

State of Oregon
Department of Environmental Quality

Memorandum

Date: November 25, 2024

To: Amanda Wozab, Cleanup Section Manager *AW*

Through: Jeff Schatz, Lead Worker

From: Jim Orr, Project Manager
Northwest Region

Subject: Former Firestone Site, LUST 26-94-0026
Staff Memorandum in support of a No Further Action determination

This document presents the basis for the Oregon Department of Environmental Quality's (ODEQ's) recommended No Further Action (NFA) determination for the Former Firestone Site (Site), in Portland. The Site evaluation is presented in the Professional Services Industries (PSI) Technical Memorandum-Site Assessment Supplement July 25, 2023, Site Assessment Report January 31, 2022 (Reports), and this Staff Memorandum dated October 15, 2024. As documented in the Reports, attached figures, site maps, tables, and based on the current Site conditions and surrounding areas, the complete risk pathways are as follows:

- Soil vapor intrusion into buildings,
- Soil leaching into groundwater,
- Groundwater volatilization to outdoor air,
- Groundwater vapor intrusion into buildings.

The Site meets the requirements of Oregon Administrative Rules Chapter 340, Division 122, Sections 0205 to 360 for NFA determination. The NFA determination is based on information documented in the Reports and attached figures, maps, and tables.

BACKGROUND

Site location.

The site's location can be described as follows:

Amora Apartments, 815 West Burnside Street, Portland, Oregon 97209, Multnomah County

Latitude 45.5233°, Longitude -122.6799°

Tax Lot 10600 on Multnomah County Map 1N1E34CB

Site setting.

The Site is the current location of the Amara Apartments at 15 NW Park Avenue, Portland, Oregon 97209. The former Address was 815 West Burnside Street in Portland, Oregon. The Site is located on the north side of West Burnside Street between Northwest 9th Avenue on the west and Northwest Park Avenue on the east. The Site is approximately 0.5 miles west of the Willamette River (Figure 1). The Site consists of a rectangular-shaped parcel totaling 0.46 acres

and identified by the Multnomah County Assessor as Property ID Number R180204890. The site is the location of the Amora Apartments. The Amora Apartments is a multi-story residential use building with a garage structure below the apartments.

The Site is bordered by a 6-story building with ground-level commercial space and residential above and a multi-story parking structure to the north; West Burnside Street followed by an 8-story commercial building to the south; NW Park Avenue followed by the North Park blocks (an open grassy and wooded area) to the east; and NW 9th Avenue followed by a two-story commercial building with associated paved parking area to the west.

Physical setting.

The site is generally flat with an elevation of 37 feet above mean sea level. Depth to groundwater is 22 to 25 feet below the ground surface (bgs), and groundwater flow is assumed to be to the east towards the Willamette River, which is one-half mile from the Site. Soils are mapped as fine-grained facies generally described as coarse sand to silt deposited during the catastrophic Missoula floods. Bedrock is expected to be approximately 27 feet bgs. Materials encountered during Site work include sandy silt, silty sand, and intermittent clay and silty clay layers followed by large cobbles at 20 feet bgs.

Site history.

Historically, the Site has been used for auto repair from 1932 to approximately 2017. An automotive fueling station existed at the Site from approximately 1932 until approximately 1969, when the Site was redeveloped as the former Bridgestone/Firestone automobile service facility. The historically existing structures of the fueling station were removed in approximately 1969. From 1994 to 2020, eight Underground Storage Tanks (USTs) were decommissioned by removal from the Site. Seven of the historic USTs existed along the eastern portion of the Site in the sidewalk right-of-way and one historic UST along the southeastern portion of the Site in the sidewalk and Burnside Street right-of-way. During the excavation and decommissioning events, approximately 212 tons of soil were excavated and removed from the Site. In 2019, the Site began redevelopment as an apartment building with associated underground parking. In approximately 2021, the Amara Apartments were completed at the Site. During the development, construction of the underground parking area required the excavation of the complete footprint of the lot to a depth of 28 feet bgs.

BENEFICIAL LAND AND WATER USE DETERMINATIONS

Land use.

The current and likely future uses for the Site and adjacent property are urban residential and commercial. The Amora Apartments are residential units with a garage on the ground floor.

Groundwater use.

PSI searched the Oregon Water Resources Department (OWRD) Well Report Mapping Tool to locate all wells within a 0.25-mile radius of the Site. Wells slightly beyond the radius were included due to the close vicinity of those wells to the radius search area. The well search identified 405 wells within the radius search area. Of the identified wells, 60 were listed for water use, 319 for geotechnical purposes, and 26 as monitoring wells. Individual uses of the 60 water wells included industrial, injection, dewatering, and other uses such as air conditioning,

heat exchange, water testing, observation, and a community well. Most water wells were constructed in the 1940s and 1950s, except for dewatering wells (2017 to 2019). The two closest wells are about 150 feet south and 270 feet southwest of the Site. The uses for these wells are industrial and heat exchange, respectively. The recorded depth to static groundwater in the wells are 31 feet bgs and 40 feet bgs, respectively.

A review of the United States Geological Survey Groundwater Data for the Nation did not reveal any results in the vicinity of concerning groundwater depth. A review of the surrounding wells from the Oregon Water Resources Department indicated that the static groundwater level within a 0.25-mile radius of the Site varied from 25 feet bgs to 60 feet bgs. Due to the highly fluctuating weather variations in the region, the depth to groundwater is expected to vary seasonally within this range.

Based on the distance and use of the two closest wells, ODEQ does not consider the wells identified within a 0.25-mile radius as receptors for potential residual contamination from the Site. The City of Portland is the site's source of drinking water and stormwater is discharged to the city system. The Site has no surface water bodies, and the Willamette River is approximately 0.5 miles west.

INVESTIGATION AND CLEANUP WORK

From 1994 to 2020, eight USTs have been decommissioned by removal from the Site. Seven of the historic USTs existed along the eastern portion of the Site in the sidewalk right-of-way and one historic UST along the southeastern portion of the Site in the sidewalk and Burnside Street right-of-way. During the excavation and decommissioning events, approximately 212 tons of soil were excavated and removed from the Site. During the removal of five historic USTs in 1994 and 1998 along the eastern sidewalk right-of-way area, the presence of petroleum-impacted soils was identified in confirmation sampling. A 1998 Underground Storage Tank Removal and Site Characterization Report documents investigation work performed by Entrix, Inc., who collected 21 soil samples near the decommissioned USTs. Analytical results confirmed the presence of Gasoline Range Organics (GRO) in six samples between 9 feet and 20 feet bgs. No Diesel Range Organics (DRO) or Oil Range Organics (ORO) were present above the detection limit in any samples. Two samples indicated the presence of toluene, ethylbenzene and total xylenes \) components. Benzene was not detected in any of the samples analyzed. The assessment concluded that detectable concentrations of GROs remained in the southeastern portion of the Site.

A further Site Assessment performed by Entrix, Inc. in 2000 involved the collection of eleven soil samples and five groundwater samples from the Site. Four soil samples identified the presence of GRO, one soil sample returned the presence of ORO, and two soil samples returned the presence of benzene, toluene, ethylbenzene, and xylenes (BTEX) components. Benzene was not detected in any of the samples. Soil samples with confirmed contamination were between 10 and 21.5 feet bgs in the southeast portion of the Site. Groundwater samples identified the presence of GRO in three samples collected and BTEX components in four. Benzene was not detected in any of the samples. The extent of remaining soil contamination at the Site was delineated as limited to the southeastern portion of the Site (Figures 3 and 4). It was estimated to extend slightly into the adjacent sidewalk rights-of-way. The extent of groundwater

contamination was delineated in the southeastern portion of the Site and extending out to the east adjoining right-of-way of NW Park Avenue. Detected concentrations of GRO and BTEX components were well below the applicable Risk Based Concentrations (RBCs). The minor concentrations detected in groundwater were further observed to decrease significantly moving from the Site.

A Limited Site Investigation performed by Terracon in 2017 identified the presence of DRO, GRO, and Heavy Oil Range Organics (HOR) in a shallow 5-foot bgs soil sample near the former below-ground lifts and oil/water separator. The investigation also identified the presence of impacted soil in the southeastern portion of the Site. Impacted soil at 13 to 14 feet bgs was identified above the applicable RBCs for GRO, ethylbenzene, naphthalene, and 1,2,4-trimethyl benzene. Benzene was not detected in any of the analyzed samples. Groundwater was encountered at 22 to 25 feet bgs at the Site.

Beginning in 2019, the Site began redevelopment as an apartment building with associated underground parking. In approximately 2021 the Amara Apartments were completed at the Site. During the development, construction of the underground parking area required the excavation of the complete footprint of the lot to a depth of 28 feet bgs. Arsenic levels were detected above the applicable RBCs in all soil samples collected from the excavation. However, the arsenic levels detected were only slightly above the current Portland Basin Background Level. All the soil samples also detected barium, chromium, and lead. The detected concentrations were all below the Background Levels (Table 1). Previous analytical data were utilized during excavation and construction at the Site to prepare waste profiles for encountering contaminated soil. All potentially contaminated soil encountered during excavation was segregated, properly stored, and sampled per industry standards until the results of the soil characterization analysis were complete. All soil characterized as petroleum-impacted was removed from the Site and transported for disposal at the Hillsboro Landfill. Redevelopment of the Site resulted in the removal of approximately 318 tons of petroleum-impacted soil.

The previously identified contamination in the southeast corner was anticipated during excavation and construction at the Site. Measures for the stockpiling and storage were prepared for the anticipated contaminated soil. When observations during the installation of the vertical shoring for the building and associated underground parking area confirmed the presence of contaminated soil in the southeastern portion of the Site, sampling and stockpiling of potentially contaminated soil began. Potentially contaminated soil was visually identified at a depth of approximately 10 feet bgs during excavation activities in the southeastern portion of the Site. All visually identified contaminated soil was excavated until clean soil was encountered at the final excavation depth. Contaminated soil was segregated and stockpiled at the Site for disposal. At the final excavation depth, the vertical extent of the residual contaminated soil in the site's southeastern corner was observed and measured to extend from approximately 10 to 28 feet bgs. Due to concerns about the structural integrity of sidewalk and adjacent right-of-way, it was not possible to remove additional contaminated soil. The horizontal extent of residual contamination was observed to extend approximately 12 feet west and 11 feet north from the Site's southeast corner (Figure 4).

Observations and data collected during the excavation and construction of the Site were then compared to the existing data to help better delineate any residual contamination in the

southeastern portion of the Site. Previous reports had indicated the presence of contamination in the southeast portion beginning at a depth of 9 feet bgs. This was confirmed by observations made during excavation and from the decommissioning by removal of the three USTs in 2019 and 2020. On the southern shoring wall, visually impacted soil began just beyond 10 feet bgs, with the first impacted soil sample taken at SP-36, approximately 12 feet west of the southeast corner and at a depth of 12 feet bgs. The soil sample indicated the presence of GRO at 208 milligrams per kilogram (mg/kg). Confirmation sampling of the historic UST south of SP-36 indicated no Contaminants of Concern (COCs) above laboratory detection limits at 10.2 feet bgs. Soil samples at SP-37 and SP-38 were collected from approximately 17 feet bgs, indicating a slightly higher concentration of GRO, 844 and 576 mg/kg, respectively. A soil sample collected from SP-39 on the site's eastern border from approximately 13 feet bgs indicated the presence of GRO lower than concentrations of the SP-37 and SP-38 samples at 561 mg/kg. The final depth soil sample from the southeastern corner of the property, FD-81ASL, at 28 feet bgs, confirms that the vertical extent of contamination was located and all contamination within the Site's boundaries was removed (Table 1).

Subgrade utilities in the site's southeast corner include an electrical vault and additional utilities as discussed below. The electrical vault is approximately 8 feet north of the site's southeast corner and 4 feet east of the subgrade parking area. The vault extends approximately 12 feet east into the public right-of-way and approximately 53 feet north, parallel to the subgrade parking area. The electrical vault was excavated to a final depth of 16 feet bgs. No other utilities are located within this area. During the vault installation, no observations of potentially impacted soil were noted. With this, the extent of petroleum-impacted soil is less than initially estimated by PSI Entrix on the eastern portion of the public right-of-way. The historic UST removal from West Burnside Street also did not encounter any impacted soil to the south. This would potentially have petroleum-impacted soil in the public right-of-way (i.e., sidewalk area) in the Site's southeast corner. As mentioned above, the only potential migration of the remaining contamination is the encounter with groundwater, which has a low potential. No utilities exist at the groundwater depth in the vicinity, leading to no migration from utilities.

During the historic decommissioning of the UST to the south of the Site, no utilities were encountered to an excavation depth of 10 feet bgs along the sidewalk and West Burnside Street right-of-way. All underground utilities are located right-of-way in NW Park Avenue, beyond any potential residual contamination. The utilities along West Burnside Avenue are depicted as running in the public right-of-way of the street and delineated as a combined gravity main. The utilities along NW Park Avenue are depicted as running in the public right-of-way in the street and delineated as a storm lateral. Both public utilities are beyond the lateral extent of the residual contamination in the site's southeast corner. All public and private utilities must be installed at a minimum depth of 3 feet and do not typically extend to a depth that would be affected by the residual contamination in the Site's southeast corner. No utilities exist in the area of potential migration from groundwater. All the utility locations are capped, so no potential for vertical migration of contamination due to precipitation exists.

Nature and extent of contamination.

A limited amount of contaminated soil above the applicable RBCs for GRO remains under the public right-of-way sidewalks along the southeastern portion of the Site. The vertical extent of contamination from observations during excavation was observed to extend from

approximately 10 to 28 feet bgs. The lateral extent of residual contamination was observed to extend approximately 12 feet west and 11 feet north from the southeast corner of the Site (Figure 4). Post excavation, all primary and secondary sources of contamination have been removed from the Site. Current site conditions are not preferential to the migration of the remaining soil contamination due to the capped nature of the Site along with no utilities existing in the potential range of the remaining contamination. The only potential migration of remaining contamination exists with limited interaction with fluctuating groundwater levels. Historic assessments of groundwater concentrations indicate minor concentrations of COCs, all well below all applicable RBCs. The documented depth to groundwater indicates low potential for further migration from the remaining soil contamination. No potential groundwater receptors are present within 100 feet of the remaining residual soil contamination. The immediately adjoining subgrade space is occupied by a separate, small footing, electrical room that is not occupied and is equipped with an independent continually operating exhaust fan. The potential for vapor intrusion into the subgrade electrical room or parking area is low, and it is unlikely that vapor intrusion conditions exist. Any remaining contamination does not threaten human health or the environment.

RISK EVALUATION

Conceptual site model.

The Site has Contaminants of Potential Concern (COPCs) associated with UST storage tank releases. RBCs for soil, groundwater, and soil vapor were evaluated and soils exceeding risk levels were removed from the Site for disposal.

To evaluate human exposure to residual chemical contamination requires an assessment of the type and extent of that exposure. This is based on current and reasonably likely future site use. ODEQ publishes RBCs for contaminants commonly encountered, for different types of exposure scenarios. These RBCs are conservative estimates of protective levels of contaminants in soil, groundwater, and air. Table 1 shows potential exposure pathways and receptors for this site. Based on this, applicable RBCs are identified and used for risk screening.

Identification of applicable RBCs, based on pertinent pathways and receptors.

Pathway	Receptor	Applicable RBC?	Basis for selection/exclusion
SOIL			
Ingestion, dermal contact, and inhalation	Residential	No	See Note 1.
	Urban residential	Yes	
	Occupational	Yes	
	Construction worker	Yes	
	Excavation worker	Yes	
Volatilization to outdoor air	Residential	No	See Note 1.
	Urban residential	Yes	
	Occupational	Yes	
Vapor intrusion into buildings	Residential	No	See Note 1.
	Urban residential	Yes	

Pathway	Receptor	Applicable RBC?	Basis for selection/exclusion
	Occupational	Yes	
Leaching to groundwater	Residential	No	See Note 2.
	Urban residential	No	
	Occupational	No	
GROUNDWATER			
Ingestion and inhalation from tap water	Residential	No	See Note 3.
	Urban residential	No	
	Occupational	No	
Volatilization to outdoor air	Residential	No	See Note 1.
	Urban residential	Yes	
	Occupational	Yes	
Vapor intrusion into buildings	Residential	No	See Note 1.
	Urban residential	Yes	
	Occupational	Yes	
Groundwater in excavation	Construction and excavation worker	No	See Note 4.

Notes:

1. There is a residential building at the site. Because of the site's urban setting, urban residential exposure is assumed rather than single-family residential exposure.
2. Groundwater is not used for drinking. Therefore, this pathway is not considered per Section B.3.2.4 of ODEQ's Risk Based Decision Making (RBDM) guidance.
3. City water is provided. Local groundwater is not currently used for drinking water and is not likely to be used for this purpose in the future.
4. Groundwater is approximately 22 to 25 feet below ground surface. Construction and excavation work are generally limited to approximately 15 feet. Risks from construction and excavation workers encountering contaminated groundwater in excavations are minimal.

Contaminant concentrations.

Table 1 from the Site Assessment Report is attached to this memo. The highest concentration reporting limit is listed on Table 1 to ensure all non-detect samples are below applicable RBCs. All potentially contaminated soil was excavated, properly removed, segregated, and disposed of.

Sample FD-81 ASL was collected from 28 feet bgs. The sample was collected from the final excavation depth in the site's southeast corner. Gasoline, diesel, and oil range hydrocarbon constituents were removed or below RBCs for all exposure pathways. The final excavation depth was observed to have minimal indications of petroleum hydrocarbon impact. All previously observed impacted soil from within the Site boundaries was observed to have been removed, segregated, and properly disposed of.

At the southeast property corner of the site, arsenic levels were above the urban residential and occupational worker RBCs in all the soil samples analyzed for RCRA heavy metals during the excavation activities. However, the ODEQ has established regional background levels of metals

in the regional soils across Oregon. Detected arsenic levels were only slightly above the current Portland Basin Background Level of 8.8 mg/kg. All the soil samples also detected barium, chromium, and lead. The detected concentrations were all below the ODEQ-established Background Levels. At the final excavation depth, the vertical extent of the residual contaminated soil in the southeastern corner of the Site was observed and measured to extend from approximately 10 to 28 feet bgs, which puts such soils at depths unlikely to be encountered by residents or employees. The horizontal extent of residual contamination was observed to extend approximately 12 feet west and 11 feet north from the Site's southeast corner.

The historic UST removal from West Burnside Street also did not encounter any impacted soil to the south. This would potentially have petroleum-impacted soil in the public right-of-way (i.e., sidewalk area) in the Site's southeast corner. As mentioned above, the only potential migration of the remaining contamination is the encounter with groundwater, which has a low potential. No utilities exist at the groundwater depth in the vicinity, leading to no migration from utilities. All the utility locations are capped, so no potential for vertical migration of contamination due to precipitation exists.

Industry standards were followed when constructing the subgrade parking area for the Amara Apartments. A subgrade parking level underlies the entire building, measuring approximately 20,000 square feet. The construction of the flooring of the subgrade level required a vapor retarder to be installed, with seams and penetrations sealed. The vapor retarder prevents potential vapor encroachment into the subgrade parking area. A ventilation system for the subgrade parking area was also installed to mitigate the safety hazard to human health from automobile exhaust, along with continually operating carbon monoxide and nitrogen oxide sensors (CO/NOx). The subgrade parking area fan system is observed and maintained every 3 months by the property management company. The ventilation system engineering control for the subgrade parking mitigates the potential for human health impacts from vapor intrusion. Table 5 screened Total Petroleum Hydrocarbons (TPH) and BTEX soil sample results. RBCs for volatilization to outdoor air and vapor intrusion into buildings were not exceeded.

Ecological risk.

The Site is mainly covered with structures and paving. No Ecological habitat is present.

RECOMMENDATION

ODEQ recommends that based on site conditions, including the current land use as described in this report, the residual contamination under the public right-of-way sidewalk does not pose unacceptable human health risks to building occupants and employees, an NFA determination be issued for the Site.

The NFA determination should be recorded in ODEQ's Your DEQ Online (YDO) underground storage tank Oregon Records Management System for LUST No. 26-94-0026, Facility ID. #8070

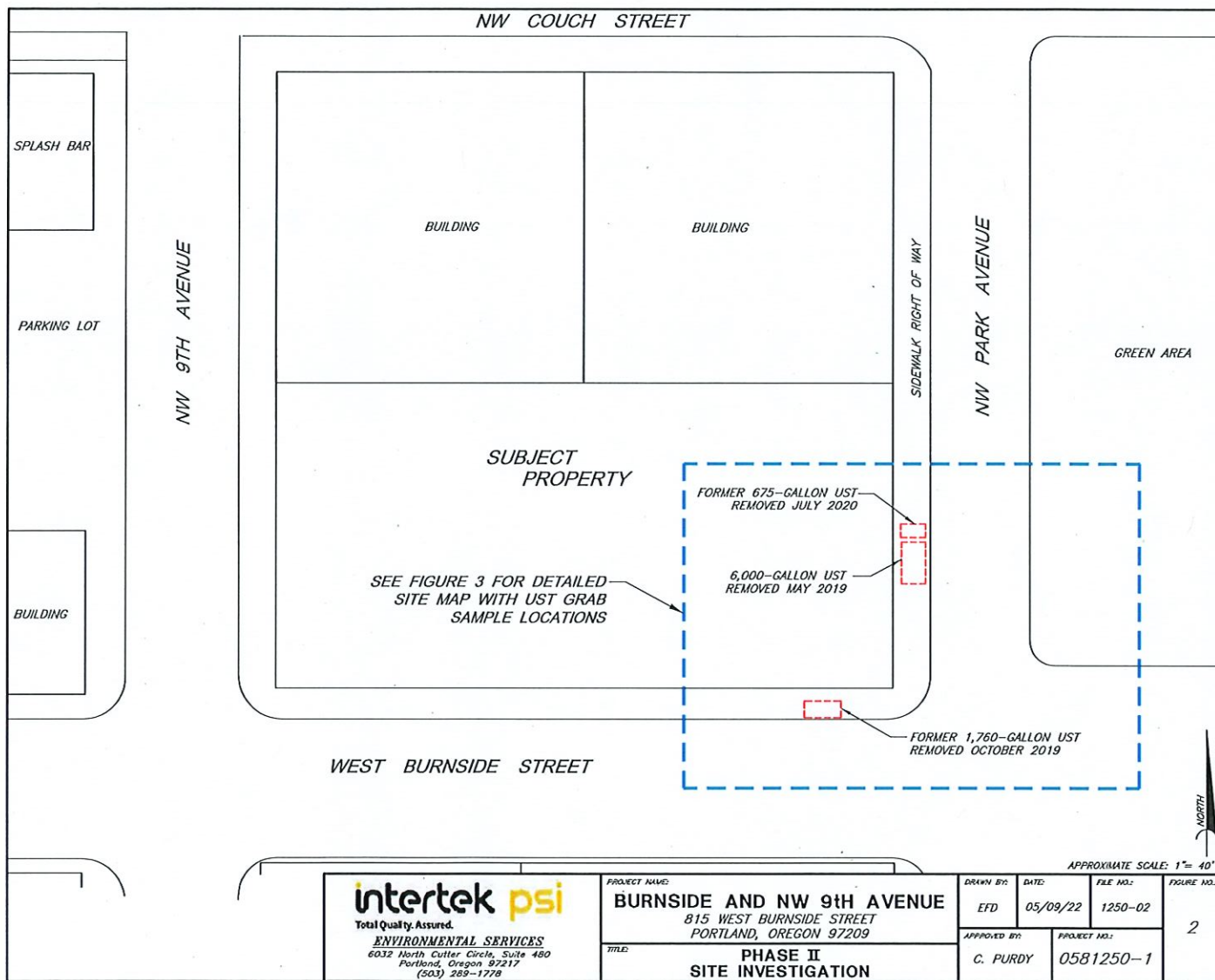
ATTACHMENTS

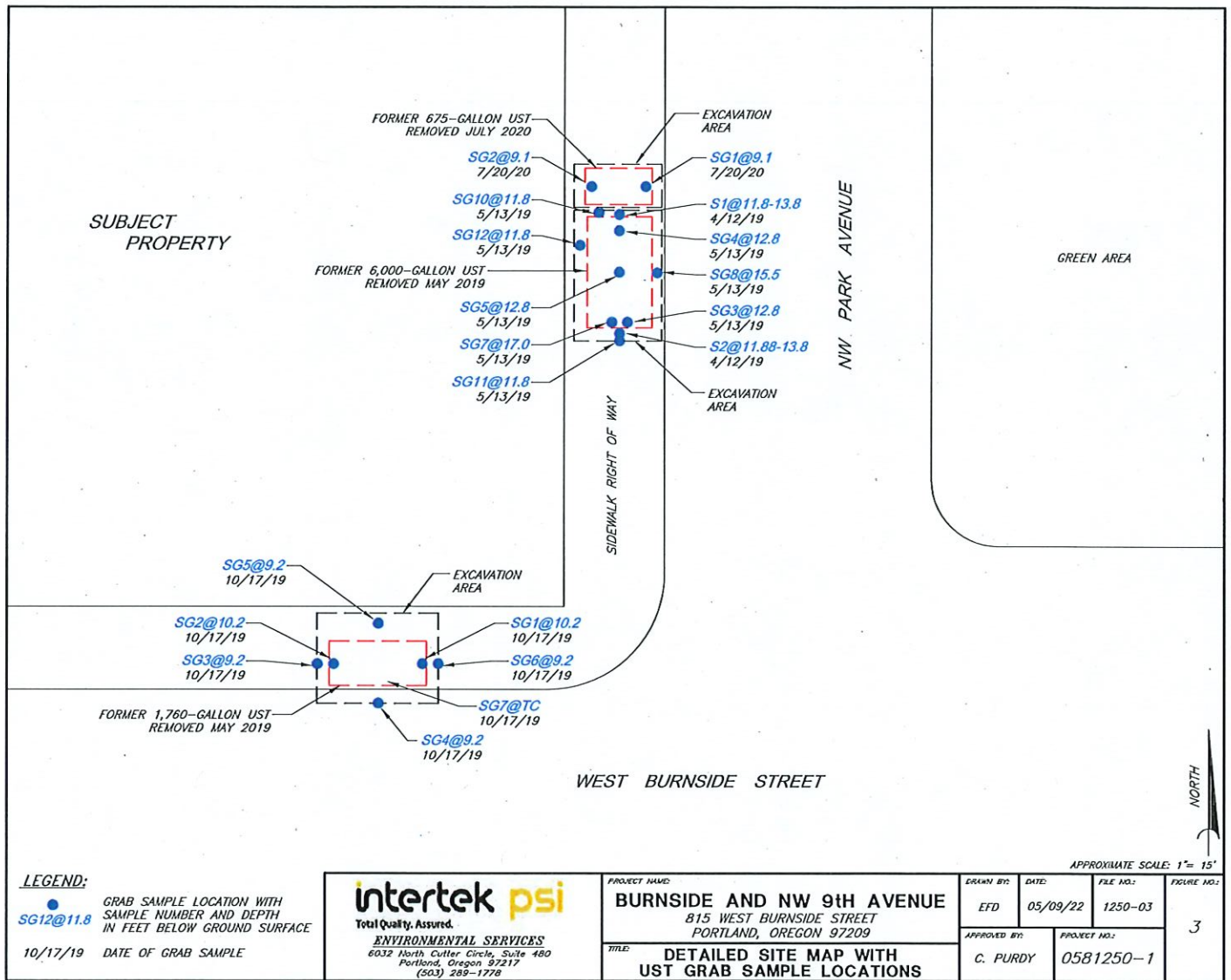
Figures and Tables from Administrative Record Reports

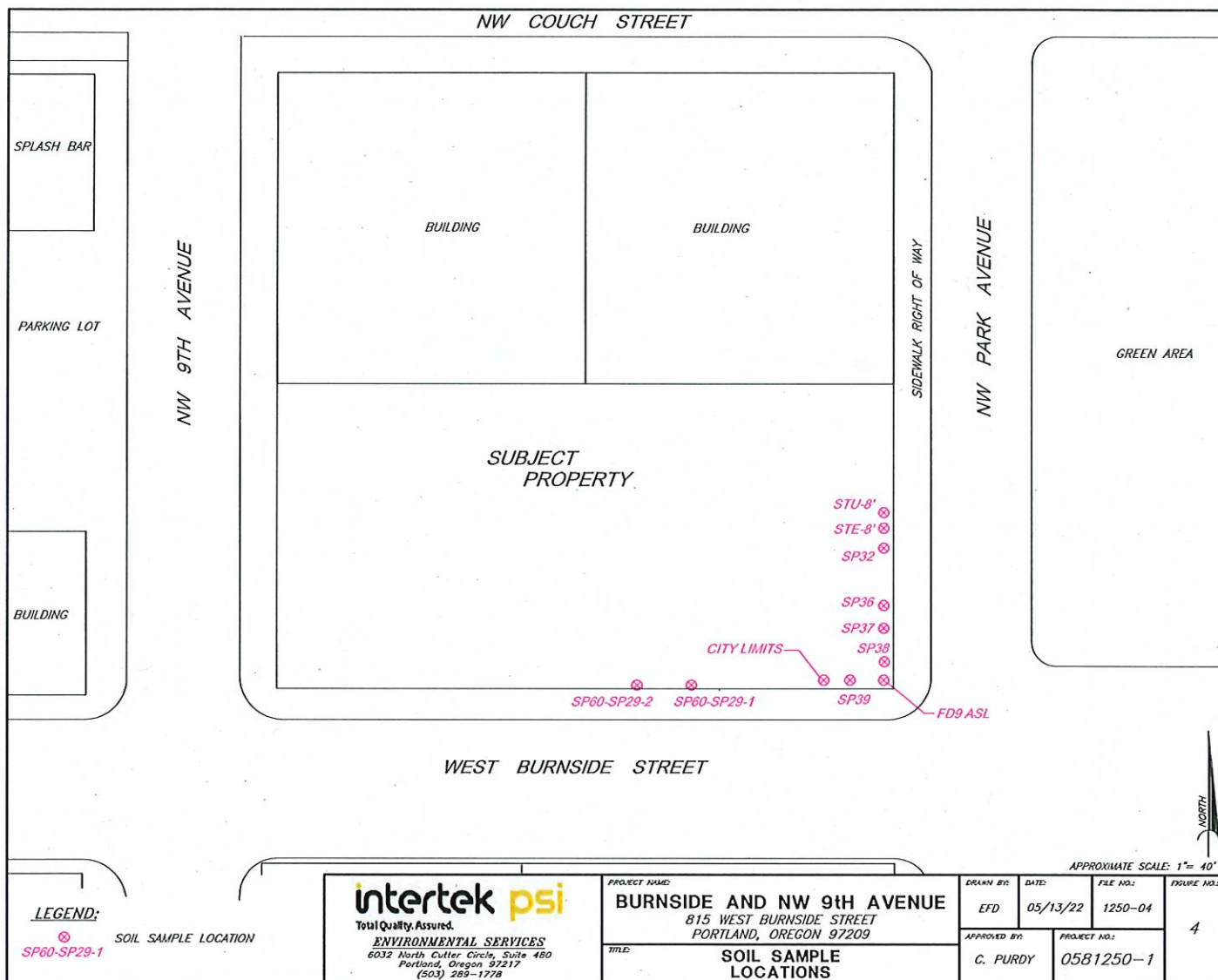
ADMINISTRATIVE RECORD

PSI Technical Memorandum-Site Assessment Supplement, July 25, 2023

PSI Site Assessment Report, January 31, 2022







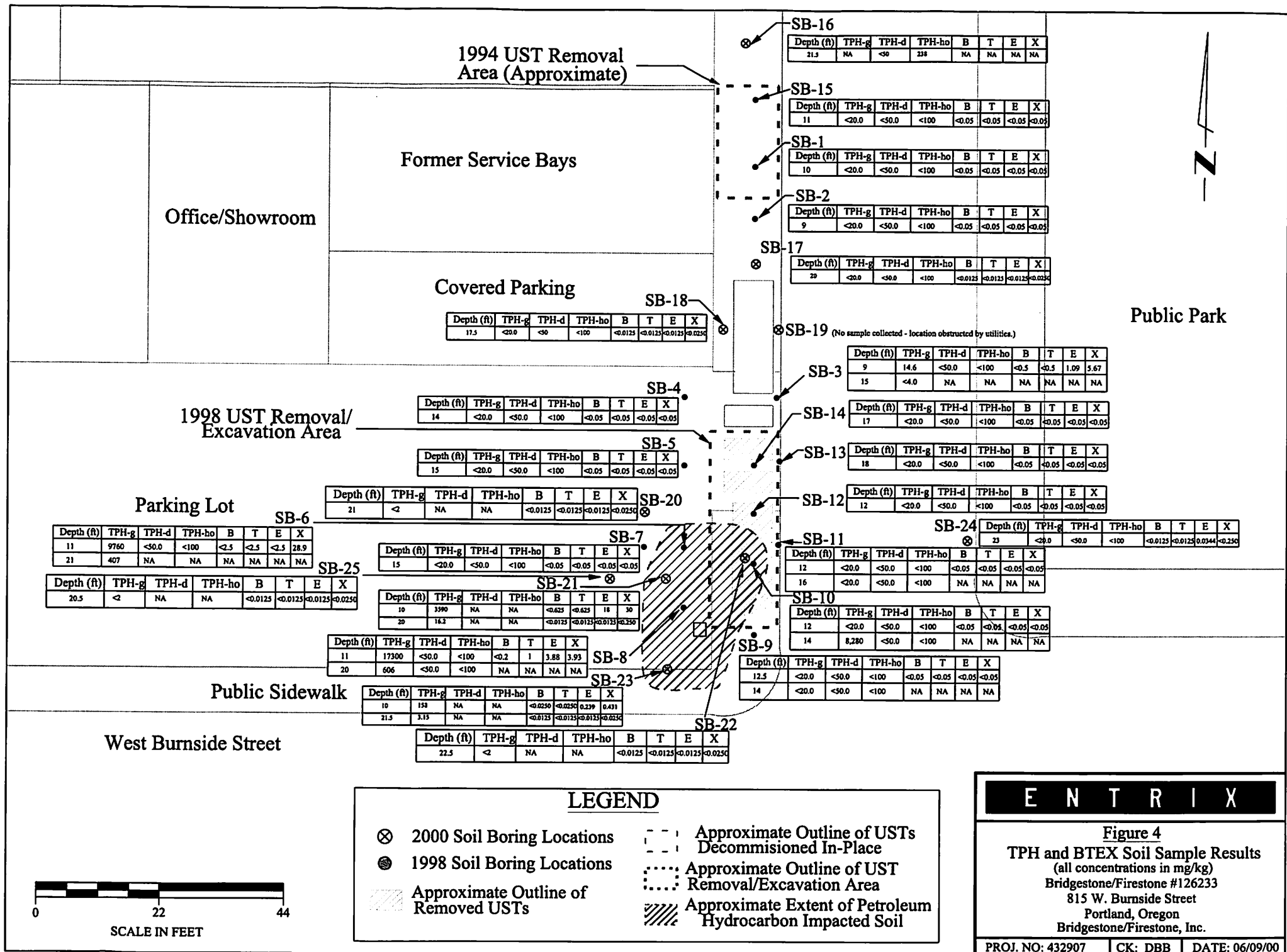


Table 1
Select Soil Sampling Results
LUST #26-94-0026
815 West Burnside Street, Portland, OR 97209
PSI Project #0581250-1

[illegible]

Table 5. May 2000 Site Characterization TPH and BTEX Soil Sample Analytical Results (all concentrations in mg/kg)

Sample ID	Date	Depth (feet bgs)	TPH-g	TPH-d	TPH-ho	Benzene	Toluene	Ethylbenzene	Total Xylenes
SB-16-21.5	05/10/2000	21.5	NA	<50	238	NA	NA	NA	NA
SB-17-20	05/10/2000	20	<20	<50	<100	<0.0125	<0.0125	<0.0125	<0.0250
SB-18-17.5	05/11/2000	17.5	<20	<50	<100	<0.0125	<0.0125	<0.0125	<0.0250
SB-20-21	05/10/2000	21	<2	NA	NA	<0.0125	<0.0125	<0.0125	<0.0250
SB-21-10	05/10/2000	10	3590	NA	NA	<0.625	<0.625	18 (20.8 ⁽²⁾)	30 (22.1 ⁽²⁾)
SB-21-20	05/10/2000	20	16.2	NA	NA	<0.0125	<0.0125	<0.0125	<0.250
SB-22-22.5	05/11/2000	22.5	<2	NA	NA	<0.0125	<0.0125	<0.0125	<0.0250
SB-23-10	05/11/2000	10	158	NA	NA	<0.0250	<0.0250	0.239	0.431
SB-23-21.5	05/11/2000	21.5	3.15	NA	NA	<0.0125	<0.0125	<0.0125	<0.0250
SB-24-23	05/10/2000	23	<20	<50	<100	<0.0125	<0.0125	0.0344	<0.250
SB-25-20.5	05/10/2000	20.5	<2	NA	NA	<0.0125	<0.0125	<0.0125	<0.0250
State of Oregon Soil Ingestion, Dermal Contact, and Inhalation RBCs ⁽¹⁾	Residential	--	NL	NL	NL	8.2	1,700	2,000	4,100
	Occupational	--	NL	NL	NL	29	31,000	47,000	63,000
	Excavation Worker	--	NL	NL	NL	1,100	40,000	85,000	72,000
State of Oregon Soil Volatilization to Outdoor Air RBCs ⁽¹⁾	Residential	--	NL	NL	NL	11	540	330	360
	Occupational	--	NL	NL	NL	21	540	330	360
State of Oregon Vapor Intrusion into Buildings RBCs ⁽¹⁾	Residential	--	NL	NL	NL	0.091	190	330	360
	Occupational	--	NL	NL	NL	0.500	540	330	360
State of Oregon Leaching to Groundwater RBCs ⁽¹⁾	Residential	--	NL	NL	NL	0.044	390	330	360
	Occupational	--	NL	NL	NL	0.100	540	330	360

NOTES:

NA - Not Analyzed

NL - Not listed. No RBC has been developed for this compound.

TPH analysis by NW-TPH Methodology (EPA 8015) and BTEX analysis by EPA Method 8021.

(1) RBC concentrations derived from the Table of RBCs provided as Appendix A of the *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites* prepared by ODEQ dated September 29, 1999.

(2) Detected concentration by EPA Method 8260.

Table 6. May 2000 Site Characterization VOC Soil Sample Analytical Results (all concentrations in mg/kg)

Sample ID	Date	Depth (feet bgs)	n-Butyl- benzene ⁽¹⁾	sec-Butyl- benzene ⁽²⁾	p-Isopropyl- toluene ⁽³⁾	Isopropyl- benzene	Naphthalene	n-Propyl- benzene	1,2,4-Trimethyl- benzene	1,3,5-Trimethyl- benzene	All Other VOCs
SB-16-21.5	05/10/2000	21.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-17-20	05/10/2000	20	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-18-17.5	05/11/2000	17.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-20-21	05/10/2000	21	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-21-10	05/10/2000	10	15.2	11.5	20.8	11	24.4	24.9	106	17.5	BDL
SB-21-20	05/10/2000	20	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-22-22.5	05/11/2000	22.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-23-10	05/11/2000	10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	BDL
SB-23-21.5	05/11/2000	21.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-24-23	05/10/2000	23	NA	NA	NA	NA	NA	NA	NA	NA	NA
SB-25-20.5	05/10/2000	20.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
State of Oregon Soil Ingestion, Dermal Contact, and Inhalation RBCs ⁽⁴⁾	Residential	--	NL	NL	NL	140	24	140	47	47	Varies by Compound
	Occupational	--	NL	NL	NL	2,900	270	2,900	720	720	Varies by Compound
	Excavation Worker	--	NL	NL	NL	4,300	1,000	4,300	960	810	Varies by Compound
State of Oregon Soil Volatilization to Outdoor Air RBCs ⁽⁴⁾	Residential	--	NL	NL	NL	330	230	200	4.80	210	Varies by Compound
	Occupational	--	NL	NL	NL	330	310	200	4.80	210	Varies by Compound
State of Oregon Vapor Intrusion into Buildings RBCs ⁽⁴⁾	Residential	--	NL	NL	NL	140	290	180	4.80	15	Varies by Compound
	Occupational	--	NL	NL	NL	330	310	200	4.80	65	Varies by Compound
State of Oregon Leaching to Groundwater RBCs ⁽⁴⁾	Residential	--	NL	NL	NL	210	310	200	4.80	201	Varies by Compound
	Occupational	--	NL	NL	NL	300	310	200	4.80	210	Varies by Compound

NOTES:

NA - Not Analyzed

NL - Not listed. No RBC has been developed for this compound.

BDL - Below Detection Limit

(1) United States Environmental Protection Agency Preliminary Remedial Goals (USEPA PRGs) for residential and industrial land use are 130 mg/kg and 550 mg/kg, respectively.

(2) USEPA PRGs for residential and industrial land use are 100 mg/kg and 410 mg/kg, respectively.

(3) The physical properties of p-isopropyltoluene are similar to toluene and, for the purposes of this evaluation, the concentrations were compared to the RBCs for toluene.

(4) RBC concentrations derived from the Table of RBCs provided as Appendix A of the *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites* prepared by ODEQ dated September 29, 1999.