CONTAMINATED MEDIA MANAGEMENT PLAN

Hoyt Street Properties—Block 29
Northeast of NW Savier Street and NW 14th Avenue
Portland, Oregon
DEQ ECSI No. 6162

For
Oregon Department of Environmental Quality
and MCA Architects

June 11, 2024

Project: MCAArch-3-01

NV5

June 11, 2024

Oregon Department of Environmental Quality
Northwest Region
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Attention: Kevin Dana

Contaminated Media Management Plan
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NV5 is pleased to submit this CMMP for the Hoyt Street Properties—Block 29 site northeast of the intersection of NW Savier Street and NW 14th Avenue in Portland, Oregon (Block 29). This CMMP addresses the management of known and potentially contaminated media that could be encountered during site redevelopment. This document is intended to be used by the excavation contractor during earthwork activities and should be used in conjunction with any project specifications provided to the contractor by the project developer pertaining to the handling, segregation, management, characterization, reuse, and/or disposal of impacted soil, clean soil, debris, and/or groundwater at Block 29.

Sincerely,

NV5

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Principal Geologist

cc: Jack Miller, MCA Architects

CBS:KRS:sn
Attachments
One copy submitted
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ACRONYMS AND ABBREVIATIONS

AECOM	AECOM Environment
AOC	area of concern
AOI	area of interest
BGS	below ground surface
BNSF	Burlington Northern Santa Fe
CFR	Code of Federal Regulations
CFSL	clean fill screening level
CMMP	Contaminated Media Management Plan
DEQ	Oregon Department of Environmental Quality
ECSI	Environmental Cleanup Site Information
EPA	U.S. Environmental Protection Agency
ESCP	Erosion and Sediment Control Plan
HCP	Hazard Communication Plan
HSP	Health and Safety Plan
I.D.	identification
LNAPL	light non-aqueous phase liquid
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
mil	milli-inch
NE	not established
OSHA	Occupational Safety and Health Administration
PAH	polycyclic aromatic hydrocarbon
pbv	percent by volume
PCB	polychlorinated biphenyl
PPE	personal protective equipment
RA	remedial action
RBC	risk-based concentration
RBDM	*Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites*
RCRA	Resource Conservation and Recovery Act
RD	remedial design
ROD	Record of Decision
ROW	right-of-way
SIM	selective ion monitoring
SSO	site safety officer
TCLP	toxicity characteristic leaching procedure
µg/L	micrograms per liter
VOC	volatile organic compound

1.0 INTRODUCTION

This CMMP has been prepared by NV5 on behalf of MCA Architects for the Hoyt Street Properties—Block 29 site northeast of the intersection of NW Savier Street and NW 14th Avenue in Portland, Oregon (Block 29). This document is intended to assist the construction team in field identification and management of known and potentially contaminated media (soil and groundwater) as well as clean soil and debris that could be encountered at Block 29 during construction. This CMMP includes field protocol for identification, response actions, communication, removal, segregation, temporary storage or stockpiling, transportation, treatment, and disposal of contaminated media, clean soil, and debris. Acronyms and abbreviations used herein are defined above, immediately following the Table of Contents.

A site-specific HSP and directions to Legacy Good Samaritan Medical Center are presented in Appendix A. The attached HSP was created solely for use by NV5 employees. However, contractors may adopt the HSP with proper modifications, as needed, to address the type of work they will be completing at Block 29.

2.0 BLOCK 29 DESCRIPTION

Block 29 consists of one city block that encompasses Tax Lot 713 of Multnomah County Tax Map 1N1E28DD. Block 29 encompasses 0.98 acre of vacant land within the former Hoyt Street Railyard Property (DEQ ECSI No. 1080). In anticipation of future redevelopment, DEQ removed Block 29 from the Hoyt Street Railyard ECSI site and assigned Block 29 ECSI No. 6162.

Block 29 is situated at an elevation of approximately 30 feet above mean sea level. The topography of Block 29 is generally level. Regional topography slopes slightly downward to the northeast. Block 29 is directly bound to the north and east by a railroad ROW (with active railroad tracks), beyond which is NW Naito Parkway; to the south by The Abigail Apartments and NW Savier Street, across which is Pavelcomm—Management IT Services; and to the west by NW 14th Avenue, across which is a commercial building. Block 29 is shown relative to surrounding physical features on Figure 1. Block 29 and surrounding properties are shown on Figure 2.

3.0 PLANNED REDEVELOPMENT

It is our understanding that the proposed development will consist of a six-story, steel-frame self-storage facility with a slab-on-grade foundation, aboveground stormwater facilities, a truck dock with drop-off wells approximately 4.25 feet below the finished floor elevation and flush drop-off stalls, and landscaping. The layout of the planned development is shown on Figure 2.

4.0 REGULATORY SCREENING LEVELS

4.1 DEQ RBCS

DEQ has established generic RBCs for various contaminants, exposure pathways, and receptors to evaluate risk to human health. It is our understanding that earthwork related to site redevelopment will generally consist of mass excavation, shoring, and utility trenching during

construction and that future subject property use will be commercial. Therefore, the following exposure pathways and receptors are considered complete at Block 29:

- *Soil Ingestion, Dermal Contact, and Inhalation*: occupational, construction worker, and excavation worker receptors
- *Vapor Intrusion into Buildings*: occupational receptors
- *Volatilization to Outdoor Air*: occupational receptors

The *Leaching to Groundwater* pathway is considered incomplete, as potable water will be supplied to Block 29 by the City of Portland.

We compared soil and groundwater sample results collected in 2016 to then-established applicable DEQ RBCs for the above exposure pathways. Detected concentrations of diesel- and oil-range hydrocarbons, RCRA 8 total metals, PAHs, and PCBs did not exceed the applicable RBCs at the time. However, the detected concentrations of arsenic in select soil samples now exceed the current DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBC for occupational receptors.

Since 2016, DEQ has updated the RBCs, most recently in June 2023. In addition to changes in numerous RBC values, DEQ no longer uses soil RBCs to evaluate risk for the *Vapor Intrusion into Buildings* exposure pathway. DEQ now relies on soil gas and sub-slab vapor data to evaluate risk from this exposure pathway. Consequently, depending on the magnitude of the residual contamination encountered during construction activities, future soil gas data may need to be collected during redevelopment activities to evaluate risk to human health from the *Vapor Intrusion into Buildings* exposure pathway. Soil gas data could also be collected before redevelopment activities; however, depending on the results, additional soil gas data may still be required during redevelopment activities.

The RBCs associated with the above exposure pathways and receptors used to compare previous chemical analytical results are referred to as the "applicable DEQ RBCs" in this CMMP.

4.2 DEQ CFSLS

DEQ has published an internal management directive, which includes CFSLs, to use as guidance when evaluating disposal options for soil with low levels of contamination. Soil that does not appear contaminated and/or contains contamination at levels less than DEQ CFSLs can be managed as clean fill. Excavation spoils would not meet DEQ's definition of "clean fill" if field screening evidence of contamination is observed or chemical constituents are present at concentrations exceeding DEQ CFSLs. To evaluate soil disposal options, soil chemical analytical results were also compared to established DEQ CFSLs. Arsenic, cadmium, lead, mercury, selenium, acenaphthene, benz(a)anthracene, benzo(a)pyrene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, naphthalene, and Aroclor 1260 were present in select soil samples at concentrations greater than DEQ's corresponding CFSLs.

5.0 BACKGROUND

The following sections describe the background of Block 29, including a bibliography of previous reports, a description of Block 29 development history, a description of subsurface soil and groundwater conditions on Block 29, and a summary of previous environmental investigations conducted on Block 29.

5.1 BIBLIOGRAPHY

The purpose of this section is to summarize available information related to the historical site development and subsurface conditions at Block 29. Our knowledge of Block 29 is based on our previous investigations and the following environmental reports:

- *Record of Decision; Selected Remedial Action for Hoyt Street Railyard; Portland, Oregon,* prepared by DEQ, Environmental Cleanup, Northwest Region, Site Response Program, dated December 15, 2000
- *Declaration of Covenants and Restrictions* between Hoyt Street Properties, L.L.C. and the BNSF Railway Company, recorded February 2, 2002
- *Stipulation and Consent Decree* between DEQ and Hoyt Street Properties, LLC and the BNSF Railway Company, recorded February 2, 2002
- *Soil Remedial Design and Remedial Action Workplan; Hoyt Street Yards; Portland, Oregon,* (RD/RA Workplan) prepared by Anchor Environmental, L.L.C., dated June 2002
- *Post Construction Cap Inspection and Maintenance Plan for Resident Building Blocks; Hoyt Street Yards; Portland, Oregon,* prepared by Anchor Environmental, L.L.C., dated December 2004
- *Phase V Environmental Soil Report; Hoyt Street Yards; Portland, Oregon,* prepared by Anchor Environmental LLC, dated February 2006
- *Groundwater Project Closeout Report—Former Hoyt Street Railyard,* prepared by AECOM Environment (AECOM), dated February 2010
- *Explanation of Significant Difference to the Record of Decision for Hoyt Street Railyard; Multnomah County, Oregon (ECSI No. 1080),* prepared by DEQ, dated November 9, 2015
- *Report of Pre-Construction Subsurface Investigation; Hoyt Street Properties—Block 29; Northeast of NW Savier Street and NW 14th Avenue; Portland, Oregon,* prepared by GeoDesign, Inc., dated December 2, 2016

With the exception of our 2016 report, conducted under our previous business entity of GeoDesign, Inc., the environmental reports listed above pertain to the former Hoyt Street Railyard as a whole. The former Hoyt Street Railyard is a 26-acre property that is bound by NW Naito Parkway to the north, NW 9th Avenue to the east, NW Lovejoy Street to the south, and NW 12th Avenue to the west. In addition, the former Hoyt Street Railyard includes the two blocks south of NW Lovejoy Street between NW 10th Avenue and NW 9th Avenue and four blocks between NW 12th Avenue and NW 14th Avenue in the northwest portion of the railyard.

For the purposes of this CMMP, only information contained in previous reports that pertains to Block 29 is discussed in detail herein.

5.2 BLOCK 29 DEVELOPMENT HISTORY

Block 29 was developed for lumber storage sometime before 1889 and consisted of a railyard and associated buildings from at least 1905 through 1990, by which time the buildings were removed. The railroad tracks associated with the former railyard were removed by 1995 and Block 29 was left vacant. It has intermittently been used for storage and construction staging through the present.

5.3 SUBSURFACE CONDITIONS

The following sections describe the subsurface soil and groundwater conditions at Block 29.

5.3.1 Soil

Subsurface conditions encountered during subsurface investigations at Block 29 generally consist of fill material ranging in thickness from 2.5 to 20 feet. The fill is highly variable, consisting of silt, sand, gravel, clay, organics, asphalt, brick debris, concrete debris, and wood chips.

5.3.2 Groundwater

While groundwater was not encountered during our 2016 investigation, investigations on adjoining sites within the former Hoyt Street Railyard encountered groundwater at depths between approximately 4 and 17 feet BGS. Perched groundwater may be encountered shallower, particularly during the wet season or prolonged wet weather. The depth to groundwater beneath Block 29 likely fluctuates in response to seasonal precipitation, fluctuation in the nearby Willamette River, and other factors (including dewatering activities at adjacent construction sites and permanent dewatering systems for below-grade levels of nearby structures).

5.4 PREVIOUS INVESTIGATIONS

The results of previous environmental investigations and environmental reports completed for the former Hoyt Street Railyard property as a whole and Block 29 are summarized in the sections below. Soil sample analytical results from our 2016 investigation are presented in Tables 1 through 4.

5.4.1 DEQ (2000)

DEQ issued an ROD for the former Hoyt Street Railyard property in 2000. The ROD indicates that, before the late 1800s, the Hoyt Street Railyard property was covered with fill material and used for a variety of industrial purposes. In the late 1800s, a pile-supported woolen mill reportedly existed in the area of a fueling facility, but the exact location of the pile-supported woolen mill and fueling facility is not known. A sawmill was near the north boundary of the Hoyt Street Railyard property. In addition, General Petroleum operated a fueling facility on leased property south of Block 29. The Hoyt Street Railyard property was used for railyard activities by BNSF and its predecessors beginning in approximately 1911. Until the mid-1940s, fueling and maintenance activities were conducted in a portion of the Hoyt Street Railyard property east of Block 29. Reportedly, fueling activities were relocated away from the north portion of the Hoyt Street Railyard property in the mid-1940s. Diesel and bunker C were used as fuels at the railyard. Fueling operations ceased in 1997 and BNSF vacated the Hoyt Street Railyard property in December 1998. Subsequently, the former railyard was abandoned, and railroad tracks were

removed from the Hoyt Street Railyard property by 2000. BNSF no longer conducts railroad operations on the Hoyt Street Railyard property. BNSF historically monitored groundwater monitoring wells on the Hoyt Street Railyard property.

The former Hoyt Street Railyard property has undergone multiple environmental investigations dating back to the late 1970s. The former Hoyt Street Railyard property was placed on the Confirmed Release List in September 1991 and was accepted into the DEQ Voluntary Cleanup Program in March 1994 (ECSI No. 1080); an Order of Consent that governed the remedial investigation and feasibility study and interim removal measures was signed in August 1995 by BNSF and DEQ.

The ROD indicates that environmental impacts vary across the former Hoyt Street Railyard property depending on past industrial activities and operational practices in specific areas. Petroleum hydrocarbons (diesel and/or bunker C), PAHs, and metals are identified as the main chemicals of concern or contaminants of concern at Block 29 and surrounding vicinity. VOCs and PAHs are present in the southeast portion of the railyard and are associated with an off-site source (a manufactured gas plant). The petroleum hydrocarbon compounds are found in the following forms: adsorbed to soil particles or as a residual film of hydrocarbons on soil grains, as a free layer of product or LNAPL floating on the water table, or as chemicals dissolved in the groundwater.

Reportedly, soil contamination is generally restricted to soil above the water table or in the zone of groundwater table fluctuations. Total petroleum hydrocarbon concentrations have been detected as high as 29,000 mg/kg and LNAPL has been encountered during previous environmental investigations within the former Hoyt Street Railyard property. The ROD indicates total dissolved PAH concentrations in the groundwater at the north portion of the former Hoyt Street Railyard in the vicinity of Block 29 range from below the laboratory's detection limits up to 18.6 µg/L.

The DEQ ROD presented site-specific soil RBCs that were developed to satisfy the RA objectives for the Hoyt Street Railyard. Site-specific soil RBCs for *Soil Ingestion, Dermal Contact, and Inhalation* were developed for three potential receptors, including an *urban child* for soil from 0 to 5 feet BGS, a *construction worker* for soil from 0 to 15 feet BGS, and a *future maintenance worker* for soil from 0 to 15 feet BGS.

Based on site conditions, current and future planned use, and overall protectiveness, DEQ selected remedial options for soil on lots associated with the former Hoyt Street Railyard property. DEQ's selected remedial options for soil include the following components:

- Excavation and treatment and/or landfill disposal of hot spot soil
- Excavation, stabilization (as needed), and landfill disposal of lead-impacted soil
- Excavation of soil in utility corridors where concentrations exceed the DEQ construction worker RBCs in the upper 5 feet of soil
- Capping the entire former Hoyt Street Railyard property with 2 to 3 feet of clean soil, buildings, pavement, or other site improvements
- Engineering and institutional controls

DEQ's selected remedial options for impacted groundwater beneath the Hoyt Street Railyard property included groundwater monitoring and institutional controls.

5.4.2 Declaration of Covenants and Restrictions/Stipulation and Consent Decree (2002)

Hoyt Street Properties began redevelopment of the railyard in 1998. A Declaration of Covenants and Restrictions and a Stipulation and Consent Decree between DEQ, Hoyt Street Properties LLC, and BNSF Railway to implement the December 2000 ROD was negotiated in 2001 and recorded in February 2002. Hoyt Street Properties agreed to remediate soil at the Hoyt Street Railyard site. The RA consisted of the excavation and off-site disposal of contaminated soil; capping of residual soil contamination with clean soil, buildings, or pavement; and filing of Licenses and Declarations of Restrictions to protect and maintain the caps. BNSF assumed responsibility for the groundwater contamination.

5.4.3 Anchor Environmental, L.L.C. (2002)

The RD/RA Workplan provides a guideline for soil management requirements at the Hoyt Street Railyard. The RD/RA Workplan is consistent with the soil management requirements outlined in the 2000 ROD and includes an outline of management procedures for soil stockpiles, dust, air quality, potential asbestos, construction equipment decontamination, and site security. The RD/RA Workplan also indicates that the following caps should be implemented during future development of the Hoyt Street Railyard property:

- City parks should be capped with at least 3 feet of clean fill and 5 feet of clean fill in child playground areas.
- Landscaped areas in private building blocks should be capped with at least 2 feet of clean fill.
- Street, sidewalks, and building footprints will cap the areas not covered by city parks or landscaped areas.
- An identification layer (e.g., demarcation fabric) is required at the contact of the base of all cap materials and the underlying impacted soil.

5.4.4 Anchor Environmental, L.L.C. (2004)

The cap maintenance plan provides the requirements and protocols for annual inspection and reporting of the ability of the cap to prevent exposure to the underlying soil. After redevelopment of Block 29, the building foundation, paved areas and sidewalks, and landscaping will function as the permanent cap. The plan covers the annual assessment requirements for an inspection report of the protective cap and requires that the annual report be submitted to DEQ by March 1 of each year.

5.4.5 AECOM (2010)

As a function of DEQ's ROD Selected Remedial Action, AECOM, on behalf of BNSF, conducted semi-annual monitoring of seven groundwater monitoring wells (LTM-101 through LTM-107) present on the north portion of the former Hoyt Street Railyard property. The monitoring wells were located on the blocks south and east of Block 29. The groundwater monitoring program was designed to evaluate contaminant concentrations and migration, source removal, effectiveness of RAs, and the protection of beneficial uses of groundwater and surface water. Since 2006, groundwater monitoring events indicated local groundwater flow direction variability

due to the nature of subsurface conditions (fill) and recently completed construction activities. Groundwater elevations indicated flow directions both away from and toward the Willamette River. PAH concentrations detected in groundwater samples collected from the seven wells (through the time of AECOM's Groundwater Project Closeout Report, dated February 2010) were less than applicable risk screening values established in the ROD except for the detected concentration of PAHs in the groundwater sample collected from monitoring well LTM-107, which is southeast of Block 29, during the July 2009 monitoring event.

5.4.6 DEQ (2015)

In January 2011, DEQ issued an Explanation of Significant Difference to the 2000 ROD. The Explanation of Significant Difference decreased the required cap thickness in park areas from 3 feet to 2 feet and the required cap thickness in play areas from 5 feet to 3 feet. The changes were based on experience with actual park uses and were applied to The Fields Neighborhood Park. A Certification of Completion for The Fields (Blocks 18, 21, 22 and 25) was signed in June 2014.

5.4.7 DEQ (2015)

The 2000 ROD issued by DEQ set a 15-year deadline for remediation and redevelopment of the Hoyt Street Railyard property. In 2015, the deadline expired and DEQ issued a second Explanation of Significant Difference to extend the deadline for an additional 10 years (until 2025). In 2015, 6 of the 26 acres that comprise the Hoyt Street Railyard property (including the acreage comprising Block 29) remained undeveloped. Fences were installed around the undeveloped sites and the sites were capped to prevent contact with impacted soil.

5.4.8 GeoDesign, Inc. (2016)

In December 2016, NV5 conducted a pre-construction subsurface investigation at Block 29 to obtain sufficient soil analytical data to evaluate risk to future construction and excavation workers and occupational receptors and to make informed decisions regarding soil management and disposal options for the forthcoming site development. Sixteen direct-push borings (DP-1 through DP-16) were advanced throughout Block 29 to depths ranging between 8 and 20 feet BGS, and two hand auger borings were advanced on the westernmost portion of Block 29 to depths of up to 5 feet BGS. Continuous soil samples were collected from each boring for field screening and chemical analysis. Select boreholes were monitored for methane using a Landtec GEM 2000+ landfill gas analyzer. The locations of the borings are shown on Figure 2. The results of the limited pre-construction subsurface investigation indicated the following:

- Fill material was encountered beneath Block 29 during this assessment from the ground surface to depths between 2.5 and 20 feet BGS, the maximum depth explored.
- A 1.2- to 1.7-foot-thick layer of wood debris was encountered in borings advanced on the north portion of Block 29 between approximately 11.8 and 20 feet BGS.
- Field screening results were indicative of non-volatile hydrocarbon contamination. PID measurements were less than 10 ppm, except for the PID measurement in the soil sample collected from boring DP-7 from 1 foot to 2.5 feet BGS. The PID measurement in this sample was 21.4 ppm.
- Based on the presence of wood debris, select boreholes were monitored for methane using a Landtec GEM 2000+ landfill gas analyzer. Subsurface methane concentrations ranging from

0.0 to 37.2 pbv were detected. While DEQ has not published screening levels for subsurface methane concentrations, representatives of DEQ indicated that subsurface methane concentrations greater than 15 pbv generally warrant the installation of methane mitigation systems for new structures.

- Select metals, PAHs, and PCBs were detected in soil samples collected throughout Block 29 at concentrations greater than DEQ CFSLs, indicating that soil removed from Block 29 cannot be managed as clean fill and must be disposed of at a RCRA Subtitle D landfill or other DEQ-approved facility.
- Total lead was detected at concentrations greater than the theoretical EPA limit for disposal at a RCRA Subtitle D landfill in several of the soil samples analyzed during the assessment. TCLP lead was detected in these soil samples at a maximum concentration of 3.73 mg/L, less than the landfill disposal limit as non-hazardous waste of 5 mg/L, indicating that soil represented by these samples is suitable for disposal as non-hazardous waste at a RCRA Subtitle D landfill.
- Arsenic was detected at concentrations greater than the DEQ CFSL and the DEQ *Soil Ingestion, Dermal Contact, and Inhalation* RBC for occupational receptors in DP-13 from 4.5 to 6 feet BGS, in DP-14 from 0.5 to 2 feet BGS, and in HA-2 from 3 to 4 feet BGS. However, DEQ only considers this exposure pathway complete (for occupational receptors) for contaminated soil up to 3 feet BGS. Since an urban child receptor (as noted in the ROD) is not a potential receptor at the subject property, this exposure pathway is considered incomplete for the contaminants from 4.5 to 6 feet BGS in DP-13 (beneath NW Savier Street) and from 3 to 4 feet BGS in HA-2 (in the western-central portion of the subject property).

6.0 CONTAMINANT INFORMATION

The following sections describe the distribution of contaminants at Block 29 and the maximum contaminant concentrations detected in soil samples and soil gas measurements collected from Block 29.

6.1 SOIL

Based on the results of the subsurface investigation conducted in 2016, soil beneath Block 29 contains detectable concentrations of petroleum hydrocarbons, metals, PAHs, and PCBs. The maximum detected concentrations of these contaminants detected in soil samples collected at Block 29 during the 2016 investigation are as follows:

Petroleum Hydrocarbons

- Diesel-range hydrocarbons: 434 mg/kg
- Oil- range hydrocarbons: 2,160 mg/kg

Total Metals

- Arsenic: 13.5 mg/kg
- Barium: 244 mg/kg
- Cadmium: 0.892 mg/kg
- Chromium: 41.8 mg/kg
- Lead: 265 mg/kg

- Mercury: 0.411 mg/kg
- Selenium: 2.69 mg/kg

PAHs
- Anthracene: 0.695 mg/kg
- Acenaphthene: 0.474 mg/kg
- Acenaphthylene: 0.500 mg/kg
- Benz(a)anthracene: 1.08 mg/kg
- Benzo(a)pyrene: 0.968 mg/kg
- Benzo(b)fluoranthene: 1.01 mg/kg
- Benzo(k)fluoranthene: 0.247 mg/kg
- Benzo(g,h,i)perylene: 0.521 mg/kg
- Chrysene: 1.18 mg/kg
- Dibenz(a,h)anthracene: 0.132 mg/kg
- Fluoranthene: 2.31 mg/kg
- Fluorene: 0.340 mg/kg
- Indeno(1,2,3-cd)pyrene: 0.406 mg/kg
- 1-Methylnaphthalene: 0.0859 mg/kg
- 2-Methylnaphthalene: 0.198 mg/kg
- Naphthalene: 0.328 mg/kg
- Phenanthrene: 2.76 mg/kg
- Pyrene: 2.61 mg/kg

PCBs
- Aroclor 1260: 0.364 mg/kg

6.2 METHANE

Methane has been detected beneath Block 29 at concentrations up to 37.2 pbv. Methane is explosive in the range between 5 and 15 pbv. Methane can create oxygen deficient and explosive atmospheres. Contractors working at Block 29 should be aware of the methane hazard and include the appropriate health and safety equipment and practices in their HSP and implement the appropriate protocol for the specific type of work being conducted to address the methane hazard.

7.0 WORKER SAFETY

Contaminants were not detected in soil samples at concentrations greater than DEQ RBCs for construction workers or excavation workers. However, it is possible that higher concentrations of these contaminants may be present in portions of Block 29 not previously explored.

Before beginning earthwork activities, the owner, operator, or contractor must prepare and implement a site-specific HCP. The HCP fulfills “worker right to know” requirements (29 CFR 1926.59). If completed by the contractor, a copy of the HCP must be submitted to the owner before the start of work on the project. During work on the project, the HCP must be posted at Block 29. The contractor is responsible for notifying subcontractors of pertinent environmental conditions. Subcontractors may either adopt the contractor’s HCP or must

prepare their own HCP. This document should be used in conjunction with, not in place of, the HCP and the project specifications. Each contractor and subcontractor are responsible for the safety of its employees, including compliance with applicable OSHA regulations and compliance with all specifications in the technical specifications for the project. In addition to implementation of an HCP, the owner, operator, or contractor should prepare and implement a site-specific HSP in accordance with OSHA requirements to ensure adequate protection for their workers while on site.

8.0 IDENTIFICATION AND MANAGEMENT OF CONTAMINATED SOIL

Based on the results of the 2016 investigation, the soil and wood debris that will be excavated during redevelopment does not qualify as clean fill, regardless of its appearance. It is anticipated that the soil and debris generated during redevelopment of Block 29 will be disposed of at a RCRA Subtitle D landfill. Therefore, field screening and/or segregation of contaminated soil from potential clean fill is not anticipated. Some landfills have restrictions on accepting organic debris and it may be necessary to segregate organic waste from non-organic waste depending on the selected disposal facility. It is the responsibility of the excavation contractor to obtain the necessary landfill profiles and permits and accurately describe the waste to the selected landfill before export and disposal. This section describes the protocol to properly segregate, manage, characterize, and dispose of contaminated soil and wood debris present beneath Block 29.

8.1 SEGREGATION

If necessary, based on the requirements of the selected disposal facility, wood debris beneath Block 29 may require segregation from soil and other non-organic debris during excavation activities. The contractor should visually observe soil during excavation activities for evidence of wood debris. Soil with more than 10 percent organic material may need to be segregated from soil containing little or no organic debris. Segregated material that cannot be direct loaded for transportation and disposal should be stockpiled in accordance with Section 8.2.5.

8.2 CONTAMINATED SOIL MANAGEMENT

Based on the results of previous investigations, soil generated from Block 29 that cannot be reused onsite and is exported off site during redevelopment activities must be disposed of at a RCRA Subtitle D landfill, such as Waste Management's Hillsboro Landfill. In addition, soil that exhibits physical evidence of contamination (such as a petroleum-like odor, staining, and/or sheen), including material that is not soil, rock, concrete, brick, building block, tile, or asphalt, will not qualify as clean fill and must also be disposed of at a RCRA Subtitle D landfill. The following sections detail proper protocols for handling, segregating, managing, characterizing, reusing, and/or disposing of impacted soil.

8.2.1 On-Site Reuse of Contaminated Soil

On-site contaminated soil exhibiting contaminants at concentrations less than the applicable DEQ RBCs but greater than the DEQ CFSLs may be reused on site as construction fill without restriction, provided it is geotechnically suitable and does not exhibit physical evidence of contamination (such as odor or staining), except for the contaminated soil between 0.5 foot and 2 feet BGS in the vicinity of boring DP-14 that exceeds applicable DEQ RBCs. Soil between 0.5 foot and 2 feet BGS in the vicinity of boring DP-14 that exceeds applicable DEQ RBCs

(discussed below in Section 8.2.2) is herein referenced as the AOC. Soil at the subject property outside the AOC is herein referenced as the AOI. To summarize, soil within the AOI can be reused on site without restriction, if it is geotechnically suitable and does not exhibit physical evidence of contamination (such as odor or staining). If soil within the AOI cannot be reused on site and must be exported off site, it must be disposed of at a RCRA Subtitle D landfill (such as Waste Management's Hillsboro Landfill). The lateral limits of the soil within the AOI are shown on Figure 2.

8.2.2 Off-Site Disposal of Contaminated Soil

Contaminated soil within the AOC, if excavated during redevelopment activities, cannot be reused on site and must be disposed of at a RCRA Subtitle D landfill. We have estimated the lateral limits of the AOC as follows:

- The AOC is bound to the west, southwest, and south by borings DP-12, DP-13, and DP-15, respectively.
- The AOC is bound to the southeast by boring DP-16, which extends east to the eastern property line.
- The AOC is bound to the north and northwest by an inferred boundary located halfway between borings DP-11 and DP-14 that extends farther northeast to the eastern property boundary.

As shown on Figure 2, the west portion of the AOC extends off site beneath NW Savier Street. We assume that most if not all of the contaminated soil beneath NW Savier Street between depths of 0.5 and 2.0 feet BGS was removed during construction of NW Savier Street.

Soil within the AOC between 0.5 foot and 2 feet BGS must either be (1) disposed of off site at a RCRA Subtitle D landfill if excavated as part of the redevelopment activities (i.e. as part of grading or utility trenching) or (2) covered with either a minimum of two feet of clean soil or hardscapes at least 3 inches thick to act as an engineered soil cap per the ROD (if not requiring excavation as part of the redevelopment activities). Based on the planned redevelopment shown on Figure 2, it appears hardscapes at least 3 inches thick (future sidewalk/concrete areas) will be constructed in the AOC. To summarize, soil within the AOC will not *require* removal and off-site disposal at a RCRA Subtitle D landfill, but if it is not disturbed and left in place, it must be covered with either a minimum of two feet of clean soil or hardscapes at least 3 inches thick to act as an engineered soil cap per the ROD. If soil within the AOC is disturbed (excavated) as part of the redevelopment activities, it cannot be reused on site and must be disposed of at a RCRA Subtitle D Landfill.

The excavation contractor is responsible for obtaining appropriate permits from a permitted landfill facility before hauling the impacted soil or other materials to that facility. The earthwork contractor will likely need to provide a copy of the chemical analytical laboratory report to the selected disposal facility. Copies of the permit should accompany each load transported to the selected disposal facility.

Copies of the waste manifests will be included in a Construction Completion Report that will be submitted to DEQ after earthwork activities have been completed at Block 29. Off-site transportation of soil should be conducted as discussed in the following sections.

Disposal facilities often have the following requirements before accepting soil at their facility:

- Contaminated soil will not be received without first completing a soil profile sheet, obtaining a permit (to be completed by the earthwork contractor), have an approval of credit application on file, and have pre-approval from the disposal facility.
- Trucks will be permitted to weigh in as negotiated with the facility.
- Material may be sampled during delivery by the disposal facility. Comparisons may be made between the submitted profile and on-site analysis. Any material's profile that does not compare to delivered material may be rejected.
- Exported soil must not contain any free liquids or foreign material (i.e., rebar, fittings, cans, wood, etc.). Truck loads found with excessive foreign material could result in the load being rejected or screened, sorted, and disposed of by the disposal facility for an additional fee. If rejected, the soil cannot be returned to Block 29 without DEQ approval.
- Before the export of soil from Block 29, MCA Architects shall be notified and approve of all soil disposal locations regardless of soil quality.

8.2.3 Shoring Wall Spoils

If a shoring wall will be installed at Block 29 to accommodate the mass excavation and will include the installation of soldier piles and tiebacks, spoils generated during the installation of soldier piles and tiebacks should be managed as contaminated soil in accordance with this CMMP and be disposed of at a RCRA Subtitle D landfill.

8.2.4 Loading and Hauling

Material intended for off-site disposal can be loaded directly into trucks for transport to the receiving facility once the appropriate permitting has been completed and field screening protocols implemented, as appropriate. All truck loading will occur on site. The contractor must exercise care during loading of the impacted material to help minimize spillage of the material onto the ground surface. All trucks transporting soil from Block 29 should be covered before leaving Block 29.

In addition, trucks should pass through a decontamination area near the site egress point, which should include a rock pad/apron, a wheel wash station (if necessary), and the following inspections to avoid track off:

- Inspection for loose soil and removal (if soil is present)
- Inspection to confirm liquid is not leaking from the load
- Inspection to confirm that the load is covered

The contractor must use care not to track soil onto roads. Transport tracking tickets may be required, which document the haul to the approved disposal facility for each truck leaving Block 29.

8.2.5 Stockpile Management

Soil and/or wood debris generated during excavation that cannot be immediately transported off site can be temporarily stockpiled in areas designated by representatives of MCA Architects. Excavated material that is placed in temporary stockpiles must be well maintained at all times. All stockpiled material must be placed on impermeable plastic sheeting (minimum 6-mil thick) with a berm around the perimeter of the stockpile. The plastic sheeting and berm must be constructed to prevent the runoff of soil and contaminants to surrounding areas. The berm can be constructed with hay bales, dimensional lumber, or other equivalent methods. The bottom plastic sheeting should be lapped over the berm materials and the soil stockpile covered with plastic sheeting to prevent erosion or leaching of contaminants to underlying soil and prevent exposure to precipitation and wind. Plastic sheeting that covers the soil stockpile should be secured using sandbags or equivalent.

Stockpiles must be clearly designated as to the nature of the stockpiled soil (e.g., contaminated soil versus clean imported fill), either with signage or stakes with different colored flagging. The locations and nature of each on-site stockpile should be discussed during daily work meetings. All stockpiles should be on Block 29, unless an off-site stockpile location is available and DEQ approves of the off-site soil stockpile location. Following removal, the stockpile areas should be restored to a pre-stockpile condition. Residual plastic or debris should not be left unattended at Block 29 and must be properly disposed of following stockpile removal.

8.2.5.1 Stockpile Soil Sampling

If necessary, potentially contaminated stockpiled soil will be sampled using composite soil sampling methods and analyzed for disposal profiling. In general, composite soil sampling frequency will adhere to the following, unless an alternate sampling frequency has been accepted by the soil disposal facility:

Stockpile Soil Sampling Frequency

Stockpile Volume (cubic yards)	Number of Composite Soil Samples to Collect
0 – 10	1
11 – 50	2
51 – 100	3
101 – 500	4

Each composite soil sample will comprise five soil sub-samples collected from a particular area of the soil stockpile. Soil stockpiles greater than 1,000 cubic yards will be sampled at a rate of five composite soil samples for the first 500 cubic yards, plus one composite soil sample for each additional 500 cubic yards.

Stockpile soil samples will be collected by hand or the use of hand tools. Decontaminated hand tools should be used to remove the surface layer of soil and then the soil sample will be retrieved with a decontaminated stainless-steel scoop or disposable gloves. Chrome-plated tools will not be used.

Soil samples will be collected using the procedure outlined below. Disposable gloves will be worn and changed between samples.

- Remove the top layer of soil to the desired sampling depth using a decontaminated hand tool.
- Conduct an initial visual screen (based on discoloration and sheen) to help identify the most appropriate sampling location.
- Collect five discrete soil samples per composite soil sample and place the discrete soil samples into a disposable plastic bag. If the soil sample(s) are analyzed for VOCs, the soil samples should be collected in general accordance with EPA Method 5035A. This will be achieved by removing approximately 3 inches of topsoil to expose a fresh surface and each discrete soil sample should be collected using a new, laboratory-provided plunger. The plunger of soil will be placed into a laboratory-provided jar containing the appropriate preservative that allows for five discrete soil samples per jar.
- Mix the discrete soil samples into one composite soil sample in the new, disposable plastic bag until thoroughly homogenized.
- Transfer the composite soil sample to a labeled, laboratory-provided sample jar using a decontaminated stainless steel or plastic laboratory spoon. Fill the jar completely to minimize headspace.
- Clean the jar rim before tightening the lid, and quickly and adequately seal the sample containers.
- Collect a sufficient volume of soil sample for the particular analysis. Place the labeled soil sample jar in an iced cooler for temporary storage. Transport the soil samples to the chemical analytical laboratory.
- Use a field notebook to record a description of the soil that was sampled, the location of the soil sample, the sample I.D., and the time of soil sample collection. Record the sample on the soil sampling field forms and chain-of-custody form. The stockpile soil sample I.D. will include a prefix identifying the stockpile (SP) number followed by a sequential numeric designation. For example, the third composite soil sample collected from stockpile SP-3 will be identified as “SP3-3”.
- Decontaminate the equipment between collection of soil samples. Decontamination will include the following: (1) rinse with tap water and scrub with a scrub brush until free of large particles, (2) wash with phosphate-free detergent solution, (3) rinse with tap water, and (4) rinse with distilled water.

Soil stockpile composite samples will be submitted to an analytical laboratory for analysis of one or more of the following (as required by the receiving disposal facility):

- Hydrocarbon identification by Method NWTPH-HCID
- Gasoline-range hydrocarbons by Method NWTPH-Gx
- Diesel- and oil-range hydrocarbons by Method NWTPH-Dx
- RCRA 8 total metals by EPA Method 6020
- PCBs by EPA Method 8082
- VOCs by EPA Method 5035A/8260C/8260C SIM
- PAHs by EPA Method 8270D SIM

The chemical analytical results shall be used to evaluate the appropriate off-site disposal location. All soil designated for off-site disposal must be characterized and permitted in accordance with the receiving facility's requirements before transport and disposal.

8.2.6 Contractor Reporting Requirements

The contractor is responsible for keeping a detailed daily record of all soil excavation, stockpiling, export, and disposal. This includes the purpose, origin, destination, and volume of soil that is (1) loaded and hauled to the approved off-site disposal sites, (2) reused on Block 29, or (3) transported to temporary soil stockpile locations (within Block 29). The contractor is responsible for preparing a daily field report for distribution to representatives of the owner that identifies the number of truckloads of soil transported off site and daily tonnage for each disposal location. All soil excavation, handling, and disposal activities should be documented in daily field reports by the contractor, and soil sampling and chemical analytical data shall be summarized in a final report upon completion of construction activities in a Construction Completion Report that will be prepared by NV5.

8.2.7 Right-of-Way Excavation

ROW excavation activities shall comply with the City of Portland's Hazardous Substances requirements (City Code 17.24.067) and Table 5-2 and Section 7.2 of the DEQ Hoyt Street Railyard ROD. Contaminated soil encountered during excavation work within the ROW will be managed in accordance with this CMMP. The City of Portland's Hazardous Substances code requires that residual impacted soil left in place within the ROW after excavation activities be characterized and demarked using orange geotextile fabric or similar material. The results of ROW soil sampling and analysis and the locations of ROW contamination will be reported to the City of Portland Bureau of Environmental Services and included in the Construction Completion Report to DEQ.

8.2.8 Residual Contamination and Confirmation Soil Sampling

It is anticipated that soil containing contaminants at concentrations greater than DEQ RBCs or CFSLs (residual contamination) will be left in place at the limits of excavated areas. Confirmation soil samples should be collected from the limits of the excavated areas to document the concentrations of potential residually contaminated soil. Confirmation soil samples will be submitted for one or more of the analyses presented in Section 8.2.5.1. It should be noted that if elevated petroleum hydrocarbons and/or VOCs are detected in the confirmation soil samples, soil gas samples may be warranted to evaluate the DEQ *Vapor Intrusion into Building*s exposure pathway. However, based on the 2016 investigation, field screening results, and historical knowledge of the railyard site, it does not appear that volatile hydrocarbons or VOCs are present in the soil at the subject property. Areas of residual contamination should be capped in accordance with the DEQ-approved ROD. Specifically, residual contamination can be left in place if it is placed beneath a hardscape at least 3 inches thick (such as the future building pad/paved areas) or in softscape areas if placed beneath at least 2 feet of clean fill (3 feet for playground areas) with an identification layer (e.g., demarcation fabric) at the contact of the base of all cap materials and the underlying impacted soil. Where already planned for installation as part of construction of the new building, moisture barriers, vapor barriers, or other durable fabrics may serve as the demarcation fabric with DEQ approval.

9.0 IMPORTED FILL MATERIAL

All fill material imported to Block 29 should either consist of a manufactured rock product (e.g., ¾-inch-minus crushed rock from a permitted rock quarry) or must be free of contaminants at concentrations exceeding DEQ CFSLs. It is the contractor's responsibility to ensure all imported fill material meets these criteria and provide the owner with the imported origin information and accompanying documentation demonstrating the material meets DEQ CFSLs if not using a manufactured rock product. In addition, if evidence of contamination is observed in imported fill material, the contractor should reject the imported backfill and identify an alternate source. Also, material imported as structural backfill should be evaluated and approved by the geotechnical engineer before it is placed on Block 29.

10.0 CLEAN SOIL DISPOSAL

At this time, it is not anticipated that material generated at Block 29 during redevelopment will qualify as clean fill.

11.0 WHEEL WASH

Standard site entry best management practices, including rock pads at the entrances/exits to the construction site and gravel filter berms, should be implemented at Block 29 in accordance with Section 3.4 of the City of Portland's *Erosion and Sediment Control Manual*, dated October 2022. A wheel wash-down area should be implemented, if deemed necessary, at Block 29 to ensure that sediment is not tracked off site during construction. If necessary, wheel washing will be completed on the rock pad or in an approved wheel wash structure, as specified in Section 3.4 of the City of Portland's *Erosion and Sediment Control Manual*, dated October 2022. If necessary, the wheels will be washed before crossing the rock pad to leave Block 29.

12.0 EROSION AND DUST CONTROL

Exposed soil will become susceptible to erosion by wind and water; therefore, erosion control measures should be planned carefully and in place before excavation and stockpiling begin. Silt fences, hay bales, and/or granular haul roads will be used as required to reduce sediment transport during construction to acceptable levels. Measures to reduce erosion should be implemented in accordance with State of Oregon, City of Portland, and Multnomah County regulations regarding erosion control. In general, erosion control measures must limit sediment transport to less than 1 ton per acre per year, as calculated by the Universal Soil Loss equation. Erosion and dust control measures will be presented in an ESCP for on- and off-site portions of Block 29. The anticipated erosion and dust control measures to be outlined in the ESCP include the use of sediment fences, inlet protection, gravel construction entrances, and biofilter bags where necessary.

13.0 GROUNDWATER MANAGEMENT

While groundwater was not encountered during our 2016 investigation, groundwater has been encountered on neighboring sites within the former Hoyt Street Railyard as shallow as 4 feet

BGS. If the quantity of water encountered during construction merits dewatering, the contractor should arrange to have the water generated during construction activities pumped from the excavation(s) using vacuum trucks (if only a limited volume of perched water requires removal during excavation) and subsequently disposed of or pumped to temporary storage tanks for management. Containerized water will require handling in accordance with a National Pollutant Discharge Elimination System 1200-C permit. It is the contractor's responsibility to obtain appropriate permits for construction water discharge.

Since groundwater within the former Hoyt Street Railyard is known to be impacted, groundwater generated during dewatering activities should be managed as contaminated media, unless additional chemical analytical testing indicates that it is not.

If impacted groundwater is identified during construction, contingencies to address unacceptable contaminant levels in the effluent stream will be employed. A typical treatment system could include a series of 20,000-gallon storage tanks equipped with chitosan socks, carbon adsorption filters, sand filters, and/or bag filters to remove sediments and contaminants (if necessary). The excavation contractor is responsible for obtaining the necessary discharge permits; setup, maintenance, and modification of the treatment system; effluent testing; discharge metering; and agency reporting. If construction dewatering is anticipated, we recommend the project engineer or contractor contact the City of Portland to determine (1) what permits are required for discharge of water to the City of Portland's sanitary or stormwater system, (2) the allowable discharge contaminant and volume limits, and (3) the available capacity for the proposed discharge rates.

If substantial and ongoing construction dewatering is anticipated, a site-specific dewatering plan may be required by the City of Portland. DEQ may also need to review and approve the dewatering plan if the selected discharge location is a "storm-only" discharge point.

14.0 UNFORESEEN CONDITIONS

In the event that undocumented potentially hazardous conditions are encountered that are not addressed in this CMMP (such as underground storage tanks), the excavation contractor shall cease work and notify the appropriate representatives of MCA Architects. The excavation contractor will then barricade or otherwise isolate the area and avoid filling the area until authorized to do so by MCA Architects, who will determine the appropriate course of action to assess potential unknown conditions encountered during excavation. The earthwork contractor shall not replace any known or suspected contaminated soil in any excavation area without prior approval by representatives of MCA Architects.

15.0 ASSUMPTIONS AND LIMITATIONS

This CMMP has been prepared for DEQ and MCA Architects. This CMMP is designed to provide the project team with guidance for the proper handling and management of known or potentially contaminated soil present at Block 29. This document is intended to be used as a general overview document for the use of the excavation contractors and the project team during the earthwork portions of the project. This CMMP is not intended for use by others, and the

information contained herein is not applicable to other sites. Reliance by other parties must be approved by NV5 in accordance with our standard contractual process for third-party reliance. This CMMP is based on interpretations of surface and subsurface conditions based on data from select soil samples collected from limited portions of Block 29. The results of the analyses only indicate the presence or absence of those chemical constituents analyzed in those discrete sample locations. It is always possible that contamination could exist between the widely spaced boring locations. Analytical data from the laboratory samples should only be considered as indicators of site conditions and not a guarantee of the absence of subsurface impact in areas not sampled.

Our services have been executed in accordance with the generally accepted practices in this area at the time this CMMP was prepared. No warranty or other conditions, express or implied, should be understood.

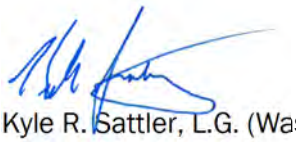
♦ ♦ ♦

We appreciate the opportunity to work with you on this project. Please contact us if you have any questions regarding this CMMP.

Sincerely,

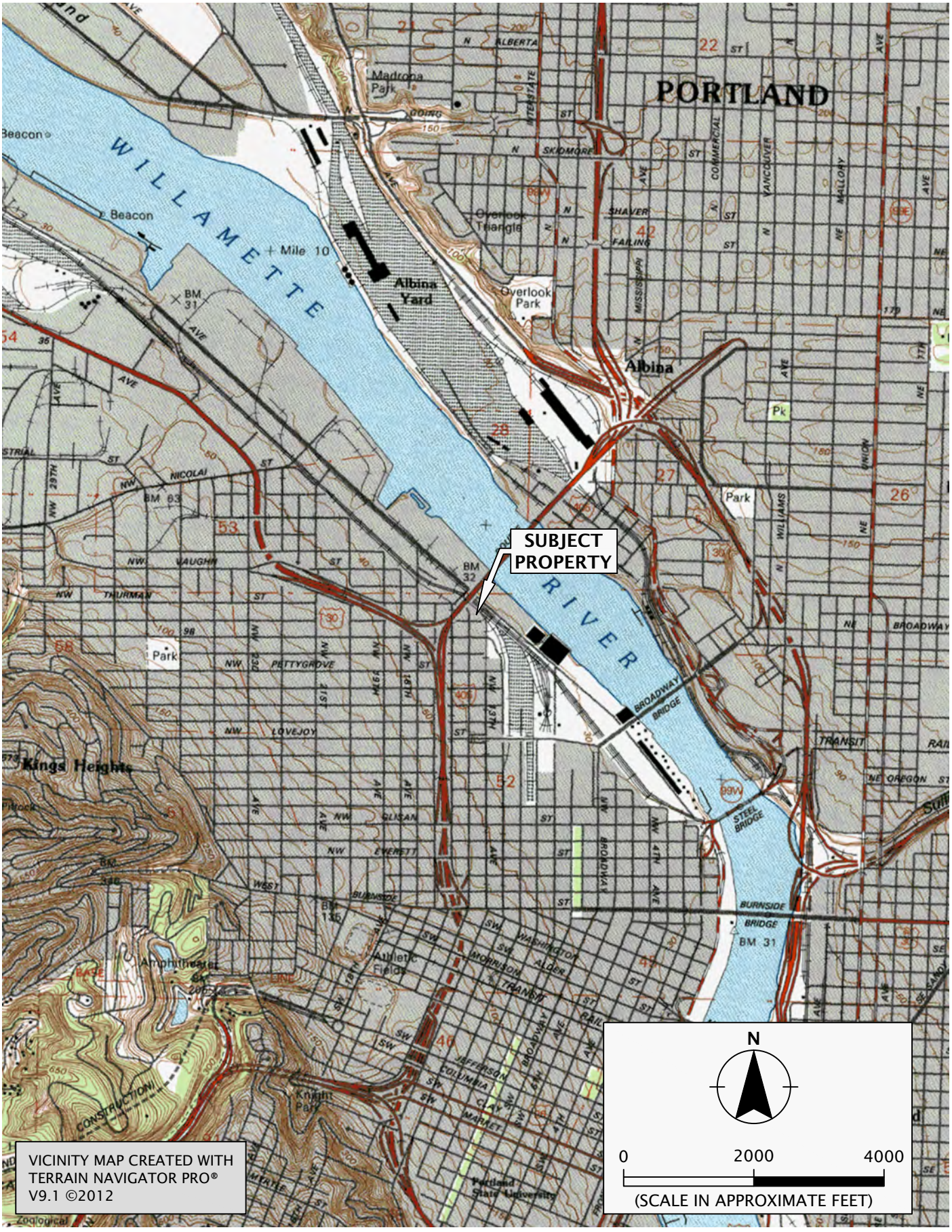
NV5

Caroline B. Siegel
Environmental Staff



Kyle R. Sattler, L.G. (Washington)
Principal Geologist

FIGURES



NV5	MCAARCH-3-01	**VICINITY MAP**	
	JUNE 2024	HOYT STREET PROPERTIES – BLOCK 29 PORTLAND, OR	**FIGURE 1**

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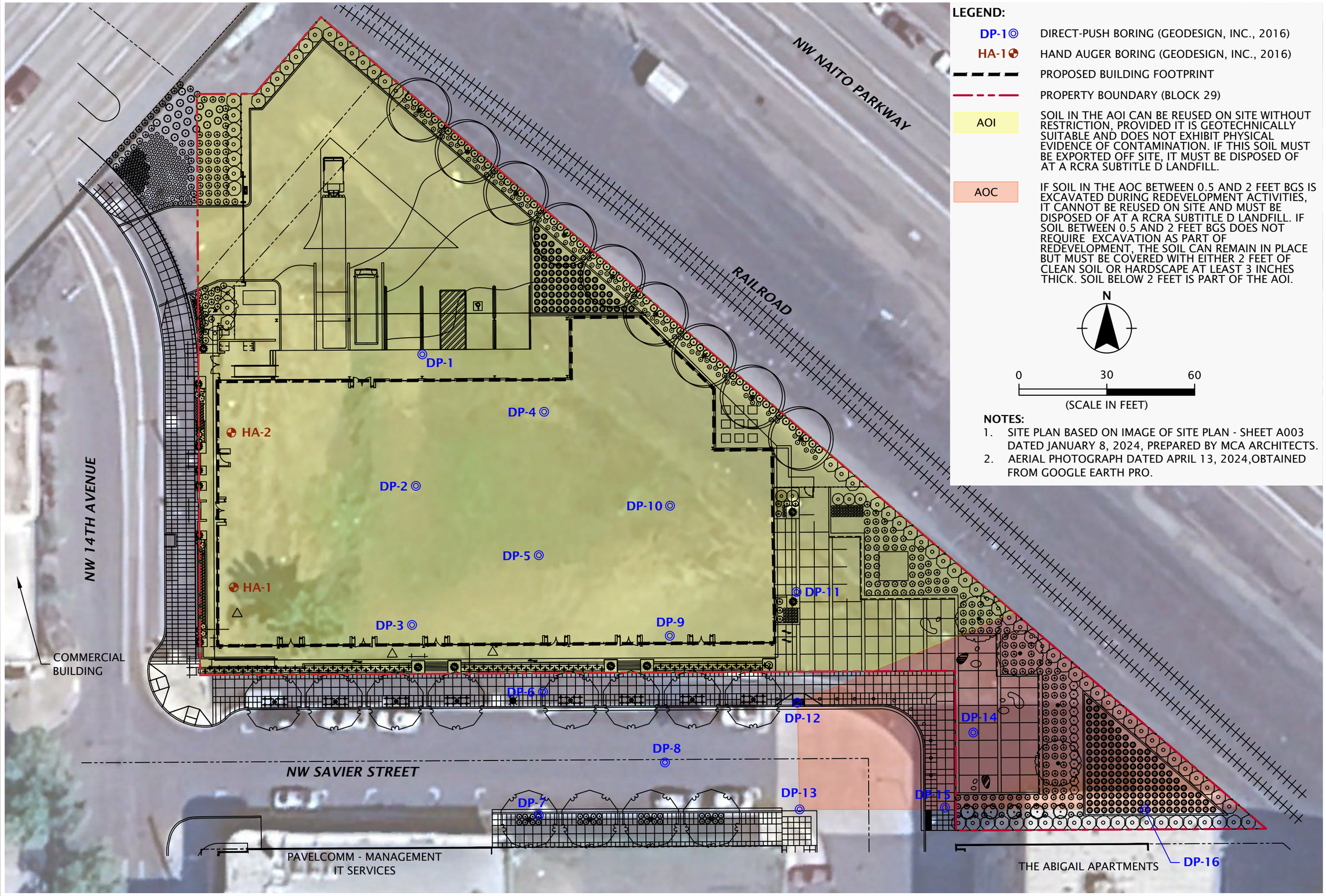

LEGEND:

DP-1◎	DIRECT-PUSH BORING (GEODESIGN, INC., 2016)
HA-1◔	HAND AUGER BORING (GEODESIGN, INC., 2016)
	PROPOSED BUILDING FOOTPRINT
	PROPERTY BOUNDARY (BLOCK 29)
AOI	SOIL IN THE AOI CAN BE REUSED ON SITE WITHOUT RESTRICTION, PROVIDED IT IS GEOTECHNICALLY SUITABLE AND DOES NOT EXHIBIT PHYSICAL EVIDENCE OF CONTAMINATION. IF THIS SOIL MUST BE EXPORTED OFF SITE, IT MUST BE DISPOSED OF AT A RCRA SUBTITLE D LANDFILL.
AOC	IF SOIL IN THE AOC BETWEEN 0.5 AND 2 FEET BGS IS EXCAVATED DURING REDEVELOPMENT ACTIVITIES, IT CANNOT BE REUSED ON SITE AND MUST BE DISPOSED OF AT A RCRA SUBTITLE D LANDFILL. IF SOIL BETWEEN 0.5 AND 2 FEET BGS DOES NOT REQUIRE EXCAVATION AS PART OF REDEVELOPMENT, THE SOIL CAN REMAIN IN PLACE BUT MUST BE COVERED WITH EITHER 2 FEET OF CLEAN SOIL OR HARDSCAPE AT LEAST 3 INCHES THICK. SOIL BELOW 2 FEET IS PART OF THE AOI.

N

0 30 60

(SCALE IN FEET)

NOTES:

1. SITE PLAN BASED ON IMAGE OF SITE PLAN - SHEET A003 DATED JANUARY 8, 2024, PREPARED BY MCA ARCHITECTS.
2. AERIAL PHOTOGRAPH DATED APRIL 13, 2024,OBTAINED FROM GOOGLE EARTH PRO.

SITE PLAN

HOYT STREET PROPERTIES – BLOCK 29
PORTLAND, OR

FIGURE 2

MCAARCH-3-01

JUNE 2024

NIV5

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TABLES

TABLE 1
Summary of Soil Sample Chemical Analytical Results
Petroleum Hydrocarbons
Hoyt Street Properties—Block 29
Northeast of NW Savier Street and NW 14th Avenue
Portland, Oregon

Sample I.D. (depth in feet BGS)	Sample Date	Diesel- and Oil-Range Hydrocarbons Method NWTPH-Dx (mg/kg)	
		Diesel-Range	Oil-Range
Borings/Samples Within Proposed Building Footprint			
DP-1(12.0-13.5)	10/20/16	**149**	**408**
DP-1(16.0-17.0)	10/20/16	**6.50**	**17.2**
DP-2(11.0-12.5)	10/20/16	5.06 U	**33.8**
DP-2(16.0-17.0)	10/20/16	**7.00**	**23.2**
DP-3(0.0-1.5)	10/20/16	90.0 U	**522**
DP-3(5.5-7.0)	10/20/16	**14.1**	**67.7**
DP-4(7.0-8.5)	10/20/16	**53.8**	**205**
DP-4(9.0-10.5)	10/20/16	**233**	**1,550**
DP-5(5.5-7.0)	10/20/16	**102**	**386**
DP-5(8.0-9.5)	10/20/16	**99.1**	**1,040**
DP-9(0.0-1.5)	10/20/16	92.4 U	**1,110**
DP-9(4.0-5.5)	10/20/16	**434**	**2,160**
DP-10(0.5-2.0)	10/20/16	**114**	**288**
DP-10(4.0-5.5)	10/20/16	**10.3**	**36.7**
HA-1(1.0-2.0)	11/15/16	92.1 U	**683**
HA-2(3.0-4.0)	11/15/16	5.22 U	13.0 U
Borings/Samples Outside of Proposed Building Footprint			
DP-6(0.5-2.0)	10/20/16	**125**	**1,500**
DP-6(5.0-6.0)	10/20/16	**30.7**	**233**
DP-7(1.0-2.5)	10/20/16	104 U	**449**
DP-7(4.5-6.0)	10/20/16	**8.75**	**51.1**
DP-8(1.0-2.5)	10/20/16	103 U	**1,220**
DP-8(4.5-6.0)	10/20/16	**56.8**	**496**
DP-11(0.0-1.5)	10/20/16	47.7 U	**679**
DP-11(4.0-5.5)	10/20/16	**133**	**313**
DP-12(1.0-2.5)	10/20/16	**153**	**1,300**
DP-12(4.0-5.5)	10/20/16	**102**	**843**
DP-13(0.0-1.5)	10/20/16	**95.1**	**1,250**
DP-13(4.5-6.0)	10/20/16	24.1 U	**113**
DP-14(0.5-2.0)	10/20/16	**61.9**	**276**
DP-14(5.0-6.5)	10/20/16	**16.2**	**33.1**
DP-15(1.0-2.5)	10/20/16	90.0 U	**749**
DP-15(4.5-6.0)	10/20/16	**18.1**	**33.1**
DP-16(0.0-1.5)	10/20/16	4.31 U	10.8 U
DP-16(4.0-5.5)	10/20/16	**13.8**	**131**
DEQ Generic RBCs[1]			
Soil Ingestion, Dermal Contact, and Inhalation			
Occupational		14,000	NE
Construction Worker		4,600	NE
Excavation Worker		>Max	NE
Volatilization to Outdoor Air			
Occupational		>Max	NE
DEQ CFSLs[2]		1,100	NE

Notes:
1. DEQ Generic RBCs dated May 2018, amended June 2023
2. DEQ CFSLs dated February 21, 2019
>Max: The constituent RBC for this pathway is calculated as greater than 1,000,000 mg/kg or 1,000,000 mg/L. Therefore, this substance is deemed not to pose risks in this scenario.
U: Not detected. Reporting or detection limit shown.
Bolding indicates analyte detection.

TABLE 2
Summary of Soil Sample Chemical Analytical Results
RCRA 8 Total Metals and TCLP Lead
Hoyt Street Properties—Block 29
Northeast of NW Savier Street and NW 14th Avenue
Portland, Oregon

Sample I.D. (depth in feet BGS)	Sample Date	RCRA 8 Total Metals EPA Methods 6010B/7471A (mg/kg)								TCLP Lead by EPA Methods 1311/6010B (mg/L)
		Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	
DP-1(12.0-13.5)	10/20/16	2.20 U	101	0.698	17.5	226	0.117	2.20 U	1.10 U	3.73
DP-1(16.0-17.0)	10/20/16	2.76	197	0.664 U	25.4	110	0.252	2.66 U	1.33 U	1.34
DP-2(11.0-12.5)	10/20/16	4.23	171	0.633 U	20.0	62.7	0.343	2.53 U	1.27 U	--
DP-2(16.0-17.0)	10/20/16	2.89 U	203	0.723 U	24.3	26.7	0.102	2.89 U	1.45 U	--
DP-3(0.0-1.5)	10/20/16	2.25 U	119	0.562 U	15.2	25.4	0.0225 U	2.25 U	1.12 U	--
DP-3(5.5-7.0)	10/20/16	2.53 U	151	0.631 U	21.3	25.8	0.349	2.53 U	1.26 U	--
DP-4(7.0-8.5)	10/20/16	2.35 U	162	0.587 U	19.6	138	0.365	2.35 U	1.17 U	0.0653
DP-4(9.0-10.5)	10/20/16	2.19 U	112	0.892	21.8	174	0.160	2.19 U	1.10 U	0.247
DP-5(5.5-7.0)	10/20/16	2.32 U	214	0.580 U	20.8	156	0.364	2.32 U	1.16 U	0.0632
DP-5(8.0-9.5)	10/20/16	2.23 U	123	0.557 U	17.1	44.3	0.0869	2.23 U	1.11 U	--
DP-9(0.0-1.5)	10/20/16	2.31 U	111	0.578 U	13.7	68.0	0.103	2.31 U	1.16 U	--
DP-9(4.0-5.5)	10/20/16	2.26 U	127	0.796	21.2	252	0.159	2.26 U	1.13 U	0.200
DP-10(0.5-2.0)	10/20/16	2.21 U	103	0.642	19.5	116	0.0759	2.21 U	1.11 U	0.0517
DP-10(4.0-5.5)	10/20/16	3.98	88.7	0.575 U	10.5	11.2	0.0347	2.30 U	1.15 U	--
HA-1(1.0-2.0)	11/15/16	6.07	94.5	0.795	16.8	189	0.127	2.30 U	1.15 U	0.0500 U
HA-2(3.0-4.0)	11/15/16	10.2	206	0.652 U	22.0	24.1	0.0303	2.61 U	1.30 U	--
Borings/Samples Outside of Proposed Building Footprint										
DP-6(0.5-2.0)	10/20/16	1.82 U	72.2	0.455 U	9.14	25.6	0.0418	1.82 U	0.910 U	--
DP-6(5.0-6.0)	10/20/16	2.37 U	110	0.593 U	35.5	153	0.0873	2.37 U	1.19 U	0.494
DP-7(1.0-2.5)	10/20/16	2.59 U	187	0.648 U	23.1	265	0.0965	2.59 U	1.30 U	0.154
DP-7(4.5-6.0)	10/20/16	4.81	69.2	0.604 U	8.67	73.4	0.0838	2.42 U	1.21 U	--
DP-8(1.0-2.5)	10/20/16	2.58 U	171	0.645 U	18.7	215	0.0258 U	2.58 U	1.29 U	0.161
DP-8(4.5-6.0)	10/20/16	2.45 U	84.8	0.614 U	41.8	97.3	0.164	2.69	1.23 U	--
DP-11(0.0-1.5)	10/20/16	6.39	147	0.654	22.6	74.3	0.0559	2.39 U	1.19 U	--
DP-11(4.0-5.5)	10/20/16	5.74	244	0.577 U	12.8	106	0.0627	2.31 U	1.15 U	0.0564
DP-12(1.0-2.5)	10/20/16	7.85	143	0.588 U	20.1	162	0.183	2.35 U	1.18 U	0.553
DP-12(4.0-5.5)	10/20/16	7.03	104	0.586	19.3	168	0.132	2.30 U	1.15 U	0.121
DP-13(0.0-1.5)	10/20/16	7.83	116	0.565 U	16.7	68.2	0.107	2.26 U	1.13 U	--
DP-13(4.5-6.0)	10/20/16	9.71	173	0.602 U	25.7	125	0.200	2.41 U	1.20 U	0.0559
DP-14(0.5-2.0)	10/20/16	13.5	87.6	0.623	19.6	81.5	0.0495	2.32 U	1.16 U	--
DP-14(5.0-6.5)	10/20/16	8.49	138	0.747 U	23.4	49.0	0.0318	2.99 U	1.49 U	--
DP-15(1.0-2.5)	10/20/16	6.05	131	0.562 U	17.6	110	0.411	2.25 U	1.12 U	0.257
DP-15(4.5-6.0)	10/20/16	4.99	83.6	0.589 U	10.3	46.0	0.223	2.36 U	1.18 U	--
DP-16(0.0-1.5)	10/20/16	2.21	66.4	0.539 U	8.36	4.09	0.0216 U	2.16 U	1.08 U	--
DP-16(4.0-5.5)	10/20/16	2.51	146	0.563 U	6.25	6.25	0.0225 U	2.25 U	1.13 U	--

TABLE 2
Summary of Soil Sample Chemical Analytical Results
RCRA 8 Total Metals and TCLP Lead
Hoyt Street Properties—Block 29
Northeast of NW Savier Street and NW 14th Avenue
Portland, Oregon

Sample I.D. (depth in feet BGS)	Sample Date	RCRA 8 Total Metals EPA Methods 6010B/7471A (mg/kg)								TCLP Lead by EPA Methods 1311/6010B (mg/L)
		Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	
DEQ Generic RBCs[1]										
Soil Ingestion, Dermal Contact, and Inhalation										
Occupational		1.9	220,000	1,100	>Max	800	350	NE	5,800	NE
Construction Worker		15	69,000	350	530,000	800	110	NE	1,800	NE
Excavation Worker		420	>Max	9,700	>Max	800	2,900	NE	49,000	NE
Volatilization to Outdoor Air										
Occupational		NV	NV	NV	NV	NV	NV	NE	NV	NE
DEQ CFSLs[2] (Portland Basin)		8.8	790	0.63	76	28	0.23	0.71	0.82	NE
EPA Landfill Disposal Limits										5.0000

Notes:
1. DEQ Generic RBCs dated May 2018, amended June 2023
2. DEQ CFSLs dated February 21, 2019
>Max: The constituent RBC for this pathway is calculated as greater than 1,000,000 mg/kg or 1,000,000 mg/L. Therefore, this substance is deemed not to pose risks in this scenario.
NV: chemical is considered non-volatile
U: Not detected. Reporting or detection limit shown.
Bolding indicates analyte detection.
Shading indicates analyte detection at a concentration greater than DEQ RBCs and/or CFSLs.
--: not analyzed

TABLE 3
Summary of Soil Sample Chemical Analytical Results
PAHs
Hoyt Street Properties—Block 29
Northeast of NW Savier Street and NW 14th Avenue
Portland, Oregon

Sample I.D. (depth in feet BGS)	Sample Date	PAHs EPA Method 8270D-SIM (mg/kg)																		
		Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	2-Chloronaphthalene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Phenanthrene	Pyrene
Borings/Samples Within Proposed Building Footprint																				
DP-1(12.0-13.5)	10/20/16	**0.474**	0.0329 U	**0.695**	**1.08**	**0.968**	**1.01**	**0.247**	**0.521**	0.110 U	**1.18**	**0.132**	**2.31**	**0.340**	**0.406**	0.110 U	0.110 U	0.110 U	**2.76**	**2.61**
DP-1(16.0-17.0)	10/20/16	0.00797 U	**0.0105**	0.00797 U	**0.0291**	**0.0291**	**0.0311**	**0.00934**	**0.0182**	0.0266 U	**0.0385**	0.00797 U	**0.0389**	0.00797 U	**0.0135**	0.0266 U	0.0266 U	**0.0282**	**0.0196**	**0.0517**
DP-2(11.0-12.5)	10/20/16	0.00759 U	0.00759 U	0.00759 U	0.00759 U	**0.0103**	**0.0121**	0.00759 U	**0.00994**	0.0253 U	**0.00788**	0.00759 U	**0.0152**	0.00759 U	0.00759 U	0.0253 U	0.0253 U	0.0253 U	0.00759 U	**0.0170**
DP-2(16.0-17.0)	10/20/16	0.00868 U	0.00868 U	0.00868 U	0.00868 U	**0.0111**	**0.00927**	0.00868 U	**0.0137**	0.0289 U	0.00868 U	0.00868 U	**0.0142**	0.00868 U	0.00868 U	0.0289 U	0.0289 U	0.0289 U	**0.0122**	**0.0162**
DP-3(0.0-1.5)	10/20/16	0.135 U	0.135 U	0.135 U	0.135 U	0.135 U	0.135 U	0.135 U	0.135 U	0.450 U	0.135 U	0.135 U	0.135 U	0.135 U	0.135 U	0.450 U	0.450 U	0.450 U	0.135 U	0.135 U
DP-3(5.5-7.0)	10/20/16	**0.0234**	0.00758 U	**0.0187**	**0.0177**	**0.0165**	**0.0187**	0.00758 U	**0.0132**	0.0253 U	**0.0233**	0.00758 U	**0.0426**	**0.0230**	**0.00961**	0.0253 U	0.0253 U	**0.0275**	**0.0478**	**0.0511**
DP-4(7.0-8.5)	10/20/16	0.0352 U	0.0352 U	0.0352 U	**0.0679**	**0.0842**	**0.0847**	0.0352 U	**0.0869**	0.117 U	**0.0844**	0.0352 U	**0.161**	0.0352 U	**0.0532**	0.117 U	0.117 U	**0.123**	**0.128**	**0.183**
DP-4(9.0-10.5)	10/20/16	0.132 U	0.132 U	0.132 U	**0.136**	**0.144**	**0.231**	0.132 U	**0.177**	0.439 U	**0.296**	0.132 U	**0.331**	0.132 U	0.132 U	0.439 U	0.439 U	0.439 U	**0.407**	**0.467**
DP-5(5.5-7.0)	10/20/16	0.0348 U	0.0348 U	0.0348 U	**0.0813**	**0.0846**	**0.113**	0.0348 U	**0.0847**	0.116 U	**0.0859**	0.0348 U	**0.122**	0.0348 U	**0.0576**	0.116 U	0.116 U	0.116 U	**0.0535**	**0.130**
DP-5(8.0-9.5)	10/20/16	0.134 U	0.134 U	0.134 U	0.134 U	0.134 U	0.134 U	0.134 U	0.134 U	0.446 U	**0.146**	0.134 U	**0.166**	0.134 U	0.134 U	0.446 U	0.446 U	0.446 U	0.134 U	**0.234**
DP-9(0.0-1.5)	10/20/16	0.0693 U	0.0693 U	0.0693 U	**0.0821**	**0.0956**	**0.111**	0.0693 U	**0.133**	0.231 U	**0.109**	0.0693 U	**0.153**	0.0693 U	0.0693 U	0.231 U	0.231 U	0.231 U	**0.0984**	**0.193**
DP-9(4.0-5.5)	10/20/16	0.0679 U	0.0679 U	**0.0768**	**0.183**	**0.279**	**0.405**	**0.103**	**0.240**	0.226 U	**0.402**	0.0679 U	**0.226**	0.0679 U	**0.158**	0.226 U	0.226 U	**0.232**	**0.223**	**0.288**
DP-10(0.5-2.0)	10/20/16	**0.0660**	0.0133 U	**0.0643**	**0.0612**	**0.0578**	**0.0826**	**0.0170**	**0.0579**	0.0442 U	**0.0971**	0.0133 U	**0.159**	**0.0752**	**0.0362**	**0.0503**	0.0442 U	**0.0673**	**0.0785**	**0.169**
DP-10(4.0-5.5)	10/20/16	**0.0123**	0.00691 U	0.00691 U	**0.00716**	0.00691 U	**0.00723**	0.00691 U	0.00691 U	0.0230 U	**0.0102**	0.00691 U	**0.0160**	**0.00733**	0.00691 U	0.0230 U	0.0230 U	0.0230 U	**0.00788**	**0.0183**
HA-1(1.0-2.0)	11/15/16	0.0345 U	**0.0468**	**0.0743**	**0.215**	**0.178**	**0.216**	**0.0814**	**0.157**	0.115 U	**0.242**	**0.0388**	**0.575**	0.0345 U	**0.116**	0.115 U	0.115 U	0.115 U	**0.290**	**0.431**
HA-2(3.0-4.0)	11/15/16	0.00782 U	0.00782 U	0.00782 U	0.00782 U	0.00782 U	0.00782 U	0.00782 U	0.00782 U	0.0261 U	0.00782 U	0.00782 U	0.00782 U	0.00782 U	0.00782 U	0.0261 U	0.0261 U	0.0261 U	0.00782 U	0.00782 U
Borings/Samples Outside of Proposed Building Footprint																				
DP-6(0.5-2.0)	10/20/16	0.0655 U	0.0655 U	0.0655 U	**0.117**	**0.121**	**0.151**	0.0655 U	**0.156**	0.218 U	**0.145**	0.0655 U	**0.215**	0.0655 U	**0.0821**	0.218 U	0.218 U	0.218 U	**0.177**	**0.237**
DP-6(5.0-6.0)	10/20/16	**0.0711**	0.0356 U	**0.340**	**0.541**	**0.337**	**0.271**	0.0356 U	**0.140**	0.119 U	**0.604**	**0.0528**	**0.509**	**0.217**	**0.0752**	0.119 U	**0.198**	0.119 U	**1.17**	**1.11**
DP-7(1.0-2.5)	10/20/16	**0.0217**	0.0155 U	**0.0344**	**0.0792**	**0.118**	**0.117**	**0.0400**	**0.126**	0.0518 U	**0.100**	**0.0204**	**0.134**	**0.0352**	**0.0787**	**0.0694**	**0.109**	**0.0758**	**0.101**	**0.157**
DP-7(4.5-6.0)	10/20/16	**0.0934**	0.0145 U	**0.0169**	**0.0309**	**0.0329**	**0.0406**	0.0145 U	**0.0322**	0.0483 U	**0.0331**	0.0145 U	**0.0590**	**0.0533**	**0.0221**	**0.0859**	**0.129**	**0.136**	**0.0737**	**0.0580**
DP-8(1.0-2.5)	10/20/16	0.155 U	0.155 U	0.155 U	0.155 U	0.155 U	0.155 U	0.155 U	0.155 U	0.516 U	0.155 U	0.155 U	0.155 U	0.155 U	0.155 U	0.516 U	0.516 U	0.516 U	0.155 U	0.155 U
DP-8(4.5-6.0)	10/20/16	0.0736 U	0.0736 U	0.0736 U	**0.0877**	**0.0811**	**0.129**	0.0736 U	**0.0868**	0.245 U	**0.140**	0.0736 U	**0.180**	0.0736 U	0.0736 U	0.245 U	0.245 U	**0.328**	**0.154**	**0.212**
DP-11(0.0-1.5)	10/20/16	0.0716 U	0.0716 U	0.0716 U	0.0716 U	0.0716 U	0.0716 U	0.0716 U	0.0716 U	0.239 U	0.0716 U	0.0716 U	0.0716 U	0.0716 U	0.0716 U	0.239 U	0.239 U	0.239 U	0.0716 U	0.0716 U
DP-11(4.0-5.5)	10/20/16	**0.0158**	**0.0130**	**0.0126**	**0.0133**	**0.0121**	**0.0163**	0.00692 U	**0.0118**	0.0231 U	**0.0222**	0.00692 U	**0.0385**	**0.0109**	**0.00726**	**0.0272**	**0.0364**	**0.0802**	**0.0398**	**0.0432**
DP-12(1.0-2.5)	10/20/16	0.0353 U	0.0353 U	**0.0395**	**0.137**	**0.172**	**0.298**	**0.0626**	**0.398**	0.118 U	**0.238**	**0.0410**	**0.449**	0.0353 U	**0.229**	0.118 U	0.118 U	**0.161**	**0.198**	**0.468**
DP-12(4.0-5.5)	10/20/16	0.0346 U	0.0346 U	**0.0427**	**0.100**	**0.0949**	**0.120**	**0.0355**	**0.135**	0.115 U	**0.124**	0.0346 U	**0.190**	0.0346 U	**0.0659**	0.115 U	0.115 U	0.115 U	**0.163**	**0.197**
DP-13(0.0-1.5)	10/20/16	0.136 U	0.136 U	0.136 U	0.136 U	0.136 U	0.136 U	0.136 U	0.136 U	0.452 U	0.136 U	0.136 U	0.136 U	0.136 U	0.136 U	0.452 U	0.452 U	0.452 U	0.136 U	0.136 U
DP-13(4.5-6.0)	10/20/16	0.0361 U	**0.0500**	**0.0811**	**0.195**	**0.187**	**0.224**	**0.0652**	**0.145**	0.120 U	**0.241**	**0.0384**	**0.436**	**0.0971**	**0.102**	0.120 U	0.120 U	**0.241**	**0.623**	**0.451**
DP-14(0.5-2.0)	10/20/16	0.00696 U	0.00696 U	**0.0472**	**0.0299**	**0.0342**	**0.0474**	**0.0135**	**0.0450**	0.0232 U	**0.0495**	**0.0114**	**0.0544**	**0.00795**	**0.0362**	0.0232 U	0.0232 U	0.0232 U	**0.0253**	**0.0820**
DP-14(5.0-6.5)	10/20/16	0.00897 U	0.00897 U	**0.0130**	**0.0139**	**0.0127**	**0.0171**	0.00897 U	**0.0132**	0.0299 U	**0.0230**	0.00897 U	**0.0331**	**0.00966**	0.00897 U	**0.0811**	**0.110**	**0.0938**	**0.0597**	**0.0362**
DP-15(1.0-2.5)	10/20/16	0.135 U	0.135 U	0.135 U	0.135 U	0.135 U	0.135 U	0.135 U	0.135 U	0.450 U	0.135 U	0.135 U	**0.141**	0.135 U	0.135 U	0.450 U	0.450 U	0.450 U	0.135 U	**0.165**
DP-15(4.5-6.0)	10/20/16	0.00707 U	0.00707 U	0.00707 U	**0.0153**	**0.0175**	**0.0177**	**0.00755**	**0.0123**	0.0236 U	**0.0188**	0.00707 U	**0.0335**	0.00707 U	**0.00852**	0.0236 U	0.0236 U	0.0236 U	**0.0211**	**0.0399**
DP-16(0.0-1.5)	10/20/16	0.00647 U	0.00647 U	0.00647 U	0.00647 U	0.00647 U	0.00647 U	0.00647 U	0.00647 U	0.0216 U	0.00647 U	0.00647 U	0.00647 U	0.00647 U	0.00647 U	0.0216 U	0.0216 U	0.0216 U	0.00647 U	0.00647 U
DP-16(4.0-5.5)	10/20/16	0.00675 U	0.00675 U	0.00675 U	0.00675 U	0.00675 U	0.00675 U	0.00675 U	0.00675 U	0.0225 U	0.00675 U	0.00675 U	0.00675 U	0.00675 U	0.00675 U	0.0225 U	0.0225 U	0.0225 U	0.00675 U	0.00675 U
DEQ Generic RBCs[1]																				
Soil Ingestion, Dermal Contact, and Inhalation																				
Occupational		70,000	NE	350,000	21	2.1	21	210	NE	NE	2,100	2.1	30,000	47,000	21	NE	NE	23	NE	23,000
Construction Worker		21,000	NE	110,000	170	17	170	1,700	NE	NE	17,000	17	10,000	14,000	170	NE	NE	580	NE	7,500
Excavation Worker		590,000	NE	>Max	4,800	490	4,900	49,000	NE	NE	490,000	490	280,000	390,000	4,900	NE	NE	16,000	NE	210,000
Volatilization to Outdoor Air																				
Occupational		>Max	NE	>Max	>Csat	NV	NV	NV	NE	NE	NV	NV	NV	>Max	NV	NE	NE	83	NE	>Max
DEQ CFSLs[2]		0.25	120	6.8	0.73	0.11	1.1	11	25	230	3.1	0.11	10	3.7	1.1	0.36	11	0.077	5.5	10

Notes:
1. DEQ Generic RBCs dated May 2018, amended June 2023
2. DEQ CFSLs dated February 21, 2019
>Csat: This soil RBC exceeds the limit of three-phase equilibrium partitioning. Refer to Appendix D of DEQ's RBDM guidance document for the corresponding value of Csat. Soil concentrations in excess of Csat indicate that free product might be present.
>Max: The constituent RBC for this pathway is calculated as greater than 1,000,000 mg/kg or 1,000,000 mg/L. Therefore, this substance is deemed not to pose risks in this scenario.
NV: chemical is considered non-volatile
U: Not detected. Reporting or detection limit shown.
Bolding indicates analyte detection.
Shading indicates analyte detection at a concentration greater than DEQ RBCs and/or CFSLs.
–: not analyzed

TABLE 4
Summary of Soil Sample Chemical Analytical Results
PCBs
Hoyt Street Properties—Block 29
Northeast of NW Savier Street and NW 14th Avenue
Portland, Oregon

Sample I.D. (depth in feet BGS)	Sample Date	PCBs EPA Method 8082 (mg/kg)						
		Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260
Borings/Samples Within Proposed Building Footprint								
DP-4(9.0-10.5)	10/20/16	0.0187 U	0.0187 U	0.0187 U	0.0187 U	0.0187 U	0.0187 U	**0.364**
DP-9(4.0-5.5)	10/20/16	0.0193 U	0.0193 U	0.0193 U	0.0193 U	0.0193 U	0.0193 U	0.0193 U
Boring/Sample Outside of Proposed Building Footprint								
DP-6(0.5-2.0)	10/20/16	0.0186 U	0.0186 U	0.0186 U	0.0186 U	0.0186 U	0.0186 U	0.0186 U
DEQ Generic RBCs[1]								
Soil Ingestion, Dermal Contact, and Inhalation								
Occupational		0.59						
Construction Worker		4.9						
Excavation Worker		140						
Volatilization to Outdoor Air								
Occupational		>Csat						
DEQ CFSLs[2]		1.1	0.0048	0.0048	0.041	0.0073	0.041	0.24

Notes:
1. DEQ Generic RBCs dated May 2018, amended June 2023
2. DEQ CFSLs dated February 21, 2019
>Csat: This soil RBC exceeds the limit of three-phase equilibrium partitioning. Refer to Appendix D of DEQ's RBDM guidance document for the corresponding value of Csat. Soil concentrations in excess of Csat indicate that free product might be present.
U: Not detected. Reporting or detection limit shown.
Bolding indicates analyte detection.
Shading indicates analyte detection at a concentration greater than DEQ RBCs and/or CFSLs.

APPENDIX

APPENDIX

SITE-SPECIFIC HEALTH AND SAFETY PLAN

INTRODUCTION

Each contractor conducting work at Block 29 is individually responsible for the health and safety of their employees. This includes the implementation of any training requirements, HSPs, monitoring, and any other specific requirements for the type of work being completed by the contractor. This HSP should be available to employees who will be working at Block 29 and can be used to assist the contractor in preparation of their employee hazard communication and health and safety programs for Block 29. This HSP is intended solely for the use of NV5 environmental employees while providing on-site observation, monitoring, and sampling; is provided in this document for reference only; and is not a replacement for each contractor's specific HSP. Contractors may adopt this HSP with the proper modifications to address the type of work they will be completing at Block 29.

This HSP establishes the policies and procedure that will help minimize risk to on-site workers, visitors, and the public. The procedures and guidelines contained herein are based on the current available information at the time this HSP was prepared. Specific requirements will be revised when new information is received or conditions change.

SUBJECT PROPERTY BACKGROUND

A summary the environmental history and background of Block 29 is presented in Section 5.0 of the CMMP.

SUBJECT PROPERTY LOCATION

Address: NW Savier Street and NW 14th Avenue
Portland, Oregon

Description: Block 29 consists of Tax Lot 713 and encompasses 0.98 acre of vacant land.

Contracting Company or Agency: To be determined

SCOPE OF WORK (NV5)

Objectives: Observe soil conditions, excavation activities, and/or construction; provide field screening of soil excavated from excavation, monitor methane in the breathing zone; collect soil samples from excavations and/or soil stockpiles as appropriate; and document site activities if necessary

Duration of Work: To be determined

ON-SITE ORGANIZATION AND COORDINATION

The following personnel are designated to carry out the stated job functions on site. (Note: One person may carry out more than one job function.)

Project Manager:	Kyle Sattler
SSO:	To be determined
Site Supervisor:	To be determined
Field Personnel:	To be determined
Subcontractor(s):	NA
Client Contact:	Jack Miller

The Project Manager has overall responsibility for all activities on site, including implementation of the site safety plan. The Project Manager may delegate this function to the SSO.

The SSO is responsible for helping to ensure that work crews comply with all site safety and health requirements. All other site personnel are responsible for understanding and complying with all site safety and health requirements.

BLOCK 29 CONTROL

Block 29 will be a secured construction site, but some work may be completed in the ROWs surrounding Block 29. Excavations deeper than 4 feet BGS should be properly shored and fenced to prevent excavation collapse and falls into the excavation.

EMPLOYEE TRAINING

All site personnel working in contaminated portions of Block 29 and who might come in contact with contaminated media should have received 24 or 40 hours of OSHA training on safe work practices for hazardous waste sites. In addition, personnel are required to receive eight hours of OSHA refresher training annually. Managers and supervisors are required to receive eight hours of OSHA training for safe management of hazardous waste site operations. All training will comply with 29 CFR 1910.120. Site-specific training should be held at the beginning of the project. Daily site safety meetings should be held on site and a record kept.

MEDICAL SURVEILLANCE

Pre-employment and periodic medical examinations are required for personnel working at hazardous waste sites. The medical examination must be completed within the prior 12-month period. A statement deeming the worker to be fit for duty is required from a licensed physician. Medical records are accessible by workers.

HAZARD/RISK ASSESSMENT

This section discusses chemical, physical, and environmental hazards to workers at Block 29. The table below lists major hazards associated with these tasks and methods to mitigate the hazards. The table below discusses physical hazards identified with Block 29, including those associated with fire, use of heavy equipment, slip/trip/fall, lifting, tool and equipment, and heat stress.

Daily tailgate safety meetings will be held at the start of each workday to discuss potential chemical, physical, and environmental hazards and preventative safety measures. Attendance will be mandatory for all employees. Task hazard analyses have been developed for each major field activity/work phase and are presented in the table below. The following sections describe the specific hazards anticipated in more detail and the control measures to be implemented to minimize or eliminate each hazard. This information will be used to augment daily safety meetings intended to heighten safety and hazard awareness on the job.

Hazards Associated with Tasks

The main hazards associated with site construction are struck-by and inhalation, contact, and/or ingestion of contaminants. Other potential hazards associated with site activity are analyzed as detailed in the table below.

Hazard Sources and Mitigation During Field Activities and Hazard Project Tasks Mitigation Methods

Hazard	Project Tasks	Mitigation Methods
Slip/trip/fall	All tasks	Maintain good housekeeping. Limit work area with boundary marking tape and signs. Slip/trip/fall hazards will be addressed through an ongoing proactive housekeeping program that eliminates elements in the work area that have potential for causing loss of footing.
Struck-by	All tasks	Maintain a safe distance from any heavy equipment. Workers should not stand within the swing radius or reach of heavy equipment.
Explosion/fire	All tasks	Smoking is not permitted in the work zones. Any free-phase petroleum or gasoline will be stored in appropriate containers. Signs indicating flammable liquids should be posted where appropriate. Appropriate fire extinguishers will be available to site personnel during field activities. Open-flame ignition sources will be restricted from the work area (smoking, etc.)

Hazard Sources and Mitigation During Field Activities and Hazard Project Tasks Mitigation Methods (continued)

Hazard	Project Tasks	Mitigation Methods
Inhalation, contact, and ingestion of organic vapors	Excavation, sampling, and monitoring	Level D PPE is typically adequate. If conditions require upgrading to air-purifying respirations (Level C PPE), an addendum to this HSP will be submitted for review and approval. Remain upwind of contaminated material whenever possible. Wear disposable gloves and safety glasses with side shields when handling soil and sampling waters. Avoid smoking at all times during the mass excavation activities. Chewing tobacco and eating should also be avoided during excavation work to prevent ingestion of site contaminants.
Contact with contaminated soil and groundwater	Excavation, sampling, and monitoring	Level D PPE is typically adequate. Wear appropriate coveralls, gloves, and protective eyewear. No eating, smoking, or drinking on site.
Weather extremes	All tasks	Use dress consistent with weather conditions. Implement worker rotation and rest period schedules. Adjust workday to avoid exposure.

HAZARD ANALYSIS

Chemical(s)	Petroleum hydrocarbons, metals, PAHs, methane
Heavy Equipment	Yes
Confined Space	Not anticipated
Flammability	Yes
Reactivity	NA
Heat	Occasional warm periods
Cold	Occasional cold periods
Drums	NA
Terrain	Potential excavation with steep sidewalls
Oxygen Deficient	NA
Electrical	NA
Corrosivity	NA
Noise	Construction equipment noise will be present during the entire work period
Altitude	NA
Radiation	NA
Wildlife	NA
Ergonomic	NA
Drilling	NA
Excavation	Mass excavation for subject property development
Biological Agent	NA
Explosives	NA
Vehicles	Cars, freight trucks, construction vehicles

PERSONAL PROTECTIVE EQUIPMENT

Based on the evaluation of potential hazards, the following levels of personal protection have been designated for the applicable work areas or tasks:

Location	Job Function	Levels of Protection
Exclusion Zone	All Tasks	D
		A B C D Other
		A B C D Other
		A B C D Other
Contamination Reduction Zone	All Tasks	D
		A B C D Other
		A B C D Other

Specific protective equipment for each level of protection is as follows:

Level A _____

Level B _____

Other _____

Level C _____

Level D Hard hat, safety vest, steel toed boots, eye protection, and ear protection if construction equipment is operating.

DOWNGRADING CHANGES TO THE SPECIFIED LEVELS OF PROTECTION SHALL NOT BE MADE WITHOUT THE APPROVAL OF THE SSO.

DECONTAMINATION PROCEDURE

Personnel and equipment leaving the Exclusion Zone shall be thoroughly decontaminated. The standard level NA decontamination protocol shall be used with the following decontamination stations:

(1)_____ (2)_____
(3)_____ (4)_____
(5)_____ (6)_____
(7)_____ (8)_____
(9)_____ (10)_____

The decontamination station will be immediately adjacent to the Exclusion Zone. The decontamination solution will be NA.

Emergency decontamination will include the following stations: Soap and Water – Rinse Water – Eye-Wash Station

Equipment decontamination will be as follows: Trisodium phosphate and water

EMERGENCIES

Closest Hospital	Legacy Good Samaritan Medical Center	
Address	1015 NW 22nd Avenue	Phone 503.413.7711
Distance	0.9 mile (see attached map)	
Ambulance		Phone 911
Police		Phone 911
Fire		Phone 911
NV5	Office Phone: 503.968.8787	

Emergency Equipment is available on-site at the following locations:

First Aid Kit	In Vehicle
Eye Wash	In Vehicle
Fire Extinguisher	On Site
Other	

The following standard emergency procedures will be used by on-site personnel. The SSO shall be notified of any on-site emergencies and will be responsible for helping ensure that the appropriate procedures are followed.

Personnel Injury in the Exclusion Zone: Upon notification of an injury in the Exclusion Zone, the designated emergency signal of three horn blasts shall be sounded. All site personnel will assemble at the decontamination line. The rescue team will enter the Exclusion Zone (if required) to remove the injured person to the hotline. The SSO will evaluate the nature of the injury, and the impacted person should be decontaminated to the extent possible before movement to the Support Zone. Appropriate first aid and arrangement for an ambulance will be made with the designated medical facility (if required). No persons will re-enter the Exclusion Zone until the cause of the injury or symptoms is determined.

Personnel Injury in the Support Zone: Upon notification of an injury in the Support Zone, the SSO will assess the nature of the injury. If the cause of the injury or loss of the injured person does not affect the performance of site personnel, operations may continue with the appropriate first aid and necessary follow-up as stated above. If the injury increases the risk to others, the designated emergency signal of three horn blasts will be sounded and all site personnel shall move to the decontamination line for further instructions. Activities on site will stop until the added risk is removed or minimized.

Fire/Explosion: Upon notification of a fire or explosion on site, the designated emergency signal of three horn blasts will be sounded and all site personnel will assemble at the decontamination line. The fire department will be alerted, and all personnel will move to a safe distance from the involved area.

PPE Failure: If any site worker experiences a failure or alteration of PPE that affects the protection factor, that person and his buddy will immediately leave the Exclusion Zone. Re-entry will not be permitted until the equipment has been repaired or replaced.

Other Equipment Failure: If any other equipment on site fails to operate properly, the Site Supervisor will be notified and then determine the effect of the failure on continuing operations on site. If the failure affects the safety of personnel or prevents completion of project objectives, all personnel will leave the Exclusion Zone until the situation is evaluated and appropriate actions taken.

Emergency Escape Routes: The following routes are designated for use in situations where egress from the Exclusion Zone cannot occur through the decontamination line: (describe alternate routes to leave the area in emergencies)

To be determined upon arrival on site

In all situations, when an on-site emergency results in evacuation of the Exclusion Zone, personnel will not re-enter until:

1. The conditions resulting in the emergency have been corrected.
2. The hazards have been re-assessed.
3. The Site Safety Plan has been reviewed.
4. Site personnel have been briefed on any changes to the Site Safety Plan.

ATTACHMENT 1
HAZARD ANALYSIS

HAZARD	PREVENTION	TREATMENT
Traffic to and from site	Defensive driving	Call 911 and insurance company
Hot weather	Wear sunscreen, drink water	Re-hydrate
Slips, trips, falls, cuts	Caution	Antibiotic ointment
Construction equipment	Eye contact with operator, personal protection equipment, caution	Call 911
Soil sampling	Use protective PPE	Call 911 or on-site assistance

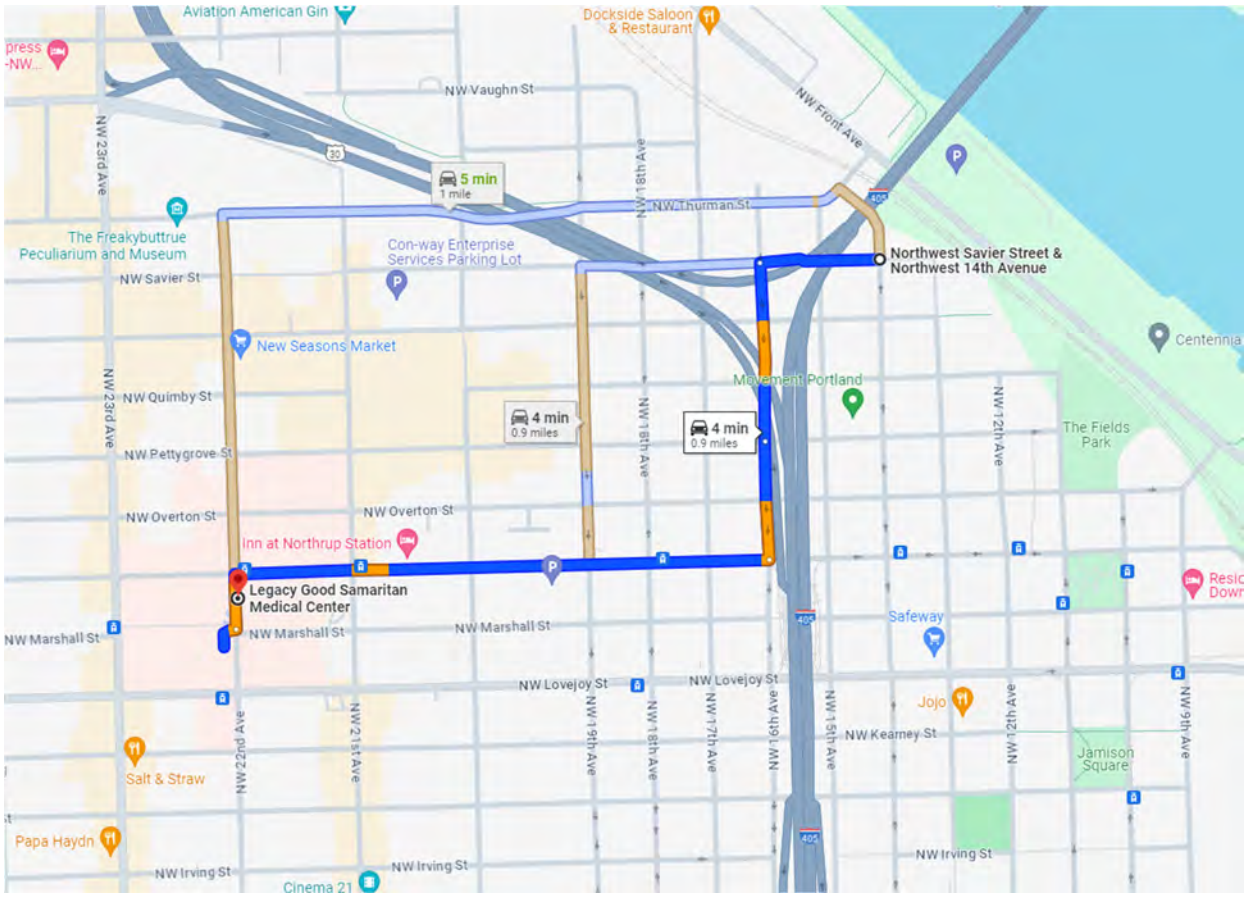
If additional physical hazards are identified during site work, document the conditions and contact the Project Manager.

ATTACHMENT 2
SITE SAFETY PLAN ACKNOWLEDGMENT

All site personnel have read the above plan and are familiar with its provisions.

Name	Company	Date
SSO		
Project Manager		
Site Personnel		

Map to Hospital
Legacy Good Samaritan Medical Center
1015 NW 22nd Avenue
Portland, OR 97210



NV5

Delivering Solutions
Improving Lives