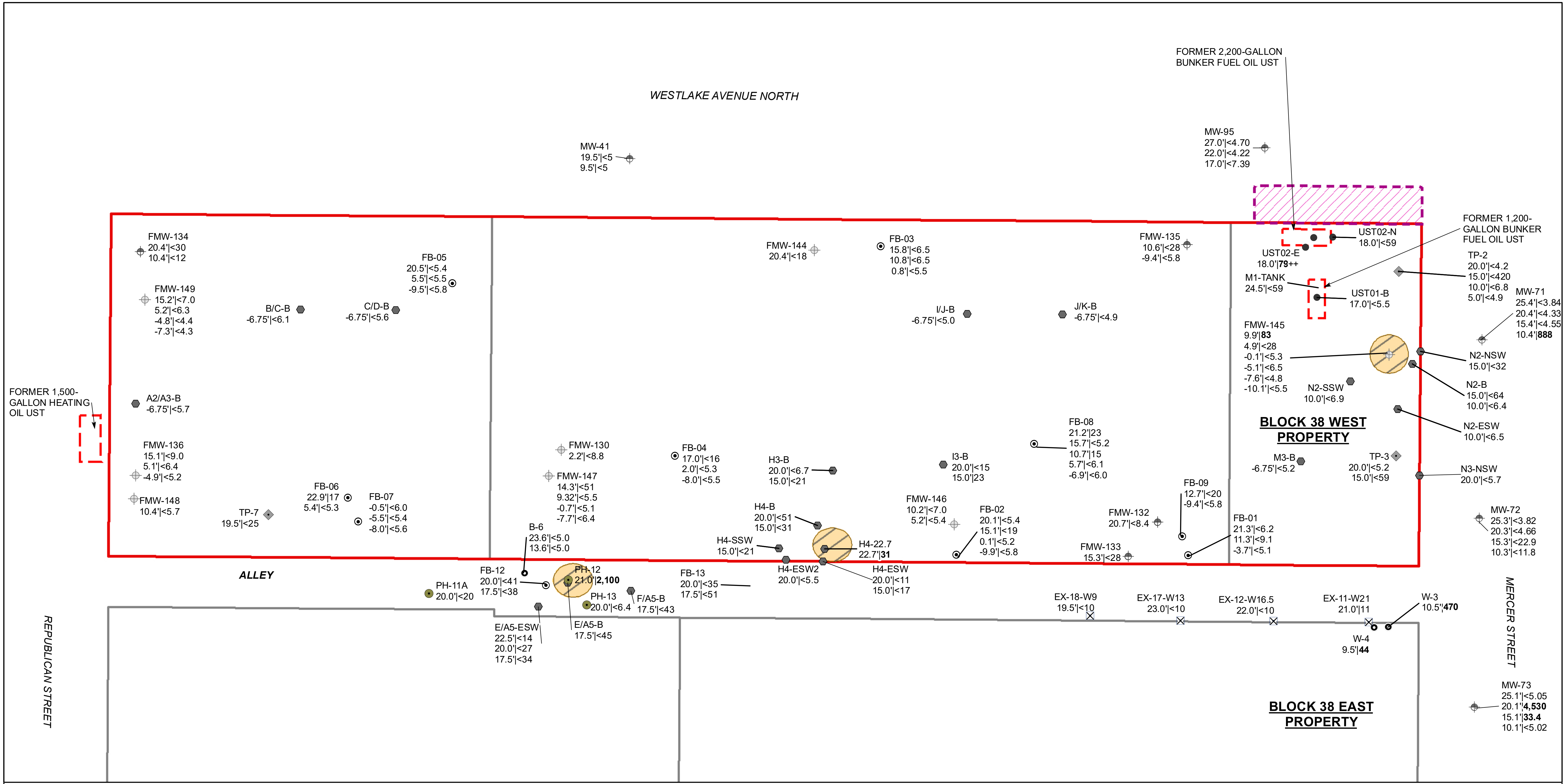

LEGEND

⌖	DECOMMISSIONED SHALLOW WATER-BEARING ZONE MONITORING WELL
⌖	DECOMMISSIONED INTERMEDIATE WATER-BEARING ZONE MONITORING WELL
⦿	BORING (FARALLON)
○	BORING (GEOENGINEERS)
☒	EXCAVATION SAMPLE (GEOENGINEERS)
⦿	POTHOLE (FARALLON)
●	UST SAMPLE LOCATION (FARALLON)
⬢	EXCAVATION SAMPLE LOCATION (FARALLON)
◆	TEST PIT (FARALLON)
⬭	ESTIMATED EXTENT OF SOIL EXCEEDING THE SCREENING LEVEL THAT WAS EXCAVATED AND REMOVED
▨	MECHANICAL EQUIPMENT AREA DECOMMISSIONED AND FILLED WITH CDF
🟥	PROPERTY BOUNDARY
⬚	FORMER UNDERGROUND STORAGE TANKS (USTs)
▭	KING COUNTY PARCEL BOUNDARY

NOTES:
FOR SOIL SAMPLES:
ELEVATION IN FEET NAVD88 | GRO
ANALYTICAL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)

BOLD	=	DENOTES CONCENTRATIONS THAT EXCEED THE SCREENING LEVEL (MTCA METHOD A CLEANUP LEVEL)
<	=	DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED
++	=	FUEL PATTERN INDICATIVE OF HEAVY OIL; PRODUCT CONFIRMED AS BUNKER C FUEL OIL
CDF	=	CONTROLLED DENSITY FILL
GRO	=	TOTAL PETROLEUM HYDROCARBONS (TPH) AS GASOLINE-RANGE ORGANICS
MTCA	=	WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION
NAVD88	=	NORTH AMERICAN VERTICAL DATUM OF 1988

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FIGURE 4

SOIL ANALYTICAL RESULTS FOR GRO BLOCK 38 WEST SITE SEATTLE, WASHINGTON

FARALLON PN: 397-019

Drawn By: jjones Checked By: SS Date: 6/9/2022 Disc Reference:
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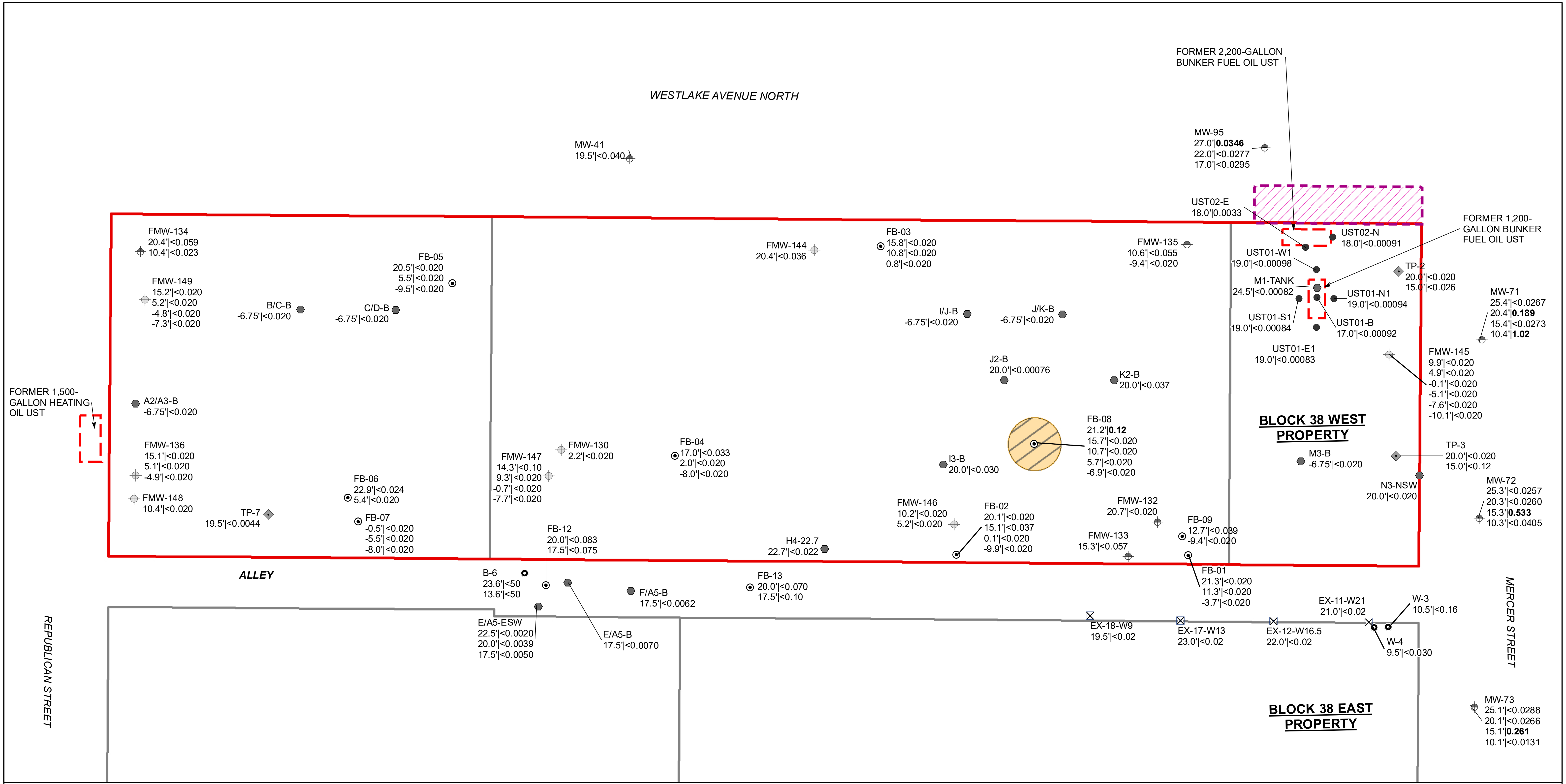

LEGEND

⌖	DECOMMISSIONED SHALLOW WATER-BEARING ZONE MONITORING WELL
⌖	DECOMMISSIONED INTERMEDIATE WATER-BEARING ZONE MONITORING WELL
⊙	BORING (FARALLON)
○	BORING (GEOENGINEERS)
☒	EXCAVATION SAMPLE (GEOENGINEERS)
●	UST SAMPLE LOCATION (FARALLON)
⬢	EXCAVATION SAMPLE LOCATION (FARALLON)
◆	TEST PIT (FARALLON)
▨	ESTIMATED EXTENT OF SOIL EXCEEDING THE SCREENING LEVEL THAT WAS EXCAVATED AND REMOVED
▨	MECHANICAL EQUIPMENT AREA DECOMMISSIONED AND FILLED WITH CDF
🟥	PROPERTY BOUNDARY
⬚	FORMER UNDERGROUND STORAGE TANKS (USTs)
☐	KING COUNTY PARCEL BOUNDARY

NOTES:
FOR SOIL SAMPLES :
ELEVATION IN FEET NAVD88 | BENZENE
ANALYTICAL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)

BOLD = DENOTES CONCENTRATIONS THAT EXCEED THE SCREENING LEVEL (MTCA METHOD A CLEANUP LEVEL)
< = DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED
CDF = CONTROLLED DENSITY FILL
MTCA = WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION
NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988

N

0 30
SCALE IN FEET

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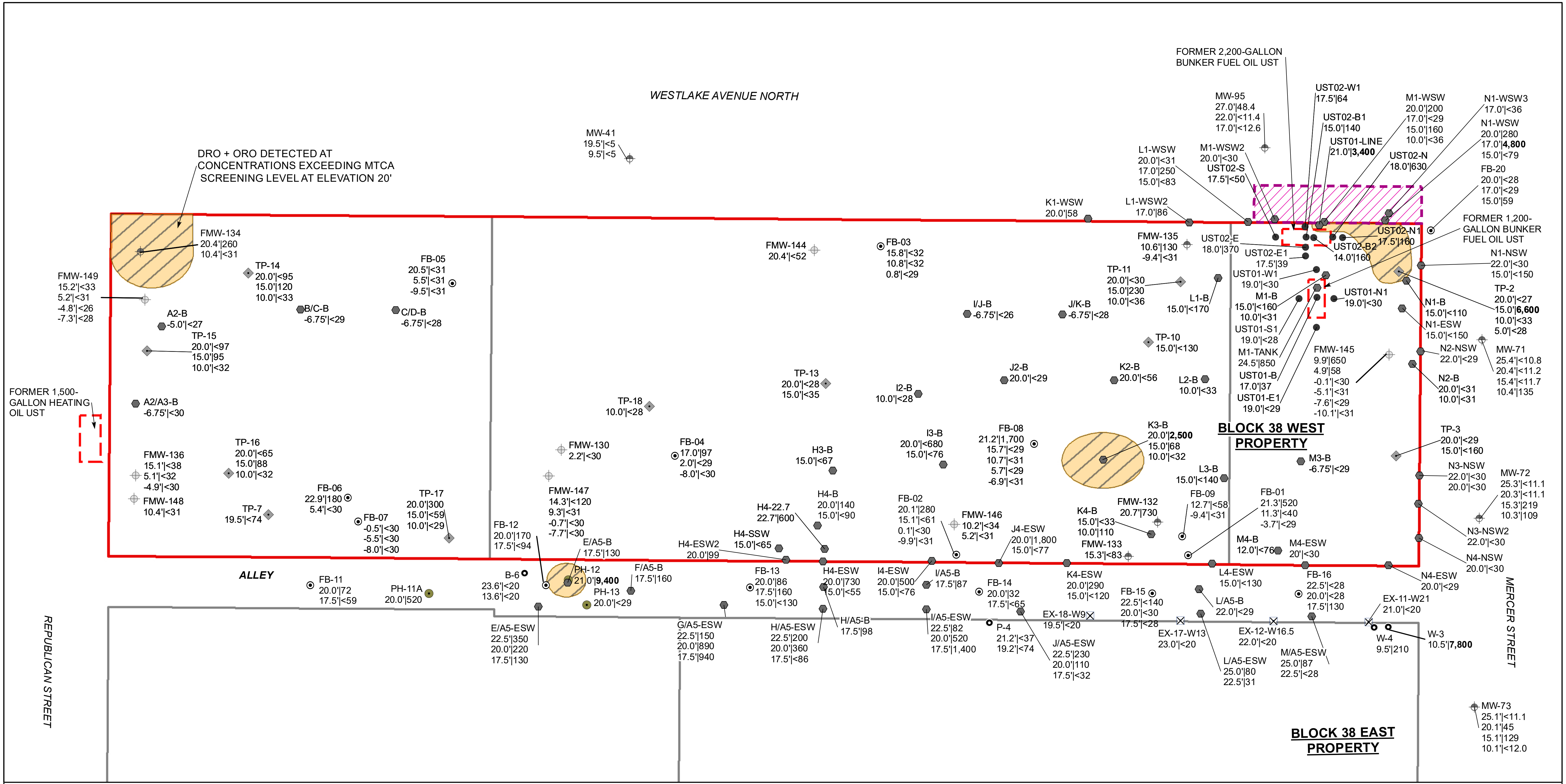
FIGURE 5

SOIL ANALYTICAL RESULTS
FOR BENZENE
BLOCK 38 WEST SITE
SEATTLE, WASHINGTON

FARALLON PN: 397-019

Drawn By: jjones
Checked By: SS
Date: 6/9/2022
Disc Reference:
Document Path: Q:\Projects\397 VULCAN\019_Block38\Mapfiles\017D_RI-WP_2021-11\Figure-05_Soil-Benzene_2021-11.mxd



LEGEND

⊕	DECOMMISSIONED SHALLOW WATER-BEARING ZONE MONITORING WELL
⊕	DECOMMISSIONED INTERMEDIATE WATER-BEARING ZONE MONITORING WELL
◉	BORING (FARALLON)
○	BORING (GEOENGINEERS)
☒	EXCAVATION SAMPLE (GEOENGINEERS)
◉	POTHOLE (FARALLON)
●	UST SAMPLE LOCATION (FARALLON)
⬢	EXCAVATION SAMPLE LOCATION (FARALLON)
◆	TEST PIT (FARALLON)
▨	ESTIMATED EXTENT OF SOIL EXCEEDING THE SCREENING LEVEL THAT WAS EXCAVATED AND REMOVED
▨	MECHANICAL EQUIPMENT AREA DECOMMISSIONED AND FILLED WITH CDF
▭	PROPERTY BOUNDARY
▭	FORMER UNDERGROUND STORAGE TANKS (USTs)
▭	KING COUNTY PARCEL BOUNDARY

NOTES:
FOR SOIL SAMPLES:
ELEVATION IN FEET NAVD88 | DRO
ANALYTICAL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)

BOLD = DENOTES CONCENTRATIONS THAT EXCEED THE SCREENING LEVEL (MTCA METHOD A CLEANUP LEVEL)
< = DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED
CDF = CONTROLLED DENSITY FILL
DRO = TOTAL PETROLEUM HYDROCARBONS (TPH) AS DIESEL-RANGE ORGANICS
MTCA = WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION
NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988

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SCALE IN FEET

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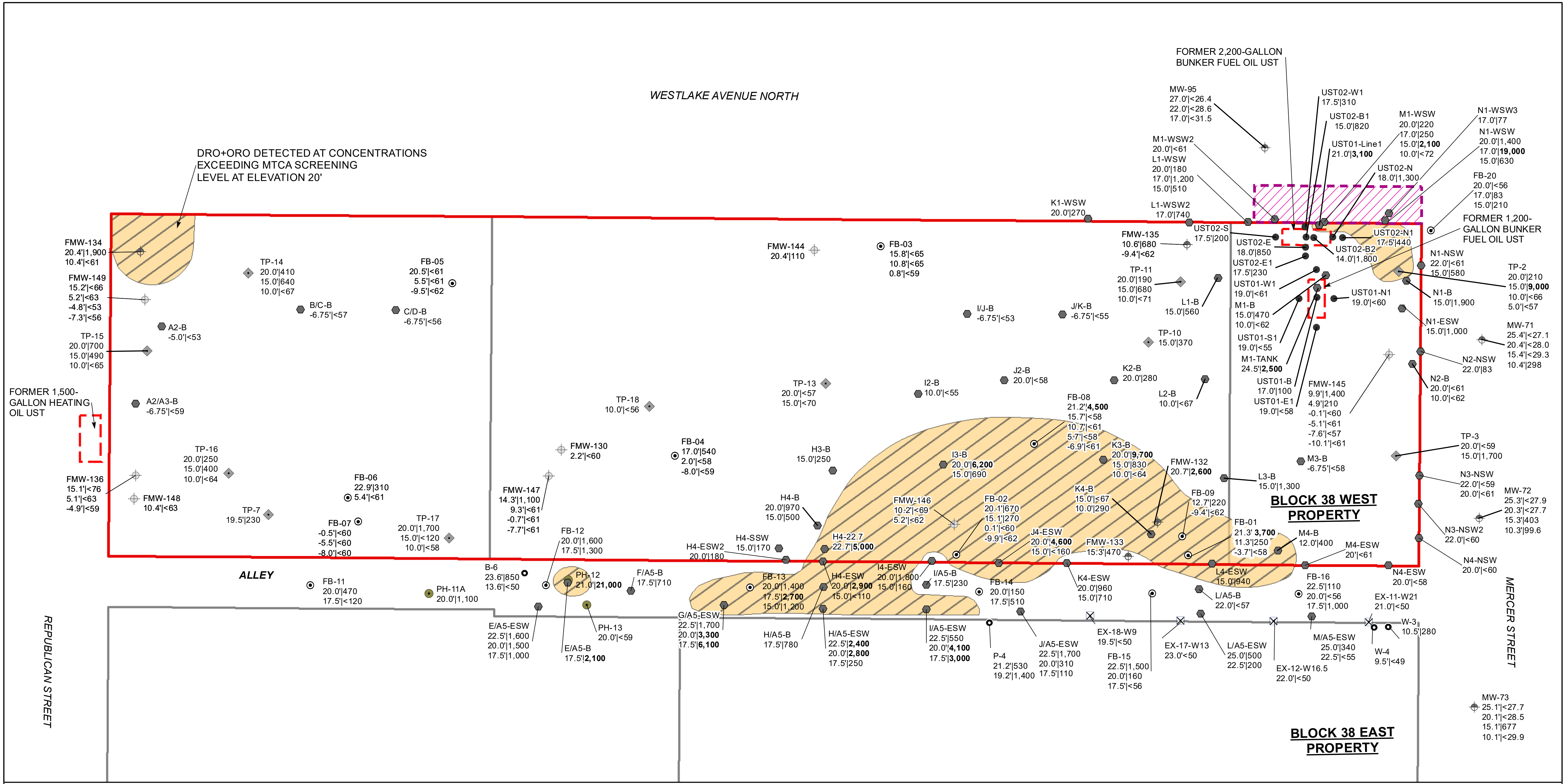
FIGURE 6

SOIL ANALYTICAL RESULTS
FOR DRO
BLOCK 38 WEST SITE
SEATTLE, WASHINGTON

FARALLON PN: 397-019

Drawn By: jjones Checked By: CS Date: 6/9/2022 Disc Reference:
Document Path: Q:\Projects\397 VULCAN\019_Block38\Mapfiles\017D_RI-WP_2021-11\Figure-06_Soil-DRO_2021-11.mxd



LEGEND

- ⌖ DECOMMISSIONED SHALLOW WATER-BEARING ZONE MONITORING WELL
- ⌖ DECOMMISSIONED INTERMEDIATE WATER-BEARING ZONE MONITORING WELL
- ⊙ BORING (FARALLON)
- ○ BORING (GEOENGINEERS)
- ☒ EXCAVATION SAMPLE (GEOENGINEERS)
- ● POTHOLE (FARALLON)
- ● UST SAMPLE LOCATION (FARALLON)
- ⬢ EXCAVATION SAMPLE LOCATION (FARALLON)
- ◆ TEST PIT (FARALLON)
- ▨ ESTIMATED EXTENT OF SOIL EXCEEDING THE SCREENING LEVEL THAT WAS EXCAVATED AND REMOVED
- ▨ MECHANICAL EQUIPMENT AREA DECOMMISSIONED AND FILLED WITH CDF
- ▭ PROPERTY BOUNDARY
- ▭ FORMER UNDERGROUND STORAGE TANKS (USTs)
- ▭ KING COUNTY PARCEL BOUNDARY

NOTES:
FOR SOIL SAMPLES:
ELEVATION IN FEET NAVD88 | ORO
ANALYTICAL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)

BOLD = DENOTES CONCENTRATIONS THAT EXCEED THE SCREENING LEVEL (MTCA METHOD A CLEANUP LEVEL)
< = DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED
CDF = CONTROLLED DENSITY FILL
ORO = TOTAL PETROLEUM HYDROCARBONS (TPH) AS OIL-RANGE ORGANICS
MTCA = WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION
NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988

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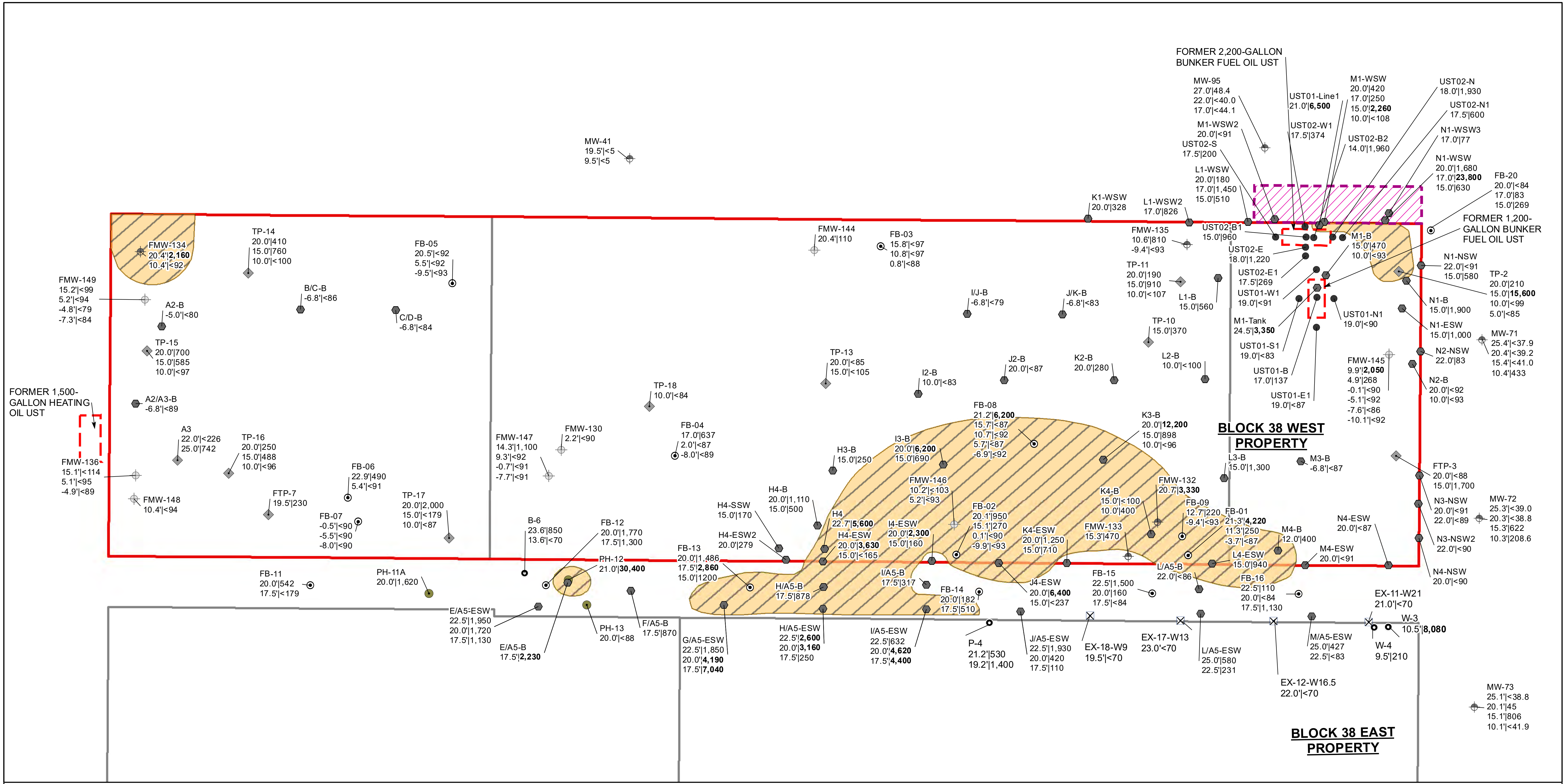
FIGURE 7

SOIL ANALYTICAL RESULTS FOR ORO BLOCK 38 WEST SITE SEATTLE, WASHINGTON

FARALLON PN: 397-019

Drawn By: jjones Checked By: CS Date: 6/6/2022 Disc Reference:
Document Path: Q:\Projects\397 VULCAN\019_Block38\Mapfiles\017D_RI-WP_2021-11\Figure-07_Soil-ORO_2021-11.mxd



LEGEND

⌖	DECOMMISSIONED SHALLOW WATER-BEARING ZONE MONITORING WELL
⌖	DECOMMISSIONED INTERMEDIATE WATER-BEARING ZONE MONITORING WELL
⊙	BORING (FARALLON)
○	BORING (GEOENGINEERS)
☒	EXCAVATION SAMPLE (GEOENGINEERS)
●	POTHOLE (FARALLON)
●	UST SAMPLE LOCATION (FARALLON)
⬢	EXCAVATION SAMPLE LOCATION (FARALLON)
◆	TEST PIT (FARALLON)
▨	ESTIMATED EXTENT OF SOIL EXCEEDING THE SCREENING LEVEL THAT WAS EXCAVATED AND REMOVED
▨	MECHANICAL EQUIPMENT AREA DECOMMISSIONED AND FILLED WITH CDF
▭	PROPERTY BOUNDARY
▭	FORMER UNDERGROUND STORAGE TANKS (USTs)
▭	KING COUNTY PARCEL BOUNDARY

NOTES:
FOR SOIL SAMPLES:
ELEVATION IN FEET NAVD88 | DRO+ORO
ANALYTICAL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)

BOLD = DENOTES CONCENTRATIONS THAT EXCEED THE SCREENING LEVEL (MTCA METHOD A CLEANUP LEVEL)
< = DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED
CDF = CONTROLLED DENSITY FILL
DRO = TOTAL PETROLEUM HYDROCARBONS (TPH) AS DIESEL-RANGE ORGANICS
ORO = TPH AS OIL-RANGE ORGANICS
MTCA = WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION
NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988

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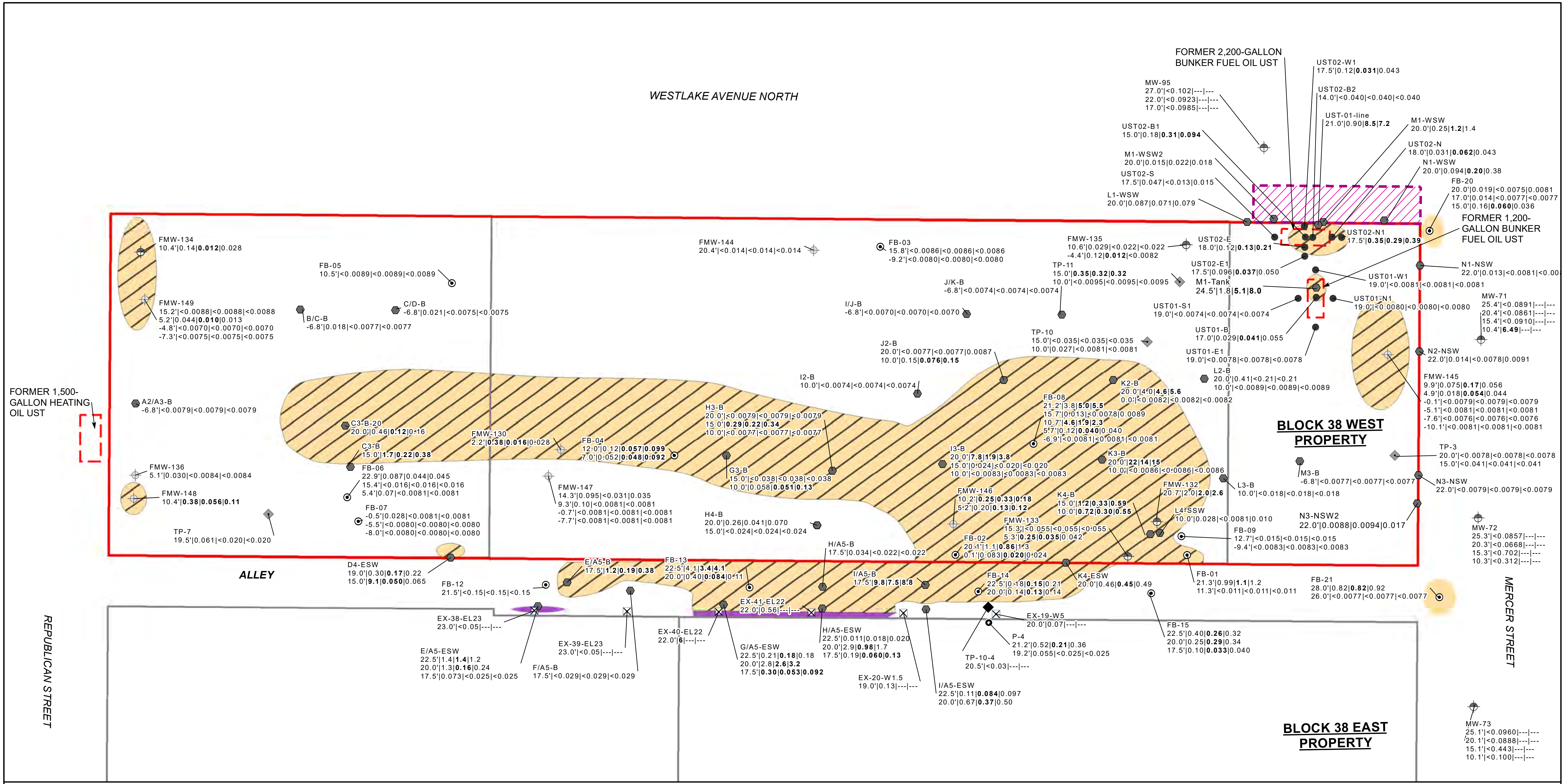
FIGURE 8
SOIL ANALYTICAL RESULTS FOR DRO + ORO
BLOCK 38 WEST SITE
SEATTLE, WASHINGTON
FARALLON PN: 397-019

Drawn By: jjones
Checked By: CS
Date: 6/9/2022
Disc Reference:
Document Path: Q:\Projects\397 VULCAN\019_Block38\Mapfiles\017D_RI-WP_2021-11\Figure-08_Soil-DRO+ORO_2021-11.mxd



LEGEND

⌖	DECOMMISSIONED SHALLOW WATER-BEARING ZONE MONITORING WELL
⌖	DECOMMISSIONED INTERMEDIATE WATER-BEARING ZONE MONITORING WELL
⊙	BORING (FARALLON)
○	BORING (GEOENGINEERS)
☒	EXCAVATION SAMPLE (GEOENGINEERS)
◆	TEST PIT (GEOENGINEERS)
●	UST SAMPLE LOCATION (FARALLON)
⬢	EXCAVATION SAMPLE LOCATION (FARALLON)
◈	TEST PIT (FARALLON)
⬭	ESTIMATED EXTENT OF SOIL EXCEEDING THE SCREENING REMAINING IN PLACE
▨	ESTIMATED EXTENT OF SOIL EXCEEDING THE SCREENING LEVEL THAT WAS EXCAVATED AND REMOVED
⬬	ESTIMATED EXTENT OF 1-2 FOOT WEDGE OF SOIL EXCEEDING THE SCREENING LEVEL DUE TO UTILITY BANK
▨	MECHANICAL EQUIPMENT AREA DECOMMISSIONED AND FILLED WITH CDF
🟥	PROPERTY BOUNDARY
⬚	FORMER UNDERGROUND STORAGE TANKS (USTs)
▭	KING COUNTY PARCEL BOUNDARY

NOTES:
FOR SOIL SAMPLES:
ELEVATION IN FEET NAVD88 | NAPHTHALENE | 1-METHYLNAPHTHALENE | 2-METHYLNAPHTHALENE
ANALYTICAL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)

BOLD = DENOTES CONCENTRATIONS THAT EXCEED THE MTCA METHOD B VADOSE OR SATURATED LEACHING VALUE
< = DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED
--- = DENOTES SAMPLE NOT ANALYZED
CDF = CONTROLLED DENSITY FILL
NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988
MTCA = WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION

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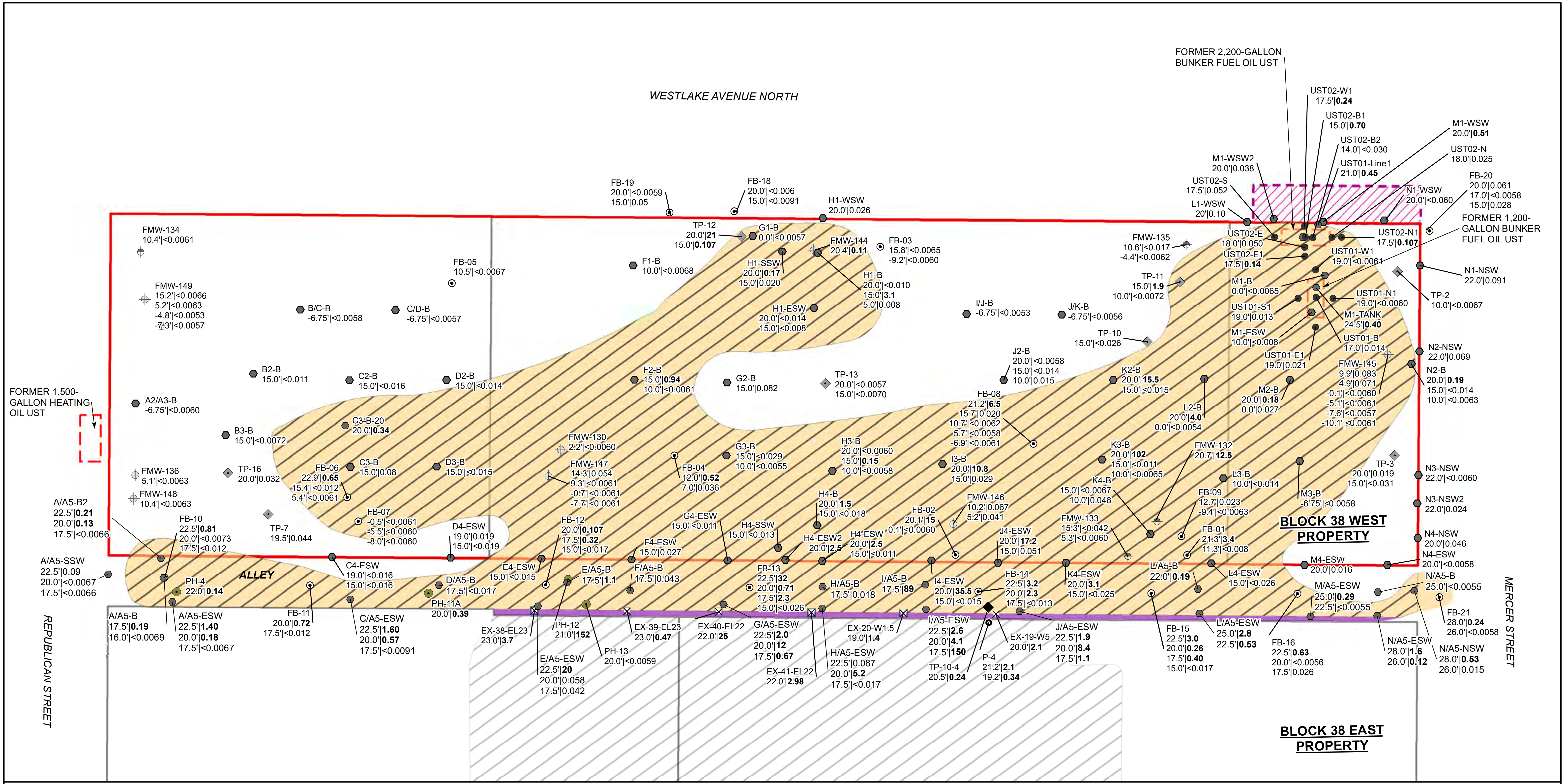
FIGURE 9

SOIL ANALYTICAL RESULTS FOR NAPHTHALENES
BLOCK 38 WEST SITE
SEATTLE, WASHINGTON

FARALLON PN: 397-019

Drawn By: jjones
Checked By: SS
Date: 4/6/2023
Disc Reference:
Document Path: Q:\Projects\397 VULCAN\019_Block38\Mapfiles\17D_RIWP_2023-03\Figure-09_Soil-Naph_2023-03.mxd



LEGEND

- ⌖ DECOMMISSIONED SHALLOW WATER-BEARING ZONE MONITORING WELL
- ⌖ DECOMMISSIONED INTERMEDIATE WATER-BEARING ZONE MONITORING WELL
- ⊙ BORING (FARALLON)
- ○ BORING (GEOENGINEERS)
- ☒ EXCAVATION SAMPLE (GEOENGINEERS)
- ◆ TEST PIT (GEOENGINEERS)
- ● POTHOLE (FARALLON)
- ● UST SAMPLE LOCATION (FARALLON)
- ⬢ EXCAVATION SAMPLE LOCATION (FARALLON)
- ◆ TEST PIT (FARALLON)
- ▨ ESTIMATED EXTENT OF SOIL EXCEEDING THE SCREENING LEVEL THAT WAS EXCAVATED AND REMOVED
- ⬭ ESTIMATED EXTENT OF SOIL EXCEEDING THE SCREENING LEVEL REMAINING IN PLACE
- ⬬ ESTIMATED EXTENT OF 1-2 FOOT WEDGE OF SOIL EXCEEDING THE SCREENING LEVEL DUE TO THE UTILITY BANK
- ▨ MECHANICAL EQUIPMENT AREA DECOMMISSIONED AND FILLED WITH CDF
- ▭ PROPERTY BOUNDARY
- ▭ FORMER UNDERGROUND STORAGE TANKS (USTs)
- ▭ KING COUNTY PARCEL BOUNDARY

NOTES:
FOR SOIL SAMPLES:
DEPTH AND CONCENTRATIONS REPORTED AS:
ELEVATION IN FEET NAVD88 | cPAH TEC
ANALYTICAL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)

BOLD = DENOTES ELEVATION AND CONCENTRATIONS THAT EXCEED THE SCREENING LEVEL (MTCA METHOD A CLEANUP LEVEL)
< = DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED FOR TOTAL TOXIC EQUIVALENT CONCENTRATION OF BENZO(A)PYRENE (mg/kg)
CDF = CONTROLLED DENSITY FILL
cPAHs = CARCINOGENIC POLYCYCLIC AROMATIC HYDROCARBONS
TEC = TOXIC EQUIVALENT CONCENTRATION OF BENZO(A)PYRENE FOR cPAH MIXTURE
MTCA = WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION
NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988

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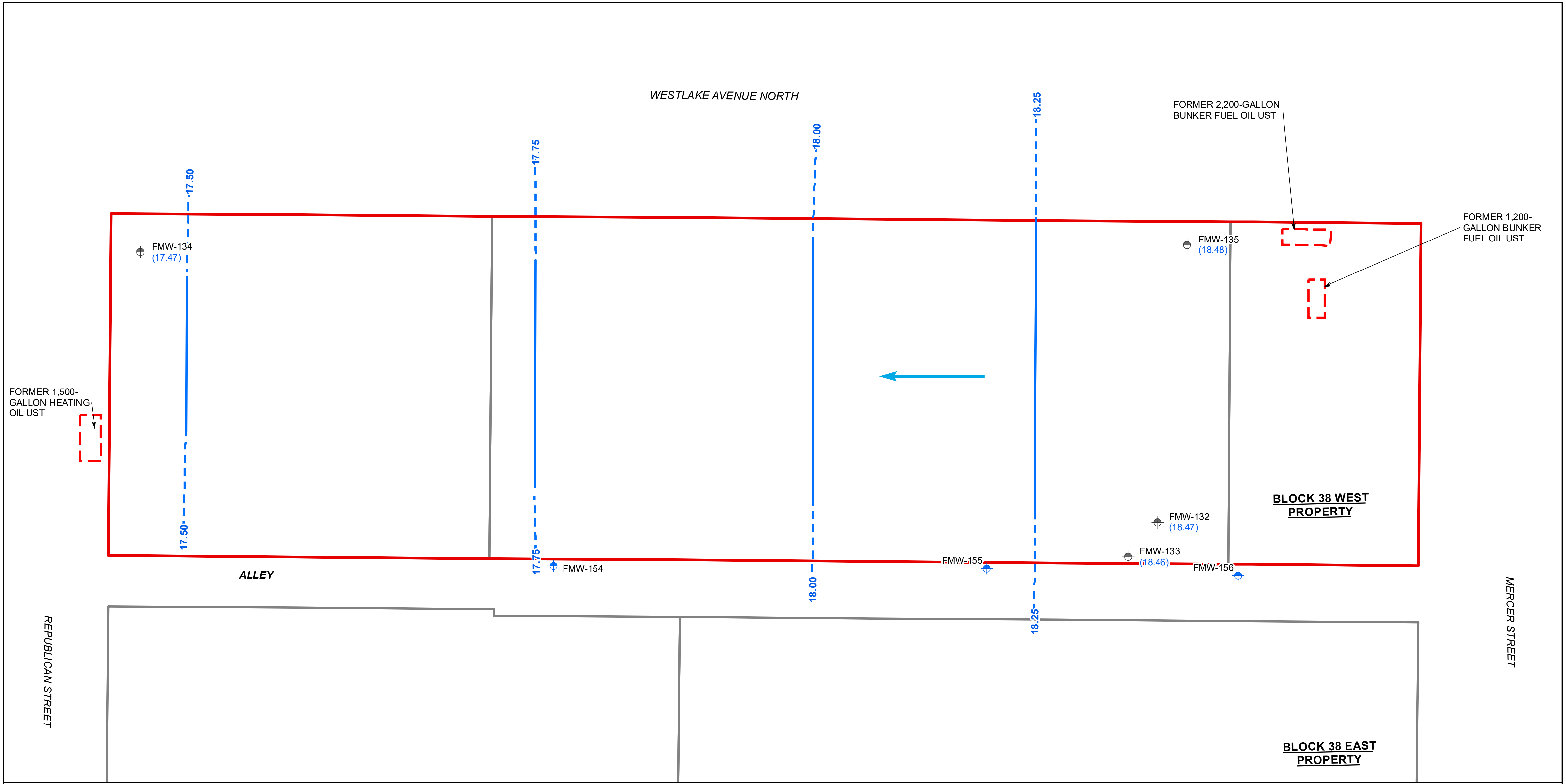
FIGURE 10

SOIL ANALYTICAL RESULTS
FOR cPAH TEC
BLOCK 38 WEST SITE
SEATTLE, WASHINGTON

FARALLON PN: 397-019

Drawn By: jjones
Checked By: CS
Date: 3/24/2023
Disc Reference:
Q:\Projects\397 VULCAN\019_Block38\Mapfiles\17D_RIWP_2023-03\Figure-10_Soil-cPAHTEC_2023-03.mxd



LEGEND

⌖	DECOMMISSIONED SHALLOW WATER-BEARING ZONE MONITORING WELL
⌖	SHALLOW WATER-BEARING ZONE MONITORING WELL
🟥	PROPERTY BOUNDARY
▭	FORMER UNDERGROUND STORAGE TANKS (USTs)
▭	KING COUNTY PARCEL BOUNDARY
(18.48)	GROUNDWATER ELEVATION (03/26/19) MEASURED IN FEET RELATIVE TO NAVD 88
18.00 - —	APPROXIMATE GROUNDWATER ELEVATION CONTOUR IN FEET NAVD88 (DASHED WHERE INFERRED)
→	INFERRED GROUNDWATER FLOW DIRECTION

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NOTES:
LOADING DOCK HIGHER THAN GSE
ELEVATION SOURCE: BUSH, ROED, & HITCHINGS, INC. (2014)
ELEVATION DATA PRESENTED IN FEET ABOVE MEAN SEA LEVEL IN THE NORTH AMERICAN VERTICAL DATUM OF 1988

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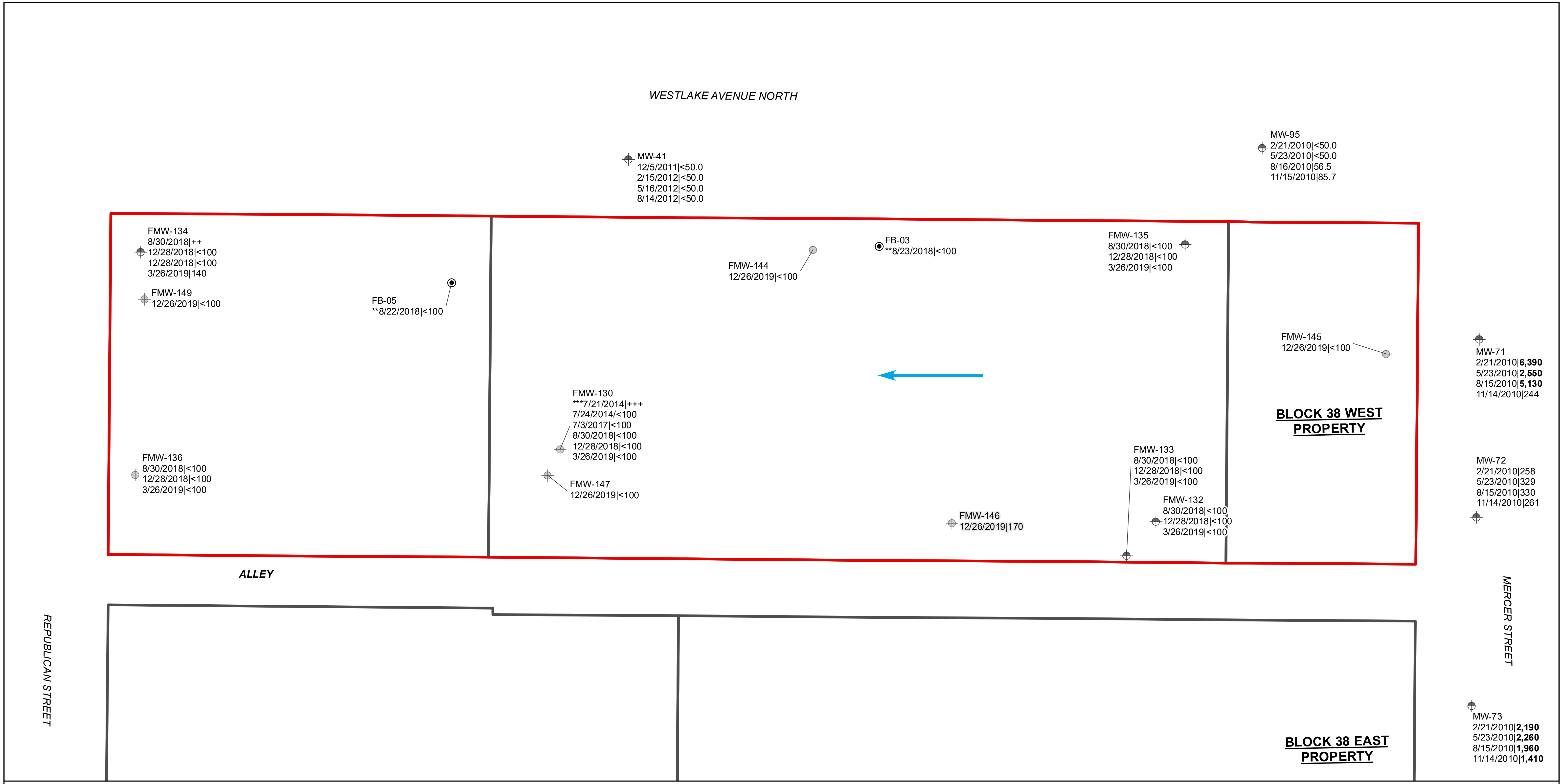
FIGURE 11

GROUNDWATER ELEVATION CONTOURS
SHALLOW WATER-BEARING ZONE
FOR MARCH 26, 2019
BLOCK 38 WEST SITE
SEATTLE, WASHINGTON

FARALLON PN: 397-019

Drawn By: jjones
Checked By: SS
Date: 5/19/2022
Disc Reference:
Document Path: Q:\Projects\397 VULCAN\019_Block38\Mapfiles\017D_RI-WP_2021-11\Figure-11_GW_Elv_20190326.mxd



N

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SCALE IN FEET

LEGEND

- ◉ BORING
- ⌖ DECOMMISSIONED SHALLOW WATER-BEARING ZONE MONITORING WELL
- ⌖ DECOMMISSIONED INTERMEDIATE WATER-BEARING ZONE MONITORING WELL
- → INFERRED GROUNDWATER FLOW DIRECTION MARCH 2019 (SHALLOW WATER-BEARING ZONE)
- 🟥 PROPERTY BOUNDARY
- ▭ KING COUNTY PARCEL BOUNDARY

NOTES:
DATE SAMPLED AND CONCENTRATIONS REPORTED AS:
SAMPLE DATE | GRO
ANALYTICAL RESULTS IN MICROGRAMS PER LITER (µg/l)

** = INDICATES RESULTS ARE FROM A RECONNAISSANCE GROUNDWATER SAMPLE
*** = INDICATES RESULTS ARE FROM A RECONNAISSANCE GROUNDWATER SAMPLE THAT WAS SCREENED AT AN ELEVATION OF 7.2 TO 2.2 FEET RELATIVE TO THE NAVD88 DATUM.
+++ = GRO REPORTED AT A CONCENTRATION OF 2,100 µg/l; HOWEVER, RE-EVALUATION BY THE ANALYTICAL LABORATORY INDICATED THAT THE REPORTED CONCENTRATION WAS NOT SIMILAR TO A TYPICAL GAS.
++ = GRO REPORTED AT A CONCENTRATION OF 1,100 µg/l; HOWEVER, RE-EVATLUATION BY THE ANALYTICAL LABORATORY INDICATED THAT THE REPORTED CONCENTRATION GRO WAS ATTRIBUTED TO A SINGLE PEAK ON THE CHROMATOGRAM, WHICH WAS IN THE RANGE OF NAPHTHALENE. NAPHTHALENE WAS QUANTIFIED AT A CONCENTRATION OF 290 µg/l AND TOTAL NAPHTHALENES AT 312 µg/l IN THIS GROUNDWATER SAMPLE.

BOLD = CONCENTRATIONS THAT EXCEED THE SCREENING LEVEL (MTCA METHOD A CLEANUP LEVEL)
< = ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED
GRO = TOTAL PETROLEUM HYDROCARBONS (TPH) AS GASOLINE-RANGE ORGANICS
MTCA = WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION
NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988

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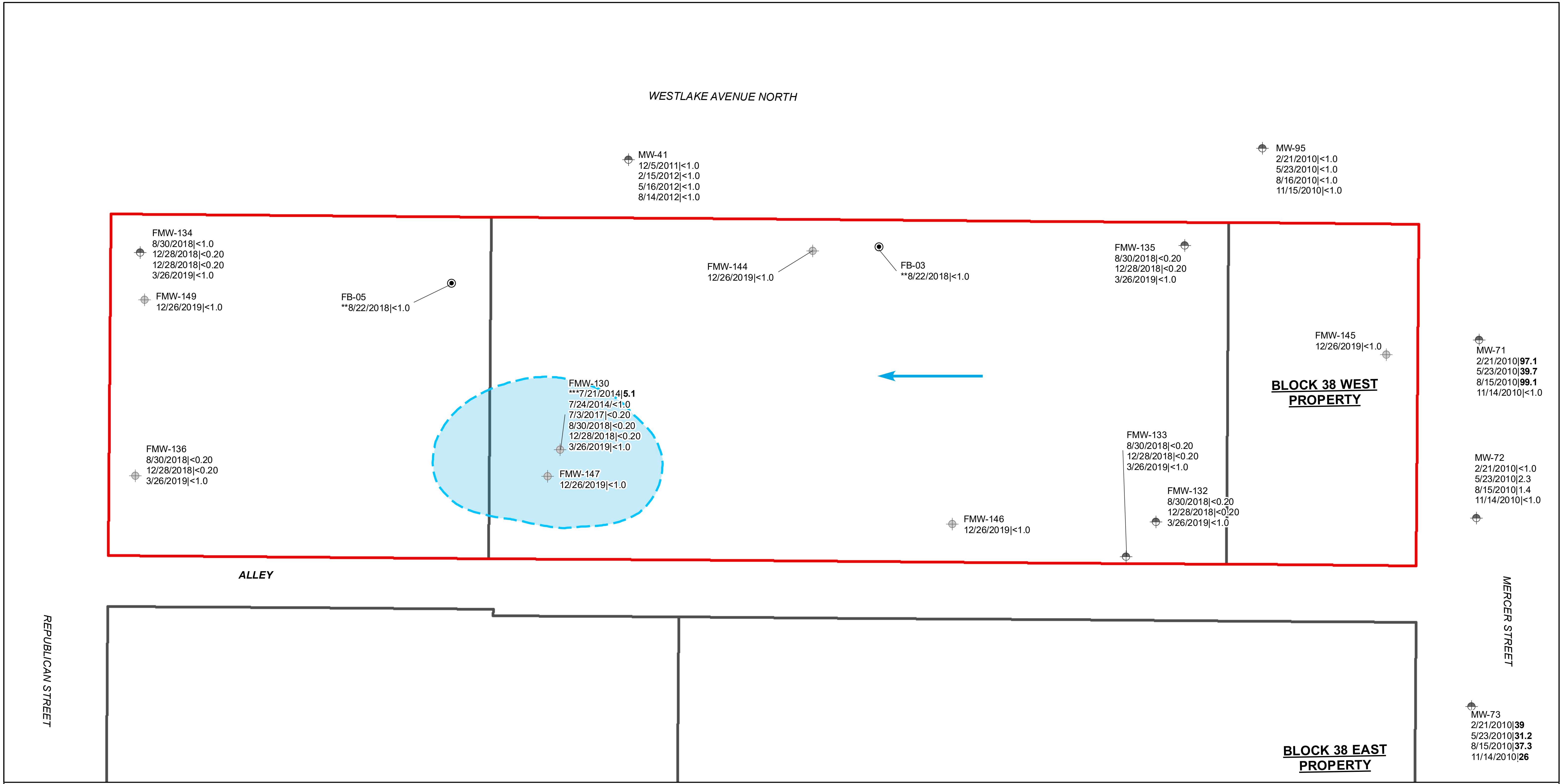
FIGURE 12

GROUNDWATER ANALYTICAL RESULTS FOR GRO
BLOCK 38 WEST SITE
SEATTLE, WASHINGTON

FARALLON PN: 397-019

Drawn By: jjones
Checked By: SS
Date: 6/9/2022
Disc Reference:
Document Path: Q:\Projects\397 VULCAN\019_Block38\Mapfiles\017D_RI-WP_2021-11\Figure-12_GW-GRO_2021-11.mxd



LEGEND

- ◉ BORING
- ⊕ DECOMMISSIONED SHALLOW WATER-BEARING ZONE MONITORING WELL
- ⊕ DECOMMISSIONED INTERMEDIATE WATER-BEARING ZONE MONITORING WELL
- 🟥 PROPERTY BOUNDARY
- ▭ KING COUNTY PARCEL

- GROUNDWATER EXCEEDING SCREENING LEVEL
  (- - - INDICATES ESTIMATED EXTENT INFERRED)

  (AREAS THAT EXCEED SCREENING LEVELS IN THE SHALLOW WATER-BEARING ZONE WERE REMOVED WITHIN THE PROPERTY BOUNDARY DURING REDEVELOPMENT)
- → INFERRED GROUNDWATER FLOW DIRECTION MARCH 2019 (SHALLOW WATER-BEARING ZONE)

NOTES:
DATE SAMPLED AND CONCENTRATIONS REPORTED AS:
SAMPLE DATE | BENZENE
ANALYTICAL RESULTS IN MICROGRAMS PER LITER (µg/l)

**	=	INDICATES RESULTS ARE FROM A RECONNAISSANCE GROUNDWATER SAMPLE
***	=	INDICATES RESULTS ARE FROM A RECONNAISSANCE GROUNDWATER SAMPLE THAT WAS SCREENED AT AN ELEVATION OF 7.2 TO 2.2 FEET RELATIVE TO THE NAVD88 DATUM.
BOLD	=	CONCENTRATIONS THAT EXCEED THE SCREENING LEVEL (MTCA METHOD A CLEANUP LEVEL)
<	=	ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED
MTCA	=	WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION

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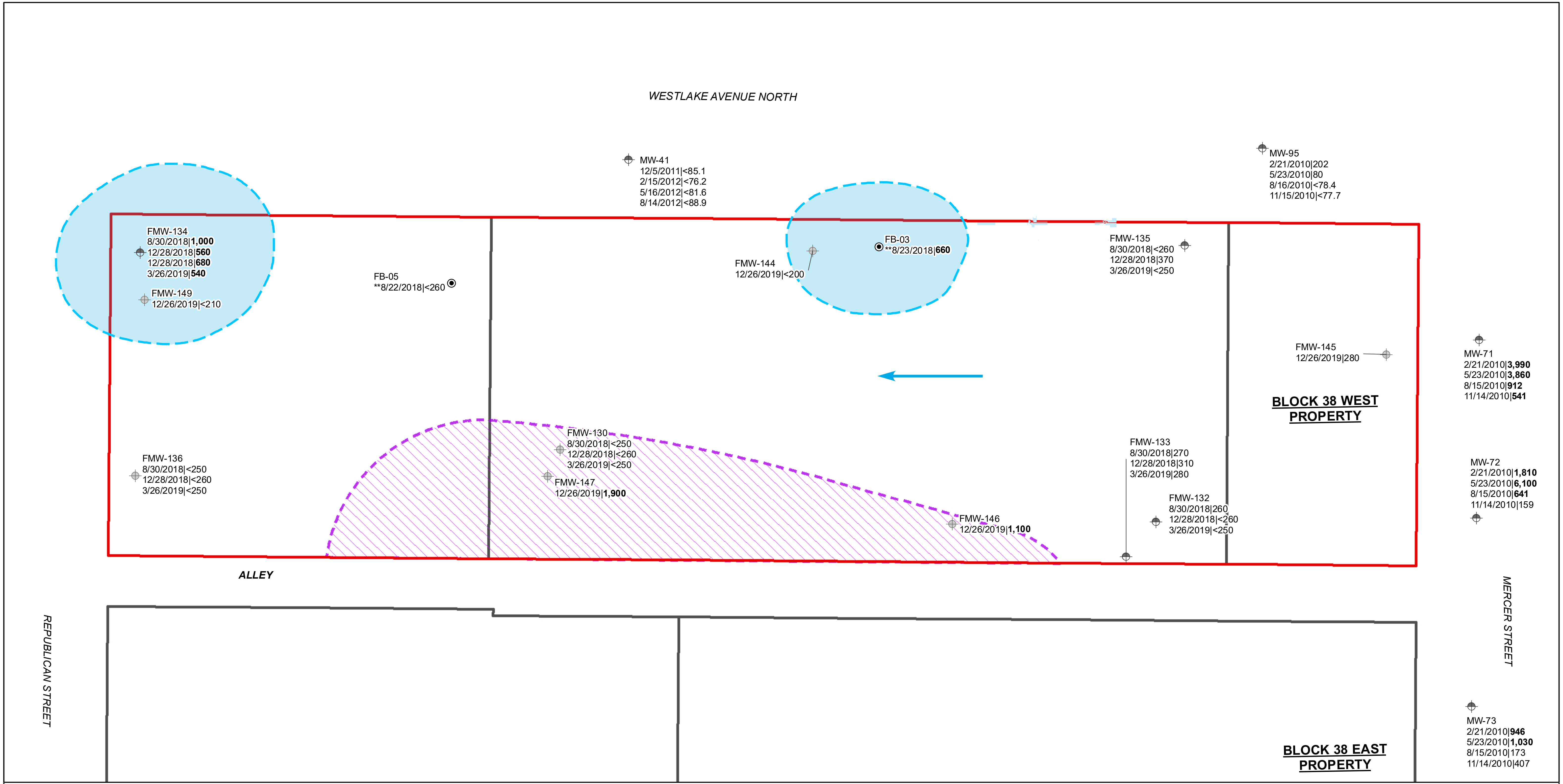
FIGURE 13

GROUNDWATER ANALYTICAL RESULTS FOR BENZENE BLOCK 38 WEST SITE SEATTLE, WASHINGTON

FARALLON PN: 397-019

Drawn By: jjones
Checked By: SS
Date: 6/9/2022
Disc Reference:
Document Path: Q:\Projects\397 VULCAN\019_Block38\Mapfiles\017D_RI-WP_2021-11\Figure-13_GW_Benz_2021-07.mxd



LEGEND

◉ BORING

⊕ DECOMMISSIONED SHALLOW WATER-BEARING ZONE MONITORING WELL

⊕ DECOMMISSIONED INTERMEDIATE WATER-BEARING ZONE MONITORING WELL

🟥 PROPERTY BOUNDARY

⬜ KING COUNTY PARCEL BOUNDARY

▨ DRO DETECTED AT CONCENTRATIONS IN GROUNDWATER EXCEEDING THE SCREENING LEVEL IN THE INTERMEDIATE WATER-BEARING ZONE
(- - - INDICATES ESTIMATED EXTENT INFERRED)

⬭ DRO DETECTED AT CONCENTRATIONS IN GROUNDWATER EXCEEDING THE SCREENING LEVEL IN SHALLOW WATER-BEARING ZONE
(- - - INDICATES ESTIMATED EXTENT INFERRED)
(AREAS THAT EXCEED SCREENING LEVELS IN THE SHALLOW WATER-BEARING AND UPPER INTERMEDIATE WATER-BEARING ZONES WERE REMOVED WITHIN THE BLOCK 38 WEST PROPERTY BOUNDARY DURING REDEVELOPMENT)

➡ INFERRED GROUNDWATER FLOW DIRECTION MARCH 2019 (SHALLOW WATER-BEARING ZONE)

NOTES:
DATE SAMPLED AND CONCENTRATIONS REPORTED AS:
SAMPLE DATE | DRO
ANALYTICAL RESULTS IN MICROGRAMS PER LITER (µg/l)

**	=	INDICATES RESULTS ARE FROM A RECONNAISSANCE GROUNDWATER SAMPLE
BOLD	=	CONCENTRATIONS THAT EXCEED THE SCREENING LEVEL (MTCA METHOD A CLEANUP LEVEL)
<	=	ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED
DRO	=	TOTAL PETROLEUM HYDROCARBONS (TPH) AS DIESEL-RANGE ORGANICS
MTCA	=	WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION
NAVD88	=	NORTH AMERICAN VERTICAL DATUM OF 1988

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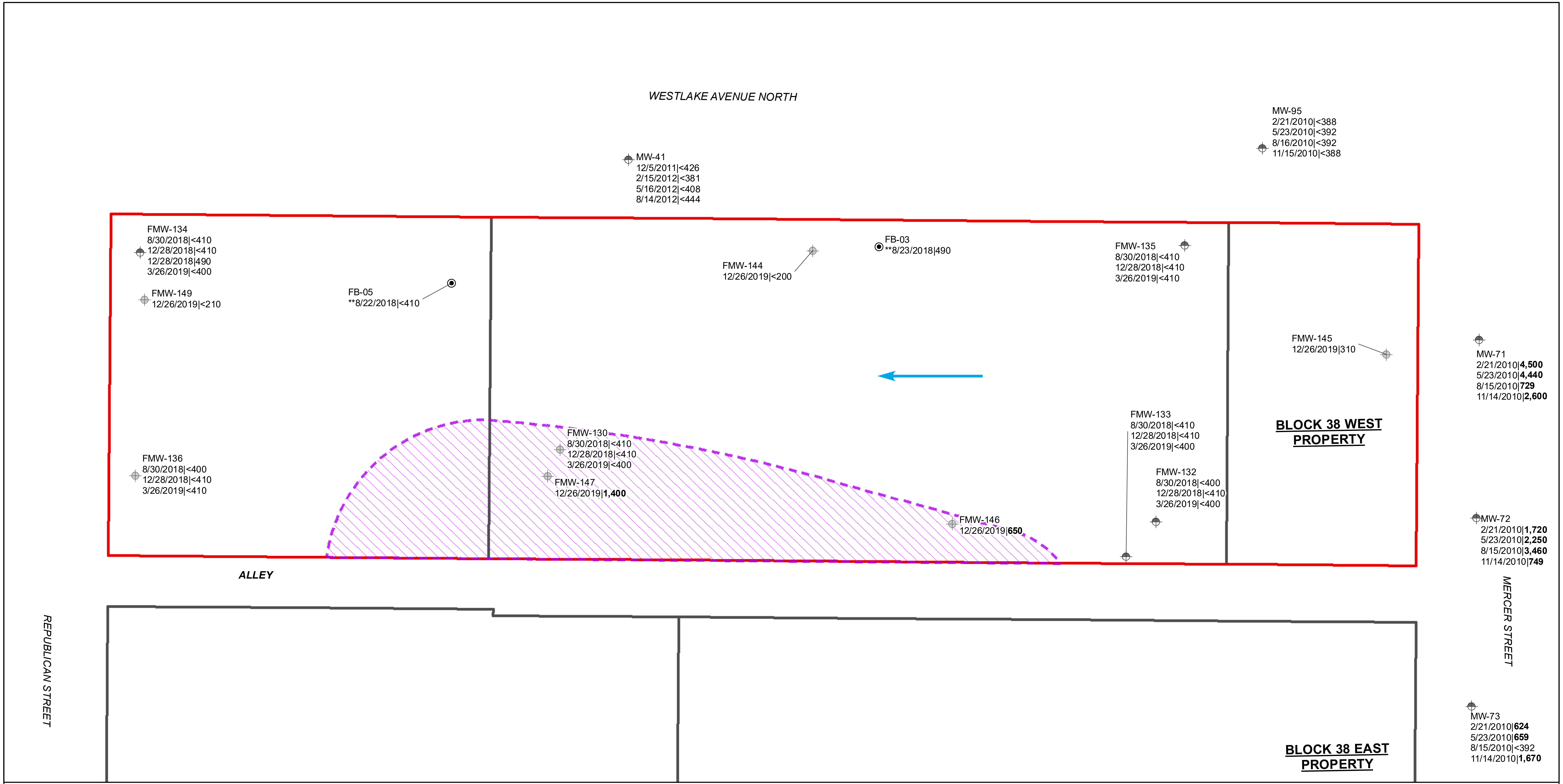
FIGURE 14

GROUNDWATER ANALYTICAL RESULTS FOR DRO
BLOCK 38 WEST SITE
SEATTLE, WASHINGTON

FARALLON PN: 397-019

Drawn By: jjones
Checked By: SS
Date: 6/9/2022
Disc Reference:
Document Path: Q:\Projects\397 VULCAN\019_Block38\Mapfiles\017D_RI-WP_2021-11\Figure-14_GW-DRO_2021-11.mxd



LEGEND

◉ BORING

⊕ DECOMMISSIONED SHALLOW WATER-BEARING ZONE MONITORING WELL

⊕ DECOMMISSIONED INTERMEDIATE WATER-BEARING ZONE MONITORING WELL

🟥 PROPERTY BOUNDARY

▭ KING COUNTY PARCEL BOUNDARY

▨ ORO DETECTED AT CONCENTRATIONS IN GROUNDWATER EXCEEDING THE SCREENING LEVEL IN THE INTERMEDIATE WATER-BEARING ZONE
(- - - INDICATES ESTIMATED EXTENT INFERRED)

(AREAS THAT EXCEED SCREENING LEVELS IN THE UPPER INTERMEDIATE WATER-BEARING ZONE WAS REMOVED WITHIN THE BLOCK 38 WEST PROPERTY BOUNDARY DURING REDEVELOPMENT)

→ INFERRED GROUNDWATER FLOW DIRECTION MARCH 2019 (SHALLOW WATER-BEARING ZONE)

NOTES:
DATE SAMPLED AND CONCENTRATIONS REPORTED AS:
SAMPLE DATE | ORO
ANALYTICAL RESULTS IN MICROGRAMS PER LITER (µg/l)

** = INDICATES RESULTS ARE FROM A RECONNAISSANCE GROUNDWATER SAMPLE
BOLD = CONCENTRATIONS THAT EXCEED THE SCREENING LEVEL (MTCA METHOD A CLEANUP LEVEL)
< = ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED
ORO = TOTAL PETROLEUM HYDROCARBONS (TPH) AS OIL-RANGE ORGANICS
MTCA = WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION
NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988

N

0 30

SCALE IN FEET

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FIGURE 15

GROUNDWATER ANALYTICAL RESULTS FOR ORO BLOCK 38 WEST SITE SEATTLE, WASHINGTON

FARALLON PN: 397-019

Drawn By: jjones Checked By: SS Date: 6/9/2022 Disc Reference:
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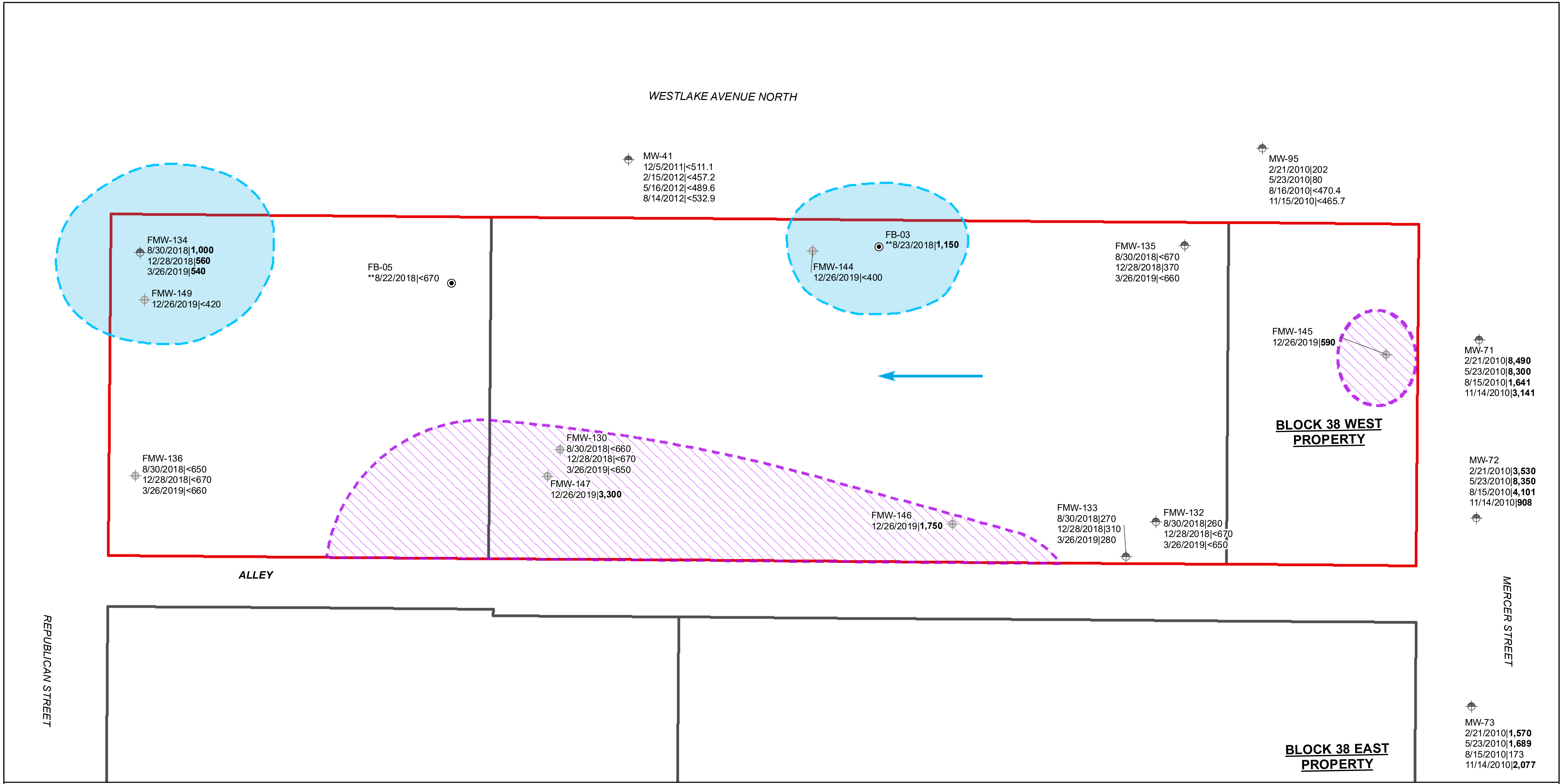

LEGEND

⊙	BORING
⊕	DECOMMISSIONED SHALLOW WATER-BEARING ZONE MONITORING WELL
⊕	DECOMMISSIONED INTERMEDIATE WATER-BEARING ZONE MONITORING WELL
🟥	PROPERTY BOUNDARY
▭	KING COUNTY PARCEL BOUNDARY
▨	DRO+ORO DETECTED AT CONCENTRATIONS IN GROUNDWATER EXCEEDING THE SCREENING LEVEL IN THE INTERMEDIATE WATER-BEARING ZONE (- - - INDICATES ESTIMATED EXTENT INFERRED)
●	DRO+ORO DETECTED AT CONCENTRATIONS IN GROUNDWATER EXCEEDING THE SCREENING LEVEL IN SHALLOW WATER-BEARING ZONE (- - - INDICATES ESTIMATED EXTENT INFERRED) (AREAS THAT EXCEED SCREENING LEVELS IN THE UPPER INTERMEDIATE WATER-BEARING ZONE WAS REMOVED WITHIN THE BLOCK 38 WEST PROPERTY BOUNDARY DURING REDEVELOPMENT)
→	INFERRED GROUNDWATER FLOW DIRECTION MARCH 2019 (SHALLOW WATER-BEARING ZONE)

NOTES:
DATE SAMPLED AND CONCENTRATIONS REPORTED AS:
SAMPLE DATE | SUM OF DRO AND ORO
ANALYTICAL RESULTS IN MICROGRAMS PER LITER (µg/l)

** = INDICATES RESULTS ARE FROM A RECONNAISSANCE GROUNDWATER SAMPLE
BOLD = CONCENTRATIONS THAT EXCEED THE SCREENING LEVEL (MTCA METHOD A CLEANUP LEVEL)
< = 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
MTCA = WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION
NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988

N

0 30
SCALE IN FEET

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FIGURE 16

GROUNDWATER ANALYTICAL RESULTS
FOR DRO+ORO
BLOCK 38 WEST SITE
SEATTLE, WASHINGTON

FARALLON PN: 397-019

Drawn By: jjones Checked By: SS Date: 6/9/2022 Disc Reference:
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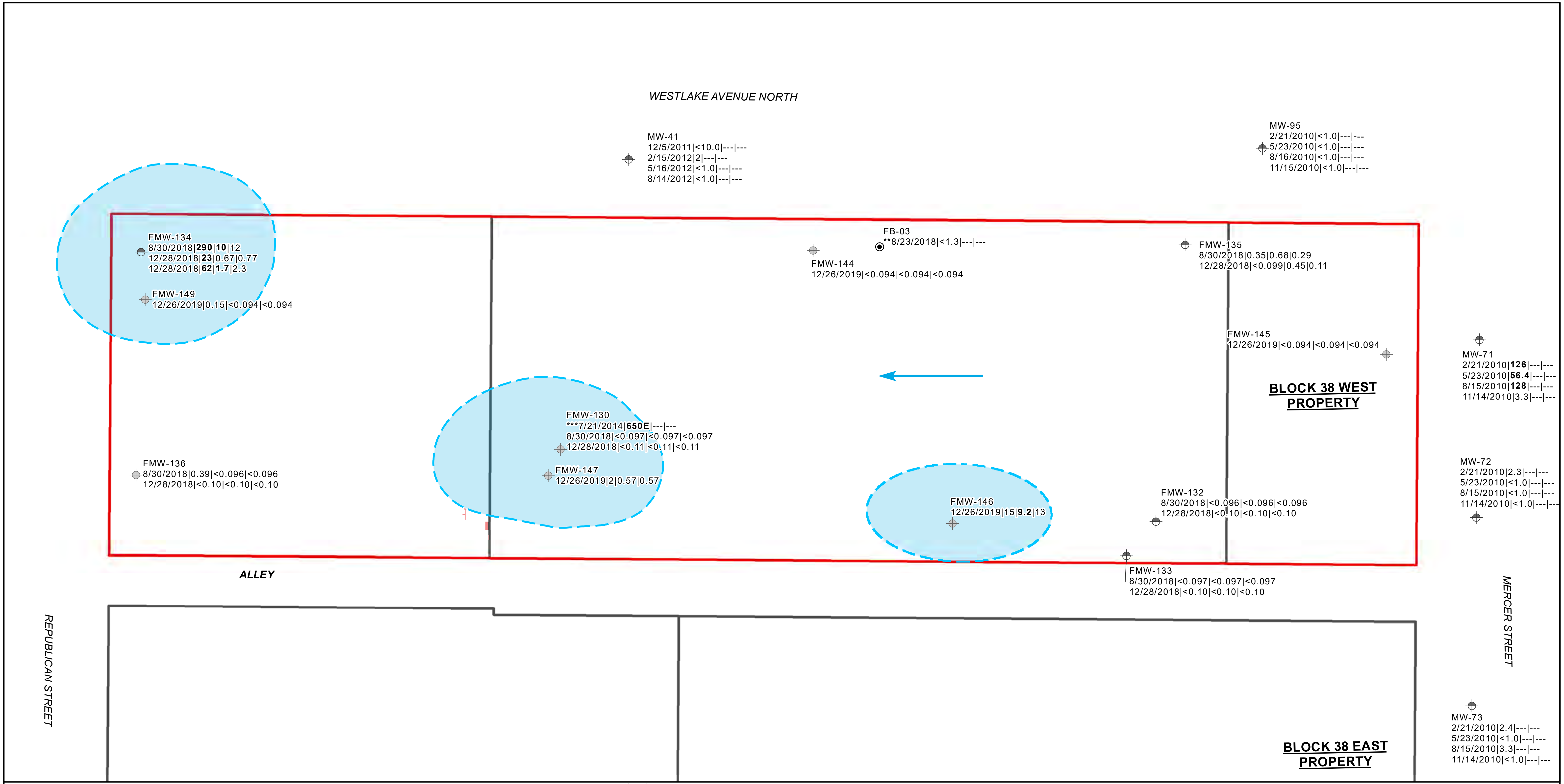

LEGEND

◉ BORING

⊕ DECOMMISSIONED SHALLOW WATER-BEARING ZONE MONITORING WELL

⊕ DECOMMISSIONED INTERMEDIATE WATER-BEARING ZONE MONITORING WELL

🟥 PROPERTY BOUNDARY

⬜ KING COUNTY PARCEL BOUNDARY

● NAPHTHALENES DETECTED AT CONCENTRATIONS IN GROUNDWATER EXCEEDING THE SCREENING LEVEL IN SHALLOW WATER-BEARING ZONE
(- - - INDICATES ESTIMATED EXTENT INFERRED)

(AREAS THAT EXCEED SCREENING LEVELS IN THE SHALLOW WATER-BEARING ZONE WAS REMOVED WITHIN THE BLOCK 38 WEST PROPERTY BOUNDARY DURING REDEVELOPMENT)

→ INFERRED GROUNDWATER FLOW DIRECTION MARCH 2019 (SHALLOW WATER-BEARING ZONE)

NOTES:
DATE SAMPLED AND CONCENTRATIONS REPORTED AS:
SAMPLE DATE | NAPHTHALENE | 1-METHYLNAPHTHALENE | 2-METHYLNAPHTHALENE
ANALYTICAL RESULTS IN MICROGRAMS PER LITER (µg/l)

*** = INDICATES RESULTS ARE FROM A RECONNAISSANCE GROUNDWATER SAMPLE THAT WAS SCREENED AT AN ELEVATION OF 7.2 TO 2.2 FEET RELATIVE TO THE NAVD88 DATUM.
** = INDICATES RESULTS ARE FROM A RECONNAISSANCE GROUNDWATER SAMPLE
BOLD = CONCENTRATIONS THAT EXCEED THE SCREENING LEVEL MTCA METHOD B VAPOR INTRUSION GROUNDWATER SCREENING LEVEL IS APPLICABLE FOR THE SHALLOW WATER-BEARING ZONE AND THE METHOD B SCREENING LEVEL FOR DRINKING WATER IS APPLICABLE FOR THE DEEPER INTERMEDIATE WATER-BEARING ZONE.
< = ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED
--- = DENOTES SAMPLE NOT ANALYZED
MTCA = WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION
NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988
E = CONCENTRATION IS ESTIMATED BASED ON THE REPORTED VALUE EXCEEDING THE QUANTITATION RANGE

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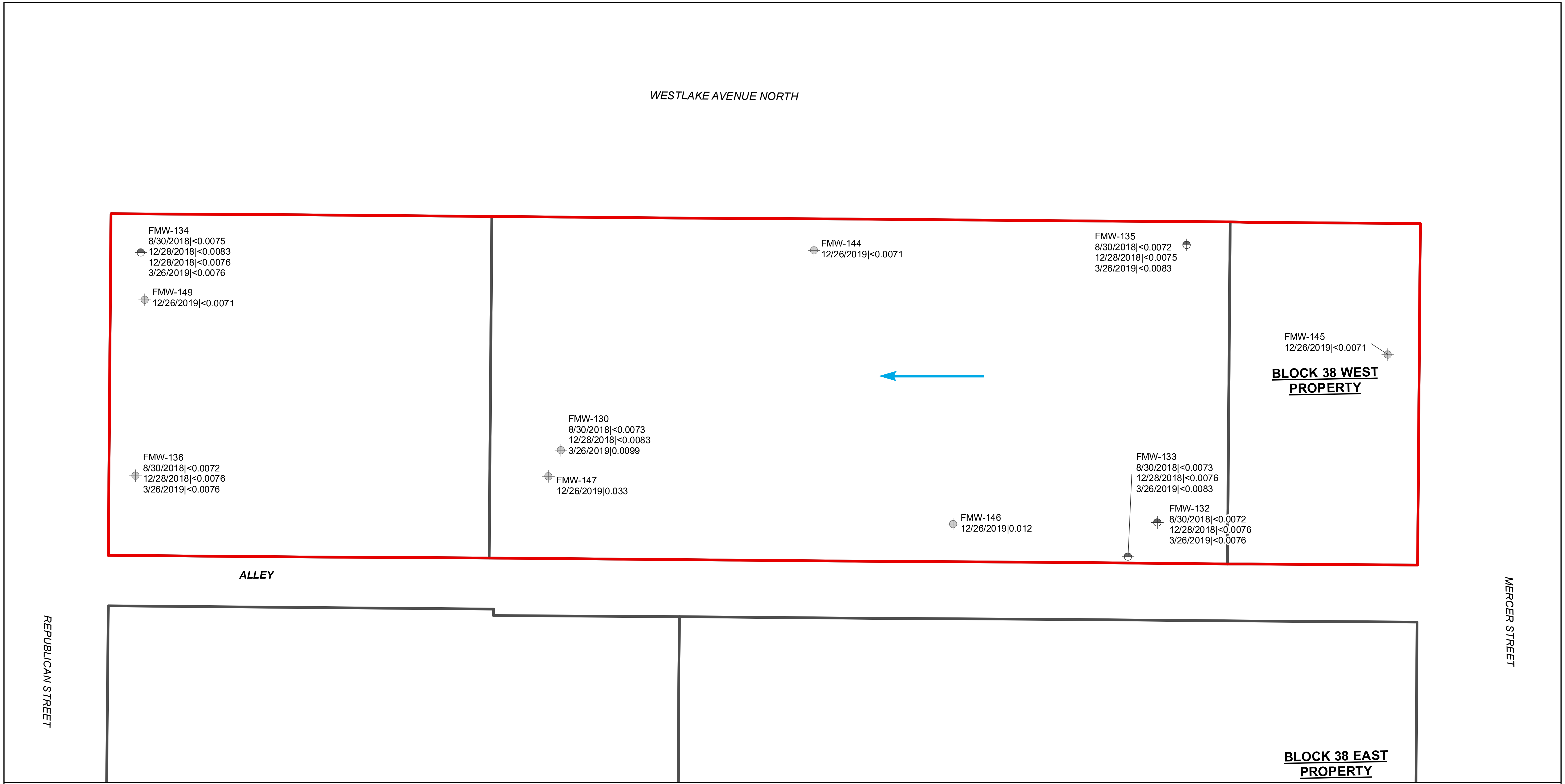
FIGURE 17

GROUNDWATER ANALYTICAL RESULTS
FOR NAPHTHALENES
BLOCK 38 WEST SITE
SEATTLE, WASHINGTON

FARALLON PN: 397-019

Drawn By: jjones
Checked By: SS
Date: 4/7/2023
Disc Reference:
Document Path: Q:\Projects\397 VULCAN\019_Block38\Mapfiles\17D_RIWP_2023-03\Figure-17_GW-Naph_2023-03.mxd



N

0 30

SCALE IN FEET

LEGEND

⊕ DECOMMISSIONED SHALLOW WATER-BEARING ZONE MONITORING WELL

⊕ DECOMMISSIONED INTERMEDIATE WATER-BEARING ZONE MONITORING WELL

→ INFERRED GROUNDWATER FLOW DIRECTION MARCH 2019 (SHALLOW WATER-BEARING ZONE)

🟥 PROPERTY BOUNDARY

▭ KING COUNTY PARCEL BOUNDARY

NOTES:
DATE SAMPLED AND CONCENTRATIONS REPORTED AS:
SAMPLE DATE | cPAH TEC
ANALYTICAL RESULTS IN MICROGRAMS PER LITER (μg/l)

BOLD = CONCENTRATIONS THAT EXCEED THE SCREENING LEVEL (MTCA METHOD A CLEANUP LEVEL)
< = ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED FOR TOTAL TOXIC EQUIVALENT CONCENTRATION OF BENZO(A)PYRENE (μg/l)
cPAHs = CARCINOGENIC POLYCYCLIC AROMATIC HYDROCARBONS
TEC = TOXIC EQUIVALENT CONCENTRATION OF BENZO(A)PYRENE FOR cPAH MIXTURE
MTCA = WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION

ALL LOCATIONS ARE APPROXIMATE.
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FIGURE 18

GROUNDWATER ANALYTICAL RESULTS FOR cPAH TEC BLOCK 38 WEST SITE SEATTLE, WASHINGTON

FARALLON PN: 397-019

Drawn By: jjones
Checked By: SS
Date: 5/18/2022
Disc Reference:
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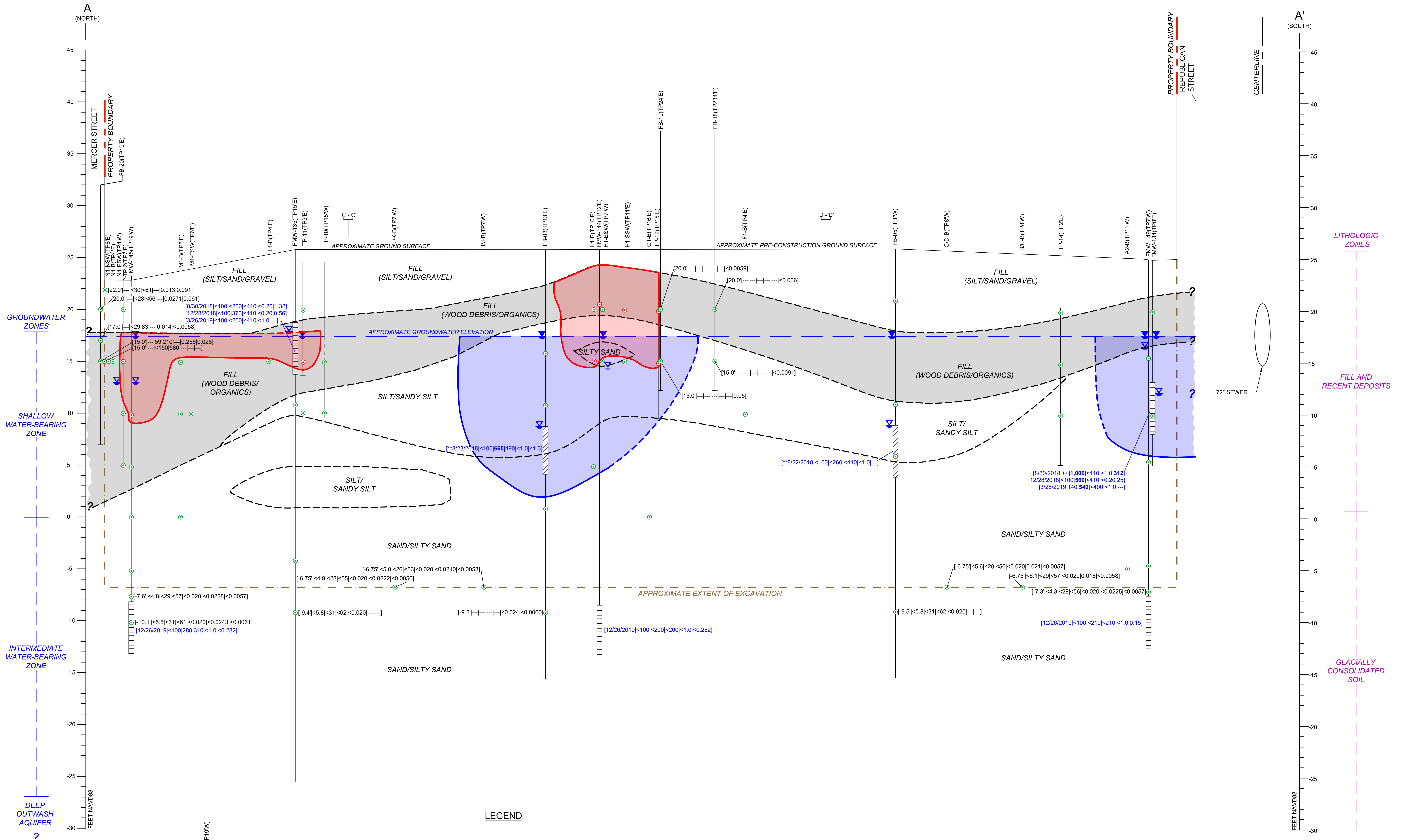

LEGEND

FMW-145 (TP19'W) — BORING OR MONITORING WELL LOCATION TRANSPOSED (TP) IN FEET, EAST (E) OR WEST (W), TO CROSS-SECTION LINE

⊙ — INDICATES CONCENTRATIONS OF ONE OR MORE COPCS EXCEEDED THE APPLICABLE MTCA SCREENING LEVELS

⊙ — INDICATES CONCENTRATIONS OF COPCS ANALYZED DID NOT EXCEED THE APPLICABLE MTCA SCREENING LEVELS

— — APPROXIMATE GROUNDWATER ELEVATION

- - - STRATIGRAPHIC CONTACT

| BLANK CASING OR BORING

▼ STATIC GROUNDWATER ELEVATION (12/31/2019)

▽ GROUNDWATER ELEVATION AT TIME OF DRILLING

▨ TEMPORARY SCREEN INTERVAL

☰ WELL SCREEN INTERVAL

ALL GROUNDWATER ANALYTICAL RESULTS IN MICROGRAMS PER LITER (µg/l)

[**8/22/2018|<100|<260|<410|<1.0|---] = GROUNDWATER ANALYTICAL RESULT [DATE SAMPLED|GRO|DRO|ORO|BENZENE|TOTAL NAPHTHALENES]

** DENOTES SAMPLE IS RECONNAISSANCE GROUNDWATER GRAB SAMPLE

++ =GRO REPORTED AT A CONCENTRATION OF 1,100 µg/l; HOWEVER, RE-EVALUATION BY THE ANALYTICAL LABORATORY INDICATED THAT THE REPORTED CONCENTRATION OF GRO WAS ATTRIBUTED TO A SINGLE PEAK ON THE CHROMATOGRAM, WHICH WAS IN THE RANGE OF NAPHTHALENE. NAPHTHALENE WAS QUANTIFIED AT A CONCENTRATION OF 290 µg/l AND TOTAL NAPHTHALENES AT 312 µg/l IN THIS GROUNDWATER SAMPLE.

ALL SOIL ANALYTICAL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)

[-7.6'|<4.8|<29|<57|<0.020|<0.0228|<0.0057] = SOIL ANALYTICAL RESULT [ELEVATION IN FEET NAVD88|GRO|DRO|ORO|BENZENE|TOTAL NAPHTHALENES|cPAH TEC]

GRO = TOTAL PETROLEUM HYDROCARBONS (TPH) AS GASOLINE-RANGE ORGANICS
DRO = TPH AS DIESEL-RANGE ORGANICS
ORO = TPH AS OIL-RANGE ORGANICS
TOTAL NAPHTHALENES = SUM OF NAPHTHALENE, 1-METHYLNAPHTHALENE AND 2-METHYLNAPHTHALENE
cPAH TEC = CARCINOGENIC POLYCYCLIC AROMATIC HYDROCARBONS TOXIC EQUIVALENT CONCENTRATION
BOLD = DENOTES CONCENTRATIONS THAT EXCEED THE SCREENING LEVELS (MTCA METHOD A CLEANUP LEVELS)
--- = SAMPLE NOT ANALYZED FOR CONSTITUENT
< = DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED
NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988
COPC = CONSTITUENT OF POTENTIAL CONCERN

▨ APPROXIMATE AREA OF WOOD DEBRIS/ORGANICS LAYER

🟥 ESTIMATED EXTENT OF SOIL EXCEEDING SCREENING LEVELS

🟦 ESTIMATED EXTENT OF GROUNDWATER EXCEEDING SCREENING LEVELS

5'
0'
0'
20'

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FIGURE 19

CROSS SECTION A-A'
BLOCK 38 WEST SITE
SEATTLE, WASHINGTON

FARALLON PN:397-019

Drawn By: NM Checked By: CS Date: 6/6/2022

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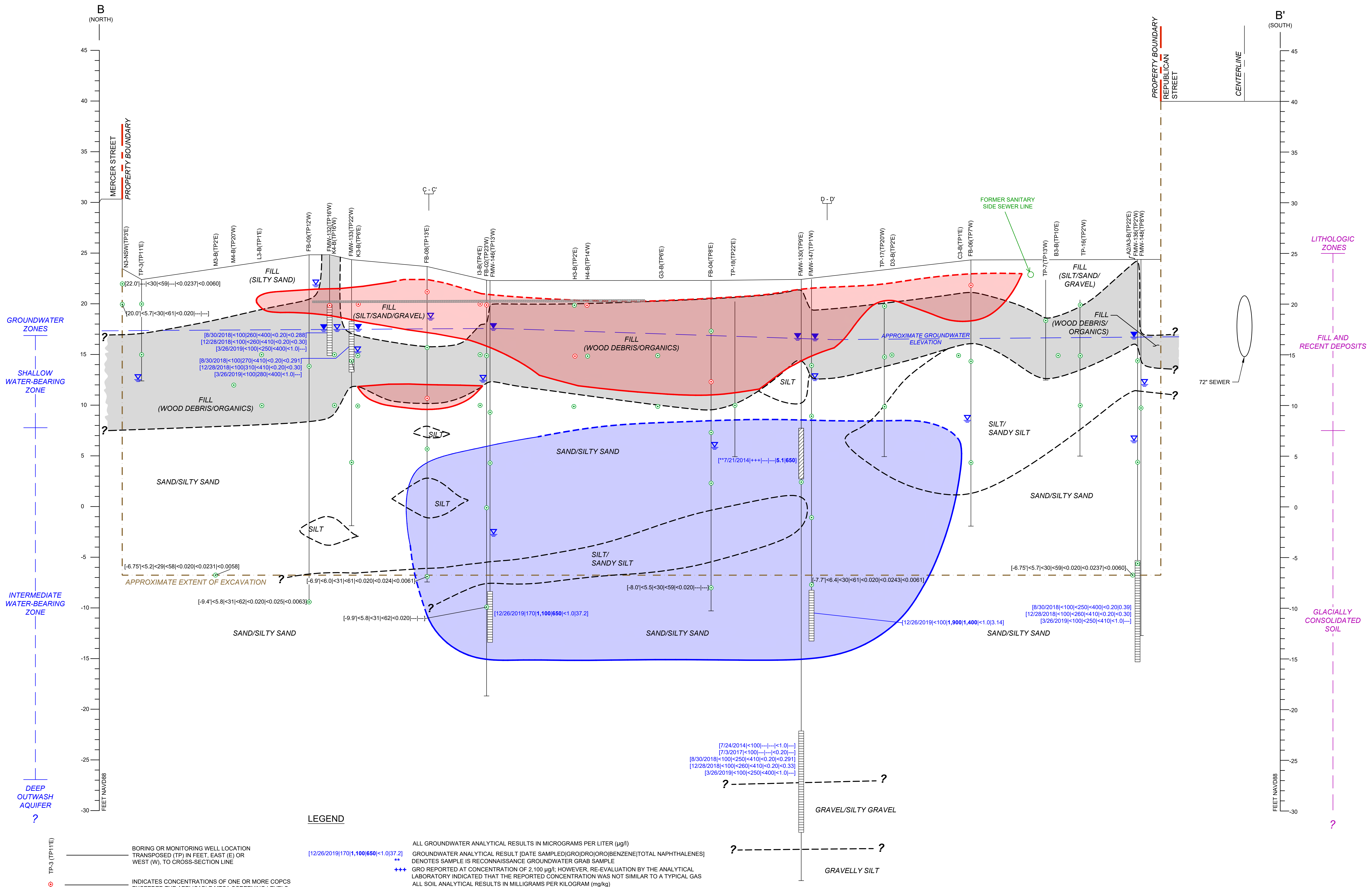

LEGEND

TP-3 (TP11'E) — BORING OR MONITORING WELL LOCATION TRANSPOSED (TP) IN FEET, EAST (E) OR WEST (W), TO CROSS-SECTION LINE

● — INDICATES CONCENTRATIONS OF ONE OR MORE COPCS EXCEEDED THE APPLICABLE MTCA SCREENING LEVELS

○ — INDICATES CONCENTRATIONS OF COPCS ANALYZED DID NOT EXCEED THE APPLICABLE MTCA SCREENING LEVELS

APPROXIMATE GROUNDWATER ELEVATION

STRATIGRAPHIC CONTACT

BLANK CASING OR BORING

▼ — STATIC GROUNDWATER ELEVATION (12/31/2019)

▽ — GROUNDWATER ELEVATION AT TIME OF DRILLING

▨ — TEMPORARY SCREEN INTERVAL

▤ — WELL SCREEN INTERVAL

ALL GROUNDWATER ANALYTICAL RESULTS IN MICROGRAMS PER LITER (µg/l)

[12/26/2019|170|**1,100**|**650**|<1.0|37.2] GROUNDWATER ANALYTICAL RESULT [DATE SAMPLED|GRO|DRO|ORO|BENZENE|TOTAL NAPHTHALENES]

** DENOTES SAMPLE IS RECONNAISSANCE GROUNDWATER GRAB SAMPLE

+++ GRO REPORTED AT CONCENTRATION OF 2,100 µg/l; HOWEVER, RE-EVALUATION BY THE ANALYTICAL LABORATORY INDICATED THAT THE REPORTED CONCENTRATION WAS NOT SIMILAR TO A TYPICAL GAS

ALL SOIL ANALYTICAL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)

[35.0'|<5.8|<31|<62|<0.020|---|---] SOIL ANALYTICAL RESULT [ELEVATION IN FEET NAVD88|GRO|DRO|ORO|BENZENE|TOTAL NAPHTHALENES|cPAH TEC]

GRO = TOTAL PETROLEUM HYDROCARBONS (TPH) AS GASOLINE-RANGE ORGANICS
DRO = TPH AS DIESEL-RANGE ORGANICS
ORO = TPH AS OIL-RANGE ORGANICS
TOTAL NAPHTHALENES = SUM OF NAPHTHALENE, 1-METHYLNAPHTHALENE AND 2-METHYLNAPHTHALENE
cPAH TEC = CARCINOGENIC POLYCYCLIC AROMATIC HYDROCARBONS TOXIC EQUIVALENT CONCENTRATION
BOLD = DENOTES CONCENTRATIONS THAT EXCEED THE SCREENING LEVELS (MTCA METHOD A CLEANUP LEVELS)
--- = SAMPLE NOT ANALYZED FOR CONSTITUENT
< = DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED
NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988
COPC = CONSTITUENT OF POTENTIAL CONCERN

⬜ APPROXIMATE AREA OF WOOD DEBRIS/ORGANICS LAYER

🟥 ESTIMATED EXTENT OF SOIL EXCEEDING SCREENING LEVELS

🟦 ESTIMATED EXTENT OF GROUNDWATER EXCEEDING SCREENING LEVELS

▨ ESTIMATED EXTENT OF COAL/CHARCOAL LAYER

5'
0'
0' 20'

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FIGURE 20

CROSS SECTION B-B'
BLOCK 38 WEST SITE
SEATTLE, WASHINGTON

FARALLON PN:397-019

Drawn By: NM Checked By: CS Date: 6/6/2022

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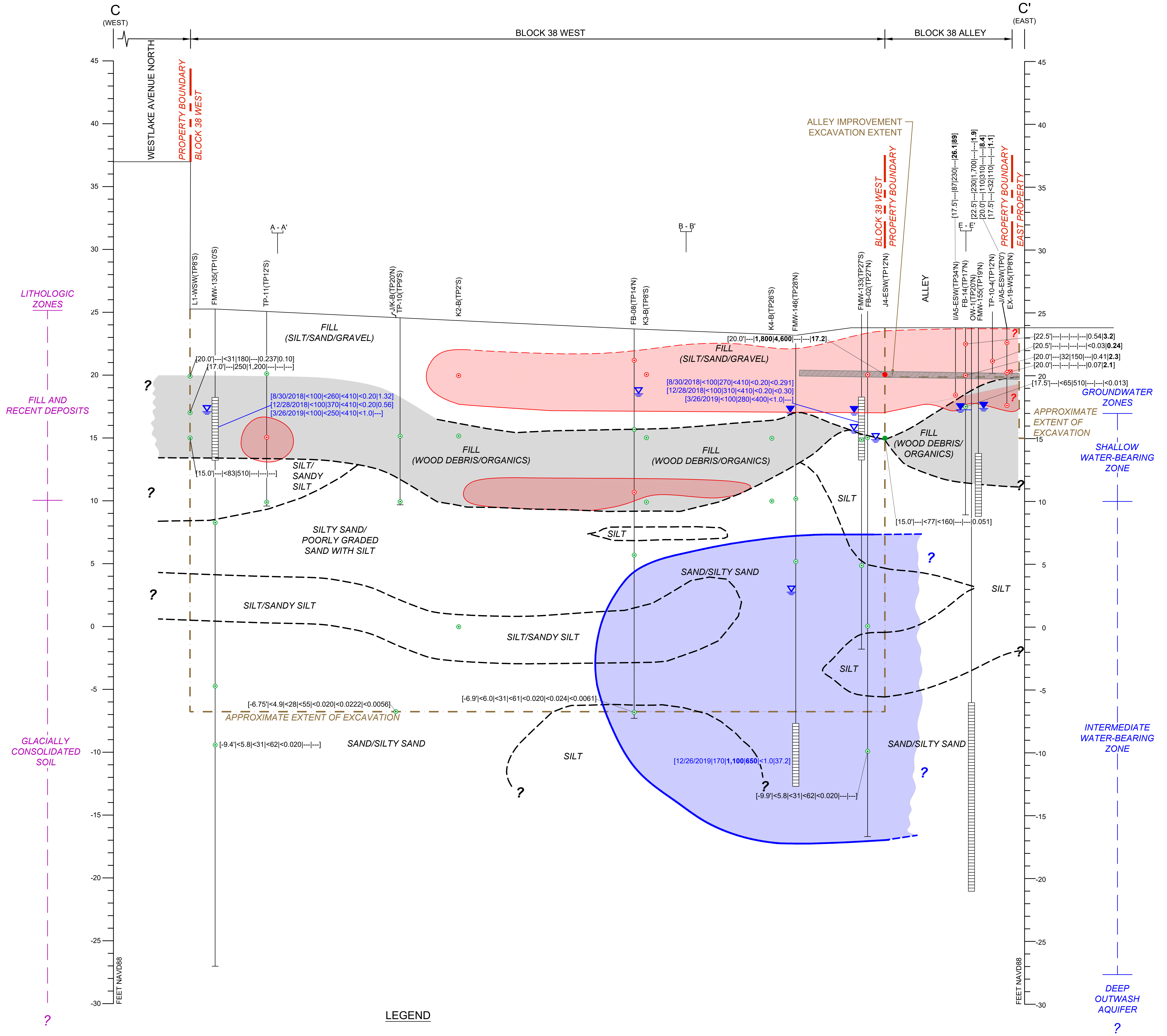

LEGEND

FB-08(TP14'N) — BORING OR MONITORING WELL LOCATION TRANSPOSED (TP) IN FEET, NORTH (N) OR SOUTH (S), TO CROSS-SECTION LINE

⊙ — SOIL SAMPLE LOCATION

APPROXIMATE GROUNDWATER ELEVATION

STRATIGRAPHIC CONTACT

BLANK CASING OR BORING

▼ — STATIC GROUNDWATER ELEVATION (12/31/2019)

▽ — GROUNDWATER ELEVATION AT TIME OF DRILLING

WELL SCREEN INTERVAL

ALL GROUNDWATER ANALYTICAL RESULTS IN MICROGRAMS PER LITER (µg/l)

[12/26/2019|170|**1,100**|**650**|<1.0|37.2] GROUNDWATER ANALYTICAL RESULT [DATE SAMPLED|GRO|DRO|ORO|BENZENE|TOTAL NAPHTHALENES]

ALL SOIL ANALYTICAL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)

[-6.9'|<6.0|<31|<61|<0.020|<0.024|<0.0061] SOIL ANALYTICAL RESULT [ELEVATION IN FEET NAVD88|GRO|DRO|ORO|BENZENE|TOTAL NAPHTHALENES|cPAH TEC]

GRO = TOTAL PETROLEUM HYDROCARBONS (TPH) AS GASOLINE-RANGE ORGANICS
DRO = TPH AS DIESEL-RANGE ORGANICS
ORO = TPH AS OIL-RANGE ORGANICS
TOTAL NAPHTHALENES = SUM OF NAPHTHALENE, 1-METHYLNAPHTHALENE, AND 2-METHYLNAPHTHALENE
cPAH TEC = CARCINOGENIC POLYCYCLIC AROMATIC HYDROCARBONS TOXIC EQUIVALENT CONCENTRATION
BOLD = DENOTES CONCENTRATIONS THAT EXCEED THE SCREENING LEVELS (MTCA METHOD A CLEANUP LEVELS)
--- = SAMPLE NOT ANALYZED FOR CONSTITUENT
< = DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED
NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988

▨ APPROXIMATE AREA OF WOOD DEBRIS/ORGANICS LAYER

🟥 ESTIMATED EXTENT OF SOIL EXCEEDING SCREENING LEVELS

🟦 ESTIMATED EXTENT OF GROUNDWATER EXCEEDING SCREENING LEVELS

▨ ESTIMATED EXTENT OF COAL/CHARCOAL LAYER

RED INDICATES CONCENTRATIONS OF HAZARDOUS SUBSTANCES EXCEEDING THE APPLICABLE MTCA SCREENING LEVELS

GREEN INDICATES HAZARDOUS SUBSTANCES ANALYZED DID NOT EXCEED THE APPLICABLE MTCA SCREENING LEVELS

☒ EXCAVATION BORING (FARALLON)

● EXCAVATION SAMPLE (FARALLON)

5'
0'
0' 10'

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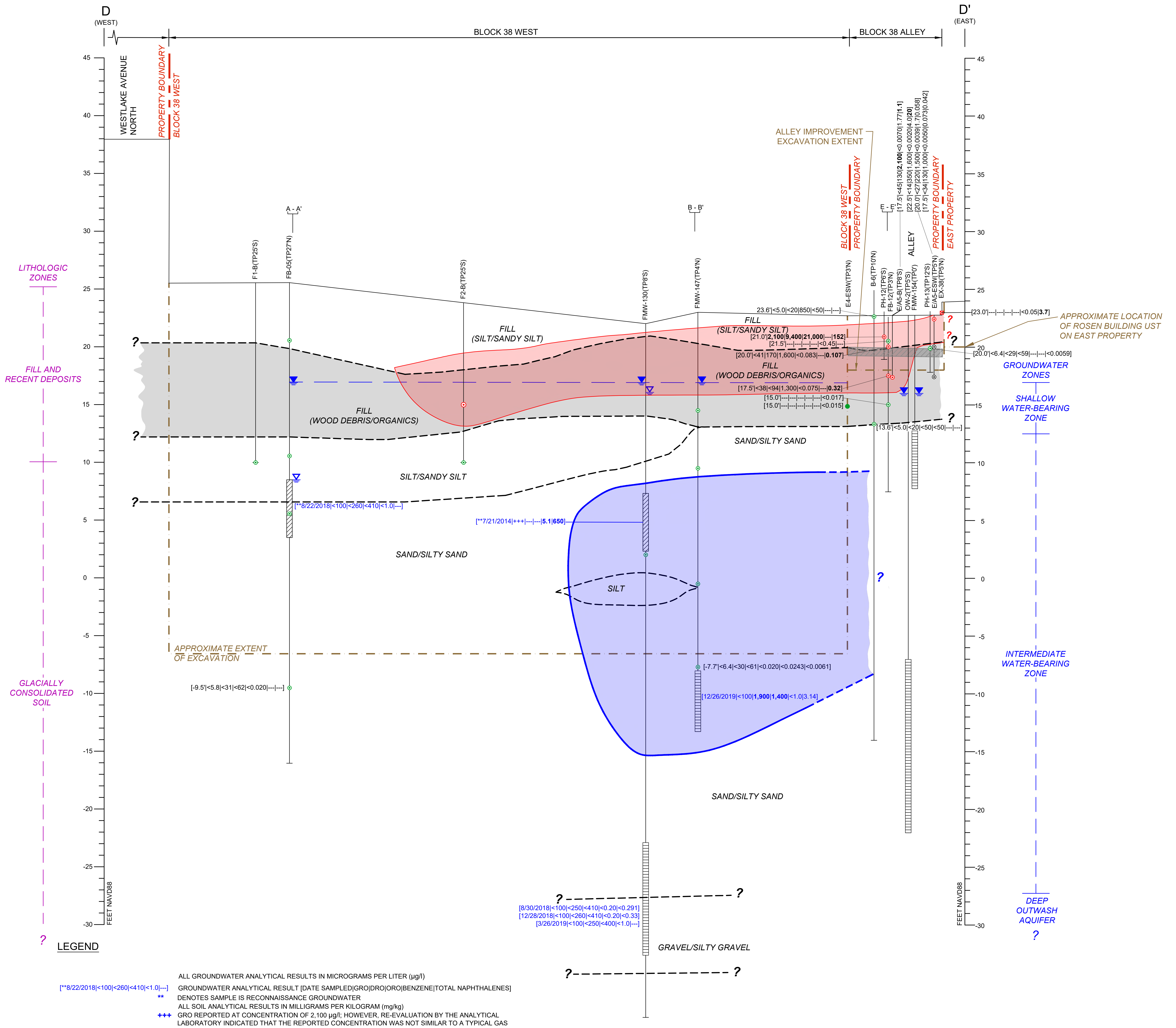
FIGURE 21

CROSS SECTION C-C'
BLOCK 38 WEST SITE
SEATTLE, WASHINGTON

FARALLON PN:397-019

Drawn By: NM Checked By: GP Date: 5/19/2022



LEGEND

FB-05(TP27'N) — BORING OR MONITORING WELL LOCATION TRANSPOSED (TP) IN FEET, NORTH (N) OR SOUTH (S), TO CROSS-SECTION LINE

SOIL SAMPLE LOCATION

APPROXIMATE GROUNDWATER ELEVATION

STRATIGRAPHIC CONTACT

BLANK CASING OR BORING

STATIC GROUNDWATER ELEVATION (MOST RECENT)

GROUNDWATER ELEVATION AT TIME OF DRILLING

TEMPORARY SCREEN INTERVAL

WELL SCREEN INTERVAL

ALL GROUNDWATER ANALYTICAL RESULTS IN MICROGRAMS PER LITER (µg/l)

[**8/22/2018|<100|<260|<410|<1.0|---] GROUNDWATER ANALYTICAL RESULT [DATE SAMPLED|GRO|DRO|ORO|BENZENE|TOTAL NAPHTHALENES]

** DENOTES SAMPLE IS RECONNAISSANCE GROUNDWATER

ALL SOIL ANALYTICAL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)

+++ GRO REPORTED AT CONCENTRATION OF 2,100 µg/l; HOWEVER, RE-EVALUATION BY THE ANALYTICAL LABORATORY INDICATED THAT THE REPORTED CONCENTRATION WAS NOT SIMILAR TO A TYPICAL GAS

[-9.5'|<5.8|<31|<62|<0.020|---|---] SOIL ANALYTICAL RESULT [ELEVATION IN FEET NAVD88|GRO|DRO|ORO|BENZENE|TOTAL NAPHTHALENES|cPAH TEC]

GRO = TOTAL PETROLEUM HYDROCARBONS (TPH) AS GASOLINE-RANGE ORGANICS
DRO = TPH AS DIESEL-RANGE ORGANICS
ORO = TPH AS OIL-RANGE ORGANICS
TOTAL NAPHTHALENES = SUM OF NAPHTHALENE, 1-METHYLNAPHTHALENE, AND 2-METHYLNAPHTHALENE
cPAH TEC = CARCINOGENIC POLYCYCLIC AROMATIC HYDROCARBONS TOXIC EQUIVALENT CONCENTRATION
BOLD = DENOTES CONCENTRATIONS THAT EXCEED THE SCREENING LEVELS (MTCA METHOD A CLEANUP LEVELS)
--- = SAMPLE NOT ANALYZED FOR CONSTITUENT
< = DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED
NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988

▨ APPROXIMATE AREA OF WOOD DEBRIS/ORGANICS LAYER

🟥 ESTIMATED EXTENT OF SOIL EXCEEDING SCREENING LEVELS

🟦 ESTIMATED EXTENT OF GROUNDWATER EXCEEDING SCREENING LEVELS

▨ ESTIMATED EXTENT OF COAL/CHARCOAL LAYER

RED INDICATES CONCENTRATIONS OF HAZARDOUS SUBSTANCES EXCEEDING THE APPLICABLE MTCA SCREENING LEVELS

GREEN INDICATES HAZARDOUS SUBSTANCES ANALYZED DID NOT EXCEED THE APPLICABLE MTCA SCREENING LEVELS

☒ EXCAVATION BORING (FARALLON)

● EXCAVATION SAMPLE (FARALLON)

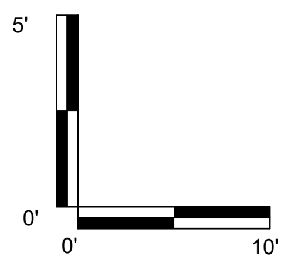


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FIGURE 22

CROSS SECTION D-D'
BLOCK 38 WEST SITE
SEATTLE, WASHINGTON

FARALLON PN:397-019

Drawn By: NM Checked By: GP Date: 5/19/2022

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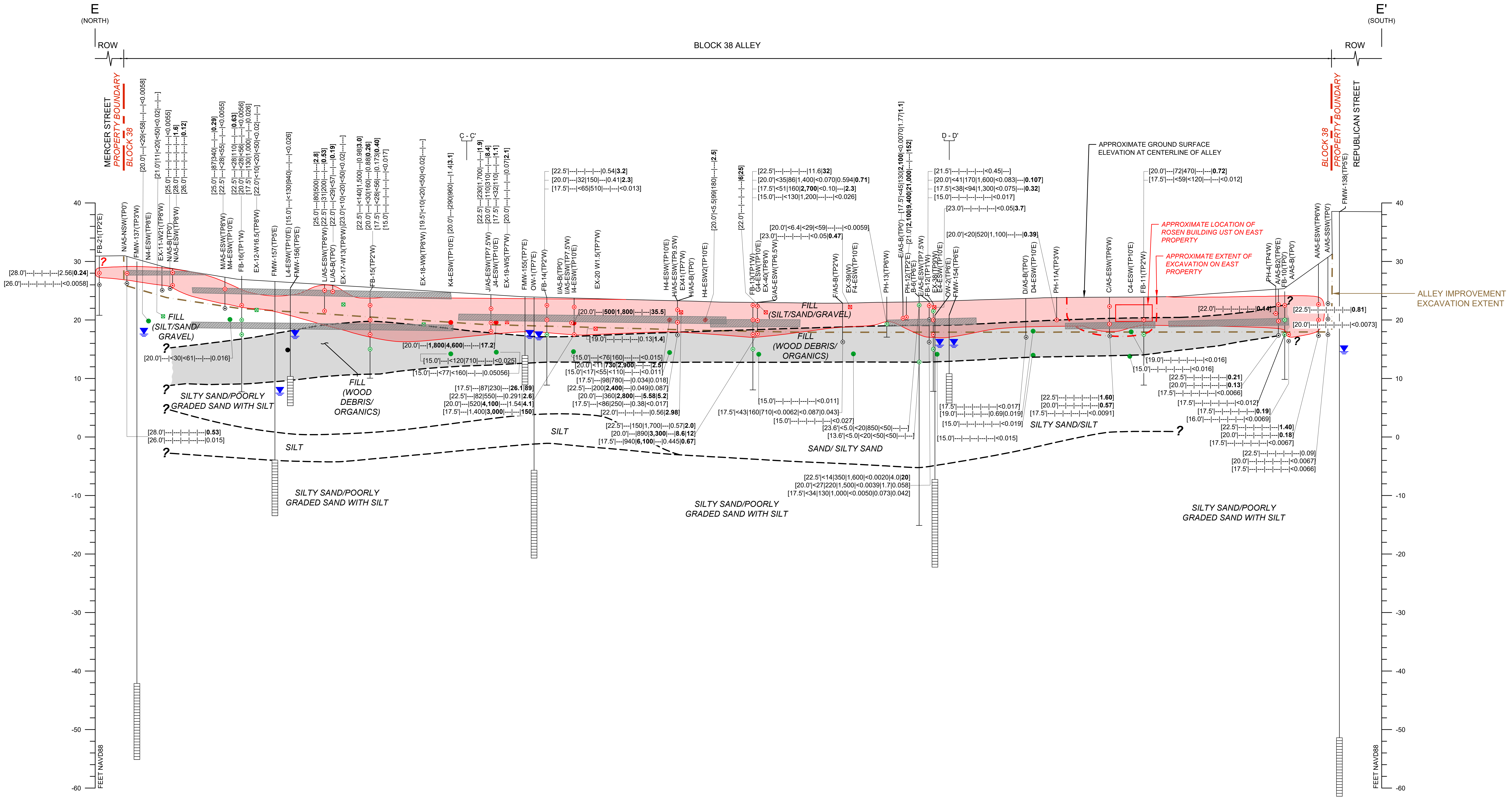

LEGEND

FMW-137 (TP3'W) — BORING OR MONITORING WELL LOCATION TRANSPOSED (TP) IN FEET, EAST (E) OR WEST (W), TO CROSS-SECTION LINE.

SOIL SAMPLE LOCATION

APPROXIMATE GROUNDWATER ELEVATION

STRATIGRAPHIC CONTACT

BLANK CASING OR BORING

STATIC GROUNDWATER ELEVATION (12/31/2019)

WELL SCREEN INTERVAL

ALL SOIL ANALYTICAL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)

[20.1'|<5.4|280|670|<0.020|3.3|**15**] SOIL ANALYTICAL RESULT: [ELEVATION NAVD88|GRO|DRO|ORO|BENZENE|TOTAL NAPHTHALENES|cPAH TEC]

GRO = TOTAL PETROLEUM HYDROCARBONS (TPH) AS GASOLINE-RANGE ORGANICS
DRO = TPH AS DIESEL-RANGE ORGANICS
ORO = TPH AS OIL-RANGE ORGANICS
TOTAL NAPHTHALENES = SUM OF NAPHTHALENE, 1-METHYLNAPHTHALENE, AND 2-METHYLNAPHTHALENE
cPAH TEC = CARCINOGENIC POLYCYCLIC AROMATIC HYDROCARBONS TOXIC EQUIVALENT CONCENTRATION
BOLD = INDICATES CONCENTRATIONS THAT EXCEED THE WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION (MTCA) SCREENING LEVELS
--- = SAMPLE NOT ANALYZED FOR CONSTITUENT
< = DENOTES ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED
NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988

APPROXIMATE AREA OF WOOD DEBRIS/ORGANICS LAYER

ESTIMATED EXTENT OF SOIL EXCEEDING MTCA SCREENING LEVELS

▨ ESTIMATED EXTENT OF COAL/CHARCOAL LAYER

RED INDICATES CONCENTRATIONS OF HAZARDOUS SUBSTANCES EXCEEDING THE APPLICABLE MTCA SCREENING LEVELS

GREEN INDICATES HAZARDOUS SUBSTANCES ANALYZED DID NOT EXCEED THE APPLICABLE MTCA SCREENING LEVELS

☒ EXCAVATION BORING (FARALLON)

● EXCAVATION SAMPLE (FARALLON)

10'
0'
0'
20'

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FIGURE 23

CROSS SECTION E-E'
BLOCK 38 ALLEY
SEATTLE, WASHINGTON

FARALLON PN:397-019

Drawn By: NM Checked By: GP Date: 5/18/2022

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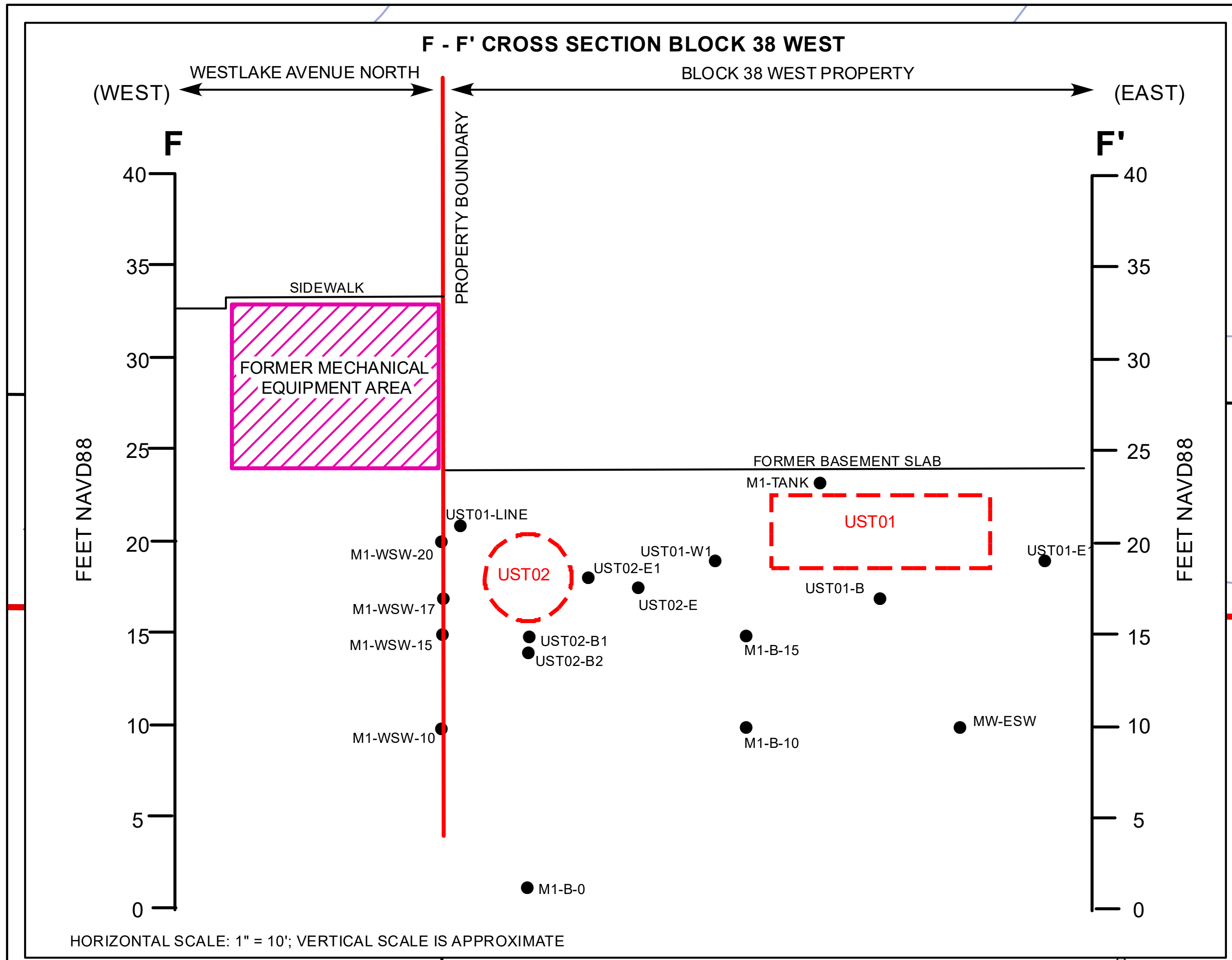
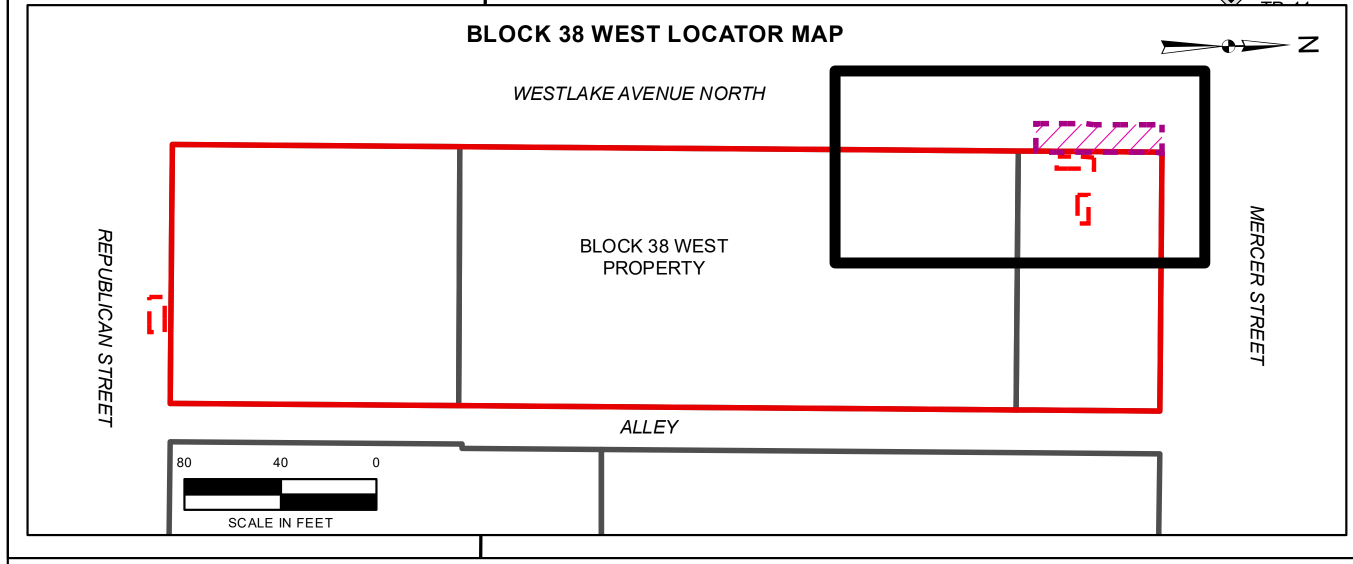
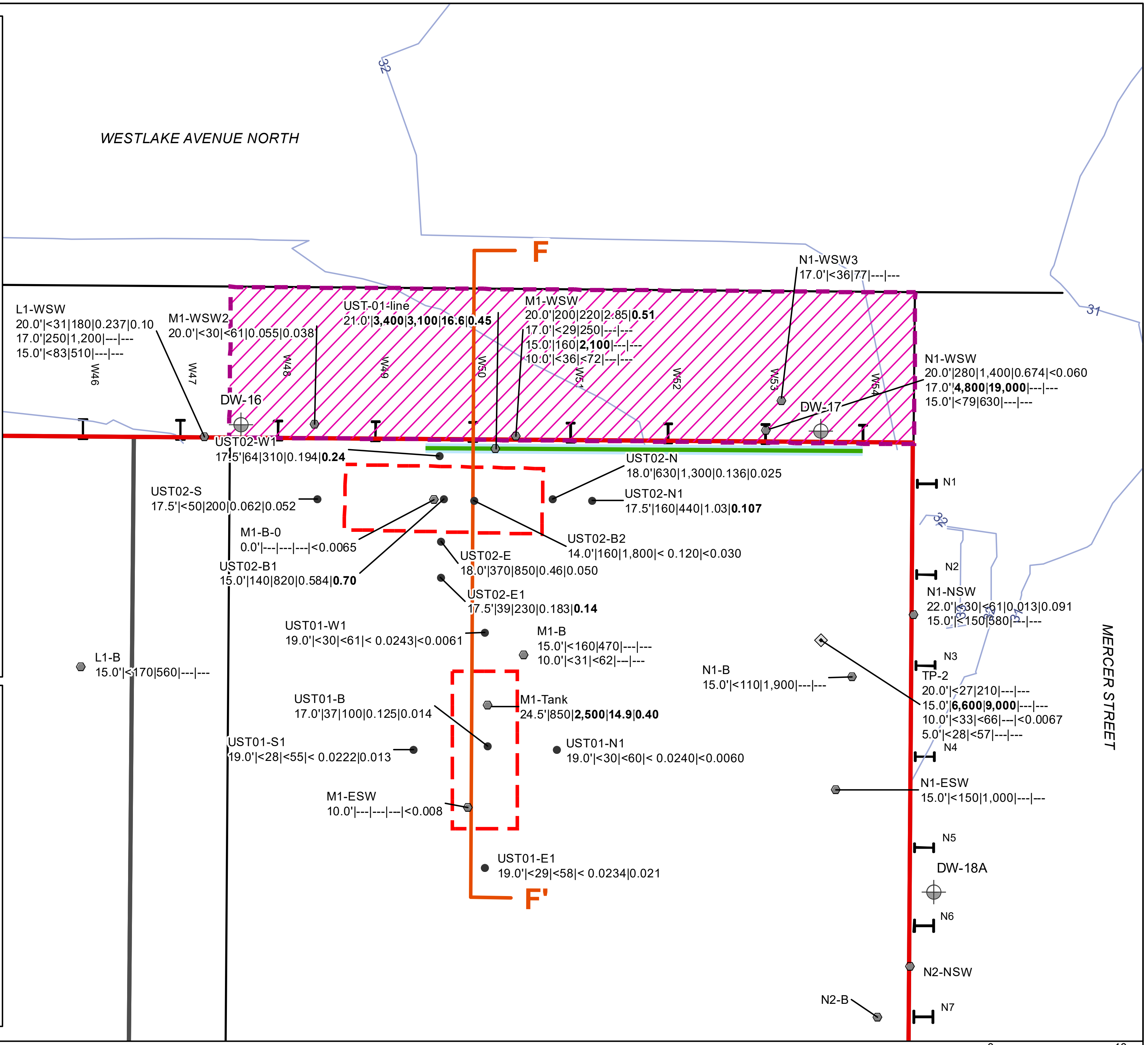
F - F' CROSS SECTION BLOCK 38 WEST



HORIZONTAL SCALE: 1" = 10'; VERTICAL SCALE IS APPROXIMATE

BLOCK 38 WEST LOCATOR MAP





LEGEND

●	UST SAMPLE LOCATION (FARALLON)
⬢	EXCAVATION SAMPLE LOCATION (FARALLON)
◈	TEST PIT (FARALLON)
⊕	DEWATERING WELL LOCATION
🟩	PIPING ENCOUNTERED IN SIDEWALL [BELIEVED TO BE ASSOCIATED WITH DISCOVERED USTs]
▨	MECHANICAL EQUIPMENT AREA DECOMMISSIONED AND FILLED WITH CDF
⬚	UNDERGROUND STORAGE TANK
▭	PROPERTY BOUNDARY
I	PILE
A ⌴ A'	LINE OF CROSS SECTION

ELEVATION DATA PRESENTED IN FEET ABOVE MEAN SEA LEVEL IN THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) ELEVATION SOURCE: BUSH, ROED, & HITCHINGS, INC. (2014)

ALL LOCATIONS ARE APPROXIMATE. FIGURES WERE PRODUCED IN COLOR. GRAYSCALE COPIES MAY NOT REPRODUCE ALL ORIGINAL INFORMATION.

NOTES:
DEPTH AND CONCENTRATIONS REPORTED AS:
ELEVATION IN FEET NAVD88 | DRO | ORO | TOTAL NAPHTHALENES | cPAH TEC
ANALYTICAL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)

BOLD = CONCENTRATIONS THAT EXCEED THE SCREENING LEVEL (MTCA METHOD A CLEANUP LEVEL)
< = ANALYTE NOT DETECTED AT OR EXCEEDING THE REPORTING LIMIT LISTED FOR TOTAL TOXIC EQUIVALENT CONCENTRATION OF BENZO(A)PYRENE (mg/kg)
CDF = CONTROLLED DENSITY FILL
cPAH = CARCINOGENIC POLYCYCLIC AROMATIC HYDROCARBONS
TEC = TOXICITY EQUIVALENT CONCENTRATION
DRO = TOTAL PETROLEUM HYDROCARBONS (TPH) AS DIESEL-RANGE ORGANICS
ORO = TPH AS OIL-RANGE ORGANICS
MTCA = WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION
UST = UNDERGROUND STORAGE TANK

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FIGURE 24

SOIL ANALYTICAL RESULTS FOR UST DECOMMISSIONING BLOCK 38 WEST SITE SEATTLE, WASHINGTON

FARALLON PN: 397-019-14E

Drawn By: jjones Checked By: SS Date: 5/18/2022 Disc Reference:
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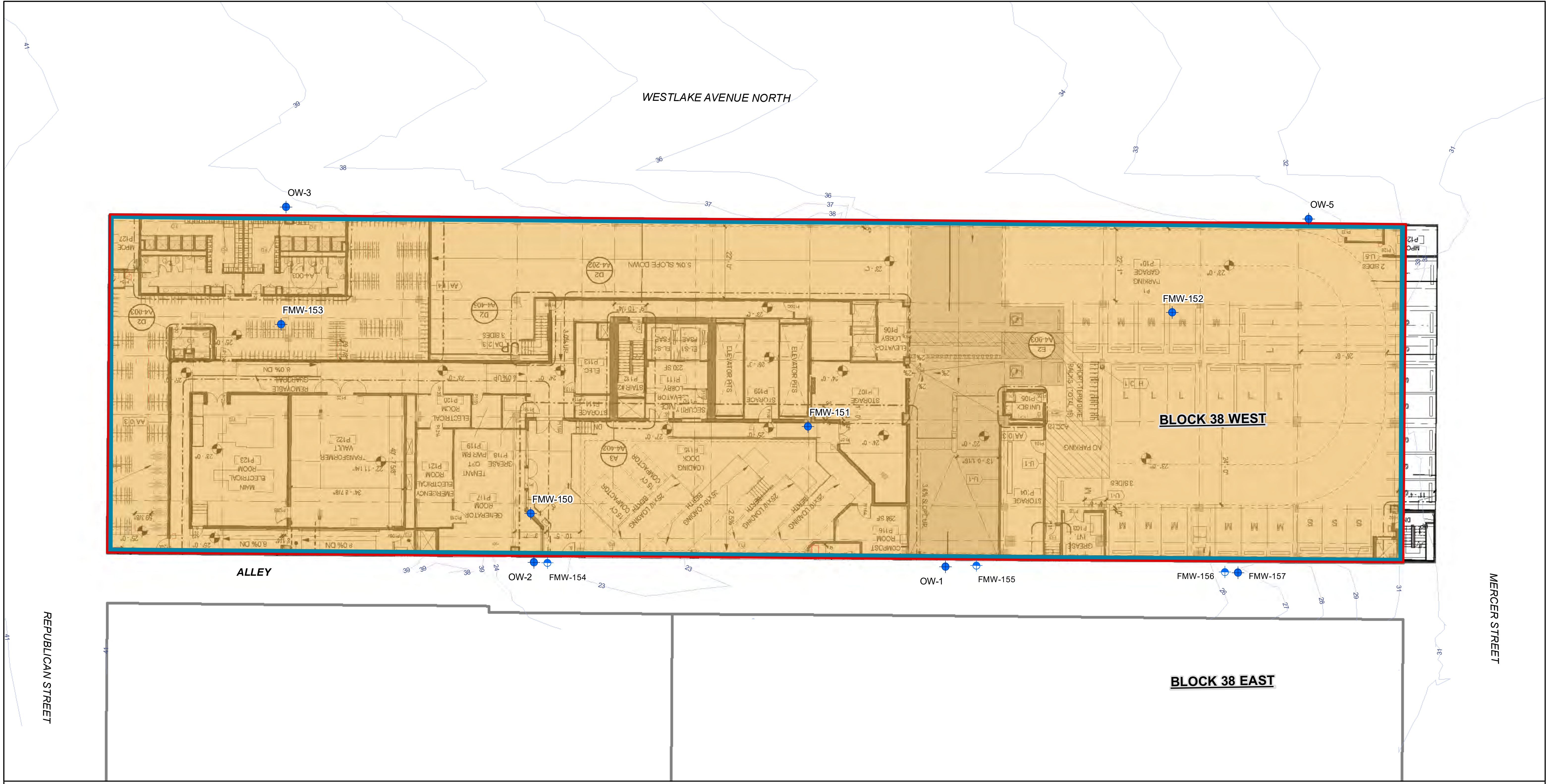

LEGEND

●	SHALLOW WATER-BEARING ZONE MONITORING WELL
●	INTERMEDIATE WATER-BEARING ZONE MONITORING WELL / OBSERVATION
▭	VERTICAL EXTENT OF VAPOR BARRIER INSTALLED, FROM BASE TO TOP OF SHORING WALL; HYCRETE WATERPROOF CONCRETE EXTENDS TO ELEVATION 20.0 FEET NAVD88
▆	HORIZONTAL EXTENT OF VAPOR BARRIER INSTALLED ACROSS FOUNDATION; BARRIER PLACED ON TOP OF RAT SLAB FOUNDATION PRIOR TO POURING THE MAT SLAB FOUNDATION WITH TOP 12-INCHES CONSISTING OF HYCRETE WATERPROOF CONCRETE
—	ELEVATION CONTOUR
▭	PROPERTY BOUNDARY
▭	KING COUNTY PARCEL BOUNDARY

N

0 30
SCALE IN FEET

NOTES:
1. ALL LOCATIONS ARE APPROXIMATE.
2. FIGURES WERE PRODUCED IN COLOR. GRAYSCALE COPIES MAY NOT REPRODUCE ALL ORIGINAL INFORMATION.
3. ELEVATION DATA PRESENTED IN FEET ABOVE MEAN SEA LEVEL IN THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) ELEVATION SOURCE: BUSH, ROED, & HITCHINGS, INC. (2014)

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FIGURE 25

EXTENT OF VAPOR BARRIER
BLOCK 38 WEST SITE
SEATTLE, WASHINGTON

FARALLON PN: 397-019

Drawn By: jjones
Checked By: SS
Date: 5/18/2022
Disc Reference:
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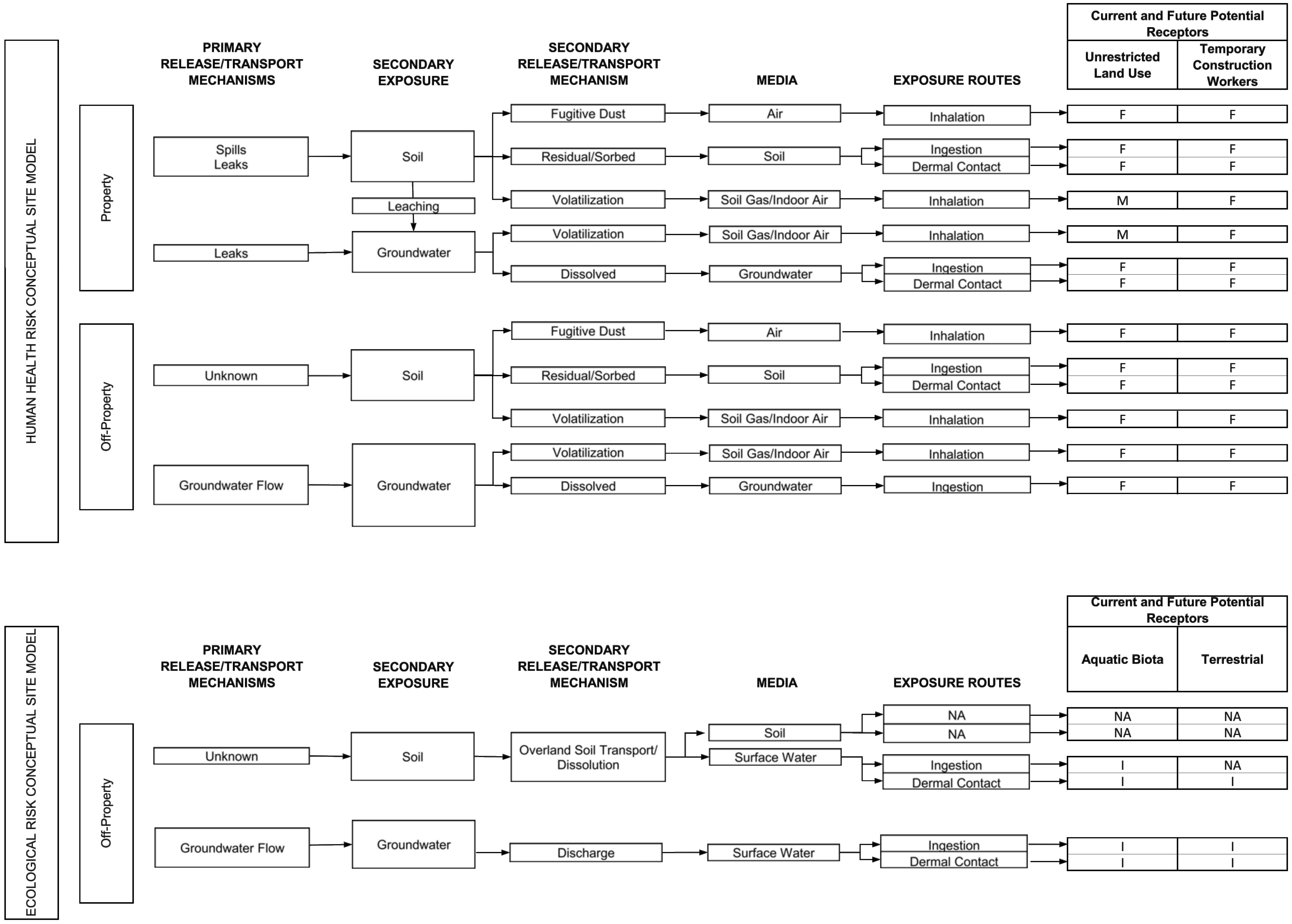

I = Incomplete Pathway
C = Complete Current Pathway
M = Complete pathway currently mitigated by presence of vapor barrier and concrete floor
F = Currently Incomplete, Potentially Complete Pathway in Future
NA = not applicable

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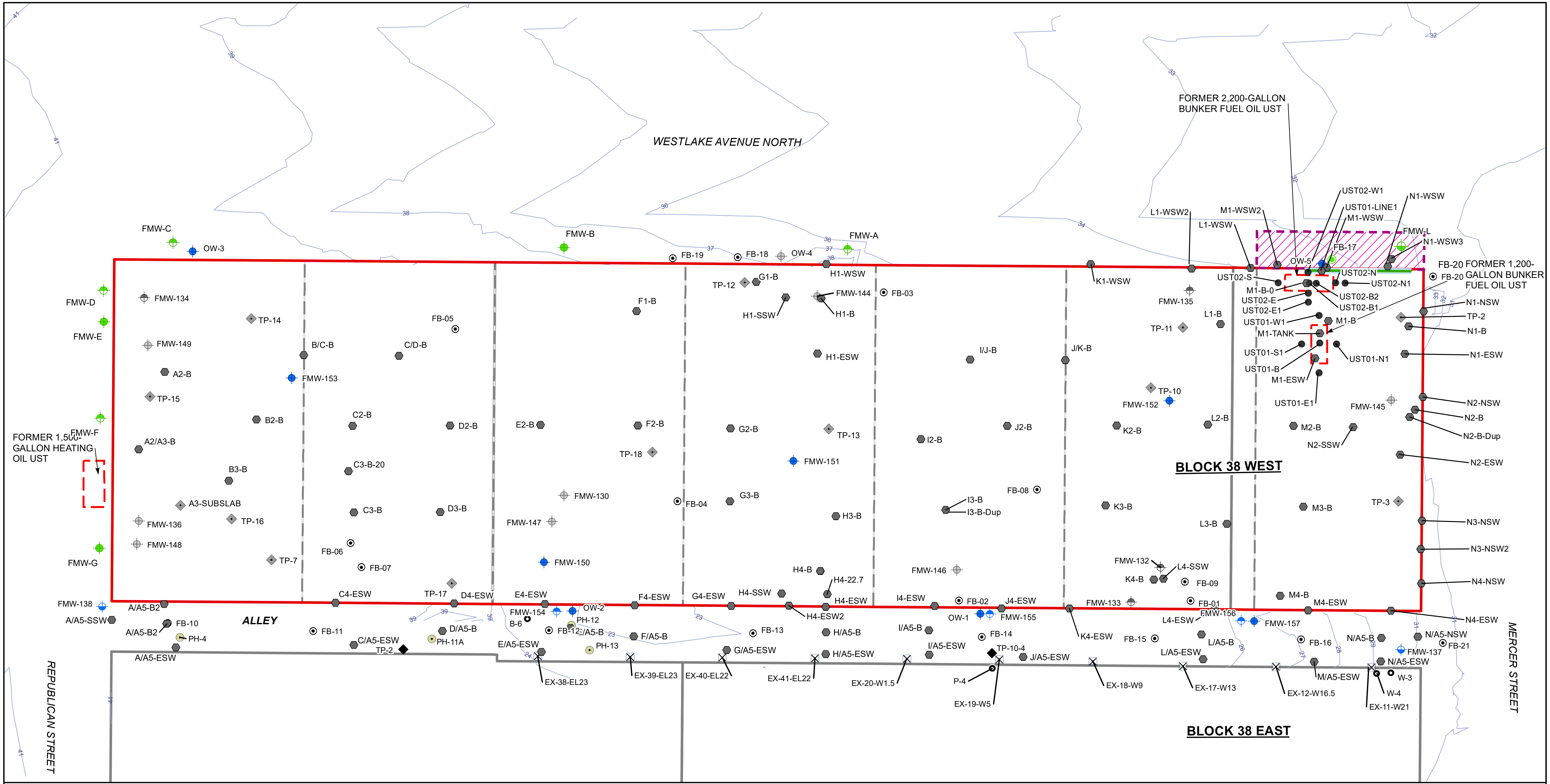
Drawn By: NM Checked By: SS

FIGURE 26

EXPOSURE PATHWAY ANALYSIS
BLOCK 38 WEST SITE
SEATTLE, WASHINGTON

FARALLON PN: 397-019



LEGEND

- ⊕ SHALLOW WATER-BEARING ZONE MONITORING WELL
- ⊕ DEEP OUTWASH AQUIFER WELL
- ⊕ DECOMMISSIONED SHALLOW WATER-BEARING ZONE MONITORING WELL
- ⊕ INTERMEDIATE WATER-BEARING ZONE MONITORING WELL / OBSERVATION WELL
- ⊕ DECOMMISSIONED INTERMEDIATE WATER-BEARING ZONE MONITORING WELL
- ⊙ BORING (FARALLON)
- ○ BORING (GEOENGINEERS)
- ☒ EXCAVATION BORING (FARALLON)
- ◆ TEST PIT (GEOENGINEERS)
- ⊙ POTHOLE (FARALLON)
- ● UST SAMPLE LOCATION (FARALLON)
- ⬢ EXCAVATION SAMPLE LOCATION (FARALLON)
- ◆ TEST PIT (FARALLON)
- ◎ PROPOSED BORING
- ⊕ PROPOSED FUTURE SHALLOW WATER-BEARING ZONE MONITORING WELL
- ⊕ PROPOSED FUTURE INTERMEDIATE WATER-BEARING ZONE MONITORING WELL
- ⊕ PROPOSED FUTURE DEEP OUTWASH AQUIFER MONITORING WELL
- — PIPING DISCOVERED IN SIDEWALL (BELIEVED TO BE ASSOCIATED WITH DISCOVERED USTs)
- LOT LINE
- ▨ MECHANICAL EQUIPMENT AREA DECOMMISSIONED AND FILLED WITH CDF
- UNDERGROUND STORAGE TANK
- PROPERTY BOUNDARY
- KING COUNTY PARCELS

N

0 30

SCALE IN FEET

CDF = CONTROLLED DENSITY FILL
ELEVATION DATA PRESENTED IN FEET ABOVE MSL
IN THE NORTH AMERICAN VERTICAL DATUM OF 1988
ELEVATION SOURCE: BUSH, ROED, & HITCHINGS, INC. (2014)

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

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FIGURE 27

PROPOSED BORING AND
MONITORING WELL LOCATIONS
BLOCK 38 WEST SITE
SEATTLE, WASHINGTON

FARALLON PN: 397-019

Drawn By: jjones
Checked By: CS
Date: 4/6/2023
Disc Reference:
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TABLES

REMEDIAL INVESTIGATION WORK PLAN
Block 38 West Property
500 through 536 Westlake Avenue North
Seattle, Washington

Farallon PN: 397-019

Table 1
Soil Analytical Results for TPH and BTEX
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Identification	General Location	Sample Type	Sample Location Disposition	Sample Depth (feet)[1]	Sample Elevation (feet NAVD88)[1]	Zone	Sample Date	Analytical Results (milligrams per kilogram)									
									NWTPH-Dx[2]		Total NWTPH-Dx[3]	NWTPH-Dx with Silica Gel[2]		NWTPH-Gx[4]	EPA Method 8021B/8260[5]			
									DRO	ORO		DRO	ORO	GRO	Benzene	Toluene	Ethylbenzene	Xylenes
Block 38 West Property																		
FB-01	FB-01-5.0-082118	Interior	Performance	Removed	5.0	21.3	Vadose	8/21/2018	**520**	**3,700**	**4,220**	510 N	1,100	< 6.2	< 0.020	< 0.062	< 0.062	< 0.124
	FB-01-15.0-082118	Interior	Confirmation	Removed	15.0	11.3	Saturated	8/21/2018	< 40	250	250	< 40	< 81	< 9.1	< 0.020	< 0.091	< 0.091	< 0.182
	FB-01-30.0-082118	Interior	Confirmation	Removed	30.0	-3.7	Saturated	8/21/2018	< 29	< 58	< 87	---	---	< 5.1	< 0.020	< 0.051	< 0.051	< 0.102
FB-02	FB-02-5.0-082018	Interior	Performance	Removed	5.0	20.1	Vadose	8/20/2018	280 N	670	950	---	---	< 5.4	< 0.020	< 0.054	< 0.054	< 0.108
	FB-02-10.0-082018	Interior	Confirmation	Removed	10.0	15.1	Saturated	8/20/2018	< 61	270	270	---	---	< 19	< 0.037	< 0.19	< 0.19	< 0.38
	FB-02-25.0-082018	Interior	Confirmation	Removed	25.0	0.1	Saturated	8/20/2018	< 30	< 60	< 90	---	---	< 5.2	< 0.020	< 0.052	< 0.052	< 0.104
	FB-02-35.0-082018	Interior	Confirmation	In Place	35.0	-9.9	Saturated	8/20/2018	< 31	< 62	< 93	---	---	< 5.8	< 0.020	< 0.058	< 0.058	< 0.116
FB-03	FB-03-10.0-082318	Interior	Confirmation	Removed	10.0	15.8	Saturated	8/23/2018	< 32	< 65	< 97	---	---	< 6.5	< 0.020	< 0.065	< 0.065	< 0.130
	FB-03-15.0-082318	Interior	Confirmation	Removed	15.0	10.8	Saturated	8/23/2018	< 32	< 65	< 97	---	---	< 6.5	< 0.020	< 0.065	< 0.065	< 0.130
	FB-03-25.0-082318	Interior	Confirmation	Removed	25.0	0.8	Saturated	8/23/2018	< 29	< 59	< 88	---	---	< 5.5	< 0.020	< 0.055	< 0.055	< 0.110
FB-04	FB-04-5.0-082118	Interior	Confirmation	Removed	5.0	17.0	Saturated	8/21/2018	97 N	540	637	---	---	< 16	< 0.033	< 0.16	< 0.16	< 0.32
	FB-04-20.0-082118	Interior	Confirmation	Removed	20.0	2.0	Saturated	8/21/2018	< 29	< 58	< 87	---	---	< 5.3	< 0.020	< 0.053	< 0.053	< 0.106
	FB-04-30.0-082118	Interior	Confirmation	In Place	30.0	-8.0	Saturated	8/21/2018	< 30	< 59	< 89	---	---	< 5.5	< 0.020	< 0.055	< 0.055	< 0.110
FB-05	FB-05-5.0-082218	Interior	Confirmation	Removed	5.0	20.5	Vadose	8/22/2018	< 31	< 61	< 92	---	---	< 5.4	< 0.020	< 0.054	< 0.054	< 0.108
	FB-05-20.0-082218	Interior	Confirmation	Removed	20.0	5.5	Saturated	8/22/2018	< 31	< 61	< 92	---	---	< 5.5	< 0.020	< 0.055	< 0.055	< 0.110
	FB-05-35.0-082218	Interior	Confirmation	In Place	35.0	-9.5	Saturated	8/22/2018	< 31	< 62	< 93	---	---	< 5.8	< 0.020	< 0.058	< 0.058	< 0.116
FB-06	FB-06-2.5-082218	Interior	Confirmation	Removed	2.5	22.9	Vadose	8/22/2018	180	310	490	---	---	17 T	< 0.024	< 0.12	< 0.12	< 0.24
	FB-06-20.0-082218	Interior	Confirmation	Removed	20.0	5.4	Saturated	8/22/2018	< 30	< 61	< 91	---	---	< 5.3	< 0.020	< 0.053	< 0.053	< 0.106
FB-07	FB-07-24	Interior	Confirmation	Removed	24.0	-0.5	Saturated	12/21/2019	< 30	< 60	< 90	---	---	< 6.0	< 0.020	< 0.060	< 0.060	< 0.12
	FB-07-29	Interior	Confirmation	Removed	29.0	-5.5	Saturated	12/21/2019	< 30	< 60	< 90	---	---	< 5.4	< 0.020	< 0.054	< 0.054	< 0.108
	FB-07-31.5	Interior	Confirmation	In Place	31.5	-8.0	Saturated	12/21/2019	< 30	< 60	< 90	---	---	< 5.6	< 0.020	< 0.056	< 0.056	< 0.112
FB-08	FB-08-2.5	Interior	Performance	Removed	2.5	21.2	Vadose	12/21/2019	**1,700** N	**4,500**	**6,200**	---	---	23 O	**0.12**	0.49	0.13	0.94
	FB-08-8	Interior	Confirmation	Removed	8.0	15.7	Saturated	12/21/2019	< 29	< 58	< 87	---	---	< 5.2	< 0.020	< 0.052	< 0.052	< 0.104
	FB-08-13	Interior	Confirmation	Removed	13.0	10.7	Saturated	12/21/2019	< 31	< 61	< 92	---	---	15 T	< 0.020	< 0.064	< 0.064	< 0.128
	FB-08-18	Interior	Confirmation	Removed	18.0	5.7	Saturated	12/21/2019	< 29	< 58	< 87	---	---	< 6.1	< 0.020	< 0.061	< 0.061	< 0.122
	FB-08-30.5	Interior	Confirmation	In Place	30.5	-6.9	Saturated	12/21/2019	< 31	< 61	< 92	---	---	< 6.0	< 0.020	< 0.060	< 0.060	< 0.12
FB-09	FB-09-11	Interior	Confirmation	Removed	11.0	12.7	Saturated	12/21/2019	< 58	220	220	---	---	< 20	< 0.039	< 0.20	< 0.20	< 0.4
	FB-09-33	Interior	Confirmation	In Place	33.0	-9.4	Saturated	12/21/2019	< 31	< 62	< 93	---	---	< 5.8	< 0.020	< 0.058	< 0.058	< 0.116
FB-20	FB-20-12-0	Adjacent	---	In Place	12.0	20.0	Vadose	2/5/2022	< 28	< 56	< 84	---	---	---	---	---	---	---
	FB-20-15.0	Adjacent	---	In Place	15.0	17.0	Saturated	2/5/2022	< 29	83	83	---	---	---	---	---	---	---
	FB-20-17.0	Adjacent	---	In Place	17.0	15.0	Saturated	2/5/2022	59 N	210	269	---	---	---	---	---	---	---
FMW-130	F-MW-130-20.0-072114	Interior	Confirmation	Removed	20.0	2.2	Saturated	7/21/2014	< 30	< 60	< 90	---	---	< 8.8	< 0.020	< 0.088	< 0.088	< 0.176
FMW-132	FMW-132-5.0-082418	Interior	Performance	Removed	5.0	20.7	Vadose	8/24/2018	**730**	**2,600**	**3,330**	---	---	< 8.4	< 0.020	< 0.084	< 0.084	< 0.168
FMW-133	FMW-133-10.0-082418	Interior	Confirmation	Removed	10.0	15.3	Saturated	8/24/2018	< 83	470	470	---	---	< 28	< 0.057	< 0.28	< 0.28	< 0.56
FMW-134	FMW-134-5.0-082318	Interior	Performance	Removed	5.0	20.4	Vadose	8/23/2018	**260**	**1,900**	**2,160**	---	---	< 30	< 0.059	< 0.30	< 0.30	< 0.60
	FMW-134-15.0-082318	Interior	Confirmation	Removed	15.0	10.4	Saturated	8/23/2018	< 31	< 61	< 92	---	---	< 12	< 0.023	< 0.12	< 0.12	< 0.24
FMW-135	FMW-135-15.0-082418	Interior	Confirmation	Removed	15.0	10.6	Saturated	8/24/2018	130	680	810	---	---	< 28	< 0.055	< 0.28	< 0.28	< 0.56
	FMW-135-35.0-082418	Interior	Confirmation	In Place	35.0	-9.4	Saturated	8/24/2018	< 31	< 62	< 93	---	---	< 5.8	< 0.020	< 0.058	< 0.058	< 0.116
FMW-136	FMW-136-10.0-082218	Interior	Confirmation	Removed	10.0	15.1	Saturated	8/22/2018	< 38	< 76	< 114	---	---	< 9.0	< 0.020	< 0.090	< 0.090	< 0.18
	FMW-136-20.0-082218	Interior	Confirmation	Removed	20.0	5.1	Saturated	8/22/2018	< 32	< 63	< 95	---	---	< 6.4	< 0.020	< 0.064	< 0.064	< 0.128
	FMW-136-30.0-082218	Interior	Confirmation	Removed	30.0	-4.9	Saturated	8/22/2018	< 30	< 59	< 89	---	---	< 5.2	< 0.020	< 0.052	< 0.052	< 0.104
FMW-144	FWM-144-9.0	Interior	Confirmation	Removed	9.0	20.4	Vadose	12/20/2019	< 52	110	110	---	---	< 18	< 0.036	< 0.18	< 0.18	< 0.36
MTCA Method B Direct Contact[6]									**NE**		**NE**	**NE**		**1,500[8]**	**18**	**6,400**	**8,000**	**16,000**
Screening Levels for Soil Protective of Groundwater - Vadose Zone[6]									**2,000[7]**		**2,000[7]**	**2,000[7]**		**30[7]**	**0.027**	**4.5**	**5.9**	**14**
Screening Levels for Soil Protective of Groundwater - Saturated Zone[6]									**2,000[7]**		**2,000[7]**	**2,000[7]**		**30[7]**	**0.0017**	**0.27**	**0.34**	**0.83**
Laboratory Practical Quantitation Limits[8]									**75**		**75**	**75**		**5**	**0.001**	**0.005**	**0.001**	**0.003**

Table 1
Soil Analytical Results for TPH and BTEX
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

									Analytical Results (milligrams per kilogram)									
									NWTPH-Dx[2]		Total NWTPH-Dx[3]	NWTPH-Dx with Silica Gel[2]		NWTPH-Gx[4]	EPA Method 8021B/8260[5]			
Sample Location	Sample Identification	General Location	Sample Type	Sample Location Disposition	Sample Depth (feet)[1]	Sample Elevation (feet NAVD88)[1]	Zone	Sample Date	DRO	ORO		DRO	ORO	GRO	Benzene	Toluene	Ethylbenzene	Xylenes
FMW-145	FMW-145-13.0	Interior	Performance	Removed	13.0	9.9	Saturated	12/20/2019	**650**	**1,400**	**2,050**	---	---	**83** O	< 0.020	< 0.075	< 0.075	< 0.15
	FMW-145-18.0	Interior	Confirmation	Removed	18.0	4.9	Saturated	12/20/2019	58 N	210	268	---	---	< 28 U1	< 0.020	< 0.080	< 0.080	< 0.16
	FMW-145-23.0	Interior	Confirmation	Removed	23.0	-0.1	Saturated	12/20/2019	< 30	< 60	< 90	---	---	< 5.3	< 0.020	< 0.053	< 0.053	< 0.106
	FMW-145-28.0	Interior	Confirmation	Removed	28.0	-5.1	Saturated	12/20/2019	< 31	< 61	< 92	---	---	< 6.5	< 0.020	< 0.065	< 0.065	< 0.13
	FMW-145-30.5	Interior	Confirmation	In Place	30.5	-7.6	Saturated	12/20/2019	< 29	< 57	< 86	---	---	< 4.8	< 0.020	< 0.048	< 0.048	< 0.096
	FMW-145-33.0	Interior	Confirmation	In Place	33.0	-10.1	Saturated	12/20/2019	< 31	< 61	< 92	---	---	< 5.5	< 0.020	< 0.055	< 0.055	< 0.11
FMW-146	FMW-146-13.0	Interior	Confirmation	Removed	13.0	10.2	Saturated	12/21/2019	< 34	< 69	< 103	---	---	< 7.0	< 0.020	< 0.070	< 0.070	< 0.14
	FMW-146-18.0	Interior	Confirmation	Removed	18.0	5.2	Saturated	12/21/2019	< 31	< 62	< 93	---	---	< 5.4	< 0.020	< 0.054	< 0.054	< 0.108
FMW-147	FMW-147-8.5	Interior	Confirmation	Removed	8.5	14.3	Saturated	12/21/2019	< 120	1,100	1,100	---	---	< 51	< 0.10	< 0.51	< 0.51	< 1.02
	FMW-147-13.5	Interior	Confirmation	Removed	13.5	9.3	Saturated	12/21/2019	< 31	< 61	< 92	---	---	< 5.5	< 0.020	< 0.055	< 0.055	< 0.11
	FMW-147-23.5	Interior	Confirmation	Removed	23.5	-0.7	Saturated	12/21/2019	< 30	< 61	< 91	---	---	< 5.1	< 0.020	< 0.051	< 0.051	< 0.102
	FMW-147-30.5	Interior	Confirmation	In Place	30.5	-7.7	Saturated	12/21/2019	< 30	< 61	< 91	---	---	< 6.4	< 0.020	< 0.064	< 0.064	< 0.128
FMW-148	FMW-148-27.0	Interior	Confirmation	Removed	27.0	10.4	Saturated	12/22/2019	< 31	< 63	< 94	---	---	< 5.7	< 0.020	< 0.057	< 0.057	< 0.114
FMW-149	FMW-149-21.0	Interior	Confirmation	Removed	21.0	15.2	Saturated	12/22/2019	< 33	< 66	< 99	---	---	< 7.0	< 0.020	< 0.070	< 0.070	< 0.14
	FMW-149-31.0	Interior	Confirmation	Removed	31.0	5.2	Saturated	12/22/2019	< 31	< 63	< 94	---	---	< 6.3	< 0.020	< 0.063	< 0.063	< 0.126
	FMW-149-41.0	Interior	Confirmation	Removed	41.0	-4.8	Saturated	12/22/2019	< 26	< 53	< 79	---	---	< 4.4	< 0.020	< 0.044	< 0.044	< 0.088
	FMW-149-43.5	Interior	Confirmation	In Place	43.5	-7.3	Saturated	12/22/2019	< 28	< 56	< 84	---	---	< 4.3	< 0.020	< 0.043	< 0.043	< 0.086
A2-B	A2-B-(-5.0)	Interior	Confirmation	Removed	---	-5.0	Saturated	4/29/2020	< 27	< 53	< 80	---	---	---	---	---	---	---
A2/A3-B	A2/A3-B-(-6.75)	Interior	Confirmation	In Place	---	-6.75	Saturated	6/3/2020	< 30	< 59	< 89	---	---	< 5.7	< 0.020	< 0.057	< 0.057	< 0.114
A3-Subslab	A3-SUBSLAB-22-010920	Interior	Performance	Removed	---	22.0	Vadose	1/9/2020	< 76	< 150	< 226	---	---	---	---	---	---	---
	A3-SUBSLAB-25-010920	Interior	Performance	Removed	---	25.0	Vadose	1/9/2020	82	660	742	---	---	---	---	---	---	---
B/C-B	B/C-B-(-6.75)	Interior	Confirmation	In Place	---	-6.75	Saturated	6/3/2020	< 29	< 57	< 86	---	---	< 6.1	< 0.020	< 0.061	< 0.061	< 0.122
C/D-B	C/D-B-(-6.75)	Interior	Confirmation	In Place	---	-6.75	Saturated	6/3/2020	< 28	< 56	< 84	---	---	< 5.6	< 0.020	< 0.056	< 0.056	< 0.112
H3-B	H3-B-20	Interior	Confirmation	Removed	---	20.0	Vadose	2/20/2020	---	---	---	---	---	< 6.7	---	---	---	---
	H3-B-15.0	Interior	Confirmation	Removed	---	15.0	Saturated	2/24/2020	< 67	250	250	---	---	< 21	---	---	---	---
H4-22.7	H4-1.0-121319	Interior	Performance	Removed	1.0	22.7	Vadose	12/13/2019	**600** N	**5,000**	**5,600**	---	---	**31**	< 0.022	< 0.11	< 0.11	< 0.22
H4-B	H4-B-20.0	Interior	Confirmation	Removed	---	20.0	Vadose	2/19/2020	140 N	970	1,110	---	---	< 51	---	---	---	---
	H4-B-15.0	Interior	Confirmation	Removed	---	15.0	Saturated	2/19/2020	< 90	500	500	---	---	< 31	---	---	---	---
H4-ESW	H4-ESW-20.0	Sidewall	Confirmation	In Place	---	20.0	Vadose	2/4/2020	**730** N	**2,900**	**3,630**	---	---	< 11 H	---	---	---	---
	H4-ESW-15.0	Sidewall	Confirmation	In Place	---	15.0	Saturated	2/26/2020	< 55	< 110	< 165	---	---	< 17	---	---	---	---
H4-ESW2	H4-ESW2-20.0	Sidewall	Confirmation	In Place	---	20.0	Vadose	2/4/2020	99 N	180	279	---	---	< 5.5 H	---	---	---	---
H4-SSW	H4-SSW-15.0	Interior	Confirmation	Removed	---	15.0	Saturated	2/27/2020	< 65	170	170	---	---	< 21	---	---	---	---
I2-B	I2-B-10.0	Interior	Confirmation	Removed	---	10.0	Saturated	2/28/2020	< 28	< 55	< 83	---	---	---	---	---	---	---
I3-B	I3-B-20.0	Interior	Performance	Removed	---	20.0	Vadose	2/23/2020	< 680	**6,200**	**6,200**	---	---	< 15 H	< 0.030 H	< 0.15 H	< 0.15 H	< 0.30 H
	I3-B-15.0	Interior	Confirmation	Removed	---	15.0	Saturated	2/23/2020	< 76	690	690	---	---	< 26 H	---	---	---	---
	I3-B-DUP-15.0	Interior	Confirmation	Removed	---	15.0	Saturated	2/24/2020	---	---	---	---	---	23 T	---	---	---	---
I4-ESW	I4-ESW-20.0	Sidewall	Confirmation	In Place	---	20.0	Vadose	2/4/2020	**500** N	**1,800**	**2,300**	---	---	---	---	---	---	---
	I4-ESW-15.0	Sidewall	Confirmation	In Place	---	15.0	Saturated	2/22/2020	< 76	160	160	---	---	---	---	---	---	---
I/J-B	I/J-B-(-6.75)	Interior	Confirmation	In Place	---	-6.75	Saturated	6/3/2020	< 26	< 53	< 79	---	---	< 5.0	< 0.020	< 0.050	< 0.050	< 0.100
J2-B	J2-B-20.0	Interior	Confirmation	Removed	---	20.0	Vadose	2/14/2020	< 29	< 58	< 87	---	---	---	< 0.00076	< 0.0038	< 0.00076	< 0.00226
J4-ESW	J4-ESW-20.0	Sidewall	Confirmation	In Place	---	20.0	Vadose	2/4/2020	**1,800** N	**4,600**	**6,400**	---	---	---	---	---	---	---
	J4-ESW-15.0	Sidewall	Confirmation	In Place	---	15.0	Saturated	2/22/2020	< 77	< 160	< 237	---	---	---	---	---	---	---
J/K-B	J/K-B-(-6.75)	Interior	Confirmation	In Place		-6.75	Saturated	6/2/2020	< 28	< 55	< 83			< 4.9	< 0.020	< 0.049	< 0.049	< 0.098
K1-WSW	K1-WSW-20.0	Sidewall	Confirmation	In Place	---	20.0	Vadose	2/4/2020	58 N	270	328	---	---	---	---	---	---	---
K2-B	K2-B-20.0	Interior	Confirmation	Removed	---	20.0	Vadose	2/6/2020	< 56	280	280	---	---	---	< 0.037	< 0.19	< 0.19	< 0.38
MTCA Method B Direct Contact[6]									**NE**		**NE**	**NE**		**1,500[8]**	**18**	**6,400**	**8,000**	**16,000**
Screening Levels for Soil Protective of Groundwater - Vadose Zone[6]									**2,000[7]**		**2,000[7]**	**2,000[7]**		**30[7]**	**0.027**	**4.5**	**5.9**	**14**
Screening Levels for Soil Protective of Groundwater - Saturated Zone[6]									**2,000[7]**		**2,000[7]**	**2,000[7]**		**30[7]**	**0.0017**	**0.27**	**0.34**	**0.83**
Laboratory Practical Quantitation Limits[8]									**75**		**75**	**75**		**5**	**0.001**	**0.005**	**0.001**	**0.003**

Table 1
Soil Analytical Results for TPH and BTEX
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Identification	General Location	Sample Type	Sample Location Disposition	Sample Depth (feet)[1]	Sample Elevation (feet NAVD88)[1]	Zone	Sample Date	Analytical Results (milligrams per kilogram)										
									NWTPH-Dx[2]		Total NWTPH-Dx[3]	NWTPH-Dx with Silica Gel[2]		NWTPH-Gx[4]	EPA Method 8021B/8260[5]			
									DRO	ORO		DRO	ORO	GRO	Benzene	Toluene	Ethylbenzene	Xylenes
K3-B	K3-B-20.0	Interior	Performance	Removed	---	20.0	Vadose	2/13/2020	**2,500** N	**9,700**	**12,200**	---	---	---	---	---	---	---
	K3-B-15.0	Interior	Confirmation	Removed	---	15.0	Saturated	2/24/2020	68 N	830	898	---	---	---	---	---	---	---
	K3-B-10.0	Interior	Confirmation	Removed	---	10.0	Saturated	2/28/2020	< 32	< 64	< 96	---	---	---	---	---	---	---
K4-B	K4-B-15.0	Interior	Confirmation	Removed	---	15.0	Saturated	2/26/2020	< 33	< 67	< 100	---	---	---	---	---	---	---
	K4-B-10.0	Interior	Confirmation	Removed	---	10.0	Saturated	2/26/2020	110	290	400	---	---	---	---	---	---	---
K4-ESW	K4-ESW-20.0	Sidewall	Confirmation	In Place	---	20.0	Vadose	2/4/2020	290 N	960	1,250	---	---	---	---	---	---	---
	K4-ESW-15.0	Sidewall	Confirmation	In Place	---	15.0	Saturated	2/22/2020	< 120	710	710	---	---	---	---	---	---	---
L1-B	L1-B-15.0	Interior	Confirmation	Removed	---	15.0	Saturated	2/24/2020	< 170	560	560	---	---	---	---	---	---	---
L1-WSW	L1-WSW-20.0	Sidewall	Confirmation	In Place	---	20.0	Vadose	2/3/2020	< 31	180	180	---	---	---	---	---	---	---
	L1-WSW-17.0	Sidewall	Confirmation	In Place	---	17.0	Saturated	2/10/2020	250 N	1,200	1,450	---	---	---	---	---	---	---
	L1-WSW-15.0	Sidewall	Confirmation	In Place	---	15.0	Saturated	2/24/2020	< 83	510	510	---	---	---	---	---	---	---
L1-WSW2	L1-WSW2-17.0	Sidewall	Confirmation	In Place	---	17.0	Saturated	2/10/2020	86 N	740	826	---	---	---	---	---	---	---
L2-B	L2-B-10.0	Interior	Confirmation	Removed	---	10.0	Saturated	2/28/2020	< 33	< 67	< 100	---	---	---	---	---	---	---
L3-B	L3-B-15.0	Interior	Confirmation	Removed	---	15.0	Saturated	2/24/2020	< 140	1,300	1,300	---	---	---	---	---	---	---
L4-ESW	L4-ESW-15.0	Sidewall	Confirmation	In Place	---	15.0	Saturated	2/22/2020	< 130	940	940	---	---	---	---	---	---	---
M1-B	M1-B-15.0	Interior	Confirmation	Removed	---	15.0	Saturated	2/24/2020	< 160	470	470	---	---	---	---	---	---	---
	M1-B-10	Interior	Confirmation	Removed	---	10.0	Saturated	2/25/2020	< 31	< 62	< 93	---	---	---	---	---	---	---
M1-WSW	M1-WSW-20.0	Sidewall	Confirmation	In Place	---	20.0	Vadose	2/3/2020	200	220	420	---	---	---	---	---	---	---
	M1-WSW-17.0	Sidewall	Confirmation	In Place	---	17.0	Saturated	2/10/2020	< 29	250	250	---	---	---	---	---	---	---
	M1-WSW-15.0	Sidewall	Confirmation	In Place	---	15.0	Saturated	2/24/2020	**160** N	**2,100**	**2,260**	---	---	---	---	---	---	---
	M1-WSW-10	Sidewall	Confirmation	In Place	---	10.0	Saturated	2/25/2020	< 36	< 72	< 108	---	---	---	---	---	---	---
M1-WSW2	M1-WSW2-20.0	Sidewall	Confirmation	In Place	---	20.0	Vadose	2/3/2020	< 30	< 61	< 91	---	---	---	---	---	---	---
M3-B	M3-B-(-6.75)	Interior	Confirmation	In Place	---	-6.75	Saturated	5/28/2020	< 29	< 58	< 87	---	---	< 5.2	< 0.020	< 0.052	< 0.052	< 0.104
M4-B	M4-B-12.0	Interior	Confirmation	Removed	---	12.0	Saturated	2/22/2020	< 76	400	400	---	---	---	---	---	---	---
M4-ESW	M4-ESW-20.0	Sidewall	Confirmation	In Place	---	20.0	Vadose	2/6/2020	< 30	< 61	< 91	---	---	---	---	---	---	---
N1-B	N1-B-15.0	Interior	Confirmation	Removed	---	15.0	Saturated	2/22/2020	< 110	1,900	1,900	---	---	---	---	---	---	---
N1-NSW	N1-NSW-22.0	Sidewall	Confirmation	In Place	---	22.0	Vadose	1/31/2020	< 30	< 61	< 91	---	---	---	---	---	---	---
	N1-NSW-15.0	Sidewall	Confirmation	In Place	---	15.0	Saturated	2/24/2020	< 150	580	580	---	---	---	---	---	---	---
N1-ESW	N1-ESW-15.0	Sidewall	Confirmation	In Place	---	15.0	Saturated	2/22/2020	< 150	1,000	1,000	---	---	---	---	---	---	---
N1-WSW	N1-WSW-20.0	Sidewall	Confirmation	In Place	---	20.0	Vadose	2/3/2020	280 N	1,400	1,680	---	---	---	---	---	---	---
	N1-WSW-17.0	Sidewall	Confirmation	In Place	---	17.0	Saturated	2/10/2020	**4,800** N	**19,000**	**23,800**	---	---	---	---	---	---	---
	N1-WSW-15.0	Sidewall	Confirmation	In Place	---	15.0	Saturated	2/24/2020	< 79	630	630	---	---	---	---	---	---	---
N1-WSW3	N1-WSW3-170	Sidewall	Confirmation	In Place	---	17.0	Saturated	2/21/2020	< 36	77	77	---	---	---	---	---	---	---
N2-B	N2-B-20.0	Interior	Confirmation	Removed	---	20.0	Vadose	2/6/2020	< 31	< 61	< 92	---	---	---	---	---	---	---
	N2-B-15.0	Interior	Confirmation	Removed	---	15.0	Saturated	2/23/2020	---	---	---	---	---	< 22 H	---	---	---	---
	N2-B-DUP-15.0	Interior	Confirmation	Removed	---	15.0	Saturated	2/24/2020	---	---	---	---	---	< 64	---	---	---	---
	N2-B-10.0	Interior	Confirmation	Removed	---	10.0	Saturated	2/23/2020	< 31	< 62	< 93	---	---	< 12 H	---	---	---	---
	N2-B-DUP-10.0	Interior	Confirmation	Removed	---	10.0	Saturated	2/24/2020	---	---	---	---	---	< 6.4	---	---	---	---
N2-NSW	N2-NSW-22.0	Sidewall	Confirmation	In Place	---	22.0	Vadose	1/31/2020	< 29	83	83	---	---	---	---	---	---	---
	N2-NSW-15.0	Sidewall	Confirmation	In Place	---	15.0	Saturated	2/24/2020	---	---	---	---	---	< 32	---	---	---	---
N2-ESW	N2-ESW-10	Interior	Confirmation	Removed	---	10.0	Saturated	2/25/2020	---	---	---	---	---	< 6.5	---	---	---	---
N2-SSW	N2-SSW-10	Interior	Confirmation	Removed	---	10.0	Saturated	2/25/2020	---	---	---	---	---	< 6.9	---	---	---	---
N3-NSW	N3-NSW-20.0-121019	Sidewall	Confirmation	In Place	---	20.0	Vadose	12/10/2019	< 30 H	< 61 H	< 91	---	---	< 5.7 H	< 0.020 H	< 0.057 H	< 0.057 H	< 0.114 H
	N3-NSW-22.0	Sidewall	Confirmation	In Place	---	22.0	Vadose	1/31/2020	< 30	< 59	< 89	---	---	---	---	---	---	---
N3-NSW2	N3-NSW2-22.0	Sidewall	Confirmation	In Place	---	22.0	Vadose	1/31/2020	< 30	< 60	< 90	---	---	---	---	---	---	---
N4-NSW	N4-NSW-20.0	Sidewall	Confirmation	In Place	---	20.0	Vadose	2/6/2020	< 30	< 60	< 90	---	---	---	---	---	---	---
MTCA Method B Direct Contact[6]									**NE**		**NE**	**NE**		**1,500[8]**	**18**	**6,400**	**8,000**	**16,000**
Screening Levels for Soil Protective of Groundwater - Vadose Zone[6]									**2,000[7]**		**2,000[7]**	**2,000[7]**		**30[7]**	**0.027**	**4.5**	**5.9**	**14**
Screening Levels for Soil Protective of Groundwater - Saturated Zone[6]									**2,000[7]**		**2,000[7]**	**2,000[7]**		**30[7]**	**0.0017**	**0.27**	**0.34**	**0.83**
Laboratory Practical Quantitation Limits[8]									**75**		**75**	**75**		**5**	**0.001**	**0.005**	**0.001**	**0.003**

Table 1
Soil Analytical Results for TPH and BTEX
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Identification	General Location	Sample Type	Sample Location Disposition	Sample Depth (feet)[1]	Sample Elevation (feet NAVD88)[1]	Zone	Sample Date	Analytical Results (milligrams per kilogram)									
									NWTPH-Dx[2]		Total NWTPH-Dx[3]	NWTPH-Dx with Silica Gel[2]		NWTPH-Gx[4]	EPA Method 8021B/8260[5]			
									DRO	ORO		DRO	ORO	GRO	Benzene	Toluene	Ethylbenzene	Xylenes
N4-ESW	N4-ESW-20.0	Sidewall	Confirmation	In Place	---	20.0	Vadose	2/6/2020	< 29	< 58	< 87	---	---	---	---	---	---	---
TP-2	TP-2-20.0-121919	Interior	Confirmation	Removed	5.0	20.0	Vadose	12/19/2019	< 27	210	210	---	---	< 4.2	< 0.020	< 0.042	< 0.042	< 0.084
	TP-2-15.0-121919	Interior	Confirmation	Removed	10.0	15.0	Saturated	12/19/2019	**6,600**	**9,000**	**15,600**	---	---	< 420 U1	< 0.026	< 0.13	< 0.13	< 0.26
	TP-2-10.0	Interior	Confirmation	Removed	---	10.0	Saturated	2/13/2020	< 33	< 66	< 99	---	---	< 6.8	---	---	---	---
	TP-2-5.0	Interior	Confirmation	Removed	---	5.0	Saturated	2/13/2020	< 28	< 57	< 85	---	---	< 4.9	---	---	---	---
TP-3	TP-3-20.0-121919	Interior	Confirmation	Removed	5.0	20.0	Vadose	12/19/2019	< 29	< 59	< 88	---	---	< 5.2	< 0.020	< 0.052	< 0.052	< 0.104
	TP-3-15.0-121919	Interior	Confirmation	Removed	10.0	15.0	Saturated	12/19/2019	< 160	1,700	1,700	---	---	< 59	< 0.12	< 0.59	< 0.59	< 1.18
TP-7	TP-7-4.0	Interior	Confirmation	Removed	4.0	19.5	Vadose	12/23/2019	< 74	230	230	---	---	< 25	< 0.0044	< 0.022	< 0.0044	< 0.0132
TP-10	TP-10-15.0	Interior	Confirmation	Removed	---	15.0	Saturated	2/4/2020	< 130	370	370	---	---	---	---	---	---	---
TP-11	TP-11-20.0	Interior	Confirmation	Removed	---	20.0	Vadose	2/4/2020	< 30	190	190	---	---	---	---	---	---	---
	TP-11-15.0	Interior	Confirmation	Removed	---	15.0	Saturated	2/4/2020	230	680	910	---	---	---	---	---	---	---
	TP-11-10.0	Interior	Confirmation	Removed	---	10.0	Saturated	2/4/2020	< 36	< 71	< 107	---	---	---	---	---	---	---
TP-13	TP-13-20.0	Interior	Confirmation	Removed	---	20.0	Vadose	2/7/2020	< 28	< 57	< 85	---	---	---	---	---	---	---
	TP-13-15.0	Interior	Confirmation	Removed	---	15.0	Saturated	2/7/2020	< 35	< 70	< 105	---	---	---	---	---	---	---
TP-14	TP-14-20.0	Interior	Confirmation	Removed	---	20.0	Vadose	2/14/2020	< 95	410	410	---	---	---	---	---	---	---
	TP-14-15.0	Interior	Confirmation	Removed	---	15.0	Saturated	2/14/2020	120 N	640	760	---	---	---	---	---	---	---
	TP-14-10.0	Interior	Confirmation	Removed	---	10.0	Saturated	2/14/2020	< 33	< 67	< 100	---	---	---	---	---	---	---
TP-15	TP-15-20.0	Interior	Confirmation	Removed	---	20.0	Vadose	2/14/2020	< 97	700	700	---	---	---	---	---	---	---
	TP-15-15.0	Interior	Confirmation	Removed	---	15.0	Saturated	2/14/2020	95 N	490	585	---	---	---	---	---	---	---
	TP-15-10.0	Interior	Confirmation	Removed	---	10.0	Saturated	2/14/2020	< 32	< 65	< 97	---	---	---	---	---	---	---
TP-16	TP-16-20.0	Interior	Confirmation	Removed	---	20.0	Vadose	2/14/2020	< 65	250	250	---	---	---	---	---	---	---
	TP-16-15.0	Interior	Confirmation	Removed	---	15.0	Saturated	2/14/2020	88 N	400	488	---	---	---	---	---	---	---
	TP-16-10.0	Interior	Confirmation	Removed	---	10.0	Saturated	2/14/2020	< 32	< 64	< 96	---	---	---	---	---	---	---
TP-17	TP-17-20.0	Interior	Confirmation	Removed	---	20.0	Vadose	2/18/2020	300 N	1,700	2,000	---	---	---	---	---	---	---
	TP-17-15	Interior	Confirmation	Removed	---	15.0	Saturated	2/25/2020	< 59	< 120	< 179	---	---	---	---	---	---	---
	TP-17-10	Interior	Confirmation	Removed	---	10.0	Saturated	2/25/2020	< 29	< 58	< 87	---	---	---	---	---	---	---
TP-18	TP-18-10.0	Interior	Confirmation	Removed	---	10.0	Saturated	2/19/2020	< 28	< 56	< 84	---	---	---	---	---	---	---
Underground Storage Tank Investigation and Decommissioning																		
M1-Product	M1-24.5-PRODUCT	Interior	Performance	Removed	---	24.5	Vadose	1/17/2020	DETECTED[9]	DETECTED[9]	---	---	---	< 9,200[9]	---	---	---	---
M1-Prod-Soil	M1-24.5	Interior	Performance	Removed	---	24.5	Vadose	1/17/2020	**8,600**	**15,000**	**23,600**	---	---	---	---	---	---	---
M1-Tank	M1-TANK-24.5	Interior	Performance	Removed	---	24.5	Vadose	1/21/2020	**850** N	**2,500**	**3,350**	---	---	< 59	< 0.00082	< 0.0041	0.00099	0.0116
UST01-B	UST01-B-17	Interior	Confirmation	Removed	---	17.0	Saturated	1/27/2020	37	100	137	---	---	< 5.5	< 0.00092	< 0.0046	< 0.00092	< 0.00272
UST01-N1	UST01-N1-19	Interior	Confirmation	Removed	---	19.0	Vadose	1/27/2020	< 30	< 60	< 90	---	---	---	< 0.00094	< 0.0047	< 0.00094	< 0.00284
UST01-E1	UST01-E1-19	Interior	Confirmation	Removed	---	19.0	Vadose	1/27/2020	< 29	< 58	< 87	---	---	---	< 0.00083	< 0.0042	< 0.00083	< 0.00253
UST01-S1	UST01-S1-19	Interior	Confirmation	Removed	---	19.0	Vadose	1/27/2020	< 28	< 55	< 83	---	---	---	< 0.00084	< 0.0042	< 0.00084	< 0.00254
UST01-W1	UST01-W1-19	Interior	Confirmation	Removed	---	19.0	Vadose	1/27/2020	< 30	< 61	< 91	---	---	---	< 0.00098	< 0.0049	< 0.00098	< 0.00298
UST-01-line	UST-01-LINE-21.0	Sidewall	Performance	Removed	---	21.0	Vadose	1/31/2020	**3,400**	**3,100** N1	**6,500**	---	---	---	---	---	---	---
UST-02-Product	UST-02-PRODUCT	Interior	Performance	Removed	---	18.0	Saturated	2/5/2020	DETECTED[9]	DETECTED[9]	---	---	---	< 41,000[9]	---	---	---	---
UST02-N	UST-02-N	Interior	Performance	Removed	---	18.0	Saturated	2/5/2020	630	1,300	1,930	---	---	< 59	< 0.00091	< 0.0045	< 0.00091	< 0.00271
UST02-E	UST-02-E	Interior	Performance	Removed	---	18.0	Saturated	2/5/2020	370	850	1,220	---	---	**79** O	**0.0033**	0.018	0.0075	0.048
UST02-B1	UST02-B1	Interior	Performance	Removed	---	15.0	Saturated	2/7/2020	140 N	820	960	---	---	---	---	---	---	---
UST02-B2	UST02-B2	Interior	Confirmation	Removed	---	14.0	Saturated	2/7/2020	160 N	1,800	1,960	---	---	---	---	---	---	---
UST02-N1	UST02-N1	Interior	Confirmation	Removed	---	17.5	Saturated	2/7/2020	160 N	440	600	---	---	---	---	---	---	---
UST02-E1	UST02-E1	Interior	Confirmation	Removed	---	17.5	Saturated	2/7/2020	39 N	230	269	---	---	---	---	---	---	---
UST02-S	UST02-S	Interior	Confirmation	Removed	---	17.5	Saturated	2/7/2020	< 50	200	200	---	---	---	---	---	---	---
UST02-W1	UST02-W1	Interior	Confirmation	Removed	---	17.5	Saturated	2/7/2020	64 N	310	374	---	---	---	---	---	---	---
MTCA Method B Direct Contact[6]									**NE**		**NE**	**NE**		**1,500[8]**	**18**	**6,400**	**8,000**	**16,000**
Screening Levels for Soil Protective of Groundwater - Vadose Zone[6]									**2,000[7]**		**2,000[7]**	**2,000[7]**		**30[7]**	**0.027**	**4.5**	**5.9**	**14**
Screening Levels for Soil Protective of Groundwater - Saturated Zone[6]									**2,000[7]**		**2,000[7]**	**2,000[7]**		**30[7]**	**0.0017**	**0.27**	**0.34**	**0.83**
Laboratory Practical Quantitation Limits[8]									**75**		**75**	**75**		**5**	**0.001**	**0.005**	**0.001**	**0.003**

Table 1
Soil Analytical Results for TPH and BTEX
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Identification	General Location	Sample Type	Sample Location Disposition	Sample Depth (feet)[1]	Sample Elevation (feet NAVD88)[1]	Zone	Sample Date	Analytical Results (milligrams per kilogram)									
									NWTPH-Dx[2]		Total NWTPH-Dx[3]	NWTPH-Dx with Silica Gel[2]		NWTPH-Gx[4]	EPA Method 8021B/8260[5]			
									DRO	ORO		DRO	ORO	GRO	Benzene	Toluene	Ethylbenzene	Xylenes
Alley																		
B-6	B-6-3	Alley	Performance	Removed	3.0	23.6	Vadose	12/29/1998	< 20	850	850	---	---	< 5.0	< 50	< 50	< 50	< 50
	B-6-13	Alley	Confirmation	Removed	13.0	13.6	Saturated	12/29/1998	< 20	< 50	< 70	---	---	< 5.0	< 50	< 50	< 50	< 50
FB-11	FB-11-20.0	Alley	Performance	Removed	---	20.0	Vadose	9/12/2020	72 N	470	542	---	---	---	---	---	---	---
	FB-11-17.5	Alley	Confirmation	In Place	---	17.5	Vadose	9/12/2020	< 59	< 120	< 179	---	---	---	---	---	---	---
FB-12	FB-12-20.0	Alley	Performance	Removed	---	20.0	Vadose	9/13/2020	170 N	1,600	1,770	---	---	< 41	< 0.083	< 0.41	< 0.41	< 0.82
	FB-12-17.5	Alley	Confirmation	In Place	---	17.5	Saturated	9/13/2020	< 94	1,300	1,300	---	---	< 38	< 0.075	< 0.38	< 0.38	< 0.76
FB-13	FB-13-20.0	Alley	Performance	Removed	---	20.0	Vadose	9/12/2020	86 N	1,400	1,486	---	---	< 35	< 0.070	< 0.35	< 0.35	< 0.70
	FB-13-17.5	Alley	Confirmation	In Place	---	17.5	Saturated	9/12/2020	**160** N	**2,700**	**2,860**	---	---	< 51	< 0.10	< 0.51	< 0.51	< 1.02
	FB-13-15.0	Alley	Confirmation	In Place	---	15.0	Saturated	9/12/2020	< 130	1,200	1,200	---	---	---	---	---	---	---
FB-14	FB-14-20.0	Alley	Performance	Removed	---	20.0	Vadose	9/12/2020	32 N	150	182	---	---	---	---	---	---	---
	FB-14-17.5	Alley	Confirmation	In Place	---	17.5	Saturated	9/13/2020	< 65	510	510	---	---	---	---	---	---	---
FB-15	FB-15-22.5	Alley	Performance	Removed	---	22.5	Vadose	9/13/2020	< 140	1,500	1,500	---	---	---	---	---	---	---
	FB-15-20.0	Alley	Confirmation	Removed	---	20.0	Vadose	9/13/2020	< 30	160	160	---	---	---	---	---	---	---
	FB-15-17.5	Alley	Confirmation	In Place	---	17.5	Saturated	9/13/2020	< 28	< 56	< 84	---	---	---	---	---	---	---
FB-16	FB-16-22.5	Alley	Performance	Removed	---	22.5	Vadose	9/13/2020	< 28	110	110	---	---	---	---	---	---	---
	FB-16-20.0	Alley	Confirmation	Removed	---	20.0	Vadose	9/13/2020	< 28	< 56	< 84	---	---	---	---	---	---	---
	FB-16-17.5	Alley	Confirmation	In Place	---	17.5	Saturated	9/13/2020	130 N	1,000	1,130	---	---	---	---	---	---	---
PH-11A	PH-11A-4.0-011919	Alley	Performance	Removed	4.0	20.0	Vadose	1/19/2019	520 N	1,100	1,620	---	---	< 20	---	---	---	---
PH-12	PH-12-4.0-011919	Alley	Performance	Removed	4.0	21.0	Vadose	1/19/2019	**9,400** N,M	**21,000**	**30,400**	---	---	**2,100**	---	---	---	---
PH-13	PH-13-3.0-011219	Alley	Performance	Removed	3.0	20.0	Vadose	1/12/2019	< 29	< 59	< 88	---	---	< 6.4	---	---	---	---
E/A5-B	E/A5-B-17.5	Alley	Confirmation	In Place	---	17.5	Saturated	6/28/2021	**130** N	**2,100**	**2,230**	---	---	< 45	< 0.0070	< 0.035	< 0.0070	< 0.021
E/A5-ESW	E/A5-ESW-22.5-050421	Alley	Confirmation	In Place	---	22.5	Vadose	5/4/2021	350 N	1,600	1,950	---	---	< 14	< 0.0020	< 0.010	< 0.0020	< 0.0061
	E/A5-ESW-20.0-050421	Alley	Confirmation	In Place	---	20.0	Vadose	5/4/2021	220 N	1,500	1,720	---	---	< 27	< 0.0039	< 0.019	< 0.0039	< 0.0117
	E/A5-ESW-17.5-050421	Alley	Confirmation	In Place	---	17.5	Saturated	5/4/2021	130 N	1,000	1,130	---	---	< 34	< 0.0050	< 0.025	< 0.0050	< 0.015
F/A5-B	F/A5-B-17.5	Alley	Confirmation	In Place	---	17.5	Saturated	6/28/2021	160 N	710	870	---	---	< 43	< 0.0062	< 0.031	< 0.0062	< 0.0182
G/A5-ESW	G/A5-ESW-22.5-070621	Alley	Confirmation	In Place	---	22.5	Vadose	7/6/2021	150 N	1,700	1,850	---	---	---	---	---	---	---
	G/A5-ESW-20.0-070621	Alley	Confirmation	In Place	---	20.0	Vadose	7/6/2021	**890** N	**3,300**	**4,190**	---	---	---	---	---	---	---
	G/A5-ESW-17.5-070621	Alley	Confirmation	In Place	---	17.5	Saturated	7/6/2021	**940** N	**6,100**	**7,040**	---	---	---	---	---	---	---
H/A5-B	H/A5-B-17.5-070621	Alley	Confirmation	In Place	---	17.5	Saturated	7/6/2021	98 N	780	878	---	---	---	---	---	---	---
H/A5-ESW	H/A5-ESW-22.5-070621	Alley	Confirmation	In Place	---	22.5	Vadose	7/6/2021	**200** N	**2,400**	**2,600**	---	---	---	---	---	---	---
	H/A5-ESW-20.0-070621	Alley	Confirmation	In Place	---	20.0	Vadose	7/6/2021	**360** N	**2,800**	**3,160**	---	---	---	---	---	---	---
	H/A5-ESW-17.5-070621	Alley	Confirmation	In Place	---	17.5	Saturated	7/6/2021	< 86	250	250	---	---	---	---	---	---	---
I/A5-B	I/A5-B-17.5-070921	Alley	Confirmation	In Place	---	17.5	Saturated	7/9/2021	87 N	230	317	---	---	---	---	---	---	---
I/A5-ESW	I/A5-ESW-22.5-070921	Alley	Confirmation	In Place	---	22.5	Vadose	7/9/2021	82 N	550	632	---	---	---	---	---	---	---
	I/A5-ESW-20.0-070921	Alley	Confirmation	In Place	---	20.0	Vadose	7/9/2021	**520** N	**4,100**	**4,620**	---	---	---	---	---	---	---
	I/A5-ESW-17.5-070921	Alley	Confirmation	In Place	---	17.5	Saturated	7/9/2021	**1,400** N	**3,000**	**4,400**	---	---	---	---	---	---	---
J/A5-ESW	J/A5-ESW-22.5-070921	Alley	Confirmation	In Place	---	22.5	Vadose	7/9/2021	230 N	1,700	1,930	---	---	---	---	---	---	---
	J/A5-ESW-20.0-070921	Alley	Confirmation	In Place	---	20.0	Vadose	7/9/2021	110 N	310	420	---	---	---	---	---	---	---
	J/A5-ESW-17.5-070921	Alley	Confirmation	In Place	---	17.5	Saturated	7/9/2021	< 32	110	110	---	---	---	---	---	---	---
L/A5-B	L/A5-B-22.0-071221	Alley	Confirmation	Removed	---	22.0	Vadose	7/12/2021	< 29	< 57	< 86	---	---	---	---	---	---	---
L/A5-ESW	L/A5-ESW-25.0-071221	Alley	Confirmation	In Place	---	25.0	Vadose	7/12/2021	80 N	500	580	---	---	---	---	---	---	---
	L/A5-ESW-22.5-071221	Alley	Confirmation	In Place	---	22.5	Vadose	7/12/2021	31 N	200	231	---	---	---	---	---	---	---
M/A5-ESW	M/A5-ESW-25.0-071521	Alley	Confirmation	In Place	---	25.0	Vadose	7/15/2021	87 N	340	427	---	---	---	---	---	---	---
	M/A5-ESW-22.5-071521	Alley	Confirmation	In Place	---	22.5	Vadose	7/15/2021	< 28	< 55	< 83	---	---	---	---	---	---	---
MTCA Method B Direct Contact[6]									**NE**		**NE**	**NE**		**1,500[8]**	**18**	**6,400**	**8,000**	**16,000**
Screening Levels for Soil Protective of Groundwater - Vadose Zone[6]									**2,000[7]**		**2,000[7]**	**2,000[7]**		**30[7]**	**0.027**	**4.5**	**5.9**	**14**
Screening Levels for Soil Protective of Groundwater - Saturated Zone[6]									**2,000[7]**		**2,000[7]**	**2,000[7]**		**30[7]**	**0.0017**	**0.27**	**0.34**	**0.83**
Laboratory Practical Quantitation Limits[8]									**75**		**75**	**75**		**5**	**0.001**	**0.005**	**0.001**	**0.003**

Table 1
Soil Analytical Results for TPH and BTEX
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

									Analytical Results (milligrams per kilogram)									
									NWTPH-Dx[2]		**Total NWTPH-Dx[3]**	**NWTPH-Dx with Silica Gel[2]**		**NWTPH-Gx[4]**	**EPA Method 8021B/8260[5]**			
Sample Location	**Sample Identification**	**General Location**	**Sample Type**	**Sample Location Disposition**	**Sample Depth (feet)[1]**	**Sample Elevation (feet NAVD88)[1]**	**Zone**	**Sample Date**	**DRO**	**ORO**		**DRO**	**ORO**	**GRO**	**Benzene**	**Toluene**	**Ethylbenzene**	**Xylenes**
Block 38 East Property																		
EX-11-W21 (EL21)	EX-11-W21 (EL21)	B38E	Confirmation	In Place	9.5	21.0	Vadose	7/2/2008	< 20	< 50	< 70	---	---	11	< 0.02	< 0.05	< 0.05	< 0.15
EX-12-W16.5 (EL22)	EX-12-W16.5 (EL22)	B38E	Confirmation	In Place	7.0	22.0	Vadose	7/2/2008	< 20	< 50	< 70	---	---	< 10	< 0.02	< 0.05	< 0.05	< 0.15
EX-17-W13 (EL23)	EX-17-W13 (EL23)	B38E	Confirmation	In Place	6.5	23.0	Vadose	7/3/2008	< 20	< 50	< 70	---	---	< 10	< 0.02	< 0.05	< 0.05	< 0.15
EX-18-W9 (EL19.5)	EX-18-W9 (EL19.5)	B38E	Confirmation	In Place	6.0	19.5	Vadose	7/3/2008	< 20	< 50	< 70	---	---	< 10	< 0.02	< 0.05	< 0.05	< 0.15
P-4	P-4-3.5	B38E	Performance	Removed	3.5	21.2	Vadose	6/12/2002	< 37	530	530	---	---	---	---	---	---	---
	P-4-5.5	B38E	Performance	Removed	5.5	19.2	Vadose	6/12/2002	< 74	1,400	1,400	---	---	---	---	---	---	---
W-3	W-3	B38E	Performance	Removed	10.0	10.5	Saturated	10/11/1993	**7,800**	**280**	**8,080**	---	---	**470**	< 0.16	< 0.16	0.19	0.87
W-4	W-4	B38E	Performance	Removed	11.0	9.5	Saturated	10/11/1993	210	< 49	210	---	---	**44**	< 0.030	< 0.030	< 0.030	0.063
Block 37 Site																		
MW-41	MW-41-3	B37			7.5	19.5	Vadose	10/28/1991	< 5	---	< 5	---	---	< 5	< 0.040	< 0.040	< 0.040	< 0.040
	MW-41-7	B37			17.5	9.5	Saturated	10/28/1991	< 5	---	< 5	---	---	< 5	---	---	---	---
MW-71	MW-71-5	B37			5.0	25.4	Vadose	10/12/2005	< 10.8	< 27.1	< 37.9	---	---	< 3.84	< 0.0267	< 0.0891	< 0.0891	< 0.267
	MW-71-10	B37			10.0	20.4	Vadose	10/12/2005	< 11.2	< 28.0	< 39.2	---	---	< 4.33	**0.189**	< 0.0861	0.341	0.262
	MW-71-15	B37			15.0	15.4	Saturated	10/12/2005	< 11.7	< 29.3	< 41.0	---	---	< 4.55	< 0.0273	< 0.0910	< 0.0910	< 0.273
	MW-71-20	B37			20.0	10.4	Saturated	10/12/2005	135	298	433	---	---	**888**	**1.02**	**0.724**	**9.97**	**29.1**
MW-72	MW-72-5	B37			5.0	25.3	Vadose	10/12/2005	< 11.1	< 27.9	< 39.0	---	---	< 3.82	< 0.0257	< 0.0857	< 0.0857	< 0.257
	MW-72-10	B37			10.0	20.3	Vadose	10/12/2005	< 11.1	< 27.7	< 38.8	---	---	< 4.66	< 0.0260	< 0.0868	< 0.0868	< 0.260
	MW-72-15	B37			15.0	15.3	Saturated	10/12/2005	219	403	622	---	---	< 22.9	**0.533**	< 0.702	< 0.702	< 2.10
	MW-72-20	B37			20.0	10.3	Saturated	10/12/2005	109	99.6	208.6	---	---	< 11.8	< 0.0405	< 0.312	< 0.312	< 0.936
MW-73	MW-73-5	B37			5.0	25.1	Vadose	10/12/2005	< 11.1	< 27.7	< 38.8	---	---	< 5.05	< 0.0288	< 0.0960	< 0.0960	< 0.288
	MW-73-10	B37			10.0	20.1	Vadose	10/12/2005	45	< 28.5	45	---	---	**4,530**	< 0.0266	< 0.0888	< 0.0888	< 0.266
	MW-73-16	B37			15.0	15.1	Saturated	10/12/2005	129	677	806	---	---	**33.4**	**0.261**	< 0.443	< 0.443	< 1.33
	MW-73-20	B37			20.0	10.1	Saturated	10/12/2005	< 12.0	< 29.9	< 41.9	---	---	< 5.02	< 0.0131	< 0.100	< 0.100	< 0.301
MW-95	MW-95-5	B37			5.0	27.0	Vadose	10/19/2005	48.4	< 26.4	48.4	---	---	< 4.70	**0.0346**	< 0.0508	< 0.0508	< 0.102
	MW-95-10	B37			10.0	22.0	Vadose	10/19/2005	< 11.4	< 28.6	< 40.0	---	---	< 4.22	< 0.0277	< 0.0462	< 0.0462	< 0.0923
	MW-95-15	B37			15.0	17.0	Saturated	10/19/2005	< 12.6	< 31.5	< 44.1	---	---	< 7.39	< 0.0295	< 0.0492	< 0.0492	< 0.0985
MTCA Method B Direct Contact[6]									**NE**		**NE**	**NE**		**1,500[8]**	**18**	**6,400**	**8,000**	**16,000**
Screening Levels for Soil Protective of Groundwater - Vadose Zone[6]									**2,000[7]**		**2,000[7]**	**2,000[7]**		**30[7]**	**0.027**	**4.5**	**5.9**	**14**
Screening Levels for Soil Protective of Groundwater - Saturated Zone[6]									**2,000[7]**		**2,000[7]**	**2,000[7]**		**30[7]**	**0.0017**	**0.27**	**0.34**	**0.83**
Laboratory Practical Quantitation Limits[8]									**75**		**75**	**75**		**5**	**0.001**	**0.005**	**0.001**	**0.003**

NOTES:

Results in **bold** and highlighted yellow denote concentrations exceeding applicable screening levels.

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

— denotes sample not analyzed.

▨ Shading represents most stringent screening level or practical quantitation limit for vadose zone soil.

▨ Shading represents most stringent screening level or practical quantitation limit for saturated zone soil.

BTEX = benzene, toluene, ethylbenzene, and xylenes
DRO = total petroleum hydrocarbons (TPH) as diesel-range organics
GRO = TPH as gasoline-range organics
H = sample analyzed outside of holding time
M = hydrocarbons in the gasoline range are impacting the diesel-range result
N = hydrocarbons in the oil-range are impacting the diesel-range result
N1 = hydrocarbons in the diesel-range are impacting the oil-range result
ORO = TPH as oil-range organics
O = Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
T = the sample chromatogram is not similar to a typical gasoline standard

[1] Depth in feet below ground surface. Elevation in feet referenced to North American Vertical Datum of 1988 (NAVD88).

[2] Analyzed by Northwest Method NWTPH-Dx, unless otherwise noted. Results denoted as analyzed by NWTPH-Dx with silica gel were analyzed using a sample extract treated with sulfuric acid/silica gel cleanup procedure.

[3] Total is the sum of the DRO and ORO results.

[4] Analyzed by Northwest Method NWTPH-Gx, unless otherwise noted.

[5] Analyzed by U.S. Environmental Protection Agency Method 8021B, 8260C, or 8260D.

[6] Washington State Cleanup Levels and Risk Calculations (CLARC) under Washington State Model Toxics Control Act Cleanup Regulation (MTCA), Method B direct contact cleanup levels and default soil concentrations protective of groundwater (leaching pathway) from CLARC Master spreadsheet, https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC, unless otherwise noted.

[7] MTCA Method A is used as a surrogate for Method B because no Method B vadose or saturated leaching value has been established for TPH gasoline-, diesel- and oil-range mixtures.

[7] Laboratory Practical Quantitation Limits (PQLs) from OnSite Environmental of Redmond, Washington. PQLs for individual samples may vary due to sample matrix interferences, dilutions, or moisture content.

[8] Source of this value is the generic TPH cleanup level from *Model Remedies for Sites with Petroleum Contaminated Soils* , Washington State Department of Ecology, Publication No. 15-09-043, Revised: December 2017.

[9] Analyzed by Northwest Method NWTPH-HCID (hydrocarbon identification).

Table 2
Soil Analytical Results for PAHs
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Identification	General Location	Sample Type	Sample Location Disposition	Sample Composition	Sample Depth (feet)[1]	Sample Elevation (feet NAVD88)[1]	Zone	Sample Date	Analytical Results (milligrams per kilogram)[2]																		
										Non-Carcinogenic PAHs											Carcinogenic PAHs							
										Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(g,h,i)Perylene	Fluoranthene	Fluorene	Phenanthrene	Pyrene	Benzo(a)Pyrene	Benzo(a)Anthracene	Benzo(b)Fluoranthene	Benzo(j,k)Fluoranthene	Chrysene	Dibenzo(a,h)Anthracene	Indeno(1,2,3-cd)Pyrene	Total cPAHs TEC[3,4]
Block 38 West Property																												
FB-01	FB-01-5.0-082118	Interior	Performance	Removed	Soil	5.0	21.3	Vadose	8/21/2018	0.99	**1.1**	1.2	0.46	0.32	1.0	1.9	4.8	0.46	5.4	6.8	**2.5**	2.6	2.9	0.76	3.1	0.45	1.6	**3.4**
	FB-01-15.0-082118	Interior	Confirmation	Removed	Soil	15.0	11.3	Saturated	8/21/2018	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.008
FB-02	FB-02-5.0-082018	Interior	Performance	Removed	Soil	5.0	20.1	Vadose	8/20/2018	1.1	**0.86**	1.3	1.4	0.45	3.3	8.5	18	1.3	12	25	**11**	9.8	12	3.5	9.7	1.6	8.0	**15**
	FB-02-25.0-082018	Interior	Performance	Removed	Soil	25.0	0.1	Saturated	8/20/2018	0.083	**0.020**	0.024	0.027	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0060
FB-03	FB-03-10.0-082318	Interior	Confirmation	Removed	Soil	10.0	15.8	Saturated	8/23/2018	< 0.0086	< 0.0086	< 0.0086	< 0.0086	< 0.0086	< 0.0086	< 0.0086	0.011	< 0.0086	0.015	0.012	< 0.0086	< 0.0086	< 0.0086	< 0.0086	< 0.0086	< 0.0086	< 0.0086	< 0.0065
	FB-03-35.0-082318	Interior	Confirmation	In Place	Soil	35.0	-9.2	Saturated	8/23/2018	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	0.015	< 0.0080	0.017	0.017	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0060
FB-04	FB-04-10.0-082118	Interior	Performance	Removed	Soil	10.0	12.0	Saturated	8/21/2018	0.12	**0.057**	**0.099**	0.21	0.045	0.29	0.21	0.97	0.22	1.0	1.1	**0.36**	0.67	0.47	0.18	0.95	0.041	0.19	**0.52**
	FB-04-15.0-082118	Interior	Performance	Removed	Soil	15.0	7.0	Saturated	8/21/2018	0.052	**0.048**	**0.092**	0.049	< 0.0082	0.029	0.018	0.078	0.043	0.16	0.1	0.027	0.027	0.025	0.0099	0.028	< 0.0082	0.017	0.036
FB-05	FB-05-15.0-082218	Interior	Confirmation	Removed	Soil	15.0	10.5	Saturated	8/22/2018	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0067
FB-06	FB-06-2.5-082218	Interior	Performance	Removed	Soil	2.5	22.9	Vadose	8/22/2018	0.087	0.044	0.045	0.13	0.042	0.20	0.35	0.81	0.094	0.89	1.1	**0.49**	0.47	0.52	0.17	0.50	0.054	0.34	**0.65**
	FB-06-10.0-082218	Interior	Confirmation	Removed	Soil	10.0	15.4	Saturated	8/22/2018	< 0.016 H	< 0.016 H	< 0.016 H	< 0.016 H	< 0.016 H	< 0.016 H	< 0.016 H	< 0.016 H	< 0.016 H	< 0.016 H	0.020 H	< 0.016 H	< 0.016 H	< 0.016 H	< 0.016 H	< 0.016 H	< 0.016 H	< 0.016 H	< 0.012
	FB-06-20.0-082218	Interior	Confirmation	Removed	Soil	20.0	5.4	Saturated	8/22/2018	0.070	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0061
FB-07	FB-07-24	Interior	Confirmation	Removed	Soil	24.0	-0.5	Saturated	12/21/2019	0.028	< 0.0081	< 0.0081	---	---	---	---	---	---	---	---	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0061
	FB-07-29	Interior	Confirmation	Removed	Soil	29.0	-5.5	Saturated	12/21/2019	< 0.0080	< 0.0080	< 0.0080	---	---	---	---	---	---	---	---	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0060
	FB-07-31.5	Interior	Confirmation	In Place	Soil	31.5	-8.0	Saturated	12/21/2019	< 0.0080	< 0.0080	< 0.0080	---	---	---	---	---	---	---	---	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0060
FB-08	FB-08-2.5	Interior	Performance	Removed	Soil	2.5	21.2	Vadose	12/21/2019	3.8	**5.0**	**5.5**	---	---	---	---	---	---	---	---	**4.8**	4.6	6.4	2.0	4.7	0.70	3.1	**6.5**
	FB-08-8	Interior	Performance	Removed	Soil	8.0	15.7	Saturated	12/21/2019	0.013	< 0.0078	0.0089	---	---	---	---	---	---	---	---	0.015	0.013	0.017	< 0.0078	0.015	< 0.0078	0.011	0.020
	FB-08-13	Interior	Performance	Removed	Soil	13.0	10.7	Saturated	12/21/2019	**4.6**	**1.9**	**2.3**	---	---	---	---	---	---	---	---	< 0.0082	< 0.0082	< 0.0082	< 0.0082	< 0.0082	< 0.0082	< 0.0082	< 0.0062
	FB-08-18	Interior	Confirmation	Removed	Soil	18.0	5.7	Saturated	12/21/2019	0.12	**0.040**	0.040	---	---	---	---	---	---	---	---	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0058
	FB-08-30.5	Interior	Confirmation	In Place	Soil	30.5	-6.9	Saturated	12/21/2019	< 0.0081	< 0.0081	< 0.0081	---	---	---	---	---	---	---	---	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0061
FB-09	FB-09-11	Interior	Confirmation	Removed	Soil	11.0	12.7	Saturated	12/21/2019	< 0.015	< 0.015	< 0.015	---	---	---	---	---	---	---	---	0.018	< 0.015	0.021	< 0.015	< 0.015	< 0.015	< 0.015	0.023
	FB-09-33	Interior	Confirmation	In Place	Soil	33.0	-9.4	Saturated	12/21/2019	< 0.0083	< 0.0083	< 0.0083	---	---	---	---	---	---	---	---	< 0.0083	< 0.0083	< 0.0083	< 0.0083	< 0.0083	< 0.0083	< 0.0083	< 0.0063
FB-18	FB-18-20.0	Interior	Confirmation	In Place	Soil	---	20.0	Vadose	11/24/2021	---	---	---	---	---	---	---	---	---	---	---	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.006
	FB-18-15.0	Interior	Confirmation	In Place	Soil	---	15.0	Saturated	11/24/2021	---	---	---	---	---	---	---	---	---	---	---	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012	< 0.0091
FB-19	FB-19-20.0	Interior	Confirmation	In Place	Soil	---	20.0	Vadose	11/24/2021	---	---	---	---	---	---	---	---	---	---	---	< 0.0078	< 0.0078	< 0.0078	< 0.0078	< 0.0078	< 0.0078	< 0.0078	< 0.0059
	FB-19-15.0	Interior	Confirmation	In Place	Soil	---	15.0	Saturated	11/24/2021	---	---	---	---	---	---	---	---	---	---	---	0.039	< 0.013	0.041	0.013	< 0.013	< 0.013	0.040	0.05
FB-20	FB-20-12-0	Adjacent	---	In Place	Soil	12.0	20.0	Vadose	2/5/2022	0.019	< 0.0075	0.0081	---	---	---	---	---	---	---	---	0.048	0.046	0.038	0.015	0.039	< 0.0075	0.025	0.061
	FB-20-15.0	Adjacent	---	In Place	Organics	15.0	17.0	Saturated	2/5/2022	0.014	< 0.0077	< 0.0077	---	---	---	---	---	---	---	---	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0058
	FB-20-17.0	Adjacent	---	In Place	Organics	17.0	15.0	Saturated	2/5/2022	0.16	**0.060**	0.036	---	---	---	---	---	---	---	---	0.022	0.017	0.019	< 0.0088	0.026	< 0.0088	0.012	0.028
FMW-130	F-MW-130-20.0-072114	Interior	Performance	Removed	Soil	20.0	2.2	Saturated	7/21/2014	**0.38**	**0.016**	0.028	0.014	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0060
FMW-132	FMW-132-5.0-082418	Interior	Performance	Removed	Soil	5.0	20.7	Vadose	8/24/2018	2.0	**2.0**	**2.6**	1.5	0.10	3.3	4.4	15	0.84	18	27	**9.4**	11	10	2.9	13	1.4	4.1	**12.5**
FMW-133	FMW-133-10.0-082418	Interior	Confirmation	Removed	Soil	10.0	15.3	Saturated	8/24/2018	< 0.055	< 0.055	< 0.055	< 0.055	< 0.055	< 0.055	< 0.055	< 0.055	< 0.055	< 0.055	< 0.055	< 0.055	< 0.055	< 0.055	< 0.055	< 0.055	< 0.055	< 0.055	< 0.042
	FMW-133-20.0-082418	Interior	Performance	Removed	Soil	20.0	5.3	Saturated	8/24/2018	**0.25**	**0.035**	0.042	0.021	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0060
FMW-134	FMW-134-15.0-082318	Interior	Performance	Removed	Soil	15.0	10.4	Saturated	8/23/2018	0.14	**0.012**	0.028	0.014	< 0.0081	< 0.0081	< 0.0081	< 0.0081	0.016	0.021	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0061
FMW-135	FMW-135-15.0-082418	Interior	Confirmation	Removed	Soil	15.0	10.6	Saturated	8/24/2018	0.029	< 0.022	< 0.022	0.039	< 0.022	< 0.022	< 0.022	0.042	< 0.022	0.068	0.073	< 0.022	< 0.022	< 0.022	< 0.022	< 0.022	< 0.022	< 0.022	< 0.017
	FMW-135-30.0-082418	Interior	Performance	Removed	Soil	30.0	-4.4	Saturated	8/24/2018	0.12	**0.012**	< 0.0082	< 0.0082	< 0.0082	< 0.0082	< 0.0082	< 0.0082	< 0.0082	< 0.0082	< 0.0082	< 0.0082	< 0.0082	< 0.0082	< 0.0082	< 0.0082	< 0.0082	< 0.0082	< 0.0062
FMW-136	FMW-136-20.0-082218	Interior	Confirmation	Removed	Soil	20.0	5.1	Saturated	8/22/2018	0.030	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0063
FMW-144	FWM-144-9.0	Interior	Performance	Removed	Soil	9.0	20.4	Vadose	12/20/2019	< 0.014	< 0.014	< 0.014	---	---	---	---	---	---	---	---	0.085	0.033	0.088	0.025	0.032	< 0.014	0.081	0.11
FMW-145	FMW-145-13.0	Interior	Performance	Removed	Soil	13.0	9.9	Saturated	12/20/2019	0.075	**0.17**	0.056	---	---	---	---	---	---	---	---	0.063	0.062	0.060	0.018	0.11	0.011	0.037	0.083
	FMW-145-18.0	Interior	Performance	Removed	Soil	18.0	4.9	Saturated	12/20/2019	0.018	**0.054**	0.044	---	---	---	---	---	---	---	---	0.055	0.051	0.051	0.016	0.066	< 0.0096	0.035	0.071
	FMW-145-23.0	Interior	Confirmation	Removed	Soil	23.0	-0.1	Saturated	12/20/2019	< 0.0079	< 0.0079	< 0.0079	---	---	---	---	---	---	---	---	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0060
	FMW-145-28.0	Interior	Confirmation	Removed	Soil	28.0	-5.1	Saturated	12/20/2019	< 0.0081	< 0.0081	< 0.0081	---	---	---	---	---	---	---	---	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0061
	FMW-145-30.5	Interior	Confirmation	In Place	Soil	30.5	-7.6	Saturated	12/20/2019	< 0.0076	< 0.0076	< 0.0076	---	---	---	---	---	---	---	---	< 0.0076	< 0.0076	< 0.0076	< 0.0076	< 0.0076	< 0.0076	< 0.0076	< 0.0057
	FMW-145-33.0	Interior	Confirmation	In Place	Soil	33.0	-10.1	Saturated	12/20/2019	< 0.0081	< 0.0081	< 0.0081	---	---	---	---	---	---	---	---	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0061
FMW-146	FMW-146-13.0	Interior	Performance	Removed	Soil	13.0	10.2	Saturated	12/21/2019	**0.25**	**0.33**	**0.18**	---	---	---	---	---	---	---	---	0.050	0.060	0.054	0.015	0.059	< 0.0091	0.031	0.067
	FMW-146-18.0	Interior	Performance	Removed	Soil	18.0	5.2	Saturated	12/21/2019	0.20	**0.13**	**0.12**	---	---	---	---	---	---	---	---	0.031	0.034	0.031	0.0084	0.035	< 0.0082	0.018	0.041
FMW-147	FMW-147-8.5	Interior	Confirmation	Removed	Soil	8.5	14.3	Saturated	12/21/2019	0.095	< 0.031	0.035	---	---	---	---	---	---	---	---	< 0.079 U1	0.054	0.042	< 0.031	0.048	< 0.031	< 0.031	0.054
	FMW-147-13.5	Interior	Confirmation	Removed	Soil	13.5	9.3	Saturated	12/21/2019	0.10	< 0.0081	< 0.0081	---	---	---	---	---	---	---	---	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0061
	FMW-147-23.5	Interior	Confirmation	Removed	Soil	23.5	-0.7	Saturated	12/21/2019	< 0.0081	< 0.0081	< 0.0081	---	---	---	---	---	---	---	---	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0061
	FMW-147-30.5	Interior	Confirmation	In Place	Soil	30.5	-7.7	Saturated	12/21/2019	< 0.0081	< 0.0081	< 0.0081	---	---	---	---	---	---	---	---	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0061
MTCA Method B Direct Contact[5]										**1,600**	**34**	**320**	**4,800**	**NE**	**24,000**	**NE**	**3,200**	**3,200**	**NE**	**2,400**	**0.19**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**0.19**
Screening Levels for Soil Protective of Groundwater - Vadose Zone[5]										**4.5**	**0.082**	**1.7**	**49**	**NE**	**1,100**	**NE**	**630**	**51**	**NE**	**330**	**3.9**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**3.9**
Screening Levels for Soil Protective of Groundwater - Saturated Zone[5]										**0.24**	**0.0042**	**0.088**	**2.5**	**NE**	**57**	**NE**	**32**	**2.6**	**NE**	**16**	**0.19**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**0.19**
Laboratory Practical Quantitation Limits[6]										**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**NA**

Table 2
Soil Analytical Results for PAHs
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Identification	General Location	Sample Type	Sample Location Disposition	Sample Composition	Sample Depth (feet)[1]	Sample Elevation (feet NAVD88)[1]	Zone	Sample Date	Analytical Results (milligrams per kilogram)[2]																		
										Non-Carcinogenic PAHs											Carcinogenic PAHs							
										Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(g,h,i)Perylene	Fluoranthene	Fluorene	Phenanthrene	Pyrene	Benzo(a)Pyrene	Benzo(a)Anthracene	Benzo(b)Fluoranthene	Benzo(j,k)Fluoranthene	Chrysene	Dibenzo(a,h)Anthracene	Indeno(1,2,3-cd)Pyrene	Total cPAHs TEC[3,4]
FMW-148	FMW-148-27.0	Interior	Performance	Removed	Soil	27.0	10.4	Saturated	12/22/2019	**0.38**	**0.056**	**0.11**	---	---	---	---	---	---	---	---	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0063
FMW-149	FMW-149-21.0	Interior	Confirmation	Removed	Soil	21.0	15.2	Saturated	12/22/2019	< 0.0088	< 0.0088	< 0.0088	---	---	---	---	---	---	---	---	< 0.0088	< 0.0088	< 0.0088	< 0.0088	< 0.0088	< 0.0088	< 0.0088	< 0.0066
	FMW-149-31.0	Interior	Performance	Removed	Soil	31.0	5.2	Saturated	12/22/2019	0.044	**0.010**	0.013	---	---	---	---	---	---	---	---	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0084	< 0.0063
	FMW-149-41.0	Interior	Confirmation	Removed	Soil	41.0	-4.8	Saturated	12/22/2019	< 0.0070	< 0.0070	< 0.0070	---	---	---	---	---	---	---	---	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0053
	FMW-149-43.5	Interior	Confirmation	In Place	Soil	43.5	-7.3	Saturated	12/22/2019	< 0.0075	< 0.0075	< 0.0075	---	---	---	---	---	---	---	---	< 0.0075	< 0.0075	< 0.0075	< 0.0075	< 0.0075	< 0.0075	< 0.0075	< 0.0057
A2/A3-B	A2/A3-B-(-6.75)	Interior	Confirmation	In Place	Soil	---	-6.75	Saturated	6/3/2020	< 0.0079	< 0.0079	< 0.0079	---	---	---	---	---	---	---	---	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0060
B2-B	B2-B-15.0	Interior	Confirmation	Removed	Soil	---	15.0	Saturated	2/26/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.011
B3-B	B3-B-15	Interior	Confirmation	Removed	Soil	---	15.0	Saturated	2/27/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.0096	< 0.0096	< 0.0096	< 0.0096	< 0.0096	< 0.0096	< 0.0096	< 0.0072
B/C-B	B/C-B-(-6.75)	Interior	Confirmation	In Place	Soil	---	-6.75	Saturated	6/3/2020	0.018	< 0.0077	< 0.0077	---	---	---	---	---	---	---	---	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0058
C2-B	C2-B-15.0	Interior	Confirmation	Removed	Soil	---	15.0	Saturated	2/26/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.021	< 0.021	< 0.021	< 0.021	< 0.021	< 0.021	< 0.021	< 0.016
C3-B-20	C3-B-20	Interior	Performance	Removed	Soil	---	20.0	Vadose	2/20/2020	0.46	**0.12**	0.16	---	---	---	---	---	---	---	---	**0.25**	0.32	0.29	0.090	0.27	0.029	0.14	**0.34**
C3-B	C3-B-15	Interior	Performance	Removed	Soil	---	15.0	Saturated	2/27/2020	**1.7**	**0.22**	**0.38**	---	---	---	---	---	---	---	---	0.059	0.11	0.075	0.021	0.087	< 0.014	0.028	0.08
C4-ESW	C4-ESW-19.0	Sidewall	Confirmation	In Place	Soil	---	19.0	Vadose	2/28/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.021	< 0.021	< 0.021	< 0.021	< 0.021	< 0.021	< 0.021	< 0.016
	C4-ESW-15	Sidewall	Confirmation	In Place	Soil	---	15.0	Saturated	2/27/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.021	< 0.021	< 0.021	< 0.021	< 0.021	< 0.021	< 0.021	< 0.016
C/D-B	C/D-B-(-6.75)	Interior	Confirmation	In Place	Soil	---	-6.75	Saturated	6/3/2020	0.021	< 0.0075	< 0.0075	---	---	---	---	---	---	---	---	< 0.0075	< 0.0075	< 0.0075	< 0.0075	< 0.0075	< 0.0075	< 0.0075	< 0.0057
D2-B	D2-B-15.0	Interior	Confirmation	Removed	Soil	---	15.0	Saturated	2/26/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.019	< 0.019	< 0.019	< 0.019	< 0.019	< 0.019	< 0.019	< 0.014
D3-B	D3-B-15	Interior	Confirmation	Removed	Soil	---	15.0	Saturated	2/27/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.015
D4-ESW	D4-ESW-19.0	Sidewall	Confirmation	In Place	Soil	---	19.0	Vadose	2/28/2020	0.30	**0.17**	0.22	---	---	---	---	---	---	---	---	< 0.022	0.032	< 0.022	< 0.022	0.028	< 0.022	< 0.022	0.019
	D4-ESW-15	Sidewall	Confirmation	In Place	Soil	---	15.0	Saturated	2/27/2020	**9.1**	**0.050**	0.065	---	---	---	---	---	---	---	---	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.019
E4-ESW	E4-ESW-15.0	Sidewall	Confirmation	In Place	Soil	---	15.0	Saturated	2/26/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.015
F1-B	F1-B-10.0	Interior	Confirmation	Removed	Soil	---	10.0	Saturated	2/29/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.0090	< 0.0090	< 0.0090	< 0.0090	< 0.0090	< 0.0090	< 0.0090	< 0.0068
F2-B	F2-B-15.0	Interior	Performance	Removed	Soil	---	15.0	Saturated	2/26/2020	---	---	---	---	---	---	---	---	---	---	---	**0.73**	0.54	0.63	0.25	0.48	0.081	0.51	**0.94**
	F2-B-10.0	Interior	Confirmation	Removed	Soil	---	10.0	Saturated	2/29/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0061
F4-ESW	F4-ESW-15.0	Sidewall	Confirmation	In Place	Soil	---	15.0	Saturated	2/26/2020	---	---	---	---	---	---	---	---	---	---	---	0.021	0.020	0.020	< 0.015	0.020	< 0.015	< 0.015	0.027
G1-B	G1-B-0.0	Interior	Confirmation	Removed	Soil	---	0.0	Saturated	5/4/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.0076	< 0.0076	< 0.0076	< 0.0076	< 0.0076	< 0.0076	< 0.0076	< 0.0057
G2-B	G2-B-15.0	Interior	Confirmation	Removed	Soil	---	15.0	Saturated	2/26/2020	---	---	---	---	---	---	---	---	---	---	---	0.060	0.092	0.061	0.023	0.074	< 0.016	0.030	0.082
G3-B	G3-B-15.0	Interior	Confirmation	Removed	Soil	---	15.0	Saturated	2/26/2020	< 0.038	< 0.038	< 0.038	---	---	---	---	---	---	---	---	< 0.038	< 0.038	< 0.038	< 0.038	< 0.038	< 0.038	< 0.038	< 0.029
	G3-B-10.0	Interior	Performance	Removed	Soil	---	10.0	Saturated	2/28/2020	0.058	**0.051**	**0.13**	---	---	---	---	---	---	---	---	< 0.0073	< 0.0073	< 0.0073	< 0.0073	< 0.0073	< 0.0073	< 0.0073	< 0.0055
G4-ESW	G4-ESW-15.0	Sidewall	Confirmation	In Place	Soil	---	15.0	Saturated	2/26/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.011
H1-B	H1-B-20.0	Interior	Performance	Removed	Soil	---	20.0	Vadose	2/4/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.013	< 0.013	< 0.013	< 0.013	< 0.013	< 0.013	< 0.013	< 0.010
	H1-B-15.0	Interior	Performance	Removed	Soil	---	15.0	Saturated	2/27/2020	---	---	---	---	---	---	---	---	---	---	---	**2.3**	3.0	2.3	0.78	2.5	0.22	1.2	**3.1**
	H1-B-5.0	Interior	Confirmation	Removed	Soil	---	5.0	Saturated	5/4/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.0079	0.019	< 0.0079	< 0.0079	0.022	< 0.0079	< 0.0079	0.008
H1-ESW	H1-ESW-20.0	Interior	Confirmation	Removed	Soil	---	20.0	Vadose	2/22/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.019	< 0.019	< 0.019	< 0.019	< 0.019	< 0.019	< 0.019	< 0.014
	H1-ESW-15.0	Interior	Confirmation	Removed	Soil	---	15.0	Saturated	2/27/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.008
H1-SSW	H1-SSW-20.0	Interior	Performance	Removed	Soil	---	20.0	Vadose	2/22/2020	---	---	---	---	---	---	---	---	---	---	---	0.13	0.080	0.13	0.052	0.074	0.015	0.11	0.17
	H1-SSW-15.0	Interior	Confirmation	Removed	Soil	---	15.0	Saturated	2/27/2020	---	---	---	---	---	---	---	---	---	---	---	0.011	0.054	0.020	< 0.0091	0.042	< 0.0091	< 0.0091	0.020
H1-WSW	H1-WSW-20.0	Sidewall	Confirmation	In Place	Soil	---	20.0	Vadose	2/4/2020	---	---	---	---	---	---	---	---	---	---	---	0.020	0.017	0.018	< 0.0086	0.016	< 0.0086	0.011	0.026
H3-B	H3-B-20	Interior	Performance	Removed	Soil	---	20.0	Vadose	2/20/2020	< 0.0079	< 0.0079	< 0.0079	---	---	---	---	---	---	---	---	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0060
	H3-B-15.0	Interior	Performance	Removed	Soil	---	15.0	Saturated	2/24/2020	**0.29**	**0.22**	**0.34**	---	---	---	---	---	---	---	---	0.11	0.15	0.11	0.036	0.13	< 0.018	0.056	0.15
	H3-B-10.0	Interior	Confirmation	Removed	Soil	---	10.0	Saturated	2/28/2020	< 0.0077	< 0.0077	< 0.0077	---	---	---	---	---	---	---	---	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0058
H4-B	H4-B-20.0	Interior	Performance	Removed	Soil	---	20.0	Vadose	2/19/2020	0.26	0.041	0.070	---	---	---	---	---	---	---	---	**1.1**	1.3	1.1	0.46	1.1	0.11	0.60	**1.5**
	H4-B-15.0	Interior	Confirmation	Removed	Soil	---	15.0	Saturated	2/19/2020	< 0.024	< 0.024	< 0.024	---	---	---	---	---	---	---	---	< 0.024	< 0.024	< 0.024	< 0.024	< 0.024	< 0.024	< 0.024	< 0.018
H4-ESW	H4-ESW-20.0	Sidewall	Confirmation	In Place	Soil	---	20.0	Vadose	2/4/2020	---	---	---	---	---	---	---	---	---	---	---	**1.9**	2.0	2.2	0.54	2.2	0.22	1.2	**2.5**
	H4-ESW-15.0	Sidewall	Confirmation	In Place	Soil	---	15.0	Saturated	2/26/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.011
H4-ESW2	H4-ESW2-20.0	Sidewall	Confirmation	In Place	Soil	---	20.0	Vadose	2/4/2020	---	---	---	---	---	---	---	---	---	---	---	**1.9**	1.9	1.9	0.58	2.0	0.16	1.1	**2.5**
H4-SSW	H4-SSW-15.0	Interior	Confirmation	Removed	Soil	---	15.0	Saturated	2/27/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.017	< 0.017	< 0.017	< 0.017	< 0.017	< 0.017	< 0.017	< 0.013
I2-B	I2-B-10.0	Interior	Confirmation	Removed	Soil	---	10.0	Saturated	2/28/2020	< 0.0074	< 0.0074	< 0.0074	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
I3-B	I3-B-20.0	Interior	Performance	Removed	Soil	---	20.0	Vadose	2/23/2020	**7.8**	**1.9**	**3.8**	---	---	---	---	---	---	---	---	**8.3**	8.9	8.1	2.4	8.3	0.84	4.4	**10.8**
	I3-B-15.0	Interior	Confirmation	Removed	Soil	---	15.0	Saturated	2/23/2020	0.024	< 0.020	< 0.020	---	---	---	---	---	---	---	---	0.021	0.022	0.023	< 0.020	0.027	< 0.020	< 0.020	0.029
	I3-B-10.0	Interior	Confirmation	Removed	Soil	---	10.0	Saturated	2/22/2020	< 0.0083	< 0.0083	< 0.0083	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MTCA Method B Direct Contact[5]										**1,600**	**34**	**320**	**4,800**	**NE**	**24,000**	**NE**	**3,200**	**3,200**	**NE**	**2,400**	**0.19**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**0.19**
Screening Levels for Soil Protective of Groundwater - Vadose Zone[5]										**4.5**	**0.082**	**1.7**	**49**	**NE**	**1,100**	**NE**	**630**	**51**	**NE**	**330**	**3.9**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**3.9**
Screening Levels for Soil Protective of Groundwater - Saturated Zone[5]										**0.24**	**0.0042**	**0.088**	**2.5**	**NE**	**57**	**NE**	**32**	**2.6**	**NE**	**16**	**0.19**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**0.19**
Laboratory Practical Quantitation Limits[6]										**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**NA**

Table 2
Soil Analytical Results for PAHs
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Identification	General Location	Sample Type	Sample Location Disposition	Sample Composition	Sample Depth (feet)[1]	Sample Elevation (feet NAVD88)[1]	Zone	Sample Date	Analytical Results (milligrams per kilogram)[2]																		
										Non-Carcinogenic PAHs											Carcinogenic PAHs							
										Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(g,h,i)Perylene	Fluoranthene	Fluorene	Phenanthrene	Pyrene	Benzo(a)Pyrene	Benzo(a)Anthracene	Benzo(b)Fluoranthene	Benzo(j,k)Fluoranthene	Chrysene	Dibenzo(a,h)Anthracene	Indeno(1,2,3-cd)Pyrene	Total cPAHs TEC[3,4]
I4-ESW	I4-ESW-20.0	Sidewall	Confirmation	In Place	Soil	---	20.0	Vadose	2/4/2020	---	---	---	---	---	---	---	---	---	---	---	**27**	27	28	8.3	28	2.6	16	**35.5**
	I4-ESW-15.0	Sidewall	Confirmation	In Place	Soil	---	15.0	Saturated	2/22/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.015
I/J-B	I/J-B-(-6.75)	Interior	Confirmation	In Place	Soil	---	-6.75	Saturated	6/3/2020	< 0.0070	< 0.0070	< 0.0070	---	---	---	---	---	---	---	---	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0053
J2-B	J2-B-20.0	Interior	Confirmation	Removed	Soil	---	20.0	Vadose	2/14/2020	< 0.0077	< 0.0077	0.0087	---	---	---	---	---	---	---	---	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0058
	J2-B-15.0	Interior	Confirmation	Removed	Soil	---	15.0	Saturated	2/26/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.018	< 0.018	< 0.018	< 0.018	< 0.018	< 0.018	< 0.018	< 0.014
	J2-B-10.0	Interior	Performance	Removed	Soil	---	10.0	Saturated	2/28/2020	0.15	**0.076**	**0.15**	---	---	---	---	---	---	---	---	0.0085	0.034	0.015	< 0.0081	0.023	< 0.0081	< 0.0081	0.015
J4-ESW	J4-ESW-20.0	Sidewall	Confirmation	In Place	Soil	---	20.0	Vadose	2/4/2020	---	---	---	---	---	---	---	---	---	---	---	**13**	14	14	4.4	15	1.3	7.1	**17.2**
	J4-ESW-15.0	Sidewall	Confirmation	In Place	Soil	---	15.0	Saturated	2/22/2020	---	---	---	---	---	---	---	---	---	---	---	0.039	0.033	0.035	< 0.021	0.036	< 0.021	0.023	0.051
J/K-B	J/K-B-(-6.75)	Interior	Confirmation	In Place	Soil	---	-6.75	Saturated	6/2/2020	< 0.0074	< 0.0074	< 0.0074	---	---	---	---	---	---	---	---	< 0.0074	< 0.0074	< 0.0074	< 0.0074	< 0.0074	< 0.0074	< 0.0074	< 0.0056
K2-B	K2-B-20.0	Interior	Performance	Removed	Soil	---	20.0	Vadose	2/6/2020	4.0	**4.6**	**5.6**	---	---	---	---	---	---	---	---	**12**	11	12	3.4	10	0.96	6.7	**15.5**
	K2-B-15.0	Interior	Confirmation	Removed	Soil	---	15.0	Saturated	2/24/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.015
	K2-B-0.0	Interior	Confirmation	Removed	Soil	---	0.0	Saturated	5/4/2020	< 0.0082	< 0.0082	< 0.0082	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
K3-B	K3-B-20.0	Interior	Performance	Removed	Soil		20.0	Vadose	2/13/2020	**22**	**14**	**15**	---	---	---	---	---	---	---	---	**78**	86	74	23	72	7.8	43	**102**
	K3-B-15.0	Interior	Confirmation	Removed	Soil	---	15.0	Saturated	2/24/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.014	< 0.011
	K3-B-10.0	Interior	Confirmation	Removed	Soil	---	10.0	Saturated	2/28/2020	< 0.0086	< 0.0086	< 0.0086	---	---	---	---	---	---	---	---	< 0.0086	< 0.0086	< 0.0086	< 0.0086	< 0.0086	< 0.0086	< 0.0086	< 0.0065
K4-B	K4-B-15.0	Interior	Performance	Removed	Soil	---	15.0	Saturated	2/26/2020	**1.2**	**0.33**	**0.59**	---	---	---	---	---	---	---	---	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0067
	K4-B-10.0	Interior	Performance	Removed	Soil	---	10.0	Saturated	2/26/2020	**0.72**	**0.30**	**0.55**	---	---	---	---	---	---	---	---	0.035	0.055	0.037	< 0.018	0.052	< 0.018	0.018	0.048
K4-ESW	K4-ESW-20.0	Sidewall	Confirmation	In Place	Soil	---	20.0	Vadose	2/4/2020	0.46	**0.45**	0.49	---	---	---	---	---	---	---	---	**2.4**	1.9	2.3	0.68	1.9	0.23	1.4	**3.1**
	K4-ESW-15.0	Sidewall	Confirmation	In Place	Soil	---	15.0	Saturated	2/22/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.033	< 0.033	< 0.033	< 0.033	< 0.033	< 0.033	< 0.033	< 0.025
L1-WSW	L1-WSW-20.0	Sidewall	Confirmation	In Place	Soil	---	20.0	Vadose	2/3/2020	0.087	0.071	0.079	---	---	---	---	---	---	---	---	0.076	0.073	0.10	0.030	0.077	0.011	0.054	0.10
L2-B	L2-B-20.0	Interior	Performance	Removed	Soil	---	20.0	Vadose	2/6/2020	0.41	< 0.21	< 0.21	---	---	---	---	---	---	---	---	**3.0**	2.9	3.3	1.1	2.4	0.42	1.8	**4.0**
	L2-B-10.0	Interior	Confirmation	Removed	Soil	---	10.0	Saturated	2/28/2020	< 0.0089	< 0.0089	< 0.0089	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	L2-B-0.0	Interior	Confirmation	Removed	Soil	---	0.0	Saturated	5/4/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.0071	< 0.0071	< 0.0071	< 0.0071	< 0.0071	< 0.0071	< 0.0071	< 0.0054
L3-B	L3-B-10.0	Interior	Confirmation	Removed	Soil	---	10.0	Saturated	2/26/2020	< 0.018	< 0.018	< 0.018	---	---	---	---	---	---	---	---	< 0.018	< 0.018	< 0.018	< 0.018	< 0.018	< 0.018	< 0.018	< 0.014
L4-ESW	L4-ESW-15.0	Sidewall	Confirmation	In Place	Soil	---	15.0	Saturated	2/22/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.034	< 0.034	< 0.034	< 0.034	< 0.034	< 0.034	< 0.034	< 0.026
L4-SSW	L4-SSW-10.0	Interior	Confirmation	Removed	Soil	---	10.0	Saturated	2/28/2020	0.028	< 0.0081	0.010	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
M1-B	M1-B-0.0	Interior	Confirmation	Removed	Soil	---	0.0	Saturated	5/4/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.0086	< 0.0086	< 0.0086	< 0.0086	< 0.0086	< 0.0086	< 0.0086	< 0.0065
M1-ESW	M1-ESW-10.0	Interior	Confirmation	Removed	Soil	---	10.0	Saturated	2/26/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.008
M1-WSW	M1-WSW-20.0	Sidewall	Confirmation	In Place	Soil	---	20.0	Vadose	2/3/2020	0.25	**1.2**	1.4	---	---	---	---	---	---	---	---	**0.40**	0.30	0.38	0.11	0.34	0.041	0.27	**0.51**
M1-WSW2	M1-WSW2-20.0	Sidewall	Confirmation	In Place	Soil	---	20.0	Vadose	2/3/2020	0.015	0.022	0.018	---	---	---	---	---	---	---	---	0.028	0.022	0.039	0.012	0.031	< 0.0081	0.023	0.038
M2-B	M2-B-20.0	Interior	Performance	Removed	Soil	---	20.0	Vadose	2/6/2020	---	---	---	---	---	---	---	---	---	---	---	0.14	0.14	0.11	< 0.077	0.13	< 0.077	< 0.077	0.18
	M2-B-0.0	Interior	Confirmation	Removed	Soil	---	0.0	Saturated	4/30/2020	---	---	---	---	---	---	---	---	---	---	---	0.015	0.074	0.029	0.0085	0.046	< 0.0078	< 0.0078	0.027
M3-B	M3-B-(-6.75)	Interior	Confirmation	In Place	Soil	---	-6.75	Saturated	5/28/2020	< 0.0077	< 0.0077	< 0.0077	---	---	---	---	---	---	---	---	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0058
M4-ESW	M4-ESW-20.0	Sidewall	Confirmation	In Place	Soil	---	20.0	Vadose	2/6/2020	---	---	---	---	---	---	---	---	---	---	---	0.012	0.010	0.016	< 0.0081	0.015	< 0.0081	0.0089	0.016
N1-NSW	N1-NSW-22.0	Sidewall	Confirmation	In Place	Soil	---	22.0	Vadose	1/31/2020	0.013	< 0.0081	< 0.0081	---	---	---	---	---	---	---	---	0.070	0.062	0.075	0.022	0.066	< 0.0081	0.043	0.091
N1-WSW	N1-WSW-20.0	Interior	Performance	Removed	Soil	---	20.0	Vadose	2/3/2020	0.094	**0.20**	0.38	---	---	---	---	---	---	---	---	< 0.079	< 0.079	< 0.079	< 0.079	< 0.079	< 0.079	< 0.079	< 0.060
N2-B	N2-B-20.0	Interior	Performance	Removed	Soil	---	20.0	Vadose	2/6/2020	---	---	---	---	---	---	---	---	---	---	---	0.15 H	0.13 H	0.13 H	0.052 H	0.13 H	0.013 H	0.084 H	0.19
	N2-B-15.0	Interior	Confirmation	Removed	Soil	---	15.0	Saturated	2/23/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.019	< 0.019	< 0.019	< 0.019	< 0.019	< 0.019	< 0.019	< 0.014
	N2-B-10.0	Interior	Confirmation	Removed	Soil	---	10.0	Saturated	2/23/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.0083	< 0.0083	< 0.0083	< 0.0083	< 0.0083	< 0.0083	< 0.0083	< 0.0063
N2-NSW	N2-NSW-22.0	Sidewall	Confirmation	In Place	Soil	---	22.0	Vadose	1/31/2020	0.014	< 0.0078	0.0091	---	---	---	---	---	---	---	---	0.053	0.025	0.040	0.012	0.025	0.0090	0.074	0.069
N3-NSW	N3-NSW-22.0	Sidewall	Confirmation	In Place	Soil	---	22.0	Vadose	1/31/2020	< 0.0079	< 0.0079	< 0.0079	---	---	---	---	---	---	---	---	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0079	< 0.0060
N3-NSW2	N3-NSW2-22.0	Sidewall	Confirmation	In Place	Soil	---	22.0	Vadose	1/31/2020	0.0088	0.0094	0.017	---	---	---	---	---	---	---	---	0.019	0.011	0.018	< 0.0080	0.012	< 0.0080	0.015	0.024
N4-NSW	N4-NSW-20.0	Sidewall	Confirmation	In Place	Soil	---	20.0	Vadose	2/6/2020	---	---	---	---	---	---	---	---	---	---	---	0.034	0.024	0.039	0.011	0.027	< 0.0080	0.038	0.046
N4-ESW	N4-ESW-20.0	Sidewall	Confirmation	In Place	Soil	---	20.0	Vadose	2/6/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0058
TP-2	TP-2-10.0	Interior	Confirmation	Removed	Soil	---	10.0	Saturated	2/13/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0067
TP-3	TP-3-20.0-121919	Interior	Confirmation	Removed	Soil	5.0	20.0	Vadose	12/19/2019	< 0.0078	< 0.0078	< 0.0078	< 0.0078	< 0.0078	< 0.0078	0.0087	0.026	< 0.0078	0.016	0.028	0.015	0.012	0.014	< 0.0078	0.012	< 0.0078	0.0089	0.019
	TP-3-15.0-121919	Interior	Confirmation	Removed	Soil	10.0	15.0	Saturated	12/19/2019	< 0.041	< 0.041	< 0.041	< 0.041	< 0.041	< 0.041	< 0.041	< 0.041	< 0.041	< 0.041	< 0.041	< 0.041	< 0.041	< 0.041	< 0.041	< 0.041	< 0.041	< 0.041	< 0.031
TP-7	TP-7-4.0	Interior	Confirmation	Removed	Soil	4.0	19.5	Vadose	12/23/2019	0.061	< 0.020	< 0.020	---	---	---	---	---	---	---	---	0.031	0.033	0.044	< 0.020	0.067	< 0.020	0.025	0.044
TP-10	TP-10-15.0	Interior	Confirmation	Removed	Soil	---	15.0	Saturated	2/4/2020	< 0.035	< 0.035	< 0.035	---	---	---	---	---	---	---	---	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.026
	TP-10-10.0	Interior	Confirmation	Removed	Soil	---	10.0	Saturated	2/4/2020	0.027	< 0.0081	< 0.0081	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MTCA Method B Direct Contact[5]										**1,600**	**34**	**320**	**4,800**	**NE**	**24,000**	**NE**	**3,200**	**3,200**	**NE**	**2,400**	**0.19**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**0.19**
Screening Levels for Soil Protective of Groundwater - Vadose Zone[5]										**4.5**	**0.082**	**1.7**	**49**	**NE**	**1,100**	**NE**	**630**	**51**	**NE**	**330**	**3.9**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**3.9**
Screening Levels for Soil Protective of Groundwater - Saturated Zone[5]										**0.24**	**0.0042**	**0.088**	**2.5**	**NE**	**57**	**NE**	**32**	**2.6**	**NE**	**16**	**0.19**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**0.19**
Laboratory Practical Quantitation Limits[6]										**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**NA**

Table 2
Soil Analytical Results for PAHs
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

										Analytical Results (milligrams per kilogram)[2]																		
										Non-Carcinogenic PAHs											Carcinogenic PAHs							
Sample Location	Sample Identification	General Location	Sample Type	Sample Location Disposition	Sample Composition	Sample Depth (feet)[1]	Sample Elevation (feet NAVD88)[1]	Zone	Sample Date	Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(g,h,i)Perylene	Fluoranthene	Fluorene	Phenanthrene	Pyrene	Benzo(a)Pyrene	Benzo(a)Anthracene	Benzo(b)Fluoranthene	Benzo(j,k)Fluoranthene	Chrysene	Dibenzo(a,h)Anthracene	Indeno(1,2,3-cd)Pyrene	Total cPAHs TEC[3,4]
TP-11	TP-11-15.0	Interior	Performance	Removed	Soil	---	15.0	Saturated	2/4/2020	**0.35**	**0.32**	**0.32**	---	---	---	---	---	---	---	---	**1.5**	1.5	1.3	0.51	1.4	0.15	0.79	**1.9**
	TP-11-10.0	Interior	Confirmation	Removed	Soil	---	10.0	Saturated	2/4/2020	<0.0095	<0.0095	<0.0095	---	---	---	---	---	---	---	---	< 0.0095	< 0.0095	< 0.0095	< 0.0095	< 0.0095	< 0.0095	< 0.0095	< 0.0072
TP-12	TP-12-20.0	Interior	Performance	Removed	Soil	---	20.0	Vadose	2/7/2020	---	---	---	---	---	---	---	---	---	---	---	**16**	19	14	5.7	17	1.6	8.4	**21**
	TP-12-15.0	Interior	Performance	Removed	Soil	---	15.0	Saturated	2/7/2020	---	---	---	---	---	---	---	---	---	---	---	0.083	0.084	0.075	0.023	0.078	< 0.014	0.043	0.107
TP-13	TP-13-20.0	Interior	Confirmation	Removed	Soil	---	20.0	Vadose	2/7/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.0076	< 0.0076	< 0.0076	< 0.0076	< 0.0076	< 0.0076	< 0.0076	< 0.0057
	TP-13-15.0	Interior	Confirmation	Removed	Soil	---	15.0	Saturated	2/7/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.0093	< 0.0093	< 0.0093	< 0.0093	< 0.0093	< 0.0093	< 0.0093	< 0.0070
TP-16	TP-16-20.0	Interior	Confirmation	Removed	Soil	---	20.0	Vadose	2/14/2020	---	---	---	---	---	---	---	---	---	---	---	0.023	0.029	0.029	< 0.017	0.029	< 0.017	< 0.017	0.032
Underground Storage Tank Investigation and Decommissioning																												
M1-Tank	M1-TANK-24.5	Interior	Performance	Removed	Soil	---	24.5	Vadose	1/21/2020	1.8	**5.1**	**8.0**	---	---	---	---	---	---	---	---	**0.29**	0.39	0.30	< 0.082	0.54	0.11	0.17	**0.40**
UST01-B	UST01-B-17	Interior	Performance	Removed	Soil	---	17.0	Saturated	1/27/2020	0.029	**0.041**	0.055	---	---	---	---	---	---	---	---	0.011	0.011	0.010	< 0.0073	0.014	< 0.0073	< 0.0073	0.014
UST01-N1	UST01-N1-19	Interior	Confirmation	Removed	Soil	---	19.0	Vadose	1/27/2020	< 0.0080	< 0.0080	< 0.0080	---	---	---	---	---	---	---	---	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0060
UST01-E1	UST01-E1-19	Interior	Confirmation	Removed	Soil	---	19.0	Vadose	1/27/2020	< 0.0078	< 0.0078	< 0.0078	---	---	---	---	---	---	---	---	0.016	0.014	0.016	< 0.0078	0.015	< 0.0078	0.010	0.021
UST01-S1	UST01-S1-19	Interior	Confirmation	Removed	Soil	---	19.0	Vadose	1/27/2020	< 0.0074	< 0.0074	< 0.0074	---	---	---	---	---	---	---	---	0.010	0.0090	0.0096	< 0.0074	0.0097	< 0.0074	< 0.0074	0.013
UST01-W1	UST01-W1-19	Interior	Confirmation	Removed	Soil	---	19.0	Vadose	1/27/2020	< 0.0081	< 0.0081	< 0.0081	---	---	---	---	---	---	---	---	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0081	< 0.0061
UST-01-line	UST-01-LINE-21.0	Sidewall	Performance	Removed	Soil	---	21.0	Vadose	1/31/2020	0.90	**8.5**	**7.2**	---	---	---	---	---	---	---	---	**0.33**	0.53	0.32	< 0.080	1.2	< 0.080	0.16	**0.45**
UST02-N	UST-02-N	Interior	Confirmation	Removed	Soil	---	18.0	Saturated	2/5/2020	0.031	**0.062**	0.043	---	---	---	---	---	---	---	---	0.019	0.029	0.015	< 0.0084	0.081	< 0.0084	< 0.0084	0.025
UST02-E	UST-02-E	Interior	Confirmation	Removed	Soil	---	18.0	Saturated	2/5/2020	0.12	**0.13**	**0.21**	---	---	---	---	---	---	---	---	0.039	0.034	0.034	< 0.012	0.034	< 0.012	0.023	0.050
UST02-B1	UST02-B1	Interior	Performance	Removed	Soil	---	15.0	Saturated	2/7/2020	0.18	**0.31**	**0.094**	---	---	---	---	---	---	---	---	**0.55**	0.54	0.45	0.17	0.48	< 0.065	0.29	**0.70**
UST02-B2	UST02-B2	Interior	Confirmation	Removed	Soil	---	14.0	Saturated	2/7/2020	< 0.040	< 0.040	< 0.040	---	---	---	---	---	---	---	---	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.030
UST02-N1	UST02-N1	Interior	Performance	Removed	Soil	---	17.5	Saturated	2/7/2020	**0.35**	**0.29**	**0.39**	---	---	---	---	---	---	---	---	0.083	0.071	0.075	0.024	0.077	< 0.011	0.058	0.107
UST02-E1	UST02-E1	Interior	Performance	Removed	Soil	---	17.5	Saturated	2/7/2020	0.096	**0.037**	0.050	---	---	---	---	---	---	---	---	0.11	0.11	0.10	0.034	0.11	0.011	0.069	0.14
UST02-S	UST02-S	Interior	Confirmation	Removed	Soil	---	17.5	Saturated	2/7/2020	0.047	< 0.013	0.015	---	---	---	---	---	---	---	---	0.039	0.022	0.040	0.016	0.022	< 0.013	0.039	0.052
UST02-W1	UST02-W1	Interior	Performance	Removed	Soil	---	17.5	Saturated	2/7/2020	0.12	**0.031**	0.043	---	---	---	---	---	---	---	---	0.19	0.17	0.16	0.062	0.14	0.019	0.11	**0.24**
Alley																												
FB-10	FB-10-22.5	Alley	Performance	Removed	Soil	---	22.5	Vadose	9/12/2020	---	---	---	---	---	---	---	---	---	---	---	**0.61**	0.58	0.71	0.17	0.68	0.065	0.37	**0.81**
	FB-10-20.0	Alley	Confirmation	Removed	Soil	---	20.0	Vadose	9/12/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.0097	< 0.0097	< 0.0097	< 0.0097	< 0.0097	< 0.0097	< 0.0097	< 0.0073
	FB-10-17.5	Alley	Confirmation	In Place	Soil	---	17.5	Vadose	9/12/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.012
FB-11	FB-11-20.0	Alley	Performance	Removed	Soil	---	20.0	Vadose	9/12/2020	---	---	---	---	---	---	---	---	---	---	---	**0.54**	0.50	0.62	0.17	0.52	0.058	0.37	**0.72**
	FB-11-17.5	Alley	Confirmation	In Place	Soil	---	17.5	Vadose	9/12/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.016	< 0.012
FB-12	FB-12-21.5	Alley	---	In Place	Soil	---	21.5	Vadose	9/13/2020	< 0.15	< 0.15	< 0.15	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	FB-12-20.0	Alley	Performance	Removed	Soil	---	20.0	Vadose	9/13/2020	---	---	---	---	---	---	---	---	---	---	---	0.081	0.084	0.089	< 0.025	0.085	< 0.025	0.058	0.107
	FB-12-17.5	Alley	Performance	In Place	Soil	---	17.5	Saturated	9/13/2020	---	---	---	---	---	---	---	---	---	---	---	**0.25**	0.21	0.22	0.083	0.19	< 0.025	0.16	**0.32**
	FB-12-15.0	Alley	Confirmation	In Place	Soil	---	15.0	Saturated	9/13/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.022	< 0.022	< 0.022	< 0.022	< 0.022	< 0.022	< 0.022	< 0.017
FB-13	FB-13-22.5	Alley	Performance	Removed	Soil	---	22.5	Vadose	9/12/2020	4.1	**3.4**	**4.1**	---	---	---	---	---	---	---	---	**25**	24	24	7.7	24	2.1	12	**32**
	FB-13-20.0	Alley	Performance	Removed	Soil	---	20.0	Vadose	9/12/2020	0.40	**0.084**	0.11	---	---	---	---	---	---	---	---	**0.55**	0.55	0.53	0.16	0.50	0.046	0.30	**0.71**
	FB-13-17.5	Alley	Performance	In Place	Soil	---	17.5	Saturated	9/12/2020	---	---	---	---	---	---	---	---	---	---	---	**1.8**	1.9	1.8	0.46	1.6	0.15	1.0	**2.3**
	FB-13-15.0	Alley	Confirmation	In Place	Soil	---	15.0	Saturated	9/12/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.035	< 0.026
FB-14	FB-14-22.5	Alley	Performance	Removed	Soil	---	22.5	Vadose	9/12/2020	0.18	**0.15**	0.21	---	---	---	---	---	---	---	---	**2.4**	2.8	2.4	0.78	2.6	0.24	1.4	**3.2**
	FB-14-20.0	Alley	Performance	Removed	Soil	---	20.0	Vadose	9/12/2020	0.14	**0.13**	0.14	---	---	---	---	---	---	---	---	**1.8**	1.7	1.6	0.47	1.6	0.16	0.97	**2.3**
	FB-14-17.5	Alley	Confirmation	Removed	Soil	---	17.5	Saturated	9/13/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.017	< 0.017	< 0.017	< 0.017	< 0.017	< 0.017	< 0.017	< 0.013
FB-15	FB-15-22.5	Alley	Performance	In Place	Soil	---	22.5	Vadose	9/13/2020	0.40	**0.26**	0.32	---	---	---	---	---	---	---	---	**2.3**	2.4	2.2	0.78	2.0	0.24	1.3	**3.0**
	FB-15-20.0	Alley	Performance	In Place	Soil	---	20.0	Vadose	9/13/2020	0.25	**0.29**	0.34	---	---	---	---	---	---	---	---	**0.20**	0.21	0.20	0.064	0.20	0.020	0.11	**0.26**
	FB-15-17.5	Alley	Performance	In Place	Soil	---	17.5	Saturated	9/13/2020	0.10	**0.033**	0.040	---	---	---	---	---	---	---	---	**0.31**	0.26	0.27	0.098	0.25	0.025	0.18	**0.40**
	FB-15-15.0	Alley	Confirmation	In Place	Soil	---	15.0	Saturated	9/13/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.022	< 0.022	< 0.022	< 0.022	< 0.022	< 0.022	< 0.022	< 0.017
FB-16	FB-16-22.5	Alley	Performance	Removed	Soil	---	22.5	Vadose	9/13/2020	---	---	---	---	---	---	---	---	---	---	---	**0.49**	0.45	0.47	0.13	0.45	0.051	0.29	**0.63**
	FB-16-20.0	Alley	Confirmation	Removed	Soil	---	20.0	Vadose	9/13/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.0074	< 0.0074	< 0.0074	< 0.0074	< 0.0074	< 0.0074	< 0.0074	< 0.0056
	FB-16-17.5	Alley	Confirmation	In Place	Soil	---	17.5	Saturated	9/13/2020	---	---	---	---	---	---	---	---	---	---	---	< 0.029	0.032	0.029	< 0.029	0.055	< 0.029	< 0.029	0.026
FB-21	FB-21-3.0	Alley	Performance	In Place	Soil/Charcoal	3.0	28.0	Vadose	2/5/2022	0.82	**0.82**	0.92	---	---	---	---	---	---	---	---	0.17	0.23	0.26	0.057	0.23	< 0.041	0.095	**0.24**
	FB-21-5.0	Alley	Confirmation	In Place	Soil	5.0	26.0	Vadose	2/5/2022	<0.0077	<0.0077	<0.0077	---	---	---	---	---	---	---	---	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0077	< 0.0058
PH-4	PH-4-4.5-012619	Alley	Performance	Removed	Soil	4.5	22.0	Vadose	1/26/2019	---	---	---	---	---	---	---	---	---	---	---	0.11	0.079	0.10	0.035	0.086	0.013	0.078	0.14
PH-11A	PH-11A-4.0-011919	Alley	Performance	Removed	Soil	4.0	20.0	Vadose	1/19/2019	---	---	---	---	---	---	---	---	---	---	---	**0.30**	0.25	0.31	0.081	0.26	0.031	0.20	**0.39**
MTCA Method B Direct Contact[5]										**1,600**	**34**	**320**	**4,800**	**NE**	**24,000**	**NE**	**3,200**	**3,200**	**NE**	**2,400**	**0.19**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**0.19**
Screening Levels for Soil Protective of Groundwater - Vadose Zone[5]										**4.5**	**0.082**	**1.7**	**49**	**NE**	**1,100**	**NE**	**630**	**51**	**NE**	**330**	**3.9**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**3.9**
Screening Levels for Soil Protective of Groundwater - Saturated Zone[5]										**0.24**	**0.0042**	**0.088**	**2.5**	**NE**	**57**	**NE**	**32**	**2.6**	**NE**	**16**	**0.19**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**0.19**
Laboratory Practical Quantitation Limits[6]										**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**NA**

Table 2
Soil Analytical Results for PAHs
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Identification	General Location	Sample Type	Sample Location Disposition	Sample Composition	Sample Depth (feet)[1]	Sample Elevation (feet NAVD88)[1]	Zone	Sample Date	Analytical Results (milligrams per kilogram)[2]																		
										Non-Carcinogenic PAHs											Carcinogenic PAHs							
										Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(g,h,i)Perylene	Fluoranthene	Fluorene	Phenanthrene	Pyrene	Benzo(a)Pyrene	Benzo(a)Anthracene	Benzo(b)Fluoranthene	Benzo(j,k)Fluoranthene	Chrysene	Dibenzo(a,h)Anthracene	Indeno(1,2,3-cd)Pyrene	Total cPAHs TEC[3,4]
PH-12	PH-12-4.0-011919	Alley	Performance	Removed	Soil	4.0	21.0	Vadose	1/19/2019	---	---	---	---	---	---	---	---	---	---	---	**120**	110	100	31	110	9.9	63	**152**
PH-13	PH-13-3.0-011219	Alley	Performance	Removed	Soil	3.0	20.0	Vadose	1/12/2019	---	---	---	---	---	---	---	---	---	---	---	< 0.0078	< 0.0078	< 0.0078	< 0.0078	< 0.0078	< 0.0078	< 0.0078	< 0.0059
TP-10-4	TP-10-4	Alley	Performance	Removed	Soil	4.0	20.5	Vadose	5/5/2008	< 0.03	---	---	< 0.03	< 0.03	< 0.03	0.1	0.21	0.04	< 0.03	0.33	0.16	0.17	0.25	0.36	0.29	< 0.03	< 0.03	**0.24**
A/A5-B	A/A5-B-17.5-031021	Alley	Performance	In Place	Soil	---	17.5	Vadose	3/10/2021	---	---	---	---	---	---	---	---	---	---	---	0.14	0.11	0.26	0.050	0.11	0.010	0.059	0.19
	A/A5-B-16.0-032421	Alley	Confirmation	In Place	Soil	---	16.0	Saturated	3/24/2021	---	---	---	---	---	---	---	---	---	---	---	< 0.0092	< 0.0092	< 0.0092	< 0.0092	< 0.0092	< 0.0092	< 0.0092	< 0.0069
A/A5-B2	A/A5-B2-22.5-031021	Alley	Performance	Removed	Inside of Wood	---	22.5	Vadose	3/10/2021	---	---	---	---	---	---	---	---	---	---	---	0.16	0.13	0.20	0.049	0.17	0.018	0.10	**0.21**
	A/A5-B2-20.0-031021	Alley	Performance	Removed	Peat	---	20.0	Vadose	3/10/2021	---	---	---	---	---	---	---	---	---	---	---	0.096	0.097	0.10	0.043	0.11	< 0.028	0.056	0.13
	A/A5-B2-17.5-031021	Alley	Confirmation	In Place	Soil	---	17.5	Vadose	3/10/2021	---	---	---	---	---	---	---	---	---	---	---	< 0.0087	< 0.0087	< 0.0087	< 0.0087	< 0.0087	< 0.0087	< 0.0087	< 0.0066
A/A5-ESW	A/A5-ESW-22.5-031821	Alley	Performance	In Place	Soil	---	22.5	Vadose	3/18/2021	---	---	---	---	---	---	---	---	---	---	---	**1.1**	1.0	1.0	0.30	0.92	0.11	0.60	**1.4**
	A/A5-ESW-20.0-031821	Alley	Performance	In Place	Soil	---	20.0	Vadose	3/18/2021	---	---	---	---	---	---	---	---	---	---	---	0.14	0.12	0.14	0.041	0.13	0.012	0.082	0.18
	A/A5-ESW-17.5-031821	Alley	Confirmation	In Place	Soil	---	17.5	Vadose	3/18/2021	---	---	---	---	---	---	---	---	---	---	---	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0067
A/A5-SSW	A/A5-SSW-22.5-031021	Alley	Performance	In Place	Inside of Wood	---	22.5	Vadose	3/10/2021	---	---	---	---	---	---	---	---	---	---	---	0.066	0.068	0.081	0.023	0.078	< 0.018	0.048	0.09
	A/A5-SSW-20.0-031821	Alley	Confirmation	In Place	Soil	---	20.0	Vadose	3/18/2021	---	---	---	---	---	---	---	---	---	---	---	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0089	< 0.0067
	A/A5-SSW-17.5-032221	Alley	Confirmation	In Place	Soil	---	17.5	Vadose	3/22/2021	---	---	---	---	---	---	---	---	---	---	---	< 0.0087	< 0.0087	< 0.0087	< 0.0087	< 0.0087	< 0.0087	< 0.0087	< 0.0066
C/A5-ESW	C/A5-ESW-22-5-032221	Alley	Performance	In Place	Soil	---	22.5	Vadose	3/22/2021	---	---	---	---	---	---	---	---	---	---	---	**1.2**	1.0	1.3	0.37	1.1	0.15	0.77	**1.6**
	C/A5-ESW-20.0-032221	Alley	Performance	In Place	Soil	---	20.0	Vadose	3/22/2021	---	---	---	---	---	---	---	---	---	---	---	**0.43**	0.41	0.51	0.13	0.44	0.055	0.28	**0.57**
	C/A5-ESW-17.5-032221	Alley	Confirmation	In Place	Peat	---	17.5	Saturated	3/22/2021	---	---	---	---	---	---	---	---	---	---	---	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012	< 0.0091
D/A5-B	D/A5-B-17.5-032221	Alley	Confirmation	In Place	Peat	---	17.5	Saturated	3/22/2021	---	---	---	---	---	---	---	---	---	---	---	< 0.023	< 0.023	< 0.023	< 0.023	< 0.023	< 0.023	< 0.023	< 0.017
E/A5-B	E/A5-B-17.5	Alley	Confirmation	In Place	Peat	---	17.5	Saturated	6/28/2021	**1.2**	**0.19**	**0.38**	---	---	---	---	---	---	---	---	**0.87**	0.82	0.78	0.30	0.71	0.095	0.52	**1.1**
E/A5-ESW	E/A5-ESW-22.5-050421	Alley	Confirmation	In Place	Peat	---	22.5	Vadose	5/4/2021	1.4	**1.4**	1.2	---	---	---	---	---	---	---	---	**16**	13	14	4.6	13	1.4	8.8	**20**
	E/A5-ESW-20.0-050421	Alley	Confirmation	In Place	Peat	---	20.0	Vadose	5/4/2021	1.3	**0.16**	0.24	---	---	---	---	---	---	---	---	0.038	0.049	0.080	< 0.021	0.069	< 0.021	0.047	0.058
	E/A5-ESW-17.5-050421	Alley	Confirmation	In Place	Peat	---	17.5	Saturated	5/4/2021	0.073	< 0.025	< 0.025	---	---	---	---	---	---	---	---	0.036	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	0.042
F/A5-B	F/A5-B-17.5	Alley	Confirmation	Removed	Peat	---	17.5	Saturated	6/28/2021	< 0.029	< 0.029	< 0.029	---	---	---	---	---	---	---	---	0.034	< 0.029	0.032	< 0.029	< 0.029	< 0.029	< 0.029	0.043
G/A5-ESW	G/A5-ESW-22.5-070621	Alley	Confirmation	In Place	Soil	---	22.5	Vadose	7/6/2021	0.21	**0.18**	0.18	---	---	---	---	---	---	---	---	**1.5**	1.4	1.4	0.53	1.4	0.22	0.90	**2.0**
	G/A5-ESW-20.0-070621	Alley	Confirmation	In Place	Soil, Charcoal-Like	---	20.0	Vadose	7/6/2021	2.8	**2.6**	**3.2**	---	---	---	---	---	---	---	---	**9.4**	8.3	10	2.5	9.0	0.85	5.7	**12**
	G/A5-ESW-17.5-070621	Alley	Confirmation	In Place	Peat	---	17.5	Saturated	7/6/2021	**0.30**	**0.053**	**0.092**	---	---	---	---	---	---	---	---	**0.51**	0.42	0.58	0.15	0.48	0.059	0.33	**0.67**
H/A5-B	H/A5-B-17.5-070621	Alley	Confirmation	In Place	Peat	---	17.5	Saturated	7/6/2021	0.034	< 0.022	< 0.022	---	---	---	---	---	---	---	---	< 0.022	< 0.022	0.024	< 0.022	0.058	< 0.022	< 0.022	0.018
H/A5-ESW	H/A5-ESW-22.5-070621	Alley	Confirmation	In Place	Soil	---	22.5	Vadose	7/6/2021	0.011	0.018	0.020	---	---	---	---	---	---	---	---	0.062	0.070	0.081	0.024	0.15	0.023	0.040	0.087
	H/A5-ESW-20.0-070621	Alley	Confirmation	In Place	Soil, Charcoal-Like	---	20.0	Vadose	7/6/2021	2.9	**0.98**	1.7	---	---	---	---	---	---	---	---	**4.0**	3.5	4.7	1.0	3.6	0.41	2.5	**5.2**
	H/A5-ESW-17.5-070621	Alley	Confirmation	In Place	Peat	---	17.5	Saturated	7/6/2021	0.19	**0.060**	**0.13**	---	---	---	---	---	---	---	---	< 0.023	< 0.023	< 0.023	< 0.023	< 0.023	< 0.023	< 0.023	< 0.017
I/A5-B	I/A5-B-17.5-070921	Alley	Confirmation	In Place	Peat	---	17.5	Saturated	7/9/2021	**9.8**	**7.5**	**8.8**	---	---	---	---	---	---	---	---	**70**	62	58	19	56	4.8	37	**89**
I/A5-ESW	I/A5-ESW-22.5-070921	Alley	Confirmation	In Place	Soil	---	22.5	Vadose	7/9/2021	0.11	**0.084**	0.097	---	---	---	---	---	---	---	---	**2.0**	1.6	2.0	0.51	1.6	0.19	1.2	**2.6**
	I/A5-ESW-20.0-070921	Alley	Confirmation	In Place	Peat	---	20.0	Vadose	7/9/2021	0.67	**0.37**	0.50	---	---	---	---	---	---	---	---	**3.2**	2.5	3.2	1.1	3.0	0.32	1.9	**4.1**
	I/A5-ESW-17.5-070921	Alley	Confirmation	In Place	Peat	---	17.5	Saturated	7/9/2021	---	---	---	---	---	---	---	---	---	---	---	**120**	91	120	24	110	9.1	69	**150**
J/A5-ESW	J/A5-ESW-22.5-070921	Alley	Confirmation	In Place	Soil	---	22.5	Vadose	7/9/2021	---	---	---	---	---	---	---	---	---	---	---	**1.5**	1.2	1.5	0.47	1.3	0.18	0.93	**1.9**
	J/A5-ESW-20.0-070921	Alley	Confirmation	In Place	Soil, Charcoal-Like	---	20.0	Vadose	7/9/2021	---	---	---	---	---	---	---	---	---	---	---	**6.5**	6.0	5.8	2.1	5.6	0.57	3.5	**8.4**
	J/A5-ESW-17.5-070921	Alley	Confirmation	In Place	Soil	---	17.5	Saturated	7/9/2021	---	---	---	---	---	---	---	---	---	---	---	**0.87**	0.66	0.74	0.24	0.68	0.067	0.47	**1.1**
L/A5-B	L/A5-B-22.0-071221	Alley	Confirmation	Removed	Soil	---	22.0	Vadose	7/12/2021	---	---	---	---	---	---	---	---	---	---	---	0.15	0.13	0.14	0.048	0.13	0.012	0.090	0.19
L/A5-ESW	L/A5-ESW-25.0-071221	Alley	Confirmation	In Place	Soil	---	25.0	Vadose	7/12/2021	---	---	---	---	---	---	---	---	---	---	---	**2.2**	1.9	2.1	0.68	1.9	0.18	1.3	**2.8**
	L/A5-ESW-22.5-071221	Alley	Confirmation	In Place	Soil	---	22.5	Vadose	7/12/2021	---	---	---	---	---	---	---	---	---	---	---	**0.41**	0.37	0.41	0.14	0.41	< 0.038	0.22	**0.53**
M/A5-ESW	M/A5-ESW-25.0-071521	Alley	Confirmation	In Place	Soil, Charcoal-Like	---	25.0	Vadose	7/15/2021	---	---	---	---	---	---	---	---	---	---	---	**0.23**	0.19	0.22	0.063	0.20	0.015	0.13	**0.29**
	M/A5-ESW-22.5-071521	Alley	Confirmation	In Place	Soil	---	22.5	Vadose	7/15/2021	---	---	---	---	---	---	---	---	---	---	---	< 0.0073	< 0.0073	< 0.0073	< 0.0073	< 0.0073	< 0.0073	< 0.0073	< 0.0055
N/A5-B	N/A5-B-25.0-072021	Alley	Confirmation	Removed	Soil	---	25.0	Vadose	7/20/2021	---	---	---	---	---	---	---	---	---	---	---	< 0.0073	< 0.0073	< 0.0073	< 0.0073	< 0.0073	< 0.0073	< 0.0073	< 0.0055
N/A5-NSW	N/A5-NSW-28.0-072021	Alley	Confirmation	In Place	Soil	---	28.0	Vadose	7/20/2021	---	---	---	---	---	---	---	---	---	---	---	**0.41**	0.33	0.38	0.15	0.36	0.048	0.25	**0.53**
	N/A5-NSW-26.0-072021	Alley	Confirmation	In Place	Soil	---	26.0	Vadose	7/20/2021	---	---	---	---	---	---	---	---	---	---	---	0.011	0.010	0.014	< 0.0074	0.013	< 0.0074	0.0075	0.015
N/A5-ESW	N/A5-ESW-28.0-072021	Alley	Confirmation	In Place	Soil	---	28.0	Vadose	7/20/2021	---	---	---	---	---	---	---	---	---	---	---	**1.2**	1.2	1.5	0.36	1.4	0.15	0.88	**1.6**
	N/A5-ESW-26.0-072021	Alley	Confirmation	In Place	Soil	---	26.0	Vadose	7/20/2021	---	---	---	---	---	---	---	---	---	---	---	0.087	0.068	0.098	0.034	0.087	0.016	0.065	0.12
MTCA Method B Direct Contact[5]										**1,600**	**34**	**320**	**4,800**	**NE**	**24,000**	**NE**	**3,200**	**3,200**	**NE**	**2,400**	**0.19**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**0.19**
Screening Levels for Soil Protective of Groundwater - Vadose Zone[5]										**4.5**	**0.082**	**1.7**	**49**	**NE**	**1,100**	**NE**	**630**	**51**	**NE**	**330**	**3.9**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**3.9**
Screening Levels for Soil Protective of Groundwater - Saturated Zone[5]										**0.24**	**0.0042**	**0.088**	**2.5**	**NE**	**57**	**NE**	**32**	**2.6**	**NE**	**16**	**0.19**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**0.19**
Laboratory Practical Quantitation Limits[6]										**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**NA**

Table 2
Soil Analytical Results for PAHs
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Identification	General Location	Sample Type	Sample Location Disposition	Sample Composition	Sample Depth (feet)[1]	Sample Elevation (feet NAVD88)[1]	Zone	Sample Date	Analytical Results (milligrams per kilogram)[2]																		
										Non-Carcinogenic PAHs											Carcinogenic PAHs							
										Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(g,h,i)Perylene	Fluoranthene	Fluorene	Phenanthrene	Pyrene	Benzo(a)Pyrene	Benzo(a)Anthracene	Benzo(b)Fluoranthene	Benzo(j,k)Fluoranthene	Chrysene	Dibenzo(a,h)Anthracene	Indeno(1,2,3-cd)Pyrene	Total cPAHs TEC[3,4]
Block 38 East Property																												
EX-19-W5	EX-19-W5 (EL20)	Block 38E	Confirmation	In Place	Soil	5.0	20.0	Vadose	7/3/2008	0.07	---	---	0.42	0.11	0.98	2.0	2.9	0.30	2.3	3.6	**1.7**	0.97	1.3	0.55	0.88	0.50	0.78	**2.1**
EX-20-W1.5	EX-20-W1.5 (EL19.5)	Block 38E	Confirmation	In Place	Soil	5.5	19.0	Vadose	7/3/2008	0.13	---	---	0.63	0.12	1.5	3.0	4.4	0.42	4.2	5.5	**0.75**	1.2	2.1	0.75	1.2	0.76	1.2	**1.4**
EX-38-EL23	EX-38-EL23	Block 38E	Confirmation	In Place	Soil	1.0	23.0	Vadose	7/18/2008	< 0.05	---	---	< 0.05	0.14	1.7	2.9	6.3	0.43	1.7	7.8	**2.9**	2.7	1.6	1.7	1.4	1.0	1.1	**3.7**
EX-39-EL23	EX-39-EL23	Block 38E	Confirmation	In Place	Soil	1.0	23.0	Vadose	7/18/2008	< 0.05	---	---	0.13	< 0.05	0.27	0.39	0.51	0.13	0.27	0.0	**0.32**	0.73	0.23	0.31	0.21	< 0.01	0.18	**0.47**
EX-40-EL22	EX-40-EL22	Block 38E	Confirmation	In Place	Soil	2.0	22.0	Vadose	7/18/2008	**6**	---	---	0.61	7.2	40	12	43	4.9	53	53	**19**	17	17	20	9.4	1.4	5.7	**25**
EX-41-EL22	EX-41-EL22	Block 38E	Confirmation	In Place	Soil	3.0	22.0	Vadose	7/18/2008	0.56	---	---	0.16	0.49	1.4	1.7	4.1	0.31	3.3	4.7	**2.3**	2.9	1.3	1.1	2.1	0.62	0.69	**2.98**
P-4	P-4-3.5	Block 38E	Performance	Removed	Soil/Wood	3.5	21.2	Vadose	6/12/2002	0.52	**0.21**	0.36	0.39	0.39	0.60	1.1	2.4	0.39	3.4	3.5	**1.6**	1.1	1.1	1.0	1.4	0.34	0.95	**2.1**
	P-4-5.5	Block 38E	Performance	Removed	Soil/Wood	5.5	19.2	Vadose	6/12/2002	0.055	< 0.025	< 0.025	0.047	< 0.025	0.067	0.17	0.36	0.042	0.33	0.24	**0.21**	0.090	0.56	0.48	0.18	0.026	0.12	**0.34**
Block 37 Site																												
MW-71	MW-71-5	Block 37	Confirmation	In Place	Soil	5.0	25.4	Vadose	10/12/2005	< 0.0891	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	MW-71-10	Block 37	Confirmation	In Place	Soil	10.0	20.4	Vadose	10/12/2005	< 0.0861	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	MW-71-15	Block 37	Confirmation	In Place	Soil	15.0	15.4	Saturated	10/12/2005	< 0.0910	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	MW-71-20	Block 37	Confirmation	In Place	Soil	20.0	10.4	Saturated	10/12/2005	**6.49**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-72	MW-72-5	Block 37	Confirmation	In Place	Soil	5.0	25.3	Vadose	10/12/2005	< 0.0857	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	MW-72-10	Block 37	Confirmation	In Place	Soil	10.0	20.3	Vadose	10/12/2005	< 0.0668	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	MW-72-15	Block 37	Confirmation	In Place	Soil	15.0	15.3	Saturated	10/12/2005	< 0.702	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	MW-72-20	Block 37	Confirmation	In Place	Soil	20.0	10.3	Saturated	10/12/2005	< 0.312	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-73	MW-73-5	Block 37	Confirmation	In Place	Soil	5.0	25.1	Vadose	10/12/2005	< 0.0960	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	MW-73-10	Block 37	Confirmation	In Place	Soil	10.0	20.1	Vadose	10/12/2005	< 0.0888	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	MW-73-16	Block 37	Confirmation	In Place	Soil	15.0	15.1	Saturated	10/12/2005	< 0.443	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	MW-73-20	Block 37	Confirmation	In Place	Soil	20.0	10.1	Saturated	10/12/2005	< 0.100	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-95	MW-95-5	Block 37	Confirmation	In Place	Soil	5.0	27.0	Vadose	10/19/2005	< 0.102	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	MW-95-10	Block 37	Confirmation	In Place	Soil	10.0	22.0	Vadose	10/19/2005	< 0.0923	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	MW-95-15	Block 37	Confirmation	In Place	Soil	15.0	17.0	Saturated	10/19/2005	< 0.0985	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MTCA Method B Direct Contact[5]										**1,600**	**34**	**320**	**4,800**	**NE**	**24,000**	**NE**	**3,200**	**3,200**	**NE**	**2,400**	**0.19**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**0.19**
Screening Levels for Soil Protective of Groundwater - Vadose Zone[5]										**4.5**	**0.082**	**1.7**	**49**	**NE**	**1,100**	**NE**	**630**	**51**	**NE**	**330**	**3.9**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**3.9**
Screening Levels for Soil Protective of Groundwater - Saturated Zone[5]										**0.24**	**0.0042**	**0.088**	**2.5**	**NE**	**57**	**NE**	**32**	**2.6**	**NE**	**16**	**0.19**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**0.19**
Laboratory Practical Quantitation Limits[6]										**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**0.0067**	**NA**

NOTES:

Results in **bold** and highlighted yellow denote concentrations exceeding applicable screening levels.

— denotes sample not analyzed.

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

[1] Depth in feet below ground surface. Elevation in feet referenced to North American Vertical Datum of 1988 (NAVD88).

[2] Analyzed by U.S. Environmental Protection Agency Method 8270D/SIM or 8270E/SIM.

[3] Total cPAHs derived using the total toxicity equivalency method in Section 708(8) of Chapter 173-340 of the Washington Administrative Code.

[4] For concentrations reported at less than the laboratory reporting limit, half the reporting limit was used to calculate total. If all constituent concentrations are non-detect, calculated total is indicated non-detect.

[5] Washington State Cleanup Levels and Risk Calculations (CLARC) under Washington State Model Toxics Control Act Cleanup Regulation (MTCA), Method B direct contact cleanup levels and default soil concentrations protective of groundwater (leaching pathway) from CLARC Master spreadsheet, https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC

[6] Laboratory Practical Quantitation Limits (PQLs) from OnSite Environmental of Redmond, Washington. PQLs for individual samples may vary due to sample matrix interferences, dilutions, or moisture content.

cPAH TEC = Carcinogenic polycyclic aromatic hydrocarbon toxic equivalent concentration (cPAH TEC) calculated following the total toxicity equivalency method in Section 708(8) of Chapter 173-340 of the Washington Administrative Code.

▨	Shading represents most stringent screening level or practical quantitation limit for vadose zone soil.
■	Shading represents most stringent screening level or practical quantitation limit for saturated zone soil.

Adapt Engineering = Adapt Engineering, Inc.
cPAHs = carcinogenic polycyclic aromatic hydrocarbons
Enviros = Enviros Group, Ltd.
Farallon = Farallon Consulting, L.L.C.
GeoEngineers = GeoEngineers, Inc.
H = sample analyzed outside of holding time
J = result is an estimate
NA = not applicable
ND = not detected and reporting limit is not available.
NE = not established
PAHs = polycyclic aromatic hydrocarbons
TEC = toxic equivalent concentration

Table 3
Soil Analytical Results for Select CVOCs
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Identification	General Location	Sample Type	Sample Location Disposition	Sample Depth (feet)[1]	Sample Elevation (feet NAVD88)[1]	Zone	Sample Date	Analytical Results (milligrams per kilogram)[2]							
									PCE	TCE	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl Chloride	1,2-Dibromoethane	1,2 Dichloroethane	Methyl Tertiary Butyl Ether (MTBE)
Block 38 West Property																
FB-02	FB-02-10.0-082018	Interior	Confirmation	Removed	10.0	15.1	Saturated	8/20/2018	< 0.0028	< 0.0028	< 0.0028	< 0.0028	< 0.0028	---	---	---
	FB-02-25.0-082018	Interior	Confirmation	Removed	25.0	0.1	Saturated	8/20/2018	< 0.00085	< 0.00085	< 0.00085	< 0.00085	< 0.00085	---	---	---
FB-04	FB-04-20.0-082118	Interior	Confirmation	Removed	20.0	2.0	Saturated	8/21/2018	< 0.00093	< 0.00093	< 0.00093	< 0.00093	< 0.00093	---	---	---
FB-05	FB-05-20.0-082218	Interior	Confirmation	Removed	20.0	5.5	Saturated	8/22/2018	< 0.00090	< 0.00090	< 0.00090	< 0.00090	< 0.00090	---	---	---
FMW-135	FMW-135-50.0-082418	Interior	Confirmation	In Place	50.0	-24.4	Saturated	8/24/2018	< 0.00074	< 0.00074	< 0.00074	< 0.00074	< 0.00074	---	---	---
FMW-136	FMW-136-10.0-082218	Interior	Confirmation	Removed	10.0	15.1	Saturated	8/22/2018	< 0.0015	< 0.0015	< 0.0015	< 0.0015	< 0.0015	---	---	---
	FMW-136-20.0-082218	Interior	Confirmation	Removed	20.0	5.1	Saturated	8/22/2018	< 0.00094	< 0.00094	< 0.00094	< 0.00094	< 0.00094	---	---	---
TP-7	TP-7-4.0	Interior	Confirmation	Removed	4.0	19.5	Vadose	12/23/2019	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044	< 0.0044
Underground Storage Tank Investigation and Decommissioning																
M1-Tank	M1-TANK-24.5	Interior	Confirmation	Removed	---	24.5	Vadose	1/21/2020	0.0041	< 0.00082	< 0.00082	< 0.00082	< 0.00082	< 0.00082	< 0.00082	< 0.00082
UST01-B	UST01-B-17	Interior	Confirmation	Removed	---	17.0	Saturated	1/27/2020	< 0.00092	< 0.00092	< 0.00092	< 0.00092	< 0.00092	< 0.00092	< 0.00092	< 0.00092
UST01-N1	UST01-N1-19	Interior	Confirmation	Removed	---	19.0	Vadose	1/27/2020	< 0.00094	< 0.00094	< 0.00094	< 0.00094	< 0.00094	---	---	---
UST01-E1	UST01-E1-19	Interior	Confirmation	Removed	---	19.0	Vadose	1/27/2020	< 0.00083	< 0.00083	< 0.00083	< 0.00083	< 0.00083	---	---	---
UST01-S1	UST01-S1-19	Interior	Confirmation	Removed	---	19.0	Vadose	1/27/2020	< 0.00084	< 0.00084	< 0.00084	< 0.00084	< 0.00084	---	---	---
UST01-W1	UST01-W1-19	Interior	Confirmation	Removed	---	19.0	Vadose	1/27/2020	< 0.00098	< 0.00098	< 0.00098	< 0.00098	< 0.00098	---	---	---
Block 37 Site																
MW-71	MW-71-5			In Place	5.0	25.4	Vadose	10/12/2005	---	---	---	---	---	---	---	< 0.0891
	MW-71-10			In Place	10.0	20.4	Vadose	10/12/2005	---	---	---	---	---	---	---	< 0.0861
	MW-71-15			In Place	15.0	15.4	Saturated	10/12/2005	---	---	---	---	---	---	---	< 0.0910
	MW-71-20			In Place	20.0	10.4	Saturated	10/12/2005	---	---	---	---	---	---	---	< 0.0623
MW-72	MW-72-5			In Place	5.0	25.3	Vadose	10/12/2005	---	---	---	---	---	---	---	< 0.0857
	MW-72-10			In Place	10.0	20.3	Vadose	10/12/2005	---	---	---	---	---	---	---	< 0.0868
	MW-72-15			In Place	15.0	15.3	Saturated	10/12/2005	---	---	---	---	---	---	---	< 0.0912
	MW-72-20			In Place	20.0	10.3	Saturated	10/12/2005	---	---	---	---	---	---	---	< 0.0405
MW-73	MW-73-5			In Place	5.0	25.1	Vadose	10/12/2005	---	---	---	---	---	---	---	< 0.0960
	MW-73-10			In Place	10.0	20.1	Vadose	10/12/2005	---	---	---	---	---	---	---	< 0.0888
	MW-73-16			In Place	15.0	15.1	Saturated	10/12/2005	---	---	---	---	---	---	---	< 0.0576
	MW-73-20			In Place	20.0	10.1	Saturated	10/12/2005	---	---	---	---	---	---	---	< 0.100
MW-95	MW-95-5			In Place	5.0	26.99	Vadose	10/19/2005	---	---	---	---	---	---	---	< 0.102
	MW-95-10			In Place	10.0	21.99	Vadose	10/19/2005	---	---	---	---	---	---	---	< 0.0923
	MW-95-15			In Place	15.0	16.99	Saturated	10/19/2005	---	---	---	---	---	---	---	< 0.0985
MTCA Method B Direct Contact[3]									**480**	**12**	**160**	**1,600**	**0.67**	**0.5**	**11**	**560**
Screening Levels for Soil Protective of Groundwater - Vadose Zone[3]									**0.05**	**0.025**	**0.078**	**0.52**	**0.0017**	**0.00027**	**0.023**	**0.1**
Screening Levels for Soil Protective of Groundwater - Saturated Zone[3]									**0.0028**	**0.0015**	**0.0052**	**0.032**	**0.00009**	**0.000018**	**0.0016**	**0.0072**
Laboratory Practical Quantitation Limits[4]									**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**	**0.001**

NOTES:

Results in **bold** and highlighted yellow denote concentrations exceeding applicable screening levels.

[1] Depth in feet below ground surface. Elevation in feet referenced to North American Vertical Datum of 1988 (NAVD88).

[2] Analyzed by U.S. Environmental Protection Agency Method 8260C or 8260D.

[3] Washington State Cleanup Levels and Risk Calculations (CLARC) under Washington State Model Toxics Control Act Cleanup Regulation (MTCA), Method B direct contact cleanup levels and default soil concentrations protective of groundwater (leaching pathway) from CLARC Master spreadsheet, https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC

[6] Laboratory Practical Quantitation Limits (PQLs) from OnSite Environmental of Redmond, Washington. PQLs for individual samples may vary due to sample matrix interferences, dilutions, or moisture content.

▨	Shading represents most stringent screening level or practical quantitation limit for vadose zone soil.
🟧	Shading represents most stringent screening level or practical quantitation limit for saturated zone soil.

— denotes sample not analyzed.
< denotes analyte not detected at or exceeding the reporting limit listed.
CVOC = chlorinated volatile organic compound

Table 4
Soil Analytical Results for PCBs
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Identification	General Location	Sample Type	Sample Location Disposition	Sample Depth (feet)[1]	Sample Elevation (feet NAVD88)[1]	Zone	Sample Date	Analytical Results (milligrams per kilogram)[2]							
									Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Total PCBs[3]
Block 38 West Property																
TP-7	TP-7-4.0	Interior	Confirmation	Removed	4.0	19.5	Vadose	12/23/2019	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.525
Underground Storage Tank Investigation and Decommissioning																
M1-Tank	M1-TANK-24.5	Interior	Confirmation	Removed	---	24.5	Vadose	1/21/2020	< 0.062	< 0.062	< 0.062	< 0.062	< 0.062	< 0.062	< 0.062	< 0.217
UST01-B	UST01-B-17	Interior	Confirmation	Removed	---	17.0	Saturated	1/27/2020	< 0.055	< 0.055	< 0.055	< 0.055	< 0.055	< 0.055	< 0.055	< 0.193
UST02-N	UST-02-N	Interior	Confirmation	Removed	---	18.0	Saturated	2/5/2020	< 0.063	< 0.063	< 0.063	< 0.063	< 0.063	< 0.063	< 0.063	< 0.221
UST02-E	UST-02-E	Interior	Confirmation	Removed	---	18.0	Saturated	2/5/2020	< 0.087	< 0.087	< 0.087	< 0.087	< 0.087	< 0.087	< 0.087	< 0.305
MTCA Method B Direct Contact[4]																**1.0**
Screening Levels for Soil Protective of Groundwater - Vadose Zone[4]																**0.34**
Screening Levels for Soil Protective of Groundwater - Saturated Zone[4]																**0.017**
Laboratory Practical Quantitation Limits[5]																**0.050**

NOTES:

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

[1] Depth in feet below ground surface. Elevation in feet referenced to North American Vertical Datum of 1988 (NAVD88).

[2] Analyzed by U.S. Environmental Protection Agency Method 8082A.

[3] For non-detected results, half the reporting limit was used to calculate total PCBs.

[4] Washington State Cleanup Levels and Risk Calculations (CLARC) under Washington State Model Toxics Control Act Cleanup Regulation (MTCA), Method B direct contact cleanup levels and default soil concentrations protective of groundwater (leaching pathway) from CLARC Master spreadsheet, https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC

▨	Shading represents most stringent screening level or practical quantitation limit for vadose zone soil.
▨	Shading represents most stringent screening level or practical quantitation limit for saturated zone soil.

PCB = polychlorinated biphenyl

Table 5
Soil Analytical Results for Metals
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Identification	General Location	Sample Type	Sample Location Disposition	Sample Depth (feet)[1]	Sample Elevation (feet NAVD88)[1]	Zone	Sample Date	Analytical Results (milligrams per kilogram)[2]							
									Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
Block 38 West Property																
FB-01	FB-01-15.0-082118	Interior	Confirmation	Removed	15.0	11.3	Saturated	8/21/2018	< 16	**110**	< 0.81	60	< 8.1	< 0.40	< 16	< 1.6
FB-02	FB-02-10.0-082018	Interior	Confirmation	Removed	10.0	15.1	Saturated	8/20/2018	< 12	**190**	< 1.2	36	24	**1.2**	< 12	< 2.5
FB-03	FB-03-10.0-082318	Interior	Confirmation	Removed	10.0	15.8	Saturated	8/23/2018	< 13	**230**	< 0.65	100	8.9	< 0.32	< 13	< 1.3
	FB-03-35.0-082318	Interior	Confirmation	In Place	35.0	-9.2	Saturated	8/23/2018	< 12	44	< 0.60	42	< 6.0	< 0.30	< 12	< 1.2
FB-04	FB-04-5.0-082118	Interior	Confirmation	Removed	5.0	17.0	Saturated	8/21/2018	< 11	**290**	< 1.1	53	56	< 0.55	< 11	< 2.2
FB-05	FB-05-35.0-082218	Interior	Confirmation	In Place	35.0	-9.5	Saturated	8/22/2018	< 12	58	< 0.62	38	< 6.2	< 0.31	< 12	< 1.2
FMW-133	FMW-133-10.0-082418	Interior	Confirmation	Removed	10.0	15.3	Saturated	8/24/2018	< 17	**200**	< 1.7	29	18	< 0.83	< 17	< 3.3
	FMW-133-20.0-082418	Interior	Confirmation	Removed	20.0	5.3	Saturated	8/24/2018	< 12	50	< 0.60	27	< 6.0	< 0.30	< 12	< 1.2
FMW-134	FMW-134-5.0-082318	Interior	Confirmation	Removed	5.0	20.4	Vadose	8/23/2018	< 17	110	< 1.7	19	< 17	< 0.83	< 17	< 3.3
	FMW-134-15.0-082318	Interior	Confirmation	Removed	15.0	10.4	Saturated	8/23/2018	< 12	48	< 0.61	42	< 6.1	< 0.30	< 12	< 1.2
FMW-135	FMW-135-5.0-082418	Interior	Confirmation	Removed	5.0	20.6	Vadose	8/24/2018	< 12	120	< 0.61	48	16	< 0.31	< 12	< 1.2
	FMW-135-25.0-082418	Interior	Confirmation	Removed	25.0	0.6	Saturated	8/24/2018	< 14	**120**	< 0.69	60	< 6.9	< 0.35	< 14	< 1.4
	FMW-135-30.0-082418	Interior	Confirmation	Removed	30.0	-4.4	Saturated	8/24/2018	< 12	66	< 0.62	44	< 6.2	< 0.31	< 12	< 1.2
FMW-136	FMW-136-20.0-082218	Interior	Confirmation	Removed	20.0	5.1	Saturated	8/22/2018	< 13	46	< 0.63	42	< 6.3	< 0.32	< 13	< 1.3
	FMW-136-30.0-082218	Interior	Confirmation	Removed	30.0	-4.9	Saturated	8/22/2018	< 12	45	< 0.59	41	< 5.9	< 0.30	< 12	< 1.2
M1-WSW	M1-WSW-17.0	Sidewall	Confirmation	In Place	---	17.0	Saturated	2/10/2020	---	---	---	---	18	---	---	---
N1-WSW	N1-WSW-17.0	Interior	Confirmation	Removed	---	17.0	Saturated	2/10/2020	---	---	---	---	80	---	---	---
TP-7	TP-7-4.0	Interior	Confirmation	Removed	4.0	19.5	Vadose	12/23/2019	---	---	---	---	33	---	---	---
Underground Storage Tank Investigation and Decommissioning																
M1-Tank	M1-TANK-24.5	Interior	Confirmation	Removed	---	24.5	Vadose	1/21/2020	---	---	---	---	46	---	---	---
UST01-B	UST01-B-17	Interior	Confirmation	Removed	---	17.0	Saturated	1/27/2020	---	---	---	---	13	---	---	---
UST01-N1	UST01-N1-19	Interior	Confirmation	Removed	---	19.0	Vadose	1/27/2020	---	---	---	---	8.1	---	---	---
UST01-E1	UST01-E1-19	Interior	Confirmation	Removed	---	19.0	Vadose	1/27/2020	---	---	---	---	25	---	---	---
UST01-S1	UST01-S1-19	Interior	Confirmation	Removed	---	19.0	Vadose	1/27/2020	---	---	---	---	13	---	---	---
UST01-W1	UST01-W1-19	Interior	Confirmation	Removed	---	19.0	Vadose	1/27/2020	---	---	---	---	14	---	---	---
UST-01-line	UST-01-LINE-21.0	Sidewall	Confirmation	In Place	---	21.0	Vadose	1/31/2020	---	---	---	---	100	---	---	---
Alley																
FB-12	FB-12-21.5	Alley	Performance	Removed	---	21.5	Vadose	9/13/2020	---	---	---	---	25	---	---	---
FB-13	FB-13-22.5	Alley	Performance	Removed	---	22.5	Vadose	9/12/2020	< 11	490	0.73	23	130	< 0.29	< 11	< 1.1
	FB-13-20.0	Alley	Confirmation	Removed	---	20.0	Vadose	9/12/2020	---	---	< 1.4	---	96	---	---	---
FB-14	FB-14-22.5	Alley	Performance	Removed	---	22.5	Vadose	9/12/2020	**13**	68	< 0.55	17	31	< 0.27	< 11	< 1.1
	FB-14-20.0	Alley	Confirmation	Removed	---	20.0	Vadose	9/12/2020	---	---	< 0.58	---	50	---	---	---
MTCA Method B Direct Contact[3]									**0.67**	**16,000**	**80**	**120,000**	**250[4]**	**NE**	**400**	**400**
Screening Levels for Soil Protective of Groundwater - Vadose Zone[3]									**4.7**	**1,600**	**0.69**	**480,000**	**3,000**	**2.1**	**5.2**	**14**
Screening Levels for Soil Protective of Groundwater - Saturated Zone[3]									**0.23**	**83**	**0.035**	**24,000**	**150**	**0.1**	**0.26**	**0.69**
Natural Background Concentrations[5]									**7.3**	**NE**	**0.77**	**48**	**16.83**	**0.07**	**0.78**	**0.61**
Laboratory Practical Quantitation Limits[6]									**10**	**2.5**	**0.50**	**0.50**	**5.0**	**0.25**	**10**	**1.0**

Table 5
Soil Analytical Results for Metals
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Identification	General Location	Sample Type	Sample Location Disposition	Sample Depth (feet) [1]	Sample Elevation (feet NAVD88) [1]	Zone	Sample Date	Analytical Results (milligrams per kilogram)[2]							
									Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
FB-15	FB-15-22.5	Alley	Performance	Removed	---	22.5	Vadose	9/13/2020	< 11	81	< 0.54	15	120	< 0.27	< 11	< 1.1
	FB-15-20.0	Alley	Confirmation	Removed	---	20.0	Vadose	9/13/2020	---	---	< 0.59	---	56	---	---	---
	FB-15-17.5	Alley	Confirmation	In Place	---	17.5	Saturated	9/13/2020	---	---	< 0.56	---	< 5.6	---	---	---
TP-10-4	TP-10-4	Alley	Performance	Removed	4.0	20.5	Vadose	5/5/2008	---	---	**2.4**	---	**1,900**	---	---	---
G/A5-ESW	G/A5-ESW-22.5-070621	Alley	Confirmation	In Place	---	22.5	Vadose	7/6/2021	---	---	---	---	47	---	---	---
	G/A5-ESW-20.0-070621	Alley	Confirmation	In Place	---	20.0	Vadose	7/6/2021	---	---	---	---	**21,000**	---	---	---
	G/A5-ESW-17.5-070621	Alley	Confirmation	In Place	---	17.5	Saturated	7/6/2021	---	---	---	---	**240**	---	---	---
H/A5-B	H/A5-B-17.5-070621	Alley	Confirmation	In Place	---	17.5	Saturated	7/6/2021	---	---	---	---	**210**	---	---	---
H/A5-ESW	H/A5-ESW-22.5-070621	Alley	Confirmation	In Place	---	22.5	Vadose	7/6/2021	---	---	---	---	22	---	---	---
	H/A5-ESW-20.0-070621	Alley	Confirmation	In Place	---	20.0	Vadose	7/6/2021	---	---	---	---	**1,300**	---	---	---
	H/A5-ESW-17.5-070621	Alley	Confirmation	In Place	---	17.5	Saturated	7/6/2021	---	---	---	---	96	---	---	---
I/A5-B	I/A5-B-17.5-070921	Alley	Confirmation	In Place	---	17.5	Saturated	7/9/2021	---	---	---	---	130	---	---	---
I/A5-ESW	I/A5-ESW-22.5-070921	Alley	Confirmation	In Place	---	22.5	Vadose	7/9/2021	---	---	---	---	**260**	---	---	---
	I/A5-ESW-20.0-070921	Alley	Confirmation	In Place	---	20.0	Vadose	7/9/2021	---	---	---	---	**2,600**	---	---	---
J/A5-ESW	J/A5-ESW-22.5-070921	Alley	Confirmation	In Place	---	22.5	Vadose	7/9/2021	---	---	0.64	---	**260**	---	---	---
	J/A5-ESW-20.0-070921	Alley	Confirmation	In Place	---	20.0	Vadose	7/9/2021	---	---	< 0.91	---	**420**	---	---	---
Block 38 East Property																
EX-19-W5 (EL20)	EX-19-W5 (EL20)	B38E	Confirmation	In Place	5.0	20.0	Vadose	7/3/2008	---	---	< 2.0	---	64	---	---	---
EX-20-W1.5 (EL19.5)	EX-20-W1.5 (EL19.5)	B38E	Confirmation	In Place	5.5	19.5	Vadose	7/3/2008	---	---	< 2.0	---	120	---	---	---
EX-39-EL23	EX-39-EL23	B38E	Confirmation	In Place	1.0	23.0	Vadose	7/18/2008	---	---	< 2.0	---	86	---	---	---
EX-40-EL22	EX-40-EL22	B38E	Confirmation	In Place	2.0	22.0	Vadose	7/18/2008	---	---	< 2.0	---	**1,800**	---	---	---
EX-41-EL22	EX-41-EL22	B38E	Confirmation	In Place	3.0	22.0	Vadose	7/18/2008	---	---	< 2.0	---	**1,200**	---	---	---
P-4	P-4-3.5	B38E	Performance	Removed	3.5	21.2	Vadose	6/12/2002	---	---	**2.1**	---	**1,500**	---	---	---
	P-4-5.5	B38E	Performance	Removed	5.5	19.2	Vadose	6/12/2002	---	---	< 1.5	---	200	---	---	---
W-3	W-3	B38E	Performance	Removed	10.0	10.5	Saturated	10/11/1993	---	---	---	---	18	---	---	---
W-4	W-4	B38E	Performance	Removed	11.0	9.5	Saturated	10/11/1993	---	---	---	---	2.4	---	---	---
Block 37 Site																
MW-41	MW-41-3				7.5	19.5	Vadose	10/28/1991	---	---	---	---	---	---	---	---
	MW-41-7				17.5	9.5	Saturated	10/28/1991	---	---	---	---	---	---	---	---
MW-71	MW-71-5				5.0	25.4	Vadose	10/12/2005	---	---	---	---	2.73	---	---	---
	MW-71-10				10.0	20.4	Vadose	10/12/2005	---	---	---	---	5.39	---	---	---
	MW-71-15				15.0	15.4	Saturated	10/12/2005	---	---	---	---	4.43	---	---	---
	MW-71-20				20.0	10.4	Saturated	10/12/2005	---	---	---	---	7.1	---	---	---
MTCA Method B Direct Contact[3]									**0.67**	**16,000**	**80**	**120,000**	**250[4]**	**NE**	**400**	**400**
Screening Levels for Soil Protective of Groundwater - Vadose Zone[3]									**4.7**	**1,600**	**0.69**	**480,000**	**3,000**	**2.1**	**5.2**	**14**
Screening Levels for Soil Protective of Groundwater - Saturated Zone[3]									**0.23**	**83**	**0.035**	**24,000**	**150**	**0.1**	**0.26**	**0.69**
Natural Background Concentrations[5]									**7.3**	**NE**	**0.77**	**48**	**16.83**	**0.07**	**0.78**	**0.61**
Laboratory Practical Quantitation Limits[6]									**10**	**2.5**	**0.50**	**0.50**	**5.0**	**0.25**	**10**	**1.0**

Table 5
Soil Analytical Results for Metals
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Identification	General Location	Sample Type	Sample Location Disposition	Sample Depth (feet)[1]	Sample Elevation (feet NAVD88)[1]	Zone	Sample Date	Analytical Results (milligrams per kilogram)[2]							
									Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
MW-72	MW-72-5				5.0	25.3	Vadose	10/12/2005	---	---	---	---	3.58	---	---	---
	MW-72-10				10.0	20.3	Vadose	10/12/2005	---	---	---	---	5.42	---	---	---
	MW-72-15				15.0	15.3	Saturated	10/12/2005	---	---	---	---	124	---	---	---
	MW-72-20				20.0	10.3	Saturated	10/12/2005	---	---	---	---	20.9	---	---	---
MW-73	MW-73-5				5.0	25.1	Vadose	10/12/2005	---	---	---	---	5.62	---	---	---
	MW-73-10				10.0	20.1	Vadose	10/12/2005	---	---	---	---	3.54	---	---	---
	MW-73-16				15.0	15.1	Saturated	10/12/2005	---	---	---	---	71.9	---	---	---
	MW-73-20				20.0	10.1	Saturated	10/12/2005	---	---	---	---	20.9	---	---	---
MW-95	MW-95-5				5.0	27.0	Vadose	10/19/2005	---	---	---	---	4.02	---	---	---
	MW-95-10				10.0	22.0	Vadose	10/19/2005	---	---	---	---	5.4	---	---	---
	MW-95-15				15.0	17.0	Saturated	10/19/2005	---	---	---	---	16.8	---	---	---
MTCA Method B Direct Contact[3]									**0.67**	**16,000**	**80**	**120,000**	**250[4]**	**NE**	**400**	**400**
Screening Levels for Soil Protective of Groundwater - Vadose Zone[3]									**4.7**	**1,600**	**0.69**	**480,000**	**3,000**	**2.1**	**5.2**	**14**
Screening Levels for Soil Protective of Groundwater - Saturated Zone[3]									**0.23**	**83**	**0.035**	**24,000**	**150**	**0.1**	**0.26**	**0.69**
Natural Background Concentrations[5]									**7.3**	**NE**	**0.77**	**48**	**16.83**	**0.07**	**0.78**	**0.61**
Laboratory Practical Quantitation Limits[6]									**10**	**2.5**	**0.50**	**0.50**	**5.0**	**0.25**	**10**	**1.0**

NOTES:

Results in **bold** and highlighted yellow denote concentrations exceeding applicable screening levels.

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

— denotes sample not analyzed.

░ Shading represents most stringent screening level, natural background concentration, or practical quantitation limit for vadose zone soil.

▓ Shading represents most stringent screening level, natural background concentration, or practical quantitation limit for saturated zone soil (or both vadose and saturated if they are the same value).

NE = not established

[1] Depth in feet below ground surface. Elevation in feet referenced to North American Vertical Datum of 1988 (NAVD88).

[2] Analyzed by U.S. Environmental Protection Agency Methods 6010D/6020B/7471B.

[3] Washington State Cleanup Levels and Risk Calculations (CLARC) under Washington State Model Toxics Control Act Cleanup Regulation (MTCA), Method B direct contact cleanup levels and default soil concentrations protective of groundwater (leaching pathway) from CLARC Master spreadsheet, https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC unless otherwise noted.

[4] Value based on Method A as a surrogate for Method B as no Method B direct contact value for soil has been established.

[5] Natural background concentrations provided in *Natural Background Soil Metals Concentrations in Washington State* , Washington State Department of Ecology, Publication #94-115, October 1994.

[6] Laboratory Practical Quantitation Limits (PQLs) from OnSite Environmental of Redmond, Washington. PQLs for individual samples may vary due to sample matrix interferences, dilutions, or moisture content.

Table 6
Groundwater Elevations
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

Location	Water Bearing Zone	Screened Interval (feet bgs)[1]	Screened Interval (feet NAVD88)[2]	Top of Casing Elevation (feet NAVD88)[2]	Monitoring Date	Depth to Water (feet)[3]	Water Level Elevation (feet NAVD88)[2]
FMW-130	Intermediate	45.0 to 55.0	-22.8 to -32.8	21.86	8/30/2018	5.14	16.72
					12/28/2018	4.98	16.88
					3/26/2019	4.42	17.44
FMW-132	Shallow	5.0 to 10.0	20.7 to 15.7	25.48	8/30/2018	7.44	18.04
					12/28/2018	6.80	18.68
					3/26/2019	7.01	18.47
FMW-133	Shallow	6.5 to 11.5	18.8 to 13.8	24.87	8/30/2018	6.86	18.01
					12/28/2018	6.21	18.66
					3/26/2019	6.41	18.46
FMW-134	Shallow	12.0 to 17.0	13.4 to 8.4	24.98	8/30/2018	8.66	16.32
					12/28/2018	7.80	17.18
					3/26/2019	7.51	17.47
FMW-135	Shallow	7.0 to 12.0	18.6 to 13.6	25.29	8/30/2018	7.14	18.15
					12/28/2018	6.78	18.51
					3/26/2019	6.81	18.48
FMW-136	Intermediate	30.0 to 40.0	-4.9 to -14.9	24.79	8/30/2018	8.10	16.69
					12/28/2018	7.74	17.05
					3/26/2019	7.41	17.38
FMW-137	Deep Outwash Aquifer	72.0 to 85.0	-41.9 to -54.9	30.09	11/20/2018	13.02	17.07
					12/28/2018	12.74	17.35
					3/14/2019	12.56	17.53
					5/6/2019	12.08	18.01
					7/8/2019	12.25	17.84
FMW-138	Deep Outwash Aquifer	90.0 to 100.0	-49.96 to -59.96	40.44	11/20/2018	24.50	15.94
					12/28/2018	24.38	16.06
					3/14/2019	24.14	16.30
					5/6/2019	23.80	16.64
					7/8/2019	23.84	16.60

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Groundwater Elevations
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

Location	Water Bearing Zone	Screened Interval (feet bgs)[1]	Screened Interval (feet NAVD88)[2]	Top of Casing Elevation (feet NAVD88)[2]	Monitoring Date	Depth to Water (feet)[3]	Water Level Elevation (feet NAVD88)[2]
FMW-144	Intermediate	38.0 to 43.0	-8.0 to -13.0	29.41	12/23/2019	12.42	16.99
					12/26/2019	12.26	17.15
					12/30/2019	12.33	17.08
					12/30/2019	12.34	17.07
					12/31/2019	12.44	16.97
					12/31/2019	12.27	17.14
FMW-145	Intermediate	31.0 to 36.0	-8.0 to -13.0	22.90	12/23/2019	5.58	17.32
					12/26/2019	5.65	17.25
					12/30/2019	5.80	17.10
					12/30/2019	5.83	17.07
					12/31/2019	5.42	17.48
					12/31/2019	5.63	17.27
FMW-146	Intermediate	31.0 to 36.0	-8.0 to -13.0	23.19	12/23/2019	6.38	16.81
					12/26/2019	6.14	17.05
					12/30/2019	6.18	17.01
					12/30/2019	6.24	16.95
					12/31/2019	6.00	17.19
					12/31/2019	5.89	17.30
FMW-147	Intermediate	31.0 to 36.0	-8.0 to -13.0	22.82	12/23/2019	5.78	17.04
					12/26/2019	5.75	17.07
					12/30/2019	5.88	16.94
					12/30/2019	5.82	17.00
					12/31/2019	5.98	16.84
					12/31/2019	5.70	17.12
FMW-149	Intermediate	44.0 to 49.0	-8.0 to -13.0	36.21	12/23/2019	19.01	17.20
					12/26/2019	19.14	17.07
					12/30/2019	19.18	17.03
					12/30/2019	19.13	17.08
					12/31/2019	18.94	17.27
					12/31/2019	18.92	17.29

Table 6
Groundwater Elevations
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

Location	Water Bearing Zone	Screened Interval (feet bgs)[1]	Screened Interval (feet NAVD88)[2]	Top of Casing Elevation (feet NAVD88)[2]	Monitoring Date	Depth to Water (feet)[3]	Water Level Elevation (feet NAVD88)[2]
FMW-150	Intermediate	31.7 to 36.7	-8.5 to -13.5	23.23	2/14/2022	6.50	16.73
					5/16/2022	5.95	17.28
FMW-151	Intermediate	33.1 to 38.1	-9.4 to -14.4	23.74	2/15/2022	7.21	16.53
					5/16/2022	6.34	17.40
FMW-152	Intermediate	31.3 to 36.3	-8.5 to -13.5	22.83	2/14/2022	5.76	17.07
					5/16/2022	5.15	17.68
FMW-153	Intermediate	33.2 to 38.2	-8.5 to -13.5	24.72	2/15/2022	8.50	16.22
					5/16/2022	7.55	17.17
FMW-154	Shallow	10.0 to 15.0	12.8 to 7.8	22.80	2/14/2022	6.05	16.75
					5/16/2022	5.49	17.31
FMW-155	Shallow	10.0 to 15.0	13.9 to 8.9	23.90	2/14/2022	6.94	16.96
					5/16/2022	6.30	17.60
FMW-156	Shallow	15.0 to 20.0	10.7 to 5.7	25.70	2/14/2022	8.63	17.07
					5/16/2022	8.03	17.67
FMW-157	Intermediate	30.0 to 40.0	-4.1 to -14.1	25.95	2/14/2022	5.87	20.08
					5/16/2022	8.28	17.67

Table 6
Groundwater Elevations
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

Location	Water Bearing Zone	Screened Interval (feet bgs)[1]	Screened Interval (feet NAVD88)[2]	Top of Casing Elevation (feet NAVD88)[2]	Monitoring Date	Depth to Water (feet)[3]	Water Level Elevation (feet NAVD88)[2]
OW-1	Intermediate	30.0 to 45.0	-5.8 to -20.8	24.17	1/15/2021	18.48	5.69
					1/19/2021	18.30	5.87
					3/24/2021	18.22	5.95
					3/30/2021	14.89	9.28
					4/2/2021	14.25	9.92
					4/10/2021	13.22	10.95
					4/13/2021	12.99	11.18
					4/19/2021	12.58	11.59
					4/21/2021	12.41	11.76
					4/23/2021	12.29	11.88
					4/27/2021	12.17	12.00
					4/30/2021	11.97	12.20
					5/4/2021	11.84	12.33
					5/17/2021	11.35	12.82
					6/14/2021	10.74	13.43
					6/28/2021	10.33	13.84
					7/12/2021	10.33	13.84
					7/26/2021	10.30	13.87
					8/9/2021	10.27	13.90
					9/22/2021	10.07	14.10
					10/13/2021	9.24	14.93
					10/26/2021	9.02	15.15
					12/1/2021	8.01	16.16
					12/13/2021	7.67	16.50
					12/30/2021	--	--
					1/7/2022	7.02	17.15
					1/13/2022	7.03	17.14
					1/27/2022	7.23	16.94
					2/8/2022	7.50	16.67
					2/14/2022	7.42	16.75

Table 6
Groundwater Elevations
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

Location	Water Bearing Zone	Screened Interval (feet bgs)[1]	Screened Interval (feet NAVD88)[2]	Top of Casing Elevation (feet NAVD88)[2]	Monitoring Date	Depth to Water (feet)[3]	Water Level Elevation (feet NAVD88)[2]
OW-2	Intermediate	30.0 to 45.0	-7.1 to -22.1	22.91	1/15/2021	20.32	2.59
					1/19/2021	20.07	2.84
					3/24/2021	20.81	2.10
					3/30/2021	14.99	7.92
					4/2/2021	14.24	8.67
					4/10/2021	13.16	9.75
					4/13/2021	12.86	10.05
					4/19/2021	12.42	10.49
					4/21/2021	12.22	10.69
					4/23/2021	12.12	10.79
					4/27/2021	11.99	10.92
					4/30/2021	11.75	11.16
					5/4/2021	11.71	11.20
					5/17/2021	--	--
					6/14/2021	--	--
					6/28/2021	9.97	12.94
					7/12/2021	9.88	13.03
					7/26/2021	9.79	13.12
					8/9/2021	9.73	13.18
					9/22/2021	9.05	13.86
					10/13/2021	8.40	14.51
					10/26/2021	8.10	14.81
					12/1/2021	7.03	15.88
					12/13/2021	6.68	16.23
					12/30/2021	--	--
					1/7/2022	5.97	16.94
					1/13/2022	6.04	16.87
					1/27/2022	6.20	16.71
					2/8/2022	6.37	16.54
					2/14/2022	6.07	16.84

Table 6
Groundwater Elevations
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

Location	Water Bearing Zone	Screened Interval (feet bgs)[1]	Screened Interval (feet NAVD88)[2]	Top of Casing Elevation (feet NAVD88)[2]	Monitoring Date	Depth to Water (feet)[3]	Water Level Elevation (feet NAVD88)[2]
OW-3	Intermediate	48.0 to 63.0	-9.2 to -24.2	38.77	1/15/2021	36.11	2.66
					1/19/2021	38.44	0.33
					3/24/2021	35.83	2.94
					3/30/2021	31.35	7.42
					4/2/2021	27.31	11.46
					4/10/2021	29.92	8.85
					4/13/2021	29.66	9.11
				38.91	4/19/2021	29.35	9.56
					4/21/2021	29.18	9.73
					4/23/2021	29.04	9.87
					4/27/2021	28.95	9.96
					4/30/2021	28.61	10.30
					5/4/2021	28.66	10.25
					5/17/2021	27.99	10.92
					6/14/2021	27.23	11.68
					6/28/2021	26.87	12.04
					7/12/2021	--	--
					7/28/2021	26.61	12.30
					8/9/2021	26.29	12.62
					9/22/2021	25.42	13.49
					10/13/2021	24.41	14.50
					10/26/2021	24.05	14.86
					12/1/2021	22.78	16.13
					12/13/2021	22.30	16.61
					12/30/2021	--	--
					1/7/2022	21.50	17.41
					1/13/2022	21.58	17.33
					1/27/2022	21.75	17.16
					2/8/2022	21.93	16.98
					2/15/2022	21.88	17.03

Table 6
Groundwater Elevations
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

Location	Water Bearing Zone	Screened Interval (feet bgs)[1]	Screened Interval (feet NAVD88)[2]	Top of Casing Elevation (feet NAVD88)[2]	Monitoring Date	Depth to Water (feet)[3]	Water Level Elevation (feet NAVD88)[2]
OW-4	Intermediate	48.0 to 58.0	-11.7 to -21.7	32.05	1/15/2021	32.05	0.00
					1/19/2021	31.45	-31.45
				36.28	3/24/2021	31.60	4.68
					3/30/2021	31.60	4.68
					4/2/2021	31.11	5.17
					4/10/2021	26.28	10.00
					4/13/2021	25.98	10.30
					4/19/2021	25.57	10.71
					4/21/2021	25.34	10.94
					4/23/2021	25.28	11.00
					4/27/2021	--	--
					4/30/2021	--	--
					5/4/2021	--	--
					5/17/2021	--	--
					6/14/2021	--	--
					6/28/2021	--	--
					7/12/2021	--	--
				39.23	7/26/2021	26.28	12.95
					8/9/2021	--	--
					9/22/2021	--	--
					10/13/2021	--	--
					10/26/2021	--	--
					12/1/2021	--	--
					12/13/2021	--	--
					12/30/2021	--	--
					1/7/2022	--	--
					1/13/2022	--	--
					1/27/2022	--	--
					2/8/2022	--	--
					2/14/2022	--	--

Table 6
Groundwater Elevations
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

Location	Water Bearing Zone	Screened Interval (feet bgs)[1]	Screened Interval (feet NAVD88)[2]	Top of Casing Elevation (feet NAVD88)[2]	Monitoring Date	Depth to Water (feet)[3]	Water Level Elevation (feet NAVD88)[2]
OW-5	Intermediate	44.8 to 54.8	-11.0 to -21.0	33.80	1/15/2021	29.10	4.70
					1/19/2021	28.97	4.83
					3/24/2021	25.32	8.48
					3/30/2021	23.05	10.75
					4/2/2021	22.53	11.27
					4/10/2021	21.72	12.08
					4/13/2021	21.52	12.28
					4/19/2021	21.16	12.64
					4/21/2021	21.00	12.80
					4/23/2021	20.90	12.90
					4/27/2021	20.98	12.82
					4/30/2021	20.80	13.00
					5/4/2021	20.73	13.07
					5/17/2021	20.18	13.62
					6/14/2021	19.52	14.28
					6/28/2021	19.13	14.67
					7/12/2021	18.93	14.87
					7/26/2021	19.01	14.79
					8/9/2021	19.03	14.77
					9/22/2021	18.53	15.27
				30.25	10/13/2021	14.57	15.68
				34.57	10/26/2021	18.77	15.80
					12/1/2021	17.57	17.00
					12/13/2021	17.31	17.26
					12/30/2021	--	--
					1/7/2022	16.56	18.01
					1/13/2022	16.47	18.10
					1/27/2022	17.01	17.56
					2/8/2022	17.37	17.20
					2/14/2022	17.14	17.43

NOTES:

[1] Depth in feet below ground surface.

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

[3] In feet below top of well casing.

bgs = below ground surface

Table 7
Groundwater Analytical Results for TPH and BTEX
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Date	Sample Identification	Screened Interval (feet NAVD88)[1]	Water Bearing Zone	Analytical Results (micrograms per liter)								
					NWTPH-Dx[2]			NWTPH-Dx[2]	NWTPH-Gx[4]	EPA Method 8021B or 8260[5]			
					DRO	ORO	Total NWTPH-Dx[3]	Kerosene	GRO	Benzene	Toluene	Ethylbenzene	Xylenes
Block 38 West Property													
Reconnaissance Groundwater Samples from Borings													
FB-03	8/23/2018	FB-03-082318	8.8 to 3.8	Shallow	**660**	**490**	**1,150**	---	< 100	< 1.0	< 1.0	< 1.0	< 2.0
FB-05	8/22/2018	FB-05-082218	8.5 to 3.5	Shallow	< 260	< 410	< 670	---	< 100	< 1.0	< 1.0	< 1.0	< 2.0
FMW-130	7/21/2014	F-MW-130-GW1-072114	7.2 to 2.2	Shallow	---	---	---	---	**2,100** T	**5.1**	7.5	2.2	6.7
Groundwater Samples from Monitoring Wells													
FMW-130	7/24/2014	F-MW-130-072414	-22.8 to -32.8	Intermediate	---	---	---	---	< 100	< 1.0	< 1.0	< 1.0	< 2.0
	7/3/2017	FMW-130-070317			---	---	---	---	< 100	< 0.20	< 1.0	< 0.20	< 0.60
	8/30/2018	FMW-130-083018			< 250	< 410	< 660	---	< 100	< 0.20	< 1.0	< 0.20	< 0.60
	12/28/2018	FMW130-122818			< 260	< 410	< 670	---	< 100	< 0.20	< 1.0	< 0.20	< 0.60
	3/26/2019	FMW-130-032619			< 250	< 400	< 650	---	< 100	< 1.0	< 1.0	< 1.0	< 2.0
FMW-132	8/30/2018	FMW-132-083018	20.7 to 15.7	Shallow	260	< 400	260	---	< 100	< 0.20	< 1.0	< 0.20	< 0.60
	12/28/2018	FMW132-122818			< 260	< 410	< 670	---	< 100	< 0.20	< 1.0	< 0.20	< 0.60
	3/26/2019	FMW-132-032619			< 250	< 400	< 650	---	< 100	< 1.0	< 1.0	< 1.0	< 2.0
FMW-133	8/30/2018	FMW-133-083018	18.8 to 13.8	Shallow	270	< 410	270	---	< 100	< 0.20	< 1.0	< 0.20	< 0.60
	12/28/2018	FMW133-122818			310	< 410	310	---	< 100	< 0.20	< 1.0	< 0.20	< 0.60
	3/26/2019	FMW-133-032619			280	< 400	280	---	< 100	< 1.0	< 1.0	< 1.0	< 2.0
FMW-134	8/30/2018	FMW-134-083018	13.4 to 8.4	Shallow	**1,000** M	< 410	**1,000**	---	**1,100** Z	< 1.0	< 5.0	< 1.0	< 3.0
	12/28/2018	FMW134-122818			**560**	< 410	**560**	---	< 100	< 0.20	< 1.0	< 0.20	< 0.60
	12/28/2018	FMW500-122818			**680**	**490**	**1,170**	---	< 100	< 0.20	< 1.0	< 0.20	< 0.60
	3/26/2019	FMW-134-032619			**540** M	< 400	**540**	---	140 Z	< 1.0	< 1.0	< 1.0	< 2.0
FMW-135	8/30/2018	FMW-135-083018	18.6 to 13.6	Shallow	< 260	< 410	< 670	---	< 100	< 0.20	< 1.0	< 0.20	< 0.60
	12/28/2018	FMW135-122818			370	< 410	370	---	< 100	< 0.20	< 1.0	< 0.20	< 0.60
	3/26/2019	FMW-135-032619			< 250	< 410	< 660	---	< 100	< 1.0	< 1.0	< 1.0	< 2.0
FMW-136	8/30/2018	FMW-136-083018	-4.9 to -14.9	Intermediate	< 250	< 400	< 650	---	< 100	< 0.20	< 1.0	< 0.20	< 0.60
	12/28/2018	FMW136-122818			< 260	< 410	< 670	---	< 100	< 0.20	< 1.0	< 0.20	< 0.60
	3/26/2019	FMW-136-032619			< 250	< 410	< 660	---	< 100	< 1.0	< 1.0	< 1.0	< 2.0
FMW-144	12/26/2019	FMW-144-122619	-8.6 to -13.6	Intermediate	< 200	< 200	< 400	---	< 100	< 1.0	< 1.0	< 1.0	< 2.0
FMW-145	12/26/2019	FMW-145-122619	-8.1 to -13.1	Intermediate	**280**	**310**	**590**	---	< 100	< 1.0	< 1.0	< 1.0	< 2.0
FMW-146	12/26/2019	FMW-146-122619	-7.8 to -12.8	Intermediate	**1,100**	**650**	**1,750**	---	170 T	< 1.0	< 1.0	< 1.0	< 2.0
FMW-147	12/26/2019	FMW-147-122619	-8.2 to -13.2	Intermediate	**1,900**	**1,400**	**3,300**	---	< 100	< 1.0	< 1.0	< 1.0	< 2.0
FMW-149	12/26/2019	FMW-149-122619	-7.8 to -12.8	Intermediate	< 210	< 210	< 420	---	< 100	< 1.0	< 1.0	< 1.0	< 2.0
Screening Level for Protection of Groundwater as Drinking Water[6]					**500[7]**		**500[7]**	**500[7]**	**800[7]**	**5.0[8]**	**640[8]**	**700[8]**	**1,600[8]**
Screening Level for Protection of Indoor Air[6]					**NE**		**NE**	**NE**	**NE**	**2.4**	**15,000**	**2,800**	**320**
Laboratory Practical Quantitation Limit[9]					**500**		**500**	**500**	**100**	**0.20**	**1.0**	**0.20**	**0.60**

Table 7
Groundwater Analytical Results for TPH and BTEX
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

					Analytical Results (micrograms per liter)								
					NWTPH-Dx[2]			NWTPH-Dx[2]	NWTPH-Gx[4]	EPA Method 8021B or 8260[5]			
Sample Location	Sample Date	Sample Identification	Screened Interval (feet NAVD88)[1]	Water Bearing Zone	DRO	ORO	Total NWTPH-Dx[3]	Kerosene	GRO	Benzene	Toluene	Ethylbenzene	Xylenes
Block 37 Site													
Groundwater Samples from Monitoring Wells													
MW-41	11/5/1991	MW-41	22.0 to 7.0	Shallow	< 1,000	---	< 1,000	---	< 1,000	**67**	< 0.5	< 0.5	< 0.5
	12/29/1993	MW-41			< 250	< 750	< 1,000	---	< 100	**4.6**	< 0.5	< 0.5	< 0.5
	7/14/1994	MW-41			< 250	< 750	< 1,000	---	< 100	**10**	< 0.5	< 0.5	< 0.5
	10/25/1994	MW-41			500	< 750	500	---	< 50	< 0.5	< 0.5	< 0.5	< 1.0
	3/8/1995	MW-41			< 250	< 750	< 1,000	---	< 50	1.6	< 0.5	< 0.5	< 1.0
	6/6/1995	MW-41			< 250	< 750	< 1,000	---	< 50	< 0.5	< 0.5	< 0.5	< 1.0
	9/7/1995	MW-41			< 250	< 750	< 1,000	---	< 50	< 0.5	< 0.5	< 0.5	< 1.0
	12/8/1995	MW-41			< 250	< 750	< 1,000	---	< 50	< 0.5	< 0.5	< 0.5	< 1.0
	4/1/1996	MW-41			< 250	< 750	< 1,000	---	< 50	< 0.5	< 0.5	< 0.5	< 1.0
	6/25/1996	MW-41			< 250	< 750	< 1,000	---	< 50	< 0.5	< 0.5	< 0.5	< 1.00
	9/27/1996	MW-41			< 250	< 750	< 1,000	---	< 50	< 0.5	< 0.5	< 0.5	< 1.00
	6/2/2005	MW-41			< 237	< 474	< 711	---	< 100	< 1	< 1	< 1	< 2
	7/26/2005	MW-41			**258**	**977**	**1,235**	---	< 50	< 0.2	< 0.2	< 0.2	< 0.50
	11/2/2005	MW-41			< 238	< 476	< 714	---	< 50	< 0.5	< 0.5	< 0.5	< 3.00
	2/23/2006	MW-41			< 250	< 500	< 750	---	< 50	< 0.5	< 0.5	< 0.5	< 3.00
	5/9/2006	MW-41			< 253	< 505	< 758	---	< 50	< 0.5	< 0.5	< 0.5	< 3.00
	8/30/2006	MW-41			< 240	< 481	< 721	---	< 80	< 0.5	< 0.5	< 0.5	< 3.00
	12/12/2006	MW-41			< 243	< 485	< 728	---	< 50	< 0.5	< 0.5	< 0.5	< 3.00
	3/7/2007	MW-41			< 263	< 526	< 789	---	< 50	< 0.5	< 0.5	< 0.5	< 3.00
	6/14/2007	MW-41			< 236	< 472	< 708	---	79.2	< 0.5	< 0.5	< 0.5	< 3.00
	9/13/2007	MW-41			< 236	< 472	< 708	---	< 50	< 0.5	< 0.5	< 0.5	< 3.00
	12/18/2007	MW-41			< 236	< 472	< 708	---	< 50	< 1	< 1	< 1	< 3
	3/17/2008	MW-41			< 236	< 472	< 708	< 1	< 50	< 236	< 0.5	< 0.5	< 0.5
	6/3/2008	MW-41			< 236	< 472	< 708	< 236	< 50	< 0.5	< 0.5	< 0.5	< 3
	8/4/2008	MW-41			< 236	< 472	< 708	< 236	< 50	< 0.5	< 0.5	< 0.5	< 3
	11/4/2008	MW-41			< 245	< 490	< 735	< 245	< 50.0	< 0.500	< 0.500	< 0.500	< 3.00
	2/24/2009	MW-41			< 240	< 481	< 721	< 240	< 50.0	< 0.500	< 0.500	< 0.500	< 3.00
	5/17/2009	MW-41			< 250	< 500	< 750	< 250	< 50.0	< 0.500	< 0.500	< 0.500	< 3.00
	8/16/2009	MW-41			470	< 480	470	< 240	< 50	< 0.50	< 0.50	< 0.50	< 2.0
	11/15/2009	MW-41			< 280	< 560	< 840	< 280	< 50	< 0.50	< 0.50	< 0.50	< 2.0
	2/21/2010	MW-41			98.4	< 379	98.4	< 75.8	< 50.0	< 1.0	< 1.0	< 1.0	< 3.0
	5/23/2010	MW-41			< 76.9	< 385	< 461.9	< 76.9	< 50.0	< 1.0	< 1.0	< 1.0	< 3.0
	11/15/2010	MW-41			< 77.7	< 388	< 465.7	< 77.7	< 50.0	< 1.0	1.8	< 1.0	< 3.0
Screening Level for Protection of Groundwater as Drinking Water[6]					**500[7]**		**500[7]**	**500[7]**	**800[7]**	**5.0[8]**	**640[8]**	**700[8]**	**1,600[8]**
Screening Level for Protection of Indoor Air[6]					**NE**		**NE**	**NE**	**NE**	**2.4**	**15,000**	**2,800**	**320**
Laboratory Practical Quantitation Limit[9]					**500**		**500**	**500**	**100**	**0.20**	**1.0**	**0.20**	**0.60**

Table 7
Groundwater Analytical Results for TPH and BTEX
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Date	Sample Identification	Screened Interval (feet NAVD88)[1]	Water Bearing Zone	Analytical Results (micrograms per liter)								
					NWTPH-Dx[2]			NWTPH-Dx[2]	NWTPH-Gx[4]	EPA Method 8021B or 8260[5]			
					DRO	ORO	Total NWTPH-Dx[3]	Kerosene	GRO	Benzene	Toluene	Ethylbenzene	Xylenes
MW-41 (continued)	2/28/2011	MW-41	22.0 to 7.0	Shallow	< 77.7	< 388	< 465.7	< 77.7	< 50.0	< 1.0	< 1.0	< 1.0	< 3.0
	6/14/2011	MW-41			< 82.5	< 412	< 494.5	---	< 50.0	< 1.0	< 1.0	< 1.0	< 3.0
	8/29/2011	MW-41			< 84.2	< 421	< 505.2	< 84.2	< 50.0	< 1.0	< 1.0	< 1.0	< 3.0
	12/5/2011	MW-41			< 85.1	< 426	< 511.1	< 85.1	< 50.0	< 1.0	< 1.0	< 1.0	< 3.0
	2/15/2012	MW-41			< 76.2	< 381	< 457.2	< 76.2	< 50.0	< 1.0	< 1.0	< 1.0	< 3.0
	5/16/2012	MW-41			< 81.6	< 408	< 489.6	< 81.6	< 50.0	< 1.0	< 1.0	< 1.0	< 3.0
	8/14/2012	MW-41			< 88.9	< 444	< 532.9	< 88.9	< 50.0	< 1.0	< 1.0	< 1.0	< 3.0
MW-71	11/3/2005	MW-71	25.42 to 10.42	Shallow	**5,880**	< 472	**5,880**	---	**18,100**	**240**	59.3	**925**	**1,750**
	2/23/2006	MW-71			**1,770**	< 485	**1,770**	---	**21,800**	**190**	28	**848**	**1,710**
	5/10/2006	MW-71			**733**	< 495	**733**	---	**25,100**	**195**	< 20	**803**	**1,338**
	8/29/2006	MW-71			**664**	< 476	**664**	---	**15,400**	**207**	4.61	698	**834**
	12/12/2006	MW-71			**609**	< 476	**609**	---	**11,300**	**127**	68.2	237	**512**
	3/7/2007	MW-71			**567**	< 490	**567**	---	**22,100**	**211**	< 20	**836**	**1,220**
	6/14/2007	MW-71			**851**	< 490	**851**	---	**19,200**	**186**	2.67	647	**667**
	9/14/2007	MW-71			**901**	< 485	**901**	---	**7,230**	**128**	2	329	122
	12/17/2007	MW-71			**823**	< 472	**823**	---	**16,500**	**200**	17	600	**694**
	3/17/2008	MW-71			**1,070**	< 472	**1,070**	< 1	**15,900**	**5,710**	124	2.7	**454**
	6/2/2008	MW-71			**566**	< 472	**566**	**4,280**	**9,480**	**94**	24.5	291	**328**
	8/4/2008	MW-71			**550**	< 472	**550**	**1,860**	**4,140**	**31.7**	1.06	103	62.3
	11/3/2008	MW-71			**524**	< 485	**524**	**2,450**	**5,820**	**49.2**	1.03	69	10.4
	2/23/2009	MW-71			**828**	< 481	**828**	**4,340**	**11,600**	**136**	2.3	358	213
	5/17/2009	MW-71			**1,380**	< 481	**1,380**	**5,820**	**13,400**	**104**	2.38	260	201
	8/16/2009	MW-71			**660**	< 480	**660**	**1,700**	**2,300**	**37**	< 0.50	56	14
	11/15/2009	MW-71			**940**	< 470	**940**	**1,100**	**2,500**	**6.2**	0.6	25	6.5
	2/21/2010	MW-71			**3,990**	**4,500**	**8,490**	**4,980**	**6,390**	**97.1**	1.9	403	101
	5/23/2010	MW-71			**3,860**	**4,440**	**8,300**	**4,410**	**2,550**	**39.7**	3.8	84	12.7
	8/15/2010	MW-71			**912**	**729**	**1,641**	**2,710**	**5,130**	**99.1**	< 1.0	148	12.1
	11/14/2010	MW-71			**541**	**2,600**	**3,141**	267	244	< 1.0	1.8	< 1.0	< 3.0
Screening Level for Protection of Groundwater as Drinking Water[6]					**500[7]**		**500[7]**	**500[7]**	**800[7]**	**5.0[8]**	**640[8]**	**700[8]**	**1,600[8]**
Screening Level for Protection of Indoor Air[6]					**NE**		**NE**	**NE**	**NE**	**2.4**	**15,000**	**2,800**	**320**
Laboratory Practical Quantitation Limit[9]					**500**		**500**	**500**	**100**	**0.20**	**1.0**	**0.20**	**0.60**

Table 7
Groundwater Analytical Results for TPH and BTEX
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

					Analytical Results (micrograms per liter)								
					NWTPH-Dx[2]			NWTPH-Dx[2]	NWTPH-Gx[4]	EPA Method 8021B or 8260[5]			
Sample Location	**Sample Date**	**Sample Identification**	**Screened Interval (feet NAVD88)[1]**	**Water Bearing Zone**	**DRO**	**ORO**	**Total NWTPH-Dx[3]**	**Kerosene**	**GRO**	**Benzene**	**Toluene**	**Ethylbenzene**	**Xylenes**
MW-72	11/3/2005	MW-72	25.32 to 10.32	Shallow	< 236	< 472	< 708	---	71.3	0.98	< 0.5	< 0.500	2.32
	2/23/2006	MW-72			408	< 500	408	---	**1,900**	**11**	1.22	98.2	25.3
	5/10/2006	MW-72			< 250	< 500	< 750	---	**1,540**	**8.2**	1.12	70.4	< 6
	8/29/2006	MW-72			< 253	< 505	< 758	---	**810**	**6.28**	< 0.5	10.2	< 3
	12/12/2006	MW-72			< 250	< 500	< 750	---	**970**	**3.29**	< 0.5	1.95	< 3
	3/7/2007	MW-72			< 260	< 521	< 781	---	560	**5.45**	0.59	38.5	< 3
	6/14/2007	MW-72			< 255	< 510	< 765	---	**1,140**	**5.29**	< 0.5	2.72	< 3
	9/14/2007	MW-72			< 250	< 500	< 750	---	239	1.76	< 0.5	< 0.500	< 3
	12/17/2007	MW-72			< 238	< 476	< 714	---	489	1.8	< 1	< 1.00	< 2
	3/17/2008	MW-72			< 236	< 472	< 708	< 1	**983**	**407**	3.3	< 0.5	4.34
	6/2/2008	MW-72			< 238	< 476	< 714	474	**1,160**	**2.89**	< 0.5	4.77	< 3
	8/4/2008	MW-72			< 236	< 472	< 708	247	330	0.81	< 0.5	< 0.5	< 3
	11/3/2008	MW-72			< 243	< 485	< 728	278	577	< 0.500	< 0.500	< 0.500	< 3.00
	2/23/2009	MW-72			< 243	< 485	< 728	**3,130**	780	< 0.500	< 0.500	< 0.500	< 3.00
	5/17/2009	MW-72			**634**	< 476	**634**	**962**	786	**3.55**	< 0.500	24.1	< 3.00
	8/16/2009	MW-72			< 240	< 490	< 730	< 240	170	< 0.50	< 0.50	0.82	< 2.0
	11/15/2009	MW-72			**430**	**2,500**	**2,930**	< 240	110	< 0.50	0.77	< 0.50	< 2.0
	2/21/2010	MW-72			**1,810**	**1,720**	**3,530**	**803**	258	< 1.0	1.7	< 1.0	< 3.0
	5/23/2010	MW-72			**6,100**	**2,250**	**8,350**	**5,630**	329	2.3	< 1.0	< 1.0	< 3.0
	8/15/2010	MW-72			**641**	**3,460**	**4,101**	236	330	1.4	< 1.0	3.1	< 3.0
	11/14/2010	MW-72			**159**	**749**	**908**	147	261	< 1.0	< 1.0	1.6	< 3.0
Screening Level for Protection of Groundwater as Drinking Water[6]					**500[7]**		**500[7]**	**500[7]**	**800[7]**	**5.0[8]**	**640[8]**	**700[8]**	**1,600[8]**
Screening Level for Protection of Indoor Air[6]					**NE**		**NE**	**NE**	**NE**	**2.4**	**15,000**	**2,800**	**320**
Laboratory Practical Quantitation Limit[9]					**500**		**500**	**500**	**100**	**0.20**	**1.0**	**0.20**	**0.60**

Table 7
Groundwater Analytical Results for TPH and BTEX
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

					Analytical Results (micrograms per liter)								
					NWTPH-Dx[2]			NWTPH-Dx[2]	NWTPH-Gx[4]	EPA Method 8021B or 8260[5]			
Sample Location	**Sample Date**	**Sample Identification**	**Screened Interval (feet NAVD88)[1]**	**Water Bearing Zone**	**DRO**	**ORO**	**Total NWTPH-Dx[3]**	**Kerosene**	**GRO**	**Benzene**	**Toluene**	**Ethylbenzene**	**Xylenes**
MW-73	11/3/2005	MW-73	25.11 to 10.11	Shallow	249	< 472	249	---	**1,070**	**23.1**	1.74	3.58	4.74
	2/23/2006	MW-73			**731**	< 500	**731**	---	**2,420**	**13.2**	2.13	4.52	< 3
	4/10/2006	MW-73			< 236	< 472	< 708	---	**2,460**	**9.56**	2.19	4.51	2.44
	8/29/2006	MW-73			< 236	< 472	< 708	---	**1,130**	**12.6**	2.4	1.89	< 3
	12/12/2006	MW-73			< 243	< 485	< 728	---	**2,360**	**14.5**	2.01	4.32	< 3
	3/7/2007	MW-73			< 236	< 472	< 708	---	**2,260**	**17.5**	1.47	2.72	3.11
	6/14/2007	MW-73			< 260	< 521	< 781	---	**2,450**	**11.6**	1.56	2.63	< 3
	9/14/2007	MW-73			< 236	< 472	< 708	---	**1,380**	**12.1**	1.88	0.65	< 3
	12/17/2007	MW-73			< 236	< 472	< 708	---	**2,390**	**18**	1.4	3.3	1.4
	3/17/2008	MW-73			< 238	< 476	< 714	1.17	**2,670**	**707**	10.1	1.35	2.16
	6/2/2008	MW-73			< 236	< 472	< 708	**767**	**2,260**	**15.8**	0.76	1.14	< 3
	8/4/2008	MW-73			< 236	< 472	< 708	465	**1,250**	**10.3**	1.15	< 0.5	< 3
	11/3/2008	MW-73			< 243	< 485	< 728	466	**1,790**	**21.3**	1.38	< 0.500	< 3.00
	2/23/2009	MW-73			< 240	< 481	< 721	**7,510**	**2,800**	**25.6**	2.05	1.59	< 3.00
	5/17/2009	MW-73			< 243	< 485	< 728	430	**1,510**	**9.97**	1	0.73	< 3.00
	8/16/2009	MW-73			430	< 480	430	**1,100**	**1,200**	**5**	< 0.50	< 0.50	< 2.0
	11/15/2009	MW-73			**1,100**	< 480	**1,100**	**1,500**	**2,700**	**26**	2	3.8	< 2.0
	2/21/2010	MW-73			**946**	**624**	**1,570**	**1,110**	**2,190**	**39**	2.4	3.3	6.9
	5/23/2010	MW-73			**1,030**	**659**	**1,689**	**1,670**	**2,260**	**31.2**	2.2	2.1	< 3.0
	8/15/2010	MW-73			173	< 392	173	**671**	**1,960**	**37.3**	1.8	1.7	< 3.0
	11/14/2010	MW-73			**407**	**1,670**	**2,077**	**733**	**1,410**	**26**	3.4	< 1.0	< 3.0
Screening Level for Protection of Groundwater as Drinking Water[6]					**500[7]**		**500[7]**	**500[7]**	**800[7]**	**5.0[8]**	**640[8]**	**700[8]**	**1,600[8]**
Screening Level for Protection of Indoor Air[5]					**NE**		**NE**	**NE**	**NE**	**2.4**	**15,000**	**2,800**	**320**
Laboratory Practical Quantitation Limit[9]					**500**		**500**	**500**	**100**	**0.20**	**1.0**	**0.20**	**0.60**

Table 7
Groundwater Analytical Results for TPH and BTEX
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Date	Sample Identification	Screened Interval (feet NAVD88)[1]	Water Bearing Zone	Analytical Results (micrograms per liter)								
					NWTPH-Dx[2]		Total NWTPH-Dx[3]	NWTPH-Dx[2]	NWTPH-Gx[4]	EPA Method 8021B or 8260[5]			
					DRO	ORO		Kerosene	GRO	Benzene	Toluene	Ethylbenzene	Xylenes
MW-95	11/2/2005	MW-95	Unknown	Shallow	< 236	< 472	< 708	---	545	1	1	1	10
	2/23/2006	MW-95			240	< 481	240	---	278	**10**	6	8	19
	5/9/2006	MW-95			< 255	< 510	< 765	---	326	**3**	1	1	16
	8/30/2006	MW-95			< 248	< 495	< 743	---	94.3	---	---	---	---
	12/12/2006	MW-95			< 243	< 485	< 728	---	**1,330**	**53**	15	33	119
	3/7/2007	MW-95			< 250	< 500	< 750	---	60.2	**4**	< 0.5	1	11
	6/14/2007	MW-95			< 236	< 472	< 708	---	215	**4**	< 0.5	2	42
	9/13/2007	MW-95			< 238	< 476	< 714	---	< 50.0	< 0.5	< 0.5	< 0.500	< 3
	12/18/2007	MW-95			< 238	< 476	< 714	---	< 50	< 1	< 1	< 1	< 3
	3/17/2008	MW-95			< 236	< 472	< 708	< 1	< 50	< 236	< 0.5	< 0.5	< 0.5
	6/3/2008	MW-95			< 236	< 472	< 708	< 236	< 50	< 0.5	< 0.5	< 0.5	< 3
	8/4/2008	MW-95			< 236	< 472	< 708	< 236	< 50	< 0.5	< 0.5	< 0.5	< 3
	11/4/2008	MW-95			< 248	< 495	< 743	< 248	< 50.0	< 0.500	< 0.500	< 0.500	< 3.00
	2/24/2009	MW-95			< 240	< 481	< 721	< 240	< 50.0	< 0.500	< 0.500	< 0.500	< 3.00
	5/17/2009	MW-95			< 240	< 481	< 721	< 240	< 50.0	< 0.500	< 0.500	< 0.500	< 3.00
	8/16/2009	MW-95			< 240	< 480	< 720	< 240	< 50	< 0.50	< 0.50	< 0.50	< 2.0
	11/15/2009	MW-95			< 240	< 480	< 720	< 240	110	< 0.50	< 0.50	< 0.50	< 2.0
	2/21/2010	MW-95			202	< 388	202	< 77.7	< 50.0	< 1.0	< 1.0	< 1.0	< 3.0
	5/23/2010	MW-95			80	< 392	80	83.2	< 50.0	< 1.0	< 1.0	< 1.0	< 3.0
	8/16/2010	MW-95			< 78.4	< 392	< 470.4	< 78.4	56.5	< 1.0	< 1.0	< 1.0	5
	11/15/2010	MW-95			< 77.7	< 388	< 465.7	97	85.7	< 1.0	< 1.0	< 1.0	24
Screening Level for Protection of Groundwater as Drinking Water[6]					**500[7]**		**500[7]**	**500[7]**	**800[7]**	**5.0[8]**	**640[8]**	**700[8]**	**1,600[8]**
Screening Level for Protection of Indoor Air[5]					**NE**		**NE**	**NE**	**NE**	**2.4**	**15,000**	**2,800**	**320**
Laboratory Practical Quantitation Limit[9]					**500**		**500**	**500**	**100**	**0.20**	**1.0**	**0.20**	**0.60**

NOTES:

Results in **bold** and highlighted yellow denote concentrations exceeding applicable screening levels.

▨ Shading represents most stringent screening level for groundwater.

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

— denotes sample not analyzed.

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

[2] Analyzed by Northwest Method NWTPH-Dx.

[3] Total is the sum of the DRO and ORO results.

[4] Analyzed by Northwest Method NWTPH-Gx.

[5] Analyzed by U.S. Environmental Protection Agency Method 8021B or 8260.

[6] Washington State Cleanup Levels and Risk Calculations (CLARC) under Washington State Model Toxics Control Act Cleanup Regulation (MTCA), Standard Method B Values for Groundwater and Vapor Intrusion Method B Table, Groundwater Screening Levels, from CLARC Master spreadsheet, https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC, unless otherwise noted.

[7] MTCA Method A is used as a surrogate for Method B because no Method B groundwater value has been established for TPH gasoline-, diesel- and oil-range mixtures.

[8] Groundwater screening level adjusted or based on the Federal Maximum Contaminant Level (MCL), 40 Code of Federal Regulations (CFR) Part 141.

[9] Laboratory Practical Quantitation Limits (PQLs) from OnSite Environmental of Redmond, Washington. PQLs for individual samples may vary due to sample matrix interferences or dilutions.

BTEX = benzene, toluene, ethylbenzene, and xylenes
DRO = total petroleum hydrocarbons (TPH) as diesel-range organics
GRO = TPH as gasoline-range organics
M = hydrocarbons in the gasoline range are impacting the diesel-range result
ORO = TPH as oil-range organics
T = the sample chromatogram is not similar to a typical gas
Z = the gasoline result is mainly attributed to a single peak (naphthalene)

Table 8
Groundwater Analytical Results for PAHs
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

					Analytical Results (micrograms per liter)[2]																		
					Non-Carcinogenic PAHs											Carcinogenic PAHs							
Sample Location	**Sample Date**	**Sample Identification**	**Screened Interval (feet NAVD88)[1]**	**Water Bearing Zone**	**Naphthalene**	**1-Methylnaphthalene**	**2-Methylnaphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo(g,h,i)Perylene**	**Fluoranthene**	**Fluorene**	**Phenanthrene**	**Pyrene**	**Benzo(a)Pyrene**	**Benzo(a)Anthracene**	**Benzo(b)Fluoranthene**	**Benzo(j,k)Fluoranthene**	**Chrysene**	**Dibenzo(a,h)Anthracene**	**Indeno(1,2,3-cd)Pyrene**	**Total cPAHs TEC[3,4]**
Block 38 West Property																							
Reconnaissance Groundwater Samples from Borings																							
FB-03	8/23/2018	FB-03-082318	8.8 to 3.8	Shallow	< 1.3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
FMW-130	7/21/2014	F-MW-130-GW1-072114	7.2 to 2.2	Shallow	**650** E	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Groundwater Samples from Monitoring Wells																							
FMW-130	8/30/2018	FMW-130-083018	-22.8 to -32.8	Intermediate	< 0.097	< 0.097	< 0.097	< 0.097	< 0.097	< 0.097	< 0.0097	< 0.097	< 0.097	< 0.097	< 0.097	< 0.0097	< 0.0097	< 0.0097	< 0.0097	< 0.0097	< 0.0097	< 0.0097	< 0.0073
	12/28/2018	FMW130-122818			< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.011	< 0.11	< 0.11	< 0.11	< 0.11	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.0083
	3/26/2019	FMW-130-032619			---	---	---	---	---	---	---	---	---	---	---	< 0.011	0.015	0.011	< 0.011	0.015	< 0.011	< 0.011	0.0099
FMW-132	8/30/2018	FMW-132-083018	20.7 to 15.7	Shallow	< 0.096	< 0.096	< 0.096	0.40	< 0.096	< 0.096	< 0.0096	< 0.096	< 0.096	< 0.096	< 0.096	< 0.0096	< 0.0096	< 0.0096	< 0.0096	< 0.0096	< 0.0096	< 0.0096	< 0.0072
	12/28/2018	FMW132-122818			< 0.10	< 0.10	< 0.10	0.29	< 0.10	< 0.10	< 0.010	< 0.10	< 0.10	< 0.10	< 0.10	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.0076
	3/26/2019	FMW-132-032619			---	---	---	---	---	---	---	---	---	---	---	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.0076
FMW-133	8/30/2018	FMW-133-083018	18.8 to 13.8	Shallow	< 0.097	< 0.097	< 0.097	0.38	< 0.097	< 0.097	< 0.0097	< 0.097	0.098	< 0.097	< 0.097	< 0.0097	< 0.0097	< 0.0097	< 0.0097	< 0.0097	< 0.0097	< 0.0097	< 0.0073
	12/28/2018	FMW133-122818			< 0.10	< 0.10	< 0.10	0.33	< 0.10	< 0.10	< 0.010	< 0.10	< 0.10	< 0.10	< 0.10	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.0076
	3/26/2019	FMW-133-032619			---	---	---	---	---	---	---	---	---	---	---	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.0083
FMW-134	8/30/2018	FMW-134-083018	13.4 to 8.4	Shallow	**290**	**10**	12	8.3	0.12	< 0.099	< 0.0099	< 0.099	1.6	0.48	< 0.099	< 0.0099	< 0.0099	< 0.0099	< 0.0099	< 0.0099	< 0.0099	< 0.0099	< 0.0075
	12/28/2018	FMW134-122818			**23**	0.67	0.77	0.71	< 0.11	< 0.11	< 0.011	< 0.11	< 0.11	< 0.11	< 0.11	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.0083
	12/28/2018	FMW500-122818			**62**	**1.7**	2.3	1.6	< 0.10	< 0.10	< 0.010	< 0.10	0.15	< 0.10	< 0.10	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.0076
	3/26/2019	FMW-134-032619			---	---	---	---	---	---	---	---	---	---	---	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.0076
FMW-135	8/30/2018	FMW-135-083018	18.6 to 13.6	Shallow	0.35	0.68	0.29	0.39	< 0.096	< 0.096	< 0.0096	< 0.096	< 0.096	< 0.096	< 0.096	< 0.0096	< 0.0096	< 0.0096	< 0.0096	< 0.0096	< 0.0096	< 0.0096	< 0.0072
	12/28/2018	FMW135-122818			< 0.099	0.45	0.11	0.33	< 0.099	< 0.099	< 0.0099	< 0.099	< 0.099	< 0.099	< 0.099	< 0.0099	< 0.0099	< 0.0099	< 0.0099	< 0.0099	< 0.0099	< 0.0099	< 0.0075
	3/26/2019	FMW-135-032619			---	---	---	---	---	---	---	---	---	---	---	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.0083
FMW-136	8/30/2018	FMW-136-083018	-4.9 to -14.9	Intermediate	0.39	< 0.096	< 0.096	< 0.096	< 0.096	< 0.096	< 0.0096	< 0.096	< 0.096	< 0.096	< 0.096	< 0.0096	< 0.0096	< 0.0096	< 0.0096	< 0.0096	< 0.0096	< 0.0096	< 0.0072
	12/28/2018	FMW136-122818			< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.010	< 0.10	< 0.10	< 0.10	< 0.10	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.0076
	3/26/2019	FMW-136-032619			---	---	---	---	---	---	---	---	---	---	---	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.0076
FMW-144	12/26/2019	FMW-144-122619	-8.6 to -13.6	Intermediate	< 0.094	< 0.094	< 0.094	---	---	---	---	---	---	---	---	< 0.0094	< 0.0094	< 0.0094	< 0.0094	< 0.0094	< 0.0094	< 0.0094	< 0.0071
FMW-145	12/26/2019	FMW-145-122619	-8.1 to -13.1	Intermediate	< 0.094	< 0.094	< 0.094	---	---	---	---	---	---	---	---	< 0.0094	< 0.0094	< 0.0094	< 0.0094	< 0.0094	< 0.0094	< 0.0094	< 0.0071
FMW-146	12/26/2019	FMW-146-122619	-7.8 to -12.8	Intermediate	15	**9.2**	13	---	---	---	---	---	---	---	---	< 0.0094	0.043	0.013	< 0.0094	0.036	< 0.0094	< 0.0094	0.012
FMW-147	12/26/2019	FMW-147-122619	-8.2 to -13.2	Intermediate	2.0	0.57	0.57	---	---	---	---	---	---	---	---	0.023	0.042	0.031	< 0.010	0.033	< 0.010	0.014	0.033
FMW-149	12/26/2019	FMW-149-122619	-7.8 to -12.8	Intermediate	0.15	< 0.094	< 0.094	---	---	---	---	---	---	---	---	< 0.0094	< 0.0094	< 0.0094	< 0.0094	< 0.0094	< 0.0094	< 0.0094	< 0.0071
Screening Level for Protection of Groundwater as Drinking Water[5]					**160**	**1.5**	**32**	**480**	**NE**	**2,400**	**NE**	**640**	**320**	**NE**	**240**	**0.2[6]**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**0.2[6]**
Screening Level for Protection of Indoor Air[5]					**8.9**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Laboratory Practical Quantitation Limit[7]					**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.010**	**0.10**	**0.10**	**0.10**	**0.10**	**0.010**	**0.010**	**0.010**	**0.010**	**0.010**	**0.010**	**0.010**	**NA**

Table 8
Groundwater Analytical Results for PAHs
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

					Analytical Results (micrograms per liter)[2]																		
					Non-Carcinogenic PAHs											Carcinogenic PAHs							
Sample Location	**Sample Date**	**Sample Identification**	**Screened Interval (feet NAVD88)[1]**	**Water Bearing Zone**	**Naphthalene**	**1-Methylnaphthalene**	**2-Methylnaphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo(g,h,i)Perylene**	**Fluoranthene**	**Fluorene**	**Phenanthrene**	**Pyrene**	**Benzo(a)Pyrene**	**Benzo(a)Anthracene**	**Benzo(b)Fluoranthene**	**Benzo(j,k)Fluoranthene**	**Chrysene**	**Dibenzo(a,h)Anthracene**	**Indeno(1,2,3-cd)Pyrene**	**Total cPAHs TEC[3,4]**
Block 37 Site																							
Groundwater Samples from Monitoring Wells																							
MW-41	7/26/2005	MW-41	22.0 to 7.0	Shallow	< 0.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	2/23/2006	MW-41			< 1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	5/9/2006	MW-41			< 1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	8/30/2006	MW-41			< 5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	12/12/2006	MW-41			< 5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	3/7/2007	MW-41			< 5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	6/14/2007	MW-41			< 5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	9/13/2007	MW-41			< 5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	12/18/2007	MW-41			< 1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	3/17/2008	MW-41			< 1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	6/3/2008	MW-41			< 5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	8/4/2008	MW-41			< 5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	11/4/2008	MW-41			< 5.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	2/24/2009	MW-41			< 5.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	5/17/2009	MW-41			< 5.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	8/16/2009	MW-41			< 5.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	11/15/2009	MW-41			< 5.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	2/21/2010	MW-41			< 1.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	5/23/2010	MW-41			< 1.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	11/15/2010	MW-41			< 1.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	2/28/2011	MW-41			< 1.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	8/29/2011	MW-41			< 1.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	12/5/2011	MW-41			< 10.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	2/15/2012	MW-41			2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	5/16/2012	MW-41			< 1.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	8/14/2012	MW-41			< 1.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Screening Level for Protection of Groundwater as Drinking Water[5]					**160**	**1.5**	**32**	**480**	**NE**	**2,400**	**NE**	**640**	**320**	**NE**	**240**	**0.2[6]**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**0.2[6]**
Screening Level for Protection of Indoor Air[5]					**8.9**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Laboratory Practical Quantitation Limit[7]					**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.010**	**0.10**	**0.10**	**0.10**	**0.10**	**0.010**	**0.010**	**0.010**	**0.010**	**0.010**	**0.010**	**0.010**	**NA**

Table 8
Groundwater Analytical Results for PAHs
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

					Analytical Results (micrograms per liter)[2]																		
					Non-Carcinogenic PAHs											Carcinogenic PAHs							
Sample Location	Sample Date	Sample Identification	Screened Interval (feet NAVD88)[1]	Water Bearing Zone	Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(g,h,i)Perylene	Fluoranthene	Fluorene	Phenanthrene	Pyrene	Benzo(a)Pyrene	Benzo(a)Anthracene	Benzo(b)Fluoranthene	Benzo(j,k)Fluoranthene	Chrysene	Dibenzo(a,h)Anthracene	Indeno(1,2,3-cd)Pyrene	Total cPAHs TEC[3,4]
MW-71	2/23/2006	MW-71	25.42 to 10.42	Shallow	**341**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	5/10/2006	MW-71			**410**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	8/29/2006	MW-71			**364**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	12/12/2006	MW-71			**151**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	3/7/2007	MW-71			**691**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	6/14/2007	MW-71			**326**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	9/14/2007	MW-71			**200**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	3/17/2008	MW-71			< 1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	6/2/2008	MW-71			**156**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	8/4/2008	MW-71			**89.4**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	11/3/2008	MW-71			**68.7**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	2/23/2009	MW-71			**193**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	5/17/2009	MW-71			**151**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	8/16/2009	MW-71			**11**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	11/15/2009	MW-71			6.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	2/21/2010	MW-71			**126**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	5/23/2010	MW-71			**56.4**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	8/15/2010	MW-71			**128**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	11/14/2010	MW-71			3.3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MW-72	2/23/2006	MW-72	25.32 to 10.32	Shallow	**37.3**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	5/10/2006	MW-72			**48.9**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	8/29/2006	MW-72			**48.4**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	12/12/2006	MW-72			**12.5**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	3/7/2007	MW-72			6.68	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	6/14/2007	MW-72			**10**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	9/14/2007	MW-72			< 5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	3/17/2008	MW-72			< 1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	6/2/2008	MW-72			< 5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	8/4/2008	MW-72			6.4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	11/3/2008	MW-72			< 5.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	2/23/2009	MW-72			< 5.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	5/17/2009	MW-72			**8.92**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	8/16/2009	MW-72			< 5.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	11/15/2009	MW-72			< 5.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	2/21/2010	MW-72			2.3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	5/23/2010	MW-72			< 1.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	8/15/2010	MW-72			< 1.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	11/14/2010	MW-72			< 1.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Screening Level for Protection of Groundwater as Drinking Water[5]					**160**	**1.5**	**32**	**480**	**NE**	**2,400**	**NE**	**640**	**320**	**NE**	**240**	**0.2[6]**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**0.2[6]**
Screening Level for Protection of Indoor Air[5]					**8.9**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Laboratory Practical Quantitation Limit[7]					**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.010**	**0.10**	**0.10**	**0.10**	**0.10**	**0.010**	**0.010**	**0.010**	**0.010**	**0.010**	**0.010**	**0.010**	**NA**

Table 8
Groundwater Analytical Results for PAHs
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

					Analytical Results (micrograms per liter)[2]																		
					Non-Carcinogenic PAHs											Carcinogenic PAHs							
Sample Location	Sample Date	Sample Identification	Screened Interval (feet NAVD88)[1]	Water Bearing Zone	Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(g,h,i)Perylene	Fluoranthene	Fluorene	Phenanthrene	Pyrene	Benzo(a)Pyrene	Benzo(a)Anthracene	Benzo(b)Fluoranthene	Benzo(j,k)Fluoranthene	Chrysene	Dibenzo(a,h)Anthracene	Indeno(1,2,3-cd)Pyrene	Total cPAHs TEC[3,4]
MW-73	2/23/2006	MW-73	25.11 to 10.11	Shallow	< 1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	4/10/2006	MW-73			1.06	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	8/29/2006	MW-73			< 5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	12/12/2006	MW-73			< 5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	3/7/2007	MW-73			< 5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	6/14/2007	MW-73			< 5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	9/14/2007	MW-73			< 5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	3/17/2008	MW-73			< 1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	6/2/2008	MW-73			< 5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	8/4/2008	MW-73			< 5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	11/3/2008	MW-73			< 5.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	2/23/2009	MW-73			< 5.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	5/17/2009	MW-73			< 5.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	8/16/2009	MW-73			< 5.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	11/15/2009	MW-73			< 5.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	2/21/2010	MW-73			2.4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	5/23/2010	MW-73			< 1.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	8/15/2010	MW-73			3.3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	11/14/2010	MW-73			< 1.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Screening Level for Protection of Groundwater as Drinking Water[5]					**160**	**1.5**	**32**	**480**	**NE**	**2,400**	**NE**	**640**	**320**	**NE**	**240**	**0.2[6]**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**0.2[6]**
Screening Level for Protection of Indoor Air[5]					**8.9**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Laboratory Practical Quantitation Limit[7]					**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.010**	**0.10**	**0.10**	**0.10**	**0.10**	**0.010**	**0.010**	**0.010**	**0.010**	**0.010**	**0.010**	**0.010**	**NA**

Table 8
Groundwater Analytical Results for PAHs
Block 38 West Property
Seattle, Washington
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					Analytical Results (micrograms per liter)[2]																		
					Non-Carcinogenic PAHs											Carcinogenic PAHs							
Sample Location	**Sample Date**	**Sample Identification**	**Screened Interval (feet NAVD88)[1]**	**Water Bearing Zone**	**Naphthalene**	**1-Methylnaphthalene**	**2-Methylnaphthalene**	**Acenaphthene**	**Acenaphthylene**	**Anthracene**	**Benzo(g,h,i)Perylene**	**Fluoranthene**	**Fluorene**	**Phenanthrene**	**Pyrene**	**Benzo(a)Pyrene**	**Benzo(a)Anthracene**	**Benzo(b)Fluoranthene**	**Benzo(j,k)Fluoranthene**	**Chrysene**	**Dibenzo(a,h)Anthracene**	**Indeno(1,2,3-cd)Pyrene**	**Total cPAHs TEC[3,4]**
MW-95	2/23/2006	MW-95	Unknown	Shallow	3.31	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	5/9/2006	MW-95			5.56	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	12/12/2006	MW-95			**10.6**	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	3/7/2007	MW-95			< 5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	6/14/2007	MW-95			< 5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	9/13/2007	MW-95			< 5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	12/18/2007	MW-95			< 1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	3/17/2008	MW-95			< 1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	6/3/2008	MW-95			< 5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	8/4/2008	MW-95			< 5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	11/4/2008	MW-95			< 5.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	2/24/2009	MW-95			< 5.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	5/17/2009	MW-95			< 5.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	8/16/2009	MW-95			< 5.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	11/15/2009	MW-95			< 5.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	2/21/2010	MW-95			< 1.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	5/23/2010	MW-95			< 1.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	8/16/2010	MW-95			< 1.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	11/15/2010	MW-95			< 1.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Screening Level for Protection of Groundwater as Drinking Water[5]					**160**	**1.5**	**32**	**480**	**NE**	**2,400**	**NE**	**640**	**320**	**NE**	**240**	**0.2[6]**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**cPAH TEC**	**0.2[6]**
Screening Level for Protection of Indoor Air[5]					**8.9**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**
Laboratory Practical Quantitation Limit[7]					**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.010**	**0.10**	**0.10**	**0.10**	**0.10**	**0.010**	**0.010**	**0.010**	**0.010**	**0.010**	**0.010**	**0.010**	**NA**

NOTES:

Results in **bold** and highlighted yellow denote concentrations exceeding applicable screening levels.

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

— denotes sample not analyzed.

▨ Shading represents most stringent screening level for groundwater.

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

[2] Analyzed by U.S. Environmental Protection Agency (EPA) Method 8270D/SIM. FB-03, FMW-130, and Potable Well samples analyzed by EPA Method 8260C.

[3] Total cPAHs derived using the total toxicity equivalency method in Section 708(8) of Chapter 173-340 of the Washington Administrative Code.

[4] For concentrations reported at less than the laboratory reporting limit, half the reporting limit was used to calculate total. If all constituent concentrations are non-detect, calculated total is indicated non-detect.

[5] Washington State Cleanup Levels and Risk Calculations (CLARC) under Washington State Model Toxics Control Act Cleanup Regulation (MTCA), Standard Method B Values for Groundwater and Vapor Intrusion Method B Table, Groundwater Screening Levels, from CLARC Master spreadsheet, https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC, unless otherwise noted.

[6] Groundwater screening level based on the Federal Maximum Contaminant Level (MCL), 40 Code of Federal Regulations (CFR) Part 141.

[7] Laboratory Practical Quantitation Limits (PQLs) from OnSite Environmental of Redmond, Washington. PQLs for individual samples may vary due to sample matrix interferences or dilutions.

[8] MTCA Method B vapor intrusion groundwater screening level is applicable for the Shallow Water-Bearing Zone and the Method B screening level for drinking water is applicable for the deeper Intermediate Water-Bearing Zone.

cPAHs = carcinogenic polycyclic aromatic hydrocarbons
E = result exceeded instrument quantitation range and is an estimate
J = result is an estimate
NA = not applicable
NE = not established
PAHs = polycyclic aromatic hydrocarbons
TEC = toxic equivalent concentration

Table 9
Groundwater Analytical Results for Select CVOCs
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Date	Sample Identification	Screened Interval (feet NAVD88)[1]	Water Bearing Zone	Analytical Results (micrograms per liter)[2]									
					PCE	TCE	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl Chloride	1,1,1-Trichloroethane	Acetone	Bromodichloromethane	Chloroform	Methyl Tertiary Butyl Ether (MTBE)
Block 38 West Property														
Reconnaissance Groundwater Samples from Borings														
FB-03	8/23/2018	FB-03-082318	8.8 to 3.8	Shallow	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	7.4	< 0.20	< 0.20	---
FB-05	8/22/2018	FB-05-082218	8.5 to 3.5	Shallow	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---	< 0.20	< 0.20	---
FMW-130	7/21/2014	F-MW-130-GW1-072114	7.2 to 2.2	Shallow	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---	< 0.20	< 0.20	---
Groundwater Samples from Monitoring Wells														
FMW-130	7/24/2014	F-MW-130-072414	-22.8 to -32.8	Intermediate	< 0.20	< 0.20	0.51	< 0.20	< 0.20	0.26	---	< 0.20	0.91	---
	7/3/2017	FMW-130-070317			< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 5.0	< 0.20	< 0.20	---
	8/30/2018	FMW-130-083018			< 0.20	< 0.20	0.27	< 0.20	< 0.20	< 0.20	---	< 0.20	< 0.20	---
	12/28/2018	FMW130-122818			< 0.20	< 0.20	0.22	< 0.20	< 0.20	< 0.20	---	---	< 0.20	---
FMW-132	8/30/2018	FMW-132-083018	20.7 to 15.7	Shallow	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---	< 0.20	< 0.20	---
	12/28/2018	FMW132-122818			< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---	---	< 0.20	---
FMW-133	8/30/2018	FMW-133-083018	18.8 to 13.8	Shallow	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---	< 0.20	< 0.20	---
	12/28/2018	FMW133-122818			< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---	---	< 0.20	---
FMW-134	8/30/2018	FMW-134-083018	13.4 to 8.4	Shallow	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	---
	12/28/2018	FMW134-122818			< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
	12/28/2018	FMW500-122818			< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---	---	< 0.20	---
FMW-135	8/30/2018	FMW-135-083018	18.6 to 13.6	Shallow	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---	< 0.20	0.41	---
	12/28/2018	FMW135-122818			< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---	---	< 0.20	---
FMW-136	8/30/2018	FMW-136-083018	-4.9 to -14.9	Intermediate	< 0.20	< 0.20	0.36	< 0.20	< 0.20	< 0.20	---	< 0.20	**2.7**	---
	12/28/2018	FMW136-122818			< 0.20	< 0.20	0.35	< 0.20	< 0.20	< 0.20	---	---	< 0.20	---
FMW-137	11/20/2018	FMW-137-112018	-41.9 to -54.9	Deep Outwash Aquifer	< 0.20	< 0.20	1.2	< 0.20	< 0.20	---	---	---	---	---
	12/28/2018	FMW137-122818			< 0.20	< 0.20	1.1	< 0.20	< 0.20	---	---	---	---	---
	5/6/2019	FMW-137-050619			< 0.20	< 0.20	1.3	< 0.20	< 0.20	---	---	---	---	---
	7/8/2019	FMW-137-070819			< 0.20	< 0.20	1.3	< 0.20	< 0.20	---	---	---	---	---
FMW-138	11/20/2018	FMW-138-112018	-45.96 to -55.96	Deep Outwash Aquifer	< 0.20	< 0.20	0.29	< 0.20	< 0.20	---	---	---	---	---
	12/28/2018	FMW138-122818			< 0.20	< 0.20	0.34	< 0.20	< 0.20	---	---	---	---	---
	5/6/2019	FMW-138-050619			< 0.20	< 0.20	0.38	< 0.20	< 0.20	---	---	---	---	---
	7/8/2019	FMW-138-070819			< 0.20	< 0.20	0.34	< 0.20	< 0.20	---	---	---	---	---
FMW-144	12/26/2019	FMW-144-122619	-8.6 to -13.6	Intermediate	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---	---	---	---	---
FMW-145	12/26/2019	FMW-145-122619	-8.1 to -13.1	Intermediate	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---	---	---	---	---
FMW-146	12/26/2019	FMW-146-122619	-7.8 to -12.8	Intermediate	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---	---	---	---	---
FMW-147	12/26/2019	FMW-147-122619	-8.2 to -13.2	Intermediate	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---	---	---	---	---
FMW-149	12/26/2019	FMW-149-122619	-7.8 to -12.8	Intermediate	< 0.20	< 0.20	0.21	< 0.20	< 0.20	---	---	---	---	---
Screening Level for Protection of Groundwater as Drinking Water[3]					**5.0[4]**	**4.0**	**16**	**100**	**0.29**	**200[4]**	**7,200**	**7.1**	**14[4]**	**24**
Screening Level for Protection of Indoor Air[3]					**25**	**1.4**	**180**	**77**	**0.33**	**5,400**	**NE**	**1.4**	**1.2**	**800**
Laboratory Practical Quantitation Limit[5]					**0.20**	**0.20**	**0.20**	**0.20**	**0.20**	**0.20**	**5.0**	**0.20**	**0.20**	**0.20**

Table 9
Groundwater Analytical Results for Select CVOCs
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Date	Sample Identification	Screened Interval (feet NAVD88)[1]	Water Bearing Zone	Analytical Results (micrograms per liter)[2]									
					PCE	TCE	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl Chloride	1,1,1-Trichloroethane	Acetone	Bromodichloromethane	Chloroform	Methyl Tertiary Butyl Ether (MTBE)
Block 37 Site														
MW-41	6/2/2005	MW-41	22.0 to 7.0	Shallow	---	---	---	---	---	---	---	---	---	< 1
	7/26/2005	MW-41			---	---	---	---	---	---	---	---	---	< 1
	11/2/2005	MW-41			---	---	---	---	---	---	---	---	---	< 1
	2/23/2006	MW-41			---	---	---	---	---	---	---	---	---	< 1
	5/9/2006	MW-41			---	---	---	---	---	---	---	---	---	< 1
	8/30/2006	MW-41			---	---	---	---	---	---	---	---	---	< 1
	12/12/2006	MW-41			---	---	---	---	---	---	---	---	---	< 1
	3/7/2007	MW-41			---	---	---	---	---	---	---	---	---	< 1
	6/14/2007	MW-41			---	---	---	---	---	---	---	---	---	< 1
	9/13/2007	MW-41			---	---	---	---	---	---	---	---	---	< 1
	12/18/2007	MW-41			---	---	---	---	---	---	---	---	---	< 1
	3/17/2008	MW-41			---	---	---	---	---	---	---	---	---	< 3
	6/3/2008	MW-41			---	---	---	---	---	---	---	---	---	< 1
	8/4/2008	MW-41			---	---	---	< 0.102	---	---	---	---	---	< 1
	11/4/2008	MW-41			---	---	---	---	---	---	---	---	---	< 1.00
	5/17/2009	MW-41			---	---	---	---	---	---	---	---	---	< 1.00
	8/16/2009	MW-41			---	---	---	---	---	---	---	---	---	< 1.0
	11/15/2009	MW-41			---	---	---	---	---	---	---	---	---	< 1.0
MW-71	11/3/2005	MW-71	25.42 to 10.42	Shallow	---	---	---	---	---	---	---	---	---	< 20
	2/23/2006	MW-71			---	---	---	---	---	---	---	---	---	< 20
	5/10/2006	MW-71			---	---	---	---	---	---	---	---	---	< 40
	8/29/2006	MW-71			---	---	---	---	---	---	---	---	---	< 1
	12/12/2006	MW-71			---	---	---	---	---	---	---	---	---	< 1
	3/7/2007	MW-71			---	---	---	---	---	---	---	---	---	< 40
	6/14/2007	MW-71			---	---	---	---	---	---	---	---	---	< 1
	9/14/2007	MW-71			---	---	---	---	---	---	---	---	---	< 1
	12/17/2007	MW-71			---	---	---	---	---	---	---	---	---	< 1
	3/17/2008	MW-71			---	---	---	---	---	---	---	---	---	**259**
	6/2/2008	MW-71			---	---	---	---	---	---	---	---	---	< 1
	8/4/2008	MW-71			---	---	---	---	---	---	---	---	---	< 1
	11/3/2008	MW-71			---	---	---	---	---	---	---	---	---	< 1.00
	5/17/2009	MW-71			---	---	---	---	---	---	---	---	---	< 1.00
	8/16/2009	MW-71			---	---	---	---	---	---	---	---	---	< 1.0
	11/15/2009	MW-71			---	---	---	---	---	---	---	---	---	< 1.0
Screening Level for Protection of Groundwater as Drinking Water[3]					**5.0[4]**	**4.0**	**16**	**100**	**0.29**	**200[4]**	**7,200**	**7.1**	**14[4]**	**24**
Screening Level for Protection of Indoor Air[3]					**25**	**1.4**	**180**	**77**	**0.33**	**5,400**	**NE**	**1.4**	**1.2**	**800**
Laboratory Practical Quantitation Limit[5]					**0.20**	**0.20**	**0.20**	**0.20**	**0.20**	**0.20**	**5.0**	**0.20**	**0.20**	**0.20**

Table 9
Groundwater Analytical Results for Select CVOCs
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Date	Sample Identification	Screened Interval (feet NAVD88)[1]	Water Bearing Zone	Analytical Results (micrograms per liter)[2]									
					PCE	TCE	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl Chloride	1,1,1-Trichloroethane	Acetone	Bromodichloromethane	Chloroform	Methyl Tertiary Butyl Ether (MTBE)
MW-72	11/3/2005	MW-72	25.32 to 10.32	Shallow	---	---	---	---	---	---	---	---	---	< 2
	2/23/2006	MW-72			---	---	---	---	---	---	---	---	---	< 2
	5/10/2006	MW-72			---	---	---	---	---	---	---	---	---	< 2
	8/29/2006	MW-72			---	---	---	---	---	---	---	---	---	< 1
	12/12/2006	MW-72			---	---	---	---	---	---	---	---	---	< 1
	3/7/2007	MW-72			---	---	---	---	---	---	---	---	---	< 1
	6/14/2007	MW-72			---	---	---	---	---	---	---	---	---	< 1
	9/14/2007	MW-72			---	---	---	---	---	---	---	---	---	< 1
	12/17/2007	MW-72			---	---	---	---	---	---	---	---	---	< 1
	3/17/2008	MW-72			---	---	---	---	---	---	---	---	---	< 3
	6/2/2008	MW-72			---	---	---	---	---	---	---	---	---	< 1
	8/4/2008	MW-72			---	---	---	---	---	---	---	---	---	< 1
	11/3/2008	MW-72			---	---	---	---	---	---	---	---	---	< 1.00
	5/17/2009	MW-72			---	---	---	---	---	---	---	---	---	< 1.00
	8/16/2009	MW-72			---	---	---	---	---	---	---	---	---	< 1.0
	11/15/2009	MW-72			---	---	---	---	---	---	---	---	---	< 1.0
MW-73	11/3/2005	MW-73	25.11 to 10.11	Shallow	---	---	---	---	---	---	---	---	---	< 2
	2/23/2006	MW-73			---	---	---	---	---	---	---	---	---	< 1
	4/10/2006	MW-73			---	---	---	---	---	---	---	---	---	< 1
	8/29/2006	MW-73			---	---	---	---	---	---	---	---	---	< 1
	12/12/2006	MW-73			---	---	---	---	---	---	---	---	---	< 1
	3/7/2007	MW-73			---	---	---	---	---	---	---	---	---	< 1
	6/14/2007	MW-73			---	---	---	---	---	---	---	---	---	< 1
	9/14/2007	MW-73			---	---	---	---	---	---	---	---	---	< 1
	12/17/2007	MW-73			---	---	---	---	---	---	---	---	---	< 1
	3/17/2008	MW-73			---	---	---	---	---	---	---	---	---	< 3
	6/2/2008	MW-73			---	---	---	---	---	---	---	---	---	< 1
	8/4/2008	MW-73			---	---	---	---	---	---	---	---	---	< 1
	11/3/2008	MW-73			---	---	---	---	---	---	---	---	---	< 1.00
	5/17/2009	MW-73			---	---	---	---	---	---	---	---	---	< 1.00
	8/16/2009	MW-73			---	---	---	---	---	---	---	---	---	< 1.0
	11/15/2009	MW-73			---	---	---	---	---	---	---	---	---	< 1.0
Screening Level for Protection of Groundwater as Drinking Water[3]					**5.0[4]**	**4.0**	**16**	**100**	**0.29**	**200[4]**	**7,200**	**7.1**	**14[4]**	**24**
Screening Level for Protection of Indoor Air[3]					**25**	**1.4**	**180**	**77**	**0.33**	**5,400**	**NE**	**1.4**	**1.2**	**800**
Laboratory Practical Quantitation Limit[5]					**0.20**	**0.20**	**0.20**	**0.20**	**0.20**	**0.20**	**5.0**	**0.20**	**0.20**	**0.20**

Table 9
Groundwater Analytical Results for Select CVOCs
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Date	Sample Identification	Screened Interval (feet NAVD88)[1]	Water Bearing Zone	Analytical Results (micrograms per liter)[2]									
					PCE	TCE	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl Chloride	1,1,1-Trichloroethane	Acetone	Bromodichloromethane	Chloroform	Methyl Tertiary Butyl Ether (MTBE)
MW-95	11/2/2005	MW-95	Unknown	Shallow	---	---	---	---	---	---	---	---	---	< 1
	2/23/2006	MW-95			---	---	---	---	---	---	---	---	---	< 1
	5/9/2006	MW-95			---	---	---	---	---	---	---	---	---	< 1
	12/12/2006	MW-95			---	---	---	---	---	---	---	---	---	< 1
	3/7/2007	MW-95			---	---	---	---	---	---	---	---	---	< 1
	6/14/2007	MW-95			---	---	---	---	---	---	---	---	---	< 1
	9/13/2007	MW-95			---	---	---	---	---	---	---	---	---	< 1
	12/18/2007	MW-95			---	---	---	---	---	---	---	---	---	< 1
	3/17/2008	MW-95			---	---	---	---	---	---	---	---	---	< 3
	6/3/2008	MW-95			---	---	---	---	---	---	---	---	---	< 1
	8/4/2008	MW-95			---	---	---	---	---	---	---	---	---	< 1
	11/4/2008	MW-95			---	---	---	---	---	---	---	---	---	< 1.00
	5/17/2009	MW-95			---	---	---	---	---	---	---	---	---	< 1.00
	8/16/2009	MW-95			---	---	---	---	---	---	---	---	---	< 1.0
	11/15/2009	MW-95			---	---	---	---	---	---	---	---	---	< 1.0
Screening Level for Protection of Groundwater as Drinking Water[3]					**5.0[4]**	**4.0**	**16**	**100**	**0.29**	**200[4]**	**7,200**	**7.1**	**14[4]**	**24**
Screening Level for Protection of Indoor Air[3]					**25**	**1.4**	**180**	**77**	**0.33**	**5,400**	**NE**	**1.4**	**1.2**	**800**
Laboratory Practical Quantitation Limit[5]					**0.20**	**0.20**	**0.20**	**0.20**	**0.20**	**0.20**	**5.0**	**0.20**	**0.20**	**0.20**

NOTES:

Results in **bold** and highlighted yellow denote concentrations exceeding applicable screening levels.

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

— denotes sample not analyzed.

▨ Shading represents most stringent screening level for groundwater.

ESP = elevation survey pending

NE = not established

VOCs = volatile organic compounds

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

[2] Analyzed by U.S. Environmental Protection Agency Method 8260C or 8260D. Only detected and select VOCs shown; see laboratory report for full list of analytes.

[3] Washington State Cleanup Levels and Risk Calculations (CLARC) under Washington State Model Toxics Control Act Cleanup Regulation (MTCA), Standard Method B Values for Groundwater and Vapor Intrusion Method B Table, Groundwater Screening Levels, from CLARC Master spreadsheet, https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC, unless otherwise noted.

[4] Groundwater screening level adjusted or based on the Federal Maximum Contaminant Level (MCL), 40 Code of Federal Regulations (CFR) Part 141.

[5] Laboratory Practical Quantitation Limits (PQLs) from OnSite Environmental of Redmond, Washington. PQLs for individual samples may vary due to sample matrix interferences or dilutions.

Table 10
Groundwater Analytical Results for Select PCBs
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

Sample Location	Sample Date	Sample Identification	Screened Interval (feet NAVD88)[1]	Water Bearing Zone	Analytical Results (micrograms per liter)[2]							
					Aroclor 1016	**Aroclor 1221**	**Aroclor 1232**	**Aroclor 1242**	**Aroclor 1248**	**Aroclor 1254**	**Aroclor 1260**	**Total PCBs[3]**
Block 38 West												
Groundwater Samples from Monitoring Wells												
FMW-144	12/26/2019	FMW-144-122619	-8.6 to -13.6	Intermediate	< 0.047	< 0.047	< 0.047	< 0.047	< 0.047	< 0.047	< 0.047	< 0.16
FMW-145	12/26/2019	FMW-145-122619	-8.1 to -13.1	Intermediate	< 0.047	< 0.047	< 0.047	< 0.047	< 0.047	< 0.047	< 0.047	< 0.16
FMW-146	12/26/2019	FMW-146-122619	-7.8 to -12.8	Intermediate	< 0.048	< 0.048	< 0.048	< 0.048	< 0.048	< 0.048	< 0.048	< 0.17
FMW-147	12/26/2019	FMW-147-122619	-8.2 to -13.2	Intermediate	< 0.047	< 0.047	< 0.047	< 0.047	< 0.047	< 0.047	< 0.047	< 0.16
FMW-149	12/26/2019	FMW-149-122619	-7.8 to -12.8	Intermediate	< 0.047	< 0.047	< 0.047	< 0.047	< 0.047	< 0.047	< 0.047	< 0.16
Screening Level for Protection of Groundwater as Drinking Water[4]												**0.22**
Screening Level for Protection of Indoor Air[4]												**NE**
Laboratory Practical Quantitation Limit[5]												**0.050**

NOTES:

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

🟦 Shading represents most stringent screening level for groundwater.

NE = not established

PCB = polychlorinated biphenyl

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

[2] Analyzed by U.S. Environmental Protection Agency Method 8082A.

[3] Where all Aroclors were non-detect in a specific sample, half the reporting limit for each Aroclor was used to calculate total PCBs.

[4] South Lake Union Preliminary Cleanup Level Workbook, dated February 2023, prepared by the Washington State Department of Ecology.

[5] Laboratory Practical Quantitation Limits (PQLs) from OnSite Environmental of Redmond, Washington. PQLs for individual samples may vary due to sample matrix interferences or dilutions.

Table 11
Monitoring and Observation Well Construction Details
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

Location	Screened Interval (feet bgs)[1]	Screened Interval (feet NAVD88)[2]	Top of Casing Elevation (feet NAVD88)[2]	Monitoring Well Decommissioned	Date Decommissioned
FMW-130	45.0 to 55.0	-22.8 to -32.8	21.86	Yes	11/4/2019
FMW-132	5.0 to 10.0	20.7 to 15.7	25.48	Yes	11/4/2019
FMW-133	6.5 to 11.5	18.8 to 13.8	24.87	Yes	11/4/2019
FMW-134	12.0 to 17.0	13.4 to 8.4	24.98	No	2/13/2020
FMW-135	7.0 to 12.0	18.6 to 13.6	25.29	Yes	1/8/2020
FMW-136	30.0 to 40.0	-4.9 to -14.9	24.79	No	2/13/2020
FMW-137	72.0 to 85.0	-41.9 to -54.9	30.09	No	N/A
FMW-138	90.0 to 100.0	-49.96 to 59.96	40.44	No	N/A
FMW-144	38.0 to 43.0	-8.0 to -13.0	29.41	Yes	1/8/2020
FMW-145	31.0 to 36.0	-8.0 to -13.0	22.90	Yes	1/8/2020
FMW-146	31.0 to 36.0	-8.0 to -13.0	23.19	Yes	1/8/2020
FMW-147	31.0 to 36.0	-8.0 to -13.0	22.82	Yes	1/8/2020
FMW-148	45.0 to 50.0	-8.0 to -13.0	Not surveyed	Yes	12/23/2019
FMW-149	44.0 to 49.0	-8.0 to -13.0	36.21	Yes	1/8/2020
FMW-150	31.7 to 36.7	-8.5 to -13.5	23.23	No	N/A

Table 11
Monitoring and Observation Well Construction Details
Block 38 West Property
Seattle, Washington
Farallon PN: 397-019

Location	Screened Interval (feet bgs)[1]	Screened Interval (feet NAVD88)[2]	Top of Casing Elevation (feet NAVD88)[2]	Monitoring Well Decommissioned	Date Decommissioned
FMW-151	33.1 to 38.1	-9.4 to -14.4	23.74	No	N/A
FMW-152	31.3 to 36.3	-8.5 to -13.5	22.83	No	N/A
FMW-153	33.2 to 38.2	-8.5 to -13.5	24.72	No	N/A
FMW-154	10.0 to 15.0	12.8 to 7.8	22.80	No	N/A
FMW-155	10.0 to 15.0	13.9 to 8.9	23.90	No	N/A
FMW-156	15.0 to 20.0	10.7 to 5.7	25.70	No	N/A
FMW-157	30.0 to 40.0	-4.1 to -14.1	25.95	No	N/A
Block 38 West Construction Dewatering Observation Wells					
OW-1	30.0 to 45.0	-6.0 to -21.0	24.17	No	NA
OW-2	30.0 to 45.0	-7.0 to -22.0	22.90	No	NA
OW-3	48.0 to 63.0	-8.0 to -23.0	38.91	No	NA
OW-4	48.0 to 58.0	-11.0 to -21.0	39.23	No	NA
OW-5	44.8 to 54.8	-11.0 to -21.0	34.57	No	NA

NOTES:

[1] Depth in feet below ground surface.

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

[3] In feet below top of well casing.

bgs = below ground surface

N/A = not applicable

Table 12
Preliminary Screening Levels
Block 38 West Site
Seattle, Washington
Farallon PN: 397-019

	Soil Screening Levels											Groundwater Screening Levels								Chemical Retained as COPC (based on Soil or Groundwater)
	Method B Direct Contact	Protection of Groundwater				Adjustment Factors		Proposed Soil Screening Level (mg/kg)		Maximum Concentration Detected at Site Vadose | Saturated (mg/kg)	Retained as Soil COPC	Groundwater		Protection of Indoor Air	Adjustment Factors		Proposed Groundwater Screening Level (µg/l)	Maximum Concentration Detected at Site (µg/l)	Retained as Groundwater COPC	
		Vadose Zone		Saturated Zone																
Chemical	Level (mg/kg)	Level (mg/kg)	Basis	Level (mg/kg)	Basis	Natural Background (mg/kg)	Practical Quantitation Limits (mg/kg)	Vadose Zone	Saturated Zone			Level (µg/l)	Basis	Level (µg/l)	Natural Background (µg/l)	Practical Quantitation Limits (µg/l)				
Petroleum Hydrocarbons																				
	---	2,000	Method A#	2,000	Method A#	---	75	2,000	2,000	30,400 | 23,800	Yes	500	Method A	---	---	500	500	**3,300**	Yes	Yes
TPH, gasoline-range organics, benzene present	1,500*	30	Method A#	30	Method A#	---	5	30	30	2,100 | 83	Yes	800	Method A	---	---	100	800	**2,100**[1]	Yes	Yes
TPH, gasoline-range organics, no detectable benzene	1,500*	100	Method A#	100	Method A#	---	5	100	100	2,100 | 83	Yes	1,000	Method A	---	---	100	1,000	**2,100**[1]	Yes	Yes
Volatile Organic Compounds																				
Acetone	72,000	29	Leach	2.1	Leach	---	0.005	29	2.1	Not Analyzed	---	7,200	Method B	---	---	5.0	7,200	7.4	No	No
Benzene	18	0.027	Leach	0.0017	Leach	---	0.001	0.027	0.0017	0.12 | 0.0033	Yes	5.0	MCL	2.4	---	0.20	2.4	**5.1**[2]	Yes	Yes
Chloroform	32	0.074	Leach	0.0048	Leach	---	0.001	0.074	0.0048	Not Analyzed	---	14	Method B/Adjusted MCL	1.2	---	0.20	1.2	2.7	No[3]	No[3]
cis-1,2-Dichloroethene	160	0.078	Leach	0.0052	Leach	---	0.001	0.078	0.0052	Not Detected[6]	No	16	Method B	180	---	0.20	16	1.3	No	No[3]
Ethylbenzene	8,000	5.9	Leach	0.34	Leach	---	0.001	5.9	0.34	0.13 | 0.0075	No	700	MCL	2,800	---	0.20	700	2.2	No	No
Tetrachloroethene	480	0.05	Leach	0.0028	Leach	---	0.001	0.05	0.0028	0.0041 | ND	No	5.0	MCL	25	---	0.20	5.0	Not Detected	No	No
Toluene	6,400	4.5	Leach	0.27	Leach	---	0.005	4.5	0.27	0.49 | 0.018	No	640	Method B/Adjusted MCL	15,000	---	1.0	640	7.5	No	No
1,1,1-Trichloroethane	160,000	1.5	Leach	0.084	Leach	---	0.001	1.5	0.084	Not Analyzed	---	200	MCL	5,400	---	0.20	200	0.26	No	No
Xylenes	16,000	14	Leach	0.83	Leach	---	0.003	14	0.83	0.94 | 0.048	No	1,600	Method B/Adjusted MCL	320	---	0.60	320	6.7	No	No
Polycyclic Aromatic Hydrocarbons (PAHs)																				
Naphthalene	1,600	4.5	Leach	0.24	Leach	---	0.0067	4.5	0.24	22 | 9.8	Yes	160	Method B	8.9**	---	0.10	8.9**	650	Yes	Yes
1-Methylnaphthalene	34	0.082	Leach	0.0042	Leach	---	0.0067	0.082	0.0067	14 | 7.5	Yes	1.5	Method B	---	---	0.10	1.5	10	Yes	Yes
2-Methylnaphthalene	320	1.7	Leach	0.088	Leach	---	0.0067	1.7	0.088	15 | 8.8	Yes	32	Method B	---	---	0.10	32	13	No	Yes
Acenaphthene	4,800	49	Leach	2.5	Leach	---	0.0067	49	2.5	1.5 | 0.049	No	480	Method B	---	---	0.10	480	8.3	No	No
Acenaphthylene	---	---	---	---	---	---	0.0067	---	---	0.45 | 0.045	No	---	---	---	---	0.10	---	0.12	No	No
Anthracene	24,000	1,100	Leach	57	Leach	---	0.0067	1,100	57	3.3 | 0.29	No	2,400	Method B	---	---	0.10	2,400	Not Detected	No	No
Benzo(g,h,i)Perylene	---	---	---	---	---	---	0.0067	---	---	8.5 | 0.21	No	---	---	---	---	0.010	---	Not Detected	No	No
Fluoranthene	3,200	630	Leach	32	Leach	---	0.0067	630	32	18 | 0.97	No	640	Method B	---	---	0.10	640	Not Detected	No	No
Fluorene	3,200	51	Leach	2.6	Leach	---	0.0067	51	2.6	1.3 | 0.22	No	320	Method B	---	---	0.10	320	1.6	No	No
Phenanthrene	---	---	---	---	---	---	0.0067	---	---	18 | 1.0	No	---	---	---	---	0.10	---	0.48	No	No
Pyrene	2,400	330	Leach	16	Leach	---	0.0067	330	16	27 | 1.1	No	240	Method B	---	---	0.10	240	Not Detected	No	No
Carcinogenic PAHs																				
Benzo(a)Pyrene	0.19	3.9	Leach	0.19	Leach	---	0.0067	0.19	0.19	120 | 120	Yes	0.2	MCL	---	---	0.010	0.2	0.023	No	Yes
Benzo(a)Anthracene	cPAH TEC	cPAH TEC	Leach	cPAH TEC	Leach	---	0.0067	cPAH TEC	cPAH TEC	110 | 91	Yes	cPAH TEC	cPAH TEC	---	---	0.010	cPAH TEC	0.043	No	Yes
Benzo(b)Fluoranthene	cPAH TEC	cPAH TEC	Leach	cPAH TEC	Leach	---	0.0067	cPAH TEC	cPAH TEC	100 | 120	Yes	cPAH TEC	cPAH TEC	---	---	0.010	cPAH TEC	0.031	No	Yes
Benzo(j,k)Fluoranthene	cPAH TEC	cPAH TEC	Leach	cPAH TEC	Leach	---	0.0067	cPAH TEC	cPAH TEC	31 | 24	Yes	cPAH TEC	cPAH TEC	---	---	0.010	cPAH TEC	Not Detected	No	Yes
Chrysene	cPAH TEC	cPAH TEC	Leach	cPAH TEC	Leach	---	0.0067	cPAH TEC	cPAH TEC	110 | 110	Yes	cPAH TEC	cPAH TEC	---	---	0.010	cPAH TEC	0.036	No	Yes
Dibenzo(a,h)Anthracene	cPAH TEC	cPAH TEC	Leach	cPAH TEC	Leach	---	0.0067	cPAH TEC	cPAH TEC	9.9 | 9.1	Yes	cPAH TEC	cPAH TEC	---	---	0.010	cPAH TEC	Not Detected	No	Yes
Indeno(1,2,3-cd)Pyrene	cPAH TEC	cPAH TEC	Leach	cPAH TEC	Leach	---	0.0067	cPAH TEC	cPAH TEC	63 | 69	Yes	cPAH TEC	cPAH TEC	---	---	0.010	cPAH TEC	0.014	No	Yes
cPAH TEC	0.19	3.9	Leach	0.19	Leach	---	NA	0.19	0.19	152 | 150	Yes	0.2	MCL	---	---	NA	0.2	0.033	No	Yes

Table 12
Preliminary Screening Levels
Block 38 West Site
Seattle, Washington
Farallon PN: 397-019

	Soil Screening Levels											Groundwater Screening Levels								Chemical Retained as COPC (based on Soil or Groundwater)
	Method B Direct Contact	Protection of Groundwater				Adjustment Factors		Proposed Soil Screening Level (mg/kg)		Maximum Concentration Detected at Site Vadose | Saturated (mg/kg)	Retained as Soil COPC	Groundwater		Protection of Indoor Air	Adjustment Factors		Proposed Groundwater Screening Level (µg/l)	Maximum Concentration Detected at Site (µg/l)	Retained as Groundwater COPC	
		Vadose Zone		Saturated Zone		Natural Background (mg/kg)	Practical Quantitation Limits (mg/kg)								Natural Background (µg/l)	Practical Quantitation Limits (µg/l)				
Chemical	Level (mg/kg)	Level (mg/kg)	Basis	Level (mg/kg)	Basis			Vadose Zone	Saturated Zone			Level (µg/l)	Basis	Level (µg/l)						
Metals																				
Arsenic	0.67	4.7	Leach	0.23	Leach	7.3	5	7.3	7.3	13 | ND	No[3]	0.58	Method B/Adjusted MCL	---	8.0[5]	3.3	8.0	Not Analyzed	No[3]	No[3]
Barium	16,000	1,600	Leach	83	Leach	---	2.5	1,600	83	490 | 290	Yes	2,000	MCL	---	---	28	2,000	Not Analyzed	Yes	Yes
Cadmium	80	0.69	Leach	0.035	Leach	0.77[4]	0.50	0.77[4]	0.77[4]	2.4 | ND	No[3]	5.0	MCL	---	---	4.4	5.0	Not Analyzed	No[3]	No[3]
Chromium[7]	120,000	480,000	Leach	24,000	Leach	48	0.50	120,000	24,000	48 | 100	No	100	MCL	---	---	2.0	100	Not Analyzed	No	No
Lead	250[8]	3,000	Leach	150	Leach	16.83	5.0	250	150	21,000 | 240	No[3]	15	MCL	---	---	1.1	15	Not Analyzed	No[3]	No[3]
Mercury	---	2.1	Leach	0.1	Leach	0.07	0.25	2.1	0.25	ND | 1.2	Yes	2.0	MCL	1.1	---	0.50	1.1	Not Analyzed	Yes	Yes

NOTES:

▨	Shading represents most stringent screening level, natural background concentration, or practical quanititaiton limit for vadose zone soil.
▨	Shading represents most stringent screening level, natural background concentration, or practical quanititaiton limit for saturated zone soil.
▨	Shading represents most stringent screening level or natural background concentration for groundwater.
Bold	Maximum concentration detected at the site exceeds proposed screening level.

--- denotes no screening level established for this parameter.

COPC = contaminant of potential concern

cPAH TEC = Carcinogenic polycyclic aromatic hydrocarbon toxic equivalent concentration (cPAH TEC) calculated following the total toxicity equivalency method in Section 708(8) of Chapter 173-340 of the Washington Administrative Code.

Leach = Washington State Cleanup Levels and Risk Calculations (CLARC) under Washington State Model Toxics Control Act Cleanup Regulation (MTCA), default soil concentrations protective of groundwater from CLARC Master spreadsheet, https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC

MCL = Federal Maximum Contaminant Level (MCL), 40 Code of Federal Regulations (CFR) Part 141.

Method A = 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.

Method B = Washington State CLARC under Washington State MTCA, Standard Method B Formula Values from CLARC Master spreadsheet, https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC

NA = not applicable

µg/l = micrograms per liter
mg/kg = milligrams per kilogram
ND = not detected
TPH = total petroleum hydrocarbons
(V) = result from sample collected in vadose zone
(S) = result from sample collected in saturated zone

[1] Result was derived from a reconnaissance groundwater sample. Analysis of reconnaissance groundwater samples can result in potentially biased data due to turbidity of the sample and greater presence of suspended solids that hazardous substances can sorb onto. This detection in groundwater was flagged by the laboratory because the sample chromatogram was not similar to a typical gas.

[2] Result was derived from a reconnaissance groundwater sample. Analysis of reconnaissance groundwater samples can result in potentially biased data due to turbidity of the sample and greater presence of suspended solids that hazardous substances can sorb onto.

[3] Section 6.4 of the Agency Review Draft-Remedial Investigation Work Plan provides additional information as to why the COPC was not retained for further evaluation for the Block 38 West Site. Arsenic, cadmium and lead are not retained as COPCs for Block 38 West based on historical data indicating that the source is likely associated with the adjacent Rosen Property Site.

[4] Arsenic and cadmium screening levels adjusted for natural background concentrations provided in *Natural Background Soil Metals Concentrations in Washington State* , Washington State Department of Ecology, Publication #94-115, October 1994.

[5] Puget Sound Lowland natural background concentration from *Natural Background Groundwater Arsenic Concentrations in Washington State, Study Results* , Washington State Department of Ecology, Publication No. 14-09-044, dated January 2022.

[6] Reporting limits for cis-1,2-dichloroethene in soil ranged from 0.00074 mg/kg to 0.0044 mg/kg.

[7] Values based on trivalent chromium risk-based values for soil SLs (120,000 mg/kg for direct contract, 480,000 mg/kg vadose leaching, 24,000 saturated leaching) since there is no known source of hexavalent chromium used on the Block 38 West Property. Background levels are based on total chromium. Total chromium groundwater screening level of 100 µg/L based on the MCL.

[8] Value based on Method A as a surrogate for Method B as no Method B direct contact value for soil has been established.

[8] Reporting limits for mercury in soil ranged from 0.27 mg/kg to 0.83 mg/kg.

* Source of this value is the generic TPH cleanup level from *Model Remedies for Sites with Petroleum Contaminated Soils* , Washington State Department of Ecology, Publication No. 15-09-043, Revised: December 2017.

** MTCA Method B vapor intrusion groundwater screening level for naphthalene is applicable for the Shallow Water-Bearing Zone and the Method B screening level for drinking water is applicable for the deeper Intermediate Water-Bearing Zone.

Method A is used as a surrogate for Method B because no Method B vadose or saturated leaching value has been established for TPH gasoline-, diesel- and oil-range mixtures.

Table 13
Summary of Data Gaps and Scope of Work
Block 38 West Site
Seattle, Washington
Farallon PN: 397-019

Location	Data Gap	Media of Concern	Constituents of Potential Concern	Scope
UST Product Line Borings West- and North-Adjacent to Northwestern Corner of the Block 38 West Property	Evaluate the lateral extent of total DRO+ORO and cPAHs in soil west and north of the mass excavation soil sampling grid M1 located in the northwestern corner of the Block 38 West Property.	Soil	Soil: Total DRO+ORO, naphthalenes and cPAHs	Advance a boring to evaluate the lateral extent COPCs based on total DRO+ORO and cPAHs detected at concentrations exceeding the screening levels in soil samples collected from the west sidewall of mass excavation soil sampling grid M1. Boring FB-20 was advanced in February 2022 to evaluate conditions north-adjacent to the northwestern corner of the Block 38 West Property.
Monitoring Wells in the Shallow Water-Bearing Zone	Evaluate the lateral extent of COPCs in the Shallow Water-Bearing Zone and groundwater flow conditions around the new building foundation.	Soil and/or Groundwater	Soil:Total DRO+ORO, naphthalenes, cPAHs, and metal (barium and mercury) Groundwater: GRO, Total DRO+ORO, BTEX, naphthalenes, and metals (barium and mercury)	Install three monitoring wells to the south and west of the southwest corner of the Block 38 West Property to evaluate the extent of COPCs based on total DRO+ORO and naphthalenes detected at concentrations exceeding screening levels in groundwater samples collected from FMW-134. Install one monitoring well west of FB-03 to evaluate the lateral extent of total DRO+ORO detected at concentrations exceeding screening levels in a reconnaissance groundwater sample collected from FB-03. Monitor a network of seven monitoring wells in the Shallow Water-Bearing Zone evaluate to evaluate the lateral extent of COPCs in shallow groundwater and groundwater flow conditions. The proposed monitoring wells will be screened from approximate elevations 20 to 5 feet NAVD88.
Monitoring Wells in the Intermediate Water-Bearing Zone	Evaluate the lateral extent of total DRO+ORO in the Intermediate Water-Bearing Zone and groundwater flow conditions.	Groundwater	Groundwater: Total DRO+ORO, naphthalenes	Install four monitoring wells to the west and south of the Block 38 West Property boundary to evaluate total DRO+ORO, and naphthalenes detected at concentrations exceeding screening levels in groundwater samples collected from FMW-146 and/or FMW-147. Monitor a network of 11 monitoring wells in the Intermediate Water-Bearing Zone to evaluate groundwater quality and groundwater flow conditions. Monitoring wells will be screened from approximate elevations -3 to -13 feet NAVD88.
Monitoring Wells in the Deep Outwash Aquifer	Assess groundwater conditions in the Deep Outwash Aquifer at the Block 38 West Site post-construction dewatering events that occurred on the Block 38 West Property and in the nearby South Lake Union Area.	Groundwater	Groundwater: CVOCs	Install a single monitoring well in the Deep Outwash Aquifer and screen from approximate elevations -45 to -55 feet NAVD88. Conduct a single monitoring event of a network of three monitoring wells in the Deep Outwash Aquifer to evaluate groundwater quality post-construction dewatering events.

NOTES:

BTEX = benzene, toluene, ethyl benzene, and total xylenes
bgs = below ground surface
cPAHs = carcinogenic polycyclic aromatic hydrocarbons
COPCs = constituents of potential concern
CVOCs = chlorinated volatile organic compounds
DRO = total petroleum hydrocarbons (TPH) as diesel-range organics
EPA = U.S. Environmental Protection Agency
GRO =TPH as gasoline-range organics
NAVD88 = North American Vertical Datum of 1988
MTCA = Washington State Model Toxics Control Act Cleanup Regulation
ORO = TPH as oil-range organics
RCRA = Resource Conservation and Recovery Act
SIM = Selective Ion Mode

APPENDIX A
BORING LOGS

REMEDIAL INVESTIGATION WORK PLAN
Block 38 West Property
500 through 536 Westlake Avenue North
Seattle, Washington

Farallon PN: 397-019

Log of Boring: FB-01

Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, WA

Farallon PN: 397-019

Logged By: Greg Peters

Date/Time Started: 08/21/2018 @ 1126
Date/Time Completed: 08/21/2018 @ 1540
Equipment: MiniTrack
Drilling Company: Geologic Drilling
Drilling Foreman: Blaine Gibson
Drilling Method: Hollow Stem Auger

Sampler Type: 1.5 Split Spoon
Drive Hammer (lbs.): 140
Depth of Water ATD (ft bgs): 8.0
Total Boring Depth (ft bgs): 41.5
Total Well Depth (ft bgs): NA

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': Concrete. Hand auger to clear for utilities.	CO							Concrete
		1.0'-5.0': Well graded SAND with silt and gravel (60% sand, 30% gravel, 10% silt), fine to coarse sand, fine gravel, brown, moist, no odor.	SW-SM				1.0			
5		5.0-6.5': Silty SAND (50% sand, 40% silt, 10% gravel), fine to coarse sand, fine gravel, dark brown, very loose, moist, no odor.	SM		80	3 2 1	0.5	FB-01-5.0-082118 @ 1140	X	
										▼ Water Level
10		10.0-11.5': No soil samples collected. Temporary well installed at approximately 12.5 ft bgs.			NA	NA	NA	FB-01-082118 @1245	X	
15		15.0-15.8': SILT (90% silt, 10% sand), fine sand, brown, wet, stiff, no odor.	ML		100	2 4 8	0.0	FB-01-15.0-082118 @1420	X	Bentonite
		15.8-16.5': Silty SAND (70% sand, 30% silt), fine sand, gray, wet, medium dense, no odor.	SM							
20		20.0-21.5': Poorly-graded SAND (95% sand, 5% silt), fine sand, grayish brown, wet, dense, no odor.	SP		100	12 19 21	0.0	FB-01-20.0-082118 @ 1446		

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: Concrete
Annular Seal: NA
Boring Abandonment: Bentonite

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

FARALLON CONSULTING

Log of Boring: FB-01

Page 2 of 2

Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, WA

Farallon PN: 397-019

Logged By: Greg Peters

Date/Time Started:	08/21/2018 @ 1126	**Sampler Type:**	1.5 Split Spoon
Date/Time Completed:	08/21/2018 @ 1540	**Drive Hammer (lbs.):**	140
Equipment:	MiniTrack	**Depth of Water ATD (ft bgs):**	8.0
Drilling Company:	Geologic Drilling	**Total Boring Depth (ft bgs):**	41.5
Drilling Foreman:	Blaine Gibson	**Total Well Depth (ft bgs):**	NA
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	☒	25.0-26.5': SILT (90% silt, 10% sand), fine sand, gray, wet,stiff, no odor.	ML		100	3 4 5	0.0	FB-01-25.0-082118 @ 1500		
30	☒	30.0-31.5': Poorly graded SAND (95% sand, 5% silt), medium sand, gray, wet, dense, no odor.	SP		100	14 20 25	0.0	FB-01-30.0-082118 @ 1515	X	
35	☒	35.0-36.5': Silty SAND (60% sand, 40% silt), fine sand, gray, moist, very dense no odor.	SM		100	17 35 26	0.0	FB-01-35.0-082118 @ 1530		Bentonite
40	☒	40.0-41.5': Poorly graded SAND (95% sand, 5% silt), fine sand, dark gray, very dense, moist, no odor.	SP		100	12 15 50 5	0.0	FB-01-40.0-082118 @ 1540		

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: Concrete
Annular Seal: NA
Boring Abandonment: Bentonite

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

Log of Boring: FB-02

Page 1 of 2

Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, WA

Farallon PN: 397-019

Logged By: Greg Peters

Date/Time Started:	08/20/2018 @ 1045	**Sampler Type:**	1.5 Split Spoon
Date/Time Completed:	08/20/2018 @ 1545	**Drive Hammer (lbs.):**	140
Equipment:	Mini-track	**Depth of Water ATD (ft bgs):**	10.0
Drilling Company:	Geologic Drilling	**Total Boring Depth (ft bgs):**	41.5
Drilling Foreman:	Blaine Gibson	**Total Well Depth (ft bgs):**	NA
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		0.0-0.7': Concrete, hand auguer to clear for utilities.	CO							Concrete
	☒	2.5-3.5': Well graded GRAVEL with silt and sand (50% gravel, 40% sand,10% silt), fine to coarse sand, fine gravel, dark brown, moist, no odor. (Fill).	FILL				0.5	FB-02-3.0-082018 @1155		
5	☒	5.0-6.5': Well graded GRAVEL with silt and sand (50% gravel, 40% sand, 10% silt), fine to coarse sand, fine gravel, dark brown, moist, loose, no odor. Wood debris present. (Fill).	FILL		100	11 5 3	0.9	FB-02-5.0-082018 @1220	X	
10	☒	10.0-11.5': Sandy SILT (70% silt, 30% sand), fine to medium sand, dark brown, wet, very soft, no odor. Mottling present.	ML		100	1 1 1	0.2	FB-02-10.0-082018 @1255	X	▼ Water Level
15	☒	15.0-16.5': SILT with sand (75% silt, 25% sand), fine to medium sand, grayish brown, moist, stiff, no odor.	ML		100	4 4 6	0.5	FB-02-15.0-082018 @1245		Bentonite
20	☒	20.0-21.5': Poorly graded SAND with silt (90% sand, 10% silt), fine sand, gray, wet, medium dense, no odor.	SP-SM		100	14 11 5	0.2	FB-02-20.0-082018 @1310		

Well Construction Information

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

Log of Boring: FB-02

Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, WA

Farallon PN: 397-019

Logged By: Greg Peters

Date/Time Started: 08/20/2018 @ 1045
Date/Time Completed: 08/20/2018 @ 1545
Equipment: Mini-track
Drilling Company: Geologic Drilling
Drilling Foreman: Blaine Gibson
Drilling Method: Hollow Stem Auger

Sampler Type: 1.5 Split Spoon
Drive Hammer (lbs.): 140
Depth of Water ATD (ft bgs): 10.0
Total Boring Depth (ft bgs): 41.5
Total Well Depth (ft bgs): NA

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	☒	25.0-26.5': Silty SAND (80% sand, 20% silt), fine to medium sand, gray, wet, dense, slight petroleum-like odor.	SM	▨	100	16 20 20	0.4	FB-02-25.0-082018 @1430	X	
30	☒	30.0-31.5': Sandy SILT (60% silt, 40% sand), fine sand, gray, moist to wet, very stiff, slight petroleum-like odor.	ML	▨	100	12 16 16	0.7	FB-02-30.0-082018 @1454		
35	☒	35.0-36.5': Poorly graded SAND with silt (90% sand, 10% silt), fine to medium sand, gray, moist to wet, medium dense, no odor.	SP-SM	▨	100	5 8 12	0.6	FB-02-35.0-082018 @1520	X	Bentonite
40		40.0-41.5': No Recovery. Heaving sands prevented drilling beyond 40.0 ft bgs.			0			No Sample		

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: Concrete
Annular Seal: NA
Boring Abandonment: Bentonite

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

Log of Boring: FB-03

Page 1 of 2

Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, WA

Farallon PN: 397-019

Logged By: Greg Peters

Date/Time Started: 08/23/2018 @ 1200
Date/Time Completed: 08/23/2018 @ 1540
Equipment: Mini-track
Drilling Company: Geologic Drilling
Drilling Foreman: Blaine Gibson
Drilling Method: Hollow Stem Auger

Sampler Type: 1.5 Split Spoon
Drive Hammer (lbs.): 140
Depth of Water ATD (ft bgs): 17.0
Total Boring Depth (ft bgs): 41.5
Total Well Depth (ft bgs): NA

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		0.0-0.6': Concrete, asphalt fill material. Hand auger to clear for utilities.	CO							Concrete
5	☒	5.0-6.5': SILT with sand (80% silt, 10% sand, 10% gravel), fine sand, fine gravel, gray, moist, medium stiff, organic odor. Some charcoal and wood debris. (Fill).	FILL		100	3 3 3	0.1	FB-03-5.0-082318 @1250		
10	☒	10.0-11.5': SILT (100% silt), gray, moist, medium stiff, no odor.	ML		100	3 3 3	0.2	FB-03-10.0-082318 @1310	X	Bentonite
15	☒	15.0-16.5': Sandy SILT (60% silt, 40% sand), fine sand, gray, wet, medium stiff, no odor.	ML		100	2 3 5	0.2	FB-03-15.0-082318 @1325	X	
										▼ Water Level
20	☒	20.5-21.5': No soil sample. Temporary well installed for reconnaissance groundwater sampling.			NA	NA	NA	FB-03-082318 @ 14:00	X	

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: Concrete
Annular Seal: NA
Boring Abandonment: Bentonite

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

FARALLON CONSULTING

Log of Boring: FB-03

Page 2 of 2

Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, WA

Farallon PN: 397-019

Logged By: Greg Peters

Date/Time Started: 08/23/2018 @ 1200
Date/Time Completed: 08/23/2018 @ 1540
Equipment: Mini-track
Drilling Company: Geologic Drilling
Drilling Foreman: Blaine Gibson
Drilling Method: Hollow Stem Auger

Sampler Type: 1.5 Split Spoon
Drive Hammer (lbs.): 140
Depth of Water ATD (ft bgs): 17.0
Total Boring Depth (ft bgs): 41.5
Total Well Depth (ft bgs): NA

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	☒	25.0-26.5': Poorly graded SAND with silt (90% sand, 10% silt), medium sand, gray, wet, very dense, no odor.	SP-SM	▨	100	19 22 33	0.2	FB-03-25.0-082318 @1500	X	
30	☒	30.0-31.5': Poorly graded SAND (100% sand), fine to medium sand, grayish brown, wet, dense, no odor.	SP	▨	100	10 21 27	0.3	FB-03-30.0-082318 @1520		Bentonite
35	☒	35.0-36.5': Poorly graded SAND with silt (90% sand, 10% silt), fine sand, gray, wet, medium dense, no odor.	SP-SM	▨	100	14 21 13	0.3	FB-03-35.0-082318 @1530	X	
40	☒	40.0-41.5': Silty SAND (70% sand, 30% silt), fine sand, grayish brown, wet, medium dense, no odor.	SM	▨	100	11 16 20	0.1	FB-03-40.0-082318 @1540		

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: Concrete
Annular Seal: NA
Boring Abandonment: Bentonite

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

FARALLON CONSULTING

Log of Boring: FB-04

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Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, WA
Farallon PN: 397-019
Logged By: Greg Peters

Date/Time Started: 08/21/2018 @ 0645
Date/Time Completed: 08/21/2018 @ 0900
Equipment: Mini-track
Drilling Company: Geologic Drilling
Drilling Foreman: Blaine Gibson
Drilling Method: Hollow Stem Auger

Sampler Type: 1.5 Split Spoon
Drive Hammer (lbs.): 140
Depth of Water ATD (ft bgs): 17.0
Total Boring Depth (ft bgs): 33.0
Total Well Depth (ft bgs): NA

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		0.0-2.0': Asphalt. Hand auger to clear for utilities.	AC							Concrete
	☒	2.0-3.0': SILT with sand (80% silt, 20% sand), fine sand, dark brown, moist, petroleum-like odor. Peat and orgranic material present. (Fill).	FILL				0.5	FB-04-3.0-082118 @0645		
5	☒	5.0-6.5': SILT with sand (80% silt, 20% sand), fine sand, dark brown, moist, very soft, no odor. Debris and organic material present. (Fill).	FILL		100	1 1 1	0.9	FB-04-5.0-082118 @0650	X	
10	☒	10.0-11.5': SILT with sand (80% silt, 20% silt), fine to medium sand, dark brown, moist to wet, stiff, no odor. Debris present. (Fill).	FILL		100	1 5 10	0.2	FB-04-10.0-082118 @0710	X	Bentonite
15	☒	15.0-16.5': Silty SAND (80% sand, 20% silt), fine to medium sand, gray, wet, loose, no odor.	SM		100	3 2 4	0.5	FB-04-15.0-082118 @0735	X	▼ Water Level
20	☒	20.0-21.5': Poorly graded sand (100% sand), fine to medium sand, gray, wet, dense, no odor.	SP		100	7 15 28	0.2	FB-04-20.0-082118 @0745	X	
25	☒	25.0-26.5': SILT with sand (60% silt, 40% sand), fine sand, gray, wet, very stiff, no odor.	ML		100	10 11 17	0.4	FB-04-25.0-082118 @0815		Bentonite
30	☒	30-31.5': Poorly graded SAND (100% sand), fine to medium sand, gray, wet, dense, no odor.	SP		100	9 14 30	0.7	FB-04-30.0-082118 @0850	X	
35		Refusal at 33.0' bgs due to heaving sands.								

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: Concrete
Annular Seal: NA
Boring Abandonment: Bentonite

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

FARALLON CONSULTING

Log of Boring: FB-05

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Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, WA

Farallon PN: 397-019

Logged By: Greg Peters

Date/Time Started: 08/22/2018 @ 0815
Date/Time Completed: 08/22/2018 @ 1140
Equipment: Mini-track
Drilling Company: Geologic Drilling
Drilling Foreman: Blaine Gibson
Drilling Method: Hollow Stem Auger

Sampler Type: 1.5 Split Spoon
Drive Hammer (lbs.): 140
Depth of Water ATD (ft bgs): 17.0
Total Boring Depth (ft bgs): 41.5
Total Well Depth (ft bgs): NA

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		0.0-0.5': Concrete. Hand auger to clear for utilities.	CO							Concrete
		0.5-5.0': Silty SAND (80% sand, 20% silt), fine to medium sand, dark brown, moist, no odor. (Fill).	FILL							
5		5.0-6.5': Silty SAND (50% sand, 45% silt, 5% gravel), fine to medium sand, fine gravel, dark brown, moist, loose, no odor. (Fill).	FILL		100	1 2 3	0.5	FB-05-5.0-082218 @0840	X	
10		10.0-11.5': SILT (90% silt, 10% sand), fine sand, gray, moist, medium stiff, no odor. Wood chips and organic matter present. (Fill).	FILL		100	2 2 3	0.6	FB-05-10.0-082218 @0855		Bentonite
15		15.0-16.5': SILT (95% silt, 5% sand), fine sand, gray, moist, very stiff, no odor.	ML		100	7 10 13	1.0	FB-05-15.0-082218 @0910	X	
								FB-04-082218 @0950	X	▼ Water Level
20		20.0-20.6': SILT (100% silt), gray, wet, hard, no odor.	ML		100	14 21 24	0.6	FB-05-20.0-082218 @0930	X	
		20.6-21.5': Silty SAND (80% sand, 20% silt), medium sand, gray, wet, dense, no odor.	SM							

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: Concrete
Annular Seal: NA
Boring Abandonment: Bentonite

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

FARALLON CONSULTING

Log of Boring: FB-05

Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, WA

Farallon PN: 397-019

Logged By: Greg Peters

Date/Time Started: 08/22/2018 @ 0815
Date/Time Completed: 08/22/2018 @ 1140
Equipment: Mini-track
Drilling Company: Geologic Drilling
Drilling Foreman: Blaine Gibson
Drilling Method: Hollow Stem Auger

Sampler Type: 1.5 Split Spoon
Drive Hammer (lbs.): 140
Depth of Water ATD (ft bgs): 17.0
Total Boring Depth (ft bgs): 41.5
Total Well Depth (ft bgs): NA

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	☒	25.0-26.5': Poorly-graded SAND with silt (90% sand, 10% silt), fine to medium sand, gray, moist, very dense, no odor.	SP-SM	▨	100	17 13 50-6"	0.7	FB-04-25.0-082218 @1110		
30	☒	30-31.5': Poorly-graded SAND (100% sand), fine to medium sand, grayish brown, wet, very dense, no odor.	SP	⁘	100	16 25 35	0.4	FB-04-30.0-082218 @1120		Bentonite
35	☒	35-36.5': Poorly-graded SAND with silt (90% sand, 10% silt), fine to medium sand, grayish brown, wet, very dense, no odor.	SP-SM	▨	100	24 28 32	0.7	FB-04-35.0-082218 @1130	X	
40	☒	40.0-41.5': Poorly-graded SAND with silt (90% sand, 10% silt), fine to medium sand, grayish brown, wet, dense, no odor.	SP-SM	▨	100	11 18 30	0.6	FB-04-40.0-082218 @1140		
45										

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: Concrete
Annular Seal: NA
Boring Abandonment: Bentonite

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

FARALLON CONSULTING

Log of Boring: FB-06

Page 1 of 1

Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, WA

Farallon PN: 397-019

Logged By: Greg Peters

Date/Time Started: 08/22/2018 @ 0610
Date/Time Completed: 08/22/2018 @ 0730
Equipment: Mini-track
Drilling Company: Geologic Drilling
Drilling Foreman: Blaine Gibson
Drilling Method: Hollow Stem Auger

Sampler Type: 1.5 Split Spoon
Drive Hammer (lbs.): 140
Depth of Water ATD (ft bgs): 16.0
Total Boring Depth (ft bgs): 26.5
Total Well Depth (ft bgs): NA

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	☒	0.0-0.5': Concrete. Hand auger to clear for utilities.	CO							Concrete
		0.5-2.5': SILT with sand (80% silt, 15% sand, 5% gravel), fine sand, fine gravel, dark brown, moist, petroleum-like odor. (Fill).	FILL				6.9	FB-05-2.5-082218 @0610	X	
5	☒	5.0-6.5': Sandy SILT (60% silt, 40% sand), fine sand, dark brown, moist, very soft, petroleum-like odor. Wood debris. (Fill).	FILL		100	1 1 1	2.4	No Sample		
10	☒	10.0-11.5': SILT (90% silt, 10% sand), fine sand, dark brown, moist, medium stiff, no odor.	ML		100	1 2 3	0.4	FB-05-10.0-082218 @0640	X	Bentonite
15	☒	15.0-16.5': SILT (95% silt, 5% sand), fine sand, brown, moist, medium stiff, no odor.	ML		100	3 3 3	0.4	FB-05-15.0-082218 @0655	X	▼ Water Level
20	☒	20.0-21.5': Sandy SILT (60 silt, 40% sand), fine sand, gray, moist to wet, hard, no odor.	ML		100	13 20 23	0.4	FB-05-20.0-082218 @0715	X	
25	☒	25.0-26.5': Silty SAND (80% sand, 20% silt), fine sand, gray, moist, very dense, no odor.	SM		100	14 22 30	0.6	FB-05-25.0-082218 @0730	X	

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: Concrete
Annular Seal: NA
Boring Abandonment: Bentonite

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

Log of Boring: FB-07

Page 1 of 2

Client: City Investors IX LLC
Project: Block 38 West
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: Y. Pehlivan

Date/Time Started: 12/21/19 1335
Date/Time Completed: 12/21/19 1435
Equipment: Geoprobe 7822DT
Drilling Company: AEC
Drilling Foreman: Chris Mainard
Drilling Method: Direct Push

Sampler Type: 5' Macrocore
Drive Hammer (lbs.): Auto
Depth of Water ATD (ft bgs): 5.0
Total Boring Depth (ft bgs): 32.5
Total Well Depth (ft bgs): NA

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		0.0-2.5': Fill material consisting of brick and wood debris.	FILL	▩	50					
		2.5-5.0': No recovery.								
5		5.0-6.5': Organic FILL (60% soil, 40% wood), abundant wood debris, dark reddish brown, wet, organic odor.	FILL	▩	72		0.5	FB-07-5.0		▼ Water Level
		6.5-8.3': SILT (100% silt), brown, moist, slight organic odor.	ML	🟨						
		8.3-8.6': PEAT (100% organic), dark brown, moist, organic odor.	PT	■						
		8.6-10.0': No recovery.								
10		10.0-11.1': Organic FILL (60% soil, 40% wood), abundant wood debris, dark brown, wet, organic odor.	FILL	▩	56		0.5	FB-07-10.0		Bentonite
		11.1-11.5': SILT (100% silt), gray, moist, no odor.	ML	🟨						
		11.5-12.0': Sandy SILT (70% silt, 30% sand), fine sand, gray, moist, no odor.	ML	🟨						
		12.0-12.8': Poorly graded SAND (100% sand), fine and medium sand, gray, wet, no odor.	SP	🟦						
		12.8-15.0': No recovery.								
15		15.0-16.7': Sandy SILT (70% silt, 30% sand), fine sand, gray, wet, no odor.	ML	🟨	70					
		16.7-17.3': SILT (100% silt), gray, moist, no odor.	ML	🟨						
		17.3-18.5': Sandy SILT (70% silt, 30% sand), fine sand, gray, wet, no odor.	ML	🟨			0.4			
		18.5-20.0': No recovery.								
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: Bentonite

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

FARALLON CONSULTING

Log of Boring: FB-07

Page 2 of 2

Client: City Investors IX LLC
Project: Block 38 West
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: Y. Pehlivan

Date/Time Started: 12/21/19 1335
Date/Time Completed: 12/21/19 1435
Equipment: Geoprobe 7822DT
Drilling Company: AEC
Drilling Foreman: Chris Mainard
Drilling Method: Direct Push

Sampler Type: 5' Macrocore
Drive Hammer (lbs.): Auto
Depth of Water ATD (ft bgs): 5.0
Total Boring Depth (ft bgs): 32.5
Total Well Depth (ft bgs): NA

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
		20.0-21.7': Silty SAND (80% sand, 20% silt), fine sand, gray, wet, no odor.	SM		100					
		21.7-22.7': Poorly graded SAND (100% sand), fine and medium sand, gray, wet, no odor.	SP							
		22.7-24.4': Silty SAND (80% sand, 20% silt), fine sand, gray, wet, no odor.	SM				0.3	FB-07-24.0	X	
25		24.4-25.0': Poorly graded SAND (100% sand), fine and medium sand, gray, wet, no odor.	SP		100					Bentonite
		27.3-28.0': SILT (100% silt), light brown, wet, no odor.	ML							
		28.0-32.5': Poorly graded SAND (100% sand), fine sand, light brown, wet, no odor.	SP				0.4	FB-07-29.0	X	
30					100					
							0.3	FB-07-31.5	X	
35										
40										

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: Bentonite

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

Log of Boring: FB-08

Client: City Investors IX LLC
Project: Block 38 West
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: Y. Pehlivan

Date/Time Started: 12/21/19 1115
Date/Time Completed: 12/21/19 1215
Equipment: Geoprobe 7822DT
Drilling Company: AEC
Drilling Foreman: Chris Mainard
Drilling Method: Direct Push

Sampler Type: 5' Macrocore
Drive Hammer (lbs.): Auto
Depth of Water ATD (ft bgs): 5.0
Total Boring Depth (ft bgs): 31.5
Total Well Depth (ft bgs): NA

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		0.0-0.5': Pea gravel fill.	FILL		50					
		0.5-1.6': Fill material consisting of brick, rocks, sand, and silt (40% sand, 40% gravel, 20% silt), fine to coarse sand and gravel, reddish brown, wet, no odor.	FILL							
		1.6-2.5': Silty GRAVEL (60% gravel, 40% silt), fine gravel, black, wet, no odor. (Fill)	FILL				0.2	FB-08-2.5	X	
		2.5-5.0': No recovery.								
5		5.0-7.0': Well graded GRAVEL with sand (50% gravel, 45% sand, 5% silt), fine to coarse sand and gravel, brown, wet, no odor. (Fill)	FILL		86					Water Level
		7.0-8.0': Sandy SILT (60% silt, 40% sand), fine and medium sand, gray, wet, no odor. (Fill)	FILL							
		8.0-8.3': Wood debris, reddish brown. (Fill)	FILL				0.2	FB-08-8.0	X	
		8.3-8.8': Wood debris, grayish brown. (Fill)	FILL							
		8.8-9.3': Organic FILL (60% soil, 40% wood), abundant wood/mulch, reddish brown, moist, organic odor.	FILL							
		9.3-10.0': No recovery.								
10		10.0-12.0': Wood debris, grayish brown. (Fill)	FILL		100					Bentonite
		12.0-12.9': Organic FILL (50% soil, 50% wood), abundant wood/mulch, dark brown, organic odor.	FILL							
		12.9-13.6': Poorly graded SAND (100% sand), fine and medium sand, gray, wet, no odor. (Fill)	FILL				0.5	FB-08-13.0	X	
		13.6-14.3': Organic FILL (70% soil, 30% wood), some wood/mulch, reddish brown, moist, organic odor.	FILL							
		14.3-15.0': Poorly graded SAND (100% sand), fine and medium sand, grayish brown, wet, no odor.	SP							
15		15.0-15.9': Poorly graded SAND (95% sand, 5% silt), fine and medium sand, grayish brown, wet, no odor.	SP		70					
		15.9-16.7': SILT (100% silt), gray, wet, no odor.	ML							
		16.7-17.2': Sandy SILT (70% silt, 30% sand), fine sand, gray, wet, no odor.	ML							
		17.2-18.5': Poorly graded SAND (100% sand), fine and medium sand, gray, wet, no odor.	SP				0.4	FB-08-18.0	X	
20		18.5-20.0': No recovery.								

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: Bentonite

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

FARALLON
CONSULTING

Log of Boring: FB-08

Client: City Investors IX LLC
Project: Block 38 West
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: Y. Pehlivan

Date/Time Started: 12/21/19 1115
Date/Time Completed: 12/21/19 1215
Equipment: Geoprobe 7822DT
Drilling Company: AEC
Drilling Foreman: Chris Mainard
Drilling Method: Direct Push

Sampler Type: 5' Macrocore
Drive Hammer (lbs.): Auto
Depth of Water ATD (ft bgs): 5.0
Total Boring Depth (ft bgs): 31.5
Total Well Depth (ft bgs): NA

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
	☒	20.0-21.0': Poorly graded SAND (100% sand), fine and medium sand, gray, wet, no odor.	SP	⋯	100					
	☒	21.0-22.0': Sandy SILT (70% silt, 30% sand), fine and medium sand, gray, wet, no odor.	ML	▥						
	☒	22.0-25.0': Sandy SILT (60% silt, 40% sand), fine and medium sand, gray, wet, no odor.	ML	▥			0.4	FB-08-23.0		
25	☒	25.0-27.0': Poorly graded SAND (95% sand, 5% silt), fine and medium sand, gray, wet, no odor.	SP	⋯	100					Bentonite
	☒	27.0-28.0': Poorly graded SAND with silt (90% sand, 10% silt), fine sand, gray, wet, no odor.	SP-SM	▨						
	☒	28.0-30.0': Poorly graded SAND (95% sand, 5% silt), fine and medium sand, gray, wet, no odor.	SP	⋯			0.5			
30	☒	30.0-31.5': Sandy SILT (50% silt, 50% sand), fine sand, gray, wet, no odor.	ML	▥	100		0.2	FB-08-30.5	X	
35										
40										

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: Bentonite

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

FARALLON CONSULTING

Log of Boring: FB-09

Page 1 of 2

Client: City Investors IX LLC
Project: Block 38 West
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: Y. Pehlivan

Date/Time Started: 12/21/19 0945
Date/Time Completed: 12/21/19 1050
Equipment: Geoprobe 7822DT
Drilling Company: AEC
Drilling Foreman: Chris Mainard
Drilling Method: Direct Push

Sampler Type: 5' Macrocore
Drive Hammer (lbs.): Auto
Depth of Water ATD (ft bgs): 3.0
Total Boring Depth (ft bgs): 33.0
Total Well Depth (ft bgs): NA

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	☒	0.0-0.5': Pea gravel fill.	FILL	▨	60					
		0.5-1.0': Silty SAND (70% sand, 30% silt), fine and medium sand, abundant wood debris, brown, moist, no odor. (Fill)	FILL	▨						
		1.0-2.3': Well graded SAND with gravel (70% sand, 30% gravel), fine and coarse sand, fine gravel, interbedded brown, gray, and black, dry, no odor. (Fill)	FILL	▨						
		2.3-3.0': Silty SAND (70% sand, 30% silt), fine and medium sand, abundant wood debris, reddish brown, moist, no odor. (Fill)	FILL	▨						▼ Water Level
		3.0-5.0': No recovery.								
5	☒	5.0-7.0': Well graded SAND with silt and gravel (70% sand, 20% gravel, 10% silt), fine to coarse sand, fine gravel, reddish brown, wet, no odor. (Fill)	FILL	▨	60					
		7.0-8.0': Organic FILL (60% soil, 40% wood), abundant wood debris, dark brown, moist, organic odor.	FILL	▨						
		8.0-10.0': No recovery.					0.3			
10	☒	10.0-11.0': Wood debris (70% wood, 30% silt), grayish brown, wet, organic odor. (Fill)	FILL	▨	66					Bentonite
		11.0-13.3': Organic FILL (60% soil, 40% wood), abundant wood debris, dark reddish brown, moist, organic odor.	FILL	▨			0.4	FB-09-11.0	X	
		13.3-15.0': No recovery.								
15	☒	15.0-16.4': Organic FILL (60% soil, 40% wood), abundant wood debris, dark reddish brown, moist, organic odor.	FILL	▨	88		0.4	FB-09-15.0		
		16.4-19.4': Silty SAND (60% sand, 40% silt), fine and medium sand, grayish brown and browinsh gray, wet, no odor.	SM	▦			0.3			
		19.4-20.0': No recovery.								
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: Bentonite

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

FARALLON CONSULTING

Log of Boring: FB-09

Client: City Investors IX LLC
Project: Block 38 West
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: Y. Pehlivan

Date/Time Started: 12/21/19 0945
Date/Time Completed: 12/21/19 1050
Equipment: Geoprobe 7822DT
Drilling Company: AEC
Drilling Foreman: Chris Mainard
Drilling Method: Direct Push

Sampler Type: 5' Macrocore
Drive Hammer (lbs.): Auto
Depth of Water ATD (ft bgs): 3.0
Total Boring Depth (ft bgs): 33.0
Total Well Depth (ft bgs): NA

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
		20.0-20.8': Silty SAND (70% sand, 30% silt), fine and medium sand, grayish brown, wet, no odor.	SM		60					
		20.8-23.0': Well-graded SAND with silt (90% sand, 10% silt), fine to coarse sand, grayish brown, wet, no odor.	SW-SM				0.9			
		23.0-25.0': No recovery.								
25		25.0-26.0': Poorly graded SAND (100% sand), fine and medium sand, gray, wet, no odor.	SP		100					Bentonite
		26.0-28.5': SILT (100% silt), gray, wet, no odor.	ML							
		28.5-29.0': SILT with sand (75% silt, 15% sand, 10% gravel), fine and medium sand, fine gravel, gray, wet, no odor.	ML							
		29.0-30.0': Poorly graded SAND (100% sand), fine sand, gray, wet, no odor.	SP				0.4			
30		30.0-31.4': Poorly graded SAND (100% sand), fine and medium sand, gray, wet, no odor.	SP		100					
		31.4-33.0': Sandy SILT (70% silt, 30% sand), fine sand, gray, wet, no odor.	ML							
							0.4	FB-09-33.0	X	
35										
40										

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: Bentonite

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

FARALLON CONSULTING

Log of Boring: FB-18

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Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: G.Peters

Date/Time Started: 11/24/21 @ 1030
Date/Time Completed: 11/24/21 @ 1100
Equipment: Geoprobe
Drilling Company: Holt Services
Drilling Foreman: Mike Runnings
Drilling Method: Direct Push

Sampler Type: 5' Macrocore
Drive Hammer (lbs.): Auto
Depth of Water ATD (ft bgs): NE
Total Boring Depth (ft bgs): 25.0
Total Well Depth (ft bgs): NA

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 SAND ((80% sand, 15% silt, 5% gravel), fine sand, brown, moist, no odor, grayish black staining. Brick debris.	SM				0.0			Gravel
5		5.0-8.0': Silty SAND (70% sand, 30% silt), fine sand, brown, moist, no odor, no staining.	SM		80		0.0			
		8.0-10.0': No recovery.								
10		10.0-12.5': Poorly-graded SAND with silt (90% sand, 10% silt), fine sand, brown, moist, no odor.	SP-SM		50		0.0			
		12.5-15.0': No recovery.								Bentonite
15		15.0-16.0': Poorly-graded SAND (100% sand), fine to medium sand, brown, moist to wet, no odor.	SP		100		0.7	FB-18-20.0	X	
		16.0-20.0': Peat (80% peat, 20% sand), fine sand, brown, moist, organic odor. Wood debris.	PT							
20		20.0-22.5': Peat (95% peat, 5% sand), fine sand, soft, brown, moist, organic odor. Wood debris.	PT		100		0.9	FB-18-15.0	X	
		22.5-25.0': SILT (90% silt, 10% sand), gray, stiff, moist, slight organic odor. Some wood debris.	ML							
25							0.8	FB-18-10.0		

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: Gravel
Annular Seal: NA
Boring Abandonment: Bentonite

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-19

Page 1 of 1

Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: G.Peters

Date/Time Started: 11/24/21 @ 1100
Date/Time Completed: 11/24/21 @ 1215
Equipment: Geoprobe
Drilling Company: Holt Services
Drilling Foreman: Mike Runnings
Drilling Method: Direct Push

Sampler Type: 5' Macrocore
Drive Hammer (lbs.): Auto
Depth of Water ATD (ft bgs): NE
Total Boring Depth (ft bgs): 25.0
Total Well Depth (ft bgs): NA

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': Well-graded SAND ((90% sand, 5% silt, 5% gravel), fine to coarse sand, brown, moist, no odor, no staining.	SW				0.0			Gravel
5		5.0-7.0': Poorly-graded SAND (100% sand), fine sand, brown, moist, no odor, no staining.	SM		40		0.0			
		7.0-10.0': No recovery.								
10		10.0-12.0': Silty SAND (80% sand, 20% silt), medium sand, brown, moist, no odor, no staining.	SP-SM		40		0.0			
		12.0-15.0': No recovery.								Bentonite
15		15.0-18.0': Poorly-graded SAND with silt (90% sand, 10% silt), fine sand, gray, wet, no odor, no staining.	SP-SM		100		0.7	FB-19-20.0	X	
		15.0-18.0': Peat (90% peat, 10% silt), brown, soft, moist, organic odor. Wood debris.	PT							
20		20.0-21.0': Peat (90% peat, 10% sand), fine sand, brown, soft, moist, organic odor. Some wood debris.	PT		100		0.9	FB-19-15.0	X	
		21.0-25.0': SILT (90% silt, 10% sand), fine sand, gray, stiff, moist, no odor, no staining, some wood debris.	ML							
25							0.6	FB-19-10.0		

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: Gravel
Annular Seal: NA
Boring Abandonment: Bentonite

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-20

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Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: G.Peters

Reviewed By: Suzy Stumpf

Date/Time Started: 2/5/2022 @ 900
Date/Time Completed: 2/5/2022 @ 1020
Drilling Company: Cascade Drilling
Drilling Method: Sonic Drilling
Drilling Equipment: Terrasonic
Drilling Operator: Rico Rodriguez
Sampler Type: 5' PE Bags
Drive Hammer (lbs): NA

Depth to Water ATD (ft bgs): 14.0
Boring Diameter (in): 8.0
Total Boring Depth (ft bgs): 25.0
Constructed Well Depth (ft bgs): NA

Depth (ft bgs)	Sample Interval	Lithologic Description	USCS	USCS Graphic	Blow Counts	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0.0-0.1': Asphalt. Airknife to 5.0' bgs for utility clearance.	AC							Asphalt
		0.1-5.0': Poorly-graded SAND (90% sand, 5% silt, 5% gravel), fine sand, brown, moist, no odor, no staining. Concrete, wood, plastic, metal debris (Fill).	SP							
5		5.0-10.0': Poorly-graded SAND with silt (90% sand, 10% silt), fine sand, brown, moist, no odor, no staining. Brick debris (Fill).	SP-SM			100	0.0			
10		10.0-14.0': Poorly-graded SAND with silt (90% sand, 10% silt), fine sand, brown, moist, no odor, no staining. Brick debris (Fill).	SP-SM			100	0.0			
							0.0	FB-20-12.0		Bentonite
		14.0-15.0': Poorly-graded SAND (90% wood, 10% sand), fine sand, brown, wet, hydrocarbon-like odor. Sheen on soil and woody material.	SP							▼
15		15.0-20.0': Poorly-graded SAND (90% wood, 10% sand), fine sand, brown, wet, hydrocarbon-like odor. Sheen on soil & woody debris.	SP			100	0.0	FB-20-15.0		
							20.3	FB-20-17.0		
20		20.0-24.0': PEAT (100% Peat), brown, moist, organic odor, no staining.	PT							
							0.2	FB-20-22.0		
		24.0-25.0': SILT (100% silt), gray, moist, no odor, no staining.	ML							
25								FB-20-25.0		

Well Construction Information

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

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

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-21

Page 1 of 1

Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: G.Peters

Reviewed By: Suzy Stumpf

Date/Time Started: 2/5/2022 @ 1030
Date/Time Completed: 2/5/2022 @ 1115
Drilling Company: Cascade Drilling
Drilling Method: Sonic Drilling
Drilling Equipment: Terrasonic
Drilling Operator: Rico Rodriguez
Sampler Type: 5' PE Bags
Drive Hammer (lbs): NA

Depth to Water ATD (ft bgs): NE
Boring Diameter (in): 8.0
Total Boring Depth (ft bgs): 10.0
Constructed Well Depth (ft bgs): NA

Depth (ft bgs)	Sample Interval	Lithologic Description	USCS	USCS Graphic	Blow Counts	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0.0-0.4': Asphalt. Airknife to 5.0' bgs for utility clearance.	AC							Asphalt
		0.4-5.0': Silty SAND (80% sand, 20% silt), fine sand, dark brown, moist, no odor, no staining. Wood and charcoal debris (Fill).	SM							
							0.0	FB-21-3.0		
5		5.0-10.0': Poorly-graded SAND (100% sand), fine sand, brown, moist, no odor, no staining.	SP-SM			100	0.0	FB-21-5.0		Bentonite
10							0.0	FB-21-10.0		

Well Construction Information

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

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

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: FMW-130

Page 1 of 3

Client: Washington Builders LLC
Project: Block 43
Location: Block 38, Seattle, WA

Farallon PN: 397-010

Logged By: Dincer Kayhan

Date/Time Started:	7/21/14 @ 0945	**Sampler Type:**	PE Bags
Date/Time Completed:	7/22/14 @	**Drive Hammer (lbs.):**	Auto
Equipment:	Spider 1576	**Depth of Water ATD (ft bgs):**	5.7
Drilling Company:	Cascade Drilling	**Total Boring Depth (ft bgs):**	60.0
Drilling Foreman:	Zane Huckins	**Total Well Depth (ft bgs):**	55
Drilling Method:	Sonic		

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		0.0-0.8': Asphalt (Cored).	AC							Concrete
		1.1-5.7': Wood debris mixed with black silty sand/sandy silt.	FILL					Air knife from 0.0-5.7' bgs.		
5		5.7-6.7': SILT (100% Silt), brown with alternating zones of black, wet, no odor.	FILL			1/1/1	0.6	SS-6.0 SPT		Water Level
		6.7-8.0': SILT (100% silt), alternating colors between brown, gray, and light gray, wet, organic odor, debris includes glass shards.	FILL				2.1	SS-5.0-7.5		
		8.0-8.9': Sandy SILT with gravel (70% silt, 15% sand, 15% gravel), fine to medium sand, coarse gravel, gray, no odor.	ML		100					
10		8.9-10.8': SILT (95% silt, 5% sand), fine sand, gray, wet, no odor.	ML				2.6	SS-7.5-10.0		Grout with Bentonite
		10.8-12.7': Sandy SILT (60% silt, 40% sand), fine sand, gray, wet, no odor.	ML			7/14 /12	3.1 5.2	SS-11.0 SPT SS-10.0-12.5		
		12.7-14.3': Silty SAND (70% sand, 30% silt), fine sand, coarse gravel <5%, gray, no odor, loose, moist.	SM		96		4.0	SS-12.5-14.8		
15		14.3-14.8': SILT (95% silt, 5% sand), fine sand, gray, wet, no odor.	ML							
		14.8-15.0': No recovery.								
		15.0-16.0': SILT (95% silt, 5% sand), fine sand, gray, wet, no odor.	ML			3/6/20	NM	SS-15.0-SPT		
		16.0-20.0': Silty SAND (70% sand, 30% silt), fine sand, loose, wet, strong moth ball-like odor.	SM		100		2.2	SS-15.0-17.5 F-MW-130-GW1-072114 @ 1420		
20										

Well Construction Information

Monument Type:	Flush Mount	**Filter Pack:**	10/20 Sand	**Ground Surface Elevation (ft):**	23
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):	45.0-55.0	**Boring Abandonment:**	NA		**Y:** NA

Log of Boring: F-MW-130

Page 2 of 3

Client: Washington Builders LLC
Project: Block 43
Location: Block 38, Seattle, WA
Farallon PN: 397-010
Logged By: Dincer Kayhan

Date/Time Started: 7/21/14 @ 0945
Date/Time Completed: 7/22/14 @
Equipment: Spider 1576
Drilling Company: Cascade Drilling
Drilling Foreman: Zane Huckins
Drilling Method: Sonic

Sampler Type: PE Bags
Drive Hammer (lbs.): Auto
Depth of Water ATD (ft bgs): 5.7
Total Boring Depth (ft bgs): 60.0
Total Well Depth (ft bgs): 55

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
20		20.0-21.2': Silty SAND (70% sand, 30% silt), fine sand, loose, wet, strong moth ball-like odor.	SM				27.7	F-MW-130-20.0-072114 @ 1300		
		21.2-23.5': SILT (90% silt, 5% sand, 5% gravel), fine sand, coarse gravel, gray, moist, no odor.	ML			4/6/5	NM	SS-21.0-SPT		
							4.6	SS-20.0-22.5		
					70		2.7	SS-22.5-23.5		
		23.5-25.0': No recovery.								
25		25.0-25.4': SILT (90% silt, 5% sand, 5% gravel), fine sand, coarse gravel, gray, moist, no odor.	ML							
		25.4-30.0': Silty SAND (60% sand, 40% silt), fine to medium sand, gray, moist, no odor, unit is more dense than previous silty sands.	SM			14/21 /47	NM	SS-26.0-SPT		
							2.2	SS-25.0-27.5		
					100					
		sand increased to 80% sand and 20% silt from 28.0-30.0' bgs, (zones of light brown toward 30.0' bgs).								
							2.3	SS-27.5-30.0		
30		30.0-40.0': Well graded SAND with silt (90% sand, 10% silt), fine to medium sand, gray, moist, no odor.	SW-SM							Grout with Bentonite
						5/4/1	NM	SS-31.0-SPT		
							2.9	SS-30.0-32.5		
					100					
							3.2	SS-32.5-35.0		
35										
							3.8	SS-35.0-37.5		
					100					
							2.9	SS-37.5-40.0		
40										

Well Construction Information

Monument Type: Flush Mount
Casing Diameter (inches): 2
Screen Slot Size (inches): 0.010
Screened Interval (ft bgs): 45.0-55.0

Filter Pack: 10/20 Sand
Surface Seal: Concrete
Annular Seal: Bentonite
Boring Abandonment: NA

Ground Surface Elevation (ft): 23
Top of Casing Elevation (ft): NA
Surveyed Location: **X:** NA
Y: NA

FARALLON CONSULTING

Log of Boring: F-MW-130

Page 3 of 3

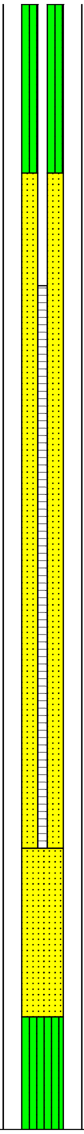
Client: Washington Builders LLC
Project: Block 43
Location: Block 38, Seattle, WA

Farallon PN: 397-010

Logged By: Dincer Kayhan

Date/Time Started:	7/21/14 @ 0945	**Sampler Type:**	PE Bags
Date/Time Completed:	7/22/14 @	**Drive Hammer (lbs.):**	Auto
Equipment:	Spider 1576	**Depth of Water ATD (ft bgs):**	5.7
Drilling Company:	Cascade Drilling	**Total Boring Depth (ft bgs):**	60.0
Drilling Foreman:	Zane Huckins	**Total Well Depth (ft bgs):**	55
Drilling Method:	Sonic		

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
40		Moisture content increased from previous 30.0-35.0' interval but still classified as moist.	SM				26.7	F-MW-130-40.0-072114 @ 1655 SS-40.7		Bentonite Seal
		40.0-40.7': Silty SAND (80% sand, 20% silt), fine to medium sand, gray, moist, no odor.								
		40.7-45.0': No recovery. Soil was not solid enough to collect due to water injection to combat heaving sands.			14					Sand Pack
45		45.0-49.5': Silty SAND (80% sand, 20% silt), fine to medium sand, gray, moist, no odor.	SM		90		173	F-MW-130-47.5-072214 @ 1000		
		49.5-50.0': No recovery.								
50		50.0-55.0': Well graded GRAVEL with silt and sand (60% gravel, 30% sand, 10% silt), fine to coarse sand and gravel, gray, wet, no odor, large cobbles present, natural wood debris present (bark and tree branch).	GW-GM		100		88.4 8.5 8.3	F-MW-130-50.0-072214 @ 1005 SS-50.0-52.5 SS-52.5-55.0		Screen
55		55.0-56.7: Well graded GRAVEL with silt and sand (60% gravel, 30% sand, 10% silt), fine to coarse sand and gravel, gray, wet, no odor.	GW-GM					F-MW-130-55.0-072214 @ 1325		Sand Pack
		56.7-60.0': Gravelly SILT (50% silt, 40% gravel, 10% sand), fine to coarse gravel and sand, gray, wet, no odor, cobbles present, gradational contact with unit above.	ML		100	10/18/20	12.8 6.7 NM	SS-55.0-57.5 SS-57.5-60.0 SS-60.0-SPT		Bentonite Seal
60										



Well Construction Information

Monument Type: Flush Mount
Casing Diameter (inches): 2
Screen Slot Size (inches): 0.010
Screened Interval (ft bgs): 45.0-55.0

Filter Pack: 10/20 Sand
Surface Seal: Concrete
Annular Seal: Bentonite
Boring Abandonment: NA

Ground Surface Elevation (ft): 23
Top of Casing Elevation (ft): NA
Surveyed Location: **X:** NA **Y:** NA

FARALLON CONSULTING

Log of Boring: FMW-132

Page 1 of 1

Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, WA

Farallon PN: 397-019

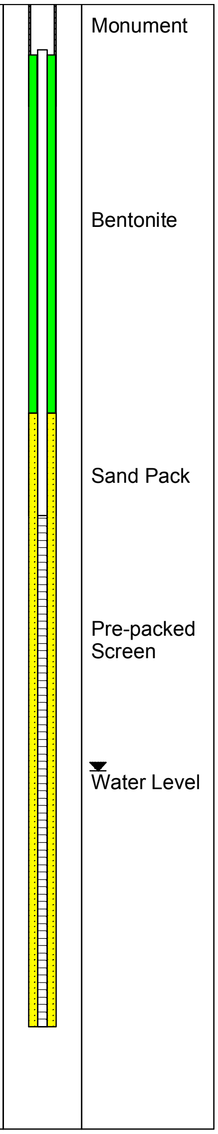
Logged By: Greg Peters

Date/Time Started: 08/24/2018 @ 1330
Date/Time Completed: 08/24/2018 @ 1530
Equipment: Mini-track
Drilling Company: Geologic Drilling
Drilling Foreman: Blaine Gibson
Drilling Method: Hollow Stem Auger

Sampler Type: 1.5 Split spoon
Drive Hammer (lbs.): 140
Depth of Water ATD (ft bgs): 7.5
Total Boring Depth (ft bgs): 10.0
Total Well Depth (ft bgs): 10.0

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USCS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed
0		0.0-1.0': Concrete, tile and asphalt material.	CO						
	☒	1.0-2.5': Poorly graded SAND with gravel (80% sand,15% gravel, 5% silt), medium to coarse sand, fine gravel, brown, dry, no odor. (Fill).	FILL						
							0.3	FMW-132-2.5-082418@1320	
5	☒	5.0-6.5': Sandy SILT (60% sand, 30% silt, 10% gravel), fine sand, fine gravel, brown, dry, very loose, no odor. Fill material consisting of wood & glass debris. Some organic matter present. (Fill).	FILL		100	3 2 1	0.5	FMW-132-5.0-082418@1320	X
10		Drilling crew encountered unidentified hard object while attempting to sample at 10.0 ft bgs. Farallon decided to stop drilling operations and install monitoring well at 10.0 ft bgs.			NA	NA	NA	FMW-132-10.0-082418@1835	X

Boring/Well Construction Details



Well Construction Information

Monument Type: Flush Mount
Casing Diameter (inches): 1.0
Screen Slot Size (inches): 0.010
Screened Interval (ft bgs): 5.0-10.0

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

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

Log of Boring: FMW-133

Page 1 of 1

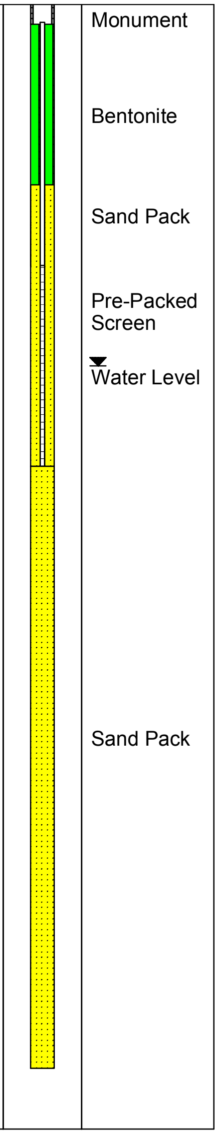
Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, WA
Farallon PN: 397-019
Logged By: Greg Peters

Date/Time Started: 08/24/2018 @ 1745
Date/Time Completed: 08/24/2018 @ 1902
Equipment: Mini-track
Drilling Company: Geologic Drilling
Drilling Foreman: Blaine Gibson
Drilling Method: Hollow Stem Auger

Sampler Type: 1.5 Split Spoon
Drive Hammer (lbs.): 140
Depth of Water ATD (ft bgs): 9.0
Total Boring Depth (ft bgs): 26.5
Total Well Depth (ft bgs): 11.5

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USCS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed
0		0.0-1.5': Concrete. Hand auger to clear for utilities.	CO						
	☒	2.5-5.0': Poorly graded SAND with gravel (70% sand, 25% gravel, 5% silt), medium sand, fine gravel, dark brown, dry to moist, no odor. (Fill).	FILL						
5	☒	5.0-6.5': No Recovery.			0	1 2 1	NA	No Sample	
10	☒	10.0-11.5': SILT (90% silt, 10% sand), fine sand, brown, moist to wet, very soft, no odor. Wood debris present. (Fill).	FILL		100	1 1 1	0.5	FMW-133-10.0-082418@1835	X
15	☒	15.0-16.5': Silty SAND (85% sand, 15% silt), fine sand, gray, moist, stiff, no odor.	SM		100	4 5 6	0.3	FMW-133-15.0-082418@1849	
20	☒	20.0-21.5': Poorly graded SAND (95% sand, 5% silt), medium to coarse sand, gray, wet, medium dense, wet, no odor.	SP		100	6 8 11	0.4	FMW-133-20.0-082418@1852	X
25	☒	25.0-26.5': Poorly graded SAND (95% sand, 5% silt), fine to medium sand, gray, wet, very dense, no odor.	SP		100	18 21 30	0.4	FMW-133-25.0-082418@1902	

Boring/Well Construction Details



Well Construction Information

Monument Type: Flush Mount
Casing Diameter (inches): 1.0
Screen Slot Size (inches): 0.01
Screened Interval (ft bgs): 6.5 - 11.5

Filter Pack: Silica/Sand
Surface Seal: Grout/Concrete
Annular Seal: NA
Boring Abandonment: NA

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

FARALLON CONSULTING

Log of Boring: FMW-134

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Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, WA

Farallon PN: 397-019

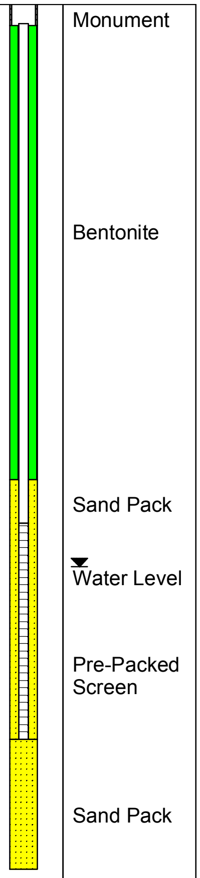
Logged By: Greg Peters

Date/Time Started: 08/24/2018 @ 0700
Date/Time Completed: 08/24/2018 @ 1030
Equipment: Mini-track
Drilling Company: Geologic Drilling
Drilling Foreman: Blaine Gibson
Drilling Method: Hollow Stem Auger

Sampler Type: 1.5 Split Spoon
Drive Hammer (lbs.): 140
Depth of Water ATD (ft bgs): 13.0
Total Boring Depth (ft bgs): 20.0
Total Well Depth (ft bgs): 17.0

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed
0		0.0-0.5': Concrete. Hand auger to clear for utilities.	CO					
	☒	0.5-2.5': Sandy SILT (50% silt, 40% sand, 10% gravel), fine to coarse sand, fine gravel, dark brown, moist, organic odor.	ML					
5	☒	5.0-6.5': SILT (90% silt, 10% sand), fine sand, brown, moist to wet, medium stiff, organic odor. Organic matter present.	ML	100	2 1 4	0.1	FMW-134-5.0-082318@0710	X
10	☒	10.0-11.0': SILT (90% silt, 10% sand), fine sand, gray, medium stiff, moist, no odor.	ML	100	2 3 5	0.0	FMW-134-10.0-082318@0720	
		11.0-11.5': Poorly-graded SAND (100% sand), fine to medium sand, gray, loose, moist, no odor.	SP					
15	☒	15.0-16.5': Silty SAND (85% sand, 15% silt), fine to medium sand, grey, wet, medium dense, no odor.	SM	100	8 11 11	0.3	FMW-134-15.0-082318@0730	X
20	☒	20.0-21.5': Poorly graded SAND (100% sand), medium sand, grey, wet, medium dense, wet, no odor.	SP-SM	100	10 13 17	0.1	FMW-134-20.0-082318@0750	
25		Refusal at 25.0' bgs due to heaving sands.						

Boring/Well Construction Details



Well Construction Information

Monument Type: Flush Mount
Casing Diameter (inches): 1.0
Screen Slot Size (inches): 0.010
Screened Interval (ft bgs): 12.0-17.0

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

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

FARALLON CONSULTING

Log of Boring: FMW-135

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Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, WA

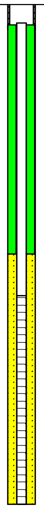
Farallon PN: 397-019

Logged By: Greg Peters

Date/Time Started: 08/24/2018 @ 0700
Date/Time Completed: 08/24/2018 @ 0950
Equipment: Mini-track
Drilling Company: Geologic Drilling
Drilling Foreman: Blaine Gibson
Drilling Method: Hollow Stem Auger

Sampler Type: 1.5 Split Spoon
Drive Hammer (lbs.): 140
Depth of Water ATD (ft bgs): 8.0
Total Boring Depth (ft bgs): 51.5
Total Well Depth (ft bgs): 12.0

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		0.0-0.6': Concrete. Hand auger to clear for utilities.	CO							Monument
										Bentonite
5	☒	5.0-6.0': Silty SAND (60% sand, 30% silt,10% gravel), fine to coarse sand, fine gravel, brown, moist to wet, very loose, no odor. (Fill).	FILL		100	1 1 2	0.1	FMW-135-5.0-082418@0735	X	
		6.0-6.5': SILT (90% silt, 10% sand), fine sand, grayish brown, moist to wet, soft, no odor. (Fill).	FILL							Sand Pack Water Level
10	☒	10.0-11.5': Poor recovery. Wood debris throughout entire core sample. (Fill).	FILL		NA	9 6 5	0.5	No Sample		Pre-Packed Screen
15	☒	15.0-15.9': SILT (100% silt), dark brown, moist, medium stiff, no odor.	ML		100	2 3 4	3.5	FMW-135-15.0-082418@0750	X	
		15.9-16.5': Silty SAND (70% sand, 30% silt), fine sand, gray, moist, loose, no odor.	SM							
20	☒	20.0-20.8': Poorly-graded SAND (100% sand), medium to coarse sand, gray, wet, loose, organic odor.	SP		100	1 4 3	1.2	FMW-135-20.0-082418@0810		
		20.8-21.5': SILT (90% silt, 10% sand), medium sand, gray, moist to wet, medium stiff, organic odor.	ML							
25	☒	25.0-26.5': Silty SAND (55% sand, 40% silt, 5% gravel), fine sand, fine gravel, gray, wet, loose, organic odor.	SM		100	2 4 6	1.0	FMW-135-25.0-082418@0823	X	



Well Construction Information

Monument Type: Flush Mount
Casing Diameter (inches): 1.0
Screen Slot Size (inches): 0.010
Screened Interval (ft bgs): 7.0-12.0

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

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

Log of Boring: FMW-135

Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, WA

Farallon PN: 397-019

Logged By: Greg Peters

Date/Time Started: 08/24/2018 @ 0700
Date/Time Completed: 08/24/2018 @ 0950
Equipment: Mini-track
Drilling Company: Geologic Drilling
Drilling Foreman: Blaine Gibson
Drilling Method: Hollow Stem Auger

Sampler Type: 1.5 Split Spoon
Drive Hammer (lbs.): 140
Depth of Water ATD (ft bgs): 8.0
Total Boring Depth (ft bgs): 51.5
Total Well Depth (ft bgs): 12.0

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
30	☒	30.0-31.5': Silty SAND (70% sand, 30% silt), fine sand, gray, moist, medium dense, no odor.	SM	▥	100	9 13 15	1.1	FMW-135-30.0-082418@0835	X	
35	☒	35.0-36.5': Silty SAND (60% sand, 40% silt), fine sand, gray, moist, dense, no odor.	SM	▥	100	15 21 24	0.9	FMW-135-35.0-082418@0850	X	
40	☒	40.0-41.5': Poorly-graded SAND with silt (90% sand, 10% silt), fine sand, grayish brown, moist, very dense, no odor.	SP-SM	▨	100	22 32 38	1.0	FMW-135-40.0-082418@0915		
45	☒	45.0-46.5': Poorly-graded SAND with silt (90% sand, 10% silt), fine sand, grayish brown, moist, very dense, no odor.	SP-SM	▨	100	19 26 32	0.9	FMW-135-45.0-082418@0930		
50	☒	50.0-51.5': Well-graded SAND with gravel (70% sand, 25% gravel, 5% silt), fine to coarse sand, fine gravel, moist to wet, dense, no odor.	SW	▩	100	15 21 18	1.0	FMW-135-50.0-082418@0950	X	

Well Construction Information

Monument Type: Flush Mount
Casing Diameter (inches): 1.0
Screen Slot Size (inches): 0.010
Screened Interval (ft bgs): 7.0-12.0

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

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

FARALLON CONSULTING

Log of Boring: FMW-136

Page 1 of 1

Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, WA

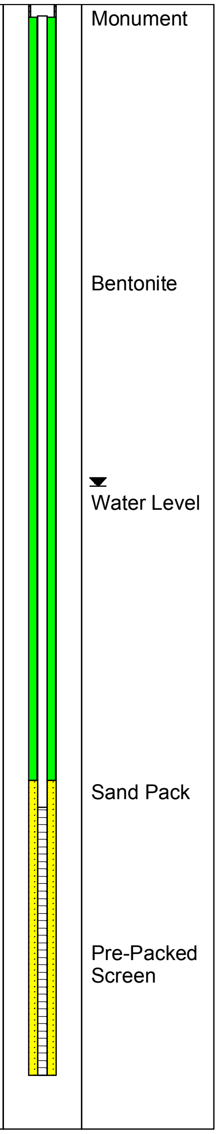
Farallon PN: 397-019

Logged By: Greg Peters

Date/Time Started:	08/22/2018 @ 1310	**Sampler Type:**	1.5 Split Spoon
Date/Time Completed:	08/22/2018 @ 1400	**Drive Hammer (lbs.):**	140
Equipment:	Mini-track	**Depth of Water ATD (ft bgs):**	18.0
Drilling Company:	Geologic Drilling	**Total Boring Depth (ft bgs):**	40.0
Drilling Foreman:	Blaine Gibson	**Total Well Depth (ft bgs):**	NA
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
0		0.0-0.5': Concrete. Hand auger to clear for utilities.	CO						
5	☒	5.0-6.5': Sandy SILT (70% silt, 30% sand), fine to medium sand, dark brown, moist, soft, no odor. Wood debris and organic matter present. (Fill).	FILL		100	1 2 2	0.7	FMW-136-5.0-082218@1315	
10	☒	10.0-11.5': Sandy SILT (60% silt, 40% sand), fine sand, gray, moist, stiff, no odor.	ML		100	3 6 5	0.8	FMW-136-10.0-082218@1320	X
15	☒	15.0-16.5': Silty SAND (60% sand, 40% silt), fine sand, gray, moist, medium dense, no odor.	SM		100	8 10 14	0.6	FMW-136-15.0-082218@1330	
20	☒	20.0-21.5': Silty SAND (80% sand, 20% silt), fine to medium sand, grayish brown, moist to wet, medium dense, no odor.	SM		100	18 13 12	0.8	FMW-136-20.0-082218@1345	X
25	☒	25.0-26.5': Poorly-graded SAND with silt (90% sand, 10% silt), fine sand, grayish brown, wet, medium dense, no odor.	SP-SM		100	4 10 16	1.3	FMW-136-25.0-082218@1355	
30	☒	30.0-31.5': Poorly-graded SAND (100% sand), fine sand, grayish brown, wet, dense, no odor. No sample recovery beyond 30.0' bgs due to heaving sands.	SP		100	6 12 19	1.0	FMW-136-30.0-082218@1400	X
35									
40									

Boring/Well Construction Details



Well Construction Information

Monument Type:	Flush Mount	**Filter Pack:**	Silica/Sand	**Ground Surface Elevation (ft):**	NA
Casing Diameter (inches):	1.0	**Surface Seal:**	Grout/Concrete	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (inches):	0.010	**Annular Seal:**	Bentonite/Grout	**Surveyed Location:**	**X:** NA
Screened Interval (ft bgs):	30.0- 40.0	**Boring Abandonment:**	NA		**Y:** NA

Log of Boring: FMW-137

Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, WA

Farallon PN: 397-061

Logged By: Greg Peters

Date/Time Started: 11/3/2018 @ 1145
Date/Time Completed: 11/17/2018 @ 1400
Equipment: Sonic Rig/Geoprobe
Drilling Company: Holocene Drilling
Drilling Foreman: Zack Bailey
Drilling Method: Sonic Drilling

Sampler Type: 4 x 6 sample bag
Drive Hammer (lbs.): NA
Depth of Water ATD (ft bgs): NE
Total Boring Depth (ft bgs): 90.0
Total Well Depth (ft bgs): 85.0

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		0.0-0.5': Concrete cored. Air knife to 5.0' bgs to clear for utilities.	CO							Monument
		0.4-5.0': Silty SAND with gravel (60% sand, 30% gravel, 10% silt), medium to coarse sand, fine gravel, brown, moist, no odor. Brick, wood and metal debris.	FILL							
5		5.0-9.0': Silty SAND (75% sand, 20% silt, 5% gravel), fine to medium sand, fine gravel, moist, no odor. Some debris.	FILL				0.1	Soil Screened @ 5.0' bgs		Bentonite
		9.0-10.0': No Recovery.								
10		10.0-10.6': Wood debris	FILL		80					
		10.6-15.0': No Recovery.								Water level
15		15.0-18.0': Silty SAND (60% sand, 40% silt), fine to medium sand, brown, moist to wet, no odor. Wood debris at 16.0 ft bgs.	FILL							
		18.0-20.0': No Recovery.								
20		20.0-22.0': Sandy SILT (70% silt, 30% sand), fine sand, dark brown, moist to wet, organic odor. Wood debris throughout.	FILL		60		6.5	Soil Screened @ 20.0' bgs		Casing
		22.0-25.0': Silty SAND (80% sand, 20% silt), medium sand, gray, moist to wet, no odor. Wood debris throughout.	SM							
25										

Well Construction Information

Monument Type: Flush Mount
Casing Diameter (inches): 2.0
Screen Slot Size (inches): 0.010
Screened Interval (ft bgs): 72.0-85.0

Filter Pack: 12/20 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

FARALLON
CONSULTING

Log of Boring: FMW-137

Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, WA
Farallon PN: 397-061
Logged By: Greg Peters

Date/Time Started: 11/3/2018 @ 1145
Date/Time Completed: 11/17/2018 @ 1400
Equipment: Sonic Rig/Geoprobe
Drilling Company: Holocene Drilling
Drilling Foreman: Zack Bailey
Drilling Method: Sonic Drilling

Sampler Type: 4 x 6 sample bag
Drive Hammer (lbs.): NA
Depth of Water ATD (ft bgs): NE
Total Boring Depth (ft bgs): 90.0
Total Well Depth (ft bgs): 85.0

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		25.0-27.0': Silty SAND (60% sand, 40% silt), fine sand, gray, moist to wet, no odor.	SM		100					
		27.0-29.0': Silty SAND (80% sand, 20% silt), fine to medium sand, gray, moist to wet, no odor.	SM							
		29.0-30.0': No Recovery.								
30		30.0-35.0': Silty SAND (70% sand, 30% silt), fine sand, gray, wet, no odor.	SM		100		0.3	Soil Screened @ 30.0' bgs		Bentonite
35		35.0-40.0': Silty SAND (60% sand, 40% silt), fine sand, gray, moist, no odor.	SM		100					
40		40.0-42.0': Poorly graded SAND with silt (90% sand, 10% silt), fine to medium sand, gray, moist, no odor.	SP-SM		100		0.3	Soil Screened @ 40.0' bgs		Casing
		42.0-45.0': Silty SAND (70% sand, 30% silt), fine sand, gray, moist, no odor.	SM							
45		45.0-50.0': Silty SAND (85% sand, 15% silt), fine sand, grayish brown, moist, no odor.	SM							
50										

Well Construction Information

Monument Type: Flush Mount
Casing Diameter (inches): 2.0
Screen Slot Size (inches): 0.010
Screened Interval (ft bgs): 72.0-85.0

Filter Pack: 12/20 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

FARALLON CONSULTING

Log of Boring: FMW-137

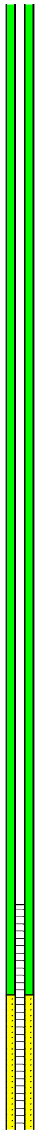
Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, WA

Farallon PN: 397-061

Logged By: Greg Peters

Date/Time Started:	11/3/2018 @ 1145	**Sampler Type:**	4 x 6 sample bag
Date/Time Completed:	11/17/2018 @ 1400	**Drive Hammer (lbs.):**	NA
Equipment:	Sonic Rig/Geoprobe	**Depth of Water ATD (ft bgs):**	NE
Drilling Company:	Holocene Drilling	**Total Boring Depth (ft bgs):**	90.0
Drilling Foreman:	Zack Bailey	**Total Well Depth (ft bgs):**	85.0
Drilling Method:	Sonic Drilling		

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
50		50.0-55.0': Silty SAND (80% sand, 20% silt), fine to medium sand, grayish brown, moist to wet, no odor.	SM		100		3.2	Soil Screened @ 50.0' bgs		Casing
55		55.0-60.0': Silty SAND (80% sand, 20% silt), fine to medium sand, grayish brown, moist to wet, no odor.	SM							
60		60.0-70.0': Poorly graded SAND with silt (90% sand, 10% silt), medium sand, grauish brown, moist, no odor.	SP-SM		100		1.3	Soil Screened @ 60.0' bgs		
65										
70		70.0-72.0': Poorly graded SAND with silt (90% sand, 10% silt), medium sand, grayish brown, moist.	SP-SM		100		0.3	Soil Screened @ 70.0' bgs		Bentonite
		72.0-75.0': Poorly graded SAND with silt (80% sand, 10% silt, 10% gravel), medium sand, fine gravel, grayish brown, moist no odor.	SP-SM							Screen (Pre-packed)
75										



Well Construction Information

Monument Type:	Flush Mount	**Filter Pack:**	12/20 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):	72.0-85.0	**Boring Abandonment:**	NA		**Y:** NA

Log of Boring: FMW-137

Page 4 of 4

Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, WA

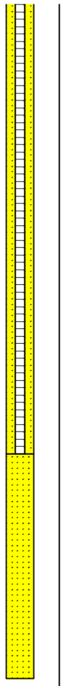
Farallon PN: 397-061

Logged By: Greg Peters

Date/Time Started: 11/3/2018 @ 1145
Date/Time Completed: 11/17/2018 @ 1400
Equipment: Sonic Rig/Geoprobe
Drilling Company: Holocene Drilling
Drilling Foreman: Zack Bailey
Drilling Method: Sonic Drilling

Sampler Type: 4 x 6 sample bag
Drive Hammer (lbs.): NA
Depth of Water ATD (ft bgs): NE
Total Boring Depth (ft bgs): 90.0
Total Well Depth (ft bgs): 85.0

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
75		75.0-80.0': Poorly graded SAND (95% sand, 5% silt), medium sand, gray, moist to wet, no odor.	SP							Screen (Pre-Packed)
80		80.0-85.0': Poorly graded SAND (95% sand, 5% silt), fine to medium sand, gray, moist to wet, no odor.	SP		100		0.5	Soil Screened @ 80.0' bgs		
85		85.0-90.0': Poorly graded SAND (95% sand, 5% silt), fine to medium sand, gray, moist to wet, no odor.	SP							Sand Pack
90					100		0.2	Soil Screened @ 90.0' bgs		
95										
100										



Well Construction Information

Monument Type: Flush Mount
Casing Diameter (inches): 2.0
Screen Slot Size (inches): 0.010
Screened Interval (ft bgs): 72.0-85.0

Filter Pack: 12/20 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

FARALLON CONSULTING

Log of Boring: FMW-138

Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, WA
Farallon PN: 397-061
Logged By: Greg Peters

Date/Time Started: 11/3/2018 @ 0900
Date/Time Completed: 11/4/2018 @ 0900
Equipment: Sonic Rig/Geoprobe
Drilling Company: Holocene Drilling
Drilling Foreman: Zack Bailey
Drilling Method: Sonic Drilling

Sampler Type: 4 x 6 sample bag
Drive Hammer (lbs.): NA
Depth of Water ATD (ft bgs): NE
Total Boring Depth (ft bgs): 100.0
Total Well Depth (ft bgs): 100.0

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		0.0-0.4': Concrete cored. Air knife to 5.0' bgs to clear for utilities.	CO							Monument
		0.4-5.0': Silty SAND with gravel (60% sand, 30% gravel, 10% silt), fine to coarse sand, fine gravel, brown, moist, no odor. concrete sub layer at 2.5' bgs. Brick, wood and metal debris.	FILL							
5		5.0-8.0': Silty SAND with gravel (60% sand, 20% gravel, 20% silt), fine to coarse sand, fine gravel, brown moist, no odor. Wood debris throught core.	FILL				0.0	Soil Screened @ 5.0' bgs		Bentonite
		8.0-10.0': No Recovery.								
10		10.0-12.0': Silty SAND (60% sand, 30% silt, 10% gravel), fine sand, fine gravel, gray, moist, no odor. Wood debris at 12.0' bgs.	FILL		60		0.0	Soil Screened @ 10.0' bgs		
		12.0-15.0.': Silty SAND with gravel (70% sand, 15% silt, 15% gravel), fine sand, fine gravel, gray, moist, no odor. Wood debris.	FILL							
15		15.0-20.0.': Silty SAND (70% sand, 30% silt), fine sand, fine gravel, grayish brown, moist, organic like odor. Wood debris.	FILL				0.0	Soil Screened @ 15.0' bgs		Casing
20		20.0-25.0': Sandy SILT (80% silt, 20% sand), fine sand, dark brown, moist to wet, organic like odor. organic matter and some wood debris present.	FILL		100		17.3	Soil Screened @ 20.0' bgs		

Well Construction Information

Monument Type: Flush Mount
Casing Diameter (inches): 2.0
Screen Slot Size (inches): 0.010
Screened Interval (ft bgs): 90.0 - 100.0

Filter Pack: 12/20 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

FARALLON CONSULTING

Log of Boring: FMW-138

Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, WA
Farallon PN: 397-061
Logged By: Greg Peters

Date/Time Started: 11/3/2018 @ 0900
Date/Time Completed: 11/4/2018 @ 0900
Equipment: Sonic Rig/Geoprobe
Drilling Company: Holocene Drilling
Drilling Foreman: Zack Bailey
Drilling Method: Sonic Drilling

Sampler Type: 4 x 6 sample bag
Drive Hammer (lbs.): NA
Depth of Water ATD (ft bgs): NE
Total Boring Depth (ft bgs): 100.0
Total Well Depth (ft bgs): 100.0

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		25.0-25.6': Sandy SILT (80% silt, 20% sand), medium sand, gray, moist, no odor.	ML		100		19.3	Soil Screened @ 25.0' bgs		
		25.6-27.6': Sandy SILT (90% silt, 10% sand), fine sand, gray, moist, no odor.	ML							▼ Water level
		27.6-30.0': Silty SAND (70% sand, 30% silt), fine sand, gray moist, no odor.	SM							
30		30.0-31.0': Silty SAND (70% sand, 30% silt), fine sand, gray moist, no odor.	SM		70		3.6	Soil Screened @ 30.0' bgs		Bentonite
		31.0-33.5': Poorly graded SAND (90% sand, 5% silt, 5% gravel), medium sand, grayish brown, moist, no odor.	SP							
		33.5-35.0': No Recovery.								
35		35.0-39.0': Poorly graded SAND (90% sand, 10% silt), medium sand, grayish brown, moist, no odor.	SP		80					
		39.0-40.0': No Recovery.					1.0	Soil Screened @ 39.0' bgs		
40		40.0-45.0': Poorly graded SAND (90% sand, 5% silt, 5% gravel), medium sand, grayish brown, moist, no odor.	SP		100					Casing

Well Construction Information

Monument Type: Flush Mount
Casing Diameter (inches): 2.0
Screen Slot Size (inches): 0.010
Screened Interval (ft bgs): 90.0 - 100.0

Filter Pack: 12/20 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: FMW-138

Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, WA

Farallon PN: 397-061

Logged By: Greg Peters

Date/Time Started:	11/3/2018 @ 0900	**Sampler Type:**	4 x 6 sample bag
Date/Time Completed:	11/4/2018 @ 0900	**Drive Hammer (lbs.):**	NA
Equipment:	Sonic Rig/Geoprobe	**Depth of Water ATD (ft bgs):**	NE
Drilling Company:	Holocene Drilling	**Total Boring Depth (ft bgs):**	100.0
Drilling Foreman:	Zack Bailey	**Total Well Depth (ft bgs):**	100.0
Drilling Method:	Sonic Drilling		

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
45		45.0-50.0': Poorly graded SAND (85% sand, 10% gravel, 5% silt), medium sand, grayish brown, moist, no odor.	SP							Casing
50		50.0-52.0': Silty SAND with gravel (60% sand, 20% gravel, 20% silt), medium to coarse sand, fine to coarse gravel, cobbles present, brown, wet, no odor.	SM		100		0.4	Soil Screened @ 50.0' bgs		
		52.0-55.0': Sandy SILT with gravel (60% silt, 25% sand, 15% gravel), fine to coarse sand, fine gravel, cobbles present, brown, moist to wet, no odor.	ML							
55		55.0-60.0': Sandy SILT (70% silt, 25% sand, 5% gravel), fine sand, brown, wet, no odor.	ML				0.5	Soil Screened @ 55.0' bgs		Bentonite
60		60.0-64.0': Sandy SILT (70% silt, 25% sand, 5% gravel), fine sand, brown, wet, no odor.	ML		100		1.0	Soil Screened @ 60.0' bgs		Casing
		64.0-65.0': Gravelly SILT with sand (50% silt, 30% gravel, 20% sand), fine to coarse sand, fine to coarse gravel, cobbles present, moist no odor.	ML							
65			ML				0.2	Soil Screened @ 65.0' bgs		

Well Construction Information

Monument Type: Flush Mount
Casing Diameter (inches): 2.0
Screen Slot Size (inches): 0.010
Screened Interval (ft bgs): 90.0 - 100.0

Filter Pack: 12/20 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: FMW-138

Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, WA
Farallon PN: 397-061
Logged By: Greg Peters

Date/Time Started: 11/3/2018 @ 0900
Date/Time Completed: 11/4/2018 @ 0900
Equipment: Sonic Rig/Geoprobe
Drilling Company: Holocene Drilling
Drilling Foreman: Zack Bailey
Drilling Method: Sonic Drilling

Sampler Type: 4 x 6 sample bag
Drive Hammer (lbs.): NA
Depth of Water ATD (ft bgs): NE
Total Boring Depth (ft bgs): 100.0
Total Well Depth (ft bgs): 100.0

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
		65.0-65.0': Sandy SILT (70% silt, 25% sand, 5% gravel), fine sand, brown, moist, no odor.								
		68.0-70.0': Sandy SILT (70% silt, 20% sand, 10% gravel), fine sand, gray, moist, no odor.	ML							
70		70.0-80.0': Poorly graded SAND with silt (90% sand, 10% silt), fine to medium sand, gray, moist to wet, no odor.	SP-SM		100		0.1	Soil Screened @ 70.0' bgs		Casing
75										
										Bentonite
80		80.0-90.0': Poorly graded SAND (98% sand, 2% silt), medium sand, gray, moist to wet, no odor.	SP		100		0.3	Soil Screened @ 80.0' bgs		
85										Casing

Well Construction Information

Monument Type: Flush Mount
Casing Diameter (inches): 2.0
Screen Slot Size (inches): 0.010
Screened Interval (ft bgs): 90.0 - 100.0

Filter Pack: 12/20 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

FARALLON CONSULTING

Log of Boring: FMW-138

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Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, WA

Farallon PN: 397-061

Logged By: Greg Peters

Date/Time Started:	11/3/2018 @ 0900	**Sampler Type:**	4 x 6 sample bag
Date/Time Completed:	11/4/2018 @ 0900	**Drive Hammer (lbs.):**	NA
Equipment:	Sonic Rig/Geoprobe	**Depth of Water ATD (ft bgs):**	NE
Drilling Company:	Holocene Drilling	**Total Boring Depth (ft bgs):**	100.0
Drilling Foreman:	Zack Bailey	**Total Well Depth (ft bgs):**	100.0
Drilling Method:	Sonic Drilling		

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
										Sand Pack
90		90.0-100.0': Poorly graded SAND (98% sand, 2% silt), medium sand, gray, wet, no odor.	SP		100		0.4	Soil Screened @ 90.0' bgs		
95										Screen (Pre-Packed)
100					100		0.4	Soil Screened @ 100.0' bgs		
105										
110										

Well Construction Information

Monument Type:	Flush Mount	**Filter Pack:**	12/20 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):	90.0 - 100.0	**Boring Abandonment:**	NA		**Y:** NA

Log of Boring: FMW-144

Page 1 of 2

Client: City Investors IX LLC
Project: Block 38 West
Location: Seattle, Washington

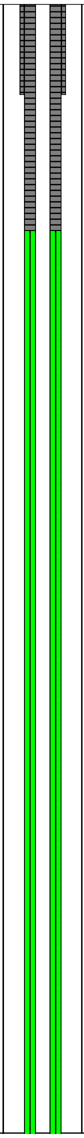
Farallon PN: 397-019

Logged By: G. Peters

Date/Time Started: 12/20/19 0910
Date/Time Completed: 12/20/19 1230
Equipment: TSi 150
Drilling Company: AEC
Drilling Foreman: Andrew Flagan
Drilling Method: Sonic

Sampler Type: 10' Core Barrel
Drive Hammer (lbs.): Auto
Depth of Water ATD (ft bgs): 15.0
Total Boring Depth (ft bgs): 33.0
Total Well Depth (ft bgs): 43.0

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		0.0-2.0': Fill consisting of concrete, asphalt, wood, and metal debris.	FILL		80					
		2.0-4.0': Silty SAND (70% sand, 20% silt, 10% gravel), grayish brown, fine to coarse sand, moist, no odor.	SM							Concrete
		4.0-5.0': No recovery.								
5		5.0-9.0': Well graded SAND with silt and gravel (80% sand, 10% silt, 10% gravel), fine to coarse sand and gravel, grayish brown, moist, no odor, some wood debris.	SW-SM		80					
		9.0-10.0': No recovery.					1.2	FMW-144-9.0	X	
10		10.0-12.5': SILT with sand (80% silt, 20% sand), fine sand, gray, moist, no odor.	ML		100					Bentonite
		12.5-15.0': Silty SAND (80% sand, 20% silt), fine and medium sand, gray, moist, no odor.	SM							
15		15.0-20.0': Sandy SILT (70% silt, 30% sand), fine sand, gray, wet, no odor.	ML		100					▼ Water Level
20		20.0-25.0': Silty SAND (60% sand, 40% silt), fine sand, gray, wet, no odor.	SM		100					
25										



Well Construction Information

Monument Type: Flush
Casing Diameter (inches): 2.0
Screen Slot Size (inches): 0.010
Screened Interval (ft bgs): 38.0-43.0

Filter Pack: 12/20 Silica Sand
Surface Seal: Concrete
Annular Seal: Bentonite
Boring Abandonment: NA

Ground Surface Elevation (ft): 29.70
Top of Casing Elevation (ft): NM
Surveyed Location: **X:** NM **Y:** NM
Unique Well ID: BLY 301

FARALLON CONSULTING

Log of Boring: FMW-144

Page 2 of 2

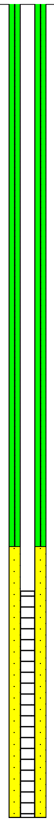
Client: City Investors IX LLC
Project: Block 38 West
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: G. Peters

Date/Time Started:	12/20/19 0910	**Sampler Type:**	10' Core Barrel
Date/Time Completed:	12/20/19 1230	**Drive Hammer (lbs.):**	Auto
Equipment:	TSi 150	**Depth of Water ATD (ft bgs):**	15.0
Drilling Company:	AEC	**Total Boring Depth (ft bgs):**	33.0
Drilling Foreman:	Andrew Flagan	**Total Well Depth (ft bgs):**	43.0
Drilling Method:	Sonic		

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
		25.0-30.0': Silty SAND (80% sand, 20% silt), fine sand, gray, moist to wet, no odor.	SM		100		0.0			
30		30.0-35.0': Poorly graded SAND with silt (90% sand, 10% silt), fine and medium sand, grayish brown, moist, no odor.	SP-SM		100		0.0			Bentonite
35		35.0-40.0': Poorly graded SAND with silt (90% sand, 10% silt), medium sand, grayish brown, moist, no odor.	SP-SM		100		0.0			Sand Pack
40		40.0-43.0': Poorly graded SAND with silt (90% sand, 10% silt), medium sand, grayish brown, moist, no odor.	SP-SM		100					Well Screen
45										
50										



Well Construction Information

Monument Type:	Flush	**Filter Pack:**	12/20 Silica Sand	**Ground Surface Elevation (ft):**	29.70
Casing Diameter (inches):	2.0	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	NM
Screen Slot Size (inches):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location:**	**X:** NM **Y:** NM
Screened Interval (ft bgs):	38.0-43.0	**Boring Abandonment:**	NA	**Unique Well ID:**	BLY 301

Log of Boring: FMW-145

Page 1 of 2

Client: City Investors IX LLC
Project: Block 38 West
Location: Seattle, Washington

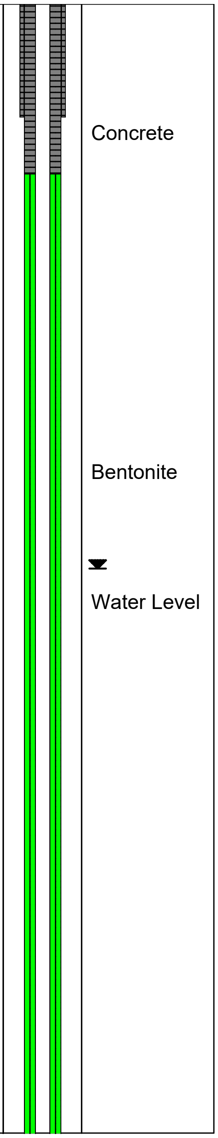
Farallon PN: 397-019

Logged By: G. Peters

Date/Time Started: 12/20/19 1245
Date/Time Completed: 12/20/19 1600
Equipment: TSi 150
Drilling Company: AEC
Drilling Foreman: Andrew Flagan
Drilling Method: Sonic

Sampler Type: 10' Core Barrel
Drive Hammer (lbs.): Auto
Depth of Water ATD (ft bgs): 10.0
Total Boring Depth (ft bgs): 36.0
Total Well Depth (ft bgs): 36.0

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': No recovery.			0					
5		5.0-10.0': No recovery.			0					
10		10.0-15.0': Silty SAND (60% sand, 20% silt, 10% gravel), fine sand and gravel, brown, moist to wet, some wood debris, slight hydrocarbon-like odor.	SM		100					
							1.2	FMW-145-13.0	X	
15		15.0-19.0': Silty SAND (60% sand, 40% silt), fine sand, brownish gray, moist to wet, some organic material, hydrocarbon-like odor.	SM		80					
							0.8	FMW-145-18.0	X	
		19.0-20.0': No recovery.								
20										



Well Construction Information

Monument Type: Flush
Casing Diameter (inches): 2.0
Screen Slot Size (inches): 0.010
Screened Interval (ft bgs): 31.0-36.0

Filter Pack: 12/20 Silica Sand
Surface Seal: Concrete
Annular Seal: Bentonite
Boring Abandonment: NA

Ground Surface Elevation (ft): 23.0
Top of Casing Elevation (ft): NM
Surveyed Location: **X:** NM **Y:** NM
Unique Well ID: BLY 302

Log of Boring: FMW-145

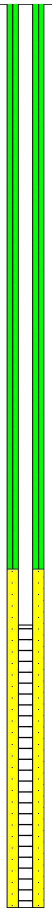
Client: City Investors IX LLC
Project: Block 38 West
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: G. Peters

Date/Time Started: 12/20/19 1245
Date/Time Completed: 12/20/19 1600
Equipment: TSi 150
Drilling Company: AEC
Drilling Foreman: Andrew Flagan
Drilling Method: Sonic

Sampler Type: 10' Core Barrel
Drive Hammer (lbs.): Auto
Depth of Water ATD (ft bgs): 10.0
Total Boring Depth (ft bgs): 36.0
Total Well Depth (ft bgs): 36.0

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
	☒	20.0-25.0': Silty SAND (60% sand, 40% silt), fine and medium sand, gray, moist to wet, no odor.	SM		100		0.2	FMW-145-23.0	X	
25	☒	25.0-30.0': Silty SAND (80% sand, 20% silt), fine and medium sand, gray, moist to wet, no odor.	SM		100		0.2	FMW-145-28.0	X	Bentonite
30 35	☒	30.0-36.0': Poorly graded SAND with silt (90% sand, 10% silt), fine and medium sand, moist, no odor.	SP-SM		100		0.1	FMW-145-33.0	X	Sand Pack Well Screen
40										

Well Construction Information

Monument Type: Flush
Casing Diameter (inches): 2.0
Screen Slot Size (inches): 0.010
Screened Interval (ft bgs): 31.0-36.0

Filter Pack: 12/20 Silica Sand
Surface Seal: Concrete
Annular Seal: Bentonite
Boring Abandonment: NA

Ground Surface Elevation (ft): 23.0
Top of Casing Elevation (ft): NM
Surveyed Location: **X:** NM **Y:** NM
Unique Well ID: BLY 302

Log of Boring: FMW-146

Page 1 of 2

Client: City Investors IX LLC
Project: Block 38 West
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: G. Peters

Date/Time Started: 12/21/19 0945
Date/Time Completed: 12/21/19 1145
Equipment: TSi 150
Drilling Company: AEC
Drilling Foreman: Andrew Flagan
Drilling Method: Sonic

Sampler Type: 10' Core Barrel
Drive Hammer (lbs.): Auto
Depth of Water ATD (ft bgs): 25
Total Boring Depth (ft bgs): 36.0
Total Well Depth (ft bgs): 36.0

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		0.0-2.0': Fill consisting of concrete and asphalt debris.	FILL		100					
		2.0-10.0': PEAT (70% organics, 30% silt), abundant wood debris, dark brown, moist, organic odor.	PT				0.4			Concrete
5										
										Bentonite
10		10.0-15.0': Silty SAND (60% sand, 40% silt), fine and medium sand, gray, moist, organic odor.	SM		100					
							1.0	FMW-146-13.0	X	
15		15.0-20.0': Silty SAND (70% sand, 30% silt), fine and medium sand, gray, moist, organic odor.	SM		100					
							0.5	FMW-146-18.0	X	
20										

Well Construction Information

Monument Type: Flush
Casing Diameter (inches): 2.0
Screen Slot Size (inches): 0.010
Screened Interval (ft bgs): 31.0-36.0

Filter Pack: 12/20 Silica Sand
Surface Seal: Concrete
Annular Seal: Bentonite
Boring Abandonment: NA

Ground Surface Elevation (ft): 23.65
Top of Casing Elevation (ft): NM
Surveyed Location: **X:** NM **Y:** NM
Unique Well ID: BLY 303

Log of Boring: FMW-146

Page 2 of 2

Client: City Investors IX LLC
Project: Block 38 West
Location: Seattle, Washington

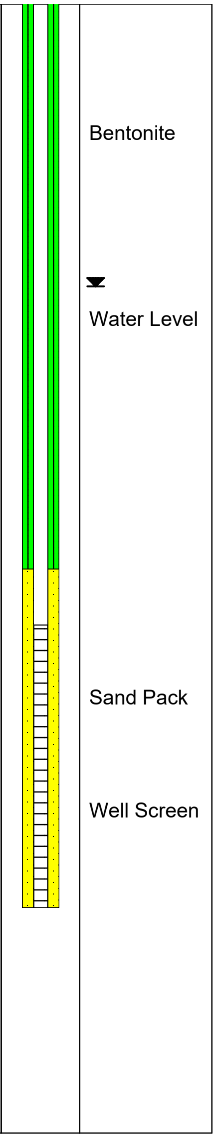
Farallon PN: 397-019

Logged By: G. Peters

Date/Time Started: 12/21/19 0945
Date/Time Completed: 12/21/19 1145
Equipment: TSi 150
Drilling Company: AEC
Drilling Foreman: Andrew Flagan
Drilling Method: Sonic

Sampler Type: 10' Core Barrel
Drive Hammer (lbs.): Auto
Depth of Water ATD (ft bgs): 25
Total Boring Depth (ft bgs): 36.0
Total Well Depth (ft bgs): 36.0

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
		20.0-25.0': Silty SAND (80% sand, 20% silt), fine sand, gray, moist, no odor.	SM		100					Bentonite
25		25.0-30.0': Poorly graded SAND with silt (90% sand, 10% silt), fine and medium sand, gray, moist to wet, no odor.	SP-SM		100					Water Level
30		30.0-36.0': Poorly graded SAND with silt (90% sand, 10% silt), fine and medium sand, grayish brown, moist, no odor.	SP-SM		100					Sand Pack Well Screen
35										
40										



Well Construction Information

Monument Type: Flush
Casing Diameter (inches): 2.0
Screen Slot Size (inches): 0.010
Screened Interval (ft bgs): 31.0-36.0

Filter Pack: 12/20 Silica Sand
Surface Seal: Concrete
Annular Seal: Bentonite
Boring Abandonment: NA

Ground Surface Elevation (ft): 23.65
Top of Casing Elevation (ft): NM
Surveyed Location: X: NM **Y:** NM
Unique Well ID: BLY 303

Log of Boring: FMW-147

Page 1 of 2

Client: City Investors IX LLC
Project: Block 38 West
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: G. Peters

Date/Time Started: 12/21/19 1328
Date/Time Completed: 12/21/19 1600
Equipment: TSi 150
Drilling Company: AEC
Drilling Foreman: Andrew Flagan
Drilling Method: Sonic

Sampler Type: 10' Core Barrel
Drive Hammer (lbs.): Auto
Depth of Water ATD (ft bgs): 10.0
Total Boring Depth (ft bgs): 36.0
Total Well Depth (ft bgs): 36.0

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		0.0-3.0': Poorly graded SAND with gravel (60% sand, 40% gravel), coarse sand, fine gravel, brown, moist, no odor.	SP		100					Concrete
		3.0-10.0': Organic SOIL (60% soil, 30% wood, 10% gravel), abundant wood debris, dark brown, moist, organic odor.	OL							
5										
										Bentonite
							0.4	FMW-147-8.5	X	
10		10.0-20.0': Silty SAND (80% sand, 20% silt), fine and medium sand, gray, moist to wet, no odor.	SM		100					▼ Water Level
							0.2	FMW-147-13.5	X	
15										
20										

Well Construction Information

Monument Type:	Flush	**Filter Pack:**	12/20 Silica Sand	**Ground Surface Elevation (ft):**	23.50
Casing Diameter (inches):	2.0	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	NM
Screen Slot Size (inches):	0.010	**Annular Seal:**	Bentonite	**Surveyed Location:**	**X:** NM **Y:** NM
Screened Interval (ft bgs):	31.0-36.0	**Boring Abandonment:**	NA	**Unique Well ID:**	BLY 304

FARALLON CONSULTING

Log of Boring: FMW-147

Client: City Investors IX LLC
Project: Block 38 West
Location: Seattle, Washington

Farallon PN: 397-019

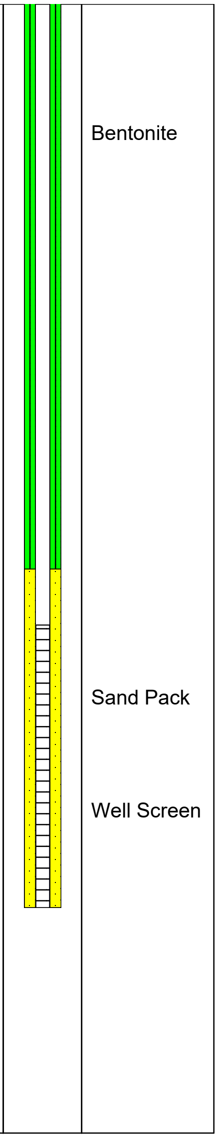
Logged By: G. Peters

Date/Time Started: 12/21/19 1328
Date/Time Completed: 12/21/19 1600
Equipment: TSi 150
Drilling Company: AEC
Drilling Foreman: Andrew Flagan
Drilling Method: Sonic

Sampler Type: 10' Core Barrel
Drive Hammer (lbs.): Auto
Depth of Water ATD (ft bgs): 10.0
Total Boring Depth (ft bgs): 36.0
Total Well Depth (ft bgs): 36.0

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USCS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed
	☒	20.0-30.0': Poorly graded SAND with silt (90% sand, 10% silt), fine and medium sand, gray, moist to wet, no odor.	SP-SM	▨	100		0.2	FMW-147-23.5	X
25									
30	☒	30.0-36.0': Poorly graded SAND (95% sand, 5% gravel), medium sand, fine gravel, grayish brown, moist, no odor.	SP	▨	100		0.1	FMW-147-30.5	X
35									
40									

Boring/Well Construction Details



Well Construction Information

Monument Type: Flush
Casing Diameter (inches): 2.0
Screen Slot Size (inches): 0.010
Screened Interval (ft bgs): 31.0-36.0

Filter Pack: 12/20 Silica Sand
Surface Seal: Concrete
Annular Seal: Bentonite
Boring Abandonment: NA

Ground Surface Elevation (ft): 23.50
Top of Casing Elevation (ft): NM
Surveyed Location: **X:** NM **Y:** NM
Unique Well ID: BLY 304

Log of Boring: FMW-149

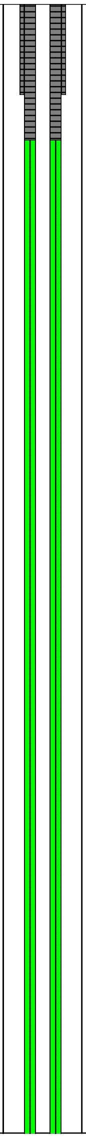
Client: City Investors IX LLC
Project: Block 38 West
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: G. Peters

Date/Time Started: 12/21/19 1600
Date/Time Completed: 12/22/19 1215
Equipment: TSi 150
Drilling Company: AEC
Drilling Foreman: Andrew Flagan
Drilling Method: Sonic

Sampler Type: 10' Core Barrel
Drive Hammer (lbs.): Auto
Depth of Water ATD (ft bgs): 20.0
Total Boring Depth (ft bgs): 49.0
Total Well Depth (ft bgs): 49.0



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		0.0-10.0': Fill consisting of concrete, asphalt, and gravel debris.	FILL	▨	100					Concrete
5										Bentonite
10		10.0-15.0': Silty SAND (70% sand, 20% silt, 10% gravel), fine to coarse sand, grayish brown, moist, no odor.	SM	🟦	100		0.2			
15		15.0-20.0': SILT with sand (70% silt, 15% sand, 15% organics), fine sand, moist, grayish brown, organic odor, some wood debris.	ML	🟨	100		0.3	FMW-149-16.0		
20		20.0-25.0': Silty SAND (70% sand, 30% silt), fine and medium sand, gray, moist to wet, no odor.	SM	🟦	100		0.0	FMW-149-21.0	X	▼ Water Level
25										

Well Construction Information

Monument Type: Flush
Casing Diameter (inches): 2.0
Screen Slot Size (inches): 0.010
Screened Interval (ft bgs): 44.0-49.0

Filter Pack: 12/20 Silica Sand
Surface Seal: Concrete
Annular Seal: Bentonite
Boring Abandonment: NA

Ground Surface Elevation (ft): 36.00
Top of Casing Elevation (ft): NM
Surveyed Location: **X:** NM **Y:** NM
Unique Well ID: BLY 305

FARALLON CONSULTING

Log of Boring: FMW-149

Client: City Investors IX LLC
Project: Block 38 West
Location: Seattle, Washington

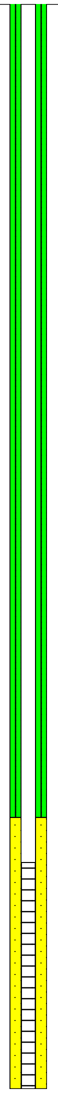
Farallon PN: 397-019

Logged By: G. Peters

Date/Time Started: 12/21/19 1600
Date/Time Completed: 12/22/19 1215
Equipment: TSi 150
Drilling Company: AEC
Drilling Foreman: Andrew Flagan
Drilling Method: Sonic

Sampler Type: 10' Core Barrel
Drive Hammer (lbs.): Auto
Depth of Water ATD (ft bgs): 20.0
Total Boring Depth (ft bgs): 49.0
Total Well Depth (ft bgs): 49.0

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
		25.0-30.0': Poorly graded SAND with silt (90% sand, 10% silt), medium sand, gray, moist to wet, no odor.	SP-SM		100					
30		30.0-40.0': Poorly graded SAND with silt (90% sand, 10% silt), medium sand, grayish brown, wet, no odor.	SP-SM		100					Bentonite
							0.4	FMW-149-31.0	X	
35										
							0.0	FMW-149-36.0		
40		40.0-45.0': Poorly graded SAND with silt (90% sand, 10% silt), medium sand, brown, moist, no odor.	SP-SM		100					
							0.1	FMW-149-41.0	X	
							0.2	FMW-149-43.5	X	
45		45.0-49.0': Poorly graded SAND with gravel (80% sand, 15% gravel, 5% silt), coarse sand, fine gravel, gray, moist to wet, no odor.	SP		100					Sand Pack
										Well Screen
50										



Well Construction Information

Monument Type: Flush
Casing Diameter (inches): 2.0
Screen Slot Size (inches): 0.010
Screened Interval (ft bgs): 44.0-49.0

Filter Pack: 12/20 Silica Sand
Surface Seal: Concrete
Annular Seal: Bentonite
Boring Abandonment: NA

Ground Surface Elevation (ft): 36.00
Top of Casing Elevation (ft): NM
Surveyed Location: **X:** NM **Y:** NM
Unique Well ID: BLY 305

Log of Boring: FMW-150

Page 1 of 1

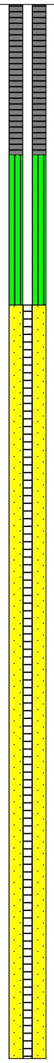
Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: Greg Peters

Date/Time Started: 7/7/20 @ 0720
Date/Time Completed: 7/7/20 @ 0800
Equipment: FA130
Drilling Company: Malcom Drilling
Drilling Foreman: Chris Hansen
Drilling Method: Air Rotary

Sampler Type: NA
Drive Hammer (lbs.): NA
Depth of Water ATD (ft bgs): NE
Total Boring Depth (ft bgs): 7.0
Total Well Depth (ft bgs): 7.0

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': Poorly-graded SAND (100% sand), fine sand, gray-brown, moist, no odor.	SP							 Concrete Bentonite Sand Pack
5		5.0-7.0': Poorly-graded SAND (100% sand), fine sand, gray, moist, no odor.	SP				0.0	FMW-152- (-11.0)		Screen
							0.0			

Well Construction Information

Monument Type: NA
Casing Diameter (inches): 2.0
Screen Slot Size (inches): 0.01
Screened Interval (ft bgs): -8.0 - (-13.0)

Filter Pack: 12/20 sand
Surface Seal: Concrete
Annular Seal: Concrete
Boring Abandonment: NA

Ground Surface Elevation (ft): 6.0
Top of Casing Elevation (ft): NA
Surveyed Location: **X:** NA **Y:** NA
Unique Well ID: NA

Log of Boring: FMW-151

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Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, Washington

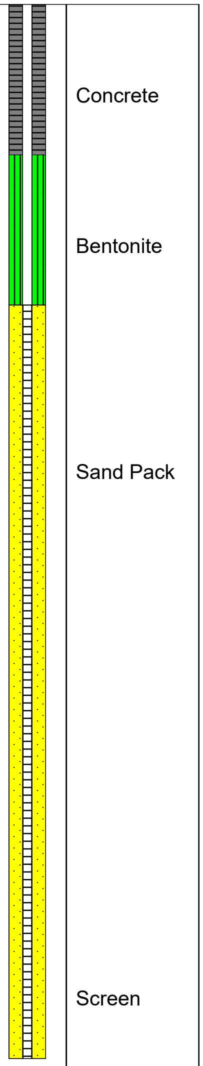
Farallon PN: 397-019

Logged By: Greg Peters

Date/Time Started: 6/29/20 @ 0800
Date/Time Completed: 6/29/20 @ 1230
Equipment: FA130
Drilling Company: Malcom Drilling
Drilling Foreman: Chris Hansen
Drilling Method: Air Rotary

Sampler Type: NA
Drive Hammer (lbs.): NA
Depth of Water ATD (ft bgs): NE
Total Boring Depth (ft bgs): 7.0
Total Well Depth (ft bgs): 7.0

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': Well-graded SAND (100% sand), fine to mediumsand, brown, moist, no odor.	SW							
5		5.0-7.0': Well-graded SAND (100% sand), fine to mediumsand, brown, moist, no odor.	SW				0.0	FMW-151- (-11.0)		
							0.0			



Well Construction Information

Monument Type: NA
Casing Diameter (inches): 2.0
Screen Slot Size (inches): 0.01
Screened Interval (ft bgs): -9.0 - (-14.0)
Filter Pack: 12/20 sand
Surface Seal: Concrete
Annular Seal: Concrete
Boring Abandonment: NA
Ground Surface Elevation (ft): 7.0
Top of Casing Elevation (ft): NA
Surveyed Location: **X:** NA **Y:** NA
Unique Well ID: NA

FARALLON CONSULTING

Log of Boring: FMW-152

Page 1 of 1

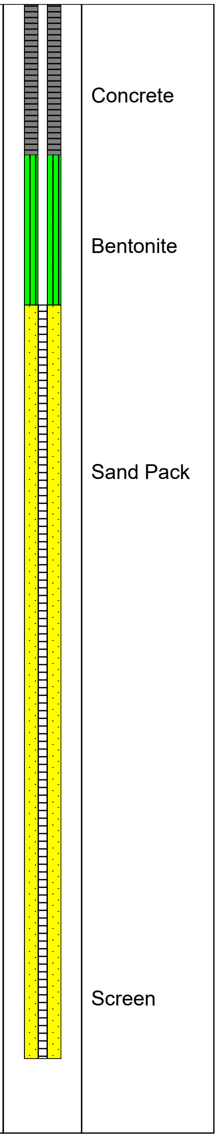
Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: Greg Peters

Date/Time Started: 6/25/20 @ 1030
Date/Time Completed: 6/25/20 @ 1200
Equipment: FA130
Drilling Company: Malcom Drilling
Drilling Foreman: Chris Hansen
Drilling Method: Air Rotary

Sampler Type: NA
Drive Hammer (lbs.): NA
Depth of Water ATD (ft bgs): NE
Total Boring Depth (ft bgs): 7.0
Total Well Depth (ft bgs): 7.0

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		0.0-0.3': Concrete.	CO							
		0.3-5.0': Silty SAND (85% sand, 15% silt), fine sand, gray, moist, no odor.	SM							
5		5.0-7.0": Poorly-graded SAND (90% sand, 10% silt), fine sand, gray, moist, no odor.	SP				0.9	FMW-152- (-11.0)		
							0.4	FMW-152- (-13.0)		

Well Construction Information

Monument Type: NA
Casing Diameter (inches): 2.0
Screen Slot Size (inches): 0.01
Screened Interval (ft bgs): -8.0 - (-13.0)

Filter Pack: 12/20 sand
Surface Seal: Concrete
Annular Seal: Concrete
Boring Abandonment: NA

Ground Surface Elevation (ft): 6.0
Top of Casing Elevation (ft): NA
Surveyed Location: X: NA **Y:** NA
Unique Well ID: NA

FARALLON CONSULTING

Log of Boring: FMW-153

Page 1 of 1

Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, Washington

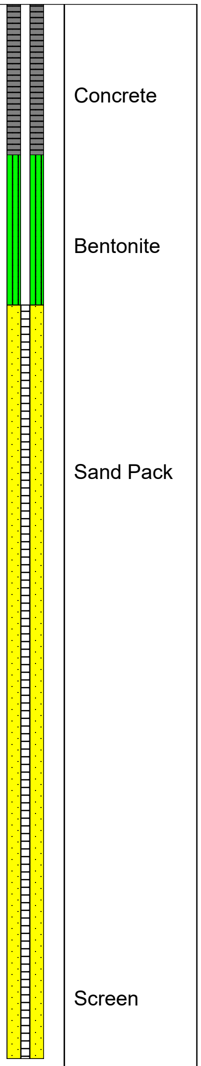
Farallon PN: 397-019

Logged By: Greg Peters

Date/Time Started: 7/7/20 @ 0830
Date/Time Completed: 7/7/20 @ 0900
Equipment: FA130
Drilling Company: Malcom Drilling
Drilling Foreman: Chris Hansen
Drilling Method: Air Rotary

Sampler Type: NA
Drive Hammer (lbs.): NA
Depth of Water ATD (ft bgs): NE
Total Boring Depth (ft bgs): 7.0
Total Well Depth (ft bgs): 7.0

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': Poorly-graded SAND (90% sand, 10% gravel), fine sand, fine gravel, gray, moist, no odor.	SP							
5		5.0-7.0': Poorly-graded SAND with gravel (85% sand, 15% gravel), fine sand, medium gravel, gray, moist, no odor.	SP				0.0	FMW-153- (-11.0)		
							0.1			



Well Construction Information

Monument Type: NA
Casing Diameter (inches): 2.0
Screen Slot Size (inches): 0.01
Screened Interval (ft bgs): -8.0 - (-13.0)

Filter Pack: 12/20 sand
Surface Seal: Concrete
Annular Seal: Concrete
Boring Abandonment: NA

Ground Surface Elevation (ft): 6.0
Top of Casing Elevation (ft): NA
Surveyed Location: **X:** NA **Y:** NA
Unique Well ID: NA

Log of Boring: FMW-154

Page 1 of 1

Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, Washington

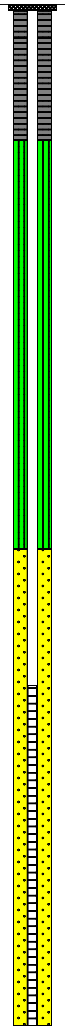
Farallon PN: 397-019

Logged By: G.Peters

Reviewed By: S. Stumpf

Date/Time Started:	2/5/2022 @ 1130	**Depth to Water ATD (ft bgs):**	10.0
Date/Time Completed:	2/5/2022 @ 1245	**Boring Diameter (in):**	8.0
Drilling Company:	Cascade Drilling	**Total Boring Depth (ft bgs):**	15.0
Drilling Method:	Sonic Drilling	**Constructed Well Depth (ft bgs):**	15.0
Drilling Equipment:	Terrasonic		
Drilling Operator:	Rico Rodriguez		
Sampler Type:	5' PE Bags		
Drive Hammer (lbs):	NA		

Depth (ft bgs)	Sample Interval	Lithologic Description	USCS	USCS Graphic	Blow Counts	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0.0-0.4': Asphalt. Airknife to 5.0' bgs for utility clearance.	AC							
		0.4-5.0': Poorly graded SAND (90% sand, 10% gravel), fine sand, dark brown, moist, no odor, no staining. Wood, brick, and plastic debris (Fill).	SP							Concrete
5		5.0-10.0': PEAT (90% peat, 10% sand), fine sand, brown, moist, organic odor, no staining. Wood debris.	PT			100	0.0	FMW-154-5.0		Bentonite
										Sand Pack
10		10.0-14.0': Well graded SAND with silt (60% sand, 20% peat, 10% silt, 10% gravel), fine to coarse sand, gray, wet, organic odor, no staining.	SW-SM			100	0.0	FMW-154-10.0		▼ Water Level
		14.0-15.0': Poorly graded SAND (100% sand), fine to medium sand, gray, wet, no odor, no staining.	SP							Well Screen
15							0.0	FMW-154-15.0		



Well Construction Information

Monument Type:	Flush Mount	**Filter Pack:**	Sand pack	**Ground Surface Elevation (ft):**	23.22
Casing Diameter (in):	2.0	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	22.80
Screen Slot Size (in):	0.010	**Annular Seal:**	Concrete	**Surveyed Location: X:** 1269430.17	**Y:** 231126.54
Screened Interval (ft bgs):	10.0-15.0	**Boring Abandonment:**	NA	**Unique Well ID:**	BNW-075

FARALLON CONSULTING

Log of Boring: FMW-155

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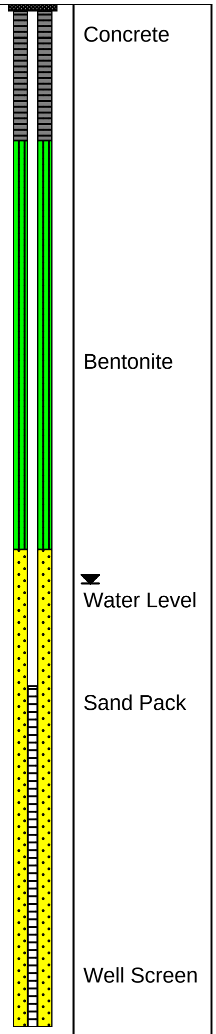
Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, Washington
Farallon PN: 397-019
Logged By: G.Peters
Reviewed By: S. Stumpf

Date/Time Started: 2/5/2022 @ 1255
Date/Time Completed: 2/5/2022 @ 1320
Drilling Company: Cascade Drilling
Drilling Method: Sonic Drilling
Drilling Equipment: Terrasonic
Drilling Operator: Rico Rodriguez
Sampler Type: 5' PE Bags
Drive Hammer (lbs): NA

Depth to Water ATD (ft bgs): 8.5
Boring Diameter (in): 8.0
Total Boring Depth (ft bgs): 15.0
Constructed Well Depth (ft bgs): 15.0

Depth (ft bgs)	Sample Interval	Lithologic Description	USCS	USCS Graphic	Blow Counts	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed
0		0.0-0.75': Concrete. Airknife to 5.0' bgs for utility clearance.	CO						
		0.75-5.0': Well graded SAND (90% sand, 10% gravel), fine to coarse sand, brown, moist, no odor, no staining (Fill).	SW						
5		5.0-10.0': PEAT (100% peat), brown, wet, organic odor, no staining. Wood debris.	PT			100	0.0	FMW-155-5.0	
10		10.0-12.0': PEAT (80% peat, 10% sand, 10% silt), brown, wet, organic odor, no staining.	PT			100	0.0	FMW-155-10.0	
		12.0-15.0': Silty SAND (60% sand, 40% silt), fine sand, gray, wet, no odor, no staining.	SM						
15							0.0	FMW-155-15.0	

Boring/Well Construction Details



Well Construction Information

Monument Type: Flush Mount
Casing Diameter (in): 2.0
Screen Slot Size (in): 0.010
Screened Interval (ft bgs): 10.0-15.0

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

Ground Surface Elevation (ft): 24.28
Top of Casing Elevation (ft): 23.90
Surveyed Location: X: 1269433.30 **Y:** 231262.97
Unique Well ID: BNW-074

Log of Boring: FMW-156

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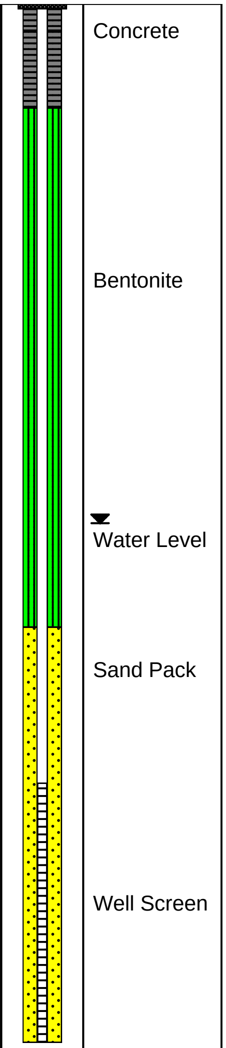
Client: City Investors IX LLC
Project: Block 38 West Property
Location: Seattle, Washington
Farallon PN: 397-019
Logged By: G.Peters
Reviewed By: S. Stumpf

Date/Time Started: 2/5/2022 @ 1340
Date/Time Completed: 2/5/2022 @ 1415
Drilling Company: Cascade Drilling
Drilling Method: Sonic Drilling
Drilling Equipment: Terrasonic
Drilling Operator: Rico Rodriguez
Sampler Type: 5' PE Bags
Drive Hammer (lbs): NA

Depth to Water ATD (ft bgs): 10.0
Boring Diameter (in): 8.0
Total Boring Depth (ft bgs): 20.0
Constructed Well Depth (ft bgs): 20.0

Depth (ft bgs)	Sample Interval	Lithologic Description	USCS	USCS Graphic	Blow Counts	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed
0		0.0-0.75': Concrete. Airknife to 5.0' bgs for utility clearance.	CO						
5		0.75-6.0': Well graded SAND (90% sand, 10% gravel), fine to coarse sand, brown, moist, no odor, no staining (Fill).	SW			100	0.0		
		6.0-10.0': SILT with sand (60% silt, 20% sand, 20% wood), fine sand, gray, moist, organic odor, no staining. Wood debris.	ML						
10		10.0-12.5': Silty SAND (60% wood, 20% sand, 20% silt), fine sand, brown, moist to wet, no odor. Wood debris.	SM			100	0.0	FMW-156-10.0	
		12.5-15.0': PEAT (100% peat), brown, organic odor, wet, no staining.	PT						
15		15.0-17.0': Poorly graded SAND (80% wood, 20% sand), fine sand, grayish brown, wet, organic odor, no staining. Wood debris.	SP			100	0.0	FMW-156-15.0	
		17.0-20.0': Poorly graded SAND with silt (90% sand, 10% silt), fine sand, gray, wet, no odor, no staining.	SP-SM						
20								FMW-156-20.0	

Boring/Well Construction Details



Well Construction Information

Monument Type: Flush Mount
Casing Diameter (in): 2.0
Screen Slot Size (in): 0.010
Screened Interval (ft bgs): 15.0-20.0

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

Ground Surface Elevation (ft): 26.01
Top of Casing Elevation (ft): 25.70
Surveyed Location: X: 1269436.89 **Y:** 231342.09
Unique Well ID: BNW-073

Log of Boring: FMW-157

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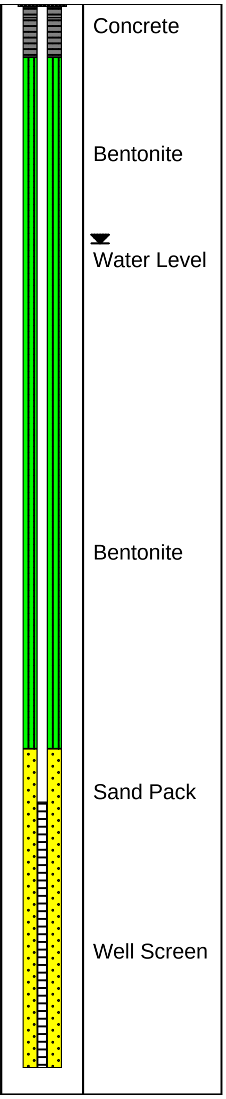
Client:	City Investors IX LLC	**Date/Time Started:**	2/5/2022 @ 1420	**Depth to Water ATD (ft bgs):**	9.0
Project:	Block 38 West Property	**Date/Time Completed:**	2/5/2022 @ 1530	**Boring Diameter (in):**	8.0
Location:	Seattle, Washington	**Drilling Company:**	Cascade Drilling	**Total Boring Depth (ft bgs):**	40.0
Farallon PN:	397-019	**Drilling Method:**	Sonic Drilling	**Constructed Well Depth (ft bgs):**	40.0
Logged By:	G.Peters	**Drilling Equipment:**	Terrasonic		
Reviewed By:	S. Stumpf	**Drilling Operator:**	Rico Rodriguez		
		Sampler Type:	5' PE Bags		
		Drive Hammer (lbs):	NA		

Depth (ft bgs)	Sample Interval	Lithologic Description	USCS	USCS Graphic	Blow Counts	% Recovery	PID (ppmv)	Sample ID	Sample Analyzed
0		0.0-0.75': Concrete. Airknife to 5.0' bgs for utility clearance.	CO						
		0.75-5.0': Well graded SAND (90% sand, 10% gravel), fine to coarse sand, brown, moist, no odor, no staining (Fill).	SW						
5		5.0-10.0': Sandy SILT (60% silt, 40% sand), fine sand, brown, moist, nodor, no staining.	ML			100	0.0		
10		10.0-15.0': PEAT (100% peat), brown, moist, organic odor, no staining.	PT			100	0.0		
15		15.0-20.0': Silty SAND (80% sand, 20% silt), fine sand, grayish brown, moist, no odor, no staining.	SM			100	0.0		
20		20.0-25.0': No recovery.				0			
25		25.0-30.0': Poorly graded SAND (100% sand), fine sand, gray, wet, no odor, no staining.	SP			100	0.0		
30		30.0-35.0': Poorly graded SAND (100% sand), fine sand, grayish brown, wet, no odor, no staining.	SP			100	0.0	FMW-157-30.0	
35		35.0-40.0': Poorly graded SAND with silt (90% sand, 10% silt), fine sand, gray, wet, no odor, no staining.	SP-SM			100	0.0	FMW-157-35.0	
40							0.0	FMW-157-40.0	

Boring/Well Construction Details



Well Construction Information

Monument Type:	Flush Mount	**Filter Pack:**	Sand pack	**Ground Surface Elevation (ft):**	26.20
Casing Diameter (in):	2.0	**Surface Seal:**	Concrete	**Top of Casing Elevation (ft):**	25.95
Screen Slot Size (in):	0.010	**Annular Seal:**	Concrete	**Surveyed Location: X:**	1269437.13 **Y:** 231346.24
Screened Interval (ft bgs):	30.0-40.0	**Boring Abandonment:**	NA	**Unique Well ID:**	BNW-072

FARALLON CONSULTING

Log of Test Pit: NGas-1

Page 1 of 1

Client: Vulcan
Project: Block 38W
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: Yusuf Pehlivan

Date/Time Started: 1/26/19 @ 1100
Date/Time Completed: 1/26/19 @ 1140
Equipment: Airknife
Excavation Company: APS
Excavation Foreman: NA
Excavating Method: Airknife

Sampler Type: Hand Auger
Depth of Water (ft bgs): 3.0
Total Excavation Depth (ft bgs): 3.0

Depth (feet bgs)	Sample Interval	Lithologic Description	USCS	USGS Graphic	PID (ppm)	Sample ID	Sample Analyzed
0		0.0-0.7': Concrete.	CO				
		0.7-1.8': Well-graded SAND with silt and gravel (60% sand, 30% gravel, 10% silt), fine to coarse sand, fine gravel, brown, moist, no odor. Geotextile fabric at 1.5' bgs.	SW-SM				
		1.8-3.0': Silty SAND with gravel (60% sand, 25% silt, 15% gravel), fine to coarse sand, fine gravel, dark brown, moist, wet at 3.0' bgs, no odor. Gas line encountered at 3.0' bgs. Water fills test pit.	SM				
5							

Log of Test Pit: NGas-2

Page 1 of 1

Client: Vulcan
Project: Block 38W
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: Yusuf Pehlivan

Date/Time Started: 1/26/19 @ 0900
Date/Time Completed: 1/26/19 @ 1100
Equipment: Airknife
Excavation Company: APS
Excavation Foreman: NA
Excavating Method: Airknife

Sampler Type: Hand Auger
Depth of Water (ft bgs): 4.5
Total Excavation Depth (ft bgs): 5.1

Depth (feet bgs)	Sample Interval	Lithologic Description	USCS	USGS Graphic	PID (ppm)	Sample ID	Sample Analyzed
0		0.0-4.5': Well-graded SAND with silt and gravel (50% sand, 40% gravel, 10% sand), fine to coarse sand, fine and coarse gravel, dark brown, moist, no odor, trace brick fragments.	SW-SM				
		4.5-5.0': Poorly graded gravel (100% gravel), fine fravel, gray, wet, utilities backfill.	GP				
5		5.0-5.1': Rotting wood. Water fills testpit.	WD				

FARALLON CONSULTING

Log of Test Pit: PH-1

Client: Vulcan
Project: Block 38W
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: Yusuf Pehlivan

Date/Time Started: 1/26/19 @ 0925
Date/Time Completed: 1/26/19 @ 1000
Equipment: Airknife
Excavation Company: APS
Excavation Foreman: NA
Excavating Method: Airknife

Sampler Type: Hand Auger
Depth of Water (ft bgs): 3.5
Total Excavation Depth (ft bgs): 4.0

Depth (feet bgs)	Sample Interval	Lithologic Description	USCS	USGS Graphic	PID (ppm)	Sample ID	Sample Analyzed
0	☒	0.0-0.6': Concrete.	CO	▤			
		0.6-4.0': Poorly graded SAND (95% sand, 5% gravel), fine and medium sand, fine gravel, grayish brown, moist, wet at 3.5' bgs, no odor. Water fills test pit, unable to log below water.	SP	░			
					0.0	PH-1-4.0-012619	
5							

FARALLON CONSULTING

Log of Test Pit: PH-2

Page 1 of 1

Client: Vulcan
Project: Block 38W
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: Yusuf Pehlivan

Date/Time Started: 1/26/19 @ 0900
Date/Time Completed: 1/26/19 @ 1100
Equipment: Airknife
Excavation Company: APS
Excavation Foreman: NA
Excavating Method: Airknife

Sampler Type: Hand Auger
Depth of Water (ft bgs): 4.5
Total Excavation Depth (ft bgs): 5.1

Depth (feet bgs)	Sample Interval	Lithologic Description	USCS	USGS Graphic	PID (ppm)	Sample ID	Sample Analyzed
0		0.0-4.5': Well-graded SAND with silt and gravel (50% sand, 40% gravel, 10% sand), fine to coarse sand, fine and coarse gravel, dark brown, moist, wet at 4.5' bgs, no odor, trace brick fragments. Gas line found at 4.5' bgs.	SW-SM				
		4.5-5.0': Poorly graded GRAVEL (100% gravel), fine gravel, gray, wet, utilitiy backfill.	GP				
5		5.0-5.1': Rotting wood.	WD				

Log of Test Pit: PH-4

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Client: Vulcan
Project: Block 38W
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: Yusuf Pehlivan

Date/Time Started: 1/26/19 @ 1115
Date/Time Completed: 1/26/19 @ 1200
Equipment: Airknife
Excavation Company: APS
Excavation Foreman: NA
Excavating Method: Airknife

Sampler Type: Hand Auger
Depth of Water (ft bgs): NE
Total Excavation Depth (ft bgs): 5.0

Depth (feet bgs)	Sample Interval	Lithologic Description	USCS	USGS Graphic	PID (ppm)	Sample ID	Sample Analyzed
0		0.0-3.0': Well-graded SAND with silt and gravel (50% sand, 40% gravel, 10% silt), fine to coarse sand, fine and coarse gravel, drk brown, moist, trace concrete blocks, brick, wood, plastic and metal debris.	SW-SM				
		3.0-4.0': Fill (100% gravel), fine gravel, gray, moist. Gas line at 3.5' bgs,	FILL				
		4.0-5.0': SILT with sand and gravel (70% silt, 15% sand, 15% gravel) fine and medium sand, fine gravel, dark brown, moist, no odor.	ML		12.3	PH-4-4.5-012619	X
5							

Log of Test Pit: PH-11

Page 1 of 1

Client: Vulcan
Project: Block 38W
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: Yusuf Pehlivan

Date/Time Started: 1/26/19 @ 1230
Date/Time Completed: 1/26/19 @ 1320
Equipment: Airknife
Excavation Company: APS
Excavation Foreman: NA
Excavating Method: Airknife

Sampler Type: Hand Auger
Depth of Water (ft bgs): 4.2
Total Excavation Depth (ft bgs): 4.2

Depth (feet bgs)	Sample Interval	Lithologic Description	USCS	USGS Graphic	PID (ppm)	Sample ID	Sample Analyzed
0		0.0-0.9': Concrete.	CO	▤			
		0.9-3.8': Well-graded SAND with silt and gravel (60% sand, 30% gravel, 10% silt), fine to coarse sand, fine and coarse gravel, dark brown, moist, trace rocks, brick, wood, and metal debris.	SW-SM	▦			
		3.7-4.2': Utility Conduits.					
		4.2-4.4': Wood, wet. Unable to advance further.	WD	▨			
5							

Log of Test Pit: PH-11A

Page 1 of 1

Client: Vulcan
Project: Block 38W
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: Yusuf Pehlivan

Date/Time Started: 1/19/19 @ 1240
Date/Time Completed: 1/19/19 @ 1310
Equipment: Airknife
Excavation Company: APS
Excavation Foreman: NA
Excavating Method: Airknife

Sampler Type: Hand Auger
Depth of Water (ft bgs): 4.5
Total Excavation Depth (ft bgs): 4.5

Depth (feet bgs)	Sample Interval	Lithologic Description	USCS	USGS Graphic	PID (ppm)	Sample ID	Sample Analyzed
0		0.0-4.0': Silty SAND with gravel (50% sand, 35% silt, 15% gravel), fine and medium sand, fine gravel, dark brown, moist, no odor.	SM				
		4.0-4.5': Sandy SILT (60% silt, 40% sand), fill, wood fragements, dark brown, wet, no odor.	ML		4.1	PH-11A-4.0-091919	X
5							

FARALLON CONSULTING

Log of Test Pit: PH-12

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Client: Vulcan
Project: Block 38W
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: Yusuf Pehlivan

Date/Time Started: 1/19/19 @ 0930
Date/Time Completed: 1/19/19 @ 1015
Equipment: Airknife
Excavation Company: APS
Excavation Foreman: NA
Excavating Method: Airknife

Sampler Type: Hand Auger
Depth of Water (ft bgs): 4.0
Total Excavation Depth (ft bgs): 4.0

Depth (feet bgs)	Sample Interval	Lithologic Description	USCS	USGS Graphic	PID (ppm)	Sample ID	Sample Analyzed
0		0.0-0.9': Concrete.	CO	▤			
		0.9-1.5': Well-graded GRAVEL with silt and sand (70% gravel, 20% sand, 10% silt), fine to coarse sand, fine and coarse gravel, brown, dry, no odor. Geotextile fabric at 1.5' bgs.	GW-GM	▨			
		1.5-3.0': Concrete/rock blocks.	CO	▤			
		3.0-4.0': Sandy SILT (60% silt, 40% sand), fine and medium sand, dark brown, moist, wet at 4.0 bgs, petroleum-like odor, trace organic plant matter. Water fills pothole at 4.0' bgs.	ML	▥			
5					127.5	PH-12-4.0-011919	X

FARALLON CONSULTING

Log of Test Pit: PH-13

Page 1 of 1

Client: Vulcan
Project: Block 38W
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: Yusuf Pehlivan

Date/Time Started: 1/12/19 @ 0840
Date/Time Completed: 1/12/19 @ 1015
Equipment: Airknife
Excavation Company: APS
Excavation Foreman: NA
Excavating Method: Airknife

Sampler Type: Pothole Digger
Depth of Water (ft bgs): 3.0
Total Excavation Depth (ft bgs): 5.0

Depth (feet bgs)	Sample Interval	Lithologic Description	USCS	USGS Graphic	PID (ppm)	Sample ID	Sample Analyzed
0	☒	0.0-0.7': Concrete.	CO	▤			
		0.7-1.5': Fill (70% sand, 30% gravel), fine and medium sand, fine and coarse gravel, grayish brown, dry to moist, no odor.	FILL	⬡			
		1.5-4.0': Poorly graded SAND (90% sand, 10% gravel), fine and medium sand, fine gravel, dry, wet at 3.0' bgs, no odor, well cemented. Well-graded gravel in hole to 3.0'bgs. 4.0-5.0' bgs not logged due to water.	SP	░	0.0	PH-13-3.0-011218	X
5							

FARALLON CONSULTING

Log of Test Pit: PH-13A

Page 1 of 1

Client: Vulcan
Project: Block 38W
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: Yusuf Pehlivan

Date/Time Started: 1/19/19 @ 0845
Date/Time Completed: 1/19/19 @ 0910
Equipment: Airknife
Excavation Company: APS
Excavation Foreman: NA
Excavating Method: Airknife

Sampler Type: Hand Auger
Depth of Water (ft bgs): 3.5
Total Excavation Depth (ft bgs): 3.5

Depth (feet bgs)	Sample Interval	Lithologic Description	USCS	USGS Graphic	PID (ppm)	Sample ID	Sample Analyzed
0		0.0-0.9': Concrete.	CO				
		0.9-1.3': Well-graded GRAVEL with silt and sand (75% gravel, 15% sand, 10% silt), fine to coarse sand, fine and coarse gravel, brown, dry, no odor, road base. Geotextile fabric at 1.3' bgs.	GW-GM				
		1.3-3.5': Poorly graded SAND with gravel (85% sand, 15% gravel), medium and coarse sand, fine gravel. (Airknife operator says CDF). 3.0-5.0' bgs water fills test pit.	SP				
5							

FARALLON CONSULTING

Log of Test Pit: TP-2

Page 1 of 1

Client: City Investors IX, LLC
Project: Block 38 West
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: G.Peters

Date/Time Started: 12/19/19 @ 0900
Date/Time Completed: 12/19/19 @ 1100
Equipment: Excavator
Excavation Company: HOS Bros.
Excavation Foreman: Glen Franklin
Excavating Method: Excavator Bucket

Sampler Type: Excavator Bucket
Depth of Water (ft bgs): NE
Total Excavation Depth (ft bgs): 25.0
Excavation Diameter (ft): NM
Ground Surface Elevation (ft): 23.0
Backfill Material: Fill and Native

Depth (feet bgs)	Sample Interval	Lithologic Description	USCS	USGS Graphic	PID (ppm)	Sample ID	Sample Analyzed
0		0.0-5.0': Poorly-graded SAND (80% sand, 10% gravel, 10% silt), fine to medium sand, brown, moist, no odor.	SP	🟦	0.0	TP-2-20.0	X
5		5.0-5.5': Silty SAND (70% sand, 20% silt, 10% gravel), fine sand, grayish brown, moist, strong hydrocarbon odor. Oil staining, sheen on soil, wood debris throughout.	SM	▥	38.6	TP-2-15.0	X
10		10.0-10.5': SILT with sand (80% silt, 20% sand), fine sand, gray, moist, no odor.	ML	🟨	0.2	TP-2-10.0	X
15		15.0-15.5': Poorly-graded SAND (90% sand, 10% silt), fine to medium sand, gray, moist, no odor.	SP	🟦	0.1	TP-2-5.0	X
20		20.0-25.0': Poorly-graded SAND (90% sand, 10% silt), fine to medium sand, gray, moist, no odor.	SP	🟦	0.3	TP-2-0.0	
25							

FARALLON CONSULTING

Log of Test Pit: TP-3

Page 1 of 1

Client: City Investors IX, LLC
Project: Block 38 West
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: G.Peters

Date/Time Started: 12/19/19 @ 0900
Date/Time Completed: 12/19/19 @ 1100
Equipment: Excavator
Excavation Company: HOS Bros.
Excavation Foreman: Glen Franklin
Excavating Method: Excavator Bucket

Sampler Type: Excavator Bucket
Depth of Water (ft bgs): NE
Total Excavation Depth (ft bgs): 25.0
Excavation Diameter (ft): NM
Ground Surface Elevation (ft): 20.0
Backfill Material: Native

Depth (feet bgs)	Sample Interval	Lithologic Description	USCS	USGS Graphic	PID (ppm)	Sample ID	Sample Analyzed
0		0.0-0.5': Silty SAND (70% sand, 25% silt, 5% gravel), fine to medium sand, grayish brown, moist, no odor.	SM	▨	0.0	TP-3-20.0	X
5		5.0-5.5': PEAT (80% peat, 20% silt), brown, moist, organic odor.	PT	■	0.2	TP-3-15.0	X
10		10.0-10.5': PEAT (80% peat, 20% silt), brown, moist, organic odor.	PT	■	0.3	TP-3-10.0	
15							

FARALLON CONSULTING

Log of Test Pit: TP-7

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Client: City Investors IX, LLC
Project: Block 38 West
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: G.Peters

Date/Time Started: 12/23/19 @ 1000
Date/Time Completed: 12/23/19 @ 1030
Equipment: Excavator
Excavation Company: HOS Bros.
Excavation Foreman: Glen Franklin
Excavating Method: Excavator Bucket

Sampler Type: Excavator Bucket
Depth of Water (ft bgs): NE
Total Excavation Depth (ft bgs): 10.0
Excavation Diameter (ft): NM
Ground Surface Elevation (ft): NM
Backfill Material: Native

Depth (feet bgs)	Sample Interval	Lithologic Description	USCS	USGS Graphic	PID (ppm)	Sample ID	Sample Analyzed
0							
		4.0-4.5': Peat (80% Peat, 20% silt), dark brown, moist, organic odor.	PT	■	0.0	TP-7-4.0	X
5							
10		10.0-10.5': SILT with sand (80% silt, 20% sand), brown, moist, organic odor.	ML	▥	0.1	TP-7-10.0	
15							

FARALLON
CONSULTING

Log of Test Pit: TP-10

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Client: City Investors IX, LLC
Project: Block 38 West
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: G.Peters

Date/Time Started: 2/11/20 @ 0840
Date/Time Completed: 2/11/20 @ 0850
Equipment: Excavator
Excavation Company: HOS Bros.
Excavation Foreman: Glen Franklin
Excavating Method: Excavator Bucket

Sampler Type: Excavator Bucket
Depth of Water (ft bgs): NE
Total Excavation Depth (ft bgs): 15.0
Excavation Diameter (ft): NM
Ground Surface Elevation (ft): NM
Backfill Material: Native

Depth (feet bgs)	Sample Interval	Lithologic Description	USCS	USGS Graphic	PID (ppm)	Sample ID	Sample Analyzed
0		0.0-0.5': Silty SAND (60% sand, 20% silt, 20% orgaincs), fine sand, brown, moist, no odor.	SM	▨	0.5	TP-10-20.0	X
5		5.0-5.5': PEAT (100%), dark brown, moist, organic odor.	PT	■	0.2	TP-10-15.0	X
10		10.0-10.5': Silty SAND (80% sand, 20% silt), fine sand, gray, moist, no odor.	SM	▨	0.1	TP-10-10.0	X
15							

FARALLON CONSULTING

Log of Test Pit: TP-11

Page 1 of 1

Client: City Investors IX, LLC
Project: Block 38 West
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: G.Peters

Date/Time Started: 2/4/20 @ 0920
Date/Time Completed: 2/11/20 @ 0945
Equipment: Excavator
Excavation Company: HOS Bros.
Excavation Foreman: Glen Franklin
Excavating Method: Excavator Bucket

Sampler Type: Excavator Bucket
Depth of Water (ft bgs): NE
Total Excavation Depth (ft bgs): 15.0
Excavation Diameter (ft): NM
Ground Surface Elevation (ft): NM
Backfill Material: Native

Depth (feet bgs)	Sample Interval	Lithologic Description	USCS	USGS Graphic	PID (ppm)	Sample ID	Sample Analyzed
0		0.0-0.5': Silty SAND (70% sand, 20% silt, 10% gravel), medium to coarse sand, brown, moist, no odor.	SM	▨	0.1	TP-11-20.0	X
5		5.0-5.5': PEAT (60% peat, 30% silt, 10% sand), fine sand, dark brown, moist, organic odor.	PT	■	0.5	TP-11-15.0	X
10		10.0-10.5': SILT (90% silt, 10% sand), gray, moist, no odor.	ML	▥	0.1	TP-11-10.0	X
15							

FARALLON
CONSULTING

Log of Test Pit: TP-12

Page 1 of 1

Client: City Investors IX, LLC
Project: Block 38 West
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: G.Peters

Date/Time Started:	2/7/20 @ 1000	**Sampler Type:**	Excavator Bucket
Date/Time Completed:	2/7/20 @ 1020	**Depth of Water (ft bgs):**	NE
Equipment:	Excavator	**Total Excavation Depth (ft bgs):**	15.0
Excavation Company:	HOS Bros.	**Excavation Diameter (ft):**	NM
Excavation Foreman:	Glen Franklin	**Ground Surface Elevation (ft):**	NM
Excavating Method:	Excavator Bucket	**Backfill Material:**	Native

Depth (feet bgs)	Sample Interval	Lithologic Description	USCS	USGS Graphic	PID (ppm)	Sample ID	Sample Analyzed
0		0.0-0.5': Silty SAND (70% sand, 25% silt, 5% gravel), medium to coarse sand, brown, moist, no odor.	SM	▥	0.1	TP-12-20.0	X
5		5.0-5.5': PEAT (80% peat, 20% silt), brown, moist, organic odor. Wood debris.	PT	■	0.2	TP-12-15.0	X
10		10.0-10.5': Poorly-graded SAND (90% sand, 10% silt), fine sand, gray, moist, no odor.	SP	░	0.1	TP-12-10.0	X
15							

FARALLON CONSULTING

Log of Test Pit: TP-13

Page 1 of 1

Client: City Investors IX, LLC
Project: Block 38 West
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: G.Peters

Date/Time Started: 2/7/20 @ 1030
Date/Time Completed: 2/7/20 @ 1050
Equipment: Excavator
Excavation Company: HOS Bros.
Excavation Foreman: Glen Franklin
Excavating Method: Excavator Bucket

Sampler Type: Excavator Bucket
Depth of Water (ft bgs): NE
Total Excavation Depth (ft bgs): 15.0
Excavation Diameter (ft): NM
Ground Surface Elevation (ft): NM
Backfill Material: Native

Depth (feet bgs)	Sample Interval	Lithologic Description	USCS	USGS Graphic	PID (ppm)	Sample ID	Sample Analyzed
0	☒	0.0-0.5': Silty SAND (60% sand, 40% silt), fine sand, brown, moist, strong organic odor.	SM	▨	4.8	TP-13-23.0	
	☒	3.0-3.5': Silty SAND (80% sand, 20% silt), fine sand, gray, moist, no odor.	SM	▨	0.2	TP-13-20.0	X
5	☒	5.0-5.5': PEAT (60% peat, 40% silt), gay-brown, moist, organic odor.	PT	■	0.4	TP-13-15.0	X
10	☒	10.0-10.5': Silty SAND (80% sand, 20% silt), fine sand, gray, moist, no odor.	SP	░	2.2	TP-13-10.0	
15							

FARALLON CONSULTING

Log of Test Pit: TP-14

Page 1 of 1

Client: City Investors IX, LLC
Project: Block 38 West
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: G.Peters

Date/Time Started:	2/14/20 @ 1100	**Sampler Type:**	Excavator Bucket
Date/Time Completed:	2/14/20 @ 1120	**Depth of Water (ft bgs):**	NE
Equipment:	Excavator	**Total Excavation Depth (ft bgs):**	19.0
Excavation Company:	HOS Bros.	**Excavation Diameter (ft):**	NM
Excavation Foreman:	Glen Franklin	**Ground Surface Elevation (ft):**	NM
Excavating Method:	Excavator Bucket	**Backfill Material:**	Native

Depth (feet bgs)	Sample Interval	Lithologic Description	USCS	USGS Graphic	PID (ppm)	Sample ID	Sample Analyzed
0		0.0-0.5': SILT (60% silt, 40% organics), fine sand, brown, moist, strong organic odor.	ML	🟨	1.2	TP-14-20.0	X
5		5.0-5.5': Silty SAND (80% sand, 20% silt), fine sand, brown, no odor. Wood debris.	SM	🟦	0.3	TP-14-15.0	X
10		10.0-10.5': Silty SAND (70% sand, 30% silt), fine sand, gray, moist, no odor.	SM	🟦	0.3	TP-14-10.0	X
15							

FARALLON CONSULTING

Log of Test Pit: TP-15

Page 1 of 1

Client: City Investors IX, LLC
Project: Block 38 West
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: G.Peters

Date/Time Started: 2/14/20 @ 1100
Date/Time Completed: 2/14/20 @ 1120
Equipment: Excavator
Excavation Company: HOS Bros.
Excavation Foreman: Glen Franklin
Excavating Method: Excavator Bucket

Sampler Type: Excavator Bucket
Depth of Water (ft bgs): NE
Total Excavation Depth (ft bgs): 19.0
Excavation Diameter (ft): NM
Ground Surface Elevation (ft): NM
Backfill Material: Native

Depth (feet bgs)	Sample Interval	Lithologic Description	USCS	USGS Graphic	PID (ppm)	Sample ID	Sample Analyzed
0	☒	0.0-0.5': PEAT (80% peat, 20% organics), brown, moist, strong no odor.	PT	■	0.3	TP-15-20.0	X
5	☒	5.0-5.5': Silty SAND (60% sand, 25% silt, 15% organics), fine sand, brown, no odor. Wood debris.	SM	▥	0.3	TP-15-15.0	X
10	☒	10.0-10.5': Silty SAND (80% sand, 20% silt), fine sand, gray, moist, no odor.	SM	▥	0.5	TP-15-10.0	X
15							

FARALLON
CONSULTING

Log of Test Pit: TP-16

Page 1 of 1

Client: City Investors IX, LLC
Project: Block 38 West
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: G.Peters

Date/Time Started: 2/14/20 @ 1135
Date/Time Completed: 2/14/20 @ 1145
Equipment: Excavator
Excavation Company: HOS Bros.
Excavation Foreman: Glen Franklin
Excavating Method: Excavator Bucket

Sampler Type: Excavator Bucket
Depth of Water (ft bgs): NE
Total Excavation Depth (ft bgs): 19.0
Excavation Diameter (ft): NM
Ground Surface Elevation (ft): NM
Backfill Material: Native

Depth (feet bgs)	Sample Interval	Lithologic Description	USCS	USGS Graphic	PID (ppm)	Sample ID	Sample Analyzed
0	☒	0.0-0.5': SILT (70% silt, 30% organics), brown, moist, organic odor.	PT	■	0.8	TP-16-20.0	X
5	☒	5.0-5.5': Silty SAND (80% sand, 20% silt), fine sand, gray, moist, no odor.	SM	▨	4.8	TP-16-15.0	X
10	☒	10.0-10.5': Silty SAND (80% sand, 20% silt), fine sand, gray, moist, no odor.	SM	▨	1.0	TP-16-10.0	X
15							

FARALLON CONSULTING

Log of Test Pit: TP-17

Page 1 of 1

Client: City Investors IX, LLC
Project: Block 38 West
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: G.Peters

Date/Time Started: 2/18/20 @ 1400
Date/Time Completed: 2/25/20 @ 1500
Equipment: Excavator
Excavation Company: HOS Bros.
Excavation Foreman: Glen Franklin
Excavating Method: Excavator Bucket

Sampler Type: Excavator Bucket
Depth of Water (ft bgs): NE
Total Excavation Depth (ft bgs): 15.0
Excavation Diameter (ft): NM
Ground Surface Elevation (ft): NM
Backfill Material: Native

Depth (feet bgs)	Sample Interval	Lithologic Description	USCS	USGS Graphic	PID (ppm)	Sample ID	Sample Analyzed
0	☒	0.0-0.5': PEAT (80% peat, 20% organics), dark brown, moist, no odor.	PT	■	3.6	TP-17-20.0	X
5	☒	5.0-5.5': Silty SAND (80% sand, 20% silt), fine sand, gray, moist, no odor.	SM	▥	0.6	TP-17-15.0	X
10	☒	10.0-10.5': Poorly-graded SAND (90% sand, 10% silt), fine sand, gray, moist, no odor.	SP	░	0.8	TP-17-10.0	X
15							

FARALLON CONSULTING

Log of Test Pit: TP-18

Page 1 of 1

Client: City Investors IX, LLC
Project: Block 38 West
Location: Seattle, Washington

Farallon PN: 397-019

Logged By: G.Peters

Date/Time Started: 2/19/20 @ 1330
Date/Time Completed: 2/19/20 @ 1350
Equipment: Excavator
Excavation Company: HOS Bros.
Excavation Foreman: Glen Franklin
Excavating Method: Excavator Bucket

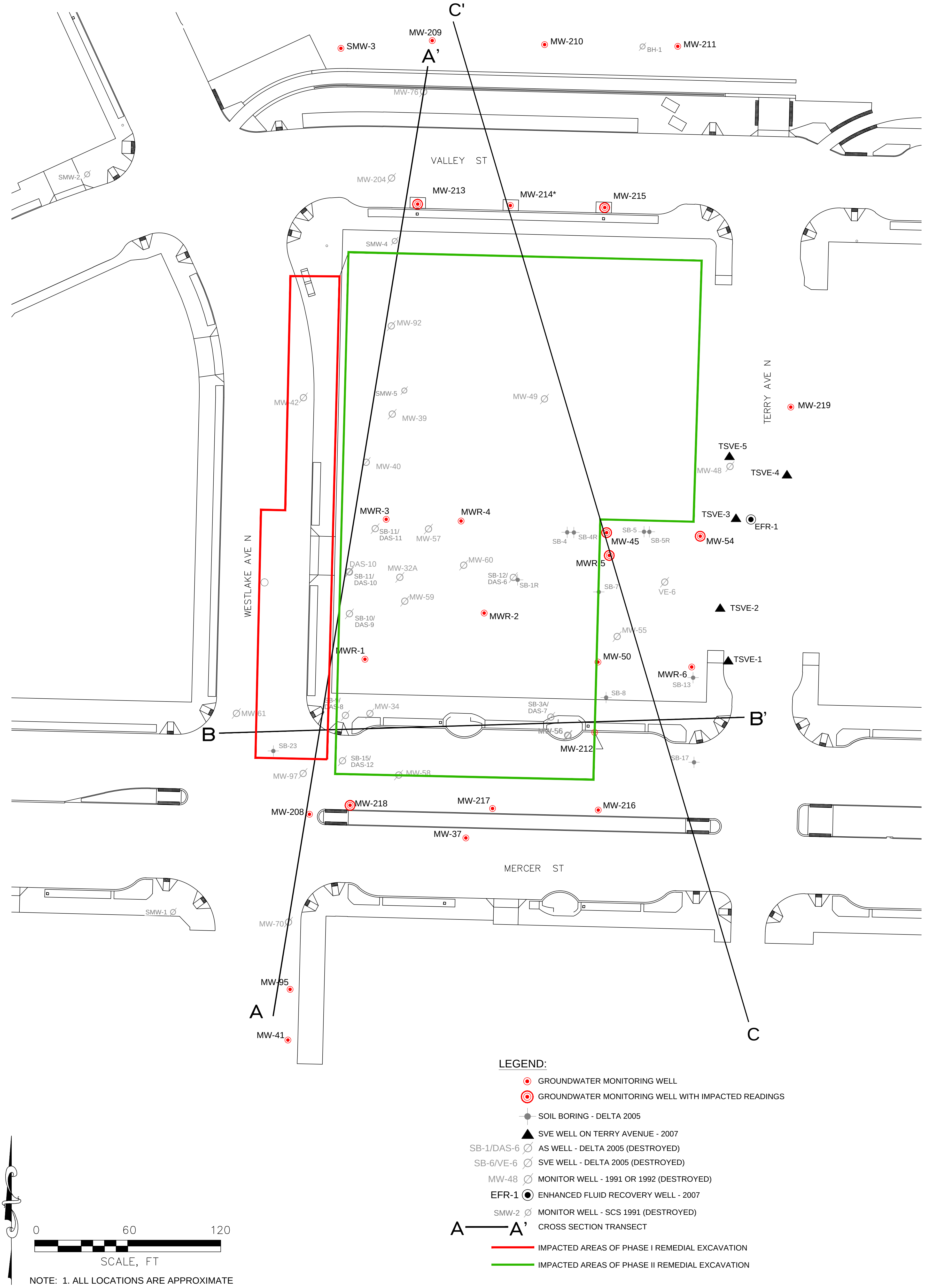
Sampler Type: Excavator Bucket
Depth of Water (ft bgs): NE
Total Excavation Depth (ft bgs): 15.0
Excavation Diameter (ft): NM
Ground Surface Elevation (ft): NM
Backfill Material: Native

Depth (feet bgs)	Sample Interval	Lithologic Description	USCS	USGS Graphic	PID (ppm)	Sample ID	Sample Analyzed
0	☒	0.0-0.5': ORGANICS (90% organics, 10% peat), brown, moist, no odor. Wood debris.	OL	▤	1.4	TP-18-20.0	X
5	☒	5.0-5.5': PEAT (80% peat, 10% organics), fine sand, gray, moist, no odor.	PT	■	1.6	TP-18-15.0	X
10	☒	10.0-10.5': Poorly-graded SAND (100% sand), fine sand, gray, moist, no odor.	SP	▨	0.6	TP-18-10.0	X
15							

APPENDIX B
ATC CLEANUP ACTION SUMMARY

REMEDIAL INVESTIGATION WORK PLAN
Block 38 West Property
500 through 536 Westlake Avenue North
Seattle, Washington

Farallon PN: 397-019



NOTE: 1. ALL LOCATIONS ARE APPROXIMATE

LEGEND:

◉ GROUNDWATER MONITORING WELL

◎ GROUNDWATER MONITORING WELL WITH IMPACTED READINGS

⊕ SOIL BORING - DELTA 2005

▲ SVE WELL ON TERRY AVENUE - 2007

SB-1/DAS-6 ∅ AS WELL - DELTA 2005 (DESTROYED)

SB-6/VE-6 ∅ SVE WELL - DELTA 2005 (DESTROYED)

MW-48 ∅ MONITOR WELL - 1991 OR 1992 (DESTROYED)

EFR-1 ● ENHANCED FLUID RECOVERY WELL - 2007

SMW-2 ∅ MONITOR WELL - SCS 1991 (DESTROYED)

A——A' CROSS SECTION TRANSECT

🟥 IMPACTED AREAS OF PHASE I REMEDIAL EXCAVATION

🟩 IMPACTED AREAS OF PHASE II REMEDIAL EXCAVATION

CROSS-SECTION TRANSECT LOCATIONS

PHILLIPS 66 FACILITY NO. 255353 (AOC 1396)
600 WESTLAKE AVENUE N
SEATTLE, WA

PROJECT NUMBER:	Z076000073	DATE:	7/23/2019	FIGURE
APPROVED BY:	ES	DRAWN BY:	BK	6

ATC
6347 Seaview Avenue NW
Seattle, Washington 98107
Ph: (206) 781-1449 *** Fax: (206) 781-1543

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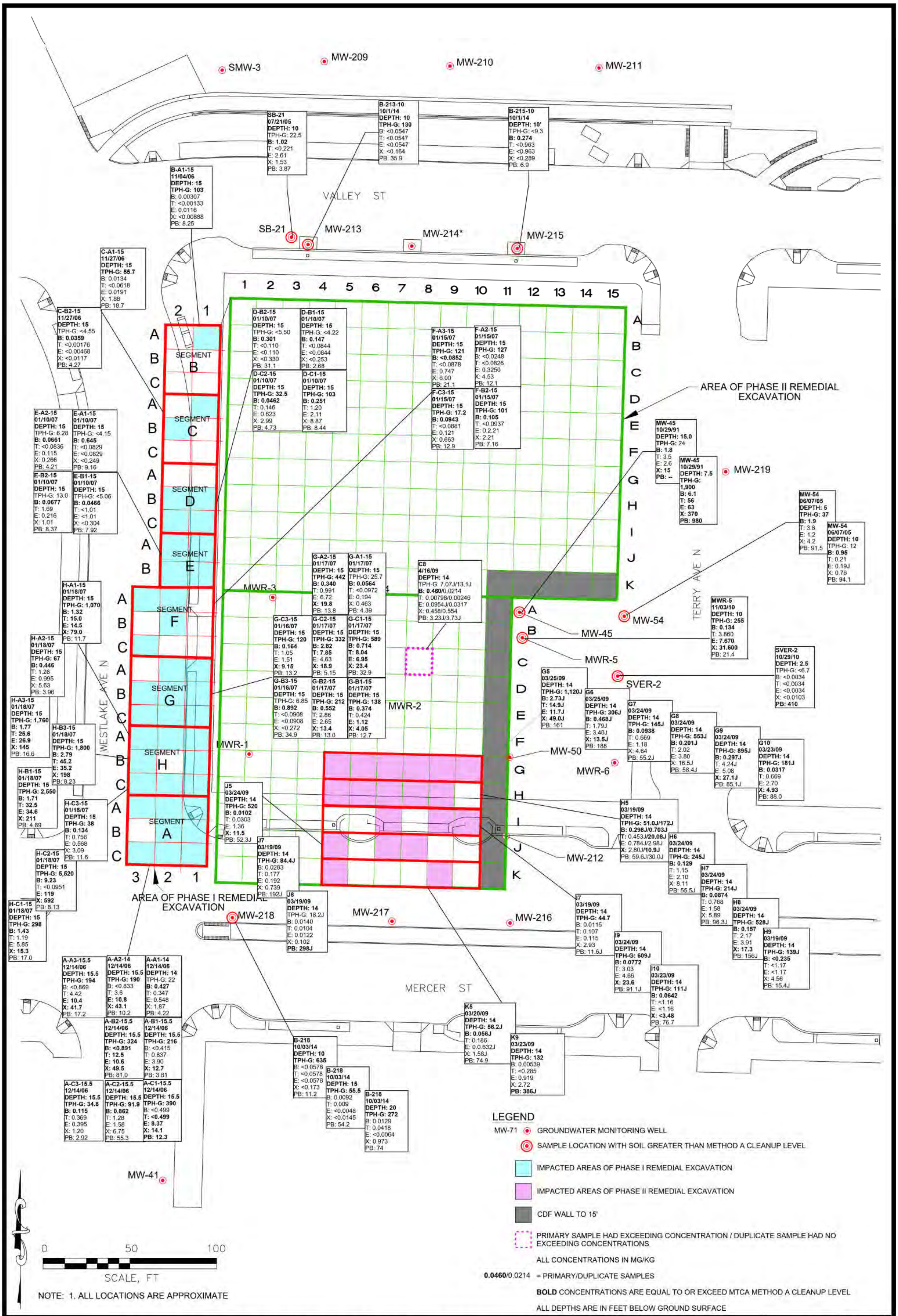

POST EXCAVATION SOIL CONDITIONS MAP

PHILLIPS 66 FACILITY NO. 255353 (AOC 1396)
600 WESTLAKE AVENUE N
SEATTLE, WA

PROJECT NUMBER:	Z076000073	DATE: 2/16/18	FIGURE 5
APPROVED BY:	ES	DRAWN BY: BK	

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Seattle, Washington 98107
Ph: (206) 781-1449 *** Fax: (206) 781-1543

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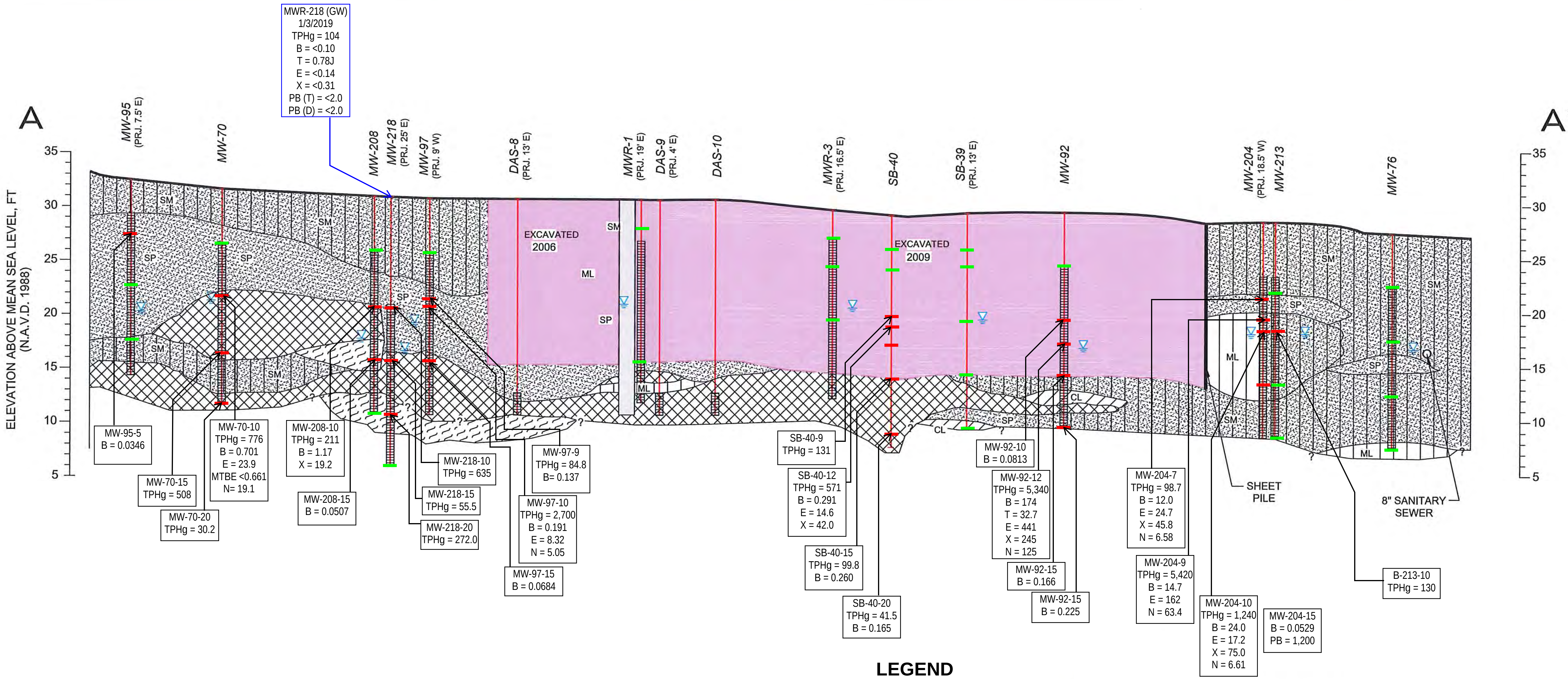

LEGEND

🟥 = SOIL SAMPLE WITH ONE OR MORE ANALYTES EXCEEDING MTCA METHOD A CLEANUP LEVEL

🟩 = SOIL SAMPLE WITH NO ANALYTES EXCEEDING MTCA METHOD A CLEANUP LEVEL

BLUE DATA BOXES = GROUNDWATER DATA (CONCENTRATIONS IN MICROGRAMS PER LITER)

BLACK DATA BOXES = SOIL DATA (CONCENTRATIONS IN MILLIGRAMS PER KILOGRAM. ALL CONCENTRATIONS SHOWN EXCEED MTCA METHOD A CLEANUP LEVELS

TPHg = TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
TPHd = TOTAL PETROLEUM HYDROCARBONS AS DIESEL
TPHo = TOTAL PETROLEUM HYDROCARBONS AS OIL
B = BENZENEE
T = TOLUENE
E = ETHYLBENZENE
X = TOTAL XYLENES
MTBE = METHYL TERT-BUTYL ETHER
N = NAPTHALENE
PB = LEAD (FOR GROUNDWATER DATA (T) = TOTAL LEAD, (D) = DISSOLVED LEAD)

BOLDED CONCENTRATIONS EXCEED MTCA METHOD A CLEANUP LEVELS

▨ SP - POORLY GRADED SAND, WITH OR WITHOUT GRAVEL
▥ ML - SANDY SILT OR CLAYEY SILT, WITH OR WITHOUT GRAVEL
▩ FILL
▨ PT - PEAT
▨ CL - CLAY WITH OR WITHOUT SILT
▩ SM - SILTY SAND, WITH OR WITHOUT GRAVEL
☐ SLURRY WALL
▽ APPROXIMATE FIRST ENCOUNTERED WATER LEVEL

| BORING
▥ WELL SCREEN

NOTES:

1. THE DEPTH AND THICKNESS OF THE SUBSURFACE STRATA INDICATED ON THE SECTIONS WERE GENERALIZED FROM AND INTERPOLATED BETWEEN THE SOIL BORINGS. INFORMATION ON ACTUAL SUBSURFACE CONDITIONS EXISTS ONLY AT THE LOCATION OF THE SOIL BORINGS AND IT IS POSSIBLE THAT SUBSURFACE CONDITIONS BETWEEN THE SOIL BORINGS MAY VARY FROM THOSE INDICATED.
2. THE BORING LOGS AND RELATED INFORMATION DEPICT SUBSURFACE CONDITIONS ONLY AT THE SPECIFIC LOCATIONS AND DATES INDICATED. SOIL CONDITIONS AND WATER LEVELS AT OTHER LOCATIONS MAY DIFFER FROM CONDITIONS OCCURING AT THESE BORING LOCATIONS. ALSO, THE PASSAGE OF TIME MAY RESULT IN A CHANGE IN THE CONDITIONS AT THESE BORING LOCATIONS.

0 10 20
APPROX. VERTICAL SCALE, FT

0 50 100
APPROX. HORIZONTAL SCALE, FT

CROSS SECTION A - A'

PHILLIPS 66 FACILITY NO. 255353 (AOC 1396)
600 WESTLAKE AVENUE NORTH
SEATTLE, WA

PROJECT NUMBER:	Z076000073	DATE:	1/29/18	FIGURE 7
APPROVED BY:	ES	DRAWN BY:	BK	

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Seattle, Washington 98107
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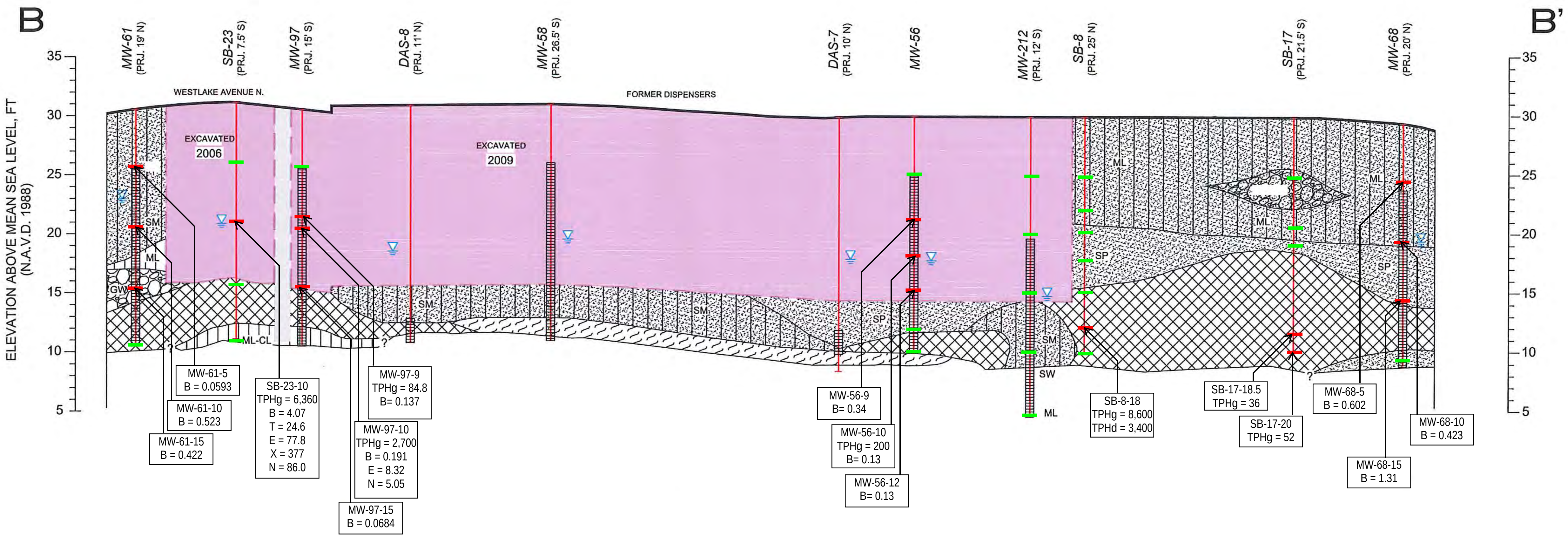

LEGEND

🟥 = SOIL SAMPLE WITH ONE OR MORE ANALYTES EXCEEDING MTCA METHOD A CLEANUP LEVEL

🟩 = SOIL SAMPLE WITH NO ANALYTES EXCEEDING MTCA METHOD A CLEANUP LEVEL

BLACK DATA BOXES = SOIL DATA (CONCENTRATIONS IN MILLIGRAMS PER KILOGRAM. ALL CONCENTRATIONS SHOWN EXCEED MTCA METHOD A CLEANUP LEVELS

TPHg = TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
TPHd = TOTAL PETROLEUM HYDROCARBONS AS DIESEL
TPHo = TOTAL PETROLEUM HYDROCARBONS AS OIL
B = BENZENEE
T = TOLUENE
E = ETHYLBENZENE
X = TOTAL XYLENES
N = NAPTHALENE

BOLDED CONCENTRATIONS EXCEED MTCA METHOD A CLEANUP LEVELS

▨ SP - POORLY GRADED SAND, WITH OR WITHOUT GRAVEL
▥ ML - SANDY SILT OR CLAYEY SILT, WITH OR WITHOUT GRAVEL
▦ FILL
▨ PT - PEAT
▨ CL - CLAY WITH OR WITHOUT SILT
▨ SM - SILTY SAND, WITH OR WITHOUT GRAVEL
▨ GW, GM - WELL GRADED GRAVEL, WITH OR WITHOUT SILT
□ SLURRY WALL
▽ APPROXIMATE FIRST ENCOUNTERED WATER LEVEL

| BORING
▥ WELL SCREEN

NOTES:

1. THE DEPTH AND THICKNESS OF THE SUBSURFACE STRATA INDICATED ON THE SECTIONS WERE GENERALIZED FROM AND INTERPOLATED BETWEEN THE SOIL BORINGS. INFORMATION ON ACTUAL SUBSURFACE CONDITIONS EXISTS ONLY AT THE LOCATION OF THE SOIL BORINGS AND IT IS POSSIBLE THAT SUBSURFACE CONDITIONS BETWEEN THE SOIL BORINGS MAY VARY FROM THOSE INDICATED.
2. THE BORING LOGS AND RELATED INFORMATION DEPICT SUBSURFACE CONDITIONS ONLY AT THE SPECIFIC LOCATIONS AND DATES INDICATED. SOIL CONDITIONS AND WATER LEVELS AT OTHER LOCATIONS MAY DIFFER FROM CONDITIONS OCCURING AT THESE BORING LOCATIONS. ALSO, THE PASSAGE OF TIME MAY RESULT IN A CHANGE IN THE CONDITIONS AT THESE BORING LOCATIONS.

0 10 20
APPROX. VERTICAL SCALE, FT

0 30 60
APPROX. HORIZONTAL SCALE, FT

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CROSS SECTION B - B'

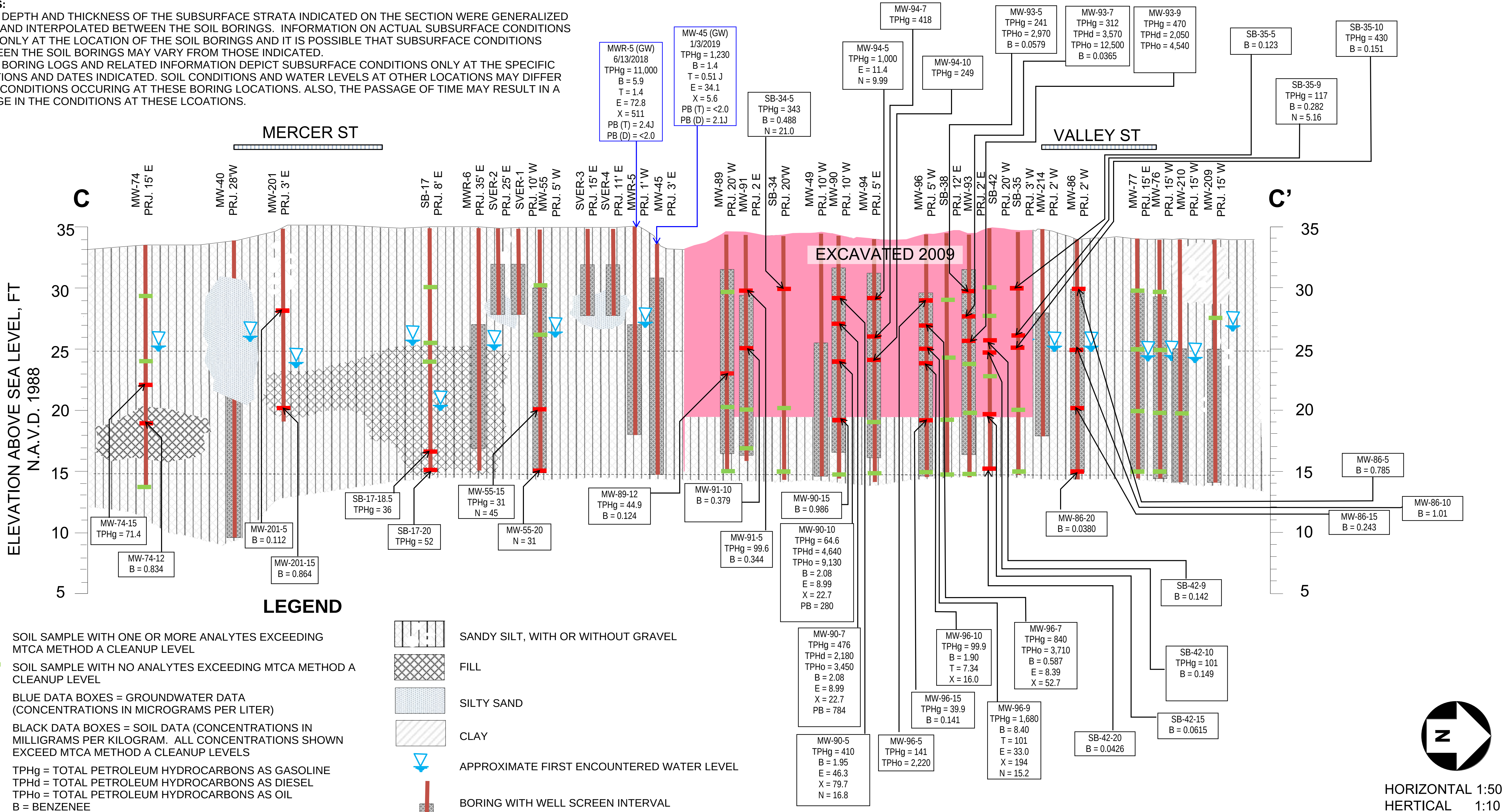
PHILLIPS 66 FACILITY NO. 255353 (AOC 1396)
600 WESTLAKE AVENUE NORTH
SEATTLE, WA

PROJECT NUMBER: Z076000073
APPROVED BY: ES
DATE: 1/29/18
DRAWN BY: BK
FIGURE 8

ATC
6347 Seaview Avenue NW
Seattle, Washington 98107
Ph: (206) 781-1449 *** Fax: (206) 781-1543

NOTES:

1. THE DEPTH AND THICKNESS OF THE SUBSURFACE STRATA INDICATED ON THE SECTION WERE GENERALIZED FROM AND INTERPOLATED BETWEEN THE SOIL BORINGS. INFORMATION ON ACTUAL SUBSURFACE CONDITIONS EXIST ONLY AT THE LOCATION OF THE SOIL BORINGS AND IT IS POSSIBLE THAT SUBSURFACE CONDITIONS BETWEEN THE SOIL BORINGS MAY VARY FROM THOSE INDICATED.
2. THE BORING LOGS AND RELATED INFORMATION DEPICT SUBSURFACE CONDITIONS ONLY AT THE SPECIFIC LOCATIONS AND DATES INDICATED. SOIL CONDITIONS AND WATER LEVELS AT OTHER LOCATIONS MAY DIFFER FROM CONDITIONS OCCURING AT THESE BORING LOCATIONS. ALSO, THE PASSAGE OF TIME MAY RESULT IN A CHANGE IN THE CONDITIONS AT THESE LCOATIONS.



LEGEND

🟥 SOIL SAMPLE WITH ONE OR MORE ANALYTES EXCEEDING MTCA METHOD A CLEANUP LEVEL

🟩 SOIL SAMPLE WITH NO ANALYTES EXCEEDING MTCA METHOD A CLEANUP LEVEL

BLUE DATA BOXES = GROUNDWATER DATA (CONCENTRATIONS IN MICROGRAMS PER LITER)

BLACK DATA BOXES = SOIL DATA (CONCENTRATIONS IN MILLIGRAMS PER KILOGRAM. ALL CONCENTRATIONS SHOWN EXCEED MTCA METHOD A CLEANUP LEVELS

TPHg = TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
TPHd = TOTAL PETROLEUM HYDROCARBONS AS DIESEL
TPHo = TOTAL PETROLEUM HYDROCARBONS AS OIL
B = BENZENE
T = TOLUENE
E = ETHYLBENZENE
X = TOTAL XYLENES
N = NAPTHALENE
PB = LEAD (FOR GROUNDWATER DATA (T) = TOTAL LEAD, (D) = DISSOLVED LEAD)

BOLDED CONCENTRATIONS EXCEED MTCA METHOD A CLEANUP LEVELS

▥ SANDY SILT, WITH OR WITHOUT GRAVEL

▩ FILL

▒ SILTY SAND

▨ CLAY

▽ APPROXIMATE FIRST ENCOUNTERED WATER LEVEL

▮ BORING WITH WELL SCREEN INTERVAL

HORIZONTAL 1:50
HERTICAL 1:10

CROSS SECTION C-C'

PHILLIPS 66 FACILITY NO. 255353 (AOC 1396)
600 WESTLAKE AVENUE NORTH
SEATTLE, WA

PROJECT NO. Z076000073	DATE: 04/2919	FIGURE 9
APPROVED BY: ES	DRAWN BY: AD	

ATC
ENVIRONMENTAL • GEOTECHNICAL
BUILDING SCIENCES • MATERIALS TESTING

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Seattle, Washington 98107
(206) 781-1449

APPENDIX C
GEOENGINEERS CLEANUP ACTION SUMMARY

REMEDIAL INVESTIGATION WORK PLAN
Block 38 West Property
500 through 536 Westlake Avenue North
Seattle, Washington

Farallon PN: 397-019

Rosen Property
aka H & A Investments Property
Seattle
LUST 4654
VCP NW 1936

RECEIVED
NOV 24 2008
DEPT. OF ECOLOGY
TCP-NWRO

CLEANUP ACTION REPORT
INTERURBAN EXCHANGE 2
535 TERRY AVENUE NORTH
SEATTLE, WASHINGTON

OCTOBER 28, 2008

FOR
LAKE UNION IV, LLC

ENTERED
GG 07-2
2009

GEOENGINEERS

File No. 7131-002-11

TABLE 1
LOTS 1 AND 2 REMEDIAL EXCAVATION SOIL CHEMICAL ANALYTICAL DATA
PETROLEUM HYDROCARBONS, BENZENE, ETHYLBENZENE, TOLUENE AND XYLENES
INTERURBAN EXCHANGE 2
535 TERRY AVENUE NORTH, SEATTLE, WASHINGTON

				Field Screening		Petroleum Hydrocarbons (mg/kg)				BETX[3] (mg/kg)			
Sample ID[1, 2]	**Sample Date**	**Elevation**	**Depth (ft bgs)**	**Sheen**	**Headspace (ppm)**	**Gasoline Range[3]**	**Diesel Range[4]**	**Heavy Oil Range[4]**	**Mineral Oil Range[4]**	**B**	**E**	**T**	**X**
Waste Disposal Authorization Characterization Soil Samples[5]													
TP-11-9[6]	05/05/08	NA	9	SS	--	<10	<20	<50	<40	--	--	--	--
HA-1-6	05/13/08	NA	6	NS	--	<10	<20	<50	<40	<0.02	<0.05	<0.05	<0.15
HA-2-2	05/13/08	NA	2	NS	--	<10	<20	<50	<40	<0.02	<0.05	<0.05	<0.15
EX-1-9.0[7]	06/24/08	NA	9	SS	--	**40**	**30**	<200	<400	--	--	--	--
Confirmation Soil Samples													
Base Confirmation Soil Samples													
EX-2-EL15	06/26/08	15	14	NS	2	<10	<20	<50	<40	<0.02	<0.05	<0.05	<0.15
EX-21-EL16	07/11/08	16	17.5	MS	36	**55**	**730**	<50	<40	<0.02	**0.11**	<0.05	**0.17**
EX-22-EL16	07/11/08	16	17.5	SS	170	**70**	<20	<50	**28**	<0.02	**1.3**	<0.05	**0.66**
EX-23-EL16[5]	07/11/08	16	17.5	SS	>300	**250**	<20	<50	<40	<0.02	**2.4**	**0.21**	**4.7**
EX-23-EL15	07/15/08	15	16.5	NS	0	<10	<20	<50	<40	<0.02	<0.05	<0.05	<0.15
EX-24-EL16[5]	07/11/08	16	17.5	SS	>300	**290**	<20	<50	<40	<0.02	**1.1**	**0.11**	**3.5**
EX-24-EL15	07/16/08	15	16.5	NS	0	<10	<20	<50	<40	<0.02	<0.05	<0.05	<0.15
EX-25-EL16	07/14/08	16	17.5	NS	13	**15**	<20	<50	<40	<0.02	**0.08**	<0.05	**0.15**
EX-26-EL16	07/14/08	16	17.5	NS	0	<10	<20	<50	<40	<0.02	<0.05	<0.05	<0.15
EX-27-EL16[10]	07/14/08	16	17.5	NS	0	<10	<20	<50	<40	<0.02	<0.05	<0.05	<0.15
EX-28-EL16	07/14/08	16	17.5	NS	0	<10	<20	<50	<40	<0.02	<0.05	<0.05	<0.15
EX-30-EL19[10]	07/15/08	19	11	NS	0	<10	<20	<50	<40	<0.02	<0.05	<0.05	<0.15
EX-31-EL20[10]	07/15/08	20	10	NS	0	<10	<20	<50	<40	<0.02	<0.05	<0.05	<0.15
EX-43-EL15.5	07/22/08	15.5	17	NS	0	<10	<20	<50	<40	<0.02	<0.05	<0.05	<0.15
EX-44-EL17.5[10]	07/22/08	17.5	16	NS	0	<10	<20	<50	<40	<0.02	<0.05	<0.05	<0.15

Sample ID[1, 2]	Sample Date	Elevation	Depth (ft bgs)	Field Screening		Petroleum Hydrocarbons (mg/kg)				BETX[3] (mg/kg)			
				Sheen	Headspace (ppm)	Gasoline Range[3]	Diesel Range[4]	Heavy Oil Range[4]	Mineral Oil Range[4]	B	E	T	X
Sidewall Confirmation Soil Samples													
EX-3-E3	06/30/08	22	8	MS	>200	**64**	**230**	<50	<40	<0.02	**0.13**	<0.05	**0.25**
EX-4-N13.5[8]	06/30/08	22	8	MS	>400	**145**	<20	<50	<40	<0.02	**1.6**	**1.0**	**5.2**
EX-5-N10[8]	06/30/08	21	9	SS	>400	**340**	<20	<50	<40	**0.1**	**5.4**	**2.4**	**19**
EX-6-N6[8]	06/30/08	23	7	HS	>400	**280**	<20	**320**	<40	**0.11**	**4.2**	**2.2**	**7.4**
EX-10-N2[8]	07/01/08	22	8	HS	>400	**1100**	<20	**430**	<40	**0.05**	**3.8**	**2.3**	**12**
EX-11-W21	07/02/08	21	9.5	NS	15	**11**	<20	<50	<40	<0.02	<0.05	<0.05	<0.15
EX-12-W16.5	07/02/08	22	7	NS	0	<10	<20	<50	<40	<0.02	<0.05	<0.05	<0.15
EX-13-E15	07/02/08	23	11	NS	0	<10	<20	<50	<40	<0.02	<0.05	<0.05	<0.15
EX-15-E11	07/02/08	21	12	NS	0	<10	<20	<50	<40	<0.02	<0.05	<0.05	<0.15
EX-16-E7	07/02/08	21	12	NS	0	<10	<20	<50	<40	<0.02	<0.05	<0.05	<0.15
EX-17-W13	07/03/08	20	6.5	NS	0	<10	<20	<50	<40	<0.02	<0.05	<0.05	<0.15
EX-18-W9	07/03/08	19.5	6	NS	0	<10	<20	<50	<40	<0.02	<0.05	<0.05	<0.15
MTCA Method A or B Cleanup Levels						100/30[9]	2000	2000	4000	0.03	6	7	9

Notes:

[1] Sample locations shown on the attached site plan.

[2] GeoEngineers samples submitted to Fremont Analytical, Seattle, Washington.

[3] Analyzed by Ecology Method NWTPH-Gx and 8021B.

[4] Analyzed by Ecology Method NWTPH-Dx or NWTPH-Dx Extended with a silica gel cleanup.

[5] Contaminated soil represented by this sample was subsequently excavated and removed from the site for permitted disposal.

[6] This sample was also analyzed for Volatile Organic Compounds (VOCs) by EPA Method 8260 and RCRA 8 Metals. VOCs were not detected in the sample. Metals either were not detected or were detected at concentrations less than the MTCA Method A cleanup levels. See the laboratory report for the full list ofanalytes tested.

[7] This sample was also analyzed for Polycyclic Aromatic Hydrocarbons (PAHs), lead and PCBs. PAHs and PCBs were not detected (less than 0.5 mg/kg). Lead was detected at a concentration less than the MTCA Method A cleanup level. See the laboratory report for the full list of analytes tested.

[8] Contaminated soil represented by this sample was left in place because it extends into the right-of-way and was not accessible.

[9] When benzene is present, the gasoline range cleanup level is 30 mg/kg. When benzene is not present the gasoline range cleanup level is 100 mg/kg.

[10] This sample was also submitted for chemical analysis of lead, cadmium and/or PAHs. These results are presented in Table 3. See the laboratory report for the full list of analytes tested.

mg/kg = milligrams per kilogram

-- = Not Tested

MTCA = Model Toxic Control Act

bgs = below ground surface

NA = Not applicable.

NS = no sheen, SS = slight sheen, MS = moderate sheen, HS = heavy sheen

Bolding indicates analyte was detected. Shading indicates that analyte was detected at concentrations greater than MTCA Method A cleanup levels.

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TABLE 2
LOTS 3, 4 AND 5 REMEDIAL EXCAVATION SOIL CHEMICAL ANALYTICAL DATA
CADMIUM, LEAD AND POLYCYCLIC AROMATIC HYDROCARBONS
INTERURBAN EXCHANGE 2
535 TERRY AVENUE NORTH, SEATTLE, WASHINGTON

					Field Screening		Total Metals[4] (mg/kg)		Non-carcinogenic Polycyclic Aromatic Hydrocarbons[5] (mg/kg)									Carcinogenic Polycyclic Aromatic Hydrocarbons[5] (mg/kg)							
Sample ID[1]	Consultant[2, 3]	Sample Date	Elevation	Depth (ft bgs)	Sheen	Headspace (ppm)	Cadmium	Lead	Naph-thalenes	Acenaph-thylene	Acenaph-thene	Fluorene	Phenan-threne	Anthra-cene	Fluoran-thene	Pyrene	Benzo(g,h,i)-perylene	Benzo(a)-anthracene	Chrysene	Benzo(b)-fluoranthene	Benzo(k)-fluoranthene	Benzo(a)-pyrene	Indeno(1,2,3--cd)Pyrene	Dibenz(a,h)-anthracene	Total cPAHs (TEQ)[v]
Waste Characterization Soil Samples[7, 12]																									
TP-10-4[8]	GeoEngineers	05/05/08	NA	4	SS	--	2.4	1,900	<0.03	<0.03	<0.03	0.04	<0.03	<0.03	0.21	0.33	0.1	0.17	0.29	0.25	0.36	0.16	<0.03	<0.03	0.245
HA-3-4		05/13/08	NA	4	NS	--	<2	56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
HA-4-2		05/13/08	NA	2	NS	--	<2	21	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Confirmation Samples																									
Base Confirmation Soil Samples																									
EX-27-EL16	GeoEngineers	07/14/08	16	17.5	NS	0	--	--	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
EX-30-EL19[12]		07/15/08	19	7	NS	0	<2.0	52	<0.05	<0.05	<0.05	<0.05	0.15	0.14	0.22	0.22	0.12	0.24	0.16	<0.01	0.15	0.10	0.09	0.07	0.16
EX-30-EL18		07/18/08	18	8	NS	0	<2.0	15	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
EX-31-EL20		07/15/08	20	8	NS	0	<2.0	12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.12	<0.05	<0.05	0.13	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02
EX-32-EL19		07/16/08	19	5.0	NS	0	<2.0	44	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
EX-34-EL20[12]		07/17/08	20	3.5	NS	0	<2.0	110	1.75	0.11	0.09	0.17	0.49	0.23	0.39	0.45	0.17	0.23	0.15	0.19	0.13	0.17	0.10	0.10	0.11
EX-34-EL19		07/21/08	19	4.5	NS	0	--	--	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
EX-42-EL21		07/18/08	21	2.5	NS	0	<2.0	37	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	0.14	0.09	0.09	0.10	0.05	0.06	<0.01	0.03
EX-44-EL17.5		07/22/08	17.5	16	NS	0	<2.0	115	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Base Confirmation Wood Samples																									
ATP-1 (7.5)	Adapt	08/12/06	NA	7.5	NA	NA	--	--	--	--	--	--	--	--	--	--	--	0.0042	0.0048	0.0067	ND	0.0053	ND	ND	0.0044
ATP-2 (4)		08/12/06	NA	4	NA	NA	--	--	--	--	--	--	--	--	--	--	--	0.0038	0.0067	0.0064	0.0028	0.0045	ND	ND	0.0048
ATP-3 (7)		08/12/06	NA	7	NA	NA	--	--	--	--	--	--	--	--	--	--	--	0.0052	0.0050	0.0070	ND	0.0050	ND	ND	0.0035
ATP-4 (4.5)		08/12/06	NA	4.5	NA	NA	--	--	--	--	--	--	--	--	--	--	--	0.0240	0.0390	0.0770	0.0220	0.0550	0.0130	ND	0.0223
ATP-5 (5)		08/12/06	NA	5	NA	NA	--	--	--	--	--	--	--	--	--	--	--	0.1500	0.1500	0.1400	ND	ND	ND	ND	0.0417
ATP-6 (8)		08/12/06	NA	8	NA	NA	--	--	--	--	--	--	--	--	--	--	--	0.0070	0.0100	0.0140	0.0059	0.0088	0.0024	ND	0.0059
ATP-7 (6)		08/13/06	NA	6	NA	NA	--	--	--	--	--	--	--	--	--	--	--	ND	0.0046	0.0130	0.0110	0.0080	0.0210	ND	0.0188
ATP-8 (6.5)		08/13/06	NA	6.5	NA	NA	--	--	--	--	--	--	--	--	--	--	--	0.0130	0.0140	0.0390	0.0170	0.0280	0.0130	ND	0.0293
ATP-9 (6)		08/13/06	NA	6	NA	NA	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND	ND	ND	ND	0.0276
ATP-10 (5.5)		08/13/06	NA	5.5	NA	NA	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND	ND	ND	ND	0.0181
Sidewall Confirmation Soil Samples																									
EX-7-E31.5	GeoEngineers	07/01/08	23	12	NS	0	<2.0	12	<0.05	<0.05	<0.05	<0.05	<0.05	0.13	<0.05	0.11	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
EX-8-E27.5		07/01/08	23	12	NS	0	<2.0	<4.0	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
EX-9-E23		07/01/08	23	12	NS	0	<2.0	<4.0	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
EX-14-E19		07/02/08	23	11	NS	0	<2.0	12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
EX-19-W5[10, 11]		07/03/08	20	5	NS	0	<2.0	64	0.07	0.11	0.42	0.30	2.3	0.98	2.9	3.6	2.0	0.97	0.88	1.3	0.55	1.7	0.78	0.50	2.17
EX-20-W1.5[11]		07/03/08	19.5	5.5	NS	0	<2.0	120	0.13	0.12	0.63	0.42	4.2	1.5	4.4	5.5	3.0	1.2	1.2	2.1	0.75	2.3	1.2	0.76	2.99
EX-29-EL16		07/14/08	16	--	NS	0	<2.0	29	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
EX-33-EL21		07/16/08	21	3.0	NS	0	<2.0	27	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
EX-35-EL22.5[11]		07/17/08	22.5	1.5	NS	0	<2.0	7.7	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.19	0.08	0.11	0.15	0.06	0.08	<0.01	0.11
EX-36-EL23[11]		07/18/08	23	1.5	NS	0	<2.0	35	<0.05	<0.05	<0.05	<0.05	0.28	0.28	0.56	0.56	0.34	0.47	0.16	0.33	0.24	0.16	0.17	<0.01	0.28
EX-37-EL23		07/18/08	23	1.5	NS	0	<2.0	<4.0	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
EX-38-EL23[11]		07/18/08	23	1.0	NS	0	<2.0	160	<0.05	0.14	<0.05	0.43	4.2	1.7	6.3	7.8	2.9	2.7	1.4	1.6	1.7	2.9	1.1	1.0	3.82
EX-39-EL23[11]		07/18/08	23	1.0	NS	0	<2.0	86	<0.05	0.11	<0.05	0.13	0.27	0.27	0.51	0.0	0.39	0.73	0.21	0.23	0.31	0.32	0.18	<0.01	0.47
EX-40-EL22[11]		07/18/08	22	2.0	NS	0	<2.0	1,800	6	7.2	0.61	4.9	53	40	43	53	12	17	9.4	17	20	19.00	5.7	1.40	25.34
EX-41-EL22[11]		07/18/08	22	3.0	NS	0	<2.0	1,200	0.56	0.49	0.16	0.31	3.3	1.4	4.1	4.7	1.7	2.9	2.1	1.3	1.1	2.30	0.69	0.62	3.04
MTCA Method A or B Cleanup Levels							2	250	5	NE	4,800	3,200	NE	24,000	3,200	2,400	NE	NA	NA	NA	NA	NA	NA	NA	0.1

Notes:

[1] Sample locations shown on the attached site plan.

[2] GeoEngineers samples submitted to Fremont Analytical in Seattle, Washington.

[3] Adapt Engineering, Inc. (Adapt) samples submitted to Friedman and Bruya Inc. in Seattle, Washington.

[4] Analyzed by EPA Method 6020

[5] Analyzed by EPA Method 8270C (SIM).

[6] Calculated using the toxicity equivalency (TEQ) methodology specified in WAC 173-340-780(8). cPAHs that were not detected were assigned half the value of the detection limit for these calculations. Total cPAHs for the Adapt samples was calculated using the wood Ecology and using the sampling method approved by Toxicity Equivalency Factors (TEF).

[7] Each of the characterization soil samples were also analyzed for RCRA 8 Metals and gasoline-, diesel-, and lube oil-range petroleum hydrocarbons and BETX using Ecology methods NWTPH-Gx, NWTPH-Dx and EPA Method 8021B. Petroleum hydrocarbons, BETX and metals other than cadmium and lead were either not detected or were detected at concentrations less than the MTCA Method A cleanup level. See the laboratory report for the full list of analytes tested.

[8] Mercury was detected in this sample at a concentration of 4 mg/kg, which is greater than the MTCA Method A cleanup level. Soil represented by this sample was subsequently excavated and a new sample (EX-19-W5) was obtained in its place. Mercury was not detected in EX-10-W5. Lead and cadmium toxicity characteristic leaching procedure (TCLP) was also conducted on this sample for disposal characterization purposes.

[9] This sample was subsequently re-analyzed for lead. The second time lead was detected at 370 parts per million.

[10] This sample was also submitted for chemical analysis of mercury using EPA Method 6020. Mercury was not detected (<1.0 parts per million).

[11] Contaminated soil represented by this sample was left in place because it extends into the right-of-way and was not accessible.

[12] Contaminated soil represented by this sample was subsequently excavated and removed from the site for permitted disposal.

mg/kg = milligrams per kilogram

bgs = below ground surface

-- = Not Tested

NA = Not applicable.

MTCA - Model Toxic Control Act

Bolding indicates analyte was detected. Shading indicates that analyte was detected at concentrations greater than MTCA Method A cleanup levels.

TABLE 3
SOIL CHEMICAL ANALYTICAL DATA - TEQ CALCULATIONS
INTERURBAN EXCHANGE 2
535 TERRY AVENUE NORTH, SEATTLE, WASHINGTON

Sample ID	TP-10-4			
Analyte	Detected Concentrations (mg/kg)	Cal TEF	TEQ (mg/kg)	Comments
benzo(a)anthracene	0.17	0.1	0.017	Detected
chrysene	0.29	0.01	0.003	Detected
benzo(b)fluoranthene	0.25	0.1	0.025	Detected
benzo(k)fluoranthene	0.36	0.1	0.036	Detected
benzo(a)pyrene	0.16	1.0	0.160	Detected
indeno(1,2,3-cd)pyrene	0.015	0.1	0.002	Not Detected
dibenzo(a,h)anthracene	0.015	0.4	0.003	Not Detected
Total			**0.245**	

Sample ID	EX-19-W5			
Analyte	Detected Concentrations (mg/kg)	Cal TEF	TEQ (mg/kg)	Comments
benzo(a)anthracene	0.97	0.1	0.097	Detected
chrysene	0.88	0.01	0.009	Detected
benzo(b)fluoranthene	1.3	0.1	0.130	Detected
benzo(k)fluoranthene	0.55	0.1	0.055	Detected
benzo(a)pyrene	1.7	1.0	1.700	Detected
indeno(1,2,3-cd)pyrene	0.78	0.1	0.078	Detected
dibenzo(a,h)anthracene	0.50	0.4	0.100	Detected
Total			**2.169**	

Sample ID	EX-20-W1.5			
Analyte	Detected Concentrations (mg/kg)	Cal TEF	TEQ (mg/kg)	Comments
benzo(a)anthracene	1.2	0.1	0.120	Detected
chrysene	1.2	0.01	0.012	Detected
benzo(b)fluoranthene	2.1	0.1	0.210	Detected
benzo(k)fluoranthene	0.75	0.1	0.075	Detected
benzo(a)pyrene	2.3	1.0	2.300	Detected
indeno(1,2,3-cd)pyrene	1.2	0.1	0.120	Detected
dibenzo(a,h)anthracene	0.76	0.4	0.152	Detected
Total			**2.989**	

Sample ID	EX-30-EL19			
Analyte	Detected Concentrations (mg/kg)	Cal TEF	TEQ (mg/kg)	Comments
benzo(a)anthracene	0.24	0.1	0.024	Detected
chrysene	0.16	0.01	0.002	Detected
benzo(b)fluoranthene	0.005	0.1	0.001	Not Detected
benzo(k)fluoranthene	0.15	0.1	0.015	Detected
benzo(a)pyrene	0.1	1.0	0.100	Detected
indeno(1,2,3-cd)pyrene	0.09	0.1	0.009	Detected
dibenzo(a,h)anthracene	0.07	0.4	0.014	Detected
Total			**0.164**	

Sample ID	EX-31-EL20			
Analyte	Detected Concentrations (mg/kg)	Cal TEF	TEQ (mg/kg)	Comments
benzo(a)anthracene	0.13	0.1	0.013	Detected
chrysene	0.005	0.01	0.000	Not Detected
benzo(b)fluoranthene	0.005	0.1	0.001	Not Detected
benzo(k)fluoranthene	0.005	0.1	0.001	Not Detected
benzo(a)pyrene	0.005	1.0	0.005	Not Detected
indeno(1,2,3-cd)pyrene	0.005	0.1	0.001	Not Detected
dibenzo(a,h)anthracene	0.005	0.4	0.001	Not Detected
Total			**0.021**	

Sample ID	EX-34-EL20			
Analyte	Detected Concentrations (mg/kg)	Cal TEF	TEQ (mg/kg)	Comments
benzo(a)anthracene	0.23	0.1	0.023	Detected
chrysene	0.15	0.01	0.002	Detected
benzo(b)fluoranthene	0.19	0.1	0.019	Detected
benzo(k)fluoranthene	0.13	0.1	0.013	Detected
benzo(a)pyrene	0.17	1.0	0.170	Detected
indeno(1,2,3-cd)pyrene	0.1	0.1	0.010	Detected
dibenzo(a,h)anthracene	0.1	0.4	0.020	Detected
Total			**0.257**	

Sample ID	EX-35-EL22.5			
Analyte	Detected Concentrations (mg/kg)	Cal TEF	TEQ (mg/kg)	Comments
benzo(a)anthracene	0.19	0.1	0.019	Detected
chrysene	0.08	0.01	0.001	Detected
benzo(b)fluoranthene	0.11	0.1	0.011	Detected
benzo(k)fluoranthene	0.15	0.1	0.015	Detected
benzo(a)pyrene	0.06	1.0	0.060	Detected
indeno(1,2,3-cd)pyrene	0.08	0.1	0.008	Detected
dibenzo(a,h)anthracene	0.01	0.4	0.001	Detected
Total			**0.115**	

Sample ID	EX-36-EL23			
Analyte	Detected Concentrations (mg/kg)	Cal TEF	TEQ (mg/kg)	Comments
benzo(a)anthracene	0.47	0.1	0.047	Detected
chrysene	0.16	0.01	0.002	Detected
benzo(b)fluoranthene	0.33	0.1	0.033	Detected
benzo(k)fluoranthene	0.24	0.1	0.024	Detected
benzo(a)pyrene	0.16	1.0	0.160	Detected
indeno(1,2,3-cd)pyrene	0.17	0.1	0.017	Detected
dibenzo(a,h)anthracene	0.00	0.4	0.000	Detected
Total			**0.283**	

Sample ID	EX-38-EL23			
Analyte	Detected Concentrations (mg/kg)	Cal TEF	TEQ (mg/kg)	Comments
benzo(a)anthracene	2.7	0.1	0.270	Detected
chrysene	1.4	0.01	0.014	Detected
benzo(b)fluoranthene	1.6	0.1	0.160	Detected
benzo(k)fluoranthene	1.7	0.1	0.170	Detected
benzo(a)pyrene	2.9	1.0	2.900	Detected
indeno(1,2,3-cd)pyrene	1.1	0.1	0.110	Detected
dibenzo(a,h)anthracene	1.0	0.4	0.200	Detected
Total			**3.824**	

Sample ID	EX-39-EL23			
Analyte	Detected Concentrations (mg/kg)	Cal TEF	TEQ (mg/kg)	Comments
benzo(a)anthracene	0.73	0.1	0.073	Detected
chrysene	0.21	0.01	0.002	Detected
benzo(b)fluoranthene	0.23	0.1	0.023	Detected
benzo(k)fluoranthene	0.31	0.1	0.031	Detected
benzo(a)pyrene	0.32	1.0	0.320	Detected
indeno(1,2,3-cd)pyrene	0.18	0.1	0.018	Detected
dibenzo(a,h)anthracene	0.01	0.4	0.001	Detected
Total			**0.468**	

Sample ID	EX-40-EL22			
Analyte	Detected Concentrations (mg/kg)	Cal TEF	TEQ (mg/kg)	Comments
benzo(a)anthracene	17	0.1	1.700	Detected
chrysene	9.4	0.01	0.094	Detected
benzo(b)fluoranthene	17	0.1	1.700	Detected
benzo(k)fluoranthene	20	0.1	2.000	Detected
benzo(a)pyrene	19.0	1.0	19.000	Detected
indeno(1,2,3-cd)pyrene	5.7	0.1	0.570	Detected
dibenzo(a,h)anthracene	1.4	0.4	0.280	Detected
Total			**25.344**	

Sample ID	EX-41-EL22			
Analyte	Detected Concentrations (mg/kg)	Cal TEF	TEQ (mg/kg)	Comments
benzo(a)anthracene	2.9	0.1	0.290	Detected
chrysene	2.1	0.01	0.021	Detected
benzo(b)fluoranthene	1.3	0.1	0.130	Detected
benzo(k)fluoranthene	1.1	0.1	0.110	Detected
benzo(a)pyrene	2.3	1.0	2.300	Detected
indeno(1,2,3-cd)pyrene	0.69	0.1	0.069	Detected
dibenzo(a,h)anthracene	0.6	0.4	0.124	Detected
Total			**3.044**	

Sample ID	EX-42-EL21			
	Detected Concentrations		TEQ	
Analyte	(mg/kg)	Cal TEF	(mg/kg)	Comments
benzo(a)anthracene	0.14	0.1	0.014	Detected
chrysene	0.009	0.01	0.000	Detected
benzo(b)fluoranthene	0.009	0.1	0.001	Detected
benzo(k)fluoranthene	0.1	0.1	0.010	Detected
benzo(a)pyrene	0.005	1.0	0.005	Not Detected
indeno(1,2,3-cd)pyrene	0.006	0.1	0.001	Detected
dibenzo(a,h)anthracene	0.005	0.4	0.001	Not Detected
Total			**0.032**	

Notes:

Calculated using the toxicity equivalency (TEQ) methodology specified in WAC 173-340-780(8). cPAHs that were not detected were assigned half the value of the detection limit for these calculations.

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TABLE 4
GROUNDWATER DISCHARGE SCREENING LEVELS AND DETECTED ANALYTE CONCENTRATIONS
INTERURBAN EXCHANGE 2
535 TERRY AVENUE NORTH, SEATTLE, WASHINGTON

Sample ID[1]	Sample Date	Depth to Groundwater (ft)	BETX (µg/L)[2]				Petroleum Hydrocarbons (µg/L)				Total Metals[4] (µg/L)	
			B	E	T	X	Diesel Range[3]	Heavy Oil Range[3]	Mineral Oil Range[3]	Gasoline Range[2]	Cadmium	Lead
Dewatering Well Groundwater Samples												
DN1-050808	05/08/08	11.63	<1	<1	**2.8**	<2	<200	<500	<400	<100	--	**52**
DN5-050808	05/08/08	11.92	<1	<1	**1.5**	**1.9**	<200	<500	<400	<100	--	**10**
DN10-050708	05/07/08	12	**20**	**16**	**19**	**23**	<200	<500	<400	**1,100**	--	**5**
DN14-050808	05/08/08	13.03	**24**	**16**	**28**	**33**	<200	<500	<400	**1,700**	--	<2
Dewatering Effluent Discharge Samples												
Baker-1[5]	05/13/08	NA	**1.7**	<1.0	<1.0	<2.0	<200	<500	<400	**120**	--	**3**
Baker-2[6]	06/23/08	NA	<1.0	<1.0	<1.0	<1.0	<200	<500	<400	<100	<2	<2
Baker-3	06/24/08	NA	<1.0	<1.0	<1.0	<1.0	<200	<500	<400	<100	<2	<2
Baker-4	06/25/08	NA	<1.0	<1.0	<2.0	<2.0	<200	<500	<400	<100	<2	<2
Baker -5	06/26/08	NA	**1.3**	<1.0	<2.0	<2.0	<200	<500	<400	<100	<2	<2
Baker -6	06/27/08	NA	<1.0	<1.0	<2.0	<2.0	<200	<500	<400	**150**	<2	<2
Baker -7	07/02/08	NA	<1.0	<1.0	<2.0	<2.0	<200	<500	<400	**110**	<2	<2
Baker -8	07/09/08	NA	<1.0	<1.0	<2.0	<2.0	<200	<500	<400	<100	<2	<2
Baker -9	07/16/08	NA	<1.0	<1.0	<2.0	<2.0	<200	<500	<400	<100	<2	**5.3**
Baker -10	07/23/08	NA	<1.0	<1.0	<2.0	<2.0	<200	<500	<400	<100	<5	<4
Baker -11	07/30/08	NA	<1.0	<1.0	<2.0	<2.0	<200	<500	<400	<100	<5	<4
Baker -12	08/26/08	NA	<1.0	<1.0	<2.0	<2.0	<200	<500	<400	<100	<5	<4
Baker -13	09/30/08	NA	<1.0	<1.0	<2.0	<2.0	<200	<500	<400	<100	<5	<4
King County Discharge Screening Levels[7]			70	1,700	1,400	2,200	100,000 [8]				600	4,000

Notes:

[1] GeoEngineers Samples submitted to Fremont Analytical in Seattle, Washington.

[2] Analyzed by ecology Method NWTPH-Gx and 8021B.

[3] Analyzed by Ecology Method NWTPH-Dx.

[4] Analyzed by EPA Method 6020.

[5] This sample is referred to as BAY-051308 in the laboratory report.

[6] This sample was also analyzed for naphthalenes, EDB, EDC and MTBE. These compounds were not detected (less than the applicable clean up levels).

[7] According to our King County Wastewater Discharge Authorization Number 4147-01

[8] This is the King County Discharge Screening Level for FOG and refers to the sum of all of the detected petroleum hydrocarbons in the sample.

µg/L = micrograms per liter

-- = Not Tested

MTCA - Model Toxic Control Act

Bolding indicates analyte was detected

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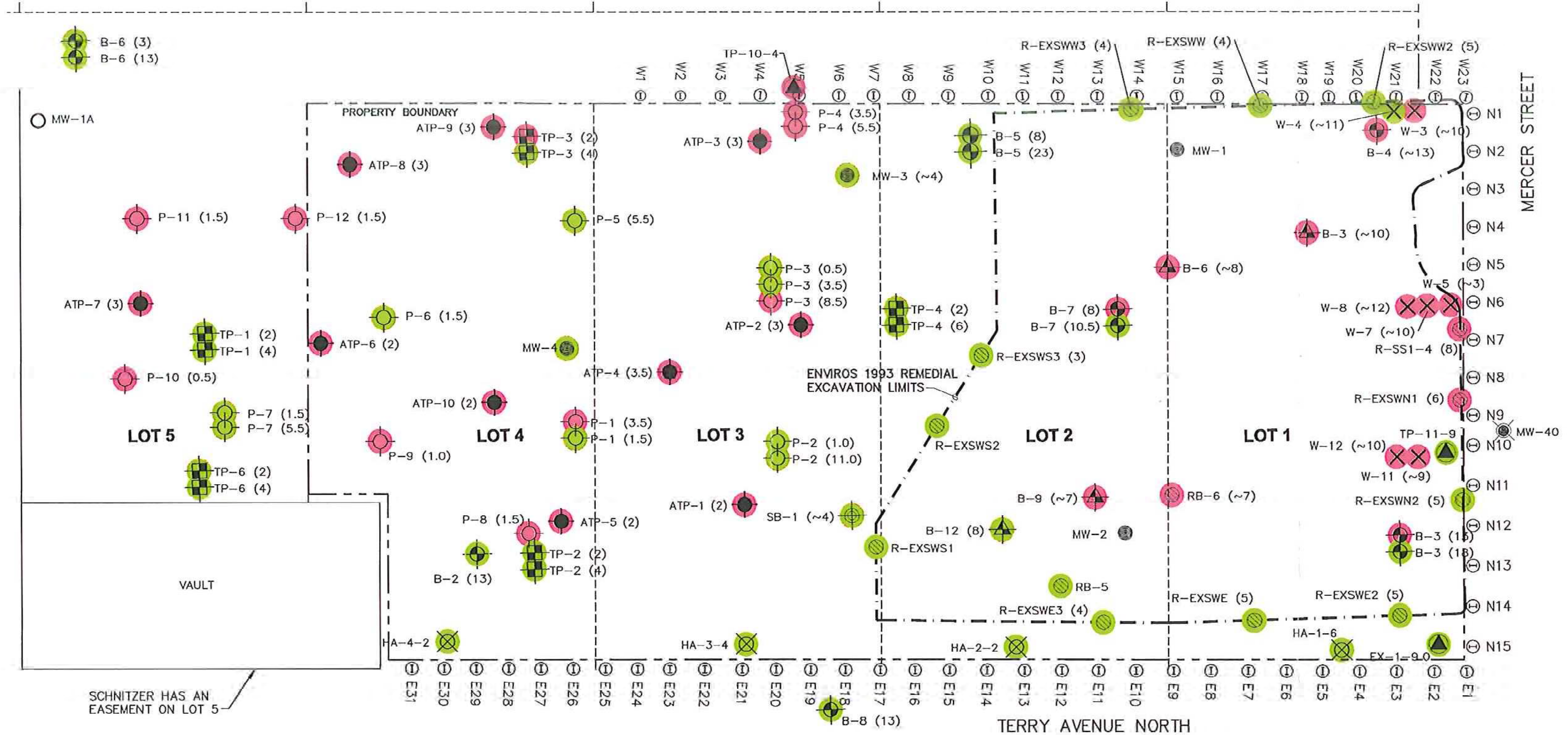

Legend

P-7 ⌖	GeoEngineers 2002 boring
TP-1 ▦	Test pit completed 1999
B-1 ⊕	GeoEngineers 1998 boring
B-9 ▲	GeoEngineers 1993 hand boring
W-11 ✕	GeoEngineers 1993 soil sample
MW-1 ●	Secor 1994 monitoring well
SB-1 ⊕	Secor 1994 boring
ATP-1 ●	Adapt Engineering, Inc. 2006 test pits
TP-1 ▲	GeoEngineers 2008 test pit soil sample
TP-1 ⊞	AGI Technologies 1994 test pit
MW-1A ○	AGI Technologies 1994 monitoring well
RB-6 ▨	Enviros 1993 excavation sample
MW-40 ⊗	Phillips/Tosco monitoring well
— · —	Approximate limit of 1993 remedial excavation
E31 ⊖	Soldier pile
HA-1-16 ⊠	GeoEngineers 2008 hand auger boring
🟩	Contaminants of concern were not detected or were detected at concentrations less than the applicable MTCA Method A cleanup levels.
🟥	Contaminants of concern were detected at concentrations greater than the applicable MTCA Method A cleanup levels.

MTCA = Model Toxic Control Act

ATP-1 (2)
└Depth below original ground surface. Original ground surface was approximately elevation 25 on Lots 3, 4 & 5 and elevation 25 - 30 on Lots 1 and 2.

Notes

1. The locations of all features shown are approximate.
2. See supporting tables for additional information. All depths are approximate.
3. This figure is for informational purposes only. It is intended to assist in the identification of features discussed in a related document. Data were compiled from sources as listed in this figure. The data sources do not guarantee these data are accurate or complete. There may have been updates to the data since the publication of this figure. This figure is a copy of a master document. The master hard copy is stored by GeoEngineers, Inc. and will serve as the official document of record.
4. All monitoring wells have either been decommissioned or were destroyed during construction activities.

Reference: Drawing entitled "Interurban Exchange 2" by DCI Engineers D' Amato Conversano Inc., dated 04/01/02, and "Boundary & Topography Survey, U.W. Labs, South Lake Union" by Bush, Roed & Hitchings, Inc., dated 12/04/98.

W N S E

25 0 25
FEET

Site Plan
with Historic Soil Sample Locations

Interurban Exchange 2
Seattle, Washington

GEOENGINEERS

Figure 2

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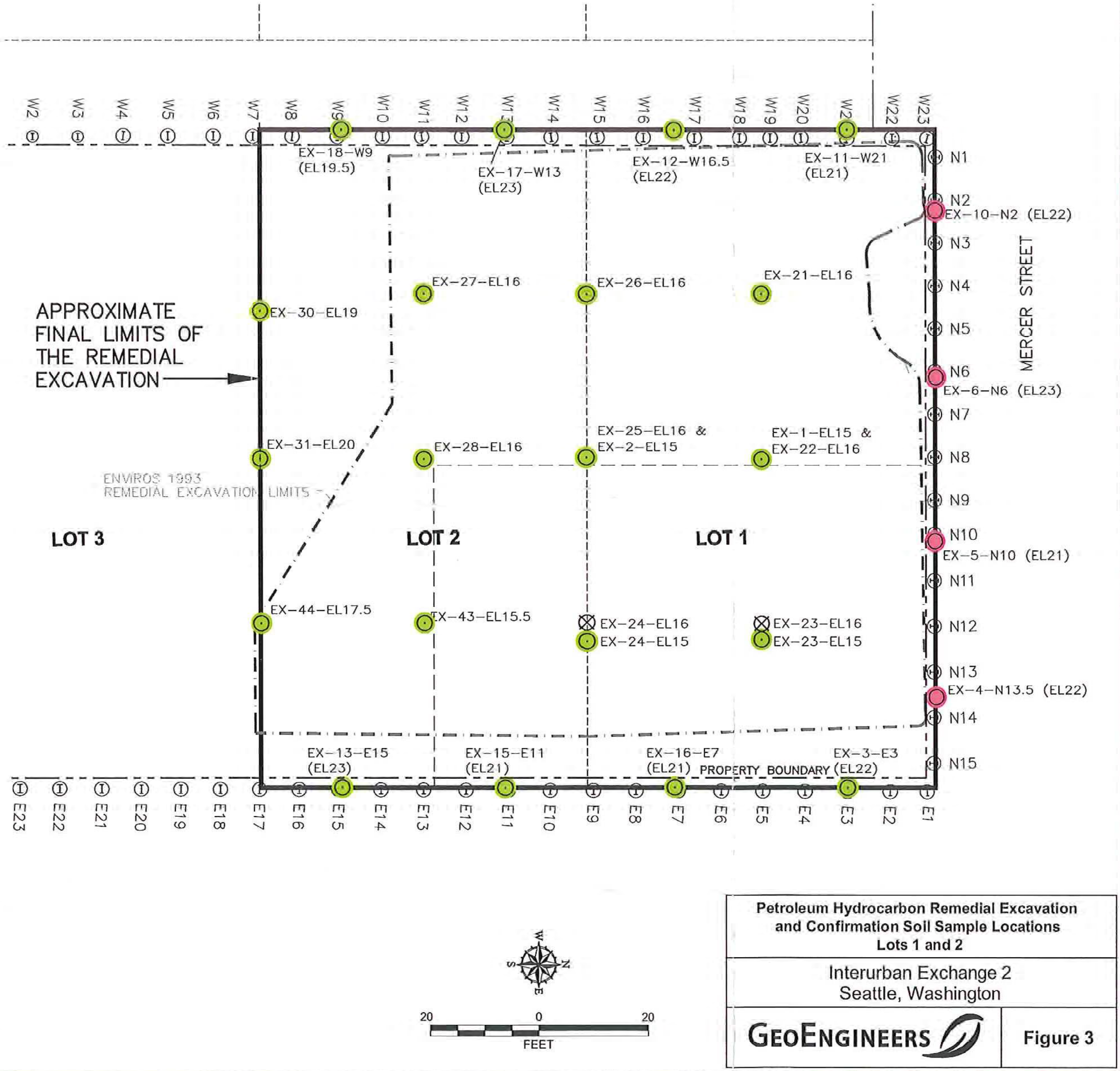
Legend

— · —	Approximate limit of 1993 remedial excavation
E31⊖	Soldier pile
🟢	Soil sample obtained in 2008 by GeoEngineers. Petroleum hydrocarbons and BTEX either were not detected or were detected at concentrations less than the applicable MTCA Method A clean-up levels.
🔴	Soil sample obtained in 2008 by GeoEngineers. Petroleum hydrocarbons and BTEX were detected at concentrations greater than the applicable MTCA Method A clean-up levels. Soil represented by this sample could not be excavated without risking damage to offsite utilities, roadways and/or sidewalks or utilizing extensive shoring.
⊗	Soil sample obtained in 2008 by GeoEngineers. Petroleum hydrocarbons and BTEX were detected at concentrations greater than the applicable MTCA Method A clean-up levels. Soil represented by this sample was subsequently over-excavated and transported to Allied Waste in Seattle, Washington for permitted disposal.
⬚	Approximate limits of over-excavations. Soil represented by samples EX-24-EL16 and EX-23-EL16 were over-excavated and removed from the site for permitted disposal. Confirmation soil samples were obtained at the base of the over-excavation.

EX−44−EL17.5 — Approximate soil sample elevation

EX−18−W9 (EL17.5) — Approximate soil sample elevation



Notes

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3. This figure is for informational purposes only. It is intended to assist in the identification of features discussed in a related document. Data were compiled from sources as listed in this figure. The data sources do not guarantee these data are accurate or complete. There may have been updates to the data since the publication of this figure. This figure is a copy of a master document. The master hard copy is stored by GeoEngineers, Inc. and will serve as the official document of record.
4. Confirmation soil samples were obtained in 2008 by GeoEngineers and were submitted for chemical analysis of petroleum hydrocarbons and associated constituents. Analytical data is summarized in Table 2.

Reference: Drawing entitled "Interurban Exchange 2" by DCI Engineers D' Amato Conversano Inc., dated 04/01/02, and "Boundary & Topography Survey, U.W. Labs, South Lake Union" by Bush, Roed & Hitchings, Inc., dated 12/04/98.

Petroleum Hydrocarbon Remedial Excavation and Confirmation Soil Sample Locations
Lots 1 and 2

Interurban Exchange 2
Seattle, Washington

GEOENGINEERS

Figure 3

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Legend

— · — Approximate limit of 1993 remedial excavation

E31⊖ Soldier pile

● Soil sample obtained in 2008 by GeoEngineers. PAHs, lead, and cadmium either were not detected or were detected at concentrations less than the applicable MTCA Method A clean-up levels.

● Soil sample obtained in 2008 by GeoEngineers. PAHs, lead, and cadmium were detected at concentrations greater than the applicable MTCA Method A clean-up levels. Soil represented by this sample could not be excavated without risking damage to offsite utilities, roadways and/or sidewalks or utilizing extensive shoring.

⊗ Soil sample obtained in 2008 by GeoEngineers. PAHs, lead, and cadmium were detected at concentrations greater than the applicable MTCA Method A clean-up levels. Soil represented by this sample was subsequently over-excavated and transported to Allied Waste in Seattle, Washington for permitted disposal.

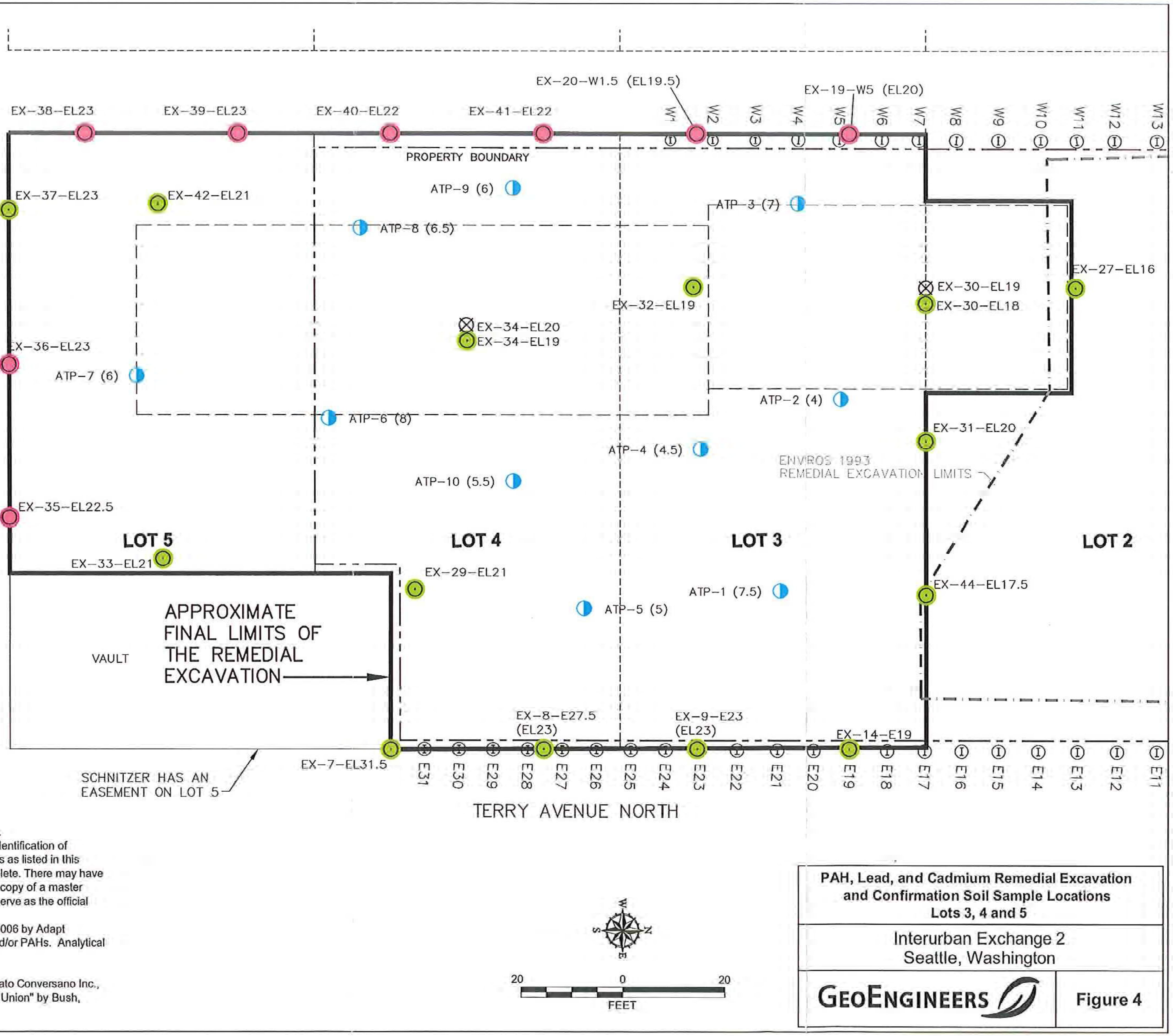
◐ Wood sample obtained in 2006 by Adapt Engineering. PAHs, lead, and cadmium either were not detected or were detected at concentrations less than the applicable MTCA Method A clean-up levels.

┌ ┐ Approximate limits of over-excavations. Soil represented by samples EX-34-EL20 and EX-30-EL19 were over-excavated and removed from the site for permitted disposal. Final confirmation soil samples were obtained at the base of the over-excavation.

- - - Property boundary

EX–40–EL22 — Approximate soil sample elevation

ATP–7(6) — Approximate wood sample depth below original ground surface. Original ground surface was approximately elevation 25.



Notes

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2. See supporting tables for additional information. All depths are approximate.
3. This figure is for informational purposes only. It is intended to assist in the identification of features discussed in a related document. Data were compiled from sources as listed in this figure. The data sources do not guarantee these data are accurate or complete. There may have been updates to the data since the publication of this figure. This figure is a copy of a master document. The master hard copy is stored by GeoEngineers, Inc. and will serve as the official document of record.
4. Confirmation soil samples were obtained in 2008 by GeoEngineers and in 2006 by Adapt Engineering and were submitted for chemical analysis of cadmuim, lead and/or PAHs. Analytical data is summarized in Table 3.

Reference: Drawing entitled "Interurban Exchange 2" by DCI Engineers D' Amato Conversano Inc., dated 04/01/02, and "Boundary & Topography Survey, U.W. Labs, South Lake Union" by Bush, Roed & Hitchings, Inc., dated 12/04/98.

PAH, Lead, and Cadmium Remedial Excavation and Confirmation Soil Sample Locations
Lots 3, 4 and 5

Interurban Exchange 2
Seattle, Washington

GEOENGINEERS

Figure 4

APPENDIX D
DEEP OUTWASH AQUIFER MONITORING

REMEDIAL INVESTIGATION WORK PLAN
Block 38 West Property
500 through 536 Westlake Avenue North
Seattle, Washington

Farallon PN: 397-019

FARALLON CONSULTING

Washington
Issaquah | Bellingham | Seattle
Oregon
Portland | Baker City
California
Oakland | Folsom | Irvine

TECHNICAL MEMORANDUM

TO: Tena Seeds – Washington State Department of Ecology Toxics Cleanup Program

cc: Jim Broadlick – City Investors XI L.L.C.

FROM: Clifford Schmitt, L.G., L.H.G., Principal Hydrogeologist
Eric Buer, L.G., L.H.G., P.G., Senior Hydrogeologist

DATE: January 13, 2020

RE: **GROUNDWATER MONITORING PROGRAM**
SOUTH LAKE UNION BLOCK 38 WEST PROPERTY
SEATTLE, WASHINGTON
FARALLON PN: 397-061

Farallon Consulting, L.L.C. (Farallon) has prepared this Technical Memorandum to provide the rationale for selection of monitoring locations and sampling frequency for the Deep Outwash Aquifer Groundwater Performance Monitoring Program (Groundwater Monitoring Program) that will be conducted prior to, in conjunction with, and after completion of construction dewatering to facilitate mass excavation and building construction at the Block 38 West Property at 500 Westlake Avenue North in Seattle, Washington (Block 38 West) (Figure 1). The Groundwater Monitoring Program is a component of the interim action cleanup activities and is described in Section 8.4 of the *Interim Action Work Plan, Block 38 West Property, 500 through 536 Westlake Avenue North, Seattle, Washington* dated November 8, 2019, prepared by Farallon for City Investors IX L.L.C. (Interim Action Work Plan). The Groundwater Monitoring Program is being implemented in response to historical releases of the dry cleaning solvent tetrachloroethene (PCE) at the property at 700 Dexter Avenue North (BMR-Dexter Property), which resulted in a regional plume of chlorinated volatile organic compounds (CVOCs)[1] that has migrated through multiple water-bearing zones in the South Lake Union area (BMR-Dexter CVOC Plume).

Concentrations of CVOCs, specifically cDCE and vinyl chloride, that are attributable to the BMR-Dexter CVOC Plume are known to be present at, and/or immediately north-northwest of, Block

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[1] The CVOCs include PCE; trichloroethene (TCE); isomers of dichloroethene, primarily cis-1,2-dichloroethene (cDCE); and vinyl chloride.

38 West. This Technical Memorandum provides a general overview of hydrogeologic units in the vicinity of Block 38 West, groundwater flow under static[2] (e.g. non-pumping) and pumping conditions, distribution of the BMR-Dexter CVOC Plume, and other information pertinent to development of the Groundwater Monitoring Program.

GROUNDWATER ZONES PRESENT IN SOUTH LAKE UNION AREA

Previous investigations in the South Lake Union area have described three water-bearing zones based on the lithologic unit in which they are encountered. These zones have varying degrees of hydraulic interconnection dependent on the location. The water-bearing zones at Block 38 West are summarized as follows:

- The uppermost water-bearing zone encountered on Block 38 West is the Shallow Water-Bearing Zone. The Shallow Water-Bearing Zone comprises fill and underlying recent deposits. At Block 38 West, the Shallow Water-Bearing Zone varies in thickness from approximately 5 to 15 feet and is first encountered at elevations between 22 and 25 feet North American Vertical Datum 1988 (NAVD88).
- The Intermediate Water-Bearing Zone[3] refers to groundwater encountered in consolidated glacial deposits. Typically, these deposits comprise dense silty sands and stiff sandy silts. The Intermediate Water-Bearing Zone is first encountered at approximate elevations of 5 to 10 feet NAVD88. Based on previous subsurface investigations, the Shallow Water-Bearing Zone is in direct communication with the Intermediate Water-Bearing Zone on Block 38 West.
- The Deep Outwash Aquifer refers to groundwater first encountered at approximate elevations of -30 to -40 feet NAVD88 in outwash sands with minor silt content below the consolidated glacial deposits.

At Block 38 West, the vertical gradient between the water-bearing zones is relatively small (e.g., approximately 1 foot downward) and groundwater levels have ranged from 16 to 18 feet NAVD88.

GROUNDWATER FLOW UNDER STATIC CONDITIONS

Under static conditions, there is typically a downward vertical gradient present from the Shallow Water-Bearing Zone to the Intermediate Water-Bearing Zone and from the Intermediate Water-Bearing Zone to the Deep Outwash Aquifer in the South Lake Union area. In the area west of Terry Avenue North where no aquitard is present between the Shallow and Intermediate Water-Bearing Zones or between the Intermediate Water-Bearing Zone and the Deep Outwash Aquifer, groundwater from the Shallow Water-Bearing Zone discharges to the Intermediate Water-Bearing Zone and from the Intermediate Water-Bearing Zone to the Deep Outwash Aquifer as groundwater flows from west to east. A detailed description of the evidence supporting this conceptual model

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[2] Static conditions in this Technical Memorandum refers to periods when no groundwater extraction is occurring for the purposes of construction dewatering or groundwater treatment, or for other purposes.

[3] The Intermediate Water-Bearing Zone is sometimes further divided into an “A” and “B” units. For the purposes of this Technical Memorandum, this subdivision was not considered necessary.

of groundwater flow under static conditions is not presented in this Technical Memorandum but can be provided upon request[4].

DISTRIBUTION OF BMR-DEXTER CVOC PLUME

The BMR-Dexter CVOC Plume currently extends more than 1,000 feet from the BMR-Dexter Property to the east-southeast as shown on Figure 2[5]. While construction dewatering associated with neighboring properties has had short-term, temporary impacts on the BMR-Dexter CVOC Plume, its current footprint is the result of significant releases of CVOCs to groundwater at the BMR Dexter Property beginning in 1966, followed by decades of down-gradient migration under static conditions (i.e., west to east).

Construction dewatering events were limited in duration and are relatively recent compared to the decades since dry cleaning services started at the BMR-Dexter Property and releases of PCE occurred to the subsurface. During most of the period when the BMR-Dexter CVOC Plume was migrating down-gradient of BMR-Dexter Property source areas, groundwater flow occurred under static conditions from west to east, including in the Intermediate Water-Bearing Zone and Deep Outwash Aquifer. Temporary variations in groundwater flow in the Intermediate Water-Bearing Zone and/or Deep Outwash Aquifer may have occurred during some construction dewatering or other groundwater extraction events for limited periods of time.

OVERVIEW OF CONSTRUCTION DEWATERING AT BMR-DEXTER PROPERTY

It is Farallon's understanding based upon submissions to Ecology by BMR-Dexter LLC that construction dewatering at the BMR-Dexter Property commenced on August 9, 2019[6], and will continue for approximately 14 months during construction of two 14-story towers above three levels of subgrade parking[7]. The purpose of the construction dewatering system is to lower the groundwater table to an elevation below the base of the BMR-Dexter Property parking garage foundation (i.e., to below 1.6 feet NAVD88), which is up to 35 feet below the static groundwater level, prior to construction.

During the period of construction dewatering, groundwater beneath the BMR-Dexter Property and surrounding properties, including Block 79 to the east and Blocks 49 and 84 (City Mega Block) to

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[4] Briefly, comparison of groundwater elevations between appropriately screened wells that progress along the static-condition groundwater flow line from the BMR-Dexter Property to the east show positive head differences from the Shallow to Intermediate Water-Bearing Zones and from the Intermediate Water-Bearing Zone to the Deep Outwash Aquifer.

[5] Approximate extent is based on groundwater data reported in the *Revised Agency Review Draft Remedial Investigation/Feasibility Study Work Plan, American Linen Supply Co – Dexter Avenue Site, 700 Dexter Avenue North, Seattle, Washington* dated April 15, 2019, prepared by PES Environmental, Inc. for the Washington State Department of Ecology (Ecology) (Draft RI/FS Report).

[6] Letter regarding Progress Report No. 22 – August 2019, American Linen Supply Co – Dexter Ave Site, Agreed Order No. DE 14302 dated September 13, 2019, from Mr. Daniel A. Balbiani of PES Environmental, Inc. to Ms. Tamara Cardona of Ecology.

[7] Pumping started on the northwestern leg of the BMR-Dexter Property dewatering system on August 6, 2019 and on the southern and eastern legs on August 19, 2019. An estimated 14-month construction period would result in system shut-down on or approximately on October 2020.

the south, will be within the radius of influence of the construction dewatering system. As a result, the direction of groundwater flow will be altered to flow radially toward the BMR-Dexter Property (e.g., groundwater at Block 79 will reverse from the static condition west-to-east flow direction and will flow east-to-west toward the BMR-Dexter Property).

OVERVIEW OF CONSTRUCTION DEWATERING AT BLOCK 38 WEST

Construction dewatering at Block 38 West will commence on approximately on December 30, 2019 and will continue for approximately 9 months during construction of a multistory mixed-use building with five stories above street level and four levels of parking below street level[8]. The objective of the construction dewatering system is to lower the groundwater table to an elevation below the base of the Block 38 West parking garage foundation (i.e., to below -10 feet NAVD88[9]), which is just over 25 feet below the static groundwater level prior to construction. During the period of construction dewatering, groundwater beneath Block 38 West and surrounding properties, including Block 37 to the north and Block 43 to the northwest, will be within the radius of influence of the construction dewatering system. As a result, the direction of groundwater flow will be altered to flow radially toward Block 38 West.

Although the current concentrations of CVOCs in the Deep Outwash Aquifer at Block 38 West (less than 1 microgram per liter of cDCE at monitoring wells FMW-137 and FMW-138) are less than the proposed screening levels for the American Linen Supply Co. – Dexter Avenue Site, concentrations of CVOCs exceeding the screening levels are present at distal end of the BMR-Dexter CVOC Plume on the western portion of Block 37 to the north (Figure 2). It is expected that much of the BMR-Dexter CVOC Plume mass presently located within approximately 400 to 500 feet[10] of Block 38 West will be extracted during the period of construction dewatering system operation. The extracted BMR-Dexter CVOC Plume mass will be treated prior to discharge in accordance with the Interim Action Work Plan and applicable permit requirements, including Administrative Order Docket No. 16592.

EFFECTS OF CONCURRENT CONSTRUCTION DEWATERING

As stated above, construction dewatering at the BMR-Dexter Property will lower the groundwater table up to 35 feet, while construction dewatering at Block 38 West will lower the groundwater table approximately 26 to 28 feet below static groundwater levels. Because both systems will have similar cones of depression (e.g., depressions in the water table surface associated with groundwater withdrawal), it is anticipated that contamination at, and proximate to, each property will not be drawn toward the other property. As a result of concurrent construction dewatering at the BMR-Dexter Property and Block 38 West, a temporary groundwater divide will develop centered in the vicinity of the intersection of Valley Street and 9th Avenue North, oriented

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[8] The estimated 9-month dewatering schedule will result in system shut-down beginning in early September 2020.

[9] *Groundwater Control Plan, Block 38, Seattle, Washington* dated October 17, 2018, prepared for GLY Construction by Middour Consulting, LLC.

[10] The distance from Block 38 West that CVOC mass will be captured is dependent on the groundwater extraction rate during dewatering; the length of the dewatering at Block 38 West; the presence of a groundwater divide during concurrent construction dewatering at the both the BMR-Dexter Property and Block 38 West; and other hydrogeologic and fate and transport factors.

approximately north-northeast to south-southwest (Figure 2). Groundwater north and west of the divide will flow toward the BMR-Dexter Property construction dewatering system. Groundwater south and east of the divide will flow toward the Block 38 West construction dewatering system.

This condition is shown schematically on Figure 2 both in plan view and in profile. On the plan view, the approximate presently known extent of the BMR-Dexter CVOC Plume is shown in red shading[11] and the blue arrows depict the radial inward groundwater flow direction during construction dewatering at the BMR-Dexter Property and Block 38 West. The profile A-A'-A" depicts the static and depressed groundwater levels and the groundwater divide that will temporarily be present between the properties during concurrent construction dewatering events.

The Block 38 West construction dewatering system is expected to capture groundwater at the distal end of the BMR-Dexter CVOC Plume located south and east of the groundwater divide (Figure 2). As the Block 38 West construction dewatering system operates, radial flow toward Block 38 West will develop. This radial flow will include a slightly more south-southeastern groundwater flow in the area of Block 43 on the southeastern side of the groundwater divide compared to static conditions.

RATIONALE FOR GROUNDWATER MONITORING PROGRAM

The purpose of the Groundwater Monitoring Program is to monitor groundwater with measurable concentrations of CVOCs that are associated with the BMR-Dexter CVOC Plume that will be affected by construction dewatering. Figure 3 shows the locations of the wells that will be sampled in conjunction with the Groundwater Monitoring Program proximate to the BMR-Dexter CVOC Plume, and summarizes analytical results for prior monitoring events at each well for which data are available.

Table 1 presents detailed information for each of the wells selected for inclusion in the Groundwater Monitoring Program and the rationale for selection as a monitoring point. The south-southeastern flow direction during construction dewatering in the area of the distal portion of the BMR-Dexter CVOC Plume is referred to as a "temporary flow path" in Table 1. With the exception of monitoring well FMW-141, located west of the temporary groundwater divide, and monitoring well MW113, located in the approximate vicinity of the temporary groundwater divide, the current concentrations of CVOCs at selected Groundwater Monitoring Program wells are low compared to CVOC concentrations within the radius of influence of the BMR-Dexter Property dewatering system.

The frequency of sampling at each well has been selected based on the location of the well along the temporary flow paths and proximity to the BMR-Dexter CVOC Plume. All wells will be sampled prior to start-up and after shut-down of the Block 38 West construction dewatering system to obtain baseline and completion groundwater quality data.

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[11] Based on data reported in the Draft RI/FS Report.

Sampling frequencies for selected wells included in the Groundwater Monitoring Program are described below:

- Monthly Sampling Events (dewatering wells DW-16, DW-17, and DW-18; interim action well IA-1; and geotechnical well GEI-2): These wells are located adjacent to Block 38 West or immediately up-gradient of Block 38 West on Block 37. This frequency of monitoring will support near-term decision making for treatment options of the extracted groundwater.
- Monthly and/or Bimonthly Sampling Events (monitoring wells MW113, MW119, FMW-129, FMW-140, and FMW-141): These wells are located within the current footprint of the BMR-Dexter CVOC Plume in areas further from Block 38 West than the wells to be sampled monthly.
    - CVOC mass[12] migrating on temporary flow paths passing monitoring wells MW119, FMW-129, and FMW-140 during the first few months of Block 38 West construction dewatering system operation will reach Block 38 West. CVOC mass migrating on temporary flow paths passing these wells after approximately 4 to 5 months of operation will not reach the Block 38 West construction dewatering system before it is turned off; therefore, the frequency of monitoring will be decreased during the latter half of operation of the Block 38 West construction dewatering system.
    - CVOC mass at monitoring well MW113 may not be captured by the Block 38 West construction dewatering system because of its position relative to the temporary groundwater divide, where the gradient will be relatively flat and the groundwater flow velocity correspondingly low.
    - CVOC mass[13] at monitoring well FMW-141 will be within the radius of influence of the BMR-Dexter Property construction dewatering system and will not migrate toward Block 38 West during concurrent dewatering at both properties.
- Bimonthly Sampling Events (monitoring wells MW128 and FMW-131, and interim action well IA-4): These wells are located at the northeastern edge of the current BMR-Dexter CVOC Plume footprint. The temporary flow paths at these wells will be southerly during operation of the Block 38 West construction dewatering system. It is expected that CVOC concentrations to the north of these wells will be less than the proposed screening levels for the American Linen Supply Co. – Dexter Avenue Site and may be less than laboratory reporting limits. As Block 38 West construction dewatering progresses, CVOC concentrations are expected to decline at monitoring wells MW128 and FMW-131 and remain reported non-detect at interim action well IA-4. A bimonthly sampling frequency for these wells will be sufficient to confirm the expected trend of CVOC concentrations at this area of the BMR-Dexter CVOC Plume.

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[12] CVOCs, including cDCE and vinyl chloride. TCE may potentially reach the Block 38 West construction dewatering system. PCE is not anticipated to reach the Block 38 West construction dewatering system.

[13] Including PCE and PCE breakdown products.

- No Sampling During Construction Dewatering (monitoring wells FMW-137 and FMW-138): Groundwater monitoring at other wells near monitoring well FMW-137 make it unnecessary to collect groundwater samples at this location during dewatering. The temporary flow path at monitoring well FMW-138 will be from south to north and is not associated with the area of the BMR-Dexter CVOC Plume that currently exceeds screening levels (Figure 2). Monitoring wells FMW-137 and FMW-138 will be sampled prior to start-up and after shut-down of the Block 38 West construction dewatering system to obtain baseline and completion groundwater quality data.

The data collected during the Groundwater Monitoring Program will be used to make any necessary modifications to the dewatering treatment system to maintain compliance with established Indicator Levels as required under Administrative Order Docket No. 16592. Groundwater monitoring data will also document the anticipated reduction in CVOC mass within the eastern portion of the BMR-Dexter CVOC Plume.

Shallow groundwater will not be monitored during the Groundwater Monitoring Program because no residual source of CVOCs to shallow groundwater has been identified in the area northwest of Block 38 West and east-southeast of the BMR-Dexter Property within the footprint of the BMR-Dexter CVOC Plume. Documentation supporting this finding is in preparation and will be provided to Ecology under separate cover.

Attachments: Figure 1, *South Lake Union Vicinity*
Figure 2, *Schematic of Groundwater Flow Concurrent Construction Dewatering*
Figure 3, *Historical Groundwater CVOC Results Groundwater Performance Monitoring Well Network*
Table 1, *Groundwater Monitoring Rationale*

EB/CS:mm

State of Washington
Hydrogeologist
1462
Licensed Geologist
Clifford Thomas Schmitt

FIGURES

GROUNDWATER MONITORING PROGRAM
South Lake Union Block 38 West Property
Seattle, Washington

Farallon PN: 397-061

LEGEND

▭ KING COUNTY PARCEL BOUNDARY

52 BLOCK DESIGNATION

N

0 150

SCALE IN FEET

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

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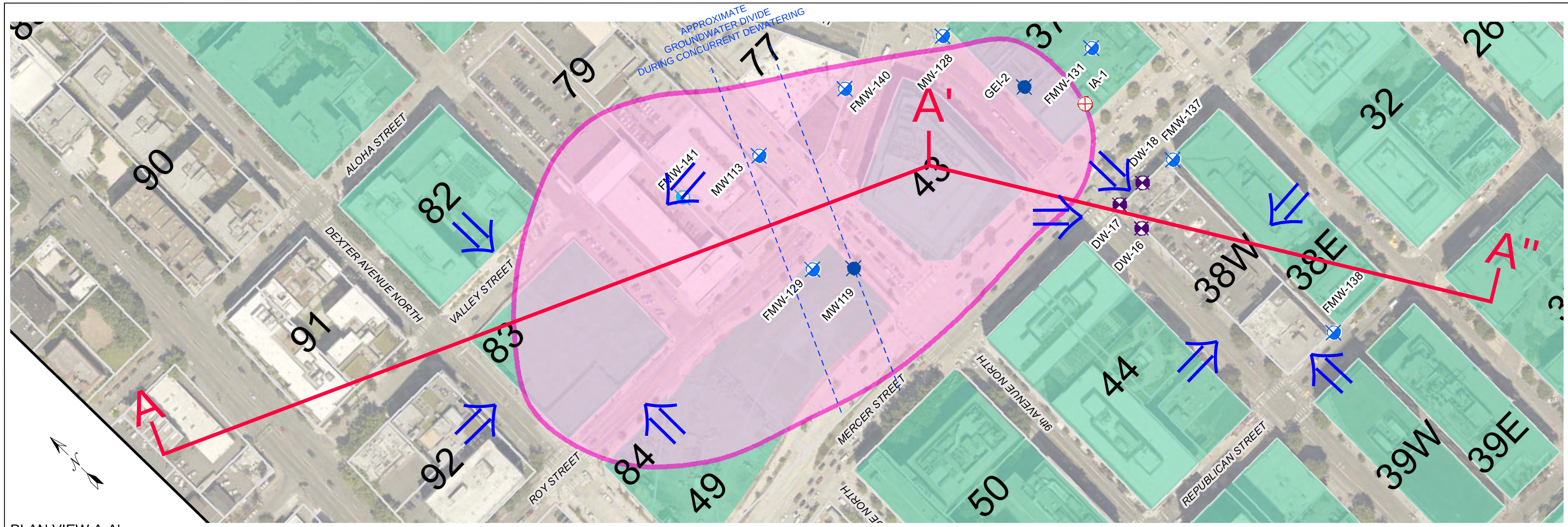
FIGURE 1

SOUTH LAKE UNION VICINITY
GROUNDWATER PERFORMANCE
MONITORING PROGRAM RATIONALE
BLOCK 38 WEST PROPERTY AREA
SEATTLE, WASHINGTON

FARALLON PN: 397-061

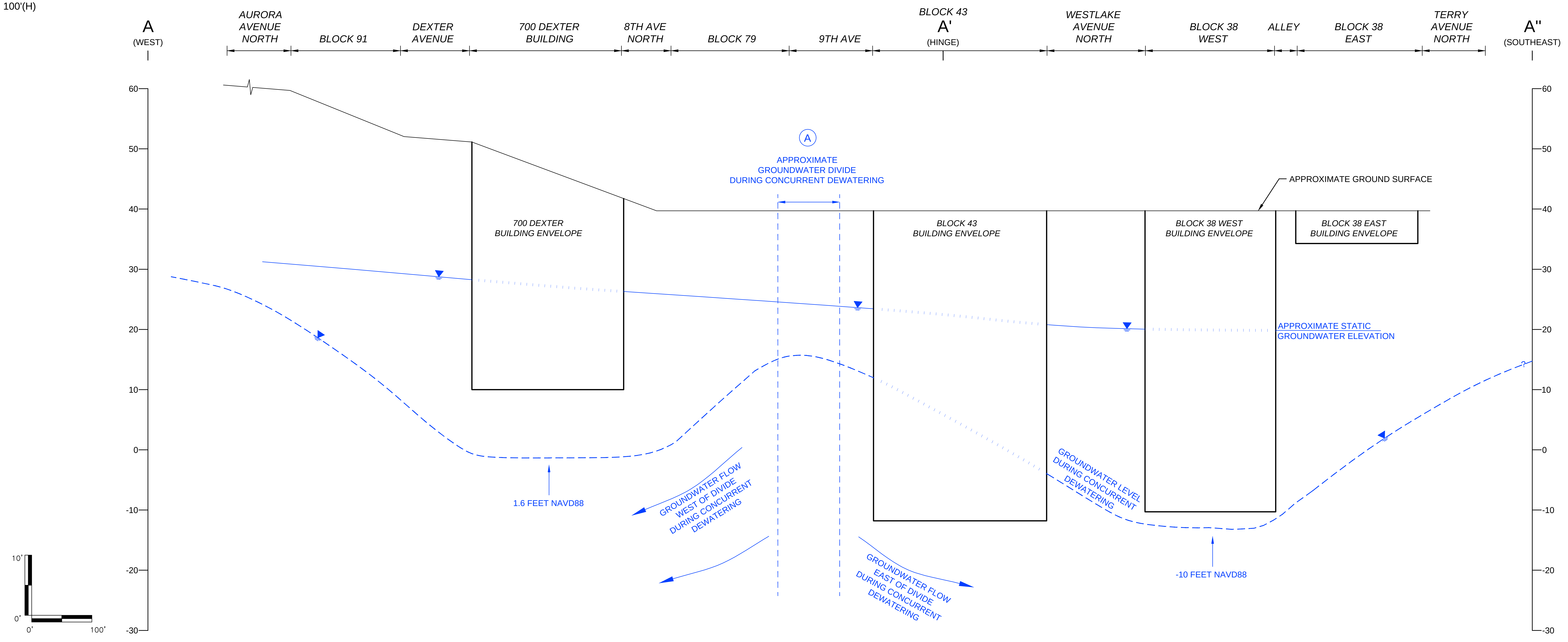
Drawn By: jjones Checked By: EB Date: 12/30/2019 Disc Reference:

Path: \\edgefs02\GIS\Projects\397 VULCAN\061 Block 38 CVOCs\Mapfiles\008_GW_Monitoring\Figure-01_SLU_VicinityMap.mxd



PLAN VIEW A-A'

1" = 100'(H)



PROFILE VIEW A-A'

1" = 100'(H), 1" = 10'(V)

NOTE:

Ⓐ LOCATION MAY VARY SLIGHTLY BASED ON PUMPING RATES AT BMR-DEXTER PROPERTY AND BLOCK 38 WEST PROPERTY.

LEGEND

🟪	CURRENT KNOWN EXTENT OF BMR-DEXTER CVOC PLUME
⊕	SHALLOW WATER-BEARING ZONE WELL
●	INTERMEDIATE WATER-BEARING ZONE WELL
⊕	INTERMEDIATE "A" WATER-BEARING ZONE WELL
⊕	INTERMEDIATE "B" WATER-BEARING ZONE WELL
⊕	DEEP OUTWASH AQUIFER WELL
⊗	INTERCEPTION WELL
⊗	DEWATERING WELL
🟩	REDEVELOPED PROPERTY WITH CONFIRMED DEWATERING
―	APPROXIMATE GROUNDWATER ELEVATION (STATIC CONDITIONS)
- - -	APPROXIMATE GROUNDWATER ELEVATION DURING CONCURRENT DEWATERING AT BMR-DEXTER AND BLOCK 38 WEST PROPERTIES
·····	APPROXIMATE POTENTIOMETRIC SURFACE FOR GROUNDWATER WITHIN BUILDING ENVELOPE
52	BLOCK DESIGNATION
A A' A''	LINE OF PROFILE
⇒	APPROXIMATE GROUNDWATER FLOW DIRECTION

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FIGURE 2

SCHEMATIC OF GROUNDWATER FLOW
CONCURRENT CONSTRUCTION DEWATERING
BLOCK 38 WEST AND BMR-DEXTER PROPERTIES
SEATTLE, WASHINGTON

FARALLON PN: 397-061

Drawn By: NM
Checked By: EB
Date: 12/30/2019
Disk Reference: 397-061 X-Section

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R:\Projects\397-061\CAD\Figures\008_GW_Monitoring_201912\Figure-02_Cross-Section.dwg, 12/30/2019 10:55:54 AM, DWG To PDF.pc3

MW113
12/21/2012 |1.3|**440|5,500|150**
12/19/2013 |<1|**13|140|0.41**
6/25/2015 |<1|**19|670|17**
10/27/2015 |<1|4.5|**670|17**
2/3/2016 |<1|1.1|**1,500|13**
3/22/2017 |<0.199|**27.1|7,280|63.5**
6/16/2017 |0.522|**148|4,750|53.3**
4/11/2018 **|191|1,100|3,720|34.9**
1/30/2019 |<0.995|2.81|**6,330|34.8**
2/7/2019 |<0.199|1.77|**6,990|46.0**
11/11/2019 |<50|<50|**8,200|950**

FMW-141
7/26/2019 |<30|**2,800|6,200|820**
11/11/2019 |<20|<20|**3,500|2,900**

FMW-142
7/26/2019 |< 0.20|0.38|0.36|< 0.20

FMW-143
7/30/2019 |< 0.20|< 0.20|< 0.20|< 0.20

FMW-140
7/17/2019 |<2.0|<2.0|**280|320**
11/12/2019 |<4.0|<4.0|**310|510**

MW-128
1/13/2014 |<1|<1|**960|290**
4/22/2015 |<1|<1|**150|59**
10/20/2015 |<1|<1|7.0|**95**
2/2/2016 |<1|<1|**70|140**
3/29/2017 |<0.199|<0.153|7.16|**72.4**
6/21/2017 |<0.199|<0.153|**109|195**
4/9/2018 |<0.199|<0.153|3.07|**31.0**
12/30/2018 |<1.0|<1.0|5.0|**110**
11/11/2019 |<0.40|<0.40|1.4|**60**

IA-4
12/29/2018 |-14.84 ft|<0.20|<0.20|<0.20|<0.20
12/29/2018 |-28.84 ft|<0.20|<0.20|<0.20|<0.20
12/29/2018 |-42.84 ft|<0.20|<0.20|<0.20|<0.20
12/29/2018 |-56.84 ft|<0.20|<0.20|<0.20|<0.20
11/11/2019 |-0.84 ft|<0.20|<0.20|<0.20|<0.20
11/11/2019 |-30.84 ft|<0.20|<0.20|<0.20|<0.20
11/11/2019 |-60.84 ft|<0.20|<0.20|<0.20|<0.20

FMW-129
5/23/2014 |0.40|0.57|**17|7.6**
10/20/2015 **|25|39|250|**<0.2
2/2/2016 **|13|61|240|0.330**
4/10/2017 **|194|492|1,420|0.885**
6/23/2017 **|81.1|182|474|0.413**
11/12/2019 **|79|130|340|**<2.0

MW119
3/25/2013 |<1|<1|3.3|<0.2
12/19/2013 |<1|<1|2.5|**0.76**
4/21/2015 **|34|42|50|3.1**
6/17/2015 |4.9|**7.1|52|2.7**
10/20/2015 **|15|22|74|0.45**
2/2/2016 **|7.3|24|100|0.45**
3/29/2017 **|5.47|10.7|42.9|0.272**
6/28/2017 **|19.0|12.4|**5.99|<0.118
4/5/2018 |2.14|3.02|**18.3|**<0.118
1/21/2019 |1.24|<0.153|<0.0933|<0.118
11/11/2019 |3.7|**9.5|**10|<0.20

GEI-2
3/24/2017 |<0.199|<0.153|2.25|**6.94**
6/23/2017 |<0.199|<0.153|**16.3|127**
12/29/2018 |<0.40|<0.40|6.7|**60**
11/11/2019 |<1.0|<1.0|**18|92**

FMW-131
9/2/2016 |< 0.20|< 0.20|**41|1.7**
3/24/2017 |< 0.199|< 0.153|**45.6|0.249**
6/23/2017 |< 0.199|< 0.153|3.61|**0.264**
12/18/2017 |< 0.20|< 0.20|0.61|< 0.20

IA-1
12/29/2018 |-15.41 ft|<0.20|<0.20|**43|36**
12/29/2018 |-29.41 ft|<0.20|<0.20|**46|40**
12/29/2018 |-43.41 ft|<0.20|<0.20|**48|41**
12/29/2018 |-57.41 ft|<0.20|<0.20|**48|37**
11/11/2019 |0.59 ft|<1.0|<1.0|**140|2.9**
11/11/2019 |-29.41 ft|<1.0|<1.0|**120|2.3**
11/12/2019 |-59.41 ft|<0.20|<0.20|6.9|**6.2**

FMW-137
5/6/2019 |<0.20|<0.20|1.3|<0.20
7/8/2019 |<0.20|<0.20|1.3|<0.20
10/14/2019 |<0.20|<0.20|1.1|<0.20
11/11/2019 |<0.20|<0.20|1.3|<0.20

FMW-138
5/6/2019 |<0.20|<0.20|0.38|<0.20
7/8/2019 |<0.20|<0.20|0.34|<0.20
10/14/2019 |<0.20|<0.20|0.33|<0.20
11/11/2019 |<0.20|<0.20|0.37|<0.20

LEGEND

- ⊕ SHALLOW WATER-BEARING ZONE WELL
- ⊕ INTERMEDIATE WATER-BEARING ZONE WELL
- ⊕ INTERMEDIATE "A" WATER-BEARING ZONE WELL
- ⊕ INTERMEDIATE "B" WATER-BEARING ZONE WELL
- ⊕ DEEP OUTWASH AQUIFER WELL
- ⊗ INTERCEPTION WELL
- ⊕ DEWATERING WELL
- ▭ KING COUNTY PARCEL BOUNDARY

CONCENTRATIONS REPORTED AS: SAMPLE DATE | PCE | TCE | cis-1,2-DCE | VC
EXCEPT FOR WELLS IA-1 AND IA-4
IA-1 AND IA-4 REPORTED AS:
SAMPLE DATE | SAMPLE ELEVATION IN FEET NAVD88 | PCE | TCE | cis-1,2-DCE | VC
ANALYTICAL RESULTS IN MICROGRAMS PER LITER

BOLD = CONCENTRATIONS THAT EXCEED THE MTCA CLEANUP LEVEL
< = ANALYTE NOT DETECTED AT OR EXCEEDING THE LABORATORY REPORTING LIMIT LISTED
CVOC = CHLORINATED VOLATILE ORGANIC COMPOUND
PCE = TETRACHLOROETHENE
TCE = TRICHLOROETHENE
cis-1,2-DCE = cis-1,2-DICHLOROETHENE
VC = VINYL CHLORIDE
NAVD88 = NORTH AMERICAN VERTICAL DATUM OF 1988
MTCA = WASHINGTON STATE MODEL TOXICS CONTROL ACT CLEANUP REGULATION

NOTES:
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FIGURE 3

HISTORICAL GROUNDWATER CVOC RESULTS
GROUNDWATER PERFORMANCE MONITORING WELL NETWORK
BLOCK 38 WEST PROPERTY AREA
SEATTLE, WASHINGTON

FARALLON PN: 397-061

Drawn By: jjones
Checked By: EB
Date: 12/30/2019
Disc Reference:
Path: Q:\Projects\397 VULCAN\061 Block 38 CVOCs\Mapfiles\008_GW_Monitoring\Figure-03_GW_CVOCs.mxd

TABLE

GROUNDWATER MONITORING PROGRAM
South Lake Union Block 38 West Property
Seattle, Washington

Farallon PN: 397-061

Table 1
Rationale Deep Outwash Aquifer Groundwater Performance Monitoring
South Lake Union Area Block 38 West Property
Seattle, Washington
Farallon PN: 397-061

Well No.	Well Screen Completion Depth (feet bgs)	Well Screen Completion Elevation (feet)	Well Classification	Selection Rationale
City Mega Block (Southwest of 9th Avenue North and Broad Street)				
MW119	35.0 to 45.0	2.74 to -7.26	Intermediate	Intermediate monitoring well located on a temporary southeasterly flow path within the predicted radius of influence of the Block 38 West construction dewatering system.
FMW-129	84.2 to 89.2	-45.56 to -50.56	Deep	Deep Outwash Aquifer monitoring well located on a temporary southeasterly flow path within the predicted radius of influence of construction dewatering system at Block 38 West. Monitoring well FMW-129 is anticipated to be beyond the radius of influence of the BMR-Dexter Property construction dewatering system during concurrent dewatering with Block 38 West.
Block 37 Property				
GEI-2	50.5 to 60.5	-21.12 to -31.12	Intermediate/Deep	Intermediate/Deep Outwash Aquifer monitoring well within the predicted radius of influence of the Block 38 West construction dewatering system. Groundwater will temporarily flow more directly south relative to static conditions.
MW128	60 to 70	-30.80 to -40.80	Deep	Deep Outwash Aquifer monitoring well within the predicted radius of influence of the Block 38 West construction dewatering system. Groundwater will temporarily flow more directly south relative to static conditions.
FMW-131	62.5 to 72.5	-34.65 to -44.65	Deep	Deep Outwash Aquifer monitoring well within the predicted radius of influence of the Block 38 West construction dewatering system. Groundwater flow direction during construction dewatering at Block 38 West will be similar to static conditions.
IA-1 [2]	32 to 92	0.59 to -59.41	Deep	Interim action well within the predicted radius of influence of the Block 38 West construction dewatering system. The screened interval of this well allows for reconnaissance sampling of Intermediate Water-Bearing Zone and Deep Outwash Aquifer groundwater proximate to Block 38 West. Groundwater flow direction during construction dewatering at Block 38 West will be similar to static conditions.
IA-4 [2]	32 to 92	-0.84 to -60.84	Deep	Interim action well within the predicted radius of influence of the Block 38 West construction dewatering system. The screened interval of this well allows for reconnaissance sampling of Intermediate Water-Bearing Zone and Deep Outwash Aquifer groundwater slightly beyond the northeastern boundary of the current footprint of the BMR-Dexter CVOC Plume.
Block 38 Property				
FMW-137	72.0 to 85.0	-44.9 to -57.9	Deep	Deep Outwash Aquifer monitoring well northeast-adjacent to the Block 38 West construction dewatering system.
FMW-138	90.0 to 100.0	-45.96 to -55.96	Deep	Deep Outwash Aquifer monitoring well southeast-adjacent to the Block 38 West construction dewatering system.
DW-16 [3]	24 to 64	10 to -30	Dewatering	Dewatering well at the northern end of the western edge of Block 38 West. Samples collected from this and adjacent dewatering wells are expected to quantify some of the highest relative impacts from the BMR-Dexter CVOC Plume, if observed.
DW-17 [3]	22 to 62	10 to -30	Dewatering	Dewatering well at the northwestern corner of Block 38 West. Samples collected from this and adjacent dewatering wells are expected to quantify the highest relative impacts from the BMR-Dexter CVOC Plume, if observed.
DW-18 [3]	21 to 61	10 to -30	Dewatering	Dewatering well on the northern portion of Block 38 West. Samples collected from this and adjacent dewatering wells are expected to quantify some of the highest relative impacts from the BMR-Dexter CVOC Plume, if observed.

Table 1
Rationale Deep Outwash Aquifer Groundwater Performance Monitoring
South Lake Union Area Block 38 West Property
Seattle, Washington
Farallon PN: 397-061

Well No.	Well Screen Completion Depth (feet bgs)	Well Screen Completion Elevation (feet)	Well Classification	Selection Rationale
Block 77 Property				
FMW-140	70.0 to 80.0	-38.0 to -48.0	Deep	Deep Outwash Aquifer monitoring well near the edge of the predicted radius of influence of the Block 38 West construction dewatering system during concurrent dewatering at the 700 Dexter Property. Block 38 West construction dewatering influence on groundwater flow direction is expected to be limited.
Block 79 Property				
FMW-141	47.6 to 57.5	-12.45 to -22.35	Intermediate	Intermediate Zone monitoring well within the radius of influence of the BMR-Dexter Property construction dewatering system and beyond the radius of influence of the Block 38 West construction dewatering system.
MW113	70.0 to 80.0	-36.80 to -46.80	Deep	Deep Outwash Aquifer monitoring well at the outer limit of the estimated radius of influence of the Block 38 West construction dewatering system during concurrent dewatering at the 700 Dexter Property. Block 38 West construction dewatering influence on groundwater flow direction is expected to be limited.

NOTES:

[1] Construction dewatering at Block 38 West is scheduled to begin in late December 2019.

[2] Low-flow samples to be collected at top, middle, and bottom of interim action well screen (60-foot total installed length).

[3] Groundwater collected from sampling port installed at well header during construction dewatering.

Intermediate = Intermediate Water-Bearing Zone

Deep = Deep Outwash Aquifer

Table D-2
Groundwater Elevations
Deep Outwash Aquifer Groundwater
Performance Monitoring Program
Seattle, Washington
Farallon PN: 397-061

Location	Screened Interval (feet bgs)[1]	Screened Interval (feet NAVD88)[2]	Top of Casing Elevation (feet NAVD88)[2]	Monitoring Date	Depth to Water (feet)[3]	Water Level Elevation (feet NAVD88)[2]
City Mega Block (southwest of 9th Avenue North and Broad Street)						
FMW-129	84.2 to 89.2	-45.56 to -50.56	38.31	11/11/2019	21.81	16.50
				12/18/2019	21.90	16.41
				3/24/2020	27.41	10.90
				4/27/2020	29.19	9.12
				5/19/2020	29.42	8.89
				7/28/2020	29.05	9.26
				9/17/2020	30.06	8.25
				12/3/2020	29.45	8.86
MW-119	35.0 to 45.0	2.74 to -7.26	37.42	11/11/2019	20.74	16.68
				1/14/2020	22.51	14.91
				2/18/2020	25.60	11.82
				3/24/2020	28.36	9.06
				4/27/2020	29.24	8.18
				5/19/2020	29.53	7.89
				7/28/2020	30.07	7.35
				9/17/2020	32.21	5.21
				12/3/2020	29.40	8.02
				2/10/2021	24.85	12.57
Block 37 Property						
				11/11/2019	13.82	15.56
				12/18/2019	14.00	15.38
				1/14/2020	16.50	12.88

Table D-2
Groundwater Elevations
Deep Outwash Aquifer Groundwater
Performance Monitoring Program
Seattle, Washington
Farallon PN: 397-061

Location	Screened Interval (feet bgs)[1]	Screened Interval (feet NAVD88)[2]	Top of Casing Elevation (feet NAVD88)[2]	Monitoring Date	Depth to Water (feet)[3]	Water Level Elevation (feet NAVD88)[2]
GEI-2	50.5 to 60.5	-21.12 to -31.12	29.38	2/17/2020	20.78	8.60
				3/24/2020	22.52	6.86
				4/27/2020	23.01	6.37
				6/29/2020	22.98	6.40
				7/29/2020	23.53	5.85
				8/26/2020	23.51	5.87
				9/17/2020	23.32	6.06
				12/3/2020	22.85	6.53
				2/10/2021	18.20	11.18
IA-1	32.0 to 92.0	0.59 to -59.41	32.59	11/11/2019	16.85	15.74
				1/14/2020	19.91	12.68
				2/17/2020	25.38	7.21
				3/24/2020	27.15	5.44
				4/27/2020	27.24	5.35
				6/29/2020	27.45	5.14
				7/28/2020	28.06	4.53
				8/26/2020	28.05	4.54
				9/17/2020	27.71	4.88
				12/3/2020	26.92	5.67
				2/10/2021	21.26	11.33
				11/11/2019	14.35	16.81
				2/17/2020	19.61	11.55
				4/27/2020	21.81	9.35

Table D-2
Groundwater Elevations
Deep Outwash Aquifer Groundwater
Performance Monitoring Program
Seattle, Washington
Farallon PN: 397-061

Location	Screened Interval (feet bgs)[1]	Screened Interval (feet NAVD88)[2]	Top of Casing Elevation (feet NAVD88)[2]	Monitoring Date	Depth to Water (feet)[3]	Water Level Elevation (feet NAVD88)[2]
IA-4	32.0 to 92.0	-0.84 to -60.84	31.16	6/29/2020	21.25	9.91
				8/26/2020	22.05	9.11
				12/3/2020	21.74	9.42
				2/10/2021	18.11	13.05
MW-128	60 to 70	-30.80 to -40.80	28.59	11/11/2019	12.49	16.10
				2/17/2020	18.11	10.48
				4/27/2020	20.15	8.44
				6/29/2020	20.13	8.46
				8/26/2020	20.55	8.04
				12/3/2020	20.21	8.38
				2/10/2021	16.38	12.21
Block 38 Property						
FMW-131	62.5 to 72.5	-34.65 to -44.65	27.85	11/11/2019	12.13	15.72
				12/18/2019	12.31	17.78
				2/17/2020	20.13	7.72
				4/27/2020	22.45	5.40
				6/29/2020	22.34	5.51
				8/26/2020	23.55	4.30
				12/3/2020	22.11	5.74
				2/10/2021	17.24	10.61
				11/20/2018	13.02	17.07
				12/28/2018	12.74	17.35
				3/14/2019	12.56	17.53

Table D-2
Groundwater Elevations
Deep Outwash Aquifer Groundwater
Performance Monitoring Program
Seattle, Washington
Farallon PN: 397-061

Location	Screened Interval (feet bgs)[1]	Screened Interval (feet NAVD88)[2]	Top of Casing Elevation (feet NAVD88)[2]	Monitoring Date	Depth to Water (feet)[3]	Water Level Elevation (feet NAVD88)[2]
FMW-137	72.0 to 85.0	-44.9 to -57.9	30.09	5/6/2019	12.08	18.01
				7/8/2019	12.25	17.84
				10/14/2019	12.95	17.14
				11/11/2019	14.04	16.05
				12/18/2019	14.16	15.93
FMW-138	90.0 to 100.0	-45.96 to -55.96	40.44	11/20/2018	24.50	15.94
				12/28/2018	24.38	16.06
				3/14/2019	24.14	16.30
				5/6/2019	23.80	16.64
				7/8/2019	23.84	16.60
				10/14/2019	24.04	16.40
				11/11/2019	24.55	15.89
				12/18/2019	24.51	5.58
Block 77 Property						
FMW-140	70.0 to 80.0	-38.29 to -48.29	31.71	11/11/2019	15.36	16.35
				12/18/2019	15.54	16.17
				1/14/2020	17.22	14.49
				2/17/2020	20.28	11.43
				3/24/2020	22.04	9.67
				4/27/2020	22.43	9.28
				7/28/2020	23.07	8.64
				9/17/2020	23.23	8.48
				12/3/2020	22.70	9.01

Table D-2
Groundwater Elevations
Deep Outwash Aquifer Groundwater
Performance Monitoring Program
Seattle, Washington
Farallon PN: 397-061

Location	Screened Interval (feet bgs)[1]	Screened Interval (feet NAVD88)[2]	Top of Casing Elevation (feet NAVD88)[2]	Monitoring Date	Depth to Water (feet)[3]	Water Level Elevation (feet NAVD88)[2]
				2/10/2021	19.05	12.66
Block 79 Property						
FMW-141	47.5 to 57.5	-12.35 to -22.35	35.15	11/11/2019	18.63	16.52
				12/18/2019	18.84	16.31
				1/14/2020	20.03	15.12
				2/17/2020	22.42	12.73
				3/24/2020	24.47	10.68
				4/27/2020	25.19	9.96
				7/28/2020	25.51	9.64
				9/17/2020	25.66	9.49
				12/3/2020	24.79	10.36
				2/10/2021	21.30	13.85
MW-113	70.0 to 80.0	-36.80 to -46.80	32.90	11/11/2019	16.41	16.49
				1/14/2020	18.04	14.86
				2/17/2020	20.79	12.11
				3/24/2020	22.72	10.18
				4/27/2020	23.19	9.71
				5/19/2020	23.38	9.52
				7/28/2020	23.72	9.18
				9/17/2020	23.89	9.01
				12/3/2020	23.34	9.56
				2/10/2021	19.80	13.10

Notes:

[1] Depth in feet below ground surface.

bgs = below ground surface

Table D-2
Groundwater Elevations
Deep Outwash Aquifer Groundwater
Performance Monitoring Program
Seattle, Washington
Farallon PN: 397-061

Location	Screened Interval (feet bgs)[1]	Screened Interval (feet NAVD88)[2]	Top of Casing Elevation (feet NAVD88)[2]	Monitoring Date	Depth to Water (feet)[3]	Water Level Elevation (feet NAVD88)[2]

[2] In feet North American Vertical Datum of 1988.

[3] In feet below top of well casing.

NS = not surveyed

Table D-3
Groundwater Analytical Results for CVOCs
Deep Outwash Aquifer Groundwater
Performance Monitoring Program
Seattle, Washington
Farallon PN: 397-061

Sample Location	Screened Interval (feet bgs)[1]	Screened Interval (feet msl)[2]	Sample Date	Sampled By	Sample Identification	Sample Depth (feet bgs)[1]	Sample Elevation (feet NAVD88)[2]	Analytical Results (micrograms per liter)[3]					cDCE/Vinyl Chloride Ratio
								PCE	TCE	cDCE	tDCE	Vinyl Chloride	
Monitoring Well Groundwater Samples													
City Mega Block (southwest of 9th Avenue North and Broad Street)													
FMW-129	84.2 to 89.2	-45.56 to -50.56	5/23/2014	Farallon	F-MW-129-052314	---	48.06[4]	0.40	0.57	**17**	< 0.20	**7.6**	2.2
			10/20/2015	SES	---	---	48.06[4]	**25**	**39**	**250**	< 1	< 0.2	---
			2/2/2016	SES	---	---	48.06[4]	**13**	**61**	**240**	< 1	**0.33**	727
			4/10/2017	PES	---	---	48.06[4]	**194**	**492**	**1,420**	5.05	**0.885** J	1,605
			6/23/2017	PES	---	---	48.06[4]	**81.1**	**182**	**474**	1.21	**0.413**	1,148
			5/1/2019	PES	---	---	48.06[4]	**101**	**166**	**372**	1.22	< 0.59	---
			7/16/2019	PES	---	---	48.06[4]	**159**	**84.1**	**272**	1.61	**0.296** J	919
			10/21/2019	PES	---	---	48.06[4]	**114**	**198**	**350**	1.61	**0.259** J	1,351
			11/12/2019	Farallon	FMW-129-111219	86.7	-48.06	**79**	**130**	**340**	< 2.0	< 2.0	---
			1/14/2020[5]	Farallon	FMW-129-011420	86.7	-48.06	**130**	**170**	**290**	< 2.0	< 2.0	---
				PES	---	---	48.06[4]	**113**	**170**	**385**	1.60	< 1.18	---
			2/18/2020	Farallon	FMW-129-021820	86.7	-48.06	**110**	**170**	**310**	< 2.0	< 2.0	---
			3/25/2020	Farallon	FMW-129-032520	86.7	-48.06	**88**	**140**	**290**	< 2.0	**2.6**	111.5
			4/27/2020	Farallon	FMW-129-042720	86.7	-48.06	**74**	**88**	**190**	< 1.0	< 1.0	---
			5/19/2020	Farallon	FMW-129-051920	86.7	-48.06	**18**	**42**	**120**	< 1.0	**6.5**	18.5
			7/28/2020	Farallon	MW-129-072820	86.7	-48.06	**5.4**	**11**	**100**	< 0.80	< 0.80	---
			9/17/2020	Farallon	FMW-129-091720	86.7	-48.06	**6.1**	**13**	**70**	< 0.40	**0.85**	82.4
			12/3/2020	Farallon	FMW-129-120320	86.7	-48.06	**9.0**	**14**	**57**	< 0.40	< 0.40	---
			2/10/2021	Farallon	MW-129-021021	86.7	-48.06	1.9	4.6	**31**	< 0.20	< 0.20	---
MTCA Cleanup Levels for Groundwater[6]								**5**	**5**	**16**[7]	**160**[7]	**0.2**	---
City Mega Block (southwest of 9th Avenue North and Broad Street) (continued)													
MW-119	35.0 to 45.0	2.74 to -7.26	3/25/2013	SES	---	---	-2.26[4]	< 1	< 1	3.3	< 1	< 0.2	---
			12/19/2013	SES	---	---	-2.26[4]	< 1	< 1	2.5	< 1	**0.76**	3.3
			4/21/2015	SES	---	---	-2.26[4]	**34**	**42**	**50**	< 1	**3.1**	16
			6/17/2015	SES	---	---	-2.26[4]	4.9	**7.1**	**52**	< 1	**2.7**	19
			10/20/2015	SES	---	---	-2.26[4]	**15**	**22**	**74**	< 1	**0.45**	164
			2/2/2016	SES	---	---	-2.26[4]	**7.3**	**24**	**100**	< 1	**0.45**	222
			3/29/2017	PES	---	---	-2.26[4]	**5.47**	**10.7**	**42.9**	0.334 J	**0.272** J	158
			6/28/2017	PES	---	---	-2.26[4]	**19.0**	**12.4**	5.99	0.167 J	< 0.118	---
			4/5/2018	PES	---	---	-2.26[4]	2.14	3.02	**18.3**	0.203 J	< 0.118	---
			1/21/2019	PES	---	---	-2.26[4]	1.24	< 0.153	< 0.0933	< 0.152	< 0.118	---
			11/11/2019	Farallon	MW-119-111119	40.0	-2.26	3.7	**9.5**	10	< 0.20	< 0.20	---
			1/14/2020	Farallon	MW119-011420	40.0	-2.26	4.8	**5.1**	7.4	< 0.20	< 0.20	---
			2/18/2020	Farallon	MW-119-021820	40.0	-2.26	1.3	2.5	6.6	< 0.20	< 0.20	---
			3/24/2020	Farallon	MW119-032420	40.0	-2.26	0.24	0.87	4.7	< 0.20	< 0.20	---
			4/27/2020	Farallon	MW-119-042720	40.0	-2.26	0.32	1.3	5.1	< 0.20	< 0.20	---

Table D-3
Groundwater Analytical Results for CVOCs
Deep Outwash Aquifer Groundwater
Performance Monitoring Program
Seattle, Washington
Farallon PN: 397-061

Sample Location	Screened Interval (feet bgs)[1]	Screened Interval (feet msl)[2]	Sample Date	Sampled By	Sample Identification	Sample Depth (feet bgs)[1]	Sample Elevation (feet NAVD88)[2]	Analytical Results (micrograms per liter)[3]					cDCE/Vinyl Chloride Ratio
								PCE	TCE	cDCE	tDCE	Vinyl Chloride	
			5/19/2020	Farallon	MW-119-051920	40.0	-2.26	0.91	2.8	6.1	< 0.20	< 0.20	---
			7/28/2020	Farallon	MW-119-072820	40.0	-2.26	0.92	2.6	7.5	< 0.20	< 0.20	---
			9/17/2020	Farallon	MW-119-091720	40.0	-2.26	0.27	1.8	7.8	< 0.20	< 0.20	---
			12/3/2020	Farallon	MW-119-120320	40.0	-2.26	0.28	1.2	6.6	< 0.20	< 0.20	---
			2/10/2021	Farallon	MW-119-021021	40.0	-2.26	< 0.20	0.46	5.0	< 0.20	< 0.20	---
MTCA Cleanup Levels for Groundwater[6]								**5**	**5**	**16[7]**	**160[7]**	**0.2**	**---**
Block 37 Property													
GEI-2	50.5 to 60.5	-21.12 to -31.12	3/24/2017	PES	---	---	-26.12[4]	< 0.199	< 0.153	2.25	< 0.152	**6.94**	0.3
			6/23/2017	PES	---	---	-26.12[4]	< 0.199	< 0.153	**16.3**	< 0.152	**127**	0.1
			12/29/2018	Farallon	GEI-2-122918	56.0	-26.62	< 0.40	< 0.40	6.7	< 0.40	**60**	0.1
			4/22/2019	PES	---	---	-26.12[4]	< 0.199	< 0.153	11.5	< 0.152	**57.7** J	0.2
			7/16/2019	PES	---	---	-26.12[4]	< 0.199	< 0.153	1.37	< 0.152	**46.4**	0.03
			10/21/2019	PES	---	---	-26.12[4]	< 0.199	< 0.153	**20.1**	< 0.152	**88.2**	0.2
			11/11/2019	Farallon	GEI-2-111119	56.0	-26.62	< 1.0	< 1.0	**18**	< 1.0	**92**	0.2
			1/14/2020	Farallon	GEI-2-011420	56.0	-26.62	< 0.20	< 0.20	2.0	< 0.20	**36**	0.1
			1/22/2020	PES	---	---	-26.12[4]	< 0.199	0.192 J	0.308 J	< 0.152	< 0.118	---
			2/17/2020	Farallon	GE1-2-021720	56.0	-26.62	< 0.20	< 0.20	5.6	< 0.20	**34**	0.2
			3/25/2020	Farallon	GEI-2-032520	56.0	-26.62	< 0.40	< 0.40	4.3	< 0.40	**52**	0.1
			4/27/2020	Farallon	GEI-2-042720	56.0	-26.62	< 0.40	< 0.40	3.2	< 0.40	**50**	0.1
			5/19/2020	Farallon	GEI-2-051920	56.0	-26.62	< 0.40	< 0.40	2.7	< 0.40	**55**	0.05
			6/29/2020	Farallon	GEI-2-062920	56.0	-26.62	< 0.20	< 0.20	1.6	< 0.20	**33**	0.05
			7/29/2020	Farallon	GEI-2-072920	56.0	-26.62	< 0.20	< 0.20	1.3	< 0.20	**46**	0.03
			8/26/2020	Farallon	GEI-2-082620	56.0	-26.62	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
			9/17/2020	Farallon	GEI-2-091720	56.0	-26.62	< 0.40	< 0.40	1.0	< 0.40	**48**	0.02
			12/4/2020	Farallon	GEI-2-120420	56.0	-26.62	< 0.20	< 0.20	0.52	< 0.20	**21**	0.02
			2/11/2021	Farallon	GEI-2-021121	56.0	-26.62	< 0.20	< 0.20	0.43	< 0.20	**16**	0.03
MTCA Cleanup Levels for Groundwater[6]								**5**	**5**	**16[7]**	**160[7]**	**0.2**	**---**
Block 37 Property (continued)													
			12/29/2018	Farallon	IA1-48-122918	48.0	-15.41	< 0.20	< 0.20	**43**	< 0.20	**36**	1.2
			12/29/2018	Farallon	IA1-62-122918	62.0	-29.41	< 0.20	< 0.20	**46**	< 0.20	**40**	1.2
			12/29/2018	Farallon	IA1-76-122918	76.0	-43.41	< 0.20	< 0.20	**48**	< 0.20	**41**	1.2
			12/29/2018	Farallon	IA1-90-122918	90.0	-57.41	< 0.20	< 0.20	**48**	< 0.20	**37**	1.3
			11/11/2019	Farallon	IA-1-111119-32.0	32.0	0.59	< 1.0	< 1.0	**140**	< 1.0	**2.9**	48.3
			11/11/2019	Farallon	IA-1-111119-62.0	62.0	-29.41	< 1.0	< 1.0	**120**	< 1.0	**2.3**	52.2
			11/12/2019	Farallon	IA-1-111219-92.0	92.0	-59.41	< 0.20	< 0.20	6.9	< 0.20	**6.2**	1.1
			1/14/2020	Farallon	IA-1-011420-32.0	32.0	0.59	< 0.40	< 0.40	**72**	< 0.40	**30**	2.4
			1/14/2020	Farallon	IA-1-011420-62.0	62.0	-29.41	< 1.0	< 1.0	**89**	< 1.0	**130**	0.7
			1/14/2020	Farallon	IA-1-011420-92.0	92.0	-59.41	< 1.0	< 1.0	**89**	< 1.0	**130**	0.7
			2/17/2020	Farallon	IA-1-021720-32.0	32.0	0.59	< 0.40	< 0.40	**45**	< 0.40	**3.1**	14.5

Table D-3
Groundwater Analytical Results for CVOCs
Deep Outwash Aquifer Groundwater
Performance Monitoring Program
Seattle, Washington
Farallon PN: 397-061

Sample Location	Screened Interval (feet bgs)[1]	Screened Interval (feet msl)[2]	Sample Date	Sampled By	Sample Identification	Sample Depth (feet bgs)[1]	Sample Elevation (feet NAVD88)[2]	Analytical Results (micrograms per liter)[3]					cDCE/Vinyl Chloride Ratio
								PCE	TCE	cDCE	tDCE	Vinyl Chloride	
IA-1	32.0 to 92.0	0.59 to -59.41	2/17/2020	Farallon	IA-1-021720-62.0	62.0	-29.41	< 0.40	< 0.40	**49**	< 0.40	**3.5**	14.0
			2/17/2020	Farallon	IA-1-021720-92.0	92.0	-59.41	< 1.0	< 1.0	**100**	< 1.0	**100**	1.0
			3/25/2020	Farallon	IA-1-32.0-032520	32.0	0.59	< 0.20	< 0.20	**38**	< 0.20	**5.6**	6.8
			3/25/2020	Farallon	IA-1-62.0-032520	62.0	-29.41	< 0.40	< 0.40	**88**	< 0.40	**78**	1.1
			3/25/2020	Farallon	IA-1-92.0-032520	92.0	-59.41	< 0.40	< 0.40	**92**	< 0.40	**84**	1.1
			4/27/2020	Farallon	IA-1-32.0-042720	32.0	0.59	< 0.20	< 0.20	**32**	< 0.20	**1.3**	24.6
			4/27/2020	Farallon	IA-1-62-042720	62.0	-29.41	< 0.40	< 0.40	**73**	< 0.40	**36**	2.0
			4/27/2020	Farallon	IA-1-92-042720	92.0	-59.41	< 0.40	< 0.40	**62**	< 0.40	**39**	1.6
			5/19/2020	Farallon	IA-1-32.0-051920	32.0	0.59	< 0.20	< 0.20	**32**	< 0.20	**1.1**	29.1
			5/19/2020	Farallon	IA-1-62.0-051920	62.0	-29.41	< 0.40	< 0.40	**66**	< 0.40	**37**	1.8
			5/19/2020	Farallon	IA-1-92.0-051920	92.0	-59.41	< 0.40	< 0.40	**54**	< 0.40	**29**	1.9
			6/29/2020	Farallon	IA-1-32.0-062920	32.0	0.59	< 0.20	< 0.20	**22**	< 0.20	**0.87**	25.3
			6/29/2020	Farallon	IA-1-62.0-062920	62.0	-29.41	< 0.20	< 0.20	**39**	< 0.20	**14**	2.8
			7/1/2020	Farallon	IA1-92.0-07012020	92.0	-59.41	< 0.20	< 0.20	**36**	< 0.20	**13**	2.8
			7/29/2020	Farallon	IA-1-072920-32	32.0	0.59	< 0.20	< 0.20	**25**	< 0.20	**1.2**	20.8
			7/29/2020	Farallon	IA-1-072920-62	62.0	-29.41	< 0.20	< 0.20	**27**	< 0.20	**12**	2.3
			7/29/2020	Farallon	IA-1-072920-92	92.0	-59.41	< 0.20	< 0.20	**32**	< 0.20	**14**	2.3
			8/26/2020	Farallon	IA1-32.0-082620	32.0	0.59	< 0.20	< 0.20	**32**	< 0.20	**1.2**	26.7
			8/26/2020	Farallon	IA1-62.0-082620	62.0	-29.41	< 0.20	< 0.20	**37**	< 0.20	**14**	2.6
			8/26/2020	Farallon	IA1-92.0-082620	92.0	-59.41	< 0.20	< 0.20	**31**	< 0.20	**13**	2.4
			9/17/2020	Farallon	IA-1-32.0-091720	32.0	0.59	< 0.20	< 0.20	**35**	< 0.20	**1.1**	31.8
			9/17/2020	Farallon	IA-1-62.0-091720	62.0	-29.41	< 0.20	< 0.20	**26**	< 0.20	**11**	2.4
			9/17/2020	Farallon	IA-1-92.0-091720	92.0	-59.41	< 0.20	< 0.20	**24**	< 0.20	**11**	2.2
			12/4/2020	Farallon	IA1-32.0-120420	32.0	0.59	< 0.20	< 0.20	9.8	< 0.20	**0.58**	16.9
			12/4/2020	Farallon	IA1-62.0-120420	62.0	-29.41	< 0.20	< 0.20	13	< 0.20	**8.1**	1.6
			12/4/2020	Farallon	IA1-92.0-120420	92.0	-59.41	< 0.20	< 0.20	15	< 0.20	**9.6**	1.6
			2/11/2021	Farallon	IA1-32.0-021120	32.0	0.59	< 0.20	< 0.20	11	< 0.20	**0.75**	14.7
			2/11/2021	Farallon	IA1-62.0-021120	62.0	-29.41	< 0.20	< 0.20	11	< 0.20	**0.81**	13.6
			2/11/2021	Farallon	IA1-92.0-021120	92.0	-59.41	< 0.20	< 0.20	16	< 0.20	**12**	1.3
MTCA Cleanup Levels for Groundwater[6]								**5**	**5**	**16[7]**	**160[7]**	**0.2**	---
Block 37 Property (continued)													
			12/29/2018	Farallon	IA4-46-122918	46.0	-14.84	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
			12/29/2018	Farallon	IA4-60-122918	60.0	-28.84	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
			12/29/2018	Farallon	IA4-74-122918	74.0	-42.84	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
			12/29/2018	Farallon	IA4-88-122918	88.0	-56.84	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
			11/11/2019	Farallon	IA-4-111119-32.0	32.0	-0.84	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
			11/11/2019	Farallon	IA-4-111119-62.0	62.0	-30.84	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
			11/11/2019	Farallon	AI-4-111119-92.0	92.0	-60.84	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
			2/17/2020	Farallon	IA-4-021720-32.0	32.0	-0.84	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
			2/17/2020	Farallon	IA-4-021720-62.0	62.0	-30.84	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---

Table D-3
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Sample Location	Screened Interval (feet bgs)[1]	Screened Interval (feet msl)[2]	Sample Date	Sampled By	Sample Identification	Sample Depth (feet bgs)[1]	Sample Elevation (feet NAVD88)[2]	Analytical Results (micrograms per liter)[3]					cDCE/Vinyl Chloride Ratio
								PCE	TCE	cDCE	tDCE	Vinyl Chloride	
IA-4	32.0 to 92.0	-0.84 to -60.84	2/17/2020	Farallon	IA-4-021720-92.0	92.0	-60.84	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
			4/27/2020	Farallon	IA-4-32-042720	32.0	-0.84	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
			4/27/2020	Farallon	IA-4-62-042720	62.0	-30.84	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
			4/27/2020	Farallon	IA-4-92-042720	92.0	-60.84	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
			6/29/2020	Farallon	IA-4-32.0-062920	32.0	-0.84	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
			6/29/2020	Farallon	IA-4-62.0-062920	62.0	-30.84	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
			6/29/2020	Farallon	IA-4-92.0-062920	92.0	-60.84	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
			8/26/2020	Farallon	IA4-32.0-082620	32.0	-0.84	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
			8/26/2020	Farallon	IA4-62.0-082620	62.0	-30.84	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
			8/26/2020	Farallon	IA4-92.0-082620	92.0	-60.84	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
			12/4/2020	Farallon	IA4-32.0-120420	32.0	-0.84	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
			12/4/2020	Farallon	IA4-62.0-120420	62.0	-30.84	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
			12/4/2020	Farallon	IA4-92.0-120420	92.0	-60.84	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
			2/11/2021	Farallon	IA4-32.0-021121	32.0	-0.84	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
			2/11/2021	Farallon	IA4-62.0-021121	62.0	-30.84	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
			2/11/2021	Farallon	IA4-92.0-021121	92.0	-60.84	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
FMW-131	62.5 to 72.5	-34.65 to -44.65	9/2/2016	Farallon	---	---	-39.65[4]	< 0.20	< 0.20	**41**	< 0.20	**1.7**	24.1
			3/24/2017	PES	---	---	-39.65[4]	< 0.199	< 0.153	**45.6**	< 0.152	**0.249** J	183
			6/23/2017	PES	---	---	-39.65[4]	< 0.199	< 0.153	3.61	< 0.152	**0.264** J	14
			12/18/2017	Farallon	---	---	-39.65[4]	< 0.20	< 0.20	0.61	< 0.20	< 0.20	---
			4/22/2019	PES	---	---	-39.65[4]	< 0.199	< 0.153	10.8	< 0.152	0.195 J	55.4
			10/21/2019	PES	---	---	-39.65[4]	< 0.199	< 0.153	10.5	< 0.152	0.140 J	75.0
			1/22/2020	PES	---	---	-39.65[4]	< 0.199	< 0.153	15.1	< 0.152	0.162 J	93.2
			8/26/2020	Farallon	FMW-131-082620	68.0	-40.2	< 0.20	< 0.20	6.5	< 0.20	< 0.20	---
			12/4/2020	Farallon	FMW-131-120420	68.0	-40.2	< 0.20	< 0.20	3.5	< 0.20	< 0.20	---
			2/11/2021	Farallon	FMW-131-021121	68.0	-40.2	< 0.20	< 0.20	0.27	< 0.20	< 0.20	---
MTCA Cleanup Levels for Groundwater[6]								**5**	**5**	**16[7]**	**160[7]**	**0.2**	---
Block 37 Property (continued)													
MW-128	60 to 70	-30.80 to -40.80	1/13/2014	SES	---	---	-35.80[4]	< 1	< 1	**960** E	< 1	**290** E	3.3
			4/22/2015	SES	---	---	-35.80[4]	< 1	< 1	**150**	< 1	**59**	2.5
			10/20/2015	SES	---	---	-35.80[4]	< 1	< 1	7.0	< 1	**95**	0.1
			2/2/2016	SES	---	---	-35.80[4]	< 1	< 1	**70**	< 1	**140**	0.5
			3/29/2017	PES	---	---	-35.80[4]	< 0.199	< 0.153	7.16	< 0.152	**72.4**	0.1
			6/21/2017	PES	---	---	-35.80[4]	< 0.199	< 0.153	**109**	< 0.152	**195**	0.6
			4/9/2018	PES	---	---	-35.80[4]	< 0.199	< 0.153	3.07	< 0.152	**31.0**	0.1
			12/30/2018	Farallon	MW-128-123018	65.0	-35.80	< 1.0	< 1.0	5.0	< 1.0	**110**	0.05
			11/11/2019	Farallon	MW-128-111119	65.0	-35.80	< 0.40	< 0.40	1.4	< 0.40	**60**	0.02
			2/18/2020	Farallon	MW-128-021820	65.0	-35.80	< 0.40	< 0.40	1.4	< 0.40	**54**	0.03
			4/27/2020	Farallon	MW-128-042720	65.0	-35.80	< 0.40	< 0.40	0.87	< 0.40	**51**	0.02

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Sample Location	Screened Interval (feet bgs)[1]	Screened Interval (feet msl)[2]	Sample Date	Sampled By	Sample Identification	Sample Depth (feet bgs)[1]	Sample Elevation (feet NAVD88)[2]	Analytical Results (micrograms per liter)[3]					cDCE/Vinyl Chloride Ratio
								PCE	TCE	cDCE	tDCE	Vinyl Chloride	
			6/29/2020	Farallon	MW-128-062920	65.0	-35.80	< 0.20	< 0.20	0.51	< 0.20	**34**	0.02
			8/26/2020	Farallon	MW-128-082620	65.0	-35.80	< 0.20	< 0.20	0.46	< 0.20	**29**	0.02
			12/4/2020	Farallon	MW-128-120420	65.0	-35.80	< 0.20	< 0.20	0.40	< 0.20	**46**	0.01
			2/10/2021	Farallon	MW-128-021021	65.0	-35.80	< 0.40	< 0.40	< 0.40	< 0.40	**55**	---
Block 38 Property													
DW-3	15 to 55	10 to -30	2/4/2020	Farallon	DW-3-020420	---	---	< 0.20	< 0.20	0.21	< 0.20	< 0.20	---
			2/24/2020	Farallon	DW-3-022420	---	---	< 0.20	< 0.20	0.42	< 0.20	< 0.20	---
			3/5/2020	Farallon	DW-3-030520	---	---	< 0.20	< 0.20	0.43	< 0.20	< 0.20	---
DW-4	15 to 55	10 to -30	2/4/2020	Farallon	DW-4-020420	---	---	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
			2/24/2020	Farallon	DW-4-022420	---	---	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
			3/5/2020	Farallon	DW-4-030520	---	---	< 0.20	< 0.20	0.27	< 0.20	< 0.20	---
DW-5	15 to 55	10 to -30	2/4/2020	Farallon	DW-5-020420	---	---	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
			2/24/2020	Farallon	DW-5-022420	---	---	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
			3/5/2020	Farallon	DW-5-030520	---	---	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
DW-11	30 to 70	10 to -30	3/12/2020	Farallon	DW-11-031220	---	---	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
DW-12	29 to 69	10 to -30	3/12/2020	Farallon	DW-12-031220	---	---	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
DW-13	28 to 68	10 to -30	3/12/2020	Farallon	DW-13-031220	---	---	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
DW-14	27 to 67	10 to -30	3/12/2020	Farallon	DW-14-031220	---	---	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
DW-15	26 to 66	10 to -30	3/12/2020	Farallon	DW-15-031220	---	---	< 0.20	< 0.20	< 0.20	< 0.20	**0.26**	---
			4/10/2020	Farallon	DW-15-041020	---	---	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
			6/29/2020	Farallon	DW-15-062920	---	---	< 0.20	< 0.20	0.26	< 0.20	< 0.20	---
			7/29/2020	Farallon	DW-15-072920	---	---	< 0.20	< 0.20	0.56	< 0.20	**0.36**	1.6
			8/26/2020	Farallon	DW-15-082620	---	---	< 0.20	< 0.20	0.98	< 0.20	**0.58**	1.7
			9/17/2020	Farallon	DW-15-091720	---	---	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
			12/3/2020	Farallon	DW-15-120320	---	---	< 0.20	< 0.20	0.78	< 0.20	**0.46**	1.7
			2/11/2021	Farallon	DW15-021121	---	---	< 0.20	0.69	**38**	< 0.20	**0.33**	115.2
MTCA Cleanup Levels for Groundwater[6]								**5**	**5**	**16[7]**	**160[7]**	**0.2**	---
Block 38 Property (continued)													
DW-16	24 to 64	10 to -30	1/4/2020	Farallon	DW-16-010420	---	---	< 0.20	< 0.20	0.29	< 0.20	< 0.20	---
			1/14/2020	Farallon	DW-16-011420	---	---	< 0.20	< 0.20	1.8	< 0.20	**0.32**	5.6
			2/17/2020	Farallon	DW-16-021720	---	---	< 0.20	< 0.20	9.9	< 0.20	**2.1**	4.7
			3/5/2020	Farallon	DW-16-030520	---	---	< 0.20	< 0.20	**43**	< 0.20	**5.9**	7.3
			3/12/2020	Farallon	DW-16-031220	---	---	< 0.40	< 0.40	**62**	< 0.40	**4.7**	13.2
			4/10/2020	Farallon	DW-16-041020	---	---	< 1.0	< 1.0	**160**	< 1.0	**2.5**	64.0
			4/27/2020	Farallon	DW-16-042720	---	---	< 2.0	< 2.0	**220**	< 2.0	**2.2**	100.0
			5/19/2020	Farallon	DW-16-051920	---	---	< 2.0	< 2.0	**300**	< 2.0	< 2.0	---
			6/29/2020	Farallon	DW-16-062920	---	---	< 2.0	< 2.0	**350**	< 2.0	**2.0**	175.0
			7/29/2020	Farallon	DW-16-072920	---	---	< 2.0	< 2.0	**390**	2.8	**2.5**	156.0
			8/26/2020	Farallon	DW-16-082620	---	---	< 2.0	3.0	**430**	< 2.0	**2.3**	187.0
			9/17/2020	Farallon	DW-16-091720	---	---	< 2.0	3.1	**390**	< 2.0	**2.7**	144.4

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								PCE	TCE	cDCE	tDCE	Vinyl Chloride	
			12/3/2020	Farallon	DW-16-120320	---	---	< 2.0	3.4	**270**	< 2.0	< 2.0	---
			2/11/2021	Farallon	DW16-021121	---	---	< 4.0	**6.9**	**800**	< 4.0	< 4.0	---
DW-17	22 to 62	10 to -30	1/4/2020	Farallon	DW-17-010420	---	---	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
			1/14/2020	Farallon	DW-17-011420	---	---	< 0.20	< 0.20	< 0.20	< 0.20	**3.1**	---
			2/17/2020	Farallon	DW-17-021720	---	---	< 0.20	< 0.20	0.46	< 0.20	**12**	0.04
			3/5/2020	Farallon	DW-17-030520	---	---	< 0.20	< 0.20	1.3	< 0.20	**20**	0.1
			4/10/2020	Farallon	DW-17-041020	---	---	< 0.20	< 0.20	5.1	< 0.20	**23**	0.2
			4/27/2020	Farallon	DW-17-042720	---	---	< 0.20	< 0.20	9.8	< 0.20	**22**	0.4
			5/19/2020	Farallon	DW-17-051920	---	---	< 0.20	< 0.20	**17**	< 0.20	**27**	0.6
			6/29/2020	Farallon	DW-17-062920	---	---	< 0.40	< 0.40	**55**	< 0.40	**29**	1.9
			7/29/2020	Farallon	DW-17-072920	---	---	< 0.40	< 0.40	**94**	0.42	**43**	2.2
			8/26/2020	Farallon	DW-17-082620	---	---	< 1.0	< 1.0	**140**	< 1.0	**62**	2.3
			9/17/2020	Farallon	DW-17-091720	---	---	< 1.0	< 1.0	**180**	< 1.0	**72**	2.5
			12/3/2020	Farallon	DW-17-120320	---	---	< 1.0	< 1.0	**170**	< 1.0	**79**	2.2
			2/11/2021	Farallon	DW17-021121	---	---	< 2.0	< 2.0	**320**	< 2.0	**45**	7.1
DW-18A	21 to 61	10 to -30	1/4/2020	Farallon	DW-18A-010420	---	---	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
			2/17/2020	Farallon	DW-18A-021720	---	---	< 0.20	< 0.20	< 0.20	< 0.20	**11**	---
			3/5/2020	Farallon	DW-18A-030520	---	---	< 0.20	< 0.20	1.6	< 0.20	**46**	0.03
			4/10/2020	Farallon	DW-18A-041020	---	---	< 0.40	< 0.40	15	< 0.40	**76**	0.20
			4/27/2020	Farallon	DW-18A-042720	---	---	< 0.50	< 0.50	**19**	< 0.50	**83**	0.23
			5/19/2020	Farallon	DW-18A-051920	---	---	< 0.40	< 0.40	**23**	< 0.40	**83**	0.28
			6/29/2020	Farallon	DW-18A-062920	---	---	< 0.40	< 0.40	**23**	< 0.40	**69**	0.33
			7/29/2020	Farallon	DW-18A-072920	---	---	< 0.40	< 0.40	**23**	< 0.40	**65**	0.35
			8/26/2020	Farallon	DW-18A-082620	---	---	< 0.40	< 0.40	**25**	< 0.40	**55**	0.45
			9/17/2020	Farallon	DW-18A-091720	---	---	< 0.40	< 0.40	**27**	< 0.40	**53**	0.51
			12/3/2020	Farallon	DW-18A-120320	---	---	< 0.20	< 0.20	**21**	< 0.20	**25**	0.84
			2/11/2021	Farallon	DW18A-021121	---	---	< 0.20	< 0.20	**28**	< 0.20	**22**	1.27
MTCA Cleanup Levels for Groundwater[6]								**5**	**5**	**16[7]**	**160[7]**	**0.2**	**---**
Block 38 Property (continued)													
FMW-137	72.0 to 85.0	-44.9 to -57.9	11/20/2018	Farallon	FMW-137-112018	80.0	-52.9	<0.20	<0.20	1.2	<0.20	<0.20	---
			12/28/2018	Farallon	FMW-137-121818	80.0	-52.9	<0.20	<0.20	1.1	<0.20	<0.20	---
			5/6/2019	Farallon	FMW-137-050619	80.0	-52.9	< 0.20	< 0.20	1.3	< 0.20	< 0.20	---
			7/8/2019	Farallon	FMW-137-070819	80.0	-52.9	< 0.20	< 0.20	1.3	< 0.20	< 0.20	---
			10/14/2019	Farallon	FMW-137-101419	79.0	-51.9	< 0.20	< 0.20	1.1	< 0.20	< 0.20	---
			11/6/2019	PES	---	---	-51.4[4]	< 0.199	< 0.153	1.27	< 0.152	< 0.118	---
			11/11/2019	Farallon	FMW-137-111119	78.5	-51.4	< 0.20	< 0.20	1.3	< 0.20	< 0.20	---
			1/22/2020	PES	---	---	-51.4[4]	< 0.199	< 0.153	1.99	< 0.152	< 0.118	---
			11/20/2018	Farallon	FMW-138-112018	95.0	-50.96	<0.20	<0.20	0.29	<0.20	<0.20	---
			12/28/2018	Farallon	FMW-138-122818	95.0	-50.96	<0.20	<0.20	0.34	<0.20	<0.20	---

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Sample Location	Screened Interval (feet bgs)[1]	Screened Interval (feet msl)[2]	Sample Date	Sampled By	Sample Identification	Sample Depth (feet bgs)[1]	Sample Elevation (feet NAVD88)[2]	Analytical Results (micrograms per liter)[3]					cDCE/Vinyl Chloride Ratio
								PCE	TCE	cDCE	tDCE	Vinyl Chloride	
FMW-138	90.0 to 100.0	-45.96 to -55.96	5/6/2019	Farallon	FMW-138-050619	95.0	-50.96	< 0.20	< 0.20	0.38	< 0.20	< 0.20	---
			7/8/2019	Farallon	FMW-138-070819	95.0	-50.96	< 0.20	< 0.20	0.34	< 0.20	< 0.20	---
			10/14/2019	Farallon	FMW-138-101419	95.0	-50.96	< 0.20	< 0.20	0.33	< 0.20	< 0.20	---
			11/11/2019	Farallon	FMW-138-111119	95.0	-50.96	< 0.20	< 0.20	0.37	< 0.20	< 0.20	---
Block 77 Property													
FMW-140	70.0 to 80.0	-38.29 to -48.29	7/17/2019	Farallon	FMW-140-071719	75.0	-43.0	< 2.0	< 2.0	**280**	< 2.0	**320**	0.9
			10/31/2019	PES	---	---	-43.0[4]	< 0.199	< 0.153	0.160 J	< 0.152	**189**	0.001
			11/12/2019	Farallon	FMW-140-111219	75.0	-43.0	< 4.0	< 4.0	**310**	< 4.0	**510**	0.6
			1/14/2020	Farallon	FMW-140-011420	75.0	-43.0	< 4.0	< 4.0	**340**	< 4.0	**460**	0.7
			1/22/2020	PES	---	---	-43.0[4]	< 0.199	< 0.153	**406**	0.729	**527**	0.8
			2/18/2020	Farallon	FMW-140-021820	75.0	-43.0	< 4.0	< 4.0	**280**	< 4.0	**530**	0.5
			3/25/2020	Farallon	FMW-140-032520	75.0	-43.0	< 2.0	< 2.0	**100**	< 2.0	**290**	0.3
			4/27/2020	Farallon	MW-140-042720	75.0	-43.0	< 1.0	< 1.0	**33**	< 1.0	**130**	0.3
			5/19/2020	Farallon	FMW-140-051920	75.0	-43.0	< 1.0	< 1.0	16	< 1.0	**130**	0.1
			7/29/2020	Farallon	MW-140-072920	75.0	-43.0	< 1.0	< 1.0	9.7	< 1.0	**170**	0.1
			9/17/2020	Farallon	FMW-140-091720	75.0	-43.0	< 0.40	< 0.40	**25**	< 0.40	**43**	0.6
			12/4/2020	Farallon	FMW-140-120420	75.0	-43.0	< 0.20	< 0.20	3.3	< 0.20	**18**	0.2
			2/10/2021	Farallon	FMW-140-021021	75.0	-43.0	< 0.20	< 0.20	0.72	< 0.20	**3.2**	0.2
FMW-142	37.5 to 42.5	-4.63 to -9.63	7/26/2019	Farallon	FMW-142-072619	40.0	-7.1	< 0.20	0.38	0.36	< 0.20	< 0.20	---
			10/31/2019	PES	---	---	-7.13[4]	< 0.199	< 0.153	< 0.0933	< 0.152	< 0.118	---
			1/22/2020	PES	---	---	-7.13[4]	< 0.199	< 0.153	< 0.0933	< 0.152	< 0.118	---
FMW-143	23.0 to 28.0	9.99 to 4.99	7/30/2019	Farallon	FMW-143-073019	25.5	7.5	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---
			10/31/2019	PES	---	---	7.5[4]	< 0.199	< 0.153	< 0.0933	< 0.152	< 0.118	---
			1/22/2020	PES	---	---	7.5[4]	< 0.199	< 0.153	< 0.0933	< 0.152	< 0.118	---
MTCA Cleanup Levels for Groundwater[6]								**5**	**5**	**16[7]**	**160[7]**	**0.2**	---
Block 79 Property													
FMW-141	47.5 to 57.5	-12.35 to -22.35	7/26/2019	Farallon	FMW-141-072619	52.5	-17.35	< 30	**2,800**	**6,200**	< 30	**820**	7.6
			10/30/2019	PES	---	---	-17.35[4]	< 0.199	2.18 J	**1,200** J	7.13 J	**1,760**	0.7
			10/30/2019[8]	PES	---	---	-17.35[4]	< 0.199	**12.7** J	**2,250** J	10.5 J	**1,710**	1.3
			11/11/2019	Farallon	FMW-141-111119	52.5	-17.35	< 20	< 20	**3,500**	< 20	**2,900**	1.2
			1/14/2020[5]	Farallon	FMW-141-011420	52.5	-17.35	< 4.0	< 4.0	**250**	< 4.0	**380**	0.7
				PES	---	---	-17.35[4]	< 0.995	2.91	**414**	1.98 J	**532**	0.8
			2/17/2020	Farallon	FMW-141-021720	52.5	-17.35	< 2.0	< 2.0	**280**	< 2.0	**240**	1.2
			3/24/2020	Farallon	FMW-141-032420	52.5	-17.35	< 10	< 10	**1,200**	< 10	**820**	1.5
			4/27/2020	Farallon	MW-141-042720	52.5	-17.35	< 2.0	**6.5**	**440**	2.1	**490**	0.9
			5/19/2020	Farallon	FMW-141-051920	52.5	-17.35	< 20	< 20	**2,400**	< 20	**910**	2.6
			7/28/2020	Farallon	MW-141-072820	52.5	-17.35	< 10	< 10	**8,100**	20	**780**	10.4
			9/17/2020	Farallon	FMW-141-091720	52.5	-17.35	< 4.0	< 4.0	**600**	< 4.0	**620**	1.0
			12/3/2020	Farallon	FMW-141-120320	52.5	-17.35	< 1.0	< 1.0	**68**	< 1.0	**190**	0.4

Table D-3
Groundwater Analytical Results for CVOCs
Deep Outwash Aquifer Groundwater
Performance Monitoring Program
Seattle, Washington
Farallon PN: 397-061

Sample Location	Screened Interval (feet bgs)[1]	Screened Interval (feet msl)[2]	Sample Date	Sampled By	Sample Identification	Sample Depth (feet bgs)[1]	Sample Elevation (feet NAVD88)[2]	Analytical Results (micrograms per liter)[3]					cDCE/Vinyl Chloride Ratio
								PCE	TCE	cDCE	tDCE	Vinyl Chloride	
			2/10/2021	Farallon	FMW-141-021021	52.5	-17.35	< 1.0	< 1.0	**120**	< 1.0	**180**	0.7
MTCA Cleanup Levels for Groundwater[6]								**5**	**5**	**16[7]**	**160[7]**	**0.2**	---
Block 79 Property (continued)													
MW-113	70.0 to 80.0	-36.80 to -46.80	12/21/2012	SES	---	---	-41.80[4]	1.3 i	**440**	**5,500**	4.1	**150**	36.7
			12/19/2013	SES	---	---	-41.80[4]	< 1	**13**	**140**	< 1	**0.41**	341
			6/25/2015	SES	---	---	-41.80[4]	< 1	**19**	**670**	< 1	**17**	39
			10/27/2015	SES	---	---	-41.80[4]	< 1	4.5	**670**	1.2	**17**	39
			2/3/2016	SES	---	---	-41.80[4]	< 1	1.1	**1,500**	2.2	**13**	115
			3/22/2017	PES	---	---	-41.80[4]	< 0.199	**27.1**	**7,280**	25.4	**63.5**	115
			6/16/2017	PES	---	---	-41.80[4]	0.522	**148**	**4,750**	28.2	**53.3**	89
			4/11/2018	PES	---	---	-41.80[4]	**191**	**1,100**	**3,720**	21.3	**34.9**	107
			1/30/2019	PES	---	---	-41.80[4]	< 0.995	2.81	**6,330**	22.8	**34.8**	182
			2/7/2019	PES	---	---	-41.80[4]	< 0.199	1.77	**6,990**	25.7	**46.0**	152
			11/11/2019	Farallon	MW-113-111119	75.0	-41.80	< 50	< 50	**8,200**	< 50	**950**	8.6
			1/14/2020	Farallon	MW113-011420	75.0	-41.80	< 50	< 50	**8,000**	< 50	**1,400**	5.7
			2/18/2020	Farallon	MW-113-021820	75.0	-41.80	< 50	< 50	**9,600**	< 50	**1,800**	5.3
			3/24/2020	Farallon	MW113-032420	75.0	-41.80	< 20	< 20	**4,100**	< 20	**200**	20.5
			4/27/2020	Farallon	MW-113-042720	75.0	-41.80	< 20	< 20	**3,500**	< 20	**94**	37.2
			5/19/2020	Farallon	MW-113-051920	75.0	-41.80	< 20	< 20	**3,700**	< 20	**110**	33.6
			7/28/2020	Farallon	MW-113-072820	75.0	-41.80	**170**	**1,300**	**2,300**	10	**82**	28.0
			9/17/2020	Farallon	MW-113-091720	70.0	-36.80	**390**	**1,500**	**1,900**	< 10	**45**	42.2
			12/3/2020	Farallon	MW-113-120320	75.0	-41.80	**480**	**800**	**540**	< 4.0	**6.4**	84.4
			2/10/2021	Farallon	MW-113-021021	75.0	-41.80	2.7	**8.4**	**26**	< 0.20	< 0.20	---
MTCA Cleanup Levels for Groundwater[6]								**5**	**5**	**16[7]**	**160[7]**	**0.2**	---

NOTES:

Results in **bold** denote concentrations exceeding applicable cleanup levels.

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

— denotes information is unknown.

[1] In feet below ground surface.

[2] In feet North American Vertical Datum of 1988.

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

[4] Actual sample depth unknown; assumed mid-point of screened interval.

[5] Split sample collected by Farallon and PES and analyzed at different laboratories.

[6] Washington State Model Toxics Control Act Cleanup Regulation (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.

[7] MTCA Cleanup Levels and Risk Calculations, Standard Method B Values for Groundwater, updated May 2019, https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC

[8] Duplicate sample results.

bgs = below ground surface
cDCE = cis-1,2-dichloroethene
CVOC = chlorinated volatile organic compounds
E = result exceeded calibration range of instrument and is an estimate
Farallon = Farallon Consulting, L.L.C.
i = result may be due to carryover from previous sample injection at lab
J = result is an estimate
NA = not available
NS = not surveyed
PCE = tetrachloroethene
PES = PES Environmental, Inc.
SES = SoundEarth Strategies, Inc.
TCE = trichloroethene
tDCE = trans-1,2-dichloroethene

Rows highlighted in green indicate samples were collected during dewatering at Block 43 (11/2013 - 12/2014), Block 37 [pit] and Block 38 West (10/2019 - present), or the interim action at Block 37 (4/2017 - 12/2017)

APPENDIX E
MIDDOUR CONSULTING LLC GROUNDWATER CONTROL DESIGN

REMEDIAL INVESTIGATION WORK PLAN
Block 38 West Property
500 through 536 Westlake Avenue North
Seattle, Washington

Farallon PN: 397-019

Groundwater Control Plan
Block 38
Seattle, Washington

October 17, 2018

Prepared for

GLY Construction
200 112th Avenue NE, Ste. 300
Bellevue, WA 98004

MIDDOUR CONSULTING LLC

14241 NE Woodinville Duvall Rd, PMB 226
Woodinville, WA 98072
(425) 864-2719

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INTRODUCTION

This report presents our Groundwater Control Plan and recommendations for the Block 38 project in Seattle Washington. GLY Construction (GLY) is the general contractor for the project and we understand the shoring, and dewatering services will be performed by subcontractors. We understand that temporary construction dewatering will be required to successfully install the shoring system and complete foundation construction. Our understanding of the excavation and shoring methods is based on conversations with GLY.

SITE AND PROJECT DESCRIPTION

The project site is located south of Lake Union on city block 38 which is bound by Mercer Street to the north, an alley to the east, Republican Street to the south, and Westlake Avenue North to the west. Buildings previously occupied portions of the site but will be demolished prior to construction. As with most urban projects, buried utilities are located in the streets that border the project site. The existing ground surface of the site slopes from about elevation 40 feet in the south end to about elevation 31 feet in the north end.

The Block 38 project consists of a multi-story building over a four level below-grade parking structure. The excavation for the parking structure will extend about 39 to 49 feet below existing grade and will be retained using solider pile and lagging shoring methods in conjunction with four rows of tiebacks. The bottom of footing for the majority of the foundation is elevation -8.0 feet though the elevator cores will likely extend a few feet below the mass excavation subgrade.

The geotechnical and hydrogeological information for the project was provided in the October 17, 2018 Geotechnical Engineering Services report prepared by GeoEngineers. Temporary shoring plans for the excavation were prepared by Ground Support LLC. We understand the excavation is scheduled to begin in the 2018/2019 winter and continuous construction dewatering will be required until sufficient structural weight of the building is constructed.

SOIL AND GROUNDWATER CONDITIONS

The geotechnical report provides a discussion of the site soil and groundwater conditions as determined from thirteen soil borings advanced 10 to 63 feet below existing grade and several soil borings from other surrounding geotechnical investigations. The soils at the site generally consist of fill, wood waste, peat/organic silt, recent granular and fine-grained deposits, and glacially consolidated granular soils.

The fill soils are about 5 to 20 feet thick which includes the wood waste deposits. The fill soils consist of loose to very dense silty sand that contains gravel, cobbles and boulders and the wood waste contains wood debris to wood chips. The peat and organic silt deposits are up to 8 feet thick and typically occur below the fill soils and wood waste except for discrete locations where they are absent. The recent deposits are 3 to 17 feet thick and consist of loose to dense sand with varying silt content and soft to medium stiff silt. Underlying the recent deposits, glacially consolidated soils were encountered and consisted predominately of cohesionless sand with varying amounts of gravel and silt though layers of silt were encountered in some of the soil borings. The silt content of the cohesionless sand varies across the site but general consists of silty sand (SM) and sand with silt (SP-SM) to the explored depths. The glacially consolidated silt layers were not encountered in all of the soil borings as such the layers are discontinuous but typically were encountered between elevation 0 and -15 feet.

Groundwater levels measured in observation wells with screen intervals constructed in the recent deposits indicate the groundwater elevation was about 18 to 19 feet in August 2018 whereas observation wells with screen intervals constructed in the glacially consolidated soils indicate the groundwater elevation was 16 feet in August 2018. Based on the soils encountered in the soil borings, the deeper glacially consolidated soils may be partially confined by the overlying fine-grained soils and/or the higher water level in the fine-grained soils may be due to a greater capillary fringe. GeoEngineers estimates the static water level in the area to be about elevation 20 feet prior to significant construction dewatering in the South Lake Union area. GeoEngineers recommends a design groundwater elevation of 20 feet should be used for design of the permanent below-grade walls and mat foundations.

The geotechnical investigation did not perform any on site testing to characterize the hydraulic properties of the aquifer underlying the site nor were any gradation tests performed to estimate the hydraulic conductivity. Middour Consulting performed a pumping test for the Block 44 project which was located on the west side of Westlake Avenue North. The pumping test was performed in dewatering well located on the south side of the site on the sidewalk along Republican Street; the dewatering well was screened in the glacially consolidated granular soils. Analysis of the drawdown data using the Jacobs Method estimates the transmissivity to be 2.1 ft^2/min and $1.6x10^{-5}$ for storativity which is unitless. The storativity value derived from the pumping test is reflective of a confined aquifer response. Analysis of the recovery data using the Theis Recovery Method estimates the transmissivity to be 1.8 ft^2/min.

CONCEPTUAL GROUNDWATER CONTROL APPROACH

As described in the geotechnical report and briefly summarized above, the proposed excavation will encounter saturated soils at about elevation 18 to 19 feet. The majority of the saturated soils above elevation 0 feet on the east side of the site and above elevation 5 feet on the west side are fine-grained silt/clay, peat, organic silt, and wood waste. These soil types do not readily yield groundwater and generally the cost associated with implementing active groundwater control measures doesn’t justify the minimal decrease in moisture content; the “dewatered” soils which are nearly saturated still require additional costs to excavate and haul off site. Unless the project team would like to explore groundwater control options for these soils, the GWCP assumes these soils will be excavated at the natural moisture content though some drainage may occur by dewatering the aquifer beneath these soils.

Based on the relatively coarse nature and thickness of the glacially consolidated aquifer as well as the successful performance of several dewatering systems in the area, groundwater control can be accomplished by a system of large diameter dewatering wells installed around the perimeter of the excavation. However, some of the soil borings encountered silt layers between elevation 0 and -15 feet which will remain saturated and/or perch groundwater above these soils. If the fine-grained soil layers are laterally continuous or encompass a significant area, additional wells and/or sump pumping may be required to control the perched groundwater if the layers are laterally extensive and exist above subgrade.

DEWATERING SYSTEM DESIGN CALCULATIONS

Dewatering system design calculations were performed to estimate potential discharge rates, the number of wells, and the spacing between wells required to lower the groundwater level two feet below subgrade. Dewatering calculations were performed using a computer spreadsheet model that accounts for well interference among multiple pumping wells and aquifer boundary conditions using the principle of superposition and image well theory. The spreadsheet model calculates the net drawdown from all pumping and image wells through a predetermined section of the aquifer by solving the Theis non-equilibrium equation for drawdown using the radius associated with each pumping and image well.

Soil and groundwater parameters used in the dewatering design calculations were derived from the project geotechnical report or were estimated from previous experience if not contained in the geotechnical report and are listed below:

- The aquifer is unconfined but locally it may be semi-confined to confined.
- Groundwater elevation is 16 feet for the glacially consolidated aquifer
- Aquifer thickness 40 feet
- Aquifer Transmissivity range 0.5 to 2.0 ft^2/min
- Target dewatering elevation -10.0 feet; 2 feet below subgrade
- Specific yield is 0.15 (unitless)

Based on the transmissivity range, the spacing between wells could be up to 75 feet on-center but due to the presence of silt layers below elevation 0 feet, the well spacing was reduced to about 60 feet on-center. Design calculations using the soil and groundwater parameters listed above indicate eighteen dewatering wells installed at the locations shown on Figure 1 will lower groundwater levels down to the target dewatering elevation for the main excavation though additional groundwater control measures may be required to dewater perched water if the silt layers above subgrade are laterally extensive.

Based on the average transmissivity value of 1.5 ft^2/min, the total discharge from the system of wells is estimated to be about 800 gpm after one week of operation and 540 gpm after one month of operation. The drawdown or cone of depression derived from the spreadsheet model is shown on Figure 2 which displays drawdown profiles parallel and perpendicular to the excavation.

DRAWDOWN ANALYSIS

Operation of the dewatering system will lower the piezometric level of the glacially consolidated aquifer and the drawdown may extend beneath subsurface and above ground structures and/or mobilize existing groundwater contaminate plumes. The drawdown profile shown on Figure 3 shows the lateral extent of drawdown projected from the west side of the excavation after one month of operation, assuming uniform aquifer conditions and properties. The spreadsheet model assumes homogeneous and isotropic subsurface conditions as such, the actual drawdown cone may deviate from our estimate depending on the actual subsurface properties. The cone of depression will continue to expand after one month of operation however, predicting the distance and amount of drawdown becomes increasingly difficult as the cone of depression encounters undocumented soils and aquifer conditions. Middour Consulting has not assessed the potential for dewatering induced settlement or mobilization of groundwater contaminate plumes nor has Middour Consulting implemented any engineering controls to limit the amount of drawdown. Middour Consulting's scope of work did not include these evaluations and Middour Consulting assumes no liability for impacts due to lowering of groundwater levels. We recommend geotechnical engineering and environmental disciplines review this plan to evaluate potential adverse effects due to lowering of groundwater levels.

DEWATERING SYSTEM CONSTRUCTION RECOMMENDATIONS

We recommend the dewatering/shoring subcontractor and/or GLY monitor the soldier pile installation to determine the presence/absence of silt layers elevation 0 and -8 feet and report this information to Middour Consulting. Should significant areas encounter a silt layer at a specific elevation, a vacuum wellpoint system or sump pumping will be required to remove perched groundwater that seeps through the shoring wall.

Dewatering Wells: Boreholes should be drilled using bucket auger drilling methods and should be 30- to 36-inch-diameter. ***Drilling additives and/or slurry to maintain borehole wall stability shall not be used; maintaining a water head and/or casing the borehole are appropriate methods.*** Well casings and screen should be 12-inch diameter Schedule 40 PVC. Based on the visual soil descriptions from the soil borings and previous experience in the area, well screens should consist of 30-slot screen size. For well screen lengths and bottom completion elevations refer to Table 1 and well construction details are provided on Figure 4.

We recommend that Middour Consulting monitor the initial drilling, well construction, and well development to verify site conditions. Subsequent wells should be logged and sampled by the driller. GLY or the dewatering subcontractor should notify Middour Consulting if subsurface conditions differ from those described in this report and/or those observed during drilling the first dewatering well. General locations of the dewatering wells are provided on Figure 1; more detailed locations are provided in Table 1.

Sand Pack: The available data indicate a dewatering well sand pack consisting of Cal Portland 8700 or equivalent should optimize retention of the formation and well yield. The gradation of the proposed sand pack is listed on the table in Figure 4. Well and seal construction should be consistent with WAC 173-160.

Development: Development is important to improve the hydraulic connection with the aquifer and provide a clean dewatering effluent with time. We recommend that each dewatering well be developed immediately upon completion. Development methods should utilize flow-surging and over-pumping until the discharge requirement is achieved. Development data should be documented to demonstrate that additional development would produce limited improvement.

Pumps: Pumps that are capable of operating in dry well conditions should be provided in each well. Initially pumps should be capable of providing up to 100 gpm under 70 feet of total dynamic head (TDH).

Header and Conveyance Piping: The main header and conveyance piping should be constructed using 12-inch-diameter PVC or HDPE pipe. The piping configuration should be located on the behind the dewater wells (i.e. away from the excavation) to minimize the potential for damage during excavation.

GENERAL SYSTEM REQUIREMENTS

Power Supply: A continuous main power supply from portable generators or line power is required for all dewatering systems. We recommend that a backup power source is available on site in the event of a power failure from the main power supply.

Observation Wells: GeoEngineers will provide the number and locations of the observation wells. We recommend the boreholes be drilled using air rotary or rotary wash drilling methods and should be a minimum 8-inch-diameter. Well casings and screen should be 2-inch diameter flush threaded Schedule 40 PVC. The well screen should be 20-slot with the screen interval from elevation -10 to -20 feet. The sand pack should consist of Cal Portland 8720 or equivalent.

System Performance and Water Level Monitoring: We recommend measuring water levels in the observation wells daily for a week prior to operating the dewatering system to establish baseline water levels. Groundwater levels in the dewatering wells and observation wells should be measured daily for the first week of operation and reported to Middour Consulting to assess the system performance. Drop tubes in the dewatering wells may be required to obtain accurate water levels if there is water cascading down the well screen.

Operation: The dewatering system should operate a minimum of two weeks prior to excavation below the static groundwater level. Visual observations of the discharge should be made several times a day during excavation, to monitor for increased turbidity levels. Middour Consulting should be contacted if the performance of the dewatering system changes significantly. This may include pumping rates that differ significantly from rates presented in this report, the occurrence of a sudden change in pumping rates or groundwater levels, or the occurrence of turbidity levels that exceed discharge limits.

The dewatering system should be operated continuously until sufficient structural weight, as determined by the resident structural engineer, is constructed to counteract groundwater lateral and uplift forces.

Discharge Water Quality: Dewatering discharge will be routed to an onsite water quality treatment system; refer to the WaterTectonics submittal for more details.

Well Decommissioning: The dewatering wells should be decommissioned in accordance with WAC 173-160 upon completion of dewatering activities.

LIMITATIONS

This Groundwater Control Plan has been prepared for the exclusive use of GLY Construction for their proposed work on the Block 38 project in Seattle Washington. No other party is entitled to rely on the information, conclusions, and recommendations included in this document without the express written consent of Middour Consulting LLC. Further, the reuse of information, conclusions, and recommendations provided herein for extensions of the project or for any other project, without review and authorization by Middour Consulting, shall be at the user's sole risk. Middour Consulting warrants that within the limitations of scope, schedule, and budget, our services have been provided in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions as this project. We make no other warranty, either express or implied.

MIDDOUR CONSULTING LLC

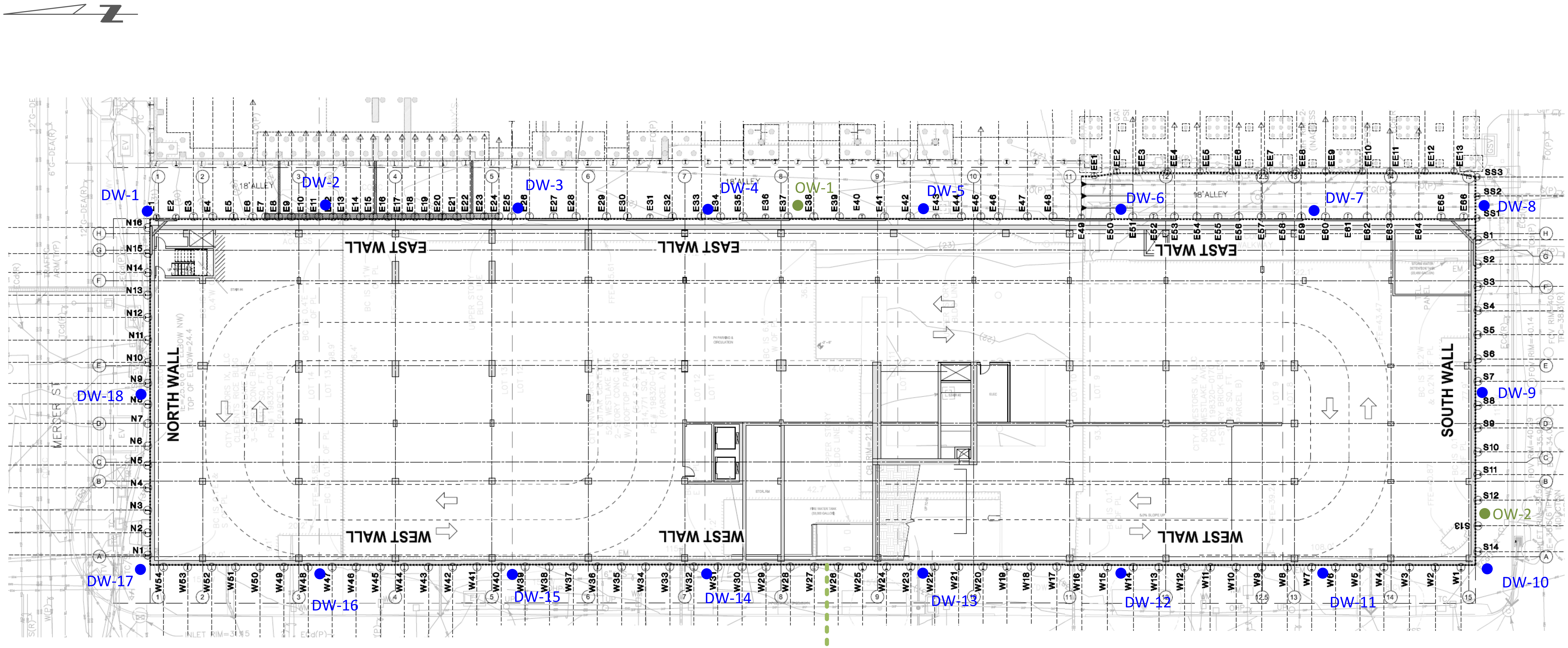
Robert O. Middour, L.HG.
Principal Hydrogeologist

State of Washington
Hydrogeologist
819
Licensed Geologist
ROBERT O. MIDDOUR

Well ID	Approximate Pile Location	Ground Surface Elevation (ft)	Bottom Well Elevation (ft)	Well Depth (ft)	Screen Length (ft)
DW-1	N16 / E1	31	-30	61	40
DW-2	E11 / E12	28	-30	58	40
DW-3	E25 / E26	25	-30	55	40
DW-4	E33 / E34	25	-30	55	40
DW-5	E42 / E43	25	-30	55	40
DW-6	E50 / E51	25	-30	55	40
DW-7	E59 / E60	25	-30	55	40
DW-8	SS1 / SS2	41	-30	71	40
DW-9	S7 / S8	41	-30	71	40
DW-10	S14 / W1	40	-30	70	40
DW-11	W6 / W7	40	-30	70	40
DW-12	W14 / W15	39	-30	69	40
DW-13	W22 / W23	38	-30	68	40
DW-14	W31 / W32	37	-30	67	40
DW-15	W39 / W40	36	-30	66	40
DW-16	W47 / W48	34	-30	64	40
DW-17	W54 / N1	32	-30	62	40
DW-18	N8 / N9	31	-30	61	40

TABLE 1

Well Location and Elevation Data



See Figure 3
For Drawdown Profile

NOTES:

1) Locations of the dewatering wells are approximate, see Table 1 for exact locations (i.e. pile numbers). Locations can be moved to avoid conflicts with construction methods and/or utilities; new locations should be reviewed by Middour Consulting.

2) GeoEngineers to determine number and location of observation wells.

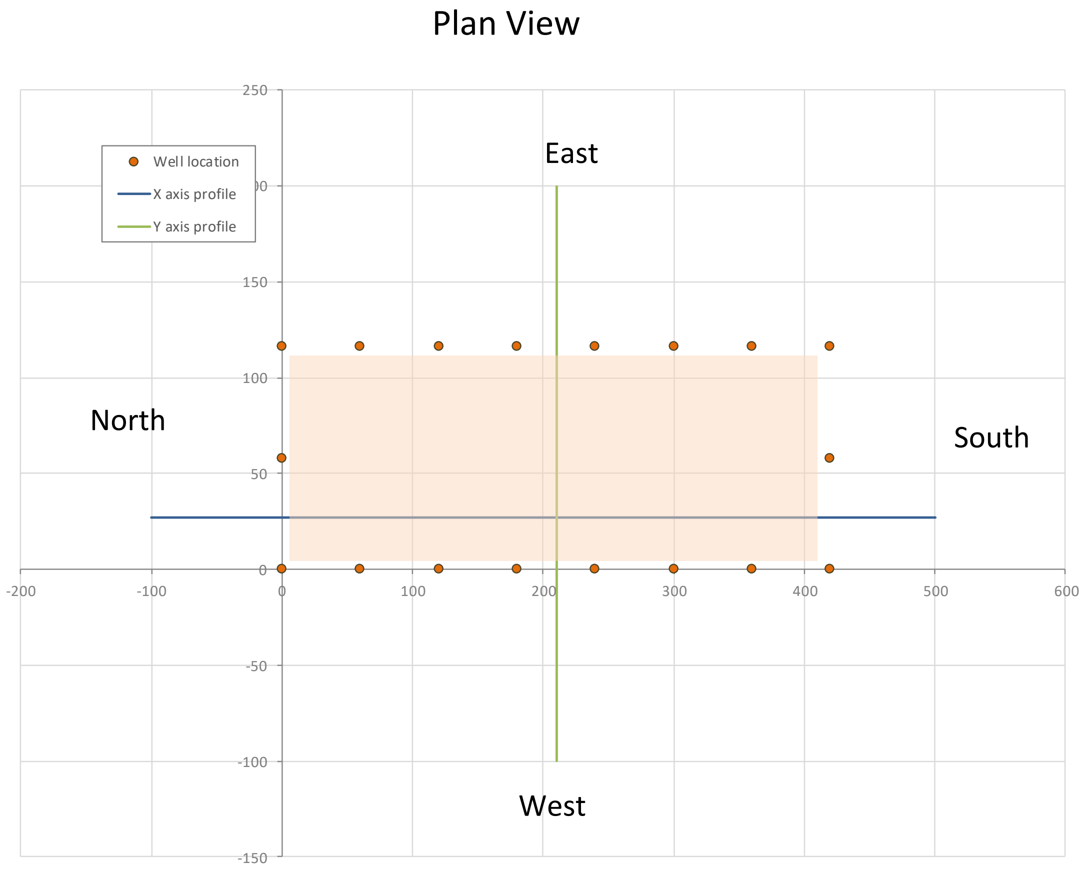
3) See Figure 4 for dewatering well construction details.

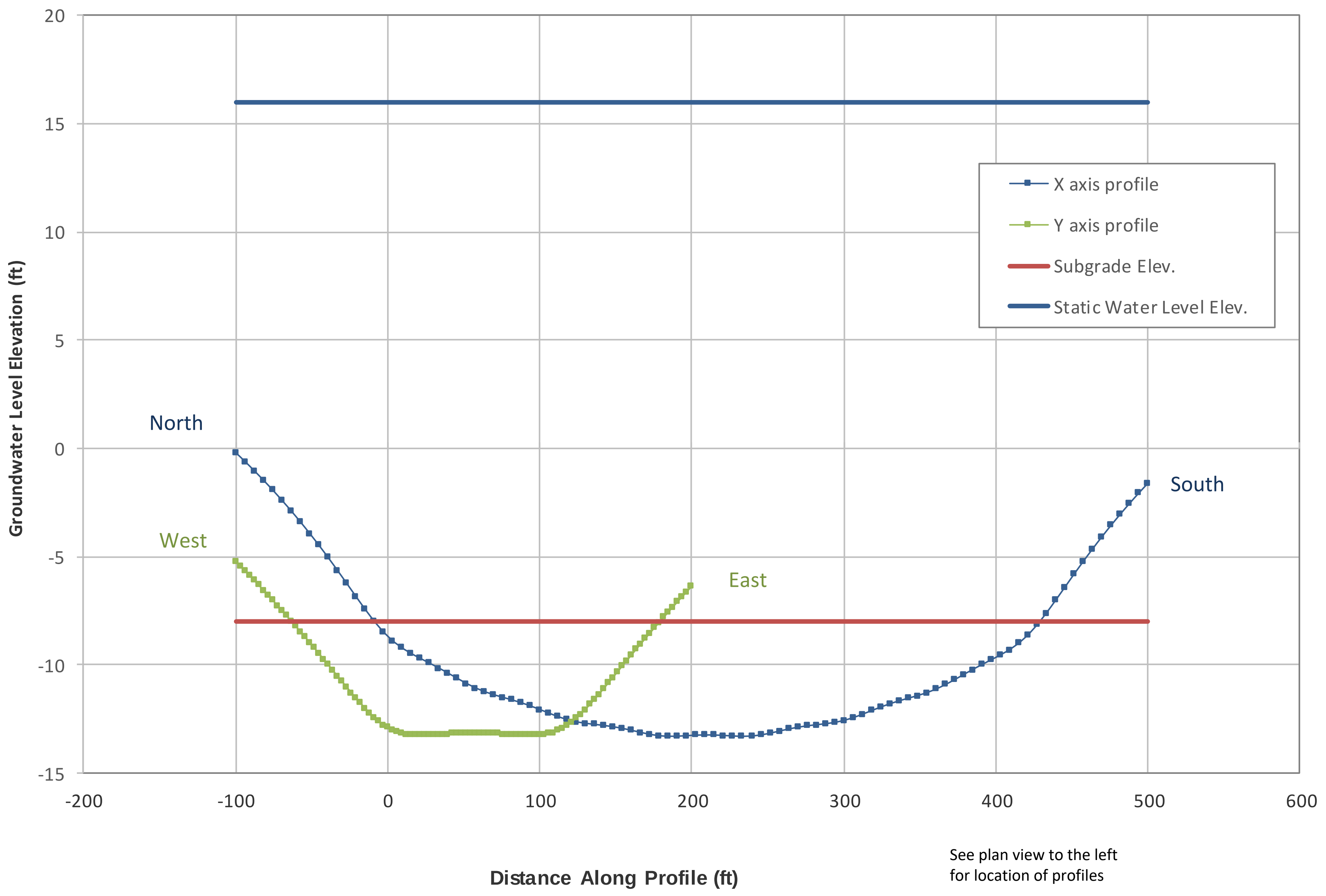
MIDDOUR CONSULTING LLC
groundwater control for underground construction

● DEWATERING WELL LOCATIONS

● OBSERVATION WELL LOCATIONS

FIGURE 1
Dewatering System Layout Plan
BLOCK 38 GWCP | Seattle, WA
Project No. 18046002.01 | October 16, 2018





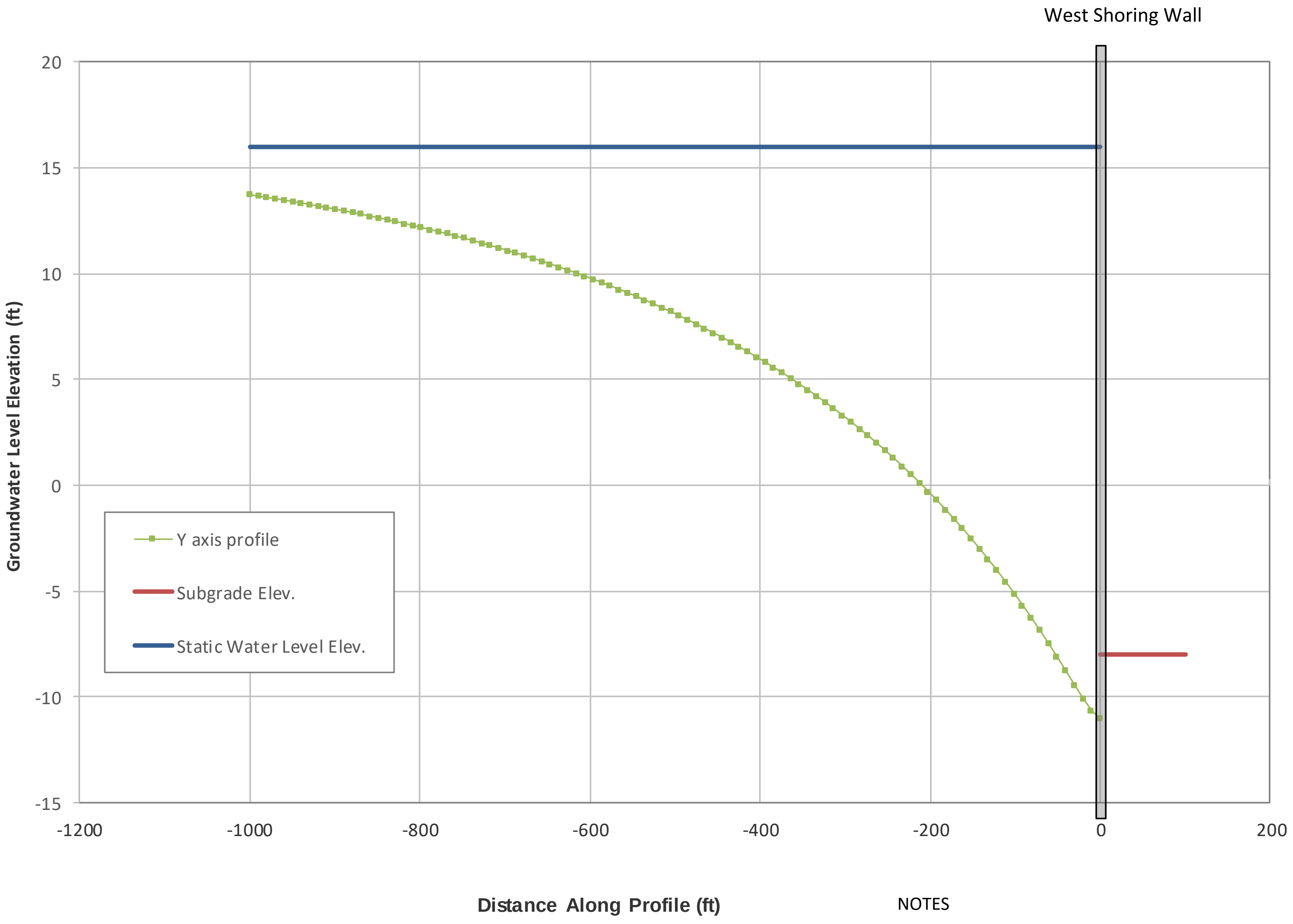
See plan view to the left
for location of profiles

NOTES

1) Drawdown profiles representative of a transmissivity value of 1.5 ft^2/min and a pumping duration of 2 weeks.

MIDDOUR CONSULTING LLC
groundwater control for underground construction

FIGURE 2
Excavation Drawdown Profiles
BLOCK 38 GWCP | Seattle, WA
Project No. 18046002.01 | October 16, 2018



NOTES

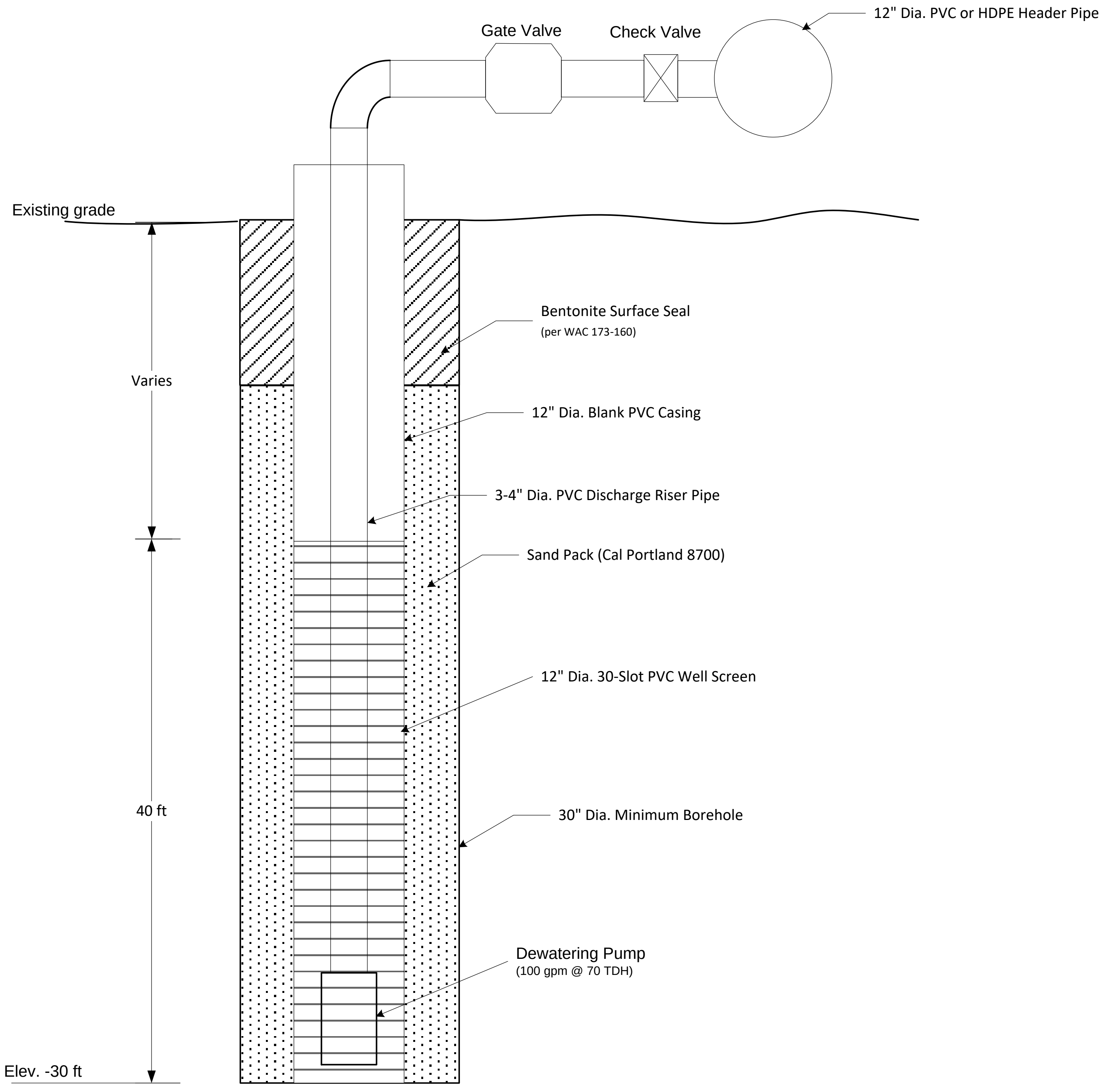
1) Drawdown profile representative of a transmissivity value of 1.5 ft^2/min and a pumping duration of 1 month.

MIDDOUR CONSULTING LLC
groundwater control for underground construction

FIGURE 3

Drawdown vs Distance Profile

BLOCK 38 GWCP | Seattle, WA
Project No. 18046002.01 | October 16, 2018



Not to Scale

NOTES:

Dewatering Wells: Boreholes should be drilled using bucket auger drilling methods and should be 30- to 36-inch-diameter. **Drilling additives and/or slurry to maintain borehole wall stability shall not be used; maintaining a water head and/or casing the borehole are appropriate methods.** Well casings and screen should be 12-inch diameter Schedule 40 PVC. Based on the visual soil descriptions from the soil borings and previous experience in the area, well screens should consist of 30-slot screen size. For well screen lengths and bottom completion elevations refer to Table 1. We recommend that Middour Consulting monitor the initial drilling, well construction, and well development to verify site conditions. Subsequent wells should be logged and sampled by the driller. GLY or the dewatering subcontractor should notify Middour Consulting if subsurface conditions differ from those described in this report and/or those observed during drilling the first dewatering well. General locations of the dewatering wells are provided on Figure 1; more detailed locations are provided in Table 1.

Sand Pack: The available data indicate a dewatering well gravel pack consisting of Cal Portland 8700 or equivalent shall optimize retention of the formation and well yield. The gradation of the proposed gravel pack is listed on the table below. Well and seal construction shall be consistent with WAC 173-160.

Development: Development is important to improve the hydraulic connection with the aquifer and provide a clean dewatering effluent with time. Each dewatering well shall be developed immediately upon completion. Development methods shall utilize flow-surging and over-pumping until the discharge requirement is achieved. Development data shall be documented to demonstrate that additional development would produce limited improvement.

Pumps: Pumps that are capable of operating in dry well conditions shall be provided in each well. Initially pumps shall be capable of providing up to 100 gpm under 70 feet of total dynamic head (TDH).

Header and Conveyance Piping: The main header and conveyance piping shall be constructed using 12-inch-diameter PVC or HDPE pipe. The piping configuration shall be located on the behind the dewater wells (i.e. away from the excavation) to minimize the potential for damage during excavation.

Power Supply: A continuous main power supply from portable generators or line power is required for all dewatering systems. We recommend that a backup power source is available on site in the event of a power failure from the main power supply.

Observation Wells: : GeoEngineers will provide the number and locations of the observation wells. We recommend the boreholes be drilled using air rotary or rotary wash drilling methods and should be a minimum 8-inch-diameter. Well casings and screen should be 2-inch diameter flush threaded Schedule 40 PVC. The well screen should be 20-slot with the screen interval from elevation -10 to -20 feet. The sand pack should consist of Cal Portland 8720 or equivalent.

System Performance and Water Level Monitoring: We recommend measuring water levels in the observation wells daily for a week prior to operating the dewatering system to establish baseline water levels. Groundwater levels in the dewatering wells and observation wells should be measured daily for the first week of operation and reported to Middour Consulting to assess the system performance. Drop tubes in the dewatering wells may be required to obtain accurate water levels if there is water cascading down the well screen.

Operation: The dewatering system should operate a minimum of two weeks prior to excavation below the static groundwater level. Visual observations of the discharge should be made several times a day during excavation, to monitor for increased turbidity levels. Middour Consulting should be contacted if the performance of the dewatering system changes significantly. This may include pumping rates that differ significantly from rates presented in this report, the occurrence of a sudden change in pumping rates or groundwater levels, or the occurrence of turbidity levels that exceed discharge limits.
The dewatering system should be operated continuously until sufficient structural weight, as determined by the resident structural engineer, is constructed to counteract groundwater lateral and uplift forces.

Well Decommissioning: The dewatering wells should be decommissioned in accordance with WAC 173-160 upon completion of dewatering activities.

Sand Pack Gradations

Sive Size	Grain Size		Cal Portland (8700)		Cal Portland (8720)	
No.	(mm)	(thousandths)	% Finer	% Retained	% Finer	% Retained
3/8	9.51	374.4	100	0	100	0
No. 4	4.75	187.0	65	35	99	1
No. 8	2.38	93.7	4	96	79	21
No. 16	1.19	46.9	3	97	49	51
No. 30	0.595	23.4	1	99	23	77
No. 50	0.297	11.7	0.6	99.4	5	95
No. 100	0.149	5.9	0.4	99.6	0.8	99.2
No. 200	0.074	2.9	0.2	99.8	0.3	99.7

MIDDOUR CONSULTING LLC
groundwater control for underground construction

FIGURE 4
Dewatering System Construction Details
BLOCK 38 GWCP | Seattle, WA
Project No. 18046002.01 | October 16, 2018

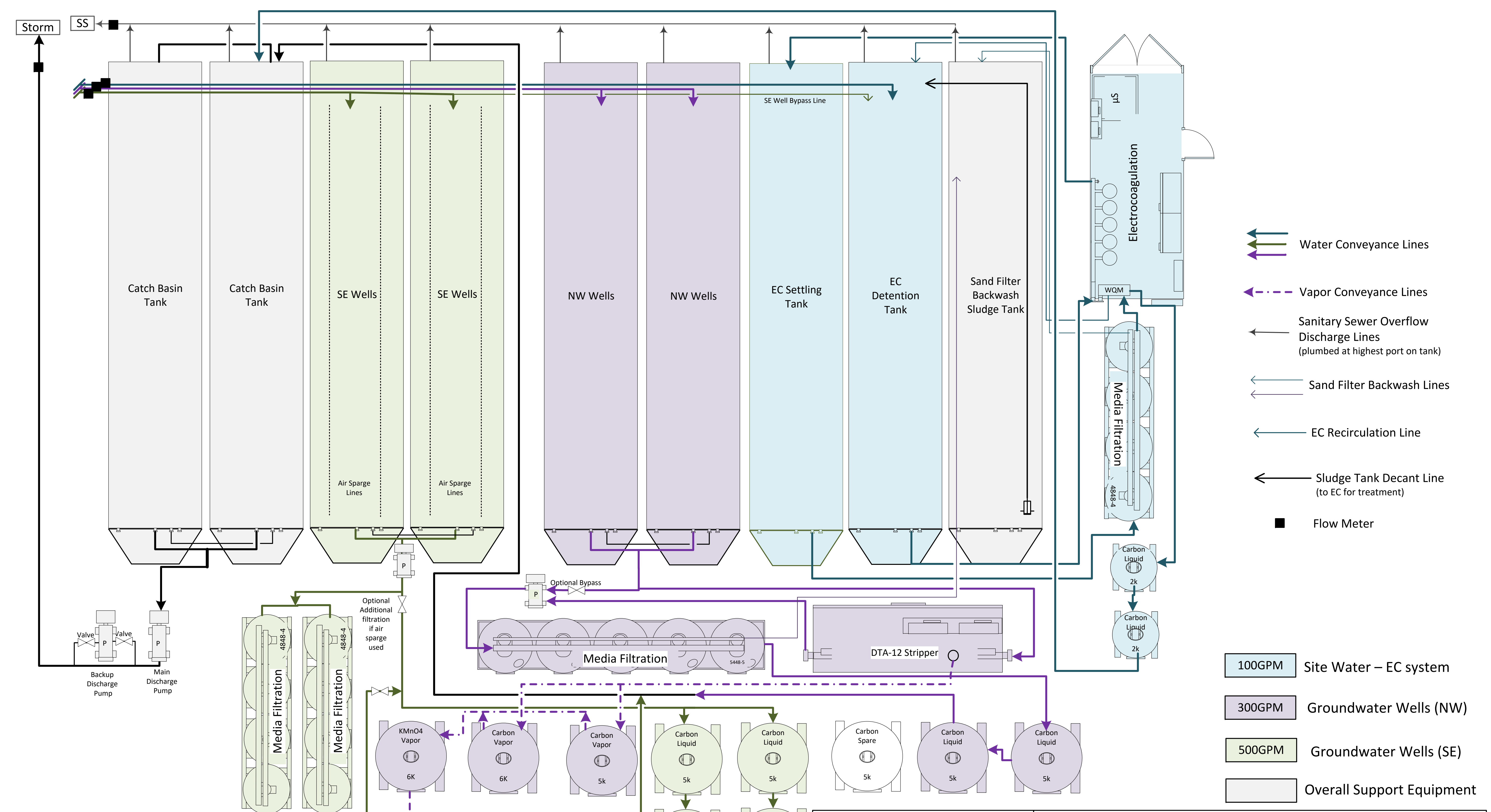
APPENDIX F
WATERTECTONICS WATER TREATMENT SYSTEM DESIGN

REMEDIAL INVESTIGATION WORK PLAN
Block 38 West Property
500 through 536 Westlake Avenue North
Seattle, Washington

Farallon PN: 397-019

GLY – Block 38 Equipment Layout

WATERTECTONICS



WATERTECTONICS

PG SIZE	DWG NO	PROJECT NAME	REV
11x17	1	GLY(B38)	0

DRAWN L.Doty

ISSUED 2/4/2020

SCALE 1/8" = 1'-0"

SHEET 1 of 1

APPENDIX G
UST01 AND UST02 DECOMMISSIONING RECORDS

REMEDIAL INVESTIGATION WORK PLAN
Block 38 West Property
500 through 536 Westlake Avenue North
Seattle, Washington

Farallon PN: 397-019

Construction Group International, LLC
19407 144th Avenue NE, Building D
Woodinville, WA 98072
*(425)487-2618 * (425)487-2619*

Environmental * Demolition * Waterproofing * Coatings
Washington License #CONSTIGI953NA

Billing Summary

Customer: Vulcan

Date: 3/3/2020

Attn: Raymond Burdick

Project Name: Block 38 Development UST Removal, Seattle, WA

Address: 505 -5th Ave S, Suite 900, Seattle, Wa 98104

Job #: U20065

Phone: 206-342-2451

P.O.# 10120-00044

Fax: 206-342-3000

Other #:

We hereby submit the following itemized cost breakdown and description of proposed work:

Below are the itemized T&M costs for the Underground Storage Tank(s) remediation & removal on the above-mentioned project.

Removed (2) 1200-gal & 2500-gal bunker oil tanks, approximately10' in depth. General Contractor on site to provide excavator for tank removal. Locates, soil sampling, and reporting to regulatory agencies (DOE).

Item or Function	Qty	Rate	Labor	Material	Equipment	Disposal	Total
Mobilization	2	500	1,000.00				$1,000.00
UST Labor - Licensed Decommissioner	50	125	6,250.00				$6,250.00
Project Manager	2	95	190.00				$190.00
Excavator - Provide by GC on site.							
Small tools (fire extinguisher, no smoking signs, visqueen, chop saw, etc)	2	600		1,200.00			$1,200.00
Tank Pump and Rinse, Vac Truck & Operator	10	140			1,400.00		$1,400.00
Wash Water Disposal	3600	0.65				2,340.00	$2,340.00
Seattle Fire Dept Permit	2	414		828.00			$828.00
Marine Chemist, Gas Tank Inert	2	1545	3,090.00				$3,090.00
UST Haul Away	2	250	1,250.00		500.00		$1,750.00
Tank Destruction	2	695				1,390.00	$1,390.00
TOTALS							***$19,438.00***

Total Cost	***$19,438.00***
Overhead/Profit Included	***$0.00***
Sales Tax 10.1%	***$1,963.24***
TOTAL AMOUNT	***$21,401.24***

***Note: This Quotation Response is valid for thirty (30) days. Payment terms are net thirty (30) days from date of invoice, with interest accruing at 1.5% per month on all outstanding balances. All costs associated with debt collection shall be born by*

Mark A. Marcell

Mark A. Marcell - Construction Group International, LLC

Mark A. Marcell - President
Printed Name and Title

Authorized Signature

Printed Name and Title

Date

George D. Blair - Northwest Marine Chemist, Inc.
P.O. Box 7084, Tacoma, WA 98417
Office: 253-752-0149 Fax:
Email: gbcmc637@gmail.com

MARINE CHEMIST CERTIFICATE

Serial 637-01078
Page 1 of 1

Survey Requested by: ECI
Vessel Owner Agent: GLY/CGI
Date: Jan 27, 2020
Vessel: Tank Farm
Type of Vessel: Underground Storage Tank
Specific Location of Vessel: 500 N. Westlake
Last Three 3 Loadings: HFO as Fuel
Tests Performed: O_2, LEL, Visual, VOC
Time Survey Completed: 10:46

Inspected Spaces:

Group 1. 1-1800 Gal. UST

Safety Designations:

ATMOSPHERE SAFE FOR WORKERS
SAFE FOR LIMITED HOT WORK
LIMITATIONS:
Specific Location: *At job site.*
Hot Work Type: *This tank has been pressure washed free of any flammable residues, and is safe for excavation and transportation. Tests of residues show no ignition when exposed to propane torch.*

Test Results	**% O_2**	**% LEL**	**VOC**
Inspected spaces group 1	20.8%	<1%	< 1 ppm

Limits of Detection

0.1 ppm VOC

In the event of physical or atmospheric changes affecting the STANDARD SAFETY DESIGNATIONS assigned to any of the above spaces, this certificate is voided; spaces not listed on the Certificate are not to be entered unless authorized on another Certificate and/or maintained in accordance with OSHA 29 CFR 1915; or if in any doubt, immediately stop all work and contact the undersigned Marine Chemist. Unless otherwise stated on the Certificate, all spaces and affected adjacent spaces are to be reinspected daily or more often as necessary by the competent person or the authority having jurisdiction as applicable in support of work prior to entry or recommencement of work.

QUALIFICATIONS: Transfer of ballast, cargo, fuel or manipulation of valves or closure equipment tending to alter conditions in pipelines, tanks, or compartments subject to gas accumulation, unless specifically approved on this Certificate, requires inspection and a new Certificate for spaces so affected. All lines, vents, heating coils, valves, and similar enclosed appurtenances shall be considered "not safe" unless otherwise specifically designated. Movement of the vessel from its specific location voids the Certificate unless shifting of the vessel within the facility has been specifically authorized on this certificate.

STANDARD SAFETY DESIGNATIONS: (partial list, paraphrased from NFP 306, Subsections 4.3.1 through 4.3.6)

ATMOSPHERE SAFE FOR WORKERS: In the compartment or space so designated (a) the oxygen content of the atmosphere shall be at least 19.5 percent and not greater than 22 percent by volume; (b) the concentration of flammable materials is below 10 percent of the lower explosive limit; (c) any toxic materials in the atmosphere associated with cargo, fuel, tank coatings, inerting mediums, or fumigants are within permissible concentrations at the time of the inspection.

NOT SAFE FOR WORKERS: In the compartment or space so designated, entry shall not be permitted.

ENTER WITH RESTRICTIONS: In the compartment or space so designated, entry for work is permitted only if conditions of proper protective equipment, or clothing, or time, or all of the aforementioned, as appropriate, are as specified.

SAFE FOR HOT WORK: In the compartment or space so designated (a) the oxygen content of the atmosphere is not greater than 22 percent by volume; (b) the concentration of flammable materials in the atmosphere is less than 10 percent of the lower explosive limit; (c) the residues, scale, or preservative coatings are cleaned sufficiently to prevent the spread of fire and are not be capable of producing a higher concentration than permitted by (a) or (b); (d) all adjacent spaces, containing or having contained flammable or combustible materials shall be sufficiently cleaned of residues, scale, or preservative coatings to prevent the spread of fire; or they are inerted. Ship's fuel tanks, lube tanks, or engine room or fire room bilges, or other machinery spaces, are treated in accordance with the Marine Chemist's requirements.

SAFE FOR LIMITED HOT WORK: In the compartment or space so designated (a) portions of the space meet the requirements Safe for Hot Work and Partial Cleaning, as applicable, or (b) the space is inerted, adjacent spaces meet the requirements for Safe for Hot Work, and hot work is restricted to specific locations; (c) portions of the space shall meet the requirements for Safe for Hot Work, as applicable; and the nature or type of hot work shall be limited or restricted.

NOT SAFE FOR HOT WORK: In the compartment or space so designated, hot is not permitted.

CHEMISTS ENDORSEMENT. This is to certify that I have personally determined that all spaces in the foregoing list are in accordance with NFPA 306 Control of Gas Hazards on Vessels and have found the condition of each to be in accordance with its assigned designation.

"The undersigned acknowledges receipt of this Certificate under NFPA 306 and understands conditions and limitations under which it was issued, and the requirements for maintaining its validity."

This Certificate is based on conditions existing at the time the inspection herein set forth was completed and is issued subject to compliance with all qualifications and instructions.

Authorized Representative:
Company: ECI
Date: Jan 27, 2020
Signed Marine Chemist:
CMC No. 637

eci
Environmental Services
Practical Environmental Compliance Solutions
Offices In: Anchorage | Tacoma | Portland

January 27, 2020
ECI Project No.: 0520-26

Underground Storage Tank Decommissioning Certification

This is a statement of Underground Storage Tank Decommissioning provided by EcoCon, Inc. (ECI). ECI states this decommissioning has occurred under the supervision of an ICC Certified UST Decommissioner following the local and state rules and regulations as defined by the Uniform Fire Code (UFC) and Washington Administrative Code (WAC). Following Northwest Marine Chemist and Seattle Fire Department certification, the UST was excavated and transported off site to be cut up then disposed at a local metal recycling company.

Project Client:	Construction Group International
Project Name:	Block 38 - Bunker Oil UST #1
Project Address:	500 Westlake Ave. N., Seattle, WA
Type of Decommissioning:	Excavation and removal from sub-surface
UST Installation Date:	Unknown (pre 1980)
UST Decommissioning Date:	1/27/2020
Permit Issuance Date:	1/27/2020
UST #:	Tank #1
UST(s) Dimensions:	4.0 x 12 feet (Approximate) – 1 UST
UST(s) Total Gallons:	1200 Gallons (Approximate)
UST(s) Construction:	Steel – Single Wall Construction
Certified UST Decommissioner:	**Brad Reilly**
Certification Number:	**8289423 – Exp: 2/14/2020**

Brad N. Reilly

January 28, 2020
Date

**Your
Seattle
Fire Department**

APPLICATION FOR TEMPORARY PERMIT

Code 7908

Commercial Tank Removal/Decommissioning

Permit Fee:

Date Issued: 1/23/2020

TO BE COMPLETED BY PERMIT APPLICANT

Tank(s) must be removed from site on the same day as permit is issued!

BUSINESS NAME: ECI Environmental

MAILING ADDRESS: P.O. Box 153 SUITE:

CITY: Fox Island STATE: WA ZIP: 98333

JOBSITE ADDRESS: 500 Westlake Avenue

CONTACT PERSON: Brad Reilly PHONE NUMBER: (206) 779-0050

Number of Tank(s): 1 Tank Size(s): 1800 gallon ☐ Aboveground tank

Product(s) Previously Contained: Bunker Oil ☒ Underground tank

☒ Removal (Marine Chemist inspection and certificate required for all tanks regardless of size or contents)

☐ Abandonment-in-Place (Marine Chemist certificate required for tanks previously containing Class I flammable liquids and/or unknowns)

Hot work being conducted: ☒ No ☐ Yes (If yes, a separate hot work permit is required)

Permit applications may be submitted in person weekdays from 8:00 a.m. to 4:30 p.m., or mailed to:

Seattle Fire Department
Fire Marshal's Office – Permits
220 Third Ave S, 2nd Floor
Seattle, WA 98104-2608

To pay with a Visa or Master Card, email this completed application to us, **THEN CALL US TO CONFIRM RECEIPT AND MAKE PAYMENT.**
Tel: (206) 386-1450
E-mail: permits@seattle.gov

Call 206-386-1450, at least 24 hours prior to needed inspection time to arrange for an appointment.

TANKS MAY BE REMOVED/DECOMMISSIONED ONLY AFTER FIRE DEPARTMENT INSPECTION

NO HOT WORK IS ALLOWED ON A TANK SYSTEM PRIOR TO ISSUANCE OF THIS FIRE DEPARTMENT PERMIT!

Permission is hereby granted to remove or decommission the tank(s) identified in this permit in accordance with the attached conditions, all noted special conditions, and all applicable provisions of the Seattle Fire Code, and federal, state **THIS PERMIT IS NULL AND VOID IF PERMIT CONDITIONS ARE NOT ATTACHED.**

UST Decommisioner

I understand the conditions of this permit and will ensure all tank removal/decommissioning operations are conducted accordingly. I acknowledge that I received an inspection by a Seattle Fire Department ~~inspector today.~~

Brad Reilly
Print Name

Signature

UST Decommissioner
Title

Special permit conditions: *Tank removal/decommissioning must be performed, or directly supervised, by an ICC certified individual (WAC 173-360-600)*

FMO USE:
Check No.:
Receipt No.:
Application ID#:

APPROVED BY:
Inspector: SFD ID#
Name of Marine Chemist Certificate #
Date:

(01/19)

COMMERCIAL TANK REMOVAL/DECOMMISSIONING PERMIT CONDITIONS

1. Two (2) portable fire extinguishers each having a minimum rating of 40 BC shall be on site within 50 feet of the operation. Fire extinguishers shall be inspected, approved and certified annually.

2. Rope or ribbon barricades located at least 10 feet from the tank shall surround every outdoor storage tank removal or decommissioning operation or the operation shall be enclosed in a fenced yard.

3. "No Smoking" signs shall be posted in readily visible locations.

4. No hot work is allowed on a tank system prior to issuance of this permit and the tank is certified "Safe for Hot Work" by a Certified Marine Chemist. Hot work means any activities involving riveting, welding, burning, brazing, soldering, heating, chopping, grinding, ripping, drilling, cutting with a chop saw or "Sawzall", abrasive blasting, use of powder-actuated tools or similar spark-producing operations, crushing or mechanically shearing to facilitate opening for cleaning, disposal, scrapping for recycling purposes.

5. A separate temporary Seattle Fire Department permit (Code 4913) or a validation number assigned in conjunction with an annual hot work permit (Code 4911 or 4912) is required prior to any hot work operations.

6. Permits may cover multiple tanks located at the same address. If additional tanks are to be removed or abandoned at later dates, separate permits shall be obtained. Each address location requires a separate permit application regardless of whether multiple address locations are physically next to one another.

7. Additional fees will be charged if inspectors are required to work other than normal business hours. (Normal business hours are Monday through Friday, 8:00 a.m. to 4:30 p.m.)

8. No excavation of an underground tank is permitted prior to inspection by the Seattle Fire Marshal's Office.
   Exception: Removal of the top layer of asphalt or concrete only with no removal of dirt, pea gravel or soil over the underground storage tank. Further excavation may be allowed by a Seattle Fire Department Special Hazards Unit Inspector prior to the initial inspection depending on conditions and if the tank has been inerted by a Marine Chemist who is present on site. The name of the inspector and the time permission was given shall be made available at time of inspection.

9. Prior to inspection, to ensure tanks and connected piping are completely free of all flammable or combustible liquids, a receipt or certificate must be on site indicating the tanks have been pumped and rinsed by an approved company. Product and rinse water must be disposed of in an approved manner.

10. For tanks being decommissioned in place that previously contained Class I liquids, a Certified Marine Chemist certificate must be issued and available on site for inspection certifying that the tank has been properly inerted prior to filling.

11. No tank shall be filled prior to an inspection by the Seattle Fire Marshal's Office.

12. Tanks being decommissioned in place must be filled with a lean concrete mixture. Filling with foam is prohibited.

13. A Marine Chemist's certificate verifying the tank has been properly inerted or is otherwise certified "Safe for Hot Work" shall be issued and available on site for inspection for each underground and aboveground tank being removed regardless of the product previously contained.

14. If tanks are being removed, the tanks' atmosphere must be inert using one of the following approved methods:
    - Dry ice (pellets or chunks of solid CO_2). Minimum 40 lbs per 1000 gallons of tank capacity is recommended.
    - Compressed CO_2 gas in cylinders (Note: This method may only be performed by a Certified Marine Chemist).
    - Purging with air (gas-freeing) using Venturi tube apparatus, with proper bonding and grounding and after the tank has been pumped and rinsed by an approved company.

15. A maximum reading of less than 6% of oxygen must be obtained prior to the removal of the tanks if CO_2 or another inert gas, as approved by the Marine Chemist, is used to inert the tank or, a reading of 0% LEL must be obtained prior to removal of the tank if the air-purging (Venturi air moving devices) method is used.

16. All local, state and federal regulations for confined space entry shall be complied with prior to entering an underground storage tank.

17. Tanks with baffles to prevent movement of liquid must be certified gas-freed or inerted by a Certified Marine Chemist or a Petroleum Industry Safety Engineer regularly engaged in that business prior to removal.

18. Tanks being removed must be removed from the site and relocated to a remote, approved facility on the same day that the permit is issued.

19. During the hot work operations, digging, excavating, hauling or transport of petroleum storage tanks that have not been cleaned and gas-freed, tanks must be inerted to less than 6% oxygen. All openings are to be cap closed and secured except for one 1/8" hole drilled through a cap. These tanks are to be sprayed painted with "INERTED, DO NOT ENTER" or "INERTED WITH CO_2, NOT SAFE FOR WORKERS".

BILL OF LADING

PRODUCT TRANSPORT MANIFEST

N° 31005

MARINE VACUUM SERVICE, INC.

24 HOUR EMERGENCY PHONE NUMBER (206) 762-0240
FAX NUMBER 206-763-8084
TRUCK NUMBER ________ DATE 1/27/20

TO
DESTINATION
NAME Marine Vacuum Service, Inc.
STREET 1516 South Graham Street
CITY/STATE Seattle, WA 98108

FROM
SHIPPER
NAME CGI Construction
STREET 500 Westlake Ave N
CITY/STATE Seattle, WA

QUANTITY	PROPER SHIPPING NAME	UN (PLACARD) NUMBER
1-1500	UST for disposal	

RECEIVER Ray
SLUDGE DATE 1/27/20
SHIPPER
DATE 1/27/2020

NOTE: Cleaned 1/27

Customer warrants that the waste petroleum products being transferred by the above collector do not contain any contaminates including without limitations, pesticides, chlorinated solvents at concentrations greater than 1000 PPM, any detectable levels of PCBs, or any other material classified as dangerous or hazardous waste by 40 CFR Part 261, Subpart C and D (implementing the Federal Resource Conservation and Recover Act), or by any equivalent state dangerous or hazardous substance classification programs. Should laboratory tests find this waste not in compliance with 40 CFR Part 261, customer (generator) agrees to pay for all disposal costs incurred.

George D. Blair - Northwest Marine Chemist, Inc.
P.O. Box 7084, Tacoma, WA 98417
Office: 253-752-0149 Fax:
Email: gbcmc637@gmail.com

MARINE CHEMIST CERTIFICATE

Serial 637-01081
Page 1 of 1

ECI	GLY/CGI	Feb 7, 2020
Survey Requested by	Vessel Owner Agent	Date
Tank Farm	Underground Storage Tank	500 N. Westlake
Vessel	Type of Vessel	Specific Location of Vessel
HFO as Fuel	O_2, LEL, Visual, VOC	12:50
Last Three 3 Loadings	Tests Performed	Time Survey Completed

Inspected Spaces:

Group 1. 12-2,500 Gal. UST

Safety Designations:

ATMOSPHERE SAFE FOR WORKERS
SAFE FOR LIMITED HOT WORK
LIMITATIONS:
Specific Location: *At job site.*
Hot Work Type: *This tank has been pressure washed free of any flammable residues, and is safe for excavation and cleaning in place. Tests of residues show no propagated flame when exposed to propane torch. Sparks will not ignite residues.*

Instructions

Maintain firewatch with charged extinguisher at ready during excavation operations.

Test Results	**% O_2**	**% LEL**	**VOC**
Inspected spaces group 1	20.8%	<1%	10 ppm

Limits of Detection

0.1 ppm VOC

In the event of physical or atmospheric changes affecting the STANDARD SAFETY DESIGNATIONS assigned to any of the above spaces, this certificate is voided; spaces not listed on the Certificate are not to be entered unless authorized on another Certificate and/or maintained in accordance with OSHA 29 CFR 1915; or if in any doubt, immediately stop all work and contact the undersigned Marine Chemist. Unless otherwise stated on the Certificate, all spaces and affected adjacent spaces are to be reinspected daily or more often as necessary by the competent person or the authority having jurisdiction as applicable in support of work prior to entry or recommencement of work.

QUALIFICATIONS: Transfer of ballast, cargo, fuel or manipulation of valves or closure equipment tending to alter conditions in pipelines, tanks, or compartments subject to gas accumulation, unless specifically approved on this Certificate, requires inspection and a new Certificate for spaces so affected. All lines, vents, heating coils, valves, and similar enclosed appurtenances shall be considered "not safe" unless otherwise specifically designated. Movement of the vessel from its specific location voids the Certificate unless shifting of the vessel within the facility has been specifically authorized on this certificate.
STANDARD SAFETY DESIGNATIONS: (partial list, paraphrased from NFP 306, Subsections 4.3.1 through 4.3.6)
ATMOSPHERE SAFE FOR WORKERS: In the compartment or space so designated (a) the oxygen content of the atmosphere shall be at least 19.5 percent and not greater than 22 percent by volume; (b) the concentration of flammable materials is below 10 percent of the lower explosive limit; (c) any toxic materials in the atmosphere associated with cargo, fuel, tank coatings, inerting mediums, or fumigants are within permissible concentrations at the time of the inspection.
NOT SAFE FOR WORKERS: In the compartment or space so designated, entry shall not be permitted.
ENTER WITH RESTRICTIONS: In the compartment or space so designated, entry for work is permitted only if conditions of proper protective equipment, or clothing, or time, or all of the aforementioned, as appropriate, are as specified.
SAFE FOR HOT WORK: In the compartment or space so designated (a) the oxygen content of the atmosphere is not greater than 22 percent by volume; (b) the concentration of flammable materials in the atmosphere is less than 10 percent of the lower explosive limit; (c) the residues, scale, or preservative coatings are cleaned sufficiently to prevent the spread of fire and are not be capable of producing a higher concentration than permitted by (a) or (b); (d) all adjacent spaces, containing or having contained flammable or combustible materials shall be sufficiently cleaned of residues, scale, or preservative coatings to prevent the spread of fire; or they are inerted. Ship's fuel tanks, lube tanks, or engine room or fire room bilges, or other machinery spaces, are treated in accordance with the Marine Chemist's requirements.
SAFE FOR LIMITED HOT WORK: In the compartment or space so designated (a) portions of the space meet the requirements Safe for Hot Work and Partial Cleaning, as applicable, or (b) the space is inerted, adjacent spaces meet the requirements for Safe for Hot Work, and hot work is restricted to specific locations; (c) portions of the space shall meet the requirements for Safe for Hot Work, as applicable; and the nature or type of hot work shall be limited or restricted.
NOT SAFE FOR HOT WORK: In the compartment or space so designated, hot is not permitted.

CHEMISTS ENDORSEMENT. This is to certify that I have personally determined that all spaces in the foregoing list are in accordance with NFPA 306 Control of Gas Hazards on Vessels and have found the condition of each to be in accordance with its assigned designation.

"The undersigned acknowledges receipt of this Certificate under NFPA 306 and understands conditions and limitations under which it was issued, and the requirements for maintaining its validity."

This Certificate is based on conditions existing at the time the inspection herein set forth was completed and is issued subject to compliance with all qualifications and instructions.

	ECI	Feb 7, 2020		637
Authorized Representative	Company	Date	Signed Marine Chemist	CMC No.

eci
Environmental Services
Practical Environmental Compliance Solutions
Offices In: Anchorage | Tacoma | Portland

February 10, 2020
ECI Project No.: 0520-26-02

Underground Storage Tank Decommissioning Certification

This is a statement of Underground Storage Tank Decommissioning provided by EcoCon, Inc. (ECI). ECI states this decommissioning has occurred under the supervision of an ICC Certified UST Decommissioner following the local and state rules and regulations as defined by the Uniform Fire Code (UFC) and Washington Administrative Code (WAC). Following Northwest Marine Chemist and Seattle Fire Department certification, the UST was excavated and transported off site to be cut up then disposed at a local metal recycling company.

Project Client:	Construction Group International
Project Name:	Block 38 - Bunker Oil UST #2
Project Address:	500 Westlake Ave. N., Seattle, WA
Type of Decommissioning:	Excavation and removal from sub-surface
UST Installation Date:	Unknown (pre 1980)
UST Decommissioning Date:	2/07/2020
Permit Issuance Date:	2/07/2020
UST #:	Tank #1
UST(s) Dimensions:	5.0 x 16 feet (Approximate) – 1 UST
UST(s) Total Gallons:	2500 Gallons (Approximate)
UST(s) Construction:	Steel – Single Wall Construction
Certified UST Decommissioner:	**Brad Reilly**
Certification Number:	**8289423 – Exp: 2/14/2020**

Brad N. Reilly

February 10, 2020
Date

**Your
Seattle
Fire Department**

APPLICATION FOR TEMPORARY PERMIT

Code 7908

Commercial Tank Removal/Decommissioning

Permit Fee:

Date Issued: 02/06/2020

TO BE COMPLETED BY PERMIT APPLICANT

Tank(s) must be removed from site on the same day as permit is issued!

BUSINESS NAME: ECI Environmental

MAILING ADDRESS: P.O. Box 153 SUITE:

CITY: Fox Island STATE: WA ZIP: 98333

JOBSITE ADDRESS: 500 Westlake Avenue

CONTACT PERSON: Brad Reilly PHONE NUMBER: (206) 779-0050

Number of Tank(s): 1 Tank Size(s): 2200 ☐ Aboveground tank

Product(s) Previously Contained: Bunker Oil ☒ Underground tank

☒ Removal (Marine Chemist inspection and certificate required for all tanks regardless of size or contents)

☐ Abandonment-in-Place (Marine Chemist certificate required for tanks previously containing Class I flammable liquids and/or unknowns)

Hot work being conducted: ☒ No ☐ Yes (If yes, a separate hot work permit is required)

Permit applications may be submitted in person weekdays from 8:00 a.m. to 4:30 p.m., or mailed to:

Seattle Fire Department
Fire Marshal's Office – Permits
220 Third Ave S, 2nd Floor
Seattle, WA 98104-2608

To pay with a Visa or Master Card, email this completed application to us, **THEN CALL US TO CONFIRM RECEIPT AND MAKE PAYMENT.**
Tel: (206) 386-1450
E-mail: permits@seattle.gov

Call 206-386-1450, at least 24 hours prior to needed inspection time to arrange for an appointment.

TANKS MAY BE REMOVED/DECOMMISSIONED ONLY AFTER FIRE DEPARTMENT INSPECTION

NO HOT WORK IS ALLOWED ON A TANK SYSTEM PRIOR TO ISSUANCE OF THIS FIRE DEPARTMENT PERMIT!

Permission is hereby granted to remove or decommission the tank(s) identified in this permit in accordance with the attached conditions, all noted special conditions, and all applicable provisions of the Seattle Fire Code, and federal, state, and local regulations. **THIS PERMIT IS NULL AND VOID IF PERMIT CONDITIONS ARE NOT ATTACHED.**

I understand the conditions of this permit and will ensure all tank removal/decommissioning operations are conducted accordingly. I acknowledge that I received an inspection by a Seattle Fire Department inspector today.

Brad Reilly
Print Name

Signature

UST Decommissioner
Title

Special permit conditions: *Tank removal/decommissioning must be performed, or directly supervised, by an ICC certified individual (WAC 173-360-600)*

FMO USE:
Check No.:
Receipt No.:
Application ID#:

APPROVED BY:
Inspector: SFD ID#
Name of Marine Chemist Certificate #
Date:

(01/19)

COMMERCIAL TANK REMOVAL/DECOMMISSIONING PERMIT CONDITIONS

1. Two (2) portable fire extinguishers each having a minimum rating of 40 BC shall be on site within 50 feet of the operation. Fire extinguishers shall be inspected, approved and certified annually.
2. Rope or ribbon barricades located at least 10 feet from the tank shall surround every outdoor storage tank removal or decommissioning operation or the operation shall be enclosed in a fenced yard.
3. "No Smoking" signs shall be posted in readily visible locations.
4. No hot work is allowed on a tank system prior to issuance of this permit and the tank is certified "Safe for Hot Work" by a Certified Marine Chemist. Hot work means any activities involving riveting, welding, burning, brazing, soldering, heating, chopping, grinding, ripping, drilling, cutting with a chop saw or "Sawzall", abrasive blasting, use of powder-actuated tools or similar spark-producing operations, crushing or mechanically shearing to facilitate opening for cleaning, disposal, scrapping for recycling purposes.
5. A separate temporary Seattle Fire Department permit (Code 4913) or a validation number assigned in conjunction with an annual hot work permit (Code 4911 or 4912) is required prior to any hot work operations.
6. Permits may cover multiple tanks located at the same address. If additional tanks are to be removed or abandoned at later dates, separate permits shall be obtained. Each address location requires a separate permit application regardless of whether multiple address locations are physically next to one another.
7. Additional fees will be charged if inspectors are required to work other than normal business hours. (Normal business hours are Monday through Friday, 8:00 a.m. to 4:30 p.m.)
8. No excavation of an underground tank is permitted prior to inspection by the Seattle Fire Marshal's Office.
   Exception: Removal of the top layer of asphalt or concrete only with no removal of dirt, pea gravel or soil over the underground storage tank. Further excavation may be allowed by a Seattle Fire Department Special Hazards Unit Inspector prior to the initial inspection depending on conditions and if the tank has been inerted by a Marine Chemist who is present on site. The name of the inspector and the time permission was given shall be made available at time of inspection.
9. Prior to inspection, to ensure tanks and connected piping are completely free of all flammable or combustible liquids, a receipt or certificate must be on site indicating the tanks have been pumped and rinsed by an approved company. Product and rinse water must be disposed of in an approved manner.
10. For tanks being decommissioned in place that previously contained Class I liquids, a Certified Marine Chemist certificate must be issued and available on site for inspection certifying that the tank has been properly inerted prior to filling.
11. No tank shall be filled prior to an inspection by the Seattle Fire Marshal's Office.
12. Tanks being decommissioned in place must be filled with a lean concrete mixture. Filling with foam is prohibited.
13. A Marine Chemist's certificate verifying the tank has been properly inerted or is otherwise certified "Safe for Hot Work" shall be issued and available on site for inspection for each underground and aboveground tank being removed regardless of the product previously contained.
14. If tanks are being removed, the tanks' atmosphere must be inert using one of the following approved methods:
    - Dry ice (pellets or chunks of solid CO_2). Minimum 40 lbs per 1000 gallons of tank capacity is recommended.
    - Compressed CO_2 gas in cylinders (Note: This method may only be performed by a Certified Marine Chemist).
    - Purging with air (gas-freeing) using Venturi tube apparatus, with proper bonding and grounding and after the tank has been pumped and rinsed by an approved company.
15. A maximum reading of less than 6% of oxygen must be obtained prior to the removal of the tanks if CO_2 or another inert gas, as approved by the Marine Chemist, is used to inert the tank or, a reading of 0% LEL must be obtained prior to removal of the tank if the air-purging (Venturi air moving devices) method is used.
16. All local, state and federal regulations for confined space entry shall be complied with prior to entering an underground storage tank.
17. Tanks with baffles to prevent movement of liquid must be certified gas-freed or inerted by a Certified Marine Chemist or a Petroleum Industry Safety Engineer regularly engaged in that business prior to removal.
18. Tanks being removed must be removed from the site and relocated to a remote, approved facility on the same day that the permit is issued.
19. During the hot work operations, digging, excavating, hauling or transport of petroleum storage tanks that have not been cleaned and gas-freed, tanks must be inerted to less than 6% oxygen. All openings are to be cap closed and secured except for one 1/8" hole drilled through a cap. These tanks are to be sprayed painted with "INERTED, DO NOT ENTER" or "INERTED WITH CO_2, NOT SAFE FOR WORKERS".

BILL OF LADING
PRODUCT TRANSPORT MANIFEST
MARINE VACUUM SERVICE, INC.

Nº 38928

24 HOUR EMERGENCY PHONE NUMBER (206) 762-0240
FAX NUMBER 206-763-8084
TRUCK NUMBER ________ DATE 2-7-20

TO
DESTINATION
NAME Marine Vacuum Service, Inc
STREET 1516 South Graham Street
CITY/STATE Seattle, WA 98108

FROM
SHIPPER
NAME CGI Construction
STREET 500 Westlake Ave N
CITY/STATE Seattle WA

QUANTITY	PROPER SHIPPING NAME	UN (PLACARD) NUMBER
UST.	1800 Gal Tank (Empty)	

RECEIVER DJS. Roy
SLUDGE
DATE 2-7-20
SHIPPER X
DATE

NOTE: * Drop off 1 UST Tank for Disposal.

Customer warrants that the waste petroleum products being transferred by the above collector do not contain any contaminates including without limitations, pesticides, chlorinated solvents at concentrations greater than 1000 PPM, any detectable levels of PCBs, or any other material classified as dangerous or hazardous waste by 40 CFR Part 261, Subpart C and D (implementing the Federal Resource Conservation and Recover Act, or by any equivalent state dangerous or hazardous substance classification programs. Should laboratory tests find this waste not in compliance with 40 CFR Part 261, customer (generator) agrees to pay for all disposal costs incurred.

APPENDIX H
VAPOR BARRIER SPECIFICATIONS

REMEDIAL INVESTIGATION WORK PLAN
Block 38 West Property
500 through 536 Westlake Avenue North
Seattle, Washington

Farallon PN: 397-019

DRAGO® WRAP VAPOR INTRUSION BARRIER
SUMMARY OF PERMEATION AND ATTENUATION TESTING

BACKGROUND

From October 2015 through August 2018, Drago Wrap Vapor Intrusion Barrier was subjected to a series of diffusion and sorption tests to obtain the film's diffusion, partitioning, and permeation characteristics. This testing was designed and overseen by an expert in the permeation of volatile organic compounds (VOCs) at a prominent university. The results of this testing, combined with further modeling and analysis, have been used to empirically determine the attenuation efficacy of Drago Wrap against various hydrocarbons and chlorinated solvents. The purpose of this document is to briefly discuss the theory behind diffusive vapor intrusion (VI); summarize and explain the robust testing protocol utilized; and relay the results of the testing and analysis.

CHEMICALS TESTED

Drago Wrap has been tested with regard to permeation of the following chemicals: Trichloroethylene (TCE); Perchloroethylene (PCE); the BTEX family: Benzene, Toluene, Ethylbenzene, Xylene; Dichloromethane; 1,4 Dichlorobenzene; Methyl tert-butyl ether (MTBE) and Naphthalene. This list was chosen based on a survey of the most often found chemicals on brownfield projects.

THEORY

The practical purpose behind obtaining permeation, diffusion, and partitioning coefficients is to apply them to the equations governing mass flux per Fick's laws during design of VI mitigation systems. The following briefly explains the theory and physics behind Fick's First Law.

The diffusion coefficient, D_g (units expressed in [m^2/s]), is the parameter defining the membrane's resistance to the diffusive mass flux [g/m^2s] transported within the membrane as governed by Fick's First Law:

$$f = -D_g \frac{dc_g}{d_z} \qquad \text{(Eq. 1)}$$

due to a concentration gradient dc_g/d_z [g/m^4] in the membrane layer. If the contaminant source is an aqueous solution adjacent to the membrane, the concentration of the contaminant in the membrane can be related to that in the fluid (at equilibrium) by the partitioning coefficient, S_{gf} (where S_{gf} is analogous to a Henry's coefficient). It is given by Equation 2 and depends on the solubility of the contaminant in the material:

$$S_{gf} = \frac{c_g}{c_f} \qquad \text{(Eq. 2)}$$

where c_f is the concentration of the contaminant in the fluid, adjacent to and in equilibrium with, the concentration, c_g, in the membrane.

Thus, the mass flux (f) from the fluid on one side of the membrane to the fluid on the other side (at steady state) is given by:

$$f = S_{gf} D_g \frac{dc_g}{d_z} = \frac{P_g}{l} \Delta C \qquad \text{(Eq. 3)}$$

where l is the thickness of the film/membrane, and ΔC is the difference in concentration between the two sides of the film/membrane at steady state, and the product of the two parameters (S_{gf} D_g) is called the permeation coefficient, P_g (m^2/s):

$$P_g = S_{gf} D_g \quad \text{(Eq. 4)}$$

It can be gleaned from Equations 1-4 that the diffusion coefficient, $D_{g,}$ is not enough to characterize the film's mass transfer properties for contaminants moving from below the membrane to above it. Diffusive mass transfer through an intact geomembrane is a 3-step process: partitioning into the geomembrane; diffusion through the geomembrane; and partitioning out of the geomembrane. Both D_g and S_{gf} (or simply P_g) must be known in order to effectively utilize Fick's steady state mass transfer equations. Therefore, to allow for full and complete analysis, Drago Wrap's permeation was fully characterized with all three values (permeation, diffusion, and partitioning coefficients) for each chemical tested. Those values are contained in Table 2. It is also imperative to understand the differences in methodologies between lab and site-specific field-testing setups. If such differences exist, the addition of the phase transition coefficient between water and air, Henry's coefficient (H), may also be required in the analysis. A deeper discussion on accounting for these differences is beyond the scope of this summary. Please contact the Stego Industries' Technical Department for additional assistance.

TESTING METHODOLOGY

Two types of tests and subsequent modeling have been employed in characterizing Drago Wrap's relevant characteristics: diffusion testing, sorption testing, and the finite layer modeling and analysis program, POLLUTE v7 (Rowe and Booker 2004).

The diffusion testing setup used stainless steel double-compartment cells (Figure 1), such that source and receptor volumes were separated by the Drago Wrap membrane. The cell was screwed together, with the membrane secured using two Viton rings (Figure 2) to prevent the loss of contaminant at the connection between each compartment and the membrane. Both the source and receptor were filled with double deionized (DDI) water, and a septum was inserted into the sampling ports to prevent losses. A stock solution of contaminants was added to the source compartment to form a dilute aqueous solution with a known concentration. Before assembly, and after disassembly, the mass of the membrane was recorded.

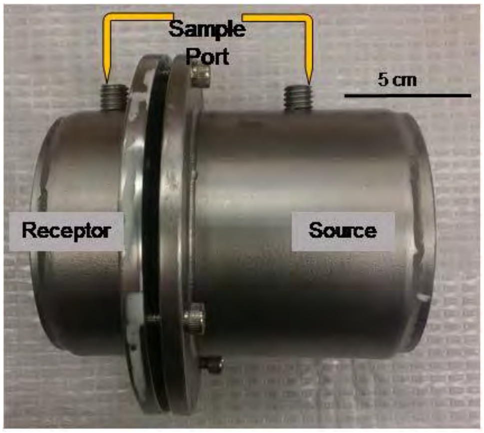


Figure 1: Double Compartment Cell

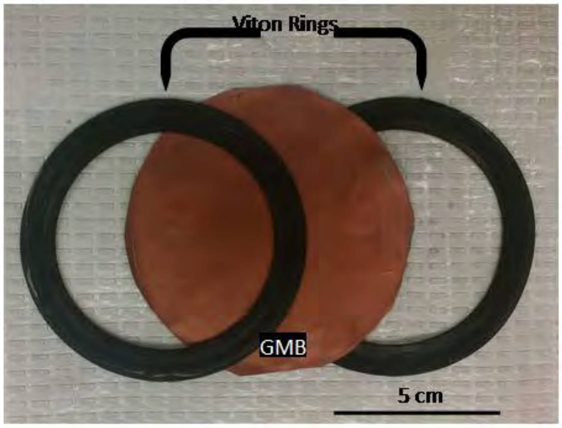


Figure 2: Membrane and Viton Rings

Sorption testing was also performed to directly measure the partitioning coefficients for each chemical. The sorption testing was conducted using 20-ml vials where a specimen was placed in double deionized water. The mass of the specimen was recorded beforehand. The vials were filled with double deionized water so that there was no airspace in the vial. Known masses of contaminants were added and 50 µl samples were taken daily from the vials for analysis and replaced with double deionized water until equilibrium was reached. The chemical analysis of these specimens was performed in the same manner as chemical analysis of the diffusion tests. This analysis is described in Appendix B.

The results from the diffusion and sorption tests were transduced and analyzed using the finite layer modeling and analysis program, POLLUTE v7, to create the results seen in Table 2.

In addition to whole-film testing, the discrete layers that make up Drago Wrap were tested to determine their respective permeation, diffusion and partitioning coefficients. The results obtained from the mathematical modeling of these tests do not necessarily equate to the values obtained from whole-film permeation testing. In other words, the full membrane benefits from a synergistic effect: the whole is greater than the sum of its parts. Due to its unique design, the testing demonstrated a very important feature to Drago Wrap: its ability to degrade chlorinated solvents like TCE. The results show about a 50-day half-life for TCE when the membrane is installed in its intended orientation. The results in Table 2 come from the most conservative approach to analyzing the results and do not consider these synergies.

RESULTS

As described earlier, the values displayed in Table 2 result from a conservative approach to the analysis of data generated from several phases and years of testing, and subsequent numerical modeling. The preferred methodology for obtaining accurate results requires an aqueous-to-aqueous testing scenario. Table 2 depicts these results. There exist scenarios where mass flux design with Drago Wrap requires additional consideration of phase-change analysis beyond what is offered in Table 2. Please contact the Stego Industries' Technical Department for assistance should the need arise.

Table 1 – Descriptions of the Tested Chemicals

Chemical	Abbreviation	Family	Use
Benzene	Btex	Aromatic Hydrocarbon	Gasoline byproduct
Toluene	bTex	Aromatic Hydrocarbon	Gasoline byproduct
Ethylbenzene	btEx	Aromatic Hydrocarbon	Gasoline byproduct
M&P-Xylenes	bteX	Aromatic Hydrocarbon	Gasoline byproduct
O-Xylene	bteX	Aromatic Hydrocarbon	Gasoline byproduct
Trichloroethylene	TCE	Chlorinated Hydrocarbon	Dry Cleaning and Solvent
Tetrachloroethylene	PCE	Chlorinated Hydrocarbon	Dry Cleaning and Solvent
Methyl tert-butyl ether	MTBE	Oxygenate	Octane-increasing additive to fuel
Dichloromethane	DCM	Chlorinated Hydrocarbon	Paint Stripper, Decaffeinate, Aerosol propellant
Naphthalene	Naphthalene	Polycyclic Aromatic Hydrocarbon	Fumigant, Pyrotechnics, Wetting Agent
1,4-Dichlorobenzne	1,4-DCB	Chlorinated Hydrocarbon	Pesticide, Disinfectant, Deodorant

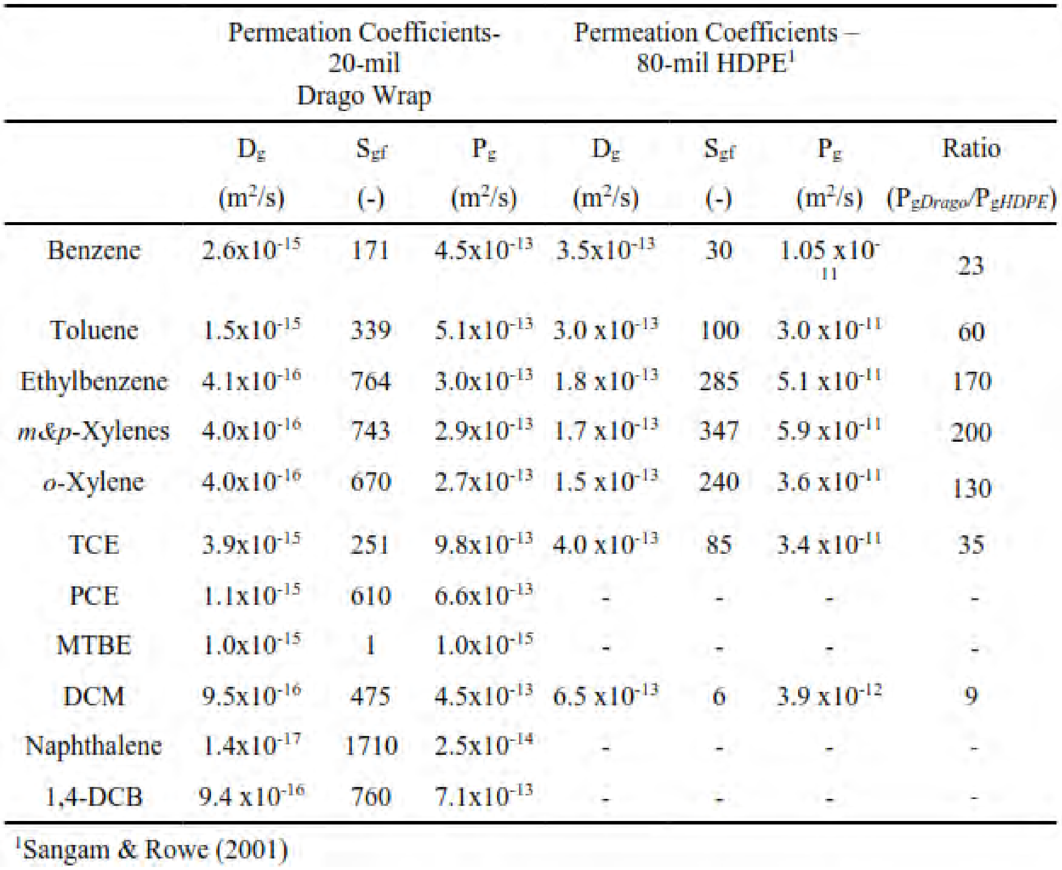
Table 2 – Aqueous Coefficients

Chemical	Diffusion, D_g [x 10^{-15} m^2/s]	Partitioning, S_{gf} [-]	Permeation, P_g [x 10^{-13} m^2/s]
Benzene	2.6	171	4.5
Toluene	1.5	339	5.1
Ethylbenzene	0.41	764	3.1
M&P-Xylenes	0.4	743	2.9
O-Xylene	0.4	670	2.7
TCE	3.9	251	9.8
PCE	1.1	610	6.6
MTBE	1	1	0.01
DCM	0.95	475	4.5
Naphthalene	0.014	1710	0.25
1,4-DCB	0.94	760	7.1

CONCLUSION

Drago Wrap has proven to be a superior barrier to standard geomembranes like HDPE (by a factor of about 10 to 200 – See Appendix A) for all contaminants where comparisons could be made to HDPE and has remarkably low values for BTEX, TCE; PCE; MTBE; Naphthalene; DCM; and 1,4 DCB with permeation coefficients of the order of magnitude of 10^{-13} – 10^{-14} m^2/s. In addition, the testing has shown that chlorinated solvents experience degradation while permeating through the membrane with a half-life of 50 days for TCE when the film is correctly oriented relative to the contaminant source.

APPENDIX A – COMPARISON TO HDPE (WHERE AVAILABLE)



	Permeation Coefficients- 20-mil Drago Wrap			Permeation Coefficients – 80-mil HDPE[1]			
	D_g (m^2/s)	S_{gf} (-)	P_g (m^2/s)	D_g (m^2/s)	S_{gf} (-)	P_g (m^2/s)	Ratio (P_{gDrago}/P_{gHDPE})
Benzene	$2.6x10^{-15}$	171	$4.5x10^{-13}$	$3.5x10^{-13}$	30	$1.05\ x10^{-11}$	23
Toluene	$1.5x10^{-15}$	339	$5.1x10^{-13}$	$3.0\ x10^{-13}$	100	$3.0\ x10^{-11}$	60
Ethylbenzene	$4.1x10^{-16}$	764	$3.0x10^{-13}$	$1.8\ x10^{-13}$	285	$5.1\ x10^{-11}$	170
m&p-Xylenes	$4.0x10^{-16}$	743	$2.9x10^{-13}$	$1.7\ x10^{-13}$	347	$5.9\ x10^{-11}$	200
o-Xylene	$4.0x10^{-16}$	670	$2.7x10^{-13}$	$1.5\ x10^{-13}$	240	$3.6\ x10^{-11}$	130
TCE	$3.9x10^{-15}$	251	$9.8x10^{-13}$	$4.0\ x10^{-13}$	85	$3.4\ x10^{-11}$	35
PCE	$1.1x10^{-15}$	610	$6.6x10^{-13}$	-	-	-	-
MTBE	$1.0x10^{-15}$	1	$1.0x10^{-15}$	-	-	-	-
DCM	$9.5x10^{-16}$	475	$4.5x10^{-13}$	$6.5\ x10^{-13}$	6	$3.9\ x10^{-12}$	9
Naphthalene	$1.4x10^{-17}$	1710	$2.5x10^{-14}$	-	-	-	-
1,4-DCB	$9.4\ x10^{-16}$	760	$7.1x10^{-13}$	-	-	-	-

[1] Sangam & Rowe (2001)

APPENDIX B– CHEMICAL ANALYSIS

The cells were sampled at regular time intervals. During each sampling event, 10 ul to 100 ul was removed from the cell, and that volume was replaced with DDI water so there was no airspace in the cell.

The samples were added to a vial containing 0.4 ml of methanol, 0.01 ml internal standard, and water was added so the total fluid volume in the vial was 1.6 ml. A Solid Phase Micro Extraction (SPME) fiber was inserted into vial headspace and the volatile compounds sorbed onto the fiber. This fiber was analyzed using gas chromatography (GC), and results compared to a certified laboratory standard calibration curve for the contaminant in question. Two types of detectors were used (depending on the cell in question); namely, a mass selective detector and a flame ionization detector. A quality assurance certified lab standard (from a different source to the calibration standards) was assessed during each sampling event.

All laboratory testing was conducted in a Canadian Association for Laboratory Accreditation (CALA) lab and followed CALA methods. This means that rigorous quality assurance practices were followed during chemical analysis. CALA frequently reviews the methods used and the accreditation is renewed every two years.

REFERENCES

Rowe, R. K., and Booker, J. R. (2004). "POLLUTE V.7 - 1D Pollutant Migration through a Non-homogenous Soil." GAEA Environmental Engineering Ltd.

Sangam, H. P., and Rowe, R. K. (2001). "Migration of dilute aqueous organic pollutants through HDPE geomembranes." Geotextiles and Geomembranes, 19(6), 329–357.

DRAGO® WRAP VAPOR INTRUSION BARRIER
RESISTANCE TO DEGRADATION – ADDITIONAL CONSIDERATIONS

Drago Wrap Vapor Intrusion Barrier, and the technologies that underlie this game-changing vapor intrusion protection product, has undergone extensive testing to determine its ability to attenuate VOCs and other relevant material properties. These tests exposed Drago Wrap to a host of deleterious chemicals that may exist at or below a project site, including various petroleum distillates, chlorinated solvents, etc. The results of these tests are positive and telling; they show that Drago Wrap is extremely impermeable to a wide range of chemical vapors and, more importantly for our current considerations, maintains such impermeability over the course of years of exposure to these deleterious compounds.

While the results of such testing speak extensively to Drago Wrap's ability to resist degradation in extreme exposure conditions, we wished to pursue multiple exposure scenarios to further increase the confidence project team members should have in Drago Wrap as a critical component of the vapor intrusion systems they utilize on their projects. The following pages detail these measures. The conclusions indicate that there were no significant changes in mass or volume of Drago Wrap when exposed to direct contact with soils contaminated with benzene, toluene, ethylbenzene, xylene (collectively known as BTEX), trichloroethylene (TCE), perchloroethylene (PCE, or tetrachloroethylene), cis-1,2-dichloroehtylne (C-DCE), trans-1,2-dichloroehtylene (T-DCE), and sulfates. Additionally, we tested the post-exposure samples to determine their tensile strength (ASTM E882) and permeance to water vapor (F1249), and we observed that Drago Wrap maintains its ability to meet each corresponding performance threshold for high-performance water vapor barriers: for D882, Drago Wrap remains a Class A Vapor Barrier per ASTM E1745; for F1249, Drago Wrap maintains a permeance well below 0.01 perms.

If additional questions remain regarding any aspect of Drago Wrap, please be sure to contact the Stego Technical Department. We are happy to help and look forward to the opportunity to provide an effective and economical solution to your barrier needs.

Regards,

Dan Marks CSI CDT LEED Green Associate
Technical Director | Stego Industries, LLC
O: (949) 325-2035| F: (949) 325-2062
danmarks@stegoindustries.com

SETUP

To simulate a hydrocarbon contaminated brownfield site, a senior chemist at a research and testing lab prepared contaminated water to contain 1,000 ppb of each benzene, toluene, ethylbenzene, and xylene (BTEX). Two liters of this mixture were placed in a chamber, 49 cm x 23.5 cm wide by 27 cm tall. ASTM C778 standard 20-30 sand was added to the vessel until it was 5 cm above the original water line. At this level, the sand was damp with no free-standing water. Drago Wrap samples were placed on top of the damp sand, and the entire surface of the membrane were weighted down with sand-filled plastic bags to ensure full contact of the Drago Wrap with the damp sand. The test vessel was covered and sealed. After 30 days of exposure under ambient laboratory conditions (21-25°C), the samples were removed for evaluation.

Simply stated:
We took relatively large amounts of often-seen hydrocarbons resulting from fuel spills and old service station sites and put them into a water table just 2 inches below a sample of Drago Wrap. This can be considered an extreme situation in that water tables are not typically that close to the slab and vapor barrier membrane. After a 30-day exposure, the mass and volume changes were analyzed, and we subsequently tested the material for its water vapor permeance rating and tensile strength.

RESULTS

Mass and Volume

The chemist conducted mass and volume measurements before and after exposure. The following comes directly from her report: *"All of the test coupons exhibited slight changes in mass and volume, no matter what their exposure conditions were. Statistical analysis by the two-tailed t-test showed that the changes for the BTEX-exposed coupons were not significantly different from the changes for the control-exposed coupons."*

Conclusion: In other words, Drago Wrap mass and volume were not significantly affected by the BTEX exposure.

Tensile Strength

Samples were sent by the lab to our in-house lab and tested per ASTM E882 in both the machine and transverse directions. After the 30-day extreme BTEX solvent exposure, the results were 50.2 lbf/in and 49.6 lbf/in for machine and transverse directions respectively. These results were not significantly different than the water-exposed control samples (48.7 lbf/in, 48.5 lbf/in) or the unexposed samples (48.5 lbf/in, 46.8 lbf/in). For another point of comparison, consider that to be labeled as Class A per ASTM E1745, new-material tensile need only test at 45 lbf/in.

Conclusion: BTEX exposure has little to no effect on Drago Wrap's physical integrity in below-slab applications.

Water Vapor Permeance

The testing lab then sent exposed and control samples to our in-house lab where they were subsequently tested per ASTM F1249. The results were very positive. The permeance of the sample exposed to the BTEX solution (0.00733 perms) increased minimally compared to the control (0.00614 perms), both staying well below the threshold of 0.01 perms.

Conclusion: BTEX exposure had minimal effect on Drago Wrap's ability to retard water vapor.

SETUP

To simulate a dry-cleaning brownfield site, a senior chemist at a research and testing lab prepared contaminated water to contain 3,600 ppb perchloroethylene (PCE), 12,500 PPB trichloroethylene (TCE), 16,200 PPB CIS-1,2-dichloroethylene (C-DCE), AND 1,700 PPB trans-1,2-dichlorothylene (T-DCE). Two liters of this mixture were placed in a chamber, 49 cm x 23.5 cm wide and 27 cm tall. ASTM C778 standard 20-30 sand was added to the vessel until it was 5 cm above the original water line. At this level, the sand was damp with no free-standing water. Drago Wrap samples were placed on top of the damp sand, and the entire surface of the vapor barrier was weighted down with sand-filled plastic bags to ensure full contact of the Drago Wrap with the damp sand. The test vessel was covered and sealed. After 30 days of exposure under ambient laboratory conditions (21-25°C), the samples were removed for evaluation.

Simply stated:
We took an actual soils report from an old dry cleaning site and recreated the conditions, roughly. In the actual scenario the water table was 20 feet below the vapor barrier. In our setup, we created a contaminated water table just 2 *inches* below Drago Wrap. After a 30-day exposure, the mass and volume changes were analyzed, and we subsequently tested the material for its water vapor permeance rating and tensile strength.

RESULTS

Mass and Volume
The chemist conducted mass and volume measurements before and after exposure. The following comes directly from her report: *"All of the test coupons exhibited slight changes in mass and volume, no matter what their exposure conditions were. Statistical analysis by the two-tailed t-test showed that the changes for the chlorinated solvent-exposed coupons were not significantly different from the changes for the control-exposed coupons."*

Conclusion: Drago Wrap's mass and volume were not significantly affected by the chlorinated solvent exposure.

Tensile Strength
Samples were sent by the lab to our in-house lab and tested per ASTM E882 in both the machine and transverse directions. After the 30-day extreme chlorinated solvent exposure, the results were 51.2 lbf/in and 49.7 lbf/in for machine and transverse directions respectively. These results were not significantly different than the water-exposed control samples (48.7 lbf/in, 48.5 lbf/in) or the unexposed samples (48.5 lbf/in, 46.8 lbf/in). For another point of comparison, consider that to be labeled as Class A per ASTM E1745, new-material tensile need only test at 45 lbf/in.

Conclusion: Chlorinated solvent exposure has little to no effect on Drago Wrap's physical integrity in below-slab applications.

Water Vapor Permeance
The testing lab then sent exposed and control samples to our in-house lab where they were subsequently tested per ASTM F1249. The results were very positive. The permeance of the sample exposed to the BTEX solution (0.00713 perms) increased minimally compared to the control (0.00614 perms), both staying well below the threshold of 0.01 perms.

Conclusion: Chlorinated solvent exposure had minimal effect on Drago Wrap's ability to retard water vapor.

SETUP

To simulate the worst possible sulfate exposure, a senior chemist at a research and testing lab prepared water contaminated with 10,000 PPM of SO4 (sulfate.) This sulfate concentration was chosen because it was rated as "very severe" (the highest or worst classification) by UC Berkeley professors conducting research for the Caltrans Long Life Pavement Rehabilitation Strategy (LLPRS) Program. The Chemist took this worst-case scenario concentration and soaked samples of Drago Wrap in it for 28 days. Upon removal, the samples were analyzed for changes in mass and volume, and subsequently the exposed product was tested to determine its tensile strength and water vapor permeance rate.

RESULTS

Mass & Volume

The chemist conducted mass and volume measurements before and after exposure. The following comes directly from her report: *"All of the test coupons exhibited slight changes in mass and volume, no matter what their exposure conditions were. Statistical analysis by the two-tailed t-test showed that the changes for the sulfate-exposed coupons were not significantly different from the changes for the control-exposed coupons."*

Conclusion: In other words, Drago Wrap's mass and volume were not significantly affected by the sulfate exposure.

Tensile

Samples were sent by the lab to our in-house lab and tested per ASTM E882 in both the machine and transverse directions. After the 28-day extreme sulfate exposure, the results were 49.6 lbf/in and 52.3 lbf/in for machine and transverse directions respectively. These results were not significantly different than the water-exposed control samples (48.7 lbf/in, 50.8 lbf/in) or the unexposed samples (48.5 lbf/in, 46.8 lbf/in). For another point of comparison, consider that to be labeled as Class A per ASTM E1745, new-material tensile need only test at 45 lbf/in.

Conclusion: Sulfate exposure has little to no effect on Drago Wrap's physical integrity in below-slab applications.

Water Vapor Permeance

The testing lab then sent exposed and control samples to our in-house lab where they were subsequently tested per ASTM F1249. The results were very positive. The permeance of the sample exposed to the sulfate solution (0.00734 perms) increased minimally compared to the control (0.00698 perms), both staying well below the threshold of 0.01 perms.

Conclusion: Sulfate exposure had no significant effect on Drago Wrap's ability to retard water vapor.

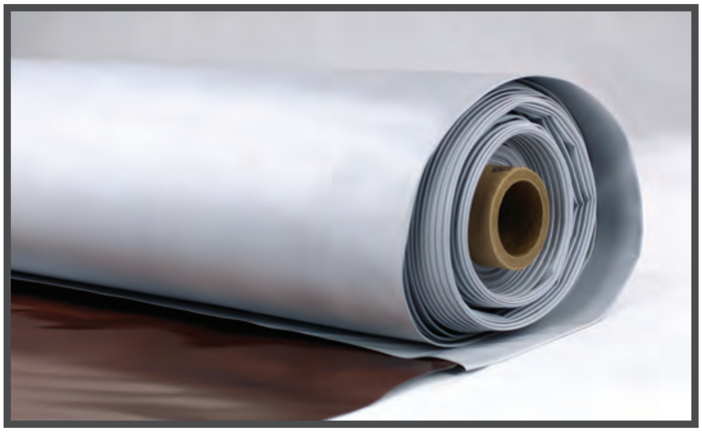
DRAGO DATA

DRAGO® WRAP
VAPOR INTRUSION BARRIER

A STEGO TECHNOLOGY, LLC INNOVATION | VAPOR RETARDERS 07 26 00, 03 30 00 | VERSION: 2/22/2019

1. PRODUCT NAME

DRAGO WRAP VAPOR INTRUSION BARRIER



2. MANUFACTURER

c/o Stego® Industries, LLC*
216 Avenida Fabricante, Suite 101
San Clemente, CA 92672
Sales, Technical Assistance
Ph: (877) 464-7834
Fx: (949) 257-4113
www.stegoindustries.com

3. PRODUCT DESCRIPTION

USES: Drago Wrap is specifically engineered to attenuate volatile organic compounds (VOCs) and serve as a below-slab moisture vapor barrier.

COMPOSITION: Drago Wrap is a multi-layered plastic extrusion that combines uniquely designed materials with only high grade, prime, virgin resins.

ENVIRONMENTAL FACTORS: Drago Wrap can be used in systems for the control of various VOCs including hydrocarbons, chlorinated solvents, radon, methane, soil poisons, and sulfates.

4. TECHNICAL DATA

TABLE 4.1: PHYSICAL PROPERTIES OF DRAGO WRAP VAPOR INTRUSION BARRIER

PROPERTY	TEST	RESULTS
Under Slab Vapor Retarders	ASTM E1745 – Standard Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs	ASTM E1745 Compliant
Water Vapor Permeance	ASTM F1249 – Test Method for Water Vapor Transmission Rate Through Plastic Film and Sheeting Using a Modulated Infrared Sensor	0.0069 perms
Push-Through Puncture	ASTM D4833 – Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products	183.9 Newtons
Tensile Strength	ASTM D882 – Test Method for Tensile Properties of Thin Plastic Sheeting	53.5 lbf/in
Permeance After Conditioning (ASTM E1745 Sections 7.1.2 - 7.1.5)	ASTM E154 Section 8, F1249 – Permeance after wetting, drying, and soaking ASTM E154 Section 11, F1249 – Permeance after heat conditioning ASTM E154 Section 12, F1249 – Permeance after low temperature conditioning ASTM E154 Section 13, F1249 – Permeance after soil organism exposure	0.0073 perms 0.0070 perms 0.0062 perms 0.0081 perms
Hydrocarbon Attenuation Factors	Contact Stego Industries' Technical Department	
Chlorinated Solvent Attenuation Factors	Contact Stego Industries' Technical Department	
Methane Transmission Rate	ASTM D1434 – Test Method for Determining Gas Permeability Characteristics of Plastic Film and Sheeting	7.0 GTR** (mL(STP)/m^2*day)
Radon Diffusion Coefficient	K124/02/95	9.8 x 10^{-14} m^2/second
Thickness		20 mil
Roll Dimensions		14' x 105' or 1,470 ft^2
Roll Weight		150 lb

Note: perm unit = grains/(ft^2*hr*in-Hg) ** GTR = Gas Transmission Rate

Continued...

Note – legal notice on page 2.

5. INSTALLATION

UNDER SLAB: Unroll Drago Wrap over a tamped aggregate, sand, or earth base. Overlap all seams a minimum of 12 inches and tape using Drago® Tape. All penetrations must be sealed using a combination of Drago Wrap and Drago Accessories.

Review Drago Wrap's complete installation instructions prior to installation.

6. AVAILABILITY & COST

Drago Wrap is available nationally through our network of building supply distributors. For current cost information, contact your local Drago distributor or Stego Industries' Sales Representative.

7. WARRANTY

Stego Industries, LLC believes to the best of its knowledge, that specifications and recommendations herein are accurate and reliable. However, since site conditions are not within its control, Stego Industries does not guarantee results from the use of the information provided and disclaims all liability from any loss or damage. Stego Technology, LLC does offer a limited warranty on Drago Wrap. Please see www.stegoindustries.com/legal.

8. MAINTENANCE

Store Drago Wrap in a dry and temperate area.

9. TECHNICAL SERVICES

Technical advice, custom CAD drawings, and additional information can be obtained by contacting Stego Industries or by visiting the website.

Contact Number: (877) 464-7834
Website: www.stegoindustries.com

10. FILING SYSTEMS

- www.stegoindustries.com

DRAGO® WRAP LIMITED WARRANTY
ISSUER: STEGO TECHNOLOGY, LLC (“Stego Tech”)

This Drago Wrap Limited Warranty (“the Warranty”) commences on the Effective Date and applies to Drago Wrap Vapor Intrusion Barrier (for the purposes of this Warranty “Drago Wrap”).

Stego Tech recommends installation of Drago Wrap per ASTM E1643, its published installation instructions, and in accordance with all site-specific recommendations of the project’s design team. Drago Wrap is specifically engineered to be installed in conjunction with its proprietary accessories, including Drago® Tape, DragoTack™ Tape, Drago® Sealant, and Drago® Sealant Form. Additionally, to avoid puncturing Drago Wrap and comply with ASTM E1643, Stego Tech recommends utilizing the Beast® Screed system of vapor barrier-safe accessories.

WARRANTY TERMS AND CONDITIONS

1 DRAGO WRAP WARRANTY

Stego Tech recognizes the most current version of ASTM E1745 (at the time of the material purchase) as the governing standard specification for under-slab vapor retarders. Subject to the limitations set forth below, for the Life of the Building™ Stego Tech warrants that Drago Wrap:

(a) meets all of the requirements for its designated ASTM E1745 classification;
(b) has been tested in accordance with each of the following ASTM test methods:
  i. ASTM E1745 – *Standard Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs*
  ii. ASTM F1249 – *Test Method for Water Vapor Transmission Rate Through Plastic Film and Sheeting Using a Modulated Infrared Sensor*
  iii. ASTM D1709 – *Test Methods for Impact Resistance of Plastic Film by Free-Falling Dart Method*
  iv. ASTM D882 – *Test Method for Tensile Properties of Thin Plastic Sheeting*
  v. ASTM E154 – *Sections 8, 11, 12, 13 – Permeance After Conditioning* [1]
  vi. ASTM D1434 – *Standard Test Method for Determining Gas Permeability Characteristics of Plastic Film and Sheeting*
  vii. ASTM D4833 – *Standard Test Method for Index Puncture Resistance of Geomembranes and Related Products*
(c) will be free from Manufacturing Composition Defects;
(d) eligible for input on project-specific installation best practices by a Stego Tech-authorized representative during the preconstruction phase upon reasonable notice, in-person or remotely; and
(e) eligible for Site Review by a Stego Tech-authorized representative, in-person or digitally, for input on installation prior to concrete placement upon reasonable notice.
(f) will meet or exceed its published product literature for **a period not less than two (2) years from the Date of Installation.**

This Warranty is the sole Warranty given by Stego Tech or its Affiliates as to Drago Wrap. All installations or uses of Drago Wrap automatically activate this Warranty. If you do not wish to be bound by the terms of this Warranty, please return the Drago Wrap for a full Refund. Otherwise, all installations will be presumed to have agreed to the terms herein.

2 NOTICE AND CLAIMS

Any Claim pursuant to this Warranty must be Certified and must be made within sixty (60) days of the date discovered or the date it should reasonably have been discovered in order for Stego Tech to evaluate the Claim and replace the Drago Wrap. Claims may be made at any time during the Life of the Building. Such replacement (or at Stego Tech’s option, Refund of the verified purchase price) shall be your sole and exclusive remedy for any such Claim.

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[1] Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover.

Continued...

3 WARRANTY AND CONDITIONS TO COVERAGE

This Warranty excludes any defect or damage caused by: (a) faulty or improper installation of the Drago Wrap, including the failure to comply with published specification and installation recommendations in effect at the time of installation; (b) improper use, storage or site conditions (e.g noncompliance with the terms of the Drago Wrap Material Safety Data Sheet); (c) any below-concrete slab or similar activity, and any other maintenance, repair, alteration or new installation to the Building that occurs after the completion of the original installation that impacts the Drago Wrap; (d) damage caused by non-Stego Tech materials; (e) factors beyond the reasonable control of Stego Tech or its Affiliates, including, but not limited to, natural disasters such as lightning, floods, windstorms, seismic disturbances, hurricanes, tornadoes, or impact of foreign objects or other violent storms or casualty; (f) damage resulting from any form of misuse, abuse or negligence; (g) structural defects or failures in the Building to which the Drago Wrap is installed.

Your sole remedy under this Warranty is, at Stego Tech's option: (a) Refund of the purchase price paid; or (b) replacement of so much of the Drago Wrap as Stego Tech deems necessary.

4 WARRANTY EXCLUSIONS

Except where prohibited by law, this Warranty and the remedies expressly stated herein are the exclusive warranties and remedies provided to you with respect to the Drago Wrap and supersede any prior, contrary or additional representations, whether oral or written. No representative, distributor, dealer or any other person is authorized to make, or makes any warranty, representation, condition or promise with respect to the Drago Wrap. ALL OTHER WARRANTIES ARE DISCLAIMED AND EXCLUDED – WHETHER EXPRESS, IMPLIED, OR STATUTORY – INCLUDING ANY **WARRANTY OF MERCHANTABILITY**, ANY **WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE**, AND ANY IMPLIED WARRANTIES OTHERWISE ARISING FROM COURSE OF DEALING, COURSE OF PERFORMANCE, OR USAGE OF TRADE.

In no event shall Stego Tech or its Affiliates be liable for any incidental, special, indirect, consequential damages, including but not limited to lost income or loss of use. This exclusion applies regardless of whether such damages are sought for breach of warranty, breach of contract, negligence, or strict liability in tort or any other legal or equitable theory.

5 SEVERANCE

If any provision in this Warranty is found to be invalid or unenforceable, then the remainder shall have full force and effect, and the invalid provision shall be modified or partially enforced to the maximum extent permitted by law to effectuate the purpose of the Warranty.

6 DISPUTE RESOLUTION

It is the intention of the parties to use their reasonable best efforts to informally resolve, where possible, any dispute, claim, demand or controversy arising out of the performance of this Warranty by mutual negotiation and cooperation. In the event that the parties are unable to informally resolve a dispute, the Parties agree that such disputes shall be completely and finally settled by submission to arbitration before a single arbitrator under the Judicial Arbitration and Mediation Services (JAMS) Arbitration Rules then in effect. Good faith mediation shall be a condition precedent to initiating arbitration. Unless the parties agree otherwise, the arbitration shall take place in Orange County, California, U.S.A. The award of the arbitrator shall be in writing, shall be final and binding upon the parties, shall not be appealed from or contested in any court and may, in appropriate circumstances, include injunctive relief. Judgment on such award may be entered in any court of appropriate jurisdiction, or application may be made to that court for a judicial acceptance of the award and an order of enforcement, as the party seeking to enforce that award may elect. The prevailing party shall be entitled to recover its attorney fees and costs. This Agreement shall be governed in all respects by the laws of the State of California without regard to the conflict of law provisions thereof. Neither party will consolidate, or seek class treatment for any action unless previously agreed to in writing by all parties.

Continued...

DEFINITIONS

*"**Affiliates**"* means Stego Tech affiliated entities, partners, joint venturers, suppliers, vendors, subcontractors, representatives, and agents.

*"**Applicable Date**"* means the Limited Warranty applies to material sold on or after January 1, 2018.

*"**Building**"* means the building above which Drago Wrap was installed, as verified by Stego Tech.

*"**Certified**"* means that you have investigated whether a breach of this Warranty occurred and obtained and provided a qualified inspector report confirming evidence exists of such a Defect. Stego Tech reserves the right to independently verify any Claims.

*"**Claim**"* means a claim for relief under the Warranty.

*"**Date of Installation**"* means the date Drago Wrap was installed, as verified by Stego Tech.

*"**Effective Date**"* means date of first sale as verified.

*"**Life of the Building**"* means the duration of which the building originally installed atop of the Drago Wrap is in good and working condition.

*"**Manufacturing Composition Defect**"* means any condition of the Drago Wrap that does not meet the material's intended design and is disclosed to Stego Tech during the Life of the Building.

*"**Refund**"* means Stego Tech providing a monetary return in the amount verified to be the cost of the Drago Wrap subject to the Claim.

*"**Site Review**"* means a review of representative portions of the Drago Wrap installation (digitally or in-person, when possible, and as determined by Stego Tech authorized representative) prior to concrete placement to help ensure compliance with governing installation standard, ASTM E1643, Stego Tech's installation instructions, and/or, if applicable, the design team's recommendations (e.g. contract documents). Site Reviews are not a full site inspection.

*"**Stego Tech**"* means Stego Technology, LLC, a California limited liability company with its principal place of business located at 216 Avenida Fabricante, #101, San Clemente, California 92672. Stego Industries, LLC is the exclusive representative of Drago Wrap and accessory products, owned by Stego Technology, LLC, a wholly independent company.

*"**Warranty**"* means this Drago Wrap Limited Warranty.

DRAGO® WRAP
SAFETY DATA SHEET

Revision Date: July 30, 2018 | Date of Issue: June 1, 2017 | Version Number: 2.0

SECTION 1: IDENTIFICATION

Product Identifier
Product Name: Drago Wrap

Intended Use of the Product
Vapor Intrusion Barrier

Company Name, Address, and Telephone of the Responsible Party
Stego Technology, LLC or C/O Stego® Industries, LLC*
216 Avenida Fabricante #101
San Clemente, CA 92672

Emergency Telephone Number
Emergency Number: 1 (800) 424-9300 (24 Hrs.) CHEMTREC
Main Contact Number: (877) 464-7834

SECTION 2: HAZARDS IDENTIFICATION

Classification: This product is not classified as hazardous in accordance with 29 C.F.R. § 1910.1200.
Signal word: None.
Pictogram(s): None.
Hazard statement(s): None.
Precautionary statement(s): None.
Hazards not otherwise classified: Polymer film can burn if exposed to excessive temperatures beyond the normal use of the product.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient	CAS Number	% by WT.
Copper	Proprietary*	<10%*

The selections marked with an '*' are proprietary and considered to be Trade Secrets. This is the reason that they are listed as such, or provided as a range.

SECTION 4: FIRST AID MEASURES

The following first aid recommendations are based on an assumption that appropriate personal and industrial hygiene practices are followed.

Inhalation: Not a respirable film. If exposed to fumes from combustion, move subject to fresh air; if breathing is difficult, give oxygen and get medical attention; if victim has stopped breathing, give artificial respiration and get medical attention.
Eye Contact: Not a probable route of exposure. If exposed to fumes from overheating or from combustion, move subject to fresh air. Flush with plenty of water; if irritation continues, get medical attention.
Skin Contact: No treatment necessary. For thermal burns, cool molten materials with water and get medical attention.
Ingestion: Not a probable route of exposure.

Continued...
Note - legal notice on page 5

SECTION 5: FIRE-FIGHTING MEASURES

Unusual Hazards: Polymer film can burn if exposed to excessive temperature beyond the normal use of the product.
Extinguishing Agents: Use extinguishing media appropriate for surrounding fire: carbon dioxide, foam, dry chemical, and water fog.
Personal Protective: Equipment unnecessary unless resin is burned, which is not an intended use of the product. If resin is burning, wear self-contained breathing apparatus (pressure-demand MSHAINIOSH approved or equivalent) and full protective gear.

Note: See Section 10 for hazardous combustion and thermal decomposition information.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Protection: None necessary.
Procedures: None necessary.

SECTION 7: HANDLING AND STORAGE

Storage Conditions: Cool, dry storage recommended. Indoor storage recommended.
Avoid storing films in areas containing aromatic hydrocarbons, halogenated compounds, chlorinated compounds, oxidative agents, solvents or other known polyethylene solubilizers, prodegradants, as they may impact the product performance and/or service life.
Handling Procedures: Avoid direct sunlight. Avoiding direct UV exposure of product. Avoid contact with incompatible materials.
Installation Temperature Range: Below 110°F (ambient). Please also see technical and safety data sheets for accessory products installation/application temperature ranges.
In-Service Temperature Range: Below 85°F (soil and slab temperature, beginning 28 days following slab placement). Please also see technical and safety data sheets for accessory products installation/application temperature ranges.
Exposure to Ultraviolet Radiation/Weather Events: The amount of time between when Stego Wrap is installed and when concrete is placed or other complete protection from sunlight and weather events is provided should be minimized while not exceeding 7 days.

Please review the remainder of the SDS and this wrap's technical data sheet for storage and additional information. If any of the conditions cited above pose a problem for the typical installation of Drago Wrap, please contact Stego Industries for additional information and solutions.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Ingredient	OSHA PEL	ACGIH TWA
Copper	0.1 mg/m^3 (Cu fume)	0.2 mg/m^3 (Cu fume)

Respiratory Protection: None required during handling. Local exhaust to remove fumes from heat sealing and hot wire cutting areas of packaging or bag converting for worker comfort.
Eye Protection: None necessary.
Hand Protection: None necessary.
Engineering Controls (Ventilation): Use local exhaust ventilation when routinely heat sealing this product. Recommended ventilation is with a minimum capture velocity of 100 ft/min. (30 m/min.) at the point of vapor evolution. Refer to the current edition of *Industrial Ventilation: A Manual of Recommended Practice* published by the American Conference of Governmental Industrial Hygienists for information on the design, installation, use, and maintenance of exhaust systems.

Continued...

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES *Continued...*

General Physical Form: Solid plastic film.

INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Plastic film
Color:	Copper and Gray
State:	Solid
Odor Characteristics:	None
Odor Threshold:	None
pH:	Not Applicable
Melting Point/Freezing Point:	Not Applicable
Initial Boiling Point and Boiling Point Range:	Not Applicable
Flash Point:	Not Applicable
Evaporation Rate:	Not Applicable
Flammability (solid, gas):	Not Applicable
Upper flammability:	Not Applicable
Lower Flammability:	Not Applicable
Vapor Pressure:	Not Applicable
Vapor Density:	Not Applicable
Relative Density:	Not Applicable
Solubility:	Not Applicable
Partition Coefficient: n-octanol/water:	Not Applicable
Auto ignition-temperature:	Not Applicable
Decomposition temperature:	>325°C (617°F)
Viscosity:	Not Applicable

SECTION 10: STABILITY AND REACTIVITY

Instability: This material is considered stable. Thermal decomposition is dependent on time and temperature.

HAZARDOUS DECOMPOSITION PRODUCTS

Substance	**Condition**
Hydrocarbons	Combustion by-product
Carbon Monoxide	Combustion by-product
Carbon Dioxide	Combustion by-product
Copper Fume	Combustion by-product

Hazardous Polymerization: Product will not undergo hazardous polymerization. Product does not decompose at ambient temperatures.
Incompatibility: Lead azide and lead stiphanate commonly used in high explosive detonators react violently with copper.
Reactivity: Reacts and binds with polar gases such as Hydrogen sulfide (H_2S), Ozone (0_3), Carbonyl sulfide (COS), Sulfur Dioxide ($S0_2$), Hydrogen chloride (HCI), Formic Acid, Acetic Acid.
Hazardous Decomposition: Under recommended usage conditions, hazardous decomposition products are not expected. Hazardous decomposition products may occur as a result of oxidation, heating, or reaction with another material.

Continued...

SECTION 11: TOXICOLOGICAL INFORMATION

This product, when used under reasonable conditions and in accordance with the directions for use, should not present a health hazard. However, use or processing of the product in a manner not in accordance with the product's directions for use may affect the performance of the product and may present potential health and safety hazards.

Acute Data: No Toxicity data are available for this material.

PRIMARY ROUTES OF EXPOSURE
Skin Contact: Only if burned.
Eye Contact: Only if burned.
Respiratory Contact: Only if burned.

ACUTE EFFECTS OF EXPOSURE
Ingestion: Not a probable route of exposure.
Inhalation: No inhalation risk unless product is heated to point of burning, which in normal applications does not occur. Fumes from combustion are unlikely to be produced during heat shrinking. Local ventilation should be used for comfort. Testing data shows copper/polymer particulate count at approximately 0.007mg/m^3, which is well below OSHA PEL of 0.1 mg/m^{3+}.
Eye Contact: No eye exposure risk during all product usage except during heating if plastic is heated to point of combustion, which does not occur during the intended use of the product. Fumes from combustion, which have a low toxicity, may be produced during hot wire cutting or heat sealing. Fumes are unlikely to be produced during heat shrinking when used as directed.
Skin Contact: Not irritating when used as directed. Hot polymer created during heat shrinking, wire cutting, or heat sealing, may produce thermal bums.
Chronic Effects of Exposure: None known when used as directed.
Carcinogenicity: None known when used as directed.

SECTION 12: ECOLOGICAL INFORMATION

This material is insoluble in water and not expected to present any environmental problems in normal application, however areas containing aromatic hydrocarbons, halogenated compounds, chlorinated compounds, pH extremities, oxidative agents, solvents or other known polyethylene solubilizers, prodegradants, etc. may impact the product performance and/or service life.

SECTION 13: DISPOSAL CONSIDERATIONS

Procedure: Reclaim if feasible. If product can't be reclaimed, no special requirements are necessary; dispose of as ordinary solid waste. Pick up film for good "housekeeping" and to prevent a slipping hazard. Incineration or landfill in compliance with federal, state and local regulations. *Since regulations vary, consult applicable regulations or authorities before disposal.*

SECTION 14: TRANSPORT INFORMATION

US DOT Hazard Class: Not regulated.

Continued...
Note - legal notice on page 5

SECTION 15: REGULATORY INFORMATION

Workplace Classification: This product is not considered hazardous under the OSHA Hazard Communication Standard (29 C.F.R. § 1910.1200).
CERCLA Information (40 C.F.R. 302.4): Because of the form in which copper is contained within the resin, releases of this material to air, land, or water are not reportable to the National Response Center under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).
Waste Classification: When this product becomes a waste, it is classified as a non-hazardous waste under criteria of the Resource Conservation and Recovery Act (40 C.F.R. 261).

SECTION 16: OTHER INFORMATION

HAZARD RATING
Health: 0 | Flammability: 1 | Reactivity: 0 | Special Hazards: None
Scale: 4 = Extreme / 3 = High / 2 = Moderate / 1 = Slight / 0 = Insignificant
National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material, but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.
Rating are based on internal supplier's guidelines, and they are intended for internal use only.

ABBREVIATIONS
ACGIH = American Conference of Governmental Industrial Hygienists
OSHA = Occupational Safety and Health Administration
TLV = Threshold Limit Value
PEL = Permissible Exposure Limit
TWA = Time Weighted Average
STEL = Short-Term Exposure Limit

Disclaimer: The information contained herein relates only to the specific material identified. Stego Technology, LLC believes that such information is accurate and reliable as of the date of this material safety data sheet, but no representation, guarantee or warranty, expressed or implied, is made as to the accuracy, reliability, or completeness of the information. Stego Technology, LLC urges persons receiving this information to make their own determination as to the information's suitability and completeness for their particular application.

**Please read the product statements for all Drago® products by navigating here:
http://www.stegoindustries.com/legal**

DRAGO® WRAP

VAPOR INTRUSION BARRIER

INSTALLATION INSTRUCTIONS

Engineered protection to create a ***healthy*** built environment.

DRAGO® WRAP VAPOR INTRUSION BARRIER
INSTALLATION INSTRUCTIONS

IMPORTANT: Please read these installation instructions completely, prior to beginning any Drago Wrap installation. The following installation instructions are generally based on ASTM E1643 – *Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs*. There are specific instructions in this document that go beyond what is stated in ASTM E1643 to take into account vapor intrusion mitigation. If project specifications call for compliance with ASTM E1643, then be sure to review the specific installation sections outlined in the standard along with the techniques referenced in these instructions.

UNDER-SLAB INSTRUCTIONS:

1. Drago Wrap has been engineered to be installed over a tamped aggregate, sand, or earth base. It is not typically necessary to have a cushion layer or sand base, as Drago Wrap is tough enough to withstand rugged construction environments.

NOTE: Drago Wrap must be installed with the gray facing the subgrade.

Fig.1: UNDER-SLAB INSTALLATION

2. Unroll Drago Wrap over the area where the slab is to be placed. Drago Wrap should completely cover the concrete placement area. All joints/seams should be overlapped a minimum of 12 inches and taped using Drago® Tape. (Fig. 1). If additional protection is needed, install DragoTack™ Tape in between the overlapped seam in combination with Drago Tape on top of the seam.

NOTE: The area of adhesion should be free from dust, dirt, moisture, and frost to allow maximum adhesion of the pressure-sensitive tape. Ensure that all seams are taped with applied pressure to allow for maximum and continuous adhesion of the pressure-sensitive Drago Tape. Adhesives should be installed above 40°F. In temperatures below 40°F, take extra care to remove moisture/frost from the area of adhesion.

3. ASTM E1643 requires sealing the perimeter of the slab. Extend vapor retarder over footings and seal to foundation wall or grade beam at an elevation consistent with the top of the slab or terminate at impediments such as waterstops or dowels. Consult the structural and environmental engineer of record before proceeding.

SEAL TO PERIMETER WALL OR FOOTING WITH DRAGOTACK TAPE: (Fig. 2a and 2b)

- a. Make sure area of adhesion is free of dust, dirt, debris, moisture, and frost to allow maximum adhesion.
- b. Remove release liner on one side and stick to desired surface.
- c. When ready to apply Drago Wrap, remove the exposed release liner and press firmly against DragoTack Tape to secure.
- d. If a mechanical seal is needed, fasten a termination bar over the top of the Drago Wrap inline with the DragoTack Tape.

NOTE: If sealing to the footing, the footing should receive a hand float finish to allow for maximum adhesion.

Fig.2a: SEAL TO PERIMETER WALL

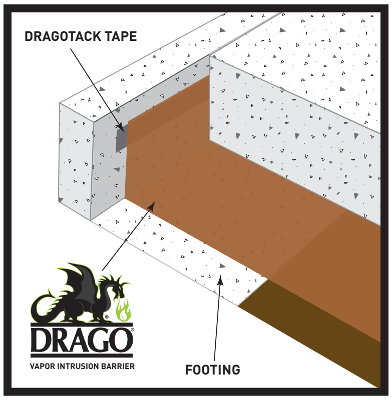
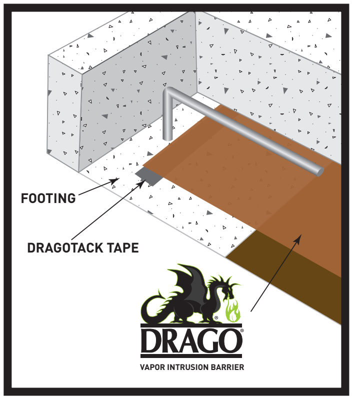
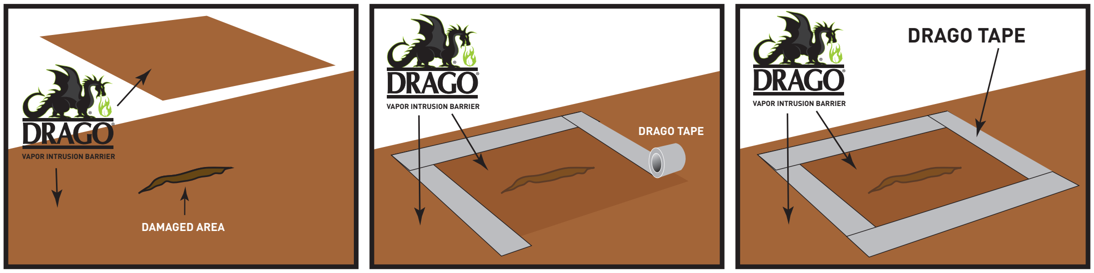


Fig. 2b: SEAL TO FOOTING



4. In the event that Drago Wrap is damaged during or after installation, repairs must be made. Cut a piece of Drago Wrap to a size and shape that covers any damage by a minimum of 6 inches in all directions. Clean all adhesion areas of dust, dirt, moisture, and frost. Tape down all edges using Drago Tape. (Fig. 3)

Fig. 3: SEALING DAMAGED AREAS



5. **IMPORTANT: ALL PENETRATIONS MUST BE SEALED.** All pipe, ducting, rebar, and block outs should be sealed using Drago Wrap, Drago Tape, and/or Drago® Sealant and Drago® Sealant Form. (Fig. 4a). Drago accessories should be sealed directly to the penetrations.

Fig. 4a: PIPE PENETRATION SEALING

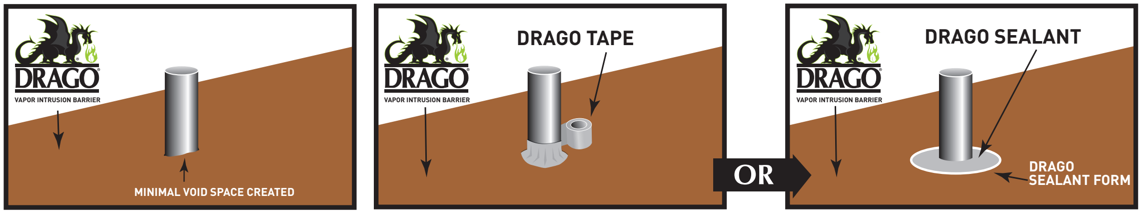
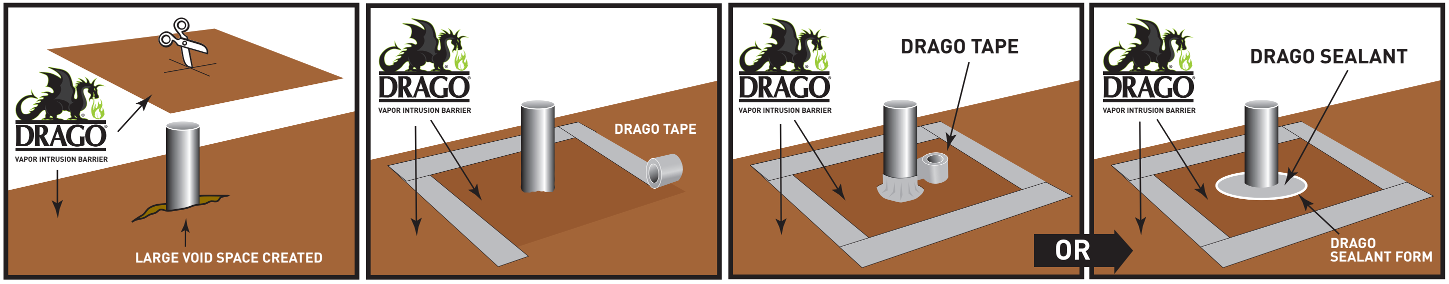


Fig. 4b: DETAIL PATCH FOR PIPE PENETRATION SEALING



DETAIL PATCH FOR PIPE PENETRATION SEALING: (Fig. 4b)

a. Install Drago Wrap around pipe penetrations by slitting/cutting material as needed. Try to minimize void space created.

b. If Drago Wrap is close to pipe and void space is minimized, proceed to step d.

c. If void space exists, then

- i. Cut a detail patch to a size and shape that creates a 6-inch overlap on all edges around the void space at the base of the pipe.
- ii. Cut an "X" slightly smaller than the size of the pipe diameter in the center of the detail patch and slide tightly over pipe.
- iii. Tape the edges of the detail patch using Drago Tape.

d. Seal around the base of the pipe using Drago Tape and/or Drago Sealant and Drago Sealant Form.

- i. If Drago Sealant is used to seal around pipe, make sure Drago Wrap is flush with the base of the penetration prior to pouring Drago Sealant.

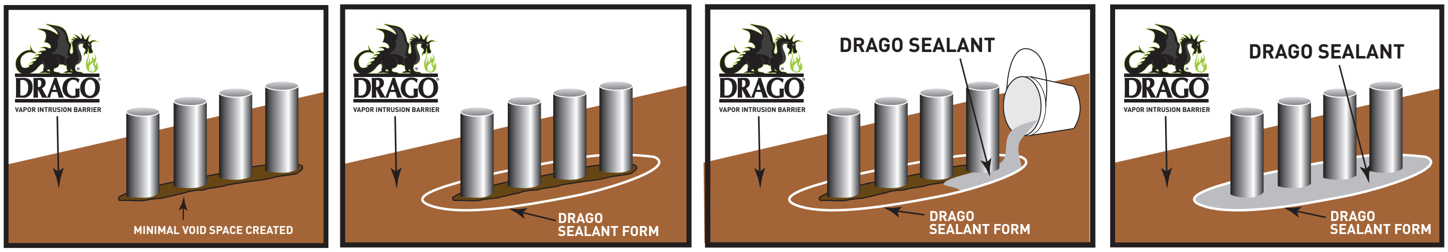
Continued ...

MULTIPLE PIPE PENETRATION SEALING: (Fig. 5)

NOTE: Multiple pipe penetrations in close proximity may be most efficiently sealed using Drago Wrap, Drago Sealant, and Drago Sealant Form for ease of installation.

- **a.** Cut a hole in Drago Wrap such that the membrane fits over and around the base of the pipes as closely as possible, ensuring that it is flush with the base of the penetrations.
- **b.** Install Drago Sealant Form continuously around the entire perimeter of the group of penetrations and at least 1 inch beyond the terminating edge of Drago Wrap.
- **c.** Pour Drago Sealant inside of Drago Sealant Form to create a seal around the penetrations.
- **d.** If the void space between Drago Wrap and the penetrations is not minimized and/or the base course allows for too much drainage of sealant, a second coat of Drago Sealant may need to be poured after the first application has cured.

Fig. 5: MULTIPLE PIPE PENETRATION SEALING

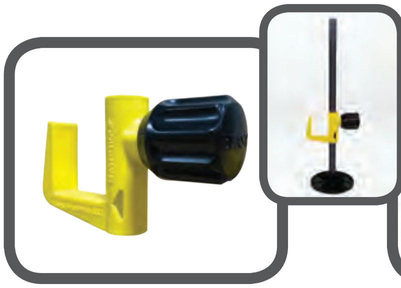


BEAST® CONCRETE ACCESSORIES - VAPOR BARRIER SAFE

Stego Industries* recommends the use of BEAST vapor barrier-safe concrete accessories, to help eliminate the use of non-permanent penetrations in Drago Wrap installations.

BEAST® SCREED

Improve efficiency and maintain concrete floor levelness with the BEAST SCREED SYSTEM!



BEAST® HOOK

Locate it and lock it down!

BEAST® FORM STAKE

The Stego barrier-safe forming system that prevents punctures in the vapor barrier.

IMPORTANT: AN INSTALLATION COMPLETED PER THESE INSTRUCTIONS SHOULD CREATE A MONOLITHIC MEMBRANE BETWEEN ALL INTERIOR INTRUSION PATHWAYS AND VAPOR SOURCES BELOW THE SLAB AS WELL AS AT THE SLAB PERIMETER. THE UNDERLYING SUBBASE SHOULD NOT BE VISIBLE IN ANY AREA WHERE CONCRETE WILL BE PLACED. IF REQUIRED BY THE DESIGN ENGINEER, ADDITIONAL INSTALLATION VALIDATION CAN BE DONE THROUGH SMOKE TESTING.

NOTE: While Drago Wrap installation instructions are based on ASTM E1643 - *Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs,* these instructions are meant to be used as a guide, and do not take into account specific job site situations. Consult local building codes and regulations along with the building owner or owner's representative before proceeding. If you have any questions regarding the above-mentioned installation instructions or products, please call us at 877-464-7834 for technical assistance. While Stego Industries' employees and representatives may provide technical assistance regarding the utility of a specific installation practice or Stego product, they are not authorized to make final design decisions.

APPENDIX I
TERRESTRIAL ECOLOGICAL EVALUATION

REMEDIAL INVESTIGATION WORK PLAN
Block 38 West Property
500 through 536 Westlake Avenue North
Seattle, Washington

Farallon PN: 397-019

DEPARTMENT OF
ECOLOGY
State of Washington

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 Name: Block 38 West	
Facility/Site Address: 520 Westlake Ave N, Seattle, WA 98109	
Facility/Site No: 62773	VCP Project No.: N/A

Step 2: IDENTIFY EVALUATOR		
Please identify below the person who conducted the evaluation and their contact information.		
Name:	Title:	
Organization: Farallon Consulting		
Mailing address: 1809 7th Ave Ste 1111		
City: Seattle	State: WA	Zip code: 98101
Phone: (425) 295-0800	Fax:	E-mail:

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.

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.

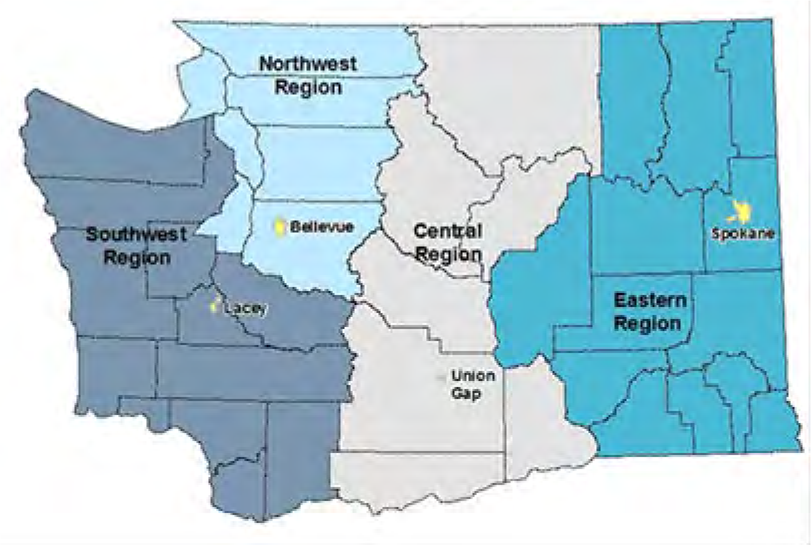
5. Have you already obtained Ecology's approval of both your problem formulation and problem resolution steps?

☐ 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

If you need this publication in an alternate format, please call the Toxics Cleanup Program at 360-407-7170. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call 877-833-6341.

Broad St
Valley St
8th Ave N
Boren Ave N
Mercer St
520 Westlake Ave N
9th Ave N
Westlake Ave N
Terry Ave N
Republican St
Fairview Ave N
Dexter Ave N
Harrison St

APPENDIX J
SAMPLING AND ANALYSIS PLAN

REMEDIAL INVESTIGATION WORK PLAN
Block 38 West Property
500 through 536 Westlake Avenue North
Seattle, Washington

Farallon PN: 397-019

FARALLON
CONSULTING

SAMPLING AND ANALYSIS PLAN

APPENDIX J OF THE REMEDIAL INVESTIGATION WORK PLAN

BLOCK 38 WEST SITE
500 THROUGH 536 WESTLAKE AVENUE NORTH
SEATTLE, WASHINGTON

Submitted by:
Farallon Consulting, L.L.C.
975 5th Avenue Northwest
Issaquah, Washington 98027

Farallon PN: 397-019

For:
City Investors IX LLC
505 5th Avenue South
Seattle, Washington 98104

April 26, 2023

Prepared by:

Yusuf Pehlivan, L.G.
Project Geologist

Suzy Stumpf
Suzy Stumpf, P.E.
Principal Engineer

Reviewed by:

Clifford T. Schmitt
Clifford T. Schmitt, L.G., L.H.G.
Principal Hydrogeologist

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APPENDIX

Appendix A Farallon Standard Operating Procedures

Appendix B Farallon Field Forms and Records

1.0 INTRODUCTION

Farallon Consulting, L.L.C. (Farallon) has prepared this Sampling and Analysis Plan (SAP), which includes the elements of a Quality Assurance Project Plan (QAPP) on behalf of City Investors IX, L.L.C. (City Investors IX) to present specific methodologies for the collection, handling, and analysis of samples that will be conducted during implementation of the Remedial Investigation Work Plan (RI Work Plan) at the Block 38 West Site. The RI Work Plan was prepared in accordance with the requirements of Section VII.A (Work to be Performed) of Agreed Order No. DE 17963 (AO) between City Investors IX and the Washington State Department of Ecology (Ecology).

The Block 38 West Site is generally located at 500 through 536 Westlake Avenue North in Seattle, Washington (Block 38 West Property). This SAP and QAPP has been prepared in accordance with the Washington State Model Toxics Control Act Cleanup Regulation (MTCA) as established in Section 820 of Chapter 173-340 of the Washington Administrative Code (WAC 173-340-820) and *Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies* revised December 2016, prepared by Ecology (2016). The purpose of the SAP is to define the specific requirements for sample collection and analytical activities to ensure that activities are conducted in accordance with technically acceptable protocols and that the results meet the data quality objectives. The SAP presents the protocols pertaining to sampling equipment and procedures and sample handling and analysis that will be used during the remedial investigation at the Block 38 West Property. Sampling objectives, sample locations, measurement frequencies and quality assurance and quality control requirements also are described. The SAP provides a basis for conducting field activities and a mechanism for complying with quality assurance requirements.

1.1 PURPOSES

The specific purposes of this SAP are to:

- Summarize the scope of work for the remedial investigation being performed under the auspices of AO between Ecology and City Investors IX;

- Identify sample locations and media, sample quantities, analytical methods, and documentation protocols for the sampling program;
- Describe standard operating procedures (SOPs) for field activities that will be conducted as part of the remedial investigation; and
- Provide quality assurance (QA) and quality control (QC) protocols for field activities and laboratory analysis to ensure collection of representative and useable data.

2.0 PROJECT DESCRIPTION

This section provides a summary of the scope of work and Farallon's project organization and schedule.

2.1 SCOPE OF WORK

The scope of the remedial investigation was developed in accordance with Ecology requirements and guidance, including MTCA. The scope of the remedial investigation was discussed during communications among City Investors IX, Farallon, and Ecology, which included a site meeting conducted on March 12, 2020; Key Project Meetings on June 16 and 17, 2020; and various meetings and correspondence from March 2020 through May 2022 to clarify the remedial investigation scope of work, partial approvals for remedial investigation activities concurrent with redevelopment activities, and approval of the alley interim action from June 2020 through May 2022. On May 3, 2022, Ecology confirmed the remedial investigation data gaps, scope of work, and required laboratory analyses. The remedial investigation will be documented in the Remedial Investigation Report (RI Report) and will support the evaluation of cleanup action alternatives under the feasibility study for the Block 38 West Site. The remedial investigation and feasibility study will be used to develop a final remedy for the Block 38 West Site.

The planned locations for the advancement of borings and installation of groundwater monitoring wells as part of the remedial investigation are shown on Figure J-1. Table J-1 lists the sampling locations and provides the scope of work and rationale for each sampling location. The scope of work for the remedial investigation will include the following elements:

- Advancement of one boring west-adjacent to the northwestern corner of the Block 38 West Property to collect soil samples for laboratory analysis to define the lateral extent of constituents of potential concerns (COPCs) to the west of the former fuel product line, proposed boring FB-17. Boring FB-20 was advanced in February 2022 and confirmed the lateral extent of COPCs to the north of the former fuel product line.
- Installation of four monitoring wells screened in the Shallow Water-Bearing Zone to the south and west of the Block 38 West Property to collect groundwater samples for

laboratory analysis to evaluate the extent of COPCs in soil and/or groundwater detected at concentrations exceeding screening levels in reconnaissance groundwater samples collected at borings FB-03 and FMW-130, and in groundwater samples collected from monitoring well FMW-134. Conduct four quarterly groundwater monitoring events from a network of seven Shallow Water-Bearing Zone monitoring wells, including proposed locations FMW-A, FMW-C, FMW-D, and FMW-F, and previously installed wells FMW-154, FMW-155, and FMW-156.

  - Installation of one monitoring well (FMW-A) on the west-central boundary of the Block 38 West Property to evaluate groundwater conditions based on reconnaissance groundwater samples collected from boring FB-03.
  - Installation of up to three monitoring wells (FMW-C, FMW-D, and FMW-F) south- and west-adjacent to the southwestern portion of the Block 38 West Property to collect soil samples for laboratory analysis to define the lateral extent of COPCs detected at decommissioned monitoring well FMW-134, near the south and west sidewalls of the Block 38 West Property excavation.

- Installation of three monitoring wells screened in the Intermediate Water-Bearing Zone to the south and west of the Block 38 West Property, to collect groundwater samples for laboratory analysis and evaluate the extent of COPCs detected in soil and/or groundwater at concentrations exceeding the screening levels in groundwater samples collected from former monitoring wells FMW-145, FMW-146, and FMW-147 and evaluate groundwater flow conditions. Conduct four quarterly groundwater monitoring events from a network of 11 Intermediate Water-Bearing Zone monitoring wells, including proposed locations FMW-B, FMW-E, and FMW-G, previously installed wells FMW-150, FMW-151, FMW-152, FMW-153, and FMW-157, and converted wells OW-1 through OW-3. Measure groundwater elevations quarterly to evaluate groundwater flow conditions from a network of 12 monitoring wells, including the wells listed above and observation well OW-5.
- Installation of one monitoring well (FMW-L) west-adjacent to the northwestern corner of the Block 38 West Property to collect a groundwater sample in order to evaluate groundwater conditions in the Deep Outwash Aquifer at the Block 38 West Site post-

construction dewatering events that occurred on the Block 38 West Property and in the nearby South Lake Union Area. Conduct one monitoring event from a network of three Deep Outwash Aquifer monitoring wells, including proposed location FMW-L and existing wells FMW-137 and FMW-138.

- Soil sample collection during advancement of borings or installation of groundwater monitoring wells to support soil profiling for disposal.
- Development and surveying of the new monitoring wells.
- Collection of depth-to-groundwater measurements and groundwater samples from new and existing monitoring wells once the Shallow and Intermediate Water-Bearing Zones have been allowed to equilibrate to steady-state conditions and the proposed monitoring wells have been installed.

Table J-2 lists the COPCs and applicable screening levels for soil and groundwater identified for the Block 38 West Site based on historical subsurface investigation data and the independent interim action. Screening levels were developed using MTCA Method B and established based on the potential exposure pathways and receptors identified for this Site as a conservative basis for defining the extent of contamination for each COPC and affected medium. Consistent with MTCA, Method A values are used as a surrogate for Method B for compounds that do not have established Method B values; this generally applies to petroleum hydrocarbon mixtures (GRO, DRO and ORO). Analytical results from the remedial investigation will be compiled with historical subsurface investigation data, the independent interim action data for the Block 38 West Property, and soil data collected during the alley interim action. These data will be used to define the extent of COPCs exceeding screening levels and evaluate transport pathways for the Block 38 West Site following completion of the independent interim action and redevelopment activities.

2.2 PROJECT ORGANIZATION AND RESPONSIBILITIES

The project organization for conducting the scope of work described in the SAP, including identification of key personnel and their responsibilities, is presented below.

Regulatory Agency. Ecology is the lead regulatory agency for the Site. Ecology’s Site manager for the Block 38 West Site is:

Ms. Tena Seeds, P.E.
Washington State Department of Ecology
Northwest Regional Office
15700 Dayton Avenue North
PO Box 330316
Shoreline, Washington 98133-9716
Telephone: (425) 457-3143
TSEE461@ecy.wa.gov

Project Contact. Farallon has been contracted by City Investors IX to plan and implement the SAP. The Project Contact for City Investors IX is:

Mr. Corey Wilson
City Investors IX L.L.C.
505 5th Avenue South
Seattle, Washington 98104
Telephone: (206) 342-2000
CoreyW@vulcan.com

Project Principal. The Project Principal provides support for all project activities and reviews data and deliverables prior to their submittal to the Project Contact or Regulatory Agency. The Project Principal is:

Clifford T. Schmitt, L.G., L.H.G.
Farallon Consulting, L.L.C.
975 5th Avenue Northwest
Issaquah, Washington 98027
Telephone: (425) 295-0800
cschmitt@farallonconsulting.com

Project Manager. The Project Manager has day-to-day responsibility for project implementation. The Project Manager will be responsible for monitoring the quality of the technical and managerial aspects of the project, and implementing the SAP and corresponding corrective actions, if necessary. The Project Manager for Farallon is:

Ms. Suzy Stumpf, P.E.
Farallon Consulting, L.L.C.
1809 7th Avenue
Seattle, Washington 98101
Telephone: (425) 295-0800
sstumpf@farallonconsulting.com

Project Data Manager. The Project Data Manager manages data as it is received from the laboratory and is responsible for data validation. Data validation responsibilities include reviewing laboratory reports, advising on data corrective action procedures, and performing QA/QC on analytical data reports. In addition, the Project Data Manager will directly transfer laboratory data into an EQuIS environmental data management system database (EQuIS database) and the Ecology Environmental Information Management System. The Data Manager for Farallon is:

Ms. Jeanette Mullin
Farallon Consulting, L.L.C.
975 5th Avenue Northwest
Issaquah, Washington 98027
Telephone: (425) 295-0800
jmullin@farallonconsulting.com

Field Staff. Members of the field staff supervise contractor procedures, manage collection of samples, coordinate sample deliveries to the laboratory, and document field-sampling activities. Field staff also will communicate progress updates to the Project Manager, including deviations from the SAP.

Laboratory – OnSite Environmental, Inc. OnSite Environmental, Inc. (On-Site) in Redmond, Washington will perform analytical services in support of the remedial investigation and will be responsible for implementing specific QA/QC requirements.

2.3 PROJECT SCHEDULE

The remedial investigation field activities will be initiated following Ecology's approval of the revised Agency Review Draft RI Work Plan and in accordance with the AO schedule. Based on email correspondence and meetings with Ecology and in coordination with development, Ecology provided partial approval for remedial investigation work elements from June 2020 through November 2021, which included the advancement of 11 shallow borings west, north, and east of the Block 38 West Property (FB-10 through FB-16 and FB-18 through FB-21), installation of three Shallow Water-Bearing Zone monitoring wells (FMW-154 through FMW-156), and installation of five Intermediate Water-Bearing Zone monitoring wells (FMW-150 through FMW-153 and FMW-157). The City of Seattle approved and issued the street use permit for the remaining boring and eight monitoring wells to be installed within the Mercer Street, Westlake Avenue North, and Republican Street rights-of-way. The permit is active through May 17, 2023.

3.0 FIELD PROCEDURES

This section summarizes the protocols and procedures that will be followed for field data collection. Farallon SOPs for fieldwork, including detailed step-by-step protocols, are provided in Appendix A.

3.1 DRILLING AND SOIL SAMPLING

Soil samples will be collected from discrete depth intervals during drilling of borings. Proposed boring and monitoring well locations are shown on Figure J-1. Locations may be adjusted as necessary based on access and utilities. Farallon will use the one-call and private utility location services to confirm the location of subsurface utilities in accordance with Farallon SOP GN-02 (Appendix A).

Boring depths will vary from approximately elevation 15 to -55 feet North American Vertical Datum of 1988 (NAVD88) (Table J-1). Borings will be cleared to a depth of the first 5 feet below ground surface with an air knife or hand cleared. Borings will be advanced using either a direct-push, hollow-stem auger, or sonic drill rig. Soil samples will be collected continuously in acetate liners and/or plastic sampling bags at borings advanced by direct-push or sonic drilling methods. Soil samples will be collected at 2.5- to 5-foot intervals with a split spoon sampler at borings advanced using hollow-stem auger drilling methods. Soil will be collected from all borings for lithologic description and potential laboratory analysis, depending on the sampling location and available soil data from proximate locations. Select soil samples collected and retained from the installation of monitoring wells will be analyzed to support the waste profile for investigation-derived waste and disposal at a licensed facility.

Soil samples will be collected from borings and handled in accordance with the requirements of Farallon SOP SL-01 (Appendix A); Section 4, Sample Handling; and Section 7, Field Documentation. Select borings will be completed as groundwater monitoring wells as described below in Section 3.2. Soil samples to be analyzed for volatile organic compounds will be collected in accordance with U.S. Environmental Protection Agency (EPA) Method 5035A.

3.2 MONITORING WELL CONSTRUCTION, DEVELOPMENT, AND SURVEY

Monitoring well locations are shown on Figure J-1. Farallon field staff will observe monitoring well drilling and installation and document observations as described in Section 7, Field Documentation. Monitoring well construction and development will be performed in accordance with Farallon SOPs GW-01 and GW-02 (Appendix A).

Monitoring wells will be constructed in accordance with WAC 173-160-400 and will meet Washington State requirements for resource protection well construction. Monitoring wells will be installed using 2-inch-diameter Schedule-40 polyvinyl chloride well casings with a 0.010-inch slotted well screen, with the exception of the four monitoring wells installed in the building foundation which have Schedule-40 stainless steel well casing. Monitoring wells screened in the Shallow Water-Bearing Zone will have well screen intervals set from approximate elevation of 20 to 5 feet NAVD88. Monitoring wells FMW-150 through FMW-153 installed within the building foundation were screened in the Intermediate Water-Bearing Zone with a well screen interval set from approximate elevation -8 to -13 feet NAVD88, below the building foundation and similar to the screened intervals at former monitoring wells FMW-146 and FMW-147. Each monitoring well will extend a minimum of 5 feet into the water-bearing unit. The additional monitoring wells proposed in the Intermediate Water-Bearing Zone will have well screen intervals set from approximate elevation of -5 to -15 feet NAVD88. The monitoring well proposed in the Deep Outwash Aquifer will have a well screen interval set from approximate elevation of -45 to -55 feet NAVD88.

Each monitoring well filter pack will consist of 10/20 Colorado Silica sand emplaced in the borehole annulus up to 1 foot above the top of the screen. The borehole will be sealed to within 2 feet of the surface with hydrated bentonite chips. The monitoring wells will be completed with flush-mounted steel monuments set in concrete. The monitoring wells completed within the building foundation were completed with an above grade well casing protected by steel bollards and high visibility paint.

New monitoring wells will be developed using a submersible pump. Each monitoring well will be developed until the majority of fine-grained sediment had been removed from the well screen and adjacent sand pack.

New monitoring wells will be surveyed using the Washington State Plane North coordinates system and measuring the top of casing elevations in North American Vertical Datum of 1988 by a Washington State Professionally Licensed Land Surveyor.

3.3 GROUNDWATER MONITORING

Performance and compliance groundwater monitoring activities cannot commence until the Shallow and Intermediate Water-Bearing Zones have been allowed to equilibrate to steady state conditions post-construction dewatering events that occurred on the Block 38 West Property and in the nearby South Lake Union Area. As noted previously in Section 2.1, four quarterly monitoring events will be performed at the Shallow and Intermediate Water-Bearing Zone wells and one monitoring event will be performed at the Deep Outwash Aquifer wells.

Groundwater monitoring sampling events will include measuring depth-to-groundwater and collecting groundwater samples from each monitoring well. Procedures for measuring depth to groundwater and low-flow groundwater sampling are provided in Farallon SOPs GW-03 and GW-04 (Appendix A). Farallon will record observations and field data on Field Report forms as described in Section 7, Field Documentation.

3.4 DECONTAMINATION PROCEDURES

Reusable equipment will be decontaminated in accordance with Farallon SOP EQ-01 (Appendix A).

4.0 SAMPLE HANDLING

This section discusses the sample designation and labeling and sample-handling methods to be used during the remedial investigation. The protocols discussed include sample containers, preservation and holding times, sample documentation, collection of QA/QC samples, and sample packaging and shipment.

4.1 SAMPLE DOCUMENTATION

Sample documentation includes sample labels, Field Report forms, Soil Sample Data Log forms, and Chain of Custody forms. Other sample documentation to be maintained by field personnel are provided in Appendix B.

Each sample container will be marked with a durable adhesive label and labeled with a unique identifier. The sample identifier for each sample will be constructed according to Section 4.2, Sample Designation, and recorded in the Field Report forms and on the sample Chain of Custody form (Appendix B). Sample labels will include the client name, project name and number, date and time sampled, sample identifier, sampler’s initials, requested sample analysis, and analyte preservative(s), if any. The Chain of Custody form will include the sample identifier, date and time of sample collection, sampler’s initials, number of containers, and requested sample analysis. Entries for all samples will be made on the Chain of Custody form prior to the transfer of the samples off the Site.

4.2 SAMPLE DESIGNATION

Sample designation and labeling procedures for soil and groundwater samples are presented below.

4.2.1 Soil Sample Identifiers

Soil samples will be assigned a unique sample identifier that will include the sample location (e.g., boring identification) and the elevation of the sample stated in feet NAVD88. For example, a soil sample collected from boring FMW-150 at an elevation of 20 feet NAVD88 would be assigned the identifier FMW-150-20.0. The sample identifier will be recorded on the sample label, Field Report form, Soil Sample Data Log, and Chain of Custody form.

4.2.2 Groundwater Sample Identifiers

The water samples will be assigned a unique sample identifier that will include the sample location identifier (e.g., boring or well identifier) and the sample date in the format YYMMDD (e.g., 190401).

For example, a groundwater sample collected from monitoring well FMW-150 on July 1, 2020 would be numbered FMW-150-200701. The sample identifier will be recorded on the sample label, Field Report form, and Chain of Custody form.

4.3 SAMPLE CONTAINERS, PRESERVATION PROCEDURES, AND HOLDING TIMES

Sample container requirements for soil and groundwater samples are based on the medium to be sampled and the types of analyses to be performed. The containers, preservation procedures, and hold times for soil and groundwater are shown in Table J-3 and follow standard laboratory protocols.

4.4 FIELD QUALITY ASSURANCE/QUALITY CONTROL SAMPLES

Field duplicate samples will be collected during sampling to assess the precision of laboratory analytical and field sampling methods. Soil sampling is subject to potentially wide ranges of variability due to the heterogeneity of the sample and the limited mass of soil sampled. Conversely, media such as groundwater are not as susceptible to the effects of heterogeneity and are more reliable media for establishing measures of precision and/or accuracy. Field duplicate soil samples will not be collected. Field duplicates for groundwater samples will be collected at a frequency of one duplicate sample per 10 groundwater samples collected. Field duplicates will have a unique sample location identifier. For example, a duplicate sample collected from monitoring well FMW-150 on July 1, 2020 would have the sample identifier “Duplicate01-200701”.

Equipment rinsate blanks will be collected at a frequency of one rinsate blank per sampling event to evaluate the effectiveness of decontamination procedures and assess the potential for cross-contamination only when non-dedicated equipment is used to collect samples for analysis. Non-dedicated equipment that may potentially be used during the RI to collect samples include split-spoon samplers, bladder pumps, submersible pumps, and soil sampling tools. Rinsate blanks, if needed, will be obtained by running distilled/deionized water over decontaminated sampling equipment and collecting the water in appropriate containers for analysis to test for residual contamination.

One trip blank will be included in each cooler containing samples to be analyzed for volatile organic compounds. One trip blank will be analyzed for volatile organic compounds per sampling event to evaluate the potential for cross-contamination during sample handling and transport to the laboratory.

4.5 SAMPLE PACKAGING AND SHIPMENT

The samples shipped for laboratory analysis will be packaged according to applicable regulations and the recommendations of the laboratory performing the analysis. Samples will be expeditiously transported to the analytical laboratory after being sealed in coolers.

The following procedures (representing the minimum shipping and handling requirements) will be used for sample packaging:

- A sample label will be affixed to the corresponding sample container at the time of sample collection.
- Bubble-wrap bags or an equivalent will be used to protect sample containers.
- Sample containers will be placed into a cooler and checked against the Chain of Custody form to ensure that all samples are listed and are placed into the correct cooler.
- One copy of the Chain of Custody form will be detached and retained by the Farallon Field Scientist.
- Remaining paperwork will be sealed in a resealable plastic bag and taped to the inside of the cooler lid.
- One to three resealable bags will be filled with ice and/or a chemical equivalent and included in the cooler. Ice will be double-bagged in heavy-duty bags.
- The cooler will be sealed with a chain-of-custody seal and taped shut using strapping tape.
- The laboratory address will be affixed to the cooler.

- Extraneous stickers will be removed from the cooler.
- The cooler will be examined to ensure that Farallon's return address is affixed.

Upon transfer of the samples to laboratory personnel or arrival of the samples at the laboratory facility, the laboratory will assume responsibility for custody of the samples. Laboratory personnel will document the status of shipping and handling containers and will adhere to standard chain-of-custody procedures to track each sample through all of the stages of laboratory processing.

5.0 LABORATORY ANALYSIS

This section describes the details of the laboratory analysis associated with soil and groundwater samples that will be collected during the remedial investigation. Laboratory analyses will be conducted by OnSite. OnSite is accredited by Ecology and meets the QA/QC requirements of Ecology and the EPA.

5.1 LABORATORY ANALYSES

Soil and/or groundwater samples may be analyzed for one or more of the following analytes, depending on the sample location:

- Total petroleum hydrocarbons as diesel-range and oil-range organics by Northwest Method NWPTH-Dx;
- Total petroleum hydrocarbons as gasoline-range organics by Northwest Method NWTPH-Gx;
- Benzene, toluene, ethylbenzene, and xylenes by EPA Method 8260D;
- Carcinogenic polycyclic aromatic hydrocarbons and total naphthalenes (1-methyl-naphthalene, 2-methyl-naphthalene, and naphthalene) by EPA Method 8270D SIM; and
- Chlorinated volatile organic compounds by EPA Method 8260D.

Tables J-1, J-1A, and J-1B list the analytes that will analyzed at each sampling location.

5.2 REPORTING LIMITS

The analytical methods identified above will have the reporting limits (or practical quantitation limits) that are shown in Table J-4. The laboratory reporting limits are based on current laboratory data and may be modified during the investigation as methodology is refined. Instances may arise where high sample concentration, heterogeneity of samples, or matrix interferences preclude achieving the laboratory reporting limits.

6.0 MANAGEMENT OF INVESTIGATION-DERIVED WASTE

Investigation-derived waste soil, wastewater, and other products generated during the remedial investigation may be contaminated and will be containerized and properly disposed of pending receipt of analytical results. Specific criteria that will be used to manage investigation-derived waste, including the profiling and selection of an appropriate disposal option for each of the expected waste streams, are discussed below.

6.1 WASTE SOIL

Waste soil generated by the installation of borings and monitoring wells will be placed into U.S. Department of Transportation (DOT)–approved 55-gallon drums provided by the drilling contractor pending analysis and profiling of the waste soil. The drums will be labeled with the content, date generated, origin, and generator information. Waste soil temporarily stored at the Block 38 West Site will be tracked using a Waste Inventory Tracking Sheet (Appendix B).

Soil analytical data will be used to develop soil disposal profiles. Farallon will provide bids for disposal to City Investors IX based on the laboratory analytical data. The waste profiles will be provided to the selected landfill facility or permitted transport, storage, and disposal facility.

6.2 WASTEWATER

Wastewater generated by equipment decontamination and well development and purging will be placed into DOT-approved 55-gallon drums for storage at the Block 38 West Site. Wastewater generated during the remedial investigation will be tracked using a Waste Inventory Tracking Sheet.

Groundwater analytical data from the groundwater monitoring and sampling will be used to develop wastewater profiles. Farallon will provide bids for disposal to City Investors IX based on the laboratory analytical data. The waste profiles will be provided to the selected permitted facility.

6.3 DISPOSABLES

Disposable personal protective clothing (e.g., Tyvek suits, rubber gloves, boot covers) and disposable sampling devices (e.g., plastic soil sample plungers) will be cleaned, placed into plastic garbage bags, and disposed of as nonhazardous waste.

7.0 FIELD DOCUMENTATION

Documentation of field activities will be provided on Field Report forms, boring logs, Low-Flow Well Purging and Sampling Data forms, Soil Sample Data Logs, sample and waste material labels, Waste Inventory forms, and Chain of Custody forms. Documentation generated during the field program will be retained in the project files and included in the reports generated, as appropriate. Filled forms and records will be maintained in the Farallon project files. Example forms and labels are provided in Appendix B.

7.1 FIELD REPORT FORM

Field personnel will be required to keep a daily field log on a Field Report form. Field notes will be as descriptive and inclusive as possible, enabling independent parties to reconstruct the sampling situation from the recorded information. Language will be objective, factual, and free of inappropriate or ambiguous terms and/or opinions.

A summary of each day's events will be provided on the Field Report form. At a minimum, field documentation will include the date, job number, project identification and location, weather conditions, sample collection data, personnel present and responsibilities, field equipment used, and any activities performed in a manner other than as specified in this SAP. In addition, if other forms or documents such as well-head surveys or maps are completed or used, they will be cited in and attached to the Field Report form. Field personnel will sign the completed Field Report form.

7.2 BORING LOGS

Boring logs will be prepared by a Farallon Scientist for each boring and/or monitoring well drilled. The log includes hydrologic conditions, lithologic descriptions using the Unified Soil Classification System, and information on the potential presence of contamination.

7.3 LOW-FLOW WELL PURGING AND SAMPLING DATA FORM

A Low-Flow Well Purging and Sampling Data form will be used to record the depth to groundwater, well purging information, and other pertinent hydrologic measurements and supplementary information collected during groundwater sampling at each monitoring well. The form will be completed by the Field Scientist at the time of sample collection.

7.4 SOIL SAMPLE DATA LOG

A Soil Sample Data Log will be used to record information pertaining to soil samples collected. This log includes entries for the sample location, identification, and depth; the time sampled; field-screening results; the types and number of containers collected; and a brief lithologic description.

7.5 SAMPLE LABEL

Sample labels will be filled out and affixed to appropriate sample containers immediately prior to sample collection. The label will be filled out with indelible ink and includes the medium, date, time sampled, sample identifier (see Section 4.2, Sample Designation), project name, project number, sampler's initials, and analyte preservative(s) if any.

7.6 WASTE MATERIAL LABEL

A waste material label is filled out and affixed to the appropriate waste container immediately upon filling. The label is filled out in indelible ink and includes the job number and name, address where the waste was generated, container contents, date, consultant's name and phone number, and sampler's initials.

7.7 WASTE INVENTORY FORM

A Waste Inventory form will be used to document and track the wastes generated during the characterization field work. The form will include information on the waste container, origin of the waste, type of waste, date generated, date removed from the Site, transporter, and disposal location. A copy of the Waste Inventory form is included in Appendix B.

7.8 CHAIN OF CUSTODY FORM

The Chain of Custody form provides an accurate written record that can be used to trace the possession and handling of the sample from the moment of its collection through analysis and reporting of analytical values. The Chain of Custody form should be updated whenever samples are collected, transferred, stored, analyzed, or destroyed. The Chain of Custody form includes the client name, project name and number, date and time sampled, sample identifier, sampler's initials, and requested sample analysis.

8.0 QUALITY ASSURANCE PROJECT PLAN

This section describes the analytical program to be conducted for each sample selected for chemical analysis, as well as the laboratory QA objectives and QC protocols required to be met to ensure collection of representative and useable data.

8.1 DATA QUALITY OBJECTIVES

Data quality objectives (DQOs) for this project will be used to develop and implement procedures to ensure that the data collected are of sufficient quality to adequately address the remedial investigation objectives. Observations and measurements will be made and recorded in a manner so as to yield results representative of the media and conditions observed and/or measured. Goals for representativeness will be met by ensuring that sampling locations are selected properly, a sufficient number of samples are collected, and field screening and laboratory analyses are conducted properly.

DQOs for this project include:

- Collect and retain soil samples from six borings (including five monitoring well locations) to collect sufficient soil data in order to define the extent of COPCs beyond the Block 38 West Property and transport pathways of concern;
- Collect groundwater samples from each of the network of 7 monitoring wells screened in the Shallow Water-Bearing Zone and the 11 monitoring wells screened in the Intermediate Water-Bearing Zone to collect sufficient groundwater data in order to evaluate the potential extent of COPCs at the Block 38 West Site and transport pathways of concern;
- Perform synoptic measurement of groundwater levels at the Block 38 West Site monitoring well network from the Shallow and Intermediate Water-Bearing Zones to evaluate groundwater gradient and flow direction;
- Achieve a practical quantitation limit sufficient for direct comparison against screening levels; and.
- Implement QA/QC protocols described in this SAP so that data collected are scientifically defensible.

The quality of the field sampling methods and laboratory data will be assessed using the parameters of precision, accuracy, representativeness, comparability, completeness, and sensitivity (PARCCS). QC procedures for PARCCS are described in the following sections. Quantitative DQOs for applicable parameters (i.e., precision, accuracy, and completeness) are provided following their definition. Laboratory DQOs have been established by the OnSite Laboratory and are specified in the OnSite Laboratory Quality Assurance Manuals. OnSite Laboratory's Quality Assurance Manual will be kept on file at the Farallon corporate office in Issaquah, Washington.

8.1.1 PRECISION

Precision is defined as the degree of agreement between or among independent, similar, or repeated measures, and is expressed in terms of analytical variability. For this project, analytical variability will be measured as the relative percent difference (RPD) or coefficient of variation between analytical laboratory duplicates, and between the matrix spike (MS) and matrix spike duplicate (MSD) analyses. Monitoring and sampling variability will be measured by analysis of blind field-replicate samples.

The tolerance limit for percent differences between laboratory duplicates will be ±20 percent; deviations from these criteria will be reported. If the criteria are not met, the laboratory will provide an explanation of why the limits were exceeded, and will implement appropriate corrective actions for laboratory control samples (LCSs)/LCS duplicates only. RPDs will be evaluated during data review and validation. If precision limit exceedances are linked to field sampling, those field sampling procedures will be reviewed, and any problems will be identified. Re-sampling and analysis may be required.

8.1.2 ACCURACY

Accuracy (bias) is a statistical measurement of correctness and includes components of random error (i.e., variability due to imprecision) and systematic error. It therefore reflects the total error associated with a measurement. A measurement is accurate when the value reported does not differ excessively from the known concentration of the spike or standard.

Accuracy measures the bias in a measurement system and is difficult to measure for the entire data collection activity. Sources of error include the sampling process, field contamination, preservative handling, sample matrix effects, and sample preparation and analysis techniques. To confirm that the samples collected are not contaminated during the analytical process, laboratory method blank samples will be analyzed.

Laboratory MSs and surrogates will be carried out at the analytical laboratory in accordance with EPA SW-846 requirements for organic chemical analyses. The frequency for both MSs and MSDs analysis will be one per batch of 20 or fewer samples. Quantitative percent recovery criteria for organic analyses will be based on laboratory-derived control limits for surrogate recovery and MS results.

The resultant percent recovery will be compared to the acceptance criteria defined by the laboratory for each sample in the laboratory report, and deviations from specified limits will be reported. If the objective criteria are not met, the laboratory will provide an explanation of why acceptability limits were exceeded, and will implement appropriate corrective actions. Percent recoveries will be reviewed during data validation, and deviations from the specified limits will be noted. The data reviewer will comment on the effect of the deviations on reported data.

8.1.3 REPRESENTATIVENESS

Representativeness is a qualitative assessment of how closely the measured results reflect the actual concentration or distribution of the constituent concentrations in the matrix sampled. The sampling plan design, sample collection techniques, sample handling protocols, sample analysis methods, and data review procedures have been developed to ensure that the results obtained are representative of site conditions. Representativeness also will be determined by evaluating holding times, sample preservation, and blank contamination. Samples with expired holding times, improper preservation, or blank contamination may not be representative.

8.1.4 COMPLETENESS

Completeness, defined as the number of acceptable data points relative to the total number of data points, will be assessed for all samples within a given media (i.e., soil). The QA/QC objective for completeness for all components of this project is 95 percent. Data that were qualified as estimated because the QA/QC criteria were not met will be considered valid for the purpose of assessing completeness. Data that have been qualified as estimated will be further reviewed for usability.

For this investigation, the primary use of the data is to address the remedial investigation objectives. Data that were qualified as rejected will not be considered valid for the purpose of assessing completeness. If a sample medium has an unacceptable completeness percentage after comparison to the individual data quality objectives described above, original samples will be re-analyzed if sufficient sample volume is available, archived samples will be analyzed if appropriate, or additional samples will be collected during the remedial investigation.

8.1.5 COMPARABILITY

Comparability is a qualitative parameter expressing the confidence with which one dataset can be compared to another. In order to ensure results are comparable, samples will be analyzed using standard EPA or Ecology methods and protocols. Calibration and reference standards will be traceable to certified standards, and standard data reporting formats will be employed. Data will also be reviewed to verify that precision and accuracy criteria were achieved and, if not, that data were appropriately qualified.

8.2 DATA QUALITY CONTROL

Data will undergo two levels of QA/QC evaluation: one by the laboratory and one by Farallon. Initial data reduction, evaluation, and reporting will be performed by the laboratory, as specified in the laboratory Quality Assurance Manual. The analytical data will then be validated by Farallon under the supervision of the Project Data Manager. The following types of QC information will be reviewed, as appropriate:

- Method deviations;
- Sample extraction and hold times;
- Method reporting limits;
- Blank samples (e.g., equipment rinsate, trip, and laboratory method);
- Field duplicate samples;
- RPD (for precision);
- MS/MSD samples (for accuracy);
- Surrogate recoveries; and
- Percent completeness.

Farallon will review field records and the results of field observations and measurements to ensure that procedures were properly performed and documented. Field procedures will be reviewed for the following elements:

- Completeness and legibility of field logs;
- Preparation and frequency of field QC samples;
- Field equipment calibration and maintenance; and
- Chain of Custody forms.

8.3 LABORATORY DATA PACKAGE REQUIREMENTS

Laboratory data packages will consist of a laboratory report and electronic data deliverable. Laboratory reports will include the following elements:

- Case narrative;
- Analytical notes;
- QC narrative;
- Sample inventory report;
- Analytical results; and
- Data qualifiers and abbreviations.

The electronic data deliverable will include at a minimum:

- Sample identification information;
- Sample media;
- Sampling, laboratory receiving, extraction, and analysis dates;
- Analyte and Chemical Abstracts Service Reference No.;
- Reported concentrations and reporting units;
- Analytical method detection limits;
- Machine reporting limits and reporting units; and
- QA/QC results, including identification of MS/MSD and surrogate samples.

8.4 CORRECTIVE ACTION

Corrective action will be the joint responsibility of the Project Manager and the Project Data Manager. Corrective procedures may include:

- Identifying the source of deviation from the quality standards set forth in the SAP and its supporting documents;
- Re-analyzing soil and/or groundwater samples if hold-time criteria permit;
- Re-sampling and analyzing soil and/or groundwater if necessary to meet the quality standards set forth in this SAP;
- Evaluating and amending sampling, analytical, and/or data transfer procedures; and/or
- Qualifying data to indicate the level of uncertainty.

During field operations and sampling procedures, field team members will be responsible for identifying and correcting equipment malfunctions and documenting sampling procedures in a manner that will enable the Project Manager or the Project Data Manager to evaluate whether corrective action is warranted.

Equipment malfunctions, variances in sampling protocols, and corrective actions taken by field team members will be documented in the field notes. The Project Manager or the Project Data Manager will evaluate the field notes upon submittal to determine whether the corrective action taken was adequate to meet project quality standards or whether additional corrective action is required.

8.5 DATA MANAGEMENT

The final repository for sample analytical information will be an EQuIS database. The electronic data deliverables received from the laboratories will be directly transferred into the EQuIS database, reducing the likelihood of data entry errors. The Project Data Manager will manage and maintain the EQuIS database.

Farallon will directly transfer the analytical data provided by the laboratory into the Ecology Environmental Information Management System, thus eliminating the likelihood of data entry errors inherent with manual data entry.

Field measurements and other data requiring manual entry will be reviewed by Farallon personnel other than the data entry staff prior to submission to the Environmental Information Management System. Ecology's confirmation of receipt of the data will be maintained in Farallon project files.

8.6 DATA VALIDATION

Farallon will conduct a Level I Compliance Screening on all the analytical data.

All chemical data will be reviewed with regard to the following:

- Chain-of-custody/documentation;
- Sample preservation and holding times;
- Method blanks;
- Reporting limits;
- Surrogate recoveries;
- MS/MSD recoveries;
- LCS recoveries; and
- Laboratory and field duplicate RPDs.

Data validation will be based on the QA/QC criteria as recommended in the methods identified in this SAP and in the *National Functional Guidelines for Organic and/or Inorganic Methods Data Review* (EPA 2017a, 2017b).

Data usability, conformance with the QA/QC objectives, and any deviations that may have affected the quality of the data, as well as the basis of application of qualifiers, will be included in the final reporting of the data. Any required corrective actions based on the evaluation of the analytical data will be determined by the laboratory in consultation with the Farallon Project Manager and may include qualification or rejection of the data.

9.0 REFERENCES

U.S. Environmental Protection Agency (EPA). 2017a. *National Functional Guidelines for Organic Superfund Methods Data Review*. EPA Administrative Record EPA-540-R-2017-002. January.

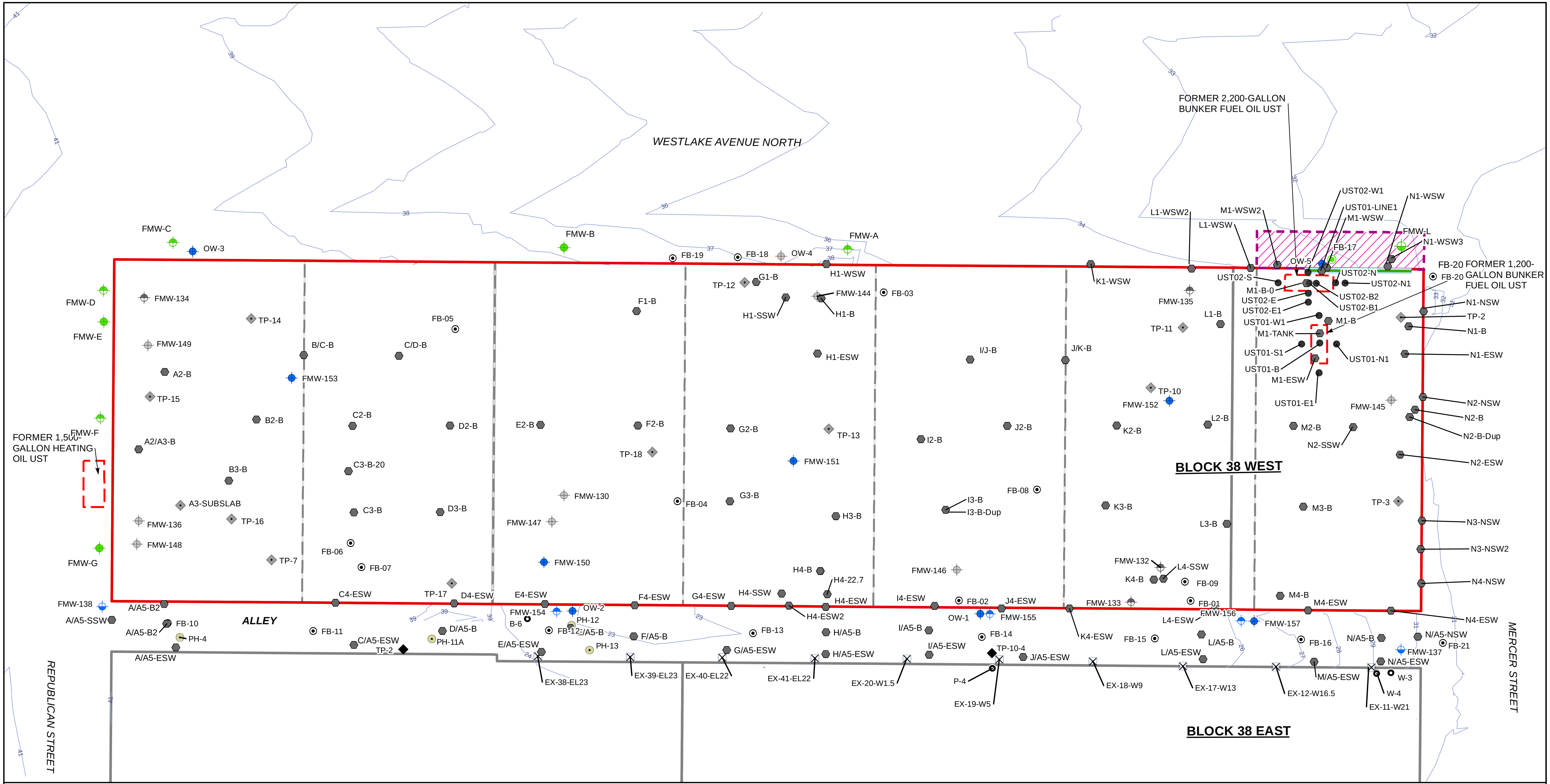
———. 2017b. *National Functional Guidelines for Organic Superfund Methods Data Review*. EPA Administrative Record EPA-540-R-2017-001. January.

Washington Department of Ecology (Ecology). 2004. *Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies*. Publication No. 04-03-030. Revised December 2016. July.

FIGURE

SAMPLING AND ANALYSIS PLAN
Block 38 West Property
500 through 536 Westlake Avenue North
Seattle, Washington

Farallon PN: 397-019



LEGEND

- ⊕ SHALLOW WATER-BEARING ZONE MONITORING WELL
- ⊕ DEEP OUTWASH AQUIFER WELL
- ⊕ DECOMMISSIONED SHALLOW WATER-BEARING ZONE MONITORING WELL
- ⊕ INTERMEDIATE WATER-BEARING ZONE MONITORING WELL / OBSERVATION WELL
- ⊕ DECOMMISSIONED INTERMEDIATE WATER-BEARING ZONE MONITORING WELL
- ⊙ BORING (FARALLON)
- ○ BORING (GEOENGINEERS)
- ☒ EXCAVATION BORING (FARALLON)
- ◆ TEST PIT (GEOENGINEERS)
- ⊙ POTHOLE (FARALLON)
- ● UST SAMPLE LOCATION (FARALLON)
- ⬢ EXCAVATION SAMPLE LOCATION (FARALLON)
- ◆ TEST PIT (FARALLON)
- ◎ PROPOSED BORING
- ⊕ PROPOSED FUTURE SHALLOW WATER-BEARING ZONE MONITORING WELL
- ⊕ PROPOSED FUTURE INTERMEDIATE WATER-BEARING ZONE MONITORING WELL
- ⊕ PROPOSED FUTURE DEEP OUTWASH AQUIFER MONITORING WELL
- ▬ PIPING DISCOVERED IN SIDEWALL (BELIEVED TO BE ASSOCIATED WITH DISCOVERED USTs)
- ‒ ‒ LOT LINE
- ▨ MECHANICAL EQUIPMENT AREA DECOMMISSIONED AND FILLED WITH CDF
- ⬚ UNDERGROUND STORAGE TANK
- ▭ PROPERTY BOUNDARY
- ▭ KING COUNTY PARCELS

CDF = CONTROLLED DENSITY FILL
ELEVATION DATA PRESENTED IN FEET ABOVE MSL
IN THE NORTH AMERICAN VERTICAL DATUM OF 1988
ELEVATION SOURCE: BUSH, ROED, & HITCHINGS, INC. (2014)

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

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FIGURE J-1

PROPOSED BORING AND MONITORING WELL LOCATIONS BLOCK 38 WEST SITE SEATTLE, WASHINGTON

FARALLON PN: 397-019

Drawn By: jjones
Checked By: SS
Date: 4/6/2023
Disc Reference:
Q:\Projects\397 VULCAN\019_Block38\Mapfiles\17D_SAP_2023-03\Figure-J-1_ProposedSamples_2023-03.mxd

TABLES

SAMPLING AND ANALYSIS PLAN
Block 38 West Property
500 through 536 Westlake Avenue North
Seattle, Washington

Farallon PN: 397-019

Table J-1
Scope of Work and Rationale
Block 38 West Site
Seattle, Washington
Farallon PN: 397-019

Location	Rationale	Scope	Analytes and Methods
UST Product Line Borings West- and North-Adjacent to Northwestern Corner of the Block 38 West Property	Evaluate the lateral extent of ORO and cPAHs in soil west and north of the mass excavation soil sampling grid M1 located in the northwestern corner of the Block 38 West Property.	1) Advance one boring up to a depth of 15 feet bgs, corresponding to an elevation of 10 feet NAVD88. Boring FB-20 was advanced in February 2022 to evaluate conditions north-adjacent to the northwestern corner of the Block 38 West Property. 2) Collect soil samples at elevations of 20, 17, 15, and/or 10 feet NAVD88. 3) Abandon borings with bentonite chips and concrete or asphalt to match surrounding grade.	Soil samples will be analyzed for one or more of the following analytes (see Table J-1A): 1) DRO and ORO by NWTPH-Dx; 2) cPAHs by EPA 8270D SIM; and 3) Naphthalenes by EPA 8270.
Monitoring Wells in the Shallow Water-Bearing Zone	Evaluate the lateral extent of COPCs in the Shallow Water-Bearing Zone and evaluate groundwater flow conditions around the new building foundation.	1) Advance four monitoring wells to approximate elevation 5 feet NAVD88. Monitoring wells FMW-154 through FMW-156 were completed with a 5-foot screen interval from elevation 15 to 10 feet NAVD88. Remaining SWBZ monitoring wells will be completed with a 15-foot screen interval from elevation 20 to 5 feet NAVD88. 2) Complete borings as monitoring wells; develop monitoring wells once groundwater returns to steady state conditions. 3) Survey monitoring wells top of casing elevations at all wells in NAVD88 once top of casing and monument are set. 4) Conduct four quarterly groundwater monitoring events from a network of seven SWBZ monitoring wells following termination of concurrent construction dewatering events that occurred at the Block 38 West Property and in the nearby South Lake Union area, and once groundwater returns to steady state conditions. During the first groundwater monitoring event barium will be analyzed from four monitoring wells (FMW-A, FMW-154 through FMW-156. Mercury will be analyzed from monitoring well FMW-155. 5) Measure groundwater elevations quarterly to evaluate groundwater flow conditions from a network of seven monitoring wells.	Soil samples will be analyzed from monitoring well locations FMW-C, FMW-D, and FMW-F for one or more of the following analytes (see Table J-1A): 1) DRO and ORO by NWTPH-Dx; and 2) Naphthalenes by EPA 8270. Groundwater will be analyzed for the following (see Table J-1B): 1) GRO by NWTPH-Gx; 2) DRO and ORO by NWTPH-Dx; 3) Benzene, toluene, ethylbenzene, and total xylenes by EPA Method 8260D; 4) Naphthalenes by EPA 8270; and 5) Metals (barium and mercury).
Monitoring Wells in the Intermediate Water-Bearing Zone	Evaluate the lateral extent of DRO and ORO in the Intermediate Water-Bearing Zone and evaluate groundwater flow conditions.	1) Advance three monitoring wells to approximate elevation -13 to -15 feet NAVD88. Complete with 10-foot screen interval from approximate elevation -3 to -5 to -13 to -15 feet NAVD88. 2) Complete borings as monitoring wells; develop new monitoring wells once groundwater returns to steady state conditions. 3) Survey new monitoring well top of casing elevations in NAVD88 once top of casing and monument are set. 4) Conduct four quarterly groundwater monitoring events from a network of 11 IWBZ monitoring wells following termination of concurrent construction dewatering events that occurred at the Block 38 West Property and in the nearby South Lake Union area, and once groundwater returns to steady state conditions. 5) Measure groundwater elevations quarterly to evaluate groundwater flow conditions from a network of 11 monitoring wells (including observation well OW-5).	No soil analyses proposed. Groundwater samples will be analyzed for one or more of the following analytes (see Table J-1B): 1) DRO and ORO by NWTPH-Dx; and 2) Naphthalenes by EPA 8270. If DRO and ORO are present at concentrations exceeding groundwater screening levels, then the potential for comingling of these COPCs with the American Linen CVOC Plume will be assessed at these monitoring wells and groundwater samples will be analyzed for CVOCs by EPA 8260D.

Table J-1
Scope of Work and Rationale
Block 38 West Site
Seattle, Washington
Farallon PN: 397-019

Location	Rationale	Scope	Analytes and Methods
Monitoring Wells in the Deep Outwash Aquifer	Assess groundwater conditions in the Deep Outwash Aquifer at the Block 38 West Site post-construction dewatering events that occurred on the Block 38 West Property and in the nearby South Lake Union area.	1) Advance one boring to approximate elevation -55 feet NAVD88. Complete with a 10-foot screen interval from approximate elevation -45 to -55 feet NAVD88. 2) Complete boring as monitoring well; develop monitoring well once groundwater returns to steady state conditions. 3) Survey monitoring well top of casing elevations at the new well in NAVD88 once top of casing and monument are set to match the existing grade. 4) Conduct one groundwater monitoring event from a network of three DOA monitoring wells following termination of concurrent construction dewatering events that occurred at the Block 38 West Property and in the nearby South Lake Union area, and once groundwater returns to steady state conditions. 5) Measure groundwater elevations quarterly to evaluate groundwater flow conditions from a network of three monitoring wells.	Ecology requested that, in addition to the new DOA monitoring well, both FMW-137 and FMW-138 be sampled post-construction dewatering. Analysis of CVOCs is pursuant to Ecology requirements. Groundwater samples will be analyzed for the following analyte (see Table J-1B): 1) CVOCs by EPA 8260D.

NOTES:

bgs = below ground surface

COPC = constituents of potential concern

cPAHs = carcinogenic polycyclic aromatic hydrocarbons

DRO = total petroleum hydrocarbons (TPH) as diesel-range organics

DOA = Deep Outwash Aquifer

EPA = U.S. Environmental Protection Agency

GRO = TPH as gasoline-range organics

MTCA = Washington State Model Toxics Control Act Cleanup Regulation

NAVD88 = North American Vertical Datum of 1988

ORO = TPH as oil-range organics

UST = Underground Storage Tank

CVOC = chlorinated volatile organic compound

Table J-1A
Proposed Soil Analyses
Block 38 West Site
Seattle, Washington
Farallon PN: 397-019

Location Description	Location	Sample Location	Sample Elevation Depth (feet NAVD88)	GRO	DRO	ORO	BTEX	Naphthalenes	cPAHs	Comments
Westlake Avenue North Proximate to former UST line	**FB-17**	**FB-17**	20		X	X			X	11/19/2021 - Email from Ecology requesting analysis of DRO, ORO, and cPAHs at elevations 20, 15, and 10 feet NAVD88. Overall comment for naphthalenes; sufficient data already collected for this COPC; although [naphtha] > SLs at elevation 20 feet NAVD88 in soil sample from UST-01-Line1; it was < SLs in several WSW samples at elevation 20 feet: M1-WSW2, M1-WSW, N1-WSW, N1-NSW.
			15		X	X			X	
			10		X	X			X	
Mercer Avenue Proximate to former UST line	**FB-A Ecology Required Boring North of Grid N1**	**FB-20**	20		X	X		X	X	11/19/2021 - Email from Ecology requesting analysis of cPAHs + naphthalenes. 10/12/2021 - Call with Ecology - clarified that field screening (qualitative data) will not be accepted to bound DRO + ORO impacts detected in a soil sample collected from N1-WSW at elevation 17 feet NAVD88. Ecology is requiring empirical data for all elevations listed and agreed to collect and retain at the 10-foot elevation pending results at elevation 15 feet NAVD88. Farallon summarized the lack of obvious signs of contamination by visual, olfactory, and PID field screening, which is why the soil sample collected from the north sidewall of N1 was considered representative of conditions. Farallon reviewed the utility locations and access limitations. Ecology requested that a boring be advanced or attempted to be advanced. Updating the proposed boring location map to include the utility layout provided by City Investors. Naphthalenes were detected at concentrations > SLs in two soil samples, M1-Tank and UST-01-Line. M1-Tank was bounded in all directions by UST soil samples collected during decommissioning (UST01-W1, UST01-N1, UST01-E1, UST01-S1, and UST01-B at elevations ranging from 19 to 17.5 feet NAVD88). UST-01-Line was bounded in all directions by UST soil samples collected during decommissioning (M1-WSW, UST02-N and UST02-N1, UST02-E, UST02-S, M1-WSW2, and UST01-B at elevations ranging from 20 to 17.5 feet NAVD88). No data gap for naphthalenes. cPAHs were not detected at concentrations > SLs in one (M1-WSW) out of nine samples collected from the NW and N sidewalls of the excavation; boring FB-17 is being analyzed for cPAHs to evaluate exceedance at M1-WSW. No data gap for cPAHs.
			17		X	X		X	X	
			15		X	X		X	X	
			10		/	/		/	/	
Westlake Avenue North TP-12	**FB-B**	**FB-18**	20						X	11/19/2021 - Email from Ecology agreeing to analysis of only cPAHs. cPAHs were detected at a concentration > SLs in TP-12 at elevations 20 and 15 feet NAVD88. Ecology's 9/14/2021 response letter only states that cPAHs are required to complete the remedial investigation. Farallon did not sample for these COPCs based on existing data set and no field indications of petroleum hydrocarbon impacts.
			15						X	
			10						/	Collect and retain; analyze if cPAHs > SLs at elevation 15 feet NAVD88.
Westlake Avenue North TP-12	**FB-C**	**FB-19**	20						X	11/19/2021 - Email from Ecology agreeing to analysis of only cPAHs. cPAHs were detected at a concentration > SLs in TP-12 at elevations 20 and 15 feet NAVD88. Ecology's 9/14/2021 response letter states that cPAHs are required to complete the remedial investigation. Farallon did not sample for these COPCs based on existing data set and no field indications of petroleum hydrocarbon impacts.
			15						X	
			10						/	Collect and retain; analyze if cPAHs > SLs at elevation 15 feet NAVD88.

Table J-1A
Proposed Soil Analyses
Block 38 West Site
Seattle, Washington
Farallon PN: 397-019

Location Description	Location	Sample Location	Sample Elevation Depth (feet NAVD88)	GRO	DRO	ORO	BTEX	Naphthalenes	cPAHs	Comments
Mercer Street North of Alley NSW	**FB-D**	**FB-21**	28						X	N/A5-NSW cPAHs > SLs at elevation 28 feet NAVD88; make Ecology aware of utility bank in sidewalk. Boring may not be feasible.
			26						X	Collect and retain; analyze if cPAHs > SLs at elevation 28 feet NAVD88.
SWBZ gw sample west of FB-03 reconnaissance	**FMW-A**									
IWBZ bound DRO/ORO to west	**FMW-B**		20		/	/		/	/	Data from FB-05 does not indicate that COPCs are present above SLs. Farallon agrees to collect and retain in the event of a detection of a COPC in groundwater.
			15		/	/		/	/	Data from FB-05 does not indicate that COPCs are present above SLs. Farallon agrees to collect and retain in the event of a detection of a COPC in groundwater.
SWBZ	**FMW-C**		20		X	X		X	X	3/17/22 - Ecology letter required analysis for naphthalenes and cPAHs. Based on ORO + DRO detected in FMW-134 > SLs at elevation 20 feet NAVD88; collect and retain for naphthalenes analyze if detected in groundwater at concentration > SLs.
			15		X	X		X	X	3/17/22 - Ecology letter required analysis for naphthalenes and cPAHs.
SWBZ	**FMW-D**		20		X	X		X	X	3/17/22 - Ecology letter required analysis for naphthalenes and cPAHs. Based on ORO + DRO detected in FMW-134 > SLs at elevation 20 feet NAVD88; collect and retain for naphthalenes analyze if detected in groundwater at concentration > SLs.
			15		X	X		X	X	3/17/22 - Ecology letter required analysis for DRO, ORO, naphthalenes, and cPAHs. DRO, ORO, DRO + ORO, cPAHs, naphthalenes > SLs in FMW-149 at elevations 15 and 5 feet NAVD88.
IWBZ	**FMW-E**		20							
			15							
SWBZ	**FMW-F**		20		X	X		X	X	5/3/22 Ecology requested soil samples be analyzed for DRO, ORO, naphthalenes, and cPAHs. TP-15 is 10 feet north of proposed SWBZ FMW-F. DRO, ORO, DRO + ORO > SLs in TP-15 at elevations 20, 15, 10 feet NAVD88; and DRO, ORO, DRO + ORO > SLs in FMW-136; and DRO, ORO, DRO + ORO, cPAHs, naphthalenes > FMW-149 at elevations 15 and 5 feet NAVD88.
			15		X	X		X	X	

Table J-1A
Proposed Soil Analyses
Block 38 West Site
Seattle, Washington
Farallon PN: 397-019

Location Description	Location	Sample Location	Sample Elevation Depth (feet NAVD88)	GRO	DRO	ORO	BTEX	Naphthalenes	cPAHs	Comments
IWBZ	FMW-G									
SWBZ	FMW-H	FMW-154								
SWBZ	FMW-I	FMW-155								
IWBZ	FMW-J	FMW-157								
SWBZ	FMW-K	FMW-156								

NOTES:

bgs = below ground surface

COPC = constituents of potential concern

cPAHs = carcinogenic polycyclic aromatic hydrocarbons

DRO = total petroleum hydrocarbons (TPH) as diesel-range organics

Ecology = Washington State Department of Ecology

GRO =TPH as gasoline-range organics

NAVD88 = North American Vertical Datum of 1988

MTCA = Washington State Model Toxics Control Act Cleanup Regulation

ORO = TPH as oil-range organics

/ = Collect and retain sample for potential analysis

Table J-1B
Proposed Groundwater Analyses
Block 38 West Site
Seattle, Washington
Farallon PN: 397-019

Location Description	Location	Sample Location	Screen Interval (feet NAVD88)	GRO	DRO	ORO	BTEX	Naphthalenes	cPAHs	CVOCs	Metals	Comments
IWBZ	**NA**	**FMW-150**	-8.5 to -13.5[1]		X	X		X		/		5/3/2022 - Ecology requested analysis of naphthalenes from all IWBZ monitoring wells. If DRO and ORO are present at concentrations exceeding groundwater screening levels, then the potential for comingling of these COPCs with the American Linen CVOC Plume will be assessed.
IWBZ	**NA**	**FMW-151**	-9.3 to -14.3[1]		X	X		X		/		5/3/2022 - Ecology requested analysis of naphthalenes from all IWBZ monitoring wells. If DRO and ORO are present at concentrations exceeding groundwater screening levels, then the potential for comingling of these COPCs with the American Linen CVOC Plume will be assessed.
IWBZ	**NA**	**FMW-152**	-8.5 to -13.5[1]		X	X		X		/		5/3/2022 - Ecology requested analysis of naphthalenes from all IWBZ monitoring wells. If DRO and ORO are present at concentrations exceeding groundwater screening levels, then the potential for comingling of these COPCs with the American Linen CVOC Plume will be assessed.
IWBZ	**NA**	**FMW-153**	-8.5 to -13.5[1]		X	X		X		/		5/3/2022 - Ecology requested analysis of naphthalenes from all IWBZ monitoring wells. If DRO and ORO are present at concentrations exceeding groundwater screening levels, then the potential for comingling of these COPCs with the American Linen CVOC Plume will be assessed.
IWBZ	**NA**	**OW-1**	-6.0 to -21.0		X	X		X		/		Ecology requested naphthalenes be analyzed in IWBZ based on naphthalenes detected at a concentration that exceeds the groundwater screening level protective of indoor air in FMW-146. If DRO and ORO are present at concentrations exceeding groundwater screening levels, then the potential for comingling of these COPCs with the American Linen CVOC Plume will be assessed.
IWBZ	**NA**	**OW-2**	-7.0 to -22.0		X	X		X		/		5/3/2022 - Ecology requested analysis of naphthalenes from all IWBZ monitoring wells. If DRO and ORO are present at concentrations exceeding groundwater screening levels, then the potential for comingling of these COPCs with the American Linen CVOC Plume will be assessed.
IWBZ	**NA**	**OW-3**	-8.0 to -23.0		X	X		X		/		5/3/2022 - Ecology requested analysis of naphthalenes from all IWBZ monitoring wells. If DRO and ORO are present at concentrations exceeding groundwater screening levels, then the potential for comingling of these COPCs with the American Linen CVOC Plume will be assessed.
SWBZ gw sample west of FB-03 reconnaissance	**FMW-A**		15 to 10	X	X	X	X	X			X	1/30/2023 - Ecology requested analysis of barium for the first quarterly monitoring event to verify whether the soil exceedance in saturated soil at FB-03 has impacted groundwater.
IWBZ bound DRO/ORO to west	**FMW-B**		-3 to -13		X	X		X		/		5/3/2022 - Ecology requested analysis of naphthalenes from all IWBZ monitoring wells. If DRO and ORO are present at concentrations exceeding groundwater screening levels, then the potential for comingling of these COPCs with the American Linen CVOC Plume will be assessed.
SWBZ	**FMW-C**		15 to 10	X	X	X	X	X				
SWBZ	**FMW-D**		15 to 10	X	X	X	X	X				
IWBZ	**FMW-E**		-3 to -13		X	X		X		/		5/3/2022 - Ecology requested analysis of naphthalenes from all IWBZ monitoring wells. If DRO and ORO are present at concentrations exceeding groundwater screening levels, then the potential for comingling of these COPCs with the American Linen CVOC Plume will be assessed.
SWBZ	**FMW-F**		15 to 10	X	X	X	X	X				

Table J-1B
Proposed Groundwater Analyses
Block 38 West Site
Seattle, Washington
Farallon PN: 397-019

Location Description	Location	Sample Location	Screen Interval (feet NAVD88)	GRO	DRO	ORO	BTEX	Naphthalenes	cPAHs	CVOCs	Metals	Comments
IWBZ	**FMW-G**		-3 to -13		X	X		X		/		5/3/2022 - Ecology requested analysis of naphthalenes from all IWBZ monitoring wells. If DRO and ORO are present at concentrations exceeding groundwater screening levels, then the potential for comingling of these COPCs with the American Linen CVOC Plume will be assessed.
SWBZ	**FMW-H**	**FMW-154**	14 to 9	X	X	X	X	X			X	1/30/2023 - Ecology requested analysis of barium for the first quarterly monitoring event to verify whether the soil exceedance in saturated soil at FB-04 has impacted groundwater.
SWBZ	**FMW-I**	**FMW-155**	14 to 9	X	X	X	X	X			X	1/30/2023 - Ecology requested analysis of barium and mercury for the first quarterly monitoring event to verify whether the soil exceedance in saturated soil at FB-02 has impacted groundwater.
IWBZ	**FMW-J**	**FMW-157**	-4 to -14		X	X		X		/		5/3/2022 - Ecology requested analysis of naphthalenes from all IWBZ monitoring wells. If DRO and ORO are present at concentrations exceeding groundwater screening levels, then the potential for comingling of these COPCs with the American Linen CVOC Plume will be assessed.
SWBZ	**FMW-K**	**FMW-156**	11 to 6	X	X	X	X	X			X	1/30/2023 - Ecology requested analysis of barium for the first quarterly monitoring event to verify whether the soil exceedance in saturated soil at FB-01 has impacted groundwater.
DOA	**FMW-L**		-45 to -55							X		
DOA	**NA**	**FMW-137**	-41.9 to -54.9							X		3/17/22 - Ecology letter requested sampling and analysis of existing monitoring well. One time event.
DOA	**NA**	**FMW-138**	-49.96 to -59.96							X		3/17/22 - Ecology letter requested sampling and analysis of existing monitoring well. One time event.

NOTES:

bgs = below ground surface

COPC = constituents of potential concern

/ = Collect and retain sample for potential analysis

cPAHs = carcinogenic polycyclic aromatic hydrocarbons

DRO = total petroleum hydrocarbons (TPH) as diesel-range organics

GRO =TPH as gasoline-range organics

NAVD88 = North American Vertical Datum of 1988

MTCA = Washington State Model Toxics Control Act Cleanup Regulation

ORO = TPH as oil-range organics

[1] In feet referenced to North American Vertical Datum of 1988 (NAVD88) based on well construction detail.

Table J-2
Summary of Screening Levels
Block 38 West Site
Seattle, Washington
Farallon PN: 397-019

Parameter	Soil Screening Levels[1] (milligrams per kilogram)		Groundwater Screening Level[2] (micrograms per liter)
	Vadose Zone	Saturated Zone	
Total Petroleum Hydrocarbons			
Gasoline-range organics[3,4]	30/100[5]	30/100[5]	800/1,000[6]
Diesel-range organics[3,4]	2,000[7]	2,000[7]	500[7]
Oil-range organics[3,4]			
Volatile Organic Compounds			
Benzene	0.027	0.0017	2.4[8]
Toluene	4.5	0.27	640
Ethylbenzene	5.9	0.34	700
Xylenes	14	0.83	320[8]
Tetrachloroethene*	0.05	0.0028	5.0
Trichloroethene*	0.025	0.0015	1.4[8]
cis-1,2-Dichloroethene*	0.078	0.0052	16
trans-1,2-Dichloroethene*	0.52	0.032	77[8]
Vinyl Chloride*	0.0017	0.001[9]	0.29
Polycyclic Aromatic Hydrocarbons			
Naphthalene	4.5	0.24	8.9[8]
1-Methylnaphthalene	0.082	0.0067[9]	1.5
2-Methylnaphthalene	1.7	0.088	32
Benzo(a)Pyrene	0.19[10]	0.19	0.2[11]
Benzo(a)Anthracene	cPAH TEC	cPAH TEC	cPAH TEC
Benzo(b)Fluoranthene	cPAH TEC	cPAH TEC	cPAH TEC
Benzo(j,k)Fluoranthene	cPAH TEC	cPAH TEC	cPAH TEC
Chrysene	cPAH TEC	cPAH TEC	cPAH TEC
Dibenzo(a,h)Anthracene	cPAH TEC	cPAH TEC	cPAH TEC
Indeno(1,2,3-cd)Pyrene	cPAH TEC	cPAH TEC	cPAH TEC
cPAH TEQ	0.19[10]	0.19	0.2[11]
Metals			
Barium	1,600	83	2,000
Mercury	2.1	0.25[9]	1.1[8]

NOTES:

* denotes that the analyte is not considered a constituent of potential concern for the Block 38 West Site; screening levels are being provided for these compounds for reference.

cPAH TEC = Carcinogenic polycyclic aromatic hydrocarbon toxic equivalent concentration (cPAH TEC) calculated following the total toxicity equivalency method in Section 708(8) of Chapter 173-340 of the Washington Administrative Code.

MCL = Federal Maximum Contaminant Level (MCL), 40 Code of Federal Regulations (CFR) Part 141.

Method A = 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.

Method B = Washington State CLARC under Washington State MTCA, Standard Method B Formula Values from CLARC Master spreadsheet, https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC

[1] Washington State Cleanup Levels and Risk Calculations (CLARC) under Washington State Model Toxics Control Act Cleanup Regulation (MTCA), default soil concentrations protective of groundwater from CLARC Master spreadsheet, https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC, unless otherwise noted.

[2] Based on Method B or MCL, unless otherwise noted.

[3] Washington State Model Toxics Control Act Cleanup Regulation Method A Cleanup Levels for Groundwater, Table 720-1 of Section 900 of Chapter 173-340 of the Washington Administrative Code, as amended 2013.

[4] Method A is used as a surrogate for Method B because no Method B vadose or saturated leaching value has been established for TPH gasoline-, diesel- and oil-range mixtures.

[5] Screening level is 30 milligrams per kilogram if benzene is detected and 100 milligrams per kilogram if benzene is not detected.

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

[7] Screening level based on the sum of diesel-range organics and oil-range organics.

[8] Based on protection of indoor air.

[9] Based on laboratory practical quantitation limit.

[10] Based on Method B direct contact cleanup level.

[11] Screening level based on total carcinogenic polycyclic aromatic hydrocarbons derived using the total toxicity equivalency method in Section 708(8) of Chapter 173-340 of the Washington Administrative Code.

Table J-3
Sample Containers, Preservatives, and Hold Times
Block 38 West Site
Seattle, Washington
Farallon PN: 397-019

Parameter	Analytical Method	Container Size and Type	Holding Time	Sample Preservation Technique
Soil				
Gasoline-range organics	NWTPH-Gx	(1) 40-ml glass pre-weighed VOA vial without a stir bar (5 gram soil sample)	48 hours to freeze; 14 days to analyze	Cool to 4°C ±2°C in field; freeze ≤ 0°C in laboratory
Diesel-range organics	NWTPH-Dx	(1) 8-oz CWM Jar	14 days to extract, 40 days to analyze after extraction	Cool to 4°C ±2°C
Oil-range organics				
Benzene, Toluene, Ethylbenzene, and Xylenes	EPA 8260D	(2) 40-ml glass pre-weighed VOA vial with stir bar (5 gram soil sample), and (1) 40-ml glass pre-weighed VOA vial without a stir bar (5 gram soil sample)	48 hours to freeze; 14 days to analyze	Cool to 4°C ±2°C in field; freeze ≤ 0°C in laboratory
Tetrachloroethene				
Trichloroethene				
cis-1,2-Dichloroethene				
trans-1,2-Dichloroethene				
Vinyl Chloride				
Naphthalene	EPA 8270E-SIM	(1) 8-oz CWM Jar	14 days to extract, 40 days to analyze after extraction	Cool to 4°C ±2°C
1-Methylnaphthalene				
2-Methylnaphthalene				
Benzo(a)Pyrene				
Benzo(a)Anthracene				
Benzo(b)Fluoranthene				
Benzo(j,k)Fluoranthene				
Chrysene				
Dibenzo(a,h)Anthracene				
Indeno(1,2,3-cd)Pyrene				
Barium	EPA 6020B	(1) 8-oz CWM Jar	6 months to analyze	Cool to 4°C ±2°C
Mercury				

Table J-3
Sample Containers, Preservatives, and Hold Times
Block 38 West Site
Seattle, Washington
Farallon PN: 397-019

Parameter	Analytical Method	Container Size and Type	Holding Time	Sample Preservation Technique
Groundwater				
Gasoline-range Organics	NWTPH-Gx	(3) 40-ml glass VOA vials with Teflon septum	14 days to analyze	Preserve with HCl to pH <2; Cool to 4°C ±2°C
Diesel-range Organics	NWTPH-Dx	(1) 1-liter amber glass	14 days to extract, 40 days to analyze after extraction	Preserve with HCl to pH <2; Cool to 4°C ±2°C
Oil-range Organics				
Benzene, Toluene, Ethylbenzene, and Xylenes	EPA 8260D	(3) 40-ml glass VOA vials with Teflon septum	14 days to analyze	Preserve with HCl to pH <2; Cool to 4°C ±2°C
Tetrachloroethene				
Trichloroethene				
cis-1,2-Dichloroethene				
trans-1,2-Dichloroethene				
Vinyl Chloride				
Naphthalene	EPA 8270E-SIM	(2) 1-liter amber glass	7 days to extract, 40 days to analyze after extraction	Cool to 4°C ±2°C
1-Methylnaphthalene				
2-Methylnaphthalene				
Benzo(a)Pyrene				
Benzo(a)Anthracene				
Benzo(b)Fluoranthene				
Benzo(j,k)Fluoranthene				
Chrysene				
Dibenzo(a,h)Anthracene				
Indeno(1,2,3-cd)Pyrene				
Barium	EPA 6020B	(2) 250-ml polyethylene	6 months to analyze	Preserve with HNO_3 to pH <2; Cool to 4°C ±2°C
Mercury				

NOTES:

°C = degrees Celsius

CWM = clear wide-mouth

EPA = U.S. Environmental Protection Agency

HCl = hydrochloric acid

HNO_3 = nitric acid

ml = milliliter

oz = ounce

Table J-4
Soil and Groundwater Laboratory Reporting Limits and Quality Objectives
Block 38 West Site
Seattle, Washington
Farallon PN: 397-019

				Precision (Duplicates)		Accuracy: Recovery Limits				
Parameter	**Analytical Method**	**Soil PQL[1] (mg/kg)**	**Groundwater PQL (µg/l)**	**Soil**	**Groundwater**	**Matrix Spike Soil**	**Surrogate Soil**	**Matrix Spike Groundwater**	**Surrogate Groundwater**	**Completeness**
Total Petroleum Hydrocarbons										
Gasoline-range Organics	NWTPH-Gx	5.00	100	± 30% RPD	± 30% RPD	79-122% R	50-150% R	78-122% R	50-150% R	95%
Diesel-range Organics	NWTPH-Dx	20.0	80.0	± 30% RPD	± 30% RPD	38-132% R	50-150% R	36-132% R	50-150% R	95%
Oil-range Organics	NWTPH-Dx	40.0	160	± 30% RPD	± 30% RPD	38-132% R	50-150% R	36-132% R	50-150% R	95%
Volatile Organic Compounds										
Benzene	EPA 8260D	0.010	0.200	± 30% RPD	± 30% RPD	77-121% R	79-120% R	79-120% R	80-120% R	95%
Toluene	EPA 8260D	0.050	1.00	± 30% RPD	± 30% RPD	77-121% R	79-120% R	80-121% R	80-120% R	95%
Ethylbenzene	EPA 8260D	0.025	0.500	± 30% RPD	± 30% RPD	76-122% R	79-120% R	79-121% R	80-120% R	95%
Xylenes	EPA 8260D	0.075	1.50	± 30% RPD	± 30% RPD	78-124% R	79-120% R	79-121% R	80-120% R	95%
Tetrachloroethene	EPA 8260D	0.001	0.20	± 24% RPD	± 17% RPD	61-124% R	79-120% R	79-129% R	80-120% R	95%
Trichloroethene	EPA 8260D	0.001	0.20	± 24% RPD	± 17% RPD	61-124% R	79-120% R	79-129% R	80-120% R	95%
cis-1,2-Dichloroethene	EPA 8260D	0.001	0.20	± 24% RPD	± 17% RPD	61-124% R	79-120% R	79-129% R	80-120% R	95%
trans-1,2-Dichloroethene	EPA 8260D	0.001	0.20	± 24% RPD	± 17% RPD	61-124% R	79-120% R	79-129% R	80-120% R	95%
Vinyl Chloride	EPA 8260D	0.001	0.20	± 24% RPD	± 17% RPD	61-124% R	79-120% R	79-129% R	80-120% R	95%
Polycyclic Aromatic Hydrocarbons										
Naphthalene	EPA 8270E-SIM	0.0100	0.0800	± 30% RPD	± 30% RPD	35-123% R	44-120% R	40-121% R	44-120% R	95%
1-Methylnaphthalene	EPA 8270E-SIM	0.0100	0.0800	± 30% RPD	± 30% RPD	40-120% R	44-120% R	41-120% R	44-120% R	95%
2-Methylnaphthalene	EPA 8270E-SIM	0.0100	0.0800	± 30% RPD	± 30% RPD	38-122% R	44-120% R	40-121% R	44-120% R	95%
Benzo(a)Pyrene	EPA 8270E-SIM	0.0100	0.0400	± 30% RPD	± 30% RPD	45-129% R	44-120% R	54-128% R	44-120% R	95%
Benzo(a)Anthracene	EPA 8270E-SIM	0.0100	0.0400	± 30% RPD	± 30% RPD	49-126% R	44-120% R	58-125% R	44-120% R	95%
Benzo(b)Fluoranthene	EPA 8270E-SIM	0.0100	0.0400	± 30% RPD	± 30% RPD	45-132% R	44-120% R	53-131% R	44-120% R	95%
Benzo(k)Fluoranthene	EPA 8270E-SIM	0.0100	0.0400	± 30% RPD	± 30% RPD	47-132% R	44-120% R	57-129% R	44-120% R	95%
Chrysene	EPA 8270E-SIM	0.0100	0.0400	± 30% RPD	± 30% RPD	50-124% R	44-120% R	59-123% R	44-120% R	95%
Dibenzo(a,h)Anthracene	EPA 8270E-SIM	0.0100	0.0400	± 30% RPD	± 30% RPD	45-134% R	44-120% R	51-134% R	44-120% R	95%
Indeno(1,2,3-cd)Pyrene	EPA 8270E-SIM	0.0100	0.0400	± 30% RPD	± 30% RPD	45-133% R	44-120% R	52-134% R	44-120% R	95%
Metals										
Barium	EPA 6020B	1.00	2.00	± 20% RPD	± 20% RPD	75-125% R	NA	75-125% R	NA	95%
Mercury	EPA 6020B	0.0800	0.0800	± 20% RPD	± 20% RPD	75-125% R	NA	75-125% R	NA	95%

NOTES:

[1] The MRL for project samples will vary with moisture content of the samples.

EPA = U.S. Environmental Protection Agency
mg/kg = milligrams per kilogram
µg/l = micrograms per liter
NA = not applicable
PQL = practical quantitation limit
R = Recovery
RPD = relative percent difference

APPENDIX A
FARALLON STANDARD OPERATING PROCEDURES

SAMPLING AND ANALYSIS PLAN
Block 38 West Property
500 through 536 Westlake Avenue North
Seattle, Washington

Farallon PN: 397-019

STANDARD OPERATING PROCEDURE EQ-01
EQUIPMENT DECONTAMINATION PROCEDURES

PURPOSE AND APPLICATION

The purpose of this standard operating procedure (SOP) is to provide field personnel with the methodology for decontaminating sampling equipment during various field activities. The step-by-step guidelines provided in this SOP are to be followed by the field crew during all site visits, as applicable.

EQUIPMENT AND SUPPLIES/REAGENTS

The following equipment is necessary to properly decontaminate field equipment during various field tasks:

- Rinse water or distilled water.
- Deionized water.
- Liquinox or other phosphate-free detergent.
- Paper towels.
- Labeled squirt bottles.
- Long-handled hard-bristle brushes (for sediment and soil).
- Cotton swabs.
- Plastic sheeting, garbage bags, and aluminum foil (for sediment and soil).
- Core liner caps or plastic wrap and rubber bands (for sediment and soil).
- Extension arm for cleaning core liners (for sediment and soil).
- Plastic 5-gallon bucket.
- U.S. Department of Transportation-approved drum(s) for decontamination water unless other water-handling arrangements have been made. Separate drums are needed for liquid and solid wastes (see Farallon SOP WM-01, Field-Handling of Investigation-Derived Waste). Liquid wastes should not be added to drums containing solid wastes.

Dilute Liquinox with distilled water in a squirt bottle in accordance with the instructions on the Liquinox package, and label the bottle. Fill another squirt bottle with distilled water, and label the bottle.

FIELD EQUIPMENT TO BE DECONTAMINATED AFTER USE

Decontaminate the following field equipment at the conclusion of field work each day, in accordance with the procedures outlined in this SOP:

- Water-level meter.
- Horiba/YSI multiparameter probe.
- Bladder pump.
- Submersible pump.
- Sediment and soil collection and processing equipment.

WATER-LEVEL METER DECONTAMINATION

Decontaminate the water-level meter after measuring the water level at a monitoring well before moving to a new monitoring well, using the following procedures:

- Spray the bottom half of a paper towel with the diluted Liquinox solution, and the upper half with deionized water.
- Grip the measuring tape of the water-level meter with the paper towel in one hand with the Liquinox side down toward the monitoring well casing.
- Begin slowly reeling up the water-level meter while maintaining firm contact between the measuring tape and the paper towel.
- Ensure that no debris or contamination remains on the measuring tape of the water-level meter once it has been reeled up.
- Use a clean new paper towel for each successive decontamination of the measuring tape of the water-level meter.

HORIBA/YSI MULTIPARAMETER PROBE DECONTAMINATION

Decontaminate the Horiba/YSI multiparameter probe at the end of each workday or after sampling a monitoring well with high concentrations of contamination, using the following procedures:

- Remove the multiparameter probe from the flow-through cell, and thoroughly spray each component with deionized water.
- Use a cotton swab to gently clean around each sensor probe, ensuring that all contaminated water and material has been washed away.
- Refill the protective dissolved oxygen and pH probe caps with deionized water, and replace prior to storage.
- Once the multiparameter probe has been adequately cleaned, replace the protective shield, and return the probe to the case. If the device appears to be overly wet, allow it to air-dry with the case open.

- Do not use Liquinox to clean any probes on the Horiba multiparameter probe, as it may damage the device.

BLADDER PUMP DECONTAMINATION

Decontaminate the bladder pump after sampling a well and at the end of each workday, using the following procedures:

- After extracting the bladder pump from the well, break down the pump, remove and dispose of the used bladder, and spray each component with the diluted Liquinox solution, followed by deionized water.
- Wipe away any visible contamination or debris with a paper towel.
- Capture cleaning water in a liquid waste drum for proper disposal in accordance with Farallon SOP WM-01, Field-Handling of Investigation-Derived Waste.
- Ensure that all contamination and Liquinox solution is washed off all components before reassembling the device, installing a new bladder, and moving to sample a new well.

SUBMERSIBLE PUMP DECONTAMINATION

Decontaminate the submersible pump after purging water from any well, using the following procedures:

- After extracting the submersible pump from the well, thoroughly spray down the pump with the diluted Liquinox solution, followed by deionized water.
- Wipe away any visible contamination or debris with a paper towel.
- Purge clean water through the pump and tubing to ensure that contaminated water has been cleared from all lines.
- Capture cleaning water in a liquid waste drum for proper disposal in accordance with Farallon SOP WM-01, Field-Handling of Investigation-Derived Waste.

SEDIMENT AND SOIL SAMPLING AND PROCESSING EQUIPMENT DECONTAMINATION

Decontaminate sampling equipment used to collect and process sediment and soil samples, using the following procedures:

- Place contaminated equipment and decontamination tools on plastic sheeting.
- Thoroughly rinse all used equipment with distilled water in a 5-gallon bucket to remove excess sediment or soil.
- Pour one capful of Liquinox solution into a 5-gallon bucket filled with tap water or distilled water.
- Using a long-handled hard-bristle brush, thoroughly scrub the equipment with the Liquinox solution until no sediment or soil particles remain.

- Holding the equipment over a 5-gallon bucket, double-rinse the equipment with distilled water until no Liquinox solution remains. Do not allow clean equipment to come into contact with a contaminated surface.
- Drain the equipment and place it in a clean, dry place to prevent recontamination.
- If decontaminated equipment will not be re-used immediately, wrap stainless steel equipment (e.g., bowls, spoons) in aluminum foil with the dull side facing the equipment. Seal polycarbonate core liners with core caps or cellophane plastic. Rubber-band ends to ensure a proper seal.
- After decontamination has been completed, place disposable items into a garbage bag, and store decontamination water in a drum in accordance with Farallon SOP WM-01, Field-Handling of Investigation-Derived Waste.

STANDARD OPERATING PROCEDURE (SOP) GN-02

UTILITY LOCATE

PURPOSE

The purpose of this SOP is to provide Farallon Consulting, L.L.C. (Farallon) personnel with the specific information needed to identify and locate utilities on sites where drilling or excavation activities will occur. Excavation is defined by Section 20 of Chapter 19.122 of the Revised Code of Washington (RCW 19.122.020) as "any operation, including the installation of signs, in which earth, rock, or other material on or below the ground is moved or otherwise displaced by any means." For the purposes of this SOP, the excavation area refers to the area of an excavation or a perimeter around all proposed borings, test pits, soil gas sampling locations, and subslab soil gas sampling locations. Identifying utilities within the boundaries of a proposed excavation area prior to any digging is required by law and is necessary for the safety of Farallon personnel and contractors.

The guidelines provided in this SOP are to be followed by Farallon personnel who coordinate utility locating, mark locate boundaries, and/or observe field work that involves any type of excavation.

EQUIPMENT AND SUPPLIES

The following equipment and supplies are necessary to arrange and conduct utility locating:

- A map of the site with the proposed excavation area(s);
- Readable side sewer card figures, if applicable;
- Geographic information system (GIS) utility figures, if applicable;
- Readable American Land Title Association (ALTA) survey figures, if applicable;
- Any previous utility figures associated with the site;
- White marking products (e.g., paint, flags, stakes, grease marking pen, tape, chalk);
- Materials necessary to provide required documentation (e.g., Field Report form, camera, measuring wheel, global positioning system); and
- Personal protective equipment (PPE) as described in the site-specific Health and Safety Plan, or Level D PPE at a minimum.

PROCEDURES

The following utility locating procedures have been developed for use before excavation occurs on a site. The procedures are divided into the following five parts:

- Call Before You Dig System;
- Private Utility Locating Services;
- Hand-Clearing Proposed Excavation Areas;
- Maintaining Public Utility Locate Marks; and
- Utility Line Damage.

The Project Manager should discuss the scope of work, details of the project location, and any essential information with the project field team before any of the procedures described below commence. When practicable, an on-site kickoff meeting involving a member of the field team and the Project Manager should be conducted to discuss the work to be performed, mark the boundaries of the excavation area, and mark potential boring locations, if applicable.

Call Before You Dig System

According to RCW 19.122.030, excavators are required to mark the boundary of a proposed excavation area using <u>white marking products</u>. Marking products include paint, flags, and stakes. Boundary marks should conform to the following guidelines:

- A continuous line, hashed line, dots, or corner marks with arrows are acceptable ways to mark the boundary.
- Flags and stakes can be used if paint is not adequate.

The location(s) of the proposed excavation area(s) must be reviewed to verify that no visible utilities that would interfere with the proposed excavation area(s) are present. If utilities are present, the Project Manager and field personnel should communicate the changes to the excavation that are area necessary before the boundaries are marked with white paint.

After marking the boundaries of the proposed excavation area, Farallon personnel must provide notice of the scheduled excavation to the owner/operators of buried utilities at least 2 but no more than 10 business days in advance by calling 811 or 1-800-424-5555, or using the online tool at www.callbeforeyoudig.org. Use of the online tool is preferred.

A map with the excavation area boundaries depicted and/or photos of the white paint marks is helpful in conveying the scope of work to the Call Before You Dig service.

The following information should be available to provide the Call Before You Dig service at the time of initial contact:

- Scope of work, including the start date and time.
- Contact information for the Project Manager and a field person able to answer questions from public utility locators regarding project details.

- Site address, township/range/section quarter, and name of property owner.

Once the Call Before You Dig system has been notified of the upcoming work, the system provides a ticket number, which

- Should be referenced whenever the Call Before You Dig service is contacted about the job.
- Provides proof that the Call Before You Dig system was notified prior to excavation. Public utility locators, inspectors, and law enforcement personnel may ask for the ticket number.
- Should be supplied to any subcontractors doing work on the site for reference when contacting the system for their own ticket number.

Call Before You Dig personnel will provide a list of public utilities present on the site, and will notify public utility operators of the planned work.

Public utility operators have 2 full business days after the day notification was received to locate and mark their lines, or to provide reasonable information on lines that they are not able to locate. The day notice is given is not included as 1 of these 2 days. Therefore, if excavation work is planned to start on a Monday, for example, the Call Before You Dig system must be notified by Wednesday the week before.

Two full business days must elapse between Call Before You Dig notification and the start of excavation. No excavation is to take place until all known utilities are marked or otherwise accounted for with information provided by the facility operator.

Locators mark their lines with colored hash marks. The American Public Works Association determines the colors to be used to denote different kinds of lines:

Red: Power Lines and Cable	Yellow: Gas, Oil, Petroleum
Orange: Telephone and Cable	Blue: Drinking Water
Green: Sewer (Storm and Sanitary)	Purple: Non-Potable Water
Pink: Survey Marks	White: Excavator Marks

Public utility operators are required to mark their lines only to the meter. Utility lines located beyond the meter are the responsibility of the property owner. Public utility operators should indicate by marking if no public utilities are present.

Public utility locators are required to mark their lines with reasonable accuracy. According to RCW 19.122.020, “reasonable accuracy means location within twenty-four inches of the outside dimensions of both sides of an underground facility.”

At this time, public utility companies are not required to mark abandoned or deactivated lines in Washington.

An individual not following the protocols established by the Call Before You Dig system can be held liable for up to three times the cost to repair a utility line damaged during excavation.

Records of ticket numbers and communications with the Call Before You Dig service should be stored in the project folder and supplied to on-site project personnel.

Before any excavation work is started, Farallon personnel should verify that all public utility marks are present on the site. The public utility company/ies listed on the Call Before You Dig system ticket should be contacted if marks for that utility/ies are not present.

Private Utility Locating Services

After the public utility companies have marked their lines and before excavation begins, it is standard practice to have a private utility locating service clear areas that will be excavated.

Private locates generally are scheduled for the day before or the morning of the start of excavation.

Areas where excavation will occur must be cleared for conductible utilities by a private locator. Depending on the nature of the site and the proximity of utility lines, the private locator may also mark non-conductible utilities.

If possible, the excavation contractor should be on the site during the private utility locating to verify with the private locator that all proposed excavation areas are accessible.

When working with private utility locators, Farallon personnel should:

- Study existing figures of the site, noting the locations of known utilities.
- Use available side sewer cards or geographic information system utility figures to verify utility locations at the site.
- Verify that all public utilities have been marked by physically verifying that colored paint marks are present for all of the public utility companies listed on the One Call Before You Dig ticket. If any public utilities have not been marked, the utility company must be contacted and requested to mark the area, or to provide confirmation that the area is clear of their utility.
- Discuss the scope of work/excavation areas with the private locator.
- Document the name of the locating company and the name of the locator.
- Observe the locator clear the excavation area(s).
- Document the locate marks with photos, and note any uncertainties in the Field Report form.
- Identify the locations of shut-off valves for utilities such as water and natural gas.
- Contact the Project Manager or Principal to discuss relocating the excavation area if a proposed excavation area is in conflict with a utility identified by the private locator.
- Sign the locator’s paperwork, if necessary, and depart the site if no additional field work is to be performed that day.

Private location of conductible utilities should sweep the excavation area in two perpendicular directions.

Private location of non-conductible utilities (typically storm and sanitary sewer) can use either a probe or a camera for accessible lines. Appropriately colored paint marks are applied by the private locator based on a signal sent from the probe or camera. For inaccessible lines, a ground-penetrating radar or magnetometer can be used to approximate the line locations. Marks based on this method should be considered approximate.

Hand-Clearing Excavation Areas

Prior to conducting certain excavation activities, excavators will clear the proposed excavation area to verify that no utilities are present. This can be accomplished through use of an air knife/vacuum truck, post-hole digging, hand-augering, or use of other hand tools that allow the excavation location be explored sufficiently to verify that no utilities are present. Farallon Project Managers will confirm the method of clearing and depths with the field team before the excavation work is performed. Farallon Project Managers also need to discuss shallow soil sampling needs with the field team if clearing activities are being performed. Clearing activities should be conducted according to the following guidelines:

- Hollow-Stem Auger Drilling: Hand-clear to a minimum depth of 5 feet below ground surface (bgs) using an air knife/vacuum truck whenever possible. Alternative methods such as post-hole digging or hand-augering also may be used.
- Sonic Drilling: Hand-clear to a minimum depth of 5 feet bgs using an air knife/vacuum truck whenever possible. Alternative methods such as post-hole digging or hand-augering also may be used.
- Geoprobe Drilling: Clearing activity requirements are dependent on known utilities and results of the public and private utility location procedures completed above. Hand-clear using a post-hole digger or hand-auger to a maximum depth of 5 feet bgs is necessary. An air knife/vacuum truck may be used to hand clear each boring location to a maximum depth of 5 feet bgs, if available.
- Test Pit Excavation: No hand-clearing is necessary. Excavation contractors should be directed to dig cautiously in the upper 5 feet bgs in the event an unknown utility is present. A test pit excavation or regular excavation using machinery (e.g., track hoe, backhoe) should include using a spotter to watch for unidentified utility lines. Ideally, the spotter should be provided by the excavation contractor.
- Rotary Hammer for Soil Gas Sampling: No hand-clearing is necessary.
- Rotary Hammer for Subslab Soil Gas Sampling: No-hand clearing is necessary.

Some drilling contractors require that a utility line be exposed prior to drilling if the proposed drilling location is within a certain distance of the utility line. Farallon personnel should confirm drilling contractor requirements prior to conducting drilling activities.

If a utility line is encountered during clearing, excavators should verify that the utility has not been damaged, and Farallon personnel should document the encounter on the Field Report form with photos and details. RCW 19.122.020 states that “damage” includes the substantial weakening of structural or lateral support of an underground facility, penetration, impairment, or destruction of any underground protective coating, housing, or other protective device, or the severance, partial or complete, of any underground facility to the extent that the project owner of the affected facility operator determines that repairs are required. The Project Manager or Principal should be notified immediately if a utility line is encountered during hand-clearing, and an alternate location will be proposed. A hand-cleared area having an exposed utility line should be backfilled with a bentonite seal and finished to match existing grade.

Maintaining Public Utility Locate Marks

According to RCW 19.122.030, "public utility locate marks expire 45 days from the date the excavator provides notice," and "it is the responsibility of the excavator to maintain the public utility marks for 45 days, or for the length of the project–whichever is shortest. In any case, the public utility locate marks expire after 45 days."

Locate marks can be maintained digitally through both photos and figures drawn to scale.

Locate marks can be maintained in the field using white paint. White paint can be applied between original hash marks, on either side of the hash marks, or on both ends. Offset paint or staking can be used if placed a uniform distance from the original marks with a clear indication of the direction and distance from the original marks. The original marks should not be painted over, and white paint should never be applied over colored paint. White marks should include a letter identifying the type of buried line.

Utility Line Damage

A utility line does not need to be ruptured or severed to be considered damaged. Scratching or denting a utility line or its protective tape also is considered damage, as the integrity of the line may have damaged even if the damage does not appear to be significant. Before excavation work begins, shut-off valve locations for applicable utilities should be documented. If a utility is believed to be damaged, the utility should be shut down if practicable and safe to do so. According to RCW 19.122.053, "all facility operators and excavators who observe or cause damage to an underground facility must report the damage event to the Washington State Utilities and Transportation Commission."

If a utility line is hit and public safety is a concern, 911 should be the first call made after the immediate area has been evacuated. If a utility line is hit and the public is not at risk, the field team should notify the Project Manager, who will notify the Principal and the corporate Health and Safety Coordinator immediately. The Project Manager should then contact the utility that owns the damaged line, and report to the field team any instructions issued by the utility owner, and an expected timeframe for arrival of a utility owner representative at the site. Repairs to a utility line will not be attempted by Farallon personnel or contractors.

Damage must be reported through the Common Ground Alliance Damage Information Reporting Tool website, hosted by the Washington State Utilities and Transportation Commission: http://www.utc.wa.gov/publicSafety/pipelineSafety/Pages/Damagereportingrequirements.aspx

Access to damaged utility lines should be maintained to allow inspection by the utility company. An exposed utility should not be backfilled or patched until instruction to do so has been provided by the Project Manager or Principal.

DOCUMENTATION

Farallon personnel should document in the Field Report form the work performed and methods used by private utility locators, and photos from multiple angles with good reference points for each utility line in the excavation area(s).

REFERENCES

Washington Utilities Coordinating Council. 2014. *Guide to Safe Digging, Washington State Law and Industry Best Practices.*

STANDARD OPERATING PROCEDURE GW-01

MONITORING WELL CONSTRUCTION

PURPOSE AND APPLICATION

The purpose of this standard operating procedure (SOP) is to provide field personnel with the methodology for monitoring well construction and installation. Monitoring well construction ultimately is at the discretion of the Project Manager, and is based on the geology at the site and the use of the monitoring well. Groundwater monitoring wells in the Puget Sound region, for example, typically are constructed using 2-inch-diameter Schedule 40 polyvinyl chloride well casing with 0.010-inch slotted screens because of the finer-grained materials prevalent in the region. Slot and sand sizes may be increased at the discretion of the Project Manager, depending on local geology. Monitoring wells must be installed and decommissioned by a licensed well driller, and constructed in general accordance with Chapter 173-360, Minimum Standards for Construction and Maintenance of Wells, of the Washington Administrative Code in Washington; with Rule 0410 of Division 240 of Chapter 690, Well Construction Standards – General, of the Oregon Administrative Rules in Oregon; with Bulletins 74-81 and 74-90, California Well Standards, from the California Department of Water Resources in California; and with the federal and/or state standards established for well construction specified in the project-specific field sampling plan in other states.

EQUIPMENT AND SUPPLIES/REAGENTS

The following equipment is necessary for the construction and installation of monitoring wells:

- Monitoring well construction equipment (e.g., water-level meter, photoionization detector, tape measure, camera, plastic sheeting), as applicable.
- Monitoring well construction materials (e.g., well casing [screened and blank], filter pack sand, bentonite and/or Volclay Grout annular seal material, concrete, locking casing cap, well-head monument [flush-mounted or stove-pipe monument, as appropriate] complete with locking top, bollards for placement around well-head monument as applicable), provided by the driller.
- Materials necessary to provide required documentation, including Boring Log, Monitoring Well Construction Data form, and Field Report form.
- Personal protective equipment as described in the site-specific Health and Safety Plan.
- Decontamination equipment as specified in Farallon SOP EQ-01, Equipment Decontamination Procedures.
- U.S. Department of Transportation-approved drum(s) for decontamination wastewater and excess soil cuttings. Separate drums are needed for liquid and solid wastes (refer to Farallon SOP WM-01, Field-Handling of Investigation-Derived Waste). Liquid wastes should not be added to drums containing solid wastes.

DECONTAMINATION

Before arrival at the site, upon relocation at the site, and upon demobilization from the site, decontaminate equipment that will come into contact with potentially contaminated soil and groundwater, in accordance with Farallon SOP EQ-01, Equipment Decontamination Procedures.

PROCEDURES

Follow the instructions below for monitoring well construction and installation:

- Don appropriate personal protective equipment as described in the site-specific Health and Safety Plan.
- Before installing the casing, discuss the geology and groundwater conditions at the site with the Project Manager to confirm the depth the monitoring well screen should be placed at, and the length of screen to be used.
- Measure the depth to the bottom of the borehole to calculate the appropriate placement and length of the screened interval, filter pack, annular seal, and concrete surface seal. Calculate the approximate volumes of the filter pack and the seal material required for the specific monitoring well bore annulus and monitoring well casing diameter. Ensure that the filter pack extends from the bottom of the monitoring well intake to approximately 2 to 5 feet above the top of the monitoring well intake, and is approximately 2 to 4 inches thick. The monitoring well casing should be centered in the borehole. Ensure that the annular seal is a minimum of 2 feet thick above the top of the filter pack, and that the concrete seal is a minimum of 2 feet in depth from the surface.
- Prior to installation, measure and check the lengths of the monitoring well screen and the blank casing, and confirm the slot size and the sand filter pack size, the type of bentonite seal and/or Volclay Grout seal, and the monitoring well-head monument. For boreholes completed to depths deeper than the planned installation depth of the monitoring well casing, backfill the borehole with bentonite, sand, or pea gravel. Record the type and brand of the monitoring well construction materials used on a Monitoring Well Construction Data form.
- Record on a Field Report form the start and completion times for the various stages of monitoring well construction such as installation of the monitoring well casing into the borehole, filter pack and seal emplacement, and well-head monument placement.
- Record on a Monitoring Well Construction Data form the volumes of filter pack, the bentonite seal, and the concrete used to construct the monitoring well, and check against calculated volumes to confirm proper placement and amount. During the construction process, record any irregularities such as bridging of the filter pack or seal material that could indicate construction problems.
- Upon completion of monitoring well installation, measure the total monitoring well depth and the depth to groundwater, and record the measurements on the Monitoring Well Construction Data form.

- Place a mark or notch on the northern side of the top of the monitoring well casing to provide a monument for the measurement of water levels.

DOCUMENTATION

Document monitoring well construction activities on the Monitoring Well Construction Data form and the Field Report form.

REFERENCES

U.S. Environmental Protection Agency. 1991. *Handbook of Suggested Practices for the Design and Installation of Ground-Water Monitoring Wells*. EPA160014-891034. March.

———. 1996. *Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures*. EPA/540/S-95/504. April.

STANDARD OPERATING PROCEDURE GW-02

MONITORING WELL DEVELOPMENT

PURPOSE AND APPLICATION

The purpose of this standard operating procedure (SOP) is to provide field personnel with the methodology for monitoring well development. All monitoring wells should be developed to create an effective filter pack around the monitoring well screen, rectify damage to the formation caused by drilling, remove fine particulates from the formation near the borehole, and assist in restoring the natural water quality of the aquifer in the vicinity of the monitoring well. The step-by-step guidelines provided in this SOP are to be followed by the field crew performing or overseeing monitoring well development.

EQUIPMENT AND SUPPLIES/REAGENTS

The following equipment is necessary to properly develop a groundwater monitoring well:

- Monitoring well key, socket wrench or speed wrench, socket set, padlock key, or other monitoring well-access equipment.
- Electric water-level meter long enough to reach the bottom of the monitoring well, calibrated to 0.01 foot.
- Two-inch-diameter (or appropriately sized) surge block.
- Monitoring well-purging equipment (e.g., silicone line, polyvinyl chloride pipe, plug, submersible or non-submersible pump, tubing, power supply, extension cord), as applicable.
- U.S. Department of Transportation-approved drum(s) for decontamination wastewater unless other water-handling arrangements have been made. Separate drums are needed for liquid and solid wastes (see Farallon SOP WM-01, Field Handling of Investigation-Derived Waste). Liquid wastes should not be added to drums containing solid wastes.
- Materials necessary to provide required documentation (e.g., Field Report form, Monitoring Well Construction Data form, and Waste Inventory Tracking Sheet).
- Personal protective equipment as described in the site-specific Health and Safety Plan.
- Decontamination equipment as specified in Farallon SOP EQ-01, Equipment Decontamination Procedures.

DECONTAMINATION

Before arrival at the site, upon relocation at the site, and upon demobilization from the site, decontaminate equipment that will come into contact with groundwater, in accordance with SOP EQ-01, Equipment Decontamination Procedures.

PROCEDURES

Follow the instructions below for each monitoring well:

- Don appropriate personal protective equipment as described in the site-specific Health and Safety Plan.
- Brush away soil and vegetation, and pump standing water away from the monitoring well opening.
- Open the monitoring well cap.
- Measure the depth to water and the total depth of the monitoring well to the nearest 0.01 foot using a decontaminated water-level meter in accordance with Farallon SOP GW-03, Groundwater Level Measurements in Monitoring Wells. Record the measurements on the Monitoring Well Construction Data form.
- Calculate the unit purge volume using the formula and the input values from the table below:

$$V = [X(monitoring\ well\ depth - water\ level)] + [Y(monitoring\ well\ depth - bottom\ of\ seal\ or\ water\ level, whichever\ is\ lowest\ in\ depth)]$$

Where:
V = monitoring well volume, including annular space
X = internal casing volume per unit length (gallons per linear foot)
Y = annular volume per unit length (gallons per linear foot)

Borehole Diameter (inches)	Casing Diameter (inches)	Volume$_{casing}$ (X) (gallons per linear foot)	Volume$_{annulus}$ (Y) (gallons per linear foot)
7	2	0.17	0.68
8	2	0.17	0.98
10	4	0.65	1.34
12	4	0.65	2.07
12	6	1.47	1.70
14	8	2.61	1.98

Development Procedures – Existing and New Monitoring Wells

Existing wells in a monitoring well network may require redevelopment if an excessive amount of fines are present in the monitoring well casing that could interfere with stabilization of water-quality parameters or collection of representative water-quality samples.

The instructions below are to be followed for development of existing and new monitoring wells:

For existing monitoring wells only:

- Remove the pump and/or any dedicated tubing from the monitoring well.

For existing and new monitoring wells:

- Attach one length of twine to the decontaminated surge block (or use a drill rig or tripod) and lower the surge block to within 0.25 foot of the bottom of the monitoring well.
- Surge the monitoring well by vigorously moving the surge block up and down from 0.25 foot from the bottom of the monitoring well to 1 foot above the top of the screened interval for a minimum of 5 minutes to create a surging action across the screened interval, which will bring finer-grained material into suspension. Move the surge block up and down in 3-foot sections until the entire monitoring well screen length has been surged. Record on the Monitoring Well Construction Data form the number of times the surge block is raised and lowered, and total surge time.
- Remove the surge block.
- If a submersible pump is to be used for monitoring well development, gently lower the pump into the monitoring well to within 1 foot of the bottom of the screened interval. If a non-submersible pump is to be used, lower the tubing to within 1 foot of the bottom of the screened interval.
- Begin purging the monitoring well at a rate sufficient to remove fines without pumping the monitoring well dry. Record on the Monitoring Well Construction Data form the volume of water pumped from the monitoring well.
- Surge and pump the monitoring well, including saturated annular space, a minimum of three and a maximum of five monitoring well volumes. If the monitoring well runs dry, let the monitoring well recharge. Then commence purging until a minimum of three monitoring well volumes have been purged. If this event is the first time the monitoring well has been developed and water was added during the drilling process, remove the volume of water introduced during drilling and monitoring well construction. Purging has been completed when *one* of the following has occurred:
    - The minimum purge volume has been removed; OR
    - Five purge volumes and the drilling process water volume have been removed.
- Measure the total depth of the monitoring well after development, and record on the Monitoring Well Construction Data form the total volume of water pumped from the monitoring well.
- Record on the Monitoring Well Construction Data form a description of the suspended particle content, and additional information such as unique odor or water color.

- Containerize the purge water in a U.S. Department of Transportation-approved drum(s) unless other water-handling arrangements have been made. Separate drums are needed for liquid and solid wastes (refer to Farallon SOP WM-01, Field-Handling of Investigation-Derived Waste). Liquid wastes should not be added to drums containing solid wastes.
- Upon completion of monitoring well development, properly seal, secure, and label the drums in accordance with Farallon SOP WM-01, , Field-Handling of Investigation-Derived Waste. Record the number and contents of the drums on a Waste Inventory Tracking Sheet. At a minimum, the drum label(s) should include:
  - Boring/monitoring well ID.
  - Facility name.
  - Drum contents.
  - Date.
  - Drum number.
- Close the monitoring well and record any monitoring well-integrity concerns on the Field Report form and the Monitoring Well Construction Data form.
- Decontaminate all equipment in accordance with Farallon SOP EQ-01, Equipment Decontamination Procedures.

DOCUMENTATION

Document monitoring well development activities on the Monitoring Well Construction Data form. Record the number and contents of the drums on a Waste Inventory Tracking Sheet.

REFERENCE

U.S. Environmental Protection Agency. 1991. *Handbook of Suggested Practices for the Design and Installation of Ground-Water Monitoring Wells.* Document No. 160014-891034. March.

STANDARD OPERATING PROCEDURE GW-03

GROUNDWATER LEVEL MEASUREMENT IN MONITORING WELLS

PURPOSE AND APPLICATION

The purpose of this standard operating procedure (SOP) is to provide field personnel with the methodology for measuring and documenting the depth to groundwater in monitoring wells. The step-by-step guidelines provided in this SOP are to be followed by the field crew to ensure consistent and representative measurements of depth to groundwater in monitoring wells. When multiple wells are present at a site, all water-level measurements typically are taken as quickly as possible to aid in the creation of potentiometric surface maps that are representative of a “single” point in time.

EQUIPMENT AND SUPPLIES/REAGENTS

The following equipment is necessary to properly measure the depth to groundwater in monitoring wells:

- Monitoring well key, hand drill, socket set, Allen wrench, speed handle, padlock key, or other monitoring well-access equipment specific to the monitoring well monument cover plate.
- Electronic water-level meter (Solinst or equivalent) narrow enough to fit in the monitoring well, calibrated to 0.01 foot, with sufficient line to reach the bottom of the monitoring well.
- Oil-water interface probe, if light nonaqueous-phase liquid (LNAPL) is known or suspected to be present.
- Disposable bailer if LNAPL is known or suspected to be present, and the Project Manager requests that LNAPL be bailed from the well.
- Tape measure.
- Materials necessary to provide required documentation, including Groundwater Level Measurement Summary Forms and Field Report forms.
- Personal protective equipment as described in the site-specific Health and Safety Plan.
- Decontamination equipment as specified in Farallon SOP EQ-01, Equipment Decontamination Procedures.

DECONTAMINATION

Before arrival at the site, upon relocation at the site, and upon demobilization from the site, decontaminate equipment that will come into contact with groundwater, in accordance with Farallon SOP EQ-01, Equipment Decontamination Procedures.

PROCEDURES

Follow the instructions below for measuring water levels at each monitoring well:

- Don appropriate personal protective equipment as described in the site-specific Health and Safety Plan.
- Check the operation of the water-level meter by turning on the indicator switch and pressing the test button.
- Remove soil or vegetation from the monitoring well site.
- Open the monitoring well-head enclosure, and use a bilge pump or cup to remove standing water inside the monitoring well monument before opening the monitoring well cap. Dispose of standing water to the ground surface.
- Open the monitoring well cap.
- Monitor air quality at the monitoring well-head if volatile contaminants are suspected to be present, or if it is unknown whether volatile contaminants are present.
- Repeat above procedure until all monitoring wells are open.
- Allow the water level to equilibrate with ambient atmospheric pressure for approximately 15 minutes before measuring.
- Before taking any measurements, carefully measure the length of the sonde to the nearest 0.01 foot. The additional 2 to 3 inches from the zero point of the sonde to the tip of the sonde **must be discounted** for **all** total depth measurements.
- Measure and record the depth to water using a water-level meter that has been decontaminated in accordance with Farallon SOP EQ-01, Equipment Decontamination Procedures. With the water-level meter turned on to a medium level of sensitivity, slowly lower the meter into the monitoring well casing until it reaches the groundwater table. The probe will beep when it reaches the interface of the groundwater table (when the electronic circuit is first completed). Stop lowering the probe, hold the graduated water-level cable to the notch or mark on the northern side of the top of the monitoring well casing, and note the length measurement. Repeat this process to collect a second water-level measurement. If the two readings differ by more than 0.01 foot, repeat the measurements until the readings stabilize. Repeat the process until three consecutive stabilized readings have been measured. Record the water-level measurement **only** in relation to the probe being lowered into the monitoring well, *not* as it is raised out of the monitoring well. If you cannot see the top of the monitoring well casing when the water level beeps, grasp the tape with your thumb and index finger exactly at the measuring point corresponding with the notch or mark at the top of the monitoring well casing. Slowly pull the cable out of the monitoring well and read the measurement. Repeat until readings stabilize.
- Remove the cable from the monitoring well, and record the stabilized depth-to-water measurement on the Groundwater Level Measurement Summary Form to the nearest 0.01 foot.

- Measure the total monitoring well depth. **NOTE:** If groundwater samples are to be collected, measure the total monitoring well depth **after** all groundwater samples have been collected, to avoid resuspension of settled solids in the monitoring well, impacting the samples. If the monitoring well does not have a dedicated pump, lower the water-level indicator probe to the bottom of the monitoring well to measure the total depth of the monitoring well. Gently bounce the probe on the monitoring well bottom, and pull the slack in the cord to read the total monitoring well depth. Repeat three times to ensure that the monitoring well depth measurement is reproducible, and is representative of the true depth. Note on the Groundwater Level Measurement Summary Form whether the bottom of the monitoring well is hard or soft.
- Remove the cable from the monitoring well, and record the monitoring well depth measurement on the Groundwater Level Measurement Summary Form to the nearest 0.01 foot.
- Decontaminate the water-level meter in accordance with Farallon SOP EQ-01, Equipment Decontamination Procedures.
- If the presence of LNAPL is suspected or if site conditions are unknown, check for the presence of LNAPL by one of two methods:
    - Use of a bailer: Use a new 3-foot-long disposable bailer attached to a nylon rope. Slowly lower the bailer until the bottom of the bailer is approximately 2 feet below the water surface. Slowly retrieve the bailer, and measure the product thickness using a tape measure. Record the information on the Groundwater Level Measurement Summary Form. Dispose of the bailer and product or wastewater in accordance with Farallon SOP WM-01, Field Handling of Investigation-Derived Waste.
    - Use of an oil-water interface probe: Decontaminate the oil-water interface probe in accordance with Farallon SOP EQ-01, Equipment Decontamination Procedures. With the oil-water interface probe meter turned on to a medium level of sensitivity, slowly lower the probe into the monitoring well casing until it reaches the top of the LNAPL. The probe will have a steady beep when it reaches the interface of the LNAPL (when the electronic circuit is first completed). Stop lowering the probe, hold the graduated oil-water interface cable to the notch or mark on the northern side of the top of the monitoring well casing, and note the length measurement. Repeat this process to collect a second LNAPL measurement. If the two readings differ by more than 0.01 foot, repeat the measurements until the readings stabilize. Repeat the process until three consecutive stabilized readings have been measured. Record the depth to LNAPL measurement **only** in relation to the probe being lowered into the monitoring well, *not* as it is raised out of the monitoring well. If you cannot see the top of the monitoring well casing when the oil-water interface probe beeps, grasp the tape with your thumb and index finger exactly at the measuring point corresponding with the notch or mark at the top of the monitoring well casing. Slowly pull the cable out of the monitoring well and read the

measurement. Repeat until readings stabilize. Once the depth to LNAPL has been recorded, collect the water-level measurement as described above using the oil-water interface probe. Once the depth to LNAPL and the depth to the groundwater table have been determined, subtract the depth to LNAPL from the depth to the groundwater table to determine LNAPL thickness.

- Close the monitoring well as appropriate based on monitoring well-head construction. Record any concerns about monitoring well integrity on the Groundwater Level Measurement Summary Form and on the Field Report form.

DOCUMENTATION

Document monitoring well water-level measurements on the Groundwater Level Measurement Summary Form. Document any additional information on the Field Report form.

REFERENCE

U.S. Environmental Protection Agency. 1992. *RCRA Ground-Water Monitoring: Draft Technical Guidance.* Office of Solid Waste. November.

STANDARD OPERATING PROCEDURE GW-04

LOW-FLOW GROUNDWATER SAMPLING PROCEDURES

PURPOSE AND APPLICATION

The purpose of this standard operating procedure (SOP) is to provide field personnel with the methodology for collecting and documenting groundwater samples from monitoring wells using U.S. Environmental Protection Agency (EPA) low-flow groundwater sampling procedures (EPA 1996, 2017) for chemical analysis to ensure consistent and representative sampling. The step-by-step guidelines provided in this SOP are to be followed by the field crew conducting groundwater sampling.

EQUIPMENT AND SUPPLIES/REAGENTS

The following equipment is necessary to properly purge and sample a monitoring well:

- Monitoring well key, hand drill, socket set, padlock key, or other monitoring well-access equipment.
- Electronic water-level meter long enough to reach the bottom of the monitoring well, calibrated to 0.01 foot. Alternatively, to measure for light nonaqueous-phase liquid thickness in addition to groundwater, use an oil-water interface probe.
- Monitoring well purging and sampling equipment:
  - Submersible pump (bladder or Grundfos): the pump, control box, and power source (typically a portable generator or a 12-volt battery); or
  - Peristaltic pump: the pump with pump head, silicone tubing, tubing connectors (as needed), and power source (typically a 12-volt battery).
- Sample tubing of project- and site-specific type and length.
- Bailer, if a pump is not used, or if light nonaqueous-phase liquid requires removal.
- Sufficient number of 55-gallon drums, including lids, gaskets, and fasteners, to contain all purge water, unless other water-handling arrangements have been made.
- Flow-through water-quality meter(s) to measure temperature, pH, specific conductivity, dissolved oxygen, oxidation-reduction potential (ORP), and turbidity.
- Air-space monitoring equipment if required (photoionization detector or multi-gas meter).
- Decontamination equipment and supplies (e.g., buckets, scrub brushes, deionized or distilled water, potable water, Liquinox detergent).
- Materials necessary to provide required documentation, (e.g., sample labels, Field Report forms, Low-Flow Well Purging and Sampling Data form, Chain of Custody form, Waste Inventory Tracking Sheet).

- Sample containers with the chemical preservatives appropriate for the samples, as described in project-specific plans, or as required by the analytical laboratory at a minimum.
- Personal protective equipment as described in the site-specific Health and Safety Plan (HASP).
- Sampling-support equipment (e.g., sample coolers, ice, bubble wrap, clear tape, duct tape, resealable plastic bags, garbage bags, paper towels, distilled water, nitrile gloves, shipping supplies).
- U.S. Department of Transportation-approved drum(s) for purge water, unless other water-handling arrangements have been made. Separate drums are needed for liquid and solid wastes (Refer to Farallon SOP WM-01, Field Handling of Investigation-Derived Waste). Liquid wastes should not be added to drums containing solid wastes.

DECONTAMINATION

Before arrival at the site, upon relocation at the site, and upon demobilization from the site, decontaminate reusable equipment that will come into contact with the monitoring well(s) and/or be used to acquire samples, in accordance with Farallon SOP EQ-01, Equipment Decontamination Procedures.

PROCEDURES FOR LOW-FLOW GROUNDWATER SAMPLING

Low-flow groundwater sampling procedures have been developed for monitoring wells with a dedicated pump (dedicated monitoring wells) and for monitoring wells without a dedicated pump (non-dedicated monitoring wells). Setup, purging, sample collection, and post-sampling procedures for dedicated and non-dedicated monitoring wells are presented below.

Setup

Setup procedures differ slightly for dedicated versus non-dedicated monitoring wells. Follow the instructions below for the monitoring wells as indicated:

- Calibrate the water-quality meter for the field parameters specified in the project-specific plans. At a minimum, collect temperature, pH, and specific conductivity during purging and prior to sampling. Record on the Field Report form the equipment calibration and maintenance performed. Decontaminate the water-quality meter between monitoring wells by rinsing with distilled or deionized water. Manage the rinsate water used in collecting these measurements in the same manner as for purge water, as defined in project-specific plans, and in accordance with Farallon SOP WM-01, Field Handling of Investigation-Derived Waste.
- Don appropriate personal protective equipment as described in the site-specific HASP, including nitrile gloves for activities that might involve contact with groundwater or equipment. Change gloves between each monitoring well at a minimum, or when

contaminants could be introduced into a monitoring well or onto decontaminated equipment.

- Brush away soil and/or vegetation, and pump standing water away from the monitoring well opening. If necessary, place a plastic drop cloth around the monitoring well-head to prevent sampling equipment from contacting the ground surface.
- Inspect the condition of the monitoring well (e.g., locked monitoring well cap, tightness of monitoring well cap, well-marked measuring point on casing, disturbance of surface casing, straightness of monitoring well casing, condition of concrete pad). Indicate the monitoring well condition on the Low-Flow Well Purging and Sampling Data form.
- Open the monitoring well cap. If the site-specific HASP identifies organic compounds as potential contaminants of concern, screen the monitoring well headspace and the breathing zone headspace (if specified in the HASP) for organic vapors using the appropriate field monitoring instrument (e.g., photoionization detector, multi-gas meter).
- Measure and record the depth to water using a decontaminated water-level meter in accordance with Farallon SOP GW-03, Groundwater Level Measurements in Monitoring Wells.
- If light nonaqueous-phase liquid may be present (see site-specific plans), obtain a sample from the monitoring well using a bailer (if a dedicated pump is not in use), as specified in Farallon SOP GW-03, Groundwater Level Measurements in Monitoring Wells. Alternatively, measure free-floating product thickness using an oil-water interface probe.
- Calculate the monitoring well casing volume as follows:

  Monitoring well casing volume in gallons = $(\pi * r^2) * h$(7.48 gallons/cubic foot)

  Where:

  r = radius of the inside of the monitoring well casing in feet

  h = length of the water column in the monitoring well casing (i.e., the depth to the bottom of the monitoring well minus the depth to water, both measured from the mark at the top of the monitoring well casing), in feet

- **For monitoring wells with dedicated pumps and tubing**: Set up a flow-through cell in preparation for purging. Connect dedicated tubing from the monitoring well to the flow-through cell. Set tubing and/or pump to the correct water depth in accordance with the constituents being sampled for, as described in project-specific plans. **DO NOT IMMERSE water-quality probes or meters in purge water containing nonaqueous-phase liquids, which could damage the probes.** Turn the pump controller to its lowest setting, set the memory in the flow-through cell to record readings every 3 minutes, and turn on the pump. Begin purging slowly (i.e., less than 500 milliliters per minute [ml/min]) to prevent drawing down the water table.

- **For monitoring wells with non-dedicated pumps**: Connect dedicated silicon tubing to the peristaltic pump. Place the tubing intake at the midpoint of the screen, or at the depth pre-determined in the project-specific plans. If using a bladder pump, insert the bladder pump and attach the dedicated polyethylene tubing so the pump intake is at the approximate midpoint of the screened interval, or set the pump intake to the depth pre-determined in the project-specific plans.

Purging Procedures

The purging instructions below are to be followed for dedicated and non-dedicated monitoring wells:

- Begin purging, and initiate water-quality testing for temperature, pH, specific conductivity, dissolved oxygen, ORP, and turbidity. Purge monitoring wells using a peristaltic or bladder pump, and dedicated polyethylene and silicon tubing. Record water-quality parameters every 3 minutes.
- Record water levels every 3 minutes, as possible. It is imperative that the water level not drop by more than 0.33 foot during the low-flow purging process. If the water level drops more than 0.33 foot during purging, reduce the flow rate on the pump. Recommended purge rates generally are less than 500 ml/min. Actual purge rates will vary based on aquifer material and monitoring well construction. If the water level continues to drop by more than 0.33 foot during the low-flow purging at a rate less than 100 ml/min, notify and consult with the Project Manager on how to proceed.
- Record flow rates every 3 minutes. Ensure that the flow rate does not exceed 500 ml/min during the low-flow purging process.

Purging Requirements

Continue purging at a constant rate until the water-quality parameters have stabilized for three successive measurements according to the stability criteria provided in the table below. Before samples can be collected from each monitoring well, the groundwater must stabilize according to following criteria:

- Drawdown is no greater than 0.33 foot for low-flow sampling, and
- The water-quality parameters should stabilize according to the criteria specified below:

Water-Quality Parameter	Stability Criterion
Turbidity (if required)	10% for values greater than 5 NTU or three consecutive values < 5 NTU
Dissolved oxygen	10% for values greater than 0.5 mg/l, or three consecutive values <0.5 mg/l
Specific conductivity	3%
Oxidation-reduction potential	+/- 10 millivolts
pH	+/- 0.1 unit
Temperature	3%

Notes:

mg/l = milligrams per liter
NTU = nephelometric turbidity unit

Although under some circumstances, a monitoring well may not stabilize according to the above criteria, the monitoring well can still be sampled if the monitoring well does not meet stability criteria due to the instrument accuracy, or the water level drops below the minimum value using low-flow sampling procedures. For example, a fluctuation in ORP greater than 10 millivolts does not meet the stability criterion. However, because the accuracy range of the ORP instrument is ±20 millivolt, the stability criterion would be considered satisfied and within the range of instrument accuracy. Consult the manual for the instrument to determine the accuracy range.

Also, if the water level drops below the minimum value using low-flow sampling procedures (i.e., the pump intake, or the top of the screen if the aquifer is confined) during purging and one monitoring well volume of groundwater has been removed from the monitoring well, or the monitoring well runs dry during the purging procedure, sample the monitoring well as soon as the water level has recovered sufficiently to allow collection of the volume of groundwater necessary for all samples. Use the following equation to determine the minimum volume of groundwater to remove before sampling:

Minimum purge volume = 2*[500 milliliters + M*(length of tubing in feet)]

Where: M = volume (in milliliters) contained in a 1-foot length of tubing

The value of M is provided below for the inner diameters of tubing listed:

Inner Diameter (inches)	M (milliliters)
0.125	2.4
0.25	9.7
0.5	39

Record on the Field Report form and the Low-Flow Well Purging and Sampling Data form if any monitoring well did not meet the drawdown and stability criteria and explain the rationale for sampling the monitoring well at the time it was sampled. If stability criteria have not been achieved following completion of all entries in the Low-Flow Well Purging and Sampling Data form, notify and consult with the Project Manager whether to continue purging until stability criteria have been achieved or begin sample collection.

Sample Collection

During low-flow sampling, do not stop pumping once the purging requirements have been met. Turn down the flow rate on the pump so the water flow is minimal, but maintain sufficient pressure in the system to prevent water from the tubing or flow-through cell from flowing back into the monitoring well. Disconnect the pump discharge hose from the flow-through cell, or cut the tubing just before the connection to the flow-through cell. It is imperative not to lower the water table or disturb the water column. Fill pre-cleaned laboratory-supplied sample containers directly from the pump discharge tube into the proper sample container, and fill to capacity. Place a bucket beneath the sampling tube to catch any unsampled water between filling the sample jars. When collecting groundwater samples for multiple analyses, collect the samples in the order listed below per the EPA (1992) groundwater sampling technical guidance:

- Volatile organic compounds (VOCs);
- Dissolved gases and total organic carbon;
- Semivolatile organic compounds;
- Metals and cyanide;
- Major water quality cations and anions;
- Radionuclides; and
- Dissolved (filtered) inorganics (if required).

When collecting samples for VOCs, adjust the flow rate as low as possible without introducing air bubbles into the system. When filling the VOC containers, hold the cap in hand to minimize contamination, and direct the flow from the pump discharge tubing down the side of the sample container to minimize aeration. Fill all VOC sample containers to the top, ensuring a positive meniscus when the cap is screwed down on the container. Tap the filled VOC container, and invert several times to ensure no air bubbles are present in the sample container. If an air bubble is present, the VOC sample must be recollected using a fresh VOC sample container. If sampling for other analytes, the flow rate may be increased.

If dissolved inorganics are required, attach a new disposable 0.45-micrometer filter cartridge to the discharge line. Collect filtered samples last. Pre-rinse the disposable filter cartridges by running a minimum of 0.25 gallon of groundwater through them (collecting the groundwater into a waste bucket) prior to collecting the samples directly into the sample container. Alternate field filtration methods may be specified in the project-specific plans. Remove the pump and/or tubing from the monitoring well.

Post-Sampling

- Record the depth to water of well to determine whether the water level changed from the original reading.
- Close and lock the monitoring well or tap and record any monitoring well integrity concerns on the Field Report form and the Low-Flow Well Purging and Sampling Data form.
- Transfer purge, wash, and rinse water into a U.S. Department of Transportation-approved drum(s) and label. Separate drums are needed for liquid and solid wastes, in accordance with SOP WM-01, Field Handling of Investigation-Derived Waste. Do not add liquid wastes to drums containing solid wastes.

PROCEDURES FOR RECONNAISSANCE GROUNDWATER SAMPLING

Collect reconnaissance groundwater samples from borings using direct-push or hollow-stem auger drilling methods and 0.75- or 2-inch-inside-diameter temporary monitoring well casing and 0.010-inch slotted screen. In some cases, alternate well casing diameters or screen slot sizes may be appropriate based on the drilling equipment or project-specific requirements. Follow the instructions below for reconnaissance groundwater sample collection:

- Withdraw the drill casing when the desired sampling depth has been reached, so the temporary monitoring well screen is exposed to water-bearing material.
- Insert disposable polyethylene tubing to the approximate midpoint of the temporary monitoring well screen. Attach the appropriate length of pre-cleaned disposable silicon tubing from the polyethylene tubing to connect with the peristaltic or bladder pump.
- Set up the peristaltic or bladder pump in preparation for purging. Turn the pump to its lowest setting and turn on the pump. Begin purging slowly to prevent drawing down the water table.
- Purge each temporary monitoring well point using a peristaltic or bladder pump until visual turbidity is as low as possible, or until the temporary monitoring well is purged dry of water.
- Purge a minimum of 1 to 2 liters before sample collection, if possible. If the temporary monitoring well is completely dewatered during purging, collect samples when sufficient recharge has occurred to allow filling of the sample containers.
- Slow the pumping rate to less than 500 ml/min to reduce the potential for volatilization of chemicals during sample collection.
- Collect the sample as described above.
- If insufficient groundwater is available to collect a sample using a peristaltic or bladder pump (i.e., the boring pumps dry or cannot maintain a sufficient flow of less than 100 ml/min) or if the depth to groundwater exceeds the maximum practicable limit for sampling using a peristaltic or bladder pump, use a disposable polyethylene bailer lowered

into the monitoring well screen to collect a groundwater sample from the screened interval, if possible.

DOCUMENTATION

Document the monitoring well purging and sampling activities on the Low-Flow Well Purging and Sampling Data form and on the Field Report form. Track samples on a Chain of Custody form. Track waste generated during groundwater sampling on a Waste Inventory Tracking Sheet.

REFERENCES

U.S. Environmental Protection Agency. 1992. *RCRA Ground-Water Monitoring: Draft Technical Guidance.* Office of Solid Waste. November.

———. 1996. *Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures.* EPA/540/S-95/504. April.

———. 2017. *Low Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells.* EQASOP-GW4. September.

STANDARD OPERATING PROCEDURE SL-01

SOIL CORE SAMPLING

PURPOSE AND APPLICATION

The purpose of this standard operating procedure (SOP) is to provide field personnel with the methodology for collecting and documenting soil core samples using a hollow-stem-auger drill rig, a direct-push drill rig, and a sonic drill rig. All drilling operations will be conducted by a licensed drilling subcontractor in accordance with subcontractor SOPs. This SOP presents the procedures that will be performed by Farallon field staff once the soil core has been collected by the drilling subcontractor. The step-by-step guidelines provided in this SOP are to be followed by the field crew conducting subsurface soil sampling.

EQUIPMENT AND SUPPLIES/REAGENTS

The following equipment is necessary to properly collect soil samples from borings:

- Personal protective equipment (PPE) as described in the site-specific Health and Safety Plan.
- Differential global positioning system, if required in project-specific plans. Discuss the methodology for recording the location of the sample point with the Project Manager before conducting the field work.
- Photoionization detector (PID) to monitor and record soil headspace readings.
- Applicable soil sampling equipment, including:
    - Stainless steel hand-auger.
    - Wooden or steel stakes to stabilize cores on table while sampling.
    - Folding table.
    - Utility knife.
    - Stainless steel spoons or scoops.
    - Six-mil plastic sheeting.
    - Resealable plastic bags.
    - Duct tape.
    - Aluminum foil.
    - Tape measure.
    - Five-gallon buckets, and scrub brushes.
    - Alconox phosphate-free cleanser.
    - Laboratory-provided certified pre-cleaned sample containers.

    - Soil sample plunger and syringes for sampling volatile organic compounds (VOCs) using U.S. Environmental Protection Agency (EPA) Method 5035A.
- Materials necessary to provide required documentation, including:
    - Camera.
    - White board and dry-erase markers, if specified in project-specific plan.
    - Sample labels.
    - Field Report forms.
    - Boring Log forms.
    - Chain of Custody forms.
    - Chain-of-custody seals for the sample cooler(s).
- U.S. Department of Transportation-approved drum(s) for decontamination wastewater and excess soil cuttings. Separate drums are needed for liquid and solid wastes (refer to Farallon SOP WM-01, Field Handling of Investigation-Derived Waste). Liquid wastes should not be added to drums containing solid wastes.
- Decontamination equipment as specified in Farallon SOP EQ-01, Equipment Decontamination Procedures.
- Sampling support equipment (e.g., sample coolers, ice, bubble wrap, clear packing tape, heavy resealable plastic bags, razor knives, garbage bags, paper towels, distilled water, nitrile gloves).

DECONTAMINATION

Reusable equipment that will come into contact with soil boring samples or will be used to acquire soil samples is to be decontaminated before arrival at the site, between soil samples collected, upon relocation at the site, and upon demobilization from the site, in accordance with Farallon SOP EQ-01, Equipment Decontamination Procedures.

PROCEDURES

Prior to drilling, all underground utilities must be located, and cleared with an air-knife or other method approved by the Farallon Health and Safety Coordinator.

Collect soil samples from areas known or suspected to have the lowest concentrations of constituents of concern first, with areas of higher concentrations of constituents of concern sampled last, unless the Project Manager indicates a different project-specific sampling protocol. The procedures listed below may be modified, with approval from the field team lead and the Project Manager. Any modifications must be identified in the project-specific sampling plans or, at a minimum, details must be noted on the Field Report form.

Soil core collection methods differ for hollow-stem-auger, direct-push, and sonic drilling techniques, each summarized below:

- Hollow-stem-auger: Collect soil core samples using a standard 18-inch-length (6-inch waste barrel) Dames & Moore split-spoon sampler with a 2.5-inch inner diameter that can be used with or without brass or stainless steel liners.
- Direct-push: Collect soil core samples using 5-foot macrocore samplers with acetate sample liners.
- Sonic: Collect soil core samples using a standard 6-inch-diameter stainless steel sampling rod. Use a 2.5-, 5.0-, or 10-foot polyethylene liner inside the sampling rod for soil sample collection.

Record the specific drilling and soil sampling equipment used on the Boring Log form and on the Field Report form.

Setup

The instructions below are to be followed at each boring site:

- Don appropriate PPE as described in the site-specific Health and Safety Plan.
- Ensure that each borehole has been cleared to a minimum depth of 5 feet below ground surface using an air knife, per the Farallon health and safety policy.
- Set up a temporary sampling table adjacent to the drill rig to log and collect soil samples from the soil cores as they are recovered during drilling. During sunny conditions, consider using a portable canopy for protection from the sun. Lay plastic sheeting over the table to keep the surface clean and to prevent potential cross-contamination between borings and soil samples. Designate clean areas for decontaminated sampling equipment and laboratory-provided certified pre-cleaned soil sample containers.
- Set up 5-gallon buckets for decontaminating soil sampling equipment between samples. These decontamination buckets are separate from the buckets provided by the drillers for their split spoons and core barrels. (Refer to Farallon SOP EQ-01, Equipment Decontamination Procedures.)
- Calibrate the PID to monitor headspace for selected soil core samples in accordance with the equipment manual.

Sample Collection and Processing

The instructions listed below are to be followed for collecting samples using lined and unlined split-spoon and tube samplers:

- Don a new pair of nitrile sampling gloves for each individual soil sample collected, and prior to decontaminating sampling equipment to avoid potential cross-contamination.

- Ensure that the drillers have properly decontaminated all drill shoes and caps prior to initiating drilling operations. Drill shoes and caps must be decontaminated between sampling intervals and stations in accordance with Farallon SOP EQ-01, Equipment Decontamination Procedures. Replace dirty or ineffective decontamination water as needed throughout the workday.
- Ensure that the drillers position the sampling rig over the sample station and remove any surface material or debris that would interfere with sampling. Note on the Field Report form any surface material removed.
- Note on the Field Report form and the Boring Log forms any difficulties encountered during drilling operations. Include the number of blow counts (if applicable) or any resistance encountered during drilling operations.
- Place the core tube, core liner, or split spoon on a new piece of aluminum foil on the sample logging/processing table. If necessary, use wood or metal stakes as shims to stabilize the tube, liner, or split spoon on the sample logging/processing table.
- If a core liner is used, split the liner open with a decontaminated utility knife, taking care not to penetrate the soil in the liner with the blade or knife.
- Briefly examine the soil sample visually for obvious signs of contamination, and take PID readings.
- Take care to:
    - **Not** collect soil in contact with the sidewalls of the sampler or liner.
    - **Always** use decontaminated stainless-steel spoons or scoops to handle the soil within a given sample interval.
    - **Always** don a new pair of nitrile gloves before processing each sample interval in each soil core to prevent cross-contamination in the soil core.
- When sampling for VOCs, collect them as soon as possible after opening the core tube, split spoon, or core liner. Use a decontaminated stainless steel spoon to collect the VOC samples with minimal disturbance to soil by placing a representative amount of soil from the length and depth of the desired sample interval directly into the laboratory-provided VOC sample container with no headspace, and seal it tightly. Follow the sample collection guidelines provided by the manufacturer or the analytical laboratory when using a plunger-type sampling device in accordance with EPA Method 5035A.
- Retain approximately 100 grams of the soil sample in a heavy resealable plastic bag or glass sample container, shake the sealed bag to volatilize the contaminants in the soil, and wait approximately 5 minutes before measuring for headspace analysis using the PID (Washington State Department of Ecology 2011). Insert the PID probe tip into a small opening in the top of the bag, and record the PID units on the Boring Log form. Reseal the bag after taking the headspace reading in case further assessment of the sample is needed. Do not puncture the resealable plastic bag to obtain headspace readings.

- If specified in the project-specific plans, photograph each section of the boring, including in the photograph notations on a white board documenting sample location identifier, date, orientation, depth, and site markers.
- Describe the soil samples in accordance with ASTM International Standard D-2488-00, *Standard Practice for Description and Identification of Soils*.
- Record on the Field Report form any deviations from the project-specified sampling procedures or from this SOP, or any obstacle encountered.
- Examine the remaining soil core sample for lithology using the Unified Soil Classification System, and record the lithology on the Boring Log form.
- Discard excess soil cuttings in a labeled waste drum or a soil bin in accordance with Farallon SOP WM-01, Field Handling of Investigation-Derived Waste. Do not add soil to a liquid waste drum.
- Backfill the borehole, as appropriate.
- Upon completion of sampling at a boring, measure the boring's location to an on-site permanent datum, collect the location using the differential global positioning system, or have the sample location surveyed by a licensed surveyor.
- Decontaminate the soil sampling equipment, and don a new pair of sampling gloves before collecting each new soil sample.

DOCUMENTATION

Document the soil sampling activities on the Boring Log form, the Chain of Custody form, and the Field Report form.

REFERENCE

American Society for Testing Materials. 1989. *Standard Method for Penetration Test and Split-Barrel Sampling of Soils*. Method D-1586-11.

U.S. Environmental Protection Agency. 1987. *A Compendium of Superfund Field Operation Methods*. EPA Document No. 540-P-87-001. December 1.

Washington State Department of Ecology. 2011. *Guidance for Remediation of Petroleum Contaminated Sites*. Ecology Publication No. 10-09-057. Toxics Cleanup Program. September.

STANDARD OPERATING PROCEDURE WM-01

FIELD HANDLING OF INVESTIGATION-DERIVED WASTE

PURPOSE AND APPLICATION

The purpose of this standard operating procedure (SOP) is to provide field personnel with the methodology for containerizing, labeling, and tracking investigation-derived waste (IDW), and for exchanging information with the Project Manager. IDW may include soil cuttings, purge water, development water, and/or decontamination water.

This SOP has been developed in compliance with Washington State Dangerous Waste Regulations (Chapter 173-303 of the Washington Administrative Code), Oregon Hazardous Waste Management Rules (Division 100 of Chapter 340 of the Oregon Administrative Record), Environmental Health Standards for the Management of Hazardous Waste (Division 4.5 of Title 22 of the California Code of Regulations), and the U.S. Environmental Protection Agency Resource Conservation and Recovery Act (Parts 239 through 282 of Title 40 of the Code of Federal Regulations).

EQUIPMENT AND SUPPLIES/REAGENTS

The following equipment is necessary to properly containerize, label, and track IDW:

- U.S. Department of Transportation-approved drum(s) constructed of a material that does not react with the contaminants of concern for the project. Farallon typically uses lined open-top steel drums. Use a polyethylene drum for a material suspected to be corrosive.
- Labels appropriate to the characteristics of the IDW as indicated by the Project Manager:
    - Non-Hazardous Waste Labels: For IDW known to be nonhazardous based on previous data and waste profiles.
    - Hazardous Waste or Washington State Dangerous Waste Labels: For IDW known to be hazardous/dangerous based on previous data and waste profiles.
    - On Hold Pending Analysis Labels: For waste not previously characterized, pending receipt of analytical results. On Hold Pending Analysis labels are temporary, and should be replaced with the applicable waste label once the waste has been characterized.
    - Major risk labels associated with the waste characteristics.
- Waste Inventory Tracking Sheet.
- Grease marking pencil or paint pen.
- Indelible ink pen.
- Crescent wrench, speed wrench, socket wrench, or other hand tool to seal the drum(s).

- Sampling supplies, if needed, including:
    - Stainless steel or plastic bowls and spoons for homogenizing soil and/or solids samples, depending on the analysis to be performed;
    - Glass or stainless steel container for homogenizing liquid samples, depending on the analysis to be performed; and
    - Stainless steel hand-auger or a glass tube, depending on the medium being sampled (i.e., soil/solids or liquid).

PROCEDURES

Follow the instructions below to inspect, label, and inventory IDW drums, and to containerize IDW:

- Inspect new drums brought to the site to ensure that they do not have dents or corrosion, and are in good condition. Lined or coated drums are preferred.
- Inspect drums remaining at the site from previous project work. Notify the Project Manager if a drum is leaking, damaged, or improperly labeled.
- Place soil and solids into separate drums from those containing liquids such as purge water, development water, and decontamination water. Do not add liquid IDW to drums containing soil or solids. Do not fill drums containing liquid IDW above 85 percent capacity, particularly in areas known to reach freezing temperatures.
- Discuss with the Project Manager whether chlorinated solvents or other contaminants of concern detected in areas of the site would cause IDW from that area to be characterized as hazardous/dangerous waste. Hazardous/dangerous waste should be drummed separate from nonhazardous/dangerous waste, where possible, to minimize the amount of hazardous/dangerous waste generated.
- Use a grease pencil or paint pen to clearly mark the lid and the label of each drum with a unique identifier such as a number or a letter. Verify that no two drums have the same identifier marked on the lid or label, including drums remaining from previous project work.
- Inventory each Farallon-generated drum and its contents on a Waste Inventory Tracking Sheet.
- Track any waste added to an existing drum on a Waste Inventory Tracking Sheet.
- Label each drum with a completed Non-Hazardous Waste, Hazardous Waste/Washington State Dangerous Waste, On Hold Pending Analysis, or other appropriate waste label. List the client’s name as the Shipper or Generator, and the accumulation start date as the date when waste was first placed into the drum. If waste was added to an existing drum, add that date to the accumulation dates on the drum label. If the waste in the drum has been designated as hazardous/dangerous, add a major risk label(s) pertaining to the waste characteristics associated with that designation (e.g. flammable, reactive, corrosive,

toxic). Consult the Project Manager with questions about appropriate major risk labels. All labels should be placed with the top of the label toward the top of the drum. Do not place a drum label sideways or upside down.

Use care when drumming, labeling, and tracking IDW. Mistakes in the disposal of waste can result in serious legal and financial repercussions for Farallon and the client.

DRUM SAMPLING

Sampling and analysis of wastes for hazardous/dangerous waste characterization purposes is to be conducted in accordance with U.S. Environmental Protection Agency Publication No. SW-846, *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*. Samples collected in California for hazardous waste characterization are to adhere to the requirements specified in California Code of Regulations Sections 66261.21 to 66261.24 of Title 22, Characteristics of Hazardous Waste. Discuss with the Project Manager the specific analyses to be performed prior to sample collection. The instructions below are to be followed for drum sampling, using composite sampling techniques to sample soil, solids, and liquid wastes:

- Collect soil/solids samples from various locations and depths in the drum using a hand-auger or other decontaminated apparatus. Place all samples into a single decontaminated stainless steel bowl using decontaminated stainless steel tools, or into a plastic bowl using plastic spoons, depending on the analyses to be performed. Homogenize the samples in the bowl.
- Place samples of the homogenized soil/solids from the bowl into sample jars for analysis.
- Collect liquid samples from the drum using a glass sampling tube. Insert the tube to the base of the drum to fill the entire tube with liquid. Place the liquid into sample jars for analysis.

DRUM STORAGE

Follow the instructions below for drum storage:

- Label and store the drums in an area approved by the client.
- Store hazardous/dangerous waste drums in a secured area.

DOCUMENTATION

Document IDW drums on the Waste Inventory Tracking Sheet as described above. Provide the original Waste Inventory Tracking Sheet and the original field notes to the Project Manager.

REFERENCE

U.S. Environmental Protection Agency. *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*. Publication No. SW-846. Third Edition, Final Updates I (1993), II (1995), IIA (1994), IIB (1995), III (1997), IIIA (1999), IIIB (2005), IV (2008), and V (2015).

APPENDIX B
FARALLON FIELD FORMS AND RECORDS

SAMPLING AND ANALYSIS PLAN
Block 38 West Property
500 through 536 Westlake Avenue North
Seattle, Washington

Farallon PN: 397-019

FARALLON
CONSULTING

Washington
Issaquah | Bellingham | Seattle
Oregon
Portland | Bend | Baker City
California
Oakland | Folsom | Irvine

FIELD REPORT

Page ___ of ___

Date: ____________ **Project #:** ________________________________ **Task #:**______________

Project: ___________________________________ **Site Address:** ___________________________________

Client: ___________________________________ **Contractor:** _____________________________________

Weather: _________________________________ **Temp:** ___________

Equipment Used: ____

Hours: ________ _________ **Mileage:** _________ **Project Manager:** ____________________________

Contractor *Staff*

Prepared By: ______________________________ **Reviewed By:** ___________________________________

Comments:

FIELD REPORT (continued)

Page __ of ___

Project: ______________________________ **Date:** ____________ **Project #:** _____________ **Task #:**_______

FARALLON
CONSULTING

Log of Boring:

Page __ of __

Client:
Project:
Location:
Farallon PN:
Logged By:

Date/Time Started:
Date/Time Completed:
Equipment:
Drilling Company:
Drilling Foreman:
Drilling Method:

Sampler Type:
Drive Hammer (lbs.):
Depth of Water ATD (feet bgs):
Total Boring Depth (feet bgs):
Total Well Depth (feet bgs):

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										
_										
_										
_										
_										
5_										
_										
_										
_										
_										
10_										
_										
_										
_										
_										
15_										
_										
_										
_										
_										
20										

Well Construction Information

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

Filter Pack:
Surface Seal:
Annular Seal:

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

MONITORING WELL CONSTRUCTION DATA

WELL/BORING NO:

PROJECT NO:

PROJECT NAME:

PERMIT NO:

DATE:

SITE ADDRESS:

WELL SITE LOCATION PLAN:

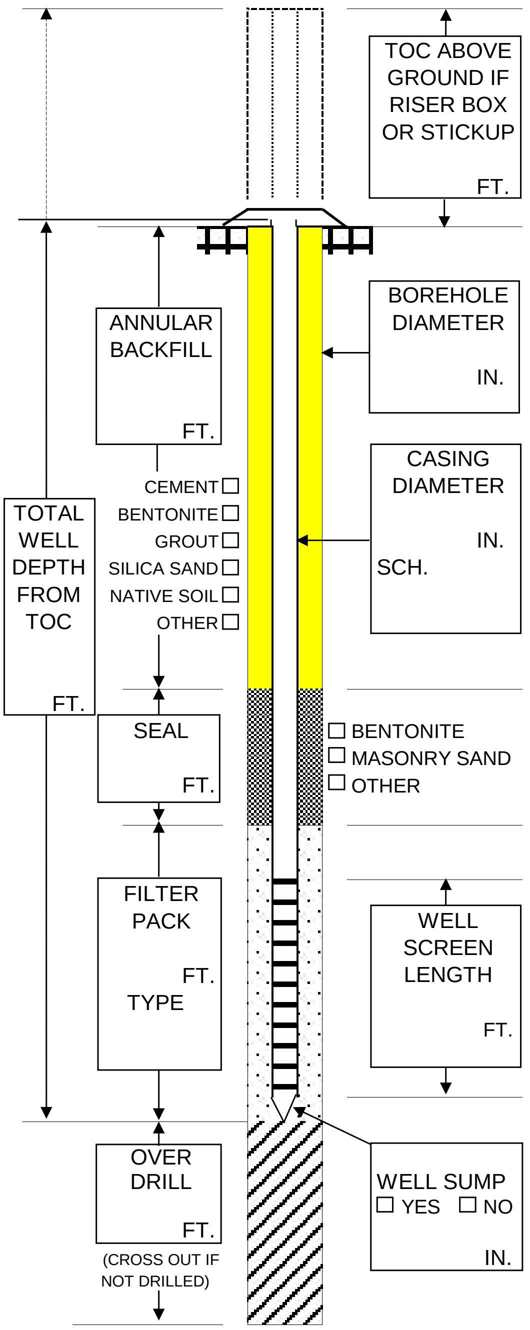
SEC: TWN: RGE: LAT: LONG:

DRILLING CO:

DRILL CREW:

WELL TYPE: ☐ SHALLOW ☐ SINGLE CASED ☐ MONITORING
☐ PERMANENT ☐ INTERMEDIATE ☐ DOUBLE CASED ☐ RECOVERY
☐ TEMPORARY ☐ DEEP ☐ OTHER ☐ OTHER

WELL SCHEMATIC



INSTALLATION DATA

DECON. ☐ STEAM CLEAN ☐ HIGH PRESSURE WASH
☐ SOAP WASH ☐ OTHER

CASING TYPE: ☐ PVC ☐ STAINLESS ☐ TEFLON ☐ OTHER
JOINTS: ☐ THREADED ☐ WELDED ☐ COUPLED
☐ SCREWED ☐ OTHER
PIT CASING: ☐ YES ☐ NO ☐ DESCRIBE

WELL SCREEN: ☐ PVC ☐ STAINLESS ☐ TEFLON ☐ OTHER
DIAMETER: ☐ 2" ☐ 4" ☐ 6" ☐ OTHER IN
SLOT: ☐ 0.010 ☐ 0.020 ☐ OTHER IN

DRILLING METHOD: ☐ SOLID STEM ☐ HOLLOW STEM ☐ MUD ROTARY
☐ AIR ROTARY ☐ DIRECT PUSH ☐ HAND AUGER
☐ OTHER
BIT SIZE: ☐ 2" ☐ 4" ☐ 6" ☐ 8" ☐ 12" ☐ OTHER IN
DRILLING MUD: ☐ NONE ☐ WATER ☐ BENTONITE
☐ OTHER
CENTRALIZER: ☐ YES ☐ NO

COMPLETION: ☐ FLUSH MOUNT ☐ STICKUP ☐ RISER BOX
LOCK TYPE: ☐ DOLPHIN ☐ MASTER KEY NO.
☐ OTHER
PAD: ☐ 2'X2' ☐ 4'X4' ☐ OTHER

CUTTINGS: ☐ DRUMMED NUMBER OF DRUMS
☐ SPREAD ☐ OTHER

DEVELOPMENT METHOD: ☐ NONE ☐ BAILING ☐ PUMPING ☐ AIR LIFT
☐ SURGE & BLOCK ☐ OTHER
TIME: ☐ 10 MIN ☐ 20 MIN ☐ OTHER MIN
AMOUNT: ☐ 5 GAL ☐ 10 GAL ☐ OTHER GAL
WATER BEFORE: ☐ SILTY ☐ TURBID ☐ OPAQUE ☐ CLEAR
WATER AFTER: ☐ SILTY ☐ TURBID ☐ OPAQUE ☐ CLEAR
EVIDENT ODOR: ☐ YES ☐ NO TYPE

DEVELOPMENT WATER: ☐ DRUMMED NUMBER OF DRUMS
☐ SPREAD ☐ TREATED ☐ POTW ☐ OTHER

WATER LEVEL: INITIAL FT ☐ BTOC ☐ BLS

DATE: FT BELOW TOC

DATE: FT BELOW TOC

NOTES: (DESCRIBE ALL NON-STANDARD METHODS & MATERIALS)

PREPARED BY:

FARALLON
CONSULTING

Groundwater Level Measurement Summary Form

Date:

Project Name:

Project Number:

Task:

Project Location:

Equipment Used:

Project Manager:

Well Number	Time	Depth to NAPL (feet)	Depth to Water (feet)	NAPL Thickness (feet)	Total Well Depth (feet)	Comments

Prepared By:

LOW-FLOW WELL PURGING AND SAMPLING DATA

WELL NO:

DATE: PROJECT NAME: PROJECT NO:

WEATHER CONDITIONS:

WELL DIAMETER (IN.) ☐ 1 ☐ 2 ☐ 4 ☐ 6 ☐ OTHER ________________

SAMPLE TYPE: ☐ GROUNDWATER ☐ WASTEWATER ☐ SURFACE WATER ☐ OTHER

WELL DEPTH (TOC) FT. DEPTH TO WATER BEFORE PURGING (TOC) FT.

LENGTH OF WATER FT. CALCULATED ONE WELL VOLUME[1]: GAL.

DEPTH OF SAMPLE POINT FT. ESTIMATED VOLUME PURGED GAL.

EQUIP. DECON. ☐ ALCONOX WASH ☐ LIQUINOX WASH ☐ DIST/DEION 1 RINSE ☐ DIST/DEION 2 RINSE ☐ OTHER

CONTAINER PRESERVATION: ☐ LAB PRESERVED ☐ FIELD PRESERVED

WATER ANALYZER: PUMP TYPE: TUBING:

ACTUAL TIME (min)	FLOW RATE (ml/min)	DEPTH TO WATER (feet)	TEMP ☐ °F ☐ °C	SPECIFIC CONDUCT. (mS/cm)	pH	DISS. OXYGEN (mg/l)	TURBIDITY (NTU)	ORP (mV)	REMARKS
			(3%)	(3%)	(+/- 0.1)	(<0.5 mg/L or 10% for > 0.5 mg/L)	(<5 NTU or 10% for > 5 NTU)	(+/- 10 mV)	(EVIDENT ODOR, COLOR, PID)
	INITIAL		--	--	--	--	--	--	

DEPTH TO WATER AFTER PURGING (TOC) FT. SAMPLE FILTERED ☐ YES ☐ NO SIZE ______

NOTES:

SAMPLE TIME: ID#

DUPLICATE ☐ TIME: ID#:

EQUIP. BLANK: ☐ TIME: ID#:

PREPARED BY:

---

[1] A 1 FOOT LENGTH OF WATER = 0.05 GAL IN 1" DIA. PIPE 0.17 GAL IN 2" DIA PIPE 0.65 GAL IN 4" DIA PIPE 1.5 GAL IN 6" DIA PIPE

FARALLON CONSULTING

Sheet_____of _____

Soil Sample Data Log

Date: ________________ **Project Name:** ____ **Farallon P/N:** ____

PID Model & Serial No: ____ **Calibration Date/Standard:** _____________________________________

Headspace Container: ☐ 16 oz glass ☐ 8 oz glass ☐ Zip-loc ☐ Other

Sample Method: ☐ Hand auger ☐ Direct push ☐ Split spoon ☐ Corer ☐ Other

Equip Decon: ☐ Tap water wash ☐ DIST/DEION 1 Rinse ☐ Isopropanol ☐ Analyte-free final rinse ☐ Tap water final rinse

☐ Alconox wash ☐ Liquinox Wash ☐ DIST/DEION 2 rinse ☐ Other solvent ☐ DIST/DEION final rinse ☐Air Dry

Test Pit/Boring Location	Sample ID	Time	Depth	PID	Odor	Sheen Tare Weight	Staining Field Weight	Containers	Lithological Description Remarks

2 oz = two-ounce jars

4 oz = four-ounce jars

WASTE INVENTORY TRACKING SHEET

Project Number: ______________________

Project Name: ______________________

Project Address: ______________________

Field Work Description: ______________________

Project Manager: ______________________

Page: __________ **of** __________

Generation Date: ______________________

Prepared By: ______________________

Date Waste Removed: ______________________

Waste Transporter: ______________________

Waste Disposal Location:

Unique Container ID	Container Size	% Capacity Used	Contents (Soil/GW/Decon Water)/ Origin (Boring or Well ID)	Date(s) Accumulated	Labeling (Contents Under Test/ Haz/Non-Haz/Other-Specify)	Sampled (Y/N)	Comments

NOTES: Contents should be specified and include identification of well/boring, media, source, depth of soil (if applicable), and any other helpful information.

Container ID should be unique when compared against other nearby containers. Special waste labels may include flammable, corrosive, dangerous when wet, and/or oxidizer.

Location of Drums (sketch or describe):

FARALLON
CONSULTING

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Chain of Custody

Page ______ of ______

Company:

Project Number:

Project Name:

Project Manager:

Sampled by:

Turnaround Request (in working days)

(Check One)

☐ Same Day ☐ 1 Day

☐ 2 Days ☐ 3 Days

☐ Standard (7 Days)

☐ ____________ (other)

Laboratory Number:

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A					% Moisture

	Signature	Company	Date	Time	Comments/Special Instructions
Relinquished					
Received					
Relinquished					
Received					
Relinquished					
Received					Data Package: Standard ☐ Level III ☐ Level IV ☐
Reviewed/Date		Reviewed/Date			Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

APPENDIX K
HASP

REMEDIAL INVESTIGATION WORK PLAN
Block 38 West Property
500 through 536 Westlake Avenue North
Seattle, Washington

Farallon PN: 397-019

FARALLON
CONSULTING

Washington
Issaquah | Bellingham | Seattle
Oregon
Portland | Baker City
California
Oakland | Irvine

SITE-SPECIFIC HEALTH AND SAFETY PLAN

PROJECT NO.: 397-019

START DATE: February 5, 2022

PROJECT NAME: Block 38 Regulatory Closure

EXPECTED DURATION: 1 year

PROJECT ADDRESS, CITY, STATE: 520 Westlake Avenue North Seattle, Washington

CLIENT NAME: City Investors IX LLC

(HASP expires 1 year from start date)

Fieldwork that Farallon Consulting, L.L.C. (Farallon) employees perform is conducted under the Farallon health and safety program, which includes the corporate Accident Prevention Plan and Hazardous Waste Operations Program. The program and these plans provide the basis upon which safety decisions should be made by Farallon personnel to maintain a safe and healthy work environment.

A site-specific Health and Safety Plan (HASP) is created to serve as a tool by which information about a project can be communicated to employees prior to field activities. As allowed under 29 CFR 1910.120(b)(1)(ii)(C), this HASP supplements the Farallon health and safety program and does not repeat standard operating procedures for safety and health. The information contained in this HASP is site-specific and directly applicable to the proposed scope of work.

Due to the potentially hazardous nature of the site and the activities occurring thereon, it is not possible to discover, evaluate, or provide protection for all possible hazards that may be encountered. Strict adherence to the health and safety guidelines set forth herein will reduce, but does not eliminate, the potential for injury. The health and safety guidelines in this HASP are prepared specifically for this site and its known or suspected conditions, and the HASP must be amended if conditions change.

This HASP has been prepared for the use of Farallon and its employees. This HASP may provide useful information to subcontractors and will assist them in developing their own HASP, but it should not be construed as a substitute for their own HASP. Farallon personnel working at the job site must review and be responsible for complying with and implementing the provisions in this HASP. Safety briefings at the job site should include discussion of the HASP and Farallon employees will sign Attachment 1.

Farallon claims no responsibility for the use of this HASP by others and does not guarantee the health or safety of any person entering this site.

PREPARED BY: Greg Peters
Print name

REVIEWED BY:

Suzy Stumpf, P.E.
Project Manager

Signature February 4, 2022
Date

APPROVED BY:

Javan Ruark, L.G.
Washington State Health and Safety Coordinator

Signature February 4, 2022
Date

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Attachment 2 Standard Job Site Protocols

Attachment 3 Task-Specific Job Hazard Analyses

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Attachment 5 Air Monitoring Log
Calibration/Check Log – Air Monitoring Equipment

Attachment 6 Incident Report Form

Attachment 7 Near Miss Report Form

Attachment 8 Traffic Control Plan

1.0 CONTACT AND EMERGENCY INFORMATION

1.1 PROJECT CONTACTS

TITLE NAME	CONTACT INFORMATION	GENERAL PROJECT RESPONSIBILITIES
Site Health and Safety Officer Greg Peters	Cell: (425) 677-9521	Implements HASP and conducts ongoing inspections of site conditions to identify visible or potential hazards. Initiates actions to mitigate or eliminate hazards. Provides health and safety support to other on-site personnel. Communicates regularly with project management team.
Project Manager Suzy Stumpf	Office: 425-394-4442 Cell: 303-489-1032	Ensures that field personnel have sufficient training and qualifications to perform tasks. Communicates with field team to confirm that identified health and safety protocols are implemented. Provides support for incidents, near misses, and other safety issues.
State Health and Safety Coordinator Javan Ruark	Office: (425) 295-0827 Cell: (425) 765-1898	Reviews and approves HASP. Provides support in implementing HASP. Provides support for incidents, near misses, and other safety issues.
Client Contact Sean Biehl	Office: (206) 342-2614 Cell: (206) 342-2614	Provides 1) knowledge of known or suspected site hazards; 2) access to the site; 3) information regarding available emergency supplies or protocols at the site; and 4) known analytical data from work performed by others.

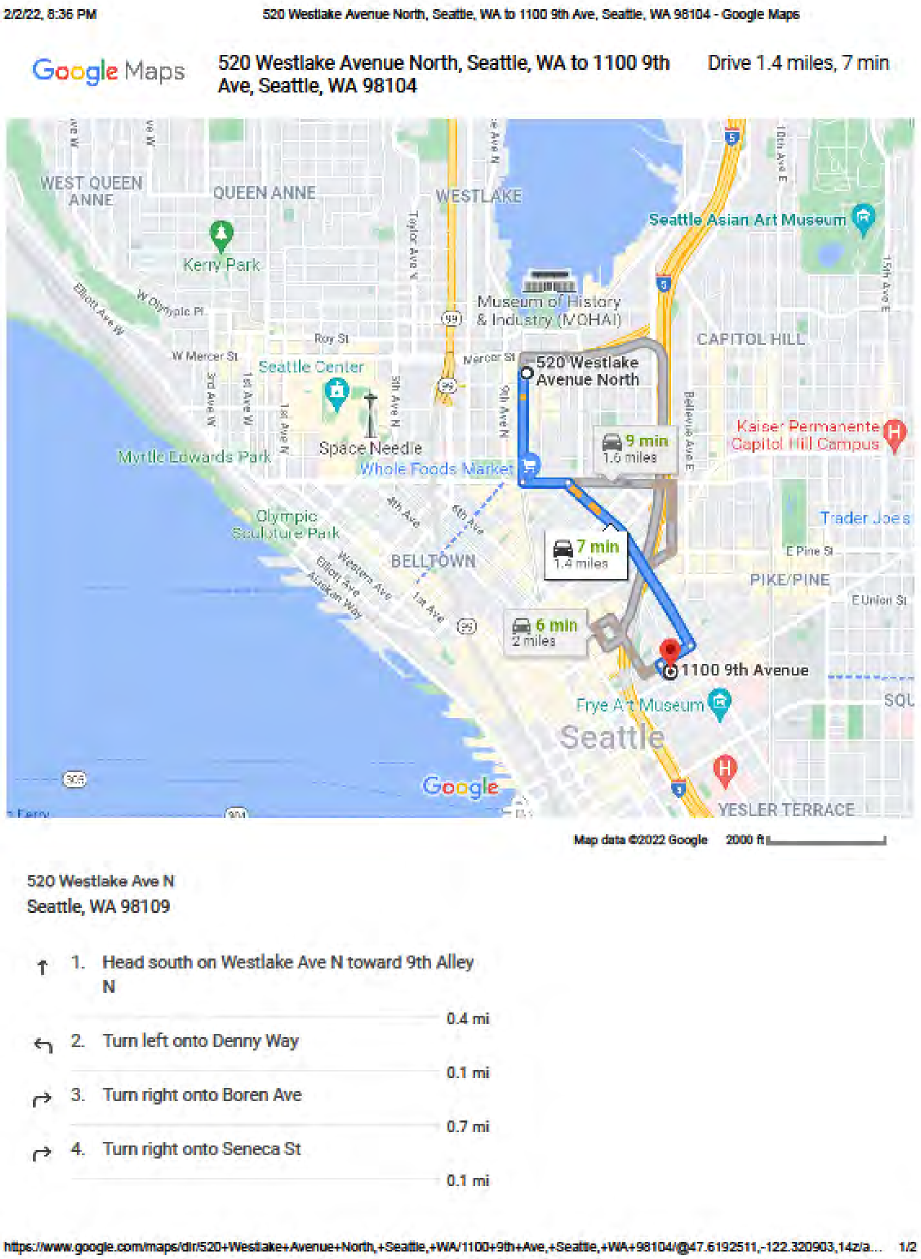
1.2 LOCAL EMERGENCY CONTACT TELEPHONE NUMBERS

EMERGENCY CONTACT	TELEPHONE NO.
Seattle Police Department – West Precinct	**Emergency:** **911** **Non-Emergency:** (206) 625-5011
Seattle Fire Station 2	**Emergency:** **911** **Non-Emergency:** (206) 386-1400

Poison Control Center	(800) 222-1222
National Response Center	(800) 424-8802
Utility Notification Center (Washington)	(811) or (800) 424-5555
Washington Ecology Spill Reporting	(800) 258-5990

1.3 NEAREST HOSPITAL / EMERGENCY MEDICAL CENTER

Facility Name:	Virginia Mason Medical Center
Street Address:	1100 9th Avenue
City, State:	Seattle, Washington
Phone No. :	(206) 583-6433



2/2/22, 8:36 PM 520 Westlake Avenue North, Seattle, WA to 1100 9th Ave, Seattle, WA 98104 - Google Maps

Google Maps 520 Westlake Avenue North, Seattle, WA to 1100 9th Ave, Seattle, WA 98104 Drive 1.4 miles, 7 min

520 Westlake Ave N
Seattle, WA 98109

1. Head south on Westlake Ave N toward 9th Alley N
   0.4 mi
2. Turn left onto Denny Way
   0.1 mi
3. Turn right onto Boren Ave
   0.7 mi
4. Turn right onto Seneca St
   0.1 mi

https://www.google.com/maps/dir/520+Westlake+Avenue+North,+Seattle,+WA/1100+9th+Ave,+Seattle,+WA+98104/@47.6192511,-122.320903,14z/a... 1/2

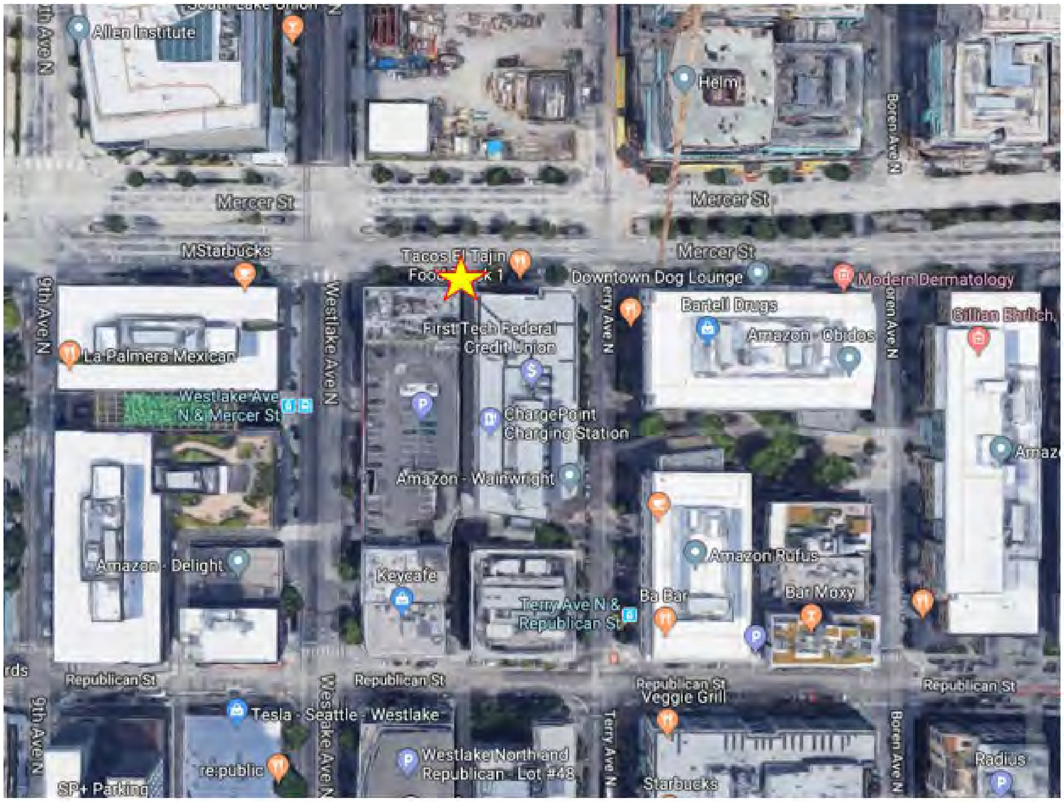
1.4 EMERGENCY RESPONSE AND EVACUATION PLAN

Farallon personnel and subcontractors working on the site are to be aware of site-specific emergency and evacuation procedures, including alarm systems and evacuation plans and routes. If an incident occurs that requires emergency response, such as a fire or spill, **CALL 911 and request assistance**. Farallon staff, subcontractors, and/or others working in an area where an emergency occurs are to evacuate to a safe location away from the incident area, preferably upwind, and take attendance. Farallon staff, subcontractors, and/or contractors may not reenter the scene of the emergency without specific approval from emergency response personnel.

Subcontractors have the responsibility to account for their own employees and provide requested information to emergency response personnel immediately upon request.

For this project, the emergency evacuation gathering location is at the northeastern corner of the Block 38 West Property, as marked by the yellow star on the figure below.

If the emergency causes the route to be obstructed, Farallon personnel and subcontractors are to move to an open area upwind of the hazard area, and remain there until instructed by emergency response personnel (e.g., police, fire, ambulance personnel, paramedics) to do otherwise.



★ Emergency Meeting Location

2.0 PROJECT INFORMATION

2.1 PROPERTY LOCATION AND CURRENT USE

The property is at 500 through 536 Westlake Avenue North in the South Lake Union area of Seattle, Washington (herein referred to as the Block 38 West Property). The Block 38 West Property consists of King County Parcel Nos. 1983200196, 1983200180, and 1983200170, totaling 1.05 acres of land that is currently occupied by a newly constructed multi-use building.

2.2 PROPERTY HISTORY

The Block 38 West Property is in a commercial and light industrial area zoned as mixed residential and commercial in the South Lake Union area (SM-SLU 175/85-280), approximately 1 mile north of downtown Seattle. The Block 38 West Property totals approximately 1.06 acres of land that previously was developed with structures formerly used for retail, temporary office space, storage, and parking. The former Block 38 West Property structures were demolished as part of the current redevelopment. The alley bisecting Block 38 is accessed from Mercer Street and descends from street level to an approximate elevation of 25 feet NAVD88, and is used for vehicle access to a parking garage. A historical timber-framed trestle extends north from Republican Street into the alley approximately 120 feet, to a point approximately 18 feet above the fenced-off southern portion of the alley.

Subsurface investigations have been conducted at the Block 38 West Property since 1994. Based on the results of these subsurface investigations, petroleum hydrocarbons and polycyclic aromatic hydrocarbons have been detected at concentrations exceeding regulatory screening levels specified in the Washington State Model Toxics Control Act Cleanup Regulation, as established in Chapter 173-340 of the Washington Administrative Code (WAC), in soil and/or groundwater at the Block 38 West Property.

A remedial investigation will be conducted with the objective of collecting data necessary to adequately characterize the Block 38 West Property for the purpose of developing and evaluating cleanup action alternatives (WAC 173-340-350(7)(a)) by addressing the identified data gaps. The remedial investigation will be performed consistent with the requirements of WAC 173-340-350(7).

2.3 SCOPE OF WORK

Farallon's role in the next phase of work is to conduct a remedial investigation in accordance with the Recommended Work Elements-Addendum No.8 for the South Lake Union Block 38 West Site dated October 11, 2021 (Scope of Work). The specific activities that Farallon will perform are listed below:

- Conducting public and private utility locates to clear boring locations and provide additional information pertaining to the location of subsurface utilities in work areas;

- Advancing borings outside the footprint of the building and in the rights-of-way;
- Installing monitoring wells outside the footprint of the building and in the rights-of-way post interim actions at the Block 38 West Property; and
- Collecting groundwater samples from wells.

3.0 JOB HAZARD ANALYSIS

A job hazard analysis (JHA) is a formal process that helps identify the most hazardous tasks at a job site, determine what the hazards and potential consequences of these tasks are, and develop corrective and preventative measures to eliminate or reduce the likelihood of accidents, injuries, and illnesses. A hazard is anything in the workplace that has the potential to cause harm to workers. JHAs should consider physical, chemical, biological, radiological, and other hazards that may be present. Conducting regular JHAs will help reduce worker injuries, illnesses, and unsafe work practices.

3.1 TASK-SPECIFIC HAZARDS

Many of the activities that Farallon personnel perform at job sites are routine in nature with well-known hazards. Farallon has prepared JHAs for common activities to support evaluation of site-specific hazards. All Farallon field work will be performed in accordance with the Standard Job Site Protocols found in Attachment 2.

Additionally, when checked below, the applicable JHAs must be included in Attachment 3 and will be reviewed with Site personnel prior to conducting field work:

Investigation Activities

☒ Environmental drilling with soil sampling

☒ Groundwater sampling – reconnaissance and monitoring wells

☐ Excavation activities

☐ Soil gas and subslab vapor sampling

☐ Soil sampling with hand tools (no drilling)

Cleanup Activities

☐ Underground storage tank decommissioning

☐ Excavation/construction observation

☐ Remediation systems installation, pilot tests, and operation and maintenance

☐ Remedial injections

3.2 SITE- OR PROJECT-SPECIFIC HAZARDS

Other than hazards inherent in the work to be performed, Farallon has not identified Site- and/or project-specific hazards.

4.0 SITE CONTAMINANTS AND MONITORING REQUIREMENTS

4.1 SITE CONTAMINANTS

The following chemicals or compounds ("Site contaminants") may be present at the Site due to current Site activities or the presence of known or suspected contamination and may pose a risk to workers during performance of the scope of work:

- Petroleum hydrocarbons;
- Carcinogenic polycyclic aromatic hydrocarbons; and
- Naphthalenes.

The table included in Attachment 4 provides health-based and air monitoring information for a variety of contaminants. This table should be reviewed for the identified Site contaminants prior to the start of work and any questions directed to the Site Health and Safety Officer.

4.2 MONITORING REQUIREMENTS

Based on the potential presence of the Site contaminants, the following monitoring protocols will be implemented.

4.2.1 Air Monitoring – Volatile Organic Vapors

As identified in Section 4.1, volatile organic vapors may be present in the breathing zone of Farallon personnel during field activities, which should be evaluated through air monitoring. Air monitoring equipment will consist of the following:

☒ Photoionization detector (PID)

☐ Colorimetric Detector Tubes; type
(fill-in): ______________________________

The following table provides general protocols for conducting air monitoring in the breathing zone for Farallon personnel.

Period when monitoring is required	The duration of field activities that can generate and/or sustain volatile organic vapors in the breathing zone of Farallon personnel.
Monitoring Frequency and Location	Sampling should be continuous during the project while disturbing potentially contaminated soil, uncovering and/or removing tanks and piping, drilling, or managing other contaminated media such as groundwater or soil gas. Breathing zone: take measurements at least every 15 minutes. Exclusion zone boundaries: take measurements every 30 minutes. When collecting soil and groundwater samples, take measurements continuously.
Action Levels if using PID only	10 parts per million (ppm) in breathing zone, sustained for at least 2 minutes: Stop work (including shutting down equipment if warranted), step away from zone for 15 minutes, and then take new readings. If PID measurements remain sustained at 10 ppm or greater, contact the project manager to discuss how to proceed.
Action Levels if using PID and colorimetric detector tubes	10 ppm in breathing zone, sustained for at least 2 minutes: collect a colorimetric detector tube for appropriate contaminant of concern (typically benzene or vinyl chloride are used as indicator chemicals). Stop work if tube indicates > 1 ppm for benzene or vinyl chloride and contact the project manager to discuss how to proceed. Stop work if PID reaches or exceeds 50 ppm above background in breathing zone and there is no discoloration of colorimetric detector tubes.
Respirator Use	If the air monitoring results suggest that the use of respirators is warranted to mitigate hazardous levels of volatile organic vapors in breathing zones, the project manager is responsible for updating this HASP to confirm the type of respirator cartridge, rest intervals, decontamination procedures, and other applicable topics. The use of respirators must be coordinated with Farallon's medical monitoring program and include yearly respirator fit testing.

Logs for recording air monitoring measurements and air monitoring equipment calibration are found in Attachment 5.

4.2.2 Air Monitoring – Dust or Other Particulates

Site contaminants identified in Section 4.1 may be present as dust or other particulates in the breathing zone of Farallon personnel. The following air monitoring protocols will be implemented:

4.2.3 Personnel Monitoring

Personnel monitoring will not need to be conducted.

5.0 PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment (PPE) is selected based on the contaminant type(s), concentration(s) in applicable matrix (soil, water, air) and the known route(s) of entry into the human body. Project personnel are not permitted to use lower levels of protection from the specified levels of protection without the prior approval of the Site Health and Safety Officer.

PPE Level:	Modified Level D
Safety Boots:	Required
Hard Hat:	Required when working around heavy equipment or locations where there is risk for head injury
Safety Vest:	Required when personal visibility is necessary
Safety Glasses:	Required
Hearing Protection:	Required when working around loud equipment
Gloves:	Nitrile gloves are used during contact with potentially contaminated media and surfaces
Additional Site-Specific/Client-Requirements:	None identified
Level C PPE (respirator and chemical-resistant clothing)	Not required for this project. If air monitoring readings exceed action levels, this HASP must be modified to reflect requirements for proceeding under more protective PPE.

6.0 UTILITIES

When conducting subsurface work such as drilling or excavation, Farallon project tasks include overseeing subsurface surveys for underground utilities and structures. This is accomplished by filing a public utility notification request and by hiring a private utility locate service. When Farallon files the public utility notification, this alerts the underground utilities owners to mark the facilities on public property as required by law. Owners of underground utilities are **not required** to mark existing service laterals or utilities installed by the property owner. Therefore, private utility locate services must be hired to scan for service laterals and other buried utilities (e.g., on-Site electric distribution lines, irrigation pipes) on private property.

Public utility notification can be filed as early as 14 days prior to conducting the work, and typically is required to be filed at least 2 business days before the field work will occur (varies by state). Please provide the following information:

Public Utility Notification Ticket No.: 22037714

Date that private utility locate will be performed: February 4, 2022

A copy of the public utility notification ticket should be included with paperwork kept on the Site during field activities.

Before starting work, identify and discuss the locations of utility and product line shutoff valves and switches on the job site with other field personnel.

6.1 INVESTIGATION LOCATIONS AND UTILITIES

Farallon's project team should identify suitable location(s) of borings and other subsurface work through a thorough review of available construction drawings and known utilities, tanks, product lines, and other known or suspected subsurface obstructions. Additionally, the upper 5 feet of each boring will be cleared by one of the following methods:

- Hand auger;
- Vactor truck; or
- Air knife.

Occasionally, project, Site, or regulatory requirements may not allow for hand-clearing the upper 5 feet of a boring. The project team will consult with the Farallon State Health and Safety Coordinator to obtain approval to deviate from this subsurface work-related requirement.

7.0 INCIDENTS / NEAR MISSES

Farallon employees are required to report any injury sustained while performing project work or work-related illness to the Project Manager, their Group Manager, and the Corporate Health and Safety Officer, regardless of the seriousness of the incident. The employee will complete an Incident Report form to report the incident, provided in Attachment 6.

A “near miss” is defined as an incident in which no personal injury was sustained and no property damage was incurred, but where personal injury and/or property damage could have occurred, given a slight change in time or position. Employees are encouraged to complete a Near Miss Report form, provided in Attachment 7.

8.0 SITE CONTROLS

8.1 WORK ZONE CONTROL

Farallon personnel will secure and mark work zones so that the zones are visible to site occupants and visitors and are accessible only to personnel scheduled to be in the work zone. This is intended to prevent undesirable interface between pedestrian traffic and project workers and equipment. Devices to secure zones may include:

- Cones;
- Tubular markers; and
- Barricade tape.

If site conditions, such as hazardous levels of Site contaminants, warrant separate work zones, this HASP must be modified to identify Exclusion (Hot), Contamination Reduction (Warm), and Support (Cold) Zones. Modifications must include decontamination procedures for personnel and equipment.

8.2 TRAFFIC CONTROL

Project work will require Farallon personnel or subcontractors to enter public rights-of-way, including sidewalks and alleys. When work is to be performed in these areas, traffic control will be implemented. The specific traffic control devices and layout to be used are described in Attachment 8, Traffic Control Plan.

8.3 DECONTAMINATION

Farallon personnel are directed to conduct field work in a manner that minimizes employee contact with hazardous substances or with equipment that has contacted hazardous substances. Typical site decontamination procedures include the use of Alconox or a similar product to clean field equipment prior to and following use at a job site. Farallon personnel use disposable gloves to minimize cross contamination between sample locations.

If site conditions warrant upgraded decontamination procedures, this HASP must be modified to describe the equipment and personnel procedures. The corporate Hazardous Waste Operations Program provides detailed procedures for this purpose.

9.0 ADDITIONAL ELEMENTS

Information contained in this section is required under OSHA HAZWOPER rule 29 CFR 1910.120.

9.1 EMPLOYEE TRAINING

Farallon maintains an employee training program for safety-related topics. Employees will be assigned to perform project tasks for which they have been provided training. Employees are encouraged and empowered to speak up if they believe they need training or additional instruction in order to safely perform a task.

Farallon employees who perform field work at sites that may fall within the definition of 29 CFR 1910.120 will receive training that will include:

- Names of personnel and alternates responsible for Site safety and health;
- Safety, health, and other hazards present on the Site;
- Use of PPE;
- Work practices by which the employee can minimize risks from hazards;
- Safe use of engineering controls and equipment on the Site;
- Medical surveillance requirements, including recognition of symptoms and signs that might indicate overexposure to hazards; and
- Instruction on how to review and implement the Site-specific HASP.

Additional safety training is provided in many venues, including:

- New-hire orientation;
- Annual safety training;
- Project-specific instruction;
- Safety moments during staff meetings; and
- Tailgate safety briefings.

Training records and employee training certificates are maintained by the corporate health and safety management team. These records are available upon request for project-specific purposes.

9.2 MEDICAL SURVEILLANCE

Farallon conducts a medical surveillance program for employees engaged in hazardous waste field operations. The following employees (at a minimum) are covered by the medical surveillance program:

- Employees who are or may be exposed to hazardous substances or health hazards at or above an OSHA Permissible Exposure Level (PEL), or above the published exposure levels for a substance for which there is no PEL, without regard to respirator use, for 30 days or more per year;
- Employees who wear a respirator for 30 days or more per year, or as required by state-specific rules; and
- Employees who are injured, become ill, or develop signs or symptoms due to possible overexposure involving hazardous substances or health hazards from a hazardous waste operation.

The corporate Hazardous Waste Operations Program provides additional information on Farallon's medical surveillance program. The Corporate Health and Safety Officer works with Farallon Human Resource to manage medical surveillance and maintain confidential records.

9.3 CONFINED SPACE ENTRY

A confined space is defined as a space meeting all of the following criteria:

- The space is large enough and arranged so as to allow an employee to fully enter the space and conduct work;
- The space has limited or restricted entry or exit (e.g., tanks, vessels, silos, storage bins, hoppers, vaults, excavations, pits); and
- The space is not designed primarily for human occupancy.

Farallon personnel occasionally encounter confined-space entry conditions when performing environmental media sample collection from excavations, or when performing in-place underground storage tank closure work. In such situations, the work must be conducted in accordance with Farallon's Confined-Space Entry Program, which requires specialized training for employees performing such work.

Farallon does not perform permit-required confined space (PRCS) entry work. Exceptions to this rule must be approved in advance by the Corporate Health and Safety Officer and prior to fieldwork commencing.

9.4 DRUM/CONTAINER HANDLING AND SPILL CONTAINMENT

It is Farallon's policy to minimize the number of situations in which employees could come into contact with drums or containers that may contain unknown chemicals or substances. Typical situations in which Farallon field personnel handle drums are waste-handling procedures following boring or monitoring well installation and sampling activities. Soil cuttings, monitoring well purge and development water, and equipment decontamination water typically are placed into drums pending disposal. In these instances, the contaminants and the range of potential concentrations typically are known. The Site-specific HASP, Work Plan, Sampling and Analysis Plan, or Waste Management Plan should present specific procedures for sampling the contents of the drums or containers. In instances where drums or containers having unknown contents are discovered at a site, Farallon typically hires a subcontractor with expertise in sampling and characterizing drum and container contents.

9.5 WORKPLACE VIOLENCE

Farallon is committed to providing employees with a safe work environment and does not tolerate any type of workplace violence committed by or against employees or other personnel at a site. Workplace violence is any act or threat of physical violence, harassment, intimidation, or other threatening disruptive behavior that occurs at the work site. It ranges from verbal abuse to physical assaults and even homicide.

If a Farallon employee feels threatened or unsafe at a project site, the employee should remove themselves from the situation and notify the project manager immediately. Employees who experience actual or threatened violent behavior should immediately report it to the appropriate authorities.

In the event of an active shooter situation, employees are encouraged to follow guidelines provided by the U.S. Department of Homeland Security.

Active Shooter Guidance

1. Run	2. Hide	3. Fight
• Have an escape route and plan in mind. • Leave your belongings behind. • Keep your hands visible.	• Hide in an area out of the active shooter's view. • Block entry to your hiding place and lock the doors.	• As a last resort and only when your life is in imminent danger. • Attempt to incapacitate the active shooter. • Act with physical aggression and throw items at the active shooter.
CALL 911 WHEN IT IS SAFE TO DO SO		

ATTACHMENT 1

Health and Safety Plan Acknowledgement and Agreement Form

HEALTH AND SAFETY PLAN ACKNOWLEDGMENT AND AGREEMENT FORM

(All Farallon and subcontractor personnel must sign this form on a daily basis.)

Farallon Employees: In signing this document, you indicate that you have reviewed the contents of this HASP and will work to implement and comply with the requirements in the HASP.

Farallon Subcontractors and others on the site: In signing this document, you indicate acknowledgement that:

- Non-Farallon personnel are expected to develop and work under their own safety program.
- The Farallon HASP provides general information about potential hazards at the job site but does NOT provide information pertaining to all of the hazards that a contractor’s employees may be exposed to as a result of their work.
- You are required to coordinate activities and practices with the project Site Health and Safety Officer (SHSO).
- You are required to inform Farallon of any hazards you are aware of or that your work on the site might possibly pose to Farallon employees.
- You can be prohibited by the SHSO or other Farallon personnel from working on this project for unsafe work practices or failure to comply with Farallon jobsite requirements.

✓ SHSO	Company Name	Name (Print)	Signature	Date

HEALTH AND SAFETY PLAN ACKNOWLEDGMENT AND AGREEMENT FORM

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✓ SHSO	Company Name	Name (Print)	Signature	Date

ATTACHMENT 2

Standard Job Site Protocols

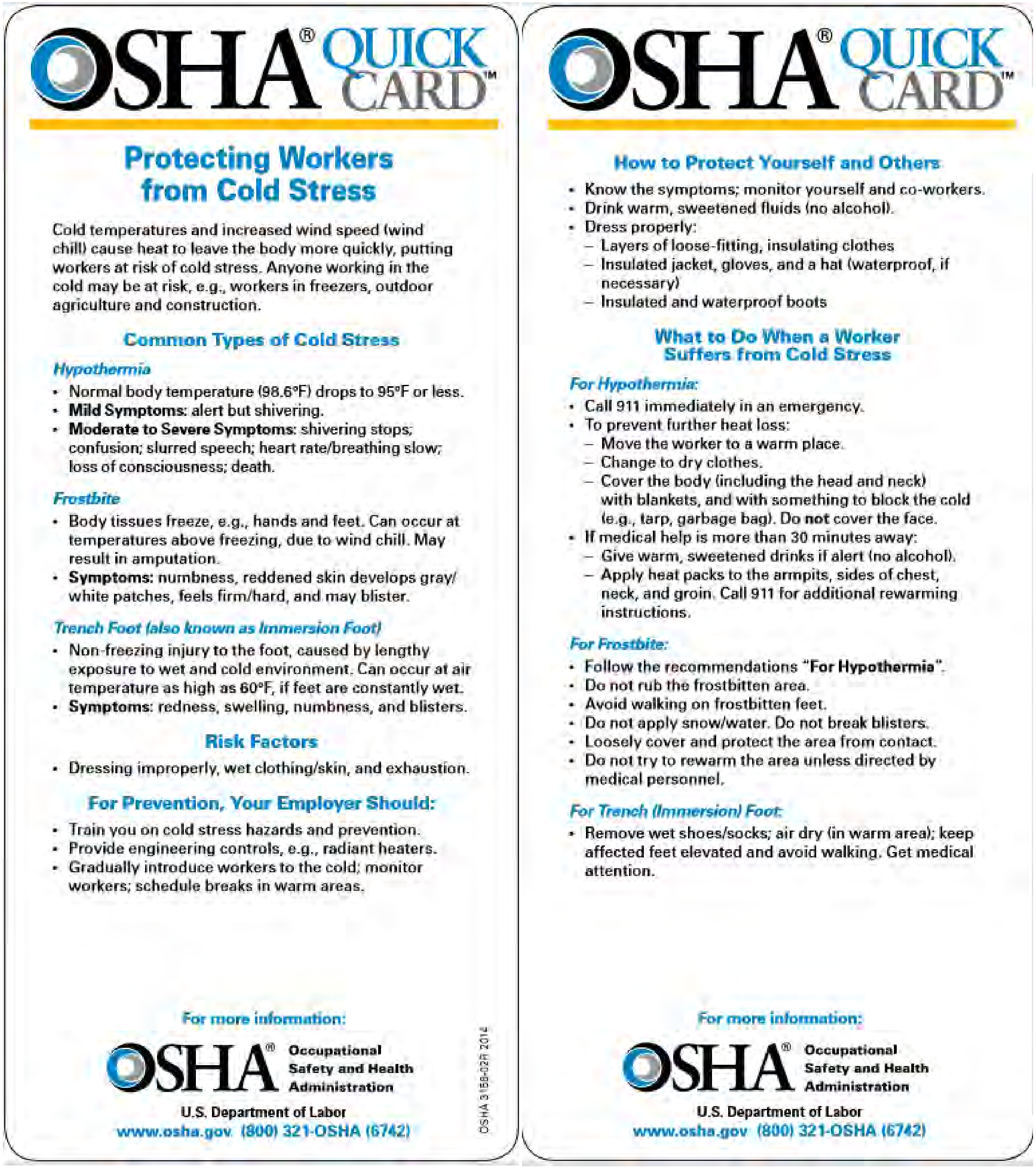
Job Hazard Analysis – Standard Job Site Protocols
Issued September 23, 2020

Farallon developed this Job Hazard Analysis to address typical hazards associated with performing field work. Farallon expects each employee to be safety-focused and to consider safety the top priority when working at a job site.

Safety Briefing	A safety briefing will be held at the job site at the beginning of each day and documented in field notes. On multiple-day projects on the same job site, a safety briefing is required each day.

The following hazards may be present at any type of Farallon job site:

Potential Hazards	Preventive Measures
Inclement weather (e.g., hard rain, snow, ice, high winds, electrical storms, extreme temperatures)	• Check weather reports daily. Evaluate appropriateness of proceeding with field work during inclement weather. • Before driving, be sure that all windows of vehicles are clear of snow and other debris or obstructions. • Drive at the speed limit or less, as needed, to keep a safe distance from any vehicles ahead. Allow enough space between vehicles for braking and slowing. • Stop work and shut down the job site if high winds, lightning, or other adverse weather conditions may pose a risk to site workers.
Exposure to chemicals and contaminants	• Wash hands before eating, drinking, using tobacco products, or otherwise touching one's face. • Before beginning the project, evaluate whether it is safe to wear contact lenses. Most hazards related to eye protection require personal protective equipment upgrades regardless of contact lens use. • Before conducting field work, evaluate whether respirators may be used, to determine whether facial hair may need to be removed so it does not interfere with proper respirator fit.
Cold stress	• See page 2 for OSHA Quick Card.
Heat stress	• See page 3 for OSHA Quick Card.
Lone worker	• During HASP preparation, evaluate risks of working alone at a job site. Implement measures to mitigate risks. • Use the buddy system or re-evaluate tasks if the threat of personal harm cannot be mitigated. • Carry a cell phone or radio on person at all times. • Carry a whistle or other noise-making device if necessary. • In remote areas, carry a GPS-enabled beacon (set up reporting in office prior to field work). • Know the route to the closest hospital.
Plants and insects	• Be aware of poisonous plants. • Apply insect repellant. • Carry first-aid ointment or barrier cream. • Do not wear cologne or other scented products. • Avoid eating in areas where bees or wasps are located.



OSHA® QUICK CARD™

Protecting Workers from Cold Stress

Cold temperatures and increased wind speed (wind chill) cause heat to leave the body more quickly, putting workers at risk of cold stress. Anyone working in the cold may be at risk, e.g., workers in freezers, outdoor agriculture and construction.

Common Types of Cold Stress

Hypothermia

- Normal body temperature (98.6°F) drops to 95°F or less.
- **Mild Symptoms:** alert but shivering.
- **Moderate to Severe Symptoms:** shivering stops; confusion; slurred speech; heart rate/breathing slow; loss of consciousness; death.

Frostbite

- Body tissues freeze, e.g., hands and feet. Can occur at temperatures above freezing, due to wind chill. May result in amputation.
- **Symptoms:** numbness, reddened skin develops gray/ white patches, feels firm/hard, and may blister.

Trench Foot (also known as Immersion Foot)

- Non-freezing injury to the foot, caused by lengthy exposure to wet and cold environment. Can occur at air temperature as high as 60°F, if feet are constantly wet.
- **Symptoms:** redness, swelling, numbness, and blisters.

Risk Factors

- Dressing improperly, wet clothing/skin, and exhaustion.

For Prevention, Your Employer Should:

- Train you on cold stress hazards and prevention.
- Provide engineering controls, e.g., radiant heaters.
- Gradually introduce workers to the cold; monitor workers; schedule breaks in warm areas.

For more information:

OSHA® Occupational Safety and Health Administration
U.S. Department of Labor
www.osha.gov (800) 321-OSHA (6742)

OSHA 3156-02R 2014

OSHA® QUICK CARD™

How to Protect Yourself and Others

- Know the symptoms; monitor yourself and co-workers.
- Drink warm, sweetened fluids (no alcohol).
- Dress properly:
  - Layers of loose-fitting, insulating clothes
  - Insulated jacket, gloves, and a hat (waterproof, if necessary)
  - Insulated and waterproof boots

What to Do When a Worker Suffers from Cold Stress

For Hypothermia:

- Call 911 immediately in an emergency.
- To prevent further heat loss:
  - Move the worker to a warm place.
  - Change to dry clothes.
  - Cover the body (including the head and neck) with blankets, and with something to block the cold (e.g., tarp, garbage bag). Do **not** cover the face.
- If medical help is more than 30 minutes away:
  - Give warm, sweetened drinks if alert (no alcohol).
  - Apply heat packs to the armpits, sides of chest, neck, and groin. Call 911 for additional rewarming instructions.

For Frostbite:

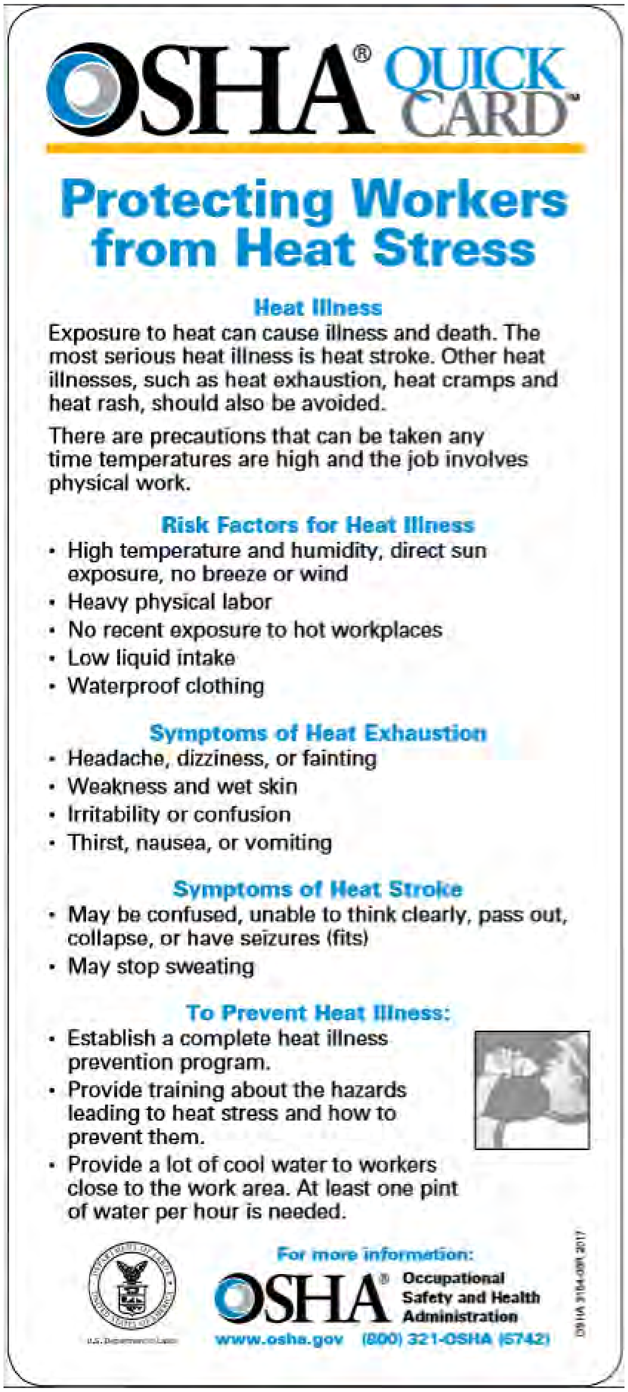
- Follow the recommendations "**For Hypothermia**".
- Do not rub the frostbitten area.
- Avoid walking on frostbitten feet.
- Do not apply snow/water. Do not break blisters.
- Loosely cover and protect the area from contact.
- Do not try to rewarm the area unless directed by medical personnel.

For Trench (Immersion) Foot:

- Remove wet shoes/socks; air dry (in warm area); keep affected feet elevated and avoid walking. Get medical attention.

For more information:

OSHA® Occupational Safety and Health Administration
U.S. Department of Labor
www.osha.gov (800) 321-OSHA (6742)



OSHA® QUICK CARD™

Protecting Workers from Heat Stress

Heat Illness

Exposure to heat can cause illness and death. The most serious heat illness is heat stroke. Other heat illnesses, such as heat exhaustion, heat cramps and heat rash, should also be avoided.

There are precautions that can be taken any time temperatures are high and the job involves physical work.

Risk Factors for Heat Illness

- High temperature and humidity, direct sun exposure, no breeze or wind
- Heavy physical labor
- No recent exposure to hot workplaces
- Low liquid intake
- Waterproof clothing

Symptoms of Heat Exhaustion

- Headache, dizziness, or fainting
- Weakness and wet skin
- Irritability or confusion
- Thirst, nausea, or vomiting

Symptoms of Heat Stroke

- May be confused, unable to think clearly, pass out, collapse, or have seizures (fits)
- May stop sweating

To Prevent Heat Illness:

- Establish a complete heat illness prevention program.
- Provide training about the hazards leading to heat stress and how to prevent them.
- Provide a lot of cool water to workers close to the work area. At least one pint of water per hour is needed.

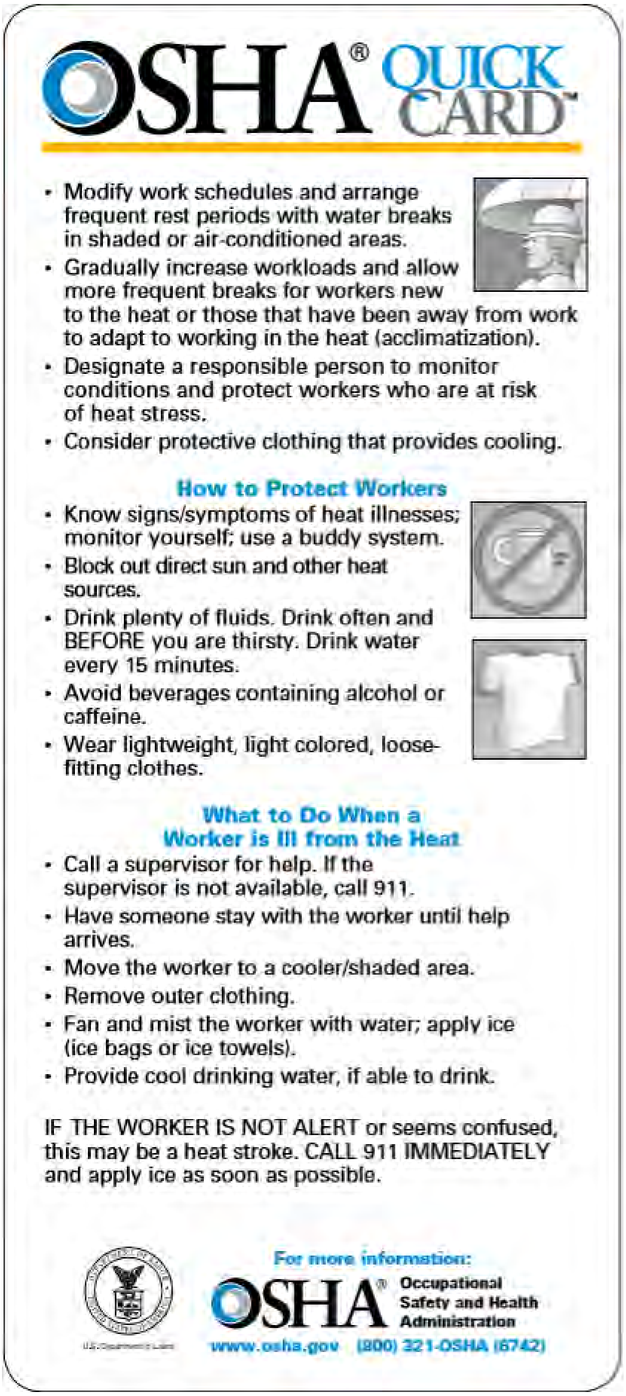
For more information:

OSHA® Occupational Safety and Health Administration

www.osha.gov (800) 321-OSHA (6742)

U.S. Department of Labor

OSHA 3154-09R 2017



OSHA® QUICK CARD™

- Modify work schedules and arrange frequent rest periods with water breaks in shaded or air-conditioned areas.
- Gradually increase workloads and allow more frequent breaks for workers new to the heat or those that have been away from work to adapt to working in the heat (acclimatization).
- Designate a responsible person to monitor conditions and protect workers who are at risk of heat stress.
- Consider protective clothing that provides cooling.

How to Protect Workers

- Know signs/symptoms of heat illnesses; monitor yourself; use a buddy system.
- Block out direct sun and other heat sources.
- Drink plenty of fluids. Drink often and BEFORE you are thirsty. Drink water every 15 minutes.
- Avoid beverages containing alcohol or caffeine.
- Wear lightweight, light colored, loose-fitting clothes.

What to Do When a Worker is Ill from the Heat

- Call a supervisor for help. If the supervisor is not available, call 911.
- Have someone stay with the worker until help arrives.
- Move the worker to a cooler/shaded area.
- Remove outer clothing.
- Fan and mist the worker with water; apply ice (ice bags or ice towels).
- Provide cool drinking water, if able to drink.

IF THE WORKER IS NOT ALERT or seems confused, this may be a heat stroke. CALL 911 IMMEDIATELY and apply ice as soon as possible.

For more information:

OSHA® Occupational Safety and Health Administration

www.osha.gov (800) 321-OSHA (6742)

U.S. Department of Labor

ATTACHMENT 3

Task-Specific Job Hazard Analyses

Job Hazard Analysis – Environmental Drilling
Issued September 23, 2020

Farallon developed this Job Hazard Analysis (JHA) to address typical hazards associated with the noted activity. For each project, the project team should evaluate the listed hazards and update the JHA accordingly to note additional site-specific or project-specific hazards. Field work may be performed in conjunction with other JHAs, depending on project scope.

Farallon employees are responsible for being knowledgeable about general site conditions and associated preventive measures as noted in the Job Hazard Analysis – General Site Conditions.

Key Pre-Field Tasks	Utility notification (Section 6 of site-specific Health and Safety Plan [HASP]).
Personal Protective Equipment (PPE)	Level D – safety boots, high-visibility clothing (vest if exposed to vehicular traffic), safety glasses with side shields, hard hat, appropriate gloves, hearing protection.
Safety Data Sheets Needed	Sample preservative(s), equipment decontamination chemicals.
Safety Briefing	A safety briefing will be held at the job site at the beginning of each day and documented in field notes. On multiple-day projects on the same job site, a safety briefing is required each day.

Job Steps	Potential Hazards	Preventive Measures
Mobilize to site with equipment/supplies suitable for drilling.	Vehicle and pedestrian traffic. Strain from lifting and carrying. Slips, trips, or falls.	• Follow safe driving procedures. • Employ safe lifting procedures. Evaluate walking path before proceeding. Use hand truck or cart to avoid carrying heavy or awkward loads. • Be aware of surroundings.
Set up job site, including any site and traffic controls, and conduct on-site utility clearance.	Vehicle and pedestrian traffic. Pedestrian interactions (unfriendly). Slips, trips, or falls.	• Begin with safety briefing. • Implement traffic control through cones or other barriers when working in parking lots or other on-site, low-speed vehicle traffic areas. • When conducting work within road right-of-way, subcontract a traffic control company to develop and implement traffic-control plans if warranted. • Use a traffic control subcontractor for implementing their traffic-control plan, such as setting out cones and tape in the road to define the safety area and/or conduct flagging operations. • Stand clear of vehicular traffic. • Be aware of surroundings. • Establish exclusion zone for job site. • Be aware of pedestrian traffic entering the exclusion zone.

Job Steps	Potential Hazards	Preventive Measures
Coordinate drill rig setup; establish workstation and exclusion zone if needed.	Accident or injury from rig movement or equipment failure. Contact with overhead utilities or obstructions. Soft terrain. Unexpected rig movement. Slips, trips, or falls.	• Ensure that all staff know the location of the kill switch for the drilling rig. • Visually inspect rig (e.g., fire extinguisher on board, no oil or other fluid leaks, cabling and associated equipment in good condition, pressurized hoses secured with whip-checks or adequate substitute, jacks in good condition). • Verify a clear pathway to the drilling location and clearance for raising mast. • Provide hand signals and guidance to the driver, as needed, to place rig. • Use wooden blocks under jacks to spread load, if necessary. Chock wheels if on slope. • Set up workstations with clear walking paths to and from rig. Use safety tape and cones.
Observe drilling activities. Includes clearing upper 5 feet of drilling location by air knife, Vactor truck, or hand auger.	Exposure to chemicals and contaminants. Eye injury from flying debris. Noise. Hitting an underground or overhead utility or other obstruction. Accident or injury from drill rig equipment failure or overturned rig. Strain and repetitive motion (if Farallon employee conducts hand-augering). Slips, trips, or falls.	• Monitor breathing zone in accordance with the air monitoring protocol presented in site-specific HASP. Stop work and re-evaluate PPE if monitoring indicates respiratory protection is warranted. Have respirator at hand as identified in site-specific HASP. • Stand clear of operating equipment. • Wear eye and hearing protection. • Stand upwind to minimize exposure when possible. • Re-inspect utility markings at each drilling location before proceeding with boring. • If drilling within 3 feet of marked utilities, daylight the utility (hand-shovel) to verify its location. • Keep work area clear of trip or fall hazards. • Perform periodic visual inspections of drill rig. • Employ safe lifting procedures. • Contact Corporate Health and Safety Coordinator if variance for utility clearing is required.

Job Steps	Potential Hazards	Preventive Measures
Evaluate soil cores and collect soil samples in accordance with sampling plan. Include managing cuttings. See separate JHA for groundwater sampling.	Exposure to chemicals and contaminants. Contact with sample preservative (acid). Sample-container breakage. Strain from lifting and carrying soil cores and buckets. Slips, trips, or falls.	• Monitor breathing zone in accordance with the air monitoring protocol presented in site-specific HASP. Stop work and re-evaluate PPE if monitoring indicates respiratory protection is warranted. Have respirator at hand as identified in site-specific HASP. • Wear nitrile or other suitable gloves. • Handle sample containers carefully to avoid spilling preservative. • Handle and store sample containers carefully. • Stand clear of operating equipment. • Employ safe lifting procedures. Request drilling crew to transport soil cores and buckets if necessary. • Keep work area clear of hazards. • Evaluate soil samples at arm’s length. Place soil inside a resealable plastic bag if closer evaluation is warranted. Avoid inhaling odors from samples.
Observe borehole abandonment or monitoring well construction.	Exposure to chemicals and contaminants. Eye injury from splashing or release of pressurized grout. Strain from lifting bags of bentonite/grout (if Farallon employee is performing the backfill task). Slips, trips, or falls.	• Monitor breathing zone in accordance with the air monitoring protocol presented in site-specific HASP. Stop work and re-evaluate PPE if monitoring indicates respiratory protection is warranted. Have respirator at hand as identified in site-specific HASP. • Wear goggles and/or splash shield if standing within splash zone of grout. • Wear nitrile or other suitable gloves. • Keep work area clear of hazards. • Employ safe lifting procedures.
Manage investigation-derived waste.	Exposure to chemicals and contaminants. Strain from lifting. Slips, trips, or falls.	• Monitor breathing zone in accordance with the air monitoring protocol presented in site-specific HASP. Stop work and re-evaluate PPE if monitoring indicates respiratory protection is warranted. Have respirator at hand as identified in site-specific HASP. • Wear nitrile or other suitable gloves. • Wear protective clothing if contaminants pose a dermal hazard. • Use suitable equipment to transport investigation-derived waste (e.g., pumps, drum dollies).

Job Steps	Potential Hazards	Preventive Measures
Clean the site; demobilize.	Strain from lifting. Vehicle and pedestrian traffic. Slips, trips, or falls.	• Use buddy system to remove traffic control in parking lots or other similar low-speed vehicle traffic areas, as necessary. • Employ safe lifting procedures. • Keep work area clear of hazards.
Package and deliver samples to laboratory.	Sample-container breakage. Strain from lifting. Vehicle and pedestrian traffic.	• Handle and pack bottles carefully. • Employ safe lifting procedures. Evaluate walking path before proceeding. Use hand truck or cart to avoid carrying heavy or awkward loads. • Follow safe driving procedures.

Job Hazard Analysis – Groundwater Sampling, including Monitoring Wells
Issued September 23, 2020

Farallon developed this Job Hazard Analysis (JHA) to address typical hazards associated with the noted activity. For each project, the project team should evaluate the listed hazards and update the JHA accordingly to note additional site-specific or project-specific hazards. Field work may be performed in conjunction with other JHAs, depending on project scope.

Farallon employees are responsible for being knowledgeable about general site conditions and associated preventive measures as noted in the Job Hazard Analysis – General Site Conditions.

Personal Protective Equipment (PPE)	Level D – safety boots, high-visibility clothing (vest if exposed to vehicular traffic), safety glasses with side shields, hard hat, appropriate gloves, hearing protection. Face shield may be warranted depending on contaminant(s).
Safety Data Sheets Needed	Sample preservative(s), equipment decontamination chemicals.
Safety Briefing	A safety briefing will be held at the job site at the beginning of each day and documented in field notes. On multiple-day projects on the same job site, a safety briefing is required each day.

Job Steps	Potential Hazards	Preventive Measures
Mobilize with equipment/supplies suitable for sampling.	Vehicle and pedestrian traffic. Strain from lifting and carrying. Slips, trips, or falls.	• Follow safe driving procedures. • Employ safe lifting procedures. Evaluate walking path before proceeding. Use hand truck or cart to avoid carrying heavy or awkward loads. • Be aware of surroundings.
Set up job site, including any site and traffic controls.	Vehicle and pedestrian traffic. Pedestrian interactions (unfriendly). Slips, trips, or falls.	• Begin with safety briefing. • Implement traffic control through cones or other barriers when working in parking lots or other on-site, low-speed vehicle traffic areas. • When conducting work within road right-of-way, subcontract a traffic control company to develop and implement traffic-control plans if warranted. • Use a traffic control subcontractor for implementing their traffic-control plan, such as setting out cones and tape in the road to define the safety area and/or conduct flagging operations. • Stand clear of vehicular traffic. • Be aware of surroundings. • Establish exclusion zone for job site. • Be aware of pedestrian traffic entering the exclusion zone.

Job Steps	Potential Hazards	Preventive Measures
Gauge water levels and product thickness (where applicable) in well(s).	Exposure to chemicals and contaminants. Strain and repetitive motion. Slips, trips, or falls.	• Monitor breathing zone in accordance with the air monitoring protocol presented in site-specific HASP. Stop work and re-evaluate PPE if monitoring indicates respiratory protection is warranted. Have respirator at hand as identified in site-specific HASP. • Wear nitrile or other suitable gloves. • Wear protective clothing if contaminants pose a dermal hazard. • Employ safe lifting procedures. • Keep work area clear of trip or fall hazards.
Purge well(s) and collect purge water.	Exposure to chemicals and contaminants. Strain and repetitive motion from bailing, pulling pumps, and carrying full containers of purge water. Slips, trips, or falls.	• Monitor breathing zone in accordance with the air monitoring protocol presented in site-specific HASP. Stop work and re-evaluate PPE if monitoring indicates respiratory protection is warranted. Have respirator at hand as identified in site-specific HASP. • Wear nitrile or other suitable gloves. • Wear protective clothing if contaminants pose a dermal hazard. • Employ safe lifting procedures. • Keep work area clear of trip or fall hazards.
Collect samples in accordance with sampling plan.	Exposure to chemicals and contaminants. Contact with sample preservative (acid). Sample-container breakage. Slips, trips, or falls.	• Monitor breathing zone in accordance with the air monitoring protocol presented in site-specific HASP. Stop work and re-evaluate PPE if monitoring indicates respiratory protection is warranted. Have respirator at hand as identified in site-specific HASP. • Wear nitrile or other suitable gloves. • Wear protective clothing if contaminants pose a dermal hazard. • Handle sample containers carefully. • Keep work area clear of trip or fall hazards.
Dispose of or store purge water on the site.	Exposure to chemicals and contaminants. Strain and repetitive motion from carrying and lifting full containers of purge water. Slips, trips, or falls.	• Monitor breathing zone in accordance with the air monitoring protocol presented in site-specific HASP. Stop work and re-evaluate PPE if monitoring indicates respiratory protection is warranted. Have respirator at hand as identified in site-specific HASP. • Wear nitrile or other suitable gloves. • Wear protective clothing if contaminants pose a dermal hazard. • Use suitable equipment to transport water (e.g., pumps, drum dollies). • Keep work area clear of trip or fall hazards.

Job Steps	Potential Hazards	Preventive Measures
Clean the site; demobilize.	Vehicle and pedestrian traffic. Strain from lifting. Slips, trips, or falls.	• Use buddy system to remove traffic control in parking lots or other similar low-speed vehicle traffic areas, as necessary. • Employ safe lifting procedures. • Keep work area clear of hazards.
Package and deliver samples to laboratory.	Sample-container breakage. Strain from lifting. Vehicle and pedestrian traffic.	• Handle and pack sample containers carefully. • Employ safe lifting procedures. Evaluate walking path before proceeding. Use hand truck or cart to avoid carrying heavy or awkward loads. • Follow safe driving procedures.

ATTACHMENT 4

Health-Based and Monitoring Information for Potential Site Contaminants

HEALTH-BASED AND MONITORING INFORMATION FOR POTENTIAL SITE CONTAMINANTS

Farallon job sites may contain one or more of the chemicals or compounds provided in the following table. These substances may be present due to historical site use, current Site activities, or the presence of contamination from unknown sources. This table should be reviewed prior to the start of work and questions directed to the Site Health and Safety Officer. Air monitoring may be required at a Site based on the scope of work for the project. Refer to the site-specific Health and Safety Plan to determine whether air or personnel monitoring will be required for the scope of work.

Chemical (or Class)	OSHA PEL ACGIH TLV	Other Pertinent Limits	Properties	Routes of Exposure or Irritation	Acute Health Effects	Chronic Health Effects/ Target Organs
Petroleum Compounds and Petroleum Additives						
Benzene	PEL – 1 ppm TLV – 0.5 ppm (skin)	PEL STEL – 5 ppm IDLH – 500 ppm	Characteristic benzene odor.	Inhalation; dermal; ingestion; eye contact.	Skin (dermatitis); eye, respiratory tract irritant; headache; dizziness; nausea.	Carcinogen; CNS; eye damage; bone marrow; blood; skin; leukemia.
Coal tar pitch volatiles (aka polycyclic aromatic hydrocarbons pyrene, phenanthrene, chrysene, anthracene, and benzo[a]pyrene)	PEL – 0.2 mg/m^3	NIOSH REL – 0.1 mg/m^3 (cyclohexane-extractable fraction) IDLH – 80 mg/m^3	Black or dark-brown amorphous residue.	Inhalation; dermal; ingestion; eye contact.	Irritation to eyes, skin; nose, throat irritation that may cause difficulty breathing.	Skin and lung cancer; damage to the reproductive system; thickening and darkening of the skin.
Ethylbenzene	PEL – 100 ppm TLV – 100 ppm	PEL STEL – 125 ppm TLV STEL – 125 ppm NIOSH REL – 100 ppm REL STEL – 125 ppm IDLH – 800 ppm	Pungent, aromatic odor.	Inhalation; dermal; ingestion; eye contact.	Skin, eye, mucous membrane irritant; headache; dizziness; drowsiness.	Eyes; respiratory tract; skin; CNS; blood; kidneys; liver.
2-Methylnaphthalene	Not established. 2-Methylnaphthalene is part of the naphthalenes family, but is not considered as hazardous as naphthalene. Limits for naphthalene should be used as a conservative approach.		Normally crystalline.	Inhalation; dermal; ingestion; eye contact.	Intoxication is most common following ingestion, but can occur after dermal or inhalation exposure. Eye irritant; conjunctivitis; superficial injury to cornea; diminished visual acuity; dermatitis; hypersensitivity; nausea and vomiting; skin irritation; headache; vomiting; fever; photosensitization; restlessness; lethargy; acute renal failure possible.	Anorexia; hemolysis; methemoglobinemia; hyperkalemia; anemia; cataracts. Seizures, coma may develop in severe intoxications.

HEALTH-BASED AND MONITORING INFORMATION FOR POTENTIAL SITE CONTAMINANTS

Chemical (or Class)	OSHA PEL ACGIH TLV	Other Pertinent Limits	Properties	Routes of Exposure or Irritation	Acute Health Effects	Chronic Health Effects/ Target Organs
Methyl tertiary-butyl ether (MTBE)	No PEL established. TLV – 40 ppm	AIHA WEEL – 100 ppm	Flammable liquid with a distinctive, disagreeable odor.	Inhalation; dermal; ingestion.	Irritated nose, throat; headache; dizziness; nausea; sleepiness.	CNS, liver, kidney, gastrointestinal damage; potential carcinogen.
Naphthalene	PEL – 10 ppm TLV – 10 ppm	TLV STEL – 15 ppm NIOSH REL – 10 ppm REL STEL – 15 ppm IDLH – 250 ppm	Mothball-like odor.	Inhalation; dermal; ingestion; eye contact.	Skin, eye, mucous membrane irritant, nausea.	Eyes, blood, skin, liver, kidney, RBC, CNS.
Toluene	PEL – 200 ppm TLV – 50 ppm	NIOSH REL – 100 ppm TWA; 150 ppm STEL ILDH – 500 ppm	Sweet, pungent, benzene-like odor.	Eye contact.	Skin (dermatitis); eye, respiratory tract irritant; headache; dizziness; weakness; fatigue.	CNS; liver; kidneys; skin.
Xylenes	PEL – 100 ppm TLV – 100 ppm	TLV STEL – 500 ppm NIOSH REL – 100 ppm NIOSH REL STEL – 100 ppm IDLH – 900 ppm	Aromatic odor.	Inhalation; dermal; ingestion; eye contact.	Throat, skin irritant (dermatitis); headache; nausea; drowsiness; fatigue.	CNS, liver, kidneys, skin, gastrointestinal damage; eye damage.
Chlorinated Volatile Organic Compounds						
Carbon Tetrachloride	PEL – 10 ppm C – 25 ppm TLV – 5 ppm	IDLH – 300 ppm	Colorless liquid with a characteristic ether-like odor.	Inhalation, skin absorption, ingestion, skin and/or eye contact.	Irritation to eyes and skin; CNS depression; nausea, vomiting; liver and kidney injury; drowsiness, dizziness, incoordination.	Cancerous – liver. Liver and/or kidney damage. CNS, eyes, lungs, liver, kidneys, skin.
Chloroethane	PEL – 1,000 ppm TLV – 1,000 ppm	IDLH – 3,800 ppm	Colorless gas or liquid (below 54°F) with a pungent, ether-like odor.	Inhalation, skin absorption, ingestion, skin and/or eye contact.	Incoordination, inebriation, abdominal cramps.	Cardiac arrhythmias, cardiac arrest, liver and/or kidney damage. Liver, kidneys, respiratory system, CVS, CNS.
Chloroform	PEL – 2 ppm C – 50 ppm TLV – 10 ppm	IDLH – 500 ppm	Colorless liquid with a pleasant odor.	Inhalation, skin absorption, ingestion, skin and/or eye contact.	Irritation to eyes and skin, dizziness, mental dullness, nausea, confusion, headache, lassitude, anesthesia.	Cancerous – liver and kidneys. Anesthesia, damage to liver, damage to kidneys. Liver, kidneys, heart, eyes, skin, CNS.

HEALTH-BASED AND MONITORING INFORMATION FOR POTENTIAL SITE CONTAMINANTS

Chemical (or Class)	OSHA PEL ACGIH TLV	Other Pertinent Limits	Properties	Routes of Exposure or Irritation	Acute Health Effects	Chronic Health Effects/ Target Organs
1,4-Dichlorobenzene	PEL – 75 ppm (450 mg/m^3) TLV – 10 ppm	IDLH – 1,000 ppm	Colorless or white crystalline solid with a mothball-like odor. Reacts to strong oxidizers.	Inhalation, skin absorption, ingestion, skin and/or eye contact.	Eye irritation, swelling periorbital, profuse rhinitis, headache, anorexia, nausea, vomiting, weight loss, jaundice, cirrhosis.	Cancerous – liver and kidney. Liver and/or kidney damage. Liver, respiratory system, eyes, kidneys, and skin.
Dichlorodifluoromethane	PEL – 1,000 ppm TLV – 1,000 ppm	IDLH – 15,000 ppm	Colorless gas with an ether-like odor at extremely high concentrations.	Inhalation, skin and/or eye contact.	Dizziness, tremor, asphyxia, unconsciousness, cardiac arrhythmias, cardiac arrest, frostbite.	CVS, peripheral nervous system.
1,1-Dichloroethane	PEL – 100 ppm (400 mg/m^3) TLV – 100 ppm	IDLH – 3,000 ppm	Colorless, oily liquid with a chloroform-like odor.	Inhalation, ingestion, skin and/or eye contact.	Irritation to skin, CNS depression, liver damage, kidney damage, lung damage.	Liver, kidney, and/or lung damage. Skin, liver, kidneys, lungs, CNS.
1,2-Dichloroethane	PEL TWA – 50 ppm C – 100 ppm TLV – 10 ppm	IDLH – 1,000 ppm	Colorless liquid with a pleasant, chloroform-like odor. Decomposes slowly, becomes acidic and darkens in color.	Inhalation, ingestion, skin absorption, skin and/or eye contact.	Irritation to eyes, corneal opacity, CNS depression, nausea, vomiting, dermatitis.	Liver, kidney, and/or CVS damage. Eyes, skin, kidneys, liver, CNS, CVS.
1,1-Dichloroethene (vinylidene chloride)	No PEL TLV – 5 ppm	NIOSH considers this compound to be a carcinogen.	Colorless liquid or gas (above 89°F) with a mild, sweet, chloroform-like odor.	Inhalation; skin absorption; ingestion; eye contact.	Irritation to eyes, skin, throat; dizziness; headache; nausea; dyspnea (breathing difficulty).	Liver, kidney dysfunction; pneumonitis; potential occupational liver and kidney carcinogen. **Target Organs:** Eyes, skin, respiratory system, CNS, liver, kidneys.
1,2-Dichloroethene (dichloroethylene)	PEL – TWA 200 ppm TLV – TWA 200 ppm	IDLH – 1,000 ppm	Solvent odor.	Inhalation; skin absorption; ingestion; eye contact.	Typical solvent symptoms.	Liver, kidney, CNS symptoms.

HEALTH-BASED AND MONITORING INFORMATION FOR POTENTIAL SITE CONTAMINANTS

Chemical (or Class)	OSHA PEL ACGIH TLV	Other Pertinent Limits	Properties	Routes of Exposure or Irritation	Acute Health Effects	Chronic Health Effects/ Target Organs
Methylene chloride	PEL – 25 ppm TLV – 50 ppm	NIOSH considers methylene chloride to be a carcinogen.	Colorless liquid with a chloroform-like odor.	Inhalation; dermal; ingestion; eye contact.	Irritation to eyes, skin; fatigue; weakness; somnolence (sleepiness, unnatural drowsiness); lightheadedness; numbness; tingling limbs; nausea.	Potential occupational carcinogen. **Target Organs:** Eyes, skin, CVS, CNS.
Tetrachloroethene (perchloroethylene)	PEL – 100 ppm TLV – 25 ppm	PEL C – 200 ppm TLV STEL – 100 ppm IDLH – 150 ppm NIOSH considers this compound to be a carcinogen.	Colorless liquid with a mild, chloroform-like odor.	Inhalation; skin absorption; ingestion; eye contact.	Irritation to eyes, skin, nose, throat, respiratory system; nausea; flushed face, neck; vertigo (an illusion of movement); dizziness; lack of coordination; headache; skin erythema (redness).	Somnolence (sleepiness, unnatural drowsiness); liver damage; potential occupational liver carcinogen. **Target Organs:** Eyes, skin, respiratory system, liver, kidneys, CNS.
1,1,1-Trichloroethane (methyl chloroform)	PEL – TWA 350 ppm TLV – 350 ppm STEL – 450 ppm	NIOSH C – 350 ppm	Colorless liquid with a mild, chloroform-like odor.	Inhalation; skin absorption; ingestion; eye contact.	Irritation to eyes, skin; headache; CNS depressant; poor equilibrium; lassitude (weakness, exhaustion); depression; dermatitis.	Cardiac arrhythmias; liver damage. **Target Organs:** Eyes, skin, CNS, CVS, liver.
1,1,2-Trichloroethane	PEL TWA – 10 ppm (45 mg/m^3) (skin) TLV – 10 ppm	NIOSH considers this compound to be a carcinogen. REL TWA – 10 ppm (45 mg/m^3) (skin)	Colorless liquid with a sweet, chloroform-like odor.	Inhalation; skin absorption; ingestion; eye contact.	Irritation to eyes, nose; CNS depressant; depression; dermatitis.	Liver, kidney damage; potential occupational liver carcinogen. **Target Organs**: Eyes, respiratory system, CNS, liver, kidneys.
Trichloroethene (trichloroethylene)	PEL – 100 ppm TLV – 50 ppm	PEL C – 200 ppm NIOSH considers trichloroethylene to be a carcinogen.	Colorless liquid (unless dyed blue) with a chloroform-like odor.	Inhalation; dermal; ingestion; eye contact.	Irritation to eyes, skin; headache; vertigo (an illusion of movement); visual disturbance; fatigue; giddiness; tremor; nausea; somnolence (sleepiness, unnatural drowsiness); vomiting; dermatitis.	Cardiac arrhythmias; paresthesia; liver injury; potential occupational carcinogen of liver, kidney.
Vinyl chloride	PEL – 1 ppm TLV – 1 ppm	NIOSH considers this material to be a carcinogen.	Liquid with a pleasant odor at high concentrations.	Inhalation; dermal; eye contact.	Weakness; abdominal pain; pallor or cyanosis of extremities; liquid frostbite.	Gastrointestinal bleeding; enlarged liver; potential occupational liver carcinogen; damage to CNS, blood, respiratory system, lymphatic system.

HEALTH-BASED AND MONITORING INFORMATION FOR POTENTIAL SITE CONTAMINANTS

Chemical (or Class)	OSHA PEL ACGIH TLV	Other Pertinent Limits	Properties	Routes of Exposure or Irritation	Acute Health Effects	Chronic Health Effects/ Target Organs
Other Organic Compounds						
Acetone	PEL – 1000 ppm TLV – 500 ppm	NIOSH REL – 250 ppm TLV STEL – 750 ppm IDLH – 2,500 ppm	Fragrant, mint-like odor.	Inhalation; dermal; ingestion; eye contact.	Irritation to eyes, nose, throat; headache; dizziness; dermatitis.	CNS depressant; depression; liver, kidney damage.
Benzo(a)pyrene equivalent	PEL – TWA 0.2 mg/m^3	N/A	Solid powder, dark-yellow, aromatic	Inhalation; ingestion; dermal; eye contact	Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing	Carcinogen
Bromoform	PEL – 0.5 ppm (5 mg/m^3) TLV – 0.5 ppm	IDLH – 850 ppm	Colorless to yellow liquid with a chloroform-like odor.	Inhalation, skin absorption, ingestion, skin and/or eye contact.	Irritation to eyes, skin, and respiratory system; CNS depression; liver and kidney damage.	Liver and/or kidney damage. Eyes, skin, respiratory system, CNS, liver, and kidneys.
2-Butanone (methyl ethyl ketone)	PEL – 200 ppm TLV – 200 ppm	NIOSH REL – 200 ppm REL STEL – 300 ppm TLV STEL – 300 ppm	Colorless liquid with a moderately sharp, fragrant, mint- or acetone-like odor.	Inhalation; dermal; ingestion; eye contact.	Irritation to eyes, skin, nose; headache; dizziness; vomiting; dermatitis.	Eyes; skin; respiratory system; CNS.
Carbon disulfide	PEL – 20 ppm TLV – 10 ppm	PEL C – 30 ppm	Colorless to faint yellow liquid with a sweet ether-like odor.	Inhalation; dermal; ingestion; eye contact.	Dizziness; headache; poor sleep; fatigue; nervousness; eye, skin burns; dermatitis.	Anorexia; weight loss; ocular changes; psychosis; polyneuropathy; Parkinson-like syndrome; coronary heart disease; gastritis; kidney, liver injury; reproductive effects.
Dioxins and Furans	**OSHA and other health monitoring organizations have not established health-based action levels.** 2,3,7,8-tetrachloro-p-dibenzo-dioxin (2,3,7,8 TCDD) is considered the most toxic of the dioxins and furans group of compounds and is the indicator compound.		Colorless to white crystalline solid.	Inhalation; dermal; ingestion; eye contact.	Irritation eyes; allergic dermatitis, chloracne; porphyria; gastrointestinal disturbance.	Possible reproductive or teratogenic effects.

HEALTH-BASED AND MONITORING INFORMATION FOR POTENTIAL SITE CONTAMINANTS

Chemical (or Class)	OSHA PEL ACGIH TLV	Other Pertinent Limits	Properties	Routes of Exposure or Irritation	Acute Health Effects	Chronic Health Effects/ Target Organs
2-Hexanone (methyl n-butyl ketone)	PEL – 100 ppm TLV – 5 ppm	TLV STEL – 10 ppm NIOSH REL – 1 ppm IDLH – 1,600 ppm	Colorless liquid with an acetone-like odor.	Inhalation; dermal; ingestion; eye contact.	Irritation to eyes, nose; dermatitis; headache; drowsiness.	Damages to eyes, skin, respiratory system, CNS, peripheral nervous system (peripheral neuropathy: weakness, paresthesia).
Methane	None	Explosive limits: LEL: 5% by volume UEL: 15% by volume	Flammable gas that may displace oxygen	Risk of explosion or asphyxiation	Mood changes, slurred speech, vision problems, memory loss, nausea, vomiting, facial flushing and headache	None identified
Pentachlorophenol (PCP)	PEL – 0.5 mg/m^3	NIOSH REL – 0.5 mg/m^3 IDLH – 2.5 mg/m^3	Colorless to white crystalline solid with a benzene-like odor.	Inhalation; skin absorption; ingestion; skin, eye contact.	Irritation to eyes, nose, throat; sneezing; cough; lassitude (weakness, exhaustion); anorexia; weight loss; sweating; headache; dizziness; nausea; vomiting; dyspnea (breathing difficulty); chest pain; high fever; dermatitis.	Eyes; skin; respiratory system; CNS; CVS; liver; kidneys.
Per- and polyfluoroalkyl substances (PFAS)	**OSHA and other health monitoring organizations have not established health-based action levels.** Perfluorooctanoic acid (PFOA), perfluorooctanesulfonic acid (PFOS), perfluorobutanesulfonic acid (PFBS), and hexafluoropropylene oxide dimer acid hexafluoropropylene oxide (HFPO) are indicator compounds for the PFAS group of compounds.		Found in various forms.	Inhalation; dermal; eye; ingestion.	Irritation to eyes, skin, respiratory tract.	Possible carcinogen.
Polychlorinated biphenyls (PCBs)	PEL 0.5 – 1 mg/m^3 TLV 0.5 – 1 mg/m^3, depending on the species	NIOSH REL – 0.001 mg/m^3 NIOSH considers this material to be a carcinogen. IDLH – 5 mg/m^3	Pale or dark yellow odorless liquid.	Inhalation; dermal; ingestion. Skin absorption is a significant mode of exposure.	Irritation to eyes, skin, respiratory tract; chloroacne.	May cause reproductive, CNS, CVS, skin, eye, liver effects; cancer (leukemia).
Styrene	PEL – 100 ppm TLV – 20 ppm	PEL C – 200 ppm TLV STEL – 40 ppm NIOSH REL – 50 ppm	Colorless to yellow oily liquid with a sweet, floral odor.	Inhalation; dermal; ingestion; eye contact.	Irritation to eyes, nose, respiratory system; headache; fatigue; dizziness; confusion; malaise (vague feeling of discomfort); drowsiness; weakness; unsteady gait; narcosis.	Defatting dermatitis; possible liver injury; reproductive effects.

HEALTH-BASED AND MONITORING INFORMATION FOR POTENTIAL SITE CONTAMINANTS

Chemical (or Class)	OSHA PEL ACGIH TLV	Other Pertinent Limits	Properties	Routes of Exposure or Irritation	Acute Health Effects	Chronic Health Effects/ Target Organs
2,4,6-Trinitrotoluene (TNT)	PEL 1.5 mg/m^3 TWA		Colorless to pale yellow, odorless solid or crushed flakes.	Inhalation, skin absorption, ingestion, skin and/or eye contact.	Irritation to skin and mucous membranes; liver damage/jaundice; cyanosis; sneezing; cough and/or sore throat; peripheral neuropathy; muscle pain; kidney damage; cataract; sensitization dermatitis; leukocytosis (increased blood leukocytes); anemia; cardiac irregularities.	Eyes, skin, respiratory system, blood, liver, cardiovascular system, CNS, kidneys.
Pesticides and Herbicides						
Dieldrin	PEL – 0.25 mg/m^3 TWA – 0.25 mg/m^3	IDLH – 50 mg/m^3	Insecticide, colorless to light tan crystals with a mild, chemical odor.	Inhalation, skin absorption, ingestion, skin and eye contact.	Headache, dizziness; nausea, vomiting, malaise (vague feeling of discomfort), sweating; myoclonic limb jerks; clonic-tonic convulsions; coma.	CNS, liver, kidneys, skin.

Metals and Other Inorganic Materials						
Arsenic	PEL – 0.010 mg/m^3	NIOSH REL – CA C 0.002 mg/m^3 [15-minutes]	Metal: Silver-gray or tin-white, brittle, odorless solid.	Inhalation; skin absorption; skin and/or eye contact; ingestion.	Ulceration of nasal septum; peripheral neuropathy; gastrointestinal disturbances; dermatitis; respiratory irritation; hyperpigmentation of skin (potential occupational carcinogen).	Lung and lymphatic cancer; liver; kidneys; skin; lungs; lymphatic system.
Asbestos	Per Part 1910.1001 of Title 29 of the Code of Federal Regulations and NIOSH: PEL and REL – 0.1 fiber per cubic centimeter of air (0.1 fiber/cm^3)	OSHA considers asbestos to be a carcinogen.	White or greenish (chrysotile), blue (crocidolite), or gray-green (amosite) fibrous, odorless solids.	Inhalation; ingestion; skin, eye contact.	Eye irritation; breathing difficulty; gastrointestinal issues.	Eye irritation; asbestosis; mesothelioma; lung cancer; dyspnea; cancer of the gastrointestinal tract. **Target Organs**: Respiratory system, eyes.

HEALTH-BASED AND MONITORING INFORMATION FOR POTENTIAL SITE CONTAMINANTS

Beryllium	PEL – 0.0002 mg/m^3 STEL – 0.002 mg/m^3 TLV – 0.002 mg/m^3	IDLH – 4 mg/m^3	Metal – hard, brittle, gray-white solid.	Inhalation, skin and/or eye contact.	Irritation to eyes, dermatitis.	Cancerous – lung. Berylliosis: anorexia, weight loss, lassitude, chest pain, cough, clubbing of fingers, cyanosis, pulmonary insufficiency. Eyes, skin, respiratory system.
Barium	PEL – 0.5 mg/m^3 TLV – 0.5 mg/m^3	IDLH – 50 mg/m^3	White, colorless solid.	Inhalation, ingestion, skin and/or eye contact.	Irritation to eyes, skin, upper respiratory system; skin burns; gastroenteritis; muscle spasms.	Slow pulse, extrasystoles, hypokalemia. Eyes, skin, respiratory system, heart, CNS.
Cadmium	PEL – 0.005 mg/m^3		Odorless, yellow-brown, finely divided particulate dispersed in air.	Inhalation.	Pulmonary edema; dyspnea (breathing difficulty); cough; chest tightness; substernal (occurring beneath the sternum) pain; headache; chills; muscle aches; nausea; vomiting; diarrhea; emphysema; proteinuria; anosmia (loss of the sense of smell); mild anemia; potential occupational carcinogen.	Prostate and lung cancer; respiratory system; kidneys; blood.
Chromium	PEL – 1 mg/m^3 TLV – 0.5 mg/m^3	IDLH – 250 mg/m^3	Blue-white to steel-gray, lustrous, brittle, hard, odorless solid.	Inhalation, ingestion, skin and/or eye contact.	Irritation to eyes and skin.	Lung fibrosis. Eyes, skin, respiratory system.
Cobalt	PEL – 0.1 mg/m^3 TLV – 0.05 mg/m^3	IDLH – 20 mg/m^3	Odorless, silver-gray to black solid.	Inhalation, ingestion, skin and/or eye contact.	Cough, dyspnea, wheezing, decreased pulmonary function, weight loss, dermatitis.	Diffuse nodular fibrosis, respiratory hypersensitivity, asthma. Skin, respiratory system.
Copper	PEL – 1 mg/m^3 TLV – 1 mg/m^3	IDLH – 100 mg/m^3	Reddish, lustrous, malleable, odorless solid.	Inhalation, ingestion, skin and/or eye contact.	Irritation to eyes, nose, and pharynx, nasal septum perforation; metallic taste; dermatitis.	Lung, liver, and/or kidney damage; anemia. Eyes, skin, respiratory system, liver, kidneys.

HEALTH-BASED AND MONITORING INFORMATION FOR POTENTIAL SITE CONTAMINANTS

Cyanide (as CN)	PEL – 5 mg/m3	NIOSH REL – 5 mg/m3	Usually joined with other chemicals, ranging from colorless gas to a white solid. Faint to bitter almond-like odor.	Inhalation; dermal; ingestion; eye contact.	Headache, lightheadedness, dizziness, nausea, vomiting, agitation, drowsiness, and irritation of the eyes, nose, throat, and respiratory tract, and rapid breathing with a sense of suffocation.	Nose bleeds and sores; thyroid function
Lead	PEL – 0.05 mg/m^3 TLV – 0.05 mg/m^3	IDLH – 100 mg/m^3	A heavy, flexible, soft, gray solid.	Inhalation; dermal; ingestion; eye contact.	Lassitude (weakness, exhaustion); abdominal pain; gingival lead line; tremor; irritation to eyes; hypotension.	Insomnia; facial pallor; anorexia; weight loss; malnutrition; constipation; colic; anemia; paralysis of wrist, ankles; kidney disease; encephalopathy; potential for damage to eyes, gastrointestinal tract, CNS, kidneys, blood, gingival tissue.
Mercury	PEL – 0.1 mg/m^3	NIOSH REL – Mercury vapor: TWA – 0.05 mg/m^3 [skin] Other: C – 0.1 mg/m^3 [skin]	Metal: Silver-white, heavy, odorless liquid. “Other” mercury compounds include all inorganic and aryl mercury compounds except (organo) alkyls.	Inhalation; skin absorption; ingestion; skin and/or eye contact.	Irritation to eyes, skin; cough; chest pain; dyspnea (breathing difficulty); bronchitis; pneumonitis; tremor; lassitude (weakness, exhaustion); insomnia; irritability; indecision; headache; stomatitis; salivation; gastrointestinal disturbance; anorexia; weight loss; proteinuria.	Eyes; skin; respiratory system; CNS; kidneys.
Nickel	PEL – 1 mg/m^3 TLV – 1 mg/m^3	IDLH – 10 mg/m^3	Metal: lustrous, silvery, odorless solid.	Inhalation, ingestion, skin and/or eye contact.	Sensitization dermatitis, allergic asthma.	Cancerous – Lung and nasal. Pneumonitis. Nasal cavities, lungs, skin.
Selenium	PEL – 0.2 mg/m^3 TLV – 0.2 mg/m^3	IDLH – 1 mg/m^3	Amorphous or crystalline, red to gray solid.	Inhalation, ingestion, skin and/or eye contact.	Irritation to eyes, skin, nose, throat; visual disturbance; headache; shills, fever; dyspnea, bronchitis; metallic taste, garlic breath, gastrointestinal disturbance; dermatitis; eye and skin burns.	Anemia, liver necrosis, cirrhosis, kidney and/or spleen damage. Eyes, skin, respiratory system, liver, kidneys, blood, spleen.

HEALTH-BASED AND MONITORING INFORMATION FOR POTENTIAL SITE CONTAMINANTS

Vanadium	C – 0.5 mg/m^3 TLV – 0.05 mg.m^3	IDLH – 35 mg/m^3	Yellow-orange powder.	Inhalation, ingestion, skin and/or eye contact.	Irritation to eyes, skin, throat; green tongue; metallic taste; eczema; cough; wheezing; fine rales.	Bronchitis, dyspnea. Eyes, skin, respiratory system.

ATTACHMENT 5

Air Monitoring Log
Calibration/Check Log – Air Monitoring Equipment

AIR MONITORING LOG

Date	Time	Location	Source/Area/ Breathing Zone	Instrument	Concentration/Units	Sampled by

CALIBRATION/CHECK LOG – AIR MONITORING EQUIPMENT

Date	Instrument/ Model No.	Serial No.	Battery Check OK?	Zero Adjust OK?	Calibration Gas (ppm)	Reading (ppm)	Leak Check	Performed By	Comments

ATTACHMENT 6

Incident Report Form

FARALLON
CONSULTING

Washington
Issaquah | Bellingham | Seattle

Oregon
Portland | Baker City

California
Oakland | Irvine

INCIDENT REPORT FORM INSTRUCTIONS

The following process should be followed to submit an Incident Report Form to the Health and Safety Committee at Farallon Consulting, L.L.C.

1. Enter information into the form in Microsoft Word and save the draft document into the project folder under P:/Project/Field_Lab/Safety.

2. Email a link for the completed draft Incident Report Form to safety@farallonconsulting.com. The Corporate Health and Safety Coordinator (HSC) will review the form and provide comments or questions back to you.

3. Address any comments or questions and either resubmit to the HSC for additional review, if requested, or provide the HSC with the final signed and dated copy of the completed Incident Report Form. Attach photos on a separate document.

4. The HSC will route the completed Incident Report Form through the injured employee's Group Manager and the applicable Regional Operations Manager for signature.

FARALLON CONSULTING

Washington
Issaquah | Bellingham | Seattle

Oregon
Portland | Baker City

California
Oakland | Irvine

INCIDENT REPORT FORM

This report must be completed promptly after the incident. Within 24 hours of the incident, the completed report must be reviewed and signed by the employee's Group Manager and submitted to safety@farallonconsulting.com. This should occur even if the employee is not available to review and sign.

Document the incident with photographs if possible (place in separate document). For environmental releases, discuss possible regulatory spill reporting with the Project Principal.

If there is an injury or fatality, immediately call your Health and Safety Coordinator.

INCIDENT REPORT INFORMATION

Date of incident, injury, or onset of illness: Click or tap to enter a date.	Time of incident, injury, or onset of illness: ☐ AM ☐ PM
Date Farallon notified of incident: Click or tap to enter a date.	Time Farallon notified: ☐ AM ☐ PM
Date of this report: Click or tap to enter a date.	Project Number (if applicable):
Farallon employee reporting incident:	To whom reported at Farallon?

WHO WAS INVOLVED IN INCIDENT (list names and note company if not Farallon employee)

Farallon Employee(s)	☐ None	
Non-Farallon Employee(s)	☐ None	

INCIDENT DESCRIPTION

Location of Incident	Address (street, city, state)	
	Location on property (building, floor, GPS coordinates, etc.)	
	Other description information	

Provide detailed description of incident. Include specific activities during incident (lifting, pushing, walking, etc.)	
Describe the equipment, materials, or chemicals that directly caused the incident or injury	
Describe actions taken/to be taken to avoid future incidents from same cause	

INJURY OR ILLNESS INFORMATION ☐ No Injury or Illness

Describe the specific injury or illness (e.g., puncture, cut, contusion, strain, fracture, skin rash, etc.):

Body part(s) affected (e.g., back, left wrist, right eye, etc.):

If seen by Health Care Provider, please provide:	Name: Address: Phone No.:

Treated in Emergency Room: ☐ Yes ☐ No	Hospitalized Overnight as Inpatient: ☐ Yes ☐ No

MOTOR VEHICLE ACCIDENT (MVA) Please provide photos ☐ Not a Motor Vehicle Accident

INCIDENT REPORT FORM

If the incident involved two or more vehicles (at least one moving), including parking lot collisions, please also complete the Farallon Motor Vehicle Accident Report found in G:\Forms and Templates\Health and Safety\Forms Logs Checklist.

PROPERTY DAMAGE/THEFT (Including utilities) ☐ No Damage/Theft (Please provide photos. Do not use this section for incidents involving moving vehicle(s).

Owner Name of Damaged/Stolen Property	
Owner address (if not incident location)	
Phone No. / Email address	

Description of Damage or Stolen Property:

Property Owner Insurance information:

Was (or will) a police report be filed? ☐ Yes ☐ No

Witness Name:	Address:	Phone No.:
Witness Name:	Address:	Phone No.:

SIGNATURES OF EMPLOYEE AND REVIEWERS

FARALLON PERSONNEL ROLES	NAME (PRINT)	SIGNATURE	TITLE	DATE
Employee				
Project Manager				

HEALTH AND SAFETY FINDINGS AND RECOMMENDED ACTIONS

	NAME (PRINT)	SIGNATURE	TITLE	DATE
Corporate Health and Safety Officer				

Distribution List: Group Manager of Farallon employee(s) involved in incident
Regional Operations Manager

ATTACHMENT 7

Near Miss Report Form

NEAR MISS AND SAFETY OBSERVATION REPORT INSTRUCTIONS

The following process should be followed to submit a Near Miss and Safety Observation Report to the Health and Safety Committee at Farallon Consulting, L.L.C.

5. Enter information into the form in Microsoft Word and save the draft document into the project folder under P:/Project/Field_Lab/Safety.

6. Email a link for the completed draft Near Miss and Safety Observation Report to safety@farallonconsulting.com. The Corporate Health and Safety Coordinator (HSC) will review the form and provide comments or questions back to you.

7. Address any comments or questions and either resubmit to the HSC for additional review, if requested, or provide the HSC with the final signed and dated copy of the completed Near Miss and Safety Observation Report.

FARALLON
CONSULTING

Washington
Issaquah | Bellingham | Seattle
Oregon
Portland | Baker City
California
Oakland | Irvine

NEAR MISS REPORT

Employees involved in or witnessing a near miss or making a safety observation should complete this form. These are important indicators of potentially harmful future accidents, and they can provide valuable insights to preventing personal injury and/or property damage on future projects. Please submit the form to safety@farallonconsulting.com

- A near miss is an occurrence that did not result in any personal injury, property damage, environmental release, or production interruption, but could have under slightly different circumstances.
- A safety observation is witnessing any activity that places a person or property at risk of injury, accident, or damage but may not fit the definition of a near miss. For the purposes of this report, a safety observation is considered a near miss.

PROJECT INFORMATION

Farallon PN:	Project Name:
Site Address:	City/State:

NEAR MISS INFORMATION

Date of near miss: Click or tap to enter a date.	Time of near miss: ☐AM ☐ PM
Near Miss Category: Choose an item.	
Employee or Non-Employees Involved in Near Miss:	
Exact Location Onsite where Incident Occurred:	

Description of Near Miss	
Corrective Action Taken	
Lessons Learned	

To whom did employee first report the near miss?		Date reported:	Click or tap to enter a date.
		Time reported:	☐ AM ☐ PM

SIGNATURES

FARALLON PERSONNEL ROLES	NAME AND TITLE	SIGNATURE	DATE
Farallon employee completing form			
Corporate Health and Safety Coordinator			

ATTACHMENT 8

Traffic Control Plan

TABLE XI-1

CLASS OF ROAD	WARNING SIGN SPACING IN FEET			TAPER LENGTH (L) IN FEET		CHANNELIZING DEVICE SPACING IN FEET (maximum)				WARNING SIGN MIN. SIZE IN INCHES
				Lane Width		VEHICLE BARRICADES & DRUMS		OTHER**		
	A	B	C	10’	12’	Taper (S)	Tangent	Taper (S)	Tangent	
I	*			75	90	Speed limit	Speed limit X 2	15	30	30X30
II	150	150	75	150	200	Speed limit	Speed limit X 2	20	50	30X30
III	350	350	350	450	540	Speed limit	Speed limit X 2	30	80	48X48

CLASS I – Central Business District, University District
CLASS II – Arterial Streets
CLASS III – All partially or full controlled access arterial streets

* Advance warning sign spacing depends on availability of curb space

REQUIRED CHECKLIST:

1. Pedestrians will cross to the opposite side of Westlake Ave NN to bypass the work area for safety
2. No vehicle access issues
3. Traffic control shall be removed during non-working hours
4. No business access issues
5. Parking lane not present
6. Bicycle lane unaffected
7. METRO route unaffected
8. No visibility restrictions
9. No signals affected or other street work located in vicinity
10. WORK TIMES 8am-5pm

NOTIFY SDOT TRAFFIC SIGNALS GROUP
10 BUSINESS DAYS PRIOR TO WORK
206-391-3714

SDOT HUB COORDINATION REQUIRED (10 BUSINESS DAYS PRIOR)
*SCHEDULE TO BE DETERMINED BY THE SDOT HUB COORDINATOR.
SDOTCONSTRUCTIONHUB@SEATTLE.GOV

(*) REQUIREMENTS
*SIGNS, DEVICES AND SPACING SHALL CONFORM TO THE SEATTLE TCM/MUTCD. SIGNS SHALL NOT BE PLACED IN A WAY THAT WILL PARTIALLY OR TOTALLY BLOCK ACTIVE TRAVEL LANES, BIKE LANES OR SIDEWALKS.
*NOTIFY SDOT TOC WHEN SETTING UP AND REMOVING ARTERIAL TRAVEL LANE IMPACTS 206-684-5117.
*PRIORITY ACCESS SHALL BE PROVIDED TO EMERGENCY VEHICLES.
*COORDINATE/FACILITATE DRIVEWAY/LOAD ZONE ACCESS (10 DAYS IN ADVANCE)
*MAINTAIN 11’ MINIMUM TRAVEL LANES WIDTHS.
*MAINTAIN 4’ SIDEWALK WIDTHS (8’ IN DOWNTOWN CORE) UNLESS OTHERWISE APPROVED VIA THIS TCP. A SIDEWALK IS CLOSED WHEN A MINIMUM OF 4’ CANNOT BE MAINTAINED. PEDESTRIANS SHALL NOT BE ROUTED WITHIN 18” OF CURB FACE/VEHICLE LANE EDGE.
*REFER TO THE SEATTLE MANUAL FOR IN-STREET WORK PG. 47 SECTION VI AND SDOT DIRECTORS RULE 10-2015 FOR PEDESTRIAN REQUIREMENTS. FOR MORE INFORMATION VISIT:
http:/seattle.gov/transportation/document-library/directors-rules-and-ordinances
*RESERVE CURB SPACE INCLUDING PAID PARKING W/ SDOT TRAFFIC PERMITS @ 206-654-5086 https://seattlegov.zendesk.com/hc/en-us
*NOTIFY METRO OF BUS ROUTE/STOP IMPACTS. (METRO TROLLEY COACHES SHALL NOT SHIFT MORE THAN 9’ OFF-CENTER OF LINES.
TROLLEY 206-477-1150 (15 DAYS) NON-TROLLEY 206-477-1140 (5 DAYS)

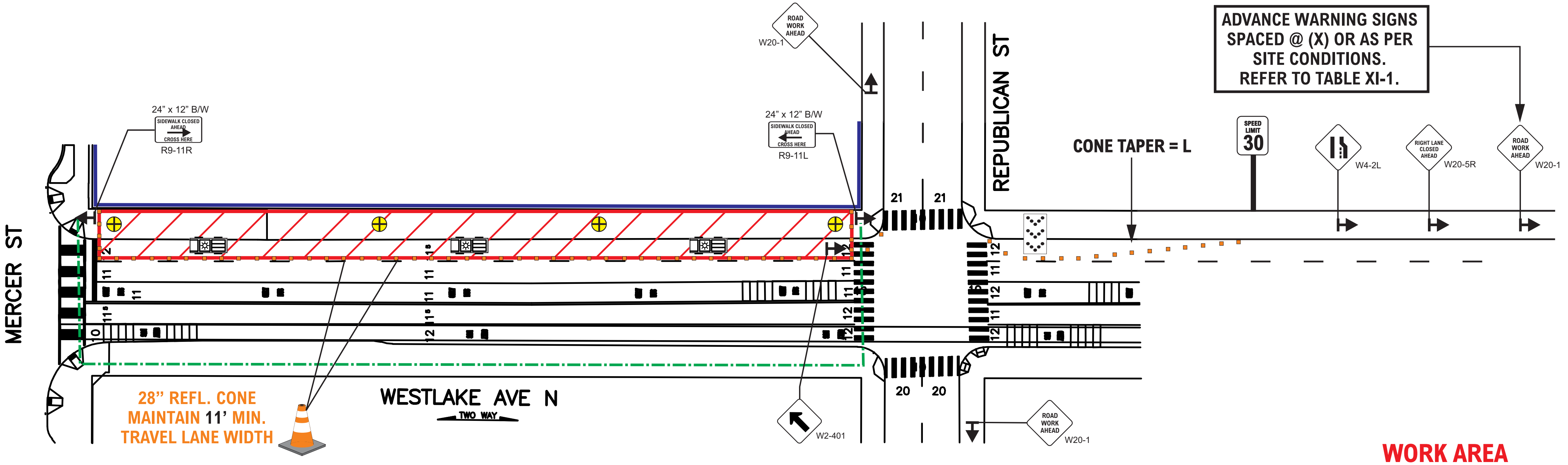
Typical Sidewalk/Right Lane Closure

- ○ Right Lane on N/B Westlake Ave N closed in advance of Republican St.
- ○ Closure continues through the intersection & terminates @ Mercer St. Sidewalk on the east side of Westlake Ave N closed between Mercer & Republican St.
- ○ Pedestrian detour route provided.
- ○ REASON: To install monitoring wells in the (ROW) sidewalk. (Ground Disturbance Required)

TRAFFIC CONTROL PLAN
SEATTLE, WA

NOT TO SCALE

SDOT PERMIT#__________



ADVANCE WARNING SIGNS SPACED @ (X) OR AS PER SITE CONDITIONS. REFER TO TABLE XI-1.

WORK AREA DIMENSIONS
26’ X 400’

ADDL. NOTES:

- * Work Area Dimension Clarification:
  - Sidewalk 14’ wide
  - Closed Lane 12’ wide
  - Length of work area 400’
- * Traffic Control Measures :
  Please refer to provided chart

ADVANCE WARNING SIGNS SPACED @ (X) OR AS PER SITE CONDITIONS. REFER TO TABLE XI-1.

LEGEND

▨	WORK AREA
▭	CONSTRUCTION SITE
-·-·-	TEMP. PED. DETOUR
▣	PROTECTIVE/WORK VEHICLE
⁘	SEQUENTIAL ARROWBOARD
■ ■ ■ ■ ■	28” REFL. CONE
◂	SIGN LOCATION
⊕	WELL LOCATION

WASHINGTON STATE TRAFFIC CONTROL
SUPERVISOR
ROAD WORK AHEAD
NAME: Greg Siler
TCS CARD # 012604
EXP. DATE 10/31/2024
Greg Siler

FARALLON CONSULTING

CONTRACTOR Farallon Consulting		
SUPERVISOR Greg Peters		WO #
PHONE NUMBER (office) 425-677-9521		PROJECT LOCATION Seattle, WA
PHONE NUMBER (fax)	SHEET NUMBER 4	DATE 10/26/21
PREPARED BY Greg Siler	PHONE# 253-350-2139	Traffic Control Plan Co. of WA
E-MAIL greg@trafficcontrolplan.net		

TABLE XI-1

CLASS OF ROAD	WARNING SIGN SPACING IN FEET			TAPER LENGTH (L) IN FEET		CHANNELIZING DEVICE SPACING IN FEET (maximum)				WARNING SIGN MIN. SIZE IN INCHES
				Lane Width		VEHICLE BARRICADES & DRUMS		OTHER**		
	A	B	C	10’	12’	Taper (S)	Tangent	Taper (S)	Tangent	
I	*			75	90	Speed limit	Speed limit X 2	15	30	30X30
II	150	150	75	150	200	Speed limit	Speed limit X 2	20	50	30X30
III	350	350	350	450	540	Speed limit	Speed limit X 2	30	80	48X48

CLASS I – Central Business District, University District
CLASS II – Arterial Streets
CLASS III – All partially or full controlled access arterial streets

* Advance warning sign spacing depends on availability of curb space

T - 39

DISPLAYED 72 HRS IN ADVANCE OF CLOSURE

T-39

REQUIRED

T-39 NO PARK VERIFICATION REQUIRED TO IMPLEMENT THIS PLAN. GO TO http:\\web1.seattle.gov\sdot\nopark\

RESERVE CURB SPACE WITH TRAFFIC PERMITS 206-684-5086

Typical Sidewalk/Road Closure

- W/B Republican St closed between Terry Ave N & Westlake Ave N. (see Insert for Detour Details)
- E/B traffic unaffected.
- Parking Lane & Sidewalk on the north side of Republican St closed between Westlake Ave N & Terry Ave N .
- Pedestrian detour route provided.

- REASON: To install monitoring wells in the (ROW) sidewalk. (Ground Disturbance Required)

TRAFFIC CONTROL PLAN
SEATTLE, WA

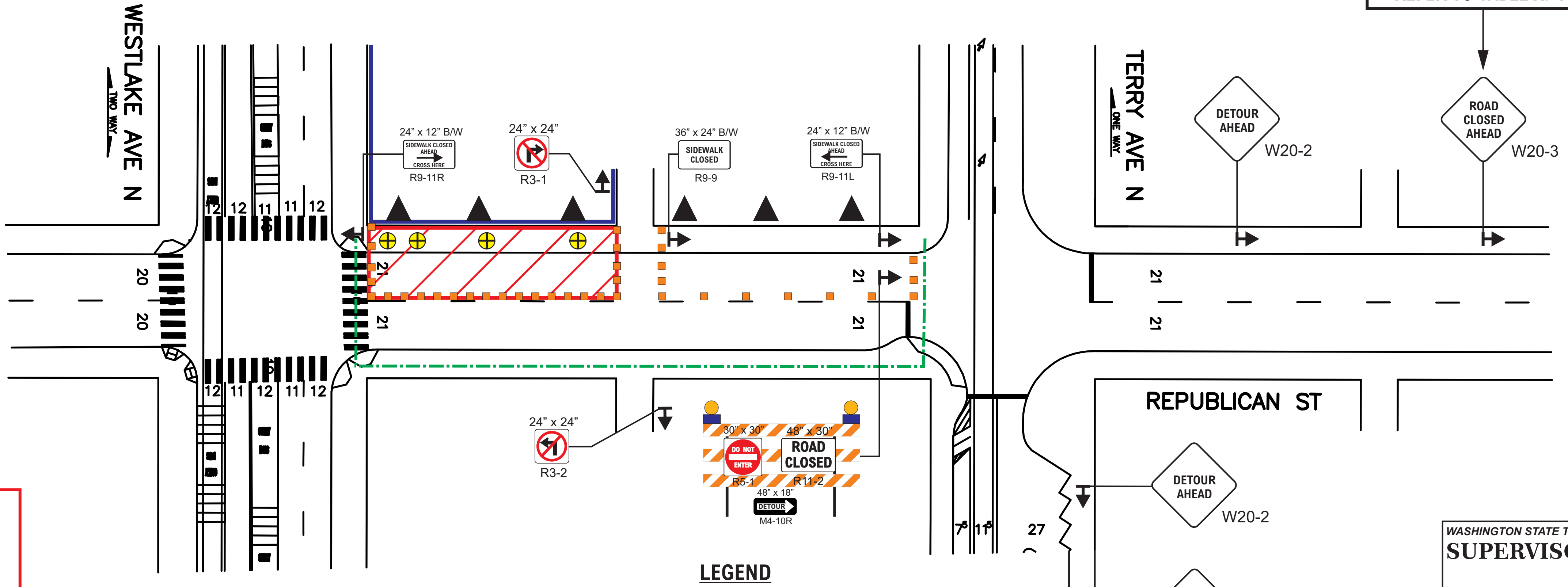
N
W E
S
NOT TO SCALE

SDOT PERMIT#____________

REQUIRED CHECKLIST:

1. Pedestrians will cross to the opposite side of Republican St to bypass the work area for safety
2. No vehicle access issues
3. Traffic control shall be removed during non-working hours
4. No business access issues
5. Parking lane on north side of Republican St closed between Terry Ave N & Westlake Ave N
6. Bicycle lane not present
7. METRO route not present
8. No visibility restrictions
9. No signals affected or other street work located in vicinity
10. WORK TIMES 8am-5pm

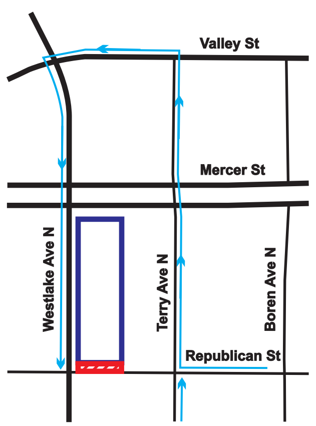
ADVANCE WARNING SIGNS SPACED @ (X) OR AS PER SITE CONDITIONS. REFER TO TABLE XI-1.



SDOT HUB COORDINATION REQUIRED (10 BUSINESS DAYS PRIOR)
*SCHEDULE TO BE DETERMINED BY THE SDOT HUB COORDINATOR.
SDOTCONSTRUCTIONHUB@SEATTLE.GOV

(*) REQUIREMENTS
*SIGNS, DEVICES AND SPACING SHALL CONFORM TO THE SEATTLE TCM/MUTCD. SIGNS SHALL NOT BE PLACED IN A WAY THAT WILL PARTIALLY OR TOTALLY BLOCK ACTIVE TRAVEL LANES, BIKE LANES OR SIDEWALKS.
*NOTIFY SDOT TOC WHEN SETTING UP AND REMOVING ARTERIAL TRAVEL LANE IMPACTS 206-684-5117.
*PRIORITY ACCESS SHALL BE PROVIDED TO EMERGENCY VEHICLES.
*COORDINATE/FACILITATE DRIVEWAY/LOAD ZONE ACCESS (10 DAYS IN ADVANCE)
*MAINTAIN 11’ MINIMUM TRAVEL LANES WIDTHS.
*MAINTAIN 4’ SIDEWALK WIDTHS (8’ IN DOWNTOWN CORE) UNLESS OTHERWISE APPROVED VIA THIS TCP. A SIDEWALK IS CLOSED WHEN A MINIMUM OF 4’ CANNOT BE MAINTAINED. PEDESTRIANS SHALL NOT BE ROUTED WITHIN 18” OF CURB FACE/VEHICLE LANE EDGE.
*REFER TO THE SEATTLE MANUAL FOR IN-STREET WORK PG. 47 SECTION VI AND SDOT DIRECTORS RULE 10-2015 FOR PEDESTRIAN REQUIREMENTS. FOR MORE INFORMATION VISIT:
http:/seattle.gov/transportation/document-library/directors-rules-and-ordinances
*RESERVE CURB SPACE INCLUDING PAID PARKING W/ SDOT TRAFFIC PERMITS @ 206-654-5086 https://seattlegov.zendesk.com/hc/en-us
*NOTIFY METRO OF BUS ROUTE/STOP IMPACTS. (METRO TROLLEY COACHES SHALL NOT SHIFT MORE THAN 9’ OFF-CENTER OF LINES.
TROLLEY 206-477-1150 (15 DAYS) NON-TROLLEY 206-477-1140 (5 DAYS)

W/B DETOUR ROUTE



LEGEND

▨	WORK AREA
▭	CONSTRUCTION SITE
-·-·-	TEMP. PED. DETOUR
▪ ▪ ▪ ▪ ▪	28” REFL. CONE
🚚	PROTECTIVE/WORK VEHICLE
⇤	SIGN LOCATION
▲	NO PARK BARRICADE
⊕	WELL LOCATION

WORK AREA DIMENSIONS
31 ’ X 104’

WASHINGTON STATE TRAFFIC CONTROL
SUPERVISOR
ROAD WORK AHEAD
NAME: Greg Siler
TCS CARD # 012604
EXP. DATE 10/31/2024
Greg Siler

FARALLON CONSULTING

CONTRACTOR Farallon Consulting
SUPERVISOR Greg Peters
WO #
PHONE NUMBER (office) 425-677-9521
PROJECT LOCATION Seattle, WA
PHONE NUMBER (fax)
SHEET NUMBER 3
DATE 10/26/21
PREPARED BY Greg Siler
PHONE# 253-350-2139
E-MAIL greg@trafficcontrolplan.net

Traffic Control Plan Co. of WA