Remedial Action Plan

Montlake Gas Station

State Route 520 Montlake to Lake Washington
Interchange and Bridge Replacement Project
Seattle, WA

Prepared for:

Graham Contracting Ltd
13555 SE 36th Street, Suite 120
Bellevue, WA 98006

March 31, 2021
PBS Project 41221.003
Contract # 9015

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Acronyms and Abbreviations

ARAR	Applicable, relevant, and appropriate requirements
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene and total xylenes
CFR	code of federal regulations
City	City of Seattle
COCs	contaminants of concern
cPAHs	carcinogenic polycyclic aromatic hydrocarbons
CUL	cleanup level
Ecology	Washington State Department of Ecology
Eh/ORP	oxidation-reduction potential
EM	Electromagnetic
ESA	environmental site assessment
ESO	Environmental Services Office
ft/sec	feet per second
GPR	ground-penetrating radar
HASP	health and safety plan
HOV	high-occupancy vehicle
IC	institutional controls
ID	Identification
mg/kg	milligrams per kilogram
MTCA	(Washington State) Model Toxics Control Act
ORC®	Oxygen Release Compound by Regenesis
OSHA	Occupational Safety and Health Administration
PCB	polychlorinated biphenyls
PCS	petroleum contaminated soils
PTAP	Petroleum Technical Assistance Program
RAP	Remedial Action Plan
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
SDCI	Seattle Department of Construction and Inspections
SGMP	Soil and Groundwater Management Plan
Site	Montlake Gas Station Site
SR	State Route
TEE	Terrestrial Ecological Evaluation
TESC	Temporary Erosion and Sediment Control
TPH	total petroleum hydrocarbon
UST	underground storage tank
VCP	Voluntary Cleanup Program
VOC	volatile organic compound
WAC	Washington Administrative Code
WSDOT	Washington State Department of Transportation
µg/L	micrograms per liter

1 INTRODUCTION

This Remedial Action Plan (RAP) for the Montlake Gas Station (Site) was prepared to meet the general requirements of the Cleanup Action Plan Checklist (Ecology, 2016a) which follow the Model Toxics Control Act (MTCA) cleanup regulations (Washington Administrative Code (WAC) Chapter 173-340). The Site is defined as the area in which contaminants in soil and/or groundwater exceed their respective cleanup levels. A Feasibility Study has not been completed for the Site as the use of a Groundwater Model Remedy to achieve regulatory closure is still being evaluated. If the use of a Model Remedy is approved, completion of a Feasibility Study will not be required. Therefore, this RAP is not considered a Cleanup Action Plan per WAC Chapter 173-340 and deviates from the Cleanup Action Plan Checklist in various sections.

The Site is registered with Ecology with the following information:

Site Name:	Montlake Gas Station
Site Address:	2625 East Montlake Place East Seattle, Washington
Property Owner:	Washington State Department of Transportation
Ecology Facility Site Identification (ID):	47724816
Ecology Cleanup Site ID:	14857
Ecology UST program ID:	100410
Ecology Leaking UST List ID:	8070
Ecology Voluntary Cleanup Program ID:	NW3242
Ecology Site Manager:	Mr. Michael Warfel

1.1 Purpose

The purpose of this RAP is to describe the cleanup standards for the site, the methodology of the cleanup that will be used to achieve the cleanup standards, and the rationale for these decisions. Remedial excavation is planned to be completed during the summer and fall of 2021.

1.2 General Site Information

The Site is defined as the area in which contaminants in soil and/or groundwater exceed their respective cleanup levels. The Site is located in the Montlake Neighborhood of Seattle, Washington. The Site is roughly triangular in shape and is bound to the northwest by the SR 520 Eastbound On Ramp, to the northeast by East Montlake Place East, to the east by 22nd Avenue E, and to the south by Parcel 8805901090 (Figures 1 and 2 and Appendix B, Exhibits 12, 13 and 14). The Site encompasses the entirety of King County Parcel 8805901085 as well as adjacent portions of the public right of way. A former gasoline service station and automobile repair facility were located on parcel 8805901085. The gasoline service station ceased fueling services in January 2020. The former market, automobile repair facility and gasoline service station, including associated fueling islands and canopies, were demolished and removed from the Site in 2020 in preparation for remedial actions. Previous environmental explorations at the Site have identified soil and groundwater with concentrations of regulated contaminants exceeding environmental action cleanup levels set forth in the MTCA regulation (Shannon & Wilson, 2020).

The source of the contamination is the use of a gasoline service station at the Site from approximately 1926 to 2020 and auto repairs from approximately 1980 to 2020. These activities likely resulted in surface spills, overfilling of or leakage from USTs used to store unleaded gasoline (i.e., gasoline-range petroleum hydrocarbons) and waste oil, and spills or leakage from fueling appurtenances and other operations at the Site (such as conveyance lines and connections to fueling islands and the auto repair of vehicles). The locations of the USTs are provided in Figure 2. The gasoline USTs, fueling lines, and pumps were vacuumed out, rinsed, and temporarily closed in place in January 2020. Additionally, a 300-gallon waste oil UST was abandoned in place at the site in the year 2000. The Site Assessment Report for closure of the waste oil UST indicates the tank is at least partially filled with slurry.

2 SITE DESCRIPTION AND PHYSICAL SETTING

This section describes the physical characteristics of the Site and vicinity. Descriptions are derived from historical documents and explorations conducted for the Washington Department of Transportation (WSDOT) by Shannon & Wilson and others.

2.1 Location and Legal Description

The Site is in the northwest quarter of Section 21, Township 25 North, Range 4 East of the Willamette Meridian. The boundaries of the Site are presented in Section 1.2. While the site comprises one assessor’s parcel and portions of the adjacent rights-of-way, it is generally referred to by the address 2625 East Montlake Place East. The parcel is owned by WSDOT and the adjacent rights-of-way are owned by WSDOT and the City of Seattle (City).

The Site is approximately ½ acre in size and is roughly triangular in shape (Figure 2).

2.2 Current and Future Use

WSDOT acquired the property containing the gasoline service station, auto repair facility, and adjacent market from Kemper Development Company in June 2019. WSDOT intends to redevelop the property as part of the SR 520 Bridge Replacement and HOV Program. The gasoline service station, auto repair facility, and Market were closed in January 2020 and were demolished in 2020. The property will be used as a laydown area for the SR 520 project. The adjoining north property will be redeveloped as an on/offramp. The property will be sold for development after the SR 520 project is completed. The Site is zoned Neighborhood Commercial 1 by the City.

2.3 Geologic Setting and Soil Descriptions

The Site is located within the Puget Sound Basin, which lies between the Cascade Range to the east and the Olympic Mountains to the west. The landscape configuration of the Puget Sound Basin was a consequence of multiple Pleistocene glaciations resulting in a series of north-trending, elongated ridges separated by deep troughs, the latter now occupied by marine waters or freshwater lakes or streams.

During explorations, the soil observed at the Site generally included the following sequence of soil stratum layers (or horizons), listed as encountered from shallowest to deepest (Shannon & Wilson, 2020):

- ***Sandy silt to silty sand*** with local silty clay layers, nonplastic to medium plasticity, gray to brown-gray and iron-oxide stained locally, dry to wet, variable fill and native materials with pavement and base course commonly in the uppermost section. Typically encountered from approximately 2 to 20 feet below ground surface (bgs) (approximately 18 feet thickness) and underlain by:
- ***Sand to silty sand (where encountered)***, typically clean with trace fines, but locally slightly silty to silty, trace of gravel, gray to dark-gray, typically wet and saturated with water. Typically encountered from 20 to 25 feet bgs (approximately 5 feet thickness) and underlain by:
- ***Glacial till***, very dense, silty sand to sandy silt with scattered gravel, dry to moist, diamict. Typically encountered at depths greater than 25 feet bgs except for the southwest portion of the Site, where it

is much shallower at approximately 15 feet bgs. The glacial till extends to at least 60 feet bgs as logged in boring SB-1-19 (renamed as RW-1-19).

Conceptual profiles of the observed subsurface conditions along transects A-A' and B-B' (Appendix B, Exhibit 3 and 4) show the approximate location and distribution of the soil stratum described above, groundwater table, positive field screening results of petroleum hydrocarbon presence (odor, sheen, or staining), and soil sampling locations that exceed MTCA Method A cleanup levels (CULs).

A contoured map was created to depict the glacial till surface elevation throughout the Site (Appendix B, Exhibit 5). In general, the till surface has a trough that trends southeast-northwest throughout the Site. This depression or trough is typically where the saturated, sand and silty sand are encountered and may correlate with an old creek that scoured the till, leaving behind water-transported sandy soil (Shannon & Wilson, 2020).

2.4 Hydrogeology

The vicinity of the Site is bordered by three surface water hydrologic units: Lake Washington to the east, the Montlake Cut of the Lake Washington Ship Canal to the north, and Portage Bay to the west. The Montlake Cut connects Lake Washington to Portage Bay and flows east to west. It was constructed in the early 1900s.

Based on groundwater elevation monitoring conducted during October 17, 2019, groundwater was approximately 9.1 to 17.4 feet bgs, or at an elevation of 48.0 to 41.6 feet above mean sea level. Quarterly groundwater elevation monitoring efforts, conducted by WSDOT, in nearby piezometer H-691p-16 (Appendix B, Exhibit 2) show that groundwater levels in the area may fluctuate by approximately 10 feet throughout the year (Appendix B, Exhibit 6). Groundwater elevation is generally the highest toward the end of the wet season, typically April, and lowest toward the end of the dry season, typically September.

Water was encountered in the sandy silt to silty sand horizon with a relatively low specific yield and within the sand to silty sand perched on the glacial till unit with a relatively high specific yield. The specific yield of the sand was roughly 20% of the volume of the sample (e.g., 1 cubic inch would yield 0.2 cubic inch of water), whereas the specific yield of the silty sand was as low as zero (e.g., no water yield from 1 cubic inch of saturated silty sand). Due to the higher specific yield and interpreted hydraulic transmissivity of the sand to silty sand, this unit is the most likely horizon to transmit and transport contaminants away from the source zone. Based on the relative density, grain size, and field observations, the glacial till is likely acting as an aquitard, and local groundwater is perched on top of this unit.

A potentiometric surface map of groundwater elevation and associated groundwater flow direction(s) is provided as Appendix B, Exhibit 7. Based on the October 2019 groundwater measurements, the primary flow direction across the Site is to the north with an approximate hydraulic gradient of 0.04 foot per foot (unitless). Toward the eastern portion of the Site, as monitored in RW-1-19, MW-1-19, and MW-4-19, groundwater has more of a northeasterly flow direction. This slight difference in flow direction may be due to groundwater beginning to preferentially flow through the more permeable sands encountered within this vicinity of the Site. During the dry season, when the groundwater is low and not recharging from rain events, the groundwater flow direction may begin to follow the surface gradient of the glacial till unit more closely (i.e., groundwater flow would occur as gravity-driven flow along the till slopes from high to low) in a northwesterly direction.

3 PREVIOUS ENVIRONMENTAL ASSESSMENTS

Environmental assessments have been performed at the Site from 2000 to 2019. This section summarizes available and relevant activities completed at the Site. A more detailed discussion is provided in the RI Report (Shannon & Wilson, 2020).

3.1 Soil and Groundwater Investigation

The detected soil and groundwater impacts are generally consistent with releases of unleaded gasoline to the subsurface in the vicinity of the USTs and fueling islands. Contamination was detected in shallow soils near the USTs and fueling islands, indicating nearby releases. The vertical extent of contamination was found to be bounded by the glacial till unit acting as an aquitard (no-flow boundary) and preventing downward migration beyond the top of this horizon (Shannon & Wilson, 2020).

The lateral extent of contamination appears to be migrating at depth, likely due to contamination being sourced by the migration of contaminated groundwater within the sandy unit perched on the till. Site contamination in groundwater appears to have migrated offsite and intersected with the combined sewer line to the north. Contaminated groundwater then appears to have preferentially migrated along the combined sewer line but no farther than well MW-5-20 (Shannon & Wilson, 2020).

The soil and groundwater samples were generally analyzed for the following:

- Gasoline-range hydrocarbons
- Diesel-range hydrocarbons
- Oil-range hydrocarbons
- Polychlorinated biphenyls (PCBs)
- Volatile organic compounds (VOCs)
- Semi-volatile organic compounds
- Metals

Soil samples had detectable concentrations of chemicals above the regulatory limits, including:

- Gasoline-range hydrocarbons
- BTEX and gasoline-related VOCs
- One boring (H-19-18) contained lube-oil-range hydrocarbons, carcinogenic polyaromatic hydrocarbons (cPAHs) and naphthalene.

Groundwater was encountered between 15 to 20 feet bgs, and reconnaissance groundwater samples had detectable concentrations of chemicals above the regulatory limits, including:

- Gasoline-range hydrocarbons
- VOCs: BTEX and gasoline-related VOCs (1,2-dichloroethane, naphthalene, bromochloromethane)
- Dissolved metals: arsenic in multiple locations, and antimony, selenium, and silver in one other location

BTEX compounds (constituents of gasoline) were detected in the subsurface and often exceeded CULs where the gasoline contamination exists. Chromatographs of the petroleum hydrocarbon laboratory analyses show some samples of gasoline-impacted soil and groundwater are more weathered than others. In addition, some gasoline analytical results have lower concentrations of the volatile BTEX compounds than other samples. This depletion of BTEX compounds may indicate that the more volatile compounds have partitioned out into the gaseous phase, indicating longer residency time and likely older gasoline contamination. Because the BTEX ratios and gasoline results and chromatographs indicate variable degrees of weathering, this further supports the potential for multiple releases to have occurred over time (Shannon & Wilson, 2020).

Arsenic in groundwater above the MTCA CUL is a function of background concentrations, except in the center of the gasoline station where elevated gasoline-range hydrocarbons are mobilizing the metal. Statistical analysis to demonstrate the background concentration of arsenic in groundwater in the areas of the Montlake Gas Station was performed by Shannon and Wilson and included in a WSDOT Memorandum dated October 27, 2020 in response to Ecology's Opinion Letter to the Remedial Investigation (WSDOT, 2020).

The conclusions in the ESAs were that the source of the contaminants was the Montlake Gas Station property, because sampling showed decreasing concentrations of contaminants farther away from the gasoline service station in each direction. The investigation data from the Montlake Gas Station and from relevant borings, monitoring wells, and piezometers associated with the SR 520 project are incorporated into exhibits presented in the RI report (Shannon & Wilson, 2020), and included as Appendix B.

3.2 Subsurface Survey

Subsurface surveys were conducted in 2018 and 2019 to locate utilities and other potentially unknown USTs in the parking area of the western portion of the Site. The surveys utilized ground-penetrating radar (GPR) and electromagnetic (EM) survey methods. This GPR and EM survey did not identify unknown USTs; however, an area in the vicinity of MW-2-19 had an anomalous GPR signal. The GPR signal was indicative of coarser backfill material and it is suspected that the backfill may have been placed after a tank removal, since the anomalous GPR signal was limited to an area of approximately 8 by 6 feet (Shannon & Wilson, 2020).

3.3 Assessment for Potential Vapor Intrusion

Two soil gas probes were installed adjacent to a previously existing building on the Site and the soil gas sampled from the one probe. The soil gas sample collected from 5 feet bgs did not exceed indoor air CULs. As this sample would reflect a "worst-case" scenario for indoor air (by assuming indoor air and soil gas adjacent to the building were at equilibrium), it is unlikely that at the time of sampling the indoor air in the former building had concentrations above the human health exposure limits generated by the nearby gasoline-related contamination (Shannon & Wilson, 2020).

4 CONCEPTUAL SITE MODEL

This section includes a summary of the potential human health and environmental concerns resulting from the contamination at the Site. A detailed discussion is provided in the RI Report (Shannon & Wilson, 2020b).

4.1 Primary Sources and Transport Mechanisms

Exhibit 17 (Appendix B) presents the conceptual model for the Site. As shown in the exhibit, the potential primary sources of contamination at the Site include leaks from USTs, spills and overflows from fueling and other site operations, and vehicle exhaust.

Primary potential transport mechanisms include the following (Shannon & Wilson, 2020):

- Gravity-driven infiltration downward in the subsurface until the groundwater table is encountered and thereafter in the direction of groundwater flow. As gasoline and BTEX are less dense than water, horizontal spreading and smear may occur at the water table due to buoyancy effects and seasonal groundwater elevation changes.
- Runoff over paved surfaces to catch basins with subsequent release to subsurface through leaky sumps or conveyance lines.

- Migration of groundwater contamination along the combined sewer backfill located to the northeast and north of the site, and extending to the northwest across the eastbound on and off ramps
- Upward migration (vapor or airborne transport) of volatile contaminants from soil and groundwater. These contaminants may concentrate below paved surfaces or infiltrate into nearby buildings.

4.2 Exposure Mediums, Exposure Pathways, and Potential Receptors

Potential exposure mediums and pathways associated with the Site include the following (Shannon & Wilson, 2020):

- Groundwater (direct contact or ingestion)
- Soil (direct contact and ingestion)
- Vapor (inhalation)

Potential receptors include on- and off-site human receptors and ecological receptors.

4.2.1 Current On-Site Human Receptors

The Site is currently closed to the public, gated off with a lock, and accessible to only WSDOT SR 520 Bridge Replacement and HOV Program workers. Areas of soil and groundwater contamination are largely overlain by paved surfaces, so exposure via direct contact or ingestion would be limited.
Site groundwater is not a source of drinking water, and there is not a route for direct contact with groundwater for Site workers.

Though VOCs have been detected in soil and groundwater, soil gas monitoring points (SG-1-19 and SG-2-19) installed between the contamination and the former Market building indicate that concentrations are less than the indoor human health exposure values; therefore, workers at the Market were not being exposed to VOC concentrations above CULs that could intrude to the indoor air. Vehicle exhaust may expose Site workers via inhalation pathways; however, the concentration of airborne contaminants due to vehicle exhaust at the Site is not assumed to be elevated compared to other gas fueling sites (Shannon & Wilson, 2020).

4.2.2 Future On-Site Human Receptors

The proposed future use is redevelopment and construction for the WSDOT SR 520 Bridge Replacement and HOV Program. Future on-site human receptors include construction workers involved with the proposed redevelopment and associated subsurface work. Potential exposure pathways to construction workers include direct contact or ingestion of groundwater and soil and the inhalation of soil particles or soil vapor during construction activities. These pathways are considered complete.

Construction workers, or other workers working in the contaminated area when the paved surface is removed, may be exposed by direct contact and/or inhalation. Inhalation exposure of volatile BTEX chemicals may occur because the data suggests BTEX may be accumulating just below the pavement. Direct contact exposure to groundwater could occur during excavation for this remedial action at depths near and below the groundwater table (approximately 10 to 20 feet bgs depending on location and season).

Site redevelopment will likely result in paved surfaces throughout the Site after remedial actions have been completed to remove the source material. Drinking water at the Site is supplied by the City, and no drinking water wells were identified in the vicinity of the Site. Direct contact, ingestion, and inhalation from groundwater, on-site accumulated stormwater, soil, and soil vapor are considered incomplete pathways to potential future Site occupants (Shannon & Wilson, 2020).

4.2.3 Offsite Human Receptors
Site groundwater is not a source of drinking water to off-site human receptors. Contaminated groundwater has reached the backfill of the nearby combined sewer (Appendix B, Exhibits 13 and 14). This utility appears to act as a preferential pathway to transport Site groundwater to the north and northwest but not as far as the surface water of Lake Washington near the Montlake Cut. Off-site human receptors could potentially be exposed to Site contamination via direct contact with off-site groundwater, vapor in nearby sewer maintenance shafts, and via ingestion of soil during construction work and are considered complete pathways (Shannon & Wilson, 2020).

A mobile food vendor, Burb's Burgers, operates at 2108 E Roanoke Street adjacent to the Site. Contaminated soil and groundwater are capped entirely by asphalt and/or concrete preventing direct exposure to human receptors at Burb's Burgers. The mobile structure from which the vendor operates does not have a permanent foundation and inhalation of soil vapors is not a complete exposure pathway. As such, human receptors at Burb's Burgers do not have potential to be exposed to contaminants under normal circumstances. However, exposure of human receptors at Burb's Burgers to contaminants via vapors or fugitive dust are possible during remedial actions.

Protection monitoring methods to prevent exposure of offsite human receptors, including employees and patrons of Burb's Burgers, to contaminants during remedial activities are discussed further in Section 7.6.1.

4.2.4 Ecological Receptors
Exposure pathways to current terrestrial ecological receptors are incomplete, as the Site and the surrounding area is paved. A TEE has been completed for the Site and is provided in the RI Report (Shannon & Wilson, 2020).

5 CLEANUP STANDARDS

5.1 Contaminants of Concern (COCs)
The section provides a summary of the COCs for the Site and discusses the locations and extent in soil and groundwater of the COCs.

Based on the known previous uses of the Site and the frequency at which contaminants were detected during environmental investigations, the following constituents have been established as COCs in soil and groundwater at the Site:
- Gasoline-range petroleum hydrocarbons,
- BTEX compounds,
- Diesel- and oil-range petroleum hydrocarbons, and
- Arsenic.

Additionally, the following constituents have been established as COCs in soil only:
- Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs)

Investigations have historically identified high concentrations (compared to CULs) of gasoline-range petroleum hydrocarbons and BTEX in soil and groundwater at the Site. COC detections have been orders of magnitude above CULs. The most significant contaminants, in terms of extent and concentrations compared to CULs, observed at the Site are gasoline-range petroleum hydrocarbons and benzene. As such, these contaminants are considered primary pollutants for the Site and will drive subsequent remediation. Soil gas concentrations of the COCs were below the CULs. Migration to soil gas is not further discussed due to the concentrations being below relevant CULs.

5.2 Cleanup Levels

This section discusses the selection of applicable or relevant and appropriate screening levels to evaluate the extent of contamination and potential risks to human health and the environment from Site contaminants. CULs have been developed based on Site history and detections within each medium.

MTCA specifies that CULs must be set in consideration of the reasonable maximum exposure that is expected to occur at the property. Reasonable maximum exposure is defined as "the highest exposure that can be expected to occur for a human or other living organism at a site under current and potential future site use" (WAC 173-340-200). In accordance with MTCA, CULs were developed based on the reasonable maximum exposure anticipated to occur for humans and ecological receptors exposed to soil, groundwater, and air at the Site.

CULs for soil and groundwater were selected as MTCA Method A Cleanup Levels for Unrestricted Land Use values for direct contact and protection of drinking water. Based on previous environmental investigation, contaminant concentrations in soil gas did not exceed the screening levels established in the RI report (Shannon & Wilson, 2020). As such, soil gas is not considered an impacted media at the Site, and cleanup levels are not further established or discussed in this document. The following table provides the CULs for COCs.

Chemicals of Concern	Soil CUL (mg/kg)	Groundwater CUL (µg/L)
Total Petroleum Hydrocarbons (TPH)		
TPH-G	30*	800*
Sum of TPH-D and TPH-HO	2,000	500
Volatile Organic Compounds (VOCs)		
Benzene	0.03	5
Toluene	7	1,000
Ethylbenzene	6	700
Xylenes	9	1,000
PAHs		
cPAH (by Toxicity Equivalence Factor)[b]	0.1	0.1
Metals		
Arsenic	20	5

[a]The selected CUL for TPH-G is the MTCA-A CUL when benzene is present.
[b]cPAH concentrations will be calculated using the Toxicity Equivalence Factor (TEF) methodology per WAC 173-340-708(8). cPAH values per TEF are compared to the MTCA Method A CULs for benzo(a)pyrene in soil and groundwater as presented in the table above.

5.3 Points of Compliance

The point of compliance for human direct contact with soil based on a reasonable maximum depth of excavation and the assumption that excavated soil may be placed at the surface where contact occurs is 15 feet bgs throughout the Site (WAC 173-340-740(6)(d)).

The standard point of compliance for groundwater is throughout the Site from the uppermost level of the saturated zone at approximately 10 to 20 feet bgs extending vertically to the lowermost depth that could potentially be affected by the Site (WAC 173-340-720(8)(b)), which is approximately 25 feet bgs at the deepest point.

6 CLEANUP ACTION APPROACH

The Site has been characterized and approximate limits of soil and groundwater contamination established (Appendix B, Exhibits 12, 13, and 14) with a level of confidence such that remediation is the next environmental action for the Site. Remedial excavation of the contamination is anticipated to commence in the summer of 2021. In advance of excavation, the USTs have been temporarily closed in place during January 2020, and the USTs will be permanently removed as part of the remedial excavation. WSDOT has deployed Regenesis Oxygen Release Compound® (ORC®) in two groundwater monitoring wells (RW-1-19 and MW-3-19) to degrade contaminants and reduce offsite migration of contamination.

In the summer of 2021, the USTs and associated contaminated soil will be removed by excavation. The 30-Day notice of closure will be submitted to Ecology to accommodate the tank removal action. Prior to excavation, monitoring wells within the excavation work area will be decommissioned by a licensed well driller. Groundwater in the excavation area will be managed as contaminated for the purpose of disposal. Health and safety monitoring and engineering controls will be used to manage potential impacts, (i.e., dust, water, and air) to workers and the public.

The estimated extent of the excavation is provided in Figures 2 through 5. The excavation limits to the northwest, north, and northeast will be sloped to protect the roadways, and traffic will be diverted for the duration of the off-property work. Shoring of the northwest, north and northeast sidewalls of the excavation is not planned but may be necessary to achieve maximum removal of contaminated soil. Prior to backfilling the excavation, ORC will be placed at the base to mitigate offsite groundwater contamination as described in Section 8.6. Compliance monitoring following cleanup actions is described in Section 7.6.

It is anticipated that cleanup activities will be conducted in accordance with a Model Remedy for Sites with Petroleum Impacts to Groundwater (Ecology, 2017). It is noted that Ecology stated in its October 27, 2020 opinion letter to the RI Report that selection of Model Remedy 2 was premature at this point in time. The appropriateness of use of a model remedy for cleanup at the site, and the selection of a model remedy for use remains dependent of the results of confirmation soil sampling and groundwater monitoring following remedial excavation. However, it is relevant to evaluate the appropriateness of use of a model remedy at this stage of the cleanup process, as the desire to pursue cleanup using a model remedy has the potential to affect the design of the remedial excavation. At this time, it is anticipated that either Model Remedies 2 or 4 will be selected for Site cleanup.

It is expected that soil CULs will be achieved across the Site, with a small exception for potential contamination left near the combined sewer due to impracticability of excavation near this large utility. It is expected that once the vast majority of the source zone is removed, and with the addition of ORC within the base, groundwater CULs will be achieved within several years of the source removal activities. Groundwater monitoring will be conducted post-excavation to ensure CULs are met.

7 DESCRIPTION OF SELECTED REMEDY

7.1 Site Description

The Site is defined by locations where concentrations of COCs in soil and/or groundwater exceed their respective CUL. As described in Section 3.3, COCs have not been detected in soil vapor in exceedance of CULs. As such, the soil vapor media is not used to define the boundaries of the Site.

Sample locations where concentrations of COCs in soil exceeded CULs are depicted in Exhibit 12 (Appendix B). Monitoring well and grab groundwater sample locations where concentrations of COCs in groundwater exceeded CULs are depicted in Exhibits 13 and 14, respectively (Appendix B).

7.2 Description of the Cleanup Action

Based on environmental investigation conducted at the Site as described in the RI Report, the following methods have been selected as cleanup actions at the Site:

1. Removal of petroleum contaminated soil by excavation and offsite disposal.
2. Application of ORC to the subsurface for the purpose of enhanced degradation of petroleum constituents in groundwater.

The benefits of the above proposed cleanup actions are the following:

- The volume of contaminated soils present at the Site will be greatly reduced. Following completion of remedial excavation, only a minimal volume of contaminated soil will remain where removal is infeasible due to adjacent utilities or roadways.
- Contaminated soil serves as a secondary source of contamination to groundwater via leaching of contaminants from soil to groundwater. Removal of this secondary source will allow concentrations of contaminants in groundwater to attenuate more quickly given that additional contaminants will not be migrating to groundwater via leaching from the secondary source.
- The risk of exposure by construction workers to contaminated soil during future construction projects is reduced.
- The timeframe for attenuation of contaminant concentrations in groundwater to below CULs is reduced due to the enhanced degradation of petroleum contaminants due to introduction of ORC.
- The likelihood that a post-cleanup deed restriction or environmental covenant will be required for regulatory closure of the property is reduced.

7.3 Cleanup Standards and Point of Compliance

The proposed cleanup levels and points of compliance for the Site are presented in Sections 5.2 and 5.3, respectively.

7.4 Applicable, Relevant, and Appropriate Requirements (ARARs)

The following regulations and associated guidance serve as ARARs for the remedial action:

- WAC Chapter 173-340 Model Toxics Control Act (MTCA)
- Ecology's Guidance for Remediation of Petroleum Contaminated Sites
- Ecology's Guidance for Site Checks and Site Assessments for Underground Storage Tanks
- WAC Chapter 173-360A, Underground Storage Tank Regulations
- WAC Chapter 173-350 Solid Waste Handling Standards
- WAC Chapter 173-303 Dangerous Waste Regulations
- Seattle Municipal Code (SMC) 22.170.060, Grading Permit,
- Code of Federal Regulations (CFR) parts 239 - 282: Resource Conservation and Recovery Act (RCRA)

7.5 Restoration Timeframe

The soil component of the cleanup action provides a reasonable restoration time frame by excavating and removing soil with COC concentrations exceeding cleanup levels in 2021.

Residual soil and groundwater contamination that is inaccessible for excavation will be treated by ORC that is placed within the excavation prior to backfill and will provide a reasonable restoration time frame by providing time-release pellets to provide ongoing treatment for up to two years following placement. After the ORC product has been released, additional time for natural attenuation may be required and could take an additional 2 to 3 years, for an estimated restoration time of 4-5 years following excavation and ORC placement.

This restoration time frame is based on best engineering judgment by comparing the proposed action to similar actions and expected biodegradation treatment timeframes, in addition to information from the treatment vendor.

7.6 Compliance Monitoring

There are three types of compliance monitoring as defined by WAC 173-340-410: protection, performance, and confirmational monitoring. For this remedial action, protection, performance and compliance monitoring will be conducted as follows:

7.6.1 Protection Monitoring

Protection monitoring confirms that human health and the environment are adequately protected during the cleanup action as described in the safety and health plan (HASP) and Soil and Groundwater Management Plan (SGMP), (see Appendix C).

Protection monitoring procedures are established in Section 5 of the SGMP (Appendix C) and will be further detailed in a site-specific HASP that will govern site safety during implementation of the remedy.

Dust control methods established in the SGMP will ensure that visible fugitive dust is not generated in the work area. Protection monitoring will include air monitoring at the property boundary to manage potential impacts to the public.

It is understood that remedial excavation actions are likely to release potential petroleum odors in and around the work area. Odors will be minimized using the methods established in Section 5.9 of the SGMP (Appendix C). Perimeter air monitoring will be performed for contaminant vapors at the Site boundary, including adjacent to Burb's Burgers, to ensure that odors escaping the Site are nuisance odors only, and do not present a health risk to offsite receptors. Perimeter air monitoring will include collecting a measurement of air quality in the downwind direction at the work area boundary (established by temporary fencing during remedial actions) using a photoionization detector (PID). PID measurements will be collected at 30-minute intervals and recorded on an air monitoring data sheet in the field. In the event that downwind work area boundary air concentrations exceed 10 part per million (ppm) per the PID measurement, work will be halted, and odor control measures reevaluated to ensure unacceptable contaminant vapor concentrations are not escaping the work area.

7.6.2 Performance Monitoring

Performance monitoring confirms that the cleanup action has attained cleanup levels and/or other performance standards, such as permit requirements. Performance monitoring for soil excavation will include confirmation soil sampling of the excavation on 20-foot grid centers as described in Section 8.7.

Performance monitoring for groundwater will be conducted following the remedial action and is likely to require installation of one new monitoring well in between the excavation extent and combined sewer line, as suggested by Ecology in the Opinion Letter for the RI (Appendix A). Groundwater performance and confirmation sampling will be evaluated by WSDOT and Seattle Department of Transportation (SDOT) and presented in a Compliance Monitoring Plan (CMP) that meets the requirements of WAC 173-340-410.

7.6.3 Confirmation Monitoring

Confirmation monitoring confirms the long-term effectiveness of the cleanup action once cleanup levels and/or other performance standards have been attained.

Confirmation monitoring will also be conducted as part of the final cleanup action for the Site and will include groundwater monitoring after cleanup levels have been achieved to confirm that Site groundwater concentrations continue to remain below applicable cleanup levels. Confirmation monitoring is anticipated to be required for a period of at least 1 year (four consecutive quarters) following attainment of Site groundwater cleanup levels.

7.7 Schedule for Implementation

The remedial action implementation schedule outlined here identifies key elements and milestones of the cleanup action as they are understood at this time. It is noted that the schedule for implementation may be affected by the general construction schedule for the project and is subject to change.

DATE	ACTIVITY
Completed	Demolition of on-site structures and fueling canopy
7/26/2021	UST decommissioning by removal and UST Site Assessment
8/2/2021	Projected start date for beginning Stage 1 remedial excavation
8/9/2021	Projected start date for beginning Stage 2 remedial excavation
9/2/2021	Projected completion of remedial actions
11/1/2021	Projected submittal of Remedial Action Report to Ecology
March 2022	Projected commencement of confirmation groundwater monitoring
2024 - 2026	Projected date of regulatory closure

7.8 Institutional/Engineering Controls

The cleanup action may include engineering and institutional controls to protect human health and the environment from residual contamination in soil and groundwater in accordance with WAC 173-340-440. The need for institutional and/or engineering controls will be evaluated based on the results of remedial actions described in this RAP.

Should institutional controls be required based on the results of performance and confirmation monitoring following completion of remedial actions, an Institutional Controls (IC) Plan will be prepared and implemented at the Site.

8 SELECTED REMEDY IMPLEMENTATION

8.1 Site Preparation

The structures and fueling canopy formerly present at the Site have been demolished in preparation for cleanup actions. Prior to implementation of the cleanup actions, the property will be secured with temporary fencing to prevent potential contact of the public with equipment or contaminated material. On-site personnel and traffic control will further prevent the public from exposure to equipment or contaminants during working hours. Open excavations will be secured with temporary fencing outside of working hours until backfill and repaving activities are complete.

The excavation will proceed in Stages due to logistics and traffic management. Upon completion and partial backfill of Stage 1 of the remedial excavation, East Montlake Place East and the Eastbound Offramp of SR 520 will be temporarily closed to allow for completion of Stage 2 of the remedial excavation.

8.2 Segregation of Overburden Soil for Waste Profiling

Given the nature of petroleum releases and their tendency to migrate downward and outward from the source area, it is possible that portions of the overburden soil in the top 5 to 10 feet of the proposed excavation is not contaminated. In the event that both of the following conditions are met, portions of the overburden soil may be segregated and stored on site for use as backfill material:

- Field observations indicate the potential for portions of the overburden soil to meet criteria for reuse on site as established in the SGMP (Appendix C), and
- Adequate space exists on site for the temporary stockpiling of overburden soil pending sampling, sample analysis and possible use as backfill.

Should potentially clean overburden soil be segregated and stockpiled on site, waste samples will be collected of the stockpiled soil as established in the SGMP (Appendix C). Stockpile soil samples, if collected, will be analyzed for the following:

- TPH-G by Method NWTPH-Gx;
- TPH-D and TPH-HO by Method NWTPH-Dx;
- BTEX by EPA Method 8021B or 5021A
- cPAHs by EPA Method 8270 SIM
- RCRA-8 Metals

Analytical results of stockpile samples will be used to determine the suitability of the soil for reuse as backfill material as established in the SGMP (Appendix C). Should segregated material be deemed unsuitable for reuse as backfill, it will be disposed of offsite as established in Section 8.10.

8.3 Underground Storage Tank Decommissioning by Removal

UST decommissioning by removal will be conducted or overseen by an International Code Council (ICC) certified Washington State UST Decommissioner. Prior to tank decommissioning, the UST Decommissioner will submit a 30-day notice for Underground Storage Tank Systems to Ecology stating intent to close the USTs and obtain a permit from the appropriate fire department jurisdiction. It is possible a permit from the Seattle Department of Construction and Inspections (SDCI) will be required for demolition of the gas station and fueling canopy foundations. Graham will apply for and obtain a SDCI permit as required.

It is understood that tank contents have been removed, and that the USTs will be empty upon commencement of cleanup actions. Additionally, one waste oil UST was abandoned in place, and remains on site partially filled with slurry (Figure 2). The waste oil UST will be removed from the Site as part of the UST decommissioning process. Prior to tank removal activities, the USTs will be certified as inert by a marine chemist. Soil above and surrounding the tanks will be excavated, and the tanks, piping and ancillary items will be removed from the ground and placed on a truck or trailer for transport and disposal by the UST decommissioner.

Upon completion of removal of the USTs, PBS will conduct a Site Assessment for Underground Storage Tanks, including for the waste oil UST, in accordance with Ecology's Guidance for Site Checks and Site Assessments for Underground Storage Tanks (Ecology, 2003). Site assessment will be performed by an ICC certified Washington State UST Site Assessor.

8.4 Soil Excavation

Soil excavation will be completed in two stages following UST decommissioning and site assessment. Stage 1 of the excavation will include the majority of on-property excavation, excluding portions along the northern and eastern property boundary to allow for appropriate sloping of the excavation for safety without encroaching on the adjacent roadways. A slope of 1H:1V is proposed for the majority of excavation sidewalls. In areas where the excavation encroaches on the adjacent combined sewer outfall (CSO) located under Montlake Boulevard, excavation slopes are proposed as follows: excavation sidewalls in native soils will be sloped at 1.5H:1V, excavation sidewalls in CSO backfill material will be sloped at 2H:1V. The slope considerations and design were provided to Graham in a technical memorandum dated 3/29/2021 by Golder Associates (see Appendix D). The excavation slope design was incorporated into this RAP as the guiding factor for excavation limits near the CSO and the northeastern extent of the remedial soil excavation into Montlake Boulevard.

Upon completion of Stage 1 excavation to total depth, confirmation soil sampling will be conducted as described in Section 8.7. Following confirmation soil sampling, the Stage 1 excavation will be partially backfilled to an estimated depth of 10 feet bgs. The purpose of partial backfilling is to create a working platform where equipment can sit while advancing Stage 2 of the excavation. ORC product will be placed in the excavation during backfill as described in Section 8.6.

Following partial backfill of the Stage 1 excavation and closure of East Montlake Place East and the SR 520 Eastbound Offramp, Stage 2 of the remedial excavation will be advanced. Upon reaching total depth and lateral extents of Stage 2 excavation, confirmation soil samples will be collected as described in Section 8.7.

Upon completion of confirmation soil sampling of Stage 2 of the excavation, the saturated portion of the excavation will be backfilled, including placement of ORC product as described in Section 8.6. Following backfill of the saturated zone of Stage 2, the remainder of the entire excavation encompassing Stage 1 and Stage 2 will be backfilled with clean material to within approximately 1-foot of ground surface. The excavation will not be backfilled entirely to the ground surface to allow for placement of base rock and pavement to match surrounding surfaces.

8.5 Soil Stockpile and Loading

The soil excavated from the Stage 1 and Stage 2 activities will be temporality stockpiled on site and staged for load and haul out. The stockpiled soil will be located adjacent to the excavation areas, with specific site logistics controlled by Graham. Graham shall manage contaminated soil stockpiles in accordance with the procedures established in the SGMP, Section 5.4 (Appendix C), General requirements for the temporary stockpile include: (a) prevent intermixing of stockpiled materials with underlying soils or materials from other sources/or with other contaminants; (b) prevent influx of rainwater; (c) prevent erosion of stockpiled materials; (d) apply stormwater BMPs as appropriate for stockpile construction and maintenance; (e) maintain daily inventory of stockpile areas and provide information to the Project Engineer, as requested, and (f) appropriate site security such as signage and fences to alleviate hazards to the public.

8.6 Oxygen-Releasing Compounds (ORC) Placement

Remedial actions are expected to achieve removal of material with contaminant concentrations exceeding cleanup levels, with the exception of material to be left in place along the northern boundaries of the excavation adjacent to the combined sewer. Upon completion of confirmation soil sampling of the Stage 2 excavation, the total mass of ORC product will be mixed in with clean backfill material and placed in the saturated zone of the Stage 2 excavation, anticipated to be approximately 15 to 25 feet bgs. Application of ORC to the saturated zone of the Stage 2 excavation will result in the entire mass of the reagent situated immediately upgradient of contaminated soil to be left in place. Justification for the proposed distribution of ORC is as follows:

- Allow groundwater to flow naturally through the reagent into contaminated soil due to groundwater gradient at the Site
- Minimizes the time and distance of travel from when oxygen is released from the reagent to groundwater to when the oxygen enriched groundwater comes into contact with contaminated soil left in place.
- Maximizes enhanced aerobic biodegradation of COCs due to minimized travel time and distance from release to treatment.

ORC pellets will be used rather than the powder form of the reagent. Pellets have the following benefits over powder reagent:

- Minimizes fugitive dust during handling and application.
- Easier to mix with clean backfill, water application not necessary.
- Long term, controlled release of oxygen for periods of up to 12 months from application.
- Contain micro-nutrients (nitrogen, phosphorous, and potassium) which aid aerobic biodegradation process.

Analytical data from the RI Report was provided to Regenesis, the supplier of the ORC®, to determine appropriate mass and distribution of ORC within the excavation. Based on evaluation of Site conditions, application of approximately 1,500 pounds of ORC® in a 2-foot thick treatment interval was recommended. As discussed above in this section, the 2-foot thick treatment interval for deployment of ORC® will be within the saturated zone of the Stage 2 excavation.

Health and safety concerns for the mixing and application of ORC are minimized by the use of pellets over powder reagent. The storage, mixing and application of ORC will follow manufacturer recommendations and safety concerns. Specific safety concerns relating to ORC will be addressed in the health and safety plan for remedial actions at the Site.

8.7 Performance Soil Sample and Analysis Plan

Performance monitoring for soil excavation will include confirmation soil sampling of the excavation on an approximate 20-foot grid centers. The sampling method and procedures are presented below.

8.7.1 Sample Locations

Upon completion of Stage 1 of the excavation to total depth, confirmation soil samples will be collected on a grid basis to document the effectiveness of the cleanup action. The excavation will be advanced as a sloped open pit. It is expected that the entirety of Stage 1 of the excavation will be safe for personnel to enter for the purpose of sample collection. Confirmation samples will consist of base and sidewall locations in the excavated area. Base samples are considered samples from the floor or maximum depth of the excavation area. Sidewall samples are considered samples from sloped or vertical walls of the excavation area. Samples are expected to be collected using hand tools. A sampling grid will be established for the excavation as depicted in Figure 6 and confirmation soil samples will be collected on 20-foot grid centers. The sampling grid may be adjusted slightly in the field based on the limits of the excavation, or to target areas where evidence of soil contamination is observed.

Upon completion of Stage 2 of the excavation to total depth, confirmation soil samples will be collected utilizing the sampling grid described above and presented in Figure 6. The Stage 2 excavation will also be advanced as a sloped open pit. However, given the proposed depths, lateral extent and proximity to an adjacent combined sewer line, it is possible that portions of the excavation will be unsafe for personnel to enter. In areas that the excavation is unsafe to enter for sample collection, confirmation soil samples will be collected directly from an excavator bucket. The confirmation sampling grid and interpretation of base versus sidewall may be adjusted in the field based on the actual limits and depths of the excavation.

8.7.2 Sample Methods

Soil sampling will be conducted following the procedures established in Section 5.5 of the SGMP (Appendix C). Where possible, soil samples will be collected using disposable sampling equipment directly into laboratory provided containers. If non-disposable sampling equipment is used for sample collection, sampling equipment will be decontaminated as follows: sampling equipment will be scrubbed in a laboratory grade detergent (Alconox® or similar) and tap water using a hand brush, submerged in a clean tap water rinse, followed by a clean distilled water rinse. Sampling equipment will be allowed to dry following decontamination prior to collection of subsequent samples. Samples will be collected directly into laboratory provided containers and stored in a cooler on ice under chain-of-custody documentation for transport to the analytical laboratory.

Confirmation soil samples will be submitted for the following analyses:

- TPH-G by Method NWTPH-Gx;
- BTEX by EPA Method 8021B or 5021A
- Arsenic by EPA Method 6020

In addition, confirmation soil samples in the vicinity of the waste oil tank will be analyzed for the following:

- TPH-D and TPH-HO by Method NWTPH-Dx;
- cPAHs by EPA Method 8270 SIM

8.8 Dewatering

Based on groundwater elevation monitoring conducted during October 17, 2019, depth to groundwater is estimated to be approximately 9.1 to 17.4 feet bgs. Quarterly groundwater elevation monitoring efforts conducted by WSDOT in nearby piezometer H-691p-16 (Appendix B, Exhibit 2) show that groundwater levels in the area fluctuate by approximately 10 feet throughout the year (Appendix B, Exhibit 6). Groundwater elevation is generally the highest toward the end of the wet season, typically April, and lowest toward the end of the dry season, typically September (Shannon & Wilson, 2020).

Based on specific yields of the lithologic units expected to be encountered during excavation presented in the RI Report, it is expected that dewatering of the bottom 5 to 10 feet of the excavation will be required. Dewatering is necessary to advance the excavation to total depth and facilitate collection of confirmation samples. Dewatering will be performed using a sump pump placed in the deeper portions of the excavation. Water generated from dewatering will be containerized on site in an adjacent frac tank (or similar). As the tank reaches its capacity, a wastewater sample will be collected from the tank for the purposes of waste profiling. Based on the sample results, wastewater will be disposed of in accordance with the procedures established in the SGMP. However, it is expected that wastewater generated from dewatering activities will require offsite disposal. If additional dewatering is required following sampling and disposal of the initial tank, the tank will be replaced with an empty tank. The procedures established above will be reiterated for additional tanks until total depth of excavation is reached, confirmation samples are collected, backfill is complete, and dewatering is no longer required.

In addition to groundwater, the potential exists for stormwater to enter the excavation via surface runoff. Berms, straw waddle, and other stormwater best management practices (BMPs) will be employed as necessary to minimize the amount of stormwater that may come in contact with the excavation. Stormwater that has entered the excavation and come into contact with contaminated materials will be managed the same as groundwater removed from the excavation as established above in this section. Discharge of any type of water (groundwater or storm water) removed from the excavation or that has otherwise come into contact with contaminated material to the sanitary or storm sewer, or any nearby surface water bodies is prohibited and will not be permitted. Wastewater generated during remedial actions will be containerized and removed from the Site for offsite disposal.

8.9 Groundwater Sampling

Sampling of groundwater which may accumulate in the excavation is not proposed. Contaminant concentrations in groundwater prior to execution of the cleanup actions are well understood given the existing groundwater data obtained from sampling of surrounding monitoring wells. Monitoring of contaminant concentrations in groundwater will continue to be performed on a select network of monitoring wells following completion of the cleanup actions as detailed in Section 7.6.

8.10 Waste Profiling and Disposal

Waste soil generated from remedial actions will be profiled for offsite disposal using existing analytical data generated during remedial investigation of the Site. Waste soil is expected to be characterized as non-dangerous solid waste for disposal at a Subtitle D Landfill. Material will be temporarily staged on site in stockpiles pending transport to the disposal facility. Soil stockpiling will follow stockpiling procedures established in the SGMP (PBS, 2019) as described in Section 8.5.

Wastewater contained in frac tanks on site will be sampled for the purpose of waste profiling and disposal as the tanks near capacity. The PRS Group, Inc (PRS) water treatment plant in Tacoma, Washington is proposed as the disposal location for wastewater generated at the Site. Disposal of wastewater at the PRS plant is dependent on acceptance of the wastewater by the facility, and it remains possible that another facility will be used for disposal.

A waste profile and weight tickets documenting receipt and tonnage of PCS or volume of water from the disposal facility will be included in the Remedial Action Report. Weight/volume tickets will be tallied, and total tonnage/volume of exported waste will be reported.

8.11 Asphalt/Concrete Cover

Following completion of excavation and backfill, Site surfaces will be repaved with an impermeable asphalt and/or concrete cap.

9 REMEDIAL ACTION REPORT

Following completion of cleanup actions and receipt of laboratory data and disposal documentation, a Remedial Action Report will be prepared. The Remedial Action Report will:

- Summarize cleanup actions conducted at the Site;
- Provide tabulated laboratory results of confirmation soil samples and waste soil and water samples;
- Provide disposal documentation and total tonnage/volume for waste soil and water exported from the site;
- Describe the on-site reuse of overburden soil removed from the excavation if applicable, including estimated volumes;
- Present a plan for ongoing monitoring at the site as necessary based on the results of the cleanup actions;
- Provide justification for use of a Groundwater Model Remedy, if appropriate, to work towards regulatory closure for the Site.

10 REFERENCES

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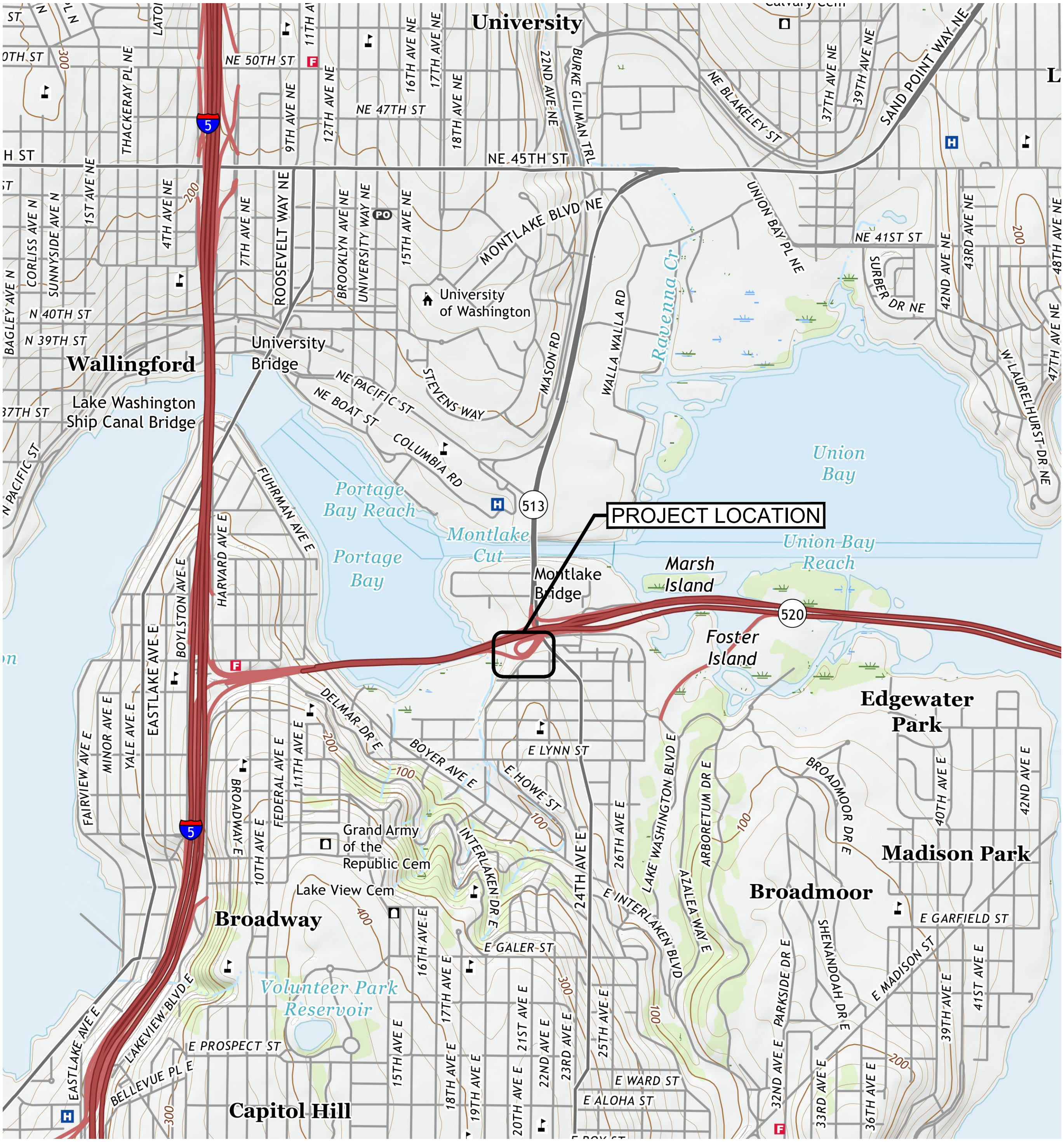
Figures



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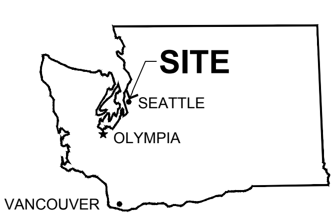

WASHINGTON

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Scale 1" = 2000'

0' 1000' 2000' 4000'

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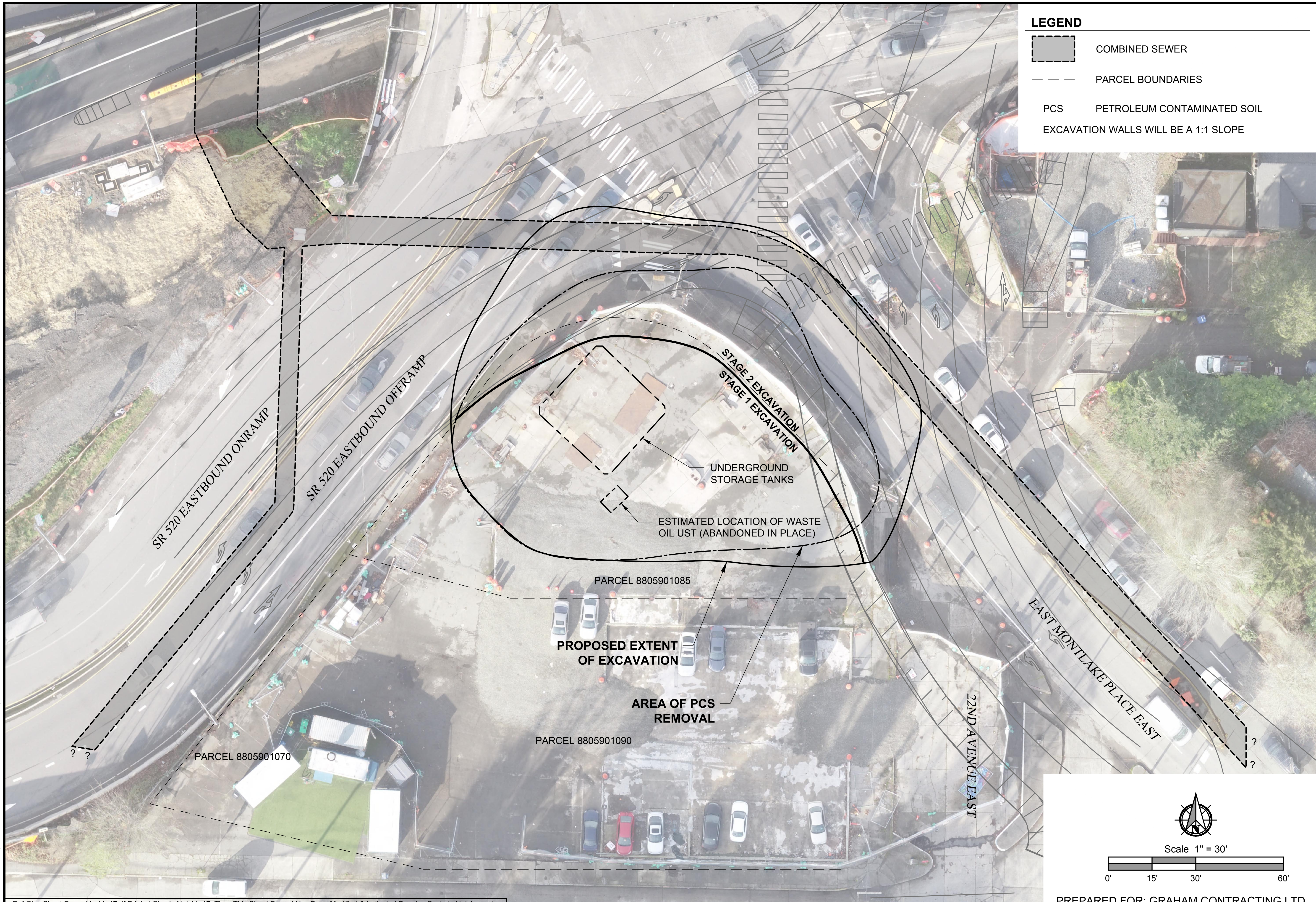
PBS

VICINITY MAP

2625 EAST MONTLAKE PLACE EAST
SEATTLE, WASHINGTON

MAR 2021
41221.003

FIGURE
1



LEGEND

(shaded box)	COMBINED SEWER
— — —	PARCEL BOUNDARIES
PCS	PETROLEUM CONTAMINATED SOIL

EXCAVATION WALLS WILL BE A 1:1 SLOPE

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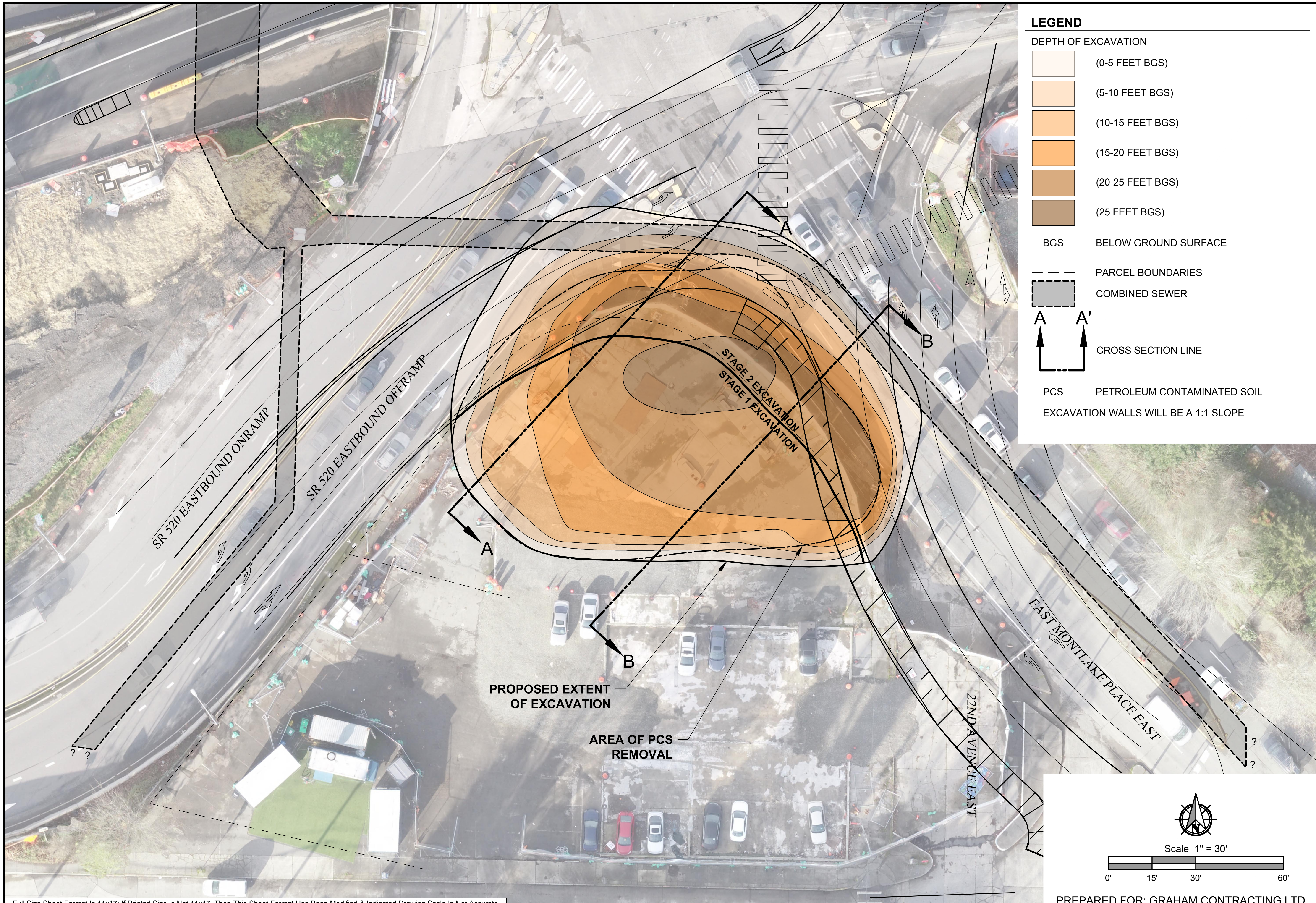
SITE PLAN AND STAGES OF EXCAVATION

SR520 MONTLAKE TO LAKE WASHINGTON INTERCHANGE AND BRIDGE REPLACEMENT

2625 EAST MONTLAKE PLACE EAST, SEATTLE, WASHINGTON

PROJECT	41221.003
DATE	MAR 2021
SHEET ID	2



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EXTENT OF EXCAVATION

SR520 MONTLAKE TO LAKE WASHINGTON INTERCHANGE AND BRIDGE REPLACEMENT

2625 EAST MONTLAKE PLACE EAST, SEATTLE, WASHINGTON

PROJECT	41221.003
DATE	MAR 2021
SHEET ID	3

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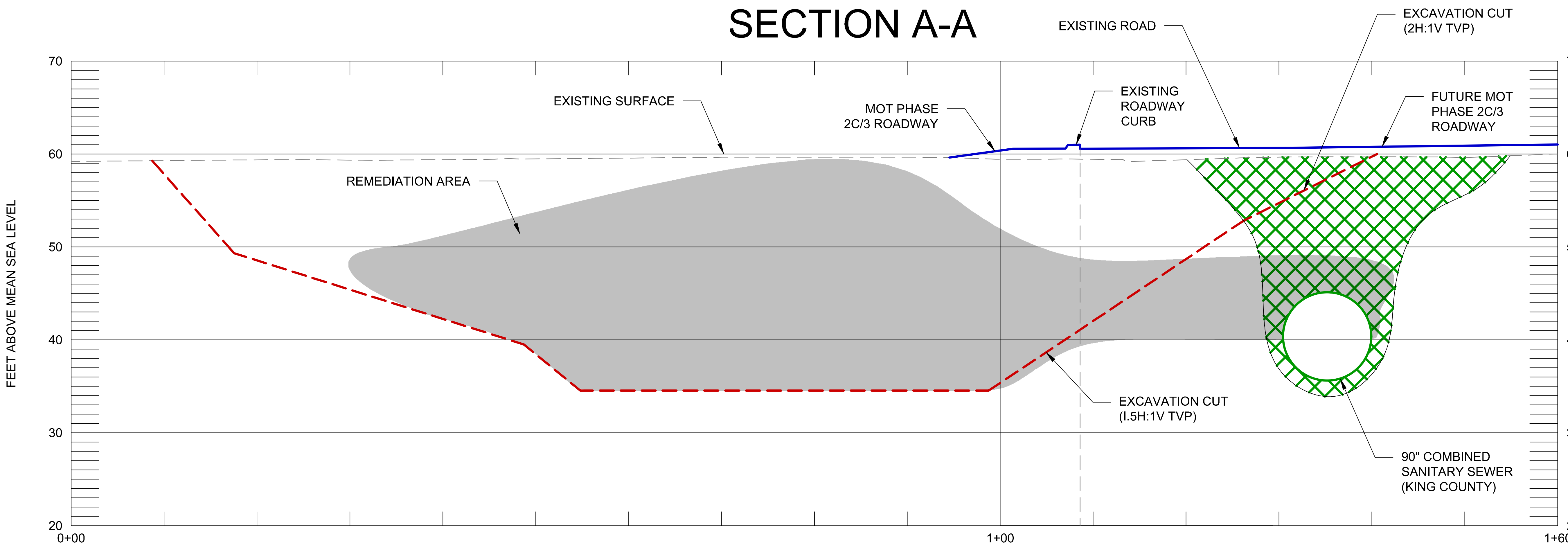
SECTION A-A



GENERAL NOTES

1. DEPTHS AND LOCATION OF DEPTHS FOR REMEDIATION ARE SHOWN AS APPROXIMATE ONLY AND SUBJECT TO CHANGE
2. KING COUNTY 90 INCH COMBINED SEWER IS SHOWN BASED ON RFP SUPPLIED AS-BUILT INFORMATION AND NAV-DATUM TRANSLATION FOR ELEVATION. DEPTHS SHOWN ARE APPROXIMATE.
3. ASSUMED BURIED SDOT/SIT FIBER LINE IS RELOCATED BEFORE CONSTRUCTION (NOT SHOWN).
4. 4 INCH PSE GAS MAIN PER RFP SUPPLIED UTILITY BASE MAPPING AND AT A TYPICAL GAS MAIN BURIED DEPTH

LEGEND

- APPROXIMATE EXTENT OF PETROLEUM CONTAMINATED SOIL
- APPROXIMATE LOCATION OF SEWER BACKFILL
- PROPOSED EXTENT OF EXCAVATION FOR STABILITY
- EXISTING SURFACE
- MOT PHASE 2C FUTURE ROADWAY SURFACE

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Full Size Sheet Format Is 11x17; If Printed Size Is Not 11x17, Then This Sheet Format Has Been Modified & Indicated Drawing Scale Is Not Accurate.

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CROSS-SECTION A-A
SR520 MONTLAKE TO LAKE WASHINGTON INTERCHANGE AND BRIDGE REPLACEMENT
2625 EAST MONTLAKE PLACE EAST, SEATTLE, WASHINGTON

PROJECT	41221.003
DATE	MAR 2021
SHEET ID	4

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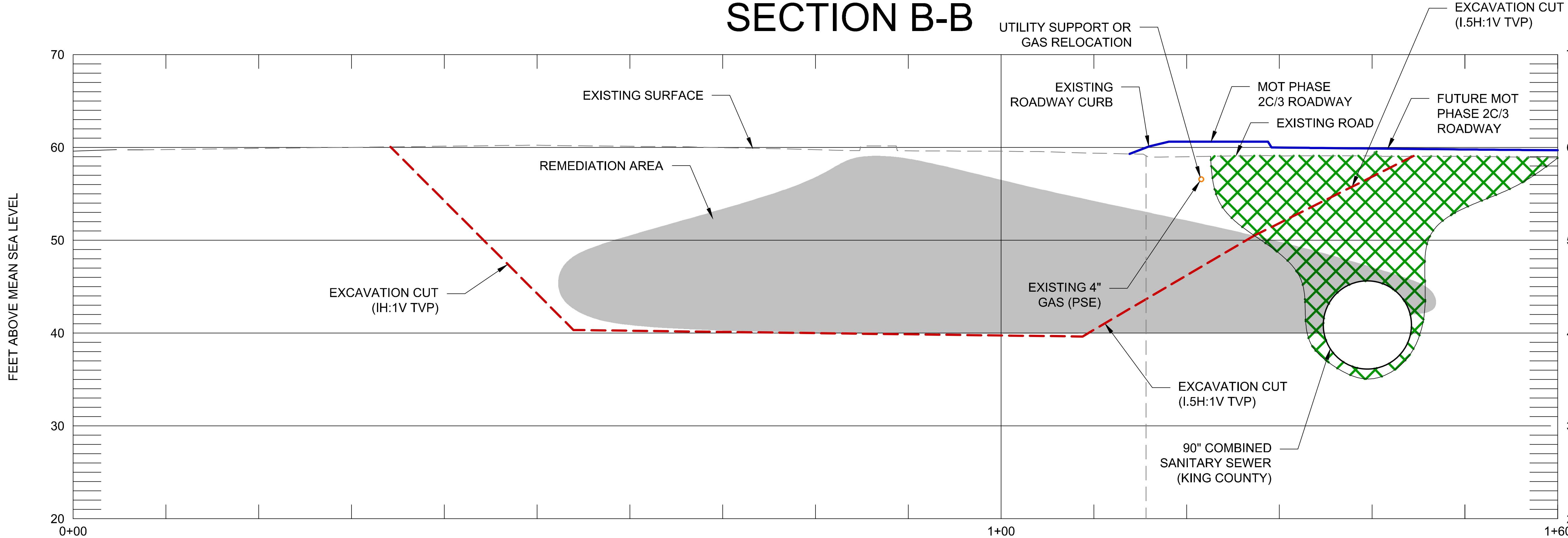
SECTION B-B



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LEGEND

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CROSS-SECTION B-B

SR520 MONTLAKE TO LAKE WASHINGTON INTERCHANGE AND BRIDGE REPLACEMENT

2625 EAST MONTLAKE PLACE EAST, SEATTLE, WASHINGTON

PROJECT	41221.003
DATE	MAR 2021
SHEET ID	5

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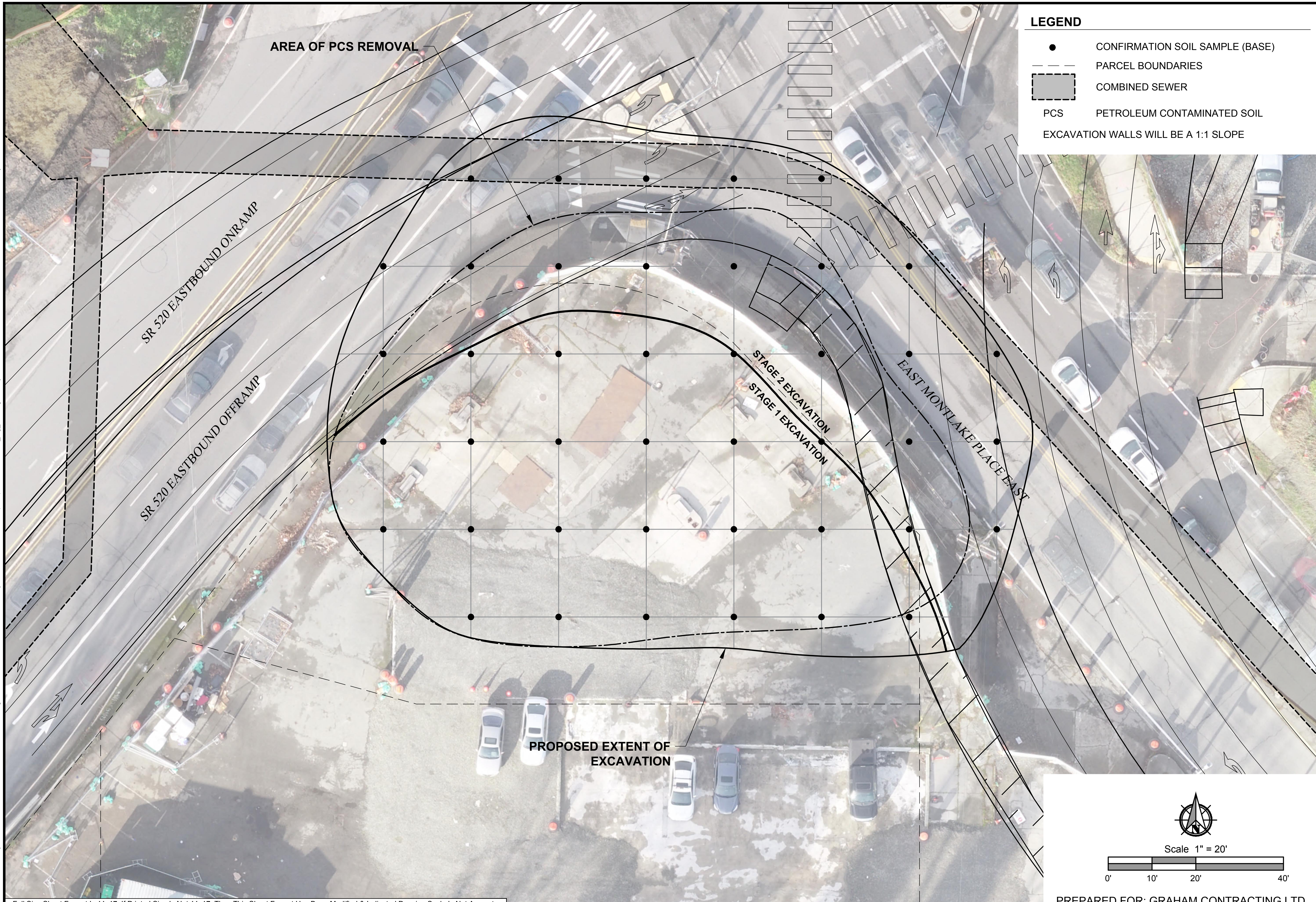

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PBS

CONFIRMATION SOIL SAMPLING PLAN
SR520 MONTLAKE TO LAKE WASHINGTON INTERCHANGE AND BRIDGE REPLACEMENT
2625 EAST MONTLAKE PLACE EAST, SEATTLE, WASHINGTON

PROJECT	41221.003
DATE	MAR 2021
SHEET ID	6

Filename: L:\Projects\41000\41221 Graham Construction & Management\41221.003 SR520 Montlake Project\Remedial Action Plan (RAP)\DWG\41221.003_Fig_1-4.dwg Layout Tab: CONFIRMATION SOIL SAMPLING PLAN User: Katie Breyman CAD Plot Date/Time: 3/30/2021 3:41:48 PM

Appendix A

Ecology Opinion Letter in Response to Remedial Investigation

Opinion pursuant to WAC 173-340-515(5) on Remedial Action for the Montlake Texaco Hazardous Waste Site

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office • 3190 160th Avenue SE • Bellevue, Washington 98008-5452 • (425) 649-7000
711 for Washington Relay Service • Persons with a speech disability can call (877) 833-6341

July 6, 2020

Dave Becher
Washington State Department of Transportation
999 3rd Ave, Suite 2200
Seattle, WA 98104

Re: Opinion pursuant to WAC 173-340-515(5) on Remedial Action for the following Hazardous Waste Site:

- **Site Name:** Montlake Texaco
- **Site Address:** 2625 E Montlake
- **Facility/Site No.:** 47724816
- **Cleanup Site ID:** 14857
- **VCP Project No.:** NW3242

Dear Dave Becher:

The Washington State Department of Ecology (Ecology) received your request for an opinion on the *Remedial Investigation Report for Montlake Gas Station (RI Report)* regarding the Montlake Texaco facility (Site). This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

Issues Presented and Opinion

Does the *RI Report* meet the stated objectives with respect to delineating the nature and extent of contamination at the Site?

Is the interim action described in the *RI Report* expected to be effective in removing contamination from the Site?

YES. Ecology has determined that the understanding of contaminant impacts at the Site has been greatly enhanced by the RI, and that the proposed removal and

treatment of contaminated soil and ground water during and after underground storage tank removal will support progress of the Site towards cleanup.

Description of the Site

This opinion applies only to the Site described below. The Site is defined by the nature and extent of contamination associated with the following releases:

- Total petroleum hydrocarbons (TPH) in the gasoline, diesel, and oil ranges (TPH-G, TPH-D, and TPH-O); benzene, toluene, ethylbenzene, and xylenes (BTEX); and carcinogenic polycyclic aromatic hydrocarbons (cPAHs) into the Soil.

- TPH-G, TPH-D, TPH-O, BTEX, cPAHs, and arsenic into the Ground Water.

Enclosure A includes a detailed description and diagram of the Site, as currently known to Ecology.

Please note a parcel of real property can be affected by multiple sites. At this time, we have no information that the parcel(s) associated with this Site are affected by other sites.

Basis for the Opinion

This opinion is based on the information contained in the documents listed in **Enclosure B**. A number of these documents are accessible in electronic form from the Site web page (https://apps.ecology.wa.gov/gsp/Sitepage.aspx?csid=14857). The complete records are kept in the Central Files of the Northwest Regional Office of Ecology (NWRO) for review by appointment only. Visit our Public Records Request page (https://ecology.wa.gov/About-us/Accountability-transparency/Public-records-requests) to submit a public records request or get more information about the process. If you require assistance with this process, you may contact the Public Records Officer at publicrecordsofficer@ecy.wa.gov or 360-407-6040.

This opinion is void if any of the information contained in those documents is materially false or misleading.

Analysis and Opinion

Ecology appreciates the completeness and level of detail provided in the RI Report, and provides the following comments:

- Evaluation of compliance with the Method A soil and ground water cleanup levels for

TPH-D and TPH-O requires adding concentrations of the two fractions and comparing the result to the cleanup level, per *Implementation Memorandum #4, Determining Compliance with Method A Cleanup Levels for Diesel and Heavy Oil*, *Publication No. 04-09-086, June 2004*, and *Guidance for Remediation of Petroleum Contaminated Sites, Publication No. 10-09-057, revised June 2016*.

- Detections of the following chemical parameters above preliminary cleanup levels requires retention as contaminants of concern (COCs) for the Site:
  - TPH-D, TPH-O, and cPAHs in soil and ground water, in the vicinity of the waste oil tank.
  - Arsenic in ground water.
- Consider local and regional data for natural arsenic in ground water, to evaluate background arsenic concentrations versus arsenic that has likely been mobilized by geochemical conditions created by degradation of petroleum constituents.
- A Ground Water Model Remedy will likely be appropriate for this Site; however, selection of Model Remedy 2 is premature, and confirmation sampling results from the interim action will need to be considered in Model Remedy selection.
- Please expand the piezometric surface map shown in Exhibit 7 to include water levels from H-691p-16, H-667p-15, and MW-5-20, to demonstrate impacts of the 90-inch diameter combined sewer line on ground water flow and contaminant transport.
- The base elevation contours of the proposed remedial excavation (Exhibit 18) do not appear to coincide with the outline of the excavation shown on the cross sections of Exhibits 3 and 4. Please describe how the excavation will be shored and dewatered, and confirm the depths to which soil and associated contamination will be removed.
- In the Remedial Activities section of the *RI Report*, please include a statement that prior to initiation of UST removal and contaminated soil excavation, an Interim Action Work Plan will be prepared for Ecology review under the VCP. The Work Plan should include details regarding confirmation sampling of soil and groundwater.
- If a Property No Further Action opinion becomes an option, post-excavation monitoring wells will be needed on the Property to document decreases in contaminants to concentrations below cleanup levels. At least one additional monitoring well adjacent to the combined sewer line (closer to the Property than MW-3-19) will also be needed to assess the off-Property extent of remaining ground water contamination.

Ecology recommends resolution of these comments by means of technical memos, rather than an update of the *RI Report*.

Limitations of the Opinion

1. Opinion does not settle liability with the state.

Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion **does not**:

- Resolve or alter a person's liability to the state.
- Protect liable persons from contribution claims by third parties.

To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70.105D.040(4).

2. Opinion does not constitute a determination of substantial equivalence.

To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you performed is substantially equivalent. Courts make that determination. *See* RCW 70.105D.080 and WAC 173-340-545.

3. State is immune from liability.

The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion. *See* RCW 70.105D.030(1)(i).

Contact Information

Thank you for choosing to clean up the Site under the Voluntary Cleanup Program (VCP). After you have addressed our concerns, you may request another review of your cleanup. Please do not hesitate to request additional services as your cleanup progresses. We look forward to working with you.

For more information about the VCP and the cleanup process, please visit our web site: www.ecy.wa.gov/vcp. If you have any questions about this opinion, please contact me by phone at 425-649-7257 or e-mail at michael.warfel@ecy.wa.gov.

Sincerely,

Michael R. Warfel

Michael R. Warfel, Site Manager
Toxics Cleanup Program, NWRO

Enclosures (2): A – Description and Diagrams of the Site
B – Basis for the Opinion: List of Documents

cc: Meg Strong, Shannon & Wilson
Margaret Kucharski, WSDOT

Appendix B

Remedial Investigation Report Exhibits

Exhibits 1 through 18 of the Remedial Investigation Report for Montlake Gas Station – SR 520 Bridge Replacement and HOV Program

NOTE

Bing Map Image adapted from aerial imagery provided by Autodesk Live Maps and Microsoft Bing Maps reprinted with permission from Microsoft Corporation.

Montlake Gas Station VCP
Remedial Investigation Report
2625 Montlake Place East
Seattle, WA

VICINITY MAP

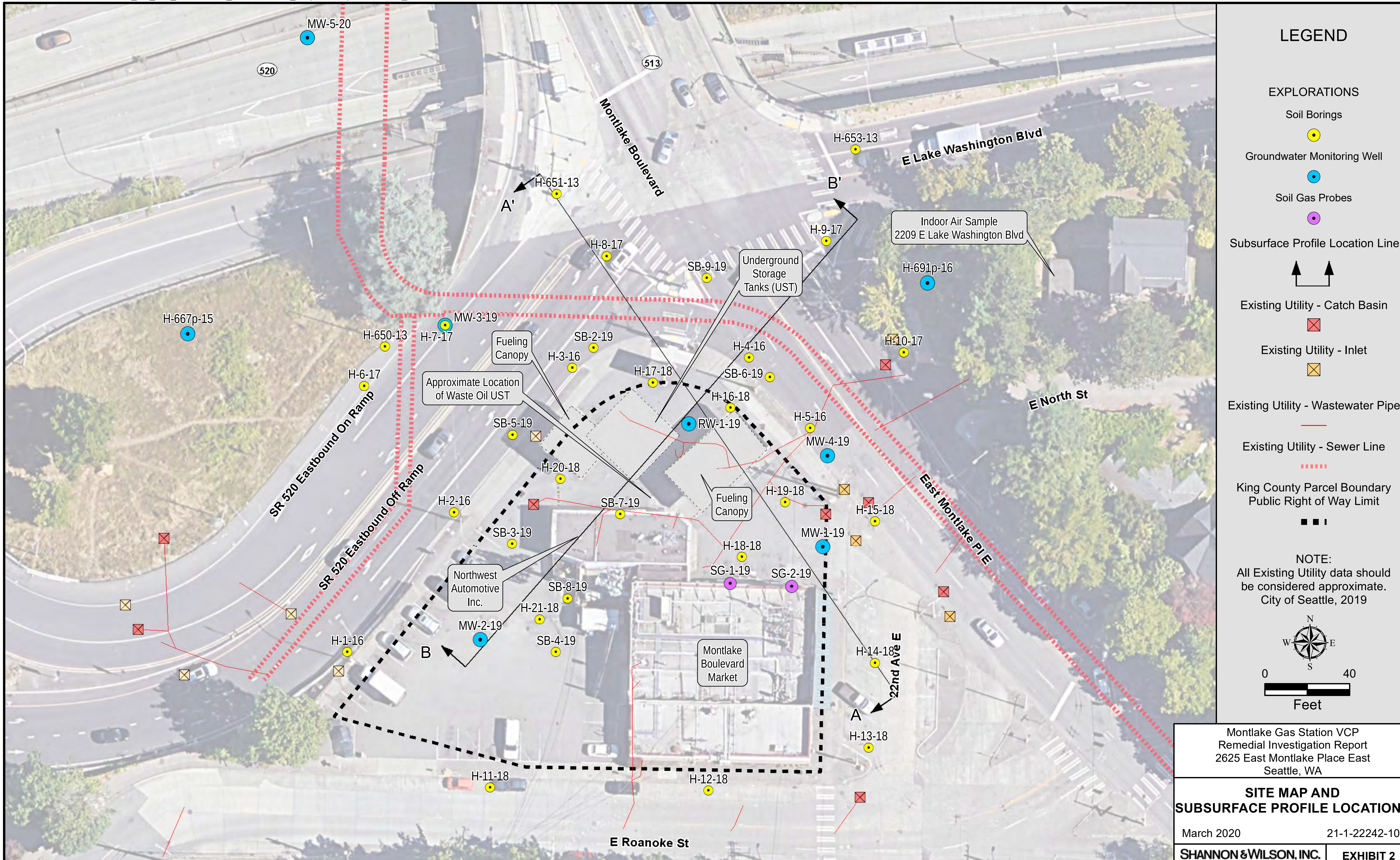
March 2020 21-1-22242-104

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Exhibit 1

Filename: J:\211\22242\101\21-1-22242-101 Vicinity Map.dwg Date: 06-25-2019 Login: JRS

Document Path: T:\21-1\20624_SR_520_Eastside\AV_mxd\ENVI\ML_ProposedExplorationPlan_UTL.mxd



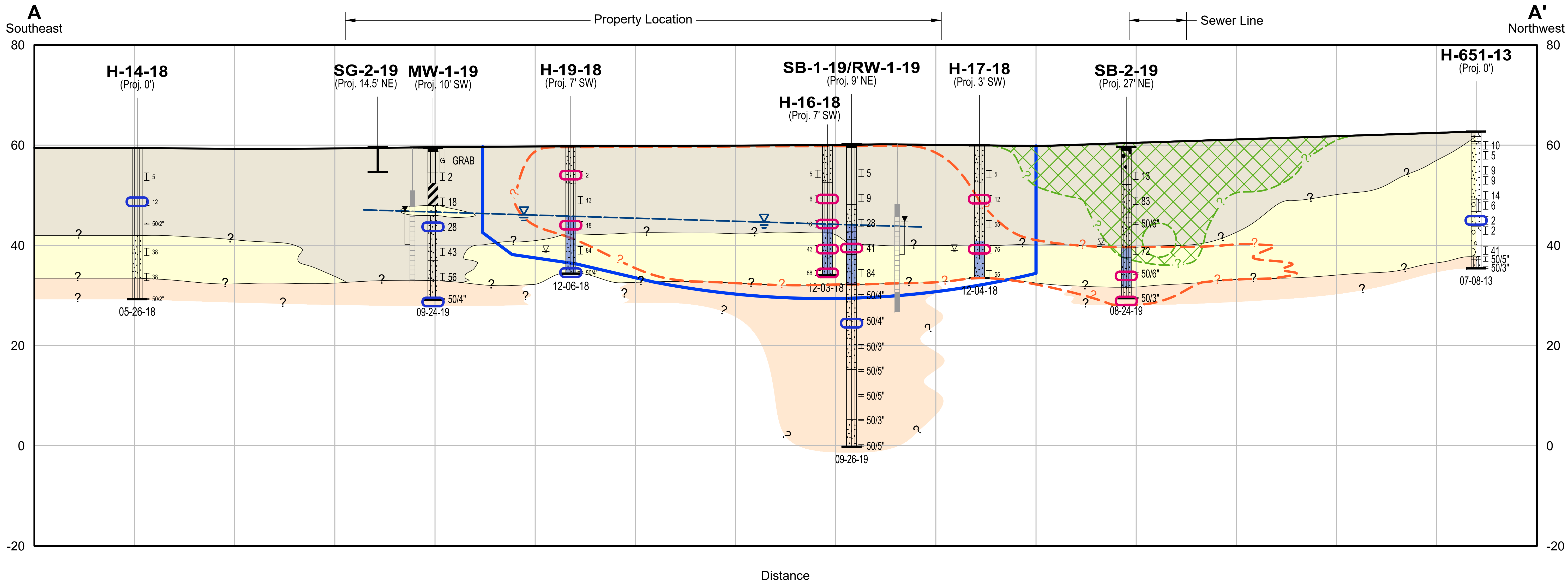
Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East
Seattle, WA

SITE MAP AND SUBSURFACE PROFILE LOCATIONS

March 2020 | 21-1-22242-104

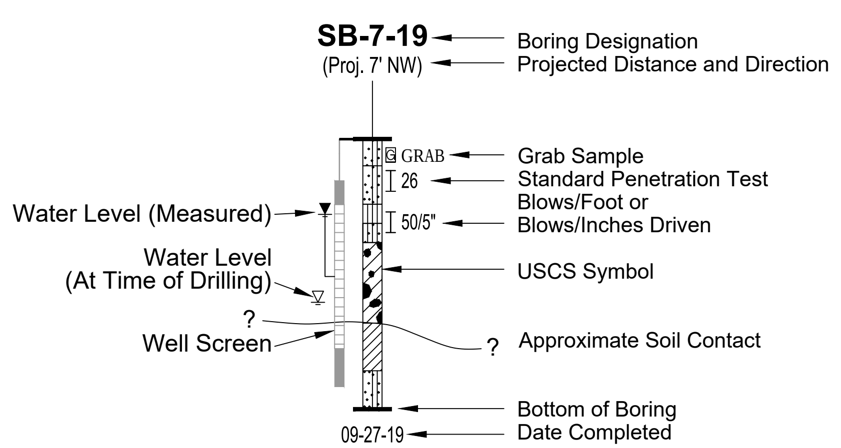
SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

EXHIBIT 2



BORING LOG LEGEND

(Project Boring)



LEGEND

- Conceptual Exacavation Line for Sewer Line Installment and Approximate Sewer Line Location
- Approximate Extent of Contamination Based on Field Observation and Laboratory Testing
- Water Table Elevation (Measured 10/17/2019)
- Sandy Silt to Silty Sand with Local Silty Clay, Nonplastic to Medium Plasticity, Gray to Brown Gray, Dry to Wet
- Sand to Silty Sand, Trace Gravel, Gray to Dark Gray, Wet
- Glacial Till. Very Dense, Diamict, Dry to Moist, Silty Sand and Sandy Silt, Scattered Gravel
- Groundwater Sample with Concentrations of Gasoline (Primary Site Contaminant) Above MTCA Cleanup Levels
- Soil Sample with Concentrations of Gasoline (Primary Site Contaminant) Above MTCA Cleanup Levels
- Soil Sample with Concentrations of Gasoline (Primary Site Contaminant) Below MTCA Cleanup Levels
- Proposed Excavation Extent

0 20 40

Scale in Feet

Horizontal = Vertical

Montlake Gas Station VCP
Remedial Investigation Report
2625 E Montlake Place E
Seattle, WA

CONCEPTUAL SUBSURFACE CONTAMINANT PROFILE A-A'

March 2020 21-1-22242-104

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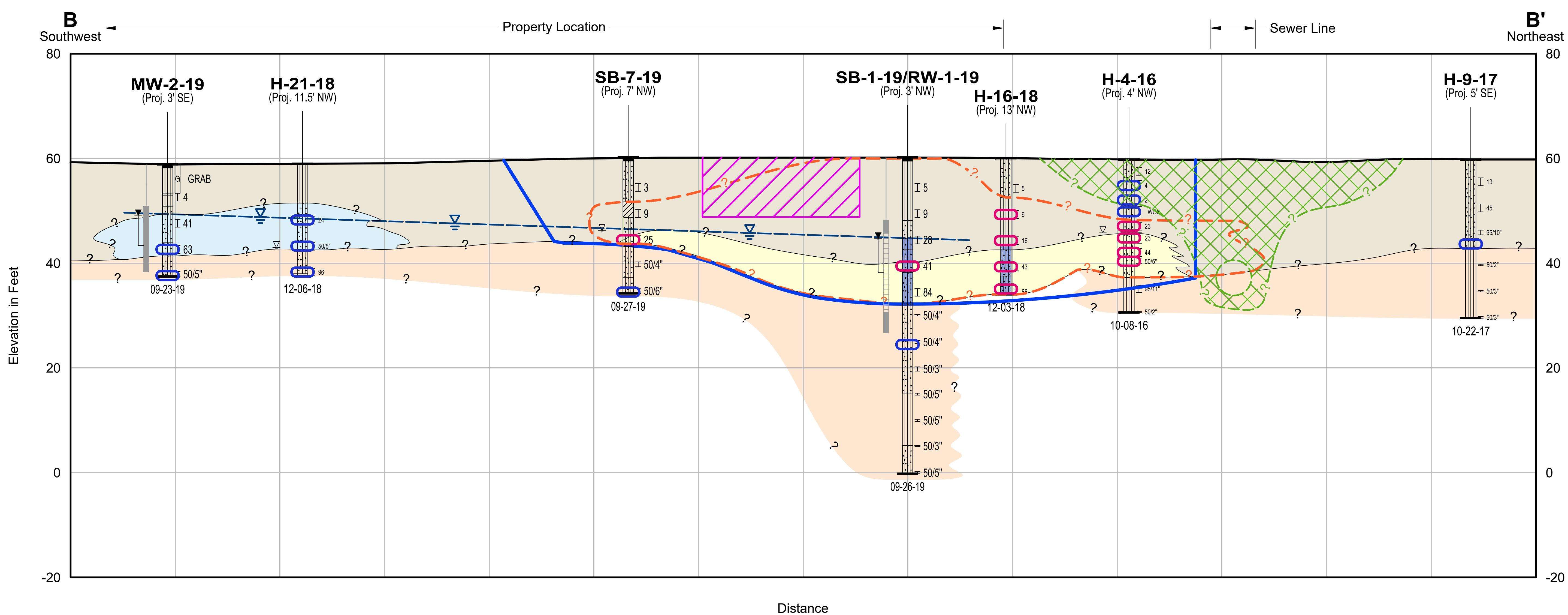
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

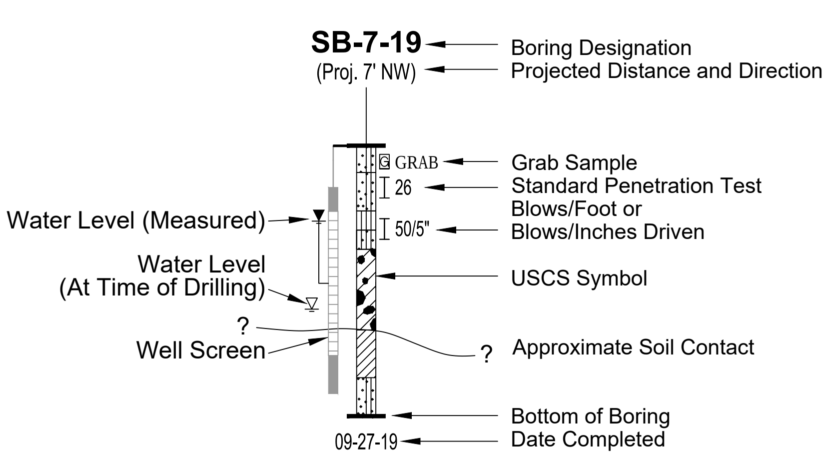
EXHIBIT 3

Filename: J:\211\22242\104\21-1-22242-104 Plan and Profiles.dwg Layout: Exhibit 3 Date: 03-09-2020 Login: JRS



BORING LOG LEGEND

(Project Boring)



LEGEND

- Conceptual Exacavation Line for Sewer Line Installment and Approximate Sewer Line Location
- Approximate Extent of Contamination Based on Field Observation and Laboratory Testing
- Water Table Elevation (Measured 10/17/2019)
- Sandy Silt to Silty Sand with Local Silty Clay, Nonplastic to Medium Plasticity, Gray to Brown Gray, Dry to Wet
- Gravelly Silty Sand, Gray to Brown Gray, Moist to Wet
- Sand to Silty Sand, Trace Gravel, Gray to Dark Gray, Wet
- Glacial Till. Very Dense, Diamict, Dry to Moist, Silty Sand and Sandy Silt, Scattered Gravel
- Groundwater Sample with Concentrations of Gasoline (Primary Site Contaminant) Above MTCA Cleanup Levels
- Soil Sample with Concentrations of Gasoline (Primary Site Contaminant) Above MTCA Cleanup Levels
- Soil Sample with Concentrations of Gasoline (Primary Site Contaminant) Below MTCA Cleanup Levels
- Proposed Excavation Extent
- Approximate Extent of UST Fill Area

0 20 40

Scale in Feet
Horizontal = Vertical

Montlake Gas Station VCP
Remedial Investigation Report
2625 E Montlake Place E
Seattle, WA

CONCEPTUAL SUBSURFACE CONTAMINANT PROFILE B-B'

March 2020 21-1-22242-104

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EXHIBIT 4

Filename: J:\211\22242\104\21-1-22242-104 Plan and Profiles.dwg Layout: Exhibit 4 Date: 03-09-2020 Login: JRS

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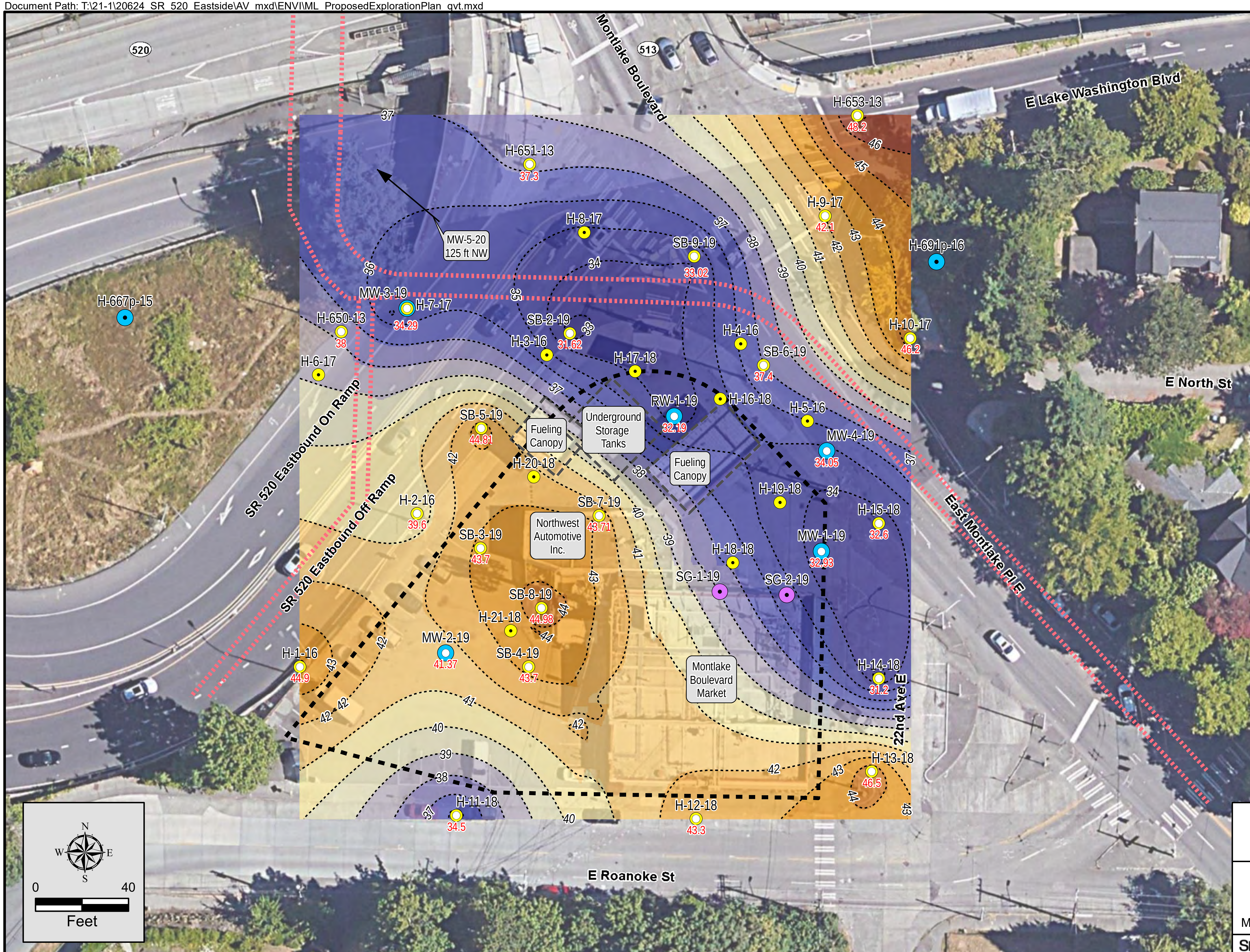

LEGEND

EXPLORATIONS

Soil Borings

Groundwater Monitoring Well

Soil Gas Probes

EXPLORATION w/ Top of Glacial Till Elevation Interpolated (Feet)

38.01

Approximate Top of Glacial Till (Feet)

- 32.3 - 33
- 33.01 - 34
- 34.01 - 35
- 35.01 - 36
- 36.01 - 37
- 37.01 - 38
- 38.01 - 39
- 39.01 - 40
- 40.01 - 41
- 41.01 - 42
- 42.01 - 43
- 43.01 - 44
- 44.01 - 45
- 45.01 - 46
- 46.01 - 47
- 47.01 - 48

Approximate Top of Glacial Till Contour (Feet)

-- 40 --

Existing Utility - Sewer Line

King County Parcel Boundary

Public Right of Way Limit

Elevations in NAVD 88
Approximate Ground Surface Elevation = 60 Feet

Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East
Seattle, WA

TOP OF GLACIAL TILL SURFACE CONTOUR MAP

March 2020 21-1-22242-104

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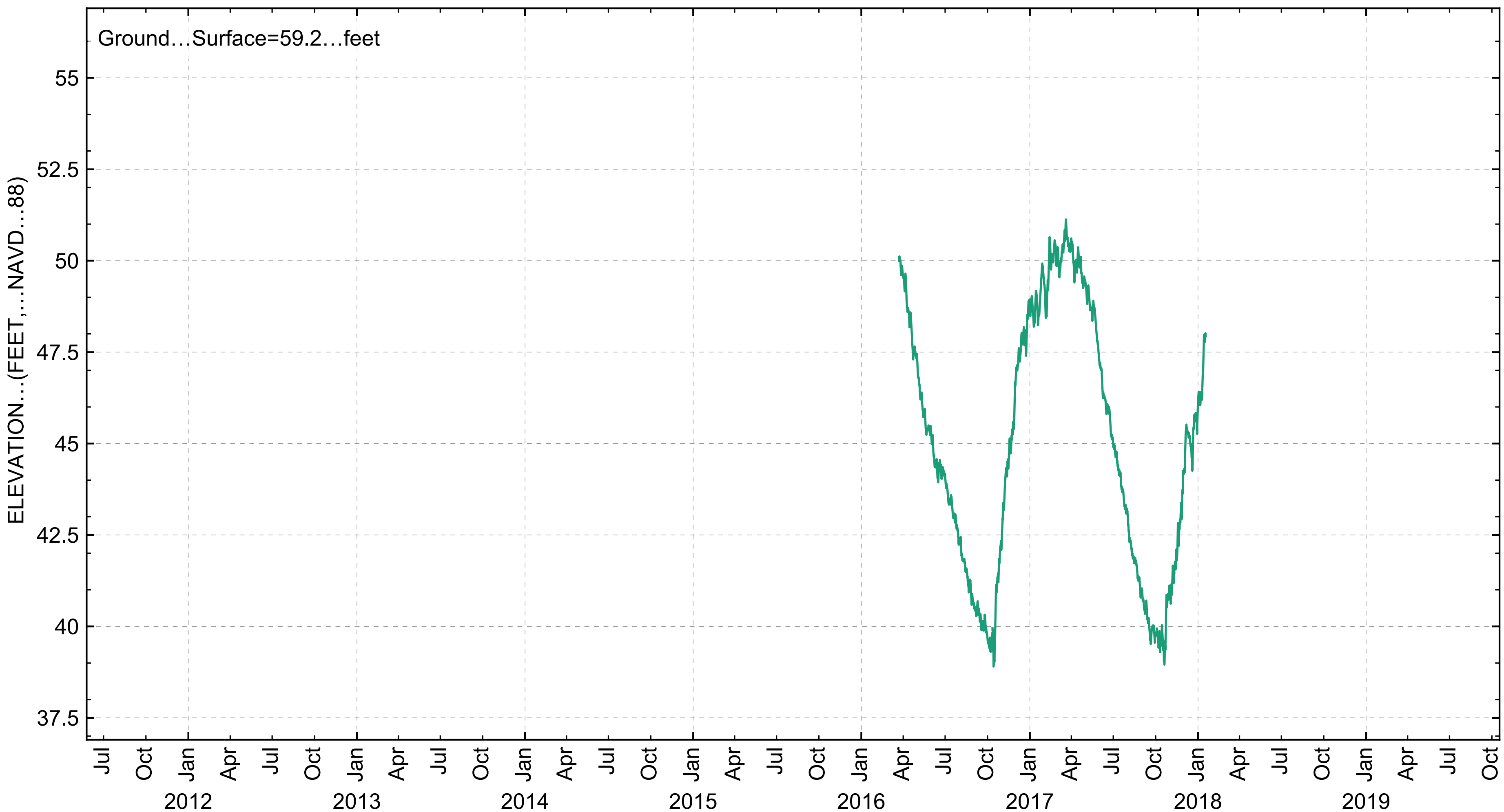
EXHIBIT 5



Instrument	Screen…Bottom…Elev…(ft)
OW1	34.4

Notes:
1.…Groundwater…data…provided…by…WSDOT
2.…Measurements…are…shown…as…dry…for…readings…below…instrument…elevation…of…pressure…transducer…or
…………bottom…of…screen…interval
3.…Refer…to…Shannon…&…Wilson…boring…logs…for…soil…descriptions…and…well…construction…details
4.…OW…=…Observation…Well

Montlake Gas Station VCP
Remedial Investigation Report
2625 E Montlake Place E
Seattle, WA

GROUNDWATER…LEVEL MEASUREMENTS BORING…H-691p-16

March 2020 | 21-1-22242-104

SHANNON…&…WILSON,…INC.
Geotechnical…and…Environmental…Consultants

…Exhibi6

·Exhibit.6

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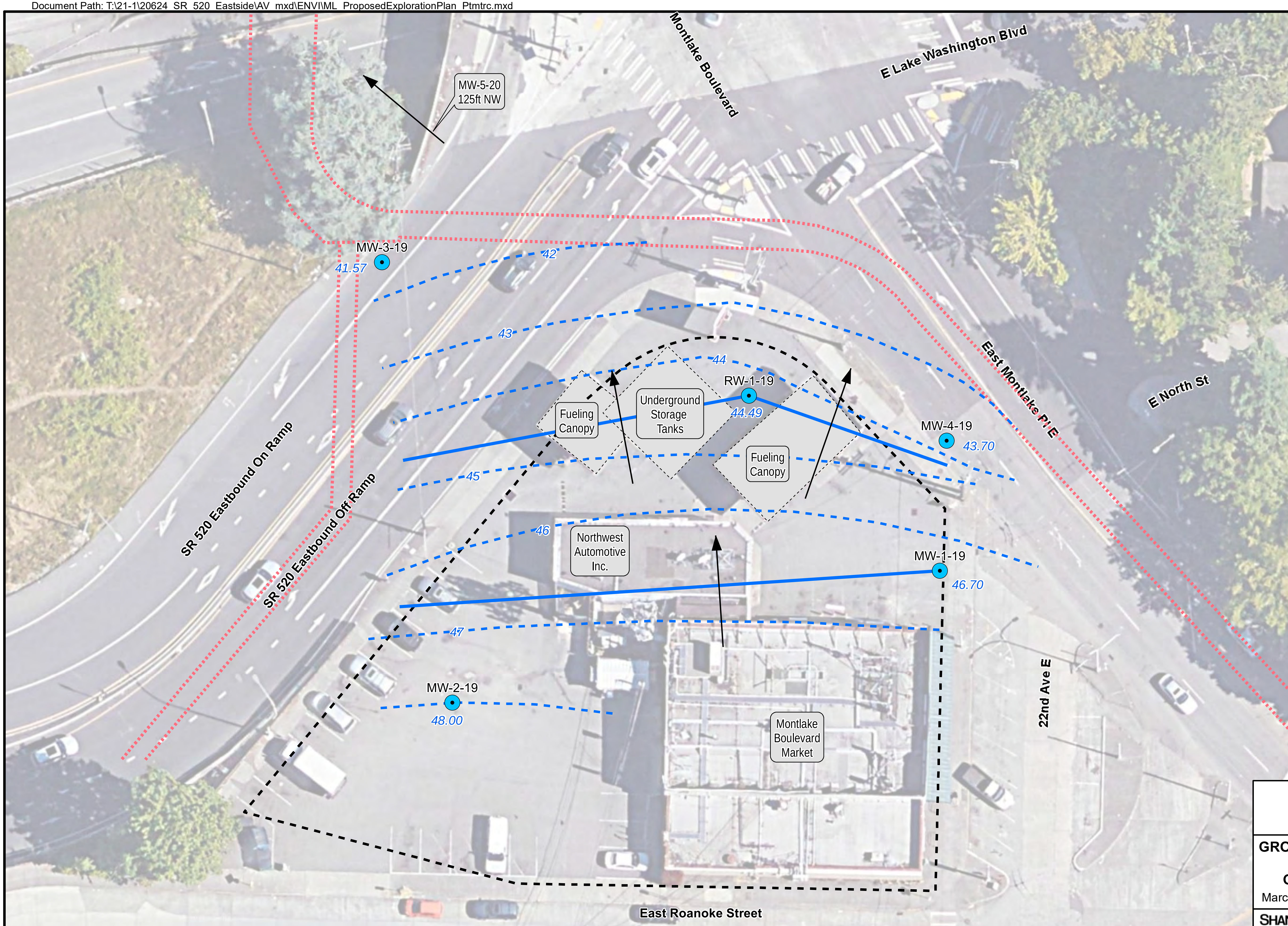

NOTES:

1. Groundwater elevation at MW-5-20 recorded three months after other wells (not contemporaneous) and therefore not included on map.
2. Elevation in NAVD 88.

Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East
Seattle, WA

GROUNDWATER POTENTIOMETRIC SURFACE MAP WITH GROUNDWATER ELEVATION

March 2020 | 21-1-22242-104

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

EXHIBIT 7

Sample Location	Screening Level *	H-1-16	H-2-16	H-3-16	H-3-16	H-3-16	H-4-16	H-4-16	H-4-16	H-4-16	H-4-16	H-4-16	H-4-16	H-4-16	H-5-16	H-6-17	H-7-17	H-7-17	H-8-17	H-9-17	H-10-17	H-11-18	H-12-18	H-13-18	H-14-18
Sample Depth (feet bgs)		10	13.5	3	6	8.5	3	6	8.5	11	16	18.5	19.9	25.4	13.5	15	10	20	5	15	10	10	20	15	10
Total Petroleum Hydrocarbons																									
Gasoline Range Organics	30 **	-	-	-	-	-	5.5 U	6.8 U	7.7 U	6.9 U	**69**	**30**	**99**	6 U	-	-	-	-	-	-	-	6 U	15 U	7.7 U	12 U
Diesel Range Organics	2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30 U	27 U	28 U	35 U
Lube Oil	2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	59 U	55 U	55 U	69 U
Mineral spirits	4000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kerosene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)																									
Benzene	0.03	0.0012 U	**0.0053**	**0.0055**	0.0011 U	**0.038**	0.02 U	**0.024**	**0.045**	**0.026**	0.051 U	**0.13**	**0.35**	**0.092**	0.083 U	0.0011 U	0.00094 U	**0.0096**	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
Toluene	7	0.0058 U	0.0054 U	0.0045 U	0.0057 U	0.0058 U	0.055 U	0.068 U	0.077 U	0.069 U	0.25 U	**0.074**	**0.09**	**0.064**	0.41 U	0.0054 U	0.0047 U	0.0053 U	-	0.0056 U	0.004 U	0.0045 U	0.0039 U	0.013 U	0.0091 U
Ethylbenzene	6	0.0012 U	0.0011 U	0.0009 U	0.0011 U	**0.005**	0.055 U	0.068 U	0.077 U	0.069 U	**0.55**	**0.76**	**1.4**	0.06 U	**0.089**	0.0011 U	0.00094 U	**0.0022**	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
m, p-Xylene	16000	0.0023 U	0.0022 U	0.0018 U	0.0023 U	**0.014**	0.055 U	0.068 U	0.077 U	0.069 U	**1.4**	**1.9**	**2.2**	**0.088**	0.17 U	0.0022 U	0.0019 U	**0.0024**	-	0.0022 U	0.0016 U	0.0018 U	0.0015 U	0.0051 U	0.0036 U
o-Xylene	16000	0.0012 U	0.0011 U	0.0009 U	0.0011 U	**0.0026**	0.055 U	0.068 U	0.077 U	0.069 U	**0.49**	**0.38**	**0.59**	0.06 U	0.083 U	0.0011 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
Xylenes	9	0.0035 U	0.0033 U	0.0027 U	0.0033 U	**0.0166**	0.110 U	0.136 U	0.154 U	0.138 U	**1.89**	**2.28**	**2.79**	**0.088**	0.253 U	0.0033 U	0.00284 U	**0.0024**	-	0.0033 U	0.00241 U	0.0027 U	0.00227 U	0.0077 U	0.0054 U
Volatile Petroleum Hydrocarbons																									
Hexane	4800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
>C10-C12 Aliphatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
>C10-C12 Aromatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
>C12-C13 Aromatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
>C6-C8 Aliphatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
>C8-C10 Aliphatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
>C8-C10 Aromatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C5-C6 Aliphatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Aliphatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Aromatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																									
Antimony	-	5.8 U	7.1 U	5.5 U	5.7 U	5.9 U	-	-	-	-	5.6 U	-	-	-	6.9 U	-	-	-	-	-	-	-	-	-	-
Arsenic	20	12 U	14 U	11 U	11 U	12 U	-	-	-	-	11 U	-	-	-	14 U	11 U	11 U	11 U	11 U	13 U	12 U	12 U	11 U	11 U	14 U
Barium	16000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**47**	**59**	**42**	**69**	**63**	**35**	**46**	**73**	**58**	**110**
Beryllium	160	0.58 U	0.71 U	0.55 U	0.57 U	0.59 U	-	-	-	-	0.56 U	-	-	-	0.69 U	-	-	-	-	-	-	-	-	-	-
Cadmium	2	0.58 U	0.71 U	0.55 U	0.57 U	0.59 U	-	-	-	-	0.56 U	-	-	-	0.69 U	0.56 U	0.56 U	0.55 U	0.57 U	0.63 U	0.61 U	0.59 U	0.54 U	0.55 U	0.69 U
Chromium	2000 †	**36**	**37**	**28**	**27**	**29**	-	-	-	-	**28**	-	-	-	**64**	**33**	**37**	**35**	**35**	**37**	**27**	**48**	**140**	**43**	**68**
Chromium (TCLP) (mg/L)	5.0 mg/L ¥	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	3,200	**8.4**	**24**	**13**	**11**	**8.6**	-	-	-	-	**11**	-	-	-	**46**	-	-	-	-	-	-	-	-	-	-
Lead	250	5.8 U	**11**	5.5 U	5.7 U	5.9 U	-	-	-	-	5.6 U	-	-	-	6.9 U	5.6 U	**6**	5.5 U	5.7 U	6.3 U	6.1 U	5.9 U	5.4 U	5.5 U	6.9 U
Mercury	2	0.29 U	0.36 U	0.28 U	0.29 U	0.29 U	-	-	-	-	0.28 U	-	-	-	0.35 U	0.28 U	0.28 U	0.27 U	0.29 U	0.31 U	0.31 U	0.3 U	0.27 U	0.28 U	0.34 U
Nickel	1600	**27**	**36**	**33**	**30**	**24**	-	-	-	-	**30**	-	-	-	**69**	-	-	-	-	-	-	-	-	-	-
Selenium	400	12 U	14 U	11 U	11 U	12 U	-	-	-	-	11 U	-	-	-	14 U	11 U	11 U	11 U	11 U	13 U	12 U	12 U	11 U	11 U	14 U
Silver	400	0.58 U	0.71 U	0.55 U	0.57 U	0.59 U	-	-	-	-	0.56 U	-	-	-	0.69 U	1.1 U	1.1 U	1.1 U	1.1 U	1.3 U	1.2 U	1.2 U	1.1 U	1.1 U	1.4 U
Thallium	0.8	1.4 U	1.8 U	1.4 U	1.4 U	1.5 U	-	-	-	-	1.4 U	-	-	-	1.7 U	-	-	-	-	-	-	-	-	-	-
Zinc	24000	**20**	**56**	**26**	**24**	**26**	-	-	-	-	**24**	-	-	-	**69**	-	-	-	-	-	-	-	-	-	-
Polychlorinated Biphenyls (PCBs)																									
PCB-aroclor 1016	5.6	0.058 U	0.071 U	-	-	0.055 U	-	-	-	-	0.056 U	-	-	-	0.069 U	0.056 U	0.056 U	0.055 U	0.057 U	0.063 U	0.061 U	0.059 U	0.054 U	0.055 U	0.069 U
PCB-aroclor 1221	-	0.058 U	0.071 U	-	-	0.055 U	-	-	-	-	0.056 U	-	-	-	0.069 U	0.056 U	0.056 U	0.055 U	0.057 U	0.063 U	0.061 U	0.059 U	0.054 U	0.055 U	0.069 U
PCB-aroclor 1232	-	0.058 U	0.071 U	-	-	0.055 U	-	-	-	-	0.056 U	-	-	-	0.069 U	0.056 U	0.056 U	0.055 U	0.057 U	0.063 U	0.061 U	0.059 U	0.054 U	0.055 U	0.069 U
PCB-aroclor 1242	-	0.058 U	0.071 U	-	-	0.055 U	-	-	-	-	0.056 U	-	-	-	0.069 U	0.056 U	0.056 U	0.055 U	0.057 U	0.063 U	0.061 U	0.059 U	0.054 U	0.055 U	0.069 U
PCB-aroclor 1248	-	0.058 U	0.071 U	-	-	0.055 U	-	-	-	-	0.056 U	-	-	-	0.069 U	0.056 U	0.056 U	0.055 U	0.057 U	0.063 U	0.061 U	0.059 U	0.054 U	0.055 U	0.069 U
PCB-aroclor 1254	0.5	0.058 U	0.071 U	-	-	0.055 U	-	-	-	-	0.056 U	-	-	-	0.069 U	0.056 U	0.056 U	0.055 U	0.057 U	0.063 U	0.061 U	0.059 U	0.054 U	0.055 U	0.069 U
PCB-aroclor 1260	0.5	0.058 U	0.071 U	-	-	0.055 U	-	-	-	-	0.056 U	-	-	-	0.069 U	0.056 U	0.056 U	0.055 U	0.057 U	0.063 U	0.061 U	0.059 U	0.054 U	0.055 U	0.069 U
Volatile Organic Compounds (VOCs)																									
1,1,1,2-Tetrachloroethane	38	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.0011 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
1,1,1-Trichloroethane	2	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.0011 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
1,1,2,2-Tetrachloroethane	5	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.06 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
1,1,2-Trichloroethane	18	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.0011 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
1,1-Dichloroethane	180	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.0011 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
1,1-Dichloroethene	-	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.0011 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
1,1-Dichloropropene	-	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.0011 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
1,2,3-Trichlorobenzene	-	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.06 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
1,2,3-Trichloropropane	0.033	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.06 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
1,2,4-Trichlorobenzene	34	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.06 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U

Sample Location	Screening Level *	H-1-16	H-2-16	H-3-16	H-3-16	H-3-16	H-4-16	H-4-16	H-4-16	H-4-16	H-4-16	H-4-16	H-4-16	H-4-16	H-5-16	H-6-17	H-7-17	H-7-17	H-8-17	H-9-17	H-10-17	H-11-18	H-12-18	H-13-18	H-14-18
Sample Depth (feet bgs)		10	13.5	3	6	8.5	3	6	8.5	11	16	18.5	19.9	25.4	13.5	15	10	20	5	15	10	10	20	15	10
1,2,4-Trimethylbenzene	800	0.0012 U	0.0011 U	0.0009 U	0.0011 U	**0.0018**	-	-	-	-	**1.8**	-	-	-	0.083 U	0.06 U	0.00094 U	**0.0015**	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
1,2-Dibromo-3-Chloropropane	1.3	0.0058 U	0.0054 U	0.0045 U	0.0057 U	0.0058 U	-	-	-	-	0.25 U	-	-	-	0.41 U	0.3 U	0.0047 U	0.0053 U	-	0.0056 U	0.004 U	0.0045 U	0.0039 U	0.013 U	0.0091 U
1,2-Dichlorobenzene	7200	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.06 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
1,2-Dichloroethane (EDC)	11	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.0011 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
1,2-Dichloropropane	27	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.0011 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
1,3,5-Trimethylbenzene	800	0.0012 U	0.0011 U	0.0009 U	0.0011 U	**0.0015**	-	-	-	-	**0.56**	-	-	-	**0.15**	0.06 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
1,3-Dichlorobenzene	-	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.06 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
1,3-Dichloropropane	-	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.0011 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
1,4-Dichlorobenzene	190	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.06 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
2,2-Dichloropropane	-	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.0011 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
2-Butanone	-	0.0058 U	**0.021**	0.0045 U	0.0057 U	0.0058 U	-	-	-	-	0.25 U	-	-	-	0.41 U	0.011 U	0.0094 U	**0.014**	-	0.011 U	0.0081 U	0.009 U	0.0077 U	0.026 U	0.018 U
2-Chloroethylvinylether	-	0.0058 U	0.0054 U	0.0045 U	0.0057 U	0.0058 U	-	-	-	-	0.25 U	-	-	-	0.41 U	0.0076 U	0.0047 U	0.0053 U	-	0.0056 U	0.004 U	0.0045 U	0.0039 U	0.013 U	0.0091 U
2-Chlorotoluene	1600	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.06 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
2-Hexanone	400	0.0058 U	0.0054 U	0.0045 U	0.0057 U	0.0058 U	-	-	-	-	0.25 U	-	-	-	0.41 U	0.0054 U	0.0047 U	0.0053 U	-	0.0056 U	0.004 U	0.0045 U	0.0039 U	0.013 U	0.0091 U
4-Chlorotoluene	-	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.06 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
Acetone	72000	0.0083 U	**0.06**	0.0045 U	0.023	0.0058 U	-	-	-	-	0.25 U	-	-	-	0.41 U	0.054 U	0.047 U	**0.078**	-	0.056 U	0.04 U	0.045 U	0.039 U	0.13 U	0.091 U
Bromobenzene	640	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.06 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
Bromochloromethane	-	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.0011 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
Bromodichloromethane	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromoform	130	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.0054 U	0.0047 U	0.0053 U	-	0.0056 U	0.004 U	0.0045 U	0.0039 U	0.013 U	0.0091 U
Bromomethane	110	0.0015 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.0011 U	0.0047 U	0.0053 U	-	0.0071 U	0.0052 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
Carbon Disulfide	8000	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	**0.0026**	0.00094 U	**0.0054**	-	0.0011 U	0.00081 U	0.0009 U	**0.0015**	0.0026 U	0.0018 U
Carbon Tetrachloride	14	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.0011 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
CFC-11	-	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.0011 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
CFC-12	-	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.0014 U	0.00094 U	0.0011 U	-	0.0014 U	0.001 U	0.0009 U	0.0013 U	0.0026 U	0.0018 U
Chlorobenzene	1600	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.0011 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
Chloroethane	-	0.0097 U	0.0054 U	0.0045 U	0.0057 U	0.0058 U	-	-	-	-	0.25 U	-	-	-	0.41 U	0.0054 U	0.0047 U	0.0053 U	-	0.0056 U	0.004 U	0.0045 U	0.0039 U	0.013 U	0.0091 U
Chloroform	32	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.0011 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
Chloromethane	-	0.0095 U	0.0054 U	0.0045 U	0.0057 U	0.0058 U	-	-	-	-	0.25 U	-	-	-	0.41 U	0.0054 U	0.0047 U	0.0053 U	-	0.0056 U	0.004 U	0.0045 U	**0.0058**	0.013 U	0.0091 U
cis-1,2-Dichloroethene	-	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.0011 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
cis-1,3-Dichloropropene	10	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.0011 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
Dibromochloromethane	12	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.0011 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
Dibromomethane	-	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.0011 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
Dichlorobromomethane	-	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.0011 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
Dichlorodifluoromethane	16000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylene dibromide	0.005	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.0011 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
Hexachloro-1,3-butadiene	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobutadiene	-	0.0058 U	0.0054 U	0.0045 U	0.0057 U	0.0058 U	-	-	-	-	0.25 U	-	-	-	0.41 U	0.3 U	0.0047 U	0.0053 U	-	0.0056 U	0.004 U	0.0045 U	0.0039 U	0.013 U	0.0091 U
Isopropylbenzene	-	0.0012 U	0.0011 U	0.0009 U	0.0011 U	**0.0018**	-	-	-	-	**0.092**	-	-	-	**0.19**	0.0011 U	0.00094 U	**0.0012**	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
Isopropyltoluene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Iodide	-	0.0058 U	0.0054 U	0.0045 U	0.0057 U	0.0058 U	-	-	-	-	0.25 U	-	-	-	0.41 U	0.0054 U	0.0047 U	0.0053 U	-	0.0056 U	0.004 U	0.0045 U	0.0039 U	0.013 U	0.0091 U
Methyl Isobutyl Ketone	6400	0.0058 U	0.0054 U	0.0045 U	0.0057 U	0.0058 U	-	-	-	-	0.25 U	-	-	-	0.41 U	0.0054 U	0.0047 U	0.0053 U	-	0.0056 U	0.004 U	0.0045 U	0.0039 U	0.013 U	0.0091 U
Methyl t-Butyl Ether	0.1	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.0011 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
Methylene chloride	0.02	0.0058 U	0.0054 U	0.0045 U	**0.053**	**0.022**	-	-	-	-	0.25 U	-	-	-	0.41 U	0.0054 U	0.0047 U	0.0053 U	-	0.0056 U	0.004 U	0.0045 U	0.0039 U	0.013 U	0.0091 U
MTBE	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	5	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	**0.64**	-	-	-	0.083 U	0.06 U	0.00094 U	**0.0027**	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
n-Butylbenzene	4000	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	**0.29**	-	-	-	2	0.06 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
n-Propylbenzene	8000	0.0012 U	0.0011 U	0.0009 U	0.0011 U	**0.0032**	-	-	-	-	**0.36**	-	-	-	1.2	0.06 U	0.00094 U	0.0035	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
p-Isopropyltoluene	-	0.0012 U	0.0011 U	0.0009 U	0.0011 U	**0.002**	-	-	-	-	**0.053**	-	-	-	**0.32**	0.06 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
sec-Butylbenzene	8000	0.0012 U	0.0011 U	0.0009 U	0.0011 U	**0.0013**	-	-	-	-	**0.064**	-	-	-	**0.51**	0.06 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
Styrene	16000	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.0011 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
tert-Butylbenzene	8000	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.06 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
Tetrachloroethene	-	0.0012 U	0.0022 U	0.0018 U	0.0023 U	0.0023 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.0011 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0018 U	0.00077 U	0.0051 U	0.0036 U
trans-1,2-Dichloroethene	-	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.0011 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
trans-1,3-Dichloropropene	10	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.0011 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
Trichloroethene	-	0.0012 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.0011 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U
Trichlorofluoromethane	24000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vinyl Acetate	80000	0.0058 U	0.0054 U	0.0045 U	0.0057 U	0.0058 U	-	-	-	-	0.25 U	-	-	-	0.41 U	0.0054 U	0.0047 U	0.0053 U	-	0.0056 U	0.004 U	0.0045 U	0.0039 U	0.013 U	0.0091 U
Vinyl chloride	0.67	0.0019 U	0.0011 U	0.0009 U	0.0011 U	0.0012 U	-	-	-	-	0.051 U	-	-	-	0.083 U	0.0011 U	0.00094 U	0.0011 U	-	0.0011 U	0.00081 U	0.0009 U	0.00077 U	0.0026 U	0.0018 U

See Sheet 16 for Notes

Sample Location	Screening Level *	H-1-16	H-2-16	H-3-16	H-3-16	H-3-16	H-4-16	H-4-16	H-4-16	H-4-16	H-4-16	H-4-16	H-4-16	H-4-16	H-5-16	H-6-17	H-7-17	H-7-17	H-8-17	H-9-17	H-10-17	H-11-18	H-12-18	H-13-18	H-14-18
Sample Depth (feet bgs)		10	13.5	3	6	8.5	3	6	8.5	11	16	18.5	19.9	25.4	13.5	15	10	20	5	15	10	10	20	15	10
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs)																									
Benz[a]anthracene	-	0.0077 U	0.0095 U	0.0073 U	0.0076 U	0.0078 U	-	-	-	-	0.0075 U	-	-	-	0.0092 U	0.0074 U	**0.017**	0.0073 U	0.0077 U	0.0083 U	0.0082 U	0.0079 U	0.0073 U	0.0074 U	0.0092 U
Benzo(a)pyrene	0.1	0.0077 U	0.0095 U	0.0073 U	0.0076 U	0.0078 U	-	-	-	-	0.0075 U	-	-	-	0.0092 U	0.0074 U	**0.02**	0.0073 U	0.0077 U	0.0083 U	0.0082 U	0.0079 U	0.0073 U	0.0074 U	0.0092 U
Benzo(b)fluoranthene	-	0.0077 U	0.0095 U	0.0073 U	0.0076 U	0.0078 U	-	-	-	-	0.0075 U	-	-	-	0.0092 U	0.0074 U	**0.02**	0.0073 U	0.0077 U	0.0083 U	0.0082 U	0.0079 U	0.0073 U	0.0074 U	0.0092 U
Benzo(j,k)fluoranthene	-	0.0077 U	0.0095 U	0.0073 U	0.0076 U	0.0078 U	-	-	-	-	0.0075 U	-	-	-	0.0092 U	0.0074 U	0.0075 U	0.0073 U	0.0077 U	0.0083 U	0.0082 U	0.0079 U	0.0073 U	0.0074 U	0.0092 U
Benzo(k)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	-	0.0077 U	0.0095 U	0.0073 U	0.0076 U	0.0078 U	-	-	-	-	0.0075 U	-	-	-	0.0092 U	0.0074 U	**0.019**	0.0073 U	0.0077 U	0.0083 U	0.0082 U	0.0079 U	0.0073 U	0.0074 U	0.0092 U
Dibenzo(a,h)anthracene	-	0.0077 U	0.0095 U	0.0073 U	0.0076 U	0.0078 U	-	-	-	-	0.0075 U	-	-	-	0.0092 U	0.0074 U	0.0075 U	0.0073 U	0.0077 U	0.0083 U	0.0082 U	0.0079 U	0.0073 U	0.0074 U	0.0092 U
Indeno(1,2,3-cd)pyrene	-	0.0077 U	0.0095 U	0.0073 U	0.0076 U	0.0078 U	-	-	-	-	0.0075 U	-	-	-	0.0092 U	0.0074 U	**0.013**	0.0073 U	0.0077 U	0.0083 U	0.0082 U	0.0079 U	0.0073 U	0.0074 U	0.0092 U
Total cPAH TEQ ¥	0.1	0.0058 U	0.0072 U	0.0055 U	0.0057 U	0.0059 U	-	-	-	-	0.0057 U	-	-	-	0.0069 U	0.0056 U	**0.02324**	0.0055 U	0.0058 U	0.0063 U	0.0062 U	0.006 U	0.0055 U	0.0056 U	0.0069 U
Semi-Volatile Organic Compounds (SVOCs)																									
1,2-Dinitrobenzene	8	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
1,2-Diphenylhydrazine	3.3	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.059 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
1,3-Dinitrobenzene	8	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
1-MethylNaphthalene	34	0.0077 U	0.0095 U	0.0073 U	0.0076 U	**0.013**	-	-	-	-	**0.37**	-	-	-	**0.037**	0.0074 U	0.0075 U	0.0073 U	0.0077 U	0.0083 U	0.0082 U	0.0079 U	0.0073 U	0.0074 U	0.0092 U
2,3,4,6-Tetrachlorophenol	2400	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
2,3,5,6-Tetrachlorophenol	-	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
2,3-Dichloroaniline	-	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
2,4,5-Trichlorophenol	8000	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
2,4,6-Tribromophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	80	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
2,4-Dichlorophenol	240	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
2,4-Dimethylphenol	1600	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
2,4-Dinitrophenol	160	0.19 U	0.24 U	0.18 U	0.19 U	0.2 U	-	-	-	-	0.19 U	-	-	-	0.23 U	0.19 U	0.19 U	0.18 U	0.19 U	0.21 U	0.2 U	0.2 U	0.18 U	0.18 U	0.23 U
2,4-Dinitrotoluene	3.2	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
2,6-Dinitrotoluene	0.67	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
2-Chloronaphthalene	-	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
2-Chlorophenol	400	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
2-MethylNaphthalene	320	0.0077 U	0.0095 U	0.0073 U	0.0076 U	0.018	-	-	-	-	**0.74**	-	-	-	**0.35**	0.0074 U	0.0075 U	0.0073 U	0.0077 U	0.0083 U	0.0082 U	0.0079 U	0.013 U	0.0074 U	0.0092 U
2-Nitroaniline	-	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
2-Nitrophenol	-	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
3,3'-Dichlorobenzidine	2.2	0.19 U	0.24 U	0.18 U	0.19 U	0.2 U	-	-	-	-	0.19 U	-	-	-	0.23 U	0.19 U	0.19 U	0.18 U	0.19 U	0.21 U	0.2 U	0.2 U	0.18 U	0.18 U	0.23 U
3-Methylphenol and 4-Methylphenol coelution	-	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
3-Nitroaniline	-	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
4,6-Dinitro-2-methylphenol	-	0.19 U	0.24 U	0.18 U	0.19 U	0.2 U	-	-	-	-	0.19 U	-	-	-	0.23 U	0.19 U	0.19 U	0.18 U	0.19 U	0.21 U	0.2 U	0.2 U	0.18 U	0.18 U	0.23 U
4-Bromophenyl phenyl ether	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Chloro-3-methylphenol	-	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
4-Chloroaniline	-	0.19 U	0.24 U	0.18 U	0.19 U	0.2 U	-	-	-	-	0.19 U	-	-	-	0.23 U	0.19 U	0.19 U	0.18 U	0.19 U	0.21 U	0.2 U	0.2 U	0.18 U	0.18 U	0.23 U
4-Chlorophenyl Phenyl Ether	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Chlorophenyl-Phenylether	-	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
4-Nitroaniline	-	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
4-Nitrophenol	-	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.054 U	0.037 U	0.046 U
Acenaphthene	4800	0.0077 U	0.0095 U	0.0073 U	0.0076 U	0.0078 U	-	-	-	-	0.0075 U	-	-	-	0.0092 U	0.0074 U	0.0075 U	0.0073 U	0.0077 U	0.0083 U	0.0082 U	0.0079 U	0.013 U	0.0074 U	0.0092 U
Acenaphthylene	-	0.0077 U	0.0095 U	0.0073 U	0.0076 U	0.0078 U	-	-	-	-	0.0075 U	-	-	-	0.0092 U	0.0074 U	0.0075 U	0.0073 U	0.0077 U	0.0083 U	0.0082 U	0.0079 U	0.0073 U	0.0074 U	0.0092 U
Aniline	180	0.19 U	0.24 U	0.18 U	0.19 U	0.2 U	-	-	-	-	0.19 U	-	-	-	0.23 U	0.19 U	0.19 U	0.18 U	0.19 U	0.21 U	0.2 U	0.2 U	0.18 U	0.18 U	0.23 U
Anthracene	24000	0.0077 U	0.0095 U	0.0073 U	0.0076 U	0.0078 U	-	-	-	-	0.0075 U	-	-	-	0.0092 U	0.0074 U	0.0075 U	0.0073 U	0.0077 U	0.0083 U	0.0082 U	**0.008**	0.0073 U	0.0074 U	0.0092 U
Benzene, 1,4-Dinitro-	8	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
Benzidine	0.0043	0.39 U	0.48 U	0.37 U	0.38 U	0.39 U	-	-	-	-	0.37 U	-	-	-	0.46 U	0.37 U	0.38 U	0.36 U	0.38 U	0.42 U	0.41 U	0.4 U	0.36 U	0.37 U	0.46 U
Benzo(ghi)perylene	-	0.0077 U	0.0095 U	0.0073 U	0.0076 U	0.0078 U	-	-	-	-	0.0075 U	-	-	-	0.0092 U	0.0074 U	**0.014**	0.0073 U	0.0077 U	0.0083 U	0.0082 U	0.0079 U	0.0073 U	0.0074 U	0.0092 U
Benzyl alcohol	8000	0.19 U	0.24 U	0.18 U	0.19 U	0.2 U	-	-	-	-	0.19 U	-	-	-	0.23 U	0.19 U	0.19 U	0.18 U	0.19 U	0.21 U	0.2 U	0.2 U	0.18 U	0.18 U	0.23 U
Bis(2-Chloroethoxy)Methane	-	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
bis(2-Chloroethyl)ether	0.91	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
bis(2-Chloroisopropyl)ether	-	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
Bis(2-ethylhexyl) ether	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	71	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.19 U	0.19 U	0.18 U	0.19 U	0.21 U	0.2 U	0.2 U	0.18 U	0.18 U	0.23 U
Butyl benzyl phthalate	530	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.19 U	0.19 U	0.18 U	0.19 U	0.21 U	0.2 U	0.2 U	0.18 U	0.18 U	0.23 U
Carbazole	-	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
Di(2-ethylhexyl) adipate	830	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.19 U	0.19 U	0.18 U	0.19 U	0.21 U	0.2 U	0.2 U	0.18 U	0.18 U	0.23 U

See Sheet 16 for Notes

Sample Location	Screening Level *	H-1-16	H-2-16	H-3-16	H-3-16	H-3-16	H-4-16	H-4-16	H-4-16	H-4-16	H-4-16	H-4-16	H-4-16	H-4-16	H-5-16	H-6-17	H-7-17	H-7-17	H-8-17	H-9-17	H-10-17	H-11-18	H-12-18	H-13-18	H-14-18
Sample Depth (feet bgs)		10	13.5	3	6	8.5	3	6	8.5	11	16	18.5	19.9	25.4	13.5	15	10	20	5	15	10	10	20	15	10
Dibenzofuran	**80**	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
Diethyl phthalate	**64000**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Diethylphthalate	**64000**	0.19 U	0.24 U	0.18 U	0.19 U	0.2 U	-	-	-	-	0.19 U	-	-	-	0.23 U	0.19 U	0.19 U	0.18 U	0.19 U	0.21 U	0.2 U	0.2 U	0.18 U	0.18 U	0.23 U
Dimethylphthalate	**-**	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
Di-n-butylphthalate	**-**	0.19 U	0.24 U	0.18 U	0.19 U	0.2 U	-	-	-	-	0.19 U	-	-	-	0.23 U	0.19 U	0.19 U	0.18 U	0.19 U	0.42 U	0.41 U	0.2 U	0.18 U	0.18 U	0.23 U
Di-n-octylphthalate	**-**	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.19 U	0.19 U	0.18 U	0.19 U	0.21 U	0.2 U	0.2 U	0.18 U	0.18 U	0.23 U
Fluoranthene	**3200**	0.0077 U	0.0095 U	0.0073 U	0.0076 U	0.0078 U	-	-	-	-	0.0075 U	-	-	-	0.0092 U	0.0074 U	0.027	0.0073 U	0.0077 U	0.0083 U	0.0082 U	**0.0096**	0.0073 U	0.0074 U	0.0092 U
Fluorene	**3200**	0.0077 U	0.0095 U	0.0073 U	0.0076 U	0.0078 U	-	-	-	-	0.0075 U	-	-	-	0.0092 U	0.0074 U	0.0075 U	0.0073 U	0.0077 U	0.0083 U	0.0082 U	0.0079 U	0.0073 U	0.0074 U	0.0092 U
Hexachlorobenzene	**0.63**	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
Hexachlorocyclopentadiene	**480**	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
Hexachloroethane	**25**	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
Isophorone	**1100**	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
Nitrobenzene	**160**	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
n-Nitrosodimethylamine	**0.02**	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
N-Nitrosodi-n-propylamine	**-**	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
N-Nitrosodiphenylamine	**200**	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
o-Cresol	**4000**	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
PBDE-003	**-**	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
Pentachlorophenol	**2.5**	0.19 U	0.24 U	0.18 U	0.19 U	0.2 U	-	-	-	-	0.19 U	-	-	-	0.23 U	0.19 U	0.19 U	0.18 U	0.19 U	0.21 U	0.2 U	0.2 U	0.18 U	0.18 U	0.23 U
Phenanthrene	**-**	0.0077 U	0.0095 U	0.0073 U	0.0076 U	0.0078 U	-	-	-	-	0.0075 U	-	-	-	0.0092 U	0.0074 U	**0.019**	0.0073 U	0.0077 U	0.0083 U	0.0082 U	0.013	0.0073 U	0.0074 U	0.0092 U
Phenol	**24000**	0.039 U	0.048 U	0.037 U	0.038 U	0.039 U	-	-	-	-	0.037 U	-	-	-	0.046 U	0.037 U	0.038 U	0.036 U	0.038 U	0.042 U	0.041 U	0.04 U	0.036 U	0.037 U	0.046 U
Pyrene	**2400**	0.0077 U	0.0095 U	0.0073 U	0.0076 U	0.0078 U	-	-	-	-	0.0075 U	-	-	-	0.0092 U	0.0074 U	**0.041**	0.0073 U	0.0077 U	0.0083 U	0.0082 U	**0.013**	0.013 U	0.0074 U	0.0092 U
Pyridine	**80**	0.39 U	0.48 U	0.37 U	0.38 U	0.39 U	-	-	-	-	0.37 U	-	-	-	0.46 U	0.37 U	0.38 U	0.36 U	0.38 U	0.42 U	0.41 U	0.4 U	0.36 U	0.37 U	0.46 U

See Sheet 16 for Notes

Sample Location	Screening Level *	H-15-18	H-15-18	H-16-18	H-16-18	H-16-18	H-16-18	H-16-18	H-16-18	H-16-18	H-16-18	H-17-18	H-17-18	H-17-18	H-18-18	H-18-18	H-19-18	H-19-18	H-19-18	H-19-18
Sample Depth (feet bgs)		15	25	5-6.5	10-11.5	10-11.5 ‡	15-16.5	15-16.5 ‡	20	25-26.5	25-26.5 ‡	10-11.5	10-11.5 ‡	20-21.5	24.5	25-26.5	5-6.5	15-16.5	15-16.5 ‡	19.5
Total Petroleum Hydrocarbons																				
Gasoline Range Organics	30 **	7.5 U	6.5 U	11	900	15	58	130	1600	41	17	180	44	9.3	5 U	5.2 U	3100	5600	23	6.8
Diesel Range Organics	2000	29 U	28 U	20 U	20 U	96 U	20 U	140 U	20 U	20 U	28 U	30 U	20 U	20 U	-	29 U	1500 U	1100 U	20 U	20 U
Lube Oil	2000	58 U	56 U	50 U	50 U	64 U	50 U	61 U	50 U	50 U	56 U	59 U	50 U	50 U	-	59	6000	82	50 U	50 U
Mineral spirits	4000	-	-	5 U	5 U	-	5 U	-	5 U	5 U	-	-	5 U	5 U	5 U	-	-	-	5 U	5 U
Kerosene	-	-	-	20 U	20 U	-	20 U	-	20 U	20 U	-	-	20 U	20 U	-	-	-	-	20 U	20 U
Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)																				
Benzene	0.03	0.0011 U	0.0012 U	150	5	1.4	0.98	0.5	1.2	96	0.17	0.098	0.094	0.33	20 U	0.00087 U	0.27	1.3	0.02 U	0.02 U
Toluene	7	0.0057 U	0.0058 U	50 U	0.48	0.35 U	0.081	0.26 U	0.53	50 U	0.24 U	0.24 U	0.05 U	0.05 U	50 U	0.0044 U	0.59 U	7.3	0.05 U	0.05 U
Ethylbenzene	6	0.0011 U	0.0012 U	50 U	34	1.8	2.8	2.6	15	490	0.91	0.33	0.65	0.17	50 U	0.00087 U	2.7	17	0.19	0.068
m, p-Xylene	16000	0.0023 U	0.0023 U	-	-	0.14 U	-	3.1	-	-	1.9	0.096 U	-	-	-	0.0017 U	18	65	-	-
o-Xylene	16000	0.0011 U	0.0012 U	-	-	0.07 U	-	0.5	-	-	0.44	0.048 U	-	-	-	0.00087 U	5.8	15	-	-
Xylenes	9	0.0034 U	0.0035 U	50 U	1.8	0.21 U	2	3.6	51	820	2.34	0.144 U	2.2	0.36	50 U	0.00257 U	23.8	80	0.78	0.21
Volatile Petroleum Hydrocarbons																				
Hexane	4800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
>C10-C12 Aliphatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
>C10-C12 Aromatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
>C12-C13 Aromatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
>C6-C8 Aliphatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
>C8-C10 Aliphatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
>C8-C10 Aromatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C5-C6 Aliphatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Aliphatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Aromatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																				
Antimony	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	20	11 U	11 U	-	-	13 U	-	12 U	-	-	11 U	13 U	-	-	-	12 U	11 U	12 U	-	-
Barium	16000	50	35	-	-	200	-	92	-	-	48	110	-	-	-	56	100	76	-	-
Beryllium	160	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	2	0.57 U	0.55 U	-	-	0.64 U	-	0.61 U	-	-	0.56 U	0.67 U	-	-	-	0.58 U	0.55 U	0.59 U	-	-
Chromium	2000 †	37	25	-	-	81	-	63	-	-	35	66	-	-	-	120	35	53	-	-
Chromium (TCLP) (mg/L)	5.0 mg/L ¥	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.087	-	-	-	-
Copper	3,200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	250	5.7 U	5.5 U	-	-	8.5	-	6.1 U	-	-	5.6 U	6.7 U	-	-	-	5.8 U	13	8.2	-	-
Mercury	2	0.29 U	0.28 U	-	-	0.32 U	-	0.3 U	-	-	0.28 U	0.34 U	-	-	-	0.29 U	0.28 U	0.3 U	-	-
Nickel	1600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	400	11 U	11 U	-	-	13 U	-	12 U	-	-	11 U	13 U	-	-	-	12 U	11 U	12 U	-	-
Silver	400	1.1 U	1.1 U	-	-	1.3 U	-	1.2 U	-	-	1.1 U	1.3 U	-	-	-	1.2 U	1.1 U	1.2 U	-	-
Thallium	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	24000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polychlorinated Biphenyls (PCBs)																				
PCB-aroclor 1016	5.6	0.057 U	0.055 U	-	-	0.064 U	-	0.061 U	-	-	0.056 U	0.059 U	-	-	-	0.058 U	0.055 U	0.059 U	-	-
PCB-aroclor 1221	-	0.057 U	0.055 U	-	-	0.064 U	-	0.061 U	-	-	0.056 U	0.059 U	-	-	-	0.058 U	0.055 U	0.059 U	-	-
PCB-aroclor 1232	-	0.057 U	0.055 U	-	-	0.064 U	-	0.061 U	-	-	0.056 U	0.059 U	-	-	-	0.058 U	0.055 U	0.059 U	-	-
PCB-aroclor 1242	-	0.057 U	0.055 U	-	-	0.064 U	-	0.061 U	-	-	0.056 U	0.059 U	-	-	-	0.058 U	0.055 U	0.059 U	-	-
PCB-aroclor 1248	-	0.057 U	0.055 U	-	-	0.064 U	-	0.061 U	-	-	0.056 U	0.059 U	-	-	-	0.058 U	0.055 U	0.059 U	-	-
PCB-aroclor 1254	0.5	0.057 U	0.055 U	-	-	0.064 U	-	0.061 U	-	-	0.056 U	0.059 U	-	-	-	0.058 U	0.055 U	0.059 U	-	-
PCB-aroclor 1260	0.5	0.057 U	0.055 U	-	-	0.064 U	-	0.061 U	-	-	0.056 U	0.059 U	-	-	-	0.058 U	0.055 U	0.059 U	-	-
Volatile Organic Compounds (VOCs)																				
1,1,1,2-Tetrachloroethane	38	0.0011 U	0.0012 U	-	0.05 U	0.07 U	0.05 U	0.053 U	0.05 U	-	0.049 U	0.048 U	0.05 U	0.05 U	-	0.00087 U	0.12 U	0.052 U	0.05 U	0.05 U
1,1,1-Trichloroethane	2	0.0011 U	0.0012 U	-	0.05 U	0.07 U	0.05 U	0.053 U	0.05 U	-	0.049 U	0.048 U	0.05 U	0.05 U	-	0.00087 U	0.12 U	0.052 U	0.05 U	0.05 U
1,1,2,2-Tetrachloroethane	5	0.0011 U	0.0012 U	-	0.05 U	0.07 U	0.05 U	0.053 U	0.05 U	-	0.049 U	0.048 U	0.05 U	0.05 U	-	0.00087 U	0.12 U	0.052 U	0.05 U	0.05 U
1,1,2-Trichloroethane	18	0.0011 U	0.0012 U	-	0.05 U	0.07 U	0.05 U	0.053 U	0.05 U	-	0.049 U	0.048 U	0.05 U	0.05 U	-	0.00087 U	0.12 U	0.052 U	0.05 U	0.05 U
1,1-Dichloroethane	180	0.0011 U	0.0012 U	-	0.05 U	0.07 U	0.05 U	0.053 U	0.05 U	-	0.049 U	0.048 U	0.05 U	0.05 U	-	0.00087 U	0.12 U	0.052 U	0.05 U	0.05 U
1,1-Dichloroethene	-	0.0011 U	0.0012 U	-	0.05 U	0.07 U	0.05 U	0.053 U	0.05 U	-	0.049 U	0.048 U	0.05 U	0.05 U	-	0.00087 U	0.12 U	0.052 U	0.05 U	0.05 U
1,1-Dichloropropene	-	0.0011 U	0.0012 U	-	0.05 U	0.07 U	0.05 U	0.053 U	0.05 U	-	0.049 U	0.048 U	0.05 U	0.05 U	-	0.00087 U	0.12 U	0.052 U	0.05 U	0.05 U
1,2,3-Trichlorobenzene	-	0.0011 U	0.0012 U	-	0.05 U	0.07 U	0.05 U	0.053 U	0.05 U	-	0.049 U	0.048 U	0.05 U	0.05 U	-	0.00087 U	0.12 U	0.052 U	0.05 U	0.05 U
1,2,3-Trichloropropane	0.033	0.0011 U	0.0012 U	-	0.05 U	0.07 U	0.05 U	0.053 U	0.05 U	-	0.049 U	0.048 U	0.05 U	0.05 U	-	0.00087 U	0.12 U	0.052 U	0.05 U	0.05 U
1,2,4-Trichlorobenzene	34	0.0011 U	0.0012 U	-	0.05 U	0.07 U	0.05 U	0.053 U	0.05 U	-	0.049 U	0.048 U	0.05 U	0.05 U	-	0.00087 U	0.12 U	0.052 U	0.05 U	0.05 U

See Sheet 16 for Notes

Sample Location	Screening Level *	H-15-18	H-15-18	H-16-18	H-16-18	H-16-18	H-16-18	H-16-18	H-16-18	H-16-18	H-16-18	H-17-18	H-17-18	H-17-18	H-18-18	H-18-18	H-19-18	H-19-18	H-19-18	H-19-18
Sample Depth (feet bgs)		15	25	5-6.5	10-11.5	10-11.5 ‡	15-16.5	15-16.5 ‡	20	25-26.5	25-26.5 ‡	10-11.5	10-11.5 ‡	20-21.5	24.5	25-26.5	5-6.5	15-16.5	15-16.5 ‡	19.5
1,2,4-Trimethylbenzene	800	0.0011 U	0.0012 U	-	**2.3**	0.07 U	**2.1**	**4.7**	**31**	-	**2**	0.048 U	**1.6**	**0.46**	-	0.00087 U	**21**	**61**	**0.86**	**0.19**
1,2-Dibromo-3-Chloropropane	1.3	0.0057 U	0.0058 U	-	0.05 U	0.35 U	0.05 U	0.26 U	0.05 U	-	0.24 U	0.24 U	0.05 U	0.05 U	-	0.0044 U	0.59 U	0.26 U	0.05 U	0.05 U
1,2-Dichlorobenzene	7200	0.0011 U	0.0012 U	-	0.05 U	0.07 U	0.05 U	0.053 U	0.05 U	-	0.049 U	0.048 U	0.05 U	0.05 U	-	0.00087 U	0.12 U	0.052 U	0.05 U	0.05 U
1,2-Dichloroethane (EDC)	11	0.0011 U	0.0012 U	-	0.02 U	0.07 U	0.02 U	0.053 U	0.02 U	-	0.049 U	0.048 U	0.02 U	0.02 U	-	0.00087 U	0.12 U	0.052 U	0.02 U	0.02 U
1,2-Dichloropropane	27	0.0011 U	0.0012 U	-	0.05 U	0.07 U	0.05 U	0.053 U	0.05 U	-	0.049 U	0.048 U	0.05 U	0.05 U	-	0.00087 U	0.12 U	0.052 U	0.05 U	0.05 U
1,3,5-Trimethylbenzene	800	0.0011 U	0.0012 U	-	**2**	**0.07 U**	**0.48**	**1.2**	**11**	-	**0.62**	**0.11**	**0.43**	**0.13**	-	0.00087 U	**6.1**	**19**	**0.26**	**0.17**
1,3-Dichlorobenzene	-	0.0011 U	0.0012 U	-	0.05 U	0.07 U	0.05 U	0.053 U	0.05 U	-	0.049 U	0.048 U	0.05 U	0.05 U	-	0.00087 U	0.12 U	0.052 U	0.05 U	0.05 U
1,3-Dichloropropane	-	0.0011 U	0.0012 U	-	0.05 U	0.07 U	0.05 U	0.053 U	0.05 U	-	0.049 U	0.048 U	0.05 U	0.05 U	-	0.00087 U	0.12 U	0.052 U	0.05 U	0.05 U
1,4-Dichlorobenzene	190	0.0011 U	0.0012 U	-	0.05 U	0.07 U	0.05 U	0.053 U	0.05 U	-	0.049 U	0.048 U	0.05 U	0.05 U	-	0.00087 U	0.12 U	0.052 U	0.05 U	0.05 U
2,2-Dichloropropane	-	0.0011 U	0.0012 U	-	0.05 U	0.07 U	0.05 U	0.053 U	0.05 U	-	0.049 U	0.048 U	0.05 U	0.05 U	-	0.00087 U	0.12 U	0.052 U	0.05 U	0.05 U
2-Butanone	-	0.011 U	0.012 U	-	-	0.35 U	-	0.26 U	-	-	0.24 U	0.24 U	-	-	-	0.0044 U	0.59 U	0.26 U	-	-
2-Chloroethylvinylether	-	0.0057 U	0.0058 U	-	-	0.35 U	-	0.26 U	-	-	0.24 U	0.24 U	-	-	-	0.0044 U	0.59 U	0.26 U	-	-
2-Chlorotoluene	1600	0.0011 U	0.0012 U	-	0.05 U	0.07 U	0.05 U	0.053 U	0.05 U	-	0.049 U	0.048 U	0.05 U	0.05 U	-	0.00087 U	0.12 U	0.052 U	0.05 U	0.05 U
2-Hexanone	400	0.0057 U	0.0058 U	-	-	0.35 U	-	0.26 U	-	-	0.24 U	0.24 U	-	-	-	0.0044 U	0.59 U	0.26 U	-	-
4-Chlorotoluene	-	0.0011 U	0.0012 U	-	0.05 U	0.07 U	0.05 U	0.053 U	0.05 U	-	0.049 U	0.052	0.05 U	0.05 U	-	0.00087 U	0.12 U	0.052 U	0.05 U	0.05 U
Acetone	72000	0.057 U	0.058 U	-	-	0.7 U	-	0.53 U	-	-	0.49 U	0.48 U	-	-	-	0.024	1.2 U	0.52 U	-	-
Bromobenzene	640	0.0011 U	0.0012 U	-	0.05 U	0.07 U	0.05 U	0.053 U	0.05 U	-	0.049 U	0.048 U	0.05 U	0.05 U	-	0.00087 U	0.12 U	0.052 U	0.05 U	0.05 U
Bromochloromethane	-	0.0011 U	0.0012 U	-	-	0.07 U	-	0.053 U	-	-	0.049 U	0.048 U	-	-	-	0.00087 U	0.12 U	0.052 U	-	-
Bromodichloromethane	16	-	-	-	0.05 U	-	0.05 U	-	0.05 U	-	-	-	0.05 U	0.05 U	-	-	-	-	0.05 U	0.05 U
Bromoform	130	0.0057 U	0.0058 U	-	0.05 U	0.35 U	0.05 U	0.26 U	0.05 U	-	0.24 U	0.24 U	0.05 U	0.05 U	-	0.0044 U	0.59 U	0.26 U	0.05 U	0.05 U
Bromomethane	110	0.0011 U	0.0012 U	-	0.05 U	0.07 U	0.05 U	0.053 U	0.05 U	-	0.049 U	0.048 U	0.05 U	0.05 U	-	0.00087 U	0.12 U	0.052 U	0.05 U	0.05 U
Carbon Disulfide	8000	0.0011 U	0.0012 U	-	-	0.07 U	-	0.053 U	-	-	0.049 U	0.048 U	-	-	-	**0.002**	0.12 U	0.052 U	-	-
Carbon Tetrachloride	14	0.0011 U	0.0012 U	-	0.05 U	0.07 U	0.05 U	0.053 U	0.05 U	-	0.049 U	0.048 U	0.05 U	0.05 U	-	0.00087 U	0.12 U	0.052 U	0.05 U	0.05 U
CFC-11	-	0.0011 U	0.0012 U	-	-	0.07 U	-	0.053 U	-	-	0.049 U	0.048 U	-	-	-	0.00087 U	0.12 U	0.052 U	-	-
CFC-12	-	0.0011 U	0.0012 U	-	-	0.07 U	-	0.053 U	-	-	0.049 U	0.048 U	-	-	-	0.00087 U	0.12 U	0.052 U	-	-
Chlorobenzene	1600	0.0011 U	0.0012 U	-	0.05 U	0.07 U	0.05 U	0.053 U	0.05 U	-	0.049 U	0.048 U	0.05 U	0.05 U	-	0.00087 U	0.12 U	0.052 U	0.05 U	0.05 U
Chloroethane	-	0.0057 U	0.0058 U	-	0.05 U	0.35 U	0.05 U	0.26 U	0.05 U	-	0.24 U	0.24 U	0.05 U	0.05 U	-	0.0044 U	0.59 U	0.26 U	0.05 U	0.05 U
Chloroform	32	0.0011 U	0.0012 U	-	0.05 U	0.07 U	0.05 U	0.053 U	0.05 U	-	0.049 U	0.048 U	0.05 U	0.05 U	-	0.00087 U	0.12 U	0.052 U	0.05 U	0.05 U
Chloromethane	-	0.0057 U	0.0058 U	-	0.05 U	0.35 U	0.05 U	0.26 U	0.05 U	-	0.24 U	0.24 U	0.05 U	0.05 U	-	0.0044 U	0.59 U	0.26 U	0.05 U	0.05 U
cis-1,2-Dichloroethene	-	0.0011 U	0.0012 U	-	0.05 U	0.07 U	0.05 U	0.053 U	0.05 U	-	0.049 U	0.048 U	0.05 U	0.05 U	-	0.00087 U	0.12 U	0.052 U	0.05 U	0.05 U
cis-1,3-Dichloropropene	10	0.0011 U	0.0012 U	-	0.05 U	0.07 U	0.05 U	0.053 U	0.05 U	-	0.049 U	0.048 U	0.05 U	0.05 U	-	0.00087 U	0.12 U	0.052 U	0.05 U	0.05 U
Dibromochloromethane	12	0.0011 U	0.0012 U	-	0.02 U	0.07 U	0.02 U	0.053 U	0.02 U	-	0.049 U	0.048 U	0.02 U	0.02 U	-	0.00087 U	0.12 U	0.052 U	0.02 U	0.02 U
Dibromomethane	-	0.0011 U	0.0012 U	-	0.05 U	0.07 U	0.05 U	0.053 U	0.05 U	-	0.049 U	0.048 U	0.05 U	0.05 U	-	0.00087 U	0.12 U	0.052 U	0.05 U	0.05 U
Dichlorobromomethane	-	0.0011 U	0.0012 U	-	-	0.07 U	-	0.053 U	-	-	0.049 U	0.048 U	-	-	-	0.00087 U	0.12 U	0.052 U	-	-
Dichlorodifluoromethane	16000	-	-	-	0.05 U	-	0.05 U	-	0.05 U	-	-	-	0.05 U	0.05 U	-	-	-	-	0.05 U	0.05 U
Ethylene dibromide	0.005	0.0011 U	0.0012 U	-	0.005 U	0.07 U	0.005 U	0.053 U	0.005 U	-	0.049 U	0.048 U	0.005 U	0.005 U	-	0.00087 U	0.12 U	0.052 U	0.005 U	0.005 U
Hexachloro-1,3-butadiene	13	-	-	-	0.05 U	-	0.05 U	-	0.05 U	-	-	-	0.05 U	0.05 U	-	-	-	-	0.05 U	0.05 U
Hexachlorobutadiene	-	0.0057 U	0.0058 U	-	0.5 U	0.35 U	-	0.26 U	0.5 U	-	0.24 U	0.24 U	0.5 U	0.5 U	-	0.0044 U	0.59 U	0.26 U	-	-
Isopropylbenzene	-	0.0011 U	0.0012 U	-	**5.1**	**0.17**	**0.25**	**0.31**	**1.5**	-	**0.13**	**0.44**	**0.059**	**0.061**	-	0.00087 U	**0.74**	**3.1**	0.05 U	0.057
Isopropyltoluene	-	-	-	-	**1.1**	-	**0.053**	-	**0.57**	-	-	-	**0.17**	0.05 U	-	-	-	-	0.05 U	0.05 U
Methyl Iodide	-	0.0057 U	0.0058 U	-	-	0.35 U	-	0.26 U	-	-	0.24 U	0.24 U	-	-	-	0.0044 U	0.59 U	0.26 U	-	-
Methyl Isobutyl Ketone	6400	0.0057 U	0.0058 U	-	-	0.35 U	-	0.26 U	-	-	0.24 U	0.24 U	-	-	-	0.0044 U	0.59 U	0.26 U	-	-
Methyl t-Butyl Ether	0.1	0.0011 U	0.0012 U	-	-	0.07 U	-	0.053 U	-	-	0.049 U	0.048 U	-	-	-	0.00087 U	0.12 U	0.052 U	-	-
Methylene chloride	0.02	0.0057 U	0.0058 U	-	0.02 U	0.35 U	0.02 U	0.26 U	0.02 U	-	0.24 U	0.24 U	0.02 U	0.02 U	-	0.0044 U	0.59 U	0.26 U	0.02 U	0.02 U
MTBE	0.1	-	-	-	0.1 U	-	0.1 U	-	0.1 U	-	-	-	0.1 U	0.1 U	-	-	-	-	0.1 U	0.1 U
Naphthalene	5	0.0011 U	0.0012 U	-	**0.16**	**0.099**	-	**1.8**	**4.6**	-	**0.45**	**0.32**	0.1 U	0.1 U	-	0.00087 U	**4.4**	**11**	-	-
n-Butylbenzene	4000	0.0011 U	0.0012 U	-	**6.8**	**0.18**	**0.44**	**0.75**	**2.3**	-	**0.28**	**2**	**0.21**	**0.16**	-	0.00087 U	**2.7**	**7.4**	**0.12**	**0.18**
n-Propylbenzene	8000	0.0011 U	0.0012 U	-	**20**	**0.55**	**1.2**	**1.3**	**7.6**	-	**0.48**	**1.8**	**0.3**	**0.22**	-	0.00087 U	**1.5**	**8.6**	**0.13**	**0.11**
p-Isopropyltoluene	-	0.0011 U	0.0012 U	-	-	0.07 U	-	0.14	-	-	0.049 U	**0.45**	-	-	-	0.00087 U	**1.2**	**2.3**	-	-
sec-Butylbenzene	8000	0.0011 U	0.0012 U	-	**2.4**	**0.071**	**0.14**	**0.18**	**0.79**	-	**0.072**	**0.57**	0.05 U	0.05 U	-	0.00087 U	**0.51**	**1.3**	0.05 U	0.05 U
Styrene	16000	0.0011 U	0.0012 U	-	0.05 U	0.07 U	0.05 U	0.053 U	0.05 U	-	0.049 U	0.048 U	0.05 U	0.05 U	-	0.00087 U	0.12 U	0.052 U	0.05 U	0.05 U
tert-Butylbenzene	8000	0.0011 U	0.0012 U	-	0.05 U	0.07 U	0.05 U	0.053 U	0.05 U	-	0.049 U	0.048 U	0.05 U	0.05 U	-	0.00087 U	0.12 U	0.06	0.05 U	0.05 U
Tetrachloroethene	-	0.0023 U	0.0023 U	-	0.05 U	0.07 U	0.05 U	0.053 U	0.05 U	-	0.049 U	0.048 U	0.05 U	0.05 U	-	0.00087 U	0.12 U	0.052 U	0.05 U	0.05 U
trans-1,2-Dichloroethene	-	0.0011 U	0.0012 U	-	0.05 U	0.07 U	0.05 U	0.053 U	0.05 U	-	0.049 U	0.048 U	0.05 U	0.05 U	-	0.00087 U	0.12 U	0.052 U	0.05 U	0.05 U
trans-1,3-Dichloropropene	10	0.0011 U	0.0012 U	-	0.05 U	0.07 U	0.05 U	0.053 U	0.05 U	-	0.049 U	0.048 U	0.05 U	0.05 U	-	0.00087 U	0.12 U	0.052 U	0.05 U	0.05 U
Trichloroethene	-	0.0011 U	0.0012 U	-	0.02 U	0.07 U	0.02 U	0.053 U	0.02 U	-	0.049 U	0.048 U	0.02 U	0.02 U	-	0.00087 U	0.12 U	0.052 U	0.02 U	0.02 U
Trichlorofluoromethane	24000	-	-	-	0.05 U	-	0.05 U	-	0.05 U	-	-	-	0.05 U	0.05 U	-	-	-	-	0.05 U	0.05 U
Vinyl Acetate	80000	0.0057 U	0.0058 U	-	-	0.35 U	-	0.26 U	-	-	0.24 U	0.24 U	-	-	-	0.0044 U	0.59 U	0.26 U	-	-
Vinyl chloride	0.67	0.0011 U	0.0012 U	-	0.05 U	0.07 U	0.05 U	0.053 U	0.05 U	-	0.049 U	0.048 U	0.05 U	0.05 U	-	0.00087 U	0.12 U	0.052 U	0.05 U	0.05 U

See Sheet 16 for Notes

Sample Location	Screening	H-15-18	H-15-18	H-16-18	H-16-18	H-16-18	H-16-18	H-16-18	H-16-18	H-16-18	H-16-18	H-17-18	H-17-18	H-17-18	H-18-18	H-18-18	H-19-18	H-19-18	H-19-18	H-19-18
Sample Depth (feet bgs)	Level *	15	25	5-6.5	10-11.5	10-11.5 ‡	15-16.5	15-16.5 ‡	20	25-26.5	25-26.5 ‡	10-11.5	10-11.5 ‡	20-21.5	24.5	25-26.5	5-6.5	15-16.5	15-16.5 ‡	19.5
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs)																				
Benz[a]anthracene	-	0.0077 U	0.0074 U	-	0.1 U	0.0086 U	-	0.0081 U	0.1 U	-	0.0074 U	0.0079 U	0.1 U	0.1 U	-	0.0077 U	0.15 U	0.0079 U	-	-
Benzo(a)pyrene	0.1	0.0077 U	0.0074 U	-	0.1 U	0.0086 U	-	0.0081 U	0.1 U	-	0.0074 U	0.0079 U	0.1 U	0.1 U	-	0.0077 U	0.15 U	0.0079 U	-	-
Benzo(b)fluoranthene	-	0.0077 U	0.0074 U	-	0.1 U	0.0086 U	-	0.0081 U	0.1 U	-	0.0074 U	0.0079 U	0.1 U	0.1 U	-	0.0077 U	0.15 U	0.0079 U	-	-
Benzo(j,k)fluoranthene	-	0.0077 U	0.0074 U	-	-	0.0086 U	-	0.0081 U	-	-	0.0074 U	0.0079 U	-	-	-	0.0077 U	0.15 U	0.0079 U	-	-
Benzo(k)fluoranthene	-	-	-	-	0.1 U	-	-	-	0.1 U	-	-	-	0.1 U	0.1 U	-	-	-	-	-	-
Chrysene	-	0.0077 U	0.0074 U	-	0.1 U	0.0086 U	-	0.0081 U	0.1 U	-	0.0074 U	0.0079 U	0.1 U	0.1 U	-	0.0077 U	**0.29**	0.0079 U	-	-
Dibenzo(a,h)anthracene	-	0.0077 U	0.0074 U	-	0.1 U	0.0086 U	-	0.0081 U	0.1 U	-	0.0074 U	0.0079 U	0.1 U	0.1 U	-	0.0077 U	0.15 U	0.0079 U	-	-
Indeno(1,2,3-cd)pyrene	-	0.0077 U	0.0074 U	-	0.1 U	0.0086 U	-	0.0081 U	0.1 U	-	0.0074 U	0.0079 U	0.1 U	0.1 U	-	0.0077 U	0.15 U	0.0079 U	-	-
Total cPAH TEQ ¥	0.1	0.0058 U	0.0056 U		0.0755 U	0.0065 U	-	0.0061 U	0.0755 U	-	0.0056 U	0.006 U	0.0755 U	0.0755 U	-	0.0058 U	**0.1154**	0.006 U	-	-
Semi-Volatile Organic Compounds (SVOCs)																				
1,2-Dinitrobenzene	8	0.038 U	0.037 U	-	-	0.043 U	-	0.041 U	-	-	0.037 U	0.039 U	-	-	-	0.039 U	3.7 U	0.04 U	-	-
1,2-Diphenylhydrazine	3.3	0.038 U	0.037 U	-	-	0.043 U	-	0.041 U	-	-	0.037 U	0.039 U	-	-	-	0.039 U	3.7 U	0.04 U	-	-
1,3-Dinitrobenzene	8	0.038 U	0.037 U	-	-	0.043 U	-	0.041 U	-	-	0.037 U	0.039 U	-	-	-	0.039 U	3.7 U	0.04 U	-	-
1-MethylNaphthalene	34	0.0077 U	0.0074 U	-	**0.63**	**0.51**	-	**1.4**	**1.1**	-	**0.18**	0.018	0.1 U	0.1 U	-	0.0077 U	**0.58**	**0.6**	-	-
2,3,4,6-Tetrachlorophenol	2400	0.038 U	0.037 U	-	0.1 U	0.043 U	-	0.041 U	0.1 U	-	0.037 U	0.039 U	0.1 U	0.1 U	-	0.039 U	3.7 U	0.04 U	-	-
2,3,5,6-Tetrachlorophenol	-	0.038 U	0.037 U	-	-	0.043 U	-	0.041 U	-	-	0.037 U	0.039 U	-	-	-	0.039 U	3.7 U	0.04 U	-	-
2,3-Dichloroaniline	-	0.038 U	0.037 U	-	-	0.043 U	-	0.041 U	-	-	0.037 U	0.039 U	-	-	-	0.039 U	3.7 U	0.04 U	-	-
2,4,5-Trichlorophenol	8000	0.038 U	0.037 U	-	0.5 U	0.043 U	-	0.041 U	0.5 U	-	0.037 U	0.039 U	0.5 U	0.5 U	-	0.039 U	3.7 U	0.04 U	-	-
2,4,6-Tribromophenol	-	-	-	-	0.5 U	-	-	-	0.5 U	-	-	-	0.5 U	0.5 U	-	-	-	-	-	-
2,4,6-Trichlorophenol	80	0.038 U	0.037 U	-	0.5 U	0.043 U	-	0.041 U	0.5 U	-	0.037 U	0.039 U	0.5 U	0.5 U	-	0.039 U	3.7 U	0.04 U	-	-
2,4-Dichlorophenol	240	0.038 U	0.037 U	-	0.5 U	0.043 U	-	0.041 U	0.5 U	-	0.037 U	0.039 U	0.5 U	0.5 U	-	0.039 U	3.7 U	0.04 U	-	-
2,4-Dimethylphenol	1600	0.038 U	0.037 U	-	0.5 U	0.043 U	-	0.041 U	0.5 U	-	0.037 U	0.039 U	0.5 U	0.5 U	-	0.039 U	3.7 U	0.04 U	-	-
2,4-Dinitrophenol	160	0.19 U	0.18 U	-	0.5 U	0.21 U	-	0.2 U	0.5 U	-	0.19 U	0.2 U	0.5 U	0.5 U	-	0.19 U	18 U	0.2 U	-	-
2,4-Dinitrotoluene	3.2	0.038 U	0.037 U	-	-	0.043 U	-	0.041 U	-	-	0.037 U	0.039 U	-	-	-	0.039 U	3.7 U	0.04 U	-	-
2,6-Dinitrotoluene	0.67	0.038 U	0.037 U	-	-	0.043 U	-	0.041 U	-	-	0.037 U	0.039 U	-	-	-	0.039 U	3.7 U	0.04 U	-	-
2-Chloronaphthalene	-	0.038 U	0.037 U	-	0.1 U	0.043 U	-	0.041 U	0.1 U	-	0.037 U	0.039 U	0.1 U	0.1 U	-	0.039 U	3.7 U	0.04 U	-	-
2-Chlorophenol	400	0.038 U	0.037 U	-	0.5 U	0.043 U	-	0.041 U	0.5 U	-	0.037 U	0.039 U	0.5 U	0.5 U	-	0.039 U	3.7 U	0.04 U	-	-
2-MethylNaphthalene	320	0.0077 U	0.0074 U	-	1	**1**	-	**2.7**	**2.4**	-	**0.4**	0.07	0.1 U	0.1 U	-	0.0077 U	**1.2**	**1.3**	-	-
2-Nitroaniline	-	0.038 U	0.037 U	-	-	0.043 U	-	0.041 U	-	-	0.037 U	0.039 U	-	-	-	0.039 U	3.7 U	0.04 U	-	-
2-Nitrophenol	-	0.038 U	0.037 U	-	0.5 U	0.043 U	-	0.041 U	0.5 U	-	0.037 U	0.039 U	0.5 U	0.5 U	-	0.039 U	3.7 U	0.04 U	-	-
3,3'-Dichlorobenzidine	2.2	0.19 U	0.18 U	-	-	0.21 U	-	0.2 U	-	-	0.19 U	0.2 U	-	-	-	0.19 U	18 U	0.2 U	-	-
3-Methylphenol and 4-Methylphenol coelution	-	0.038 U	0.037 U	-	0.1 U	0.043 U	-	0.041 U	0.1 U	-	0.037 U	0.039 U	0.1 U	0.1 U	-	0.039 U	3.7 U	0.04 U	-	-
3-Nitroaniline	-	0.038 U	0.037 U	-	-	0.043 U	-	0.041 U	-	-	0.037 U	0.039 U	-	-	-	0.039 U	3.7 U	0.04 U	-	-
4,6-Dinitro-2-methylphenol	-	0.19 U	0.18 U	-	-	0.21 U	-	0.2 U	-	-	0.19 U	0.2 U	-	-	-	0.19 U	18 U	0.2 U	-	-
4-Bromophenyl phenyl ether	-	-	-	-	0.1 U	-	-	-	0.1 U	-	-	-	0.1 U	0.1 U	-	-	-	-	-	-
4-Chloro-3-methylphenol	-	0.038 U	0.037 U	-	0.5 U	0.043 U	-	0.041 U	0.5 U	-	0.037 U	0.039 U	0.5 U	0.5 U	-	0.039 U	3.7 U	0.04 U	-	-
4-Chloroaniline	-	0.19 U	0.18 U	-	-	0.21 U	-	0.2 U	-	-	0.19 U	0.2 U	-	-	-	0.19 U	18 U	0.2 U	-	-
4-Chlorophenyl Phenyl Ether	-	-	-	-	-	-	-	-	0.5 U	-	-	-	0.5 U	0.5 U	-	-	-	-	-	-
4-Chlorophenyl-Phenylether	-	0.038 U	0.037 U	-	0.5 U	0.043 U	-	0.041 U	-	-	0.037 U	0.039 U	-	-	-	0.039 U	3.7 U	0.04 U	-	-
4-Nitroaniline	-	0.038 U	0.037 U	-	-	0.043 U	-	0.041 U	-	-	0.037 U	0.039 U	-	-	-	0.039 U	3.7 U	0.04 U	-	-
4-Nitrophenol	-	0.038 U	0.037 U	-	0.5 U	0.043 U	-	0.041 U	0.5 U	-	0.037 U	0.039 U	0.5 U	0.5 U	-	0.039 U	3.7 U	0.04 U	-	-
Acenaphthene	4800	0.0077 U	0.0074 U	-	0.1 U	0.0086 U	-	0.014	0.1 U	-	0.0074 U	0.0079 U	0.1 U	0.1 U	-	0.0077 U	0.15 U	0.0079 U	-	-
Acenaphthylene	-	0.0077 U	0.0074 U	-	0.1 U	0.0086 U	-	0.0081 U	0.1 U	-	0.0074 U	0.0079 U	0.1 U	0.1 U	-	0.0077 U	0.15 U	0.0079 U	-	-
Aniline	180	0.19 U	0.18 U	-	-	0.21 U	-	0.2 U	-	-	0.19 U	0.2 U	-	-	-	0.19 U	18 U	0.2 U	-	-
Anthracene	24000	0.0077 U	0.0074 U	-	0.1 U	0.0086 U	-	0.023	0.1 U	-	0.0074 U	0.0079 U	0.1 U	0.1 U	-	0.0077 U	0.15 U	0.0079 U	-	-
Benzene, 1,4-Dinitro-	8	0.038 U	0.037 U	-	-	0.043 U	-	0.041 U	-	-	0.037 U	0.039 U	-	-	-	0.039 U	3.7 U	0.04 U	-	-
Benzidine	0.0043	0.38 U	0.37 U	-	-	0.43 U	-	0.41 U	-	-	0.37 U	0.39 U	-	-	-	0.39 U	37 U	0.4 U	-	-
Benzo(ghi)perylene	-	0.0077 U	0.0074 U	-	0.1 U	0.0086 U	-	0.0081 U	0.1 U	-	0.0074 U	0.0079 U	0.1 U	0.1 U	-	0.0077 U	0.15 U	0.0079 U	-	-
Benzyl alcohol	8000	0.19 U	0.18 U	-	-	0.21 U	-	0.2 U	-	-	0.19 U	0.2 U	-	-	-	0.19 U	18 U	0.2 U	-	-
Bis(2-Chloroethoxy)Methane	-	0.038 U	0.037 U	-	0.1 U	0.043 U	-	0.041 U	0.1 U	-	0.037 U	0.039 U	0.1 U	0.1 U	-	0.039 U	3.7 U	0.04 U	-	-
bis(2-Chloroethyl)ether	0.91	0.038 U	0.037 U	-	-	0.043 U	-	0.041 U	-	-	0.037 U	0.039 U	-	-	-	0.039 U	3.7 U	0.04 U	-	-
bis(2-Chloroisopropyl)ether	-	0.038 U	0.037 U	-	-	0.043 U	-	0.041 U	-	-	0.037 U	0.039 U	-	-	-	0.039 U	3.7 U	0.04 U	-	-
Bis(2-ethylhexyl) ether	-	-	-	-	0.1 U	-	-	-	0.1 U	-	-	-	0.1 U	0.1 U	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	71	0.19 U	0.18 U	-	-	0.21 U	-	0.2 U	-	-	0.19 U	0.2 U	-	-	-	0.19 U	18 U	0.2 U	-	-
Butyl benzyl phthalate	530	0.19 U	0.18 U	-	0.5 U	0.21 U	-	0.2 U	0.5 U	-	0.19 U	0.2 U	0.5 U	0.5 U	-	0.19 U	18 U	0.2 U	-	-
Carbazole	-	0.038 U	0.037 U	-	-	0.043 U	-	0.041 U	-	-	0.037 U	0.039 U	-	-	-	0.039 U	3.7 U	0.04 U	-	-
Di(2-ethylhexyl) adipate	830	0.19 U	0.18 U	-	-	0.21 U	-	0.2 U	-	-	0.19 U	0.2 U	-	-	-	0.19 U	18 U	0.2 U	-	-

Sample Location	Screening	H-15-18	H-15-18	H-16-18	H-16-18	H-16-18	H-16-18	H-16-18	H-16-18	H-16-18	H-16-18	H-17-18	H-17-18	H-17-18	H-18-18	H-18-18	H-19-18	H-19-18	H-19-18	H-19-18
Sample Depth (feet bgs)	Level *	15	25	5-6.5	10-11.5	10-11.5 ‡	15-16.5	15-16.5 ‡	20	25-26.5	25-26.5 ‡	10-11.5	10-11.5 ‡	20-21.5	24.5	25-26.5	5-6.5	15-16.5	15-16.5 ‡	19.5
Dibenzofuran	**80**	0.038 U	0.037 U	-	-	0.043 U	-	0.041 U	-	-	0.037 U	0.039 U	-	-	-	0.039 U	3.7 U	0.04 U	-	-
Diethyl phthalate	**64000**	-	-	-	0.1 U	-	-	-	0.1 U	-	-	-	0.1 U	0.1 U	-	-	-	-	-	-
Diethylphthalate	**64000**	0.19 U	0.18 U	-	-	0.21 U	-	0.2 U	-	-	0.19 U	0.2 U	-	-	-	0.19 U	18 U	0.2 U	-	-
Dimethylphthalate	-	0.038 U	0.037 U	-	0.1 U	0.043 U	-	0.041 U	0.1 U	-	0.037 U	0.039 U	0.1 U	0.1 U	-	0.039 U	3.7 U	0.04 U	-	-
Di-n-butylphthalate	-	0.19 U	0.18 U	-	0.1 U	0.21 U	-	0.2 U	0.1 U	-	0.19 U	0.2 U	0.1 U	0.1 U	-	0.19 U	18 U	0.2 U	-	-
Di-n-octylphthalate	-	0.19 U	0.18 U	-	0.5 U	0.21 U	-	0.2 U	0.5 U	-	0.19 U	0.2 U	0.5 U	0.5 U	-	0.19 U	18 U	0.2 U	-	-
Fluoranthene	**3200**	0.0077 U	0.0074 U	-	0.1 U	0.0086 U	-	**0.042**	0.1 U	-	0.0074 U	0.0079 U	0.1 U	0.1 U	-	0.0077 U	0.15 U	**0.012**	-	-
Fluorene	**3200**	0.0077 U	0.0074 U	-	0.1 U	0.0086 U	-	**0.025**	0.1 U	-	0.0074 U	0.0079 U	0.1 U	0.1 U	-	0.0077 U	0.15 U	0.0079 U	-	-
Hexachlorobenzene	**0.63**	0.038 U	0.037 U	-	0.1 U	0.043 U	-	0.041 U	0.1 U	-	0.037 U	0.039 U	0.1 U	0.1 U	-	0.039 U	3.7 U	0.04 U	-	-
Hexachlorocyclopentadiene	**480**	0.038 U	0.037 U	-	0.1 U	0.043 U	-	0.041 U	0.1 U	-	0.037 U	0.039 U	0.1 U	0.1 U	-	0.039 U	3.7 U	0.04 U	-	-
Hexachloroethane	**25**	0.038 U	0.037 U	-	0.1 U	0.043 U	-	0.041 U	0.1 U	-	0.037 U	0.039 U	0.1 U	0.1 U	-	0.039 U	3.7 U	0.04 U	-	-
Isophorone	**1100**	0.038 U	0.037 U	-	-	0.043 U	-	0.041 U	-	-	0.037 U	0.039 U	-	-	-	0.039 U	3.7 U	0.04 U	-	-
Nitrobenzene	**160**	0.038 U	0.037 U	-	-	0.043 U	-	0.041 U	-	-	0.037 U	0.039 U	-	-	-	0.039 U	3.7 U	0.04 U	-	-
n-Nitrosodimethylamine	**0.02**	0.038 U	0.037 U	-	-	0.043 U	-	0.041 U	-	-	0.037 U	0.039 U	-	-	-	0.039 U	3.7 U	0.04 U	-	-
N-Nitrosodi-n-propylamine	-	0.038 U	0.037 U	-	-	0.043 U	-	0.041 U	-	-	0.037 U	0.039 U	-	-	-	0.039 U	3.7 U	0.04 U	-	-
N-Nitrosodiphenylamine	**200**	0.038 U	0.037 U	-	0.1 U	0.043 U	-	0.041 U	0.1 U	-	0.037 U	0.039 U	0.1 U	0.1 U	-	0.039 U	3.7 U	0.04 U	-	-
o-Cresol	**4000**	0.038 U	0.037 U	-	0.1 U	0.043 U	-	0.041 U	0.1 U	-	0.037 U	0.039 U	0.1 U	0.1 U	-	0.039 U	3.7 U	0.04 U	-	-
PBDE-003	-	0.038 U	0.037 U	-	-	0.043 U	-	0.041 U	-	-	0.037 U	0.039 U	-	-	-	0.039 U	3.7 U	0.04 U	-	-
Pentachlorophenol	**2.5**	0.19 U	0.18 U	-	0.5 U	0.21 U	-	0.2 U	0.5 U	-	0.19 U	0.2 U	0.5 U	0.5 U	-	0.19 U	18 U	0.2 U	-	-
Phenanthrene	-	0.0077 U	0.0074 U	-	0.1 U	0.0086 U	-	0.099	0.1 U	-	0.0074 U	0.0079 U	0.1 U	0.1 U	-	0.0077 U	**0.29**	**0.017**	-	-
Phenol	**24000**	0.038 U	0.037 U	-	0.5 U	0.043 U	-	0.041 U	0.5 U	-	0.037 U	0.039 U	0.5 U	0.5 U	-	0.039 U	3.7 U	0.04 U	-	-
Pyrene	**2400**	0.0077 U	0.0074 U	-	0.1 U	0.0086 U	-	**0.041**	0.1 U	-	0.0074 U	0.0079 U	0.1 U	0.1 U	-	0.0077 U	**0.22**	**0.014**	-	-
Pyridine	**80**	0.38 U	0.37 U	-	-	0.43 U	-	0.41 U	-	-	0.37 U	0.39 U	-	-	-	0.39 U	37 U	0.4 U	-	-

See Sheet 16 for Notes

Sample Location	Screening	H-19-18	H-19-18	H-20-18	H-20-18	H-20-18	H-21-18	H-21-18	H-21-18	H-21-18	H-667p-15	H-691p-16	MW-1-19	MW-1-19	MW-1-19	MW-2-19	MW-2-19	MW-4-19	MW-4-19	MW-5-20	RW-1-19
Sample Depth (feet bgs)	Level *	20-21.5	25-26.5	10-11.5	10-11.5 ‡	20-21.5	10-11.5	16.5	20-21.5	20-21.5 ‡	7.5	9	15	15 ‡	30	16	20.5	16.5	26	15	20
Total Petroleum Hydrocarbons																					
Gasoline Range Organics	**30 ****	**16**	12 U	**8.8**	6.5 U	5 U	5 U	5 U	5.8 U	4.8 U	-	-	4.5 U	5.3 U	3.6 U	6.2 U	5 U	12 U	4.7 U	5.8 U	**310**
Diesel Range Organics	**2000**	20 U	72 U	20 U	30 U	20 U	20 U	20 U	28 U	27 U	-	-	-	-	-	-	-	-	-	-	-
Lube Oil	**2000**	50 U	58 U	50 U	60 U	50 U	50 U	50 U	56 U	54 U	-	-	-	-	-	-	-	-	-	-	-
Mineral spirits	**4000**	5 U	-	5 U	-	5 U	5 U	5 U	-	-	-	-	-	-	-	-	-	-	-	-	-
Kerosene	-	20 U	-	20 U	-	20 U	20 U	20 U	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)																					
Benzene	**0.03**	0.02 U	**0.005**	**1.1**	**0.93**	0.02 U	20 U	0.02 U	0.001 U	0.00072 U	-	-	0.00062 U	0.00089 U	0.00079 U	0.0011 U	0.00074 U	0.00098 U	0.00078 U	0.0010 U	**2.2**
Toluene	**7**	0.05 U	**0.017**	**0.088**	**0.028**	0.05 U	50 U	0.05 U	0.0052 U	0.0036 U	-	-	0.0031 U	0.0045 U	0.0039 U	0.0054 U	0.0037 U	0.0049 U	0.0039 U	0.0052 U	0.26 U
Ethylbenzene	**6**	**0.15**	**0.023**	**0.34**	**0.034**	0.05 U	50 U	0.05 U	0.001 U	0.00072 U	-	-	0.00062 U	0.00089 U	0.00079 U	0.0011 U	0.00074 U	0.0014	0.00078 U	0.0010 U	**5.4**
m, p-Xylene	**16000**	-	**0.1**	-	**0.021**	-	-	-	0.0021 U	0.0014 U	-	-	0.0012 U	0.0018 U	0.0016 U	0.0022 U	0.0015 U	0.002 U	0.0016 U	0.0021 U	**2.1**
o-Xylene	**16000**	-	**0.023**	-	**0.0051**	-	-	-	0.001 U	0.00072 U	-	-	0.00062 U	0.00089 U	0.00079 U	0.0011 U	0.00074 U	0.00098 U	0.00078 U	0.0010 U	**0.21**
Xylenes	**9**	**0.65**	**0.123**	**0.15**	**0.0261**	0.05 U	50 U	0.05 U	0.0031 U	0.00212 U	-	-	0.00182 U	0.00269 U	0.00239 U	0.0033 U	0.00224 U	0.00298 U	0.00238 U	0.0031 U	**2.31**
Volatile Petroleum Hydrocarbons																					
Hexane	**4800**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.5
>C10-C12 Aliphatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25
>C10-C12 Aromatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	51
>C12-C13 Aromatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	54
>C6-C8 Aliphatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	130
>C8-C10 Aliphatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	63
>C8-C10 Aromatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	62
C5-C6 Aliphatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17
Total Aliphatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240
Total Aromatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	170
Total Metals																					
Antimony	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	**20**	-	12 U	-	12 U	-	-	-	11 U	11 U	11 U	11 U	12 U	12 U	-	12 U	-	11 U	-	**11**	12 U
Barium	**16000**	-	**57**	-	**130**	-	-	-	**55**	**52**	**49**	**37**	**51**	**30**	-	**31**	-	**34**	-	**46**	**30**
Beryllium	**160**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	**2**	-	0.58 U	-	0.6 U	-	-	-	0.56 U	0.54 U	0.57 U	0.56 U	0.59 U	0.58 U	-	0.6 U	-	0.57 U	-	0.55 U	0.6 U
Chromium	**2000 †**	-	**49**	-	**58**	-	-	-	**52**	**52**	**44**	**32**	**22**	**14**	-	**20**	-	**21**	-	**38**	**23**
Chromium (TCLP) (mg/L)	**5.0 mg/L ¥**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	**3,200**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	**250**	-	6	-	6 U	-	-	-	5.6 U	5.4 U	**20**	5.6 U	5.9 U	5.8 U	-	6 U	-	5.7 U	-	5.5 U	6 U
Mercury	**2**	-	0.29 U	-	0.3 U	-	-	-	0.28 U	0.27 U	0.29 U	0.28 U	0.3 U	0.29 U	-	0.3 U	-	0.28 U	-	0.27 U	0.3 U
Nickel	**1600**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	**400**	-	12 U	-	12 U	-	-	-	11 U	11 U	11 U	11 U	12 U	12 U	-	12 U	-	11 U	-	11 U	12 U
Silver	**400**	-	1.2 U	-	1.2 U	-	-	-	1.1 U	1.1 U	1.1 U	1.1 U	1.2 U	1.2 U	-	1.2 U	-	1.1 U	-	1.1 U	1.2 U
Thallium	**0.8**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	**24000**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polychlorinated Biphenyls (PCBs)																					
PCB-aroclor 1016	**5.6**	-	0.058 U	-	0.06 U	-	-	-	0.056 U	0.054 U	-	-	-	-	-	-	-	-	-	-	-
PCB-aroclor 1221	-	-	0.058 U	-	0.06 U	-	-	-	0.056 U	0.054 U	-	-	-	-	-	-	-	-	-	-	-
PCB-aroclor 1232	-	-	0.058 U	-	0.06 U	-	-	-	0.056 U	0.054 U	-	-	-	-	-	-	-	-	-	-	-
PCB-aroclor 1242	-	-	0.058 U	-	0.06 U	-	-	-	0.056 U	0.054 U	-	-	-	-	-	-	-	-	-	-	-
PCB-aroclor 1248	-	-	0.058 U	-	0.06 U	-	-	-	0.056 U	0.054 U	-	-	-	-	-	-	-	-	-	-	-
PCB-aroclor 1254	**0.5**	-	0.058 U	-	0.06 U	-	-	-	0.056 U	0.054 U	-	-	-	-	-	-	-	-	-	-	-
PCB-aroclor 1260	**0.5**	-	0.058 U	-	0.06 U	-	-	-	0.056 U	0.054 U	-	-	-	-	-	-	-	-	-	-	-
Volatile Organic Compounds (VOCs)													-	-	-	-	-	-	-		-
1,1,1,2-Tetrachloroethane	**38**	0.05 U	0.001 U	0.05 U	0.001 U	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	**2**	0.05 U	0.001 U	0.05 U	0.001 U	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	**5**	0.05 U	0.001 U	0.05 U	0.001 U	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	**18**	0.05 U	0.001 U	0.05 U	0.001 U	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	**180**	0.05 U	0.001 U	0.05 U	0.001 U	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	-	0.05 U	0.001 U	0.05 U	0.001 U	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloropropene	-	0.05 U	0.001 U	0.05 U	0.001 U	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
1,2,3-Trichlorobenzene	-	0.05 U	0.001 U	0.05 U	0.001 U	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
1,2,3-Trichloropropane	**0.033**	0.05 U	0.001 U	0.05 U	0.001 U	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	**34**	0.05 U	0.001 U	0.05 U	0.001 U	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-

See Sheet 16 for Notes

Sample Location	Screening	H-19-18	H-19-18	H-20-18	H-20-18	H-20-18	H-21-18	H-21-18	H-21-18	H-21-18	H-667p-15	H-691p-16	MW-1-19	MW-1-19	MW-1-19	MW-2-19	MW-2-19	MW-4-19	MW-4-19	MW-5-20	RW-1-19
Sample Depth (feet bgs)	Level *	20-21.5	25-26.5	10-11.5	10-11.5 ‡	20-21.5	10-11.5	16.5	20-21.5	20-21.5 ‡	7.5	9	15	15 ‡	30	16	20.5	16.5	26	15	20
1,2,4-Trimethylbenzene	800	0.53	0.082	0.14	0.0035	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
1,2-Dibromo-3-Chloropropane	1.3	0.05 U	0.0051 U	0.05 U	0.005 U	0.05 U	-	0.05 U	0.0052 U	0.0036 U	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	7200	0.05 U	0.001 U	0.05 U	0.001 U	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane (EDC)	11	0.02 U	0.001 U	0.02 U	0.001 U	0.02 U	-	0.02 U	0.001 U	0.00072 U	-	-	0.00062 U	0.00089 U	-	0.0011 U	-	0.00098 U	-	0.0010 U	0.051 U
1,2-Dichloropropane	27	0.05 U	0.001 U	0.05 U	0.001 U	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
1,3,5-Trimethylbenzene	800	0.21	0.031	0.14	0.0035	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	-	0.05 U	0.001 U	0.05 U	0.001 U	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichloropropane	-	0.05 U	0.001 U	0.05 U	0.001 U	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	190	0.05 U	0.001 U	0.05 U	0.001 U	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
2,2-Dichloropropane	-	0.05 U	0.001 U	0.05 U	0.001 U	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
2-Butanone	-	-	0.013	-	0.023	-	-	-	0.0052 U	0.0036 U	-	-	-	-	-	-	-	-	-	-	-
2-Chloroethylvinylether	-	-	0.0051 U	-	0.005 U	-	-	-	0.0052 U	0.0036 U	-	-	-	-	-	-	-	-	-	-	-
2-Chlorotoluene	1600	0.05 U	0.001 U	0.05 U	0.001 U	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
2-Hexanone	400	-	0.0051 U	-	0.005 U	-	-	-	0.0052 U	0.0036 U	-	-	-	-	-	-	-	-	-	-	-
4-Chlorotoluene	-	0.05 U	0.001 U	0.05 U	0.001 U	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
Acetone	72000	-	0.054	-	0.08	-	-	-	0.01 U	0.0072 U	-	-	-	-	-	-	-	-	-	-	-
Bromobenzene	640	0.05 U	0.001 U	0.05 U	0.001 U	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
Bromochloromethane	-	-	0.001 U	-	0.001 U	-	-	-	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
Bromodichloromethane	16	0.05 U	-	0.05 U	-	0.05 U	-	0.05 U	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromoform	130	0.05 U	0.0051 U	0.05 U	0.005 U	0.05 U	-	0.05 U	0.0052 U	0.0036 U	-	-	-	-	-	-	-	-	-	-	-
Bromomethane	110	0.05 U	0.001 U	0.05 U	0.001 U	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
Carbon Disulfide	8000	-	0.002	-	0.001 U	-	-	-	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
Carbon Tetrachloride	14	0.05 U	0.001 U	0.05 U	0.001 U	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
CFC-11	-	-	0.001 U	-	0.001 U	-	-	-	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
CFC-12	-	-	0.001 U	-	0.001 U	-	-	-	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
Chlorobenzene	1600	0.05 U	0.001 U	0.05 U	0.001 U	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
Chloroethane	-	0.05 U	0.0051 U	0.05 U	0.005 U	0.05 U	-	0.05 U	0.0052 U	0.0036 U	-	-	-	-	-	-	-	-	-	-	-
Chloroform	32	0.05 U	0.001 U	0.05 U	0.001 U	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
Chloromethane	-	0.05 U	0.0051 U	0.05 U	0.005 U	0.05 U	-	0.05 U	0.0052 U	0.0036 U	-	-	-	-	-	-	-	-	-	-	-
cis-1,2-Dichloroethene	-	0.05 U	0.001 U	0.05 U	0.001 U	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	10	0.05 U	0.001 U	0.05 U	0.001 U	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	12	0.02 U	0.001 U	0.02 U	0.001 U	0.02 U	-	0.02 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
Dibromomethane	-	0.05 U	0.001 U	0.05 U	0.001 U	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
Dichlorobromomethane	-	-	0.001 U	-	0.001 U	-	-	-	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
Dichlorodifluoromethane	16000	0.05 U	-	0.05 U	-	0.05 U	-	0.05 U	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylene dibromide	0.005	0.005 U	0.001 U	0.005 U	0.001 U	0.005 U	-	0.005 U	0.001 U	0.00072 U	-	-	0.00062 U	0.00089 U	-	0.0011 U	-	0.00098 U	-	-	0.051 U
Hexachloro-1,3-butadiene	13	0.05 U	-	0.05 U	-	0.05 U	-	0.05 U	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobutadiene	-	-	0.0051 U	-	0.005 U	-	-	-	0.0052 U	0.0036 U	-	-	-	-	-	-	-	-	-	-	-
Isopropylbenzene	-	0.064	0.0059	0.059	0.012	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
Isopropyltoluene	-	0.05 U	-	0.05 U	-	0.05 U	-	0.05 U	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Iodide	-	-	0.0051 U	-	0.005 U	-	-	-	0.0052 U	0.0036 U	-	-	-	-	-	-	-	-	-	-	-
Methyl Isobutyl Ketone	6400	-	0.0051 U	-	0.005 U	-	-	-	0.0052 U	0.0036 U	-	-	-	-	-	-	-	-	-	-	-
Methyl t-Butyl Ether	0.1	-	0.001 U	-	0.001 U	-	-	-	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
Methylene chloride	0.02	0.02 U	0.0051 U	0.02 U	0.005 U	0.02 U	-	0.02 U	0.0052 U	0.0036 U	-	-	-	-	-	-	-	-	-	-	-
MTBE	0.1	0.1 U	-	0.1 U	-	0.1 U	-	0.1 U	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	5	-	0.0063	-	0.001 U	-	-	-	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
n-Butylbenzene	4000	0.23	0.0074	0.18	0.001 U	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
n-Propylbenzene	8000	0.14	0.012	0.25	0.0029	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
p-Isopropyltoluene	-	-	0.0038	-	0.0059	-	-	-	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
sec-Butylbenzene	8000	0.05 U	0.003	0.05 U	0.001 U	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
Styrene	16000	0.05 U	0.001 U	0.05 U	0.001 U	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
tert-Butylbenzene	8000	0.05 U	0.001 U	0.05 U	0.001 U	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	-	0.05 U	0.001 U	0.05 U	0.001 U	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
trans-1,2-Dichloroethene	-	0.05 U	0.001 U	0.05 U	0.001 U	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
trans-1,3-Dichloropropene	10	0.05 U	0.001 U	0.05 U	0.001 U	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
Trichloroethene	-	0.02 U	0.001 U	0.02 U	0.001 U	0.02 U	-	0.02 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-
Trichlorofluoromethane	24000	0.05 U	-	0.05 U	-	0.05 U	-	0.05 U	-	-	-	-	-	-	-	-	-	-	-	-	-
Vinyl Acetate	80000	-	0.0051 U	-	0.005 U	-	-	-	0.0052 U	0.0036 U	-	-	-	-	-	-	-	-	-	-	-
Vinyl chloride	0.67	0.05 U	0.001 U	0.05 U	0.001 U	0.05 U	-	0.05 U	0.001 U	0.00072 U	-	-	-	-	-	-	-	-	-	-	-

Sample Location	Screening	H-19-18	H-19-18	H-20-18	H-20-18	H-20-18	H-21-18	H-21-18	H-21-18	H-21-18	H-667p-15	H-691p-16	MW-1-19	MW-1-19	MW-1-19	MW-2-19	MW-2-19	MW-4-19	MW-4-19	MW-5-20	RW-1-19
Sample Depth (feet bgs)	Level *	20-21.5	25-26.5	10-11.5	10-11.5 ‡	20-21.5	10-11.5	16.5	20-21.5	20-21.5 ‡	7.5	9	15	15 ‡	30	16	20.5	16.5	26	15	20
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs)																					
Benz[a]anthracene	-	-	0.0077 U	-	0.0081 U	-	-	-	0.0075 U	0.0072 U	-	-	0.0079 U	0.0078 U	-	0.008 U	-	0.0075 U	-	0.0073 U	0.008 U
Benzo(a)pyrene	**0.1**	-	0.0077 U	-	0.0081 U	-	-	-	0.0075 U	0.0072 U	-	-	0.0079 U	0.0078 U	-	0.008 U	-	0.0075 U	-	0.0073 U	0.008 U
Benzo(b)fluoranthene	-	-	0.0077 U	-	0.0081 U	-	-	-	0.0075 U	0.0072 U	-	-	0.0079 U	0.0078 U	-	0.008 U	-	0.0075 U	-	0.0073 U	0.008 U
Benzo(j,k)fluoranthene	-	-	0.0077 U	-	0.0081 U	-	-	-	0.0075 U	0.0072 U	-	-	0.0079 U	0.0078 U	-	0.008 U	-	0.0075 U	-	0.0073 U	0.008 U
Benzo(k)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	-	-	0.0077 U	-	0.0081 U	-	-	-	0.0075 U	0.0072 U	-	-	0.0079 U	0.0078 U	-	0.008 U	-	0.0075 U	-	0.0073 U	0.008 U
Dibenzo(a,h)anthracene	-	-	0.0077 U	-	0.0081 U	-	-	-	0.0075 U	0.0072 U	-	-	0.0079 U	0.0078 U	-	0.008 U	-	0.0075 U	-	0.0073 U	0.008 U
Indeno(1,2,3-cd)pyrene	-	-	0.0077 U	-	0.0081 U	-	-	-	0.0075 U	0.0072 U	-	-	0.0079 U	0.0078 U	-	0.008 U	-	0.0075 U	-	0.0073 U	0.008 U
Total cPAH TEQ ¥	**0.1**	-	0.0058 U	-	0.0061 U	-	-	-	0.0057 U	0.0054 U	-	-	0.006 U	0.0059 U	-	0.0060 U	-	0.0057 U		0.0073 U	0.0060 U
Semi-Volatile Organic Compounds (SVOCs)																					
1,2-Dinitrobenzene	**8**	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
1,2-Diphenylhydrazine	**3.3**	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
1,3-Dinitrobenzene	**8**	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
1-MethylNaphthalene	**34**	-	**0.067**	-	0.0081 U	-	-	-	0.0075 U	0.0072 U	-	-	-	-	-	-	-	-	-	0.0073 U	-
2,3,4,6-Tetrachlorophenol	**2400**	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
2,3,5,6-Tetrachlorophenol	-	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
2,3-Dichloroaniline	-	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	**8000**	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
2,4,6-Tribromophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	**80**	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	**240**	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	**1600**	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	**160**	-	0.19 U	-	0.2 U	-	-	-	0.19 U	0.18 U	-	-	-	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	**3.2**	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	**0.67**	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
2-Chloronaphthalene	-	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
2-Chlorophenol	**400**	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
2-MethylNaphthalene	**320**	-	**0.16**	-	0.0081 U	-	-	-	0.0075 U	0.0072 U	-	-	-	-	-	-	-	-	-	0.0073 U	-
2-Nitroaniline	-	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
2-Nitrophenol	-	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	**2.2**	-	0.19 U	-	0.2 U	-	-	-	0.19 U	0.18 U	-	-	-	-	-	-	-	-	-	-	-
3-Methylphenol and 4-Methylphenol coelution	-	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
3-Nitroaniline	-	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	-	-	0.19 U	-	0.2 U	-	-	-	0.19 U	0.18 U	-	-	-	-	-	-	-	-	-	-	-
4-Bromophenyl phenyl ether	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Chloro-3-methylphenol	-	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
4-Chloroaniline	-	-	0.19 U	-	0.2 U	-	-	-	0.19 U	0.18 U	-	-	-	-	-	-	-	-	-	-	-
4-Chlorophenyl Phenyl Ether	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Chlorophenyl-Phenylether	-	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
4-Nitroaniline	-	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
4-Nitrophenol	-	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	**4800**	-	0.0077 U	-	0.0081 U	-	-	-	0.0075 U	0.0072 U	-	-	-	-	-	-	-	-	-	0.0073 U	-
Acenaphthylene	-	-	0.0077 U	-	0.0081 U	-	-	-	0.0075 U	0.0072 U	-	-	-	-	-	-	-	-	-	0.0073 U	-
Aniline	**180**	-	0.19 U	-	0.2 U	-	-	-	0.19 U	0.18 U	-	-	-	-	-	-	-	-	-	-	-
Anthracene	**24000**	-	0.0077 U	-	0.0081 U	-	-	-	0.0075 U	0.0072 U	-	-	-	-	-	-	-	-	-	0.0073 U	-
Benzene, 1,4-Dinitro-	**8**	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
Benzidine	**0.0043**	-	0.38 U	-	0.4 U	-	-	-	0.37 U	0.36 U	-	-	-	-	-	-	-	-	-	-	-
Benzo(ghi)perylene	-	-	0.0077 U	-	0.0081 U	-	-	-	0.0075 U	0.0072 U	-	-	-	-	-	-	-	-	-	0.0073 U	-
Benzyl alcohol	**8000**	-	0.19 U	-	0.2 U	-	-	-	0.19 U	0.18 U	-	-	-	-	-	-	-	-	-	-	-
Bis(2-Chloroethoxy)Methane	-	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	**0.91**	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	-	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
Bis(2-ethylhexyl) ether	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	**71**	-	0.19 U	-	0.2 U	-	-	-	0.19 U	0.18 U	-	-	-	-	-	-	-	-	-	-	-
Butyl benzyl phthalate	**530**	-	0.19 U	-	0.2 U	-	-	-	0.19 U	0.18 U	-	-	-	-	-	-	-	-	-	-	-
Carbazole	-	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
Di(2-ethylhexyl) adipate	**830**	-	0.19 U	-	0.2 U	-	-	-	0.19 U	0.18 U	-	-	-	-	-	-	-	-	-	-	-

Sample Location	Screening Level *	H-19-18	H-19-18	H-20-18	H-20-18	H-20-18	H-21-18	H-21-18	H-21-18	H-21-18	H-667p-15	H-691p-16	MW-1-19	MW-1-19	MW-1-19	MW-2-19	MW-2-19	MW-4-19	MW-4-19	MW-5-20	RW-1-19
Sample Depth (feet bgs)		20-21.5	25-26.5	10-11.5	10-11.5 ‡	20-21.5	10-11.5	16.5	20-21.5	20-21.5 ‡	7.5	9	15	15 ‡	30	16	20.5	16.5	26	15	20
Dibenzofuran	80	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
Diethyl phthalate	64000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Diethylphthalate	64000	-	0.19 U	-	0.2 U	-	-	-	0.19 U	0.18 U	-	-	-	-	-	-	-	-	-	-	-
Dimethylphthalate	-	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
Di-n-butylphthalate	-	-	0.19 U	-	0.2 U	-	-	-	0.19 U	0.18 U	-	-	-	-	-	-	-	-	-	-	-
Di-n-octylphthalate	-	-	0.19 U	-	0.2 U	-	-	-	0.19 U	0.18 U	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	3200	-	0.0077 U	-	0.0081 U	-	-	-	0.0075 U	0.0072 U	-	-	-	-	-	-	-	-	-	0.0073 U	-
Fluorene	3200	-	0.0077 U	-	0.0081 U	-	-	-	0.0075 U	0.0072 U	-	-	-	-	-	-	-	-	-	0.0073 U	-
Hexachlorobenzene	0.63	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	480	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
Hexachloroethane	25	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
Isophorone	1100	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
Nitrobenzene	160	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
n-Nitrosodimethylamine	0.02	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
N-Nitrosodi-n-propylamine	-	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	200	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
o-Cresol	4000	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
PBDE-003	-	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
Pentachlorophenol	2.5	-	0.19 U	-	0.2 U	-	-	-	0.19 U	0.18 U	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	-	-	0.0077 U	-	0.0081 U	-	-	-	0.0075 U	0.0072 U	-	-	-	-	-	-	-	-	-	0.0073 U	-
Phenol	24000	-	0.038 U	-	0.04 U	-	-	-	0.037 U	0.036 U	-	-	-	-	-	-	-	-	-	-	-
Pyrene	2400	-	0.0077 U	-	0.0081 U	-	-	-	0.0075 U	0.0072 U	-	-	-	-	-	-	-	-	-	0.0073 U	-
Pyridine	80	-	0.38 U	-	0.4 U	-	-	-	0.37 U	0.36 U	-	-	-	-	-	-	-	-	-	-	-

See Sheet 16 for Notes

EXHIBIT 9
SOIL SAMPLING RESULTS

Sample Location	Screening	RW-1-19	RW-1-19	SB-2-19	SB-2-19	SB-3-19	SB-3-19	SB-4-19	SB-4-19	SB-5-19	SB-5-19	SB-6-19	SB-6-19	SB-7-19	SB-7-19	SB-7-19	SB-8-19	SB-8-19	SB-8-19	SB-9-19	SB-9-19	SG-1-19	SG-1-19
Sample Depth (feet bgs)	Level *	20 ‡	35	25	30	10	15	10	16	12.5	16.5	16.5	25	15	15 ‡	25	10	10 ‡	15	20	25	5	15
Total Petroleum Hydrocarbons																							
Gasoline Range Organics	30 **	**100**	7.1 U	**37**	**160**	4.4 U	5.1 U	5.7 U	5.5 U	**300**	6.6 U	**21**	6 U	**210**	**330**	6.2 U	4.2 U	5.4 U	4.8 U	**410**	5.6 U	4.1 U	4.3 U
Diesel Range Organics	2000	-	-	43 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lube Oil	2000	-	-	59 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mineral spirits	4000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kerosene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)																							
Benzene	0.03	**0.82**	**0.009**	**0.39**	**0.46**	0.00094 U	0.00089 U	0.0013 U	0.00095 U	**0.35**	**0.0091**	**0.89**	0.0011 U	**0.061**	0.068 U	0.0013 U	0.00071 U	0.0010 U	0.00092 U	0.063 U	0.0012 U	0.0008 U	0.0007 U
Toluene	7	0.22 U	0.0057 U	**0.58**	0.36 U	0.0047 U	0.0044 U	0.0066 U	0.0047 U	1.1 U	0.0052 U	**0.27**	0.0053 U	0.27 U	0.34 U	0.0063 U	0.0035 U	0.0052 U	0.0046 U	0.32 U	0.006 U	0.004 U	0.0035 U
Ethylbenzene	6	**0.77**	**0.018**	**2.2**	**0.84**	0.00094 U	0.00089 U	0.0013 U	0.00095 U	**17**	**0.0025**	**0.57**	0.0011 U	0.055 U	0.068 U	0.0013 U	0.00071 U	0.0010 U	0.00092 U	**0.077**	0.0012 U	0.0008 U	0.0007 U
m, p-Xylene	16000	**0.78**	**0.011**	**9.7**	**4**	0.0019 U	0.0018 U	0.0026 U	0.0019 U	**3.1**	**0.0026**	**2.3**	0.0021 U	0.11 U	0.14 U	0.0025 U	0.0014 U	0.0021 U	0.0018 U	**0.19**	0.0024 U	0.0016 U	0.0014 U
o-Xylene	16000	**0.16**	**0.0015**	**3.3**	**1.2**	0.00094 U	0.00089 U	0.0013 U	0.00095 U	**0.44**	0.001 U	**0.93**	0.0011 U	0.055 U	0.068 U	0.0013 U	0.00071 U	0.0010 U	0.00092 U	0.063 U	0.0012 U	0.0008 U	0.0007 U
Xylenes	9	**0.94**	**0.0125**	**13**	**5.2**	0.00284 U	0.00269 U	0.0039 U	0.00285 U	**3.54**	**0.0026**	**3.23**	0.0032 U	0.165 U	0.208 U	0.0038 U	0.00211 U	0.0031 U	0.00272 U	**0.19**	0.0036 U	0.0024 U	0.0021 U
Volatile Petroleum Hydrocarbons																							
Hexane	4800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
>C10-C12 Aliphatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
>C10-C12 Aromatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
>C12-C13 Aromatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
>C6-C8 Aliphatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
>C8-C10 Aliphatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
>C8-C10 Aromatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C5-C6 Aliphatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Aliphatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Aromatics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals																							
Antimony	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	20	12 U	-	12 U	-	-	12 U	12 U	-	11 U	-	12 U	-	12 U	12 U	-	11 U	11 U	-	11 U	-	11 U	-
Barium	16000	**66**	-	**21**	-	-	**58**	**46**	-	**32**	-	**39**	-	**49**	**43**	-	**38**	**43**	-	**28**	-	**41**	-
Beryllium	160	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	2	0.58 U	-	0.58 U	-	-	0.6 U	0.58 U	-	0.57 U	-	0.58 U	-	0.58 U	0.58 U	-	0.57 U	0.57 U	-	0.54 U	-	0.56 U	-
Chromium	2000 †	**37**	-	**16**	-	-	**27**	**21**	-	**23**	-	**21**	-	**26**	**22**	-	**18**	**22**	-	**20**	-	**25**	-
Chromium (TCLP) (mg/L)	5.0 mg/L ¥	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	3,200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	250	5.8 U	-	5.8 U	-	-	6 U	5.8 U	-	5.7 U	-	5.8 U	-	5.8 U	5.8 U	-	5.7 U	5.7 U	-	5.4 U	-	5.6 U	-
Mercury	2	0.29 U	-	0.29 U	-	-	0.3 U	0.29 U	-	0.28 U	-	0.29 U	-	0.29 U	0.29 U	-	0.28 U	0.28 U	-	0.27 U	-	0.28 U	-
Nickel	1600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	400	12 U	-	12 U	-	-	12 U	12 U	-	11 U	-	12 U	-	12 U	12 U	-	11 U	11 U	-	11 U	-	11 U	-
Silver	400	1.2 U	-	1.2 U	-	-	1.2 U	1.2 U	-	1.1 U	-	1.2 U	-	1.2 U	1.2 U	-	1.1 U	1.1 U	-	1.1 U	-	1.1 U	-
Thallium	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	24000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polychlorinated Biphenyls (PCBs)																							
PCB-aroclor 1016	5.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB-aroclor 1221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB-aroclor 1232	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB-aroclor 1242	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB-aroclor 1248	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB-aroclor 1254	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB-aroclor 1260	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Volatile Organic Compounds (VOCs)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1,1,2-Tetrachloroethane	38	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	2	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	18	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	180	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	-	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloropropene	-	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3-Trichlorobenzene	-	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3-Trichloropropane	0.033	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	34	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

See Sheet 16 for Notes

Sample Location	Screening	RW-1-19	RW-1-19	SB-2-19	SB-2-19	SB-3-19	SB-3-19	SB-4-19	SB-4-19	SB-5-19	SB-5-19	SB-6-19	SB-6-19	SB-7-19	SB-7-19	SB-7-19	SB-8-19	SB-8-19	SB-8-19	SB-9-19	SB-9-19	SG-1-19	SG-1-19
Sample Depth (feet bgs)	Level *	20 ‡	35	25	30	10	15	10	16	12.5	16.5	16.5	25	15	15 ‡	25	10	10 ‡	15	20	25	5	15
1,2,4-Trimethylbenzene	800	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dibromo-3-Chloropropane	1.3	-	-	-	-	0.0047 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	7200	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane (EDC)	11	0.044 U	-	0.068 U	-	0.00094 U	0.00089 U	0.0013 U	-	0.21 U	-	0.052 U	-	0.055 U	03068 U	-	0.00071 U	0.0010 U	-	0.063 U	-	0.0008 U	-
1,2-Dichloropropane	27	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,3,5-Trimethylbenzene	800	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	-	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichloropropane	-	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	190	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,2-Dichloropropane	-	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Butanone	-	-	-	-	-	**0.0075**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Chloroethylvinylether	-	-	-	-	-	0.0047 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Chlorotoluene	1600	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Hexanone	400	-	-	-	-	0.0047 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Chlorotoluene	-	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acetone	72000	-	-	-	-	**0.055**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromobenzene	640	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromochloromethane	-	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromodichloromethane	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromoform	130	-	-	-	-	0.0047 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromomethane	110	-	-	-	-	0.0012 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon Disulfide	8000	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon Tetrachloride	14	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CFC-11	-	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CFC-12	-	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorobenzene	1600	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloroethane	-	-	-	-	-	0.0047 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloroform	32	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloromethane	-	-	-	-	-	0.0047 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
cis-1,2-Dichloroethene	-	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	10	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	12	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibromomethane	-	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dichlorobromomethane	-	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dichlorodifluoromethane	16000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylene dibromide	0.005	0.044 U	-	0.068 U	-	0.00094 U	0.00089 U	0.0013 U	-	0.21 U	-	0.052 U	-	0.055 U	0.068 U	-	0.00071 U	0.0010 U	-	0.063 U	-	0.0008 U	-
Hexachloro-1,3-butadiene	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobutadiene	-	-	-	-	-	0.0047 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Isopropylbenzene	-	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Isopropyltoluene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Iodide	-	-	-	-	-	0.0047 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Isobutyl Ketone	6400	-	-	-	-	0.0047 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl t-Butyl Ether	0.1	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methylene chloride	0.02	-	-	-	-	0.0047 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MTBE	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	5	-	-	-	-	0.0047 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
n-Butylbenzene	4000	-	-	-	-	**0.00098**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
n-Propylbenzene	8000	-	-	-	-	**0.00098**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
p-Isopropyltoluene	-	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
sec-Butylbenzene	8000	-	-	-	-	**0.0018**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	16000	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
tert-Butylbenzene	8000	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	-	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
trans-1,2-Dichloroethene	-	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
trans-1,3-Dichloropropene	10	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichloroethene	-	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichlorofluoromethane	24000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vinyl Acetate	80000	-	-	-	-	0.0047 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vinyl chloride	0.67	-	-	-	-	0.00094 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample Location	Screening	RW-1-19	RW-1-19	SB-2-19	SB-2-19	SB-3-19	SB-3-19	SB-4-19	SB-4-19	SB-5-19	SB-5-19	SB-6-19	SB-6-19	SB-7-19	SB-7-19	SB-7-19	SB-8-19	SB-8-19	SB-8-19	SB-9-19	SB-9-19	SG-1-19	SG-1-19
Sample Depth (feet bgs)	Level *	20 ‡	35	25	30	10	15	10	16	12.5	16.5	16.5	25	15	15 ‡	25	10	10 ‡	15	20	25	5	15
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs)																							
Benz[a]anthracene	-	0.0077 U	-	0.0078 U	-	-	0.008 U	0.0078 U	-	0.0075 U	-	0.0077 U	-	0.0077 U	0.0078 U	-	0.0076 U	0.0076 U	-	0.0071 U	-	0.0075 U	-
Benzo(a)pyrene	0.1	0.0077 U	-	0.0078 U	-	-	0.008 U	0.0078 U	-	0.0075 U	-	0.0077 U	-	0.0077 U	0.0078 U	-	0.0076 U	0.0076 U	-	0.0071 U	-	0.0075 U	-
Benzo(b)fluoranthene	-	0.0077 U	-	0.0078 U	-	-	0.008 U	0.0078 U	-	0.0075 U	-	0.0077 U	-	0.0077 U	0.0078 U	-	0.0076 U	0.0076 U	-	0.0071 U	-	0.0075 U	-
Benzo(j,k)fluoranthene	-	0.0077 U	-	0.0078 U	-	-	0.008 U	0.0078 U	-	0.0075 U	-	0.0077 U	-	0.0077 U	0.0078 U	-	0.0076 U	0.0076 U	-	0.0071 U	-	0.0075 U	-
Benzo(k)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	-	0.0077 U	-	0.0078 U	-	-	0.008 U	0.0078 U	-	0.0075 U	-	0.0077 U	-	0.0077 U	0.0078 U	-	0.0076 U	0.0076 U	-	0.0071 U	-	0.0075 U	-
Dibenzo(a,h)anthracene	-	0.0077 U	-	0.0078 U	-	-	0.008 U	0.0078 U	-	0.0075 U	-	0.0077 U	-	0.0077 U	0.0078 U	-	0.0076 U	0.0076 U	-	0.0071 U	-	0.0075 U	-
Indeno(1,2,3-cd)pyrene	-	0.0077 U	-	0.0078 U	-	-	0.008 U	0.0078 U	-	0.0075 U	-	0.0077 U	-	0.0077 U	0.0078 U	-	0.0076 U	0.0076 U	-	0.0071 U	-	0.0075 U	-
Total cPAH TEQ ¥	0.1	0.0058 U	-	0.0059 U	-	-	0.0060 U	0.0059 U	-	0.0057 U	-	0.0058 U	-	0.0058 U	0.0059 U	-	0.0057 U	0.0057 U	-	0.0054 U	-	0.0057 U	-
Semi-Volatile Organic Compounds (SVOCs)																							
1,2-Dinitrobenzene	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Diphenylhydrazine	3.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,3-Dinitrobenzene	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1-MethylNaphthalene	34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,3,4,6-Tetrachlorophenol	2400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,3,5,6-Tetrachlorophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,3-Dichloroaniline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	8000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4,6-Tribromophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	240	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	1600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	160	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	3.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	0.67	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Chloronaphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Chlorophenol	400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-MethylNaphthalene	320	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Nitroaniline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Nitrophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	2.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3-Methylphenol and 4-Methylphenol coelution	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3-Nitroaniline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromophenyl phenyl ether	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Chloro-3-methylphenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Chloroaniline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Chlorophenyl Phenyl Ether	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Chlorophenyl-Phenylether	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Nitroaniline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Nitrophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	4800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aniline	180	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	24000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzene, 1,4-Dinitro-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzidine	0.0043	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(ghi)perylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzyl alcohol	8000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bis(2-Chloroethoxy)Methane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	0.91	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bis(2-ethylhexyl) ether	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Butyl benzyl phthalate	530	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbazole	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Di(2-ethylhexyl) adipate	830	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample Location	Screening	RW-1-19	RW-1-19	SB-2-19	SB-2-19	SB-3-19	SB-3-19	SB-4-19	SB-4-19	SB-5-19	SB-5-19	SB-6-19	SB-6-19	SB-7-19	SB-7-19	SB-7-19	SB-8-19	SB-8-19	SB-8-19	SB-9-19	SB-9-19	SG-1-19	SG-1-19
Sample Depth (feet bgs)	Level *	20 ‡	35	25	30	10	15	10	16	12.5	16.5	16.5	25	15	15 ‡	25	10	10 ‡	15	20	25	5	15
Dibenzofuran	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Diethyl phthalate	64000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Diethylphthalate	64000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dimethylphthalate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Di-n-butylphthalate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Di-n-octylphthalate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	3200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene	3200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobenzene	0.63	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	480	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexachloroethane	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Isophorone	1100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrobenzene	160	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
n-Nitrosodimethylamine	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Nitrosodi-n-propylamine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Cresol	4000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PBDE-003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pentachlorophenol	2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenol	24000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	2400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyridine	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

All values reported in milligrams per kilogram unless otherwise noted.

* Screening Levels are reported as the MTCA Method A cleanup levels, if established. Method B cleanup levels are shown if no Method A cleanup levels are established. The MTCA Method B cleanup levels shown are the lowest for either carcinogen or non-carcinogen, based on direct contact.

** MTCA Method A cleanup level for unrestricted land use for gasoline range organics is 100 mg/kg is no benzene present or 30 mg/kg if benzene is present.

† Cleanup level for trivalent chromium.

¥ Maximum concentration of chromium for Dangerous Waste Toxicity Characteristic

‡ Sample collected and analyzed as a field duplicate or split sample.

Shaded values indicate the detection exceeded regulatory criteria.

bgs = below ground surface; mg/L = milligrams per liter; MTCA = Model Toxics Control Act; TCLP = Toxicity Characteristic Leaching Procedure; U = analyte not detected at or above the laboratory reporting limit, reported as less than the reporting limit

Sample Location	Screening Level *	H-3-16	H-667p-15	H-667p-15	H-691p-16	H-11-18	H-14-18	H-15-18	H-16-18	H-17-18	H-18-18	H-19-18	H-20-18	H-21-18	H-21-18 ‡
Grab or MW Sample		Grab	MW	MW	MW	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab
Date Sampled		10/7/16	2/10/15	9/16/19	9/16/19	5/26/18	5/26/18	5/26/18	12/4/18	12/4/18	12/5/18	12/6/18	12/6/18	12/6/18	12/6/18
Total Petroleum Hydrocarbons															
Gasoline Range Organics	800**	-	170	100 U	100 U	100 U	100 U	100 U	76000	8700	1300	110000	590	1700	590
Diesel Range Organics	500	-	-	260 U	280 U	250 U	270 U	280 U	6900 U	1500 U	540 U	6400 U	690	310 U	200 U
Lube Oil	500	-	-	420 U	450 U	560	980	450 U	840	490 U	490 U	380	400 U	500 U	500 U
Mineral spirits	500	-	-	-	-	-	-	-	-	-	-	-	-	-	100 U
Kerosene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	200 U
Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)															
Benzene	5	7.4	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5300	2400	32	760	450	30	4.3
Toluene	1000	1 U	1 U	1.0 U	1.0 U	1 U	1 U	1 U	510	70	10	2000	7.5	26	1 U
Ethylbenzene	700	0.7	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	4600	520	84	2200	6.2	81	11
m, p-Xylene	1600	2.1	1.6	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	14000	1300	240	9600	13	220	-
o-Xylene	1600	0.67	1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	4600	410	81	2400	3.6	77	-
Xylenes §	1000	2.77	1.6	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	18600	1710	321	12000	16.6	297	45
Total Metals															
Antimony	6.4	-	5.6 U	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	5	-	5.8	-	-	480	230	160	120	180	170	570	580	52	-
Barium	3200	-	-	-	-	14000	8800	4600	1300	4100	3600	9800	11000	820	-
Beryllium	32	-	11 U	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	5	-	4.4 U	-	-	13	4.4 U	4.4 U	4.4 U	7.9	5.9	12	8.2	4.4 U	-
Chromium	24000 †	-	11 U	-	-	5900	2400	1800	430	2500	2100	4800	4500	420	-
Copper	640	-	11 U	-	-	-	-	-	-	-	-	-	-	-	-
Lead	15	-	1.1 U	-	-	510	220	180	110	170	150	800	450	34	-
Mercury	2	-	0.5 U	-	-	0.5 U	0.5 U	0.5 U	0.53	2.2	1.8	1.8	0.6	0.5 U	-
Nickel	320	-	22 U	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	80	-	5.6 U	-	-	23	12	13	5.6 U	59	16	76	46	5.6 U	-
Silver	80	-	11 U	-	-	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U	-
Thallium	0.16	-	5.6 U	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	4,800	-	28 U	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals															
Antimony	6.4	18	5 U	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	5	3.3	3.4	-	-	-	-	-	32	12	3 U	3.9	32	3 U	1050
Barium	3200	-	-	-	-	-	-	-	150	66	25 U	37	79	25 U	1040
Beryllium	32	10 U	10 U	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	5	4 U	4 U	-	-	-	-	-	4 U	4 U	4 U	4 U	4 U	4 U	963
Chromium	24000 †	10 U	10 U	-	-	-	-	-	10 U	10 U	10 U	10 U	10 U	10 U	994.1
Copper	640	10 U	10 U	-	-	-	-	-	-	-	-	-	-	-	-
Lead	15	2.5	1 U	-	-	-	-	-	1.7	1 U	1 U	1.2	1 U	1 U	320
Mercury	2	0.5 U	0.5 U	-	-	-	-	-	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.06
Nickel	320	20 U	20 U	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	80	5 U	5 U	-	-	-	-	-	5 U	5 U	5 U	5 U	5 U	5 U	1060
Silver	80	10 U	10 U	-	-	-	-	-	10 U	10 U	10 U	10 U	10 U	10 U	842
Thallium	0.16	5 U	5 U	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	4800	25 U	25 U	-	-	-	-	-	-	-	-	-	-	-	-
Polychlorinated Biphenyls (PCBs)															
PCB-aroclor 1016	1.1	0.045 U	-	-	-	0.067 U	0.061 U	0.052 U	0.066 U	0.063 U	0.048 U	0.074 U	-	0.077 U	-
PCB-aroclor 1221	-	0.045 U	-	-	-	0.067 U	0.061 U	0.052 U	0.066 U	0.063 U	0.048 U	0.074 U	-	0.077 U	-
PCB-aroclor 1232	-	0.045 U	-	-	-	0.067 U	0.061 U	0.052 U	0.066 U	0.063 U	0.048 U	0.074 U	-	0.077 U	-
PCB-aroclor 1242	0.044	0.045 U	-	-	-	0.067 U	0.061 U	0.052 U	0.066 U	0.063 U	0.048 U	0.074 U	-	0.077 U	-
PCB-aroclor 1248	-	0.045 U	-	-	-	0.067 U	0.061 U	0.052 U	0.066 U	0.063 U	0.048 U	0.074 U	-	0.077 U	-
PCB-aroclor 1254	-	0.045 U	-	-	-	0.067 U	0.061 U	0.052 U	0.066 U	0.063 U	0.048 U	0.074 U	-	0.077 U	-
PCB-aroclor 1260	0.044	0.045 U	-	-	-	0.067 U	0.061 U	0.052 U	0.066 U	0.063 U	0.048 U	0.074 U	-	0.077 U	-
Volatile Organic Compounds (VOCs)															
1,1,1,2-Tetrachloroethane	1.7	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	1 U
1,1,1-Trichloroethane	200	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	1 U
1,1,2,2-Tetrachloroethane	0.22	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	1 U
1,1,2-Trichloroethane	0.77	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	1 U
1,1-Dichloroethane	7.7	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	1 U
1,1-Dichloroethene	-	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	1 U
1,1-Dichloropropene	-	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	1 U
1,2,3-Trichlorobenzene	-	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1.4 U	270 U	0.27 U	1 U	1 U
1,2,3-Trichloropropane	0.0015	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	1 U
1,2,4-Trichlorobenzene	1.5	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	6.9

Sample Location		H-3-16	H-667p-15	H-667p-15	H-691p-16	H-11-18	H-14-18	H-15-18	H-16-18	H-17-18	H-18-18	H-19-18	H-20-18	H-21-18	H-21-18 ‡
Grab or MW Sample	Screening	Grab	MW	MW	MW	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab
1,2,4-Trimethylbenzene	80	**0.44**	-	-	-	0.2 U	0.2 U	0.2 U	**3300**	**370**	**63**	**7000**	**4.5**	**100**	**17**
1,2-Dibromo-3-chloropropane	0.055	1 U	-	-	-	1 U	1 U	1 U	50 U	50 U	5 U	1300 U	1.3 U	5 U	1 U
1,2-Dichlorobenzene	720	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	1 U
1,2-Dichloroethane (EDC)	5	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	**19**	1 U	1 U
1,2-Dichloropropane	1.2	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	1 U
1,3,5-Trimethylbenzene	80	**0.3**	-	-	-	0.2 U	0.2 U	0.2 U	**910**	**100**	**16**	**2100**	**1.8**	**23**	**4.6**
1,3-Dichlorobenzene	-	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	1 U
1,3-Dichloropropane	-	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	1 U
1,4-Dichlorobenzene	8.1	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	1 U
2,2-Dichloropropane	-	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	1 U
2-Butanone	-	5 U	-	-	-	5 U	5 U	5 U	250 U	250 U	25 U	5000 U	**10**	25 U	
2-Chloroethylvinylether	-	1 U	-	-	-	1 U	1 U	1 U	50 U	50 U	5 U	1000 U	1 U	7 U	
2-Chlorotoluene	160	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	1 U
2-Hexanone	40	2 U	-	-	-	2 U	2 U	2 U	100 U	100 U	10 U	2000 U	2 U	10 U	
4-Chlorotoluene	-	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	1 U
Acetone	7200	**6.5**	-	-	-	5 U	**9.7**	**5**	250 U	250 U	25 U	5000 U	**160**	37 U	
Bromobenzene	64	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	1 U
Bromochloromethane	-	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	
Bromodichloromethane	0.71		-	-	-										1 U
Bromoform	5.5	1 U	-	-	-	1 U	1 U	1 U	50 U	50 U	5 U	1300 U	1.3 U	5 U	1 U
Bromomethane	11	0.2 U	-	-	-	0.29 U	0.29 U	0.29 U	10 U	10 U	1 U	260 U	0.26 U	1.3 U	1 U
Carbon Disulfide	800	0.2 U	-	-	-	0.28 U	0.28 U	0.28 U	10 U	10 U	1 U	200 U	0.2 U	1 U	
Carbon Tetrachloride	0.63	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	1 U
CFC-11	-	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	
CFC-12	-	0.2 U	-	-	-	0.29 U	0.29 U	0.29 U	10 U	10 U	1 U	200 U	0.2 U	1 U	
Chlorobenzene	160	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	**0.23**	1 U	1 U
Chloroethane	-	1 U	-	-	-	1 U	1 U	1 U	50 U	50 U	5 U	1000 U	1 U	5 U	1 U
Chloroform	1.4	**8.3**	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	1 U
Chloromethane	-	1 U	-	-	-	1 U	1 U	1 U	50 U	50 U	5 U	1000 U	1 U	5 U	1 U
Cis-1,2-Dichloroethene	-	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	1 U
Cis-1,3-Dichloropropene	0.44	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	**7.3**
Dibromochloromethane	0.52	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	1 U
Dibromomethane	-	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	1 U
Dichlorobromomethane	-	**1**	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	
Ethylene dibromide	0.01	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	0.01 U
Hexachlorobutadiene	0.56	0.2 U	-	-	-	1 U	1 U	1 U	10 U	10 U	5 U	200 U	0.2 U	5 U	1 U
Isopropylbenzene	-	**0.25**	-	-	-	0.2 U	0.2 U	0.2 U	**170**	**43**	**4**	**420**	**15**	**7.7**	**1.1**
Methyl Iodide	-	1 U	-	-	-	1.8 U	1.8 U	1.8 U	50 U	50 U	5 U	1000 U	1 U	6.5 U	
Methyl Isobutyl Ketone	640	2 U	-	-	-	2 U	2 U	2 U	100 U	100 U	10 U	2000 U	2 U	10 U	
Methyl t-Butyl Ether (MTBE)	20	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	5 U
Methylene Chloride	5	1 U	-	-	-	1 U	1 U	1 U	50 U	50 U	5 U	1000 U	1 U	5 U	1 U
Naphthalene	160	1 U	-	-	-	1 U	1 U	1 U	**970**	**95**	**12**	1400 U	1.4 U	**28**	
n-Butylbenzene	400	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	**87**	**17**	**1.2**	**520**	**2.1**	1 U	1 U
n-Propylbenzene	800	**0.37**	-	-	-	0.2 U	0.2 U	0.2 U	**540**	**110**	**9.9**	**830**	**30**	**15**	2.2
p-Isopropyltoluene	-	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	**16**	10 U	1 U	200	**26**	**2.4**	1 U
sec-Butylbenzene	800	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	**24**	10 U	1 U	200 U	**2**	**1.8**	1 U
Styrene	1600	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	1 U
tert-Butylbenzene	800	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	1 U
Tetrachloroethene (PCE)	5	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	1 U
Trans-1,2-Dichloroethene	-	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	1 U
Trans-1,3-Dichloropropene	0.15	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	1 U
Trichloroethene	-	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	1 U
Trichlorofluoromethane	2400		-	-	-										1 U
Vinyl Acetate	8000	1 U	-	-	-	1 U	1 U	1 U	50 U	50 U	5 U	1000 U	1 U	5 U	
Vinyl Chloride	0.2	0.2 U	-	-	-	0.2 U	0.2 U	0.2 U	10 U	10 U	1 U	200 U	0.2 U	1 U	0.2 U
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs)			-	-	-										
Benz[a]anthracene	-	**0.024**	-	-	-	**0.065**	0.013 U	0.01 U	**0.027**	0.013 U	0.012 U	**0.025**	0.027 U	0.019 U	0.1 U
Benzo(a)pyrene	0.1	0.01 U	-	-	-	**0.022**	0.013 U	0.01 U	**0.016**	0.013 U	0.012 U	**0.02**	0.027 U	0.019 U	0.1 U
Benzo(b)fluoranthene	-	**0.082**	-	-	-	**0.033**	0.013 U	0.01 U	**0.012**	0.013 U	0.012 U	**0.029**	0.071 U	0.32 U	0.1 U
Benzo(k)fluoranthene	-		-	-	-										0.1 U
Benzo(j,k)fluoranthene	-	**0.023**	-	-	-	0.014 U	0.013 U	0.01 U	0.011 U	0.013 U	0.012 U	0.016 U	0.027 U	0.019 U	
Chrysene	-	**0.012**	-	-	-	**0.083**	0.013 U	0.01 U	**0.024**	0.013 U	0.012 U	**0.035**	0.027 U	0.019 U	0.1 U
Dibenzo(a,h)anthracene	-	0.01 U	-	-	-	0.014 U	0.013 U	0.01 U	0.011 U	0.013 U	0.012 U	0.016 U	0.027 U	0.019 U	0.1 U

Sample Location	Screening	H-3-16	H-667p-15	H-667p-15	H-691p-16	H-11-18	H-14-18	H-15-18	H-16-18	H-17-18	H-18-18	H-19-18	H-20-18	H-21-18	H-21-18 ‡
Grab or MW Sample		Grab	MW	MW	MW	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab
Indeno(1,2,3-cd)pyrene	-	0.01 U	-	-	-	**0.016**	0.013 U	0.01 U	0.011 U	0.013 U	0.012 U	**0.017**	0.027 U	0.019 U	0.1 U
Total cPAH TEQ ¥	0.1	**0.03382**	-	-	-	**0.0736**	0.00917 U	0.00705 U	**0.03114**	0.00917 U	0.00846 U	**0.03275**	0.0212 U	0.0284 U	0.0755 U
Semi-Volatile Organic Compounds (SVOCs)															
1,2,4-Trichlorobenzene	1.5	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	1 U
1,2-Dichlorobenzene	720	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	1 U
1,2-Dinitrobenzene	1.6	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	-
1,2-Diphenylhydrazine	0.11	1 U	-	-	-	1.4 U	1.3 U	1 U	1.2 U	1.3 U	1.2 U	1.6 U	2.7 U	3.8 U	-
1,3-Dichlorobenzene	-	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	1 U
1,3-Dinitrobenzene	1.6	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	-
1,4-Dichlorobenzene	8.1	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	1 U
1-Methylnaphthalene	1.5	**0.13**	-	-	-	0.14 U	0.13 U	0.1 U	**72**	**16**	**4**	**21**	**1.8**	**1.5**	**0.12**
2,3,4,6-Tetrachlorophenol	480	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	1 U
2,3,5,6-Tetrachlorophenol	-	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	-
2,3-Dichloroaniline	-	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	-
2,4,5-Trichlorophenol	800	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	5 U
2,4,6-Tribromophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5 U
2,4,6-Trichlorophenol	800	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	5 U
2,4-Dichlorophenol	24	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	5 U
2,4-Dimethylphenol	160	1 U	-	-	-	1.4 U	1.3 U	1 U	**9.6**	1.3 U	2.7	1.6 U	2.7 U	1.9 U	5 U
2,4-Dinitrophenol	32	5 U	-	-	-	7.2 U	6.5 U	5.1 U	5.4 U	6.7 U	6.2 U	7.8 U	14 U	9.4 U	5 U
2,4-Dinitrotoluene	0.28	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	-
2,6-Dichlorophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5 U
2,6-Dinitrotoluene	0.058	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	
2-Chloronaphthalene	-	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	1 U
2-Chlorophenol	40	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	1 U
2-Methylnaphthalene	32	**0.23**	-	-	-	0.14 U	0.13 U	0.1 U	**150**	**27**	**6.7**	**48**	**2.5**	**2.4**	**0.1**
2-Nitroaniline	160	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	
2-Nitrophenol	-	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	5 U
3,3'-Dichlorobenzidine	0.19	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	
3-Methylphenol and 4-Methylphenol coelution	-	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	1 U
3-Nitroaniline	-	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	-
4,6-Dinitro-2-methylphenol	-	5 U	-	-	-	7.2 U	6.5 U	5.1 U	5.4 U	6.7 U	6.2 U	7.8 U	14 U	9.4 U	-
4-Bromophenyl phenyl ether	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1 U
4-Chloro-3-methylphenol	-	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	5 U
4-Chloroaniline	0.22	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	-
4-Chlorophenyl-phenylether	-	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	-
4-Nitroaniline	64	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	-
4-Nitrophenol	-	5 U	-	-	-	7.2 U	6.5 U	5.1 U	5.4 U	6.7 U	6.2 U	7.8 U	14 U	9.4 U	5 U
Acenaphthene	960	0.1 U	-	-	-	0.14 U	0.13 U	**0.11**	**0.23**	0.13 U	0.12 U	0.16 U	0.27 U	0.19 U	0.1 U
Acenaphthylene	-	0.1 U	-	-	-	**0.17**	0.13 U	0.1 U	0.11 U	0.13 U	0.12 U	0.16 U	0.27 U	0.19 U	0.1 U
Aniline	7.7	5 U	-	-	-	7.2 U	6.5 U	5.1 U	5.4 U	6.7 U	6.2 U	7.8 U	14 U	9.4 U	-
Anthracene	4800	0.1 U	-	-	-	**0.53**	0.13 U	0.1 U	0.11 U	0.13 U	0.12 U	0.16 U	0.27 U	0.19 U	0.1 U
Benzene, 1,4-Dinitro-	-	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	-
Benzidine	0.00038	5 U	-	-	-	7.2 U	6.5 U	5.1 U	5.4 U	6.7 U	6.2 U	7.8 U	14 U	9.4 U	-
Benzo(ghi)perylene	-	0.01 U	-	-	-	**0.02**	0.013 U	0.01 U	**0.016**	0.013 U	0.012 U	**0.022**	0.027 U	0.019 U	0.1 U
Benzyl alcohol	800	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	-
bis(2-Chloroethoxy)methane	-	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	1 U
bis(2-Chloroethyl)ether	0.04	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	-
bis(2-Chloroisopropyl)ether	-	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	-
Bis(2-ethylhexyl) ether	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1 U
bis(2-Ethylhexyl)phthalate	6.3	**5.7**	-	-	-	**2.7**	1.3 U	1 U	**17**	6.7 U	6.2 U	**14**	14 U	**24**	-
Butyl benzyl phthalate	46	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	-
Carbazole	-	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	-
Di(2-ethylhexyl) adipate	73	1 U	-	-	-	2.9 U	2.6 U	2 U	5.4 U	6.7 U	6.2 U	7.8 U	14 U	9.4 U	-
Dibenzofuran	16	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	-
Diethylphthalate	13000	**1.3**	-	-	-	**3.3**	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	5 U
Dimethylphthalate	-	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	1 U
Di-n-butylphthalate	-	**9.3**	-	-	-	**22**	**6.3**	**4.7**	5.4 U	6.7 U	6.2 U	7.8 U	14 U	9.4 U	1 U
Di-n-octylphthalate	-	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	5 U
Fluoranthene	640	0.1 U	-	-	-	**0.54**	0.13 U	0.1 U	0.11 U	0.13 U	0.12 U	0.16 U	0.27 U	0.19 U	0.1 U
Fluorene	640	0.1 U	-	-	-	**0.16**	0.13 U	0.1 U	**0.33**	0.13 U	0.12 U	**0.17**	0.27 U	0.19 U	0.1 U
Hexachlorobenzene	0.055	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	1 U
Hexachlorobutadiene	0.56	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	5 U

See Sheet 8 for Notes

Sample Location		H-3-16	H-667p-15	H-667p-15	H-691p-16	H-11-18	H-14-18	H-15-18	H-16-18	H-17-18	H-18-18	H-19-18	H-20-18	H-21-18	H-21-18 ‡
Grab or MW Sample	Screening	Grab	MW	MW	MW	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab
Hexachlorocyclopentadiene	48	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	1 U
Hexachloroethane	1.1	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	1 U
Isophorone	46	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	-
Naphthalene	160	**0.25**	-	-	-	0.14 U	0.13 U	0.1 U	**570**	**98**	**33**	**280**	**1.1**	**8.5**	**0.52**
Nitrobenzene	16	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	-
n-Nitrosodimethylamine	0.00086	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	-
N-Nitrosodi-n-propylamine	-	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	-
n-Nitrosodiphenylamine	18	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	1 U
o-Cresol	400	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	1 U
PBDE-003	-	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	-
Pentachlorophenol	0.22	5 U	-	-	-	7.2 U	6.5 U	5.1 U	5.4 U	6.7 U	6.2 U	7.8 U	14 U	9.4 U	5 U
Phenanthrene	-	**0.11**	-	-	-	**1.2**	0.13 U	0.1 U	**0.32**	0.13 U	0.12 U	**0.23**	0.27 U	0.19 U	0.1 U
Phenol	2400	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	1 U
Pyrene	480	0.1 U	-	-	-	**0.54**	0.13 U	**0.15**	0.11 U	0.13 U	0.12 U	0.16 U	**0.28**	0.19 U	0.1 U
Pyridine	8	1 U	-	-	-	1.4 U	1.3 U	1 U	1.1 U	1.3 U	1.2 U	1.6 U	2.7 U	1.9 U	-

Sample Location	Screening Level *	H-21-18 ‡	SB-2-19	SB-3-19	SB-4-19	SB-4-19 ‡	SB-6-19	SB-7-19	SB-8-19	SB-9-19	MW-1-19	MW-2-19	MW-3-19	MW-4-19	MW-4-19 ‡	MW-5-20	RW-1-19
Grab or MW Sample		Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	MW	MW	MW	MW	MW	MW	MW
Date Sampled		12/6/18	8/24/19	9/23/19	9/23/19	9/23/19	8/25/19	9/27/19	9/25/19	8/25/19	10/17/19	10/17/19	10/17/19	10/17/19	10/17/19	1/29/20	10/17/19
Total Petroleum Hydrocarbons																	
Gasoline Range Organics	800**	1800	88000	100 U	100 U	400 U	51000	18000	400 U	33000	100 U	100 U	1400	210	190	100 U	33000
Diesel Range Organics	500	-	5700	250 U	-	-	3600	29000	-	7400	270 U	260 U	630	280 U	260 U	-	4300
Lube Oil	500	-	480 U	400 U	-	-	480 U	7900	-	400 U	440 U	420 U	660	440 U	420 U	-	710
Mineral spirits	500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kerosene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)																	
Benzene	5	28	2600	0.2 U	0.2 U	0.2 U	3400	410	0.2 U	19	0.2 U	0.2 U	98	0.2 U	0.2 U	0.20 U	8700
Toluene	1000	24	1200	1 U	1 U	1 U	430	20 U	1 U	20 U	1 U	1 U	4 U	1 U	1 U	1.0 U	500 U
Ethylbenzene	700	78	3100	0.2 U	0.2 U	0.2 U	2000	25	0.2 U	140	0.2 U	0.2 U	24	0.23	0.22	0.20 U	2300
m, p-Xylene	1600	210	13000	0.4 U	0.4 U	0.4 U	7000	8 U	0.4 U	350	0.4 U	0.4 U	9.3	0.55	0.41	0.40 U	3400
o-Xylene	1600	74	4500	0.2 U	0.2 U	0.2 U	1800	4 U	0.2 U	33	0.2 U	0.2 U	1.1	0.37	0.3	0.20 U	720
Xylenes §	1000	284	17500	0.4 U	0.4 U	0.4 U	8800	8 U	0.4 U	383	0.4 U	0.4 U	10.4	0.92	0.71	0.60 U	4120
Total Metals																	
Antimony	6.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	5	-	47	200	-	-	75	92	-	59	3.3 U	3.3 U	17	5.9	6.7	-	100
Barium	3200	-	1000	8200	-	-	850	850	-	2100	28 U	28 U	130	45	44	-	120
Beryllium	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	5	-	4.4 U	4.4 U	-	-	4.4 U	4.4 U	-	5.1	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	-	4.4 U
Chromium	24000 †	-	540	2300	-	-	280	290	-	1100	11 U	11 U	29	11 U	11 U	-	11 U
Copper	640	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	15	-	35	230	-	-	30	72	-	230	1.1 U	1.1 U	5.3	1.1 U	1.1 U	-	3.1
Mercury	2	-	0.5 U	0.83	-	-	0.5 U	0.5 U	-	1.1	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	-	0.5 U
Nickel	320	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	80	-	7.3	15	-	-	5.6 U	5.6 U	-	19	5.6 U	5.6 U	5.6 U	5.6 U	5.6 U	-	5.6 U
Silver	80	-	11 U	11 U	-	-	11 U	11 U	-	11 U	11 U	11 U	11 U	11 U	11 U	-	11 U
Thallium	0.16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	4,800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals																	
Antimony	6.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	5	-	8	3.4	-	-	32	19	-	5.1	3 U	3 U	7.4	5.1	6.7	-	88
Barium	3200	-	75	29	-	-	60	65	-	69	25 U	25 U	46	42	40	-	70
Beryllium	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	5	-	4 U	4 U	-	-	4 U	4 U	-	4 U	4 U	4 U	4 U	4 U	4 U	-	4 U
Chromium	24000 †	-	10 U	10 U	-	-	10 U	10 U	-	10 U	10 U	10 U	10 U	10 U	10 U	-	10 U
Copper	640	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	15	-	1 U	1 U	-	-	1 U	1 U	-	1 U	1 U	1 U	1 U	1 U	1 U	-	1 U
Mercury	2	-	0.5 U	0.5 U	-	-	0.5 U	0.5 U	-	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	-	0.5 U
Nickel	320	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	80	-	5 U	5 U	-	-	5 U	5 U	-	5 U	5 U	5 U	5 U	5 U	5 U	-	5 U
Silver	80	-	10 U	10 U	-	-	10 U	10 U	-	10 U	10 U	10 U	10 U	10 U	10 U	-	10 U
Thallium	0.16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	4800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polychlorinated Biphenyls (PCBs)																	
PCB-aroclor 1016	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB-aroclor 1221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB-aroclor 1232	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB-aroclor 1242	0.044	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB-aroclor 1248	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB-aroclor 1254	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PCB-aroclor 1260	0.044	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Volatile Organic Compounds (VOCs)																	
1,1,1,2-Tetrachloroethane	1.7	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	200	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	0.22	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	0.77	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	7.7	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	-	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloropropene	-	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3-Trichlorobenzene	-	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3-Trichloropropane	0.0015	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	1.5	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

See Sheet 8 for Notes

Sample Location		H-21-18 ‡	SB-2-19	SB-3-19	SB-4-19	SB-4-19 ‡	SB-6-19	SB-7-19	SB-8-19	SB-9-19	MW-1-19	MW-2-19	MW-3-19	MW-4-19	MW-4-19 ‡	MW-5-20	RW-1-19
Grab or MW Sample	Screening	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	MW	MW	MW	MW	MW	MW	MW
1,2,4-Trimethylbenzene	80	**93**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane	0.055	5 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	720	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane (EDC)	5	1 U	100 U	0.2 U	-	-	100 U	4 U	-	40 U	1 U	1 U	4 U	1 U	1 U	-	500 U
1,2-Dichloropropane	1.2	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,3,5-Trimethylbenzene	80	**21**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	-	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichloropropane	-	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	8.1	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,2-Dichloropropane	-	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Butanone	-	25 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Chloroethylvinylether	-	7 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Chlorotoluene	160	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Hexanone	40	10 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Chlorotoluene	-	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acetone	7200	37 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromobenzene	64	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromochloromethane	-	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromodichloromethane	0.71		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromoform	5.5	5 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromomethane	11	1.3 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon Disulfide	800	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon Tetrachloride	0.63	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CFC-11	-	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CFC-12	-	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorobenzene	160	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloroethane	-	5 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloroform	1.4	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloromethane	-	5 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cis-1,2-Dichloroethene	-	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cis-1,3-Dichloropropene	0.44	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibromochloromethane	0.52	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibromomethane	-	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dichlorobromomethane	-	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylene dibromide	0.01	1 U	0.01 U	0.01 U	-	-	0.01 U	0.01 U	-	0.01 U	0.0097 U	0.0096 U	0.0096 U	0.0097 U	0.0097 U	-	0.0095 U
Hexachlorobutadiene	0.56	5 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Isopropylbenzene	-	**7**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Iodide	-	6.5 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Isobutyl Ketone	640	10 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl t-Butyl Ether (MTBE)	20	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methylene Chloride	5	5 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	160	**26**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
n-Butylbenzene	400	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
n-Propylbenzene	800	**14**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
p-Isopropyltoluene	-	**2.2**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
sec-Butylbenzene	800	**1.6**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	1600	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
tert-Butylbenzene	800	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene (PCE)	5	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trans-1,2-Dichloroethene	-	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	0.15	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichloroethene	-	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichlorofluoromethane	2400		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vinyl Acetate	8000	5 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vinyl Chloride	0.2	1 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs)			-	-	-	-	-	-	-	-	-	-	-	-	-		-
Benz[a]anthracene	-		0.043	0.013 U	-	-	0.04 U	1.6	-	0.036 U	0.0095 U	0.01 U	0.011 U	0.01 U	0.01 U	-	0.01 U
Benzo(a)pyrene	0.1		0.027	0.013 U	-	-	0.04 U	**0.74**	-	0.036 U	0.0095 U	0.01 U	0.011 U	0.01 U	0.01 U	-	0.01 U
Benzo(b)fluoranthene	-		0.021	0.013 U	-	-	0.04 U	**0.94**	-	0.036 U	0.0095 U	0.01 U	0.011 U	0.01 U	0.01 U	-	0.01 U
Benzo(k)fluoranthene	-				-	-			-							-	
Benzo(j,k)fluoranthene	-		0.011 U	0.013 U	-	-	0.04 U	0.41 U	-	0.036 U	0.0095 U	0.01 U	0.011 U	0.01 U	0.01 U	-	0.01 U
Chrysene	-		0.031	0.013 U	-	-	0.04 U	**1.8**	-	0.036 U	0.0095 U	0.01 U	0.011 U	0.01 U	0.01 U	-	0.01 U
Dibenzo(a,h)anthracene	-		0.011 U	0.013 U	-	-	0.04 U	0.41 U	-	0.036 U	0.0095 U	0.01 U	0.011 U	0.01 U	0.01 U	-	0.01 U

Sample Location	Screening	H-21-18 ‡	SB-2-19	SB-3-19	SB-4-19	SB-4-19 ‡	SB-6-19	SB-7-19	SB-8-19	SB-9-19	MW-1-19	MW-2-19	MW-3-19	MW-4-19	MW-4-19 ‡	MW-5-20	RW-1-19
Grab or MW Sample		Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	MW	MW	MW	MW	MW	MW	MW
Indeno(1,2,3-cd)pyrene	-		0.011 U	0.013 U	-	-	0.04 U	0.41 U	-	0.036 U	0.0095 U	0.01 U	0.011 U	0.01 U	0.01 U	-	0.01 U
Total cPAH TEQ ¥	0.1	-	0.00776 U	0.00917 U	-	-	0.0282 U	1.827	-	0.0254 U	0.0067 U	0.00705 U	0.00776 U	0.00705 U	0.00705 U	-	0.00705 U
Semi-Volatile Organic Compounds (SVOCs)																	
1,2,4-Trichlorobenzene	1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	720	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dinitrobenzene	1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Diphenylhydrazine	0.11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,3-Dinitrobenzene	1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	8.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1-Methylnaphthalene	1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,3,4,6-Tetrachlorophenol	480	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,3,5,6-Tetrachlorophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,3-Dichloroaniline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4,6-Tribromophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	160	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	0.28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,6-Dichlorophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	0.058	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Chloronaphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Chlorophenol	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Nitroaniline	160	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Nitrophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	0.19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3-Methylphenol and 4-Methylphenol coelution	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3-Nitroaniline	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromophenyl phenyl ether	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Chloro-3-methylphenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Chloroaniline	0.22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Nitroaniline	64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Nitrophenol	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	960	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aniline	7.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	4800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzene, 1,4-Dinitro-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzidine	0.00038	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(ghi)perylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzyl alcohol	800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	0.04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bis(2-ethylhexyl) ether	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	6.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Butyl benzyl phthalate	46	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbazole	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Di(2-ethylhexyl) adipate	73	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenzofuran	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Diethylphthalate	13000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dimethylphthalate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Di-n-butylphthalate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Di-n-octylphthalate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	640	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene	640	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobenzene	0.055	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexachlorobutadiene	0.56	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

See Sheet 8 for Notes

Sample Location		H-21-18 ‡	SB-2-19	SB-3-19	SB-4-19	SB-4-19 ‡	SB-6-19	SB-7-19	SB-8-19	SB-9-19	MW-1-19	MW-2-19	MW-3-19	MW-4-19	MW-4-19 ‡	MW-5-20	RW-1-19
Grab or MW Sample	Screening	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	MW	MW	MW	MW	MW	MW	MW
Hexachlorocyclopentadiene	48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hexachloroethane	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Isophorone	46	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	160	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrobenzene	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
n-Nitrosodimethylamine	0.00086	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
N-Nitrosodi-n-propylamine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
n-Nitrosodiphenylamine	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Cresol	400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PBDE-003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pentachlorophenol	0.22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenol	2400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	480	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyridine	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

All values reported in micrograms per liter unless otherwise noted.

Total cPAH TEQ calculated using half values for non-detects.

* Screening Levels are reported as the MTCA Method A cleanup levels, if established. Method B cleanup levels are shown if no Method A cleanup levels are established. The MTCA Method B cleanup levels shown are the lowest for either carcinogen or non-carcinogen, based on direct contact.

** MTCA Method A cleanup level for unrestricted land use for gasoline range organics is 800 µg/L is no benzene present or 1000 µg/L if benzene is present.

† Cleanup level for trivalent chromium.

‡ Sample collected and analyzed as a field duplicate or split sample.

¥ Total cPAH TEQ calculated using half values for non-detects.

§ Calculated by summing detection of m,p-xylene and o-xylene. Reported as highest of non-detected values if no detects.

Shaded values indicate the detection exceeded regulatory criteria.

MTCA = Model Toxics Control Act; TEQ = toxic equivalent concentration; U = analyte not detected at or above the laboratory reporting limit, reported as less than the reporting limit

EXHIBIT 11
AIR AND SOIL GAS SAMPLING RESULTS

Sample Location	Screening Level	2209-Outdoor	2209-Indoor	SG-2-19-10112019
Sample Description		Outdoor air sampled from on the northwest corner of the garage roof.	Indoor air sampled from inside garage about 4.5 feet above the floor.	Soil vapor sampled from monitoring point SG-2-19 located 5 feet bgs adjacent to the Montlake Market building.
Air Results *				
Gasoline	-	**71.3**	**62.1**	-
Benzene	**0.32**	**0.954**	**1.09**	-
Corrected Benzene †	**0.32**	-	**0.136**	-
Ethylbenzene	**460**	1.74 U	1.74 U	-
m, p-Xylene	**46 ‡**	3.47 U	3.47 U	-
o-Xylene	**46 ‡**	1.74 U	1.74 U	-
Toluene	**2300**	**1.91**	**2.1**	-
Sub-Slab Soil Gas Results **				
Benzene	**11**	-	-	0.96 U
Ethylbenzene	**15000**	-	-	1.3 U
m, p-Xylene	**1500 ‡**	-	-	2.6 U
o-Xylene	**1500 ‡**	-	-	1.3 U
Toluene	**76000**	-	-	57 U
APH EC5-8 aliphatics	-	-	-	**140**
APH EC9-12 aliphatics	-	-	-	**290**
APH EC9-10 aromatics	-	-	-	75 U
Total Petroleum Hydrocarbons ¥	**4700**			**430**
Naphthalene	**2.5**	-	-	0.79 U

All values reported in micrograms per cubic meter.

* Screening levels for indoor air are reported as the lower of the two values: (1) Indoor Air Cleanup Level, Method B, noncancer, and (2) Indoor Air Cleanup Level, Method B, cancer. Values are provided in Washington State Department of Ecology's Cleanup Levels and Risk Calculator, Revised in May 2019, available: https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC/Data-tables.

** Screening levels for soil gas samples are reported as the lower of the two values: (1) Sub-slab Soil Gas Screening Level, Method B, noncancer, and (2) Sub-slab Soil Gas Screening Level, cancer. Values are provided in Washington State Department of Ecology's Cleanup Levels and Risk Calculator, Revised in May 2019, available: https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Contamination-clean-up-tools/CLARC/Data-tables.

† Outdoor air benzene concentrations were subtracted from indoor air concentrations in accordance with Washington State Department of Ecology's Guidance Evaluating Soil Vapor Intrusion in Washington State, Revised April 2018.

‡ Screening level is for total xylenes. Screening level for *m, o,* and *p* isomers of xylene is not established and the isomers are compared to total xylene levels.

¥ Total Petroleum Hydrocarbons calculated by summing detections of APHs.

Shaded values indicate the detection exceeded regulatory criteria.

APH = air-phase hydrocarbon; bgs = below ground surface; mg/L = milligrams per liter; MTCA = Model Toxics Control Act; TCLP = Toxicity Characteristic Leaching Procedure; U = analyte not detected at or above the laboratory reporting limit, reported as less than the reporting limit

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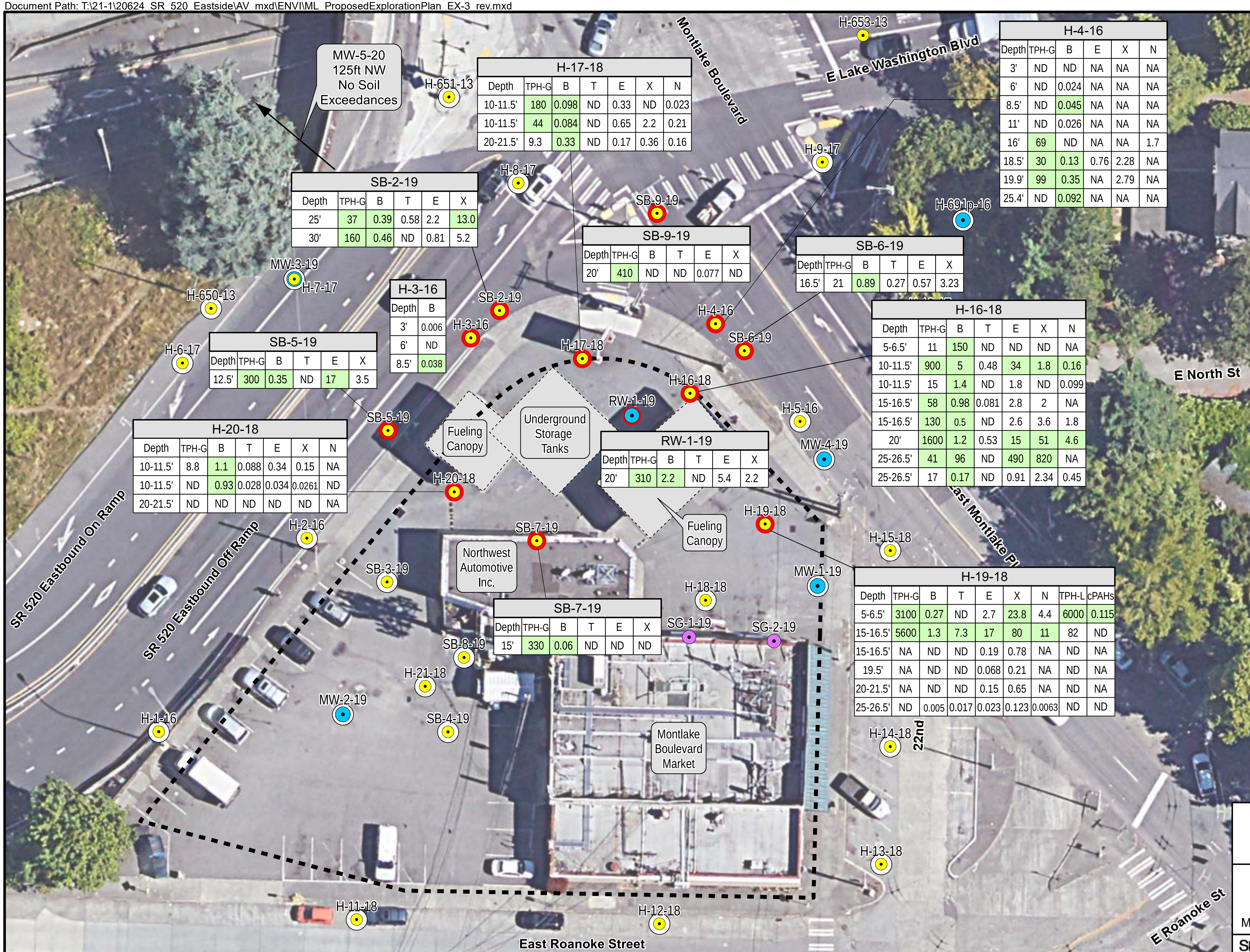

H-17-18

Depth	TPH-G	B	T	E	X	N
10-11.5'	180	0.098	ND	0.33	ND	0.023
10-11.5'	44	0.084	ND	0.65	2.2	0.21
20-21.5'	9.3	0.33	ND	0.17	0.36	0.16

H-4-16

Depth	TPH-G	B	E	X	N
3'	ND	ND	NA	NA	NA
6'	ND	0.024	NA	NA	NA
8.5'	ND	0.045	NA	NA	NA
11'	ND	0.026	NA	NA	NA
16'	69	ND	NA	NA	1.7
18.5'	30	0.13	0.76	2.28	NA
19.9'	99	0.35	NA	2.79	NA
25.4'	ND	0.092	NA	NA	NA

SB-2-19

Depth	TPH-G	B	T	E	X
25'	37	0.39	0.58	2.2	13.0
30'	160	0.46	ND	0.81	5.2

SB-9-19

Depth	TPH-G	B	T	E	X
20'	410	ND	ND	0.077	ND

SB-6-19

Depth	TPH-G	B	T	E	X
16.5'	21	0.89	0.27	0.57	3.23

H-3-16

Depth	B
3'	0.006
6'	ND
8.5'	0.038

SB-5-19

Depth	TPH-G	B	T	E	X
12.5'	300	0.35	ND	17	3.5

H-16-18

Depth	TPH-G	B	T	E	X	N
5-6.5'	11	150	ND	ND	ND	NA
10-11.5'	900	5	0.48	34	1.8	0.16
10-11.5'	15	1.4	ND	1.8	ND	0.099
15-16.5'	58	0.98	0.081	2.8	2	NA
15-16.5'	130	0.5	ND	2.6	3.6	1.8
20'	1600	1.2	0.53	15	51	4.6
25-26.5'	41	96	ND	490	820	NA
25-26.5'	17	0.17	ND	0.91	2.34	0.45

H-20-18

Depth	TPH-G	B	T	E	X	N
10-11.5'	8.8	1.1	0.088	0.34	0.15	NA
10-11.5'	ND	0.93	0.028	0.034	0.0261	ND
20-21.5'	ND	ND	ND	ND	ND	NA

RW-1-19

Depth	TPH-G	B	T	E	X
20'	310	2.2	ND	5.4	2.2

H-19-18

Depth	TPH-G	B	T	E	X	N	TPH-L	cPAHs
5-6.5'	3100	0.27	ND	2.7	23.8	4.4	6000	0.115
15-16.5'	5600	1.3	7.3	17	80	11	82	ND
15-16.5'	NA	ND	ND	0.19	0.78	NA	ND	NA
19.5'	NA	ND	ND	0.068	0.21	NA	ND	NA
20-21.5'	NA	ND	ND	0.15	0.65	NA	ND	NA
25-26.5'	ND	0.005	0.017	0.023	0.123	0.0063	ND	ND

SB-7-19

Depth	TPH-G	B	T	E	X
15'	330	0.06	ND	ND	ND

LEGEND

MTCA Level Exceedance

No MTCA Level Exceedance

If no exceedances at a boring/ monitoring well, no data added

EXPLORATIONS

Soil Borings

Groundwater Monitoring Well

Soil Gas Probes

King County Parcel Boundary

Public Right of Way Limit

Constituent	MTCA Cleanup Level (mg/kg)
TPH-Gasoline (TPH-G)	30
Benzene (B)	0.03
Toluene (T)	7
Ethylbenzene (E)	6
Xylenes (X)	9
Naphthalenes (N)	5
TPH-Lube Oil (TPH-L)	2000
cPAHs	0.1
MTCA Exceedance	Exceedance If Shaded Green

NOTES

1. RW-1-19 advanced to 60 feet below ground surface to define vertical extent of impact.
2. NA = Not Analyzed
3. ND = Not Detected
4. RW = Recovery Well
5. TPH = Total Petroleum Hydrocarbons
6. MTCA = Model Toxics Control Act
7. cPAHs = Carcinogenic Polycyclic Aromatic Hydrocarbon

N S E W

0 30

Feet

Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East
Seattle, WA

APPROXIMATE LIMITS OF CONTAMINATION IN SOIL

March 2020 21-1-22242-104

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

EXHIBIT 12

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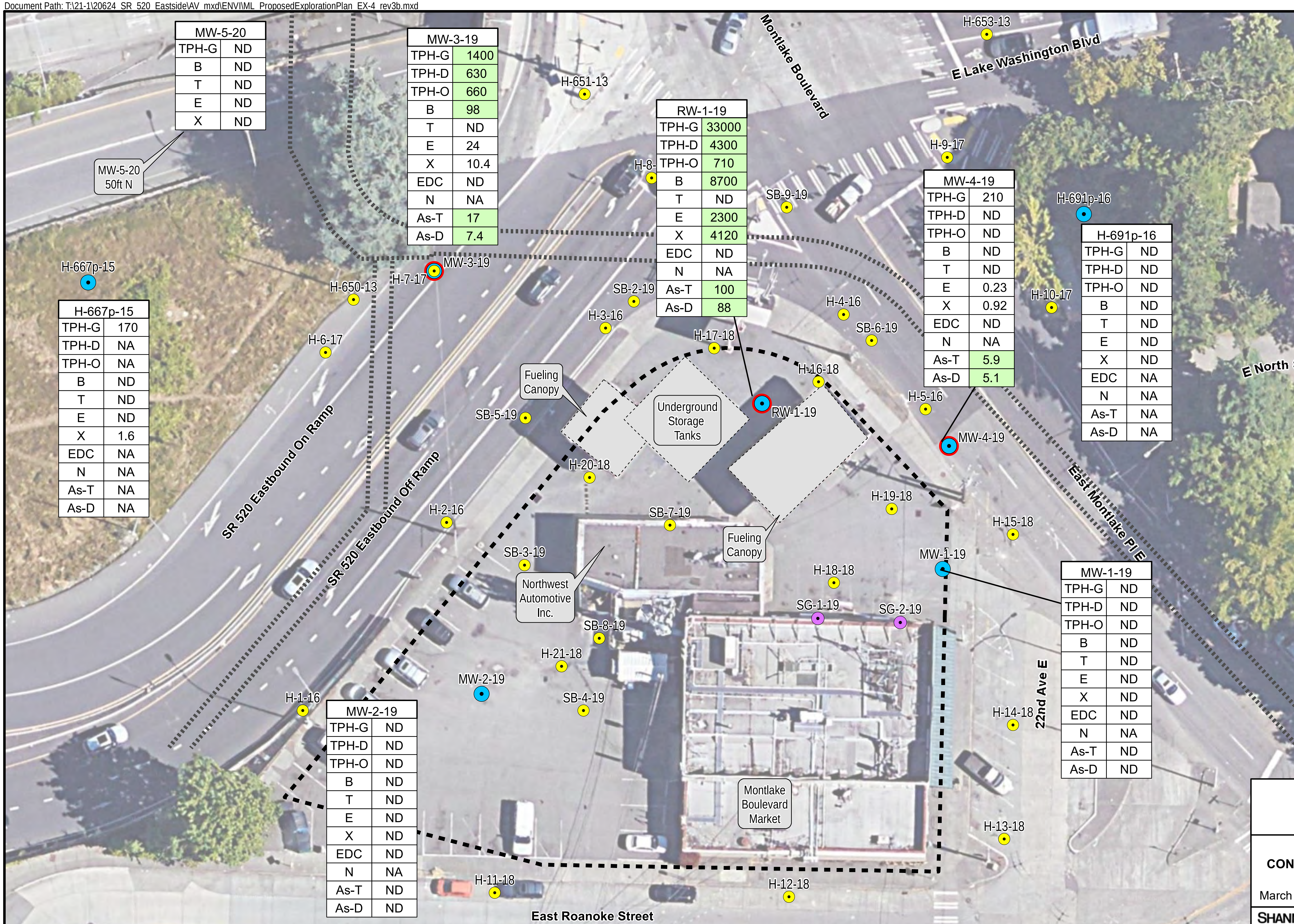


MW-5-20	
TPH-G	ND
B	ND
T	ND
E	ND
X	ND

MW-3-19	
TPH-G	1400
TPH-D	630
TPH-O	660
B	98
T	ND
E	24
X	10.4
EDC	ND
N	NA
As-T	17
As-D	7.4

RW-1-19	
TPH-G	33000
TPH-D	4300
TPH-O	710
B	8700
T	ND
E	2300
X	4120
EDC	ND
N	NA
As-T	100
As-D	88

MW-4-19	
TPH-G	210
TPH-D	ND
TPH-O	ND
B	ND
T	ND
E	0.23
X	0.92
EDC	ND
N	NA
As-T	5.9
As-D	5.1

H-691p-16	
TPH-G	ND
TPH-D	ND
TPH-O	ND
B	ND
T	ND
E	ND
X	ND
EDC	NA
N	NA
As-T	NA
As-D	NA

H-667p-15	
TPH-G	170
TPH-D	NA
TPH-O	NA
B	ND
T	ND
E	ND
X	1.6
EDC	NA
N	NA
As-T	NA
As-D	NA

MW-1-19	
TPH-G	ND
TPH-D	ND
TPH-O	ND
B	ND
T	ND
E	ND
X	ND
EDC	ND
N	NA
As-T	ND
As-D	ND

MW-2-19	
TPH-G	ND
TPH-D	ND
TPH-O	ND
B	ND
T	ND
E	ND
X	ND
EDC	ND
N	NA
As-T	ND
As-D	ND

LEGEND

MTCA Level Exceedance

EXPLORATIONS

Soil Borings

Groundwater Monitoring Well

Soil Gas Probes

Existing Utility - Sewer Line

King County Parcel Boundary
Public Right of Way Limit

Constituent	MTCA Cleanup Level (mg/kg)
TPH-Gasoline (TPH-G)	800
TPH-Diesel (TPH-D)	500
TPH-Heavy Oil (TPH-O)	500
Benzene (B)	5
Toluene (T)	1000
Ethylbenzene (E)	700
Xylenes (X)	1000
1,2-Dichloroethane (EOC)	5
Total Naphthalenes (N)	160
Total Arsenic (As-T)	5
Dissolved Arsenic (As-D)	5
MTCA Exceedance	Exceedance If Shaded Green

NOTE
1. Cells are filled with compound-specific color when detected above the MTCA Cleanup Level. Compounds which are not detected are filled with white.
2. Xylenes are reported as the summation of m,p-xylene and o-xylene.
3. MTCA = Model Toxics Control Act
4. ND = Not Detected
5. NA = Not Applicable

N W E S

0 30
Feet

Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East
Seattle, WA

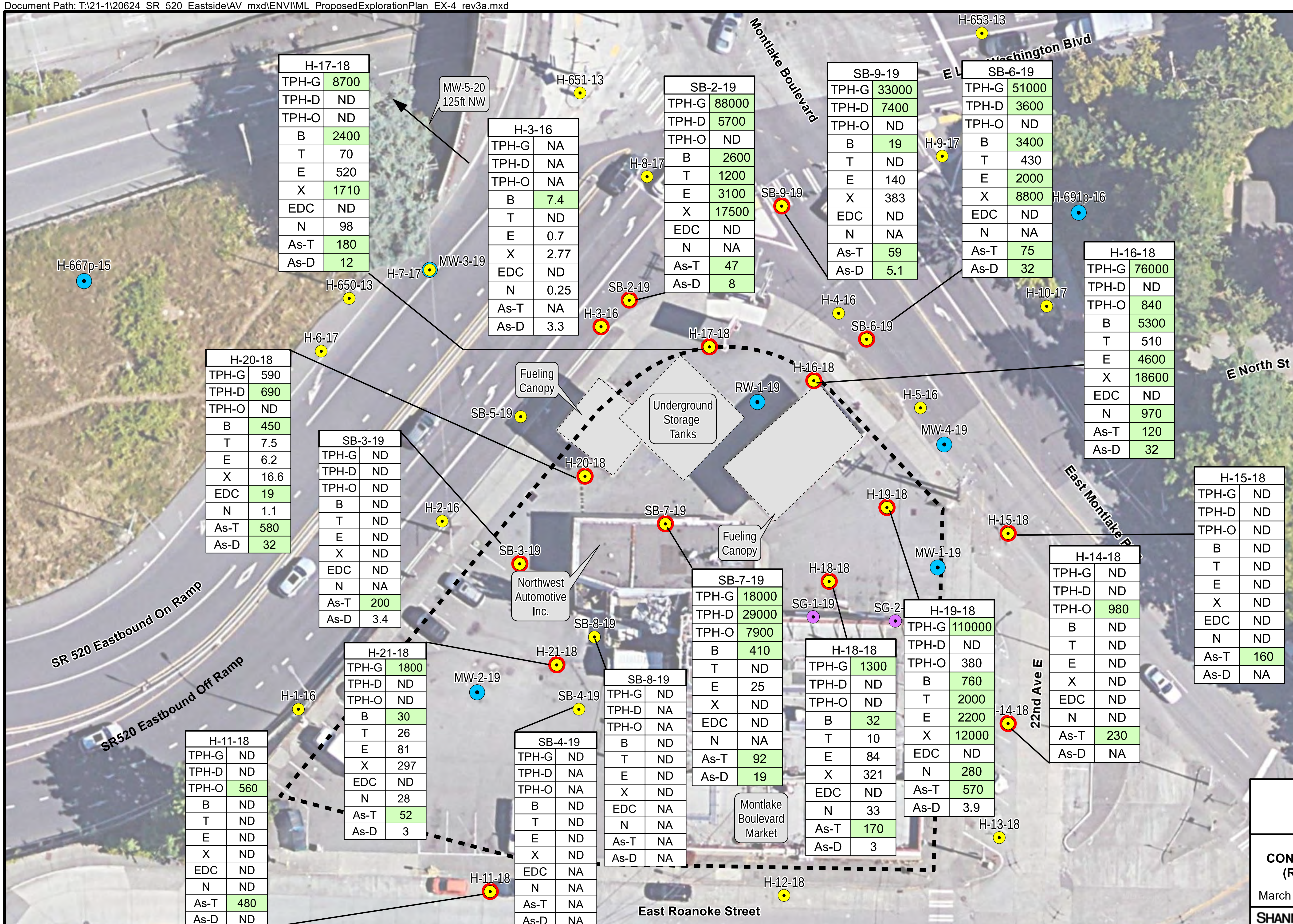
APPROXIMATE LIMITS OF CONTAMINATION IN GROUNDWATER (MONITORING WELL)

March 2020 21-1-22242-104

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

EXHIBIT 13

Document Path: T:\21-1\20624_SR_520_Eastside\AV_mxd\ENVI\ML_ProposedExplorationPlan_EX-4_rev3a.mxd



	H-17-18	H-3-16	SB-2-19	SB-9-19	SB-6-19	H-16-18	H-20-18	SB-3-19	H-15-18
TPH-G	8700	NA	88000	33000	51000	76000	590	ND	ND
TPH-D	ND	NA	5700	7400	3600	ND	690	ND	ND
TPH-O	ND	NA	ND	ND	ND	840	ND	ND	ND
B	2400	7.4	2600	19	3400	5300	450	ND	ND
T	70	ND	1200	ND	430	510	7.5	ND	ND
E	520	0.7	3100	140	2000	4600	6.2	ND	ND
X	1710	2.77	17500	383	8800	18600	16.6	ND	ND
EDC	ND	ND	ND	ND	ND	ND	19	ND	ND
N	98	0.25	NA	NA	NA	970	1.1	NA	ND
As-T	180	NA	47	59	75	120	580	200	160
As-D	12	3.3	8	5.1	32	32	32	3.4	NA

	H-14-18	SB-7-19	H-19-18	H-18-18	H-21-18	SB-8-19	SB-4-19	H-11-18
TPH-G	ND	18000	110000	1300	1800	ND	ND	ND
TPH-D	ND	29000	ND	ND	ND	NA	NA	ND
TPH-O	980	7900	380	ND	ND	NA	NA	560
B	ND	410	760	32	30	ND	ND	ND
T	ND	ND	2000	10	26	ND	ND	ND
E	ND	25	2200	84	81	ND	ND	ND
X	ND	ND	12000	321	297	ND	ND	ND
EDC	ND	ND	ND	ND	ND	NA	NA	ND
N	ND	NA	280	33	28	NA	NA	ND
As-T	230	92	570	170	52	NA	NA	480
As-D	NA	19	3.9	3	3	NA	NA	ND

LEGEND

MTCA Level Exceedance

EXPLORATIONS

Soil Borings

Groundwater Monitoring Well

Soil Gas Probes

Existing Utility - Sewer Line

King County Parcel Boundary

Public Right of Way Limit

Constituent	MTCA Cleanup Level (ug/L)
TPH-Gasoline (TPH-G)	800
TPH-Diesel (TPH-D)	500
TPH-Heavy Oil (TPH-O)	500
Benzene (B)	5
Toluene (T)	1000
Ethylbenzene (E)	700
Xylenes (X)	1000
1,2-Dichloroethane (EOC)	5
Total Naphthalenes (N)	160
Total Arsenic (As-T)	5
Dissolved Arsenic (As-D)	5
MTCA Exceedance	Exceedance If Shaded Green

NOTE
1. Cells are filled with compound-specific color when detected above the MTCA Cleanup Level. Compounds which are not detected are filled with white.
2. Xylenes are reported as the summation of m,p-xylene and o-xylene.
3. MTCA = Model Toxics Control Act
4. TPH = Total Petroleum Hydrocarbons
5. ND = Not Detected
6. NA = Not Applicable

N W E S

0 30

Feet

Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East
Seattle, WA

APPROXIMATE LIMITS OF CONTAMINATION IN GROUNDWATER (RECONNAISSANCE SAMPLES)

March 2020 21-1-22242-104

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

EXHIBIT 14

Exhibit 15
SUMMARY OF COMPLETED INVESTIGATIONS

Investigation Location	Exploration Type	Date Completed	Exploration Logged By:	Total Depth Drilled (feet)	Ground Surface Elevation (feet)[1]	Northing (feet)[2]	Easting (feet)[2]	Drilling Method	Observation Well Installed	WAC Well ID	Well Monument Type[3]	Slug Tests Performed[4]	Well Diameter	Well Screen Interval (feet bgs)
SG-1-19	Gas Probe	9/24/2019	SWI[5]	15	60.38	238,192	1,277,884	Roto Sonic	X	BLU 432	F		1/4-inch	14.5 to 15.5
SG-2-19	Gas Probe	9/24/2015	SWI	5	59.63	238,191	1,277,913	Roto Sonic	X	NA	F		1/4-inch	4.5 to 5.5
H-667p-15	Well	1/28/2019	SWI	50.2	49.4	238,310	1,277,628	Advanced Casing	X	BHV 699	F		2-inch	11 to 19.5
H-691p-16	Well	3/15/2019	SWI	75.5	59.20	238,334	1,277,977	Advanced Casing	X	BIY 337	F		2-inch	15 to 25
MW-1-19	Well	9/24/2019	SWI	30.3	59.43	238,210	1,277,928	Roto Sonic	X	BLU 421	F		2-inch	11.7 to 26.7
MW-2-19	Well	9/23/2019	SWI	21.4	58.87	238,166	1,277,766	Roto Sonic	X	BLT 996	F		2-inch	10.5 to 20.5
MW-3-19	Well	8/26/2019	SWI	25	59.29	238,312	1,277,743	Roto Sonic	X	BLT 987	F		2-inch	10 to 25
MW-4-19	Well	8/25/2019	SWI	27.3	59.05	238,253	1,277,930	Roto Sonic	X	BLT 986	F	X	2-inch	17 to 27
MW-5-20	Well	1/21/2020	SWI	26.5	X	X	X	Roto Sonic	X	BLU 139	F		2-inch	10 to 15
RW-1-19	Well	9/26/2019	SWI	60.4	60.38	238,268	1,277,864	Roto Sonic	X	BLU 433	F	X	4-inch	14.5 to 29.5
H-1-16	Boring	10/6/2016	Innovex[6]	50	57.88	238,160	1,277,703	Mud Rotary						
H-2-16	Boring	10/7/2016	Innovex	24.5	58.09	238,226	1,277,754	Mud Rotary						
H-3-16	Boring	10/8/2016	Innovex	17.4	59.20	238,294	1,277,809	Mud Rotary						
H-4-16	Boring	10/8/2016	Innovex	29.2	59.17	238,299	1,277,893	Mud Rotary						
H-5-16	Boring	10/9/2016	Innovex	29.2	58.87	238,266	1,277,922	Mud Rotary						
H-6-17	Boring	10/23/2017	Innovex	50	57.12	238,285	1,277,711	Roto Sonic						
H-7-17	Boring	10/24/2017	Innovex	50	58.44	238,312	1,277,743	Roto Sonic						
H-8-17	Boring	10/25/2017	Innovex	50	60.97	238,347	1,277,826	Roto Sonic						
H-9-17	Boring	10/22/2017	Innovex	30	59.13	238,354	1,277,929	Roto Sonic						
H-10-17	Boring	10/22/2017	Innovex	30	58.72	238,301	1,277,966	Roto Sonic						
H-11-18	Boring	5/25/2018	Innovex	25	59.47	238,096	1,277,771	Roto Sonic						
H-12-18	Boring	5/17/2018	Innovex	20	59.28	238,095	1,277,874	Roto Sonic						
H-13-18	Boring	5/26/2018	Innovex	20	58.99	238,115	1,277,949	Roto Sonic						
H-14-18	Boring	5/26/2018	Innovex	30	58.69	238,155	1,277,952	Roto Sonic						
H-15-18	Boring	5/26/2018	Innovex	30	58.60	238,222	1,277,952	Roto Sonic						
H-16-18	Boring	12/3/2018	Innovex	25	59.78	238,275	1,277,884	Roto Sonic						
H-17-18	Boring	12/4/2018	Innovex	25	59.55	238,287	1,277,847	Roto Sonic						
H-18-18	Boring	12/5/2018	Innovex	25	60.02	238,205	1,277,889	Roto Sonic						
H-19-18	Boring	12/6/2018	Innovex	25	59.41	238,231	1,277,910	Roto Sonic						
H-20-18	Boring	12/6/2018	Innovex	25	59.31	238,242	1,277,804	Roto Sonic						
H-21-18	Boring	12/6/2018	Innovex	20	58.25	238,175	1,277,794	Roto Sonic						
H-651-13	Boring	7/8/2013	Innovex	27.3	62.70	238,376	1,277,802	Advanced Casing						
SB-2-19	Boring	8/24/2019	SWI	31.5	59.62	238,303	1,277,819	Roto Sonic						
SB-3-19	Boring	9/23/2019	SWI	20.8	59.20	238,211	1,277,781	Roto Sonic						
SB-4-19	Boring	9/23/2019	SWI	21.5	58.70	238,160	1,277,802	Roto Sonic						
SB-5-19	Boring	8/24/2019	SWI	20	58.82	238,262	1,277,781	Roto Sonic						
SB-6-19	Boring	8/25/2019	SWI	25	59.40	238,290	1,277,903	Roto Sonic						

Exhibit 15
SUMMARY OF COMPLETED INVESTIGATIONS

Investigation Location	Exploration Type	Date Completed	Exploration Logged By:	Total Depth Drilled (feet)	Ground Surface Elevation (feet)[1]	Northing (feet)[2]	Easting (feet)[2]	Drilling Method	Observation Well Installed	WAC Well ID	Well Monument Type[3]	Slug Tests Performed[4]	Well Diameter	Well Screen Interval (feet bgs)
SB-7-19	Boring	9/27/2019	SWI	26	60.21	238,225	1,277,832	Roto Sonic						
SB-8-19	Boring	9/25/2019	SWI	21.5	58.98	238,185	1,277,807	Roto Sonic						
SB-9-19	Boring	8/25/2019	SWI	25.4	60.02	238,334	1,277,874	Roto Sonic						

Notes:
[1] Elevations are based on survey information provided by the Washington State Department of Transportation (WSDOT). Elevations are relative to the North American Vertical Datum of 1988.
[2] Northings and Eastings are based on survey information provided by WSDOT. Northings and Eastings are relative to the North American Datum of 1983 State Plane Washington-North.
[3] Well monument type designated as flush mount (F) or stickup (S).
[4] Slug tests were performed by Shannon & Wilson, Inc.
[5] SWI = Shannon & Wilson, Inc. of Seattle, Washington
[6] Innovex = Innovex Environmental Management, Inc. of Concord, California
WAC ID = Washington Administrative Code Identification

EXHIBIT 16
RESULTS OF SLUG TEST DATA ANALYSIS

Monitoring Well Designation	Falling Head Test: Hydraulic Conductivity (ft/sec)[d]			Rising Head Test: Hydraulic Conductivity (ft/sec)[d]			Mean Hydraulic Conductivity (K)		
	Hvorslev[a]	Bouwer-Rice[b]	KGS[c]	Hvorslev[a]	Bouwer-Rice[b]	KGS[c]	(ft/sec)	(ft/day)	(cm/sec)
MW-4-19	3.36E-06	2.16E-06	9.25E-07	2.46E-06	1.59E-06	6.23E-07	1.59E-06	1.38E-01	4.86E-05
RW-1-19[f]	--[f]	--[f]	--[f]	2.44E-06	1.35E-06	--[g]	1.81E-06	1.57E-01	5.53E-05
RW-1-19[f]	--[f]	--[f]	--[f]	2.27E-06	1.26E-06	--[g]	1.69E-06	1.46E-01	5.15E-05
						Average of All Tests:	**1.70E-06**	**1.47E-01**	**5.17E-05**

(a) AQTESOLV analysis. Hvorslev, M.J., 1951. Time Lag and Soil Permeability in Ground-Water Observations, Bull. No. 36, Waterways Exper. Sta. Corps of Engrs, U.S. Army, Vicksburg, Mississippi, pp. 1-50.

(b) AQTESOLV analysis. Bouwer, H. and R.C. Rice, 1976. A slug test method for determining hydraulic conductivity of unconfined aquifers with completely or partially penetrating wells, Water Resources Research, vol. 12, no. 3, pp. 423-428.

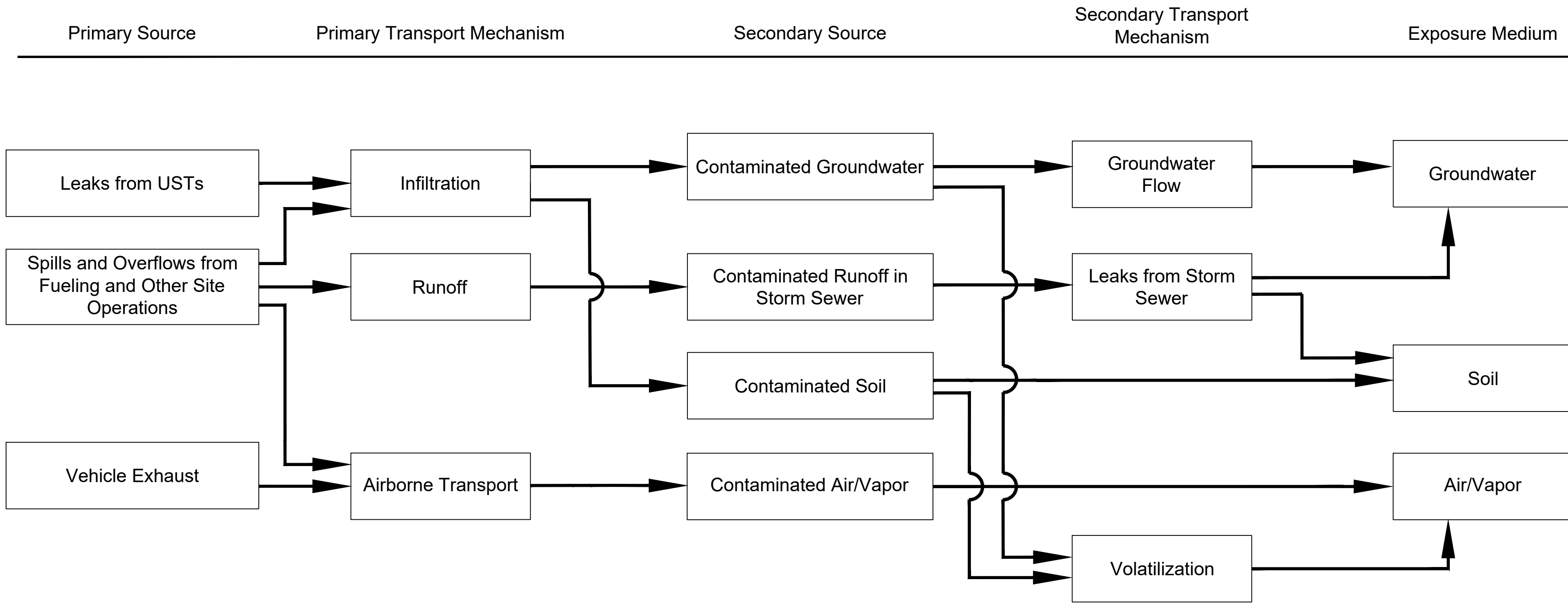
(c) AQTESOLV analysis (KGS). Hyder, Z, J.J. Butler, Jr., C.D. McElwee and W. Liu, 1994. Slug tests in partially penetrating wells, Water Resources Research, vol. 30, no. 11, pp. 2945-2957.

(d) Data from falling and rising head tests was collected from a non-vented pressure transducer compensated for barometric pressure.

(f) Two rising head tests used for RW-1-19. Falling head tests were not conducted within this well as the water table bisected the well screen.

(g) Slug test analysis not included due to non-ideal non-linear fit to data set.

cm/sec = centimeters per second; ft/day = feet per day; ft/sec = feet per second



		Receptors						
		Human On-Site				Human Off-Site	Ecological	
Exposure Medium	Exposure Pathway	Current Occupational Workers	Current Patrons	Future Construction Worker	Future Occupants	Current and Future	Terrestrial	Aquatic
Groundwater	Direct Contact	-	-	○	-	-	-	-
	Ingestion	-	-	○	-	-	-	-
Soil	Direct Contact	-	-	○	-	-	-	-
	Ingestion	-	-	○	-	-	-	-
	Inhalation	-	-	○	-	-	-	-
Air/Vapor	Inhalation	-	-	○	-	-	-	-

LEGEND

○ Complete Exposure Pathway

\- Incomplete Exposure Pathway

NOTE

UST = Underground Storage Tanks

Montlake Gas Station VCP
Remedial Investigation Report
2625 E Montlake Place E
Seattle, Washington

CONCEPTUAL SITE MODEL

March 2020 21-1-22242-104

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

EXHIBIT 17

Filename: J:\211\22242\104\21-1-22242-104 Conceptual Site Model.dwg Layout: Exhibit 16 Date: 12-04-2019 Login: JRS

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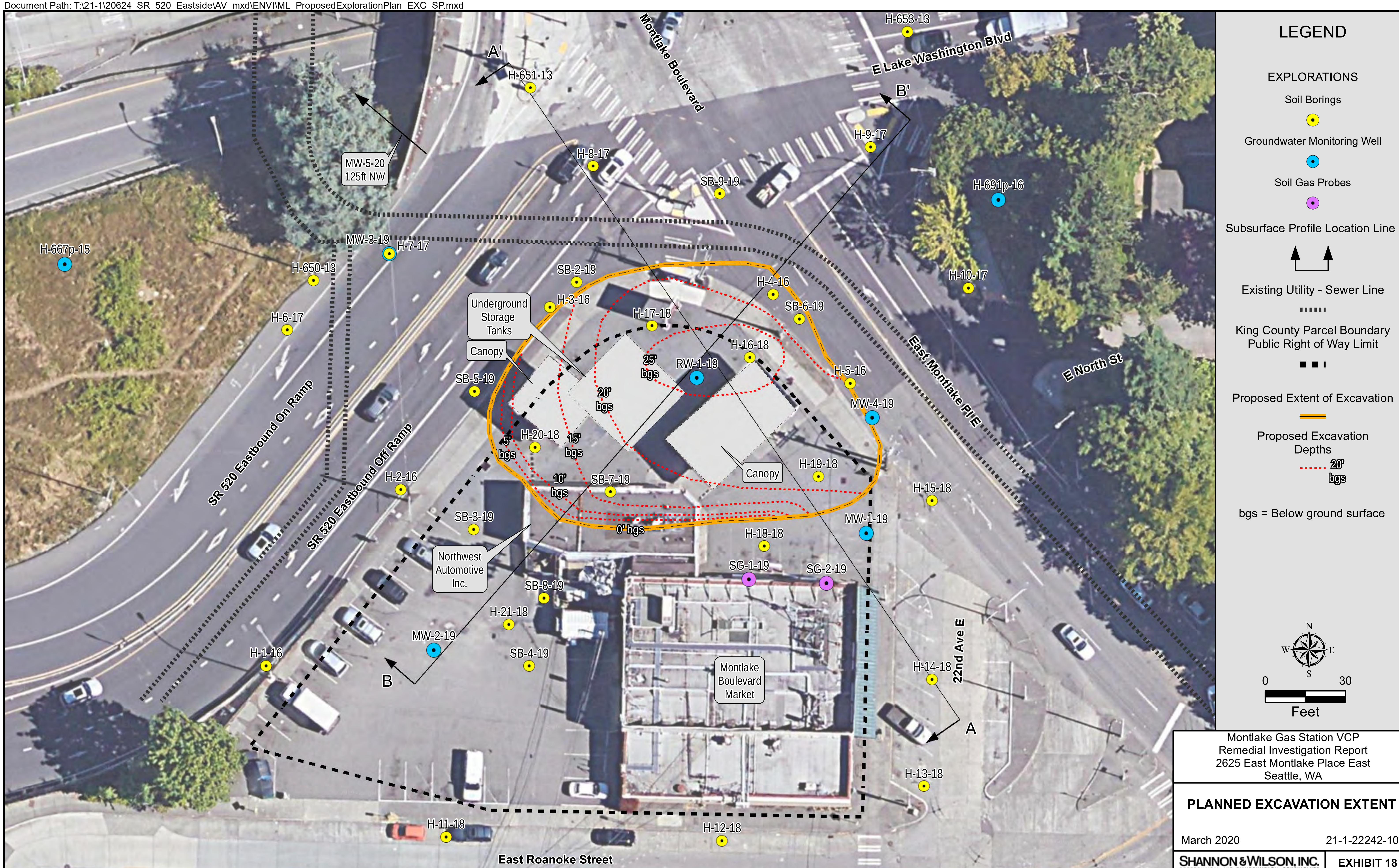

Appendix C

Soil and Groundwater Management Plan

IECP Appendix J – RFP 2.8.1.1.2.11 – State Route 520 Montlake to Lake Washington Interchange and Bridge Replacement Project – King County, WA

Soil and Groundwater Management Plan

IECP Appendix J

RFP 2.8.1.1.2.11

State Route 520 Montlake to Lake Washington
Interchange and Bridge Replacement Project
King County, WA

Prepared for:

Graham Contracting Ltd
13555 SE 36th Street, Suite 120
Bellevue, WA 98006

April 2019

Project No. 41221.003

214 EAST GALER STREET
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Table of Contents

<u>Attachments</u>

1. INTRODUCTION

This Soil and Groundwater Management Plan (SGMP) provides information and describes procedures regarding the management of contaminated media during the freeway improvements (Work) taking place along the SR 520 Montlake to Lake Washington - Interchange and Bridge Replacement Project (Project). This SGMP was prepared by PBS Engineering and Environmental Inc. (PBS) on behalf of Graham Contracting, Ltd (Graham).

1.1 Background

The purpose of the Project is to enhance public safety and mobility by replacing the highway's aging, vulnerable bridges and making significant transit and roadway improvements throughout the corridor. The Project's planned improvements extend from Montlake Boulevard east to the newly constructed portion of the SR 520 floating bridge.

The improvements will also include:

- A new, seismically stronger West Approach Bridge South, parallel to the completed West Approach Bridge North, to carry three lanes of eastbound traffic past Montlake Boulevard East to the new floating bridge.
- A community-connecting highway lid and transit hub at Montlake Boulevard East.
- A rebuilt SR 520 / Montlake Boulevard East Interchange.
- A bicycle-pedestrian "land bridge" over SR 520, east of the Montlake lid, connecting the Arboretum and points northward, including the University District.
- Two large stormwater treatment catchments.

The 2018 Washington State Department of Transportation (WSDOT) Hazardous Materials Baseline Report (HMBR) identified areas with known or suspected soil and groundwater contamination that are located within or adjacent to the Project (Figure 1, Attachment I). The HMBR lists contaminants of potential concern (COPC) including petroleum contaminants, solvents, arsenic, cadmium and other heavy metals, and landfill refuse/debris (WSDOT 2018, Attachment II). Additional COPCs may include lead and PCBs associated with bridge coatings, asbestos-containing materials on bridge structural elements, and petrochemicals and metals generated by vehicle traffic and transported by stormwater.

1.2 Schedule

December 2018 – April 2019: Design phase.

April 2019 – June 2023: Construction phase.

1.3 Objective

The objective of the SGMP is to provide information regarding the location, type and source of contaminated media (soils and groundwater) present at the site, and to assist Graham with proper media management and disposal, if needed. This SGMP addresses how the known contamination and any new discoveries of previously unidentified contamination, will be handled safely and avoid affecting the schedule. The SGMP also provides information to enable Graham to create an appropriate Health and Safety Plan (HASP) to protect site workers from exposure to contaminants.

This SGMP contains:

- Information on current environmental conditions and contaminants of concern;
- Roles and responsibilities of project team members for the SGMP;
- Procedures for the management and sampling of new discoveries of contaminated materials;
- Procedures for the storage of contaminated soil or debris in stockpile or staging piles awaiting sampling, classification, load-out, and disposal (should temporary storage occur); and
- Required documentation for contaminated material handling, storage, loading, and disposal.

2. PROJECT INFORMATION

2.1 Project Location

The Project site includes the SR 520 corridor between the Montlake Interchange and the newly completed section of the floating bridge over Lake Washington.

2.2 Indicator Hazardous Substances

The Work involves removal of existing bridge structural elements, general earthwork including excavation of shallow soils, and trenching for new utilities. Based on known releases within or proximate to the Project Area that were the identified in the 2018 WSDOT Hazardous Materials Baseline Report (Attachment II), the following COPCs may be encountered in soil and/or groundwater:

- Total petroleum hydrocarbons (TPH) in the gasoline to diesel range (including diesel and heavy oil)
- Volatile organic compounds (VOCs)
- Arsenic

- Cadmium
- Lead
- Chromium
- Landfill refuse/debris
- Methane

Additional COPCs within the Project area may include lead and PCBs associated with bridge coatings, asbestos-containing materials on bridge structural elements and existing buildings, and petrochemicals and metals generated by vehicle traffic and transported by stormwater.

2.3 Contaminated Media: Degree and Extent

The 2018 WSDOT Hazardous Materials Baseline Report (Attachment II), identified contractual representations of environmental conditions that are anticipated for the Project. The contractual representations were derived from environmental information and data collected through subsurface explorations, testing, analysis and review of other data.

The report identified the contaminated areas based on a review and investigation of the site location, type of media affected, presence of known releases, and type of contaminants. The Baselines section of the HMBR provides a summary of information on the areas of contamination that will be affected by the Project. The HMBR is based in part on data collected through subsurface investigation presented in the 2017 WSDOT Geotechnical Data Report included as Appendix G2 to the RFP (WSDOT, 2017). Soil and groundwater management procedures in this SGMP are primarily based on the findings of the HMBR and supplemented by information presented in the 2017 WSDOT report.

The HMBR also noted that portions of the Project are within a known methane producing area associated with the former Miller Street Landfill. The contaminated areas, hazardous material sites, and methane producing area are depicted in Attachment I.

2.3.1 Soil & Groundwater – Areas of Environmental Concern

The following provides a summary of the areas of environmental concern that are within the Project Area and have potential soil and groundwater contamination.

- The Montlake 76 Gasoline and Service Station located at 2625 East Montlake Place operates as a fuel service station (Attachment I). The property has five underground storage tanks (USTs) used for storing petroleum products associated with fueling operations. The HMBR estimates that soil contaminated with petroleum hydrocarbons and volatile organic compounds (VOCs) at Contaminated levels will be encountered. Subsurface investigation data identified total petroleum hydrocarbons in the gasoline range (TPH-G), benzene, toluene, ethylbenzene and xylene (BTEX), naphthalene, barium and TPH in the oil range (TPH-O) above Model Toxics Control Act (MTCA) clean up levels in soil in proximity of the fuel dispenser and USTs basin on the subject site. Benzene in soil above the MTCA cleanup level is present north of the property adjacent to and at the same depth as the King County combined sewer and siphon trunk line system. The sewer and trunk line system may be a preferential pathway for contaminant migration. Additionally, TPH-G, TPH in the diesel range (TPH-D), BTEX, naphthalene, VOCs, total arsenic, barium, cadmium, chromium, lead and mercury were detected in exceedance of MTCA cleanup levels in groundwater samples collected from borings on and adjoining the property.

- Groundwater contaminated with petroleum hydrocarbons at Contaminated Waste levels was identified at Wall 22 and the western end of Pier 1 (Area 1, Attachment I).
- Soil contaminated with lube oil petroleum hydrocarbons at Reusable Soil levels was identified at Walls 6 and 20 (Area 2, Attachment I).
- Groundwater in the project area is contaminated with arsenic, chromium and lead at concentrations in excess of the MTCA Method A cleanup levels (Area 3, Attachment I).
- Soil contaminated with cadmium at Contaminated Waste levels was identified north of Wall 3 (Area 4, Attachment I).
- Soil contaminated with lube oil petroleum hydrocarbons at Contaminated Waste and Reusable Soil levels was identified at the Stormwater Facility M-North, Pedestrian Land Bridge Pier 1 and Wall 13 (Area 5, Attachment I).
- Soil contaminated with TPH-D and lube oil- range petroleum hydrocarbons at Contaminated Waste levels was identified at the Pedestrian Land Bridge Pier 3 (Area 6, Attachment I).
- Soil contaminated with lube oil petroleum hydrocarbons at Reusable Soil levels was identified at the Stormwater Facility M-South (Area 7, Attachment I).
- Refuse and/or debris likely associated with the former Miller Street Landfill will be encountered at Wall 17 (Area 8, Attachment I).
- Peat was encountered at WABS Piers 2 through 14. The depth of the peat is variable with the deepest at 40 feet below mudline. Elevated levels of naturally occurring arsenic will be present at these locations in the peat. The material is classified as Organic Waste (Areas 9, 10 and 12, Attachment I).
- Refuse and/or fill debris likely associated with the former Miller Street Landfill will be encountered at WABS Piers 8 and 9 (Area 10, Attachment I).

- Refuse and or debris likely associated with the former Miller Street Landfill will be encountered in the Washington Arboretum area east of Lake Washington Boulevard (Area 11, Attachment I).
- Peat was encountered at WABS Piers 17 through 39. The depth of the peat is variable and ranges from 5 to 45 feet below mudline. Elevated levels of naturally occurring arsenic will be present at these locations in the peat. The material is classified as Organic Waste (Areas 13, 14, 15 and 16, Attachment I).
- Soil contaminated with cadmium at Contaminated Waste levels will be encountered at WABS Pier 23 (Area 15, Attachment I).
- Soil contaminated with petroleum hydrocarbons at Reusable Soil levels was identified from mudline down to 10 feet below mudline at WABS Piers 2 through 4, 6, 8, 9, 20, 28, 29 30 and 32 (Areas 9, 10, 14 and 16, Attachment I).
- Soil contaminated with petroleum hydrocarbons at Contaminated Waste levels was identified from mudline down to 10 feet below mudline at Pier 7 (Area 10, Attachment I).

3. CONTAMINATED MATERIAL DEFINITIONS

This section describes the classification and management of the contaminated material as follows:

3.1 Dangerous Waste

Soil/material/debris/liquid with contaminant levels that meet or exceed the Washington State Dangerous Waste criteria in Chapter 173-303 Washington Administrative Code (WAC) is considered Dangerous Waste. The Washington Department of Ecology (WDOE) requires that Dangerous Waste be disposed of at a Resource Conservation and Recovery Act (RCRA) Subtitle C facility. For example, paint on overpasses and bridges may contain lead and, thus, is a potential source of Dangerous Waste. Lead-containing paint waste will be characterized to determine if a Dangerous Waste profile analysis is required as defined in Section 6.1.

The EPA regulates wastes containing 50 parts per million (ppm) PCBs and greater per 40 CFR 761.50. Ecology regulates wastes per WAC 173-303 containing from 2 to 50 ppm PCBs. Building materials with PCB concentrations greater than 2 ppm have disposal restrictions. Building materials with greater than 50 ppm must be disposed of as hazardous waste.

3.2 Soil Not Designated as a Dangerous Waste or Toxic Substance Control Act Waste

Material that is not designated as Dangerous Waste or Toxic Substance Control Act (TSCA) Waste is regulated under the Solid Waste Handling Standards, Chapter 173-350. These materials include soil/material/debris/liquid of any kind that has contaminant levels at or above the more stringent of their respective applicable MTCA Method A cleanup level, Method B cleanup level, or Table 749-2 level, all for unrestricted land use per 173-340 WAC.

Soil can be classified in categories for re-use or disposal purposes if it is not designated as a Dangerous Waste or a TSCA regulated waste.

Classifications for use include:

1. Reusable Soil: Soil that does not contain contaminants from a release. It also includes soil that contains one or more contaminants from a release and when moved from one location to another for placement on or into the ground:

    (a) Does not contain contaminants at concentrations that exceed a cleanup level under chapter 173-340 WAC, MTCA Cleanup Levels, that would be established for existing land use at the location where soil is placed; or

    (b) Contains contaminants that affect pH, but pH of the soil is between 4.5 and 9.5 or within natural background pH limits that exist at the location where soil is placed.

    Reusable Soil can be reused on site or transported offsite for reuse or disposal at a location chosen by the Contractor at a facility willing or permitted to accept the material.

2. Organic Waste: Soil that contains wood waste consisting of peat, timbers, sawdust, or other abundant organics. Organic Waste shall be disposed of at any facility licensed/permitted to accept it based on its characteristics and concentration of components.

3. Contaminated Soil: "Contaminated soil" means soil containing one or more contaminants from a release and when moved from one location to another for placement on or into the ground:

    (a) Contains contaminants at concentrations that exceed a cleanup level under chapter 173-340 WAC, MTCA Cleanup, that would be established for existing land use at the location where soil is placed; or

    (b) Contains contaminants that affect pH, and pH of the soil is below 4.5 or above 9.5 or is not within natural background pH limits that exist at the location where soil is placed.

    Unless excluded in WAC 173-350-020, contaminated soil is solid waste and must be managed at a solid waste handling facility in conformance with chapter 173-351 WAC, criteria for municipal solid waste landfills. Characterization of material may be required based on solid waste facility acceptance standards. Examples of potentially contaminated soil may include, but are not limited to, street waste, petroleum contaminated soil, engineered soil, and soil likely to have contaminants from a release associated with industrial or historical activities

4. PRE-EXCAVATION ACTIVITIES

This section describes the activities that will generally be conducted prior to the start of project work. The General Contractor should be aware of this work as some of these activities may or will affect the Work.

4.1 Project Team

Prior to site development, management roles will be identified and are detailed in the following table (subject to change):

Title	Name	Affiliation	E-mail	Phone Numbers
Graham Design-Build Team Member Contact Information				
Project Manager	Greg Ritke	Graham	gregr@grahamus.com	Cell: 206.571.1588
Deputy Project Managers	Marek Bednarczyk Mike Salmon	Graham	marekb@grahamus.com mikesa@grahamus.com	Cell: 206.571.3343 Cell: 206.755.0236
Design Managers	Norm Smit Catherine Hovell	TY Lin	Norman.smit@tylin.com Catherine.hovell@tylin.com	Office: 360.754.0544 Office: 360.754.0544
Construction Manager	Dan Raynor	American Bridge	draynor@americanbridge.net	Cell: 412.522.6612
TESC Lead	Jose Garcia, CESCL	Graham	@grahamus.com	Cell: 425.346.1495
Safety Manager	Shane Mills	Graham	shanem@graham.ca	Cell: 604.356.8437
QA Construction	Wally Chen	Graham	wallyc@grahamus.com	Cell: 206.702.5765
Environmental Oversight				
Design-Build Environmental Compliance Manager	Gary Stensland, CPESC,	PBS	Gary.stensland@pbsusa.com	Cell: 206.255.3305
Design-Build Environmental Compliance Inspector	Jeffrey Corneil, CESCL	PBS	Jeffrey.corneil@pbsusa.com	Cell: 206.605.0438

Title	Name	Affiliation	E-mail	Phone Numbers
Contaminated Soil and Groundwater	Tom Mergy, LHG	PBS	Tom.mergy@pbsusa.com	Office: 206.766.7633 Cell: 206.498.6310
Hazardous Materials	Tim Ogden	PBS	Tim.Ogden@pbsusa.com	Office: 206.766.7611 Cell: 206.255.4151
Environmental Documentation/ Permits & Wetlands	Patrick Togher, PWS	PBS	Patrick.Togher@pbsusa.com	Office: 206.766.7618 Cell: 206.255.3894
WSDOT Team Member Contact Information				
Engineering Managers	Todd Harrison Greg Meadows	WSDOT	hartodd@consultant.wsdot.wa.gov meadowg@consultant.wsdot.wa.gov	Office: 206.770.3605 Office: 206.770.3633 Cell: 360.471.8322
Construction Project Engineers	Robyn Boyd Steve Strand	WSDOT	boydrl@wsdot.wa.gov strands@wsdot.wa.gov	Office: 206.770.3594 Cell: 425.471.3386 Office: 206.770.3565 Cell: 425.766.2482
WSDOT Environmental Compliance Manager	Greg Wornell	WSDOT	WornelG@wsdot.wa.gov	Office: 206.770.3667 Cell: 206.852.9050
Environmental Compliance Assurance Inspector	Rick Johnson	WSDOT	Johnsonr@wsdot.wa.gov	Office: 206.200.8350 Cell: 206.200.8350
Communications Lead	Hannah Brit	WSDOT	britthr@wsdot.wa.gov	Office: 206.770.3628 Cell: 253.222.4104
Cultural Resources Specialist	Cassandra Manetas	WSDOT	ManetaC@wsdot.wa.gov	Office: 206.805.2895 Cell: 206.714.7158

4.2 Health and Safety Plan

Graham will maintain a site-specific Health and Safety Plan (HASP) in accordance with applicable OSHA and Washington Industrial Safety and Health Act (WISHA) regulations. The HASP will provide information for site workers that addresses the health risks and hazards for each site task, employee training assignments to assure compliance with WISHA, personal protective equipment, site control measures, and decontamination procedures. The HASP will include procedures and controls that are site-specific to the identified IHS.

Graham is responsible for conducting all on-site activities in accordance with the HASP. Graham will review the contents of the HASP with all on-site workers and will ensure adequate training for all on-site workers in accordance with the HASP. Outside contractors or consultants participating in soil management activities have responsibility for their employee's health and safety while on site.

5. CONTAMINATED MEDIA REMOVAL AND HANDLING

This section summarizes Work that potentially generates contaminated media requiring proper management and disposal. As part of the Work, Graham will conduct shallow grading for roadway construction, overwater drilling to support pier installation and the replacement and subsequent demolition of bridge, overpass, and interchange structures. Additionally, there will be trenching for utility work.

5.1 Activities with the Potential to Generate Contaminated Soil and/or Groundwater

Construction activities that may generate soil or groundwater requiring appropriate management include the following:

- Excavation for utility trenches
- Excavation for drilled shafts, footings and other foundation structures
- Embankment alteration
- Drilling for pier installation
- General grading
- Dewatering of excavation or trenches

5.2 Contaminated Soil and Groundwater Management Procedures

5.2.1 Soil Management

Graham shall manage contaminated soil in accordance with the procedures established in this SGMP, the Construction Stormwater General Permit (WDOE, 2019), the SWPPP/TESC Plan, and Solid Waste Handling Standards in WAC 173-350 (WDOE, 2018). Presumed contaminated soils include those within previously identified areas of groundwater/soil impact, as well as any soils that suggest contamination based on field observation (odor, color, etc.). Soil disturbance will be limited to the minimum area required to execute project work and any potentially contaminated soils will be protected from contact with stormwater via the use of berms, plastic sheeting and other best management practices (BMPs).

PBS will collect soil samples (see Section 5.5) when presumed contaminated soils are encountered or prior to removal. A sample and analysis approach will be submitted to WSDOT for approval prior to sampling. Soil containing observed or detectable levels of petroleum contaminants but not meeting the definition of Contaminated Materials or otherwise regulated under Solid Waste Handling Standards in WAC 173-350 shall be managed and disposed of in accordance with the Guidance for Remediation of Petroleum Contaminated Sites (WDOE, 2016a). Tables 12.1 and 12.2 of the Guidance for Remediation of Petroleum Contaminated Sites Guidelines for Reuse of Petroleum Contaminated Soil and are included as Attachment III.

Following the removal, remediation, or cleanup of contaminated soils, confirmation soil samples may be collected. Confirmation soil samples would be collected at excavation boundaries following removal of contaminated soil. Confirmation samples will be analyzed for the contaminants of concern for which the cleanup or remediation was conducted to demonstrate that contaminant concentrations of soil remaining on-site are within permissible levels as defined by MTCA.

Soil stockpiles may be sampled (see Section 5.5) to determine suitability for reuse and options for disposal. Samples of stockpiled material would be analyzed for constituents of concern based on the origin of the waste. At a minimum, stockpile soil samples should be analyzed for RCRA-8 metals. Stockpiled soil containing concentrations of metals in exceedance of MTCA Method A Soil Cleanup Levels presented in Table 740-1 of WAC 173-340-900 will be managed for off-site disposal in accordance with Solid Waste Handling Standards in WAC 173-350 (WDOE, 2018). Concentrations of certain contaminants may require additional testing by the toxicity characteristic leaching procedure (TCLP, see Section 5.5.3). If TCLP analysis indicates contaminant concentrations in exceedance of TCLP thresholds, soils will be designated as Dangerous Waste and shall be disposed of at a RCRA Subtitle C facility. Soil that contains other contaminant(s) (e.g., TCE, other VOCs, cPAHs, etc.) at concentrations that exceed the MTCA Method A Soil Cleanup Levels presented in Table 740-1 of WAC 173-340-900 but do not meet Washington Dangerous Waste or federal hazardous waste criteria shall be disposed of at a RCRA Subtitle D facility.

5.2.2 Groundwater Management

Graham shall manage contaminated groundwater in accordance with the procedures established in this SGMP, Construction Stormwater General Permit (WDOE, 2017), SWPPP, TESC Plan and WAC Chapter 173-201A Water Quality Standards for Surface Waters of the State of Washington (WDOE, 2016c). Presumed contaminated groundwater includes that within previously identified zones of groundwater/soil impact, as well as any groundwater that suggest contamination based on field observation (odor, color, sheen, etc.).

Any discharge to storm sewer or surface waters or infiltration into the work area must be authorized by WDOE under the National Pollutant Discharge Elimination System (NPDES) permit and the Administrative Order (AO) for the site. WSDOT is in the process of transferring the NPDES permit and AO from WSDOE to Graham which will be specific to the project and will be incorporated into this plan once received. In addition, an industrial waste water discharge permit may be obtained from King County and the City of Seattle to discharge stormwater to the sanitary sewer. Graham plans to apply for permits to discharge to the City of Seattle and King County sanitary sewers. This plan will be updated to reflect any permits, once received, that allow for discharge to the sanitary sewer. Authorization must be obtained from King County and the City of Seattle prior to any waste water discharge to an applicable sanitary sewer. If authorization to discharge to storm, surface infiltration, or sanitary sewer cannot be obtained, groundwater that contains contaminant(s) at concentrations that exceed the MTCA Method A cleanup levels but do not meet Dangerous Waste criteria shall be disposed of at a RCRA Subtitle D facility or at approved waste recycling facility. Should Graham receive the sanitary sewer discharge permits, they will notify WSDOT upon receipt and provide an electronic copy of the permit document(s). For contaminated groundwater that does not meet Water Quality Standards for Surface Waters, pretreatment will be required prior to discharge to storm drain or nearby surface waters in accordance with the AO.

Graham's ECM will notify WSDOT of any encounters of unknown or unanticipated contamination. WSDOT shall notify WDOE in the event of discovery of any unknown or unanticipated contamination.

5.3 Field Screening and Identification

A Contractor personnel, Subcontractor Foreman or designated HAZWOPER certified monitor trained under the WSDOT HQ Hazardous Materials Program will be present during excavation activities to provide visual screening of suspect soils. Soils will be monitored for visual and olfactory evidence of contamination based on location of work, observed discoloration, texture, and odor, or the presence of metal or plastic remnants of tanks or drums. Physical characteristics that may be observed in excavated soils that indicate the need for separate stockpiling and laboratory testing include:

- Soils containing petroleum discoloration or odor;
- Soils or debris containing other unusual or unnatural discoloration or odor;
- Wood or wood fragments containing other unusual or unnatural discoloration or odor;
- Drums, tanks or metallic debris encountered in the excavation; and
- Garbage or other debris.

A field instrument that can help to qualitatively assess the presence of contamination is a photoionization detector (PID). A PID will detect the presence of a volatile compound (such as benzene or TCE) in the air but does not identify the chemical. It is not expected that a PID will be utilized during routine construction activities. If suspected contamination is encountered or could be expected to be encountered (i.e., for work in or near sites noted as potentially contaminated in the HMBR, a PID would be useful to help identify and segregate petroleum contaminated soil (PCS) and can be used for worker protection. Work within the landfill area of the Project may require methane monitoring to protect the health and safety of workers in the area.

The Design-Build Environmental Compliance Manager (ECM) and Project Manager will be immediately notified if excavated material presents visual or olfactory evidence of contamination (such as an oily sheen or discolored soils that may or may not emit chemical odors) that may be considered potentially dangerous or hazardous waste per Washington State Dangerous Waste criteria in accordance with WAC 173-303. The Design-Build ECM and Project Manager will notify the WSDOT Environmental Compliance Manager and Project Engineer in accordance with WSDOT Environmental Compliance Assurance Procedures (ECAP). The WSDOT Project Engineer shall notify WDOE within 24 hours of discovery of the contaminated material.

5.4 Stockpiling

Graham shall provide proper storage of contaminated soil or debris in stockpiles/staging piles awaiting sampling, classification, further processing, and load-out and disposal. Adequate storage shall be provided so that the Contractor's operations are not disrupted due to insufficient storage.

General requirements for the temporary stockpile include: (a) prevent intermixing of stockpiled materials with underlying soils or materials from other sources/or with other contaminants; (b) prevent influx of rainwater; (c) prevent erosion of stockpiled materials; (d) apply stormwater BMPs as appropriate for stockpile construction and maintenance; (e) maintain daily inventory of stockpile areas and provide information to the Project Engineer, as requested, and (f) appropriate site security such as fence areas to alleviate hazards to the public. The stockpile shall be a contained system that may include ready-made structures or facilities, to contain soil and liquids.

Incidental stockpiling of contaminated soil within the boundaries of a known contaminated soil area can be conducted without any liners or controls if soil is in an area where run-off from the stockpile cannot run-on to a clean area or an area with a different type of contamination.

There will be occasions where stockpiling may be required, such as during the temporary storage of contaminated soil in a clean area or area with a different type of contamination, or the discovery of undocumented contamination. Stockpiles in these circumstances shall adhere to the following:

- Stockpiles shall be lined with polyethylene sheeting with a minimum thickness of 10 mil, with adjacent sheeting sections overlapping a minimum of 3 feet per WSDOT Standard Specification 8-01.3(5);
- The perimeter of the stockpiles shall be surrounded by a berm to prevent run-on and/or run-off of precipitation;

- Stockpiles shall be covered with plastic sheeting with a minimum thickness of 6 mil when not in use and the cover should be anchored to prevent it from being disturbed by wind.

5.5 Soil Sampling and Testing

PBS will perform sampling of excavated materials for characterization of suspected contaminated soils. The following sections describe the procedures for soil sampling.

5.5.1 Sample Collection

Soil samples collected during the Project will be acquired by filling laboratory provided containers for specific analysis as presented in the Laboratory Container Requirements table presented in Attachment IV. Soil will be collected in a single 4-oz jar for the RCRA-8 suite of metals, TPH-Dx, and dry weight analyses for that sample. Soil samples collected for analysis for VOCs (including BTEX only analysis) or TPH-Gx will use EPA Method 5035A and soil will be collected using a syringe/plunger device to place approximately 25 grams of soil in laboratory prepared vials with methanol preservative. See Attachment IV for list of containers/preservatives needed for other type of analysis.

The sampler will don new disposable gloves for the collection of each sample. Samples will be placed in coolers with ice under chain-of-custody documentation for transport to the project laboratory.

In the case of stockpile sampling, the number of samples collected to characterize a given volume of soil will be based on Table 6.9 of the *Guidance for Remediation of Petroleum Contaminated Sites* (WDOE, 2016a). Soils will be collected from at least 1-ft below the surface of stockpiles.

5.5.2 Sampling Analysis Procedures

Samples may be analyzed for the following:

- Northwest Total Petroleum Hydrocarbon as Diesel Range by Method NWTPH-Dx
- Northwest Total Petroleum Hydrocarbon as Gasoline Range by Method NWTPH-Gx
- BTEX / NWTPH-Gx using EPA Method 8021B
- Semi-volatile organic compounds (SVOCs) by EPA Method 8270C/SIM
- Total Metals (RCRA-8) by EPA Method 200.8/6020A/1631E
- Dissolved Metals (RCRA-8) by EPA Method 200.8/6020A/1631E
- VOCs by EPA Method 8260C
- PCBs by EPA Method 8082

5.5.3 Evaluation of Analytical Results

The analytical results from samples collected will be reviewed by PBS and used to support regulatory reporting and oversee disposal. The analytical results will be compared to the criteria defined for the types of wastes this plan addresses in Section 3.

Metals Analysis

Soil generated from areas of known metals contamination as outlined in Section 2.3.1 and presented in Attachment I that is considered for export from the project area will be sampled according to Section 5.5 for the RCRA metals.

- Generally, the analytical results will be compared to criteria defined in regulations such as, but not limited to, WAC 173-340, WAC 173-303, WAC 173-201A and WAC 173-350.
- When analyses of lead, arsenic or other constituents pursuant to WAC 173-303-090 exhibit concentrations that may identify the waste as having characteristic of toxicity (WAC 173-303-090 (8)), then supplemental testing may be required for toxicity characteristic leaching procedure (TCLP). The following industry standard shall be used to determine if a TCLP analysis is required:

  a) In any case that a detected concentration in mg/kg exceeds twenty times the subsequent TCLP value (in mg/L) for that constituent as listed in WAC 173-303-090 (8)(c), a TCLP extraction and analysis for that constituent shall be performed.

  b) An appropriate number of discrete stockpile samples as determined by Table 6.9 of the *Guidance for Remediation of Petroleum Contaminated Sites* (WDOE, 2016a) will be collected and analyzed for toxicity characteristic leaching procedure (TCLP).

- The TCLP data will be used to determine if the solid waste exhibits the characteristics of toxicity as Dangerous Waste. Any waste that contains contaminants which occur at or above the Dangerous Waste threshold must be designated Dangerous Waste (WAC 173-303-100).

Petroleum and Volatile Organics

- Based on the knowledge of the suspected contaminants of concern and previous investigation or process knowledge, laboratory analytical data will be evaluated using the following criteria. Contaminated soils that are not Dangerous Wastes are regulated under the Solid Waste Handling Standards, Chapter 173-350 WAC (WDOE, 2018). For petroleum contaminated media, the results will also be compared with Tables 12.1 and 12.2 from the *Guidance for Remediation of Petroleum Contaminated Sites* (WDOE, 2016a) to help determine appropriate reuse or disposal options (Attachment III).
- Dangerous Waste Characteristic WAC 173-303-090: Any waste that contains contaminants which occur at TCLP concentrations at or above the Dangerous Waste threshold (see

toxicity characteristics List, Chapter 173-303-090 WAC) must be designated as Dangerous Waste.

- Persistent Waste Criteria WAC 173-303-100(6): WAC 173-303-100(5) requires wastes/soil with halogenated organic compounds content greater than 100 parts per million (ppm), and PAH content of 10,000 ppm to be designated as Dangerous Waste.
- Excluded Categories of Waste WAC 173-303-071 (3)(t): Petroleum-contaminated media and debris that fail the test for the toxicity characteristic of WAC 173-303-090(8) (Dangerous Waste numbers D018 through D043 only) and are subject to the corrective action regulations under 40 CFR Part 280.

5.6 Contaminated Water Management Procedures

Deep trenches, shafts, or bridge footings may encounter groundwater, which should be tested and contained prior to discharge or off-site disposal or infiltrated back into the work area. See Section 5.2.2 for discharge and infiltration authorization and requirements.

Incidental rain water that accumulates in excavations with no known or suspected contamination will be handled and disposed of in accordance with the Stormwater Pollution Prevention Plan (SWPPP) for the project and in compliance with the Construction General Stormwater Permit.

If storm or groundwater is pumped from an excavation or footing within a known or suspected contamination zone, it shall be managed as follows:

Contain and Analyze: Water generated from dewatering activities will be contained and allowed to settle in accordance with appropriate permits, regulations, and project environmental commitments. Water will then be characterized prior to disposal, discharge, or infiltration back into the work area. Water suspected to be contaminated with VOCs, metals, PCBs, or petroleum hydrocarbons due to surface contact or from pumped groundwater will be pumped into an appropriate container (temporary tanks or DOT approved drums) and sampled by Graham or PBS. The samples will be analyzed to assess the correct method of treatment and/or disposal. Laboratory analytical results will be compared to both the Water Quality Standards established in WAC 173-201A (WDOE, 2016c), the MTCA Method A Cleanup Levels established in WAC 173-340 (WDOE, 2013) and Dangerous Waste Regulations established in WAC 173-303 (WDOE, 2014).

- *Halt Work*: If significant contaminant indicators are observed in groundwater, then construction work will be halted while analytical testing is conducted to determine options for treatment, disposal and health and safety requirements. If work is halted, the WSDOT Project Engineer, WSDOT Project Manager, and the WSDOT ESO Hazardous Materials Program will be notified, and stopping procedures will be conducted in general accordance with the ECAP process. Such indicators could include presence of free phase liquids, odor, sheen, or extreme discoloration of the groundwater. If unanticipated contamination is revealed as a result of the analyses, the WSDOT Project Engineer shall notify WDOE.

- *Disposal*: Based on the volume of water generated and the concentrations of the constituents of concern, the groundwater will be disposed of by infiltration back into the area from where it was pumped if authorized by WDOE in accordance with the NPDES permit for the site; contacting a vendor to collect the water and transport it to a proper disposal or recycling facility; or discharging the water into the sanitary sewer if authorized by King County in accordance with the waste water discharge permit for the site. Per the NPDES permit, all groundwater encountered in the Montlake Market / 76 Gas Station lot will be contained and disposed of off-site at a facility permitted to accept such water.
- *Contaminated Groundwater*: If pumped groundwater is contaminated such that it cannot be authorized for infiltration to the work site or discharge to the sanitary sewer, disposal shall be at a facility permitted to treat and indirectly discharge wastewater to the public sewer under 40 CFR 437 (centralized waste treatment facility).

5.7 Contaminated Demolition Debris Management Procedures

All demolition debris is required to be characterized for disposal pursuant to WAC 173-303 (WDOE, 2014) and WAC 173-350 (WDOE, 2018). Demolition debris contaminated with PCBs or heavy metals at concentrations exceeding the adopted cleanup standard should be segregated with appropriate secondary containment (i.e. plastic sheeting with berms, metal container, etc.) for off-site disposal.

5.8 Procedures for Specific Construction Activities

This section describes activities anticipated to result in the generation of waste for off-site disposal.

5.8.1 Utility Trenching and Grading

Utility trenching will be necessary to support drainage, traffic information, and electrical systems. In general, utility trenches will be backfilled with the excavated material. Contaminated soil identified during previous investigation (see section 2.3.1) or during construction trenching or grading operations (see section 5.3) will be contained, characterized and disposed of offsite at a permitted facility.

5.8.2 Drilled Shafts

Drilled shafts will be necessary to support installation of new bridge piers. Contaminated soil and sediment identified during previous investigation (see section 2.3.1) or during construction (see section 5.3) will be contained, characterized and disposed of offsite at a permitted facility. See section 2.3.1 and Attachment I for drilled shaft locations identified to contain refuse/debris, petroleum products at reusable and contaminated waste levels, cadmium at contaminated waste levels and peat designated as organic waste.

5.8.3 Retaining Wall Systems

Excavation will be necessary to support installation and replacement of retaining wall systems associated with freeway improvements. Contaminated soil identified during previous investigation (see section 2.3.1) or during construction (see section 5.3) will be contained, characterized and disposed of offsite at a permitted facility. See section 2.3.1 and Attachment I for retaining wall locations with petroleum products in groundwater at contaminated waste levels, refuse/debris in soil, petroleum products in soil at contaminated and reusable soil levels, cadmium in soil at contaminated soil levels.

5.9 Dust and Odor Control

There is the potential for nuisance dust or odors to be emitted during construction activities. Air quality regulations require the use of control techniques to minimize Fugitive Dust emissions. Fugitive/nuisance dust will be managed in accordance with the Fugitive Dust Control Plan and the Associated General Contractor's (AGC's) guide to controlling fugitive dust (included in the Environmental Compliance Plan prepared by PBS/Graham).

The goal is to eliminate visible airborne Fugitive Dust. Therefore, state and local regulatory agencies expect that as many of these control techniques be employed as necessary to achieve this goal. Graham is required to comply with Chapter 173-400 Washington Administrative Code (WAC), Chapter 70.94 RCW – Washington Clean Air Act, and the Puget Sound Clean Air Agency's Regulation I, Section 9.15, requiring reasonable precautions to avoid dust emissions.

Should excessive dust or nuisance odors develop during excavation as determined by visual and olfactory observation by Graham or complaints, Graham shall be prepared to implement one or more of the following odor control measures:

- Minimize the open area where high concentrations of contaminants may be present.
- Apply a mist of water over the area as needed to minimize odor and dust.
- Cover exposed areas with elevated concentrations of contaminants with plastic sheeting at the end of each day and when excavation activities are not being performed.
- Keep stockpiles covered when not in use.

If products other than water are used, they will be approved by WSDOT and WDOE (if chemical treatment is requested) prior to use. Other means of controlling odors may be applicable, and Graham should consult with the Design-Build Environmental Compliance Manager prior to implementation.

Ventilation and air monitoring of excavation areas within the former Miller Street Landfill and methane producing area (Attachment I) shall be required to prevent nuisance odors and/or dangerous conditions (see section 7).

5.10 Decontamination Procedures

If contaminated soils are identified within work areas, procedures should be implemented to avoid spreading such material. In such areas, oil residue on equipment and excavator tracks/tires and truck tires will be removed using a combination of wet and dry methods. During dry conditions, soil residues will be removed by dry brushing. Soil that cannot be removed by this procedure will be removed from equipment by washing with high-pressure water.

During winter conditions, high-pressure water washing will be used to remove material residues and mud from equipment and tires. If a contaminated area can be delineated that will experience extensive vehicle traffic, a decontamination station will be constructed at an appropriate location on the site. The station will consist of a bermed bed of crushed aggregate rock equipped with a water collection sump. Water generated during decontamination activities will be handled as process water and disposed of to the sanitary sewer or disposed of off-site at an approved facility. The work areas will be kept clean and free of excessive soil or debris.

5.11 Contingency Plan for Unknown Contamination

Contaminated soils may be encountered by equipment operators that have not previously been identified or characterized. The equipment operator shall stop work and notify the Design-Build Environmental Compliance Manager and Project Team if any of the following are encountered:

- Obvious staining, sheen, or colored hues in soil or standing water in locations not previously designated;
- Presence of gasoline- or oil-like vapor or odor or unexpected petroleum products or other chemicals;
- Utility pipe lines with sludge or trapped liquid indicating petroleum or chemical discharge sludge;
- Unexpected buried pipes, conduit, tanks, or unexplained metallic objects or debris; or
- Vapors causing eye irritation or nose tingling or burning.

In the event that suspected contaminated soil or groundwater is observed, the Contractor will notify the Design-Build Environmental Compliance Manager. Soil samples will be field screened by the PBS and samples will be collected and analyzed to ensure that the contaminated soil and/or groundwater is removed and properly characterized prior to disposal (see Sections 5.3 and 5.5). WSDOT shall notify WDOE of the discovery of any unknown or unanticipated contamination.

6. CONTAMINATED SOIL TRANSPORT AND OFF-SITE DISPOSAL

Transport of contaminated media to the appropriate disposal facilities will be performed by haulers licensed to transport that media. Graham will submit a copy of the transporter's permit/qualifications for shipping contaminated soil prior to any waste transfer.

6.1 Waste Profile and Manifest

Prior to transport of PCS or other contaminated material, the waste material must be properly manifested and approved for acceptance by the selected disposal facility. Graham will provide the ECM with copies of the waste profile manifest and approval notification from the selected disposal facility three days prior to removal of contaminated material from the Project site.

6.2 Contaminated Soil Transport

Transport of contaminated soil to the appropriate disposal facilities will be performed by haulers licensed to transport the type of contaminated soil. Contaminated soil will be loaded from stockpiles or containers directly to the designated vehicle for transport to the approved disposal site. Graham will provide the ECM and WSDOT with copies of shipping records (manifest or bill of lading) and quantity tickets for all shipped wastes, indicating each waste shipment has been received at a disposal facility. These copies will be delivered to the ECM within seven working days of removal. Graham will provide WSDOT with copies of the shipping manifest or bill of lading indicating the amount of material hauled to disposal and the disposal site operator's confirmation for receipt of the material.

6.3 Off-Site Disposal

Soil with detectable concentrations of petroleum hydrocarbons not otherwise regulated by WAC 173-350 must be managed as PCS and disposed of at a permitted solid waste facility in accordance with WAC 173-340 (WDOE, 2013).

Soil with detectable concentrations of contamination such as metals or VOCs must be managed according to its waste category (see Section 3.1) and disposed of at a permitted solid waste facility in accordance with WAC 173-350 (WDOE, 2018). Any waste material removed from the site shall be characterized in accordance with WAC 173-303 Dangerous Waste Regulations and WAC 173-350 Solid Waste Handling Standards. Graham is responsible for determining waste facility requirements and facilitating additional preliminary waste profiling if required. Sampling for waste profile analysis may be required by the receiving facility prior to approval.

Once a permitted facility is selected, Graham will submit copies of the facility permits and environmental approvals to WSDOT for review and approval prior to transport and disposal of the material. Example facilities that may be used for disposal of Contaminated Waste include:

- Allied Waste's (Regional Disposal Company) transfer station

- Waste Management's transfer station
- WDOE permitted solid waste facilities
- Other public health department approved facility

7. CONSTRUCTION WITHIN THE AREA OF AN ABANDONED LANDFILL

Portions of the project area lie within the footprint of the former Miller Street Landfill, now known as the WSDOT Peninsula, as depicted in Attachment I and Exhibit II of Attachment II. Per RFP 2.8.4.3.5.4 – Methane Monitoring, in the event that the abandoned Miller Street Landfill area is used for construction staging, Graham will develop a Methane Monitoring Plan in accordance with King County Health Code Section 10.09.050. Seasonal baseline methane monitoring reports are contained in West Approach Bridge – North, Lay Down Area Gas Monitoring Quarterly Report No. 5 and West Approach Bridge – North Construction Gas Monitoring Logs. The Methane Monitoring Plan shall outline the monitoring procedures and frequency, and response actions and shall be submitted to WSDOT for review and comment.

Prior to any ground disturbing activities on WSDOT Peninsula Graham is required to provide a minimum of three (3) days' notice to WSDOT's Section 106 Archaeological and Cultural Resources Specialist. The Section 106 Specialist will schedule an inspector to be on-site during the activity if deemed appropriate. If a Section 106 representative is required, Graham will not begin ground disturbing activities until the representative is present.

Additionally, construction within the former Miller Street Landfill must be conducted in accordance with King County Title 10 Board of Health Solid Waste Regulations. Any construction or excavation on a completed landfill shall proceed only after written notification to and approval by the health officer.

7.1 General Landfill Gas Properties

- Methane is colorless and odorless, though it is often associated with numerous odoriferous compounds that give warning of its presence. As such, the absence of odor should not be interpreted as methane-free air. The absence of methane can only be confirmed with an appropriately calibrated methane detector.

- Methane is a flammable gas and will burn when mixed with air at concentrations of 5 and 15 percent volume/volume (v/v). If air with a concentration of methane between these percentages is ignited in a confined space, the resulting combustion may give rise to an explosion. Methane is also an asphyxiant.

- Carbon dioxide is the other major component of landfill gas. Carbon dioxide is also an asphyxiating gas and can only be confirmed present or absent by an appropriately calibrated detector.

- Gas Density: Methane is lighter than air while carbon dioxide is heavier than air. Mixtures of landfill gas are typically similar in density to air. As such, based on the ratio of carbon dioxide to methane, landfill gas may be lighter or heavier than air and may accumulate either at the base or top of voids, trenches or confined spaces.

8. REPORTING AND DOCUMENTATION

Graham and any subcontractors managing contaminated media will maintain all necessary permits and approvals related to the removal, excavation, management, storage, transportation, and/or treatment/disposal of the contaminated soil or water that might be generated during the project. Permits may include, but are not limited to, excavation permits, transportation permits and manifests, discharge permits and approvals and permits for treatment or disposal of non-dangerous waste. Copies of permits and disposal receipts should be retained for future reporting by WSDOT.

Procedures for reporting and recordkeeping are addressed under submittals as required by Project. In summary, documentation will include:

- Quantity by volume in cubic yards per WSDOT Standard Specifications M41-10 2018 (WSDOT, 2018b).
- Quantity by weight as determined by number of truckloads and disposal facility weight tickets.
- Quantity of water by gallons retained by dewatering activity for discharge or disposal. The destination (discharge or disposal) of the water will be documented. If off-site disposal, facility delivery receipts (gallons) shall be retained.
- Physical characteristics including analytical results when applicable.
- Disposal facility for each material disposed.
- Disposal facility receipts.
- Weight / truck tickets.
- Manifests / Bills of Lading.
- Fee receipts.
- Certification from each receiving facility owner that the facility’s operating permit conditions were met for materials disposed.
- Copies of analytical data will be provided to the landfill operator upon request.

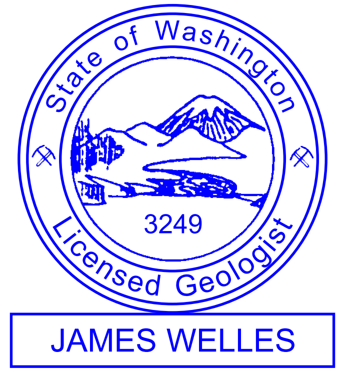
The documentation shall be presented to WSDOT in a report that includes all laboratory data in an attachment. An accompanying narrative will describe the soil removal and any deviations to the procedures that occurred. Corrective actions will be identified as needed, and the resolution of any discrepancies will be reported.

9. SIGNATURES

PBS Engineering and Environmental Inc.

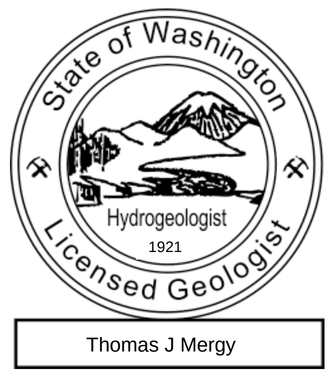
Digitally signed by James Welles
Date: 2019.04.25 12:23:54 -07'00'

James Welles, LG
Project Geologist



Digitally signed by Thomas Mergy
Date: 2019.04.25 12:30:40 -07'00'

Thomas Mergy, LHG
Senior Hydrogeologist



REFERENCES

(WDOE, 2013) *Model Toxics Control Act Regulation and Statute,* Washington State Department of Ecology, Publication No. 94-06, revised 2013.

(WDOE, 2014) *Dangerous Waste Regulations WAC 173-303,* Washington State Department of Ecology, Publication No. 92-91, amended December 2014.

(WDOE, 2016a) *Guidance for Remediation of Petroleum Contaminated Sites,* Washington State Department of Ecology, Publication No. 10-09-057, revised June 2016.

(WDOE, 2016c) *Water Quality Standards for Surface Waters of the State of Washington, Chapter 173-201A*, Washington State Department of Ecology, August 2016.

(WDOE, 2017) *Construction Stormwater General Permit, National Discharge Elimination System (NPDES) and State Waste Discharge General Permit for Stormwater Discharges Associated with Construction Activity,* Washington State Department of Ecology, November 2015, revised March 2017.

(WSDOT, 2011) *SR 520, I-5 to Medina: Bridge Preplacement and HOV Project: Final Environmental Impact Statement and Section 4(f) and 6(f) Evaluations, SR 520 Bridge Replacement and HOV Program,* Washington State Department of Transportation, June 2011.

(WSDOT, 2017) *SR 520 Bridge Replacement and HOV Program, I-5 to Medina: Bridge Replacement and HOV Project – Montlake to Lake Washington Interchange and Bridge Replacement, Geotechnical Data Report*, Washington State Department of Transportation, July 2017.

(WDOE, 2018) *Solid Waste Handling Standards WAC 173-350,* Washington State Department of Ecology, September 2018.

(WSDOT, 2018a) *SR 520 Bridge Replacement and HOV Program, I-5 to Medina: Bridge Replacement and HOV Project – SR 520 Montlake to Lake Washington – I/C and Bridge Replacement, Hazardous Materials Baseline Report*, Washington State Department of Transportation, February 2018.

(WSDOT, 2018b) *Standard Specifications for Road, Bridge, and Municipal Construction,* Washington State Department of Transportation, amended November 2018.

ATTACHMENT I

AREAS OF ENVIRONMENTAL CONCERN IN PROJECT AREA

GENERAL AREA OF POSSIBLE CONTAMINANTS AND MEDIA LEGEND

- A — PETROLEUM PRODUCTS & VOCS IN SOIL / PETROLEUM PRODUCTS IN GROUNDWATER
- B — PETROLEUM PRODUCTS IN SOIL
- C — METALS IN SOIL
- D — REFUSE & DEBRIS IN SOIL
- E — ORGANICS & PETROLEUM PRODUCTS IN SOIL*
- F — ORGANICS, PETROLEUM PRODUCTS, REFUSE & DEBRIS IN SOIL*
- G — ORGANICS IN SOIL*
- H — METHANE PRODUCING AREA
- I — ARSENIC IN GROUNDWATER

* PEAT MAY CONTAIN NATURALLY OCCURRING ARSENIC

LEGEND

- EXHIBIT 1 - SHEET 1 — SHEETS 1 THROUGH 7 OF EXHIBIT 1, AND SHEET 1 OF EXHIBIT 2 FROM 2018 WSDOT HAZARDOUS MATERIALS BASELINE REPORT (ATTACHMENT II)
- POSSIBLE CONTAMINANT SOURCE AREA
- GENERAL AREA OF GROUNDWATER PLUME
- GENERAL AREA OF METHANE PRODUCING AREA ASSOCIATED WITH FORMER LANDFILL

NOTE: KNOWN LEVELS OF SOIL CONTAMINATION VARY AS NOTED IN ATTACHMENT II

SCALE 1" = 600'

0' 300' 600' 1,200'

PREPARED FOR: GRAHAM CONSTRUCTION

Full Size Sheet Format Is 11x17; If Printed Size Is Not 11x17, Then This Sheet Format Has Been Modified & Indicated Drawing Scale Is Not Accurate.

Filename: \\pbsenv.lan\L\Projects\41000\41221 Graham Construction & Management\41221.003 SR520 Montlake Project\CAD\41221.003_FIG-1.dwg Layout Tab: FIG-1 User: Justin H. Day CAD Plot Date/Time: 4/2/2019 1:30:16 PM

PBS Engineering and Environmental Inc.
214 East Galer St., Ste 300
Seattle, WA 98102
206.233.9639
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SR520 MONTLAKE TO LAKE WASHINGTON FOR INTERCHANGE REPLACEMENT

SOIL AND GROUNDWATER MANAGEMENT PLAN

SR520 / MONTLAKE BLVD TO LAKE WAHINGTON, KING COUNTY, WA

PROJECT	41221.003
DATE	FEB 2019
FIGURE	1

ATTACHMENT II

SR 520 Bridge Replacement and HOV Program

I-5 to Medina: Bridge Replacement and HOV Project

SR 520 Montlake to Lake Washington – I/C and Bridge Replacement

Hazardous Materials Baseline Report

Washington State Department of Transportation

February 2018

Washington State Department of Transportation

SR 520 Bridge Replacement and HOV Program

I-5 to Medina: Bridge Replacement and HOV Project

SR 520 Montlake to Lake Washington – I/C and Bridge Replacement

Request for Proposal

February 28, 2018

Appendix E21
Hazardous Materials
Baseline Report

Washington State Department of Transportation

SR 520 Bridge Replacement and HOV Program

I-5 to Medina: Bridge Replacement and HOV Project

Montlake to Lake Washington Interchange and Bridge Replacement Hazardous Materials Baseline Report

Prepared for
Washington State Department of Transportation

Lead Authors
Meg Strong, LG
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Trent Ensminger
Ben Wilkinson

Consultant Team
Shannon & Wilson, Inc.

February 21, 2018
Revised June 18, 2018

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Table of Contents

List of Exhibits

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Acronyms and Abbreviations

BOLA	BOLA Architecture & Planning
CSO	combined sewer outfall
Ecology	Washington State Department of Ecology
FHWA	Federal Highway Administration
GDR	geotechnical data report
HMBR	Hazardous Materials Baseline Report
Kiest	Karen Kiest Landscape Architects
MOHAI	Museum of History and Industry
MTCA	Model Toxics Control Act
Project	Montlake to Lake Washington Interchange and Bridge Replacement project
RCRA	Resource Conservation Recovery Act
RFP	Request for Proposals
SR	State Route
UST	underground storage tank
WABN	West Approach Bridge - North
WABS	West Approach Bridge - South
WSDOT	Washington State Department of Transportation

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Introduction

General

The Hazardous Materials Baseline Report (HMBR) is issued as part of the Request for Proposals (RFP) for the State Route (SR) 520 Montlake to Lake Washington Interchange and Bridge Replacement (Project). The HMBR provides contractual representations of the environmental conditions that are anticipated for the Project. Contractual representations in this HMBR, referred to as "baselines," are derived from environmental information and data collected specifically for the RFP through subsurface explorations, testing, and analysis, as well as review of other data. The results of historical research for potential contaminative sources and subsurface explorations, field testing, and analytical laboratory testing are presented in the following documents:

- Montlake to Lake Washington Interchange and Bridge Replacement Geotechnical Data Report (GDR) and GRD Addendum
- West Approach Bridge – North (WABN), Lay Down Area Gas Monitoring Quarterly Report No. 5
- WABN Contractor's gas monitoring logs
- Model Toxics Control Act (MTCA) Exceedances, SR 520 West Approach Bridge
- Hazardous Materials Discipline Report Addendum and Errata
- Limited Phase I Environmental Site Assessment SR 520 Montlake 76 Gasoline and Service Station, Seattle, Washington
- Phase II Environmental Site Assessment SR 520 Eastbound Off-Ramp to Montlake Vicinity Seattle, Washington
- Supplemental Limited Phase II Environmental Site Assessment SR 520 Eastbound Ramps to Montlake Vicinity Seattle, Washington

The Design-Builder shall not use the HMBR baselines in isolation for the planning or performance of any aspects of its Work, including and without limitation as to means, methods, techniques, sequences, and procedures of construction and safety precautions to be employed by the Design-Builder. The Design-Builder must undertake its own independent review and evaluation of the Contract Documents.

The HMBR was prepared based upon the geometry and physical locations of the Work as presented in the Conceptual Plans provided in the RFP. All elevations presented in this HMBR are referenced to the North American Vertical Datum of 1988. Baseline statements included herein are not applicable to alternate locations of the Project features that may be proposed by the Design-Builder, or work that is not in conformance with the anticipated Work. These baselines, while based on significant environmental information, shall not be used for design or construed as a guarantee or warranty that those conditions will be encountered exactly as described herein during the construction process.

Where no baseline statement is provided, the Design-Builder shall assume the risk for bid and design assumptions, as well as construction means, methods, and sequences.

WSDOT is in the process of acquiring the Montlake 76 Gas Station site. As of the issuance of the Montlake Phase RFP, WSDOT has not been able to complete site investigation of the property. A hazardous materials baseline has been included for the Montlake 76 Gas Station site to establish a basis for Proposal Price, but it is not based on site investigation on the property.

Refer to Chapter 1 of the Contract General Provisions for a description of the contractual relationship between the HMBR and both the GDR and the GDR Addendum (Shannon & Wilson, Inc., 2017 and 2018); limitations of the subsurface information; the Design-Builder’s responsibility for additional subsurface exploration; and limitations on the use of this HMBR in relation to Alternative Technical Concepts and Differing Site Conditions.

References to bridge pier numbers, retaining wall numbers, and other project feature designations in this report are for clarity and are applicable to this HMBR only.

Sources of Environmental Data

Information contained in the GDR (Appendix G), GDR Addendum (Appendix G), and reference materials included in Appendices E and G of the RFP were used in the preparation of the HMBR. Documents cited in this report that are not defined as contract documents in RFP Appendix A1 shall be considered reference documents and shall not be considered contractual.

Project Description

The Project is part of the SR 520 Bridge Replacement and High Occupancy Vehicle Program. The Project extends from the Montlake interchange to the west to the floating bridge to the east. The West Approach Bridge – South (WABS) will replace the existing West Approach Bridge, which extends from the Montlake neighborhood on the west to the West Connection Bridge on the east. The WABN Widening is included as part of the WABS project.

The Project alignment includes residential areas in the Montlake neighborhood of Seattle, Washington. Potential sources of contamination that could affect construction along the alignment include underground storage tanks (USTs) at the 76 service station at East Montlake Place East, contaminated fill materials including landfill material, and naturally occurring geochemical phenomena.

The following sections are provided for contextual understanding and are not intended to be considered baselines.

Human Development

The Seattle area has been inhabited by Native Americans for thousands of years. The first white settlers arrived in the area around 1850. Several major developments affected the topography and/or soil conditions along the Project alignment, including the construction, use, and filling in of the historic Portage Canal; construction of the combined sewer outfall (CSO); lowering of Lake Washington during construction of the Lake Washington Ship Canal; landfill development; construction of the Washington Park Arboretum; construction of SR 520 in the 1960s; Sound Transit University Link subway tunnels construction; and construction of the SR 520 WABN project. Our understanding of these developments is discussed in the following sections.

Historic Portage Canal Construction

The Portage Canal, initially constructed in the late 1800s, was roughly 60 to 100 feet north of the existing SR 520. The canal was used to transport logs and small boats from Lake Washington into Portage Bay and operated using two locks to raise and lower vessels (Chrzastowski, 1983; Willingham, 1992).

Historic photographs show that the canal was an open cut with steep sides. Comparison of photographs indicates that the steep canal sides eroded and/or were excavated over time, significantly widening the channel over the course of its functioning lifetime; refer to the GDR for historic photographs of the canal. We do not know the final width or depth after years of erosion and/or excavation. Some historic photographs show a railroad track in the canal.

Construction of the Combined Sewer Outfall (CSO)

In 1908, a large-diameter, brick, generally north-south, combined sewer was constructed west of what is today Montlake Boulevard East. Additional CSO information is provided in the Project RFP.

Lowering Lake Washington Lake Elevation

In 1916, completion of the Lake Washington Ship Canal lowered the level of Lake Washington by 8.8 feet (Chrzastowski, 1983). The drop in lake level resulted in the exposure of previously submerged land and marsh in the vicinity of SR 520 between 24th Avenue East and Foster Island.

Filling in the Historic Portage Canal

The drop in lake level from the opening of the Lake Washington Ship Canal resulted in the dewatering of the previously submerged Portage Canal. The canal remained a part of the landscape for many years after the water level dropped and exposed the bottom of the canal. Aerial photographs from 1937 and 1946 show that a portion of the canal was filled for the Montlake Boulevard East crossing. In these photographs, the portions of the canal trench east and west of Montlake Boulevard East are visible and overgrown with trees. By 1955, the canal was mostly filled in, except for a section at the western end and a small portion near the former Museum of History and Industry (MOHAI).

Historic Landfill at the Washington Peninsula, Washington Park Arboretum Construction, and 1960s State Route (SR) 520 Construction

During the past 100 years, the Washington Peninsula, near the Washington Park Arboretum, has been subject to human modification that has altered the type and distribution of subsurface soil in that area. Before 1936, the area was the site of the Miller Street Dump (BOLA Architecture & Planning [BOLA] and Karen Kiest Landscape Architects [Kiest], 2003). After 1936, the area was subjected to two phases of dredging. The first dredging occurred between 1938 and 1939 during the creation of the Arboretum. The second phase took place during the 1960s-era construction of SR 520, when channels were created or deepened to permit barge access for pile-driving equipment. Reportedly, during both phases, some of the dredged material was cast aside on land locally, and some of the garbage and underlying peat were removed from the site of the former landfill (Washington State Department of Transportation and Federal Highway Administration [WSDOT and FHWA], 2009).

As a result of the landfill and dredging that took place in the Washington Peninsula area, the upper soil layers in the area consist of a highly variable mixture of garbage, peat, and wood. The thickness of this upper soil ranges between about 3 feet to nearly 40 feet, as recorded in historic borings, geoprobes, and archeological cores drilled in the area.

During the 1960s SR 520 construction, the Lake Washington Boulevard retaining wall was constructed. Based on historic photographs, this wall was constructed by steeply cutting the hillside. During the 1960s SR 520 construction, the CSO and a waterline beneath the SR 520 footprint were replaced. The replacement CSO was installed in an open trench and consists of one 108-inch-diameter and one 42-inch-diameter concrete pipe. The replacement waterline is 54 inches in diameter. Additional CSO and waterline information is included in the RFP.

Sound Transit University Link Subway Tunnels Construction

Between 2010 and 2013, Sound Transit bored two side-by-side subway tunnels underneath SR 520 as part of their University Link project. According to the Sound Transit construction plans, the twin tunnels are about 20 feet in diameter, have a clear distance of about 24 feet between them, and have crown (top) elevation below SR 520 of about -60 feet. During tunnel boring, Sound Transit monitored the existing Montlake Boulevard East bridge over SR 520 for movement; no significant movements were reported.

State Route (SR) 520 West Approach Bridge – North (WABN) Construction

In 2014, WSDOT began construction of the SR 520 WABN project. The WABN project included:

- Construction of the north approach bridge,
- Extending the 24th Avenue East Bridge to the north,
- Adding ramps and retaining walls,
- Demolishing some Union Bay area ramps (the “ramps to nowhere”), and
- Demolishing the former MOHAI building.

During WABN construction, demolition debris was temporarily stockpiled south and east of the former MOHAI and west of the WABN abutment, near some of the future Project features. The 24th Avenue East Bridge extension removed historic Portage Canal fill and sediments as part of the new bridge piers’ construction. Refer to the RFP for WABN project drawings, including limits of construction and staging.

Montlake 76 Gas Station

The Montlake 76 Gas Station is located at 2625 East Montlake Place East in Seattle, Washington. At least five USTs are located at the gas station. Although documentation confirming a release or spill was unavailable at the time of the Phase I Environmental Site Assessment, based on the historic use of the property as a gasoline and service station, it is likely that soil and groundwater contaminated with petroleum hydrocarbons exists at the site. A limited Phase II Environmental Site Assessment was conducted along the eastbound SR 520 off-ramp and East Montlake Boulevard East (Innovex, 2016a, 2016b, and 2018) that revealed the presence of soil and groundwater contaminated with volatile organic compounds, heavy metals, and petroleum hydrocarbons greater than the MTCA Method A, or if absent, MTCA Method B cleanup criteria.

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Waste Classification

Soil can be classified in five categories for disposal purposes. Of the five categories described below, Dangerous Waste is included for information only. Soil that meets the definition of Dangerous Waste was not detected in the subsurface explorations and studies conducted for the Project.

1. Reusable Soil 1: Soil that contains no detectable contaminants at levels that exceed the MTCA Method A cleanup criteria. Reusable Soil 1 can be reused on site or disposed of at any facility willing to accept it.
2. Reusable Soil 2: Soil that contains detectable levels of contaminants that are above the applicable Puget Sound background levels and below the MTCA Method A cleanup levels. The soil can be reused on site if it is not laterally or vertically within 10 feet of water, or disposed of at any facility willing to accept it.
3. Organic Waste: Soil that contains wood waste consisting of peat, timbers, sawdust, or other abundant organics. Organic waste shall be disposed of at any facility willing to accept it based on its characteristics and concentrations of components.
4. Contaminated Waste: Soil or groundwater that contains one or more contaminant(s) at concentrations that exceed the MTCA Method A cleanup levels. Washington State Department of Ecology (Ecology) requires that Contaminated Waste be disposed of at a Resource Recovery and Conservation Act (RCRA) Subtitle D facility.
5. Dangerous Waste: Soil that contains contaminant-, source-, and concentration-specific criteria designated in Washington Administrative Code 173-303. Ecology requires that Dangerous Waste be disposed of at a RCRA Subtitle C facility.

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Baselines

The baselines to be used for the Project are as follows:

- Groundwater in the Project area is contaminated with arsenic at concentrations in excess of the MTCA Method A cleanup levels as determined through total and dissolved metals analyses (Exhibit 1). This contamination will affect disposal/discharge of fluids generated by construction dewatering.
- Soil contaminated with petroleum hydrocarbons and volatile organic compounds at Contaminated and Dangerous Waste levels will be encountered at the Montlake 76 Gas Station, Exhibit 1, Sheet 1. A total of 5,800 cubic yards of Contaminated Waste, 544 cubic yards of Dangerous Waste, and 5 USTs are present at the Montlake Gas Station.
- Groundwater contaminated with petroleum hydrocarbons at Contaminated Waste levels will be encountered as shown in Exhibit 1, Sheet 1, at Wall 22 and the western end of Pier 1. This contamination will affect disposal/discharge of fluids generated by construction dewatering.
- Soil contaminated with lube-oil petroleum hydrocarbons at Reusable Soil 2 levels will be encountered as shown in Exhibit 1, Sheet 1, in excavation work performed to construct Walls 6 and 20.
- Soil contaminated with lube-oil petroleum hydrocarbons at Contaminated Waste and Reusable Soil 2 levels will be encountered as shown in Exhibit 1, Sheet 2, in excavation work performed to construct Stormwater Facility M-North, Pedestrian Land Bridge Pier 1, and Wall 13.
- Soil contaminated with cadmium at Contaminated Waste levels will be encountered north of Wall 3, as shown in Exhibit 1, Sheet 2.
- Soil contaminated with lube oil- and diesel-range petroleum hydrocarbons at Contaminated Waste levels will be encountered as shown in Exhibit 1, Sheet 2, in excavation work performed to construct the Pedestrian Land Bridge Pier 3.
- Soil contaminated with lube oil-range petroleum hydrocarbons at Reusable Soil 2 levels will be encountered as shown in Exhibit 1, Sheet 2, in excavation work performed to construct Stormwater Facility M-South.
- Peat was encountered at WABS Piers 2 through 14 and 17 through 39. The depth of peat at WABS Piers 2 through 14 is variable with the deepest at 40 feet below mudline. Peat at WABS Piers 17 through 39 ranges from 5 to 45 feet. Elevated levels of naturally occurring arsenic will be present at these locations in the peat. The material is classified as Organic Waste.
- Soil contaminated with cadmium at Contaminated Waste levels will be encountered as shown in Exhibit 1, Sheet 5, at WABS Pier 23.
- Soil contaminated with petroleum hydrocarbons at Reusable Soil 2 levels will be encountered from mudline down to 10 feet below mudline as shown in Exhibit 1, Sheet 2, and Sheets 4 through 6, at WABS Piers 2 through 4, and 6, 8, 9, 20, 28, 29, 30, and 32.
- Soil contaminated with petroleum hydrocarbons at Contaminated Waste levels will be encountered from mudline down to 10 feet below mudline as shown in Exhibit 1, Sheet 4, at Pier 7.

- Refuse and/or fill debris likely associated with the former Miller Street Landfill will be encountered at WABS Piers 8 and 9 as shown in Exhibit 1, Sheet 4.
- Refuse and/or fill debris likely associated with the former Miller Street Landfill will be encountered at Wall 17 as shown in Exhibit 1, Sheet 3.
- Refuse and/or fill debris likely associated with the former Miller Street Landfill will be encountered in the Washington Arboretum area east of Lake Washington Boulevard as shown in Exhibit 2.

References

BOLA Architecture & Planning (BOLA) and Karen Kiest Landscape Architects (Kiest), 2003, Washington Park Arboretum historic review: Report prepared by BOLA Architecture & Planning and Karen Kiest Landscape Architects, Seattle, Wash., for Seattle Parks and Recreation, Seattle, Wash., September, 135 p.

Chrzastowski, M.J., 1983, Historical changes in Lake Washington, King County, Washington: U.S. Geological Survey Water Resources Investigations WRI 81-1182, scale 1:24,000.

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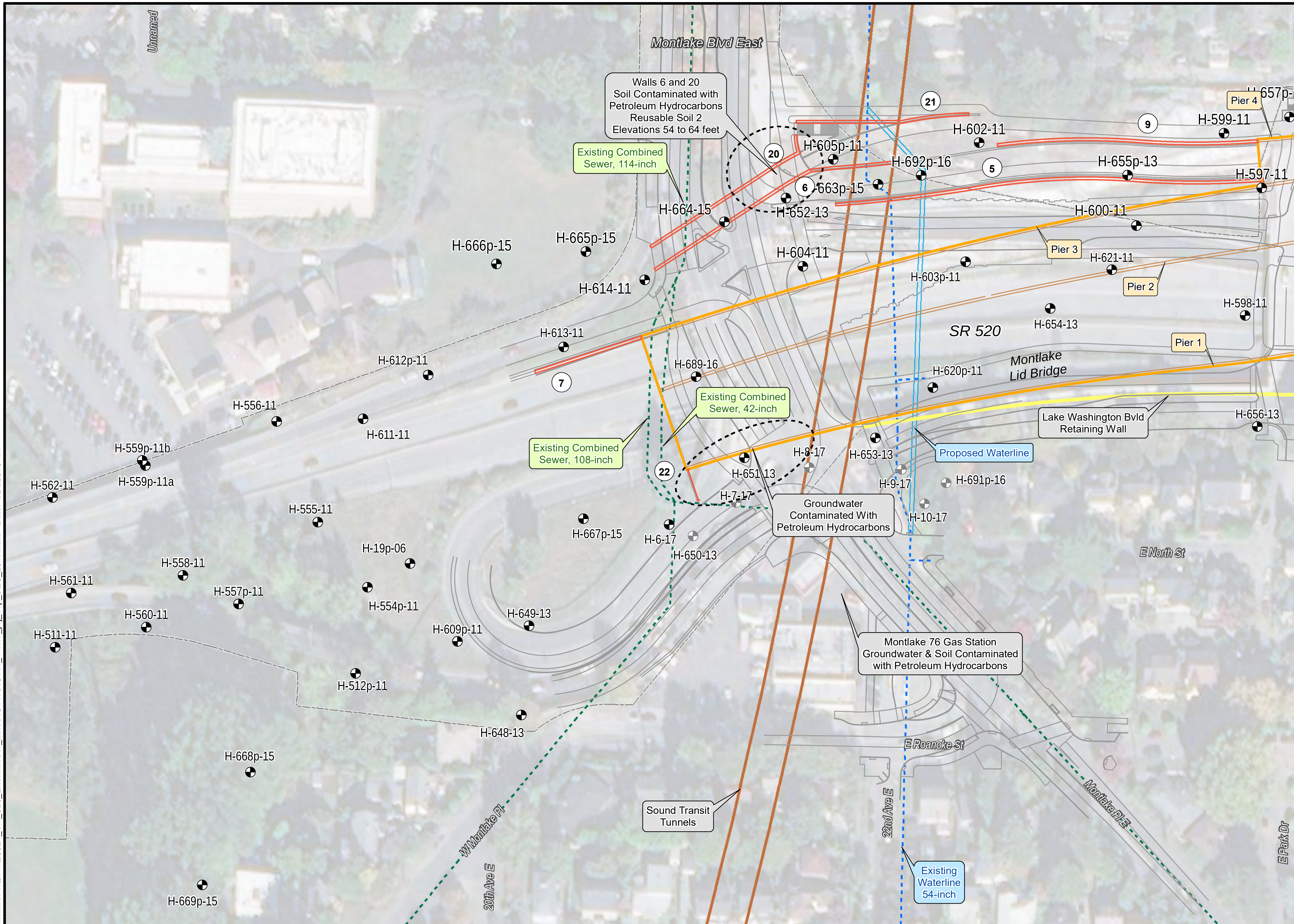

LEGEND

- Subsurface Explorations
- Proposed Bridge
- Proposed Alignment
- Proposed Retaining Wall & Designation
- Proposed Pedestrian Bridge / Lid Bridge
- Proposed Stormwater Facility
- WSDOT ROW
- City of Seattle ROW

NOTES

1. WSDOT = Washington State Department Of Transportation. ROW = Right Of Way
2. Proposed Alignment Features from WSDOT, 2016-11.
3. See report text for additional information.

N S E W

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Feet

SR 520 Montlake to Lake Washington
I/C and Bridge Replacement
Seattle, Washington

HAZARDOUS MATERIALS BASELINES

February 2018 21-1-22242-003

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Sheet 1 of 7 **EXHIBIT 1**

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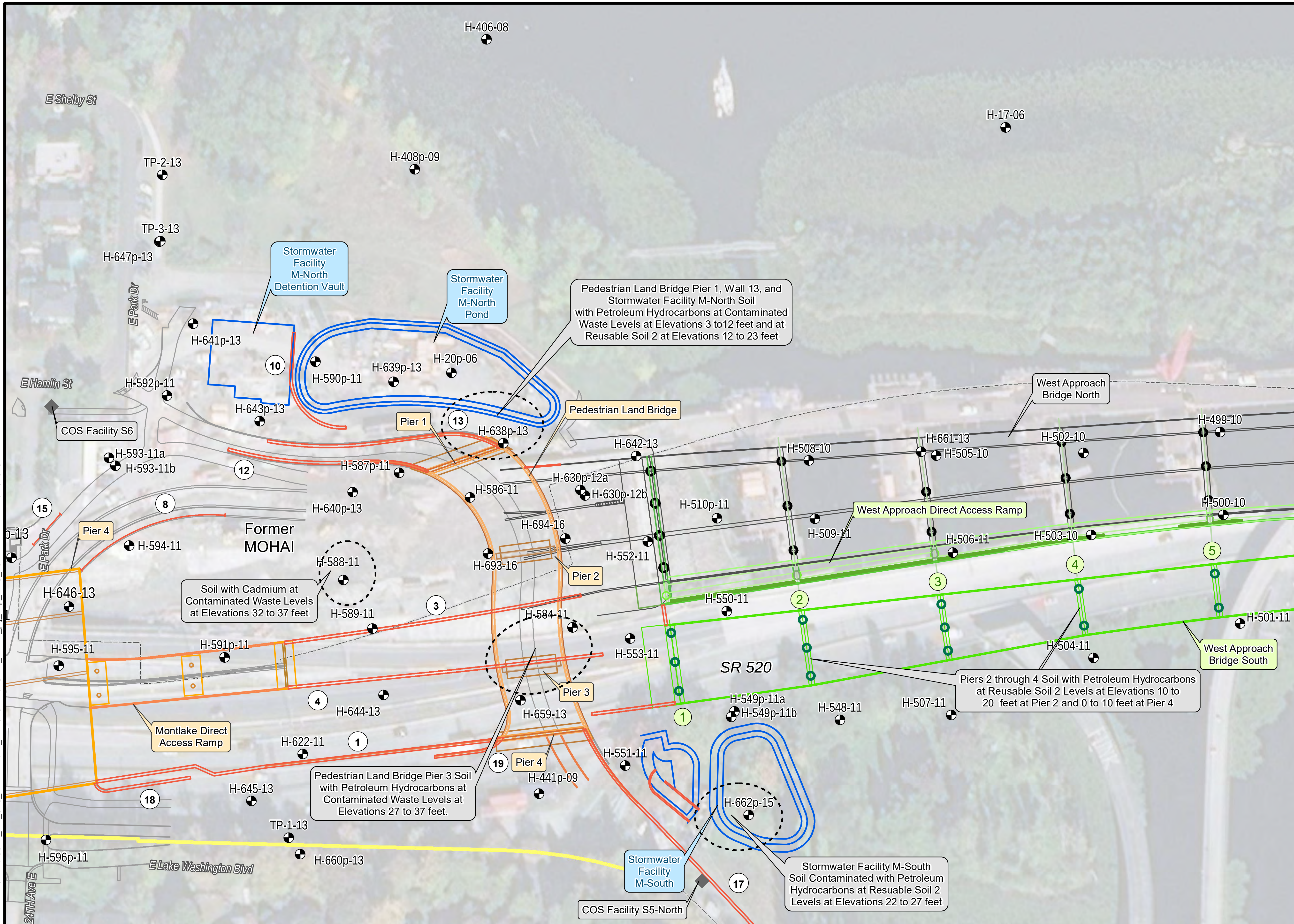

LEGEND

- Subsurface Explorations
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N E S W

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Feet

SR 520 Montlake to Lake Washington I/C and Bridge Replacement
Seattle, Washington

HAZARDOUS MATERIALS BASELINES

February 2018 21-1-22242-003

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Sheet 2 of 7 | **EXHIBIT 1**

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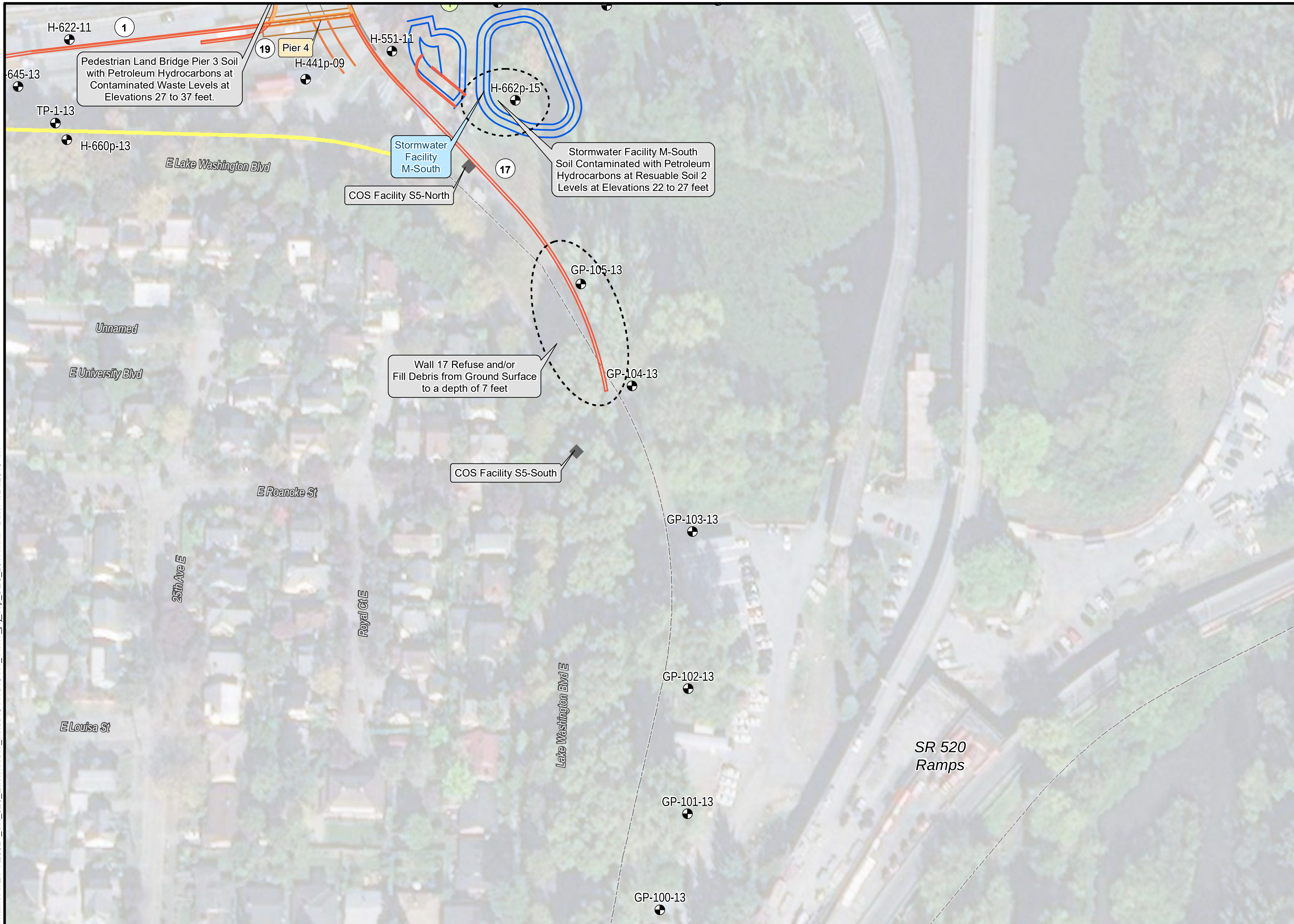

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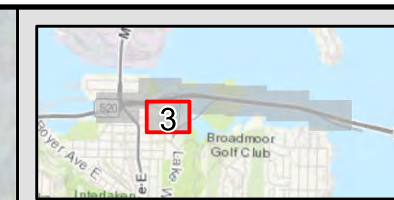


LEGEND

- Subsurface Explorations
- Proposed Bridge
- Proposed Alignment
- Proposed Retaining Wall & Designation
- Proposed Pedestrian Bridge / Lid Bridge
- Proposed Stormwater Facility
- WSDOT ROW
- City of Seattle ROW

NOTES

1. WSDOT = Washington State Department Of Transportation. ROW = Right Of Way
2. Proposed Alignment Features from WSDOT, 2016-11.
3. See report text for additional information.

N W E S

0 100 Feet

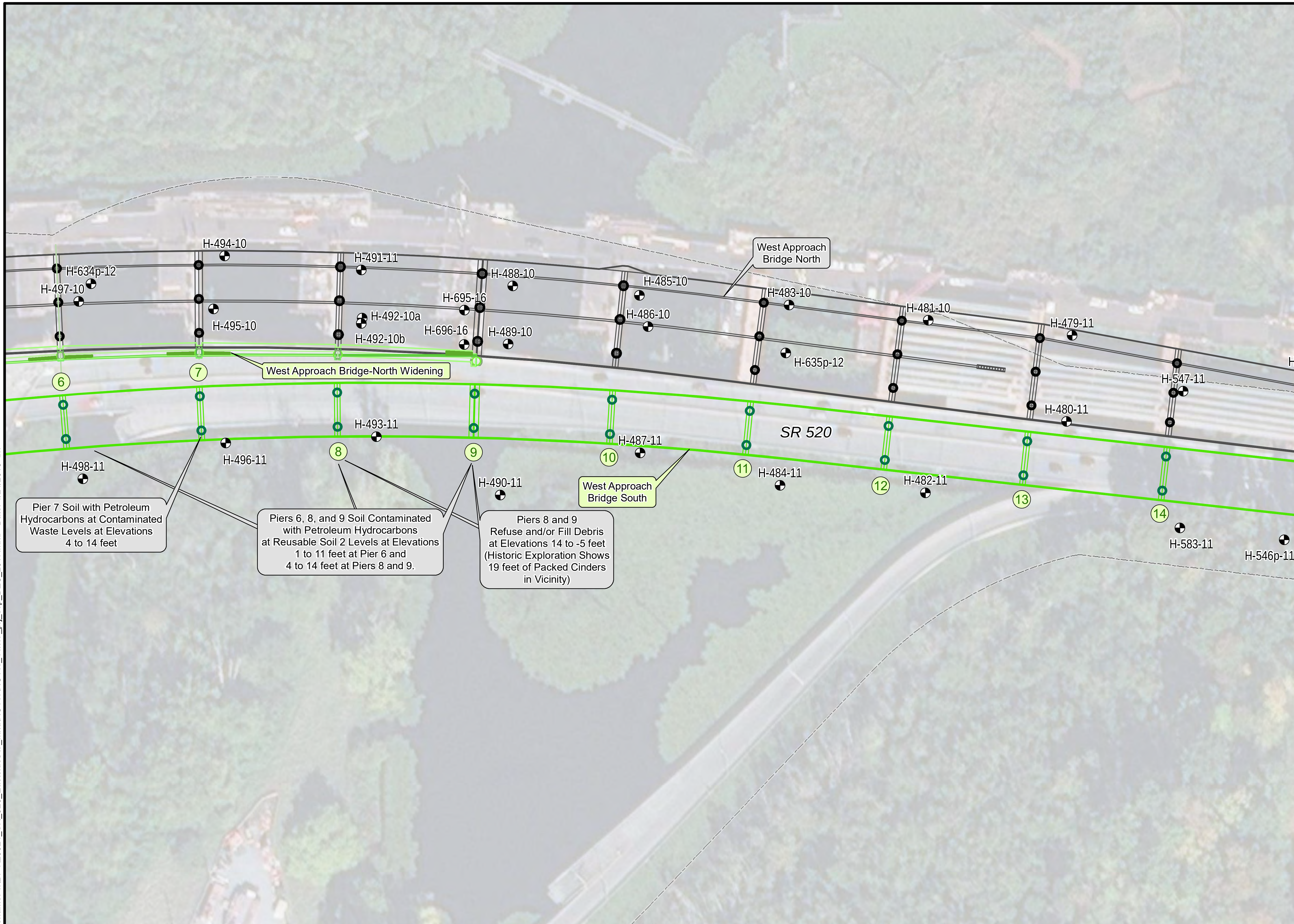
SR 520 Montlake to Lake Washington I/C and Bridge Replacement
Seattle, Washington

HAZARDOUS MATERIALS BASELINES

February 2018 21-1-22242-003

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Sheet 3 of 7 **EXHIBIT 1**



LEGEND

- Subsurface Explorations
- 5 Proposed Bridge
- Proposed Alignment
- 5 Proposed Retaining Wall & Designation
- Proposed Pedestrian Bridge / Lid Bridge
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- WSDOT ROW
- City of Seattle ROW

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N S E W

0 100 Feet

SR 520 Montlake to Lake Washington I/C and Bridge Replacement
Seattle, Washington

HAZARDOUS MATERIALS BASELINES

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Sheet 4 of 7 **EXHIBIT 1**

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LEGEND

- Subsurface Explorations
- Proposed Bridge
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N W E S

0 100 Feet

SR 520 Montlake to Lake Washington I/C and Bridge Replacement
Seattle, Washington

HAZARDOUS MATERIALS BASELINES

February 2018 21-1-22242-003

SHANNON & WILSON, INC.
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Sheet 5 of 7 **EXHIBIT 1**

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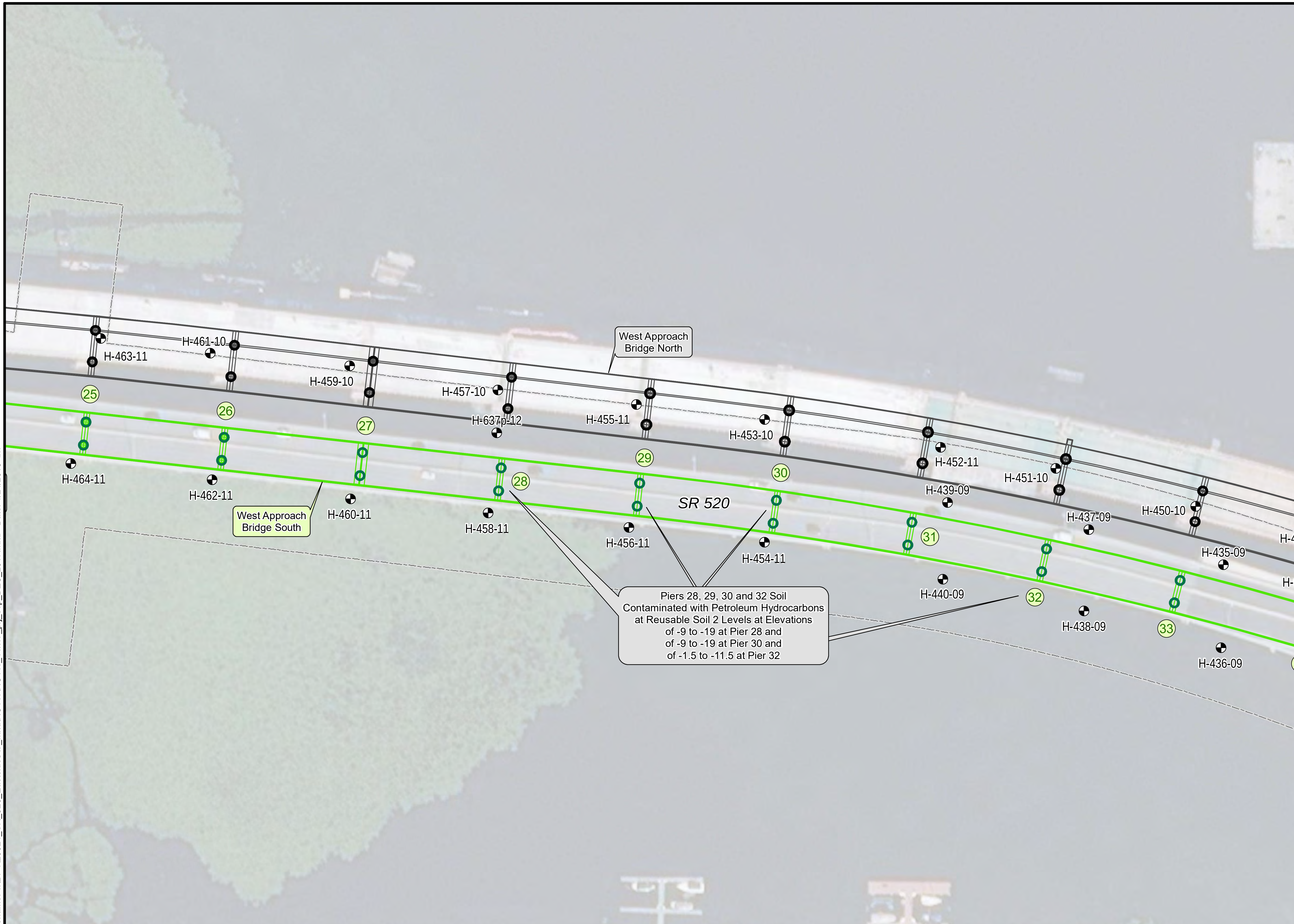

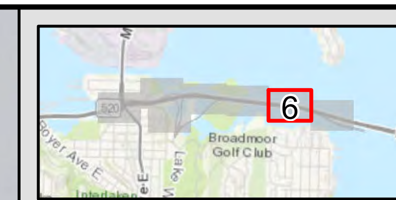

LEGEND

- Subsurface Explorations
- Proposed Bridge
- Proposed Alignment
- Proposed Retaining Wall & Designation
- Proposed Pedestrian Bridge / Lid Bridge
- Proposed Stormwater Facility
- WSDOT ROW
- City of Seattle ROW

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N W E S

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Feet

SR 520 Montlake to Lake Washington I/C and Bridge Replacement
Seattle, Washington

HAZARDOUS MATERIALS BASELINES

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Sheet 6 of 7 **EXHIBIT 1**

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LEGEND

- Subsurface Explorations
- Proposed Bridge
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N S E W

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Feet

SR 520 Montlake to Lake Washington
I/C and Bridge Replacement
Seattle, Washington

HAZARDOUS MATERIALS BASELINES

February 2018 21-1-22242-003

SHANNON & WILSON, INC.
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Sheet 7 of 7 **EXHIBIT 1**

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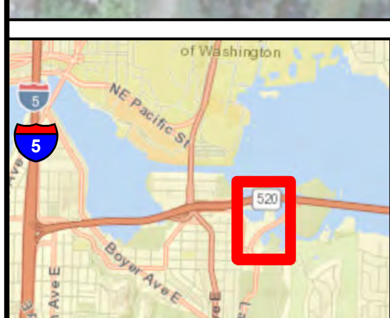

LEGEND

Methane Producing Area

N
W E
S

0 50 100
Feet

SR 520 Montlake to Lake Washington
I/C and Bridge Replacement
Seattle, Washington

METHANE PRODUCING AREA IN WASHINGTON PENINSULA AREA

February 2018

21-1-22242-003

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

EXHIBIT 2

ATTACHMENT III
WDOE Guidance for Reuse of PCS
Tables 12.1 – 12.2

Table 12.1 Guidelines for Reuse of Petroleum-Contaminated Soil					
Parameter	**Analytical Method**	**Soil Category (8)(9)(10)**			
		1 No detectable Petroleum Components (mg/kg)	**2 Commercial Fill Above Water Table (mg/kg)**	**3 Paving Base Material & Road Construction (mg/kg)**	**4 Landfill Daily Cover or Asphalt Manufacturing (mg/kg)**
Total Petroleum Hydrocarbons (1)(2) See Table 7.1 for petroleum products that fall within these categories.					
Gasoline Range Organics	NWTPH-Gx	<5	5 - 30	>30 - 100	>100
Diesel Range Organics	NWTPH-Dx	<25	25 - 200	>200 - 500	>500
Heavy Fuels and Oils*	NWTPH-Dx	<100	100 - 200	>200 – 500	>500
Mineral Oil	NWTPH-Dx	<100	100 - 200	>200 – 500	>500
Volatile Petroleum Components					
Benzene	SW8260B	<0.005	0.005 - 0.03	0.03 or less	See Table 12.2
Ethyl benzene	SW8260B	<0.005	0.005 - 6	6 or less	>6
Toluene	SW8260B	<0.005	0.005 - 7	7 or less	>7
Xylenes (3)	SW8260B	<0.015	0.015 - 9	9 or less	>9
Fuel Additives & Blending Components					
(MTBE) Methyl Tert-Butyl Ether	SW8260B	<0.005	0.005 - 0.1	0.1 or less	>0.1
Lead	SW6010A	<17	17 - 50	>50 - 220	See Table 12.2
Other Petroleum Components					
Polychlorinated (4) Biphenyls (PCBs)	SW8082	<0.04	<0.04	<0.04	See Table 12.2
Naphthalenes (5)	SW8260B	<0.05	0.05 - 5	5 or less	>5
cPAHs (6)	SW8270C	<0.05	0.05 - 0.1	>0.1 - 2	>2
Other Petroleum Characteristics (Applies to soils contaminated with any petroleum product.)					
Odors	Smell	No detectable odor			
Staining	Visual	No unusual color or staining			
Sheen Test	See Footnote # 7	No visible sheen			

IMPORTANT: See Table 12.2 and the footnotes to this Table on the following pages!
Test soil for the parameters specified in Table 7.2.
****Does NOT include waste oil contaminated soils, which should be disposed of in a landfill.***
"<" means less than; ">" means greater than

Table 12.2 Description and Recommended Best Management Practices for Soil Categories in Table 12.1 (continues on next page)		
Category	**Acceptable Uses**	**Limitations**
Category 1 Soils: Soils with no detectable/ quantifiable levels of petroleum hydrocarbons or constituents using the analytical methods listed in Table 7.3 and are not suspected of being contaminated with any other hazardous substances.	• Can be used anywhere the use is allowed under other regulations. • Any use allowed for Category 2, 3 & 4 soils.	• These soils may have a slight petroleum odor, depending on the sensitivity of individuals, and this should be considered when reusing these soils.
Category 2 Soils: Soils with residual levels of petroleum hydrocarbons that could have adverse impacts on the environment in some circumstances.	• Any use allowed for Category 3 & 4 soils. • Backfill at cleanup sites above the water table. • Fill in commercial or industrial areas above the water table. • Road and bridge embankment construction in areas above the water table.	• Should be placed above the highest anticipated high water table. If seasonal groundwater elevation information is not available, place at least 10 feet above the current water table. • Should not be placed within 100 feet of any private drinking water well or within the 10 year wellhead protection area of a public water supply well. • Should not be placed in or directly adjacent to wetlands or surface water where contact with water is possible. • Should not be placed under a surface water infiltration facility or septic drain field. • Any other limitations in state or local regulations.
Category 3 Soils: Soils with moderate levels of residual petroleum contamination that could have adverse impacts on the environment unless re-used in carefully controlled situations.	• Any use allowed for Category 4 soils. • Use as pavement base material under public and private paved streets and roads. • Use as pavement base material under commercial and industrial parking lots.	• Should be placed above the highest anticipated high water table. If seasonal ground water elevation information is not available, place at least 10 feet above the water table. • Should be a maximum of 2 feet thick to minimize potential for leaching or vapor impacts. • Should not be placed within 100 feet of any private drinking water well or within the 10 year wellhead protection area of a public water supply well. • Should not be placed in or directly adjacent to wetlands or surface water. • Should not be placed under a surface water infiltration facility or septic drain field. • When exposed, runoff from area in use should be contained or treated to prevent entrance to storm drains, surface water or wetlands. • Any other limitations in state or local regulations.

Table 12.2 Description and Recommended Best Management Practices for Soil Categories in Table 12.1 (continued)		
Category	**Acceptable Uses**	**Limitations**
Category 4 Soils: Soils with high levels of petroleum contamination that should not be re-used except in very limited circumstances.	• Use in the manufacture of asphalt. • Use as daily cover in a lined municipal solid waste or limited purpose landfill provided this is allowed under the landfill operating permit.	**Landfill Limitations:** The soil should be tested for and pass the following tests: ➢ Free liquids test. Soils that contain free liquids cannot be landfilled without treatment. ➢ TCLP for lead and benzene. Unless exempt under WAC 173-303-071(3)(t), soils that fail a TCLP for lead or benzene must be disposed of as hazardous waste. ➢ Flammability test. Soils that fail this test must be disposed of as hazardous waste. ➢ Bioassay test under WAC 173-303-100(5). Soils that fail this test must be disposed of as hazardous waste. ➢ PCBs. Soils with a total PCB content of 2 ppm or more must be disposed of as hazardous waste. Soil used for daily cover should be stockpiled within the landfill lined fill area. Soil containing more than 10,000 mg/kg TPH should be buried immediately with other wastes or daily covered to limit potential worker exposure. Any additional limitations specified in the landfill permit or in other state or local regulations. **Asphalt Manufacturing Limitations:** Soil storage areas should be contained in a bermed area to minimize contact with surface water runoff from adjacent areas. Runoff from storage areas should be considered contaminated until tested to prove otherwise. Soil storage areas should also be lined and covered with a roof or secured tarp to minimize contact with precipitation and potential groundwater contamination. Leachate from storage areas should be considered contaminated until tested to prove otherwise. The soil should be tested for and pass the following tests: ➢ TCLP for lead and benzene. Unless exempt under WAC 173-303-071(3)(t), soils that fail a TCLP for lead or benzene must be disposed of as hazardous waste. ➢ Flammability test. Soils that fail this test must be disposed of as hazardous waste. ➢ Bioassay test under WAC 173-303-100(5). Soils that fail this test must be disposed of as hazardous waste. ➢ No detectable levels of PCBs in soil (<0.04 mg/kg). Precautions should be taken to minimize worker exposure to soil storage piles and any dust or vapors from these piles prior to feeding into the asphalt batch plant.
IMPORTANT: See the following page for additional information!		

Notes to Table 12.1:

Contaminated soils can be treated to achieve these concentrations but dilution with clean soil to achieve these concentrations is a violation of Washington State solid and hazardous waste laws.

(1) See Table 7.1 for a description of what products fall within these general categories. If the product released is unknown, use the limitations for gasoline range organics. If the soil is contaminated from releases from more than one product, use the limitations for both products. For example, if the release is a mixture of gasoline and diesel, the soil should be tested for components of both gas and diesel and the limitations for both fuels and their components used.

(2) The concentrations for diesel, heavy oil and mineral oil are not additive. Use the TPH product category most closely representing the TPH mixture and apply the limitations for that product to the mixture. ***The reuse of waste oil contaminated soil is not allowed due to the wide variety of contaminants likely to be present.***

(3) Value is total of m, o, & p xylenes.

(4) Value is the total of all PCBs. Only heavy oil and mineral oil contaminated soils need to be tested for PCBs. Soil contaminated with a spill from a regulated PCB containing device must be disposed of in a TSCA permitted landfill, regardless of the PCB concentration. Other PCB contaminated soils may be disposed of in a municipal solid waste landfill permitted to receive such materials, provided the concentration does not exceed 2 ppm PCBs (WAC 173-303-9904).

(5) Value is total of naphthalene, 1-methyl naphthalene and 2-methyl naphthalene. Only diesel and heavy oil contaminated soils need to be tested for naphthalenes.

(6) The value is the benzo(a)pyrene equivalent concentration of the following seven cPAHs, using the procedures in WAC 173-340-708(8). The seven cPAHs are as follows: benz(a)anthracene; benzo(b)fluoranthene; benzo(k)fluoranthene; benzo(a)pyrene; chrysene; dibenz(a,h)anthracene; and, indeno(1,2,3-cd)pyrene. Only diesel and heavy oil contaminated soils need to be tested for cPAHs. Soils contaminated with more than 1% polycyclic aromatic hydrocarbons, as that term is defined in WAC 173-303-040 (which is more expansive than the above list), must be disposed of as hazardous waste.

(7) No visible sheen observed on water when approximately one tablespoon of soil placed in approximately ½ liter of water held in a shallow pan (like a gold pan or similar container).

(8) A soil in a lower category can be used for uses specified in any higher category. This means that:

- A category 1 soil can be used for any use specified in categories 1, 2, 3 and 4.
- A category 2 soil can be used for any use specified in categories 2, 3 and 4.
- A categories 3 soil can be used for any use specified in categories 3 and 4.

(9) ***If an environmental site assessment or soil or groundwater analyses indicate contaminants other than common petroleum constituents and naturally occurring levels of metals are likely to be present in the soil of interest at the site (for example, solvents or pesticides), do not reuse the soil.*** The soil should instead be treated using appropriate technology to address all contaminants or landfilled at a solid waste or hazardous waste facility permitted to receive these materials.

(10) Soils in categories 2, 3 and 4 should be stockpiled consistent with the soil storage recommendations in Section 11.3 of this guidance.

ATTACHMENT IV
Laboratory Container Requirements

CONTAINER REQUIREMENTS

NOTICE: With the exception of air samples, samples should either be **delivered to the laboratory within 4 hours of collection** or **cooled and kept between 0°C and 10°C** (Note: DoD/ELAP and TNI require samples to be received at 4°C +/- 2°C)

SOIL

Parameter	Method	Container/Preservatives	Holding Time
Alkalinity	SM 2320B Modified	4 oz Glass Jar	Analyze within 14 Days
Anions - Br, Cl, F, SO_4	EPA 300.0	4 oz Glass Jar	Analyze within 28 Days
Anions - NO_2, NO_3, PO_4	EPA 300.0	4 oz Glass Jar	Analyze within 48 Hours
BTEX / Gasoline Range Hydrocarbons	EPA 8021B/8260	4 oz Glass Jar + Field Preservation Kit[1]	Analyze within 14 Days
Cation Exchange Capacity (CEC)	EPA 9081	4 oz Glass Jar	Analyze within 6 Months
Cyanide	SM 4500-CN C,E	4 oz Glass Jar	Analyze within 28 Days
Diesel / Heavy Oil Range Organics	NWTPH-Dx/EPA 8015/AK102-103	4 oz Glass Jar	Extract within 14 Days / Analyze within 40 Days of Extraction
Extractable Petroleum Hydrocarbons (EPH)	NWEPH	4 oz Glass Jar	Extract within 14 Days / Analyze within 40 Days of Extraction
Grain Size	ASTM D422	32 oz Glass Jar	Analyze within 28 Days
Herbicides	EPA 8151A/ 8270D	4 oz Glass Jar	Extract within 14 Days / Analyze within 40 Days of Extraction
Hexavalent Chromium	EPA 7196	4 oz Glass Jar	Analyze within 28 Days
Ignitability / Flashpoint	ASTM D93/ SW 1010	4 oz Glass Jar	Analyze within 28 Days
Langelier Index / Corrosivity	SM 2330B	4 oz Glass Jar	Analyze Immediately
Mercury (Hg)	EPA 6020/7471	4 oz Glass Jar	Analyze within 28 Days
Metals (Except Mercury)	EPA 6020	4 oz Glass Jar	Analyze within 6 Months
Organic Material	ASTM D2974	4 oz Glass Jar	Analyze within 28 Days
Pentachlorophenol	EPA 8151/8270D	4 oz Glass Jar	Analyze within 14 Days
Pesticides	EPA 8081/8270D	4 oz Glass Jar	Extract within 14 Days / Analyze within 40 Days of Extraction
pH	EPA 9045D	4 oz Glass Jar	Analyze Immediately
Phosphorus, Total	EPA 6020	4 oz Glass Jar	Analyze within 28 Days
Polychlorinated Biphenyls (PCBs/Aroclor)	EPA 8082	4 oz Glass Jar	Unlimited
Semi Volatile Organic Compounds (sVOC)	EPA 8270D / EPA 625	4 oz Glass Jar	Extract within 14 Days / Analyze within 40 Days of Extraction
Salinity	EPA 2520B	4 oz Glass Jar	Analyze within 8 Days
TCLP/SPLP - Metals	EPA 1311 / 1312	4 oz Glass Jar	Analyze within 128 Days (Hg = 28 Days)
TCLP/SPLP - ZHE	EPA 1311 / 1312	4 oz Glass Jar	Analyze within 14 Days
Total Organic Carbon	EPA 9060A	4 oz Glass Jar	Analyze within 28 Days
Volatile Organic Compounds (VOC)	EPA 8260C / EPA 624	4 oz Glass Jar + Field Preservation Kit[1]	Analyze within 14 Days
Volatile Petroleum Hydrocarbons (VPH)	NWVPH + EPA 8021B	4 oz Glass Jar + Field Preservation Kit[1]	Analyze within 14 Days

[1] The Field Preservation Kit for soil consists of (2) x 40mL VOA vials preserved with MeOH and 5g of sample volume.

WATER

Parameter	Method	Container/Preservatives	Holding Time
1,2-Dibromoethane (EDB)	EPA 8011	(2) x 40 mL Glass VOA Vial / HCl	Analyze within 14 Days
Alkalinity	SM 2320B	1 L Polyethylene	Analyze within 28 Days
Anions - Br, Cl, F, SO_4	EPA 300.0	250 mL Polyethylene	Analyze within 28 Days
Anions - NO_2, NO_3, PO_4	EPA 300.0	250 mL Polyethylene	Analyze within 48 Hours
Biological Oxygen Demand (BOD)	SM 5210B	1 L Polyethylene	Analyze within 48 Hours
BTEX / Gasoline Range Hydrocarbons	EPA 8021B/8260	(3) x 40 mL Glass VOA Vial / HCl	Analyze within 14 Days
Chemical Oxygen Demand (COD)	SM 5220D	250 mL Polyethylene / H_2SO_4	Analyze within 28 Days
Coliform, Fecal	SM 9222	110 mL Sterile	Analyze within 6 Hours
Total Bacteria (Fecal+E. Coli)	EPA 1604	110 mL Sterile	Analyze within 6 Hours
Cyanide, Total	SM 4500-CN C,E	500 mL Polyethylene / NaOH	Analyze within 14 Days
Diesel Range Organics	NWTPH-Dx/EPA 8015/AK102-103	1 L Amber Glass / HCl	Extract within 14 Days / Analyze within 40 Days of Extraction
Dissolved Organic Carbon	SM 5310B/C	250 mL Amber Glass	Analyze within 28 Days
Dissolved Oxygen	EPA 360.1	500 mL Polyethylene (No Headspace)	Analyze Immediately
Extractable Petroleum Hydrocarbons (EPH)	NWEPH	1 L Amber Glass / HCl	Extract within 14 Days / Analyze within 40 Days of Extraction
Ferrous Iron	SM3500-Fe B	500 mL Amber Glass / HCl / Protect from Sunlight / No Headspace	Analyze within 24 Hours
Herbicides	EPA 8151A 8270D	1 L Amber Glass	Extract within 7 Days / Analyze within 40 Days of Extraction
Hexavalent Chromium	SM3500 / EPA 7196	500 mL Polyethylene	Analyze within 24 Hours
Ignitability / Flashpoint	ASTM D93/EPA 1010A	250 mL Amber Glass	Analyze within 28 Days
Langelier Index / Corrosivity (Alk, Ca, pH, TDS)	SM 2330B	1 L Polyethylene	Analyze Immediately
Mercury (Hg)	EPA 200.8/ 245.1/7470	500 mL Polyethylene / HNO_3	Analyze within 28 Days
Metals, Dissolved (Except Mercury)	EPA 6020/200.8	500 mL Polyethylene / HNO_3 (Field Filtered) ***or*** 500 mL Polyethylene (request Lab Filtration)	Analyze within 6 Months or Filter and Preserve within 14 Days
Metals, Total (Except Mercury)	EPA 6020/200.8	250 mL Polyethylene / HNO_3	Analyze within 6 Months
Methane, Ethane, and Ethene	RSK-175	(3) x 40 mL Glass VOA Vial / HCl	Analyze within 14 Days
Nitrogen			
Ammonia	SM 4500 NH_3 D	1 L Polyethylene / H_2SO_4	Analyze within 28 Days
Kjeldahl	SM 4500N	1 L Polyethylene / H_2SO_4	Analyze within 28 Days
Nitrate	EPA 300.0	250 mL Polyethylene	Analyze within 48 Hours
Nitrite	EPA 300.0	250 mL Polyethylene	Analyze within 48 Hours
Nitrate+Nitrite	EPA 300.0	250 mL Polyethylene	Analyze within 48 Hours
Oil & Grease	EPA 1664	1 L Amber Glass / HCl	Analyze within 28 Days
Pentachlorophenol	EPA 8151/8270D	1 L Amber Glass	Analyze within 14 Days
Pesticides	EPA 8081/8270D	1 L Amber Glass	Extract within 7 Days / Analyze within 40 Days of Extraction
pH	SM 4500H+B	250 mL Polyethylene	Analyze Immediately
Phosphorus, Total	EPA 365.3	500 mL Polyethylene / H_2SO_4	Analyze within 28 Days
Polychlorinated Biphenyls (PCBs/Aroclor)	EPA 8082 / EPA 608	1 L Amber Glass	Unlimited
Residual Chlorine	SM 4500Cl	250 mL Amber Glass / Protect from Sunlight	Analyze Immediately
Salinity	EPA 2520B	250 mL Polyethylene	Analyze within 8 Days
Semi Volatile Organic Compounds (BNA, PAH)	EPA 8270D / EPA 625	1 L Amber Glass	Extract within 7 Days / Analyze within 40 Days of Extraction

WATER

Parameter	Method	Container/Preservatives	Holding Time
Solids			
Settleable	SM 2540F	1 L Polyethylene	Analyze within 48 Hours
Total	SM 2540B	500 mL Polyethylene	Analyze within 7 Days
Total Dissolved (TDS)	SM 2540C	500 mL Polyethylene	Analyze within 7 Days
Total Suspended (TSS)	SM 2540D	500 mL Polyethylene	Analyze within 7 Days
Total Volatile (TVS)	SM 2540E	500 mL Polyethylene	Analyze within 7 Days
Specific Conductance (Conductivity)	SM 2510B	250 mL Polyethylene	Analyze within 28 Days
Sulfide	SM 4500-S^{2-}F	500 mL Polyethylene / Zn Acetate + NaOH	Analyze within 7 Days
Total Inorganic Carbon (TIC)	SM 5310C	(1) x 250 mL Amber Glass (1) x 250 mL Amber Glass / H_2SO_4	Analyze within 28 Days
Total Organic Carbon (TOC)	SM 5310B/C	250 mL Amber Glass / H_2SO_4 /	Analyze within 28 Days
Turbidity	EPA 180.1	250 mL Polyethylene	Analyze within 48 Hours
Volatile Organic Compounds (VOC)	EPA 8260C / EPA 624	(3) x 40 mL Glass VOA Vial / HCl	Analyze within 14 Days
Volatile Petroleum Hydrocarbons (VPH)	NWVPH	(3) x 40 mL Glass VOA Vial / HCl	Analyze within 14 Days

DRINKING WATER

Parameter	Method	Container/Preservatives	Holding Time
Alkalinity	SM 2320B	250 mL Polyethylene	Analyze within 28 Days
Anions			
Bromide (Br)	EPA 300.0	250 mL Polyethylene	Analyze within 28 Days
Chloride (Cl)	EPA 300.0	250 mL Polyethylene	Analyze within 28 Days
Fluoride (F)	EPA 300.0	250 mL Polyethylene	Analyze within 28 Days
Nitrate (NO_3)	EPA 300.0	250 mL Polyethylene	Analyze within 48 Hours
Nitrite (NO_2)	EPA 300.0	250 mL Polyethylene	Analyze within 48 Hours
Nitrate + Nitrite	EPA 300.0	250 mL Polyethylene	Analyze within 48 Hours
Phosphate, Ortho (PO_4)	EPA 300.0	250 mL Polyethylene	Analyze within 48 Hours
Sulfate (SO_4)	EPA 300.0	250 mL Polyethylene	Analyze within 28 Days
Cyanide, Total	SM 4500-CN E	500 mL Polyethylene / NaOH	Analyze within 14 Days
Hardness (as $CaCO_3$)	EPA 200.8	500 mL Polyethylene	Analyze within 180 Days after lab preservation
Langelier Index/Corrosivity (Alk, Ca, pH, TDS)	SM 2330 B	1 L Polyethylene	Analyze Immediately
Metals	EPA 200.8/245.1	1 L Polyethylene	Analyze within 180 Days (Hg = 28 Days) after lab preservation
Total Coliform (Coliform + E.Coli)	EPA 1604	110 mL Sterile / $Na_2S_2O_3$	Analyze within 30 Hours
Total Dissolved Solids	SM 2540C	500 mL Polyethylene	Analyze within 7 Days
Total Organic Carbon (TOC)	SM 5310C	250 mL Amber Glass / H_2SO_4 /	Analyze within 28 Days
Turbidity	EPA 180.1	250 mL Polyethylene	Analyze within 48 Hours

Appendix D

Slope Stability Analysis Memorandum

Technical Memorandum SR 520 Land Structures Montlake Market Excavation Temporary Cut Slope Stability Analysis – Document ID 22.15

GOLDER

TECHNICAL MEMORANDUM

DATE March 26, 2021 **Project No.** 1810424201

TO Catherine Hovell, PE
T.Y. Lin International

CC

FROM Tex Widmer, PE; Ali Khoja; and
Reda Mikhail, PE **EMAIL twidmer@golder.com**

SR 520 LAND STRUCTURES
MONTLAKE MARKET EXCAVATION TEMPORARY CUT SLOPE STABILITY ANALYSIS
CONTRACT NO-9015 – TR SECTION – 2.6.9.1 – DOCUMENT ID 22.15

1.0 INTRODUCTION

As part of the SR 520 Montlake to Lake Washington Interchange and Bridge Replacement Project, temporary cut slopes are planned for the Remedial Action Plan (RAP) for the Montlake Gas Station (Site). The layback for the proposed cuts will unload about 5 to 10 feet of soils directly above the existing King County 108-inch sewer line that runs under Montlake Boulevard.

This technical memorandum presents Golder Associates Inc.'s (Golder's) unloading analysis to assess impacts, if any, to the existing sewer line due to soil unloading. This memorandum had previously been submitted to WSDOT for their over-the-shoulder review and has been revised to address changes to the excavation limits and maintenance of traffic (MOT) needs along Montlake Boulevard.

Golder's evaluation in this phase includes assessing unloading stability for two temporary cut slope configurations:

- Uniform slope graded at 1.5H:1V (horizontal:vertical)
- Compound Slope transitioning from 1:5H:1V in dense soil to 2H:1V in pipe backfill

2.0 INPUTS FOR TEMPORARY CUT SLOPES

The location and geometry for the temporary cut slopes were provided to Golder in the Market Contamination Map from the Post Design Change (PDR) #00016 request dated February, 4, 2021 and subsequent conversations with Graham regarding traffic limits, dated March 24, 2021. Plan and cross section views of the temporary slopes are included in Attachments A and B of this memorandum. Based on Golder's understanding, the proposed cuts will have a maximum slope height of approximately 26 feet. The soil profiles used in the stability analysis were created using applicable information from the following documents provided in the RFP:

- Montlake to Lake Washington Interchange and Bridge Replacement Geotechnical Baseline Report (Appendix G1, WSDOT 2018a)

- Montlake to Lake Washington Interchange and Bridge Replacement Geotechnical Data Report (Appendix G2, WSDOT 2018b)
- Draft GRA-GDR-00016 Montlake Gas Station VCP Contamination Map (Shannon & Wilson, November 19, 2020)
- Draft Montlake Market Phase II Boring Logs (Innovex Environmental Management, Inc., October 8, 2016 to December 6, 2018)

3.0 SUBSURFACE CONDITIONS

Attachment A presents an aerial view of nearby borings and location of Section B-B', which is provided in Attachment B and shows the assumed extents of the historical backfill and the general location of the temporary slopes reviewed in this memorandum. Relevant borings used in the analysis are presented in Attachment C.

The soils generally consist of the following:

- **Pipe Backfill**: consisting of loose to medium silty sand. Per discussion with Graham, backfill could consist of pea gravel
- **Silt/Sand (Layer A**): loose to medium dense sandy silt to silty sand with occasional debris
- **Silt/Sand (Layer B)**: medium dense to dense silty sand
- **Dense Sand**: very dense silty sand
- **Glacial Till**: very dense silt with sand and gravel

For design purposes, Golder estimated a groundwater elevation of 45 feet. The estimate is based on the groundwater elevation shown in Attachment B and the groundwater elevation contours presented in Golder's technical memorandum dated February 12, 2020 (Golder 2020).

4.0 SOIL DESIGN PARAMETERS

Soil parameters for the soil units used in this analysis were selected following the methods and procedures laid out in the Soil Design Properties Memorandum (Golder 2019). The soil properties used in the stability analyses are summarized in the Table 1. In general, the methods listed below were followed to develop the soil properties used in the design based on field data, soil descriptions, our engineering judgment and local experience.

- Unit weight: Chapter 5 of the WSDOT Geotechnical Design Manual (GDM) M 46-03.11 (WSDOT 2018c) and Table 2-8 from the EPRI Manual (Kulhawy et. al 1990)
- Friction Angle: $(N_1)_{60}$ correlation presented in Table 5-1 of the WSDOT GDM (WSDOT 2018c) for granular soils
- Effective Cohesion: Section 5.10 of the WSDOT GDM (WSDOT 2018c)

Table 1: Soil Input Parameters for Slope Stability Assessment

Soil Unit	Range of Corrected SPT Values: $(N_1)_{60}$	Unit Weight (pcf)	Effective Friction Angle (deg)	Effective Cohesion (psf)
Pipe Backfill	4-28 [13]	115	30	0
Silt/Sand (Layer A)	4-24 [14]	115	30	0
Silt/Sand (Layer B)	22 - 70 [39]	120	36[3]	100
Dense Sand	50+	130	38	100
Glacial Till	50+	135	40	200

Notes:
1) Abbreviations: SPT = Standard Penetration Test; pcf = pounds per cubic foot; psf = pounds per square foot; deg = degrees;
2) [ ] = average value
3) The friction angle was reduced to account for cohesion.

The approach and assumptions for estimating the soil properties are described below:

- Pipe Backfill

  A limited number of borings were drilled within the pipe backfill area. Given the uncertainty of the backfill material and potential for pea gravel, Golder elected to not rely on cohesion in this soil unit. The friction angle assigned to the backfill is reasonably consistent with the estimated relative density for the backfill.

- **Silt/Sand Layer A**

  The SPT blow counts in this layer were shown to vary between borings. In some borings, debris was present within the layer. As such, Golder elected not to rely on cohesion for this unit. The friction angle assigned to the backfill is reasonably consistent with the estimated relative density, which is relatively low, for this soil unit.

- **Silt/Sand Layer B**

  The soils in this layer had appreciable amount of fines and relatively high SPT-N values. As such, Golder assigned a relatively small value of cohesion, assuming the excavation is temporary (i.e., short-term) and moisture can be controlled. Additionally, Golder reduced the estimated friction angle by a few degrees to account for cohesion based on guidance in the GDM.

- **Dense Sand Layer**

  The soils in this layer had appreciable amount of fines and is very dense (SPT-N values $(N_1)_{60}$ >50). As such, Golder assigned a relatively small value of cohesion, assuming the excavation is temporary (i.e., short-term) and moisture can be controlled. Additionally, Golder reduced the estimated friction angle by a few degrees to account for cohesion based on guidance in the GDM.

- **Glacial Till**

  Soil strength properties were estimated based on the SPT blow counts (typically very dense $(N_1)_{60}$ >50) and our experience with local soils and performance on the past projects. The values of friction and cohesion assigned to the Glacial till are also consistent with the ranges provided in the WSDOT GDM (WSDOT 2018c).

5.0 MODEL ASSUMPTIONS AND UNCERTAINTY

This section discusses the assumptions and uncertainty in the analyses.

5.1 Groundwater

Golder understands that no active dewatering system (e.g., well points) will be used to lower the groundwater at the site and sumps (i.e, passive system) will be used to drain groundwater seeping into the excavation. This is an important assumption for the analysis. Golder understands that dewatering and seepage evaluation will be handled by others. Golder recommends that seepage be monitored along the slope face to account for unforeseen conditions that warrant active dewatering.

5.2 Traffic Surcharge

Golder assumed a uniform vertical traffic surcharge of 250 pounds per square-foot applied along the top of the slope. Based on discussions with the team, the analysis assumes traffic will be 3 feet or more away from the edge of the slope and extend to the east shoulder of Montlake Boulevard.

5.3 Soil Layering

In situ geometry of the pipe backfill may vary in shape and size to the cross section provided in PDR #00016. Additionally, the depth of soil layers assumed in the analyses based on the provided cross section may vary in the field. The actual depth and extent of these soil layers will need to be confirmed in the field by the geotechnical special inspector (GSI).

The contact depth between the pipe backfill and the underlying dense soils is an important assumption for the compound slope. A GSI should confirm soil conditions before the slope is transitioned from a 2H:1V in pipe backfill or loose soil to 1.5H:1V in dense soils. Significant drop in the contact depth would warrant adjusting the toe of the slope to maintain adequate traffic limits.

6.0 RESULTS OF STABILITY ANALYSIS

Slope stability evaluation was based on the Spencer and Global Limit Equilibrium methods using Slide2 Version 9.008 (Rocscience 2020). The minimum factor of safety required for the temporary cut slopes is 1.25 per the WSDOT GDM (WSDOT 2018c) Sections 10.3.1 and 15.7.3.2. Results of the slope stability analysis are summarized in Table 2 and presented in Attachment D.

Based on the slope stability analysis and the assumptions in Section 4.0, the temporary cut slopes will need to be sloped at 2H:1V or flatter in pipe backfill material and 1.5H:1V or flatter in dense soils to meet the minimum required Factor of Safety of 1.25.

Table 2: Slope Stability Results for Temporary Cut Slopes

Slope Cut	Factor of Safety	Design Acceptable?
Uniform Slope: 1.5H:1V	1.1	No
Compound Slope: 1.5H:1V to 2H:1V	1.35	Yes

Note:
1) Factor of Safety rounded to nearest 0.05.

7.0 CONCLUSIONS

The slope stability analyses presented in this technical memorandum show that temporary cut slope planned as part of the RAP for the Montlake Gas Station shown in Attachment A meet the required minimum factor of safety of 1.25 for temporary cut slopes for the compound slope configuration and if the assumptions in Section 5.0 are met.

Golder Associates Inc.

Tex Widmer, PE
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3/26/2021

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Principal, Geotechnical Practice Leader

TW/AK/RAM/tp

Attachments: Attachment A: Plan View
Attachment B: Cross Sections
Attachment C: Soil Logs
Attachment D: Slope Stability Results

https://golderassociates.sharepoint.com/sites/103096/deliverables/cso and montlake excavation/tr 2.6.9.1-pre-montlake excavation temporary slopes memorandum 2021-03-26.docx

8.0 REFERENCES

Golder Associates Inc. (Golder). 2019. Soil Design Properties Memorandum SR 520 Montlake to Lake Washington Interchange and Bridge Replacement Project Contract No. C9015 – TR Section 2.6.9.4 – Document ID 22.04. Prepared for T.Y. Lin International, dated May 8, 2019.

Golder. 2020. Groundwater Seepage Analysis For Montlake Lid Structure SR 520 Montlake To Lake Washington I/C And Bridge Replacement Project Contract No 9015 – TR Section 2.6.9.6 - Document ID 22.19. Submitted to Norman Smit, PE., T.Y. Lin International. February 12.

Kulhawy, F.H. and P.W. Mayne. 1990. Manual on Estimating Soil Properties for Foundation Design. Electric Power Research Institute (ERPI): Research Project 1493-6.

Shannon & Wilson, Inc. (S&W). 2020. Montlake Gas Station VCP Contamination Map, dated November 19.

Rocscience Inc. 2020. Slide. Version 9.008. Toronto, Canada.

Washington State Department of Transportation (WSDOT) Request for Proposal (RFP). 2018a. SR 520 Montlake to Lake Washington – Interchange and Bridge Replacement, Appendix G1 Montlake to Lake Washington Interchange and Bridge Replacement Geotechnical Baseline Report.

Washington State Department of Transportation (WSDOT) Request for Proposal (RFP). 2018b. SR 520 Montlake to Lake Washington – Interchange and Bridge Replacement, Appendix G2 Montlake to Lake Washington Interchange and Bridge Replacement Geotechnical Data Report.

Washington State Department of Transportation (WSDOT) Request for Proposal (RFP). 2018c. SR 520 Montlake to Lake Washington – Interchange and Bridge Replacement, Appendix D5 WSDOT Geotechnical Design Manual (M 46-03).

ATTACHMENT A

Plan View

Legend

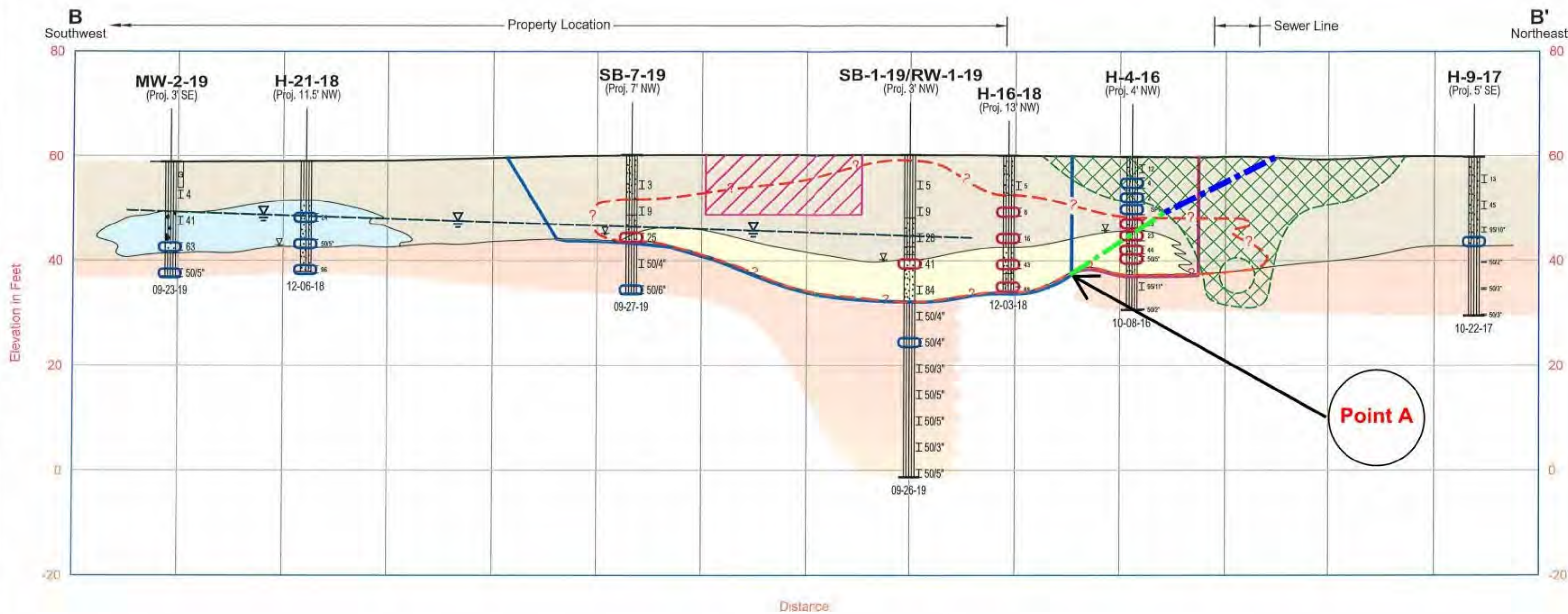
= Soil borings used in analysis

= Section B-B' used in analysis

CLIENT	TY LIN INTERNATIONAL	PROJECT	SR 520 LAND STRUCTURES MONTLAKE MARKET EXCAVATION TEMPORARY CUT SLOPE STABILITY ANALYSIS
CONSULTANT	GOLDER	TITLE	Aerial Map
YYYY-MM-DD	02/25/2021	PROJECT NO.	18104242
PREPARED	JTW	REV.	A
DESIGNED	JTW	Figure	A-1
REVIEWED			
APPROVED			

ATTACHMENT B

Cross Sections



Slope Legend

1.5H:1V

2H:1V

BORING LOG LEGEND
(Project Boring)

SB-7-19 — Boring Designation
(Proj. 7' NW) — Projected Distance and Direction

26 — Standard Penetration Test Blows/Foot or
50/5" — Blows/Inches Driven

USCS Symbol

? — Approximate Geologic Contact

Bottom of Boring
09-27-19 — Date Completed

LEGEND

- Conceptual Excavation Line for Sewer Line Installment and Approximate Sewer Line Location
- Approximate Extent of Contamination Based on Field Logs of Borings
- Water Table Elevation (Measured 10/17/2019)
- Sandy Silt to Silty Sand, Low to Moderate Plasticity, Gray to Brown Gray, Dry to Wet
- Gravelly Silty Sand, Gray to Brown Gray, Damp to Wet
- Poorly Graded Sand to Sand with Silt, Fine to Coarse, Trace to Some Silt, Trace Gravel, Gray to Dark Gray, Wet
- Glacial Till. Very Dense, Brittle, Dry, Silt with Sand and Gravel
- Soil Sample Collected and Analyzed to Have Concentrations of Gasoline (Primary Site Contaminant) Above MTCA Cleanup Levels
- Soil Sample Collected and Analyzed to Have Concentrations of Gasoline (Primary Site Contaminant) Below MTCA Cleanup Levels
- Proposed Excavation Extent
- Additional Proposed Excavation Extent
- Approximate Extent of UST Fill Area

0 20 40

Scale in Feet
Horizontal = Vertical

DRAFT

Montlake Gas Station VCP
2625 East Montlake Place E
Seattle, Washington

GENERALIZED SUBSURFACE CROSS SECTION B-B'

November 2019 21-1-22242-104

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS | EXHIBIT 6.2

Filename: \\sea-fs1\Drafting\21\22242\104\21-1-22242-104 Plan and Profiles.dwg Layout: Exhibit 6.2 Date: 11-12-2019 Login: JRS

CLIENT TY LIN INTERNATIONAL	PROJECT SR 520 LAND STRUCTURES MONTLAKE MARKET EXCAVATION TEMPORARY CUT SLOPE STABILITY ANALYSIS
CONSULTANT GOLDER YYYY-MM-DD 03/25/2021 PREPARED JTW DESIGNED JTW REVIEWED AK APPROVED RM	TITLE Section B-B' with 2H:1V Slope
	PROJECT NO. 18104242 REV. A Figure B-1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI B

ATTACHMENT C

Soil Logs

Total Depth:	21.4 ft.	Northing:	238,166 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	58.9 ft.	Easting:	1,277,766 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION

Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.

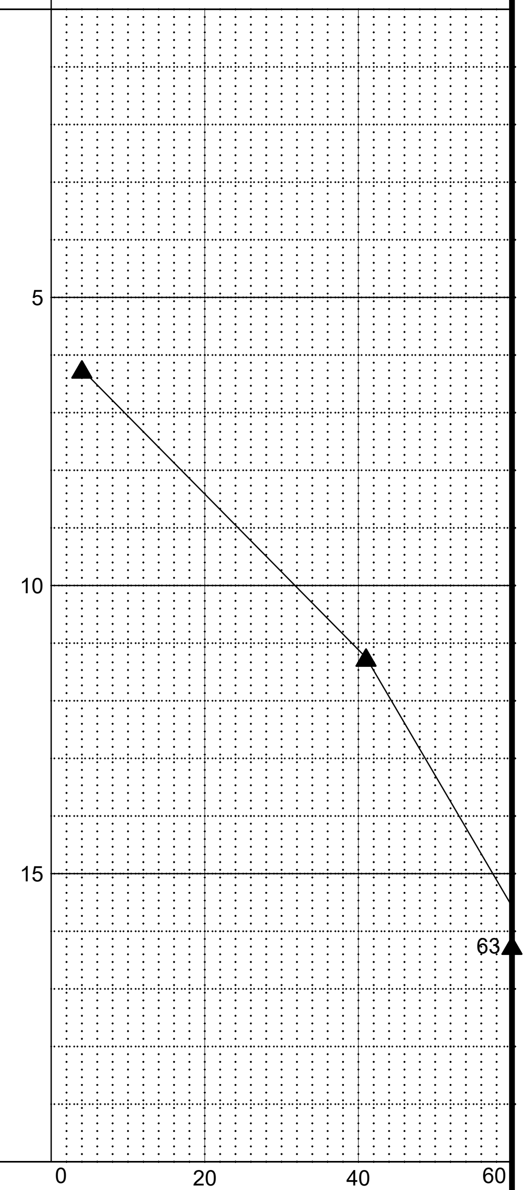
Soil Description	Depth, ft.	PID, ppm	Samples
Asphalt.			
Brown, slightly gravelly, sandy SILT to slightly gravelly, silty SAND mixed with silty CLAY; moist; clay clasts and pockets, description based on limited grab sample from vac sidewall; (Hf) ML/SM. - Air vac clearance to 5.5 feet.	0.7	0.3	S-1
Loose, brown, slightly gravelly, silty SAND; moist; (Hf) SM.	5.5	0.3	S-2
Loose, red-brown, slightly gravelly, sandy SILT; moist; (Hf) ML.	6.0		
Loose, brown, gravelly, silty SAND, trace of clay; moist; trace clay pockets; (Hf) SM.	8.0	0.3	R-1
Dense, gray-brown, gravelly, silty SAND; moist to wet; slight diamict texture; (Qvat) SM.	9.5	0.3 0.3	S-3 R-2
Very dense, gray-brown, silty fine SAND to fine sandy SILT; moist to wet; 3-inch-thick laminated silty clay pockets around 16.5 feet; (Qvd) SM/ML.	15.0	0.3	S-4 E
Very dense, gray, gravelly, silty SAND; moist; diamict; (Qpgt) SM.	17.5	0.3	R-3

Groundwater: 10/17/2019

CONTINUED NEXT SHEET

PENETRATION RESISTANCE (blows/foot)

▲ Hammer Wt. & Drop: 140 lbs / 30 inches



◇ % Fines (<0.075mm)
● Natural Water Content

NOTES

1. Refer to SOIL CLASSIFICATION AND LOG KEY for explanation of symbols, codes, abbreviations and definitions.
2. Groundwater level, if indicated above, is for the date specified and may vary. Groundwater level is the highest available measurement to date. Groundwater plots contain complete data sets.
3. USCS designation is based on visual-manual classification and selected lab testing.
4. Hammer ER = hammer energy ratio (efficiency) as a percentage.

Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING MW-2-19

March 2020 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

REV 3

Total Depth:	21.4 ft.	Northing:	238,166 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	58.9 ft.	Easting:	1,277,766 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION *Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.*	Depth, ft.	Symbol	PID, ppm	Samples	Ground-water	Depth, ft.	**PENETRATION RESISTANCE** (blows/foot) ▲ Hammer Wt. & Drop: 140 lbs / 30 inches (0 20 40 60)
			0.3	S-5 E			50/5"
BOTTOM OF BORING COMPLETED 9/23/2019	21.4						
						25	
						30	
						35	

0 20 40 60

◇ % Fines (<0.075mm)
● Natural Water Content

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LOG OF BORING MW-2-19

March 2020 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

REV 3

Total Depth:	60.4 ft.	Northing:	238,268 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	60.2 ft.	Easting:	1,277,864 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION

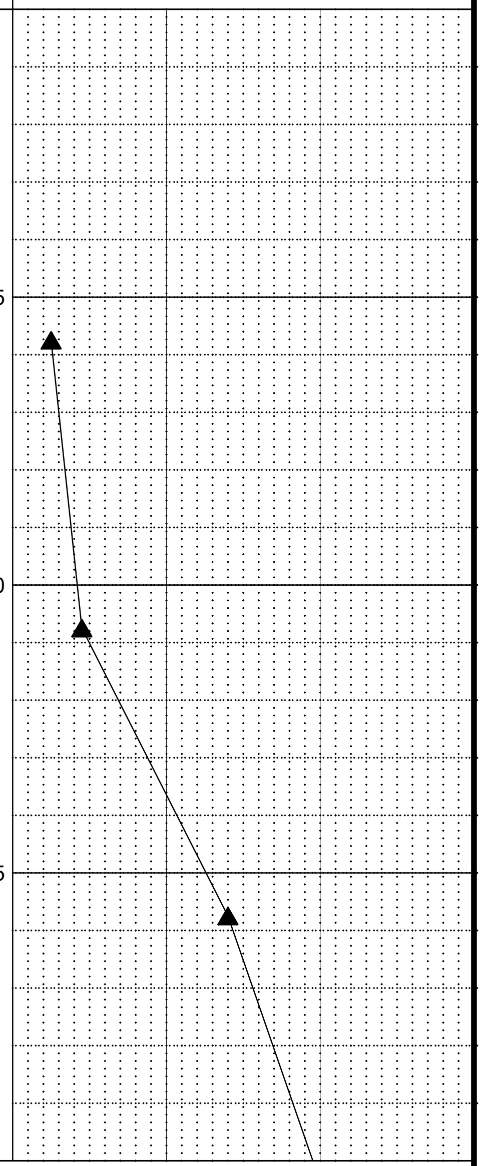
Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.

Soil Description	Depth, ft.	PID, ppm	Samples
Asphalt.	0.7		
Loose, gray and brown mottled, slightly gravelly, sandy SILT, trace of clay and cobbles; moist; strong petroleum odor; (Hf) ML. - Air vac clearance to 5 feet. - Color changed to blue-gray at around 5 feet. - Concrete piece and wood debris at 11.9 feet.	12.0	56.1 104 92	S-1 R-1 S-2
Medium dense, blue-gray, trace to slightly gravellly, silty SAND; moist, wet below 15 feet; strong petroleum odor; (Qvat) SM. - Sheen observed at about 15 feet.	17.5	2250 1070	R-2 S-3
Medium dense to dense, gray, silty, gravelly SAND; moist to wet; strong petroleum odor; (Qvat) SM.	19.0	1000	R-3

Ground-water: E 11/14/2019

PENETRATION RESISTANCE (blows/foot)

▲ Hammer Wt. & Drop: 140 lbs / 30 inches



◇ % Fines (<0.075mm)

● Natural Water Content

CONTINUED NEXT SHEET

NOTES

1. Refer to SOIL CLASSIFICATION AND LOG KEY for explanation of symbols, codes, abbreviations and definitions.
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3. USCS designation is based on visual-manual classification and selected lab testing.
4. Hammer ER = hammer energy ratio (efficiency) as a percentage.

Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING RW-1-19

March 2020 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

REV 3

Total Depth:	60.4 ft.	Northing:	238,268 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	60.2 ft.	Easting:	1,277,864 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION

Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.

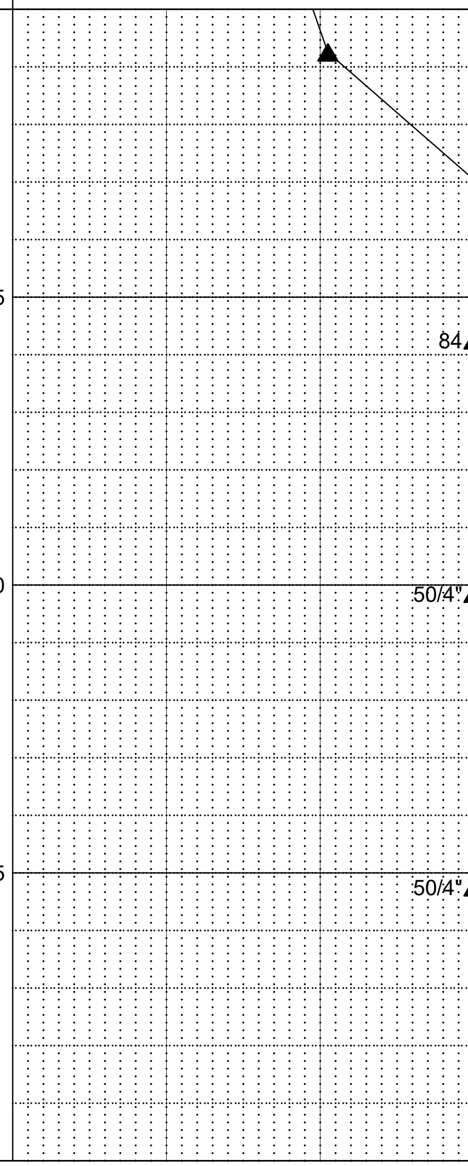
Soil Description	Depth, ft.
	20.0
Medium dense to dense, gray, slightly gravelly, sandy SILT to slightly gravelly, silty SAND; moist to wet; petroleum odor; (Qvat) ML/SM.	
	22.0
Dense, gray, slightly gravelly, silty SAND; wet; scattered sand seams and silt pockets, strong petroleum odor; (Qvat) SM.	
Dense, gray, slightly gravelly, silty SAND to slightly gravelly, slightly silty SAND; wet; scattered sand seams, strong petroleum odor; (Qvd) SM/SP-SM. - Fine to coarse sand with strong petroleum odor around 27-1/2 feet.	
	28.0
Very dense, gray, slightly gravelly, silty SAND; moist; diamict; (Qpgt) SM. - Increased silt content between 35 and 40 feet.	

PID, ppm	Samples
68	S-4 E
15	R-4
236	S-5
25	R-5
6.5	S-6
0.1	R-6
1.1	S-7 E
3.5	R-7

Symbol | Ground-water | Depth, ft.: 25, 30, 35

PENETRATION RESISTANCE (blows/foot)

▲ Hammer Wt. & Drop: 140 lbs / 30 inches



CONTINUED NEXT SHEET

◇ % Fines (<0.075mm)
● Natural Water Content

NOTES

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REV 3

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Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION

Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.

Depth, ft. | Symbol | PID, ppm | Samples | Ground-water | Depth, ft.

PENETRATION RESISTANCE (blows/foot)
▲ Hammer Wt. & Drop: *140 lbs / 30 inches*

0 20 40 60

Soil Description	Depth, ft.	PID, ppm	Samples	Depth, ft.	Penetration Resistance
		0.3	S-8 E		50/3"
		0.4	R-8		
Very dense, gray, slightly sandy, SILT, trace of gravel and cobbles; moist; scattered sand seams and silt partings, slight diamict texture; (Qpgt) ML.	45.0	0.2	S-9	45	50/5"
		0.1	R-9		
- Cobbles from 50 to 55 feet.		0.1	S-10 E	50	50/5"
		0.1	R-10		
Very dense, gray, trace to slightly gravelly, silty SAND; moist; scattered wet seams, slight diamict texture; (Qpgt) SM.	55.0	0	S-11	55	50/3"
		0.2	R-11		

CONTINUED NEXT SHEET

0 20 40 60

◇ % Fines (<0.075mm)
● Natural Water Content

NOTES

1. Refer to SOIL CLASSIFICATION AND LOG KEY for explanation of symbols, codes, abbreviations and definitions.
2. Groundwater level, if indicated above, is for the date specified and may vary. Groundwater level is the highest available measurement to date. Groundwater plots contain complete data sets.
3. USCS designation is based on visual-manual classification and selected lab testing.
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Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING RW-1-19

March 2020 21-1-22242-104

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Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION
Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.

Depth, ft. | Symbol | PID, ppm | Samples | Ground-water | Depth, ft.

PENETRATION RESISTANCE (blows/foot)
▲ Hammer Wt. & Drop: 140 lbs / 30 inches

0 20 40 60

60.4 0.1 S-12 E 50/5"

BOTTOM OF BORING
COMPLETED 9/26/2019

65
70
75

0 20 40 60

◇ % Fines (<0.075mm)
● Natural Water Content

NOTES
1. Refer to SOIL CLASSIFICATION AND LOG KEY for explanation of symbols, codes, abbreviations and definitions.
2. Groundwater level, if indicated above, is for the date specified and may vary. Groundwater level is the highest available measurement to date. Groundwater plots contain complete data sets.
3. USCS designation is based on visual-manual classification and selected lab testing.
4. Hammer ER = hammer energy ratio (efficiency) as a percentage.

Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING RW-1-19

March 2020 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

Sheet 4 of 4

REV 3

Total Depth:	26 ft.	Northing:	238,225 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	60.2 ft.	Easting:	1,277,832 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

SOIL DESCRIPTION

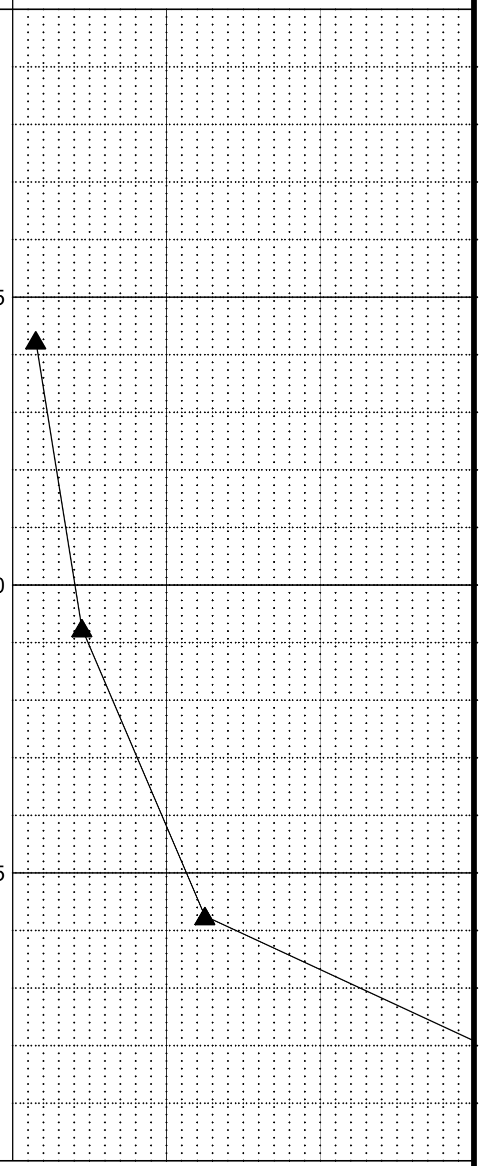
Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.

Soil Description	Depth, ft.	PID, ppm	Samples	Groundwater
Asphalt.	0.7			
Very loose, brown, slightly gravelly, silty SAND; moist; rounded to angular gravel; (Hf) SM. - Air vac clearance to 5 feet. - Piece of brick at 5.5 feet.	8.5	0.1 3.5	S-1 R-1	
Stiff, blue-gray and brown mottled, trace to slightly gravelly, slightly sandy, silty CLAY; moist; scattered iron-oxide staining, trace fine organics, petroleum odor; (Qvrl) CL.	11.5	8.1	S-2	
Medium dense, gray-brown, trace to slightly silty SAND, trace of fine gravel; moist, wet below about 14 feet; strong petroleum odor; (Qvat) SP-SM.	15.0	1348	R-2	▽
Medium dense, gray-brown, slightly gravelly, silty SAND; moist to wet; brown 1/2-inch-thick brown organic pocket, strong petroleum odor; (Qvat) SM.	17.0	6.5	S-3 E	
Very dense, gray, gravelly, silty SAND; moist; slight diamict texture; (Qpgt) SM.		1.5	R-3	

CONTINUED NEXT SHEET

PENETRATION RESISTANCE (blows/foot)

▲ Hammer Wt. & Drop: 140 lbs / 30 inches



◇ % Fines (<0.075mm)
● Natural Water Content

NOTES

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Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING SB-7-19

March 2020 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

REV 3

Total Depth:	26 ft.	Northing:	238,225 ft.	Drilling Method:	Rotosonic & HQ3	Hole Diam.:	6 in.
Top Elevation:	60.2 ft.	Easting:	1,277,832 ft.	Drilling Company:	Holocene Drilling	Rod Diam.:	4-inch
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	Geoprobe 8140LC	Hammer Type:	Automatic
Horiz. Datum:	NAD 83	Offset:		Other Comments:		Hammer ER:	

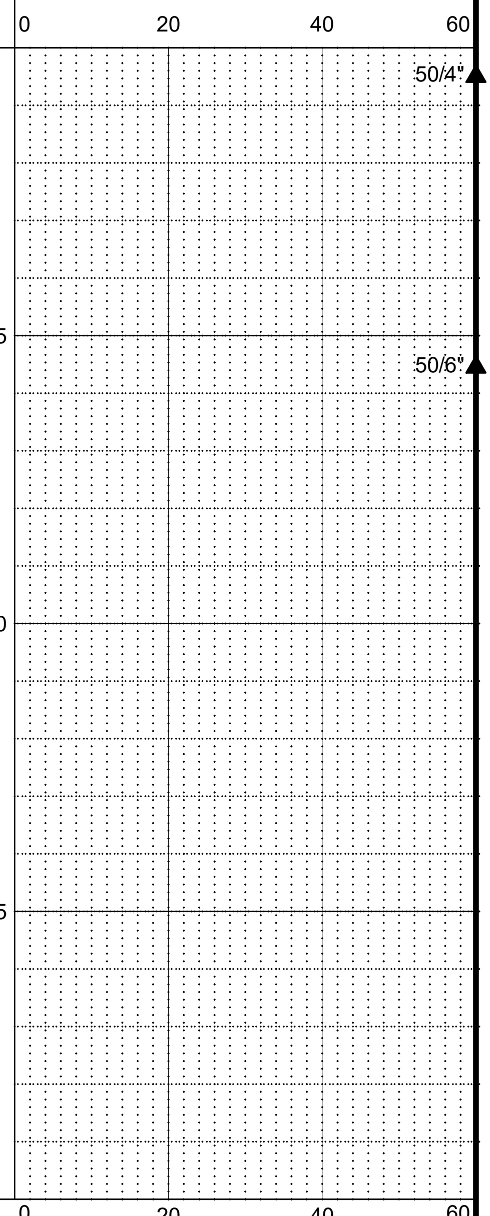
SOIL DESCRIPTION

Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.

SOIL DESCRIPTION	Depth, ft.	PID, ppm	Samples
Very dense, gray, silty SAND to sandy SILT; moist to wet; (Qpgt) SM/ML. - Strong petroleum odor around 20 feet, but could be slough from upper unit.	20.0	243 / 2.4	S-4 / R-4
Very dense, gray, silty SAND, trace of gravel to slightly silty SAND, trace of gravel; moist; (Qpgt) SM/SP-SM.	23.0	3.5	S-5 (E)
BOTTOM OF BORING COMPLETED 9/27/2019	26.0		

PENETRATION RESISTANCE (blows/foot)

▲ Hammer Wt. & Drop: 140 lbs / 30 inches



NOTES

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2. Groundwater level, if indicated above, is for the date specified and may vary. Groundwater level is the highest available measurement to date. Groundwater plots contain complete data sets.
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Montlake Gas Station VCP
Remedial Investigation Report
2625 East Montlake Place East, Seattle, WA

LOG OF BORING SB-7-19

March 2020 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

Sheet 2 of 2

REV 3

SR520 MASTER LOG E 2019 21-22242.GPJ SHAN WIL.GDT 3/10/20 Log: RBP Rev: SAW Typ: LKN

INNOVEX ENVIRONMENTAL MANAGEMENT, INC.

FIELD LOG OF BORING

Page 1 of 2

11-4-16

Drilling Co.: WSDOT	Job No.: 310080
	Boring No.:
Drilling Rig Eq:	Job Name: SR 520 @ E. Montlake Phase II
Drilling Method: mud rotary	Logged by: G. Huyman
Drill Diameter: 3"	Location: Seattle, WA
Weather Conditions: rain showers	Start Date: 10/8/16 End Date: 10/8/16

Well Construction	Time	Blows/6 in.	Headspace PID/OVA	Sample ID (X = Lab Sample)	Depth (ft)	Sample Interval	USCS Code	FIELD CLASSIFICATION [Density/consistency, color, minor, MAJOR, then trace constituents; moisture; structure; other; (Geology USCS Classification)]
								Asphalt
	21:45	4, 6, 6	20.2		1.5-3		SM	gray silty sand, damp, loose, Petroleum odor, PID=20.2
	21:50	3, 3, 2, 2	17		4-6			Gray silty sand, damp, very loose, petroleum odor, PID=17
	21:55	1, 1, 1	15.6		7-8.5			gray silty sand, very loose, damp, Petroleum odor, PID=15.6
	22:00		43		9-11		SM	Gray-brown silty sand, very stiff. strong Petroleum odor
		16, 16, 13						No recovery
	22:05	9, 10, 10, 13	720				SM	gray silty sand, wet, medium dense, very strong petroleum odor PID=720
	22:10	16, 21, 23	380		17-18.5			same as above
	22:15	18, 50/5	120		19-19.9			gray silty sand, very dense, petroleum odor, 2" till in tip of splitspoon

GROUNDWATER DATA

Water Depth	Time	Date

COMMENTS (i.e. materials used; visitors, problems etc.):

SUMMARY OF TIME

Boring/Sample: _____ hrs. Standby: _____ hrs.

Setup/Cleanup: _____ hrs. Decon: _____ hrs.

Boring No.: _____ Sheet _____ of _____

INNOVEX ENVIRONMENTAL MANAGEMENT, INC.

FIELD LOG OF BORING

H-4-16

Drilling Co.: WSDOT
Drilling Rig Eq:
Drilling Method: Mud Rotary
Drill Diameter: 3 inch
Weather Conditions: Rain showers

Job No.: 31608
Boring No.:
Job Name: SR 520 @ E. Montlake Phase II
Logged by: G. Hayman
Location:
Start Date: 10/8/16 End Date: 10/8/16

Well Construction	Time	Blows/6 in.	Headspace PID/OVA	Sample ID (X = Lab Sample)	Depth (ft)	Sample Interval	USCS Code	FIELD CLASSIFICATION [Density/consistency, color, minor, MAJOR, then trace constituents; moisture; structure; other; (Geology USCS Classification)]
					21			
							SM	
	22:35	26 / 45 / 50/5	3.4		24-25.4			Gray silty very fine sand, very dense no odor, damp PID=3.4
	22:45	50/2	0.3		29-29.2		SM	Well graded gravel, sand and silt, very dense, PID=0.3
								TD = 29.2 ft

GROUNDWATER DATA

Water Depth	Time	Date

COMMENTS (i.e. materials used; visitors, problems etc.):

SUMMARY OF TIME

Boring/Sample: _______ hrs. Standby: _____ hrs.
Setup/Cleanup: _______ hrs. Decon: _____ hrs.
Boring No.: ______ Sheet _____ of _____

Project: MONTLAKE / 520	Project Number: 31008	Client: HDR	Boring No. H-9.17
Address, City, State		Drilling Contractor: HOLOCENE	Drill Rig Type: SONIC
Logged By: M. WILLIAMS	Date — Started: 10.22.17	Bit Type:	Diameter: 4.25
Drill Crew: HOLOCENE	Date — Completed: 10.22.17	Hammer Type: 40 lb	
USA Ticket Number:	Date — Backfilled: 10.22.17	Hammer Weight: 40 lb	Hammer Drop:
	Groundwater Depth: NA	Elevation: /	Total Depth of Boring: 30'

	Depth (feet)	Sample Number	Blow Counts (blows/foot)	Graphic Log	Lithology **Soil Group Name:** modifier, color, moisture, density/consistency, grain size, other descriptors **Rock Description:** modifierm color, hardness/degree of concentration, bedding and joint characteristics, solutions, void conditions.	PID	Recovery %	Additional Test
10:15	5		4 6 7		NO RECOVERY		0	
10:36	10		20 20 25		GREY SILTY SAND (F-M GRAINED) W/MINOR CLAY. MEDIUM DENSE DRY	0.3	100	
1100	15		45 50/4		GREY SILTY SAND (F-M GRAINED). DENSE. MOIST *(POSSIBLY WATER FROM SURFACE)	0.4	80	
1119	20		50/2		SILTY SANDY CLAY (MINOR CLAY - 20%) DENSE DRY. MINOR GRVL (1/4-1/2") SUBROUNDED-SUBANGULAR (TILL)	0.5	100	
1143	25		50/3		SILTY SAND (TILL) GREY. DRY. VERY DENSE. MINOR GRVL (1/4-3/4") SUB-ROUNDED - SUBANGULAR (TILL)	0.8	25	

INNOVEX
ENVIRONMENTAL MANAGEMENT, INC.

Boring Log: Sheet 1 of 2

Standard Penetration Slit Spoon Sampler (SPT)
California Sampler
Shelby Tube
CPP Sampler
Bulk/ Bag Sample
Stabllized Ground water
Groundwater At time of Drilling

Project: MONTLAKE / 520				Project Number: 31008	Client: HDR	Boring No. H.9.17		
Depth (feet)	Sample Number	Blow Counts (blows/foot)	Graphic Log	Lithology **Soil Group Name:** modifier, color, moisture, density/consistency, grain size, other descriptors **Rock Description:** modifierm color, hardness/degree of concentration, bedding and joint characteristics, solutions, void conditions.		PID	Recovery %	Additional Test
1242 30		50/5		SAA - TILL		0.8	100	
35								
40								
45								
50								

INNOVEX
ENVIRONMENTAL MANAGEMENT, INC.

Boring Log: Sheet 2 of 2

Standard Penetration Slit Spoon Sampler (SPT)
California Sampler
Shelby Tube
CPP Sampler

Bulk/ Bag Sample

Stabllized Ground water
Groundwater At time of Drilling

INNOVEX
ENVIRONMENTAL MANAGEMENT, INC.

FIELD LOG OF BORING

Drilling Co.: Holocene
Drilling Rig Eq: Geoprobe 8140LC
Drilling Method: Sonic
Drill Diameter: 4" min
Weather Conditions: cold clear, 30°F

Job No.:
Boring No.: H-16-18
Job Name: Montlake Phase 2
Logged by: Colin Duffy
Location: Montlake Market
Start Date: 12/13/18 End Date: 12/13/18

% Recov.

% Recov.	Well Construction	Time	Blows/6 in.	Headspace PID/OVA	Sample ID (X = Lab Sample)	Depth (ft)	Sample Interval	USCS Code	FIELD CLASSIFICATION [Density/consistency, color, minor, MAJOR, then trace constituents; moisture; structure; other; (Geology USCS Classification)]
100%		2330 ~~1130~~	2/2/3	7.4		5'			grey sandy silt, gravels rounded, moist
100%		2335 ~~1135~~	1/3/3	36.9		10'			grey silty clay, moist
100%		2345 ~~1145~~	9/9/7	479		15'			grey silty clay, moist, layer of granite, likely a cobble
40%		0000 ~~1200~~	17 19 24	27.8	▼	20			grey silty sand, moist, rounded gravel
100%		0025 ~~1230~~	38 50/6	38.5		25			grey silty sand, round gravel, moist
						30 ~~30~~			
						35			
						40			
						45			
						50			

GROUNDWATER DATA

Water Depth	Time	Date
20'	0045	12/13/18
	H-16-18-GW	

SUMMARY OF TIME

Boring/Sample: ______ hrs. Standby: ______ hrs.
Setup/Cleanup: ______ hrs. Decon: ______ hrs.
Boring No.: ______ Sheet ____ of ____

COMMENTS (i.e. materials used; visitors, problems etc.):

GW sample @ 0045

INNOVEX ENVIRONMENTAL MANAGEMENT, INC.

FIELD LOG OF BORING

Drilling Co.: Holocene
Drilling Rig Eq: Geoprobe 8140LC
Drilling Method: Sonic
Drill Diameter: 4'
Weather Conditions: 38° clear

Job No.:
Boring No.: H-21-18
Job Name: Montlake Phase 2
Logged by: C. Duffy
Location: Montlake Market
Start Date: 12/6/18 End Date: 12/6/18

0/0 recovery

Recovery	Well Construction	Time	Blows/6 in.	Headspace PID/OVA	Sample ID (X = Lab Sample)	Depth (ft)	Sample Interval	USCS Code	FIELD CLASSIFICATION [Density/consistency, color, minor, MAJOR, then trace constituents; moisture ; structure; other; (Geology USCS Classification)]
									light brown ~~grey~~ grey sandy Silt, moist
40%		2030	X	0.0		5			X = weight of hammer
			9						Brown silty sand moist to wet
80%		2037	8 16	0.0		10'			
									Brown silty sand, wet
90%		2048	50/5	0.0	∇	15'			
			40						Brown silty sand w/ gravel, wet
100%		2316	46 50/4	0.0		20'			Dense ~~Hard~~ grey sandy, silt, moist
						25			

GROUNDWATER DATA

Water Depth	Time	Date
15'	2315	12/6/18

COMMENTS (i.e. materials used; visitors, problems etc.):
GW sample H-21-18-GW
Dup H-22-18-GW VOCs/Gx only

SUMMARY OF TIME

Boring/Sample: ______ hrs. Standby: ______ hrs.
Setup/Cleanup: ______ hrs. Decon: ______ hrs.
Boring No.: ______ Sheet ______ of ______

Total Depth:	*75.5 ft.*	Northing:	*238,334 ft.*	Drilling Method:	*Advanced Casing*	Hole Diam.:	*4 in.*
Top Elevation:	*59 ft.*	Easting:	*1,277,977 ft.*	Drilling Company:	*WSDOT*	Rod Diam.:	*AWJ 1-3/4"*
Vert. Datum:	*NAVD 88*	Station:		Drill Rig Equipment:	*CME LC55 Track Rig 9C7-1*	Hammer Type:	*Automatic*
Horiz. Datum:	*NAD 83/91*	Offset:		Other Comments:		Hammer ER:	*89 %*

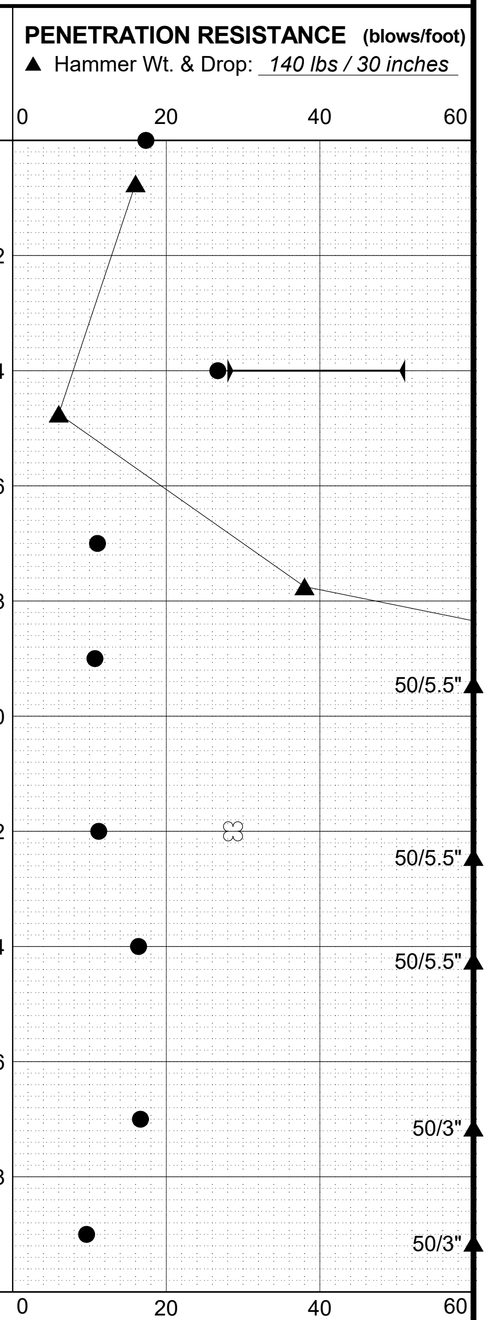
SOIL DESCRIPTION

Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.

Soil Description	Depth, ft.	PID, ppm	Samples
Loose to medium dense, brown to gray-brown, gravelly, silty SAND, trace of clay; moist; numerous fine to coarse organics, diamict, gray clasts; SM. - Blow counts in this layer may be artificially high due to the presence of gravel.	1.5	0	1
Medium stiff, orange and light gray, slightly sandy, silty CLAY; moist; iron-oxide staining, trace of roots, weathered; CH/CL.	6.0	0	2
Dense, gray-brown, gravelly, silty SAND; wet; diamict, iron-oxide stains; SM.	9.0	0	3
Very dense, gray-brown, trace of gravel to slightly gravelly, silty SAND; moist to wet; diamict, sandy silt and slightly silty sand pockets; SM.	14.2	0 / 0	4 E / 5
Very dense, brown, slightly clayey SILT; moist; laminated; ML.	16.0	0	6
Very dense, gray, slightly clayey, sandy SILT, trace of gravel; moist; diamict; ML.	18.0	0	7
Very dense, gray, trace of gravel to gravelly, silty SAND; moist; diamict; SM.		0	8

Groundwater: 3/19/2017

CONTINUED NEXT SHEET



LEGEND

- * Sample Not Recovered
- E Environmental Sample Obtained
- Standard Penetration Test
- Piezometer Screen and Sand Filter
- Vibrating Wire and Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout
- ▼ Groundwater Level in Well
- % Fines (<0.075mm)
- ● % Water Content
- Plastic Limit —●— Liquid Limit
- Natural Water Content

NOTES

1. Refer to KEY for explanation of symbols, codes, abbreviations and definitions.
2. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
3. The discussion in the text of this report is necessary for a proper understanding of the nature of the subsurface materials.
4. Groundwater level, if indicated above, is for the date specified and may vary.
5. USCS designation is based on visual-manual classification and selected lab testing.
6. Hammer ER = hammer energy ratio (efficiency) as a percentage.

SR 520 Montlake to Lake Washington
I/C and Bridge Replacement
Seattle, Washington

LOG OF BORING H-691p-16

July 2017 21-1-22242-003

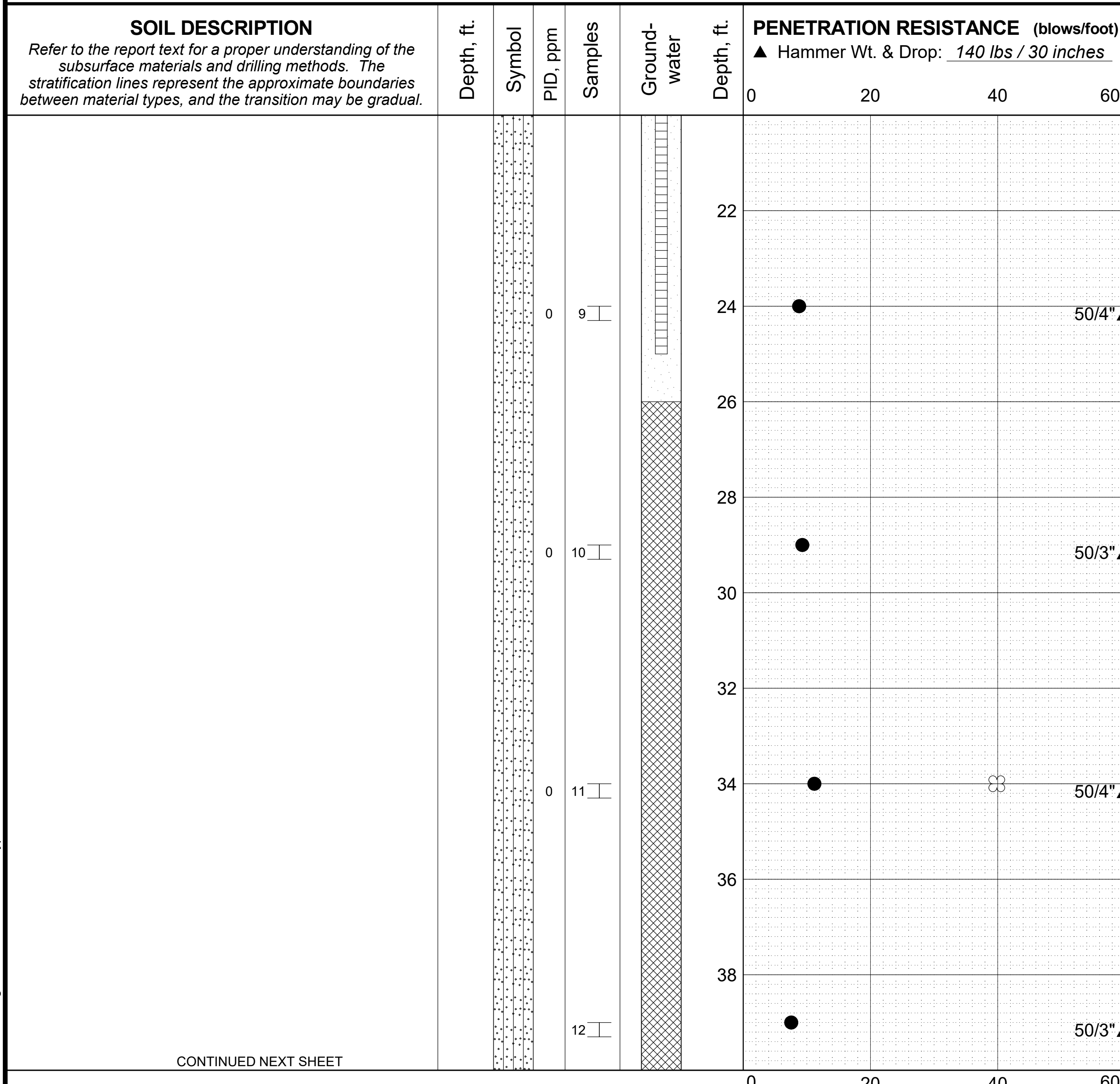
SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

EXHIBIT A-199
Sheet 1 of 4

REV 3

SR520 MASTER LOG E 21-22242.GPJ SHAN WIL.GDT 7/24/17 Log: JMW Rev: JKP Typ: JKP

Total Depth:	75.5 ft.	Northing:	238,334 ft.	Drilling Method:	Advanced Casing	Hole Diam.:	4 in.
Top Elevation:	59 ft.	Easting:	1,277,977 ft.	Drilling Company:	WSDOT	Rod Diam.:	AWJ 1-3/4"
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	CME LC55 Track Rig 9C7-1	Hammer Type:	Automatic
Horiz. Datum:	NAD 83/91	Offset:		Other Comments:		Hammer ER:	89 %



LEGEND

- * Sample Not Recovered
- E Environmental Sample Obtained
- Standard Penetration Test
- Piezometer Screen and Sand Filter
- Vibrating Wire and Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout
- Groundwater Level in Well

% Fines (<0.075mm)
% Water Content
Plastic Limit — Liquid Limit
Natural Water Content

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SR 520 Montlake to Lake Washington
I/C and Bridge Replacement
Seattle, Washington

LOG OF BORING H-691p-16

July 2017 21-1-22242-003

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

EXHIBIT A-199
Sheet 2 of 4

REV 3

SR520 MASTER LOG E 21-22242.GPJ SHAN WIL.GDT 7/24/17 Log: JMW Rev: JKP Typ: JKP

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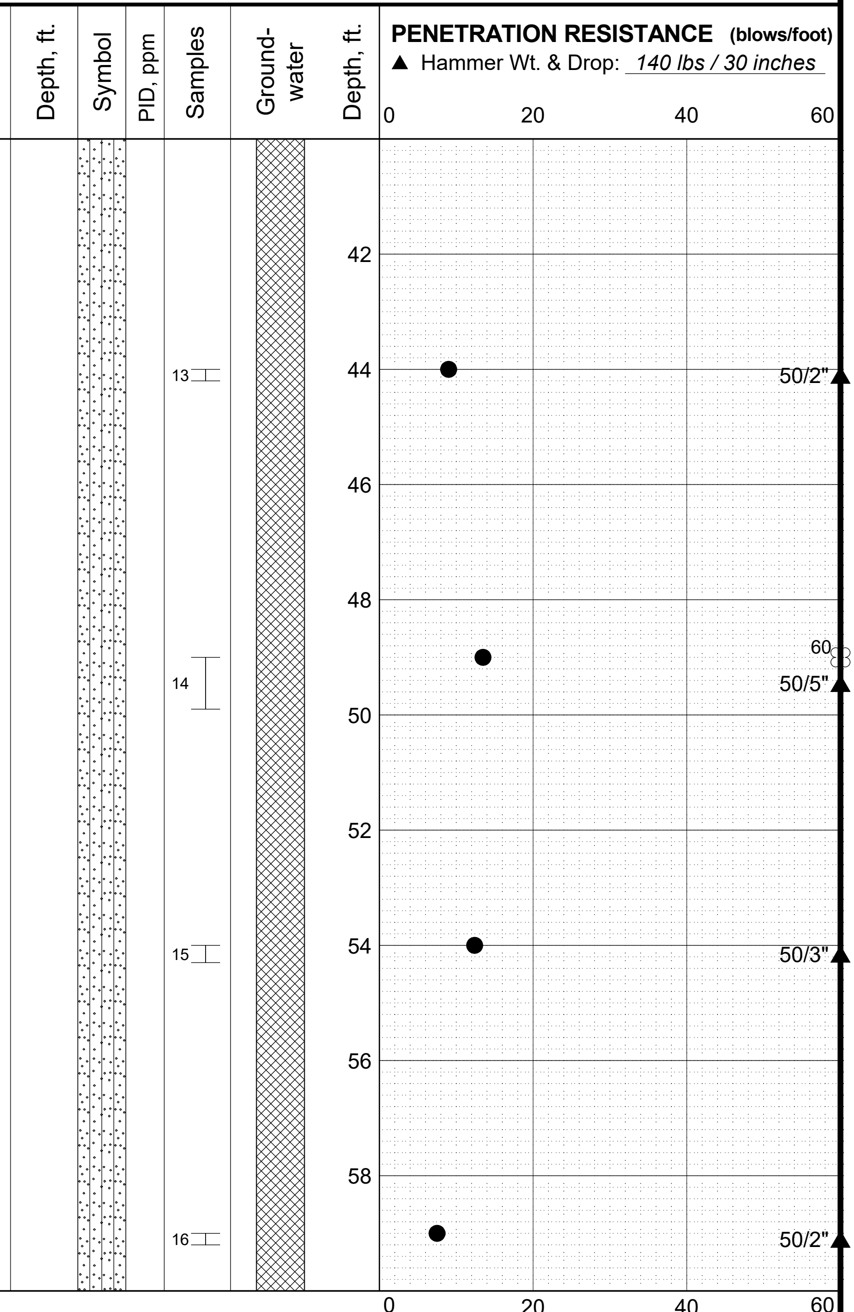
Vert. Datum:	*NAVD 88*	Station:		Drill Rig Equipment:	*CME LC55 Track Rig 9C7-1*	Hammer Type:	*Automatic*
Horiz. Datum:	*NAD 83/91*	Offset:		Other Comments:		Hammer ER:	*89 %*

SOIL DESCRIPTION

Refer to the report text for a proper understanding of the subsurface materials and drilling methods. The stratification lines represent the approximate boundaries between material types, and the transition may be gradual.

- Slightly clayey, sandy SILT, trace of gravel at 44 and 49 feet.

CONTINUED NEXT SHEET



LEGEND

- * Sample Not Recovered
- E Environmental Sample Obtained
- Standard Penetration Test
- Piezometer Screen and Sand Filter
- Vibrating Wire and Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout
- ▼ Groundwater Level in Well

% Fines (<0.075mm)

● % Water Content

Plastic Limit ├─●─┤ Liquid Limit

Natural Water Content

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SR 520 Montlake to Lake Washington
I/C and Bridge Replacement
Seattle, Washington

LOG OF BORING H-691p-16

July 2017 21-1-22242-003

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

EXHIBIT A-199
Sheet 3 of 4

REV 3

Total Depth:	75.5 ft.	Northing:	238,334 ft.	Drilling Method:	Advanced Casing	Hole Diam.:	4 in.
Top Elevation:	59 ft.	Easting:	1,277,977 ft.	Drilling Company:	WSDOT	Rod Diam.:	AWJ 1-3/4"
Vert. Datum:	NAVD 88	Station:		Drill Rig Equipment:	CME LC55 Track Rig 9C7-1	Hammer Type:	Automatic
Horiz. Datum:	NAD 83/91	Offset:		Other Comments:		Hammer ER:	89 %

SOIL DESCRIPTION

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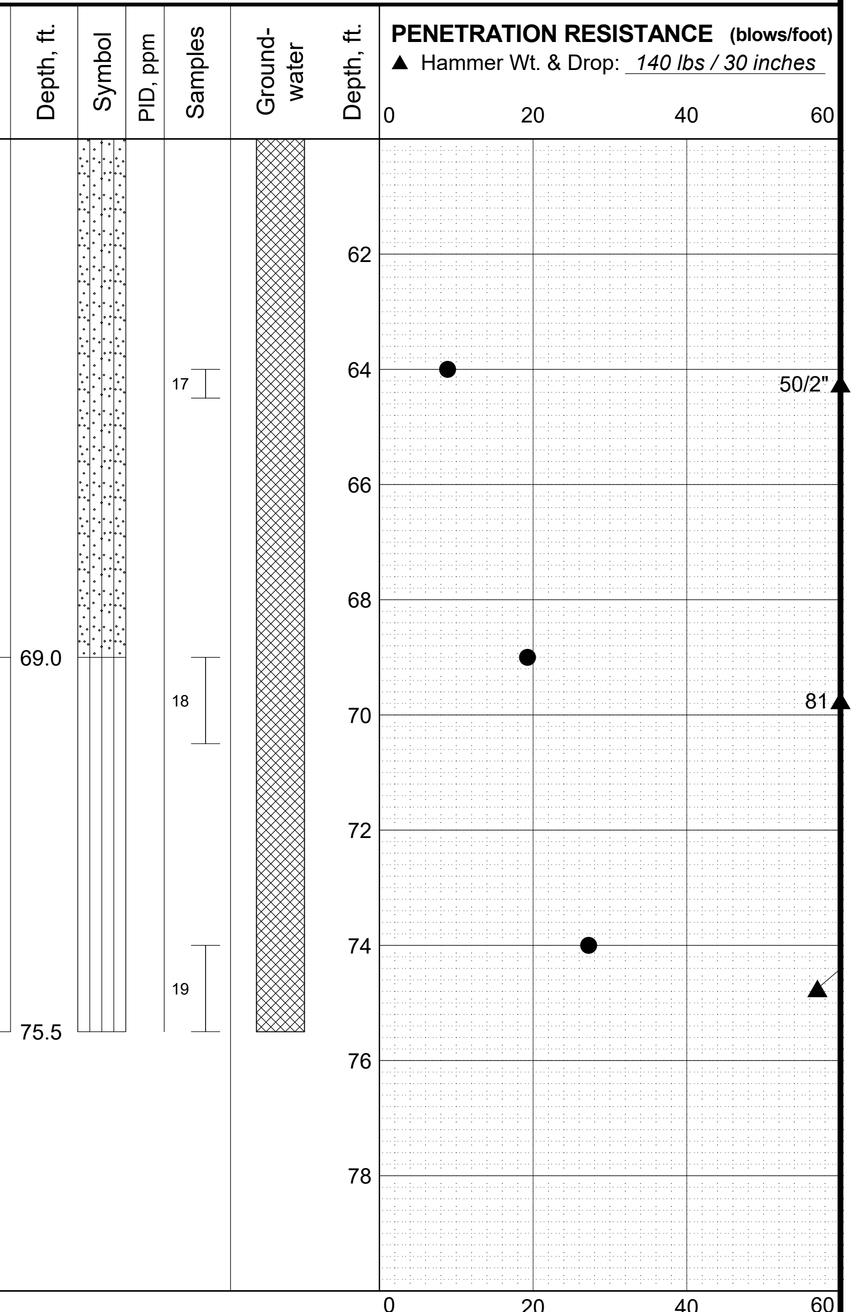

69.0 — Hard, gray, slightly clayey SILT, trace of sand to silty CLAY, trace of sand; moist; light gray silt partings; ML/CL.

75.5 — BOTTOM OF BORING
COMPLETED 3/15/2016

LEGEND

- * Sample Not Recovered
- E Environmental Sample Obtained
- Standard Penetration Test
- Piezometer Screen and Sand Filter
- Vibrating Wire and Bentonite-Cement Grout
- Bentonite Chips/Pellets
- Bentonite Grout
- ▼ Groundwater Level in Well

% Fines (<0.075mm)
● % Water Content
Plastic Limit ⊢—●—⊣ Liquid Limit
Natural Water Content

NOTES

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6. Hammer ER = hammer energy ratio (efficiency) as a percentage.

SR 520 Montlake to Lake Washington
I/C and Bridge Replacement
Seattle, Washington

LOG OF BORING H-691p-16

July 2017 21-1-22242-003

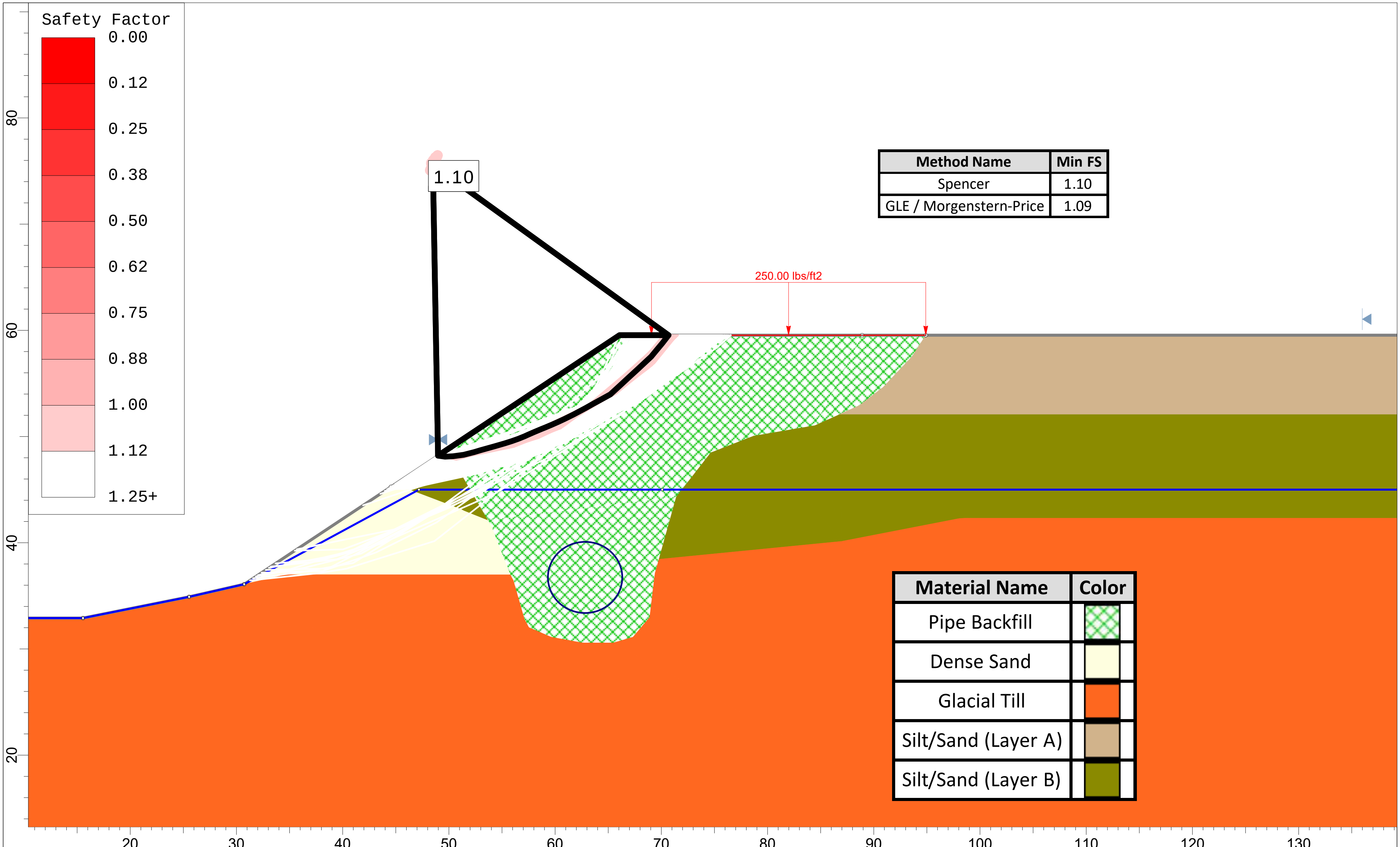
SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

EXHIBIT A-199
Sheet 4 of 4

REV 3

ATTACHMENT D

Slope Stability Results



Method Name	Min FS
Spencer	1.10
GLE / Morgenstern-Price	1.09

Material Name	Color
Pipe Backfill	
Dense Sand	
Glacial Till	
Silt/Sand (Layer A)	
Silt/Sand (Layer B)	

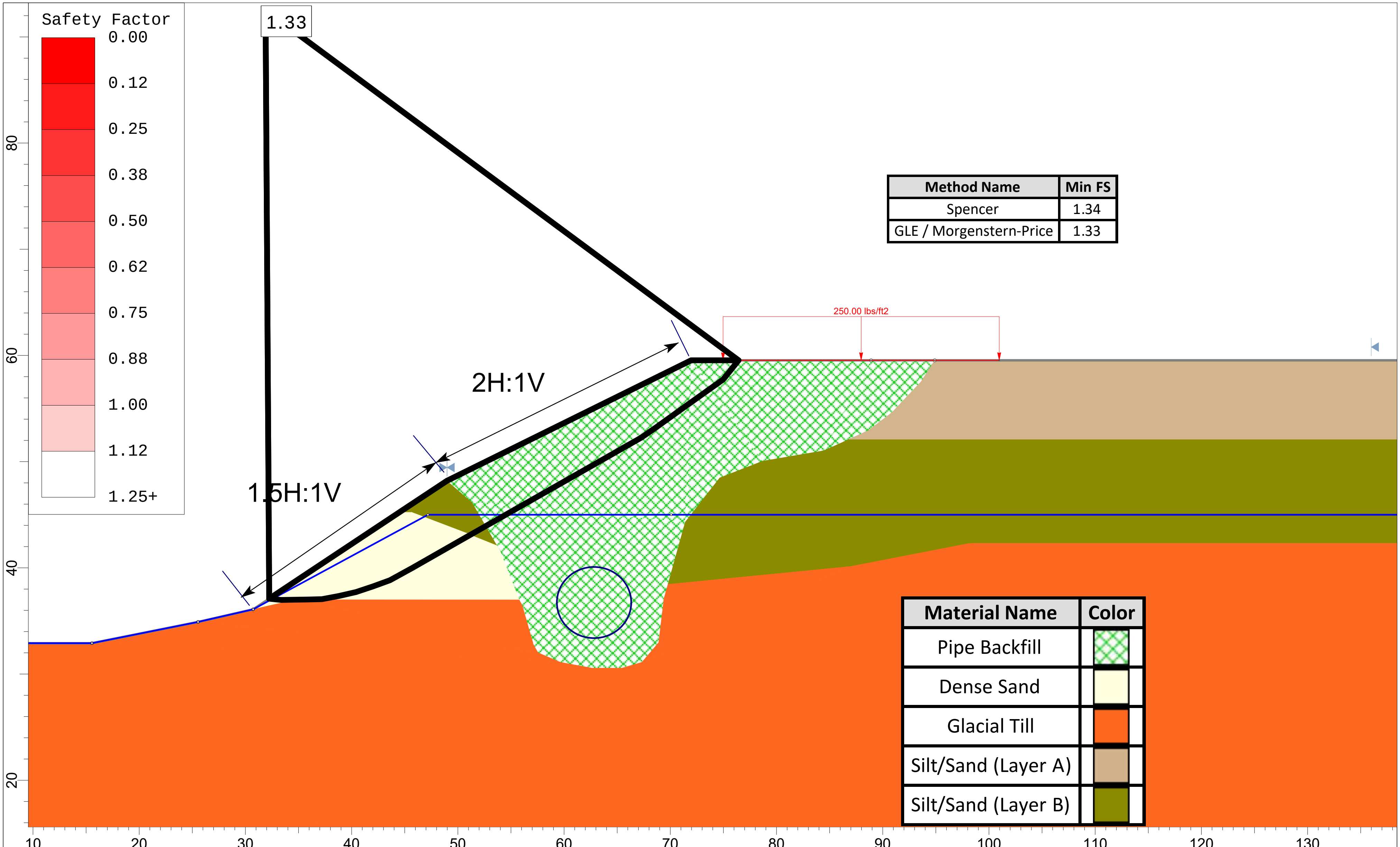
SLIDEINTERPRET 9.008

GOLDER

TITLE

CSO Montlake Market Excavation

ANALYSIS Temporary Cutslope: 1.5H:1V		*DATE:* 3/25/2021	*PREPARED BY:* AAK
PROJECT SR 520 MONTLAKE TO WASHINGTON I/C AND BRIDGE REPLACEMENT		*SCALE:* 1:150	*REVIEWED BY:* TJW
PROJECT NO. 18104242	*PHASE* *REV.*	*FILENAME:* CSO Market Stability (Refined)_R02.slmd	*APPROVED BY:*



GOLDER

SLIDEINTERPRET 9.008

TITLE	**CSO Montlake Market Excavation**		
ANALYSIS	Temporary Cutslope: 1.5H:1V Lower and 2H:1V Upper	DATE: *3/25/2021*	PREPARED BY: AAK
PROJECT	**SR 520 MONTLAKE TO WASHINGTON I/C AND BRIDGE REPLACEMENT**	SCALE: 1:150	REVIEWED BY: TJW
PROJECT NO. 18104242	PHASE / REV.	FILENAME: CSO Market Stability (Refined)_R02.slmd	APPROVED BY: