Subsurface Investigation Work Plan

Damerow Ford Service Center

Beaverton, Oregon

January 5, 2026

Geotechnical ■ Environmental ■ Special Inspections

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January 5, 2026

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

Attn: Rebecca Digiustino

Re: Subsurface Investigation Work Plan
Damerow Ford Service Center
12375 SW Millikan Way
Beaverton, Oregon
DEQ LUST File 34-90-0450
CWE Project: GRF-1-02-1

Columbia West Engineering, Inc. (Columbia West) is pleased to present this Subsurface Investigation Work Plan for the Damerow Ford Service Center located at 12375 SW Millikan Way in Beaverton, Oregon. Our services were conducted in conformance with our proposal dated July 1, 2025.

We appreciate the opportunity to be of service on this project. Please contact us if you have questions regarding this work plan.

Sincerely,

Caroline B. Siegel
Environmental Project Manager

Colby R. Hunt, CHMM
Environmental Principal

cc: Brett Francis, GRF Properties, LLC

CBS:CRH:kat
Attachments
Document ID: GRF-1-02-2-010526-envWP-DRAFT-DEQ.docx

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ABBREVIATIONS AND ACRONYMS

ASTM	ASTM International
BGS	below ground surface
BS	blank spike
BSD	blank spike duplicate
BTEX	benzene, toluene, ethylbenzene, and xylenes
COC	chemical of concern or contaminant of concern
COPC	chemical of potential concern or contaminant of potential concern
CSM	conceptual site model
DEQ	Oregon Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
IDW	investigation-derived waste
LUST	Leaking Underground Storage Tank
mg/kg	milligrams per kilogram
mL	milliliter(s)
MS	matrix spike
MSD	matrix spike duplicate
NFA	No Further Action
not detected	compound not detected at a concentration equal to or greater than the laboratory method reporting limit or reporting detection limit
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PFA	perfluoroalkoxy
PID	photoionization detector
PPE	personal protective equipment
PRT	Post Run Tubing
PVC	polyvinyl chloride
QA	quality assurance
QC	quality control
RBC	risk-based concentration
RCRA	Resource Conservation and Recovery Act
RDM	Robert D. Miller Consulting, Inc.
TCLP	toxicity characteristic leaching procedure
TPH	total petroleum hydrocarbon(s)
µg/L	micrograms per liter
UST	underground storage tank
VOC	volatile organic compound

SUBSURFACE INVESTIGATION WORK PLAN
DAMEROW FORD SERVICE CENTER
BEAVERTON, OREGON

1.0 INTRODUCTION

Columbia West has prepared this Subsurface Investigation Work Plan on behalf of GRF Properties LLC. This work plan presents the planned scope of services to evaluate soil, groundwater, and soil gas conditions at the Damerow Ford Service Center located at 12375 SW Millikan Way in Beaverton, Oregon (site). The location of the site relative to surrounding features is shown on Figure 1. A site plan is shown on Figure 2. The purpose of this work plan is to present a scope of services for a subsurface investigation intended to fill data gaps from previous investigations at the site.

Abbreviations and acronyms used herein are defined immediately following the Table of Contents.

2.0 SITE DESCRIPTION AND HISTORY

The site encompasses 2.18 acres developed with an approximately 25,000-square-foot auto service center building and associated paved parking areas. The site is currently owned by GRF Properties LLC.

The site has been used for an auto service center and sales lot since 1973 and was listed on the DEQ LUST database in 1990 (LUST File 34-90-0450) after a release that impacted soil and groundwater was encountered during removal of a waste oil UST. Several investigations were conducted at the site between 1990 and the present. LUST File 34-90-0450 remains an open regulatory file. In order to receive an NFA determination from DEQ for LUST File 34-90-0450, additional investigation will be required to address data gaps from previous sampling activities.

2.1 REGULATORY HISTORY

The site was listed on the DEQ LUST database (LUST File 34-90-0450) after a release was encountered during decommissioning of a 1,000-gallon waste oil UST at the site. Subsurface investigations at the site between 1991 and 2006 identified impacts to soil and groundwater in the vicinity of the former waste oil UST.

In a DEQ letter dated June 11, 2025, DEQ identified the following data gaps that must be filled prior to obtaining an NFA determination for the site:

- The lateral extents of soil and groundwater contamination associated with the former waste oil UST have not been fully delineated.
- Soil between 0 and 3 feet BGS at the site has not been adequately characterized.
- Vapor intrusion risks at the site have not been evaluated.
- Four quarters of groundwater monitoring have not been conducted.

2.2 PREVIOUS ENVIRONMENTAL INVESTIGATIONS

Summaries of previous environmental investigations conducted at the site are presented in the following sections. Previous exploration locations are shown on Figure 2.

2.2.1 UST Cavity Sampling (1991)

On November 20, 1990, Bartholemy Construction Inc. removed a 1,000-gallon waste oil UST from the southeast portion of the site. In July and August 1991, Spencer, Inc. collected several samples of liquid from the UST cavity for analysis of TPH by EPA Method 418.1; BTEX by EPA Method 8020; leachable cadmium, chromium, and lead by TCLP; PCBs by EPA Method 8080; and halogenated solvents by EPA Method 8010. BTEX compounds; leachable cadmium, chromium, and lead; PCBs; and halogenated solvents were not detected in the liquid collected from the UST cavity. TPH were detected in the liquid at a concentration of 2,900,000 µg/L before purging the UST cavity. After purging the UST cavity of liquid and allowing groundwater to recharge the cavity, TPH were detected in the liquid collected from the UST cavity at a concentration of 44,000 µg/L.

2.2.2 UST Decommissioning Report (1998)

A UST decommissioning report was filed with DEQ on January 30, 1998. The 1998 report described decommissioning activities associated with the waste oil UST between 1990 and 1991. During decommissioning of the waste oil UST, the UST was observed to be pitted and contaminated soil was visible at the bottom of the UST cavity. According to the 1998 report, Rogers Sayles Excavating, Inc. collected five soil samples (S#1 through S#5) from the UST cavity for analysis of hydrocarbon identification by Method TPH-HCID in October 1991. Oil-range hydrocarbons were qualitatively identified in each of the soil samples analyzed, and gasoline-range hydrocarbons were qualitatively identified in soil sample S#5.

Following additional soil removal from the south and east sides of the UST cavity, Roger Sayles Excavating collected five confirmation soil samples from the remedial excavation, including one soil sample from each sidewall and one from the base of the remedial excavation. Roger Sayles Excavating also collected a soil sample from a 3-foot-deep test pit excavated east of the remedial excavation on November 15, 1991. The samples were analyzed for TPH by EPA Method 418.1. TPH were detected in the confirmation soil samples collected from the remedial excavation at concentrations ranging from 34 to 970 mg/kg. TPH were detected in the sample from the test pit adjacent to the remedial excavation at a concentration of 8 mg/kg. The maximum detected concentrations of TPH were in soil samples collected from the bottom and west wall of the remedial excavation (880 mg/kg and 970 mg/kg, respectively). The west sidewall of the remedial excavation adjoined the existing auto service center building.

2.2.3 Subsurface Investigation (2006)

In 2006, Robert D. Miller Consulting, Inc. (RDM) conducted a subsurface investigation intended to define the vertical and lateral extents of contamination in soil and groundwater at the site and identify potential additional COCs. The 2006 report noted that additional investigation had been performed at the site in 2000 by Roger Sayles Excavating and Evergreen Environmental. However, reports or records of these investigations do not appear to have been submitted.

RDM advanced six direct-push borings (P1 through P6) at the site on June 14, 2006. Borings P2 and P3 were installed to 24 feet BGS adjacent to the previous waste oil UST excavation. Borings P1, P4, and P6 were installed to 20 feet BGS south and west of the UST excavation, up-gradient direction of the excavation in the presumed groundwater flow direction. Boring P5 was installed north of the excavation to 20 feet BGS in the presumed down-gradient direction. Groundwater was encountered and sampled in borings P1, P2, P4, and P5. Select soil samples collected from the borings were analyzed for petroleum hydrocarbon identification by Method NWTPH-HCID, diesel- and oil-range hydrocarbons by Method NWTPH-Dx, VOCs by EPA Method 8260B, PAHs by EPA Method 8270, and leachable RCRA 8 metals by TCLP. Groundwater samples were analyzed for hydrocarbon identification and VOCs. Select groundwater samples were analyzed for diesel- and oil-range hydrocarbons and PAHs.

The 2006 report noted that, based on the chemical analytical results, soil in the vicinity of the former UST excavation was impacted by oil-range hydrocarbons at concentrations of up to 18,400 mg/kg in boring P3. Soil impacted by oil-range hydrocarbons appeared to extend in depth from 9 feet BGS to greater than 23.5 feet BGS, as defined by boring P2. Gasoline-range hydrocarbons, VOCs, and PAHs were not detected at concentrations greater than DEQ RBCs in the soil samples analyzed. TCLP metals were not detected.

Groundwater samples collected from north of the former UST excavation were impacted with oil-range hydrocarbons, benzene, naphthalene, benzo(a)anthracene, and benzo(b)fluoranthene at concentrations exceeding DEQ RBCs. The maximum detected concentration of benzene was 302 µg/L, and the 2006 report noted that the benzene plume had not been fully defined.

RDM prepared a CSM that identified site-specific RBCs. The CSM eliminated surface soil *Ingestion, Inhalation and Dermal Contact;* soil *Leaching to Groundwater;* and groundwater ingestion as pathways at the site. RDM concluded that residual impacted soil was in compliance with the site-specific RBCs, but that benzene in groundwater exceeded the allowable concentrations for residential receptors of the *Vapor Intrusion into Buildings* pathway. RDM recommended installing four additional borings to delineate the benzene plume within groundwater and one additional boring to a depth greater than 23.5 feet BGS to define the full vertical extent of oil-range hydrocarbons in soil.

2.2.4 DEQ Comments (2025)

DEQ reviewed the subsurface investigation report prepared by RDM and provided comments on June 11, 2025. DEQ generally concurred with the initial CSM, but disagreed that the direct contact pathway for surface soil was incomplete. The 2006 RDM report did not identify contaminated soil at less than 3 feet in depth. However, the 1998 UST decommissioning report noted soil with "an oil odor" within the 3-foot-deep test pit excavated east of the remedial excavation in 1991. DEQ concluded that additional investigation was needed to confirm that surficial soil is not contaminated, particularly along preferential pathways.

DEQ also recommended installing permanent monitoring wells and conducting at least four quarters of groundwater monitoring. DEQ also noted that due to the proximity of existing buildings to the contaminated area, vapor intrusion risks to the surrounding buildings should also be assessed.

2.3 CONTAMINANTS OF CONCERN/CONTAMINANTS OF POTENTIAL CONCERN

Soil COCs for waste oil USTs storing automotive waste soil include gasoline-, diesel-, and oil-range hydrocarbons; VOCs; PAHs; and leachable cadmium, chromium, and lead. Gasoline- and diesel-range hydrocarbons, VOCs, and PAHs were not detected at concentrations greater than

DEQ RBCs in soil samples collected from deeper than 3 feet BGS during the 2006 investigation. Therefore, COCs for soil deeper than 3 feet BGS at the site include oil-range hydrocarbons. Shallow soil samples (0 to 3 feet BGS) have not been analyzed at the site. Therefore, COCs for shallow soil include gasoline-range hydrocarbons; diesel- and oil-range hydrocarbons; VOCs; PAHs; and leachable cadmium, chromium, and lead.

In groundwater at the site, PAHs and/or BETX were detected at concentrations exceeding DEQ RBCs, and it does not appear that previous groundwater samples were analyzed for dissolved metals. Therefore, COCs in groundwater at the site include PAHs, BETX, and dissolved RCRA 8 metals.

In soil gas at the site, soil gas COPCs include gasoline-range hydrocarbons and VOCs. Future soil gas sampling at the site will include analysis of these contaminants.

2.4 IDENTIFICATION OF DATA GAPS

There are three primary data gaps at the site. First, additional investigation is needed to confirm that surficial soil (less than 3 feet BGS) is not contaminated, particularly near the sewer line near the east boundary of the site. Second, the lateral extents of petroleum contamination in soil and groundwater have not been fully delineated. Third, vapor intrusion risks to surrounding buildings have not been assessed.

The scope of services for the subsurface investigation is intended to fill these data gaps. The work will include the following: (1) delineating the lateral extents of soil and groundwater contamination associated with the former waste oil UST, (2) characterizing soil between 0 and 3 feet BGS, (3) evaluating potential vapor intrusion risks at the site, and (4) conducting four quarters of groundwater monitoring and sampling.

2.5 DATA USE OBJECTIVE

The data use objective for the subsurface investigation is to address the data gaps identified in Section 2.4 (Identification of Data Gaps).

3.0 PROJECT ORGANIZATION

Project organization, including management responsibilities, resources, and implementation responsibilities, are described in the following sections.

3.1 PROJECT MANAGER

The Columbia West project manager will supervise all tasks conducted under this work plan to ensure that tasks are completed in accordance with this work plan. The project manager will directly supervise the task manager, oversee preparation of deliverables, conduct project administration and project coordination, and communicate with project stakeholders. The project manager will also serve as the Project Health and Safety Officer and ensure that field activities, including field activities conducted by Columbia West field representatives and field activities conducted by subcontractors, are conducted in accordance with the Health and Safety Plans developed for each task.

3.2 TASK MANAGER

The Columbia West task manager will coordinate field activities associated with each task presented in this work plan and ensure that field activities are conducted in accordance with the requirements of this work plan and forthcoming Health and Safety Plans. The task manager will be responsible for ensuring that appropriate sample collection procedures and laboratory analytical methods are used as specified in this work plan. The task manager will also coordinate with the analytical laboratories to procure appropriate sample containers for each analytical method and for each media, review the laboratory chains-of-custody prior to submitting samples to the laboratories, and coordinate with the analytical laboratories to ensure that laboratory analyses are conducted in accordance with this work plan.

3.3 FIELD REPRESENTATIVES

Columbia West field representatives will be responsible for conducting planned field activities in accordance with this work plan.

3.4 ANALYTICAL LABORATORY

Analytical testing for the soil and groundwater samples collected during the subsurface investigation will be provided by Apex Laboratories, LLC of Tigard, Oregon. Analytical testing of soil gas samples will be provided by Friedman & Bruya, Inc. of Seattle, Washington.

3.5 SUBCONTRACTORS

The following subcontractors may be used during the course of the subsurface investigation, depending on availability. Alternate contractors may be used for any of the subcontracted tasks listed below:

- Utility Locates: Prior to conducting subsurface explorations, Applied Professional Services, Inc. will be retained to clear proposed exploration locations of potential utility conflicts.
- Drilling: Drilling services will be provided by either Cascade Drilling, Holocene Drilling, Inc., or Western States Soil Conservation, Inc.

4.0 DIRECT-PUSH DRILLING AND SOIL SAMPLING

Five direct-push borings will be advanced at the site, including three direct-push borings to a depth of 25 feet BGS (MW-1 through MW-3) and two direct-push borings to a depth of 5 feet BGS (DP-1 and DP-2) using a direct-push drilling methods by an Oregon-licensed driller subcontracted by Columbia West. The purpose of direct-push borings MW-1 through MW-3 is to collect soil samples and to install groundwater monitoring wells in the completed borings. The purpose of direct-push borings DP-1 and DP-2 is to characterize soil between 0 and 3 feet BGS at the location of a sewer line along the east boundary of the site, which may serve as a preferential pathway for contaminants. The proposed locations of the direct-push borings are shown on Figure 2. Soil samples will be collected continuously from each direct-push boring and field screened for evidence of petroleum impacts using visual indicators, water sheen testing, and headspace vapor concentration measurements using a hand-held PID. Soil encountered in each boring will be logged in accordance with the Unified Soil Classification System.

4.1 UTILITY LOCATING

Prior to drilling the direct-push borings, the Oregon Utility Notification Center will be contacted to locate public utilities. A private utility locator subcontracted by Columbia West will clear each proposed direct-push boring location of potential utility conflicts.

4.2 SOIL SAMPLING SCHEDULE

Depending on subcontractor availability, soil sampling will be conducted within five weeks of approval of this work plan. Drilling activities are expected to be completed in three days. The planned schedule for field activities may vary depending on weather and/or equipment conditions or other unforeseen circumstances.

4.3 SOIL SAMPLE COLLECTION

Discrete soil samples will be retained for potential laboratory analysis at a minimum of 5-foot intervals by transferring soil samples directly from the soil core to laboratory-provided sample containers. New disposable nitrile gloves will be worn prior to collecting each sample.
Soil samples will be transferred to a cooler on ice and transferred to the analytical laboratory under standard chain-of-custody protocols.

4.4 SOIL SAMPLE NOMENCLATURE

Soil sample nomenclature will include the direct-push boring name (e.g., DP-1) followed by the sample depth in parentheses. For example, a soil sample collected from direct-push boring DP-1 at a depth of 2 to 3 feet BGS would be named DP-1(2-3).

4.5 SOIL SAMPLE ANALYTICAL SUITE

Soil samples will be submitted to an analytical laboratory for analysis of soil COCs, including the following for soil deeper than 3 feet BGS:

- Diesel- and oil-range hydrocarbons by Method NWTPH-Dx
- Leachable cadmium, chromium, and lead (for waste disposal purposes)

Soil samples collected from between 0 and 3 feet BGS will be submitted to an analytical laboratory for analysis of the following:

- Gasoline-range hydrocarbons by Method NWTPH-Gx
- Diesel- and oil-range hydrocarbons by Method NWTPH-Dx
- VOCs by EPA Method 8260D
- PAHs by EPA Method 8260E SIM
- Leachable cadmium, chromium, and lead (for waste disposal purposes)

4.6 SOIL SAMPLE ANALYTICAL METHODS AND DETECTION LIMITS

Analytical methods listed in Section 4.5 (Soil Sample Analytical Suite) will be approved EPA methods or DEQ methods. Method detection limits will be appropriate for comparison to applicable RBCs.

4.7 DATA QUALITY ASSURANCE CONTROL

Data quality assurance control will include the selected laboratory's internal QA/QC programs, including MS/MSD recoveries, BS/BSD recoveries, surrogate recoveries, laboratory blank analysis, and laboratory duplicate analysis.

4.8 REPORTING

The results of the soil sampling will be tabulated, forwarded to the project team, and summarized in the subsurface investigation report.

5.0 MONITORING WELL INSTALLATION AND GROUNDWATER SAMPLING

Groundwater monitoring and sampling will be conducted to determine groundwater flow direction and gradient beneath the site and to delineate the extent of COCs in groundwater at the locations where COCs were previously detected.

5.1 MONITORING WELL LOCATIONS

Groundwater monitoring wells will be installed in three of the five direct-push borings (MW-1 through MW-3). Groundwater monitoring well (MW-1) will be installed approximately 50 feet south of the former UST excavation in an up-gradient direction relative to the inferred groundwater flow direction to evaluate potential contaminant concentrations in groundwater entering the site from offsite. Groundwater monitoring wells MW-2 and MW-3 will be installed approximately 100 feet northwest and 100 feet northeast, respectively, of the former UST excavation, downgradient relative to the inferred groundwater flow direction. The proposed locations of monitoring wells MW-1 through MW-3 are shown on Figure 2.

5.2 MONITORING WELL INSTALLATION SCHEDULE

Depending on subcontractor availability, monitoring well installation will be conducted within five weeks of approval of this work plan. Drilling activities are expected to be completed in three days. The planned schedule for field activities may vary depending on weather and/or equipment conditions or other unforeseen circumstances.

5.3 MONITORING WELL CONSTRUCTION AND DEVELOPMENT

Following advancement of the direct-push drilling rods, groundwater monitoring wells MW-1 through MW-3 will be constructed in the boreholes. The monitoring wells will be pre-pack assemblies consisting of a slotted PVC pipe surrounded by environmental-grade sand contained within a stainless steel wire mesh cylinder. The inner component of the pre-pack well will consist of a flush-threaded, 1.0-inch diameter, Schedule 40 PVC casing with 0.010-inch slots. The outer component of the pre-pack well is a stainless steel wire mesh screen with a pore size of 0.011 inch. The space between the inner slotted pipe and outer wire mesh will be filled with 20/40 silica sand. Based on previous investigation results, each well will be screened with 0.010-inch slots from 10 to 25 feet BGS. The planned screened intervals may change based on observations during drilling. After the well assembly has been lowered to the bottom of the boring, the direct-push drilling rod will be retracted to a point above the screen. An environmental sand barrier will be installed to a minimum of 1 foot above the top of the screened interval. The direct-push drilling rod will continue to be extracted, and granular bentonite or bentonite slurry will then be installed in the annulus to form a well seal. A concrete surface seal with a traffic-rated flush monument will then be installed at the ground surface of each monitoring well. Following well construction, the top of casing elevations of each monitoring well will be surveyed relative to an on-site reference point or established on-site benchmark.

Within 48 hours of installation, each monitoring well will be developed to remove fine-grained material from the well screen and filter pack and improve hydraulic connectivity between the monitoring well and the hydrologic unit adjacent to the screened interval of each well. Each well will be developed using a combination of gentle mechanical surging and purging. Surging will be accomplished by moving a surge block up and down through the screened interval of each well to force water in and out of the screen and filter pack. Purging will be accomplished using a peristaltic pump or similar device to remove water from the well casing. Purging will continue until the water is visually clear of suspended solids and pH, temperature, and specific conductivity measurements have stabilized (i.e., within 10 percent per each well volume).

5.4 GROUNDWATER SAMPLE COLLECTION

Groundwater sampling equipment will include disposable polyethylene bailers, disposable nitrile gloves, a peristaltic pump and polyethylene tubing, a calibrated water quality probe with a flow-through cell, a water level indicator, decontamination equipment, a field report form, field forms, a camera, and PPE. Sample containers, coolers, and ice will be provided by the analytical laboratory. After safely accessing all monitoring wells and allowing the wells to stabilize, the depths to groundwater will be measured with a decontaminated, electric water level indicator with 0.010-foot gradations.

Prior to collecting groundwater samples, each well will be purged using a peristaltic pump and disposable tubing. Purging will continue until field parameters have stabilized. After field parameters have stabilized, groundwater samples will be collected from each well using a peristaltic pump and disposable tubing. Groundwater will be transferred directly from the tubing into laboratory-provided containers. New disposable nitrile gloves will be worn prior to collecting each sample. Groundwater samples will be transferred to a cooler on ice and transferred to the analytical laboratory under standard chain-of-custody protocols.

5.5 GROUNDWATER SAMPLE NOMENCLATURE

Groundwater sample nomenclature will include the monitoring well name (e.g., MW-1) followed by the sample collection date in parentheses. For example, a groundwater sample collected from monitoring well MW-1 on January 30, 2026, would be named MW-1(013026).

5.6 GROUNDWATER SAMPLE ANALYTICAL SUITE

Groundwater samples will be submitted to an analytical laboratory for analysis of groundwater COCs, including the following:

- VOCs by EPA Method 8260D
- PAHs by EPA Method 8270E-SIM
- Dissolved RCRA 8 metals by EPA Method 6020

5.7 GROUNDWATER ANALYTICAL METHODS AND DETECTION LIMITS

Analytical methods listed in Section 5.6 (Groundwater Sample Analytical Suite) will be approved EPA methods or DEQ methods. Method detection limits will be appropriate for comparison to applicable RBCs.

5.8 DATA QUALITY ASSURANCE CONTROL

Data quality assurance control will include the selected laboratory's internal QA/QC programs, including MS/MSD recoveries, BS/BSD recoveries, surrogate recoveries, laboratory blank analysis, and laboratory duplicate analysis.

5.9 REPORTING

The results of the monitoring well installation and groundwater monitoring and sampling will be tabulated, forwarded to the project team, and summarized in the subsurface investigation report.

6.0 SOIL GAS SAMPLING

Soil gas sampling will be conducted to evaluate potential vapor intrusion risks to the existing building at the site.

6.1 SOIL GAS SAMPLING LOCATIONS

Six soil gas samples will be collected at three locations at the site. At each location, a soil gas sample will be collected from 5 feet BGS and 10 feet BGS. One soil gas sampling location (SG-1) will be south of the existing auto service center building, one soil gas sampling location (SG-2) will be east of the existing auto service center building, and one soil gas sampling location (SG-3) will be north of the existing auto service center building. The proposed locations of the soil gas samples are shown on Figure 2.

6.2 UTILITY LOCATING

Prior to drilling the soil gas borings, the Oregon Utility Notification Center will be contacted to locate public utilities. A private utility locator subcontracted by Columbia West will clear each proposed boring location of potential utility conflicts.

6.3 SOIL GAS SAMPLING SCHEDULE

Depending on subcontractor availability, soil gas sampling will be conducted within five weeks of approval of this work plan. Drilling activities are expected to be completed in three days. The planned schedule for field activities may vary depending on weather and/or equipment conditions or other unforeseen circumstances.

6.4 SOIL GAS SAMPLE COLLECTION

Soil gas samples will be collected in general accordance with DEQ's *Guidance for Assessing and Remediating Vapor Intrusion into Buildings,* updated March 2025, the Washington State Department of Ecology's (Ecology) *Guidance for Evaluating Vapor Intrusion in Washington State*, dated March 2022, and ASTM D7663-12.

Soil gas samples will be advanced to depths of 5 feet BGS and 10 feet BGS at each location using direct-push drilling methods by an Oregon-licensed driller subcontracted by Columbia West. Each soil gas sample will be collected by advancing a Geoprobe® PRT system equipped with an expendable point to a depth of approximately 5.5 feet BGS for the 5-foot samples and to a depth of approximately 10.5 feet BGS for the 10-foot samples. The PRT system will be extracted to depths of approximately 5 feet BGS and 10 feet BGS, respectively, to dislodge the expendable point.

The PRT system will be connected to a laboratory-provided, 1-liter Summa canister using new, disposable PFA tubing. The annular space between the soil gas probe and the boring sidewall will be sealed with bentonite to minimize ambient air migration into the sampling zone, and a leak-check system consisting of cloths saturated with isopropyl alcohol will be installed at each location. Each soil gas sample will be allowed to equilibrate for at least 30 minutes prior to purging approximately two to three volumes of dead space. Soil gas samples will be collected using 1-liter Summa canisters equipped with 200-mL-per-minute flow controllers. The initial and final vacuum pressures of each Summa canister will be measured and recorded on the laboratory chain-of-custody form. New, disposable nitrile gloves will be worn prior to collecting each soil gas sample.

6.5 SOIL GAS SAMPLE NOMENCLATURE
Soil gas sample nomenclature will include the soil gas sample location name (e.g., SG-1) followed by the sample depth in parentheses. For example, a soil gas sample collected at the SG-1 sample location at a depth of 5 feet BGS would be named SG-1(5).

6.6 SOIL GAS SAMPLE ANALYTICAL SUITE
Soil gas samples will be submitted to an analytical laboratory for analysis of soil gas COPCs, including gasoline-range hydrocarbons and VOCs by EPA Modified Method TO-15.

6.7 SOIL GAS ANALYTICAL METHODS AND DETECTION LIMITS
The analytical method listed in Section 6.6 (Soil Gas Sample Analytical Suite) will be an approved EPA method. Method detection limits will be appropriate for comparison to applicable RBCs.

6.8 DATA QUALITY ASSURANCE CONTROL
Data quality assurance control will include the selected laboratory's internal QA/QC programs, including MS/MSD recoveries, BS/BSD recoveries, surrogate recoveries, laboratory blank analysis, and laboratory duplicate analysis.

6.9 REPORTING
The results of the soil gas sampling will be tabulated, forwarded to the project team, and summarized in the subsurface investigation report.

7.0 FIELD DOCUMENTATION
All field activities conducted during the subsurface investigation will be documented in daily field reports. Field activities may also be documented on field forms specific to an individual task. The field reports will document the date and time field activities were conducted, weather conditions at the time of field activities, names of personnel conducting field activities, descriptions of field activities, and any deviations from planned activities.

8.0 DECONTAMINATION

All non-disposable sampling equipment, including hand augers, drilling rods, spoons, bowls, trowels, or other non-disposable equipment that may contact sample media, will be decontaminated prior to the collection of the first sample and between each sample. Decontamination procedures will include following:

1. Removing soil that may be adhered to non-disposable equipment using a paper towel
2. Rinsing the non-disposable equipment with distilled water
3. Washing the non-disposable equipment with Liquinox™ or similar phosphate-free detergent
4. Double rinsing the non-disposable equipment with distilled water

All water generated during equipment decontamination will be containerized and managed as IDW, discussed further in Section 9.0 (Investigation-Derived Waste).

9.0 INVESTIGATION-DERIVED WASTE

IDW generated during field activities will likely include soil cuttings, monitoring well development and purge water, decontamination water, disposable PPE, disposable sampling equipment, and miscellaneous consumables. Soil cuttings, monitoring well development and purge water, and decontamination water will be containerized onsite in labeled, Department of Transportation-approved, 55-gallon drums. IDW stored in drums will be stored onsite pending disposal permitting. Analytical data obtained during soil and groundwater sampling will be used to support waste disposal permitting, unless the receiving facility requires IDW-specific samples to support waste disposal permitting. Disposable PPE, disposable sampling equipment, and miscellaneous consumables will be placed in plastic garbage bags and managed as solid waste.

10.0 REPORTING

Upon completion of the scope of services outlined in this work plan, the results of the subsurface investigation and initial groundwater monitoring will be presented in a subsurface investigation/initial groundwater monitoring report. The remaining quarterly groundwater monitoring events will be presented in quarterly groundwater monitoring reports. The subsurface investigation report and quarterly groundwater monitoring reports will include a description of field sampling methods and deviations from the sampling plan, if any; field documentation, including photographs, field notes, and sampling forms; figures illustrating sampling locations and other relevant features; tabulated soil, groundwater, and/or soil gas chemical analytical data comparing results to appropriate RBCs, with copies of supporting laboratory analytical reports, chain-of-custody documentation, and QA/QC summaries; a discussion of contaminant concentrations and any exceedances of appropriate RBCs; and conclusions and recommendations, including the development and presentation of various lines of evidence to support an NFA for the site.

♦ ♦ ♦

Please contact us if you have questions regarding this work plan.

Sincerely,

Caroline B. Siegel
Environmental Project Manager

Colby R. Hunt, CHMM
Environmental Principal

REFERENCES

ASTM International 2024. *Standard Practice for Active Soil Gas Sampling in the Vadose Zone for Vapor Intrusion Evaluations,* ASTM D7663-12.

DEQ 2018. *Risk-Based Concentrations for Individual Chemicals,* May 2018, amended August 2023 and/or May 2024.

DEQ 2025. *Guidance for Assessing and Remediating Vapor Intrusion into Buildings,* updated March 2025.

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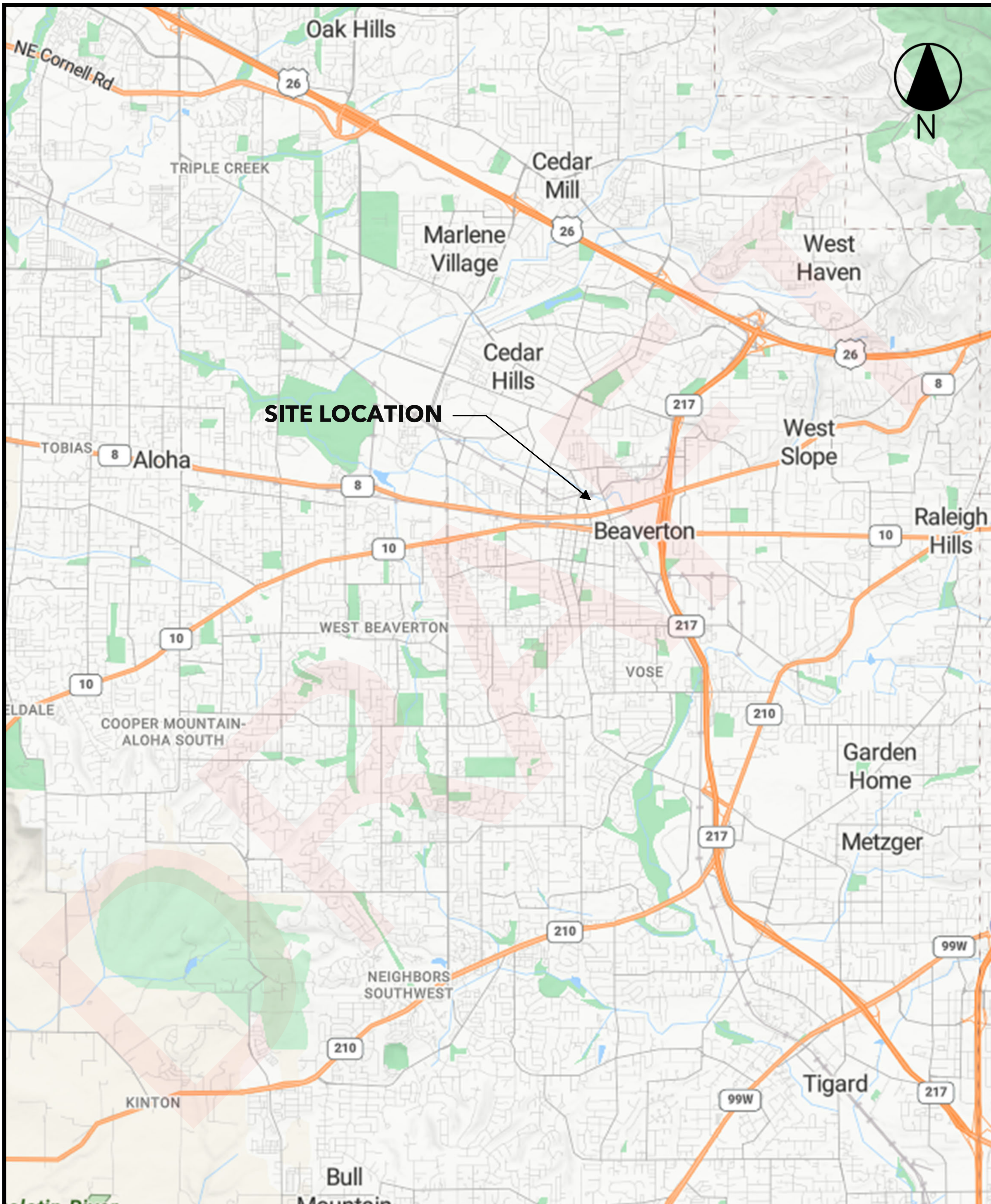
FIGURES



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VICINITY MAP
DAMEROW FORD SERVICE CENTER
BEAVERTON, OREGON

FIGURE
1

LEGEND

- PROPOSED SOIL GAS SAMPLE
- PROPOSED MONITORING WELL
- PROPOSED DIRECT-PUSH BORING
- APPROXIMATE LOCATION OF FORMER 1,000-GALLON WASTE OIL UST
- SOIL BORING (ROBERT D. MILLER CONSULTING, INC. 2006)

N

0 10 20 30 40 50 100

SCALE IN FEET

NOTES:
1. AERIAL PHOTO SOURCED FROM GOOGLE EARTH.

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DAMEROW FORD SERVICE CENTER
BEAVERTON, OREGON
12375 SW MILLIKAN WAY

SITE PLAN

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FIGURE
2