



# Source Control Evaluation Work Plan, Revision 1

REPORT DATE: December 16, 2024

## SITE INFORMATION

Baxter and Flaming  
3717 NW Saint Helens Road  
Portland, Oregon 97210

## PROJECT INFORMATION

AEI Project No. 484441  
DEQ ECSI No. 6565

## PREPARED FOR

Oregon Department of  
Environmental Quality  
700 NE Multnomah Street, Suite 600  
Portland, Oregon 97232

## PREPARED BY

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December 16, 2024

Mr. Jim Orr  
Oregon Department of Environmental Quality  
700 NE Multnomah Street, Suite 600  
Portland, Oregon 97232

Subject: Source Control Evaluation Work Plan, Revision 1  
Baxter and Flaming  
3717 NW Saint Helens Road  
Portland, Oregon 97210  
AEI Project No. 484441  
DEQ ECSI No. 6565

Dear Mr. Orr,

On behalf of Norris & Stevens, AEI Consultants (AEI) has prepared this revised *Source Control Evaluation Work Plan* (Revised Work Plan) for the stormwater evaluation activities proposed at 3717 NW Saint Helens Road, Portland, Oregon ("the Site"). AEI prepared the January 11, 2024 *Source Control Evaluation Work Plan* (Work Plan) in response to a request from the Oregon Department of Environmental Quality (DEQ). The data from implementation of the Work Plan are intended to support an evaluation of potential chemicals of concern in stormwater from the Site. DEQ provided a summary of DEQ and U.S. Environmental Protection Agency (EPA) review comments on the Work Plan in a letter dated September 11, 2024. This Revised Work Plan has been updated to respond to the comments from DEQ and EPA.

AEI appreciates working with the DEQ and trusts that this revised work plan meets with your approval. If you have any questions, please contact me at [nbutcher@aeiconsultants.com](mailto:nbutcher@aeiconsultants.com).

Sincerely,

A handwritten signature in black ink that reads "Neill D. Butcher".

Neill D. Butcher, PE  
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## 1.0 INTRODUCTION

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On behalf of Norris & Stevens, AEI Consultants (AEI) has prepared this revised *Source Control Evaluation Work Plan* (Revised SCE Work Plan) for stormwater evaluation activities proposed at 3717 NW Saint Helens Road, Portland, Oregon (“the Site”). Residual petroleum hydrocarbons in the subsurface at the Site are being addressed under the regulatory oversight of the Oregon Department of Environmental Quality (DEQ) as the Baxter & Flaming Industries, Inc. (Baxter & Flaming) site under Environmental Cleanup Site Information (ESCI) Case No. 6565. In response to a request from DEQ, AEI prepared the *Source Control Evaluation Work Plan* (SCE Work Plan), dated January 11, 2024. The SCE Work Plan was prepared to collect stormwater samples to evaluate chemicals of potential concern (COPCs) in stormwater from the Site.

DEQ provided a summary of DEQ and U.S. Environmental Protection Agency (EPA) review comments on the SCE Work Plan in a letter dated September 11, 2024. This Revised SCE Work Plan has been updated to respond to the comments from DEQ and EPA. Responses to the agency comments have been provided in Appendix A. The relevant revisions have been incorporated into the document.

As presented below, AEI is proposing to collect four rounds of stormwater samples during four separate storm events at the Site to evaluate COPCs in stormwater and obtain a Source Control Decision from the DEQ, as described in the DEQ *Guidance for Evaluating the Stormwater Pathway at Upland Sites*, dated October 2010. The purpose of the stormwater assessment is to ensure that the stormwater discharge from the Site does not pose an unacceptable risk through transport of hazardous substances to the Willamette River.

## 2.0 SITE BACKGROUND AND GEOLOGY

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The Site is located on the southwest side of NW Saint Helens Road approximately 150 feet southeast of its intersection with NW Express Avenue in Portland, Oregon. The Site consists of approximately 1.25 acres of land that is improved with a single-story building with a mezzanine (AEI 2023a). The Site is currently occupied by Baxter & Flaming Industries, Inc. (Baxter & Flaming), a supplier of hollow metal doors and frames, wood doors, Timely frames, glass, and hardware. On-site operations within the Site building consist of door frame warehousing and distribution, and minor assembly such as the welding of the frames. A third party uses the rear third of the Site for truck container storage, which is not associated with the Baxter & Flaming operations. This storage area and surrounding vegetated and landscaped areas are unpaved.

The ground surface at the Site and nearby properties is sloped to the northeast and is situated at an elevation approximately 30 feet above mean sea level. Immediately northwest of the Site is a northwest sloping hill, part of 5,200-acre wooded area called Forest Park. The site is located approximately 3,000 feet south-southwest of the Willamette River, and stormwater from the Site discharges to the City of Portland stormwater drain system, which drains to Outfall 18. The location and vicinity of the Site and topography is shown on Figure 1. Figure 2 provides an aerial view of the Site and depicts various Site features. The Site is within an upland area of the regional Portland Harbor Superfund Site (PHSS).

## 2.1 Site Background

Based on the May 3, 2023 *Phase I Environmental Site Assessment* (ESA) prepared by AEI, the Site was used for industrial purposes from as early as 1928 (AEI, 2023a). Tenants have included varnish/paint manufacturing (1928-1955), Goss & Goss, putty manufacturers (1955-1960), Truck Parts Wrecking/auto repair (1970-1985), and Baxter & Flaming (1988-present). These operations typically use hazardous substances, such as petroleum products and solvents, in their daily operations. None of these tenants were listed in the regulatory database or agency records for the use of hazardous substances onsite; however, they operated prior to a time of regulatory oversight.

The Site building was initially connected to a septic tank until 1973 when it was connected to the municipal sewer system. At least three interior catch basins were located within the Site building, which were capped with concrete in 1995. Due to their subsurface nature, these features can act as preferential pathways for contaminants such as oil, grease, fuel, or cleaning solvents discharged or released during the former activities. Consequently, the potential exists for the former industrial operations and use of the septic tank and/or catch basin system to have resulted in impacts to the subsurface of the Site. Based on this information and the duration of use (at least 60 years), the former industrial operations at the Site and associated hazardous substances, catch basin system, and septic tank represent a recognized environmental condition (REC), including a potential vapor intrusion concern for the Site (AEI 2023a).

In November 2023, AEI reviewed further information pertaining to the interior drainage system from the City of Portland website (<https://www.portlandmaps.com>). According to a Report of Plumbing Inspection dated June 12, 1984, Portland Power Train apparently connected three exterior building rain drains and three interior catch basins within the Site building to the existing storm sewer system. The Report of Plumbing Inspection includes a drawing that indicates that the storm drain line was located between the catch basins and extended toward the front of the building. In 1995, Baxter & Flaming obtained a plumbing permit dated December 22, 1995, to cap and cover the three catch basins. During a Site visit on December 6, 2023, AEI confirmed that the three catch basins are capped with concrete, apparently preventing liquids from entering the storm drainage system from within the Site building. Figure 2 depicts the approximate locations of the former catch basins and other Site features

## 2.2 Site Geology and Hydrogeology

Subsurface conditions observed during a Limited Phase II Subsurface Investigation (Phase II) conducted by AEI indicated that soils underlying the Site consist primarily of silty clay, silty sand, gravelly sand, sand, and clay to a depth of 20 feet below ground surface (bgs), the total depth of the Phase II investigation (AEI 2023b). Groundwater was encountered during drilling of the three soil borings (SB-1, SB-2, and SB-3) at approximate depths of 14, 4, and 7 feet bgs, respectively. After approximately 30 minutes, the groundwater equilibrated to depths of 13.22, 3.50, and 6.51 feet bgs; respectively, in the three temporary wells installed.

## 3.0 REGULATORY HISTORY

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The Site has no history of stormwater permitting. No summary of monitoring data and inspection reports and findings have been issued for the Site to date. Additionally, no other permits, including wastewater, solid waste, or air, were reported for the Site. No above ground or underground petroleum storage tanks have been identified at the Site. No violations of environmental regulations have been identified. The Site does not have any history of hazardous waste management.

## 4.0 PREVIOUS ENVIRONMENTAL INVESTIGATIONS AND CLEANUPS

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On May 12, 2023, AEI conducted a Phase II to investigate the RECs identified in the May 3, 2023 Phase I ESA report. Investigation efforts included a geophysical survey and advancement of three exploratory soil borings at the Site (SB-1, SB-2, and SB-3) to collect soil and groundwater samples. Figure 2 presents the Site Map, which depicts the soil boring locations. The soil and groundwater sample results are presented in Tables 1 and 2. Results from the Phase II investigation activities can be summarized as follows:

- Evidence of the former septic tank in the area to the west-southwest of the Site building was not identified during the geophysical scan.
- An apparent hydrocarbon odor was observed in boring SB-2 (0.8-15 feet bgs). The maximum photoionization detector reading was 528.7 parts per million in boring SB-2 at 2.5 feet bgs.
- Chlorinated volatile organic compounds (VOCs), including chlorobenzene, tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (DCE), 1,1-DCE, vinyl chloride and the petroleum hydrocarbon VOC benzene were not detected above the laboratory reporting limits in the three soil and groundwater samples collected during this investigation.
- Total petroleum hydrocarbons (TPH) as gasoline range organics (GRO), diesel range organics (DRO), and residual range organics (RRO), and petroleum VOCs including toluene, ethylbenzene, and total xylenes were detected in soil sample SB-2-2.5 at concentrations above the laboratory reporting limits, but below the Occupational Risk-Based Concentrations (RBCs) in the three soil samples collected and analyzed as part of this investigation.
- TPH-GRO, TPH-DRO, and TPH-RRO were detected at maximum concentrations of 4,410, 109,000, and 3,440 micrograms per liter ( $\mu\text{g}/\text{L}$ ), respectively, in one or more of the groundwater samples collected as part of this investigation. The detected concentrations exceed their respective Occupational RBCs for tapwater (RBC<sub>tw</sub>) of 450, 430, and 1,300  $\mu\text{g}/\text{L}$ . The laboratory noted that the TPH in both soil and water at boring location SB-2 resembles the laboratory standard for mineral spirits.

Based on the investigation results, AEI recommended further subsurface assessment in connection with the apparent release from the former catch basin(s) at the Site to evaluate the extent of impacts to groundwater (AEI 2023b).

On September 26, 2023, the Client informed AEI that a Voluntary Cleanup Program (VCP) enrollment has been submitted to the DEQ. The DEQ assigned ECSI No. 6565 to the Site. AEI has prepared the *Work Plan for Additional Subsurface Investigation, Revision 1*, dated December 16, 2024, which proposes additional characterization of the Site, including the vicinity of the former catch basins. In addition, the alignment and flow direction of the storm drain lines will be confirmed as part of site investigation activities (AEI, 2024c).

Based on the Site history and results of the Phase II investigation, AEI has identified the following as stormwater COPCs for the Site:

- TPH-GRO, TPH-DRO, and TPH-RRO;
- VOCs, including petroleum hydrocarbons. Chlorinated solvent-related VOCs have also been retained as COPCs, based on historic Site uses;
- Polycyclic aromatic hydrocarbons (PAHs), based on the detection of petroleum hydrocarbons at the Site; and
- Several metals, based on the following considerations:
  - Chromium and lead are associated with motor vehicle wrecking and repair.
  - Copper and zinc may be associated with building materials and other industrial uses.
  - Arsenic and manganese may be naturally occurring and may be transported with soil suspended in stormwater.

Other chemicals of interest related to the PHSS are not known to have been used at the Site. Specifically, historic Site activities are not known to have involved pesticide or herbicide use or boat repair or storage activities (i.e., butyltins or other anti-foulant use is not suspected). No transformers (polychlorinated biphenyls [PCBs]) have been identified at the Site or are suspected of having impacted the Site. In addition, no historic fires or other potential sources of polychlorinated dioxins and furans have been identified at the Site.

No environmental cleanups have been completed at the Site.

## 5.0 STORMWATER POLLUTION PREVENTION AND CONTROL MEASURES

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To minimize the potential for contamination in stormwater as a result of daily operations, as well as any accidental spills or releases of COPCs, the Site has implemented best management practices such as storing and correctly labeling any potentially hazardous materials to prevent leaks and spills into stormwater. All waste is recycled and/or properly disposed in onsite trash containers to eliminate exposure of pollutants to stormwater. In addition, the current tenant has capped the interior drains within the warehouse to prevent COPCs from entering the stormwater drainage system inside the Site building.

## 6.0 CATCH BASIN SAMPLING PLAN

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Catch basin sediment will not be sampled for the purpose of source control evaluation at this time.

## 7.0 STORMWATER SAMPLING PLAN

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On December 6, 2023, during a rain event, AEI completed a Site visit to document the stormwater drainage at the Site for the purposes of creating the stormwater sampling plan. Figure 3 depicts the Site Drainage Map and Figure 4 shows Portland Harbor Drainage Map. Details for the stormwater sampling plan are presented below.

### 7.1 Sampling Locations

During the rain event on December 6, 2023, AEI noted seven potential stormwater sampling points at the Site, six storm drains (SWD-1 through SWD-6) and one rain gutter downspout (RGD-1). During the rain, the stormwater surface-flow direction at the Site was established, as shown on Figure 3. The potential stormwater sampling points are as follows:

- Stormwater drains SWD-1 and SWD-2 are located within the parking lot area behind the Site building (upgradient);
- Stormwater drain SWD-3 is located adjacent to the east side of the Site building;
- Stormwater drain SWD-4 is located adjacent to the northeast corner of the Site building (designated as City of Portland [COP] Inlet ANF173);
- Stormwater drain SWD-5 is located down stream of SWD-4, within the bike lane in the public right-of-way, near the northeast corner of the Site building (COP Inlet ANF172);
- Stormwater drain SWD-6 is located in the right-of-way, within the bike line near the northwest corner of the Site building (COP Inlet ANF176); and
- Rain gutter downspout RGD-1 is a rain gutter drainage point located on the roof/wall, on the northwest side of the Site building.

Based on the observed alignments and flow direction of the on-Site storm drain system, it appears that SWD-1, SWD-2, and SWD-3 flow to SWD-4, which in turn discharges to SWD-5 and the sewer main running south down NW St. Helens Street. The alignment and flow direction of the storm drain lines will be confirmed as part of site investigation activities proposed under separate cover (AEI, 2024c). Stormwater flow from the south-adjacent property (3641 NW St. Helens Street) also discharges to SWD-4. Figure 4 depicts City of Portland sewer system in the vicinity of the Site.

Of the available potential stormwater sampling points, stormwater will be collected at stormwater drain SWD-3, which apparently will provide the most representative sampling location for stormwater leaving the Site. Although SWD-4 combines flow from the adjacent property, it will also be sampled given some surface water flow enters this drain. In addition, rain gutter RDG-1 will be sampled to evaluate COPCs in rainwater that may impact sample quality at the Site and potential impacts from roofing and gutter materials. It is unknown at

this time, whether RDG-1 flows toward SWD-5 or SWD-6. Locations SWD-5 and SWD-6 were observed to be collecting mainly stormwater from the street and would not be representative of Site stormwater. If the confirmation survey of the storm drain lines reveals significantly different details regarding the on-Site storm water system, other of the above potential stormwater sampling points may be added to the sampling program.

## 7.2 Sampling Schedule

Stormwater sampling will include a minimum of four separate storm events during the 2024 to 2025 rain years. At least two of the four sampling events will represent “first-flush” conditions. Sampling stormwater during the first two first-flush conditions will occur within the first 30 minutes of stormwater discharge. The remaining two samples will be collected within the first three hours of stormwater discharge. Samples will be collected from stormwater drains SWD-3 and SWD-4 and rain gutter downspout RGD-1.

## 7.3 Storm Event Criteria and Selection

Rainfall data for the stormwater sampling events will be obtained from the National Weather Service website or by contacting the National Weather Service by phone. Additionally, the data will be obtained from the City of Portland HYDRA Rainfall Network (<http://or.water.usgs.gov/non-usgs/bes/yeon.rain>). Target storm event criteria will be monitored prior to each sampling event. The stormwater sampling events will be performed according to the following storm event criteria:

- Following the antecedent dry period of at least 24 hours (as defined by <0.1 inches over the previous 24 hours);
- Minimum predicted rainfall volume of 0.2 inches or greater per event; and
- Each sampling event will have an expected storm duration of at least 3 hours.

During sampling, observations will be made regarding amount of flow and the area drained to ensure the water runoff is adequate for sample collection and the sample is representative of stormwater runoff. All sampling observations and details will be recorded on stormwater sample field logs for each sampling event, along with the rainfall data sheet for each sampling event.

## 7.4 Sampling Methods

As recommended by DEQ, the stormwater samples will be collected using “grab sample” collection procedures outlined in the following guidance:

- Washington Department of Ecology, *How To Do Stormwater Sampling: A Guide for Industrial Facilities*, Publication No. 02-10-071, December 2002 (revised March 2010).

Disposable nitrile gloves will be worn during all sampling activities. The stormwater samples will be collected using a decontaminated stainless-steel sampling cup (attached to an extendable pole, if necessary) before being transferred into the appropriate laboratory-supplied sample jars. Alternatively, samples may be collected directly to the laboratory-supplied sample jars. Samples for TPH-DRO, TPH-RRO, and aliphatic hydrocarbons must be collected directly into their respective laboratory-supplied sample jars. Care will be taken to

ensure that only water collected directly from the compliance sampling point out-flow will be captured. Sampling locations SWD-3 and SWD-4 are manholes and will be sampled as follows:

- The sampling bottle will be held with its opening facing upstream (into the flow of water) so that the water directly enters into the bottle.
- The stormwater will be sampled where it has a moderate flow and, if possible, some turbulence, so that the stormwater discharge will be well-mixed and the sample will be representative.
- Sampling will be from a central portion of the stormwater flow, avoiding touching the bottom of channels or pipes to avoid stirring up solid particles.
- Sampling bottles will not be rinsed before sampling and will not be overfilled.

The rain gutter downspout RGD-1 will be sampled by intercepting the free-falling stormwater as it discharges from the downspout.

The stormwater samples will be observed for potential contamination such as odor, sheen, debris, water clarity, etc. The observations of each stormwater sample will be noted in the field by the AEI field personnel and recorded in the field notes.

The stormwater samples will not be filtered in the field during collection. Each of the sample containers will be immediately capped, labeled, and placed on ice in an insulated cooler for shipment to the laboratory. Chain-of-custody documentation will be prepared and accompany the samples to the laboratory.

## 7.5 Analytical Suite

AEI evaluated the Site history, previous sampling activities at the Site, and the contaminants listed in the PHSS Record of Decision (ROD), Errata 2, Table 17 (EPA, 2020) to determine the analytical suite for the stormwater sampling. Table 3 presents the evaluation for each COPC. Each stormwater sample for the initial two source control sampling events at the Site will be analyzed for the following:

- Total suspended solids (TSS) using EPA Testing Method SM 2540D.
- Total organic carbon (TOC) using EPA Testing Method SM 5310C.
- VOCs using EPA Testing Method 8260D.
- Total metals (arsenic, cadmium, chromium, copper, lead, manganese, mercury, and zinc) using EPA Testing Method 6020B/7471B.
- Polychlorinated biphenyls (PCBs) using EPA Testing Method 8082 Low Level.
- PAHs using EPA Testing Method 8270D SIM.
- Polychlorinated dioxins and furans (PCDDs/PCDFs) using EPA Testing Method 1613B.
- TPH using NWTPH Methods.
- Aliphatic hydrocarbons (C10-C12 range) using NWTPH Methods.

Following initial two source control sampling events, AEI may request permission from DEQ for the elimination of non-Site-specific analyses (e.g., for PCBs, PCDDs, and PCDFs) for the final two sampling events, in accordance with the JSCS, Appendix A (DEQ and EPA, 2005).

## 7.6 Analytical Methods and Detection Limits

The stormwater results will be compared to the PHSS ROD CULs, as listed in Table 17 (EPA, 2020). Where applicable, the results will also be compared to the Occupational RBCs and the Screening Level Values (SLVs) presented in "Appendix D: Storm Water Data Reporting and Screening Table for Portland Harbor Sites," as found in the *Guidance for Evaluating the Stormwater Pathway at Upland Sites* (DEQ, 2010).

The analytical laboratory will be directed to meet the lowest method detection limit (MDL) for each COPC in order that analytical results meet the established comparison values, where practical, and are useful for source control evaluation purposes. A detailed list of the COPCs with the associated ROD CULs, JSCS SLVs, laboratory MDLs, and method reporting limits (MRLs) for each constituent is provided in Table 3.

## 7.7 Data Quality Assurance and Quality Control

The data quality assurance and quality control (QA/QC) will include both field and laboratory measures. Field QA/QC will include the collection and analysis of a rinsate blank and a duplicate sample during each of the four sampling events. The rinsate blank is collected to assess the potential for cross-contamination from sampling equipment. The rinsate blank will be collected after any non-dedicated equipment has been decontaminated (i.e., the stainless-steel sampling cup) and by pouring analyte-free water into the decontaminated equipment and collecting the rinse water. The duplicate sample will be collected from a stormwater drain (SWD) location, immediately following the collection of and in the same manner as the corresponding primary field sample. The rinsate blank and the duplicate sample will be analyzed for the same analytes as the other field samples, as described in Section 7.5, above.

The analytical laboratory will conduct necessary quality assurance/quality control (QA/QC) calculations that will be summarized in laboratory reports. All final laboratory reports will be included as an appendix to the sampling event reports. In addition, all analytical data will be summarized in individual tables.

Analytical data will be assessed to ensure that they are of acceptable quality. This assessment will include a review of the following:

- Sampling dates
- Dates of analysis
- Requested analyses
- Chain-of-custody documentation
- Sample preservation
- Holding times

- Duplicate samples
- Laboratory control samples
- Method and rinsate blanks
- Surrogate and matrix spike recoveries
- MRLs and/or MDLs above requested levels
- Any additional comments reported by the field staff or laboratory

The data assessment, including points of achievement and departure from project-specific objectives, will be discussed in the QA/QC section of the sampling event reports.

## 7.8 Reporting

Given a total of four separate stormwater sampling events will be conducted, the analytical results of the first three events will be presented to the DEQ as interim letter reports. Upon completion of the fourth stormwater sampling event, a final report will be compiled with the compiled results from the reports for the first three events and the results of the fourth sampling event. The stormwater sampling reports will address the reporting requirements presented in Appendix A, Section 7.8, of DEQ's *Guidance for Evaluating the Stormwater Pathway at Upland Sites* (January 2009, updated October 2010). Each of the letter reports will be submitted to the DEQ within 30 days of receipt of the final laboratory reports or as part of a quarterly report. The three interim stormwater sampling reports and the final report for each four events will include the following:

- Discussion of sampling activities and any deviations from the sampling plan;
- Field documentation - notes and photographs;
- A rainfall distribution graph for each storm event for the timeframe that begins 24 hours prior to the storm event, with the information indicating time of sampling;
- Copies of original laboratory reports and chain-of-custody documentation;
- Data summaries using the data summary and screening tables provided in Appendix D of the DEQ *Guidance for Evaluating the Stormwater Pathway at Upland Sites*, October 2010. The tables will present the sampling locations, unit of measurement, compounds detected, and laboratory MDLs for those compounds not detected, and JSCS SLVs.
- Discussion of compounds detected, and compounds detected above the ROD CULs, JSCS SLVs, and/or Occupational RBCs;
- Screening of the analytical results using the charts presented in Appendix E: Tool for Evaluating Stormwater Data of the DEQ *Guidance for Evaluating the Stormwater Pathway at Upland Sites*, October 2010; and
- Discussion of findings, recommendations for further stormwater sampling and/or additional source control measures (if warranted), and a determination for DEQ Stormwater Source Control for the Site.

## 8.0 REFERENCES

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- AEI Consultants (AEI), 2023a. *Phase I Environmental Site Assessment, 3717 NW St. Helens Road, Portland, Multnomah County, Oregon*. AEI Project No. 474338. May 3.
- AEI, 2023b. *Phase II Subsurface Assessment, 3717 NW St. Helens Road, Portland, Oregon*. AEI Project No. 478520. May 30.
- AEI, 2024a. *Source Control Evaluation Work Plan, 3717 NW St. Helens Road, Portland, Oregon*. January 11.
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- AEI, 2024c. *Work Plan for Additional Subsurface Investigation, Revision 1, 3717 NW St. Helens Road, Portland, Oregon*. December 16.
- Oregon Department of Environmental Quality (DEQ), 2010. *Guidance for Evaluating the Stormwater Pathway at Upland Sites*. January 2009, updated October 2010.
- DEQ, 2023. *Risk-Based Concentrations Table*. August.
- DEQ and U.S. Environmental Protection Agency (EPA), 2005. *Portland Harbor Joint Source Control Strategy*. Final. December.
- U.S. Environmental Protection Agency, 2020. *Errata #2 for the Portland Harbor Superfund Site Record of Decision ROD Table 17*. January 14.
- Washington Department of Ecology, 2002. *How To Do Stormwater Sampling: A Guide for Industrial Facilities*. Publication #02-10-071. December (revised March 2010).

## 9.0 SIGNATURES

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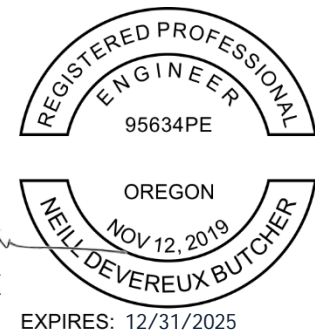
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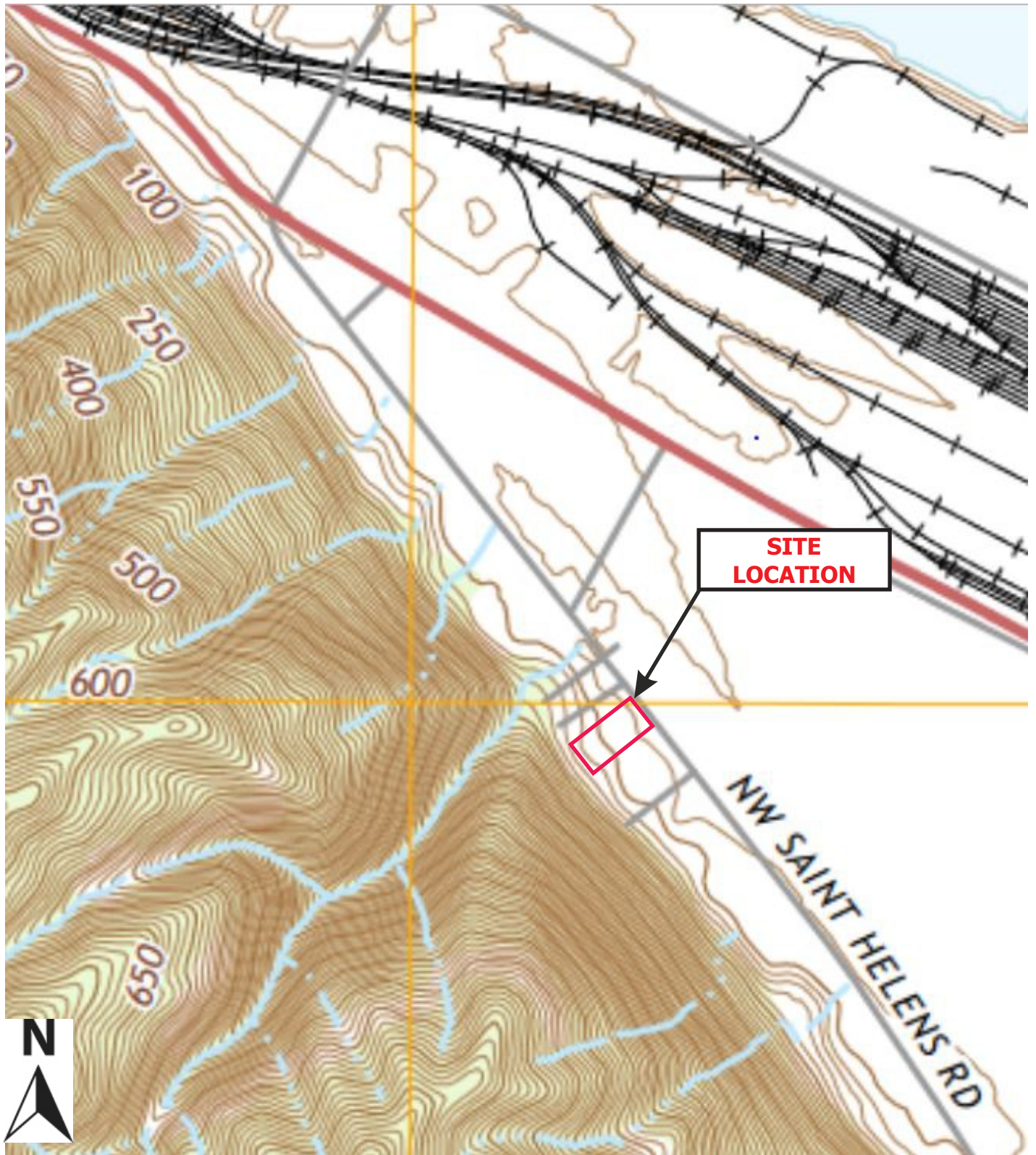
Natasha Budimirovic  
Project Geologist



Neill D. Butcher, PE  
Principal Engineer



## FIGURES



**LEGEND**

— Approximate Site Boundary

Map: Portland Quadrangle, Oregon  
 Date: 2020  
 Source: USGS

**SITE LOCATION MAP**



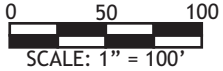
3717 NW SAINT HELENS ROAD  
 PORTLAND, OREGON

**FIGURE 1**  
 Project No. 484441



**LEGEND**

- Approximate Site Boundary
- Trench Drain
- Historic Drain Line
- + Approximate Soil Boring Location (2023)
- Inferred Groundwater Flow Direction
- + Monitoring Well (Christenson Oil)
- Capped Catch Basin
- Approximate Geophysical Survey Area
- Former Septic Tank Location (AEI, 2023a)

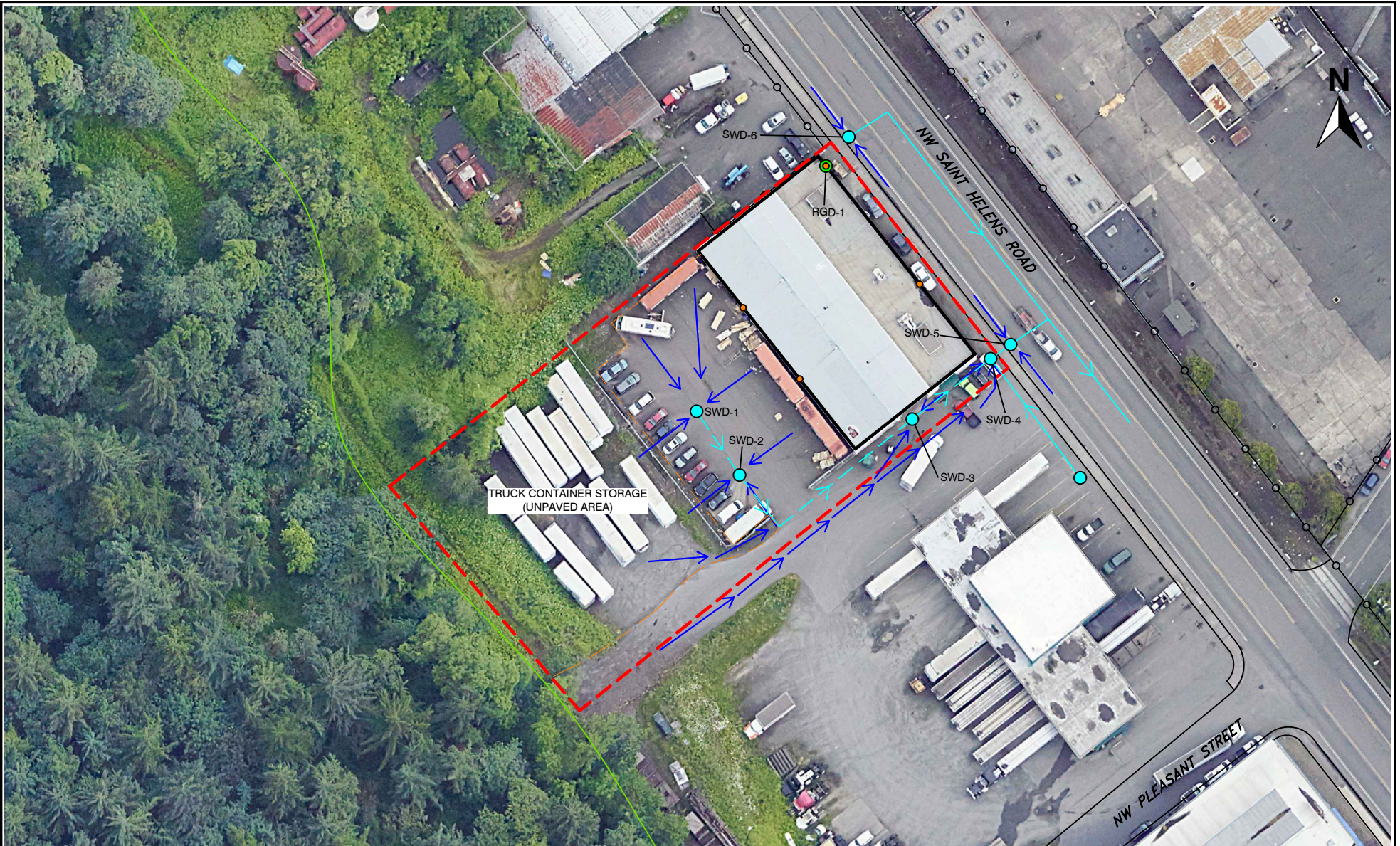


**SITE MAP**

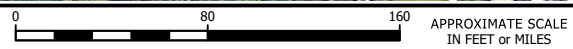


3717 NW ST HELENS ROAD  
PORTLAND, OREGON

**FIGURE 2**  
Project No. 484441



**LEGEND**



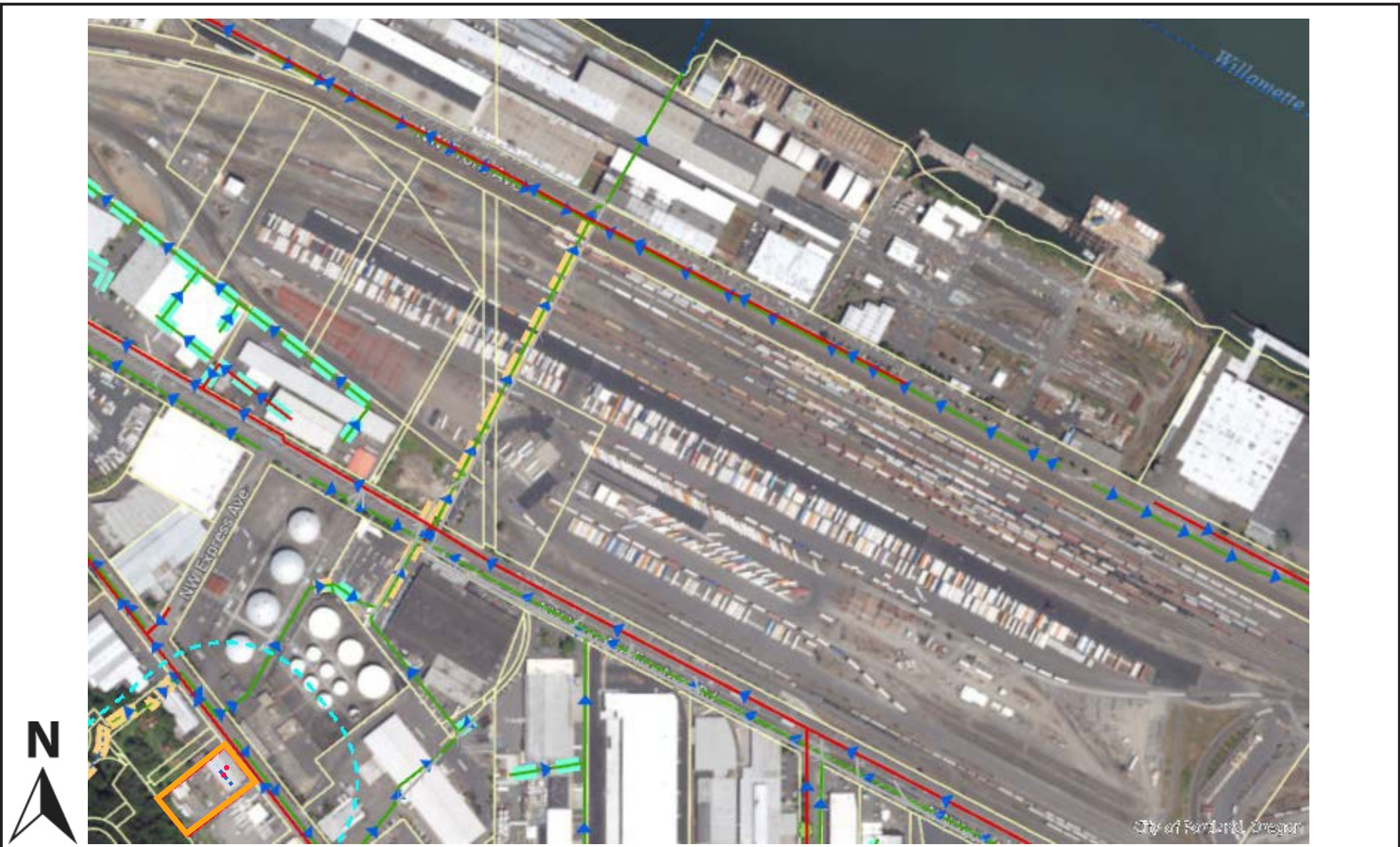
- Approximate Site Boundary
- Approximate Edge of Paved Area
- SWD-1 ● Approximate Storm Water Drainage Location
- RGD-1 ● Rain Gutter Drainage Location
- Rain Water Downspout
- Storm Drain Line (Dashed where inferred) Arrows Indicate Direction of Flow
- ← Apparent Direction of Surficial Stormwater Flow

**SITE DRAINAGE MAP**



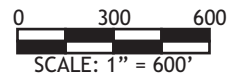
3717 NW Saint Helens Road  
Portland, Oregon 97210

**FIGURE 3**  
Project No. 484441



**LEGEND**

- Approximate Site Boundary
- - - Trench Drain
- Capped Catch Basin
- Storm Drain Line
- Sewer Line



**PORTLAND HARBOR DRAINAGE MAP**



3717 NW SAINT HELENS ROAD  
PORTLAND, OREGON

**FIGURE 4**  
Project No. 484441

## TABLES

**TABLE 1: SOIL SAMPLE DATA SUMMARY**  
**3717 NW St. Helens Road, Portland, Oregon**

Location ID	Date	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)	TPH-RRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	sec-Butylbenzene (mg/kg)	Remaining VOCs (mg/kg)
SB-1-12	5/12/2023	5.48	ND<5.59	ND<14.0	ND<0.00186	ND<0.00932	ND<0.00466	0.00306 J	ND<0.0233	ND<RDL
SB-2-2.5	5/12/2023	3,460	106	ND<12.5	ND<0.0626	0.313	0.157	0.0747	7.86	ND<RDL
SB-3-6	5/12/2023	16.9	2.76 J	4.66 J	ND<0.00132	ND<0.00662	0.00101 J	0.00199 J	ND<0.0165	ND<RDL
Comparison Values:										
ODEQ Occupational RBC <sub>si</sub>		>Max	>Max	>Max	2.1	>Csat	17	>Csat	--	Various
ODEQ Occupational RBC <sub>ss</sub>		20,000	14,000	36,000	37	88,000	150	25,000	--	Various

Notes:

- mg/kg milligrams per kilogram
- ND<RDL not detected above laboratory reporting detection limits
- No comparison value established
- J The identification of the analyte is acceptable; the reported value is an estimate.
- TPH Total Petroleum Hydrocarbons
- GRO Gasoline Range Organics
- DRO Diesel Range Organics
- RRO Residual Range Organics
- VOCs Volatile Organic Compounds
- RBC<sub>ss</sub> Risk-Based Concentrations for Soil Ingestion, Dermal Contact, and Inhalation
- RBC<sub>si</sub> Risk-Based Concentrations for Vapor Intrusion into Buildings
- >Max The constituent RBC for this pathway is calculated as greater than 1,000,000 mg/kg . Therefore, this substance is deemed not to pose risks in this scenario.
- >Csat This soil RBC exceeds the limit of three-phase equilibrium partitioning. Refer to "ChemData" page for the corresponding value of Csat. Soil concentrations in excess of Csat indicate that free product might be present.  
  
 Csat for toluene = 538 mg/kg per ODEQ ChemData  
 Csat for xylenes = 358 mg/kg per ODEQ ChemData

Comparison Values:

ODEQ Oregon Department of Environmental Quality Risk Based Concentrations, May, 2018.

**TABLE 2: GROUNDWATER SAMPLE DATA SUMMARY  
3717 NW St. Helens Road, Portland, Oregon**

Location ID	Date	TPH-GRO (µg/L)	TPH-DRO (µg/L)	TPH-RRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Bromo-benzene (µg/L)	sec-Butyl Benzene (µg/L)	tert-Butyl Benzene (µg/L)	Isopropyl-benzene (µg/L)	4-Methyl-2-Pentanone (MIBK) (µg/L)	n-Propyl-benzene (µg/L)	Remaining VOCs (µg/L)
SB-1-W	5/12/2023	ND<100	235 B	196 B J	ND<1.00	ND<1.00	ND<1.00	ND<3.00	ND<1.00	ND<1.00	ND<1.00	ND<1.00	ND<10.0	ND<1.00	ND<RDL
SB-2-W	5/12/2023	<b>4,410</b>	<b>109,000</b>	<b>3,440</b>	<b>ND&lt;10.0</b>	ND<10.0	<b>ND&lt;10.0*</b>	ND<30.0	1.48 J	182	13.5	35.5	121	29.9	ND<RDL
SB-3-W	5/12/2023	<b>ND&lt;2,000</b>	<b>542 B</b>	354 B	ND<1.00	ND<1.00	ND<1.00	0.544 J	ND<1.00	ND<1.00	ND<1.00	ND<1.00	ND<10.0	ND<1.00	ND<RDL
Comparison Values:															
ODEQ Occupational RBC <sub>tw</sub>		<b>450</b>	<b>430</b>	<b>1,300</b>	2.1	6,300	6.4	830	--	--	--	--	--	--	Various
ODEQ Occupational RBC <sub>wi</sub>		>S	>S	>S	2,800	>S	8,200	>S	--	--	--	--	--	--	Various

Notes:

- µg/L micrograms per liter
- ND<RDL not detected above laboratory reporting detection limits
- No comparison value established
- B The same analyte is found in the associated blank.
- J The identification of the analyte is acceptable; the reported value is an estimate.
- TPH Total Petroleum Hydrocarbons
- GRO Gasoline Range Organics
- DRO Diesel Range Organics
- RRO Residual Range Organics
- VOCs Volatile Organic Compounds
- Bold** Exceeds occupational screening level I RBC<sub>tw</sub>
- >S This groundwater RBC exceeds the solubility limit. Groundwater concentrations in excess of S indicates that free product may be present.
- RBC<sub>wi</sub> Risk-Based Concentrations for Vapor Intrusion into Buildings
- RBC<sub>tw</sub> Risk-Based Concentrations for Ingestion & Inhalation from Tapwater

\* The method detection limit (MDL) for TPH-GRO - 632 µg/L, for benzene = 0.941 µg/L, and for ethylbenzene = 1.37 µg/L.

Comparison Values:

ODEQ Oregon Department of Environmental Quality Risk Based Concentrations for Urban Residential Site users, May, 2018.

TABLE 3: Stormwater COCs, Analyses, Analytical Methods, Comparison Values, Method Detection Limits, and Method Reporting Limits  
3771 NW Saint Helens Road, Portland, Oregon

Contaminant	Analysis in Surface Water	Rationale	Analytical Method	Comparison Values		Analytical Limits *	
				JSCS Screening Level Value (SLV) (µg/L)	ROD Surface Water Cleanup Level (CUL) (µg/L)	Method Detection Limit (MDL) (µg/L)	Method Reporting Limit (MRL) (µg/L)
Aldrin	No	No history of pesticide use on site	NA	NA	NA	NA	NA
<b>Arsenic</b>	<b>Yes</b>	<b>Agency requested analyte</b>	<b>EPA 6020B (total)</b>	<b>0.045</b>	<b>0.018</b>	<b>0.500</b>	<b>1.00</b>
<b>Benzene</b>	<b>Yes</b>	<b>Although not detected in Phase II investigation, TPH GRO detected</b>	<b>EPA 8260D</b>	<b>1.2</b>	<b>--</b>	<b>0.100</b>	<b>0.200</b>
BEHP	No	No PVC production or vinyl chloride resin at the site	NA	NA	NA	NA	NA
<b>Cadmium</b>	<b>Yes</b>	<b>Agency requested analyte</b>	<b>EPA 6020B (total)</b>	<b>0.094</b>	<b>--</b>	<b>0.100</b>	<b>0.200</b>
Chlordanes	No	No history of pesticide use on site	NA	NA	NA	NA	NA
Chlorobenzene	No	No exceedence during Phase II Investigation	NA	NA	NA	NA	NA
<b>Chromium</b>	<b>Yes</b>	<b>Found in auto-repair shops</b>	<b>EPA 6020B (total)</b>	<b>100</b>	<b>100</b>	<b>1.00</b>	<b>2.00</b>
<b>Copper</b>	<b>Yes</b>	<b>Associated with building materials</b>	<b>EPA 6020B (total)</b>	<b>2.7</b>	<b>2.74</b>	<b>1.00</b>	<b>2.00</b>
Cyanide	No	No history of cyanide use on site	NA	NA	NA	NA	NA
DDx	No	No history of pesticide use on site	NA	NA	NA	NA	NA
DDD	No	No history of pesticide use on site	NA	NA	NA	NA	NA
DDE	No	No history of pesticide use on site	NA	NA	NA	NA	NA
DDT	No	No history of pesticide use on site	NA	NA	NA	NA	NA
<b>1,1-Dichloroethene</b>	<b>Yes</b>	<b>No exceedence during Phase II investigation. Agency requested analyte</b>	<b>EPA 8260D</b>	<b>--</b>	<b>--</b>	<b>0.200</b>	<b>0.400</b>
<b>cis-1,2-Dichloroethene</b>	<b>Yes</b>	<b>No exceedence during Phase II investigation. Agency requested analyte</b>	<b>EPA 8260D</b>	<b>61</b>	<b>--</b>	<b>0.200</b>	<b>0.400</b>
Dieldrin	No	No history of pesticide use on site	NA	NA	NA	NA	NA
2,4-Dichlorophenoxyacetic acid (2,4-D)	No	No history of herbicide use on site	NA	NA	NA	NA	NA
<b>Ethylbenzene</b>	<b>Yes</b>	<b>Detected in soil in Phase II investigation</b>	<b>EPA 8260D</b>	<b>7.3</b>	<b>7.3</b>	<b>0.250</b>	<b>0.500</b>
Hexachlorobenzene	No	No history of pesticide use on site	NA	NA	NA	NA	NA
Lindane	No	No history of pesticide use on site	NA	NA	NA	NA	NA
<b>Lead</b>	<b>Yes</b>	<b>Found in auto-repair shops</b>	<b>EPA 6020B (total)</b>	<b>0.54</b>	<b>--</b>	<b>0.110</b>	<b>0.200</b>
<b>Manganese</b>	<b>Yes</b>	<b>Agency requested analyte</b>	<b>EPA 6020B (total)</b>	<b>50</b>	<b>--</b>	<b>0.500</b>	<b>1.00</b>
MCPP	No	No history of herbicide use on site	NA	NA	NA	NA	NA
<b>Mercury</b>	<b>Yes</b>	<b>Agency requested analyte</b>	<b>EPA 7471 (total)</b>	<b>0.77</b>	<b>--</b>	<b>0.0400</b>	<b>0.0800</b>
Pentachlorophenol	No	No history of pesticide or herbicide use on site or wood treatment	NA	NA	NA	NA	NA
Perchlorate	No	No history of perchlorate use on site	NA	NA	NA	NA	NA
Polybrominated diphenyl ether (PBDE)	No	No flame retardant use on site. PBDEs are used as flame retardants and in a number of other applications, including textiles, plastics, wire insulation, and automobiles.	NA	NA	NA	NA	NA
<b>Polychlorinated Biphenyls (PCBs)</b>	<b>Yes</b>	<b>Required for Source Control Evaluation in Willamette River</b>	<b>EPA 8082 Low Level (LL)</b>	<b>6.4E-05 (total)</b>	<b>6.4E-06</b>	<b>0.0100</b>	<b>0.0200</b>
<b>Aroclor 1016</b>	<b>Yes</b>	<b>Part of the PCB list</b>	<b>EPA 8082 LL</b>	<b>0.96</b>	<b>--</b>	<b>0.0100</b>	<b>0.0200</b>
<b>Aroclor 1221</b>	<b>Yes</b>	<b>Part of the PCB list</b>	<b>EPA 8082 LL</b>	<b>0.034</b>	<b>--</b>	<b>0.0100</b>	<b>0.0200</b>
<b>Aroclor 1232</b>	<b>Yes</b>	<b>Part of the PCB list</b>	<b>EPA 8082 LL</b>	<b>0.034</b>	<b>--</b>	<b>0.0100</b>	<b>0.0200</b>
<b>Aroclor 1242</b>	<b>Yes</b>	<b>Part of the PCB list</b>	<b>EPA 8082 LL</b>	<b>0.034</b>	<b>--</b>	<b>0.0100</b>	<b>0.0200</b>
<b>Aroclor 1248</b>	<b>Yes</b>	<b>Part of the PCB list</b>	<b>EPA 8082 LL</b>	<b>0.034</b>	<b>--</b>	<b>0.0100</b>	<b>0.0200</b>
<b>Aroclor 1254</b>	<b>Yes</b>	<b>Part of the PCB list</b>	<b>EPA 8082 LL</b>	<b>0.033</b>	<b>--</b>	<b>0.0100</b>	<b>0.0200</b>
<b>Aroclor 1260</b>	<b>Yes</b>	<b>Part of the PCB list</b>	<b>EPA 8082 LL</b>	<b>0.034</b>	<b>--</b>	<b>0.0100</b>	<b>0.0200</b>
<b>Aroclor 1268</b>	<b>Yes</b>	<b>Part of the PCB list</b>	<b>EPA 8082 LL</b>	<b>--</b>	<b>--</b>	<b>0.0100</b>	<b>0.0200</b>

TABLE 3: Stormwater COCs, Analyses, Analytical Methods, Comparison Values, Method Detection Limits, and Method Reporting Limits  
3771 NW Saint Helens Road, Portland, Oregon

Contaminant	Analysis in Surface Water	Rationale	Analytical Method	Comparison Values		Analytical Limits *	
				JSCS Screening Level Value (SLV) (µg/L)	ROD Surface Water Cleanup Level (CUL) (µg/L)	Method Detection Limit (MDL) (µg/L)	Method Reporting Limit (MRL) (µg/L)
<i>Polycyclic Aromatic Hydrocarbons (PAHs)</i>	Yes	<i>TPH found in exceedence in groundwater</i>	<i>EPA 8270E LL</i>	--	--	<i>NA</i>	<i>NA</i>
<i>Carcinogenic PAHs (BaP TEQ)</i>	Yes	<i>Part of the PAHs list</i>	<i>EPA 8270E LL</i>	<i>0.018</i>	<i>0.00012</i>	<i>0.00800</i>	<i>0.0160</i>
<i>Acenaphthene</i>	Yes	<i>Part of the PAHs list</i>	<i>EPA 8270E LL</i>	<i>0.2</i>	--	<i>0.0160</i>	<i>0.0320</i>
<i>Acenaphthylene</i>	Yes	<i>Part of the PAHs list</i>	<i>EPA 8270E LL</i>	<i>0.2</i>	--	<i>0.0160</i>	<i>0.0320</i>
<i>Anthracene</i>	Yes	<i>Part of the PAHs list</i>	<i>EPA 8270E LL</i>	<i>0.2</i>	--	<i>0.0160</i>	<i>0.0320</i>
<i>Benzo(a)anthracene</i>	Yes	<i>Part of the PAHs list</i>	<i>EPA 8270E LL</i>	<i>0.018</i>	<i>0.0012</i>	<i>0.00800</i>	<i>0.0160</i>
<i>Benzo(a)pyrene (BaP)</i>	Yes	<i>Part of the PAHs list</i>	<i>EPA 8270E LL</i>	<i>0.018</i>	<i>0.00012</i>	<i>0.00800</i>	<i>0.0160</i>
<i>Benzo(b)fluoranthene</i>	Yes	<i>Part of the PAHs list</i>	<i>EPA 8270E LL</i>	<i>0.018</i>	<i>0.0012</i>	<i>0.00800</i>	<i>0.0160</i>
<i>Benzo(g,h,i)perylene</i>	Yes	<i>Part of the PAHs list</i>	<i>EPA 8270E LL</i>	<i>0.018</i>	--	<i>0.0160</i>	<i>0.0320</i>
<i>Benzo(k)fluoranthene</i>	Yes	<i>Part of the PAHs list</i>	<i>EPA 8270E LL</i>	<i>0.018</i>	<i>0.0013</i>	<i>0.00800</i>	<i>0.0160</i>
<i>Chrysene</i>	Yes	<i>Part of the PAHs list</i>	<i>EPA 8270E LL</i>	<i>0.018</i>	<i>0.0013</i>	<i>0.00800</i>	<i>0.0160</i>
<i>Dibenza(a,h)anthracene</i>	Yes	<i>Part of the PAHs list</i>	<i>EPA 8270E LL</i>	<i>0.018</i>	<i>0.00012</i>	<i>0.00800</i>	<i>0.0160</i>
<i>Fluoranthene</i>	Yes	<i>Part of the PAHs list</i>	<i>EPA 8270E LL</i>	<i>0.2</i>	--	<i>0.0160</i>	<i>0.0320</i>
<i>Fluorene</i>	Yes	<i>Part of the PAHs list</i>	<i>EPA 8270E LL</i>	<i>0.2</i>	--	<i>0.0160</i>	<i>0.0320</i>
<i>Indeno(1,2,3-c,d)pyrene</i>	Yes	<i>Part of the PAHs list</i>	<i>EPA 8270E LL</i>	<i>0.018</i>	<i>0.0012</i>	<i>0.00800</i>	<i>0.0160</i>
<i>2-Methylnaphthalene</i>	Yes	<i>Part of the PAHs list</i>	<i>EPA 8270E LL</i>	<i>0.2</i>	--	<i>0.0320</i>	<i>0.0640</i>
<i>Naphthalene</i>	Yes	<i>Part of the PAHs list</i>	<i>EPA 8270E LL</i>	<i>0.2</i>	<i>12</i>	<i>0.0320</i>	<i>0.0640</i>
<i>Phenanthrene</i>	Yes	<i>Part of the PAHs list</i>	<i>EPA 8270E LL</i>	<i>0.2</i>	--	<i>0.0320</i>	<i>0.0640</i>
<i>Pyrene</i>	Yes	<i>Part of the PAHs list</i>	<i>EPA 8270E LL</i>	<i>0.2</i>	--	<i>0.0160</i>	<i>0.0320</i>
<i>Polychlorinated Dioxins/Furans (2,3,7,8-TCDD TEQ)</i>	Yes	<i>Required for Source Control Evaluation in Willamette River</i>	<i>EPA 1613B</i>	<i>5.1E-09</i>	<i>5.1E-10</i>	<i>2.00E-06</i>	<i>5.00E-06</i>
<i>1,2,3,4,7,8-HxCDF</i>	Yes	<i>Part of Dioxin/Furan list</i>	<i>EPA 1613B</i>	--	--	<i>5.00E-06</i>	<i>2.50E-05</i>
<i>1,2,3,4,7,8-PeCDD</i>	Yes	<i>Part of Dioxin/Furan list</i>	<i>EPA 1613B</i>	--	--	<i>5.00E-06</i>	<i>2.50E-05</i>
<i>2,3,4,7,8-PeCDF</i>	Yes	<i>Part of Dioxin/Furan list</i>	<i>EPA 1613B</i>	--	--	<i>5.00E-06</i>	<i>2.50E-05</i>
<i>2,3,7,8-TCDF</i>	Yes	<i>Part of Dioxin/Furan list</i>	<i>EPA 1613B</i>	--	--	<i>2.00E-06</i>	<i>5.00E-06</i>
<i>2,3,7,8-TCDD</i>	Yes	<i>Part of Dioxin/Furan list</i>	<i>EPA 1613B</i>	<i>5.1E-09</i>	--	<i>5.00E-06</i>	<i>5.00E-06</i>
<i>Tetrachloroethene</i>	Yes	<i>No exceedence during Phase II Investigation. Agency requested analyte</i>	<i>EPA 8260D</i>	<i>0.12</i>	--	<i>0.200</i>	<i>0.400</i>
<i>Toluene</i>	Yes	<i>Detected in soil in Phase II Investigation</i>	<i>EPA 8260D</i>	<i>9.8</i>	--	<i>0.500</i>	<i>1.00</i>
<i>TPH-Gasoline</i>	Yes	<i>Exceeded screening levels in groundwater during Phase II Investigation</i>	<i>NWTPH-Gx</i>	--	--	<i>50</i>	<i>100</i>
<i>TPH-Diesel</i>	Yes	<i>Required for Source Control Evaluation in Willamette River</i>	<i>NWTPH-Dx</i>	--	--	<i>100</i>	<i>200</i>
<i>TPH-Residual Range Organics</i>	Yes	<i>Exceeded screening levels in groundwater during Phase II Investigation</i>	<i>NWTPH-Dx</i>	--	--	<i>200</i>	<i>400</i>
<i>Aliphatic Hydrocarbons (C10-C12)</i>	Yes	<i>TPH-GRO found in exceedence in groundwater</i>	<i>NWTPH-EPH</i>	--	--	<i>20</i>	<i>40</i>
<i>Tributyltin</i>	No	No history of organotins used on site	NA	NA	NA	NA	NA
<i>Trichloroethene</i>	Yes	<i>No exceedence during Phase II Investigation. Agency requested analyte</i>	<i>EPA 8260D</i>	<i>0.17</i>	--	<i>0.200</i>	<i>0.400</i>
<i>2,4,5-TP (Silvex)</i>	No	No history of herbicides used on site	NA	NA	NA	NA	NA
<i>Vanadium</i>	No	Metal not associated with auto shop	NA	NA	NA	NA	NA

TABLE 3: Stormwater COCs, Analyses, Analytical Methods, Comparison Values, Method Detection Limits, and Method Reporting Limits  
3771 NW Saint Helens Road, Portland, Oregon

Contaminant	Analysis in Surface Water	Rationale	Analytical Method	Comparison Values		Analytical Limits *	
				JSCS Screening Level Value (SLV) (µg/L)	ROD Surface Water Cleanup Level (CUL) (µg/L)	Method Detection Limit (MDL) (µg/L)	Method Reporting Limit (MRL) (µg/L)
<i>Vinyl Chloride</i>	<i>Yes</i>	<i>No exceedence during Phase II Investigation. Agency requested analyte</i>	<i>EPA 8260D</i>	<i>0.015</i>	<i>--</i>	<i>0.100</i>	<i>0.200</i>
<i>Xylenes</i>	<i>Yes</i>	<i>Detected in soil in Phase II Investigation</i>	<i>EPA 8260D</i>	<i>200</i>	<i>--</i>	<i>0.750</i>	<i>1.50</i>
<i>Zinc</i>	<i>Yes</i>	<i>Associated with building materials</i>	<i>EPA 6020B (total)</i>	<i>36</i>	<i>36.5</i>	<i>2.00</i>	<i>4.00</i>
<i>Total Suspended Solids</i>	<i>Yes</i>	<i>Required for Source Control Evaluation in Willamette River</i>	<i>SM 2540 D</i>	<i>NA</i>	<i>NA</i>	<i>5,000</i>	<i>5,000</i>
<i>Total Organic Carbon</i>	<i>Yes</i>	<i>Required for Source Control Evaluation in Willamette River</i>	<i>SM 5310 C</i>	<i>NA</i>	<i>NA</i>	<i>1,000</i>	<i>1,000</i>

**Notes:**

- NA = Not applicable
  - = Value not established
  - µg/L = microgram per liter
  - BEHP = Bis(2-ethylhexyl)phthalate
  - DDD = Dichlorodiphenyltrichloroethane)
  - DDE = Dichlorodiphenyldichloroethylene)
  - DDT = Dichlorodiphenyltrichloroethane)
  - DDx = Collectively DDD, DDE, and DDT
  - TPH = Total Petroleum Hydrocarbons
  - TEQ = Toxicity equivalence quotient
  - \* Method detection limit (MDL) and method reporting limit (MRL) values provided by Apex Laboratory, Tigard, Oregon
- HxCDF = Hexachlorodibenzo-p-dioxin
  - PeCDD = Pentachlorodibenzo-P-dioxin
  - PeCDF = Pentachlorodibenzofuran
  - TCDF = Tetrachlorodibenzofuran
  - TCDD = Tetrachlorodibenzo-p-Dioxin
- EPA = U.S. Environmental Protection Agency
  - ROD CUL = PHSS Record of Decision cleanup level (Table 17)
  - SLV = Screening level values per JSCS Appendix D.
  - SM = Standard Methods for the Examination of Water and Wastewater

APPENDIX A  
Responses to Regulatory Agency Comments

## APPENDIX A

### Responses to Regulatory Agency Comments

AEI Consultants (AEI) prepared the *Source Control Evaluation Work Plan* (Work Plan), dated January 11, 2024, for further investigation of the Baxter and Flaming site at 3717 NW Saint Helens Road, Portland, Oregon (“the Site”). The Work Plan was prepared in response to a request from the Oregon Department of Environmental Quality (DEQ). The data from implementation of the Work Plan are intended to support an evaluation of potential chemicals of concern in stormwater at the Site that may discharge to the storm drain network and could impact Willamette River. DEQ provided a consolidated listing of DEQ and U.S. Environmental Protection Agency (U.S. EPA) review comments on the Work Plan in a letter dated September 11, 2024. The DEQ comments (shown in italics) and AEI’s responses to the agency comments are provided below. The relevant revisions have been incorporated into the Revised Work Plan.

Comment 1: *Include further detail regarding how and where samples will be collected. The Work Plan states, “Care will be taken to ensure that only water collected directly from the compliance sampling point out-flow will be captured.” Elaborate on the location of the compliance sampling point out-flow, including clarification on if samples will be collected from a stormwater manhole or catch basin.*

**Response to Comment 1:** Section 7.4 (Sampling Methods) has been revised to clarify how and where samples will be collected. Sampling locations SWD-1 through SWD-4 are manholes and will be sampled such that the full stormwater flow through the manhole is sampled. The rain gutter downspout RGD-1 will be sampled by intercepting the free-falling stormwater as it discharges from the downspout.

Comment 2: *Sample results should be compared to PHSS Record of Decision (ROD) cleanup levels (CULs; EPA, 2017) instead of, or in addition to, Joint Source Control Strategy (JSCS) screening level values (SLVs; DEQ and EPA 2025) or Occupational Risk-Based Concentrations. Section 7.6 and Table 3 should be revised to allow for comparison of method detection limits (MDLs) and method reporting limits (MRLs) to ROD CULs. The ROD CULs superseded the SLVs when the ROD was published in 2017, and data collected during the source control evaluation should be compared to ROD CULs.*

**Response to Comment 2:** Section 7.6 has been revised to indicate that sample results will be compared to the PHSS ROD surface water CULs. Results will also be compared to the SLVs and/or Occupational RBCs, where applicable. Table 3 has been revised to include the surface water CULs.

Comment 3: *Include all metals that have ROD surface water CULs in the analyte list for stormwater sampling. Various current and historical operations involved the use of metals, and some metals (e.g., copper and zinc) are common stormwater contaminants associated with building materials. The rationale that is provided in Table 3 is not sufficient for excluding these analytes.*

**Response to Comment 3:** The metals that have surface water CULs in the PHSS ROD have been added to the analyte list. Metals with surface water CULs include arsenic, copper, and zinc. Table 3 has been revised to include analysis for these metals. See also the Response to Comment 14, below.

Comment 4: *All site operations and stormwater runoff should be evaluated as part of source control evaluations, regardless of who is conducting the operations at the site. Section 2.1 mentions that the truck storage is not associated with Baxter & Flaming; however, text should clarify that the stormwater from that portion of the site is still included in the proposed stormwater evaluation described in the Work Plan.*

**Response to Comment 4:** Stormwater from the truck container storage area flows to the same stormwater drains as the other portions of the Site (specifically, drains SWD-1 through SWD-4). The text of Section 2.1 has been revised to clarify this point, and Figure 3 has been revised to better indicate the various areas of the Site and apparent stormwater flow patterns.

Comment 5: *If available, include information on the site stormwater conveyance system. The text and figures do not currently discuss the layout of stormwater piping.*

**Response to Comment 5:** The Site Drainage Map (Figure 3) has been revised to depict the suspected alignment and flow direction of the storm drain lines. The configuration of the storm drain lines will be confirmed as part of site investigation activities proposed in the *Work Plan for Additional Subsurface Investigation, Revision 1*, prepared by AEI and dated December 16, 2024.

Comment 6: *Revise Section 6.0 to include an evaluation of the preferential flow pathway from the capped catch basins. Section 2.1 indicates that there are at least three interior catch basins present onsite that were capped with concrete and that these features may have acted as potential preferential pathways for contamination. Additionally, Section 4.0 indicates that AEI recommended further subsurface assessment in connection with apparent releases from these catch basins. These catch basins remain a potential ongoing source at the site and a plan should be developed to evaluate them.*

**Response to Comment 6:** AEI has prepared the *Work Plan for Additional Subsurface Investigation, Revision 1*, dated December 16, 2024, which proposes additional characterization of the Site, including the vicinity of the former catch basins. Section 4.0 has been revised to more clearly reference the proposed additional Site investigations. Given the catch basins no longer exist, catch basin sampling does not appear to be appropriate and Section 6.0 has not been revised.

Comment 7: *Remove the text in Section 7.1 indicating that a sample from RDG-1 will be used as a background sample. A sample from a rain gutter is not necessarily representative of background due to contaminants that could be present in roofing or gutter materials.*

**Response to Comment 7:** The noted text in Section 7.1 has been revised to remove the reference to the sample from RDG-1 being a background sample.

Comment 8: *Section 2.5. Field quality assurance (QA) and quality control (QC) should be described in the Work Plan in addition to the laboratory QA/QC that is described in Section 7.7. Field QA/QC should include a rinsate blank for the stainless-steel cup and field duplicate sample. The rinsate sample should be collected after the equipment has been decontaminated to assess the potential for cross-contamination from sampling equipment.*

**Response to Comment 8:** Section 7.7 has been revised to include the collection and analysis of field QA/QC samples, including collection of a rinsate blank and a duplicate sample during each of the four sampling events.

Comment 9: *Revise Table 3 to only list Xylenes and Zinc once. These contaminants are listed twice and the information in the columns to the right is different for Xylenes in each of the rows.*

**Response to Comment 9:** The extra entry for xylenes and zinc have been removed from Table 3.

Comment 10: *In future correspondence, please use the Baxter and Flaming and ECSI 6565 in the subject line.*

**Response to Comment 10:** Comment noted. We will ensure that the subject line of future correspondence references the site name and includes reference to the Environmental Cleanup Site Information (ESCI) Case No. 6565.

Comment 11: *Include Laura Hanna of EPA as an Electronic Copy (Ec) recipient for future submittals.*

**Response to Comment 11:** Laura Hanna of the U.S. EPA (hanna.laura@epa.gov) will be copied on future submittals.

Comment 12: *Please describe the interior drains' capping method and if a City of Portland permit was issued. See also Comment 6.*

**Response to Comment 12:** According a City of Portland plumbing permit dated December 22, 1995, the permit was for "capping and covering 3 inside catch basins." The permit does not include additional details regarding the method of capping, but it does indicate that the permit was "finalized unapproved" on December 4, 1996. A Report of Plumbing Inspection is not available for this permit. On December 6, 2023, AEI confirmed that the three catch basins are capped with concrete, which appears to prevent liquids from entering the storm drainage system from within the Site building.

Comment 13: *Please provide a more detailed map for Figure 1 Site Drainage. Does drainage from SWD-1 and SWD-2 go to SED-4?*

**Response to Comment 13:** The Site Drainage Map (Figure 3) has been revised to depict the suspected alignment of the storm drain lines and flow direction. See also the Response to Comment 5, above.

Comment 14: *Add the following COCs to the analytical list: arsenic, Cadmium, copper, mercury, manganese, mercury, Volatile Organics-report full 8260 list of volatiles (tetrachloroethene, trichloroethene, vinyl chloride, and zinc).*

**Response to Comment 14:** At agency request, the requested potential COCs have been added to the analytical list, as follows: "full-suite" VOCs (EPA Testing Method 8260D) and total metals for arsenic, cadmium, copper, manganese, mercury, and zinc. See also the Response to Comment 3, above.

Comment 15: *Matters of Style 1. Revise the text in Section 7.2 to state “first flush” conditions instead of just “flush”. 2. Revise 1,2-Dichlorophenoxyacetic acid to 2,4-Dichlorophenoxyacetic acid in Table 3 to match the contaminant in PHSS ROD Table 17.*

**Response to Comment 15:** The requested revisions have been made.