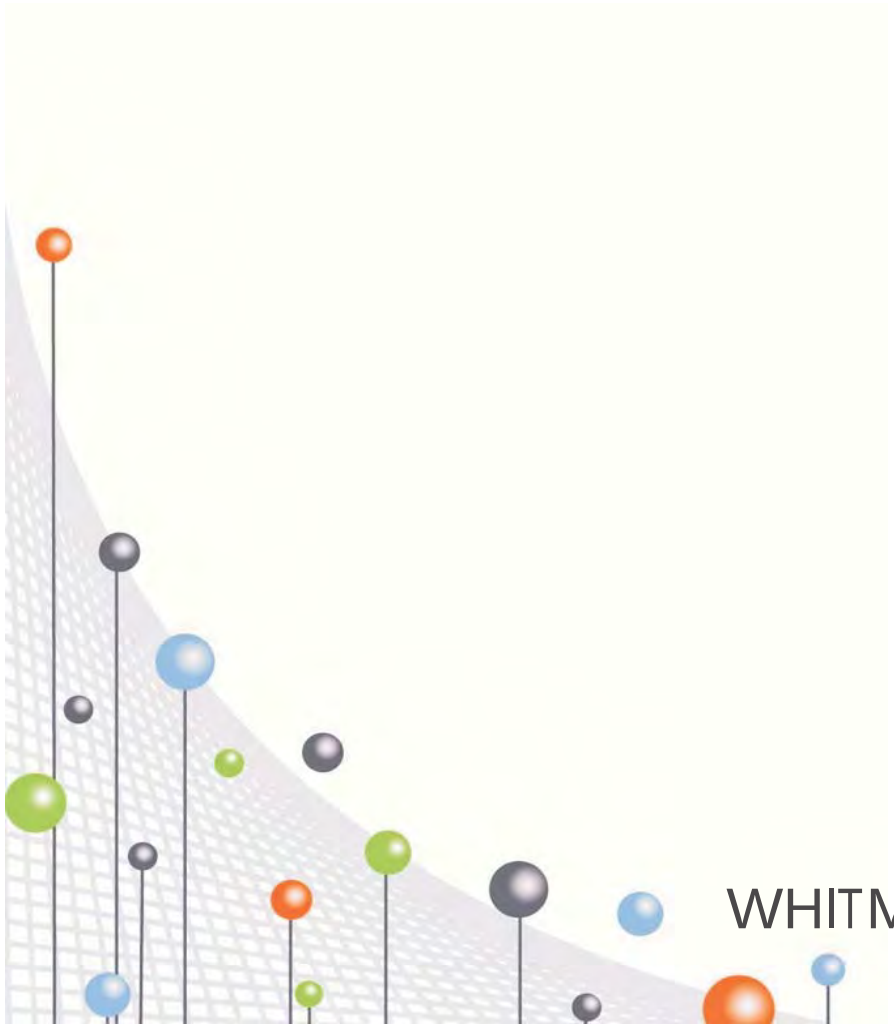
INDEPENDENT REMEDIAL ACTION PLAN

12TH & YESLER REDEVELOPMENT PROPERTY
104-124 12TH AVENUE & 1209 E. FIR STREET
SEATTLE, WASHINGTON 98122

April 8, 2020
Project No. WES-1591



WHITMAN Environmental Sciences

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April 9, 2020

Washington Department of Ecology
Toxics Cleanup Program
Northwest Regional Office
3190 160th Avenue Southeast
Bellevue, WA 98008-5452

Attention: Ms. Tamara Welty, LG, LHG

Subject: Source Investigation Summary Report
and Independent Remedial Action Plan
12th & Yesler Redevelopment Property
Seattle, Washington

Dear Ms. Welty:
As you are aware, ***Whitman Environmental Sciences (WES)***, has been conducting investigation and remedial action planning for the above referenced property. Attached is a Request for Opinion Form for a review of additional site investigation work and an updated cleanup plan. We appreciate your prompt review and comments on the enclosed documents.

Included is a copy of the Source Investigation Summary Report, which includes our most recent additional testing of soil and groundwater. This report concludes that there are no sources upgradient or cross-gradient to the King County warehouse property which would explain the presence of the groundwater plume. It also establishes the vertical and areal extent of the plume, for cleanup planning purposes.

Also attached is our updated Independent Remedial Action Plan, which supersedes the prior version issued in 2019. This work plan documents our remedy selection process and feasibility study of the remedial options that were reviewed as potential cleanup approaches for the property. It details how the selected cleanup approach will be applied to the property and includes a full Compliance Monitoring Plan for soil, groundwater and indoor air during and after the active cleanup actions.

Both of these documents include information to address the points you raised in Ecology's most recent opinion letter from January 9th, 2020. Specifically, the Source Investigation was conducted in response to the issues you expressed in Item 2 of your letter. Based on our recent findings, the source appears to be beneath the warehouse. Because of this off-site source of contamination, we understand that it would be most appropriate to work toward a property-specific No Further Action (NFA) determination at the completion of cleanup.

Since we are no longer pursuing a Site-wide NFA, it is not within our scope to characterize the conditions on the King County property, as requested in Items 3 and 4 of your letter. Regardless, the Source Investigation Report includes two investigation reports produced for the Seattle Housing Authority about the portion of the King County property immediately east of the subject property and the groundwater plume. Their testing found no evidence of chlorinated solvents in soil or groundwater in borings directly east of the plume, which establishes an eastern boundary of contamination.

The report also includes one deep soil gas sample from adjacent to the west side of the warehouse. That data point demonstrates that no conditions to the west of the warehouse are contributing petroleum or chlorinated solvent vapors to the King County property.

The Source Investigation report also includes the data presentations requested by Item 5 of your letter. A summary table of all site borings and monitoring wells is included in Table A-1, in Appendix A. All available boring logs are attached, although some are limited to well reports submitted to Ecology by the licensed well drillers subcontracted to conduct the work by prior consultants.

Time series plots for any well that has evidenced contaminants over the monitoring history of the site are included in the Figures section of the report. Many of these plots have only two to four data points, so do not yet show long-term trends.

The report includes two cross-sections through the plume area, including a new section that parallels the south wall of the warehouse and an updated cross-section that follows the trend of groundwater migration, frm northwest to southeast, across the site. The cross-sections note the measured range of water levels across the site. Although these figures show soil and groundwater sample depths and note those samples that exceed cleanup levels, the scale and amount of information make it impractical to show the reported concentrations of these samples. Please refer to the data tables for the relevant information.

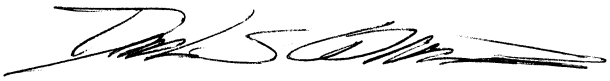
Item 6 of your letter notes the need for a Feasibility Study to evaluate cleanup options. This work has been part of our cleanup planning throughout this project. Documentation of our remedy selection process and the feasibility of a number of potential cleanup approaches are documented in the Independent Remedial Action Plan. A feasibility review includes a disproportionate cost analysis to eliminate potential remedial options that show little additional benefit for significant differences in cost. However, in this case, technical limitations and efficacy are the primary factors that influence the ranking of the reviewed approaches, rather than disproportionate cost.

Additional information in the cleanup plan addresses Item 7 of your letter, regarding groundwater management during excavations. A construction de-watering plan has been developed separately from cleanup planning. Collected water will undergo pre-treatment and discharge to METRO sanitary sewer under permit. The site groundwater concentrations are considerably below any applicable METRO discharge limit. WES' monitoring will include discharge monitoring to meet permit requirements and site monitoring to evaluate the influence of pumping.

Finally, Item 8 is addressed by the selected cleanup approach outlined in the Independent Remedial Action Plan.

WES has been pleased to have the opportunity to be of service in this matter. If you have any questions regarding the information contained in these reports, or if you need anything further to help with your review, please feel free to contact me.

Respectfully submitted,
Whitman Environmental Sciences



Daniel S. Whitman, L.G.
Principal

Attachments:

Request for Opinion Form
Source Investigation Summary Report
Independent Remedial Action Plan

INDEPENDENT REMEDIAL ACTION PLAN

PROPOSED REDEVELOPMENT PROPERTY
104-124 12TH AVENUE & 1209 E. FIR STREET
SEATTLE, WASHINGTON 98122

April 8, 2020
Project No. WES-1591A

Prepared for:
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INDEPENDENT REMEDIAL ACTION PLAN

PROPOSED REDEVELOPMENT PROPERTY
104-124 12TH AVENUE & 1209 E. FIR STREET
SEATTLE, WASHINGTON 98122

EXECUTIVE SUMMARY

Whitman Environmental Sciences (WES) was retained by Mr. Michael Pollard of the Centric Partners LLC to prepare this Independent Remedial Action Plan for cleanup actions that will be performed as part of the redevelopment of the property as a mixed-use building. The property and surrounding area have had a history of uses that have resulted in soil and groundwater contamination by petroleum and chlorinated solvents.

As part of redevelopment, remedial tasks to be completed include removal of any remaining structural features and contamination, if encountered, from:

- A former service station at 130 12th Avenue,
- A former auto repair operation in the basement level of the 104 12th Avenue building,
- A floor sump in the basement of the104 12th Avenue building,
- A current auto repair building at 1209 E. Fir Street.
- A former dry cleaner in the 118 12th Avenue building.

The redevelopment of the property includes large scale excavation for construction of below-grade levels of the building. This will remove all petroleum impacted soils and groundwater in the western ¾ of the property. In the remaining southeastern part of the property, a targeted shallow soil excavation will be combined with in-situ methods will be used to demobilize and degrade low concentrations of vinyl chloride or other chlorinated solvents in groundwater that have migrated from an adjacent, unrelated property (a King County warehouse). Model Toxics Control Act (MTCA) Method A Cleanup Levels (CULs) and Method B Standard Formula Values for soil, groundwater and indoor air quality will be used to determine compliance with MTCA cleanup standards.

This report documents the remedy selection process and our approach to evaluating the feasible cleanup options. It discusses remedial alternatives that were evaluated and the potential for each to meet Washington State cleanup standards in the most effective and timely manner. This report also outlines how the selected approach will be applied to the subject site.

The proposed cleanup is to be carried out as an independent remedial action, in compliance with the substantive requirements of the Model Toxics Control Act (MTCA) Cleanup Regulation, Chapter 173-340 WAC. The cleanup will be documented and the results will be submitted to the Washington State Department of Ecology Voluntary Cleanup Program (VCP) for a formal opinion. It is the intent of this project to receive a Property-specific determination that no further action will be required.

The site will be redeveloped as a seven-story mixed-use building with approximately 268 residential units, about 14,000 square feet of ground-floor commercial spaces and two levels of below grade parking. Although this cleanup action will be coordinated with the redevelopment,

this work plan details only those aspects of the work specific to cleanup. Demolition of the current structures and new construction are being managed separately.

A compliance monitoring plan is included in this plan (Appendix C). This compliance monitoring plan is a self-standing document that outlines sampling and documentation requirements for soil, groundwater and indoor air throughout the project and post-implementation confirmational monitoring period. There is also a proposed long-term compliance monitoring approach, should a restrictive covenant be necessary.

TABLE OF CONTENTS

TABLES

FIGURES

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SEATTLE, WASHINGTON 98122

1.0 INTRODUCTION

Whitman Environmental Sciences (WES) was retained by Mr. Michael Pollard of Centric Partners LLC to prepare this Independent Remedial Action Plan for cleanup in conjunction with redevelopment of the above referenced site. Figure 1, a Site Location Map, shows the project site and surrounding area. Figure 2 is a Site Plan showing the current layout of site features. The property and surrounding area have had a history of uses that have resulted in soil and groundwater contamination by petroleum and chlorinated solvents.

Environmental site investigations have identified petroleum contaminated soil and groundwater remaining from historical site uses of the western portion of the site. Groundwater in the southeastern parking lot area is impacted with a plume of chlorinated solvents (tetrachloroethylene (PCE), trichloroethylene (TCE) and vinyl chloride) that originates from adjacent property currently occupied by a King County warehouse. This Independent Remedial Action Plan includes a summary of the process used to select the proposed remedies (Feasibility Study) as well as detailed methodology for the cleanup and compliance monitoring of the project.

This cleanup is to be conducted as an independent remedial action under Chapter 173-340-515 WAC, the Model Toxics Control Act (MTCA). The intent is to remediate the property to a condition which will meet all applicable cleanup standards, allow the Washington Department of Ecology to review the cleanup under its Voluntary Cleanup Program (VCP) and make a formal determination that no further action will be required at the subject property (a property specific NFA). The site is enrolled in VCP and has been assigned VCP Project ID NW3194. This work plan will be provided to Ecology for an opinion prior to beginning the cleanup work. If accepted, the agency may issue a “likely No Further Action” opinion, indicating they agree that the cleanup approach, if successful, is likely to meet the requirements of MTCA cleanup standards.

2.0 PROJECT BACKGROUND

2.1 Property Description and Development Plan

The subject property consists of approximately 47,433 square feet of land located on the east side of 12th Avenue, between the intersections with Yesler Way E. and E. Fir Street, in Seattle, Washington. The site is bordered on the east by warehouses owned by King County.

The property consists of four adjoining tax parcels totaling 47,433 square feet. The site currently holds three vacant buildings and an asphalt paved parking lot. The main building is 104 12th Avenue, a two-story concrete building that most recently houses the Seattle Curtain Manufacturing Company. The adjoining paved parking lot to the east has served the 104 12th

Avenue building since the 1950s. Along the west side of the site is 110-118 12th Avenue, an old wood-framed structure in poor condition. North of that is a vacant parcel at 124 12th Avenue that has been a gravel surfaced parking lot since the late 1980s, when a former service station was removed. East of that is a building addressed 1209 E. Fir Street that has housed auto repair facilities throughout its history.

2.2 Property Environmental History

The history of the property and surroundings are discussed in WES' Remedial Investigation Summary Report, dated October 26, 2019. (WES, 2019). There are several historical developments that have been documented to have had environmental impacts to the subject property.

In early Seattle history, a low area of 12th Avenue and the subject property were filled with poor quality fill material from removal of a hill further north. The eastern part of the property was leveled and used as a baseball stadium from about 1907 to 1913. After that the property was cleared and stood idle until about 1926 when the building at 104 12th Avenue was constructed. The upper floor has had generally environmentally benign uses. The lower floor housed an auto repair from the late 1920s until about 1939. In 1940 a city directory identifies the basement as "Coles Horticultural Products Co, fertilizer mfrs", but three years later the basement was vacant. No other records have been identified that include specific information about Cole's uses of the building. After about 1951 the lower level of the building has been in benign uses; as a grocery (1951 to 1966) and the Seattle Curtain Company, who occupied the entire building until about 2018.

The adjacent parking lot to the east has no other history of development and appears to have remained vacant until turned into a parking lot for the grocery in the early 1950s.

The commercial building at 110-118 12th Avenue was built in 1940 immediately to the north of 104 12th building, along the east side of 12th Avenue. The upper floor at street level was divided into small storefronts. Most recorded uses of these spaces were benign. The northern tenant space addressed 118 12th Avenue held a screen print shop from about 1958 to 1962. Later, that space was occupied by a dry cleaner from about 1966 until 1971. Dry cleaning inherently uses solvents (either petroleum-based or chlorinated, most likely PCE. It should be noted that these tenant uses were most likely limited to the upper floor which is not in direct contact with the ground. No specific information was found during this study that identified the layout of equipment or waste management practices of either the screen print or dry cleaner tenants.

The current gravel parking lot in the northwestern part of the property has an extended history of use as a gas station and auto repair. The station was built in about 1941 as a Maxwell Petroleum station, with a single pump island holding three pumps and a small auto repair building addressed 124 12th Avenue. It is unclear how many tanks were originally installed, but later records suggest up to five tanks may have been on the property, ranging from 1,000 to 4,000 gallons in capacity. Over the history of the station it was identified as a Mobil station, Texaco and variety of independent operators. Some of the operators were limited to auto repair, while others may have continued to sell fuel. The building and tanks were reportedly

removed in 1990 and limited cleanup was conducted at that time, removing a reported total of 761 tons of contaminated soil (RZA, 1991). A 2014 ground penetrating radar survey of the station area found no evidence of remaining tanks (AEG, 2014) and subsequent investigation drilling has not encountered any underground structures or tanks.

The building at 1209 E. Fir Street was constructed in about 1949 as a smaller structure. It was expanded with an addition on the south end in about 1988. Throughout its history the building has been used for auto repair. The addition appears to be a paint booth and workshop for auto body repair.

2.3 Adjacent Property History

The site is located in a mixed-use area, with commercial and institutional development along 12th, Yesler Way and on adjoining property to the east. The intersection of 12th and Yesler has been a minor commercial center since development began in the 1920s. There is a long history of dry-cleaning operations in the vicinity of the property, including addresses located on the west side of 12th Avenue on the adjacent block, and to the north, across E. Fir Street.

To the east is property owned by King County, used as warehouses for the County archives. The warehouses were built in about 1954 on property that was previously a small 1940s housing project. There were five long, narrow row-house buildings. A 1953 aerial photograph showed the homes had been removed in preparation for the warehouse construction, but the long narrow foundations and floor slabs were still in place, as well as a disturbed soil area at the south end of the westernmost row house.

Although our studies found no record of commercial operations at these homes, the south end of the westernmost row-house matches closely with the suspected source area of a plume of chlorinated solvents that have been identified in the southeastern parking lot of the subject site. Polk directories identify cleaners and laundries in residential buildings along Yesler Way and other surrounding areas, so it is possible that this location was also used as a makeshift cleaner or used PCE for other purposes.

2.4 Prior Environmental Actions and Investigations

To prepare this work plan, WES reviewed available documents and conducted extensive environmental site investigations to collect soil and groundwater samples from the site and surrounding area (WES 2017, 2017a, 2018, 2019, 2019a, 2020). The work was conducted to identify and delineate the extent of recognized environmental conditions on the property. Other prior environmental and geotechnical investigations have also been conducted, some of which were made available (in whole or in part), as sources of data for this assessment (RZA, 1991, AEG, 2014, Geotech, 2017, 2018). The combined investigations have involved drilling 87 soil borings throughout the property and surroundings, drilling 19 additional borings for shallow soil sampling, installing 20 monitoring wells and submitting soil, groundwater and soil vapor samples for laboratory analyses.

Tables summarizing the soil and groundwater samples selected for testing, the laboratory analytical results and Washington State Model Toxics Control Act soil cleanup criteria are included in WES' prior reports, and are included here by reference. Selected tables are included in Appendix A

3.0 SOIL AND GROUNDWATER CONDITIONS

As determined by the prior site investigations, soil conditions consist of a layer of relatively unconsolidated fill containing organic material and debris, overlying brown to grayish brown clayey sand and gravel interpreted to be glacial till, or weathered, till-derived sediments. Where present, groundwater was encountered in sandier zones, including thinly layered interbeds in otherwise silty soil. These sandy zones are only partially continuous across the site. Cross sections demonstrating the interpreted geologic stratification within the depths drilled are presented in WES' prior reports (Figures 5, 5A, 5B, 5C in the 2019 Remedial Investigation Summary Report, Figures 4, 4A and 4B in the 2020 Source Investigation Summary Report).

The extent of fill appears to be greatest in the northwestern part of the property, where depths of up to 20 feet have been encountered. The fill depths generally coincide with historical street grading profiles from the City of Seattle engineering archives, which show the original ground surface profile and final grade of the right-of-ways of 12th Avenue and Yesler Way. The grading occurred prior to any of the known developments of the property. In particular, 12th Avenue was filled extensively with soil taken from a localized high area directly north of Fir Street. This suggests the on-site fill dates to about the time the adjacent streets were constructed.

Below this layer, the borings encountered organic silty soils that may have been a former topsoil horizon, overlying relatively dense silt or clayey sands extending throughout the depths drilled. Much of the soil profile is unsuited for structural support of a building the size and height anticipated by this redevelopment, so will be excavated. Rather than backfilling to the current grade, the excavation will be used to construct below grade parking levels for the building. Even with this extent of excavation, some "ground improvements" will be necessary under the direction of a geotechnical engineer.

Groundwater was encountered in sandier zones ranging from thin fine sand zones laminated with silt to thicker water-bearing zones up to four feet in thickness. In general, groundwater flow is limited. Preliminary pump tests as part of the geotechnical evaluation for foundation drainage design found yield rates of 0.1 gallon per minute or less from a 2-inch diameter monitoring well screened from depths of 20 to 35 feet (GEO B-8).

The groundwater static level appears to be at an average elevation of about 201 feet by City of Seattle Reference in the northwestern part of the site, falling to an elevation of about 187 in the southeastern corner. This suggests a gradient to the southeast at depths ranging from about 15 feet below the current ground surface in the northwest, to about 6 to 10 feet below the surface in the southeastern parking lot. Seasonal variations are relatively limited, typically within a range of about two to three feet.

A hydrogeologic report by Bender Consulting LLC (Bender, 2019) includes a construction dewatering plan prepared for much higher flow rates than site testing suggests. Since the redevelopment will be constructed using a "bathtub" approach to seal the below grade levels and avoid using foundation sub-drains, dewatering will be an important part of the construction approach, so must be robust until the mass of the structure is great enough to overcome hydrologic uplift forces. The construction dewatering plan proposed by Bender includes approximately 98 dewatering points installed around the perimeter of the main excavated area, with pumping capacity to manage 120 to 170 gallons per minute. A pre-treatment system is proposed, with a King County METRO permitted discharge to the local sanitary sewer. The permit is pending, and will have discharge monitoring requirements. At the completion of construction, the building will have no influence on surrounding groundwater conditions.

The anticipated cleanup areas are shown in Figure 3. Figure 4 shows the general redevelopment plan for the property.

There was evidence of discoloration or petroleum odors, sheens or staining in three distinct areas of the site. Petroleum contaminated soil (PCS) was found in the southwestern and southeastern parts of the lower level of the 104 12th Avenue building (borings WES-1 and WES-2); and at the former service station in the northwestern part of the site. Borings near the station pump island (boring BN-7); and the presumed former underground storage tank area at the south end of the former service station (borings BN-9 and BN-10) all found petroleum impacts, beyond that removed in the 1997 UST cleanup conducted by RZA. PCS extends to the south into the crawlspace beneath the 118 12th Avenue tenant space (boring HA-N). Laboratory analyses of soil samples confirm that soils from these areas will need to be managed as PCS.

One area in the SE parking lot contains soil with concentrations of PCE and lead at concentrations above MTCA Method A cleanup levels (CULs). The area is adjacent to the King County warehouse and contamination appears limited to less than five feet below the surface.

Lead was detected in samples from two borings at the south end of the 1209 E. Fir building (boring BN-11 at 12 feet, boring BN-17, at 10 feet) and in one sample from the PCE soil area noted above. Lead containing soil will be excavated and disposed as outlined below.

Groundwater samples were found to contain elevated concentrations of total petroleum hydrocarbons in the same borings where impacted soil was identified and at several other surrounding boring locations, including WES-4, WES-10, BN-8 and HA-S. Groundwater at these locations reflect total petroleum hydrocarbons in the gasoline, diesel or motor oil range and a variety of volatile organic compounds related to gasoline. Benzene has been found to exceed the MTCA Method A groundwater cleanup level in water samples from borings BN-7 (constructed as monitoring well MW-8) and BN-10 (monitoring well MW-9).

In the southeastern parking lot, groundwater sampling has identified a low-level plume of chlorinated volatile organic compounds. Groundwater samples from monitoring wells MW-1, MW-1S, MW-5, GEO B-7, GEO B-9, MW-11 and borings WES-11, WES-13 and WES-17 have found vinyl chloride at concentrations ranging from 0.2 to 0.39 ug/l. Trichloroethene has also

been detected at concentrations that exceed MTCA Method A in monitoring well MW-5 and borings WES-11, WES-13 and WES-17.

Other locations on the property have also evidenced low-level detections of chlorinated compounds in groundwater. Monitoring well MW-14, in the central part of the western parcels, and MW-6 in the basement of the 104 12th Avenue building have detected vinyl chloride and cis-1,2-dichloroethene, respectively, at levels above MTCA Method A CULs.

Tables in Appendix A summarize the soil and groundwater samples taken during the site investigations. Quarterly groundwater monitoring is on-going.

4.0 REGULATORY REQUIREMENTS

Chapter 173-340 of the Washington Administrative Code (The Model Toxics Control Act or MTCA) regulation includes process to develop and apply cleanup standards that will be protective of human health and the environment. Cleanup standards consist of the following:

- Cleanup levels for hazardous substances present at the site;
- The location where these cleanup levels must be met (the point of compliance); and
- Other regulatory requirements that apply to the site because of the type of action and/or location of the site ("applicable state and federal laws").

Cleanup Levels
The regulation includes a tabulated set of cleanup levels for a number of common hazardous substances that are applicable to any contaminated site. These “Method A” cleanup levels for soil and groundwater allow unrestricted land use if cleanup is conducted to meet these levels at the points of compliance.

For substances not included in the Method A tables or other contaminated media, MTCA uses a universal approach to calculating a cleanup level. These “Method B” cleanup levels use standard formulas to calculate acceptable exposures via direct contact, protection of groundwater or indoor air quality, among other media.

Points of Compliance
The point of compliance is the location where the enforcement limits will be measured and cannot be exceeded. The point of compliance for direct contact exposure to soil is defined as throughout the property from the ground surface to a depth of 15 feet below ground surface. The point of compliance for groundwater is defined as the uppermost level of the saturated zone extending vertically to the lowest depth that could potentially be impacted by the indicator contaminants of concern at the property. The point of compliance for indoor air is the ambient air throughout the property.

Applicable or Relevant and Appropriate Requirements
This cleanup action effort will be conducted in accordance with all applicable Federal, State and local regulations and permitting requirements. Applicable or Relevant and Appropriate Requirements (ARARs) for the Site include:

- MTCA (WAC 173-340);
- Water Quality Standards for Groundwater (WAC 173-200); and
- The Hazardous Waste Management Act (Chapter 70.105 of the Revised Code of Washington [RCW 70.105]).

These primary ARARs are anticipated to be the most applicable requirements, since they include the framework for the cleanup action, including applicable and relevant regulatory guidelines, cleanup standards, waste disposal criteria, references for additional ARARs, and standards for documentation.

Additional ARARs for the Site include:

- The State Environmental Policy Act (RCW 43.21);
- The Occupational Safety and Health Act (Part 1910 of Title 29 of the Code of Federal Regulations [29 CFR 1910]);
- Washington State Occupational Health Standards (WAC 296-62);
- Minimum Standards for Construction and Maintenance of Wells (WAC 173-160); and
- Accreditation of Environmental Laboratories (WAC 174-50).

4.1 CONCEPTUAL SITE MODEL

To determine the applicable cleanup levels and points of compliance, the regulation uses a conceptual site model approach. The conceptual model is a means of determining the nature of the contamination, the potentially contaminated media, potential pathways of exposure and identifying current or potential receptors that could be impacted by the release. The conceptual model can be used to develop appropriate protective cleanup levels, or evaluate which cleanup techniques could be expected to be protective of the potential receptors. The conceptual model does not evaluate cost considerations.

MTCA defines a contaminated site as the full extent of contaminated media, whether on the property where the contamination originated or surrounding properties that have been impacted by the contamination. Based on the history and results of our site investigations, petroleum contaminants and chlorinated solvents will be encountered on the subject site. The distribution suggests the areas are relatively limited and contaminants originating on site have not migrated beyond the property boundaries. Tetrachloroethene (PCE) and daughter products of its degradation may extend in a groundwater plume onto the southeastern parcel of the property from beneath the adjacent King County warehouse.

4.1.1 Areas of Concern and Indicator Substances

Based on the investigations conducted to date, three areas of petroleum impacts to soil and groundwater have been defined; the former gas station at 130 12th, a former auto repair and a floor sump, both located in the lower level of 104 12th. One area of soil impacted by chlorinated solvents and related impacts to groundwater has been identified in the southeastern parking lot. Lead contaminated soil has been found in a fill slope near the south end of the 1209 E. Fir Street building. In general, these areas appear to be distinct, with little or no evidence of co-mingled contaminants. No free-phase petroleum products or chlorinated solvents have been found in any of the site investigations.

Table 1 identifies the contaminants of concern and the maximum identified concentration found by laboratory testing to date. These parameters will be considered the indicator contaminants of concern for this cleanup action in accordance with WAC 173-340-703. Indicator substances will be used to direct the proposed soil excavation program and will be the parameters tested for final soil and groundwater compliance sampling.

TABLE 1
Indicator Contaminants of Concern

Parameter	***Maximum Detected Soil Concentration (mg/kg)***	***Maximum Detected Groundwater Concentration (ug/l)***	***Maximum Detected Deep Soil Gas Concentration (ug/m^3)***
Gasoline Range Organics	780	3,900	--
Diesel Range Organics	440 (Below CUL)	1,100	--
Motor Oil Range Organics	3,300	680	--
Benzene	0.033	11	31 (Below SL)
Ethylbenzene	6.8	85 (Below CUL)	36 (Below SL)
Naphthalene	4.9	14 (Below CUL)	18
Xylenes	59	432 (Below CUL)	223(Below SL)
1,2,4-Trimethylbenzene	63 (Below CUL)	180	170 (Below SL)
Tetrachloroethene	0.13	33	ND (<20)
Trichloroethene	ND (<0.02)	23	8.2 (Below SL)
cis-1,2- Dichloroethene	ND (<0.05)	17	57 (No SL)
Vinyl Chloride	ND (<0.05)	1.9	65
Chloroform	ND (<0.05)	1.1 (Below CUL)	15
Bromodichloromethane	ND (<0.05)	ND (<1)	8.5
Cadmium	2.13	ND (<1)	--
Lead	883	13.8 (Below CUL)	--

Table Notes:
(Below CUL) – Maximum reported value is below applicable Model Toxics Control Act Method A clean up level or Method B standard formula value.
(Below SL) – Maximum reported value is below Ecology's deep soil gas screening level.
ND (<X.X) – Not detected above the noted laboratory reporting limit. All reporting limits are below CULs.

Not all of these indicator substances have been detected in all media, or exceed CULs when detected. However, there is a potential that they would be present, given the known history of the site and those related substances that have been detected. As indicator substances, remediation of these contaminants can be expected to effectively remove any related contaminants with less restrictive CULs.

4.1.2 Contaminant Sources

The primary sources of the contaminants of concern appear to be the historical former service station, the former auto repair, the floor sump, potential dumping or impacted fill placed on the slope (possibly at the time of construction of the building at 1209 E. Fir), and migration of chlorinated solvents in groundwater onto the property from an off-site source. All of the activities that were potential sources have been curtailed, but contaminants may migrate beyond their original locations or to other media; i.e. soil to groundwater or soil to vapor that may infiltrate into buildings.

4.1.3 Transport Mechanisms

At this site, the available information suggests there is low potential for contaminants to be transported beyond the currently identified areas. Since all source activities ceased anywhere from 30 to as much as 70 years ago, it is likely that the current extent of contamination is near an equilibrium between transport and attenuation mechanisms. There is little likelihood of the observed contamination migrating further within the time frames before this cleanup action begins.

Potential transport mechanisms for contaminants here have included leaching by infiltration that could drive migration of contaminants downward through soil, capillary action, migration of dissolved phase contaminants with groundwater, or migration of vapors toward site structures.

There are no surface waters on the property or in the immediate surrounding area, so surface water is not a likely transport mechanism.

4.1.4 Exposure Pathways and Receptors

In its current state, the property has only limited potential for human or environmental exposures. The property is currently vacant, so there are no worker or residential exposures on the property.

There is little or no potential for direct contact exposure to contaminants due to the depth of the zones of impacted soil (mostly about six to 17 feet below the surface, or below structures and pavements). None of the contaminated soil is within right-of-ways or areas that would be exposed by utility work. Groundwater is shallow and of limited

capacity, so it is not suited to use as a current or potential drinking water resource. There is no indication of contaminated groundwater leaving the property. There are no drinking water wells on-site or reported within at least one-half mile of the property. There are no surface waters on the property or in the immediate surrounding area.

There is a current potential for petroleum vapor intrusion into existing structures. However, all site structures have been vacated and will not be occupied again before redevelopment. The 104 12th Avenue is currently being prepared for demolition and is used by the contractor for limited storage and mobilization.

The area impacted by chlorinated solvents to groundwater is covered by an impervious asphalt surface. There are currently no structures overlying the portion of the plume that extends onto the property, or activities in the parking lot above the plume that could result in exposure.

As the site is slated for redevelopment, there is a potential for new exposure pathways. If contamination is not cleaned up, new residents or businesses would have the potential for direct contact with soil, and soil or contaminated groundwater would remain as a source of vapors that could intrude into buildings.

During cleanup the potential for inhalation, ingestion and dermal contact by site workers will temporarily increase as petroleum, lead and PCE contaminated soil is exposed while being excavated for transportation and disposal. During the time cleanup occurs site access will be limited to contractor personnel under the direction of a site-specific health and safety plan (HASP) through the duration of the cleanup.

Any cleanup action selected for this site must address the identified contaminants of concern in a manner that eliminates any potential future exposure pathways. After this cleanup action, all property soil and groundwater should be expected to meet Washington State Model Toxics Control Act Method A or B cleanup criteria for the indicator substances. This will limit the potential for vapor intrusion from any on-site residuals, but contaminated soil or groundwater remaining under the King County warehouse may act as a continuing source of migrating contaminants and vapors. The cleanup actions developed for this property must address these potential exposure pathways.

5.0 MODEL TOXICS CONTROL ACT CLEANUP LEVELS

Standard Method A soil and groundwater cleanup criteria will be used to determine compliance with MTCA cleanup standards for those indicator contaminants of concern for which Method A CULs are available under MTCA. For other substances and indoor air compliance, Method B standard formula values for direct contact or indoor air will be used.

Table 2 summarizes the MTCA Method A soil and groundwater cleanup levels for the contaminants of concern identified above. Where no Method A cleanup criteria is available, the MTCA Method B standard formula value is included. Soil and groundwater found to be at or below these concentrations will be considered in compliance with MTCA cleanup standards.

TABLE 2
Model Toxics Control Act Cleanup Criteria
for Unrestricted Land Use

Parameter	***Soil Cleanup Criteria (mg/kg)***	***Groundwater Cleanup Criteria (ug/l)***	***Indoor Air Cleanup Criteria (ug/m^3)***
Gasoline Range Organics	30[A]	800[A]	140 (Generic TPH)
Diesel Range Organics	2,000[A]	500[A]	
Motor Oil Range Organics	2,000[A]	500[A]	
Benzene	0.03[A]	5[A]	0.32[B]
Ethylbenzene	6[A]	700[A]	460[B]
Xylenes	9[A]	1,000[A]	46[B]
1,2,4-Trimethylbenzene	800[B]	80[B]	27[B]
Tetrachloroethene	0.05[A]	5[A]	9.6[B]
Trichloroethene	0.03[A]	5[A]	0.33[B]
cis-1,2-Dichloroethene	160[B]	16[A]	NV[B]
Vinyl Chloride	0.67[B]	0.2[A]	0.28[B]
Chloroform	32[B]	1.4[B]	0.11[B]
Naphthalene	5[A]	160[A]	0.074[B]
Cadmium	2[A]	5[A]	0.0014[B]
Lead	250[A]	15[A]	NV[B]

Table Notes:
A - MTCA Method A cleanup levels
B - MTCA Method B standard formula value for direct contact or indoor air, per WA Dept. of Ecology CLARC database, January 2020.

Cleanup actions must address all of these indicator contaminants of concern to effectively meet MTCA cleanup standards. WES reviewed a variety of cleanup options for their ability to meet these cleanup levels, efficiency and limitations. The remedy selection process is outlined in the following sections. It includes an evaluation of potential remediation approaches, comparison to Department of Ecology criteria and selection of a final cleanup action in accordance with MTCA.

6.0 REMEDY SELECTION PROCESS – FEASIBILITY STUDY

A Feasibility Study (FS) reviews potential cleanup approaches to determine how well each could meet the cleanup goals and standards for the property. Each remedial approach developed to address the conceptual model must meet minimum threshold requirements:

- Be protective of human health and the environment;
- Comply with cleanup standards;
- Comply with applicable state and federal law; and,
- Provide for compliance monitoring.

Other criteria can also be used to rank the applicable cleanup approaches. The most appropriate cleanup method will be one that uses permanent solutions to the maximum extent possible and provides for a reasonable restoration time frame. Other factors may include protectiveness, permanence, effectiveness over the long term, management of short-term risks, technical and administrative implementability, and consideration of public concerns. Cost comparisons are considered only as a part of the evaluation of permanent solutions.

6.1 Potential Cleanup Approaches

Based on the conceptual model, a cleanup action must prevent direct contact with soil, ingestion of contaminated groundwater or intrusion of vapors into site structures will meet MTCA cleanup standards. In this case, some of the cleanup actions that will be coordinated with redevelopment of the property are routine actions (excavation and disposal) that are equivalent to Ecology's Model Remedies. These will address some cleanup goals without the need for a feasibility review.

Redevelopment of the property will include large scale excavation of the western parcels to depths that exceed the anticipated depth of contamination. Figures 4 and 5 illustrate the plans for redevelopment and show the planned extent of excavation. This work will remove all petroleum and lead contaminated soil in these parcels for proper treatment or disposal. Impacted groundwater on these parcels is in relatively minor seepage zones of sandier soil that will be removed by this excavation and water will be managed as part of construction dewatering. This aspect of the project does not require a feasibility review, since the expected actions are routine Model Remedy equivalents. Waste management, field procedures, contingency plans and compliance monitoring for these actions are detailed in the Remedial Action Scope of Work, below.

The southeastern part of the property will not be excavated to the same degree or depth, so routine construction activities will not address a small, shallow area of soil impacted with PCE and lead, or the plume of groundwater impacted by chlorinated solvents. These conditions are subject to feasibility review. Since the source of the plume is off-property and inaccessible, cleanup will be unlikely to remove all of the contamination. The goal of cleanup is to address all contamination on the property and prevent re-contamination from the off-property source.

Soil vapors are a secondary condition, generated by contaminated soil and groundwater. Cleanup of soil and groundwater on the property may not address soil vapor that is being

generated by an off-property source. Regardless of the soil or groundwater cleanup approach chosen for this property, a soil vapor barrier system will be planned as part of the construction. Therefore, vapor mitigation will be the same for all potential remedies.

Table 3 summarizes several potential cleanup techniques commonly suited to chlorinated contaminants in soil and groundwater, similar to those at this site.

Table 3
Potential Cleanup Techniques

Potential Cleanup Techniques	***Suitable for Effective Soil Cleanup?***	***Suitable for Effective Groundwater Cleanup?***
Natural Degradation/ Attenuation (No Action)	Unsuitable – will continue to act as source of groundwater or vapor contamination; will not degrade lead contaminated soil	Suitable, but not a reasonable restoration timeframe
Excavation and Disposal	Suitable for limited area and depth, limited by need to protect the adjacent warehouse	Not Suitable, would not prevent recontamination from below warehouse
In-situ Chemical Degradation/ Sequestration	Unsuitable due to lead, but could pre-treat PCE in soil to avoid designation as dangerous waste	Suitable
In-situ Enhanced Biological Degradation	Unsuitable due to lead, but could pre-treat PCE in soil to avoid designation as dangerous waste	Suitable
Groundwater Barrier	Not Suitable	Not suitable, does not address on-site conditions, cannot be constructed at property line due to adjacent warehouse
Groundwater Collection and Treatment	Not Suitable	Suitable -but unreasonable restoration time frame, water volume unmanageable
Electrical Resistance Heating	Unsuitable due to lead, but could pre-treat PCE in soil to avoid designation as dangerous waste	Not Suitable -unclear if it would address low initial VOC concentrations, could impact adjacent warehouse

Each of these potential cleanup approaches is discussed briefly below.

Natural Degradation/Attenuation (No Action)
Natural degradation and attenuation occur due to known, natural processes that would over time reduce the concentration of VOCs in the environment. The predominance of vinyl chloride

in the groundwater plume indicates that natural degradation of PCE and TCE has been occurring, but has not completely eliminated contaminants. Attenuation processes include biological breakdown of the organic compounds, dilution, dispersion, sorption and other processes.

Natural degradation is a slow process and would not meet the criteria for a reasonable restoration time-frame for this project. PCE contaminated soil is likely to remain impacted for an extended time and lead impacted soil will not be degraded by these processes. Soil and groundwater will continue to generate vapors that may intrude into the site structure. Since the source of the VOC plume is off-property it cannot be removed for this cleanup action, so there is no way to predict the full time frame for restoration, or anticipate future conditions that could migrate toward the property. Natural degradation and attenuation would eventually meet cleanup standards, but are not an appropriate approach that would be protective of human health and the environment in the short term.

Excavation and Disposal
PCE and lead contaminated soil in the SE parking lot is at shallow depths (less than 3 feet) and could be excavated for disposal. This approach is a permanent solution, can be completed in a reasonable time frame and is technically feasible. Some of these soils may already need to be excavated for shallow footing construction in the impacted area as part of redevelopment. It would be appropriate to remove it all.

More widespread excavation and disposal of the soil and groundwater from the parking lot as a means of cleanup is not impossible, but would be inefficient and limited due to the need to dig directly adjacent to the footings of the adjacent property warehouse. The building would require structural support and the excavated area would need to be backfilled with structurally competent soil for the building design. This approach alone would not prevent recontamination of groundwater migrating from below the warehouse.

In-situ Chemical Degradation/Sequestration
In-situ treatment would likely be effective on shallow soils to remove PCE, but will not reduce lead concentrations. It could be used to pre-treat soil for disposal purposes, by degrading contaminants that could result in the soil being designated a dangerous waste. It would be most practical to excavate the soil and conduct treatment in a managed stockpile. The actions necessary to expose the soil for treatment would be more effort intensive than excavation and disposal.

In-situ chemical degradation of groundwater would be a viable approach with a likelihood of successfully meeting MTCA cleanup standards for groundwater. Chemical degradation using zero valent iron as a reducing agent is a commonly practiced approach to degrading chlorinated compounds in-situ. Chemical degradation dechlorinates compounds in several steps, with ethene and carbon dioxide as final end products. Zero valent iron products in liquid suspension can be injected into the water bearing zones of the soil. This reaction can be made more efficient when combined with an application of activated carbon to adsorb contaminants and sequester them on the surface of carbon particulates, where the dichlorination reactions occur. The combination of adsorption and chemical degradation can serve as a permeable treatment barrier that allows groundwater to migrate through the treatment zone where the dichlorination

occurs. For this property, this would serve as an effective barrier to recontamination from the adjoining property.

In-situ Enhanced Biological Degradation
In-situ Enhanced Biological Degradation uses bacterial action to conduct the same reductive dichlorination of contaminants. The process typically involves injection of an energy source to promote bacterial growth, commonly an emulsified oil. The bacterial growth uses the available oxygen, creating anaerobic conditions in the subsurface. At that point, anaerobic bacteria (often supplemented along with the oil injections) will use chlorinated compounds as a food source, breaking chemical bonds.

This process has been proven to be effective in groundwater remediation in-situ. It is a viable alternative for groundwater remediation on this property and once an anaerobic condition is established can be an effective means to limit recontamination. It is less likely to be effective on shallow PCE contaminated soils and will not reduce lead concentrations. Other approaches would be preferred for soil cleanup.

Groundwater Barriers
A groundwater barrier could be effective at limiting the potential for groundwater to carry contaminants toward the property from below the adjacent warehouse. However, it has the potential to change groundwater flow regimes and could redirect contaminant migration to other, currently uncontaminated areas. It also has the potential to stagnate water on the downgradient side of the barrier, making any groundwater remediation efforts on the property more difficult. There are practical limitations to the type of barriers that could be installed at the property line, because the work would be completed in the bearing zone of the warehouse foundations. No continuous trenching or excavation could be conducted in this area, so a barrier would be discontinuous, or limited to sheet piling extending to a depth of at least 40 feet below the surface. This type of piling does not typically result in a completely water tight barrier.

Groundwater barriers would not provide any benefit for shallow soil cleanup.

Groundwater Collection and Treatment
Groundwater collection and treatment (pump and treat) would also provide no benefit for shallow soil cleanup. Pump and treat systems typically use a collection gallery or series of wells to remove groundwater for above-ground treatment, then either reinfiltrate the water or discharge it off-site. In this case, reinfiltration of the anticipated volume of water would not be practical once the building is constructed. Discharge would be to local sanitary sewer which would require a long-term industrial wastewater discharge permit from King County Metro, with regular monitoring requirements.

Pump and treat systems are typically long-term solutions with unreasonable restoration time frames that are used to influence the direction and gradient of groundwater migration, gradually pulling dissolved contaminants toward the collection points. In this case, that would most likely draw contaminants toward the property from beneath the adjacent warehouse. A collection system at the property boundary would be needed to prevent recontamination. This would most likely have to be a series of wells, since trenching in the bearing zone of the warehouse footings would be prohibited.

Electrical Resistance Heating
Electrical resistance heating uses applied currents to heat a contaminated area, driving off volatile organic compounds in steam, which is then collected and undergoes treatment before discharge to the air. The system typically involves installing a series of electrodes in the ground, along with a soil vapor extraction system used to collect the off-gassing steam. The collected air stream is processed through activated carbon or a catalytic converter to destroy contaminants.

For this site, the process would not be effective for soil due to lead, but could likely serve as a pre-treatment to reduce PCE and avoid designation of the soil as a dangerous waste. If carbon adsorption is used as an air stream treatment, the carbon would most likely be managed as dangerous waste, so this would just be an unnecessary mass transfer, when the soil could be more easily excavated and disposed.

Electric resistance heating has been used effectively to reduce high concentrations of volatiles in soil or groundwater. For this review WES did not find any documented case studies that demonstrate its effectiveness at addressing low initial concentrations, such as found on this property. This is likely due to the complexity and intensive maintenance of these systems during their operating period. It is not a suitable approach for this property.

6.2 Initial Remedy Screening
Based on this initial screening, excavation and disposal is the only identified practicable approach to cleanup PCE and lead contaminated soil at this site. Since the impacted soil zone is shallow and the anticipated volume is low, no more complex approach is warranted or would likely be more effective.

Several approaches to groundwater cleanup appear to be suitable to address site conditions and warrant further screening. These include natural attenuation (a no action alternative), in-situ chemical degradation/sequestration, in-situ enhanced biological degradation, or a collection and treatment system. Note that each of these potential remedies assume a compatible vapor barrier is part of the property redevelopment plan, so vapor mitigation is the same for each of these alternatives.

These alternatives are screened further, by comparing each to Ecology's additional cleanup evaluation criteria.

6.3 Comparison to Ecology Cleanup Evaluation Criteria
Table 4 summarizes the four potential groundwater cleanup actions and how each would meet Ecology's cleanup evaluation criteria. Each potential cleanup approach has been ranked on a scale of 0 – 10 as to how well it addresses each of the evaluation criteria. A ranking of 0 would imply the evaluation criteria is not addressed by a cleanup approach, while a ranking of 10 implies the cleanup approach meets all aspects of the evaluation criteria in a practicable manner. A final ranking score for each approach is noted in the table as the sum of the numerical rankings, without weighing the relative importance of each evaluation criteria. A ranking score of 140 points would mean that a cleanup approach meets all MTCA criteria in the most practicable manner.

The overall ranking identifies in-situ chemical degradation and in-situ enhanced biological degradation as the two most effective means of meeting MTCA cleanup standards, with ranking scores of 132 and 131, respectively. Collection and treatment is ranked lowest, with an overall score of 99. This score is primarily due to the unreasonable time to achieve restoration, difficult implementation and maintenance. Natural attenuation is an intermediate option, with a score of 106, primarily due to the unreasonable time to achieve restoration and potential for future unknown conditions, since the source of the plume is on adjacent property and cannot be managed as part of this cleanup.

A feasibility review typically allows a disproportionate cost analysis to eliminate potential remedial options that show little additional benefit for significant differences in cost. In this case, technical limitations and efficacy are the primary factors that influence the ranking of these approaches. As the table notes, there is a significant additional cost to groundwater collection and treatment, but the primary reason costs are high is the relative difficulty to implement, for a less effective, lower ranked approach. The overall low-ranking score render the collection and treatment alternative as the least effective option, regardless of the excessive cost.

Based on this ranking, a combination of in-situ chemical degradation and enhanced biological degradation was selected as the cleanup approach for the property. A detailed plan for implementation was developed, as discussed below.

7.0 REMEDIAL ACTION SCOPE OF WORK

The remedial action planned for this site will occur in two phases. Initially, in-situ groundwater treatment will be conducted in the southeastern parking lot area while it remains paved and otherwise unused. Excavation of petroleum impacted soil in the western part of the property will be conducted later, in conjunction with redevelopment.

The cleanup will involve the following steps:

- Conduct an in-situ groundwater treatment program, including injection of an aqueous suspension of zero valent iron and activated carbon (to act as an adsorption mass) into the water-bearing zones along the north perimeter of the parking lot. This will act as a permeable treatment barrier for groundwater and contaminants migrating toward the property from below the warehouse. A grid of injection points will also be used throughout the plume to apply a lower volume of these products to sequester and degrade the chlorinated compounds that are in groundwater on the property.

- Install one additional monitoring well within the groundwater plume area for expanded compliance monitoring.

- Conduct periodic groundwater monitoring to evaluate performance in accordance with Compliance Monitoring Plan.

- Conduct additional treatment injections and repeat performance monitoring, if necessary.

- Demolish the site buildings.

- Excavated and dispose PCE and lead contaminated soil from the SE parking lot area, estimated to be 10-15 cubic yards. Conduct performance sampling of this area and additional excavation, if sampling identifies additional contaminated soil.

- Install drilled pile shoring for the mass excavation of the western parcels; segregate and dispose any drill cuttings that evidence petroleum contamination. Note the location and depth for sampling during the mass excavation.

- Decommission monitoring wells that are within the excavation area.

- Excavate for redevelopment, assess and dispose of any underground storage tanks, piping or hydraulic lifts encountered during digging.

- Excavate and dispose of petroleum contaminated soil (PCS) wherever it is encountered, estimated to be 1,500 to 2,600 cubic yards, from depths of about six to 18 feet.

- Excavate and dispose of lead contaminated soil from the slope area in the central part of the property, estimated to be 200 to 600 cubic yards.

- Monitor dewatering system discharges to METRO and impact of dewatering on groundwater monitoring wells.

- Conduct performance soil sampling throughout the work areas; additional excavation and retesting, if sampling identifies additional contaminated soil.

- Document the soil cleanup and initial groundwater procedures, including all performance or comfirmational sampling and submit the information to Ecology's VCP Site Manager.

- Continue groundwater monitoring throughout construction period and replace any critical wells displaced or destroyed by construction.

- Continue monitoring of groundwater and indoor air required by the Compliance Monitoring Plan through construction until cleanup standards are met.

- Interact with Ecology's assigned Site Manager to facilitate a formal opinion letter.

- If necessary, an extended confirmational monitoring and maintenance program will be continued as part of a restrictive covenant due to contaminants migrating from off-property sources.

7.1 In-Situ Groundwater Remediation

Figure 6 shows the proposed area of injection for in-situ remediation products. This work will be conducted in coordination with Regenesis, Inc., the product manufacturer and technical consultant for this aspect of the cleanup. In the northern portion of the parking lot, a combination of two Regenesis products will be used to form an adsorption and treatment zone in the area where the highest concentrations have been observed and migration could bring additional contaminants onto the property. PlumeStop™ liquid activated carbon will be injected to adsorb chlorinated compounds from groundwater. Then in-situ chemical reduction will be promoted using S-MicroZVI™, a zero valent iron product in suspension. An additional grid application of S-MicroZVI, and PlumeStop will be used to treat the remaining plume area.

PlumeStop is a very finely milled activated carbon in a water-based solution that readily injects and adsorbs contaminants from groundwater. It then more slowly adheres to soil particles, binding the contaminants and sequestering them in solid phase. Since the carbon forms a coating on soil grains, the chlorinated compounds are exposed and readily accessible for in-situ chemical reduction and naturally-occurring biological degradation. S-MicroZVI is a powdered zero valent iron suspended in food grade glycerol, that creates an anoxic and highly reducing environment, which breaks chemical bonds and also promotes enhanced anaerobic biodegradation to destroy chlorinated contaminants. Product information is included in Appendix B.

Bench testing and prior field implemented projects have demonstrated these Regenesis products are suited to treatment of the chlorinated contaminants of concern at the concentrations observed here. Design verification testing for this property will be conducted to determine the appropriate spacing of injection points and soil characteristics that could influence the effectiveness of the treatment program. Testing will include a clean water injection test to determine the radius of influence that can be achieved and field and laboratory analysis of soil parameters that can influence the required volume of injection. The final quantities, spacing and injection rates will depend on the design verification testing.

Preliminary design anticipates an injection volume of approximately 6,000 gallons of a mixture of Plume Stop and S-MicroZVI will be injected in a band of about 13 injection points along the northern edge of the parking lot, as shown in Figure 6. The injection will be conducted using Geoprobe direct-push points and will target permeable zones from a depth of about five to 18 feet below the surface. The anticipated area of influence will be approximately 10 to 15 feet wide, by 80 to 100 feet long.

A grid of injection points will be established throughout the plume downgradient of this zone which will inject an additional estimated 9,000 gallons of the mixture, at a lower rate of application. Approximately 29 injection points will be used, targeting an interval about nine to 18 feet below the surface. Regenesis anticipates the injection program can be completed within about one week of field operations.

6.1.1 Pre and Post-Treatment Monitoring

Prior to injection, one additional monitoring well will be installed in the southeastern parking lot, to provide coverage throughout the anticipated plume area. The proposed location is noted in Figure 6, in an area along the western edge of the plume. The

location is approximate and may be revised to minimize interference with planned construction in this area.

Groundwater monitoring will be conducted throughout the verification testing and injection period. Compliance monitoring details are summarized in the Compliance Monitoring Plan (CMP), in Appendix C. A quarterly sampling event on all site monitoring wells will be coordinated to occur before injections, to be analyzed for volatile organic compounds.

Following injection, field measurable parameters will be checked to evaluate progress. Dissolved oxygen, pH, conductivity and turbidity will be tested on a bi-weekly basis. PlumeStop may take several months to adsorb to soil in the formation, so groundwater in the treatment area will temporarily appear black. Although chlorinated compounds will rapidly absorb onto the activated carbon, laboratory analyses will still show concentrations of solvents as long as the carbon remains suspended in the groundwater. Although periodic progress sampling may be conducted on individual wells, no overall rounds of sampling will be conducted until turbidity testing shows that carbon has mostly adsorbed to soil. Most likely this will fall within a normal quarterly monitoring schedule. Monitoring will continue on a quarterly basis, as outlined in the CMP.

Redevelopment construction is scheduled to begin within a few months of injections, so compliance monitoring will not be complete. The wells that make up the network in and around the groundwater remediation zone will need to be protected to avoid damage by excavators and traffic. If the asphalt is removed, the current protective monuments will most likely prevent damage, but deeper excavation could require other protective measures. Protective bollards or other means of protection can be used to limit access to the area around each well. If damaged or displaced by construction the wells will need to be restored or replaced until compliance monitoring is complete.

7.2 Site Excavation

Separate from the groundwater remediation, redevelopment of the property will involve excavating approximately 38,500 in-place cubic yards of soil. All parcels of the property except the SE parking lot will be developed with below grade parking. The anticipated excavation base will be at an elevation of 186.92 to 187.92 feet by City of Seattle reference, or approximately 29.5 feet below current ground surface at the northwestern corner and about 13 to 17 feet below ground surface along the south property line. Two elevator pits will be excavated to elevations of about 183 feet. The perimeter walls of the excavation will be supported by temporary shoring and tie-backs into the surrounding soil.

Shallow areas of PCS that are readily accessible during demolition of the site structures and the small zone of PCE contaminated soil can be removed as part of early site preparations. Other areas will be impractical to remove in advance and will need to be segregated during the mass excavation of the site.

Figure 5 shows a cross section of the proposed site building demonstrating the extent of excavation that will be conducted. The depths and locations of samples evidencing soil contamination are projected onto the cross-section line at the appropriate depths. The planned

depth of excavation is at least 3.5 to 14 feet below the lower limit of known PCS in the impacted areas. If necessary, additional excavation will be conducted in any area where contamination extends below the planned base elevations. Those areas will be backfilled under the direction of the project geotechnical engineer.

The following work procedures will be utilized throughout the remedial action:

- The contractors chosen for this project shall assume full responsibility for compliance with all applicable federal, state, and local regulations pertaining to work practices, hauling, disposal, and protection of workers, visitors to the property, and persons occupying areas adjacent to the property.

- The excavation contractor will be responsible for mobilizing the necessary excavation equipment and personnel to the property, setting up equipment at the property, and holding safety meetings. The general contractor will be responsible for designating an appropriate staging area for the excavation contractor.

- The work will be conducted following a site-specific Health and Safety Plan (HASP). The general contractor is responsible for complying with the Health and Safety Plan for its employees and subcontractors.

- Work in the area where contaminated soil is expected will be conducted with dedicated excavation equipment and trucks that are working only within the contaminated soil zone. All soil from these areas will be managed separately from other excavation spoils unless specifically cleared for management as "clean" soil suitable for reuse or export. See Section 6.3 for soil screening criteria.

- PCS or lead contaminated soil removed during excavation will be trucked to a treatment or disposal facility. The disposal or treatment method selected will be based on the current tipping and transportation cost and the capacity of all providers at the time the work is conducted. One or more disposal or treatment option will be selected before site excavation begins.

- The contractor will be responsible for developing and adhering to a truck routing plan to be used during soil loading and transporting activities. The excavation contractor will be responsible for providing sealable dump trucks suitable for containing and transporting PCS that may contain minor quantities of groundwater.

- The excavation contractor will be responsible for loading the soil into the trucks and transporting these soils to the selected disposal facility in accordance with all local, state, and federal regulations. Prior to the trucks exiting the Site, the excavation contractor will inspect each truck to ensure that loading was conducted properly and that petroleum-impacted soils are not adhering to the truck body or tires. The excavation contractor will be responsible for disposing petroleum-impacted soils in accordance with federal, state, and local regulations.

- After completion of remediation activities, the excavation contractor shall ensure that equipment that has come in contact with the affected soils will be washed with high-pressure water in an area built to contain the wash water. The water will be disposed in accordance with applicable discharge guidelines and requirements. Following wastewater removal, accumulated sediments (if any) will be sampled and analyzed for waste designation purposes. Following designation, these sediments will be removed and disposed accordingly. The general contractor shall also be responsible for disposal of municipal-type solid wastes (e.g., Tyvek and gloves) generated during field activities.

Excavation will continue until confirmation testing indicates that all on-site PCS has been removed to levels at or below the Method A cleanup levels summarized in Table 3.

7.2.1 Work Preparations and Permitting

In preparation for this cleanup, WES will make arrangements for contaminated soil disposal. Each potential soil disposal option requires waste characterization testing and an application for approval prior to accepting any waste shipments. WES will obtain approval for disposal at Republic Services, Waste Management, Inc. and Cemex, in Everett, Washington. Typically, the combined cost of trucking and disposal at Cemex is the most economical disposal option for PCS. However, soil contaminated with lead or PCE, or material containing excessive debris cannot be disposed at Cemex.

WES will submit existing soil data to the Department of Ecology Hazardous Waste and Toxics Reduction Program for a “contained-in determination” which sets terms for management of soil containing PCE or other solvents. Current data suggests there is one limited zone in the southeastern parking lot, but other areas could be encountered over the course of excavation.

Required permits for this work will be part of the overall building permit process of the City of Seattle. No other grading or demolition permitting is required. Asbestos abatement and management of other hazardous building materials will be conducted prior to demolition. These aspects of demolition will be managed separately and are not within the scope of this remedial action plan.

If tanks are encountered, a Seattle Fire Department tank decommissioning permit will be necessary for each closure. These can be obtained on an as-needed basis.

Existing monitoring wells within the excavation area will be properly abandoned by a licensed well driller, following accepted techniques. Well abandonment logs will be submitted to the Washington Department of Ecology, as required by State regulations.

7.2.2 Demolition and Surface Removal

The excavation phase of cleanup will commence with demolition of the buildings and the removal of the asphalt or concrete surfaces to expose the entire surface area for inspection and additional sampling. The debris will be transported off-site for recycling. Any observed stained areas or petroleum odors with be marked and sampled for possible inclusion in PCS soil removal.

7.2.3 Shoring Installation

Drilled pile installation will be conducted along the building lines to allow excavation to the base depth. Approximately thirty-inch diameter borings will be drilled to about 10 feet below the excavation base elevation, steel beam piles will be installed and the borings backfilled with a lean-mixed concrete.

Current site investigation data suggests no petroleum impacts have extended to or beyond the site perimeter. As a cautionary measure, WES will observe and monitor soil cuttings from the pile installation for evidence of contamination. The location and depth where any PCS is generated will be noted and that information used to direct digging during the site mass excavation. Any PCS will be segregated from other soil and properly disposed.

Tie-backs and dewatering points will be installed as the mass excavation is conducted to stabilize the vertical excavation walls. The redevelopment area will be excavated in about six-foot tiers, with tie-backs installed as new sections of the wall are exposed. Tie-backs are drilled at an angle into the wall, and timber lagging is installed between the piles. The end result will be a continuous vertical wall around the building footprint from the current elevations to the lowest part of the excavation.

As the excavation reaches the depth of PCS or lead contaminated soil, materials will be segregated for disposal. Samples of the sidewalls will be obtained to demonstrate the conditions prior to installation of the lagging. If PCS is encountered in the sidewall, WES will observe the tie-back drilling to evaluate the extent and distance beyond the wall the PCS extends.

7.2.4 Mass Excavation

Trackhoes will be used to excavate soil throughout the site to the design elevation for construction. Based on the currently available information, this depth will be sufficient to remove the full anticipated volume of contaminated soil. If impacted soil extends deeper, the excavation will be continued under the direction of the project's geotechnical engineer. Any excavation below the planned base depth of digging will be documented and the area restored using compacted structural fill or lean concrete mix meeting the requirements of the engineer.

During excavation, WES will field screen soils as they are excavated for petroleum odors, discoloration or elevated vapor measurements using a field photoionization meter. Soils exhibiting obvious indications of contamination will be considered "Class 3" soil, impacted to a level where there is no suitable reuse. Questionable soil that may or may not meet MTCA cleanup criteria can be segregated and tested to determine appropriate handling. If approved, this soil may be trucked to Cemex or other facilities as "Class 2" soil, which meets MTCA cleanup criteria but may still exhibit odors or discoloration to a degree that it would not be accepted at "clean" fill sites.

Lead contaminated soil in the central slope area of the site may not evidence field observable odor or sheens that identify the impacted material. Performance sampling

will be needed to determine the extent of excavation required in this area, or other locations where debris or other indications of contamination are encountered. The fill soil may evidence discoloration, debris or ash. Cemex treatment or disposal is not approved for this material. This area will need to be excavated separately from PCS and the soil managed as waste through Rabanco or Waste Management, Inc. at a Sub-Title D landfill. Disposal of this soil will require characterization testing for a suite of metals by the Toxicity Characteristic Leaching Procedure (TCLP). This soil will be stockpiled until approved for disposal as a separate waste stream from the site.

7.2.5 Groundwater Management

A de-watering plan has been developed as part of the construction documentation for this project (Bender, 2019). During shoring installation, the contractor will install approximately 98 de-watering points around the perimeter of the excavated area. These will be manifolded to a vacuum pumping system, piped to an approximately 18,000-gallon storage tank (or tanks), and eventual discharge to the local combined sanitary and storm sewer. The treatment and holding system will also manage run-off and storm water. During excavation, storm water may come in contact with PCS.

The discharge must be permitted through King County METRO, who has established quantity restrictions and discharge limits for the contaminants of concern at this site. The construction de-watering permit is pending, but will require at least basic pre-treatment and monitoring. WES will conduct all required discharge monitoring under the permit and project CMP. For the contaminants of concern on this project, METRO's published discharge limits far exceed the maximum groundwater concentrations ever encountered in any sample from the site. Table 5 summarizes current METRO discharge limits and the maximum reported groundwater concentrations detected on the property. The de-watering process collects all withdrawn water from the entire site perimeter to a single treatment tank, so it is very unlikely that discharged water will approach METRO limits. Treatment will be limited to settlement to reduce turbidity, unless discharge monitoring shows the potential to exceed other limits.

TABLE 5
Site Groundwater Concentrations and METRO Discharge Limits

Parameter	***Maximum Detected Groundwater Concentration (mg/l)***	***METRO Discharge Limit (mg/l)***
Total Petroleum Hydrocarbons		Non-polar Fats, Oil & Grease (FOG)
Gasoline Range Organics	3.9	
Diesel Range Organics	1.1	
Motor Oil Range Organics	0.68	100
Benzene	0.011	0.070
Ethylbenzene	0.085	1.7
Toluene	0.0067	1.4
Xylenes	0.419	2.2
1,2,4-Trimethylbenzene	0.18	--
(Continued)		

Parameter	*Maximum Detected Groundwater Concentration (mg/l)*	*METRO Discharge Limit (mg/l)*
Chloroform	0.0011	0.060
Tetrachloroethene	0.033	0.24
Trichloroethene	0.023	0.5
Cis-1,2- Dichloroethene	0.017	1.0
Vinyl Chloride	0.0019	0.012
Arsenic	0.0165	1.0
Lead	0.0138	2.0

Table Notes:
Total Petroleum Hydrocarbons as determined by Washington State Method NWTPH-G or D(extended).
Fats oil & Grease as determined by Standard Method 1664, Revision A (HEM/SGT-HEM). These two methods are not directly comparable.
Summary of maximum reported concentrations in any sample. Not all parameters found in the same sample at the same time.

WES will also monitor groundwater levels in existing monitoring wells adjacent to the excavation to observe the influence of pumping on groundwater levels and direction of migration. If pumping influences the area of groundwater remediation, the changes will be documented and the mass of contaminant collected by the de-watering system will be estimated.

7.3 Soil Screening Criteria

Field screening and soil segregation will be directed by a WES environmental geologist or technician experienced in cleanup and excavation procedures. Any soil evidencing discoloration, petroleum odors or sheen will be segregated and unless specifically cleared via laboratory testing, will be managed as waste soil. Within the expected contaminant areas, only those soils with appropriate laboratory testing can be excluded from disposal or treatment.

All sampling conducted during excavation will be considered progress sampling, intended for waste handling and characterization. Progress sample analysis may be limited to the parameters suspected to be present at any given location.

Final performance and confirmation sampling of the excavations is detailed in the CMP, in Appendix C.

7.4 Underground Storage Tank Removal (If Necessary)

Should remaining underground storage tanks be encountered they will be removed under the direction of a licensed UST service provider following all appropriate permitting and safety procedures. Any encountered tank will be emptied, rinsed and pumped, then placed in an inert state by a licensed marine chemist, using compressed carbon dioxide. The tank will be checked by a representative of the Seattle Fire Department and when confirmed to be inert, will be removed from the ground, sealed and removed from the site the same day.

Any tanks will be transported to a facility that will clean them further and cut them up for scrap. The facility issues a certificate of destruction as documentation.

The condition of any encountered tanks and the surrounding soil will be documented by a registered underground tank assessor. As part of the documentation for this project, a Department of Ecology Tank Site Assessment Checklist will be prepared for any commercial tank encountered. Heating oil tanks are exempt from this requirement.

The tank excavation will be expanded to remove any adjoining petroleum contaminated soil, if necessary. Confirmation sampling will be conducted in accordance with the CMP.

7.5 Hydraulic Lift Removal (If Necessary)

Hydraulic lifts could be encountered in the lower level of the 104 12th Avenue building or the former location of the gas station. If encountered, all lifts will be disconnected from any remaining piping then removed intact from the ground. Each lift will be wrapped in plastic and transported to the facility of Marine Vacuum Services, Inc., where it will be drained of oil and scrapped. The oil will be tested for PCBs prior to disposal or recycling.

If PCBs are present, the oil will be managed by Marine Vacuum as a separate waste stream. If no PCBs are present, MarVac is free to mix the oil with other waste oils for recycling. The lift excavation will be visually checked for possible petroleum leaks and sampled in accordance with the CMP. The areas of the lift will be excavated to the extent necessary to remove any PCS and additional performance samples will be obtained as per the CMP.

7.6 104 12th Avenue Basement Floor Sump

The floor sump near the southwestern corner of the 104 12th Avenue building and any other sumps found during the demolition or excavation will be removed and the surrounding soil excavated and stockpiled pending laboratory testing. Samples from sump areas will be managed as if the area held a waste oil tank, with analyses for total petroleum hydrocarbons in the gasoline, diesel and motor oil ranges, as well as other parameters outlined in the CMP. The sump area will be excavated to the extent necessary to remove any impacted soil and performance samples will be obtained as per the CMP.

7.7 Unanticipated Conditions

Should un-anticipated conditions or features be encountered, the excavation contractor will be required to stop work in that area pending a review of the condition and how to apply safety and good work protocols. The area will be closed until fully assessed. A sampling protocol will be established to determine the nature and extent of the condition, then it will removed, documented and if necessary, performance sampling will be conducted at the end of the operation.

8.0 CLOSURE

8.1 Limitations

This work plan was prepared for the exclusive use of Centric Partners LLC, their agents, assigns and lenders, specifically to address the current conditions of this property. WES will not be responsible for the interpretation of its data or conclusions by others. WES obtained, reviewed, and evaluated information available from the property owner, other consultants, and local, state, or federal agencies. WES's conclusions, opinions, and recommendations are based, in part, on this information. Where possible, WES has made efforts to identify mistakes or insufficiencies in the information provided, but verification of all of the information provided is beyond the scope of this work plan.

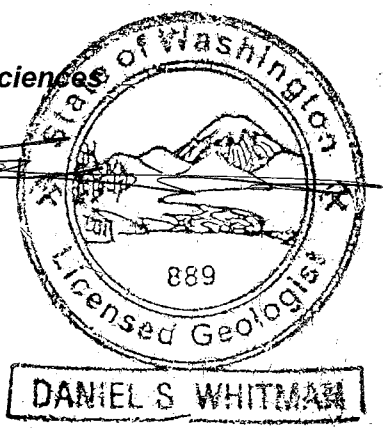
WES does not guarantee that the site is free of hazardous or potentially hazardous materials or conditions, or that latent or undiscovered conditions will not become evident in the future. This report represents the professional opinions and judgements of WES, prepared in accordance with commonly practiced environmental assessment and remediation procedures. No other warranties, representations, or certifications are made. No environmental assessment can wholly eliminate uncertainty regarding the potential for recognized environmental conditions in connection with a property. Environmental conditions and regulations are subject to constant change and reinterpretation. Current conditions or regulatory status should not be assumed to represent conditions at some future time.

8.2 Signature of Environmental Professional

Whitman Environmental Sciences has been pleased to be of service in this matter. If you have any questions regarding the information contained in this report, or if we may be of any further assistance, please feel free to contact me.

Respectfully submitted,
Whitman Environmental Sciences

Daniel S. Whitman, LG
Principal



9.0 REFERENCES

Prior Environmental Studies:

AEG, 2014 - Associated Environmental Group, Inc., Phase II Environmental Site Assessment, Conducted on 12th Avenue Parking Lot, 110 & 124 12th Avenue, Seattle, Washington, AEG Project No. 14-142, November 14, 2014

Farallon, 2016 – Farallon Consulting, Phase I Environmental Site Assessment Report, 12th & Yesler Property, 104-108 12th Avenue and 1206 Yesler Way, Seattle, Washington, Farallon Project No. 1200-003, January 4, 2016.

Washington State Department of Ecology, 1994. Early Notice Letter, T&D Auto Body& Repair, 1209 E. Fir Street, Seattle, Washington, September 22, 1994.

Washington State Department of Ecology, 2001. Site Hazardous Assessment, TD Auto Body & Repair, Ecology Facility ID: 2501, September 11, 2001.
Repair, Ecology Facility ID: 2501, September 11, 2001.

WES, 2019 - Whitman Environmental Sciences, Remedial Investigation Summary Report Redevelopment Property, 104-124 12th Avenue & 1209 E. Fir Street Seattle, Washington 98122 October 26, 2019 (Project No. WES-1591)

WES, 2020 - Whitman Environmental Sciences, Source Investigation Summary Report, 104-124 12th Avenue & 1209 E. Fir Street Seattle, Washington 98122 April 6, 2020 (Project No. WES-1591)

Geotech, 2017 - Geotech Consultants, Inc., Preliminary Geotechnical Engineering Study, Proposed Mixed-Use Building, 104, 110, and 124- 121h Avenue, Seattle, Washington, August 2, 2017, Project JN17357.

Geotech, 2018 - Geotech Consultants, Inc., Geotechnical Engineering Study Addendum and Correction Response, Proposed Mixed-Use Building, 104, 110, and 124- 121h Avenue, Seattle, Washington, December 7, 2018, Project JN17357.

Bender, 2019 – Bender Consulting LLC, Conceptual Dewatering Design, 104 12th Avenue, Seattle, Washington, April 23, 2019 , Project 1910-01

Regulations and Guidance Documents

Model Toxics Control Act Cleanup Regulation WAC Chapter 173-340

“Guidance for Remediation of Petroleum Contaminated Soil
WDOE Publication #10-09-057, Revised June 2016

“Guidance for Site Checks and Site Assessments for Underground Storage Tanks”
WDOE Publication #90-52.

"Guidance on Sampling and Data Analysis Methods", WDOE Publication No 94-49, 1995

Technical Memorandum #5 – "Collecting and Preparing Soil Samples for VOC Analysis", WDOE Publication 04-09-087

TABLE

Table 4
Detailed Evaluation of Groundwater Cleanup Approaches
104 - 124 12th Avenue & 1209 E. Fir Street

	Natural Attenuation (No Action Alternative)	***In-Situ Chemical Degradation/ Sequestration***	***In-Situ Biological Degradation***	***Collection and Treatment***
Regulatory Requirements				
Applicable Cleanup Levels	Method A & B groundwater CULs	Method A & B groundwater CULs	Method A & B groundwater CULs	Method A & B groundwater CULs
	Ranking: 10	Ranking: 10	Ranking: 10	Ranking: 10
Required Institutional Controls	Yes - Due to site conditions and off-property source. Long-term groundwater and vapor monitoring is feasible.	Yes - due to off-property source. Long-term maintenance, groundwater and vapor monitoring is feasible.	Yes - due to off-property source. Long-term maintenance, groundwater and vapor monitoring is feasible.	Yes - due to off-property source. Long-term maintenance, groundwater and vapor monitoring is feasible.
	Ranking: 8	Ranking: 10	Ranking: 10	Ranking: 10
Compliance Monitoring	Extensive compliance monitoring plan.	Moderate compliance monitoring during and post treatment, limited long-term monitoring.	Moderate compliance monitoring during and post treatment, limited long-term monitoring.	Extensive compliance monitoring plan.
	Ranking: 6	Ranking: 8	Ranking: 8	Ranking: 6
Compliance with MTCA Threshold Criteria				
Protective of Human Health and the Environment	Yes - Alternative will protect human health and the environment. Potential exposure for below ground utility work.	Yes - Alternative will protect human health and the environment.	Yes - Alternative will protect human health and the environment.	Yes - Alternative will protect human health and the environment.
	Ranking: 8	Ranking: 10	Ranking: 10	Ranking: 10
Compliance with Cleanup Standards	Yes - Source control will have removed all accessible on-property soil. Natural attenuation conforming to the expectations of WAC 173-340-370 (7).	Yes - Active remedial actions will have removed all on-property contaminants	Yes - Active remedial actions will have removed all on-property contaminants	Yes - Active remedial actions will have removed all on-property contaminants
	Ranking: 10	Ranking: 10	Ranking: 10	Ranking: 10

Table 4
Detailed Evaluation of Groundwater Cleanup Approaches
104 - 124 12th Avenue & 1209 E. Fir Street

	Natural Attenuation (No Action Alternative)	***In-Situ Chemical Degradation/ Sequestration***	***In-Situ Biological Degradation***	***Collection and Treatment***
Compliance with Applicable State and Federal Laws	Yes - Alternative complies with applicable laws.	Yes - Alternative complies with applicable laws.	Yes - Alternative complies with applicable laws.	Yes - Alternative complies with applicable laws.
	Ranking: 10	Ranking: 10	Ranking: 10	Ranking: 10
Provision for Compliance Monitoring	Extensive compliance monitoring plan.	Moderate compliance monitoring during and post treatment, limited long-term monitoring.	Moderate compliance monitoring during and post treatment, limited long-term monitoring.	Extensive compliance monitoring plan.
	Ranking: 6	Ranking: 8	Ranking: 8	Ranking: 6
Restoration Time Frame	Implement immediately, end-point unknown.	1-2 year restoration, additional 1-2 year compliance monitoring, then long-term limited compliance plan	1-2 year restoration, additional 1-2 year compliance monitoring, then long-term limited compliance plan	Implementation 1-2 year engineering and planning, end-point unknown.
	Ranking: 1	Ranking: 7	Ranking: 7	Ranking: 1
Evaluation Criteria				
Protectiveness	Eventual overall protection, but after an extended time. Some interim risks to below grade utility work.	This approach will achieve overall protection.	This approach will achieve overall protection.	Eventual overall protection, but after an extended time.
	Ranking: 5	Ranking: 10	Ranking: 10	Ranking: 7
Permanence	Permanent approach	Permanent approach, but off-property source may continue to impact the property until remedied	Permanent approach, but off-property source may continue to impact the property until remedied	Permanent approach, but off-property source may continue to impact the property until remedied
	Ranking: 10	Ranking: 7	Ranking: 7	Ranking: 7
Long-term Effectiveness	Eventually reaches cleanup levels	Reaches cleanup levels rapidly, may require maintenance to remain effective due to off-property source	Reaches cleanup levels rapidly, may require maintenance to remain effective due to off-property source	Eventually reaches cleanup levels, may require maintenance to remain effective due to off-property source
	Ranking: 10	Ranking: 8	Ranking: 8	Ranking: 6

Table 4
Detailed Evaluation of Groundwater Cleanup Approaches
104 - 124 12th Avenue & 1209 E. Fir Street

	Natural Attenuation (No Action Alternative)	***In-Situ Chemical Degradation/ Sequestration***	***In-Situ Biological Degradation***	***Collection and Treatment***
Short-term Risk Management	Poor short-term effectiveness	Most time efficient option	Moderately time efficient option	Long-term remedy, poor short-term effectiveness
	Ranking: 1	Ranking: 9	Ranking: 8	Ranking: 2
Implementability	Readily implemented, 2 -3 month to establish monitoring systems	Readily implemented, 1-2 month to start treatment	Readily implemented, 1-2 month to start treatment	Extensive engineering and permitting. 1-2 year implementation period.
	Ranking: 9	Ranking: 10	Ranking: 10	Ranking: 4
Public Concerns	Contamination is not removed. Restrictive covenant until shown effective	Restrictive covenant until adjacent property source is cleaned up	Restrictive covenant until adjacent property source is cleaned up	Restrictive covenant until adjacent property source is cleaned up
	Ranking: 6	Ranking: 6	Ranking: 6	Ranking: 6
Cost Range	$50,000 to implement, $100K-$200K monitoring indefinitely	$100K-$125K to implement, $50K maintenance/compliance monitoring over 5 years	$100K-$125K to implement, $50Kmaintenance/compliance monitoring over 5 years	$500K to implement $400K maintenance, performance and compliance monitoring over 5 years
	Ranking: 6	Ranking: 9	Ranking: 9	Ranking: 4
Overall Ranking:	***106***	***132***	***131***	***99***

FIGURES

Figure 1 - Site Map

104-124 12th Avenue & 1209 E. Fir Street
Seattle, Washington 98122

Project No.	WES - 1591
Date	June 11, 2017
File ID.	1591F1

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Legend

- Approximate Location of Monitoring Well
- Approximate Location of Soil Borings (2016 -2020)
- Approximate Location of Soil Vapor Probe
- Approximate Location of Geotechnical Soil Borings (Soil Descriptions Only)
- Approximate Location of 2016 Farallon Soil Borings (No Data or Soil Descriptions, Locations Estimated)

Figure 2 - Site Plan

Proposed Redevelopment Property
104-124 12th Avenue & 1209 E. Fir Street
Seattle, WA

Project No.	WES - 1591A
Date	Mar 20, 2020
File ID.	1591F2

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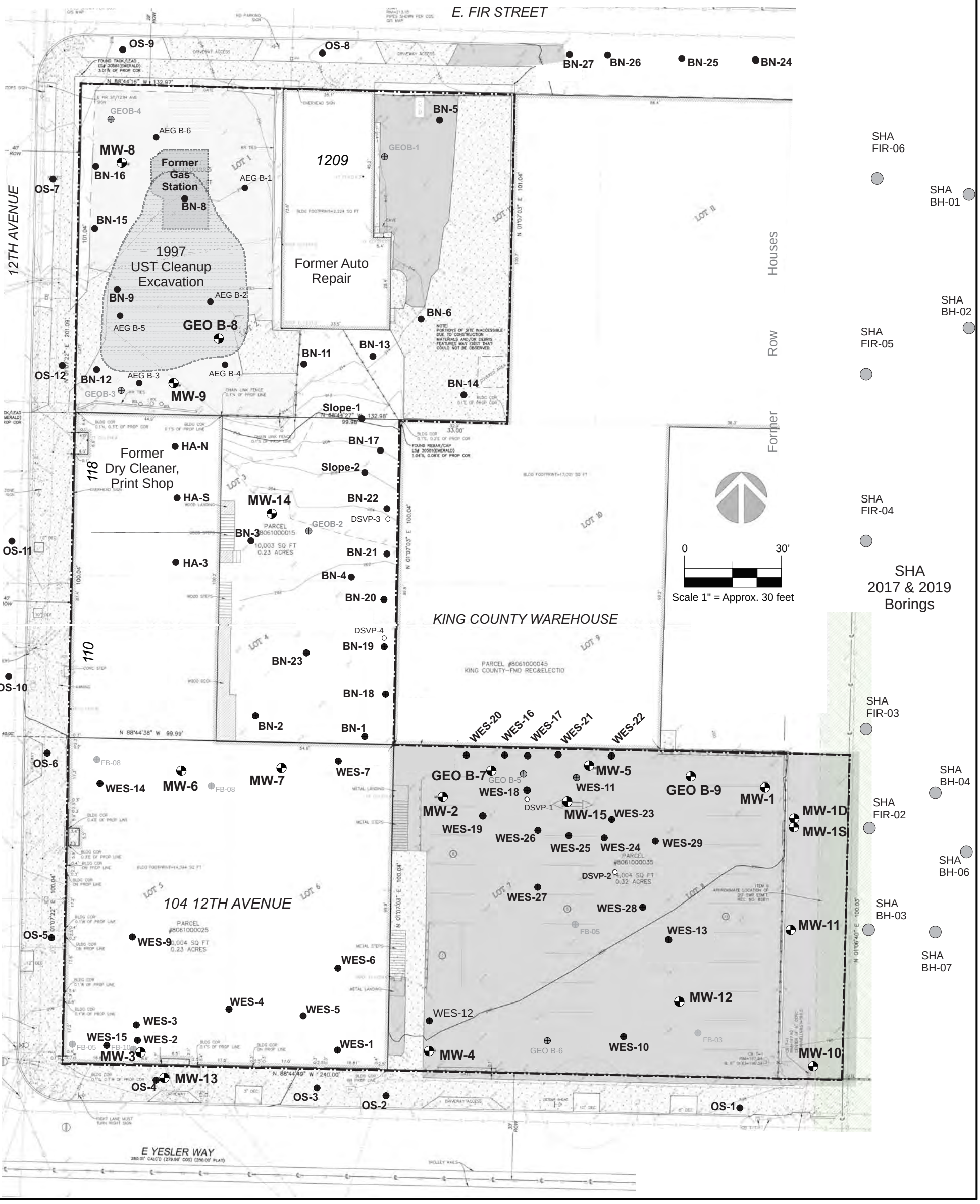

Legend

- Approximate Location of Monitoring Well
- Approximate Location of Soil Borings (2016 -2020)
- Approximate Location of Soil Vapor Probe
- Approximate Location of Geotechnical Soil Borings (Soil Descriptions Only)
- Property Line
- Outline of Shored Excavation Base Elevation ranging from 186.92 to 187.92'
- XX' Approximate Depth of Excavation
- Estimated Areas of Petroleum Contaminated Soil Cleanup
- Estimated Area of Lead Contaminated Soil Cleanup
- Estimated Area of PCE and Lead Contaminated Soil Cleanup
- Estimated Area of VOC Plume in Groundwater
- Expected Maximum Depth XX' — Expected Maximum Depth of Contaminated Soil Based on Remedial Investigation Sampling

Figure 3 - Anticipated Cleanup Areas

Proposed Redevelopment Property
104-124 12th Avenue & 1209 E. Fir Street
Seattle, WA

Project No.	WES - 1591A
Date	Apr 5, 2020
File ID.	1591F3

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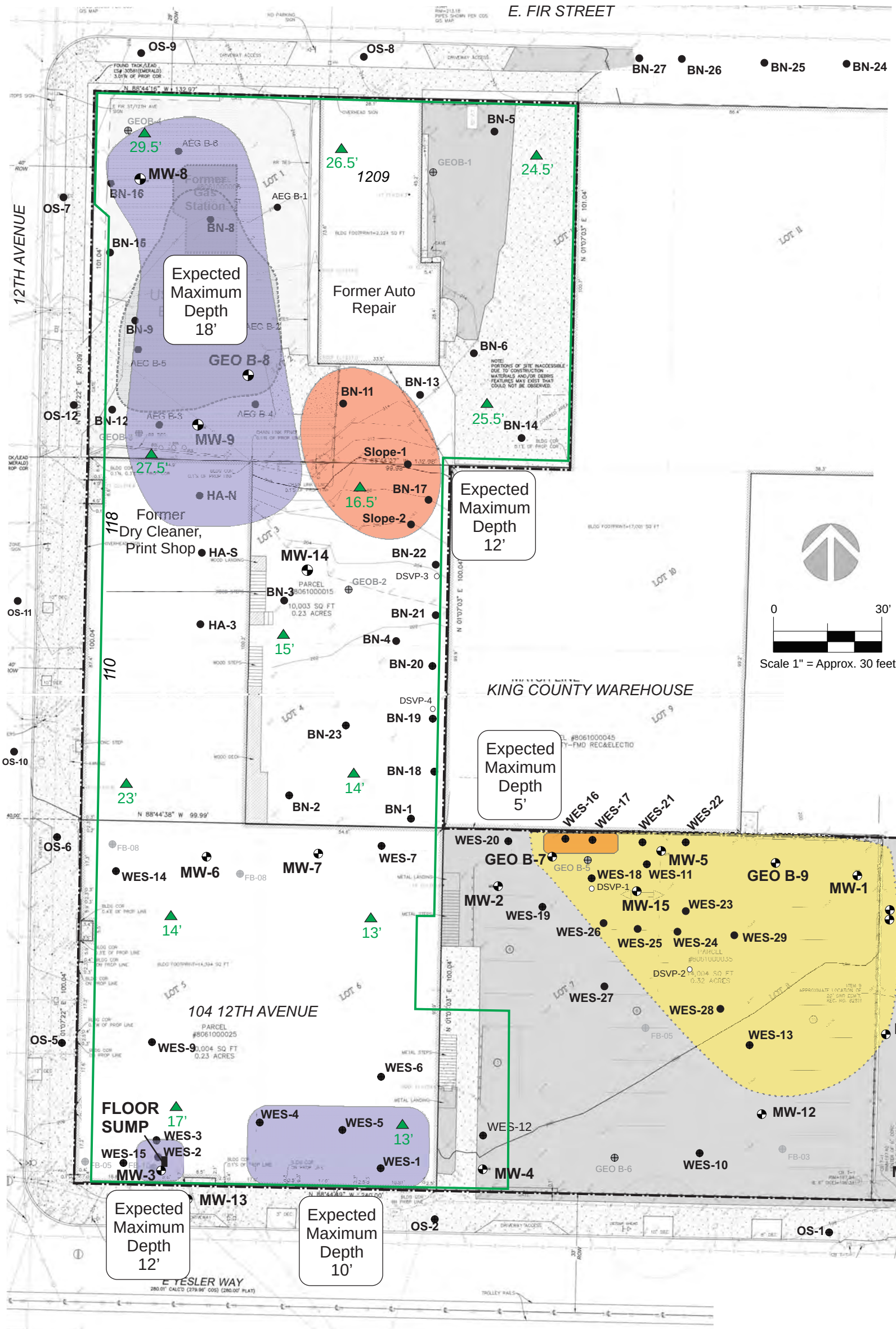
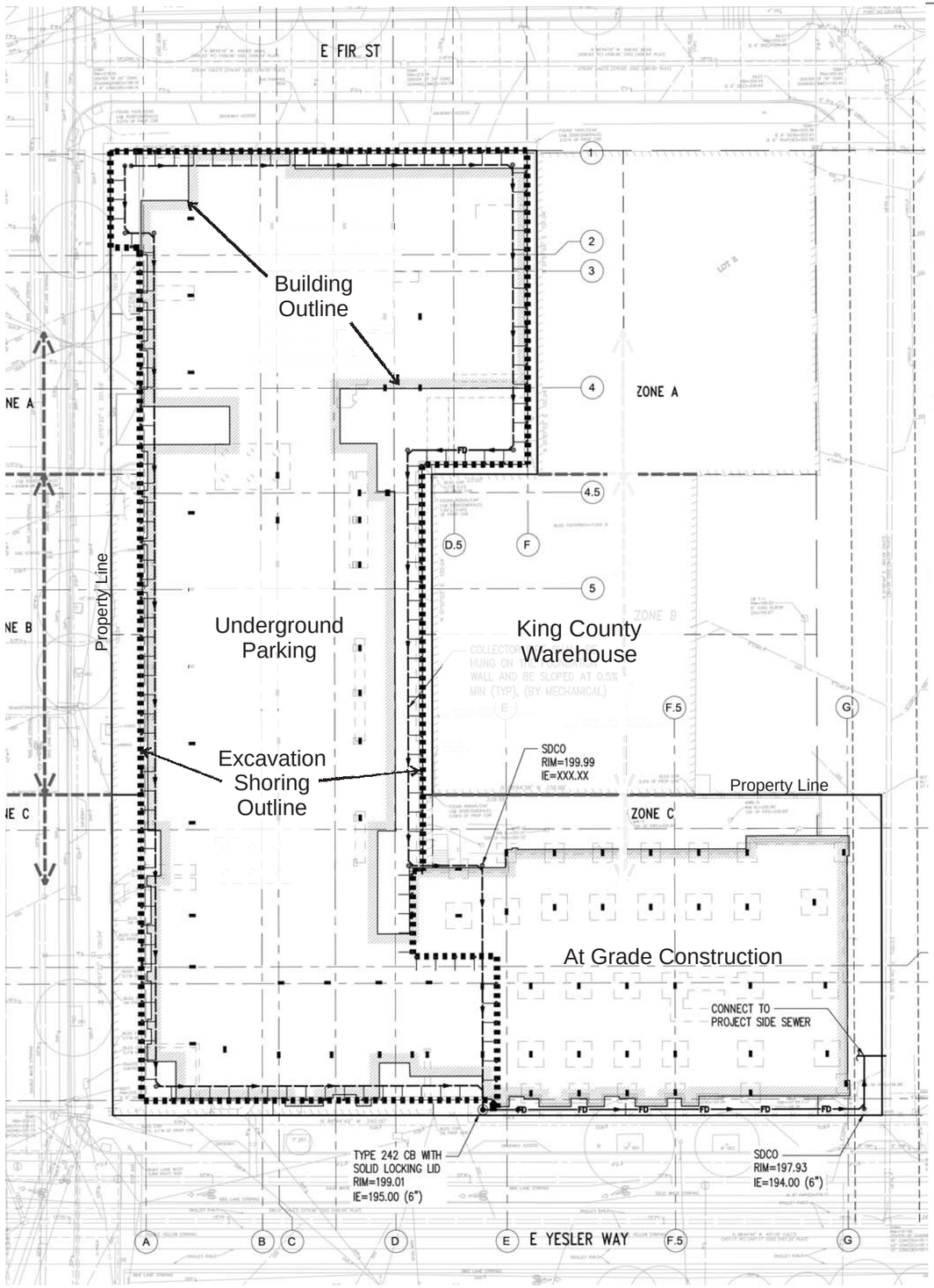




North

0 40'

Scale 1" = Approx. 40 feet

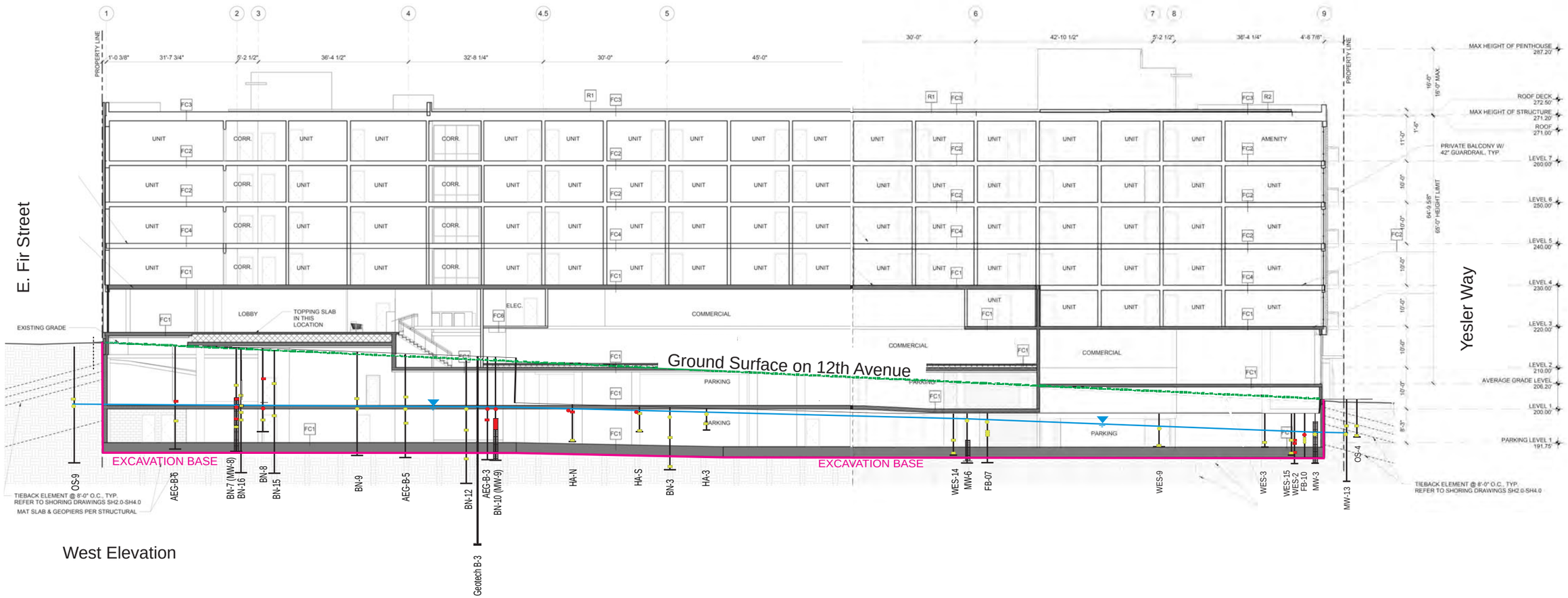
Development Plan from Clark Barnes Architects, 2019

Figure 4 - Proposed Redevelopment Plan

Proposed Redevelopment Property
104-124 12th Avenue & 1209 E. Fir Street
Seattle, WA

Project No.	WES - 1591
Date	Mar 30, 2020
File ID.	1591IRAPF4

WHITMAN
Environmental Sciences



West Elevation

Legend

- Static Water Level
- Depth Interval of Soil Sample - No Exceedance of MTCA Soil Cleanup Criteria
- Depth Interval of Soil Sample - One or More Parameter Exceeds MTCA Soil Cleanup Criteria
- Soil Sample Depth Interval Unknown (Farralon, 2014) - No Exceedance of MTCA Soil Cleanup Criteria
- Groundwater Sample - No Exceedance of MTCA Groundwater Cleanup Criteria
- Groundwater Sample - One or More Parameter Exceeds MTCA Groundwater Cleanup Criteria
- Ground Surface Grade on 12th Avenue, Adjacent to West Property Line
- Planned Base of Excavation for Construction

Development Plan from Clark Barnes Architects, 2020

Figure 5 - Proposed Redevelopment Elevation with Soil and Groundwater Data

Proposed Redevelopment Property
104-124 12th Avenue & 1209 E. Fir Street
Seattle, WA

Project No.	WES - 1591A
Date	Mar 15, 2020
File ID.	1591IRAPF5

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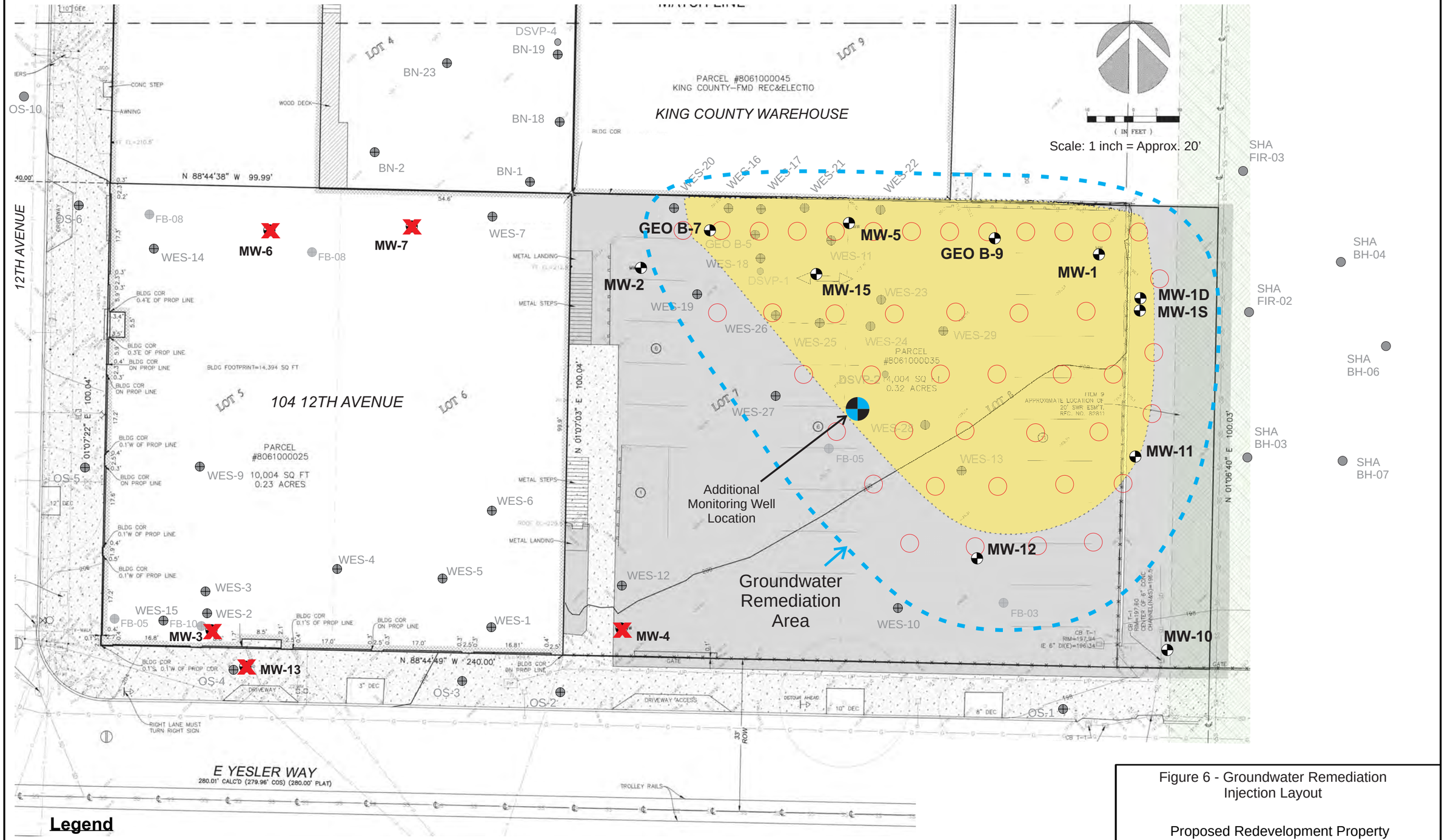

Legend

- Approximate Location of Monitoring Well for Performance and Confirmational Sampling
- Monitoring Well Likely to be Destroyed by Excavation and Construction
- Approximate Location of Soil Borings (2016-2020)

Layout Subject to Field Injection Testing

Figure 6 - Groundwater Remediation Injection Layout

Proposed Redevelopment Property
104-124 12th Avenue & 1209 E. Fir Street
Seattle, WA

Project No.	WES - 1591A
Date	Apr 4, 2020
File ID.	1591F6

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APPENDIX A

Summary Soil and Groundwater Data Tables
(WES, 2017, 2020)

TABLE 6
Summary of Soil Sample Analytical Results
104 - 124 12th Avenue & 1209 E. Fir Street, Seattle, Washington

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Depth (ft.)***	***Laboratory Analytical Results (mg/kg)***			
				Total Petroleum Hydrocarbons ***(by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x)***	***Benzene Toluene Ethyl benzene Xylenes (by EPA Methods 8021B or 8260C)***	***Other Volatile Organic Compounds*** ***(List of 58 Additional Compounds Detectable by the Laboratory Method.)***	***Regulated Metals*** ***(By EPA Method 6020B)***
104 12th Avenue - Seattle Curtain Co. Building and Parking Lot to the East							
WES-1	6 ft. inside double doors in SE corner of basement	4/3/2017	7.5'	***Gasoline: 710*** Diesel: 160[x] Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	sec-Butylbenzene 0.35 ND (all others)	NA
		4/3/2017	10'	Gasoline: NA Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
WES-2	Adjacent to oil/water separator by entry ramp in SW corner of basement	4/3/2017	6'	***Gasoline: 390*** Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	sec-Butylbenzene 0.086 ND (all others)	NA
		4/3/2017	7'	Gasoline: NA Diesel: 340[x] Motor Oil: ND (<250)	NA	NA	NA
		4/3/2017	9'	***Gasoline: 230*** Diesel: 440[x] Motor Oil: ND (<250)	NA	NA	NA
WES-3	10 ft NW of WES-2, near floor sump	4/3/2017	7'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
WES-4	In corridor through shelving area in S central part of basement	4/3/2017	6'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	sec-Butylbenzene 0.11 ND (all others)	NA
WES-5	In shelving area corridor, NW of WES-1, near SE entry double doors	4/3/2017	6'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
WES-6	In main corridor 30 ft. N of SE entry double doors	4/3/2017	8'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA

TABLE 6 (Continued)
Summary of Soil Sample Analytical Results
104 - 124 12th Avenue & 1209 E. Fir Street, Seattle, Washington

Boring/ Sample I.D.	Sample Location	Sample Date	Depth (ft.)	Laboratory Analytical Results (mg/kg)			
				Total Petroleum Hydrocarbons (by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))	**Benzene, Toluene, Ethyl benzene, Xylenes** (by EPA Methods 8021B or 8260C)	**Other Volatile Organic Compounds** (List of 58 Additional Compounds Detectable by the Laboratory Method.)	**Regulated Metals** (By EPA Method 6020B)
WES-7	Near NE corner of basement	4/4/2017	10'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
WES-8 (Completed as MW-7)	In N corridor, 25' W of WES-7	4/4/2017	11.5'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
WES-9	W central part of basement, near boiler room door	4/4/2017	8'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
WES-10	In S central part of SE parking lot	4/5/2017	7'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
WES-11	In N central part of SE parking lot, adjacent to previous boring MW-5	4/5/2017	15'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
WES-12	In SW corner of SE parking lot	4/5/2017	16'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
WES-13	In E central part of SE parking lot	4/5/2017	12'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
WES-14	NW corner of basement, 8 feet east of W wall.	7/23/2019	6'	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
		7/23/2019	9.5'	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA

TABLE 6 (Continued)
Summary of Soil Sample Analytical Results
104 - 124 12th Avenue & 1209 E. Fir Street, Seattle, Washington

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Depth (ft.)***	***Laboratory Analytical Results (mg/kg)***			
				Total Petroleum Hydrocarbons *(by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))*	***Benzene Toluene Ethyl benzene Xylenes*** *(by EPA Methods 8021B or 8260C)*	***Other Volatile Organic Compounds*** *(List of 58 Additional Compounds Detectable by the Laboratory Method.)*	***Regulated Metals*** *(By EPA Method 6020B)*
WES-15	SW corner of basement, 15 feet W of WES-2	7/23/2019	6'	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
WES-16	NW edge of SE parking lot, adjacent to King Co. warehouse	10/1/2019	1'	Gasoline: ND (<5) Diesel: 81[X] Motor Oil: 1,200	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	***Tetrachloroethene 0.12*** ND (all other)	Arsenic: 12.1 ***Cadmium: 2.13*** Chromium: 28.1 ***Lead: 883*** Mercury: ND (<1)
		10/1/2019	6'	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	Lead: 3.42
WES-17	SE parking lot, 3' S of King Co. warehouse, 2' W of centerline of building	3-5-2020	1.5'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	***Tetrachloroethene 0.13*** ND (all other)	NA
			4'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
WES-18	SE parking lot, 15' S of King Co. warehouse, 2' W of centerline of building	3-5-2020	1'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	Arsenic: 2.50 Cadmium: ND (<1) Chromium: 15.7 Lead: 8.62 Mercury: ND (<1)
WES-19	SE parking lot, 22' S of King Co. warehouse, 12' W of centerline of building	3-5-2020	1.5'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	Arsenic: 12.0 Cadmium: ND (<1) Chromium: 23.2 Lead: 2.95 Mercury: ND (<1)
WES-20	SE parking lot, 3' S, 18‘ W of centerline of warehouse	3-26-2020	1.5	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	Arsenic: 2.89 Cadmium: ND (<1) Chromium: 20.2 Lead: 37.7 Mercury: ND (<1)

TABLE 6 (Continued)
Summary of Soil Sample Analytical Results
104 - 124 12th Avenue & 1209 E. Fir Street, Seattle, Washington

Boring/ Sample I.D.	Sample Location	Sample Date	Depth (ft.)	Laboratory Analytical Results (mg/kg)			
				Total Petroleum Hydrocarbons (by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x)	**Benzene, Toluene, Ethyl benzene, Xylenes** (by EPA Methods 8021B or 8260C)	**Other Volatile Organic Compounds** (List of 58 Additional Compounds Detectable by the Laboratory Method.)	**Regulated Metals** (By EPA Method 6020B)
WES-21	SE parking lot, 2' S, 10 E of centerline of warehouse	3-26-2020	1.5	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
WES-22	SE parking lot, 3' S, 22' E of centerline of warehouse	3-26-2020	1.5	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	Arsenic: 3.86 Cadmium: ND (<1) Chromium: 24.5 Lead: 9.11 Mercury: ND (<1)
WES-23	SE parking lot, 22‘ S, 26' E of centerline of warehouse	4-2-2020	1.5	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
WES-24	SE parking lot, 28‘ S, 24' E of centerline of warehouse	4-2-2020	1.5	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
WES-25	SE parking lot, 28‘ S, 13' E of centerline of warehouse	4-2-2020	1.5	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
WES-26	SE parking lot, 26' S, 4' E of centerline of warehouse	4-2-2020	1.5	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
WES-27	SE parking lot, 44' S, 4' E of centerline of warehouse	4-2-2020	1.5	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
WES-28	SE parking lot, 49' S, 36' E of centerline of warehouse	4-2-2020	1.5	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
WES-29	SE parking lot, 28' S, 40' E of centerline of warehouse	4-2-2020	1.5	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA

TABLE 6 (Continued)
Summary of Soil Sample Analytical Results
104 - 124 12th Avenue & 1209 E. Fir Street, Seattle, Washington

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Depth (ft.)***	***Laboratory Analytical Results (mg/kg)***			
				Total Petroleum Hydrocarbons ***(by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x)***	***Benzene Toluene Ethyl benzene Xylenes*** ***(by EPA Methods 8021B or 8260C)***	***Other Volatile Organic Compounds*** ***(List of 58 Additional Compounds Detectable by the Laboratory Method.)***	***Regulated Metals*** ***(By EPA Method 6020B)***
Geotech B-7 (GEO B-7)	In NW part of parking lot, between previous borings MW-2 and MW-5	9/7/2018	14'	Gasoline: ND (<5) Diesel: NA Motor Oil: NA	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (< 0.06)	ND (all)	NA
Geotech B-9 (GEO B-9)	In NE part of SE parking lot, between previous borings MW-5 and MW-1	9/7/2018	7.5'	Gasoline: ND (<5) Diesel: NA Motor Oil: NA	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (< 0.06)	ND (all)	NA
		9/7/2018	12.5'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (< 0.06)	ND (all)	NA
MW-1D	In NE corner of property, outside fenceline, in King Co. Archives parking lot	7/22/2019	8'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
MW-11	On E central edge of property, in King Co. Archives parking lot	7/22/2019	9'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
MW-12	In SE central part of SE parking lot	7/22/2019	9'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
MW-13	In Yesler Way sidewalk S of garage door near SW building corner	10/1/2019	6'	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
		10/1/2019	9'	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
		10/1/2019	11.5'	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA

TABLE 6 (Continued)
Summary of Soil Sample Analytical Results
104 - 124 12th Avenue & 1209 E. Fir Street, Seattle, Washington

Boring/ Sample I.D.	Sample Location	Sample Date	Depth (ft.)	Laboratory Analytical Results (mg/kg)			
				Total Petroleum Hydrocarbons (by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))	**Benzene, Toluene, Ethyl benzene, Xylenes** (by EPA Methods 8021B or 8260C)	**Other Volatile Organic Compounds** (List of 58 Additional Compounds Detectable by the Laboratory Method.)	**Regulated Metals** (By EPA Method 6020B)
MW-15	In N central part of SE parking lot	3-26-2020	1.5	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
			5'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
			23'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
110 - 124 12th Avenue & 1209 E. Fir Street							
BN-1	In SE corner of open area	5/12/2017	9'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
		5/12/2017	15'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
BN-2	Near SW corner of open area	5/12/2017	3'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
		5/12/2017	13'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
BN-3	Outside rear entry to 110 12th Avenue bldg.	5/12/2017	7'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
		5/12/2017	14.5'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA

TABLE 6 (Continued)
Summary of Soil Sample Analytical Results
104 - 124 12th Avenue & 1209 E. Fir Street, Seattle, Washington

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Depth (ft.)***	***Laboratory Analytical Results (mg/kg)***			
				Total Petroleum Hydrocarbons ***(by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x)***	***Benzene Toluene Ethyl benzene Xylenes*** ***(by EPA Methods 8021B or 8260C)***	***Other Volatile Organic Compounds*** ***(List of 58 Additional Compounds Detectable by the Laboratory Method.)***	***Regulated Metals*** ***(By EPA Method 6020B)***
BN-4	In E central part of open area, adjacent to Archives bldg.	5/12/2017	7'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
BN-5	In NE corner of parking lot, near oil/water separator	5/12/2017	5'	Gasoline: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
		5/12/2017	11'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
		5/12/2017	18'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
BN-6	In S area of parking lot, near paint booth sump	5/12/2017	1'	Gasoline: 2.7 Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
		5/12/2017	9'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
		5/12/2017	15'	Gasoline: ND (<2) Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
BN-7 (Completed as MW-8)	NW corner of property - former location of gas station pump island	5/15/2017	9'	Gasoline: 14 Diesel: NA Motor Oil: NA	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: 0.082	NA	NA
		5/15/2017	12'	***Gasoline: 780*** Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) ***Ethylbenzene: 6.8*** ***Xylenes: 59***	Isopropylbenzene: 2.6 n-Propylbenzene : 10 p-Isopropyltoluene: 0.56 sec-Butylbenzene: 1.2 1,2,4 Trimethylbenzene: 63 1,3,5 Trimethylbenzene: 20 Naphthalene: 4.9 ND (all other)	NA

TABLE 6 (Continued)
Summary of Soil Sample Analytical Results
104 - 124 12th Avenue & 1209 E. Fir Street, Seattle, Washington

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Depth (ft.)***	***Laboratory Analytical Results (mg/kg)***			
				Total Petroleum Hydrocarbons ***(by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x)***	***Benzene Toluene Ethyl benzene Xylenes (by EPA Methods 8021B or 8260C)***	***Other Volatile Organic Compounds*** ***(List of 58 Additional Compounds Detectable by the Laboratory Method.)***	***Regulated Metals*** ***(By EPA Method 6020B)***
BN-7 (Continued)		5/15/2017	17'	Gasoline: 24 Diesel: NA Motor Oil: NA	***Benzene: 0.033*** Toluene: ND (<0.02) Ethylbenzene: 0.26 Xylenes: 2.0	NA	NA
		5/15/2017	19'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
BN-8	N central part of property - former location of gas station service bay	5/15/2017	7'	Gasoline: ND (<20) Diesel: ND (<50) ***Motor Oil: 3,300***	NA	NA	NA
		5/15/2017	17'	Gasoline: ND (<2) Diesel: NA Motor Oil: NA	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (< 0.06)	NA	NA
BN-9	W central part of parking lot - likely former UST location	5/15/2017	12'	Gasoline: ND (<2) Diesel: NA Motor Oil: NA	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (< 0.06)	NA	NA
BN-10 (Completed as MW-9)	S end of parking lot - likely S of former UST location	5/15/2017	15-20'	***Gasoline: 490*** Diesel: 160[x] Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: 2.6 Xylenes: 0.44	Hexane: 5.1 Isopropylbenzene: 2.0 n-Propylbenzene : 8.5 p-Isopropyltoluene: 0.36 sec-Butylbenzene: 0.94 1,2,4 Trimethylbenzene: 3.5 1,3,5 Trimethylbenzene: 1.7 Naphthalene: 0.86 ND (all other)	NA
BN-11	At S end of 1209 Fir bldg, inside gate to open area	5/15/2017	12'	NA	NA	NA	Arsenic: 4.03 Cadmium ND (<1) Chromium 17.5 ***Lead 330*** Mercury ND (<1)
		5/15/2017	20'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA

TABLE 6 (Continued)
Summary of Soil Sample Analytical Results
104 - 124 12th Avenue & 1209 E. Fir Street, Seattle, Washington

Boring/ Sample I.D.	Sample Location	Sample Date	Depth (ft.)	Laboratory Analytical Results (mg/kg)			
				Total Petroleum Hydrocarbons (by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))	**Benzene, Toluene, Ethyl benzene, Xylenes** (by EPA Methods 8021B or 8260C)	**Other Volatile Organic Compounds** (List of 58 Additional Compounds Detectable by the Laboratory Method.)	**Regulated Metals** (By EPA Method 6020B)
BN-12	In SW corner of gravel parking lot, Between AEG B-3 and off-site boring OS-12	7/23/2019	17'	Gasoline: ND (<5) Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (< 0.06)	ND (all)	NA
		7/23/2019	24'	Gasoline: ND (<5) Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (< 0.06)	ND (all)	NA
BN-13	At S end of Auto Repair building, at top of slope	7/23/2019	7'	Gasoline: NA Diesel: NA Motor Oil: NA	NA	NA	Arsenic: 4.13 Cadmium: ND (<1) Chromium: 17.8 Lead: 32.3 Mercury: ND (<1)
		7/23/2019	11'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	Arsenic: 4.53 Cadmium: ND (<1) Chromium: 13.5 Lead: 42.2 Mercury: ND (<1)
		7/23/2019	16'	Gasoline: NA Diesel: NA Motor Oil: NA	NA	NA	Arsenic: 9.42 Cadmium: ND (<1) Chromium: 33.0 Lead: 8.43 Mercury: ND (<1)
BN-14	In SE corner of auto repair yard, near intersection of King Co. Archives bldgs.	7/23/2019	11'	Gasoline: NA Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	Arsenic: 2.06 Cadmium: ND (<1) Chromium: 9.13 Lead: 10.1 Mercury: ND (<1)
		7/23/2019	18'	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
		7/23/2019	21'	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA

TABLE 6 (Continued)
Summary of Soil Sample Analytical Results
104 - 124 12th Avenue & 1209 E. Fir Street, Seattle, Washington

Boring/ Sample I.D.	Sample Location	Sample Date	Depth (ft.)	Laboratory Analytical Results (mg/kg)			
				Total Petroleum Hydrocarbons (by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))	**Benzene, Toluene, Ethyl benzene, Xylenes** (by EPA Methods 8021B or 8260C)	**Other Volatile Organic Compounds** (List of 58 Additional Compounds Detectable by the Laboratory Method.)	**Regulated Metals** (By EPA Method 6020B)
BN-15	W central part of gravel parking lot, 15 ft SW of BN-7	7/23/2019	8'	Gasoline: ND (<5) Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: 0.028 Ethylbenzene: ND (<0.02) Xylenes: ND (< 0.06)	NA	NA
		7/23/2019	16'	Gasoline: ND (<5) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (< 0.06)	NA	NA
BN-16	NW corner of gravel parking lot, 10 ft NW of BN-7	7/23/2019	11'	Gasoline: 46 Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: 0.078 Ethylbenzene: 0.039 Xylenes: 1.7	NA	NA
		7/23/2019	14'	Gasoline: NA Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	Lead: 2.55
		7/23/2019	15'	***Gasoline: 1,100*** Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: 0.41 Ethylbenzene: ND (<0.1) ***Xylenes: 9.4***	NA	NA
		7/23/2019	17'	Gasoline: ND (<5) Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: 0.078	NA	Lead: 1.42
BN-17	In NE slope of open area, 10' S of corner of King Co. Archives Bldg.	7/23/2019	5'	Gasoline: NA Diesel: NA Motor Oil: NA	NA	NA	Arsenic: 3.46 Cadmium: ND (<1) Chromium: 14.6 Lead: 64.7 Mercury: ND (<1)
		7/23/2019	10'	Gasoline: NA Diesel: NA Motor Oil: NA	NA	NA	Arsenic: 13.0 Cadmium: 1.37 Chromium: 32.7 ***Lead: 411*** Mercury: ND (<1)
		7/23/2019	13'	Gasoline: NA Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	Lead: 32.6
		7/23/2019	15'	Gasoline: NA Diesel: NA Motor Oil: NA	NA	NA	Lead: 2.86

TABLE 6 (Continued)
Summary of Soil Sample Analytical Results
104 - 124 12th Avenue & 1209 E. Fir Street, Seattle, Washington

Boring/ Sample I.D.	Sample Location	Sample Date	Depth (ft.)	Laboratory Analytical Results (mg/kg)			
				Total Petroleum Hydrocarbons (by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))	**Benzene, Toluene, Ethyl benzene, Xylenes** (by EPA Methods 8021B or 8260C)	**Other Volatile Organic Compounds** (List of 58 Additional Compounds Detectable by the Laboratory Method.)	**Regulated Metals** (By EPA Method 6020B)
BN-18	5' W. of Warehouse 15' N. of SW building corner	2-24-2020	6.5'	Gasoline: ND (<5) Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	Arsenic: 12.0 Cadmium: ND (<1) Chromium: 34.7 Lead: 2.80 Mercury: ND (<1)
BN-19	5' W. of Warehouse 30' N. of SW building corner	2-24-2020	1.5'	Gasoline: ND (<5) Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
BN-20	5' W. of Warehouse 45' N. of SW building corner	2-24-2020	7'	Gasoline: ND (<5) Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	Arsenic: 14.9 Cadmium: ND (<1) Chromium: 29.5 Lead: 2.60 Mercury: ND (<1)
BN-21	5' W. of Warehouse 60' N. of SW building corner	2-24-2020	7'	Gasoline: ND (<5) Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	Arsenic: 16.0 Cadmium: ND (<1) Chromium: 33.8 Lead: 3.37 Mercury: ND (<1)
BN-22	5' W. of Warehouse 75' N. of SW building corner	2-24-2020	8'	Gasoline: ND (<5) Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	Arsenic: 8.92 Cadmium: ND (<1) Chromium: 33.6 Lead: 3.03 Mercury: ND (<1)
BN-23	Center of open area, 35 feet SE of MW-14	2-24-2020	3'	Gasoline: ND (<5) Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
			8'	Gasoline: ND (<5) Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	Arsenic: 17.7 Cadmium: ND (<1) Chromium: 31.9 Lead: 3.40 Mercury: ND (<1)
Slope 1	In NE part of property, fill slope down to open area	5/12/2017	2.5'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	Arsenic: 2.13 Cadmium ND (<1) Chromium 12.9 Lead: 2.2 Mercury: ND (<1)

TABLE 6 (Continued)
Summary of Soil Sample Analytical Results
104 - 124 12th Avenue & 1209 E. Fir Street, Seattle, Washington

Boring/ Sample I.D.	Sample Location	Sample Date	Depth (ft.)	Laboratory Analytical Results (mg/kg)			
				Total Petroleum Hydrocarbons (by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))	**Benzene, Toluene, Ethyl benzene, Xylenes** (by EPA Methods 8021B or 8260C)	**Other Volatile Organic Compounds** (List of 58 Additional Compounds Detectable by the Laboratory Method.)	**Regulated Metals** (By EPA Method 6020B)
Slope 2	In NE part of property, top of fill slope	5/12/2017	1.5'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: 660	NA	NA	Arsenic: 3.91 Cadmium: 1.21 Chromium: 16.5 Lead: 243 Mercury: ND (<1)
HA-N	In N. portion of building basement	5/12/2017	2.5	***Gasoline: 730*** Diesel: 230[x] Motor Oil: ND (<250)	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	n-Propylbenzene 0.24 sec-Butylbenzene 0.60 ND (all other)	NA
		5/12/2017	9'	Gasoline: 3.9 Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
HA-S	In S portion of building basement	5/12/2017	2.5'	Gasoline: 7.0 Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
		5/12/2017	6'	Gasoline: 11 Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	n-Propylbenzene 0.12 ND (all other)	NA
HA-3	In S portion of basement below 110 tenant space	8/4/2017	4'	Gasoline: ND (<2) Diesel: ND (<50) Motor Oil: ND (<250)	NA	ND (all)	NA
Geotech B-8 (GEOB-8)	In S central area of gravel parking between borings BN-10, AEG-B-2 and AEG-B-4	9/7/2018	11.5	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (< 0.06)	ND (all)	NA
		9/7/2018	15'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (< 0.06)	Isopropylbenzene 0.10 n-propylbenzene 0.43 ND (all other)	NA
		9/7/2018	17.5'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.02) Toluene: ND (<0.02) Ethylbenzene: ND (<0.02) Xylenes: ND (< 0.06)	ND (all)	NA

TABLE 6 (Continued)
Summary of Soil Sample Analytical Results
104 - 124 12th Avenue & 1209 E. Fir Street, Seattle, Washington

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Depth (ft.)***	***Laboratory Analytical Results (mg/kg)***			
				Total Petroleum Hydrocarbons ***(by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x)***	***Benzene Toluene Ethyl benzene Xylenes (by EPA Methods 8021B or 8260C)***	***Other Volatile Organic Compounds*** ***(List of 58 Additional Compounds Detectable by the Laboratory Method.)***	***Regulated Metals*** ***(By EPA Method 6020B)***
MW-14	In W central part of open area, at base of slope adjacent to former dry clener tenant space (118 12th Avenue)	7/23/2019	10'	Gasoline: ND (<5) Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	Arsenic: 7.52 Cadmium: ND (<1) Chromium: 23.7 Lead: 24.2 Mercury: ND (<1)
Off-Site Borings in Surrounding Right-of-Ways							
OS-1	In sidewalk of Yesler Way, adjacent to SE corner of parking lot for 104 12th Ave. bldg.	8/3/2017	12'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
OS-2	In sidewalk of Yesler Way, adjacent to SE corner of 104 12th Ave. bldg.	8/3/2017	7.5'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
		8/3/2017	11'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
OS-3	In sidewalk of Yesler Way, SW of double doors to basement, 30' W of bldg. corner.	8/3/2017	12'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
OS-4	In sidewalk of Yesler Way, SW of garage door into 104 12th Ave. bldg.	8/3/2017	6'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
		8/3/2017	9'	Gasoline: ND (<2) Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
OS-5	In sidewalk of 12th Ave., 40' N of SW corner of 104 12th bldg.	8/3/2017	7'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
		8/3/2017	14'	Gasoline: ND (<2) Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA

TABLE 6 (Continued)
Summary of Soil Sample Analytical Results
104 - 124 12th Avenue & 1209 E. Fir Street, Seattle, Washington

Boring/ Sample I.D.	Sample Location	Sample Date	Depth (ft.)	Laboratory Analytical Results (mg/kg)			
				Total Petroleum Hydrocarbons (by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x))	**Benzene, Toluene, Ethyl benzene, Xylenes** (by EPA Methods 8021B or 8260C)	**Other Volatile Organic Compounds** (List of 58 Additional Compounds Detectable by the Laboratory Method.)	**Regulated Metals** (By EPA Method 6020B)
OS-6	In sidewalk of 12th Ave., 15' S of NW corner of 104 12th bldg.	8/3/2017	7'	Gasoline: ND (<2) Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
		8/3/2017	10'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
OS-7	In sidewalk of 12th Ave., adjacent to tree, 40' S of NW corner of 124 12th parking lot.	8/3/2017	8'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
		8/3/2017	12'	Gasoline: ND (<2) Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
		8/3/2017	16'	Gasoline: 2.5 Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
OS-8	In blvd. gravel strip N. of 1209 E. Fir bldg.	8/4/2017	7'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
		8/4/2017	17'	Gasoline: ND (<2) Diesel: NA Motor Oil: NA	Benzene: ND (<0.03) Toluene: ND (<0.05) Ethylbenzene: ND (<0.05) Xylenes: ND (<0.15)	ND (all)	NA
OS-9	In blvd. grass strip N. of 124 12th Ave. parking lot	8/4/2017	14'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
OS-10	In curb lane of 12th Ave., 10' N. of NW corner of 104 12th Ave. bldg.	8/4/2017	6'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
		8/4/2017	10'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA

TABLE 6 (Continued)
Summary of Soil Sample Analytical Results
104 - 124 12th Avenue & 1209 E. Fir Street, Seattle, Washington

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Depth (ft.)***	***Laboratory Analytical Results (mg/kg)***			
				Total Petroleum Hydrocarbons ***(by Method NWTPH-HCID or NWTPH-G and NWTPH-D(x)***	***Benzene Toluene Ethyl benzene Xylenes (by EPA Methods 8021B or 8260C)***	***Other Volatile Organic Compounds*** ***(List of 58 Additional Compounds Detectable by the Laboratory Method.)***	***Regulated Metals*** ***(By EPA Method 6020B)***
OS-11	In curb lane of 12th Ave., adjacent to vacant 118 12th Ave. bldg.	8/4/2017	9'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
		8/4/2017	11'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
OS-12	In sidewalk at S entry drive to 124 12th Ave., parking lot.	8/4/2017	13'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
		8/4/2017	16'	Gasoline: ND (<20) Diesel: ND (<50) Motor Oil: ND (<250)	NA	NA	NA
BN-24	12’ N. of Warehouse, 12' W of NE building corner	3-5-2020		NA			
BN-25	12’ N. of Warehouse, 35' W of NE building corner	3-5-2020		NA			
BN-26	12’ N. of Warehouse, 60' W of NE building corner	3-5-2020		NA			
BN-27	12’ N. of Warehouse, 75' W of NE building corner	3-5-2020		NA			
Washington State Model Toxics Control Act (MTCA) Soil Cleanup Criteria (mg/kg)				***Gasoline: 30[A]*** ***If no benzene present: 100[A]*** ***Diesel or Motor Oil: 2,000[A]***	***Benzene: 0.03[A]*** ***Toluene: 7[A]*** ***Ethylbenzene: 6[A]*** ***Xylenes: 9[A]***	***Hexane: 4,800[GWP]*** ***Isopropylbenzene: 8,000[B]*** ***Naphthalene: 5[A]*** ***n-Propylbenzene : 8,000[B]*** ***p-Isopropyltoluene: NV*** ***sec-Butylbenzene: 8,000[B]*** ***Tetrachloroethene 0.05[A]*** ***1,2,4 Trimethylbenzene: 800[B]*** ***1,3,5 Trimethylbenzene: 800[B]***	***Arsenic: 20[A]*** ***Cadmium 2[A]*** ***Chromium 19*[A]*** ***Lead 250[A]*** ***Mercury 2[A]***

TABLE 6 (Continued)
Summary of Soil Sample Analytical Results
104 - 124 12th Avenue & 1209 E. Fir Street, Seattle, Washington

Table Notes:
ND (<XXX) - Parameter not detected at concentrations at or above the noted reporting limit.
NA - Sample not analyzed for the listed parameter.
Total Petroleum Hydrocarbons by Method NWTPH-HCID, or Gasoline Range Total Petroleum Hydrocarbons by Method NWTPH-G and Diesel and Motor Oil Range Total Petroleum Hydrocarbons by Method NWTPH-D(x).

[x] - Sample Chromatogram does not resemble fuel standard used for analysis. Most likely carry over from gasoline range hydrocarbons or organic material.
BTEX compounds by EPAMethod 8021B, or as part of volatile organic analysis by EPA Method 8260C.
Volatile organic compounds by EPA Method 8260C for a list of 62 different volatile parameters. Detection limits vary.

MTCA Soil cleanup criteria per Chapter 173-340-740 WAC. Method A criteria presented where available. Otherwise, Method B standard formula values or concentrations protective of groundwater in vadose zone at 13 degrees C, per Ecology's Cleanup Levels and Risk Calculations (CLARC) database. Basis of cleanup criteria noted:

A - Method A listed
B - Method B Direct Contact
GWP - Groundwater Protection
NV - No published value

Sample results exceeding applicable cleanup criteria are noted in ***Bold Italic***.

TABLE 7
2017-2020 Summary of Groundwater Sample Analytical Results
104 - 124 12th Avenue & 1209 E. Fir Street, Seattle, Washington

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Laboratory Analytical Results (ug/l)***			
			Total Petroleum Hydrocarbons ***(by Methods NWTPH-G & NWTPH-D(X))***	***Benzene*** ***Toluene*** ***Ethyl benzene*** ***Xylenes*** ***(by EPA Method 8260C)***	***Other Volatile Organic Compounds (by EPA Method 8260C)*** ***List of 58 Additional Compounds Detectable by the Laboratory Method.***	***Total Metals***
WES-1-GW	One Time Reconnaissance Sample - In 104 12th basement, 6 ft. inside double doors in SE corner	4/3/2017	***Gasoline Range: 1,700*** ***Diesel: 690x*** Motor Oil: ND (<250)	Benzene: 0.42 Toluene: 6.7 Ethylbenzene: 2.2 Xylenes: 20.5	Isopropylbenzene : 1.2 n-Propylbenzene: 1.7 Naphthalene: 14 sec-Butylbenzene: 5.3 1,2,4-Trimethylbenzene: 12 1,3,5-Trimethylbenzene: 2.7 ND (all other)	NA
WES-2	Not Sampled - Adjacent to existing well MW-3 and oil/water separator by entry ramp in SW corner of basement.					
WES-3	Not Sampled - 10 ft NW of WES-2, near floor sump and existing well MW-3.					
WES-4-GW	One Time Reconnaissance Sample- In 104 12th Ave. basement corridor through shelving area in S central part of basement	4/3/2017	Gasoline Range: 560 ***Diesel: 1,000x*** ***Motor Oil: 680***	Benzene: ND (<0.35) Toluene: 3.6 Ethylbenzene: 1.5 Xylenes: 13.7	Naphthalene: 6.4 sec-Butylbenzene: 1.7 1,2,4-Trimethylbenzene: 9.0 1,3,5-Trimethylbenzene: 1.9 ND (all other)	NA
WES-5-GW	One Time Reconnaissance Sample - In 104 12th Ave. basement shelving area corridor, NW of WES-1, near SE entry double doors	4/3/2017	Gasoline Range: 220 Diesel: 460x Motor Oil: ND (<300)	Benzene: ND (<0.35) Toluene: 6.0 Ethylbenzene: 2.3 Xylenes: 21.3	n-Propylbenzene: 1.0 Naphthalene: 6.0 1,2,4-Trimethylbenzene: 14 1,3,5-Trimethylbenzene: 2.7 ND (all other)	NA
WES-6-GW	One Time Reconnaissance Sample - In 104 12th Ave. basement main corridor 30 ft. N of SE entry double doors	4/3/2017	Gasoline Range: NA Diesel: 78x Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: 1.4 Ethylbenzene: ND (<1) Xylenes: 5.7	cis-1,2-Dichloroethene: 3.9 Naphthalene: 1.4 1,2,4-Trimethylbenzene: 3.6 ND (all other)	NA
WES-7-GW	One Time Reconnaissance Sample - Near NE corner of 104 12th Ave. basement	4/4/2017	Gasoline Range: NA Diesel: 56x Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: 4.0	Naphthalene: 1.1 1,2,4-Trimethylbenzene: 2.5 ND (all other)	NA
WES-8	Completed as **MW-7**- See Data Below					
WES-9-GW	One Time Reconnaissance Sample - W central part of 104 12th basement, near boiler room door	4/4/2017	Gasoline Range: NA Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: 1.6 Ethylbenzene: ND (<1) Xylenes: 7.6	Naphthalene: 1.5 1,2,4-Trimethylbenzene: 4.6 ND (all other)	NA

TABLE 7 (Continued)
2017-2020 Summary of Groundwater Sample Analytical Results
104 - 124 12th Avenue & 1209 E. Fir Street, Seattle, Washington

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Laboratory Analytical Results (ug/l)***			
			Total Petroleum Hydrocarbons ***(by Methods NWTPH-G & NWTPH-D(X))***	***Benzene*** ***Toluene*** ***Ethyl benzene*** ***Xylenes*** ***(by EPA Method 8260C)***	***Other Volatile Organic Compounds (by EPA Method 8260C)*** ***List of 58 Additional Compounds Detectable by the Laboratory Method.***	***Total Metals***
WES-10-GW	One Time Reconnaissance Sample - In S central part of SE parking lot	4/5/2017	Gasoline Range: ND (<100) Diesel: 180[x] ***Motor Oil: 530***	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: 3.7	1,2,4-Trimethylbenzene: 2.2 ND (all other)	NA
WES-11-GW	One Time Reconnaissance Sample - In N central part of SE parking lot, adjacent to previous boring MW-5	4/5/2017	Gasoline Range: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: m&p: 2.7 o: 1.4	Acetone: 27 cis-1,2-Dichloroethene: 9.4 ***Tetrachloroethene: 12*** ***Trichloroethene: 17*** ***Vinyl Chloride: 0.39*** 1,2,4-Trimethylbenzene: 2.6 ND (all other)	NA
WES-12-GW	One Time Reconnaissance Sample - In SW corner of SE parking lot	4/5/2017	Gasoline Range: NA Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	Acetone: 29 ND (all other)	NA
WES-13-GW	One Time Reconnaissance Sample - In E central part of SE parking lot	4/5/2017	Gasoline Range: NA Diesel: 120[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 12 Tetrachloroethene: 3.1 ***Trichloroethene: 10*** ***Vinyl Chloride: 0.23*** ND (all other)	NA
WES-14-GW	One Time Reconnaissance Sample - NW corner of 104 12th Ave. basement, 8 feet east of W wall	7/23/2019	Gasoline Range: ND (<100) Diesel: 130[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
WES-15-GW	One Time Reconnaissance Sample - SW corner of 104 12th Ave. basement, 15 feet west of MW-3	7/23/2019	Gasoline Range: ND (<100) Diesel: 50[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
WES-16-GW	One Time Reconnaissance Sample - SE parking lot, S of King Co. warehouse, 33 ft east of SW corner	10/1/2019	Gasoline Range: ND (<100) Diesel: ND (50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 1.9 ND (all other)	NA
WES-17-GW	One Time Reconnaissance Sample - SE Parking Lot, 3' S of Warehouse, 40' E of SW building corner	3/5/2020	Gasoline Range: ND (<100) Diesel: 53[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 8.2 ***Tetrachloroethene: 33*** ***Trichloroethene: 23*** ***Vinyl chloride: 0.23*** ND (all other)	NA

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Laboratory Analytical Results (ug/l)***			
			Total Petroleum Hydrocarbons *(by Methods NWTPH-G & NWTPH-D(X))*	***Benzene Toluene Ethyl benzene Xylenes*** *(by EPA Method 8260C)*	***Other Volatile Organic Compounds (by EPA Method 8260C)*** *List of 58 Additional Compounds Detectable by the Laboratory Method.*	***Total Metals***
WES-18-GW	One Time Reconnaissance Sample - SE Parking Lot, 15' S of Warehouse, 40' E of SW building corner	3/5/2020	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 6.5 Trichloroethene: 4.2 ND (all other)	NA
WES-19-GW	One Time Reconnaissance Sample - SE Parking Lot, 20' S. of Warehouse, 27' E of SW building corner	3/5/2020	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
BN-1-GW	One Time Reconnaissance Sample - In SE corner of central open area of property	5/12/2017	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
BN-2-GW	One Time Reconnaissance Sample - Near SW corner of central open area of property	5/12/2017	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
BN-3-GW	One Time Reconnaissance Sample - Outside rear entry to 110 12th Avenue bldg., in central open area of property	5/12/2017	Gasoline Range: ND (<100) Diesel: 79[x] Motor Oil: ND (<250)	Benzene: 0.65 Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
BN-4-GW	One Time Reconnaissance Sample - In E central part of open area, adjacent to King Co. Archives bldg.	5/12/2017	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
BN-5-GW	One Time Reconnaissance Sample - in NE corner of parking lot E of 1209 Fir, near oil/water separator	5/12/2017	Gasoline Range: ND (<100) Diesel: 64[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
BN-6-GW	One Time Reconnaissance Sample - in S area of parking lot E of 1209 Fir	5/12/2017	Gasoline Range: ND (<100) Diesel: 100[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	Acetone: 11 ND (all other)	NA
BN-7 Completed as **MW-8** - See Data Below						

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Laboratory Analytical Results (ug/l)***			
			Total Petroleum Hydrocarbons *(by Methods NWTPH-G & NWTPH-D(X))*	***Benzene Toluene Ethyl benzene Xylenes*** *(by EPA Method 8260C)*	***Other Volatile Organic Compounds (by EPA Method 8260C)*** *List of 58 Additional Compounds Detectable by the Laboratory Method.*	***Total Metals***
BN-8-GW	One Time Reconnaissance Sample - NW gravel parking lot - former location of gas station service bay	5/15/2017	***Gasoline Range: 1,300*** ***Diesel: 830[x]*** Motor Oil: ND (<250)	Benzene: 1.6 Toluene: 1.3 Ethylbenzene: 12 Xylenes: 6.9	Hexane: 1.1 Isopropylbenzene: 28 n-Propylbenzene: 39 Naphthalene: 2.1 sec-Butylbenzene: 1.5 1,2,4-Trimethylbenzene: 3.9 ND (all other)	NA
BN-9-GW	One Time Reconnaissance Sample - NW gravel parking lot, W central part of lot- likely former UST location	5/15/2017	Gasoline Range: ND (<100) Diesel: 120[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
BN-10 Completed as **MW-9** - See Data Below						
BN-11-GW	One Time Reconnaissance Sample - At S end of 1209 Fir bldg, inside gate to open area, top of slope	5/15/2017	Gasoline Range: ND (<100) Diesel: 460[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
BN-12-GW	One Time Reconnaissance Sample - in west entry to NW gravel parking lot	7/23/2019	Gasoline Range: ND (<100) Diesel: 200[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	Lead: ND (<1)
BN-13	Groundwater not encountered within the depth drilled.					
BN-14-GW	One Time Reconnaissance Sample - in SE corner of parking lot E of 1209 Fir, near intersection of King Co. Archives bldgs.	7/23/2019	Gasoline Range: ND (<100) Diesel: 230[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	Lead: ND (<1)
BN-15-GW	One Time Reconnaissance Sample - NW gravel parking lot, 15' SW of MW-8	7/23/2019	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	Lead: ND (<1)
BN-16-GW	One Time Reconnaissance Sample - NW gravel parking lot, 15' NW of MW-8	7/23/2019	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: 3.9	n-Propylbenzene: 1.5 1,2,4-Trimethylbenzene: 4.8 ND (all other)	Lead: ND (<1)

TABLE 7 (Continued)
2017-2020 Summary of Groundwater Sample Analytical Results
104 - 124 12th Avenue & 1209 E. Fir Street, Seattle, Washington

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Laboratory Analytical Results (ug/l)***			
			Total Petroleum Hydrocarbons *(by Methods NWTPH-G & NWTPH-D(X))*	***Benzene Toluene Ethyl benzene Xylenes*** *(by EPA Method 8260C)*	***Other Volatile Organic Compounds (by EPA Method 8260C)*** *List of 58 Additional Compounds Detectable by the Laboratory Method.*	***Total Metals***
BN-17-GW	One Time Reconnaissance Sample - On slope in center open area of site, near NW corner of King Co. warehouse	7/23/2019	Gasoline Range: ND (<100) Diesel: 170[x] Motor Oil: 260[x]	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	Lead: 13.8
BN-18-GW	5' W. of Warehouse 15' N. of SW building corner	2/24/2020	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
BN-19-GW	5' W. of Warehouse 30' N. of SW building corner	2/24/2020	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
BN-20-GW	5' W. of Warehouse 45' N. of SW building corner	2/24/2020	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
BN-21-GW	5' W. of Warehouse 60' N. of SW building corner	2/24/2020	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
BN-22-GW	5' W. of Warehouse 75' N. of SW building corner	2/24/2020	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
BN-23-GW	Center of open area, 35 feet SE of MW-14	2/24/2020	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
HA-N-GW	One Time Reconnaissance Sample - in N crawlspace beneath 118 12th building.	5/15/2017	Gasoline Range: 770 Diesel: 410[x] Motor Oil: ND (<250)	Benzene: 1.9 Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 5.3 Isopropylbenzene : 3.5 n-Propylbenzene: 12 sec-Butylbenzene: 9.9 Trichloroethene: 1.6 ***Vinyl chloride: 1.9*** ND (all other)	NA

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Laboratory Analytical Results (ug/l)***			
			Total Petroleum Hydrocarbons *(by Methods NWTPH-G & NWTPH-D(X))*	***Benzene Toluene Ethyl benzene Xylenes*** *(by EPA Method 8260C)*	***Other Volatile Organic Compounds (by EPA Method 8260C)*** *List of 58 Additional Compounds Detectable by the Laboratory Method.*	***Total Metals***
HA-S-GW	One Time Reconnaissance Sample - in S crawlspace beneath 118 12th building	5/15/2017	Gasoline Range: 600 ***Diesel: 730x*** Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	Isopropylbenzene : 9.3 n-Propylbenzene: 45 sec-Butylbenzene: 7.5 ND (all other)	NA
HA-3-GW	One Time Reconnaissance Sample - in crawlspace beneath 110 12th building	8/7/2017	Gasoline Range: ND (<100) Diesel: 100x Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
Off-Site Investigation Groundwater Samples						
OS-1-GW	One Time Reconnaissance Sample - In sidewalk of Yesler Way, adjacent to SE corner of parking lot for 104 12th Ave. building	8/3/2017	Gasoline Range: ND (<100) Diesel: 110x Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 3.5 Trichloroethene: 2.7 ND (all other)	NA
OS-2-GW	One Time Reconnaissance Sample - In sidewalk of Yesler Way, adjacent to SE corner of 104 12th Ave. building	8/3/2017	Gasoline Range: ND (<100) Diesel: 130x Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 1.4 ND (all other)	NA
OS-3-GW	One Time Reconnaissance Sample - In sidewalk of Yesler Way, SW of double doors to basement, 30' W of bldg. corner	8/3/2017	Gasoline Range: ND (<100) Diesel: 220x Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
OS-4	One Time Reconnaissance Sample - In sidewalk of Yesler Way, SW of garage door into 104 12th Ave. building	8/3/2017	Dry Hole - No Groundwater Encountered			
OS-5-GW	One Time Reconnaissance Sample - In sidewalk of 12th Ave., 40' N of SW corner of 104 12th building	8/3/2017	Gasoline Range: ND (<100) Diesel: ND (<150) Motor Oil: ND (<750) (elevated D(x) detection limits due to limited sample volume)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
OS-6-GW	One Time Reconnaissance Sample - In sidewalk of 12th Ave., 15' S of NW corner of 104 12th bldg.	8/30/2017	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: 1.1 Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA

Boring/ Sample I.D.	Sample Location	Sample Date	Laboratory Analytical Results (ug/l)			
			Total Petroleum Hydrocarbons (by Methods NWTPH-G & NWTPH-D(X))	**Benzene, Toluene, Ethyl benzene, Xylenes** (by EPA Method 8260C)	**Other Volatile Organic Compounds (by EPA Method 8260C)** List of 58 Additional Compounds Detectable by the Laboratory Method.	**Total Metals**
OS-7-GW	One Time Reconnaissance Sample - In Sidewalk of 12th Ave., adjacent to tree, 40' S of NW corner of 124 12th parking lot.	8/3/2017	Gasoline Range: ND (<100) Diesel: 84[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
OS-8-GW	One Time Reconnaissance Sample - In blvd. gravel strip N of 1209 E Fir bldg.	8/4/2017	Gasoline Range: ND (<100) Diesel: 66[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
OS-9-GW	One Time Reconnaissance Sample - In blvd. grass strip N of 124 12th Ave. parking lot	8/4/2017	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
OS-10	In curb lane of 12th Ave., 10' N of NW corner of 104 12th Ave. bldg.	8/4/2017	Dry Hole - No Groundwater Encountered			
OS-11	In curb lane of 12th Ave., adjacent to vacant 118 12th Ave. bldg.	8/4/2017	Dry Hole - No Groundwater Encountered			
OS-12-GW	One Time Reconnaissance Sample - In sidewalk at S entry drive to NW gravel, parking lot.	8/3/2017	Gasoline Range: ND (<100) Diesel: 290[x] Motor Oil: ND (<250)	Benzene: 0.5 Toluene: 2.5 Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
BN-24-GW	12' N. of Warehouse, 12' W of NE building corner	3/5/2020	NA	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
BN-25-GW	12' N. of Warehouse, 35' W of NE building corner	3/5/2020	NA	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
BN-26-GW	12' N. of Warehouse, 60' W of NE building corner	3/5/2020	NA	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
BN-27-GW	12' N. of Warehouse, 75' W of NE building corner	3/5/2020	NA	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Laboratory Analytical Results (ug/l)***			
			Total Petroleum Hydrocarbons *(by Methods NWTPH-G & NWTPH-D(X))*	***Benzene, Toluene, Ethyl benzene, Xylenes*** *(by EPA Method 8260C)*	***Other Volatile Organic Compounds (by EPA Method 8260C)*** *List of 58 Additional Compounds Detectable by the Laboratory Method.*	***Total Metals***
Permanently Installed Monitoring Wells						
MW-1-GW	Pre-existing well in NE corner of 104 12th parking lot	6/30/2017	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	Vinyl Chloride: 0.20 ND (all other)	NA
		10/30/2017	Gasoline Range: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
		6/14/2018	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	***Vinyl Chloride: 0.27*** ND (all other)	NA
		12/6/2018	Gasoline Range: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	Iron Dissolved: 247 Total: 562 Manganese Dissolved: 539 Total: 577
		7/22/2019	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 2.1 ***Vinyl Chloride: 0.55*** ND (all other)	NA
		12/4/2019	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 2.3 ***Vinyl Chloride: 0.73*** ND (all other)	***Arsenic: 13.0*** Chromium: ND(<1) Lead: ND(<1)
		3/5/2020	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Laboratory Analytical Results (ug/l)***			
			Total Petroleum Hydrocarbons *(by Methods NWTPH-G & NWTPH-D(X))*	***Benzene, Toluene, Ethyl benzene, Xylenes*** *(by EPA Method 8260C)*	***Other Volatile Organic Compounds (by EPA Method 8260C)*** *List of 58 Additional Compounds Detectable by the Laboratory Method.*	***Total Metals***
MW-1S-GW	Shallow monitoring well in NE corner of 104 12th parking lot property. Outside fence accessed through King County parking area. Cluster with MW-1D	8/6/2019	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	***Vinyl Chloride: 0.21*** ND (all other)	NA
		12/4/2019	Gasoline Range: ND (<100) Diesel: 72[x] Motor Oil: 340	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	***Vinyl Chloride: 0.29*** ND (all other)	***Arsenic: 16.5*** Chromium: 1.16 Lead: ND(<1)
		2/26/2020	Gasoline Range: ND (<100) Diesel: 100[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
MW-1D-GW	Deep monitoring well in NE corner of 104 12th parking lot property. Outside fence accessed through King County parking area. Cluster with MW-1S	8/6/2019	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
		12/4/2019	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	***Arsenic: 9.14*** Chromium: ND(<1) Lead: ND(<1)
		3/3/2020	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	***Arsenic 10.3*** Lead: ND(<1)
MW-2-GW	Pre-existing well in NW corner of 104 12th parking lot	4/4/2017	Gasoline Range: NA Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	ND (all)	NA
		10/30/2017	Gasoline Range: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	ND (all)	NA
		6/14/2018	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Laboratory Analytical Results (ug/l)***			
			Total Petroleum Hydrocarbons *(by Methods NWTPH-G & NWTPH-D(X))*	***Benzene, Toluene, Ethyl benzene, Xylenes*** *(by EPA Method 8260C)*	***Other Volatile Organic Compounds (by EPA Method 8260C)*** *List of 58 Additional Compounds Detectable by the Laboratory Method.*	***Total Metals***
MW-2-GW (Continued)		7/22/2019	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
		12/4/2019	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
		3/17/2020	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
MW-3-GW	Pre-existing well adjacent to floor sump in SW corner of 104 12th basement	4/3/2017	Gasoline Range: 110 Diesel: 400[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: 2.5 Ethylbenzene: ND (<1) Xylenes: 7.9	Acetone: 11 Naphthalene: 4.7 ***Vinyl Chloride: 0.34*** 1,2,4-Trimethylbenzene: 4.9 1,3,5-Trimethylbenzene: 1.1 ND (all other)	NA
		10/30/2017	Gasoline Range: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	ND (all)	NA
		6/14/2018	Gasoline Range: ND (<100) Diesel: 210[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
		2/25/2019	Gasoline Range: ND (<100) Diesel: 400[x] Motor Oil: ND (<300)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	Lead: ND (<1)
		4/3/2019	Gasoline Range: ND (<100) Diesel: 420[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA

Boring/ Sample I.D.	*Sample Location*	*Sample Date*	*Laboratory Analytical Results (ug/l)*			
			Total Petroleum Hydrocarbons *(by Methods NWTPH-G & NWTPH-D(X))*	***Benzene, Toluene, Ethyl benzene, Xylenes*** *(by EPA Method 8260C)*	***Other Volatile Organic Compounds (by EPA Method 8260C)*** *List of 58 Additional Compounds Detectable by the Laboratory Method.*	***Total Metals***
MW-3-GW (Continued)		7/23/2019	Gasoline Range: ND (<100) Diesel: 170[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	Lead: ND (<1)
		12/4/2019	Gasoline Range: ND (<100) Diesel: 280[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
		3/17/2020	Gasoline Range: ND (<100) Diesel: 210 Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
MW-4-GW	Pre-existing well in SW corner of 104 12th parking lot	4/5/2017	Gasoline Range: NA Diesel: 67[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	ND (all)	NA
		10/30/2017	Gasoline Range: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	ND (all)	NA
		6/14/2018	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
		7/23/2019	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
		12/9/2019	Gasoline Range: ND (<100) Diesel: 180[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
		3/17/2020	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Laboratory Analytical Results (ug/l)***			
			Total Petroleum Hydrocarbons *(by Methods NWTPH-G & NWTPH-D(X))*	***Benzene*** ***Toluene*** ***Ethyl benzene*** ***Xylenes*** *(by EPA Method 8260C)*	***Other Volatile Organic Compounds (by EPA Method 8260C)*** *List of 58 Additional Compounds Detectable by the Laboratory Method.*	***Total Metals***
MW-5-GW	Pre-existing well along N side of 104 12th parking lot	4/5/2017	Gasoline Range: NA Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	Acetone: 12 ND (all other)	NA
		10/30/2017	Gasoline Range: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 10 Tetrachloroethene: 1.4 ***Trichloroethene: 9.1*** ***Vinyl Chloride: 0.29*** ND (all other)	NA
		6/14/2018	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 8.3 Tetrachloroethene: 1.3 Trichloroethene: 5.0 ***Vinyl Chloride: 0.25*** ND (all other)	NA
		12/6/2018	Gasoline Range: NA Diesel: NA Motor Oil: NA	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 8.4 Tetrachloroethene: 2.1 ***Trichloroethene: 11*** ***Vinyl Chloride: 0.37*** ND (all other)	Iron Dissolved: 195 Total: 283 Manganese Dissolved: 478 Total: 472
		7/22/2019	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 10 Tetrachloroethene: 1.1 ***Trichloroethene: 6.5*** ND (all other)	Lead: ND (<1)
		12/4/2019	Gasoline Range: ND (<100) Diesel: 52[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 3.5 Tetrachloroethene: 1.3 Trichloroethene: 2.2 ND (all other)	NA
		3/5/2020	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 1.4 Trichloroethene: 2.2 ND (all other)	NA

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Laboratory Analytical Results (ug/l)***			
			Total Petroleum Hydrocarbons *(by Methods NWTPH-G & NWTPH-D(X))*	***Benzene*** ***Toluene*** ***Ethyl benzene*** ***Xylenes*** *(by EPA Method 8260C)*	***Other Volatile Organic Compounds (by EPA Method 8260C)*** *List of 58 Additional Compounds Detectable by the Laboratory Method.*	***Total Metals***
MW-6-GW	Pre-existing well near NW corner of 104 12th basement	4/4/2017	Gasoline Range: NA Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: 1.2 Ethylbenzene: ND (<1) Xylenes: 5.5	cis-1,2-Dichloroethene: 1.3 1,2,4-Trimethylbenzene: 3.4 ND (all other)	NA
		6/14/2018	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 9.6 Chloroform 1.1 Tetrachloroethene 1.2 ND (all other)	NA
		7/23/2019	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	***cis-1,2-Dichloroethene: 17*** Trichloroethene: 1.7 ND (all other)	NA
		12/4/2019	Gasoline Range: ND (<100) Diesel: 78x Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 5.7 Tetrachloroethene: 1.3 ND (all other)	NA
		3/17/2020	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 3.3 Tetrachloroethene: 1.1 ND (all other)	NA
MW-7-GW (Drilled as WES–8)	In N corridor of 104 12th basement, 25' W of WES-7	6/30/2017	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	ND (all)	NA
		6/14/2018	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
		7/23/2019	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Laboratory Analytical Results (ug/l)***			
			Total Petroleum Hydrocarbons *(by Methods NWTPH-G & NWTPH-D(X))*	***Benzene, Toluene, Ethyl benzene, Xylenes*** *(by EPA Method 8260C)*	***Other Volatile Organic Compounds (by EPA Method 8260C)*** *List of 58 Additional Compounds Detectable by the Laboratory Method.*	***Total Metals***
MW-7-GW (Continued)		12/4/2019	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
		3/17/2020	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
MW-8-GW (Drilled as BN-7)	Near NW corner of 124 12th property - former location of gas station pump island	8/3/2017	***Gasoline Range: 3,200*** ***Diesel: 790x*** Motor Oil: ND (<250)	***Benzene: 11*** Toluene: ND (<1) Ethylbenzene: 71 Xylenes: m&p: 360 o: 59	Isopropylbenzene: 12 n-Propylbenzene: 24 Naphthalene: 8.9 p-Isopropyltoluene: 1.1 sec-Butylbenzene: 1.8 ***1,2,4-Trimethylbenzene: 180*** 1,3,5-Trimethylbenzene: 59 ND (all other)	NA
		6/28/2018	***Gasoline Range: 2,400*** Diesel: 160x Motor Oil: ND (<250)	Benzene: 2.9 Toluene: ND (<1) Ethylbenzene: 85 Xylenes: m&p: 320 o: 64	Isopropylbenzene: 14 n-Propylbenzene: 33 Naphthalene: 1.6 p-Isopropyltoluene: 1.1 sec-Butylbenzene: 1.9 ***1,2,4-Trimethylbenzene: 150*** 1,3,5-Trimethylbenzene: 54 ND (all other)	NA
		7/23/2019	Gasoline Range: 740 Diesel: 64x Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: 10 Xylenes: 96	Isopropylbenzene: 3.1 n-Propylbenzene: 8.1 sec-Butylbenzene: 1.0 1,2,4-Trimethylbenzene: 67 1,3,5-Trimethylbenzene: 27 ND (all other)	Lead: ND (<1)
		12/9/2019	Gasoline Range: 350 Diesel: 62x Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: 4.3 Xylenes: 49.7	Isopropylbenzene: 1.3 n-Propylbenzene: 2.1 1,2,4-Trimethylbenzene: 34 1,3,5-Trimethylbenzene: 14 ND (all other)	***Arsenic: 9.2*** Chromium: ND (<1) Lead: ND (<1)
		2/28/2020	Gasoline Range: 640 Diesel: 79x Motor Oil: ND (<250)	Benzene: 0.64 Toluene: ND (<1) Ethylbenzene: 7.5 Xylenes: 74	Isopropylbenzene: 3.2 n-Propylbenzene: 4.0 1,2,4-Trimethylbenzene: 57 1,3,5-Trimethylbenzene: 23 ND (all other)	NA

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Laboratory Analytical Results (ug/l)***			
			Total Petroleum Hydrocarbons *(by Methods NWTPH-G & NWTPH-D(X))*	***Benzene*** ***Toluene*** ***Ethyl benzene*** ***Xylenes*** *(by EPA Method 8260C)*	***Other Volatile Organic Compounds (by EPA Method 8260C)*** *List of 58 Additional Compounds Detectable by the Laboratory Method.*	***Total Metals***
MW-9-GW (Drilled as BN-10)	NW gravel parking lot, S end of parking lot - likely S of former UST location	8/3/2017	Gasoline Range: 500 Diesel: 270[x] Motor Oil: ND (<250)	***Benzene: 6.8*** Toluene: 1.3 Ethylbenzene: 6.3 Xylenes: 4.3	Hexane: 4.3 Isopropylbenzene: 7.2 n-Propylbenzene: 17 sec-Butylbenzene: 1.5 1,2,4-Trimethylbenzene: 1.3 1,3,5-Trimethylbenzene: 1.4 ND (all other)	NA
		7/13/2018	Gasoline Range: 470 Diesel: 180[x] Motor Oil: ND (<250)	Benzene: 5.0 Toluene: ND (<1) Ethylbenzene: 8.5 Xylenes: 3.2	Isopropylbenzene: 12 n-Propylbenzene: 23 sec-Butylbenzene: 1.9 1,2,4-Trimethylbenzene: 1.1 ND (all other)	NA
		7/23/2019	Gasoline Range: 500 Diesel: 210[x] Motor Oil: ND (<250)	Benzene: 2.1 Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	Hexane: 1.4 Isopropylbenzene: 16 n-Propylbenzene: 48 sec-Butylbenzene: 3.9 ND (all other)	Lead: ND (<1)
		12/5/2019	***Gasoline Range: 2,900*** Diesel: 620[x] Motor Oil: ND (<250)	***Benzene: 9.5*** Toluene: 4.3 Ethylbenzene: 31 Xylenes: 9.3	Hexane: 10 Isopropylbenzene: 82 n-Propylbenzene: 210 Naphthalene: 1.2 p-Isopropyltoluene: 1.4 sec-Butylbenzene: 19 1,2,4-Trimethylbenzene: 1.7 ND (all other)	Lead: ND (<1)
		2/28/2020	***Gasoline Range: 3,900*** ***Diesel: 1,100[x]*** Motor Oil: ND (<250)	***Benzene: 9.5*** Toluene: 3.7 Ethylbenzene: 43 Xylenes: 6.7	Hexane: 7.2 Isopropylbenzene: 110 n-Propylbenzene: 310 sec-Butylbenzene: 22 1,2,4-Trimethylbenzene: 1.7 ND (all other)	NA

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Laboratory Analytical Results (ug/l)***			
			Total Petroleum Hydrocarbons *(by Methods NWTPH-G & NWTPH-D(X))*	***Benzene*** ***Toluene*** ***Ethyl benzene*** ***Xylenes*** *(by EPA Method 8260C)*	***Other Volatile Organic Compounds (by EPA Method 8260C)*** *List of 58 Additional Compounds Detectable by the Laboratory Method.*	***Total Metals***
MW-10 (Drilled as SES-1)	In SE corner of 104 12th parking lot property. Outside fence accessed through King County parking area.	11/3/2017	Gasoline Range: ND (<100) Diesel: 69[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	ND (all)	NA
		6/14/2018	Gasoline Range: ND (<100) Diesel: 66[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	cis-1,2-Dichloroethene: 1.2 ND (all other)	NA
		7/22/2019	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	ND (all)	Lead: ND (<1)
		12/5/2019	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	***Arsenic: 9.30*** Chromium: ND(<1) Lead: ND(<1)
		2/26/2020	Gasoline Range: ND (<100) Diesel: 66[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
MW-11	On E edge of 104 12th parking lot property. Outside fence accessed through King County parking area.	7/22/2019	Gasoline Range: ND (<100) Diesel: 400[x] Motor Oil: 370[x]	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	cis-1,2-Dichloroethene: 1.9 ND (all other)	Lead: ND (<1)
		12/5/2019	Gasoline Range: ND (<100) Diesel: 61[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 2.9 ***Vinyl chloride: 0.22*** ND (all other)	***Arsenic: 15.0*** Chromium: ND(<1) Lead: ND(<1)
		3/3/2020	Gasoline Range: ND (<100) Diesel: 130[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 2.8 ND (all other)	NA

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Laboratory Analytical Results (ug/l)***			
			Total Petroleum Hydrocarbons *(by Methods NWTPH-G & NWTPH-D(X))*	***Benzene Toluene Ethyl benzene Xylenes*** *(by EPA Method 8260C)*	***Other Volatile Organic Compounds (by EPA Method 8260C)*** *List of 58 Additional Compounds Detectable by the Laboratory Method.*	***Total Metals***
MW-12	In SE central part of 104 12th parking lot property.	7/22/2019	Gasoline Range: ND (<100) Diesel: 140[x] Motor Oil: 270[x]	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	ND (all)	Lead: ND (<1)
		12/4/2019	Gasoline Range: ND (<100) Diesel: 120[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	Arsenic: 4.53 Chromium: ND(<1) Lead: ND(<1)
		3/17/2020	Gasoline Range: ND (<100) Diesel: 120[X] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
MW-13	Sidewalk of Yesler Way, of garage door entry, adjacent to OS-4.	10/3/2019	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	ND (all)	NA
		12/9/2019	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
		3/17/2020	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
MW-14	At base of slope in open Center part of property, outside tenant access to former dry cleaner space in 118 12th bldg.	7/22/2019	Gasoline Range: ND (<100) Diesel: 130[x] Motor Oil: ND (<250)	Benzene: 1.8 Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	cis-1,2-Dichloroethene: 2.3 ***Vinyl chloride: 0.65*** ND (all other)	Lead: ND (<1)
		12/4/2019	Gasoline Range: ND (<100) Diesel: 110[x] Motor Oil: ND (<250)	Benzene: 1.3 Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 1.8 ***Vinyl chloride: 0.25*** ND (all other)	NA
		2/28/2020	Gasoline Range: ND (<100) Diesel: 64[x] Motor Oil: ND (<250)	Benzene: 1.8 Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 2.1 ***Vinyl chloride: 0.66*** ND (all other)	NA

Boring/ Sample I.D.	*Sample Location*	*Sample Date*	*Laboratory Analytical Results (ug/l)*			
			Total Petroleum Hydrocarbons *(by Methods NWTPH-G & NWTPH-D(X))*	***Benzene, Toluene, Ethyl benzene, Xylenes*** *(by EPA Method 8260C)*	***Other Volatile Organic Compounds (by EPA Method 8260C)*** *List of 58 Additional Compounds Detectable by the Laboratory Method.*	***Total Metals***
MW-15	In N central part of SE parking lot	4/2/2020	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	NA
Geotech B-7 (GEO B-7)	In NW part of parking lot E of 104 12th , between previous borings MW-2 and MW-5	12/6/2018	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	cis-1,2-Dichloroethene: 1.1 ND (all other)	NA
		7/22/2019	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	cis-1,2-Dichloroethene: 3.0 Trichloroethene: 2.3 ND (all other)	NA
		12/4/2019	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	cis-1,2-Dichloroethene: 2.7 Trichloroethene: 1.8 ND (all other)	NA
		3/5/2020	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	cis-1,2-Dichloroethene: 3.2 Trichloroethene: 2.9 ND (all other)	NA
Geotech B-8 (GEO B-8)	In S central area of NW gravel parking lot, between borings BN-10, AEG-B-2 and AEG-B-4	12/6/2018	Gasoline Range: ND (<100) Diesel: 210[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	Isopropylbenzene: 1.1 n-Propylbenzene: 1.8 ND (all other)	NA
		7/23/2019	Gasoline Range: ND (<100) Diesel: 140[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	ND (all)	Lead: ND (<1)
		12/4/2019	Gasoline Range: 150 Diesel: 410[x] Motor Oil: 360[x]	Benzene: 1.3 Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	Isopropylbenzene: 4.0 n-Propylbenzene: 7.1 sec-Butylbenzene: 1.1 ND (all other)	NA
		2/28/2020	Gasoline Range: 110 Diesel: 180[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	Isopropylbenzene: 1.4 n-Propylbenzene: 2.7 ND (all other)	NA

Boring/ Sample I.D.	***Sample Location***	***Sample Date***	***Laboratory Analytical Results (ug/l)***			
			Total Petroleum Hydrocarbons *(by Methods NWTPH-G & NWTPH-D(X))*	***Benzene, Toluene, Ethyl benzene, Xylenes*** *(by EPA Method 8260C)*	***Other Volatile Organic Compounds (by EPA Method 8260C)*** *List of 58 Additional Compounds Detectable by the Laboratory Method.*	***Total Metals***
Geotech B-9 (GEO B-9)	In NE part of parking lot E of 104 12th, between previous borings MW-5 and MW-1	12/6/2018	Gasoline Range: ND (<100) Diesel: 76[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	cis-1,2-Dichloroethene: 2.4 ***Vinyl chloride: 0.36*** ND (all other)	NA
		7/23/2019	Gasoline Range: ND (<100) Diesel: 59[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	cis-1,2-Dichloroethene: 1.4 ND (all other)	NA
		12/4/2019	Gasoline Range: ND (<100) Diesel: ND (<50) Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<3)	cis-1,2-Dichloroethene: 1.5 ***Vinyl chloride: 0.22*** ND (all other)	NA
		3/5/2020	Gasoline Range: ND (<100) Diesel: 73[x] Motor Oil: ND (<250)	Benzene: ND (<0.35) Toluene: ND (<1) Ethylbenzene: ND (<1) Xylenes: ND (<1)	cis-1,2-Dichloroethene: 1.1 ND (all other)	NA
Washington State Model Toxics Control Act (MTCA) Groundwater Cleanup Criteria (ug/l)			***Gasoline: 800[A]*** ***(Benzene is present)*** ***Diesel or Motor Oil: 500[A]*** ***(combined)***	***Benzene: 5[A]*** ***Toluene: 1,000[A]*** ***Ethylbenzene: 700[A]*** ***Xylenes: 1,000[A]***	***Acetone: 7,200[B]*** ***cis-1,2-Dichloroethene: 16*** ***Hexane: 480[B]*** ***Isopropylbenzene: 800[B]*** ***n-Propylbenzene: 800[B]*** ***Naphthalene: 160[B]*** ***p-Isopropyltoluene: NV*** ***sec-Butylbenzene: 800[B]*** ***tert-Butylbenzene: 800[B]*** ***Tetrachloroethene: 5[A]*** ***Trichloroethene: 5[A]*** ***Vinyl chloride: 0.2[A]*** ***1,2,4-Trimethylbenzene: 80[B]*** ***1,3,5-Trimethylbenzene: 80[B]***	***Arsenic: 5[A]*** ***Chromium: 2,000*** ***Lead: 15[A]*** ***Iron: 11,000[B]*** ***Manganese: 750[B]***

Table Notes:
ND (<XXX) - Parameter not detected at concentrations at or above the noted reporting limit.
NA - Sample not analyzed for the listed parameter.
Gasoline Range Total Petroleum Hydrocarbons by Method NWTPH-G.
Diesel and Motor Oil Range Total Petroleum Hydrocarbons by Method NWTPH-D(x).
[x] - Indicates sample chromatogram does not resemble fuel standard used for analysis. Most likely carry over from gasoline range hydrocarbons, or non-petroleum organic matter.
BTEX compounds and other volatile organic compounds by EPA Method 8260C. All detected compounds summarized here. See laboratory report for full list of analyzed parameters.
Total Lead on unfiltered samples by EPA Method 6020B.
Dissolved and total Iron and Manganese as general water parameters as part of clean-up feasability study. Analyses by EPA Method 6020B.

MTCA Groundwater cleanup criteria per Chapter 173-340-720 WAC. Method A criteria presented where available. Method B standard formula values shown where no Method A criteria available. Method B standard formula values from Dept. of Ecology Cleanup Levels and Risk Calculation (CLARC) database. NV indicates no value available from CLARC.

A - Method A listed
B - Method B Direct Contact
NV - No published value

Sample results exceeding applicable cleanup criteria are noted in ***Bold Italic***.

APPENDIX B

Regenesis Product Information and Technical Papers

S-MicroZVI Specification Sheet

S-MicroZVI Technical Description

S-MicroZVI™ is an *In Situ* Chemical Reduction (ISCR) reagent that promotes the destruction of many organic pollutants and is most commonly used with chlorinated hydrocarbons. It is engineered to provide an optimal source of micro-scale zero valent iron (ZVI) that is both easy to use and delivers enhanced reactivity with the target contaminants via multiple pathways. S-MicroZVI can destroy many chlorinated contaminants through a direct chemical reaction (**see Figure 1**). S-MicroZVI will also stimulate anaerobic biological degradation by rapidly creating a reducing environment that is favorable for reductive dechlorination.

Sulfidated ZVI

S-MicroZVI is composed of colloidal, sulfidated zero-valent iron particles suspended in glycerol using proprietary environmentally acceptable dispersants. The passivation technique of sulfidation, completed using proprietary processing methods, provides unparalleled reactivity with chlorinated hydrocarbons like PCE and TCE and increases its stability and longevity by minimizing undesirable side reactions.

S-MicroZVI is Best in Class For

- ☑ Longevity
- ☑ Reactivity
- ☑ Transport

In addition to superior reactivity, S-MicroZVI is designed for easy handling that is unmatched by any ZVI product on the market. Shipped as a liquid suspension, S-MicroZVI requires no powder feeders, no thickening with guar, and pneumatic or hydraulic fracturing is not mandatory. When diluted with water prior to application, the resulting suspension is easy to inject using either direct push or permanent injection wells.

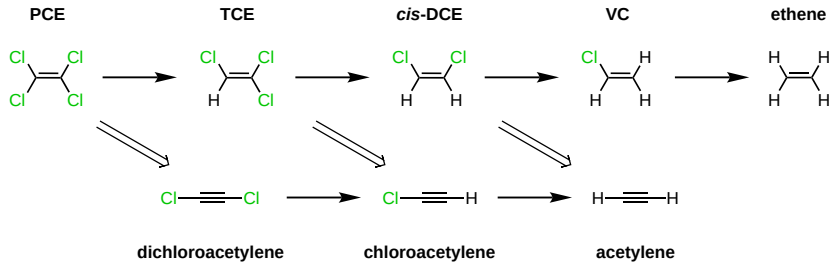

Figure 1: *Chlorinated ethene degradation pathways and products. The top pathway with single line arrows represent the reductive dechlorination (hydrogenolysis) pathway. The lower pathway with downward facing double line arrows represent the beta-elimination pathway.*

To see a list of treatable contaminants, view the S-MicroZVI treatable contaminants guide.

S-Micro ZVI
Sulfidated Zero-Valent Iron

S-MicroZVI Specification Sheet

Chemical Composition

Iron, powders CAS 7439-89-6
Iron (II) sulfide CAS 1317-37-9
Glycerol CAS 56-81-8

Properties

Physical State: Liquid
Form: Viscous metallic suspension
Color: Dark gray
Odor: Slight
pH: Typically 7-9 as applied
Density: 15 lb/gal

Storage and Handling Guidelines

Storage:

- Use within four weeks of delivery
- Store in original containers
- Store at temperatures below 95F°
- Store away from incompatible materials

Handling:

- Never mix with oxidants or acids
- Wear appropriate personal protective equipment
- Do not taste or swallow
- Observe good industrial hygiene practices

Applications

S-MicroZVI is diluted with water on site and easily applied into the subsurface through low-pressure injections. S-MicroZVI can also be mixed with products like 3-D Microemulsion® or PlumeStop® prior to injection.

Health and Safety

The material is relatively safe to handle; however, avoid contact with eyes, skin and clothing. OSHA Level D personal protection equipment including: vinyl or rubber gloves and eye protection are recommended when handling this product. Please review the Safety Data Sheet for additional storage, and handling requirements here: S-MicroZVI SDS.

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Application Instructions

S-MicroZVI™ is a remediation amendment engineered for the *in situ* chemical reduction of chlorinated contaminants. The product features zero valent iron particles that are less than 5 microns in size and are suspended in a glycerol carrier. These materials are strong reductants and should never be combined with acids or oxidizers (see Health and Safety section).

S-MicroZVI Composition

40% sulfidated colloidal ZVI
45% food grade glycerol
15% water-based carrier

Physical Characteristics

Appearance: Dark gray viscous liquid
Viscosity: About 5000 cP (temperature dependent)
Density: 15 lb/gal

Helpful Chemical Property Measurements

The following solution characteristics measurements were obtained on a suspension mixture comprise of 4000 mg/L activated carbon from PlumeStop and 4000 mg/L zero valent iron from S-MicroZVI.

pH = 8.7
ORP = -492 mV
Conductivity = 2.36 mS/cm

Best Practices

Material Handling: S-MicroZVI is packaged in 50 lb buckets, 500 lb drums and 3000 lb totes. Use care/assistance if moving a tote with a pallet jack. A double diaphragm pump should be used to transfer S-MicroZVI from drums and totes into the mixing tank. Centrifugal drum pumps and dosing or metering pumps are not recommended due to the high viscosity of the material. Because of the low mass of S-MicroZVI typically required in the mixing tank, a bucket or similar container should be used to batch the ZVI material by weight or volume.

Mixing: S-MicroZVI should be homogenized in its packaging container before adding it into the mixing tank. Pails of S-MicroZVI are best mixed using a hand drill equipped with a paint mixer attachment. Totes and drums of S-MicroZVI should be mixed to a homogeneous consistency at the start of each application day using a 4 ft paint mixer attachment. As with all remedial reagents, it is a best practice to make sure the entire drum/tote is well mixed – including corners & bottom - before transferring into the mixing tank.

Mixing Order: Whenever S-MicroZVI is co-applied with other remedial reagents (PlumeStop®, 3D Microemulsion®, pH modifiers, etc.), the order of addition should be as follows:

1) Water
2) Other amendments (PlumeStop®, 3DME, etc.)
3) S-MicroZVI

Mix Tank: A conical tank less than 500 gal is recommended for batching. It should be equipped with a mixer than has enough power to gently agitate the mixture. The goal is to keep solids suspended without overly aerating the material.

Cleaning: Always thoroughly rinse all S-MicroZVI containers before disposal. Rinse water from this step should be placed into the mixing tank for application. Inspect tanks for any residue of reagents that were recently used in the tank. If there is any evidence rinse tank thoroughly. A thorough cleaning step should be performed at the end of each work day. This should be accomplished by flushing the entire injection system with municipal water.

Health & Safety

Risk Potential, Hydrogen Sulfide: S-MicroZVI will give off hydrogen sulfide (H2S) gas when exposed to acid. For this reason, it is imperative that low pH (acid) solutions NOT come into contact with solutions containing S-MicroZVI.

In the interest of safety, a hydrogen sulfide detector should be part of every S-MicroZVI application program.

S-MicroZVI™
Sulfidated Zero-Valent Iron

Hydrogen sulfide is toxic, corrosive, and flammable. The threshold of odor detection for hydrogen sulfide is approximately 0.0005 ppm; however, at higher concentrations hydrogen sulfide will suppress the olfactory senses. For this reason, one's sense of smell is not a reliable method of detection, and failure to rely on a hydrogen sulfide detector can lead to overexposure and potentially death. The OSHA Permissible Exposure Limit for an 8-hour timeweighted average is 10 ppm, and hydrogen sulfide is classified as Immediately Dangerous to Life and Health at 100 ppm. With proper handling, no detectable hydrogen sulfide will be produced by S-MicroZVI.

Do not mix S-MicroZVI with acid, this includes HRC or HRC Primer.

- Adding acid to S-MicroZVI can cause hydrogen sulfide to be produced for many hours. If hydrogen sulfide is being produced, work must stop.

Do not combine S-MicroZVI with any oxidizing agent (PersulfOx®, RegenOx®, etc.)

- S-MicroZVI is a strong reductant. Combining
- S-MicroZVI with oxidizers will cause a vigorous exothermic reaction and has the potential to produce hydrogen sulfide.

Preferred Storage Conditions: S-MicroZVI should be stored in cool, dry places if possible. Indoor storage is preferred – if this is not available, seek a covered or shaded spot outdoors.

Shelf Life:** S-MicroZVI should be used within 4 weeks of arrival onsite.

** Shelf life may decrease with extreme temperatures. For situations where prolonged temperature may exceed 90F we advise to use the product as soon as possible. Small amounts of hydrogen gas may evolve from the material during storage. For this reason, buckets, drums, and totes are vented.

Handling Practices: Standard PPE should be used when handling S-MicroZVI. This includes eye protection, gloves and face shield when mixing.

There are some specific characteristics to keep in mind for these materials:

Density: A half-full pail may be heavier than it appears, use care when lifting.
Cleanliness: This product will stain clothes.
Slip concerns: S-MicroZVI can be very slick if spilled. In the event of a spill, use caution as the floor may be very slippery.

Do's & Don'ts

Do	Don't
✓ Use a diaphragm pump to transfer S-MicroZVI from totes or drums.	✗ Use dose pumps, drum pumps, etc. to transfer S-MicroZVI.
✓ Use a bucket or graduated vessel to measure S-MicroZVI for the mixing tank from totes or drums.	✗ Store product below 30 degrees to avoid thickening.
✓ Rinse each mix tank at the end of the day to prevent excess buildup of ZVI solids.	✗ Use buckets that contained RegenOx®, PersulfOx®, HRC®, or HRC Primer.
✓ Use tap water for rinsing and cleaning.	✗ Leave suspensions containing S-MicroZVI in the mixing tank overnight or for an excess period (4-5 hours).
✓ Inject the equivalent of a 7-borehole volume of clear water into injection wells and any affected monitoring well upon completion of the injection program.	✗ Ever add acid or oxidizers to S-MicroZVI.
✓ BDI Plus™ and S-MicroZVI are compatible. Apply BDI Plus as typical.	✗ Use sodium bisulfite or other oxygen scavengers. These are unnecessary with S-MicroZVI.
✓ Use pails of S-MicroZVI within 2-3 days of opening.	✗ Use partial pails of S-MicroZVI that were opened for a previous site.
✓ Use standard PPE when using S-MicroZVI. This includes safety glasses, face shield, and gloves.	✗ When batching, add more than 50lb. of total suspension to pails

PlumeStop® Liquid Activated Carbon™ Technical Description

PlumeStop Liquid Activated Carbon is an innovative groundwater remediation technology designed to rapidly remove and permanently degrade groundwater contaminants. PlumeStop is composed of very fine particles of activated carbon (1-2µm) suspended in water through the use of unique organic polymer dispersion chemistry. Once in the subsurface, the material behaves as a colloidal biomatrix, binding to the aquifer matrix, rapidly removing contaminants from groundwater, and promoting permanent contaminant biodegradation.

This unique remediation technology accomplishes treatment with the use of highly dispersible, fast-acting, sorption-based technology, capturing and concentrating dissolved-phase contaminants within its matrix-like structure. Once contaminants are sorbed onto the regenerative matrix, biodegradation processes achieve complete remediation.

Distribution of PlumeStop in water

To see a list of treatable contaminants with the use of PlumeStop, view the Range of Treatable Contaminants Guide.

Chemical Composition

- Water - CAS# 7732-18-5
- Colloidal Activated Carbon ≤2.5 - CAS# µm 7440-44-0
- Proprietary Additives

Properties

- Physical state: Liquid
- Form: Aqueous suspension
- Color: Black
- Odor: Odorless
- pH: 8 - 10

Storage and Handling Guidelines

Storage
Store in original tightly closed container
Store away from incompatible materials
Protect from freezing

Handling
Avoid contact with skin and eyes
Avoid prolonged exposure
Observe good industrial hygiene practices
Wash thoroughly after handling
Wear appropriate personal protective equipment

PlumeStop® Liquid Activated Carbon™ Technical Description

Applications

PlumeStop is easily applied into the subsurface through gravity-feed or low-pressure injection.

Health and Safety

Wash hands after handling. Dispose of waste and residues in accordance with local authority requirements. Please review the Material Safety Data Sheet for additional storage, usage, and handling requirements here: PlumeStop SDS.

REGENESIS

www.regenesis.com
1011 Calle Sombra, San Clemente CA 92673
949.366.8000

PlumeStop® Technical Bulletin 4.1

Regeneration of Sorptive Capacity

Quick Reference:

- PlumeStop binding site bio-regeneration
- Extended functional longevity

Background

PlumeStop® Liquid Activated Carbon™ is composed of very fine particles of activated carbon (1-2 µm) suspended in water through the use of unique organic polymer dispersion chemistry. Once in the subsurface, the material behaves as a colloidal biomatrix, binding to the aquifer matrix, rapidly removing contaminants from groundwater, and expediting permanent contaminant biodegradation.

Wide-Area Dispersive Distribution

Unlike any other sorbent technology, PlumeStop can be installed in the subsurface through dispersive flow from low-pressure injection (without fracturing the formation), providing a wide-area thin-film coating of the aquifer matrix. It does not create preferential flow pathways, plug the formation, or compromise monitoring wells through extreme carbon loading, as is often the case with pressure-emplaced powdered activated carbon products.

More information on low-pressure ease of distribution and dispersive emplacement of PlumeStop can be found in PlumeStop Technical Bulletin 1.1: Distribution through a Permeable Medium.

Rapid Removal of Contaminants from Groundwater

PlumeStop rapidly sorbs organic contaminants from aqueous solution within the timescale of hours. Pollutants partition directly into the PlumeStop particles that are sorbed to the soil formation, thereby removing the pollutants from groundwater. Contaminant advection in the aqueous phase is therefore eliminated, and partitioning into the vapor-phase is also reduced (Henry's Law). Results can be dramatic, with groundwater cleanup objectives often met within days of PlumeStop application.

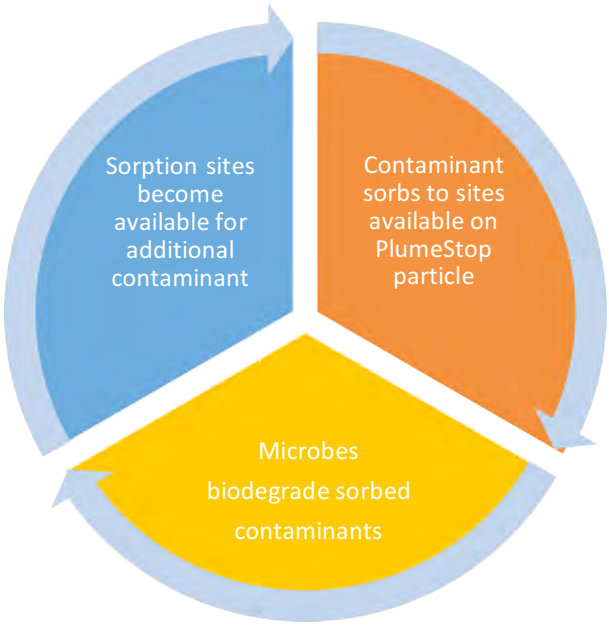
Acceleration of Contaminant Biodegradation

Once sorbed to the soil and with contaminants partitioned onto its surface, PlumeStop is colonized by contaminant-degrading bacteria. These may be naturally present or applied as an inoculum. The concentration of the contaminants and the degradative microflora on the PlumeStop surface reduces mass-transfer kinetic constraints and supports greater speed and efficiency of degradation compared to solution-phase bioremediation.

The net result is a substantial increase in the instantaneous rate and extent of contaminant destruction. Further information on post-sorption biodegradation and rate acceleration by PlumeStop can be found in PlumeStop Technical Bulletin 3.1: Post-Sorption Contaminant Biodegradation.

Regeneration *In-Situ*

Within the subsurface, the sorptive capacity of PlumeStop that has coated the aquifer pore structures continues to regenerate *in situ* by the continual cycle of contaminant sorption and biodegradation.



This cycle consists of three events:

- Dissolved-phase contaminants partition out of the groundwater and are concentrated on the PlumeStop particles.
- Opportunistic contaminant-degrading microbes colonize the PlumeStop to form the biomatrix.
- Biodegradation of contaminants within the biomatrix frees up sorption sites, allowing further partitioning of contaminants out of the groundwater.

As a result of this on-going regeneration of the PlumeStop biomatrix, each application of PlumeStop remains functional for an extended / indefinite period of time.

Data Supporting the *In Situ* Regeneration

To demonstrate the *in situ* regeneration of PlumeStop, a laboratory study was undertaken that compared the removal of perchloroethene (PCE) from a biotic soil/water slurry treated with PlumeStop versus two sterile soil/water slurries: one PlumeStop treated and the other a soil-only control. Throughout the study, the aqueous-phase and total-system PCE concentrations were monitored following cycles of PCE spikes and equilibration.

Test Procedure

For the biotic PlumeStop treated conditions, twenty-seven microcosm samples were prepared in 8 oz amber serum bottles sealed with Mininert™ valves (Figure 1). Each bottle contained site soil (20 g), PlumeStop (50 mg/L), microbial consortia (1×10^6 cells/mL Dehalococcoides ethenogenes), and sodium lactate as an electron donor to promote biological reductive dechlorination (1,000 mg/L). Similarly, the sterile control samples were prepared with autoclaved site soil (20 g), sodium lactate (1,000 mg/L), and sodium azide (200 mg/L), which was added as a biocide to inhibit biological activity. PlumeStop (50 mg/L) was also added to the PlumeStop treated sterile control.

Figure 1. Experimental set-up - test microcosms

The experiment was initiated with the addition of 2.3 mg of PCE to each bottle.

All bottles were placed on an orbital shaker at room temperature throughout the entire experiment. After 24 hours, three samples from each of the three conditions (biotic PlumeStop treated, sterile PlumeStop treated, and sterile soil-only control) were chilled prior to removing a 1 mL aliquot for headspace analysis by Gas Chromatography-Electron Capture Detector (GC-ECD) to determine the PCE concentration in water. The same

sample bottles were then sacrificed and subjected to a 48-hour total system extraction with hexane. The hexane extract was analyzed by GC-ECD to give the total mass of PCE within each bottle, which includes both the aqueous-phase and the sorbed-phase (soil and PlumeStop) PCE.

After two weeks, the same sampling procedure described above was repeated on another set of sample bottles, three from each condition. At the same time, all remaining sample bottles were spiked with an additional 2.3 mg of PCE and 25 mg of sodium lactate. The freshly spiked bottles were allowed to equilibrate for six hours before an additional set of sacrificial bottles were sampled and analyzed in order to establish a new post-spike baseline. The identical procedure described above of analyzing–spiking–analyzing was repeated at the four- and six-week time points of the experiment, giving a total of four complete cycles of spiking and analyzing. Two additional PCE analysis-only cycles (no spikes) were also conducted at the eight and ten-week time points.

Results and Discussion

The aqueous-phase PCE concentrations of the soil-only sterile control vials indicated a PCE increase in the aqueous phase at the beginning of the experiment and with the addition of each successive PCE spike (Figure 2). Lower initial concentrations for the two PlumeStop treated conditions compared to the sterile soil-only control suggested rapid sorption of the PCE to PlumeStop in the early phase of the experiment. However, with successive PCE spikes, a build-up of PCE in the aqueous phase was also observed for the sterile PlumeStop treated control, while the concentrations in the biotic PlumeStop treated samples remained overall very low.

The lower aqueous phase concentrations of PCE in the biotic vs. sterile PlumeStop treated samples support *in situ* regeneration of PlumeStop's sorptive capacity by biodegradation. In the sterile samples with PlumeStop, continued addition of PCE to the system resulted in saturation of the PlumeStop sorption sites and an increase in aqueous phase PCE concentrations. In the biotic PlumeStop treated samples, degradation of the sorbed PCE regenerated the sorption sites, thereby allowing the aqueous phase concentrations to remain low throughout the experiment.

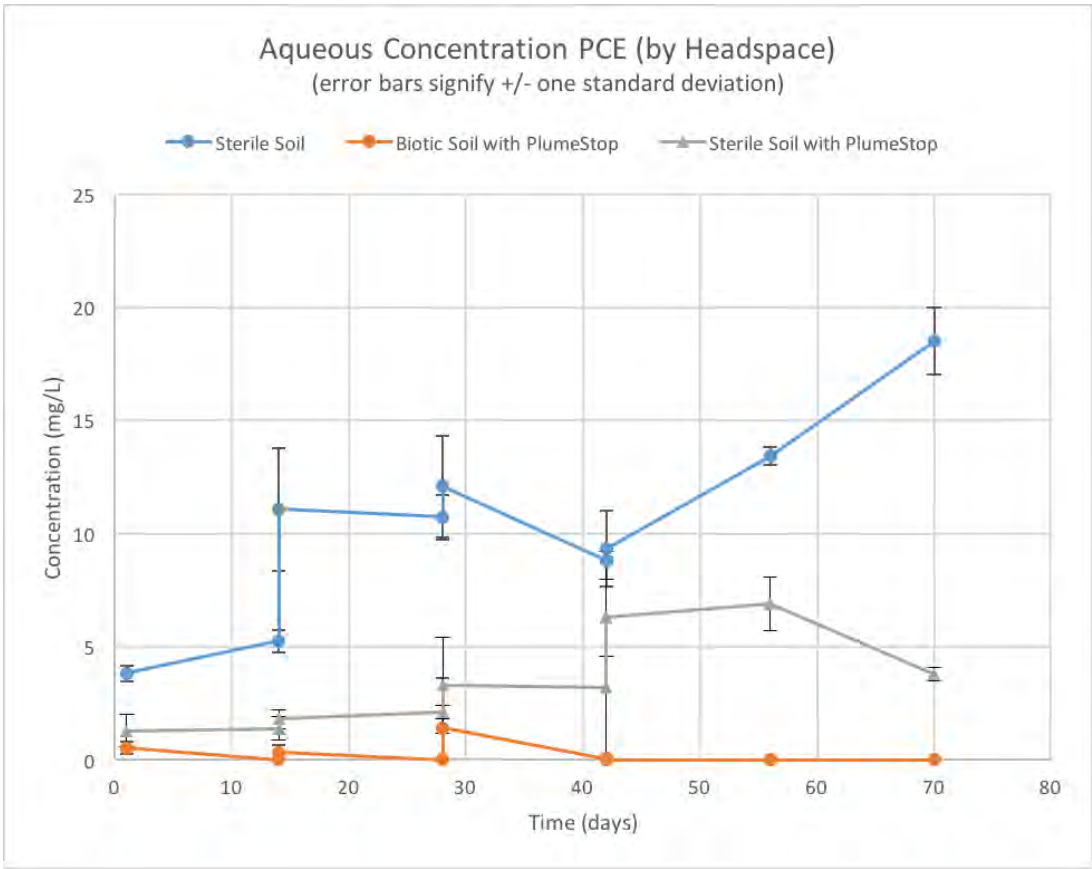


Figure 2. Comparison of dissolved-phase PCE concentrations upon cumulative loading.

Data from the total system extractions (Figure 3) confirmed rapid degradation of the added PCE in the biotic PlumeStop-amended vials; at the time of each sampling, less than 10% of the added PCE remained in the biotic PlumeStop samples prior to re-spiking with additional PCE. Conversely, in the sterile control vials both with and without PlumeStop, the total mass of PCE in the system was retained following each additional PCE spike, indicating that there was no destruction of the contaminants under those conditions. The degradation observed in the PlumeStop-amended vials serves to regenerate the sorptive capacity of PlumeStop, as observed in the aqueous-phase concentrations discussed above. Together, the aqueous-phase and total system extract data clearly support the ability of PlumeStop to maintain a continual cycle of contaminant sorption and degradation.

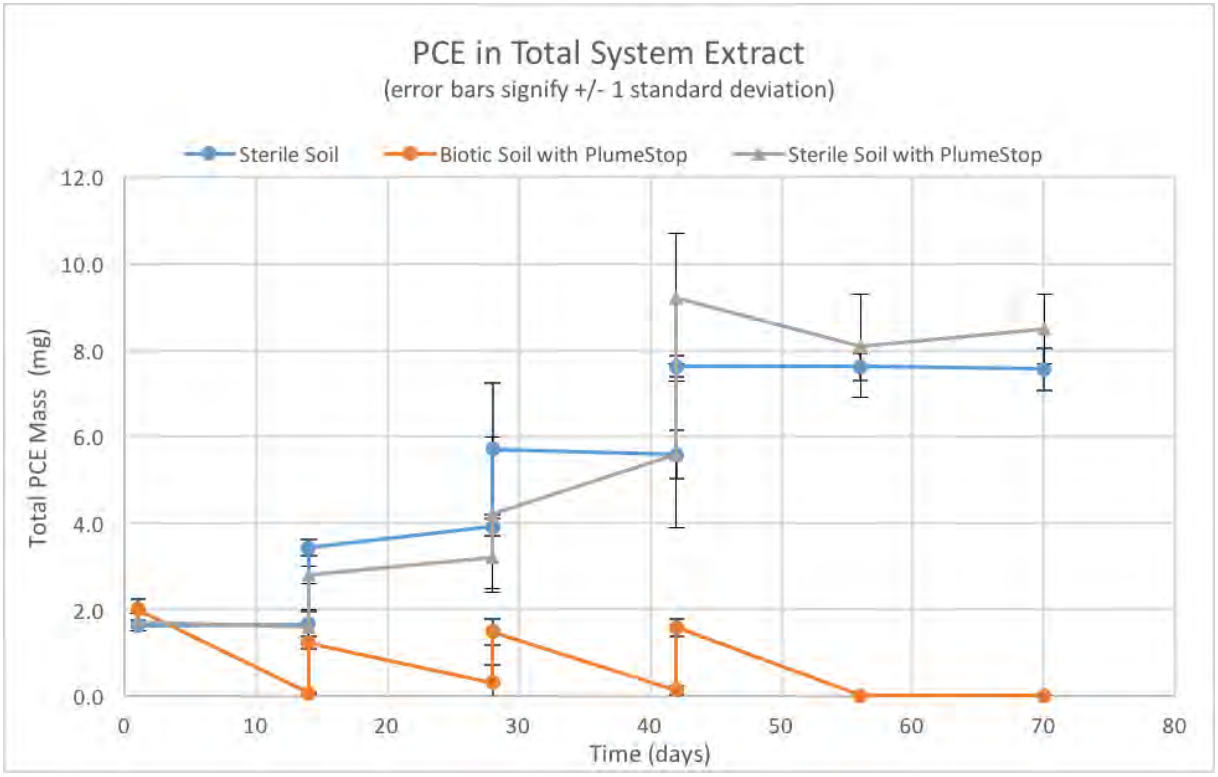


Figure 3. Comparison of PCE mass on cumulative loading– total system extracts.

Summary and Conclusion

The laboratory test clearly demonstrated the ability of PlumeStop to regenerate *in situ*:

- PCE rapidly partitioned onto the PlumeStop particles in the early phases of both the biotic and sterile Plumestop treated samples, removing PCE from the aqueous phase.
- Continued addition of PCE resulted in increasing aqueous-phase concentrations in the sterile samples containing PlumeStop as a result of the sorption sites becoming saturated.
- In the biotic PlumeStop samples, the sorbed PCE was degraded, leaving negligible PCE in the system (sorbed-phase or aqueous-phase).

- After sorbed PCE was degraded, the regenerated PlumeStop particles were again able to sorb additional PCE from solution, thereby providing capacity for continued contaminant sorption and degradation.

The demonstrated regeneration of PlumeStop's sorptive capacity during contaminant biodegradation suggests extended, if not indefinite, treatment longevity.

APPENDIX C
Compliance Monitoring Plan

COMPLIANCE MONITORING PLAN

12TH & YESLER REDEVELOPMENT PROPERTY
104-124 12TH AVENUE & 1209 E. FIR STREET
SEATTLE, WASHINGTON 98122

April 6, 2020
Project No. WES-1591

WHITMAN Environmental Sciences

COMPLIANCE MONITORING PLAN

12TH & YESLER REDEVELOPMENT PROPERTY
104-124 12TH AVENUE & 1209 E. FIR STREET
SEATTLE, WASHINGTON 98122

1.0 INTRODUCTION

Whitman Environmental Sciences (WES) has prepared this Compliance Monitoring Plan (CMP) as part of the Independent Remedial Action Plan (IRAP) for property located at 104-124 12th Avenue and 1209 E Fir Street, in Seattle, King County, Washington (Figure 1). The plan is prepared on behalf of Centric Partners LLC. This document is an integral part of the Independent Remedial Action Plan (IRAP) for this project. The purpose of this CMP is to present a sampling and analysis plan for the remedial action in order to demonstrate compliance with Washington's Model Toxics Control Act (MTCA) Cleanup Regulation, Chapter 173-340 WAC, and to obtain a property-specific No Further Action (NFA) determination.

The subject property (Figure 2) consists of approximately 47,433 square feet of land (1.09 acres) located on the east side of 12th Avenue, between the intersections with Yesler Way E and E Fir Street, in Seattle, Washington. The site will be redeveloped as a seven-story mixed-use building with approximately 268 residential units, two levels of below-grade parking and about 14,000 square feet of ground floor commercial spaces. Cleanup will be conducted in conjunction with the redevelopment. The site is currently enrolled in Ecology's Voluntary Cleanup Program (VCP) and has been assigned VCP Project Number NW3194.

1.1 Environmental Conditions

The subject site has been the subject of remedial investigations since at least 2016. The property has previously housed a service station with underground storage tanks, two auto repair operations, and a tenant space that housed both a screen printing shop and dry cleaner for part of its history.

WES' investigations have delineated petroleum contaminated soil and groundwater related to the former gas station, the former auto repair in the basement of the building at 104 12th Avenue, and a floor sump also located in the 104 12th building. Areas of fill soil containing elevated concentrations of lead have been identified in the central part of the property.

There is a plume of vinyl chloride and related chlorinated compounds in shallow groundwater in the parking lot in the southeastern portion of the property. The plume originates beneath a warehouse on adjacent property, and has migrated onto the property following the gradient of groundwater. Soil sampling has identified an area adjacent to the warehouse with PCE in soil less than five feet below grade that will need to be excavated and manage as dangerous waste. Figure 3 shows the anticipated areas of cleanup.

Additional information regarding soil, groundwater and contaminant conditions are in WES' IRAP and prior Remedial Investigation Reports, incorporated by reference.

COMPLIANCE MONITORING PLAN

12TH & YESLER REDEVELOPMENT PROPERTY
104-124 12TH AVENUE & 1209 E. FIR STREET
SEATTLE, WASHINGTON 98122

April 6, 2020
Project No. WES-1591

Prepared for:
Centric Partners LLC
2921 Eastlake Avenue E.
Seattle, WA 98102

By:
Whitman Environmental Sciences
6812 16th Avenue NE
Seattle, Washington 98115
(206) 523-3505

TABLE OF CONTENTS

TABLES

FIGURES

COMPLIANCE MONITORING PLAN

12TH & YESLER REDEVELOPMENT PROPERTY
104-124 12TH AVENUE & 1209 E. FIR STREET
SEATTLE, WASHINGTON 98122

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Additional information regarding soil, groundwater and contaminant conditions are in WES' IRAP and prior Remedial Investigation Reports, incorporated by reference.

1.2 Planned Remedial Actions

The remedial action planned for this site will occur as two relatively separate operations. Initially, in-situ groundwater treatment will be conducted in the southeastern parking lot while it remains paved and otherwise unused. In this area, groundwater treatment will be accomplished by enhancing reductive dechlorination via injections of a suspension of zero valent iron and finely particulate activated carbon medium (proprietary products of Regenesis, Inc.). These injections will occur throughout the lateral extent of the plume. An additional mass of injected treatment carbon and iron will be established along the northern edge of the parking lot to act as a permeable treatment zone to sequester and degrade VOCs in groundwater as it migrates onto the property from the adjacent King County property. This area will remain undeveloped (except for landscaping, so will be accessible for additional injections, if necessary to maintain the integrity of the treatment zone.

Excavation of petroleum and lead impacted soil in the western part of the property will be conducted separately, in conjunction with redevelopment. Based on the planned depth of the redevelopment mass excavation, all petroleum hydrocarbon and lead impacted soil will be removed. A small area of PCE and lead contaminated soil will be excavated from the southeastern parking lot area for proper disposal.

2.0 COMPLIANCE MONITORING PARAMETERS

Monitoring will be required throughout the work and post-remediation period to demonstrate compliance with applicable regulations and good work practices. This section defines the contaminants of concern that will need to be monitored and the standards that are to be applied to compliance. In particular, numeric cleanup levels (CULs) for individual contaminants of concern have been established under MTCA and the intent of this plan is to demonstrate that these CULs are met.

2.1 Indicator Contaminants of Concern

As identified in WES' prior site investigations, the contaminants of concern for this project are summarized in Table 1, excerpted from the IRAP.

TABLE 1
Indicator Contaminants of Concern

Parameter	***Maximum Detected Soil Concentration (mg/kg)***	***Maximum Detected Groundwater Concentration (ug/l)***	***Maximum Detected Deep Soil Gas Concentration (ug/m^3)***
Gasoline Range Organics	780	3,900	--
Diesel Range Organics	440 (Below CUL)	1,100	--
Motor Oil Range Organics	3,300	680	--
Benzene	0.033	11	31 (Below SL)
Ethylbenzene	6.8	85 (Below CUL)	36 (Below SL)
Naphthalene	4.9	14 (Below CUL)	18
Xylenes	59	432 (Below CUL)	223(Below SL)
1,2,4-Trimethylbenzene	63 (Below CUL)	180	170 (Below SL)
Tetrachloroethene	0.13	33	ND (<20)
(Continued)			

Parameter	***Maximum Detected Soil Concentration (mg/kg)***	***Maximum Detected Groundwater Concentration (ug/l)***	***Maximum Detected Deep Soil Gas Concentration (ug/m^3)***
Trichloroethene	ND (<0.02)	23	8.2 (Below SL)
cis-1,2- Dichloroethene	ND (<0.05)	17	57 (No SL)
Vinyl Chloride	ND (<0.05)	1.9	65
Chloroform	ND (<0.05)	1.1 (Below CUL)	15
Bromodichloromethane	ND (<0.05)	ND (<1)	8.5
Cadmium	2.13	ND (<1)	--
Lead	883	13.8 (Below CUL)	--

Table Notes
(Below CUL) - Maximum reported value is below Model Toxics Control Act Method A or Method B direct contact clean up level.
(Below SL) - Maximum reported value is below Ecology's Deep Soil Gas Screening Level.
Not Detected (<X.X) - Not detected above the noted laboratory reporting limit. All reporting limits are below CULs.

Not all of these indicator substances have been detected in all media, or exceed CULs when detected. However, there is a potential that they would be present, given the known history of the site and those related substances that have been detected. For this cleanup, compliance monitoring will include these parameters in the media they have been detected, as deemed necessary based on field observations and MTCA compliance requirements. As indicator substances, remediation of these contaminants can be expected to effectively remove any related contaminants with less restrictive CULs.

2.2 Model Toxics Control Act Cleanup Levels

Standard Method A soil, groundwater and indoor air cleanup criteria will be used to determine compliance with MTCA cleanup standards for those substances for which Method A CULs are available. For other substances and indoor air compliance, Method B standard formula values will be used.

Table 2 summarizes the MTCA Method A or Method B direct contact soil, groundwater and indoor air CULs (where applicable) for the contaminants of concern identified above. Where no Method A cleanup criteria is available, the MTCA Method B direct contact standard formula value or indoor air CUL is included. These values will be used for performance monitoring and final confirmation sampling during and after the cleanup. Media found to be at or below these concentrations will be considered in compliance with MTCA cleanup standards.

TABLE 2
Model Toxics Control Act Cleanup Criteria
for Unrestricted Land Use

Parameter	***Soil Cleanup Criteria (mg/kg)***	***Groundwater Cleanup Criteria (ug/l)***	***Indoor Air Cleanup Criteria (ug/m^3)***
Gasoline Range Organics	30[A]	800[A]	140 (Generic TPH)
Diesel Range Organics	2,000[A]	500[A]	
Motor Oil Range Organics	2,000[A]	500[A]	
(Continued)			

Parameter	*Soil Cleanup Criteria (mg/kg)*	*Groundwater Cleanup Criteria (ug/l)*	*Indoor Air Cleanup Criteria (ug/m^3)*
Benzene	0.03[A]	5[A]	0.32
Ethylbenzene	6[A]	700[A]	460
Xylenes	9[A]	1,000[A]	46
1,2,4-Trimethylbenzene	800[B]	80[B]	27
Tetrachloroethene	0.05[A]	5[A]	9.6
Trichloroethene	0.03[A]	5[A]	0.33
cis-1,2-Dichloroethene	160[B]	16[A]	NV
Vinyl Chloride	0.67[B]	0.2[A]	0.28
Chloroform	32[B]	1.4[B]	0.11
Bromodichloromethane	1,600[B]	160[B]	0.068
Naphthalene	5[A]	160[A]	0.074
Cadmium	2[A]	5[A]	0.0014
Lead	250[A]	15[A]	NV

Table Notes:
A - MTCA Method A cleanup levels
B - MTCA Method B standard formula value for direct contact , per WA Dept. of Ecology CLARC database, January 2020.

The cleanup actions described in this work plan are expected to result in complete removal of all contaminated soil and treatment or sequestration of all indicator contaminants of concern in groundwater exceeding these cleanup criteria. With removal and treatment of these sources, on-site generation of soil vapors will be minimized, but the contaminants beneath the adjacent King County warehouse will remain as a potential source for vapor intrusion for the foreseeable future. Vapor intrusion barriers are included as part of the IRAP. Indoor air monitoring points are established as part of this CMP.

2.3 Points of Compliance

The point of compliance is the location where the enforcement limits will be measured and cannot be exceeded (Chapter 173-200-060 WAC). Once the CULs have been attained at the defined points of compliance, any impacts present on the property will no longer be considered a threat to human health or the environment.

2.3.1 Point of Compliance for Soil

In accordance with WAC 173-340-740 (6) (b-d), the point of compliance for direct contact exposure to soil is throughout the property from the ground surface to a depth of 15 feet below ground surface. All soil containing concentrations of the indicator contaminants of concern above the MTCA CULs within that depth will be excavated and removed from the property.

2.3.2 Point of Compliance for Groundwater

In accordance with WAC 173-340-720(8)(a)(b), the point of compliance for groundwater is defined as the uppermost level of the saturated zone extending vertically to the lowest depth that could potentially be impacted by the indicator contaminants of concern at the property.

2.3.3 Point of Compliance for Indoor Air

In accordance with WAC 173-340-750(6), the point of compliance will be the ambient air throughout the property. For monitoring purposes, indoor air quality in the future structure will be considered ambient air.

This CMP outlines the manner in which each of these points of compliance will be monitored.

2.4 Types of Compliance Monitoring

There are three types of compliance monitoring identified for remedial cleanup actions performed under MTCA (WAC 173-340-410): protection, performance, and confirmational monitoring.

2.4.1 Protection Monitoring

Protection monitoring is used to evaluate whether human health and the environment are adequately protected during construction and the operation and maintenance period of a cleanup action. For this project, a site-specific Health and Safety Plan (HASP) will be prepared for the remedial action that meets the minimum requirements for such a plan identified in federal (Title 29 CFR, Parts 1910.120, and 1926) and state regulations (WAC Title 296; Appendix A). The HASP identifies the known physical, chemical, and biological hazards; hazard monitoring protocols; and administrative and engineering controls required to mitigate the identified hazards. Protection monitoring will be discussed fully in the HASP.

2.4.2 Performance Monitoring

Performance monitoring is used to document that a cleanup action has attained cleanup standards. Soil performance monitoring includes the collection of soil samples from the sidewalls and base of all excavations and collection of interim “progress” samples from excavated areas to evaluate the need for further digging or characterize materials for waste profiling and disposal. Groundwater performance monitoring includes periodic sampling throughout and after the application of in-situ remedial injections.

2.4.3 Confirmational Monitoring

Confirmational Monitoring is used to evaluate the long-term effectiveness of the cleanup action once cleanup standards or other performance standards have been attained.

3.0 PROJECT PERFORMANCE MONITORING

3.1 Soil Performance Monitoring

Performance monitoring for soil will be conducted during and after remedial excavation activities. Soil samples will be collected directly from the sidewalls and base of the excavations at their final dimensions for the redevelopment, and to address specific conditions, if encountered. Progress sampling may be conducted at any locations or depths to assist in directing further excavation or waste management. All soil progress and performance monitoring will be directed by field screening during excavations.

3.1.1 Field Screening Procedures

During excavation, WES will field screen soils as they are excavated for petroleum odors, discoloration or elevated vapor measurements using a field photoionization meter. Screening may be used to identify impacted areas or segregate soil for disposal characteristics.

Lead contaminated soil in the central parts of the property may not evidence field observable odor or sheens that identify the impacted material. Progress sampling will be needed to determine the extent of excavation required in this area, or other locations where debris or other indications of contamination are encountered. The fill soil may evidence discoloration, debris or ash. Disposal of this soil will require characterization testing for a suite of metals by the Toxicity Characteristic Leaching Procedure (TCLP). This soil will be stockpiled until approved for disposal as a separate waste stream from the site.

3.1.2 Soil Performance Sampling

Table 3 is a summary of soil performance sampling for this project. Soil performance sampling will include the following:

- Underground storage tank assessment samples (if any) will be taken at the time any tanks are removed to comply with UST closure requirements. Sampling will include at least five soil samples from the base and sidewalls of each tank area, as well as one sample beneath each 50 feet of product piping that may be encountered. The samples will be taken from locations deemed to be the most likely to evidence petroleum releases, if present. The samples will be analyzed following the requirements of MTCA regulations, Table 830-1, following Washington State accepted laboratory methods. An initial sample will be tested for hydrocarbon identification by Washington Method NWTPH-HCID. Subsequent analyses will be based on the hydrocarbon ranges identified. Samples from gasoline tank excavations will be analyzed for gasoline range organics (GRO) and the volatile organic compounds benzene, toluene, ethylbenzene and xylenes (BTEX). Any suspected heating oil tanks will be analyzed for diesel range organics (DRO). If the tank is suspected to have been a waste oil tank, additional analyses will be conducted for the required parameters listed in Table 830-1. All samples from waste oil tank excavations and the soil stockpile generated from them will be analyzed for GRO, DRO and motor oil ranges organics (MRO). One sample, demonstrating the highest concentrations or any petroleum range, if any, will also be analyzed for volatile and semi-volatile organic compounds, PCBs, lead, arsenic, cadmium, chromium and mercury.

- Base and sidewall sampling from the floor sump area in the basement of 104 12th Avenue and any other sumps found during excavation will include at least five soil samples from the base and sidewalls, or at a rate of approximately one sample per 400 square-foot area or 20 lineal-foot of excavation sidewall, for larger excavations. The samples will be analyzed following the requirements of Table 830-1 intended for waste oil tanks, including total petroleum hydrocarbons in the gasoline, diesel and motor oil ranges. One sample, demonstrating the highest TPH concentrations, if any, will also be analyzed for volatile and semi-volatile organic compounds, PCBs, lead, arsenic, cadmium, chromium and mercury.

- Base and sidewall sampling of the excavation of the shallow PCE impacted area in the SE parking lot will include a minimum of four soil samples from the base, at least one sidewall sample from each of the east, south and west sidewalls. The north sidewall will be characterized by sampling at 5-foot intervals along the length of the excavation, at or below the level of the footing of the adjacent warehouse. This sampling will assist to

document contamination extending from beneath the warehouse onto the property, if any. The samples will be analyzed for volatile organic compounds, lead, arsenic, cadmium, chromium and mercury.

- Base and sidewall samples of suspected lead and cadmium impacted soil areas in the central slope of the property will include a minimum of six samples of the excavation base once the soil no longer contains obvious indications of fill, such as debris or organic soil. Sidewall samples will be taken at a rate of one sample per 20-lineal foot of sidewall. Samples from this area will be tested for total lead and cadmium. Unless pre-approved for disposal, soil from this excavation will be segregated and stockpiled until sampled for waste characterization purposes.

- A minimum of two soil samples will be taken from any hydraulic lift area (if any). These samples will be tested for MRO and PCBs. If petroleum contaminated soil (PCS) is encountered, the area will be excavated further and re-sampled to document the conditions at the boundaries of the final extent of digging.

- Sidewall sampling will be conducted as the main excavation proceeds, before installation of shoring lagging. Sampling will be conducted at a rate of approximately one sample per 400 square-feet of the vertical wall area (an approximately 20' x 20' area) along the sidewalls in any part of the shored area where PCS was encountered within 10 feet of the wall. Based on the current information, this will result in a total of approximately 12 to 15 sidewall samples from the north, south, east and west walls of the main excavation.

- Base sampling will be used to document the conditions at the final extent of mass excavation. Sampling will be conducted at a rate of approximately one sample per 400 square-feet of the areal extent of contaminated soil excavation (an approximately 20' x 20' area). The number of final base samples will depend on the observed extent of the contamination zones. The approximate areas of base sampling are shown on Figure 4. Based on the current information, this will result in a total of approximately 25 to 40 base samples from directly below the impacted soil zones.

Excavation will continue until performance testing indicates that all on-site impacted soil has been removed to levels at or below the MTCA soil CULs summarized in Table 2. If necessary, additional excavation will be conducted in any area where contamination extends below the planned base elevations, and additional sampling will be conducted. Upon results indicating that the over-excavated area meets the soil CULs of Table 2, those areas will be backfilled under the direction of the project geotechnical engineer.

All samples that represent the final conditions of the excavated areas will be considered the confirmation monitoring data set for soils.

3.1.3 Soil Sampling Methods

Sampling will be conducted in accordance with Ecology's *Guidance for Remediation of Petroleum Contaminated Sites* (Publication No. 10-09-057). Non-dedicated sampling equipment will be decontaminated between uses. Samples will be taken in laboratory-prepared sample containers appropriate for the intended analyses. Soil samples subject to analyses for GRO and volatile organic compounds will be placed in 40-ml septum-sealed vials following EPA Method 5035A to reduce volatilization. Samples for other analyses will be taken in laboratory-prepared 4 oz. glass jars with Teflon lined lids.

3.1.4 Soil Sample Analyses

Soil samples will be submitted to an Ecology-accredited analytical laboratory. Testing for the parameters described above will be conducted by the following analytical methods:

- GRO by Washington State Method NWTPH-G
- DRO and MRO by Washington State Method NWTPH-D (extended)
- BTEX by EPA Method 8021B
- Volatile Organic Compounds by EPA Method 8260C
- Arsenic, Cadmium, Chromium, Lead and Mercury by EPA Method 200.8/6020
- PCBs by EPA Method 8082
- Semi-volatile Organic Compounds by EPA Method 8270D SIM

Analyses will be conducted with reporting limits appropriate for direct comparison to regulatory criteria. Resultant concentrations will be compared to the soil CULs outlined in Table 2 of this CMP.

3.2 Groundwater Performance Monitoring

Remediation Monitoring

All monitoring wells on the project site are currently monitored on a quarterly basis. This will continue throughout the groundwater remediation, to the extent feasible. During demolition and site preparations, most well locations in the western part of the property will be excavated to a depth that completely removes the full depth of the well.

Table 4 summarizes the groundwater performance sampling to be conducted for this project. Wells within the groundwater treatment area include MW-1, MW-1S, MW-1D, MW-2, MW-5, MW-10, MW-11, MW-12, MW-14, MW-15, GEO B-7 and GEO B-9, as shown in Figure 5. These wells will be protected from damage to the extent feasible, but some may need to be properly decommissioned if they interfere with the design or construction of the redevelopment. The need for each of these wells will be reviewed, and if necessary, they can be replaced at nearby locations that can be protected from construction. At least one additional well is anticipated in and around the groundwater treatment area to document site conditions. Any new or replacement wells will also be monitored quarterly.

Additional progress sampling may be conducted in selected wells within and around the groundwater cleanup area to evaluate the distribution or effectiveness of injections at specific locations.

Construction Dewatering Monitoring

Performance monitoring for groundwater during construction will also be conducted to ensure compliance with all requirements of the redevelopment project wastewater discharge permit with King County METRO. This monitoring will typically be limited to water level measurements in the monitoring well network and sampling of influent and effluent from the de-watering and treatment system. Influent and effluent sampling will be completed with the frequency and testing parameters outlined in the METRO permit, which is pending. Note: No reported concentrations in any of the historical monitoring of the site have approached or exceeded METRO's standard discharge limits.

3.2.1 Groundwater Monitoring Methods

Each monitoring event consists of opening the selected well, measuring the depth to water from a surveyed reference point on the top of the well casing, purging and sampling the well. Water level measurements are taken using a decontaminated electronic water level indicator after allowing the water level to equilibrate.

Groundwater well purging and sampling will be performed using a peristaltic pump and dedicated polyethylene tubing. At each sampling event, the condition of tubing is reviewed, and the tubing replaced, if clogged or broken. Groundwater samples are collected directly from the pump outlet following stabilization of temperature, pH, specific conductance, turbidity, dissolved oxygen, and oxidation-reduction potential. Typically purging will remove approximately three standing water volumes of the well before stabilization occurs. If the monitoring well is completely dewatered during purging, samples will be collected when the groundwater in the well has recovered to at least 80 percent of the pre-purge casing volume.

3.2.2 Groundwater Sample Analyses

Groundwater samples will be submitted to an Ecology-accredited analytical laboratory. Groundwater performance and confirmation samples will be analyzed for VOCs by EPA Method 8260C. Analyses will be conducted with reporting limits appropriate for direct comparison to regulatory criteria. Resultant concentrations will be compared to the groundwater CULs outlined in Table 2 of this CMP.

3.3 Indoor Air Performance Monitoring

Indoor air performance monitoring cannot be completed until the new site structures are in place and enclosed to the degree that will isolate indoor air. Performance monitoring will be conducted after construction is substantially complete, but before the structures are occupied.

3.3.1 Indoor Air Sampling Methods

Indoor air performance monitoring will be conducted using laboratory-prepared SUMMA canisters in two interior locations above the groundwater cleanup area and one outdoor background location. The canisters will be equipped with an individually certified flow controller calibrated by the laboratory for a 24-hour sample collection. The SUMMA canister intakes will be placed within an the approximate height of an average adult's breathing zone. The units or rooms where sampling is conducted will remain closed during the sampling period, but no other special preparations, sealing or ventilation will be conducted prior to or during the tests.

The date, time initial and final canister vacuum and duration of sampling will be recorded. The samples will be handled following appropriate chain of custody procedures.

3.3.2 Indoor Air Sample Analyses

After collection, the samples will be submitted to an Ecology-accredited analytical laboratory for analysis by EPA Method TO-15 for the volatile organic compounds in Table 1. Analyses will be conducted with reporting limits appropriate for direct comparison to regulatory criteria. Ambient outdoor air concentrations detected in the background sample will not be attributed to soil vapor intrusion and can be subtracted from any reported concentrations in the indoor air samples. Resultant concentrations will be compared to the indoor air CULs outlined in Table 2 of this CMP. Table 5 summarizes the indoor air performance and confirmational sampling for this project.

4.0 PROJECT CONFIRMATIONAL MONITORING

Confirmational monitoring will commence once the analytical data from the performance monitoring indicates that the remedial action objectives (MTCA compliance) have been achieved.

4.1 Soil Confirmational Monitoring

For soil, confirmational monitoring consist of the full set of performance monitoring samples that represent the final, maximum extent and configuration of excavations.

4.2 Groundwater Confirmational Monitoring

For groundwater, confirmational monitoring will commence once performance sampling suggests that MTCA compliance has been met.

Initial confirmational monitoring for groundwater will consist of four consecutive quarterly sampling events of all wells in and around the groundwater cleanup area. If at any time confirmational monitoring does not meet site CULs, the clock is reset and four additional consecutive quarterly sampling events meeting cleanup levels will be required.

4.3 Indoor Air Confirmational Monitoring

For indoor air, confirmational monitoring will be a continuation of the same sampling protocols used in the performance indoor air sampling, coordinated with quarterly groundwater monitoring. Confirmational indoor air sampling can be conducted whether or not the building is occupied.

4.4 Evaluating Confirmational Monitoring Data

To confirm that CULs have been achieved, the concentrations of indicator contaminants of concern will be compared to their respective CULs. MTCA requires that regardless of the data analysis methods used, no single sample concentration be greater than two times the established site cleanup level, and less than 10 percent of samples may exceed the established site cleanup levels.

MTCA requires that if CULs are based on short-term or acute toxic effects on human health or the environment, an upper percentile concentration shall be used to evaluate compliance. For CULs based on chronic or carcinogenic threats, the true mean concentration shall be used to evaluate compliance with ground water CULs.

The regulation allows direct comparison of soil sample concentrations to CULs, where selective sampling of soil can be reliably expected to find suspected soil contamination. Compliance with groundwater CULs are determined for each ground water monitoring well.

If applicable, the data may be evaluated in accordance with the Ecology's *Statistical Guidance for Ecology Site Managers* (Ecology Publication 92-54). As detailed in the guidance, confirming whether the property has met cleanup standards is based on a comparison of the 95th percent upper confidence limit on the mean (UCL95) with the defined CUL. If statistical methods are used, the confirmational data will be tested for conformance with distributional assumptions (normal versus lognormal) and the UCL95 calculated based on the methods described in Ecology's guidance document. The property is considered remediated when the UCL95 for each indicator contaminant of concern is less than its respective CUL.

4.5 Extended Confirmational Monitoring

An extended monitoring period will be required if Ecology grants a No Further Action determination, but requires a restrictive covenant as an institutional control. The covenant would typically require monitoring and maintenance of any remediation system (such as the permeable groundwater treatment zone) intended to manage migration onto the property from an off-site source. Under a restrictive covenant, a more limited monitoring program will need to extend until such time as the source of migrating contaminants on the King County property is cleaned up.

Table 4 summarizes the groundwater confirmational monitoring that will be conducted for this extended monitoring period. A limited subset of wells will be monitored semi-annually for a period of five years. Additional monitoring beyond that will be conditioned on the findings of a periodic review. For this extended monitoring, wells MW-1, MW-1S, MW-5, MW-15, GEO B-7 and GEO B-9 (Figure 5) will be sampled to demonstrate whether or not contaminants are breaching the treatment zone. If any of these wells are destroyed during construction, they will be replaced or other appropriate wells will be selected.

5.0 QUALITY ASSURANCE/QUALITY CONTROL

Field and laboratory activities must be conducted in such a manner that the results be valid and meet the quality objectives for this project. Guidance for QA/QC is derived from the protocols developed for the cited methods within EPA's 1986 multi-volume document, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (also known as SW846), and the current EPA Functional Guidelines for Organic Data Quality Review.

QA/QC duplicate samples will be collected randomly during performance and confirmational sampling, at a rate of approximately one duplicate per 25 samples. All QA/QC samples will be assigned a unique sample number not readily identifiable as a duplicate to laboratory personnel.

QA/QC documentation provided by the laboratory will be reviewed for each sample set. Any data flags or out of control conditions will be evaluated to determine whether or not the reporting meets the data quality objectives. Flagged data may be considered estimates. Estimated data may only be used for confirmational monitoring if the reported result is at least 50% above or below a site CUL. Otherwise, the analysis or sampling must be repeated.

QA/QC documentation will be included with all laboratory reports in the documentation of this project.

6.0 DOCUMENTATION REQUIREMENTS

The applicable and relevant documentation generated for the project will be presented in a cleanup action summary report prepared upon completion of performance sampling. This will document the full soil sampling, contaminated materials management and compliance status for soils throughout the property, as well as document the groundwater remedial actions and initial performance monitoring. The report will be prepared following Ecology's report checklist of requirements.

The report will include:

- A description of the building demolition and excavation activities on the property;
- Descriptions of the conditions encountered and any variations from the IRAP necessary to address site changes;
- Figures depicting the limits of excavations and all soil sample locations;
- A summary of all sampling and analytical results for samples collected during excavations, noting which samples are considered part of the confirmational monitoring data set (i.e., at the physical limits of the extent of excavation), including tables summarizing analytical results;
- Documentation of waste disposal tracking for the excavated soil and other associated materials;
- Documentation of groundwater dewatering and monitoring under the METRO discharge permit;
- Documentation of groundwater remedial actions and initial performance monitoring available to that date;
- Documentation of any changes to the groundwater monitoring network, including a summary of destroyed wells, replacement wells and any new wells added to demonstrate compliance;
- Documentation of performance indoor air monitoring (if building construction has progressed enough to conduct it);
- WES' conclusions pertaining to the cleanup action;
- WES' recommendations for continued monitoring of indoor air and groundwater throughout the confirmational monitoring period.

Site performance and confirmational sample analytical results will be entered into Ecology's Environmental Information Management (EIM) system, as required under the VCP. For soils, only samples considered part of the final confirmational data set will be entered, since progress samples do not represent final conditions of the property. All groundwater performance data will be entered, except dewatering monitoring required under the METRO discharge permit.

Subsequent Reporting

Following the summary report, brief quarterly indoor air and groundwater monitoring reports will be prepared until performance monitoring suggests confirmational monitoring can begin. A summary report of all air and groundwater monitoring to that date will be prepared, along with a recommendation to commence confirmational monitoring.

Once groundwater and indoor air are confirmed to meet MTCA CULs for the parameters listed in Table 2 of this CMP, a supplemental cleanup action summary report will be prepared. This report will document all of the confirmational monitoring, compare the results to the site CULs and draw conclusions from the data. The reports will be submitted to Ecology under the VCP for a formal opinion and determination that No Further Action will be required.

If an extended confirmational monitoring program is required, brief monitoring reports will be prepared following each subsequent monitoring event.

6.1 Documentation Management

A document control system to be implemented during the cleanup action includes the following elements, as appropriate: Field Report Forms, Photo Documentation Files, Material Import and Export Summary Forms, Groundwater Purge and Sample Forms, Sample Summary Forms and Sample Chain of Custody Forms. Disposal manifests for the waste generated on the property will be maintained and submitted with the project documentation. All project documentation will be retained in WES files for a minimum of 10 years after completion of the cleanup action.

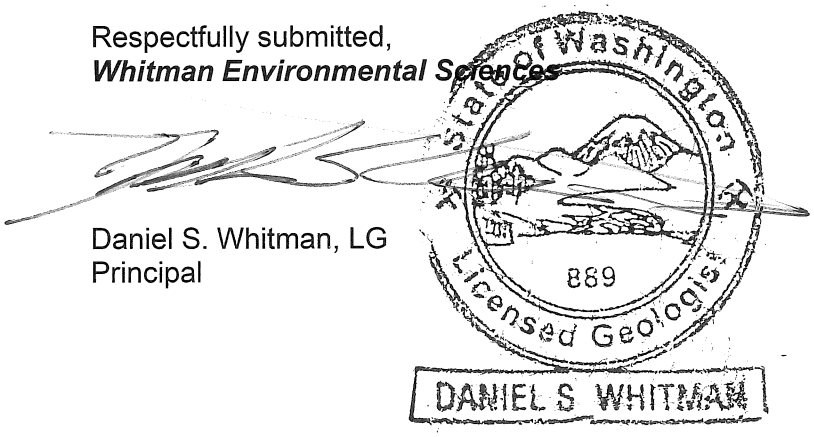
6.2 Waste Disposal Tracking

Specific documentation requirements will be met for transportation and disposal or recycling of soil contaminated with petroleum, lead, or PCE during the excavation activities, and performance or confirmational monitoring wastes after construction is complete. The waste disposal tracking documentation consists of analytical data, waste profiles, waste manifests, and bills of lading. All waste manifesting will be included in the cleanup action summary report.

7.0 CLOSURE

Whitman Environmental Sciences has been pleased to be of service in this matter. If you have any questions regarding the information contained in this report, or if we may be of any further assistance, please feel free to contact me.

Respectfully submitted,
Whitman Environmental Sciences



Daniel S. Whitman, LG
Principal

8.0 REFERENCES

WES (2019a), Whitman Environmental Sciences, *Independent Remedial Action Plan, Proposed Redevelopment Property,104-124 12th Avenue & 1209 E. Fir Street, Seattle, Washington*, Project No. WES-1591, April 2, 2019

WES (2019b), Whitman Environmental Sciences,*Remedial Investigation Summary Report, Potential Redevelopment Property*,*104-124 12th Avenue & 1209 E. Fir Street, Seattle, Washington* Project No. WES-1591, October 26, 2019

WES (2020), Whitman Environmental Sciences*, Source Investigation Summary Report, Proposed Redevelopment Property,104-124 12th Avenue & 1209 E. Fir Street, Seattle, Washington* Project No. WES-1591, October 26, 2019

Washington State Depart of Ecology (Ecology), *Model Toxics Control Act Regulation and Statute, Chapter 173-340 WAC*, Revised 2013.

Ecology, *Guidance for Remediation of Petroleum Contaminated Sites*, Publication No. 10-09-057, November 2001, Revised June 2016.

Ecology, *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action*, Publication No. 09-09-47. (Draft) October, Revised Feb. 2016 and April 2018. with Vapor Intrusion Table Update, April 6, 2015

Ecology, *Cleanup Levels and Risk Calculation (CLARC)*, January 2020 Update.

TABLES

TABLE 3
Summary of Required Soil Performance and Confirmational Sampling
104 - 124 12th Avenue & 1209 E. Fir Street, Seattle, Washington

Sampling Type	***Minimum Number of Samples***		***Required Laboratory Analyses***							
SOIL PERFORMANCE SAMPLES										
Area	***Base***	***Sidewall***	***Approximate Sampling Rate***	***GRO***	***DRO***	***MRO***	***BTEX***	***VOCs***	***MTCA 5 Metals***	***PCBs***	***cPAHs***
Underground Storage Tank Assessments (if any):											
Gasoline Tanks	1	4	1/sidewall	X			X		X (one sample, lead only)		
Heating Oil Tanks	1	4	1/sidewall		X						
Waste Oil Tanks	1	4	1/sidewall	X	X	X		X	X	X	X
Hydraulic Lift Assessment (in any)	1	1	1/each sidewall with PCS			X				X	
104 12th Avenue Basement Floor Sump	1	4	Base: 1 sample/400 sq. ft., 1/sidewall or 1/20-lineal feet of sidewall	X	X	X		X (one sample)	X (one sample)	X (one sample)	X (one sample)
PCE Soil Area (SE Parking Lot)	4	7	5' intervals on N sidewall	X	X	X		X	X		
Lead/Cadmium Fill Excavation (S of 1209 E Fir)	6 (estimate)	4	Base: 1 sample/400 sq. ft., 1/20-lineal feet of sidewall						X		
Main Excavation Sidewalls- Anywhere impacts are excavated to within 10' of sidewall	--	12 (estimate)	1 sample/400 sq. ft.	X	X		X				
Main Excavation Base - At final depth of excavation, below any area where impacted soil was removed	25 (estimate)	--	1 sample/400 sq. ft.	X	X		X				
ALL SAMPLING THAT REPRESENTS THE OVERALL FINAL EXTENT OF EXCAVATION ARE TO BE INCLUDED IN THE CONFIRMATIONAL MONITORING DATA SET.											

Table Notes:
GRO - Gasoline Range Organics by Method NWTPH-G
DRO - Diesel Range Organics by Method NWTPH-D(extended)
MRO - Motor Oil Range Organics by Method NWTPH-D(extended)
BTEX - Benzene, toluene, ethylbenzene and xylenes by EPA Method 8021B
CVOCs- Volatile Organic Compounds by EPA Method 8260C
MTCA 5 Metals - Total arsenic, cadmium, chromium, lead and mercury by EPA Method 6020
PCBs - Polychlorinated biphenyls by EPA Method 8082
cPAHs - Carcinogenic polynuclear aromatic hydrocarbons by EPA Method 8270DD SIM

TABLE 4
Summary of Required Soil Performance and Confirmational Sampling
104 - 124 12th Avenue & 1209 E. Fir Street, Seattle, Washington

GROUNDWATER PERFORMANCE AND CONFIRMATIONAL SAMPLES								
Monitoring Well	***Screen Interval (Depth bgs)***		***Minimum Sampling Frequency***	***Dissolved Oxygen***	***pH***	***Conductivity***	***Oxidation Reduction Potential (ORP)***	***VOCs***
MW-1	10	30	Quarterly	X	X	X	X	X
MW-1S	5	15	Quarterly	X	X	X	X	X
MW-1D	40	45	Quarterly	X	X	X	X	X
MW-2	10	30	Quarterly	X	X	X	X	X
MW-4	10	30	Quarterly	X	X	X	X	X
MW-5	3	13	Quarterly	X	X	X	X	X
MW-10	5	15	Quarterly	X	X	X	X	X
MW-11	5	15	Quarterly	X	X	X	X	X
MW-12	5	15	Quarterly	X	X	X	X	X
MW-14	5	15	Quarterly	X	X	X	X	X
MW-15	20	25	Quarterly	X	X	X	X	X
GEO B-7	10	20	Quarterly	X	X	X	X	X
GEO B-9	10	15	Quarterly	X	X	X	X	X
Additional or replacement wells (if any)	--	--	Quarterly	X	X	X	X	X
METRO Dewatering Discharge Monitoring	As Permit Requires							
EXTENDED CONFIRMATIONAL MONITORING SAMPLES - From NFA to 5-year Periodic Review								
MW-1	10	30	Semi-Annual, Summer/Winter	X	X	X	X	X
MW-1S	5	15	Semi-Annual, Summer/Winter	X	X	X	X	X
MW-5	3	13	Semi-Annual, Summer/Winter	X	X	X	X	X
MW-11	5	15	Semi-Annual, Summer/Winter	X	X	X	X	X
GEO B-7	10	20	Semi-Annual, Summer/Winter	X	X	X	X	X
GEO B-9	10	15	Semi-Annual, Summer/Winter	X	X	X	X	X

TABLE 4
Summary of Required Soil Performance and Confirmational Sampling
104 - 124 12th Avenue & 1209 E. Fir Street, Seattle, Washington

Table Notes:
Dissolved Oxygen - by field meter compliant with EPA Science and Ecosystem Support Division (SESD) PROC-106-R4
pH - by field meter compliant with EPA SESD PROC-100-R3
Conductivity - by field meter compliant with EPA SESD PROC-101-R6
ORP - Oxidation Reduction Potential by field meter compliant with EPA SESD PROC-113-R2
VOCs- Volatile Organic Compounds by EPA Method 8260C

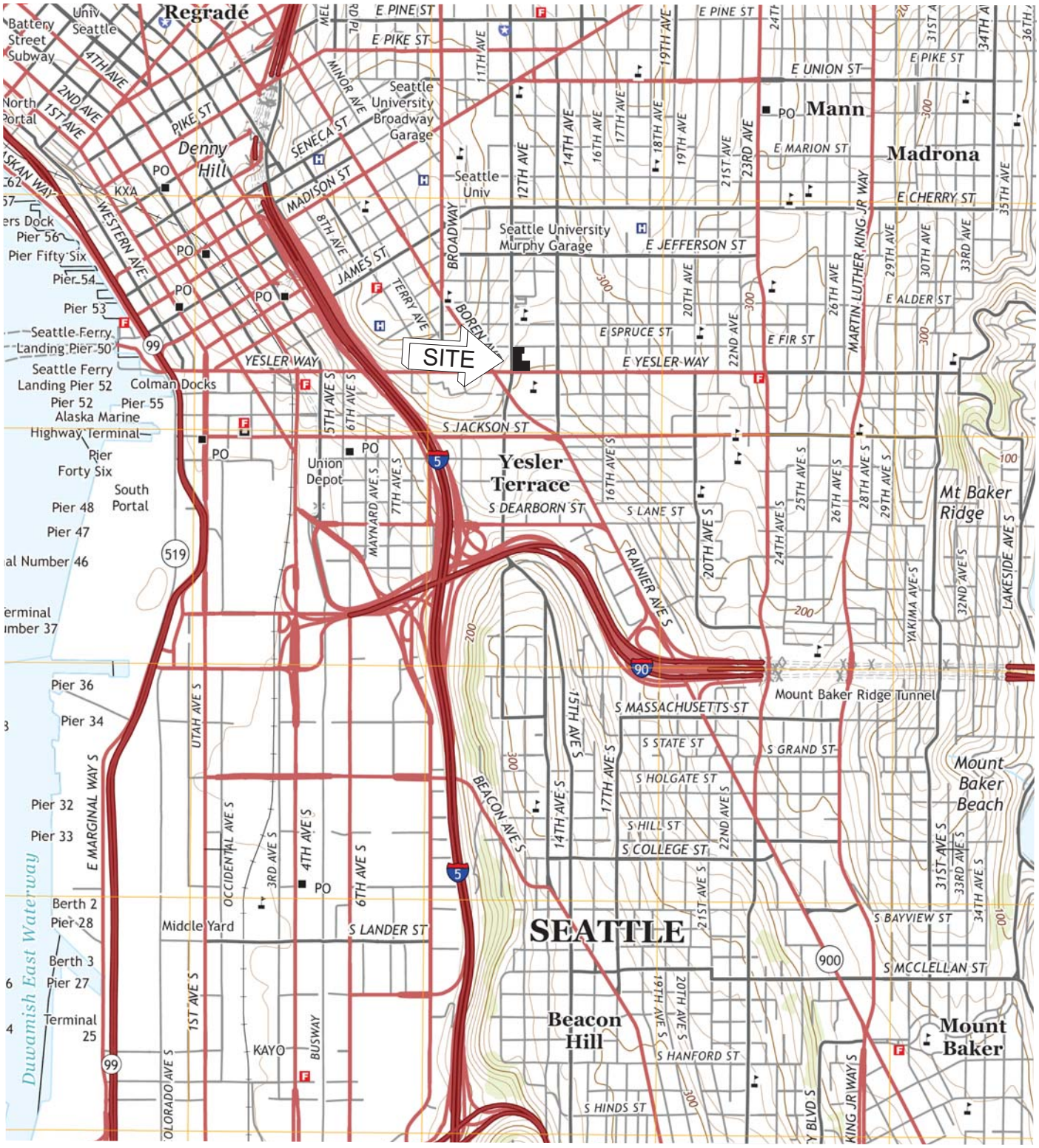
TABLE 5
Summary of Required Indoor Air Performance and Confirmational Sampling
104 - 124 12th Avenue & 1209 E. Fir Street, Seattle, Washington

INDOOR AIR PERFORMANCE SAMPLES						
Ground Floor Indoor Air Sampling Points in Slab on Grade Area of Building	***Building Space***	***Minimum Sampling Frequency***	***Chlorinated VOCs***	***Naphthalene***	***Chloroform***	***Bromodichloro-methane***
IA-1	Commercial Space C131	Quarterly, through GW performance sampling	X	X	X(4)	X(4)
IA-2	Stair 2 Stairwell	Quarterly through GW performance sampling	X	X	X(4)	X(4)
INDOOR AIR CONFIRMATIONAL SAMPLING						
IA-1	Commercial Space C131	Semi-annual, during summer/winter	X	X	--	--
IA-2	Stair 2 Stairwell	Semi-annual, during summer/winter	X	X	--	--

Table Notes:
Performance sampling begins once the building envelope is enclosed.
Laboratory analyses of indoor air samples by EPA Compendium Method TO-15.
Parameter list limited to naphthalene and the chlorinated volatile organic compounds tetrachloroethene, trichloroethene, cis 1,2-dichloroethene, vinyl chloride, chloroform and bromodichloromethane
Reported concentrations in outdoor ambient air subtracted from reported indoor air concentrations for comparison to compliance criteria.

(4) - Chloroform and bromodichloromethane in deep soil gas are not associated with site contaminants and are likely generated from treated municipal water. Four consecutive quarterly samples will be tested during the performance monitoring period. If not detected above CUL, testing for these parameters will be suspended.

FIGURES



North

0 2000'

Scale 1 : 24,000

From USGS

Figure 1 - Site Map

104-124 12th Avenue & 1209 E. Fir Street
Seattle, Washington 98122

Project No.	WES - 1591
Date	June 11, 2017
File ID.	1591F1

WHITMAN
Environmental Sciences

Legend

- Approximate Location of Monitoring Well
- Approximate Location of Soil Borings (2016 -2020)
- Approximate Location of Soil Vapor Probe
- Approximate Location of Geotechnical Soil Borings (Soil Descriptions Only)
- Approximate Location of 2016 Farallon Soil Borings (No Data or Soil Descriptions, Locations Estimated)

Figure 2 - Site Plan

Proposed Redevelopment Property
104-124 12th Avenue & 1209 E. Fir Street
Seattle, WA

Project No.	WES - 1591A
Date	Mar 20, 2020
File ID.	1591F2

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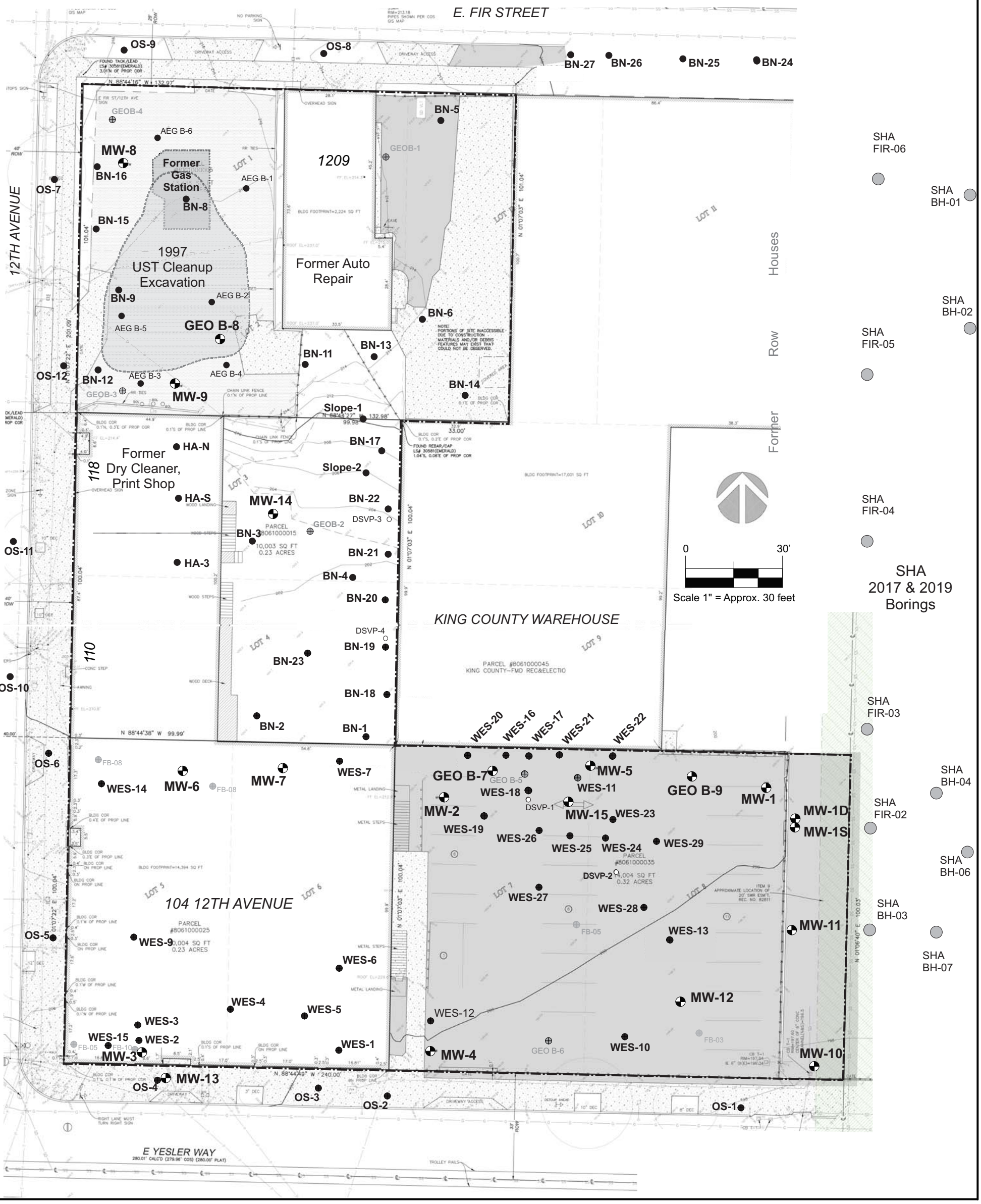

Legend

- Approximate Location of Monitoring Well
- Approximate Location of Soil Borings (2016 -2020)
- Approximate Location of Soil Vapor Probe
- Approximate Location of Geotechnical Soil Borings (Soil Descriptions Only)
- Property Line
- Outline of Shored Excavation Base Elevation ranging from 186.92 to 187.92'
- XX' Approximate Depth of Excavation
- Estimated Areas of Petroleum Contaminated Soil Cleanup
- Estimated Area of Lead Contaminated Soil Cleanup
- Estimated Area of PCE and Lead Contaminated Soil Cleanup
- Estimated Area of VOC Plume in Groundwater
- Expected Maximum Depth XX' — Expected Maximum Depth of Contaminated Soil Based on Remedial Investigation Sampling

Figure 3 - Anticipated Cleanup Areas

Proposed Redevelopment Property
104-124 12th Avenue & 1209 E. Fir Street
Seattle, WA

Project No.	WES - 1591A
Date	Apr 5, 2020
File ID.	1591F3

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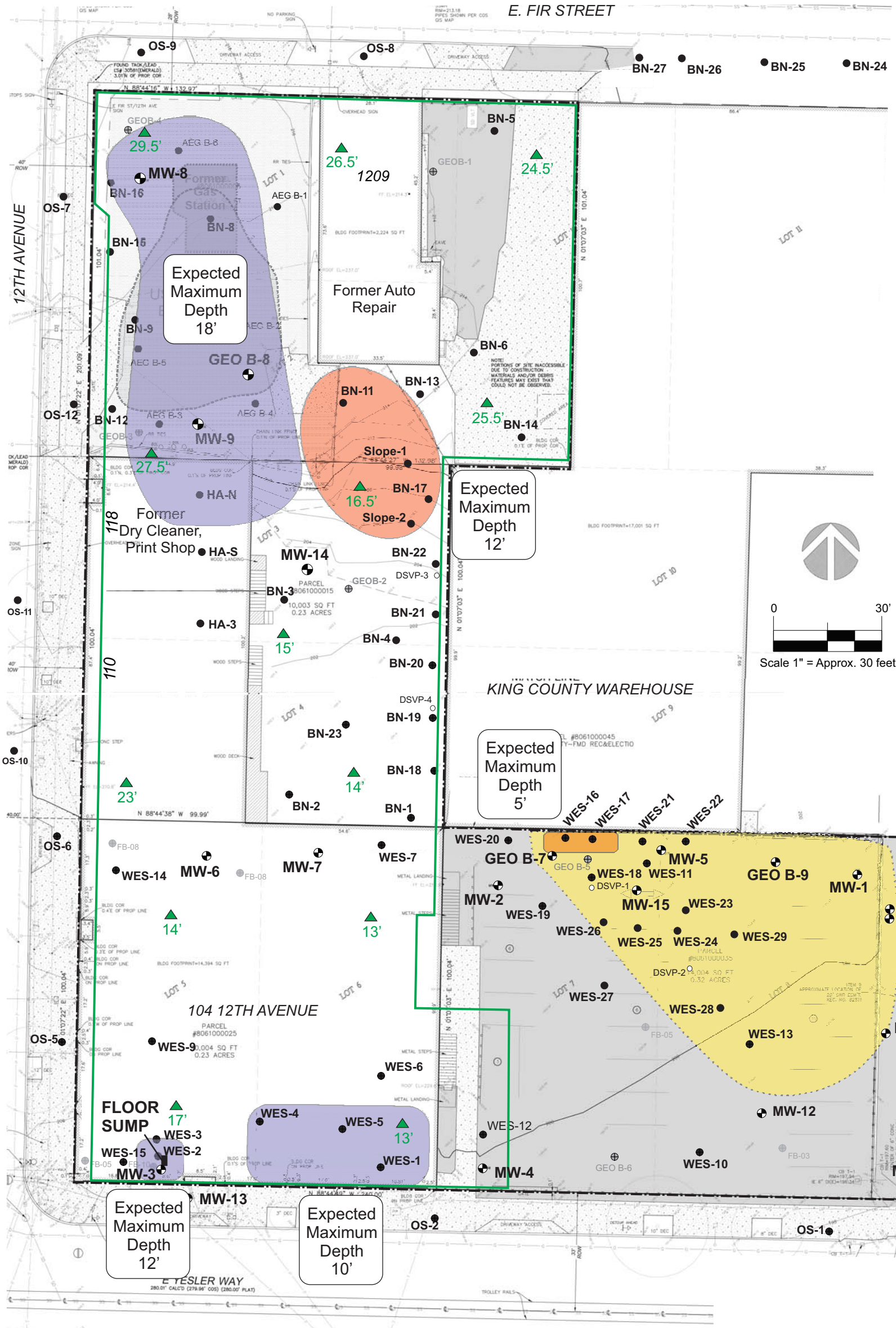

Legend

- Approximate Location of Monitoring Well
- Approximate Location of Soil Borings (2016 -2020)
- Approximate Location of Soil Vapor Probe
- Approximate Location of Geotechnical Soil Borings (Soil Descriptions Only)
- Property Line
- Outline of Shored Excavation Base Elevation ranging from 186.92 to 187.92'
- 20'x20' Excavation Base Sampling Grid
- Estimated Areas of Excavation Sidewall Sampling
- Estimated Areas of Petroleum Contaminated Soil Cleanup
- Estimated Area of Lead Contaminated Soil Cleanup
- Estimated Area of PCE and Lead Contaminated Soil Cleanup
- Estimated Area of VOC Plume in Groundwater

Figure 4 - Approximate Excavation Base and Sidewall Sampling Areas

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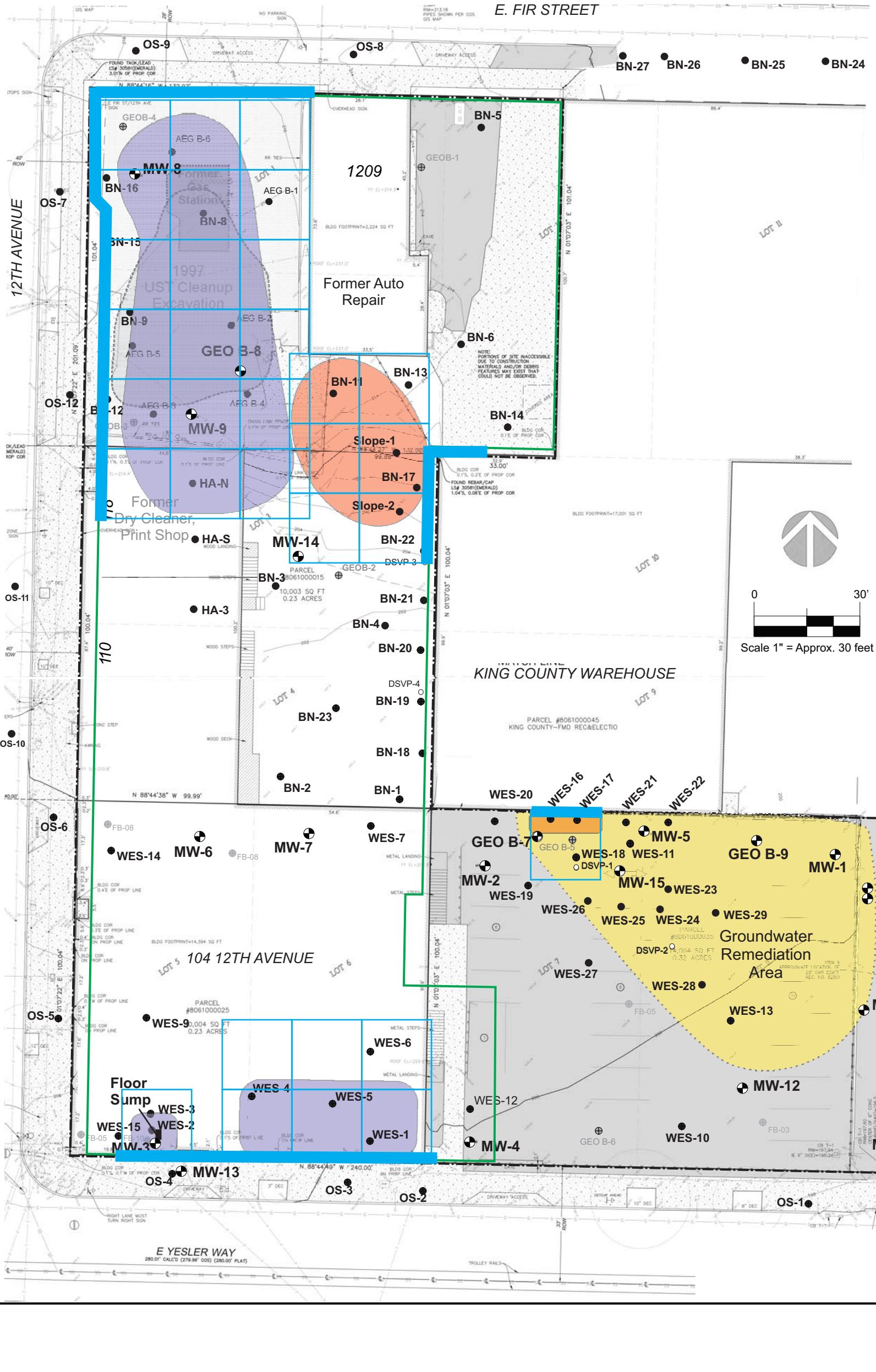

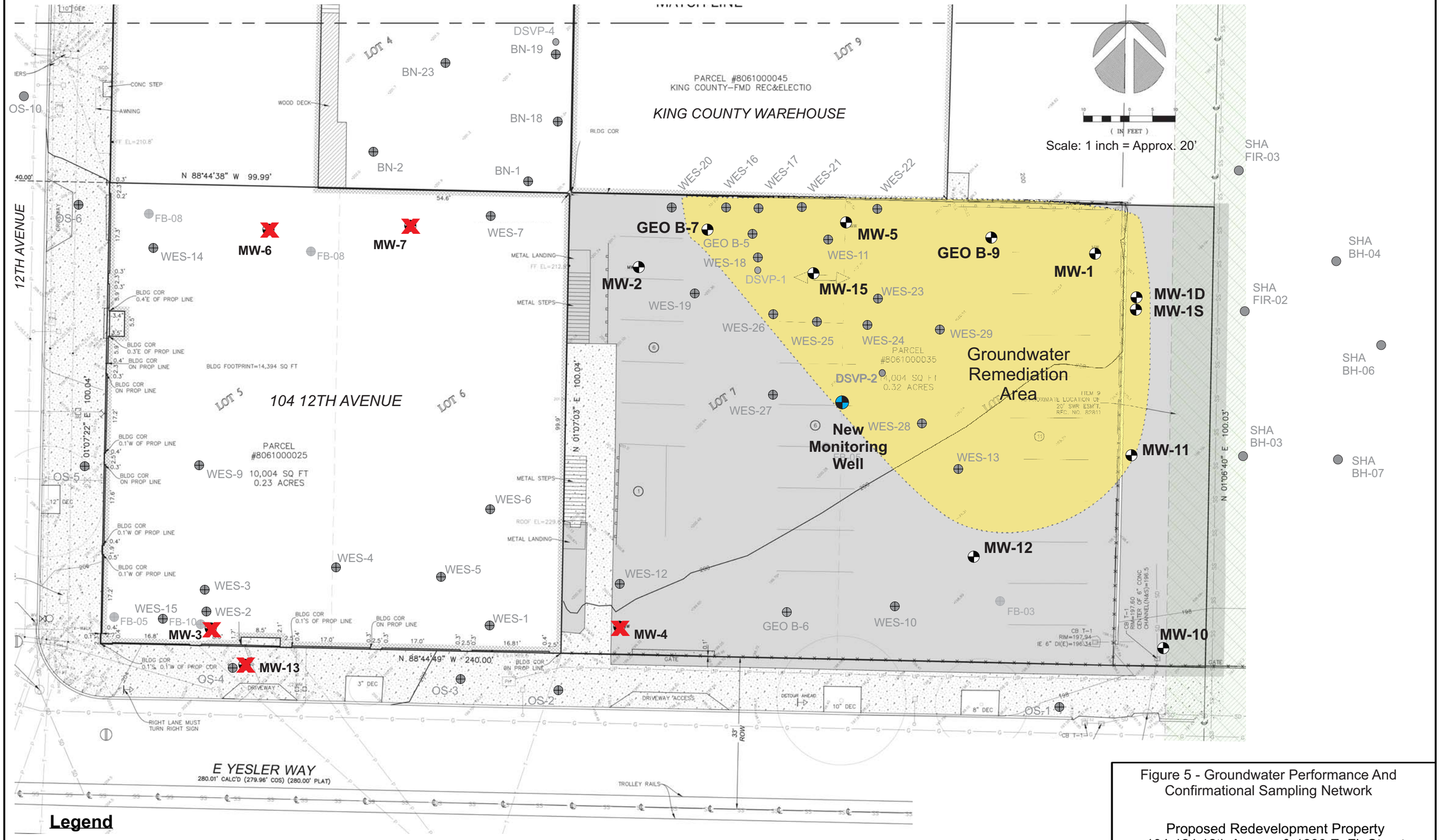

Legend

- Approximate Location of Monitoring Well for Performance and Confirmational Sampling
- Monitoring Well Likely to be Destroyed by Excavation and Construction
- Approximate Location of Soil Borings (2016-2020)
- Approximate Location of Additional Monitoring Well for Compliance Sampling

Figure 5 - Groundwater Performance And Confirmational Sampling Network

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Seattle, WA

Project No.	WES - 1591A
Date	Apr 4, 2020
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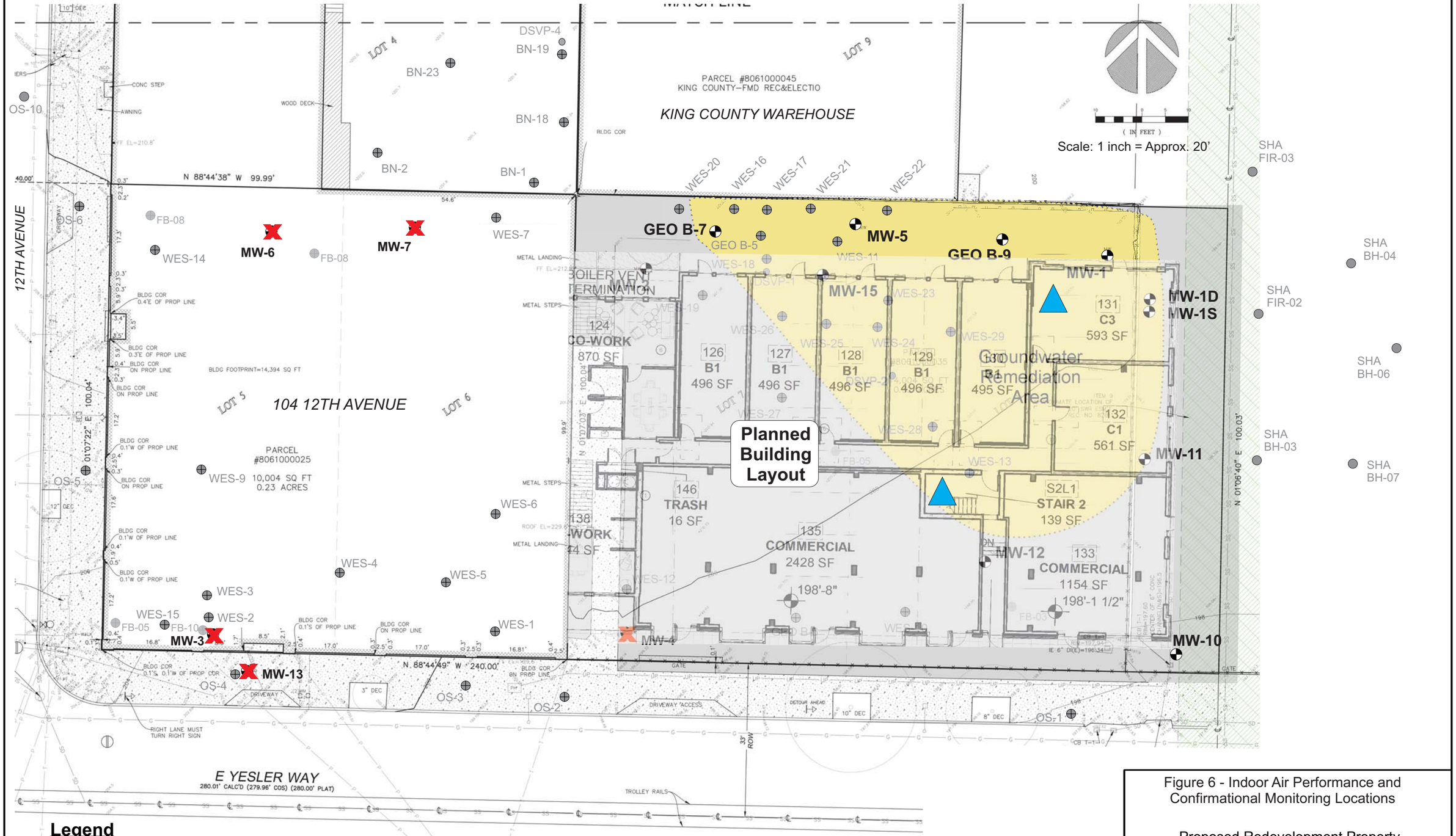

Legend

- Approximate Location of Monitoring Well for Performance and Confirmational Sampling
- Monitoring Well Likely to be Destroyed by Excavation and Construction
- Approximate Location of Soil Borings (2016-2020)
- Approximate Location of Indoor Air Sampling

Figure 6 - Indoor Air Performance and Confirmational Monitoring Locations

Proposed Redevelopment Property
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