DEPARTMENT OF ECOLOGY
State of Washington

Public Review Draft Cleanup Action Plan

Seattle DOT Dexter Parcel Site
Seattle, WA

Facility Site ID: 81735
Cleanup Site ID: 14785

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Publication and Contact Information

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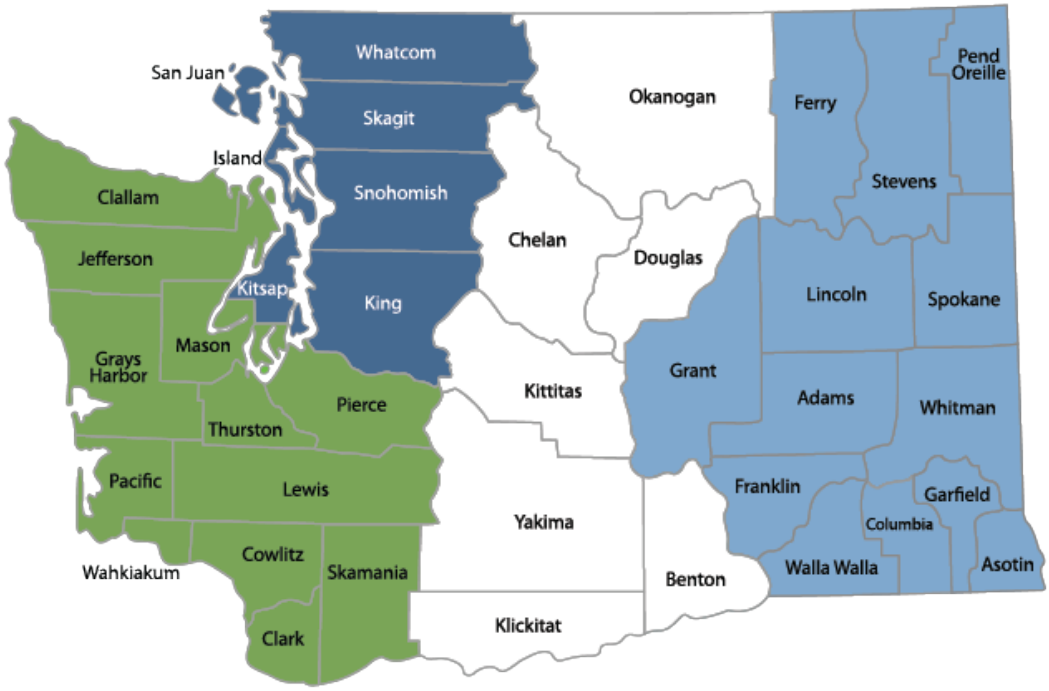

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Seattle DOT Dexter Parcel Site
Seattle, WA

Facility Site ID: 81735
Cleanup Site ID: 14785

Toxics Cleanup Program

Washington State Department of Ecology

Northwest Regional Office

Shoreline, Washington

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List of Acronyms and Abbreviations

Acronym/ Abbreviation	Definition
µg/L	Microgram per liter
µg/m^3	Microgram per cubic meter
ARAR	Applicable or Relevant and Appropriate Requirements
bgs	Below ground surface
CAO	Cleanup action objective
CAP	Cleanup Action Plan
CFR	Code of Federal Regulations
CLARC	Cleanup Levels and Risk Calculation
COC	Constituent of Concern
COPC	Constituent of Potential Concern
cPAH	Carcinogenic Polycyclic Aromatic Hydrocarbon
CSO	Combined sewer overflow
CSWGP	Construction Stormwater General Permit
CUL	Cleanup level
CWA	Clean Water Act
DCA	Disproportionate Cost Analysis
DDA	Disposition and Development Agreement
DOSH	Division of Occupational Safety and Health
DRO	Diesel-range petroleum hydrocarbons
EDR	Engineering Design Report
EPA	U.S. Environmental Protection Agency
FS	Feasibility Study
GAC	Granular Activated Carbon
GCMP	Groundwater Compliance Monitoring Plan
GRO	Gasoline-range petroleum hydrocarbons
ISEB	In situ enhanced bioremediation
KCC	King County Code
KCIW	King County Industrial Waste
MCL	Maximum contaminant level
mg/kg	Milligrams per kilogram
MTCA	Model Toxics Control Act
NAVD88	North American Vertical Datum of 1988

Acronym/ Abbreviation	Definition
NPDES	National Pollutant Discharge Elimination System
O&M Plan	Operation and Maintenance Plan
ORC-A	Oxygen Release Compound Advanced
OSHA	Occupational Safety and Health Act
PAH	Polycyclic Aromatic Hydrocarbon
Phase II	Phase II Environmental Site Assessment
POC	Point of compliance
PPCD	Prospective Purchaser Consent Decree
PPE	Personal protective equipment
PRDI	Pre-Remedial Design Investigation
RCRA	Resource Conservation and Recovery Act
RCW	Revised Code of Washington
RI	Remedial Investigation
ROW	Right of way
SAP/QAPP	Sampling and Analysis Plan/Quality Assurance Project Plan
SEPA	State Environmental Policy Act
SLP	SLP 615 Dexter LLC
SMC	Seattle Municipal Code
TPH	Total Petroleum Hydrocarbons
U.S.	United States
USC	United States Code
UST	Underground Storage Tank
WAC	Washington Administrative Code
WISHA	Washington Industrial Safety and Health Act

1.0 Introduction

This document presents the Cleanup Action Plan (CAP) for the Seattle DOT Dexter Parcel site (**Site**) located in Seattle, Washington (Figure 1-1).

1.1 General Facility Information and Site/Property Definitions

Site Name: Seattle DOT Dexter Parcel
Facility Site ID No.: 81735
Cleanup Site ID No.: 14785

Property Address: 615 Dexter Avenue North, Seattle, King County, WA 98109
Parcel Number: 224900-0120
Owner: City of Seattle

The Site, as defined under the Model Toxics Control Act (MTCA; Revised Code of Washington [RCW] 70A.305) and its implementing regulations (Washington Administrative Code [WAC] 173-340), is generally defined by where a hazardous substance, other than a consumer product in consumer use, has been deposited, stored, disposed of, or placed, or has otherwise come to be located. The Site includes a portion of King County Parcel No. 224900-0120 and a south-adjacent alley (Figure 2-1) where hazardous substances were released or have come to be located from historical gasoline service station operations.

The affected tax parcel associated with the Site is the subject of a Disposition and Development Agreement (DDA) between SLP 615 Dexter LLC and the City of Seattle (City), the current owner of the parcel. This parcel is referred to as the **Property** for purposes of this CAP.

1.2 Purpose

This document is a requirement of MTCA, RCW Chapter 70A.305, and WAC Chapter 173-340. The purpose of the CAP is to identify the proposed cleanup action at the Site; to establish the actions required to achieve a reasonable restoration time frame, including engineered and institutional controls, if necessary; and to identify the necessary requirements of engineering and monitoring plans, as further described in this document.

Specific MTCA requirements for CAPs are set forth in WAC 173-340-380(1). Consistent with these requirements, this CAP provides the following:

- Cleanup standards for each hazardous substance in each medium of concern
- Description of the proposed cleanup action, including justification for selection of the proposed cleanup action

- Implementation schedule
- Restoration time frame
- Applicable state and federal laws
- A preliminary determination that the proposed cleanup action will comply with WAC 173-340-360

In addition, this CAP includes contingency planning requirements.

1.3 Preliminary Determination

Ecology has made a preliminary determination that the cleanup described in this CAP will comply with the requirements for selection of a remedy under WAC 173-340-360. Specifically, these requirements include a cleanup action that will be protective of human health and the environment, attain federal and state requirements that are applicable or relevant and appropriate, comply with cleanup standards, provide for compliance monitoring, use permanent solutions to the maximum extent practicable, provide for a reasonable restoration time frame, and consider public concerns.

1.4 Project Background and Regulatory Overview

Contamination was discovered in soil and groundwater beneath the Property in 2017 during an investigation conducted on behalf of the City of Seattle Department of Transportation (SDOT) to support sale of the Property as part of the City's Mercer Corridor West Capital Improvements project. Following the investigation, a release notification was submitted to Ecology and the Site was listed on the Confirmed and Suspected Contaminated Sites list in 2018 with Cleanup Site ID 14785.

Remedial investigation (RI) activities have since been performed at the Property as part of transactional due diligence associated with the DDA. During this process SLP 615 Dexter LLC enrolled the Site into Ecology's Voluntary Cleanup Program (VCP) to complete the RI and evaluate other feasibility issues associated with cleanup of the Property. Ecology accepted the VCP application on January 27, 2020 and identified the Site as Seattle DOT Dexter Parcel with VCP Project No. NW3257.

Between March 2019 and February 2021, prior to and following enrollment in the VCP, RI activities were conducted by Hart Crowser, a division of Haley & Aldrich (Hart Crowser) on behalf of SLP 615 Dexter LLC. The work included collection of additional soil and groundwater data to fill data gaps necessary to complete the RI and a Feasibility Study (FS) for the Property. An initial draft RI Report was submitted by Hart Crowser in July 2020. After identifying and investigating additional data gaps, a final draft RI Report was submitted in July 2021 for public review and comment (Hart Crowser 2021a). A draft FS report was also submitted to Ecology in June 2021

following completion of the RI, and was finalized for public review and comment in November 2021 (Hart Crowser 2021b).

In addition to the data collected by Hart Crowser between 2019 and 2021, the RI incorporated data from multiple investigations completed by others in the area around the Property between 1970 and 2020. Those investigations were conducted in support of both geotechnical and environmental studies for surrounding properties/sites, various government road and utility projects, and the Property. Relevant data from those investigations were used for characterizing subsurface conditions and contamination extents at the Site and evaluating potential off-Property sources. Based on the results of the RI, shallow soil and groundwater at the Site are impacted by petroleum-related contamination from a historical gasoline service station that operated on the Property.

The RI and FS documents prepared by Hart Crowser are the technical basis for the cleanup action to be conducted at the Property.

2.0 Site Description and Background

The following sections summarize the Property setting and history and the nature and extent of contamination at the Site. The RI Report (Hart Crowser 2021a) includes more detail on the Site background, RI procedures, and analytical results.

2.1 Site Description and History

2.1.1 Location and Description

The Site is located in the South Lake Union neighborhood in Seattle, Washington. The Property consists of King County Parcel No. 224900-0120, which encompasses approximately 0.56 acre and is bound by Roy Street to the north, an alley and 601 Dexter Avenue North to the south, Aurora Avenue to the west, and Dexter Avenue North to the east. The elevation[1] of the Property ranges from approximately 72 feet on the west to 58 feet on the east. The Property currently contains one warehouse-style building with an east-adjacent surface parking lot and a second surface parking lot to the east that sits at a lower elevation than the building and adjacent parking lot. These topographic features, surface structures, and other current conditions of the Property and nearby parcels are shown on Figure 2-1.

2.1.2 Subsurface Conditions

Soil on the Property consists of fill and glacial deposits consistent with other studies in the area (SoundEarth Strategies 2013, 2016; PES Environmental 2018, 2019). The fill comprises poorly graded sand with gravel, silty sand, silty sand with gravel, some silt, all with variable gravel and cobbles, and also contains brick, concrete, and glass debris. Fill is present at depths of up to 8 feet below ground surface (bgs), corresponding to approximately elevation 48 feet. Below that is a layer of dense to very dense silty sand and silty gravel with varying degrees of gravel and cobbles and interbedded with poorly graded sand, sandy silt, and silt to a depth of approximately 70 feet bgs (present at elevations between approximately 49 feet and -8 feet). Silt and clay deposits with and without sand were also observed on the west and east portions of the Property.

Groundwater encountered at the Site has been relatively shallow, generally found to depths of approximately 21 to 33 feet bgs (approximately elevation 27 to 40 feet) and is unconfined in the fill and upper portion of the glacial till/ice-contact deposits (referred to as shallow depth groundwater). Below the shallow depth groundwater is another water-bearing zone (referred to as intermediate depth groundwater), which was encountered at depths to approximately 23 to 44 feet bgs (approximately elevation 26 to 36 feet). The intermediate depth groundwater is in a dense to very dense, unconfined zone in the lower portion of the glacial till/ice-contact deposits.

[1] All elevations in this CAP are referenced to the North American Vertical Datum of 1988 (NAVD88).

Groundwater generally flows in a southeasterly direction in both zones.[2] The water table is generally at 25 feet bgs.

2.1.3 Zoning

The Property is currently zoned for mixed use (Seattle Mixed South Lake Union 175/85-280). Based on the current and proposed redevelopment of the area, the future land use at the Property is reasonably expected to remain mixed use. Based on the mixed-use zoning code, a wide variety of light industrial, residential, and commercial uses are allowed.

2.1.4 Historical Property Use

From approximately the end of the 19th century to between 1917 and 1936, residential dwellings were present on the Property. In 1926, the southern half of the existing building was constructed. In approximately 1946, the northern half of the existing building and an additional building adjoining to the east were constructed. These buildings have been occupied by a variety of commercial businesses since then. In 2005, a fire destroyed the eastern building, which was then replaced with a surface parking lot.

Historical facilities and operations are shown on Figure 2-2 and included the following:

- A gasoline station and automobile repair service station that operated on the eastern portion of the Property from approximately 1930 to the mid-1940s
- Seattle Hardwood Floor Co., a hardwood flooring manufacturing facility that occupied the southwest side of the Property from approximately 1935 to 1950
- Colotyle Corporation, a coated wall board manufacturing facility that operated on the entire Property and south of the Property on 601 Dexter Ave North from approximately 1940 to 1955
- A plastic mixing and storage facility that operated in the central area of the Property in approximately 1950, possibly associated with the Colotyle Corporation
- A paint spray booth and woodworking shop that operated in the central area of the Property from approximately 1966 to 1969

Other historical features on or immediately adjacent to the Property include a boiler and associated coal chute that may have been utilized at the southeast corner of the existing building,

[2] In March and May 2020, the water level elevation in shallow depth groundwater well DMW-4S in the eastern portion of the alley was approximately 6 feet higher than the water level elevation in the closest shallow depth well, DMW-1S. This may indicate an anomalous groundwater elevation in DMW-4S or a steep hydraulic gradient to the north in this area of the alley and the southeast corner of the Property. Additional water level data will be collected during a pre-remedial design investigation to confirm groundwater characteristics in this area of the Site.

and three 1,000-gallon heating oil underground storage tanks (USTs) and one 1,000-gallon bunker oil UST that were previously within the alley directly south of the Property. A Seattle Fire Department document dated 1997 acknowledges that four USTs were pumped and rinsed in 1997 and indicates the USTs were removed at the same time. According to a 1950 fire insurance map, four steel solvent tanks, together totaling 2,000 gallons, were also noted as being present in the alley south of the Property in 1950. It has not been confirmed if these four tanks are the same previously mentioned USTs documented by the Seattle Fire Department.

2.1.5 Current Property Conditions, Utilities, and Use

Currently, the Property is occupied by Copiers Northwest for storage warehouse and parking. Copiers Northwest has operated on the Property since 2002. Both the upper and lower parking lots are paved with concrete, and an asphalt ramp provides access to the lower parking lot from Dexter Avenue North. The south-adjacent alley is paved with asphalt and concrete.

Several utilities are located beneath the Property, including water lines that enter the Property on the east, southwest, and northwest corners and gas lines that enter the Property in the southeast corner and north Property boundary. Sanitary side sewers are present on all four sides of the Property and catch basins connected to storm drain lines are also present on the east half of the Property.

2.1.6 Future Property Use

The Property is planned to be redeveloped with an 18-story tower and a below-grade parking garage that will encompass the entire footprint of the Property. Two levels of below-grade parking are planned, resulting in a lowest finished floor elevation of approximately 40 feet (approximately 30 feet bgs) on the west half of the Property and 35.5 feet elevation (approximately 21 feet bgs) on the east half. The foundation for the building will require approximately 2 feet of excavation below the finished floor elevation, resulting in a bottom of excavation ranging from approximately elevation 38 feet (32 feet bgs) to elevation 33.5 feet (23 feet bgs). The building will be a multi-family residential tower and will include a mix of units including market rate and income-restricted units ranging from 60 to 85 percent Area Median Income. Redevelopment is expected to begin in 2022 and is expected to be completed by 2024.

2.2 Summary of Investigations

Environmental investigations that have been completed at the Property to characterize the Site are summarized as follows:

- A limited Phase II environmental site assessment was performed by Shannon & Wilson in 2017 to evaluate soil and groundwater conditions on the Property to support future redevelopment (Shannon & Wilson 2018). The investigation included advancement of seven soil probes (identified as 21417-GP1 through 21417-GP7 on Figure 2-3) and collection and analysis of 10 soil samples and three grab groundwater samples from the shallow zone. The

investigation results indicated detectable concentrations of various compounds in soil and groundwater, confirming that one or more releases of hazardous substances had occurred on the Property.

- Subsequent remedial investigation activities were performed by Hart Crowser in 2019 and 2020 to further characterize the Site and delineate the extent of contamination that was previously identified on the Property (Hart Crowser 2021a). These activities included installation and sampling of 10 soil borings (DGW-1 through DGW-4 and DPP-1 through DPP-6 on Figure 2-3) and 14 monitoring wells (identified with prefix of "DMW" on Figure 2-3), water level monitoring, and hydraulic conductivity testing. A total of 139 soil samples and 21 groundwater samples (grab and well samples) were collected for laboratory analysis.

Data from other investigations conducted on or near the Property for other purposes were also used to supplement the RI data set and confirm the extents of contamination at the Site and evaluate geologic conditions. The supplemental data included 62 soil samples and 14 groundwater samples from 19 explorations from the following investigations (locations included on Figure 2-3):

- A comprehensive foundation investigation conducted by Shannon & Wilson between 1970 and 1971 (Shannon & Wilson 1971). This investigation was performed near the Property in the north-adjacent Roy Street right-of-way (ROW) and in the Mercer Street ROW to the south to support a proposed property redevelopment project. Data collected from two of the soil explorations (borings B-309 and B-320) provided relevant information to evaluate subsurface geologic conditions on and near the Property.

- A Phase II environmental site assessment conducted in 1997 by Black & Veatch for the Denny Way/Lake Union Combined Sewer Overflow (CSO) project to document environmental conditions in the vicinity of the planned CSO infrastructure (Black & Veatch 1998). Soil and groundwater data from one monitoring well in the vicinity of the Property (BB-10) were used to support the RI.

- An environmental investigation conducted in 2012 by Shannon & Wilson to document conditions in the vicinity of the planned Mercer Corridor project (Shannon & Wilson 2012). Soil data from six of the soil explorations advanced in the east-adjacent and west-adjacent ROWs (borings GP-7, GP-8, GP-9, GP-14, GP-17, and GP-20) were used to support the RI.

- Remedial investigation activities associated with the nearby American Linen Supply Co Dexter Ave contaminated site (Cleanup Site ID 12004; herein referred to as the American Linen Site), performed by SoundEarth Strategies in 2012 and 2013 (SoundEarth Strategies 2013) and by PES Environmental from 2017 through 2020 (PES Environmental 2019, 2020). Soil and groundwater data from four investigation locations near the Property (MW-117, MW-305, MW-306, and MW-307) were used to support the RI.

- A Phase II environmental site assessment conducted in 2019 by Hart Crowser on the south-adjacent alley and the parcel to the south (601 Dexter Avenue North) to support future redevelopment (Hart Crowser 2019). Soil data from six investigation locations (HC-1 through HC-5 and MW-1) and groundwater data from two of the locations (HC-1 and HC-4) were used to support the RI.

Additional information about the investigations identified above can be found in the RI Report (Hart Crowser 2021a).

2.3 Nature and Extent of Contamination

This section summarizes the nature and extent of contamination at the Site based on the results of the RI, which included more than 150 soil and 30 groundwater samples collected from the Property and surrounding areas. RI sampling locations are depicted on Figure 2-3 and detailed information and analytical data are presented in the RI Report.

2.3.1 Constituents of Concern

Hazardous substances investigated during the RI were based on Property data and historical operations, and on potential off-Property sources from surrounding sites. Concentrations of detected compounds were compared to screening levels protective of human health and the environment to determine constituents of concern (COCs). Based on the evaluation and on sources of contamination, the following are COCs for soil and groundwater at the Site:

- Soil COCs:
  - Petroleum hydrocarbons as gasoline-range organics (GRO)
- Groundwater COCs:
  - GRO
  - Petroleum hydrocarbons as diesel-range organics (DRO)
  - Benzene

2.3.2 Contaminant Sources

The petroleum hydrocarbon contamination at the Site is attributed to historical fuel releases from the former gasoline and service station that operated on the east portion of the Property in the 1930s and 1940s.

2.3.3 Distribution of COCs in Soil

As noted in Section 2.3.1, GRO is the only COC identified for soil. GRO concentrations in soil that exceed the screening level are limited to a localized area in the southeast corner of the Property and extending south beneath the east end of the alley, as illustrated on Figure 2-4. The impacts are present on the Property at depths ranging between approximately 10 and 15 feet bgs, corresponding to elevations between approximately 46 and 41 feet, and are slightly deeper

beneath the alley at approximately 25 feet bgs, corresponding to an elevation of 37 feet). The GRO concentrations detected in this area range from 14.6 to 1,200 milligrams per kilogram (mg/kg). The lateral and vertical extents of GRO contamination in soil at the Site have been adequately delineated.

2.3.4 Distribution of COCs in Groundwater

COCs in groundwater that exceed screening levels are limited to a localized area in and near the southeast corner of the Property, as illustrated on Figure 2-5. GRO concentrations have been detected in groundwater in this area as high as 6,900 micrograms per liter (µg/L). This area corresponds with the localized area of gasoline-related soil impacts described above.

The other COCs exceeding screening levels are co-located with (or in close proximity to) the GRO exceedances, with DRO detected up to 790 µg/L and benzene detected up to 2.9 µg/L. These are likely related to the same petroleum releases.

The GRO, DRO, and benzene exceedances in and near the southeast corner of the Property are bounded by groundwater samples that do not exceed screening levels, which indicate that the petroleum-related impacts in groundwater are largely limited in extent to within the Property and alley boundaries. The lateral extents of GRO, DRO, and benzene contamination in groundwater have been adequately delineated.

2.4 Receptors and Exposure Pathways

Current and future receptors at the Site include construction workers, workers and patrons of commercial and retail facilities, and area residents. Receptors and associated exposure pathways for contamination originating on or from the Property are:

- Any person in contact with contaminated soil.
- Any person that incidentally ingests contaminated soil.
- Any future building occupant breathing potentially contaminated air impacted from volatile compounds in vadose-zone soil and/or shallow groundwater.
- Any person ingesting shallow contaminated groundwater.

Terrestrial ecological receptors are not a concern for the Site based on the planned future land use, as discussed in more detail in the RI Report.

A conceptual site model summarizing sources of contamination, contaminant transport pathways, and current and potential human and ecologic exposure pathways is illustrated in the diagram presented in Figure 2-6.

3.0 Cleanup Standards

Cleanup actions must comply with cleanup standards set forth in WAC 173-340-700 through 173-340-760. Cleanup standards include cleanup levels (CULs) for Site COCs, the location where CULs must be met (i.e., point of compliance [POC]), and other regulatory requirements that apply to the Site because of the type of cleanup action and/or location of the Site (i.e., applicable state and federal laws). The CULs and POCs are presented in Section 3.1, and applicable state and federal laws are presented in Section 3.2.

3.1 Cleanup Levels and Points of Compliance

CULs are concentrations of hazardous substances that are determined by Ecology to be protective of human health and the environment under specified exposure conditions. The MTCA regulations (WAC 173-340-350[9][a]) require that CULs be established for hazardous substances in each medium (soil, groundwater, and indoor air) and for each exposure pathway where a release has occurred. For the Site, CULs have been developed for soil, groundwater, and indoor air to address the exposure pathways identified in Section 2.4.

In general, standard MTCA Method B CULs have been selected for this Site, which are applicable to all sites and are developed with default formulas, assumptions, and procedures (WAC 173-340-705[1] and [2]). The minimum CUL (most protective) for all applicable exposure pathways was selected for each COC identified in Section 2.3.1. Where appropriate, MTCA Method A default values may be used to substitute for Method B CULs.

The POC is the point or location on a site where CULs must be attained and is summarized for each COC in Tables 3-1a through 3-1c below.

3.1.1 Soil

The POC is the point or points where the soil cleanup levels established shall be attained, as outlined in WAC 173-340-740(6)(b-d) and summarized below:

- For CULs based on the protection of groundwater, soils throughout the Site.
- For CULs based on protection from vapors, soils throughout the Site from the ground surface to the uppermost groundwater saturated zone.
- For CULs based on human exposure via direct contact, soils throughout the Site from the ground surface to 15 feet bgs.

As discussed in WAC 173-340-740(6)(f), for cleanup actions that involve containment of hazardous substances, the soil CULs will typically not be met at the POCs listed above. In these cases, the cleanup action may be determined to comply with cleanup standards if:

- The selected remedy is permanent to the maximum extent practicable using the procedures in WAC 173-340-360.
- The cleanup action is protective of human health.
- The cleanup action is demonstrated to be protective of terrestrial ecological receptors.[3]
- Institutional controls are put in place under WAC 173-340-440 that prohibit or limit activities that could interfere with the long-term integrity of the containment system.
- Compliance monitoring under WAC 173-340-410 and periodic review under WAC 173-340-430 are designed to ensure the long-term integrity of the containment system.
- The types, levels and amount of hazardous substances remaining on-site and the measures that will be used to prevent migration and contact with those substances are specified in the draft CAP.

The lowest soil CUL (most protective) for the following two exposure pathways was selected:

- Protection of direct contact, based on Ecology's model remedy guidance for sites with petroleum contaminated soil (Ecology 2017).
- Leaching from soil to groundwater protective of a full-time residential user of groundwater as a drinking water source for the appropriate soil zone (saturated or vadose). The MTCA Method A CUL was used, which was developed using the four-phase partitioning model in accordance with WAC 173-340-747(6) using the default parameters.

The soil CUL for GRO is 30 mg/kg. Its basis and associated POC are listed below in Table 3-1a.

Table 3-1a: Soil Cleanup Standards

COC	CUL (mg/kg)	Basis of CUL	POC
GRO	30[a,b]	Protection of groundwater	Sitewide

Notes:

a. MTCA Method A CUL was used since a MTCA Method B CUL is not available. Petroleum fractionation data were not obtained for calculating a Site-specific Method B CUL for GRO. The MTCA Method A CUL is presented in WAC 173-340-900, Table 740-1.

b. The CUL assumes benzene is present.

[3] Terrestrial ecological receptors are not a concern for the Site based on the planned future land use, as noted in Section 2.4 and discussed in more detail in the RI report.

3.1.2 Groundwater

The standard POC was selected for groundwater, which is throughout the Site from the uppermost level of the saturated zone extending vertically to the lowest most depth that could potentially be affected by the Site (WAC 173-340-720[8][b]).

The lowest groundwater CUL (most protective) for the following two exposure pathways was selected:

- Protection of drinking water.
    - For benzene, the protection of drinking water CUL was developed by identifying the maximum contaminant level (MCL) and calculating levels per MTCA Equations 720-1 and 720-2 (WAC 173-340-720[4][b][iii][A] and -720[4][b][iii][B]) using the toxicity values in Ecology's online cleanup levels and risk calculation (CLARC) database (Ecology 2021a). The ratio of the minimum MCL to the Equation 720-1 noncarcinogenic toxicity value does not exceed 1, so the hazard quotient associated with the MCL does not exceed 1 and the MCL requires no adjustment. Furthermore, the ratio of the minimum MCL to the Equation 720-2 carcinogenic toxicity value does not exceed 10, so the cancer risk associated with the MCL does not exceed 1E-5 and the MCL requires no adjustment. Therefore, the MCL was used as the protection of drinking water CUL.
    - For GRO and DRO, the MTCA Method A CULs were used, which are based on protection from noncarcinogenic effects for drinking water use.
- Protection of ambient air, calculated per Ecology guidance for vapor intrusion (Ecology 2018a and 2018b).

The groundwater CULs, their basis, and associated POCs are listed below in Table 3-1b.

Table 3-1b: Groundwater Cleanup Standards

COC	CUL (µg/L)	Basis of CUL	POC
GRO	800[a,b]	Protection of drinking water	Sitewide
DRO	500[a]	Protection of drinking water	Sitewide
Benzene	2.4[c]	Protection of indoor air	Sitewide

Notes:

a. MTCA Method A CUL was used since MTCA Method B is not available without petroleum fractionation analysis. The MTCA Method A CULs are presented in WAC 173-340-900, Table 720-1.

b. The CUL assumes benzene is present.

c. Based on groundwater screening level protective of vapor intrusion calculated using Equation 1 of Ecology's April 2018 revised *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action* (Ecology 2018a).

3.1.3 Indoor Air

The standard POC was selected for air, which is ambient air throughout the Site (WAC 173-340-750[6]).

The air CUL was selected based on the inhalation exposure pathway. For benzene, the lower (more protective) of the CULs calculated using MTCA Equations 750-1 and 750-2 (WAC 173-340-750[3][b][ii]) was used. For total petroleum hydrocarbons (TPH), the CUL is based on Ecology guidance on petroleum vapor intrusion (Ecology 2018b).

The air CULs, their basis, and associated POCs are listed below in Table 3-1c.

Table 3-1c: Indoor Air Cleanup Standards

COC	CUL (µg/m^3)	Basis of CUL	POC
TPH [a]	140	Inhalation	Sitewide
Benzene	0.32	Inhalation	Sitewide

Notes:

a. The indoor air CUL for petroleum is based on the total of aliphatic hydrocarbons C5-8, aliphatic hydrocarbons C9-12, aromatic hydrocarbons C9-10, BTEX compounds (benzene, toluene, ethylbenzene, and xylenes), and naphthalene, rather than constituent-specific CULs for GRO and DRO.

3.2 Applicable or Relevant and Appropriate Requirements

This section identifies applicable or relevant and appropriate requirements (ARARs) for implementing the cleanup action at the Site. The ARARs focus on federal, state, or local statutes, regulations, criteria, and guidelines. The specific types of ARARs for the cleanup action include contaminant-, location-, and action-specific ARARs, as defined in the following paragraphs. Each type of ARAR was evaluated in the FS, and applicable ARARs are listed below.

In general, only the substantive requirements of ARARs are applied to MTCA cleanup sites being conducted under a legally binding agreement with Ecology (WAC 173-340-710[9][b]). Thus, cleanup actions under a formal agreement with Ecology are generally exempt from the procedural requirements specified in certain state and federal laws.[4] This exemption also applies to permits or approvals required by local governments.

Contaminant-specific ARARs. Contaminant-specific ARARs are usually health- or risk-based numerical values or methodologies that, when applied to Site-specific conditions, result in

[4] The exemption applies to the following Washington State laws: Clean Air Act (RCW 70A.15), Solid Waste Management (RCW 70A.205), Hazardous Waste Management (RCW 70A.300), Construction Projects in State Waters (RCW 77.55), Water Pollution Control (RCW 90.48), and Shoreline Management Act (RCW 90.58). Exemption does not apply if Ecology determines that it would result in loss of approval from a federal agency necessary for the state to administer any federal law.

establishment of numerical contaminant values that regulatory agencies generally recognize as protective of human health and the environment.

Applicable contaminant-specific ARARs include:

- Washington MTCA (RCW 70A.305; Chapter 173-340 WAC) regulating soil, groundwater, and indoor air cleanup levels.

Action-specific ARARs. Action-specific ARARs are pertinent to particular remediation methods and technologies, and to actions conducted to support cleanup. Action-specific ARARs are requirements that may need to be satisfied during the performance of specific cleanup actions because they prescribe how certain activities (e.g., treatment and disposal practices, media monitoring programs) must occur.

Applicable action-specific ARARs include:

- United States (U.S.) Clean Air Act (42 United States Code [USC] § 7401 et seq. and 40 Code of Federal Regulations [CFR] Part 50) and Washington Clean Air Act and Implementing Regulations (Chapter 173-400-040[8] WAC) to protect ambient air quality by limiting air emissions and taking reasonable precautions to prevent fugitive dust from becoming airborne, which are applicable since the selected cleanup action involves construction.
- U.S. Resource Conservation and Recovery Act (RCRA) (42 USC § 6901 et seq.), Subtitle D—Managing Municipal and Solid Waste (40 CFR Parts 257 and 258) and Washington Solid Waste Handling Standards (RCW 70.95; Chapter 173-350 WAC) to establish guidelines and criteria for management of non-hazardous solid waste, which are applicable since the selected cleanup action involves off-site disposal of contaminated soil designated as non-hazardous waste.
- U.S. Occupational Safety and Health Act (OSHA) (29 CFR Parts 1904, 1910, and 1926) and Washington Industrial Safety and Health Act (WISHA) (RCW 49.17; Title 296 WAC) to establish site worker and visitor health and safety requirements during implementation of the cleanup action.
- Washington State Environmental Policy Act (SEPA) (RCW 43.21; Chapter 197-11 WAC) to identify and analyze environmental impacts associated with the selected cleanup action.
- King County Stormwater Runoff and Surface Water and Erosion Control (King County Code [KCC] Chapter 9.04), King County Water Quality (KCC Chapter 9.12), and Seattle Stormwater Code (Seattle Municipal Code [SMC] Title 22, Subtitle VIII) to establish guidelines for erosion control and construction stormwater management, which are applicable since the selected cleanup action involves construction.
- Washington Noise Control (RCW 70A.20; Chapter 173-60 WAC) and Seattle Noise Control (SMC Chapter 25.08) to minimize noise impacts during implementation of the selected cleanup action.

- Seattle Grading Code (SMC Chapter 22.170) to establish guidelines for grading, which is applicable since the selected cleanup action involves an excavation and filling volume greater than 500 cubic yards.
- U.S. Federal Water Pollution Control Act—National Pollutant Discharge Elimination System (NPDES) (Clean Water Act [CWA]; 33 USC § 1342, Section 402) and Implementing Regulations and Washington Waste Discharge General Permit Program (RCW 90.48; Chapter 173-226 WAC) to establish requirements for point source discharges, including stormwater runoff, which are applicable since the selected cleanup action involves point source discharge of stormwater.
- Washington Minimum Standards for Construction and Maintenance of Wells (RCW 18.104; Chapter 173-160 WAC) to establish standards for constructing and decommissioning monitoring wells, which is applicable since the selected cleanup action involves drilling or decommissioning wells.

Location-specific ARARs. Location-specific ARARs are restrictions placed on the concentration of hazardous substances or the conduct of activities solely because they are in a specific location. Some examples of special locations include floodplains, wetlands, historic sites, and sensitive ecosystems or habitats.

There are no applicable location-specific ARARs.

4.0 Cleanup Action Alternatives Evaluation and Selection

This section identifies cleanup action objectives (CAOs), describes the cleanup action alternatives evaluated in the FS report, and explains how the proposed cleanup action was selected and meets the minimum MTCA requirements.

4.1 Cleanup Action Objectives

CAOs were developed to identify goals that should be accomplished by the selected cleanup action to meet the minimum requirements of the MTCA regulations and provide adequate protection of human health and the environment. The CAOs consider the applicable receptors and exposure pathways for the affected media (Section 2.4).

The CAOs are:

1. Prevent any person from direct contact with contaminated soil.
2. Protect groundwater from being contaminated by impacted soil.
3. Mitigate the potential for future building indoor air to be impacted by contaminated soil and groundwater.
4. Prevent any person from ingesting contaminated groundwater.

Each CAO will be achieved by terminating the associated exposure pathway. These objectives can be achieved through contaminant removal or treatment to meet constituent- and media-specific cleanup standards (cleanup levels at points of compliance; Section 3.1) that are based on the specific exposure pathways and preventing exposure through containment with associated institutional controls.

4.2 Alternatives Considered

Three cleanup action alternatives were developed and evaluated in the FS report.

Alternative 1 consisted of the following components:

- Excavate contaminated soil within the Property boundary (removal of all source area contaminated soil) and haul it off-site for disposal at a permitted receiving facility.
- Conduct in situ enhanced bioremediation (ISEB) by applying Oxygen Release Compound Advanced® (ORC-A) to residual contamination off-Property in the alley.
- Implement monitored natural attenuation (MNA) for contaminated soil and groundwater remaining off-Property in the alley and any contaminated groundwater that may remain on-Property below the building excavation. The future building, paved alley, and

surrounding hardscape will serve as a cap to limit groundwater recharge and migration until MNA reduces COC concentrations to below CULs.

- Install a passive vapor barrier to mitigate potential vapor intrusion risks from remaining contamination.
- Implement institutional controls, such as an environmental covenant.
- Perform compliance monitoring and maintenance.

Alternative 2 consisted of the following components:

- Excavate contaminated soil throughout the Site (i.e., within the Property boundary and off-Property in the alley) and haul it off-site for disposal at a permitted receiving facility.
- Implement MNA for residual contaminated groundwater. The future building, paved alley, and surrounding hardscape will serve as a cap to limit groundwater recharge and migration until MNA reduces COC concentrations to below CULs.
- Install a passive vapor barrier to mitigate potential vapor intrusion risks.
- Implement institutional controls, such as an environmental covenant.
- Perform compliance monitoring and maintenance.

Alternative 3 consisted of the following components:

- Excavate contaminated soil within the Property boundary (removal of all source area contaminated soil) and haul it off-site for disposal at a permitted receiving facility.
- Conduct in situ chemical oxidation (ISCO) treatment of contaminated soil and groundwater off-Property in the alley and any contaminated groundwater that may remain on-Property below the building excavation. The future building, paved alley, and surrounding hardscape will serve as a cap to limit groundwater recharge and migration until ISCO reduces COC concentrations to below CULs.
- Install a passive vapor barrier to mitigate potential vapor intrusion risks.
- Implement institutional controls, such as environmental covenant.
- Perform compliance monitoring and maintenance.

All of the alternatives were screened relative to the MTCA threshold requirements and other requirements in accordance with WAC 173-340-360(2) and evaluated according to disproportionate cost analysis (DCA) procedures in WAC 173-340-360(3)(e).

4.3 Selected Cleanup Action and Justification

The evaluation in the FS report identified Alternative 1 as the preferred alternative because it meets threshold requirements, uses permanent solutions to the maximum extent practicable (as determined with a DCA), considers public concerns, and provides for a reasonable restoration time frame.

As described in WAC 173-340-360(2) (and presented in the FS report), four threshold requirements and three other requirements need to be met for a cleanup action to be selected. Additionally, several action-specific requirements—which vary depending on the nature of the Site and the cleanup action being considered—need to be met if applicable. This section describes the minimum MTCA requirements and summarizes how the selected cleanup action meets these criteria, with more detailed information presented in the FS report.

Threshold requirements for cleanup actions are defined in WAC 173-340-360(2)(a) and listed below.

- **Protect human health and the environment.** The selected cleanup action eliminates exposure pathways and provides for overall protection of human health and the environment by removing soil on the Property with COC concentrations above the CULs and by preventing exposure to soil and groundwater with COC concentrations above the CULs. Additionally, the selected cleanup action includes a vapor barrier to mitigate vapor intrusion to protect building occupants until groundwater COC concentrations are reduced below CULs.
- **Comply with cleanup standards.** The selected cleanup action complies with soil and groundwater cleanup standards by removing and disposing of source area soil with COC concentrations above the CULs and enhancing natural attenuation of groundwater and soil containing residual COC concentrations above the CULs. Additionally, the selected cleanup action includes a vapor barrier to comply with indoor air cleanup standards.
- **Comply with applicable state and federal laws.** The selected cleanup action will attain and comply with all applicable ARARs, which are summarized in Section 3.2.
- **Provide for compliance monitoring.** The selected cleanup action complies with this requirement as it includes varying levels of all three types of compliance monitoring: protection, performance, and confirmational.

Other requirements for cleanup actions are defined in WAC 173-340-360(2)(b) and listed below.

- **Use permanent solutions to the maximum extent practicable.** The selected cleanup action is permanent to the maximum extent practicable as determined by the DCA, wherein the costs and benefits of each alternative are assessed, as defined by several evaluation criteria. The alternative with the highest benefit/cost ratio is considered

permanent to the maximum extent practicable and was selected as the preferred cleanup action alternative.

- **Provide for a reasonable restoration time frame.** The restoration time frame for the selected cleanup action is considered to be reasonable based on the factors listed in WAC 173-340-360(4)(b). Specifically, this includes:
  - the low risk to human health and the environment posed by the small volume of residual contaminated soil and groundwater expected to remain at the Site,
  - the current and future uses of the Site and surrounding areas (i.e., paved, urban area with no reasonable expectation that groundwater would be used for domestic water supply),
  - the availability of alternative water supplies (i.e., as is currently provided by the Seattle Public Utilities municipal water system),
  - the high effectiveness and reliability of institutional controls,
  - the ability to monitor migration[5] of hazardous substances from the Site,
  - the low toxicity of the residual hazardous substances expected to remain after excavation (i.e., low concentrations expected after source removal on the Property), and
  - the natural processes that reduce concentrations of petroleum compounds under similar site conditions (i.e., aerobic degradation).
- **Consideration of public concerns.** This draft document is being presented to the public and stakeholders for public review and comment. The RI and FS documents are also being presented for public comment. Any comments received during the public comment period will be reviewed by Ecology prior to issuance of a final CAP and addressed in a responsiveness summary. All public comments and concerns will be taken into consideration when finalizing the CAP.

Action-specific requirements for cleanup actions are defined in WAC 173-340-360(2)(c-h) and listed below.

- **Groundwater cleanup actions.** The selected cleanup action meets this requirement because it is a permanent cleanup action used to achieve the CULs for Site groundwater COCs at the standard POC.
- **Soil at current or potential future residential areas and childcare centers.** The selected cleanup action complies with this requirement because all soils on the Property with

[5] Based on Site data collected to date, migration of hazardous substances from the source area appears to be very limited and the dissolved plume appears to be relatively stable, given the multiple decades that the contamination has been in the ground since its release to the environment.

concentrations of COCs exceeding CULs will be removed and disposed of off-site. Furthermore, all soils remaining in the adjacent alley with residual COCs exceeding CULs will be capped and will be treated in situ by enhancing natural attenuation processes. [6]

- **Institutional controls.** The selected cleanup action meets this requirement because it does not primarily rely on institutional controls and monitoring.
- **Releases and migration.** The selected cleanup action complies with this requirement because releases and migration of hazardous substances are minimized by removing source area soil containing COC concentrations above CULs from the Site and removing any potentially remaining contaminant sources (i.e., USTs), if any are still present on the Property. Migration of hazardous substances in residual impacted groundwater is also minimized by maintaining the paved alley and subgrade building walls and slab as an impervious cap.
- **Dilution and dispersion.** The selected cleanup action meets this requirement because it does not rely primarily on dilution and dispersion.
- **Remediation levels.** This requirement is not applicable because the selected cleanup action does not involve use of remediation levels.

[6] The residual soil contamination in the alley is limited to the groundwater smear zone, which will also be within the ORC injection and MNA treatment zone for groundwater.

5.0 Description of Selected Cleanup Action

As described in more detail below, the selected cleanup action consists of: (1) excavating and disposing off-site impacted soil (and groundwater, if present) within the redevelopment excavation area, (2) applying ORC-A to enhance natural attenuation of remaining off-Property soil and groundwater contamination, (3) implementing MNA, (4) installing a passive vapor barrier, (5) implementing institutional controls, and (6) performing compliance monitoring and maintenance. Implementation of this cleanup action will address the CAOs for the Site (Section 4.1). The conceptual components of the selected cleanup action are shown on Figure 5-1.

5.1 Excavation and Off-Site Disposal

The planned redevelopment excavation required for construction of the new building will remove all known COC-contaminated soil on the Property. As shown in plan view on Figure 5-1 and in cross-section view on Figures 5-2a and 5-2b, the planned redevelopment excavation extends across the entire Property boundary. The vertical excavation extent ranges from approximately elevation 38 feet (32 feet bgs) on the west half of the Property to elevation 33.5 feet (23 feet bgs) on the east half.

For purposes of this CAP, it is assumed that excavated COC-contaminated soil can be characterized as non-hazardous and will be sent off-site for disposal at a regulated Subtitle D landfill facility or other permitted landfill or treatment facility. Erosion control, site stabilization measures, underground utility protection measures, and dewatering (including properly treating and/or disposing of impacted construction dewatering water as discussed below) will be implemented during construction activities to prevent adverse impact to human health and the environment.

While not anticipated, if COC-contaminated soil is present at the bottom of the planned redevelopment excavation, soil samples will be collected to evaluate the concentrations and additional excavation will be conducted as practicable based on the design of the shoring system until all COC-contaminated soil exceeding the CULs is removed from the Property. Some COC-contaminated soil may be encountered at the south sidewall of the excavation at the east end of the alley. If encountered, soil samples will be collected to document concentrations and the contamination will remain in place for in situ treatment as outlined in this CAP. It should be noted that there are areas beneath the building at the Property that have not been sampled. Areas of unexpected contamination may be encountered when the building is demolished and the underlying soil exposed. The Engineering Design Report (EDR) must outline contingency procedures for further actions if unexpected contamination is encountered during excavation of the Property. Anticipated contingency actions are also discussed in Section 5.7 of this CAP.

The planned redevelopment excavation will remove some shallow groundwater contamination on the Property (e.g., GRO, DRO, and benzene in the southeast corner above approximate

elevation 31.5 feet) during temporary construction dewatering. The dewatering system is anticipated to include localized sumps within the excavation footprint and/or well points. The groundwater table will be maintained approximately 2 feet below the bottom of the excavation. Construction dewatering will be required for the duration of excavation activities and will continue until the foundation and parking garage structure are completed to above the adjacent ground surface.

Collected water will be conveyed to a water treatment system prior to being discharged to either the combined sewer or storm sewer under the King County Industrial Waste Program (KCIW) or Construction Stormwater General Permit (CSWGP) issued by Ecology, respectively. The dewatering treatment system is anticipated to consist of particulate removal technologies (e.g., sedimentation) and/or granular activated carbon (GAC). Treatment, discharge monitoring, and reporting will be conducted in accordance with the permits issued by KCIW or Ecology.

5.2 ISEB

ISEB is the injection or addition of nutrients and/or electron acceptors to stimulate microbial growth and breakdown of contaminant mass in soil and groundwater. ISEB will be implemented following the remedial excavation to reduce residual concentrations of GRO in soil and GRO, DRO, and benzene in groundwater off-Property in the east side of the alley to decrease the time frame for MNA to achieve cleanup standards. ISEB will involve the injection of ORC-A using a sonic drill rig. ORC-A supplies a controlled release of oxygen for 9 to 12 months to create and support the geochemical environment necessary for aerobic biodegradation of petroleum contaminants.

ORC-A application details and specifications will be included in the EDR. Estimated treatment injection locations are shown on Figure 5-1 but are subject to change as the design is finalized in the EDR. One application consisting of three injection points are currently proposed, to cover an in situ treatment zone of approximately 40 feet long and 17 feet wide. The treatment fluids would be injected within the impacted zone at depths from approximately 20 to 35 feet bgs. A slurry consisting of approximately 94 gallons of ORC-A and 997 gallons of water is estimated to be injected into the subsurface but is subject to change based on additional groundwater data that will be collected during a Pre-Remedial Design Investigation (PRDI). The PRDI will be performed to confirm groundwater characteristics within and surrounding the contaminated plume for MNA planning and design as well as confirming ORC dosing requirements for ISEB and any other design elements required for the cleanup action.

5.3 MNA

Natural attenuation involves the reduction of contaminant mass in soil and groundwater through physical, chemical, and/or biological processes. Migration and releases of hazardous substances are minimized by biodegradation, dispersion, dilution, sorption, volatilization, chemical

stabilization, and/or biological stabilization. MNA relies on these natural processes to decrease (or "attenuate") concentrations of contaminants in soil and groundwater.

Natural attenuation is considered an appropriate remedy if the following requirements in WAC 173-340-370(7) are met:

1. *Source control (including removal and/or treatment of hazardous substances) has been conducted to the maximum extent practicable.*

2. *Leaving contaminants on-site during the restoration time frame does not pose an unacceptable threat to human health or the environment.*

3. *There is evidence that natural biodegradation or chemical degradation is occurring and will continue to occur at a reasonable rate at the site.*

4. *Appropriate monitoring requirements are conducted to ensure that the natural attenuation process is taking place and that human health and the environment are protected.*

The FS report describes in detail how the Site will meet these MNA requirements, which includes (but is not limited to) the following:

- The source of contamination (historical gas station) is no longer present and hazardous substances in the source area will be removed to the maximum extent practicable.
- Potential receptors will be protected during the restoration time frame because a vapor barrier and institutional controls will be implemented to mitigate the risk of exposure to remaining contamination.
- There is evidence that natural degradation mechanisms have been occurring at the Site given the apparent stability and limited extent of the dissolved plume more than 70 years after the petroleum release would have occurred.
- The Site will be monitored regularly to evaluate natural attenuation processes as well as COC concentrations and trends.

MNA will be implemented to reduce residual concentrations of GRO, DRO, and benzene remaining in groundwater at the Site following the remedial excavation. This includes the area of dissolved contamination within the east portion of the alley and any contaminated groundwater that may remain in the southeast corner of the Property below the planned redevelopment excavation (Figure 5-1). Soil contamination remaining in the alley is limited to the groundwater smear zone and, therefore, will also be addressed via MNA.

A Groundwater Compliance Monitoring Plan (GCMP) will be prepared that details the MNA program to be implemented as well as routine groundwater compliance monitoring to be performed during the MNA period. The MNA program will be consistent with Ecology's *Guidance on Remediation of Petroleum-Contaminated Ground Water by Natural Attenuation* (MNA Guidance; Ecology 2005). The GCMP will include a Sampling and Analysis Plan/Quality Assurance

Project Plan (SAP/QAPP) that contains specific sampling procedures, locations, frequency, and analyses. MNA will begin after the redevelopment excavation has been completed and ORC-A applied. MNA will continue in accordance with the GCMP until cleanup standards are achieved.

If MNA fails to perform as expected, contingency actions will be implemented to facilitate cleanup of the residual groundwater contamination such that compliance with the cleanup standards can be met within the restoration time frame. A contingency plan outlining specific triggers and corrective actions is summarized in Section 5.7 of this CAP and will be included in the GCMP.

5.4 Vapor Barrier

Because petroleum contamination will remain in place adjacent to the new building during the restoration time frame, a passive vapor barrier will be installed below the slab and along the perimeter foundation walls of the new building to prevent potential vapor intrusion. The barrier will physically block the entry of vapors and will be sealed to the foundation and all penetrations.

The vapor barrier material will be subject to approval by Ecology and must be capable of protecting against migration of petroleum-related vapors into the overlying building. The barrier will be installed directly on the structural base surface in a manner that does not negatively impact its design function. Upon its installation, the vapor barrier will be tested according to the manufacturer's recommendations, which may include smoke testing of the foundation seal, seams, and penetrations, to confirm the barrier is installed according to the manufacturer's specifications. The estimated lateral extent of the vapor barrier is shown on Figure 5-1. Air monitoring will be conducted to evaluate the vapor barrier's continued effectiveness in reducing human health risks (further described in Section 5.6).

5.5 Institutional Controls

Institutional controls are intended to limit or prohibit activities that may interfere with the integrity of a cleanup action that would result in risk of exposure to contaminated soil, groundwater, or indoor air at the site. These institutional controls may include on-site features (such as fences), educational programs (such as signage and public notices), legal mechanisms (such as land use restrictions, restrictive covenant, zoning designations, and building permit requirements), maintenance requirements for engineered controls (for example, containment caps), and financial assurances.

Institutional controls will be implemented in areas where COC concentrations in soil and/or groundwater remain above the CULs. The known such areas include the southeast corner of the Property and the alley. If residual contamination is discovered in other areas of the Property and cannot be fully removed, whereby some is left in place below or adjacent to the building excavation, institutional controls will be implemented in those areas as well.

Institutional controls include filing an environmental covenant and/or implementing administrative restrictions on land use and activities for the areas with residual soil and/or groundwater contamination. If institutional controls are implemented in the alley, it is anticipated that an effective alternative administrative system will be established pursuant to WAC 173-340-440(8)(b). The environmental covenant/administrative system will:

- place limitations on the use of the Property and surrounding areas (i.e., prohibit the extraction of groundwater and compromising the cap),
- require that engineering controls (i.e., vapor barrier and cap) remain in place and be monitored appropriately, and
- stipulate that cleanup actions must occur if existing structures or pavements are removed or disturbed.

Ecology will prepare the environmental covenant consistent with WAC 173-340-440 and RCW 64.70, and in consultation with the grantor or other parties. If the alternative administrative system is necessary for the alley, the system must have Ecology approval prior to implementation.

5.6 Compliance Monitoring and Maintenance

Compliance monitoring will be implemented in accordance with WAC 173-340-410 and includes:

- **Protection monitoring** to confirm that human health and the environment are adequately protected during construction and the operation and maintenance period of the cleanup action. Protection monitoring elements, including dust monitoring and vapor monitoring during excavation, will be addressed in the health and safety plan that will be developed for the project.
- **Performance monitoring** to confirm that the cleanup action has attained cleanup standards and other performance standards. Performance monitoring following soil excavation will include collection and analysis of soil samples from the base and walls of the excavation and groundwater samples to confirm that the target CULs have been achieved, or to document the concentration of COCs that remain on the Site. Performance monitoring will also include collection and analysis of indoor air samples following construction of the new building to confirm that the vapor barrier is effectively preventing future building occupants from breathing potentially contaminated air impacted from residual soil and/or groundwater contamination adjacent to the Property.
- **Confirmational monitoring** to confirm the long-term effectiveness of the cleanup action once cleanup standards and other performance standards have been attained. Confirmational monitoring will include periodic visits to inspect the paved alley and on-Property building slab to assess the integrity of the cap and periodic air monitoring until MNA reduces concentrations of COCs in residual soil and groundwater to below CULs.

Compliance monitoring specifics for soil and groundwater will be included in the EDR and GCMP documents. Details of monitoring procedures, locations, frequency, and analyses, will be established in accompanying SAP/QAPPs to each document. Confirmational monitoring specifics for the cap and vapor barrier will be outlined in an Operation and Maintenance Plan (O&M Plan) along with maintenance requirements for the cap. The O&M Plan will be submitted to Ecology in conjunction with the EDR and GCMP documents for review and approval.

Results of compliance monitoring conducted during remedial construction activities will be documented in a Cleanup Action Completion Report for the Site. Results of compliance monitoring conducted during the MNA period will be documented in periodic groundwater monitoring reports.

5.7 Contingency Actions

Contingency actions may be required if additional risk reduction measures are needed during or after remedy implementation. Following removal of the building and/or during excavation, there is the potential for unanticipated discoveries including contaminated soil or other hazardous substances outside of the known area, and historical USTs, piping, or other buried infrastructure from previous operations on the Property. Details on how such discoveries will be managed are summarized below and will be further discussed in a Contingency Action Plan to be part of the EDR. Groundwater contingency actions will be provided in the GCMP, as noted previously, and are also summarized below.

5.7.1 Unanticipated Soil Contamination

Unanticipated contaminated soil or other hazardous substances may be encountered outside of the known area by site workers during the planned excavation activities at the Site. This may include observable evidence of one or more of the following:

- Oily or greasy material with visible oil droplets, film, or sheen
- Tar, chemical sludge, or gummy resinous substance
- Distinct color changes
- Foam, scum, gel, slime, or soapy liquid material
- Fibrous material, particularly white or gray
- Powder, grit, or machine-formed pellets indicative of chemicals
- Abandoned containers such as drums and tanks or pipelines
- Molten slag with glassy, metallic, rock-like, or clinker appearance
- Electrical equipment such as transformers, batteries, or capacitors
- Mist or smoky discharge
- Unnatural color flecks or smears in the soil

- Unusual odors, including gasoline, paint thinner, furniture polish, "magic marker" pen, rotten eggs or skunky spray, mothballs, sewage, or other solvent or chemical-like odors[7]

If suspected hazardous material is discovered outside of the known area, normal excavation and construction activities in the suspected area will cease, pending evaluation/testing by designated field oversight personnel. The Ecology cleanup site manager will be notified of the discovery of hazardous material outside of the known area within 24 to 72 hours of its presence being confirmed. The suspected hazardous material will not be further disturbed or touched without appropriate worker protection (personal protective equipment [PPE] and/or engineering controls) and environmental precautions.

Upon discovery, samples of suspected hazardous material and contaminated media will be collected for chemical analysis to verify constituent types and concentrations. Soil samples will be analyzed for chemical parameters appropriate to the conditions of the excavation area and Property history in the suspected area. Suspected hazardous material and contaminated media will not be removed from the Property until it has been appropriately characterized and the materials are designated for final disposition. Once characterization sample results are received, the material will be excavated and disposed of at an appropriate off-site facility depending on the constituent types and concentrations.

Verification soil samples will be collected and analyzed to confirm the characteristics of soil remaining in areas where suspected hazardous materials and contaminated media have been removed. Specifics on characterization and verification sampling procedures, frequency, and analyses will be presented in the SAP/QAPP to be submitted to Ecology for review and approval in conjunction with the EDR.

5.7.2 USTs

Because of the historical use of the Property, unknown USTs and/or piping may be discovered during excavation and construction activities. If USTs and/or piping are encountered, designated field oversight personnel will notify the Ecology cleanup site manager and will follow UST notification protocol. Ecology requires a 30-day notification period before removal of regulated USTs but may approve expedited closure in emergency situations where product release may be a concern. USTs used for storing heating oil that is used solely for the purpose of heating structures on a property are exempt from the Ecology UST notification requirements.

A licensed UST decommissioner will perform the removal and closure of any discovered USTs and a UST site assessment will be conducted under the oversight of a Washington State certified UST site assessor.

[7] It is not recommended that site personnel smell suspected hazardous substances; doing so could present a health and safety hazard. However, if odors are detected inadvertently, it may indicate potential adverse environmental conditions.

The UST decommissioner will follow the protocols established under the following regulations and guidance documents for removal or closure of USTs:

- UST Regulations (Chapter 173-360A WAC).
- *Site Assessment Guidance for Underground Storage Tank Systems* (Ecology 2021b).
- *Site Check/Site Assessments Checklist for Underground Storage Tanks* (Ecology 2018c).
- International Fire Code 3404.2.13.1.
- Washington Division of Occupational Safety and Health (DOSH) Confined Space Regulations (WAC 296-155-203).

The UST site assessor will collect representative soil samples for chemical analysis to document subsurface conditions per the *Site Assessment Guidance for Underground Storage Tank Systems* (Ecology 2021b). Regardless of whether contamination is present, the UST site assessor will complete the site assessment checklist and the decommissioner will complete the permanent closure checklist, and these documents will be submitted to Ecology within 30 days.

If a release from a UST or its associated piping that poses a threat to human health or the environment is discovered, the release must be reported to Ecology within 24 hours, whether or not the UST is regulated under the UST regulations. If impacts to soils are observed, soil will be excavated and disposed of off-site and verification soil samples will be collected and analyzed in accordance with the protocols described in the SAP/QAPP, and a site characterization report will be submitted to Ecology within 90 days.

If no contamination is present, the site assessment sampling report will be submitted to Ecology within 30 days.

5.7.3 Contingency Remedial Actions for Groundwater

The potential exists that groundwater will not meet CULs within the anticipated restoration time frame (20 years, as noted below in Section 5.8). COC trends will be assessed by plotting the natural log of the contaminant concentrations versus time and using statistical software to determine a line of best fit. The trendline will be projected in the future to determine whether compliance with the cleanup standards is predicted within the 20-year restoration time frame. Additional trend analyses may be performed, as warranted, and will be reported in the Annual Monitoring Reports.

If groundwater compliance monitoring data indicate that COC concentrations are not declining at a rate sufficient to reach CULs within 20 years, contingency action(s) will be evaluated and undertaken as directed by Ecology to correct the situation. If a contingency evaluation is necessary, consideration will be given to factors such as the severity of predicted CUL exceedance and volumetric proportion of groundwater not expected to reach CULs. The decision point for determining whether to implement contingency measures will be during the 5-year, 10-year, and any additional Ecology periodic review periods following completion of remedial construction.

Procedures for groundwater monitoring data analysis will be provided in the GCMP along with a contingency plan developed consistent with Ecology's 2005 MNA Guidance. If a contingency evaluation is necessary, it can be included in the annual report for that year or a separate document.

The appropriate type and degree of contingent action will be subject to review and approval by Ecology. Possible contingency actions include, but are not limited to, the following:

- Additional injections of ORC-A or other appropriate substances used to accelerate or augment natural attenuation.
- Injection of alternative substances used to facilitate in situ chemical oxidation for more rapid destruction of COCs.
- Physical removal of residual contamination that was left in place following Property excavation and redevelopment.
- Implementation of other in situ treatment technologies such as air sparging and soil vapor extraction.

5.8 Restoration Time Frame

The restoration time frame is the estimated time for all media to achieve compliance with the cleanup standards at all relevant POCs. The specific restoration time frames for different media and CAOs for the proposed cleanup action are listed below.

- The time frame to mitigate soil direct contact (CAO #1) and vapor intrusion (CAO #3) exposure risks is during redevelopment of the Property, which is approximately two years.
- The time frame to protect groundwater from impacted soil (CAO #2) and to protect future drinking water users from ingesting contaminated groundwater (CAO #4) is expected to be 20 years.

As discussed in Section 4.3, the overall restoration time frame is considered reasonable based on the limited extent and volume of residual contamination that is expected to remain following the remedial excavation, the low risk posed by those residual Site contaminants, and other factors listed in WAC 173-340-360(4)(b).

6.0 Schedule for Implementation

Implementation of the proposed cleanup action is expected to occur over the next few years in conjunction with Property redevelopment. The following table outlines a generalized schedule for the proposed cleanup action based on the expected chronology of key activities and deliverables.

Table 6-1: Schedule of Deliverables and Activities

Implementation Step or Deliverable	Due Date[a] or Time Frame
Pre-Construction Design Activities	Currently underway
Submit Agency Review Draft PRDI Work Plan	Within 30 days of effective date of Prospective Purchaser Consent Decree (PPCD)
Finalize PRDI Work Plan	30 days after receipt of Ecology final comments
Implement PRDI Work Plan	Initiate within 45 days of Ecology approval of final Work Plan
Submit Agency Review Draft EDR	Within 180 days of effective date of PPCD
Submit Agency Review Draft GCMP	Concurrent with submittal of Agency Review Draft EDR
Submit Agency Review Draft O&M Plan	Concurrent with submittal of Agency Review Draft EDR
Finalize EDR, GCMP, and O&M Plan[b]	60 days after receipt of Ecology final comments
Acquire Project Permits	Prior to start of remedial action construction
Remedial Action Construction	Initiate within 180 days of Ecology approval of the Engineering Design Report or after permit acquisition
Submit Agency Review Draft Cleanup Action Completion Report	180 days following completion of cleanup action
Submit Final Cleanup Action Completion Report	60 days after receipt of Ecology's final comments
Implement MNA and Compliance Monitoring	Initiate following completion of remedial excavation, ORC-A application, and Property redevelopment. Timeline uncertain. Frequency of monitoring activities will be in accordance with schedules established in the GCMP and O&M Plan.
Revise GCMP and/or O&M Plan	Following Property redevelopment, if appropriate and with Ecology concurrence.
Submit Annual Monitoring Reports	March 1 for the prior calendar year
Submit Monthly Progress Reports	15 days after the end of each month following the effective date of the PPCD[c]

Notes:

a. Schedule is in calendar days.

b. The GCMP and O&M Plan will be "living" documents and may be modified as deemed appropriate with Ecology concurrence.

c. Progress reports may be submitted quarterly, depending on the phase of work at the Site and as deemed appropriate with Ecology concurrence.

7.0 References

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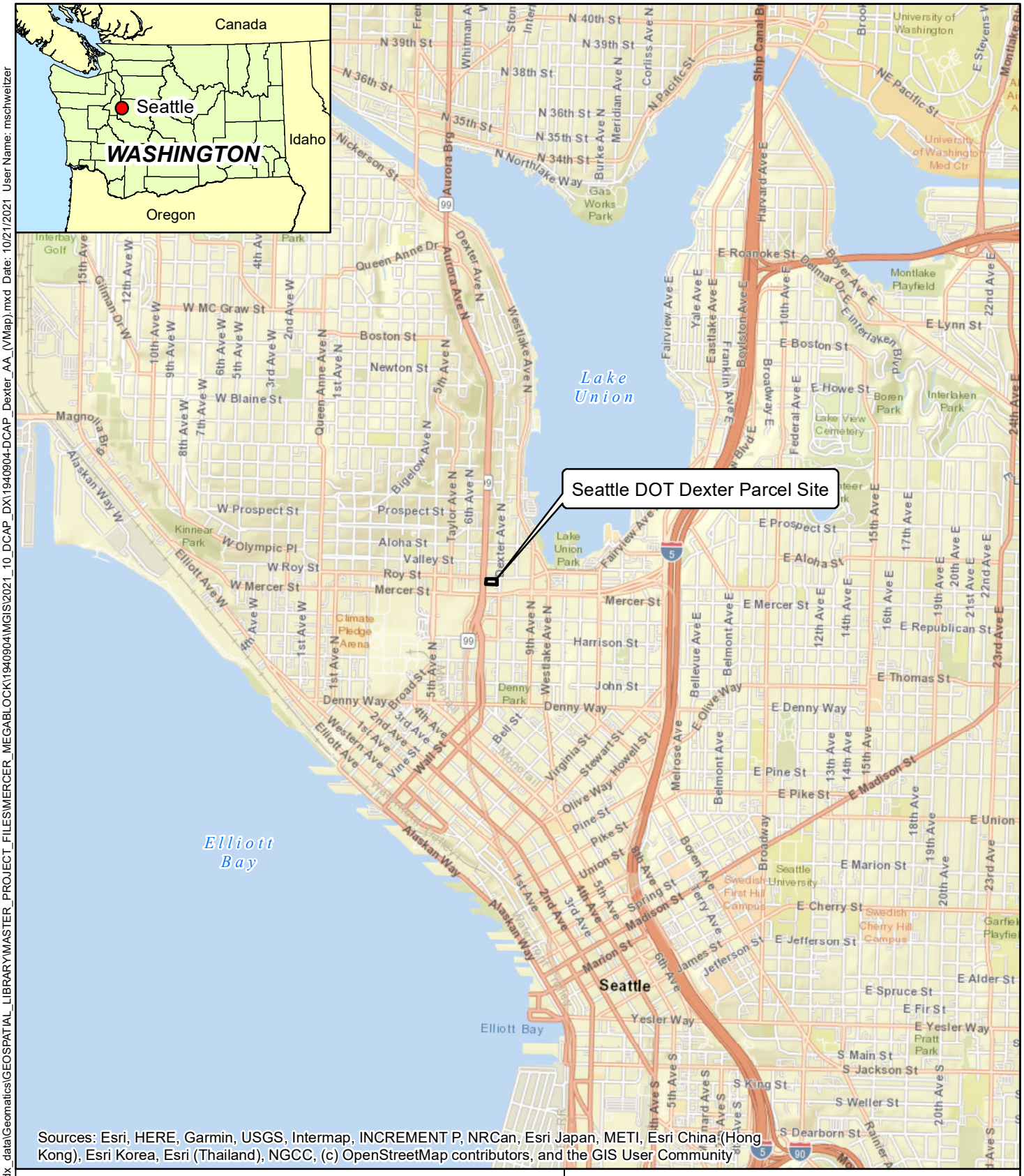
Figures



0 0.25 0.5 1 Miles

N

Seattle DOT Dexter Parcel Site
Seattle, Washington

Vicinity Map

19409-04 10/21

HARTCROWSER
A division of Haley & Aldrich

Figure
1-1

Document Path: \\haleyaldrich.com\share\pdx_data\Geomatics\GEOSPATIAL_LIBRARY\MASTER_PROJECT_FILES\MERCER_MEGABLOCK\1940904\MGIS\2021_10_DCAP_DX\1940904-DCAP_Dexter_AA_(VMap).mxd Date: 10/21/2021 User Name: mschweitzer

515 ALOHA ST
825 TAYLOR AVE N
812 5TH AVE N
817 TAYLOR AVE N
809 TAYLOR AVE N
522 VALLEY ST
561 ALOHA ST
565 ALOHA ST
567 ALOHA ST
819 6TH AVE N
815 6TH AVE N
811 6TH AVE N
807 6TH AVE N
801 6TH AVE N
810 TAYLOR AVE N
822 1/2 6TH AVE N
615 ALOHA ST
621 ALOHA ST
820 6TH AVE N
617 ALOHA ST
818 6TH AVE N
615 ALOHA ST
607 ALOHA ST
807 AURORA AVE N
810 6TH AVE N
801 AURORA AVE N
ALOHA ST
1000 AURORA AVE N
901 DEXTER AVE N
760 ALOHA ST
925 WESTLAKE AVE N
860 TERRY AVE N
900 WESTLAKE AVE N
1010 VALLEY ST
PARCEL 3230
Lake Union
731 WESTLAKE AVE N
707 WESTLAKE AVE N
900 ROY ST
1010 VALLEY ST
VALLEY ST
PARCEL 3235
PARCEL 3240
670 TERRY AVE N
625 BOREN AVE N
PARCEL 3355
PARCEL 0015
601 WESTLAKE AVE N (BLOCK 43)
753 9TH AVE N
739 9TH AVE N
701 9TH AVE N
701 9TH AVE N
800 ROY ST
810 DEXTER AVE N
801 DEXTER AVE N
712 AURORA AVE N
717 DEXTER AVE N
701 DEXTER AVE N
700 DEXTER AVE N
8TH AVE N
9TH AVE N
700 5TH AVE N
700 5TH AVE N
720 TAYLOR AVE N
567 VALLEY ST
565 VALLEY ST
571 VALLEY ST
714 TAYLOR AVE N
711 6TH AVE N
706 TAYLOR AVE N
703 6TH AVE N
560 ROY ST
6TH AVE N
601 VALLEY ST
721 AURORA AVE N
712 6TH AVE N
708 5TH AVE N
708 6TH AVE N
708 5TH AVE N
702 6TH AVE N
703 AURORA AVE N
615 DEXTER AVE N (SEATTLE DOT DEXTER SITE) PARCEL: 2249000120
ROY ST
ROY ST
ROY ST
ROY ST
5TH AVE N
500 MERCER ST
TAYLOR AVE N
557 ROY ST
557 ROY ST
570 MERCER ST
570 MERCER ST
601 ROY ST
601 AURORA AVE N
601 DEXTER AVE N
DEXTER AVE N
800 MERCER ST
MERCER ST
MERCER ST
MERCER ST
MERCER ST
AURORA AVE N
525 DEXTER AVE N
520 AURORA AVE N
513 DEXTER AVE N
509 DEXTER AVE N
500 AURORA AVE N
501 DEXTER AVE N
501 AURORA AVE N
PARCEL 1410
500 DEXTER AVE N
501 8TH AVE N
850 REPUBLICAN ST
850 REPUBLICAN ST
535 WESTLAKE AVE N (BLOCK 44)
507 WESTLAKE AVE N
503 WESTLAKE AVE N
WESTLAKE AVE N
534 WESTLAKE AVE N
515 WESTLAKE AVE N
520 WESTLAKE AVE N (BLOCK 38)
535 TERRY AVE N (BLOCK 38)
TERRY AVE N
550 TERRY AVE N
964 REPUBLICAN ST
500 WESTLAKE AVE N
PARCEL 0360
440 TERRY AVE N
401 TERRY AVE N
500 5TH AVE N
500 5TH AVE N
REPUBLICAN ST
REPUBLICAN ST
435 DEXTER AVE N
PARCEL 1090
PARCEL 1400
433 8TH AVE N
430 8TH AVE N
817 REPUBLICAN ST
400 9TH AVE N
425 WESTLAKE AVE N
428 WESTLAKE AVE N

Legend

- Other Parcel Boundary
- Property Boundary

Underground Sewer Lines

- King County Main
- SPU Drainage Main
- SPU Combined Main

- King County Main Facility Structures
- Elevation Contour, 10 ft. (King County LiDAR, 2016)

0 90 180 360 Feet

N

Sources: Aerial photograph provided by Hexagon Imagery Program Data. Address information obtained from King County GIS Open Data portal's Parcel Address Area shapefile, published April 4, 2019. Stormwater line data obtained from City of Seattle ArcGIS Online data, published August 6, 2019.

Seattle DOT Dexter Parcel Site
Seattle, Washington

Site Conditions Map

19409-04 10/21

HARTCROWSER
A division of Haley & Aldrich

Figure
2-1

708 5TH AVE N

703 AURORA AVE N

701 DEXTER AVE N (701 DEXTER SITE)

PREVIOUS PLASTIC MIXING AND STORAGE
Approximate Period of Operation: 1950
PREVIOUS PAINT SPRAY BOOTH AND WOODWORKING SHOP
Approximate Period of Operation: 1966-1969

700 DEXTER AVE N (AMERICAN LINEN SUPPLY CO DEXTER AVE SITE)
PREVIOUS DRY CLEANERS
Approximate Period of Operation: 1925 - 1990s

PREVIOUS GAS STATION
Approximate Period of Operation: 1930s

615 DEXTER AVE N (SEATTLE DOT DEXTER PARCEL SITE)
RESIDENCES
Approximate Period of Operation: late 1800s to between 1917 and 1936

ROY ST

AREA OF PREVIOUS FIRE
Approximately: 2005

APPROXIMATE PREVIOUS GAS STATION AND AUTO REPAIR STATION
Approximate Period of Operation: 1930 to mid-1940s

EVIDENCE OF VENT PIPE FOR POSSIBLE FUEL OIL TANK
Period of Operation: Unknown

BOILER/COAL CHUTE
Period of Operation: Unknown

PREVIOUS SEATTLE HARDWOOD FLOOR CO.
Approximate Period of Operation: 1935-1950

PUMP ISLAND

601 AURORA AVE N

HISTORIC PETROLEUM USTs
Three 1,000-gallon heating oil and one 1,000-gallon bunker oil USTs pumped and rinsed in 1997, potentially the same as four solvent USTs totaling 2,000-gallons noted on 1950 Sanborn map

COATING AND DRYING AREA

PAINT RACK

PREVIOUS COLOTYLE CORPORATION (coated wall board manufacturing)
Approximate Period of Operation: 1940-1955

601 DEXTER AVE N (601 DEXTER SITE)

FORMER EXTENT OF BROAD STREET (1936-1958)

PREVIOUS LAUNDRY (No dry-cleaning evident)
Approximate Period of Operation: Late 1920s to 1940s

MERCER ST

AURORA AVE N

APPROXIMATE PREVIOUS GAS STATION AND AUTO REPAIR STATION
Approximate Period of Operation: 1930 to 1940s

FORMER EXTENT OF BROAD STREET (1958-2012)

DEXTER AVE N

Source: Aerial photograph provided by Hexagon Imagery Program Data.

Legend

- Other Parcel Boundary
- Property Boundary

N

0 25 50 100 Feet

Note: Feature locations are approximate.

Seattle DOT Dexter Parcel Site
Seattle, Washington

Historical Property Features and Uses

19409-04 10/21

HARTCROWSER A division of Haley & Aldrich

Figure **2-2**

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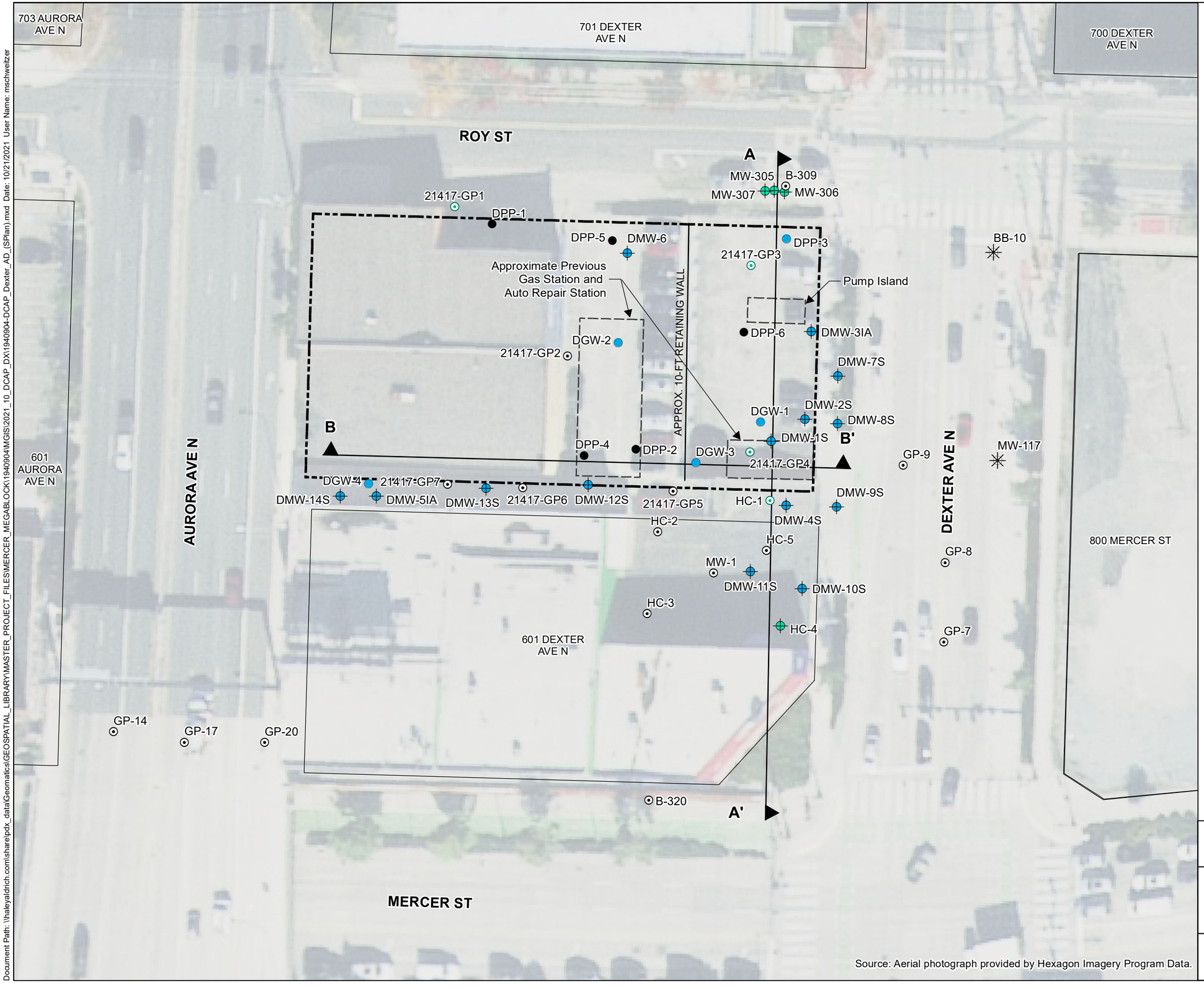

Source: Aerial photograph provided by Hexagon Imagery Program Data.

Legend

RI Investigations

- Soil Boring
- Soil Boring with Grab Groundwater Sample
- Monitoring Well

Other Investigations

- Soil Boring
- Soil Boring with Grab Groundwater Sample
- Monitoring Well
- Abandoned or Decommissioned Monitoring Well
- Cross Section
- Historical Contaminant Source
- Other Parcel Boundary
- Property Boundary

0 20 40 80 Feet

N

Seattle DOT Dexter Parcel Site
Seattle, Washington

Investigation Locations

19409-04 10/21

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Figure **2-3**

DMW-1S	03/05/2019 5 ft el 50.94	03/05/2019 10 ft el 45.94	03/05/2019 12.5 ft el 43.44	03/05/2019 15 ft el 40.94	03/05/2019 20 ft el 35.94
Gasoline Range Organics	5 U	29	1200	67	5 U

DMW-2S	03/02/2020 5 ft el 51.03	03/02/2020 10 ft el 46.03	03/02/2020 15 ft el 41.03	03/02/2020 20 ft el 36.03	03/02/2020 25 ft el 31.03
Gasoline Range Organics	5 U	83	5 U	5 U	5 U

21417-GP4	04/21/2017 12 ft el 43.82	04/21/2017 15 ft el 40.82
Gasoline Range Organics	14.6	269

HC-1	04/11/2019 5 ft el 57.33	04/11/2019 10 ft el 52.33	04/11/2019 12.5 ft el 49.83	04/11/2019 20 ft el 42.33	04/11/2019 25 ft el 37.33	04/11/2019 30 ft el 32.33
Gasoline Range Organics	5 U	5 U	5 U	5 U	290	30

DMW-4S	02/26/2020 5 ft el 56.76	02/26/2020 10 ft el 51.76	02/26/2020 15 ft el 46.76	02/26/2020 20 ft el 41.76	02/26/2020 25 ft el 36.76	02/26/2020 30 ft el 31.76
Gasoline Range Organics	5 U	5 U	5 U	5 U	35	5 U

ROY ST

AURORA AVE N

DEXTER AVE N

APPROX. 10-FT RETAINING WALL

21417-GP1 EL 69.5
DPP-1 EL 68.8
DPP-5 EL 66.3
DPP-3 EL 56.0
BB-10 EL 57.4
21417-GP2 EL 66.5
DGW-2 EL 66.3
DPP-6 EL 55.9
DMW-3IA EL 56.1
DMW-7S EL 58.3
DMW-2S EL 56.0
DMW-8S EL 58.6
DGW-1 EL 56.0
DMW-1S EL 55.9
21417-GP4 EL 55.8
DPP-2 EL 66.2
DPP-4 EL 66.3
DGW-3 EL 56.1
DMW-12S EL 66.0
GP-9 EL 58.0
DGW-4 EL 69.9
DMW-14S EL 70.3
DMW-5IA EL 69.5
21417-GP7 EL 66.5
DMW-13S EL 66.3
21417-GP6 EL 66.1
21417-GP5 EL 66.2
HC-1 EL 62.3
DMW-4S EL 61.8
DMW-9S EL 58.9
HC-2 EL 62.5
HC-5 EL 60.7
GP-8 EL 58.3
MW-1 EL 61.7
DMW-11S EL 61.1
DMW-10S EL 59.5
HC-3 EL 62.4
HC-4 EL 60.2
GP-7 EL 58.5

0 15 30 60 Feet

N

LEGEND

GRO IN SOIL (mg/kg)

- ≥ 300
- ≥ 60 TO 300
- ≥ 30 TO 60
- ND/0 TO < 30 (PROTECTIVE OF GROUNDWATER SCREENING LEVEL)
- NO DATA

SAMPLE DEPTH INTERVALS

- ≤ 5 FT BELOW GROUND SURFACE (BGS)
- 5 TO 10
- 10 TO 15
- 15 TO 20
- 20 TO 25
- > 25
- PROPERTY BOUNDARY

SCREENING LEVELS FOR GASOLINE RANGE ORGANICS (GRO) IN SOIL (mg/kg)	
ZONE	PROTECTIVE OF GW
Vadose (0 to 25 ft bgs) and Saturated (>25 ft bgs)	30

RED TEXT INDICATES EXCEEDANCE OF PROTECTIVE OF GROUNDWATER SCREENING LEVEL

SCREENING LEVEL SELECTION PROCESS IS DISCUSSED IN THE RI REPORT

DEPTH IN FEET BELOW GROUND SURFACE (BGS)

ELEVATION IN FEET (NAVD 88)

U = NON-DETECT AT DETECTION LIMIT AS INDICATED

AERIAL IMAGERY SOURCE: NEARMAP, AUGUST 28, 2020

Seattle DOT Dexter Parcel Site
Seattle, Washington

GRO Distribution in Soil

19409-04 10/21

HARTCROWSER
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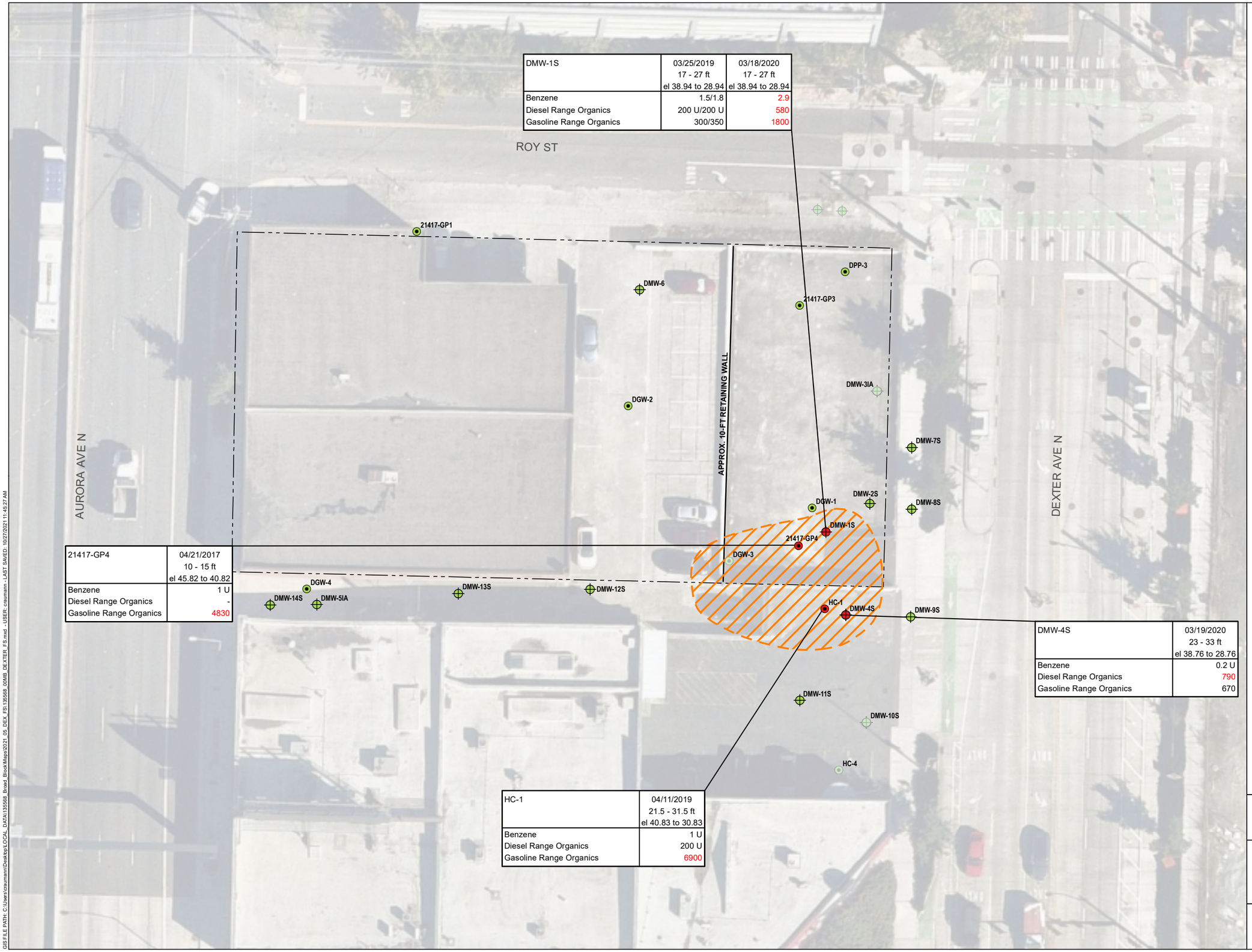
Figure
2-4



DMW-1S	03/25/2019 17 - 27 ft el 38.94 to 28.94	03/18/2020 17 - 27 ft el 38.94 to 28.94
Benzene	1.5/1.8	2.9
Diesel Range Organics	200 U/200 U	580
Gasoline Range Organics	300/350	1800

21417-GP4	04/21/2017 10 - 15 ft el 45.82 to 40.82
Benzene	1 U
Diesel Range Organics	-
Gasoline Range Organics	4830

DMW-4S	03/19/2020 23 - 33 ft el 38.76 to 28.76
Benzene	0.2 U
Diesel Range Organics	790
Gasoline Range Organics	670

HC-1	04/11/2019 21.5 - 31.5 ft el 40.83 to 30.83
Benzene	1 U
Diesel Range Organics	200 U
Gasoline Range Organics	6900

LEGEND

- SOIL BORING, ANALYZED BUT WITHOUT EXCEEDANCE
- SOIL BORING, WITH EXCEEDANCE
- MONITORING WELL, ANALYZED BUT WITHOUT EXCEEDANCE
- MONITORING WELL, WITH EXCEEDANCE
- SHADED-BACK LOCATIONS ARE AT A DIFFERENT ELEVATION THAN THE EXCEEDANCES AND WERE NOT USED TO DEFINE THE EXTENT OF CONTAMINATION
- APPROXIMATE DISTRIBUTION OF GRO, DRO, AND BENZENE EXCEEDANCES IN GROUNDWATER
- PROPERTY BOUNDARY

SCREENING LEVELS FOR GRO, DRO, AND BENZENE GROUNDWATER (µg/L)		
CONSTITUENT	PROTECTIVE OF DRINKING WATER	PROTECTIVE OF INDOOR AIR
Gasoline Range Organics (GRO)	800	-
Diesel Range Organics (DRO)	500	-
Benzene	5	2.4

DATA SHOWN IS FROM 2017-2020

RED TEXT INDICATES EXCEEDANCE OF PROTECTIVE OF DRINKING WATER OR INDOOR AIR SCREENING LEVELS

CONCENTRATIONS SHOWN IN MICROGRAMS PER LITER (µg/L)

SCREENING LEVEL SELECTION PROCESS IS DISCUSSED IN THE RI REPORT

DEPTH IN FEET BELOW GROUND SURFACE (BGS)

ELEVATION IN FEET (NAVD 88)

U = NON-DETECT AT DETECTION LIMIT AS INDICATED
J = ESTIMATED VALUE
- = ANALYTE WAS NOT ANALYZED
/ = MULTIPLE RESULTS INDICATE THAT A FIELD DUPLICATE WAS TAKEN

AERIAL IMAGERY SOURCE: NEARMAP, AUGUST 28, 2020

0 15 30 60 Feet

N

Seattle DOT Dexter Parcel Site
Seattle, Washington

GRO, DRO, and Benzene Distribution in Groundwater

19409-04 10/21

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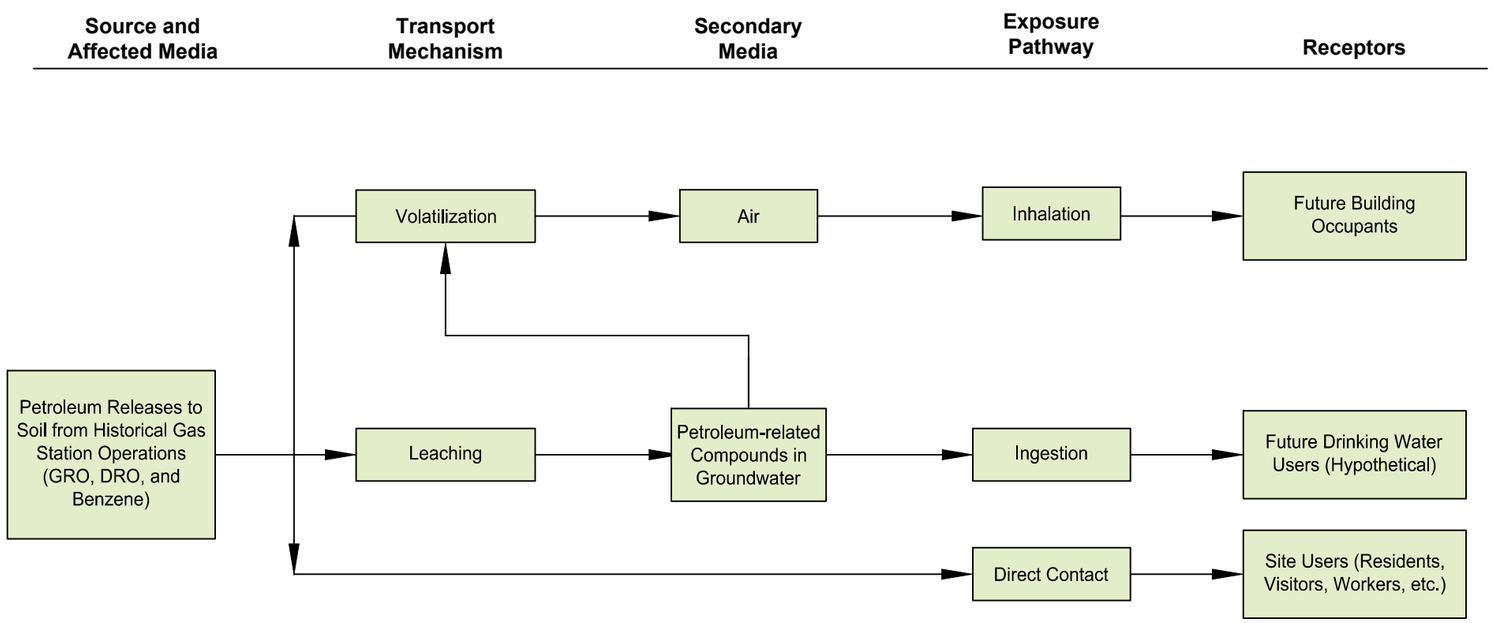
Figure **2-5**



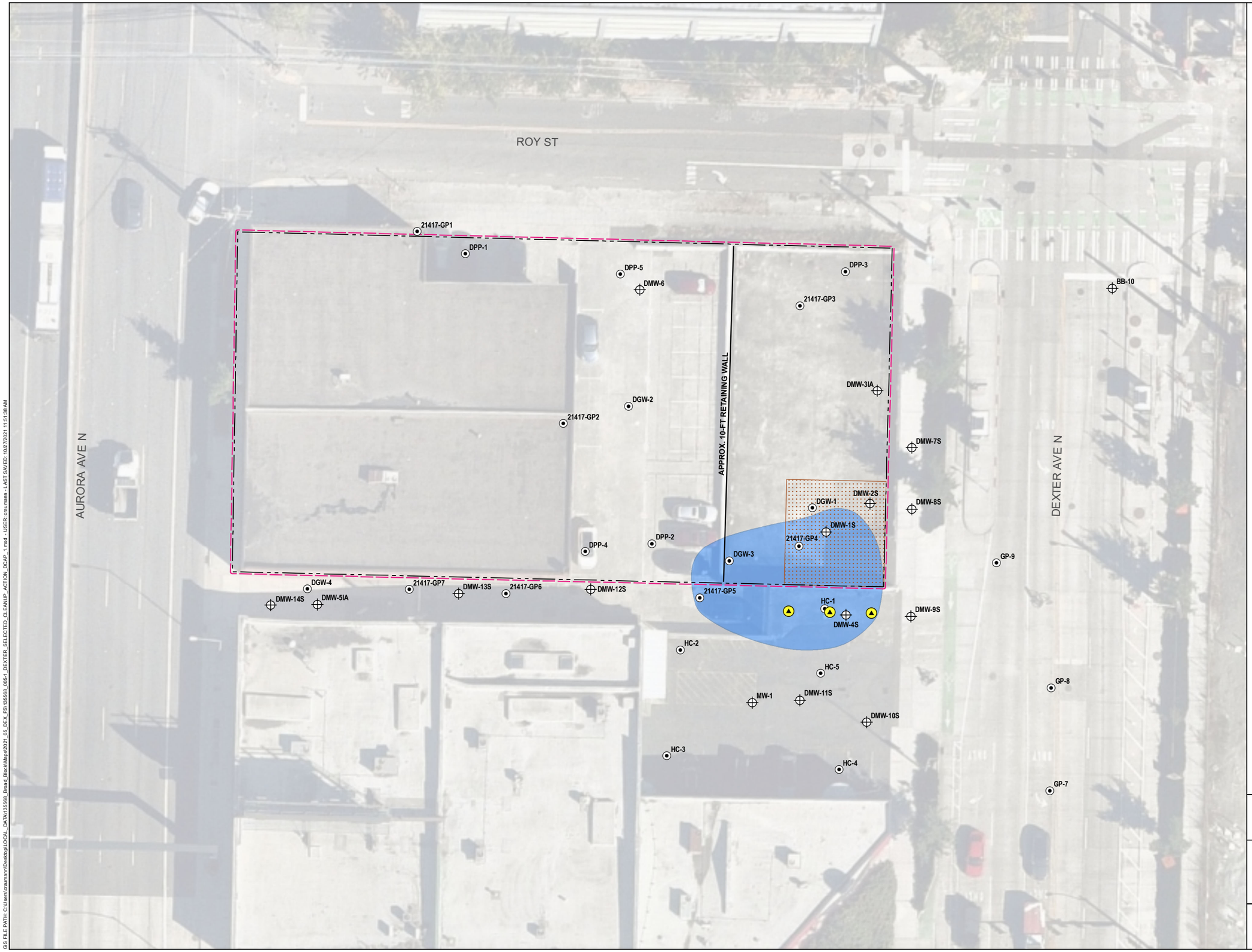
Seattle DOT Dexter Parcel Site
Seattle, Washington

Contaminant Sources, Exposure Pathways, and Receptors

19409-04 10/21

HARTCROWSER A division of Haley & Aldrich

Figure
2-6



LEGEND

- SOIL BORING
- MONITORING WELL
- APPROXIMATE LOCATION OF OXYGEN RELEASE COMPOUND (ORC) INJECTION POINT
- ESTIMATED AREA OF PETROLEUM-CONTAMINATED SOIL TO BE REMOVED FROM THE SITE
- APPROXIMATE AREA OF MONITORED NATURAL ATTENUATION (MNA)
- PROPOSED REDEVELOPMENT EXCAVATION, BUILDING FOOTPRINT, AND VAPOR BARRIER AREA
- PROPERTY BOUNDARY

ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE

AERIAL IMAGERY SOURCE: NEARMAP, AUGUST 28, 2020

0 15 30 60 Feet

N

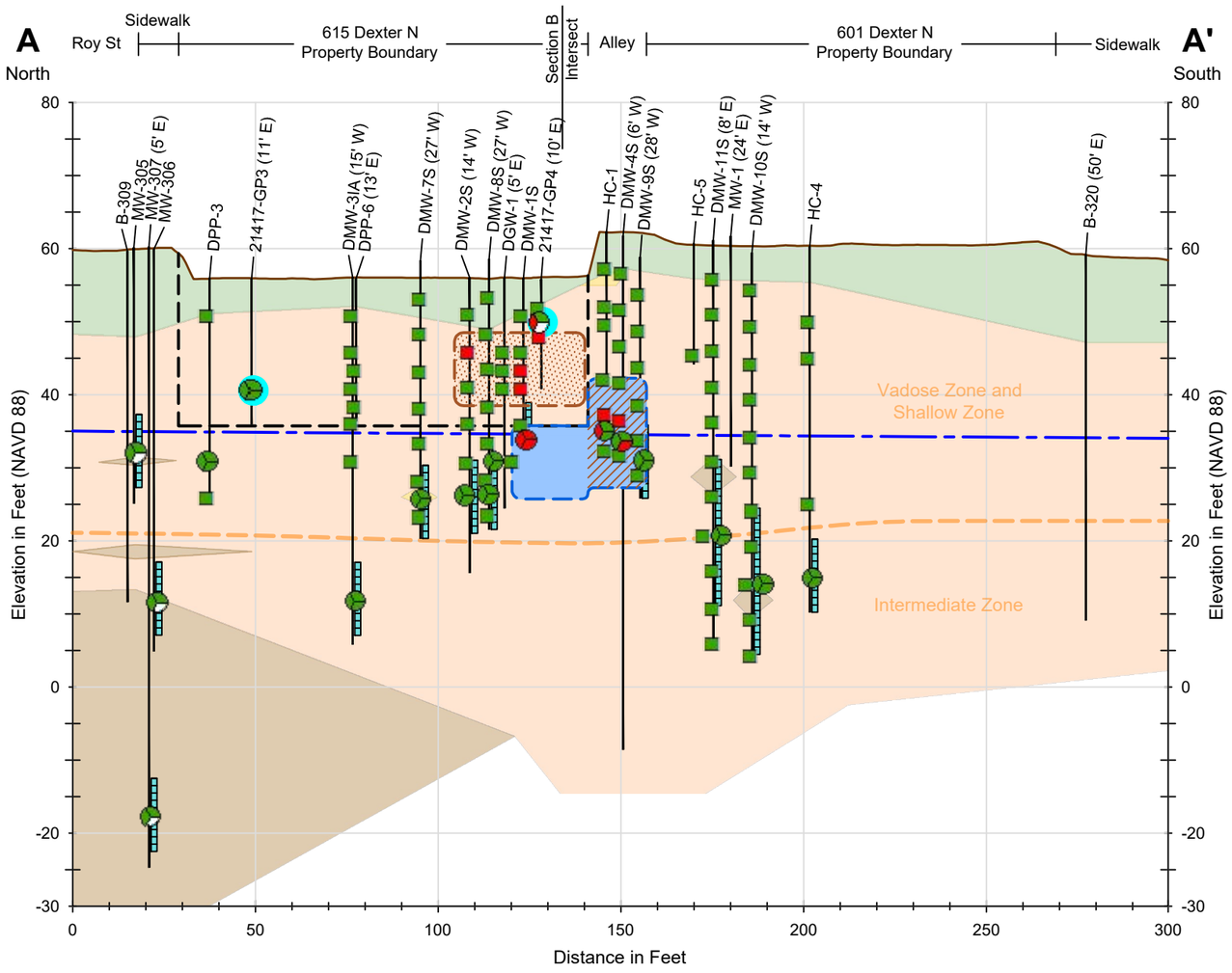
Seattle DOT Dexter Parcel Site
Seattle, Washington

Selected Cleanup Action

19409-04 10/21

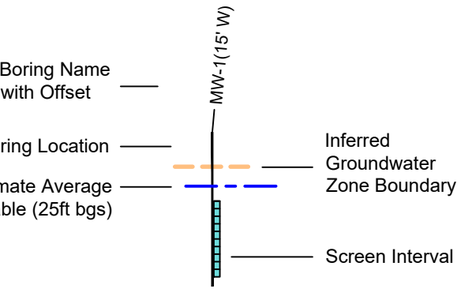
HARTCROWSER
A division of Haley & Aldrich

Figure
5-1



Legend

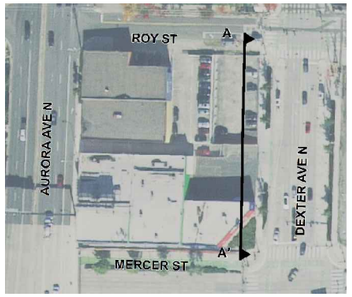
- Monitored Natural Attenuation (MNA)
- Off-Property In Situ Enhanced Bioremediation
- Remedial Excavation



Approximate Limits of Proposed Excavation and Vapor Barrier Area at Seattle DOT Dexter Parcel Site ("Seattle DOT Dexter Parcel," Collins Woerman, 06/25/2020)

Geologic Units (Predominant Component)

- Fill
- Clean Sand and/or Gravel
- Silty Sand and Silty Gravel
- Silt and/or Clay with or without Sand



INSET MAP

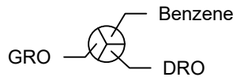
Horizontal Scale in Feet
0 40 80
0 20 40
Vertical Scale in Feet
Vertical Exaggeration x 2

Soil	Cleanup Level (mg/kg)
Gasoline Range Organics[1]	30

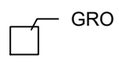
GW	Cleanup Level (µg/L)
Gasoline Range Organics[2]	800
Diesel Range Organics[2]	500
Benzene[3]	2.4

[1] Protective of Groundwater
[2] Protective of Drinking Water
[3] Protective of Indoor Air

GROUNDWATER SAMPLE



SOIL SAMPLE



green = Constituent(s) below cleanup level
red = Constituent(s) above cleanup level
white = Constituent(s) not tested
= Perched groundwater

Explorations DMW-2S, DMW-8S, DMW-9S, DMW-11S, DGW-1, HC-1, MW-306, and MW-307 have been shifted horizontally for visual clarity.

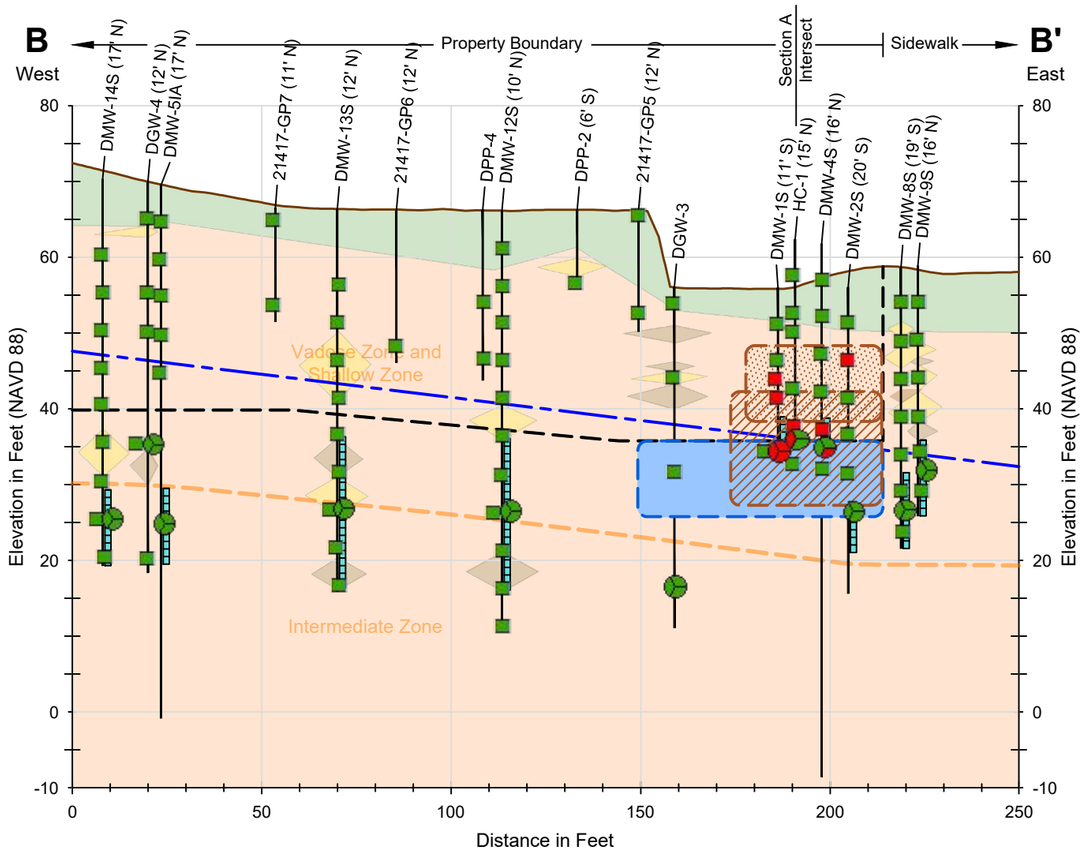
Seattle DOT Dexter Parcel Site
Seattle, Washington

Selected Cleanup Action Cross Section A-A'

19409-04 10/21

HARTCROWSER A Division of Haley & Aldrich

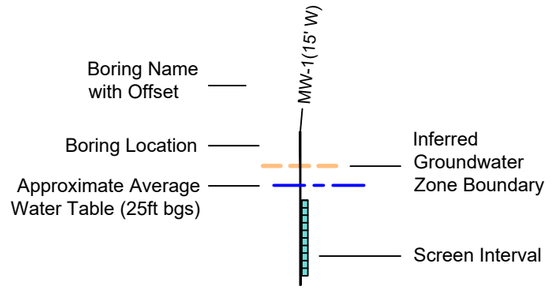
Figure **5-2a**



Legend

- Monitored Natural Attenuation (MNA)
- Off-Property In Situ Enhanced Bioremediation
- Remedial Excavation

This cross section was cut on-property. Any off-property features have been projected onto this section.



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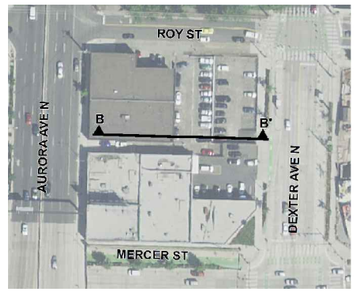

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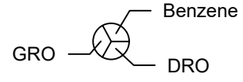
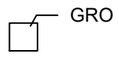


SOIL SAMPLE



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Seattle DOT Dexter Parcel Site
Seattle, Washington

Selected Cleanup Action
Cross Section B-B'

19409-04 10/21

HARTCROWSER
A division of Haley & Aldrich

Figure
5-2b