Oregon
Tina Kotek, Governor

Department of Environmental Quality
Northwest Region
700 NE Multnomah Street, Suite 600
Portland, OR 97232
(503) 229-5696

March 20, 2025

G&T Investments LLC
Attn: Gary Troutner
P.O. Box 489
Fairview, OR 97024

RE: Conditional No Further Action Determination
for Astro Western #503, Boring, Oregon
LUST #03-93-0024

Gary Troutner:

The Oregon Department of Environmental Quality (DEQ) has completed a review of the available information for the Astro Western #503 site (also referred to as the former Holt Shopping Center), including the closure report entitled *Site Investigation and Risk-Based Closure Report* dated February 8, 2024, which was submitted to DEQ by Martin S. Burck Associates, Incorporated (MSBA) on your behalf. The Astro Western #503 address is 13230 Southeast Orient Drive in Boring, Oregon, Tax Lot 24E04A2000.

DEQ has determined that remedial action to address environmental contamination at Astro Western #503 is complete, and no further action is required with adherence to a contaminated media management plan (CMMP) and Easement and Equitable Servitudes (E&ES). This determination is a result of our evaluation and judgment based on the DEQ regulations and the facts as we now understand them including the following, and as more fully described in DEQ's Staff Memo dated November 5, 2024:

- From at least 1971 to 2002, the site was occupied by a retail automotive refueling station with a convenience store. The refueling station had two generations of underground storage tanks (USTs). The first generation consisted of six USTs (T1 through T6) that were decommissioned by removal in January 1993 replaced with the second generation. The second generation of USTs consisted of four USTs (T7 through T10) that were decommissioned by removal in October 2007. The dispenser island was located west of the former UST basin.
- During the decommissioning of the first generation of USTs, petroleum contaminated soil and groundwater were confirmed. A total of 584.42 tons of soil was removed from the site, but soil samples confirmed the contaminated soil extended beyond the UST basin. Delineation of the groundwater contamination as not completed at this time.
- During the decommissioning of the second generation of USTs, gasoline range hydrocarbons (GRO) were detected in compliance soil samples collected from the western sidewall of the

UST excavation. The removed tanks were reportedly in good condition with no indications of leaks; therefore, the contaminated soil was attributed to the first generation of USTs.

- In November 2008, an air-sparge system comprised of 23 sparge points that were advanced to depths ranging from 39 to 40 feet below ground surface was installed at the site. The sparge point locations are illustrated on Figure 3. A total of 567.3 tons of petroleum-impacted soil was generated during installation and transported offsite for disposal. The air-sparge system began operation in June 2009 and aerobic bacteria were added to the sparge points in 2011 and 2012 to promote biodegradation of petroleum hydrocarbons. The air-sparging system ceased operations in 2014 due to excessive clogging and was not returned to service.
- Soil and groundwater investigations were conducted between 1994 and 2024. Soil collected in the vicinity of the former tank basin and dispenser island contained concentrations of GRO, benzene, and ethylbenzene that exceeded the soil ingestion, dermal contact and inhalation exposure pathway for residential scenarios. However, the exceedances are limited to on-site, which is used for commercial purposes, and the residential scenario is not applicable. Additionally, based on the 2023 groundwater monitoring data, groundwater containing concentrations greater than the residential and/or occupational RBCs for groundwater ingestion and inhalation from tap water does not extend offsite. However, due to elevated concentrations detected in the shallow groundwater, potential risks to on-site occupants could not be ruled out.
- A Beneficial Water Use Determination (BWUD) was conducted to identify any potential drinking or irrigation water wells of concern within a 0.25-radius of the site. The Oregon Water Resources Department's (WRD) Well Log Query database identified 14 water wells within the radius. Five additional wells not listed in the database were identified based on a review of a door-to-door water well survey that was conducted in August 2018. A municipal water supply is not available to the site or surrounding properties. Drinking water is supplied by private domestic drinking water wells. In July 2018, DEQ requested all drinking water wells located within a 0.13-mile radius of the site be sampled for petroleum hydrocarbons and associated contaminants of interest. Nine drinking water wells were identified within the search radius and samples were analyzed for petroleum hydrocarbons, volatile organic compounds (VOCs), and lead in August 2018. Petroleum hydrocarbons and VOCs were not detected in any of the samples and lead was only detected in one sample at a relatively low concentration that was below the residential RBC for ingestion and inhalation from tap water.
- Two wells are present on the western portion of the site: one deep water well (well Identification CLAC75529) and one shallow water well (well identification CLAC5467). The deep water well is currently used to supply drinking water to the site and the adjacent property to the east. Between July 2004 and December 2022, the onsite domestic deep water well was sampled 34 times, and the onsite domestic shallow water well was sampled 13 times. One or more VOCs were detected in the deep well samples collected in December 2006 and December 2007. However, these results were flagged as suspected invalid false positives due to laboratory cross-contamination. Petroleum hydrocarbons and/or related constituents were not detected in any of the other samples collected from the deep water well.

VOCs were detected in the shallow water well in June 2005, December 2007, December 2013, and August 2018. In January 2020, the shallow water well was taken out of service by welding a steel cap over the top of well casing.

- Three soil vapor investigations were conducted between 2021 and 2024. The soil vapor contamination does not pose unacceptable vapor intrusion risks to occupants of the current buildings constructed at the site and on tax lots 01900 and 02100. It should be noted that soil gas data were not collected from tax lots 04200 or 04000; however, based on the 2023 groundwater monitoring data, groundwater containing concentrations greater than the residential and/or occupational RBCs for groundwater volatilization to indoor air does not extend offsite and contamination does not pose unacceptable vapor intrusion risks to tax lots 04200 and 04000. However, due to elevated concentrations detected in the shallow groundwater on-site, potential risks to future on-site buildings could not be ruled out.
- The site is devoid of habitat and surrounding properties are landscaped residential yards or agricultural fields. The closest surface water body is Dolan Creek located about 1,300 feet northeast of the Site. The creek connects to North Fork Deep Creek, located approximately 1.5 miles northwest of the Site, which eventually connects to Deep Creek and then to the Clackamas River. Analytical data from the on-site monitoring wells and grab samples from borings advanced on tax lots 02100, 04200, and 04000 indicate that the plume is largely restricted to the site. Based on the known extent of the groundwater contamination, groundwater flow and distance, ecological receptors are unlikely to be impacted.
- An E&ES document establishes land use restrictions for the site and is recorded on the property's deed on file with Clackamas County. The E&ES prohibits the installation of any new drinking water wells utilizing the shallow or deep aquifer and/or construction of any new buildings for human occupation on site without DEQ's prior written approval. Prior to such construction, development plans must be submitted to DEQ for approval. If further cleanup and/or soil gas sampling is not performed, the development plans would have to include engineering controls incorporated into the design of future buildings constructed for human occupation to mitigate unacceptable vapor intrusion risks to occupant. Additionally, unacceptable risks to construction and excavation workers from contact with groundwater in excavations should be mitigated through implementation of the DEQ-approved CMMP.
- A public notice was issued for the site on January 9, 2025. DEQ received two comments via phone call on January 27, 2025, and February 10, 2025. Both callers expressed concern about contamination on adjacent properties. DEQ stated that concentrations detected in the vicinity of the properties were below residential risk-based concentrations and did not pose health risks to those living at the residence. DEQ also sent a letter to each commenter summarizing DEQ's determination.

Based on the available information, soil, groundwater, and soil gas conditions at Astro Western #503 are currently protective of public health and the environment in accordance with Oregon Administrative Rules 340-122-0205 through 340-122-0360. The site requires no further action unless new or previously undisclosed information becomes available, or there are changes in site

development or land and water uses, or more contamination is discovered. DEQ will update the Your DEQ Online database to reflect this decision.

This letter only applies to the release(s) discussed above. If any contaminated media is encountered in the future, it must be handled and disposed of in accordance with local, state and federal regulations. Monitoring wells should be decommissioned in accordance with Oregon Water Resources Department regulations.

A copy of the MSBA closure report and DEQ's Staff Memo supporting this No Further Action decision can be viewed here. DEQ recommends keeping a copy of all documentation associated with this remedial action with the permanent facility records. If you have any questions, please contact Rebecca Digiustino at (503) 926-2257 or via email at rebecca.digiustino@deq.oregon.gov.

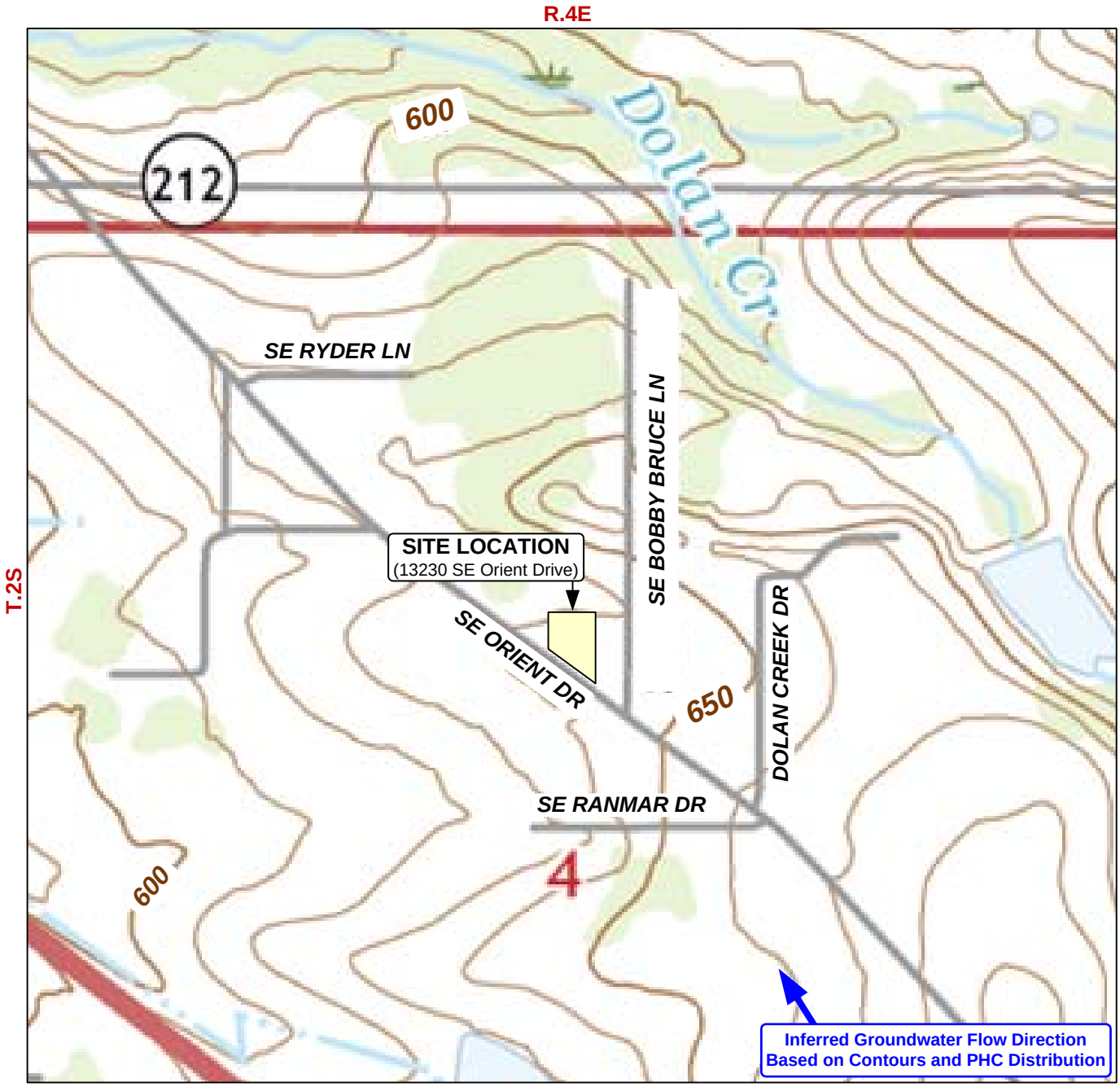
Sincerely,

Peter F Donahower

Peter Donahower, Manager
Northwest Region Cleanup Section

Attachment(s): Site Location Map
Soil Vapor and Groundwater Data (2023)
Water Well Location Map
Soil and Groundwater Management Plan (CMMP)

cc: Jeff Schatz, DEQ
Marty Burck, MSBA
Jon White, MSBA
Kris R. Byrd, Water Resources Department Well Construction Program Coordinator



Adapted from: Sandy Quadrangle, Oregon
USGS Topographic Map, 2020
7.5 Minute Series, Contour Interval 10 feet
North American Vertical Datum of 1988

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NORTH

0 1/8 1/4
Approximate Scale (mile)

Revised: 1/3/2024 8:11 AM

FIGURE 1

SITE LOCATION MAP

Astro #503
Former Holts Shopping Center
13230 SE Orient Drive, Boring, OR
DEQ File No. 03-93-0024

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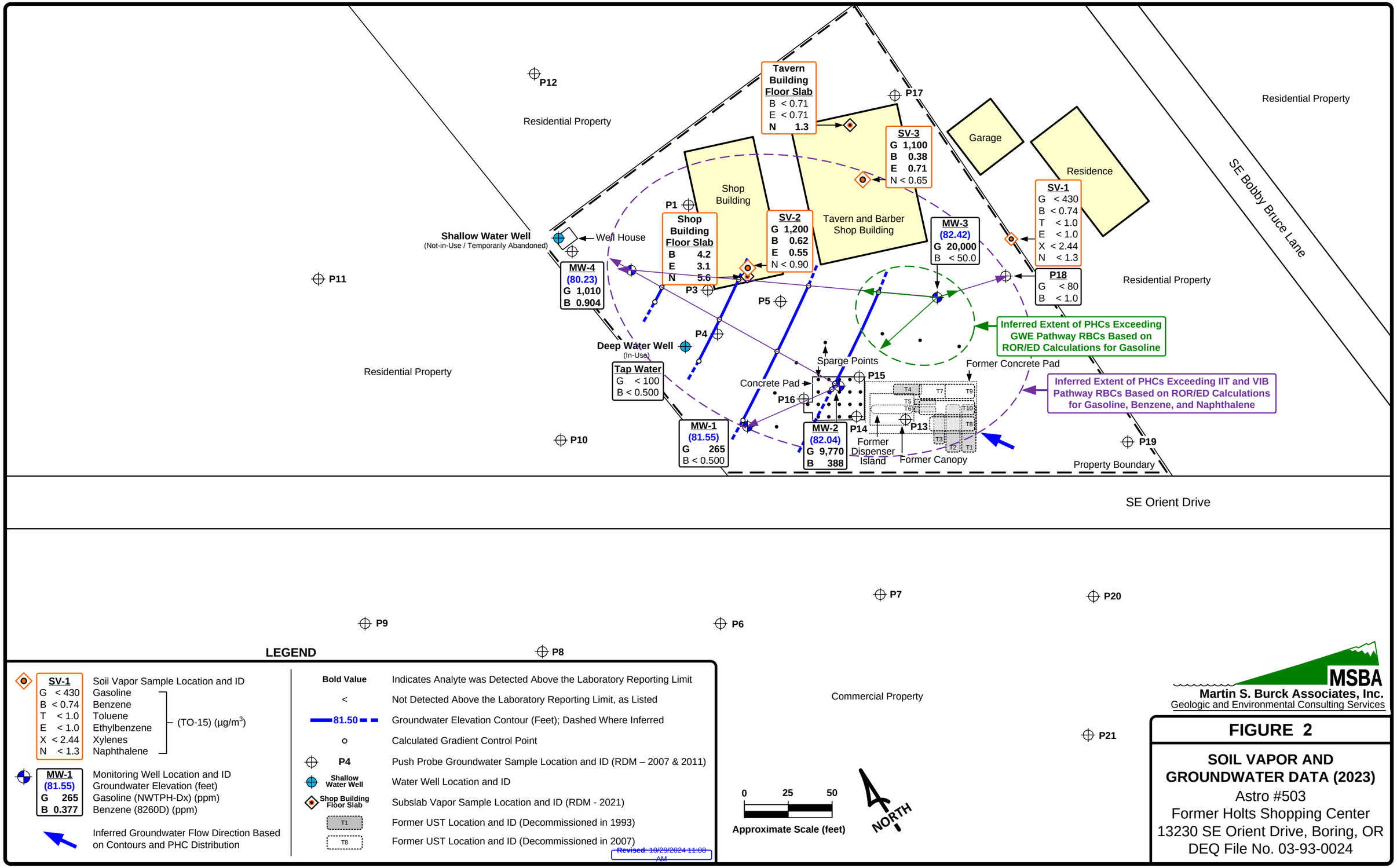

LEGEND

SV-1 (G < 430, B < 0.74, T < 1.0, E < 1.0, X < 2.44, N < 1.3)	Soil Vapor Sample Location and ID: Gasoline, Benzene, Toluene, Ethylbenzene, Xylenes, Naphthalene (TO-15) (µg/m³)
MW-1 (81.55) G 265 B 0.377	Monitoring Well Location and ID; Groundwater Elevation (feet); Gasoline (NWTPH-Dx) (ppm); Benzene (8260D) (ppm)
	Inferred Groundwater Flow Direction Based on Contours and PHC Distribution
Bold Value	Indicates Analyte was Detected Above the Laboratory Reporting Limit
<	Not Detected Above the Laboratory Reporting Limit, as Listed
81.50	Groundwater Elevation Contour (Feet); Dashed Where Inferred
	Calculated Gradient Control Point
P4	Push Probe Groundwater Sample Location and ID (RDM – 2007 & 2011)
Shallow Water Well	Water Well Location and ID
Shop Building Floor Slab	Subslab Vapor Sample Location and ID (RDM - 2021)
T1	Former UST Location and ID (Decommissioned in 1993)
T8	Former UST Location and ID (Decommissioned in 2007)

Revised: ~~10/29/2024 11:08 AM~~

0 25 50

Approximate Scale (feet)

NORTH

Martin S. Burck Associates, Inc.
Geologic and Environmental Consulting Services

FIGURE 2

SOIL VAPOR AND GROUNDWATER DATA (2023)

Astro #503
Former Holts Shopping Center
13230 SE Orient Drive, Boring, OR
DEQ File No. 03-93-0024

S:\Project Files\WSCO - Astro 503 - Boring OR\Figures & Aerial Photos\F 4 Soil Vapor and Groundwater Data (2023).vsd

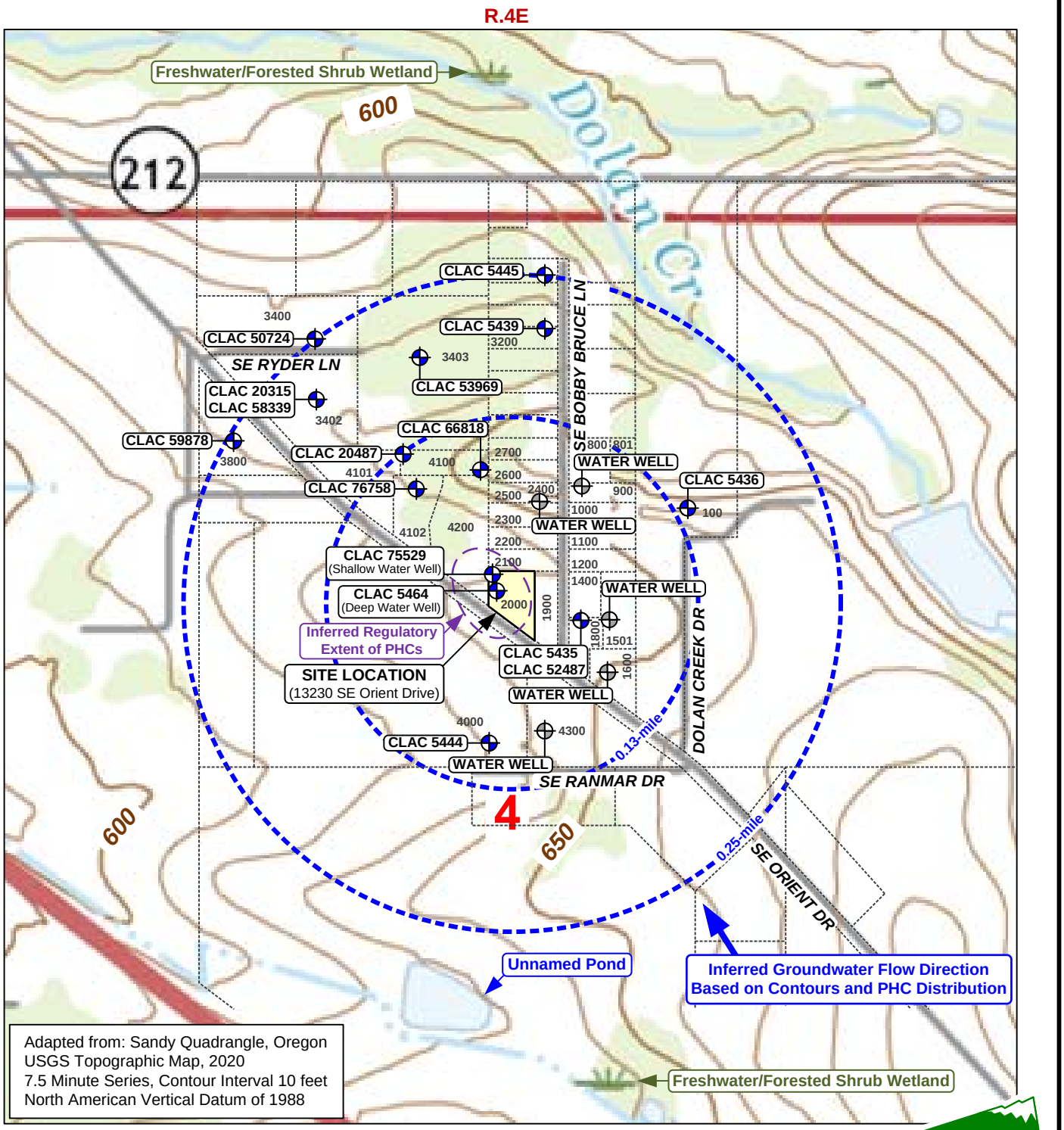

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FIGURE 3

WATER WELL LOCATION MAP

Astro #503
Former Holts Shopping Center
13230 SE Orient Drive, Boring, OR
DEQ File No. 03-93-0024

S:\Project Files\WSCO - Astro 503 - Boring OR\Figures & Aerial Photos\Closure Report\F 6 Water Well Location Map.vsd

SOIL AND GROUNDWATER MANAGEMENT PLAN AND EXAMPLE SITE HEALTH AND SAFETY INFORMATION

Former Holts Shopping Center
13230 SE Orient Drive, Boring, Oregon 97009
DEQ File No. 03-93-0024

January 13, 2025

Prepared for:

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MSBA

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SOIL AND GROUNDWATER MANAGEMENT PLAN AND EXAMPLE SITE HEALTH AND SAFETY INFORMATION

Former Holts Shopping Center
13230 SE Orient Drive, Boring, Oregon 97009
DEQ File No. 03-93-0024

1.0 SITE BACKGROUND

Martin S. Burck Associates, Inc. (MSBA) has prepared this *Soil and Groundwater Management Plan and Example Site Health and Safety Information* (Management Plan) to serve as general guidance for owners, operators, contractors, city, county, and state agencies, and/or individuals (Responsible Entities) who may perform actions that penetrate the surface including but not limited to investigations, excavations, or miscellaneous subsurface disturbances, etc... (Subsurface Work) at or in proximity to the property located at 13230 SE Orient Drive, Boring, Oregon (site). This Management Plan is intended for general guidance purposes only, and does not replace independent investigation and due diligence as required by any Responsible Entity overseeing or performing Subsurface Work at the site.

1.1 Site Description

The site is located on the north side of SE Orient Drive as shown on Figure 1 (Appendix A). The tax lot number is 2000 (Map 24E04A) and the site is within Section 4 of Township 2 South, Range 4 East. The site elevation is approximately 645 feet (Google Earth) and the surface topography is relatively flat. The general site features and former location of the USTs are illustrated on Figure 2. The site is mostly covered with concrete and asphalt and includes two buildings: a shop building to the northwest and a commercial use building to the northeast. The commercial use building is currently occupied by a Tavern (Backroads Pub and Grub) and barber shop (Boring Barbur). Two water wells are present on the western portion of the site: one deep water well with a total depth of 230 feet to the west and one shallow water well with a total depth of 58 feet to the northwest (Figure 2). The deep water well is currently used to supply drinking water to the site and adjacent property to the east and the shallow water well is not-in-use.

1.2 General Geologic Setting

The United States Department of Agriculture soil survey lists the site within the Bornstedt Silt Loam unit. The typical soil profile for the unit is silt loam from the surface to 0.7 foot below surface grade (bsg), silty clay loam from 0.7 to 2.8 feet bsg, and silty clay from 2.8 to 5.9 feet bsg and greater. Shallow groundwater is present beneath the site and fluctuates seasonally with depths ranging from approximately 6 to 18.5 feet bsg. The groundwater flow is predominantly toward the northwest based on measured groundwater levels.

1.3 Site History

In January 1993, six USTs (T1, T2, T3, T4, T5, and T6) (Figure 2) were decommissioned at the site by Montgomery Development Company (Montgomery). During this work, a release of petroleum hydrocarbons (PHCs) in soil and groundwater was observed and a soil cleanup totaling 584.42 tons was performed. During the cleanup, RDM advanced five exploratory test pits and three trenches and confirmed that PHCs were present in soil beyond the tank cavity. A groundwater sample collected from the tank cavity also confirmed that PHCs were present in the groundwater, however the lateral extent was not investigated. The release was reported to Oregon Department of Environmental Quality (DEQ) and file number 03-93-0024 was assigned. The former tanks were replaced with four new USTs (T7, T8, T9, and T10) (Figure 2), which remained in use through approximately 2002 when station operations ceased.

In October 2007, the four remaining USTs (T7, T8, T9, and T10) were decommissioned by Montgomery under the supervision of Robert D. Miller Consulting, Inc. (RDM). Gasoline was detected in compliance samples collected from the western sidewall of the tank cavity. However, the tanks were reportedly in good condition with no indications of leaks and the detections were attributed to the previous USTs and associated release discovered in 1993.

Between April 1994 and May 2021, RDM performed site investigation, cleanup, and remedial activities at the site. These activities included 1) soil and groundwater sampling to evaluate the vertical and horizontal extent of the release, 2) groundwater monitoring and sampling to evaluate seasonal fluctuations in PHC concentrations and the groundwater flow direction, 3) excavating and disposing of 567.3 tons of soil to remove PHCs, 5) installing and operating a sparge system to remove PHCs from the groundwater, and 6) sampling the onsite and nearby water wells to evaluate the possible presence of PHCs.

Between March 2023 and April 2024, MSBA performed additional site investigation activities to evaluate risk to human health and safety and the environment. These activities included 1) collecting a soil vapor sample between the release and adjacent property to the east to evaluate vapor intrusion risk, 2) monitoring and sampling of the existing well network to evaluate PHC concentrations and

the groundwater flow direction, 3) sampling the deep onsite water well to evaluate the possible presence of PHCs, 3) advancing 1 hand auger boring to further define the lateral extent of PHCs in groundwater, and 4) collecting two subslab vapor samples to further evaluate vapor intrusion risk.

Based on the results of this work, it has been determined by the DEQ, that the site is in compliance with applicable regulations and no-further-action (NFA) is required. However, gasoline was detected in groundwater sample ***MW-3*** (Figure 2) at a concentration of 20,000 parts per billion (ppb), which exceeds the groundwater in excavation (GWE) risk-based concentration (RBC) for construction and excavation workers of 14,000 ppb. Therefore, the site is not protective to human health and safety for construction and excavation workers who may potentially encounter PHCs during Subsurface Work. The inferred extent of PHCs exceeding the GWE pathway RBCs is shown on Figure 2. PHCs were not detected in the soil at concentrations that present a risk to human health and safety of construction and excavation workers. However, soil containing PHCs is present beneath the site starting at a depth of approximately 6 feet bsg (the seasonal high groundwater interface) and must be handled properly if/when encountered. The inferred regulatory extent of PHCs in soil and groundwater is shown on Figure 2. Constituents of concern (COCs) that may be encountered in soil and groundwater during subsurface work include the following:

- Gasoline
- Benzene
- Toluene
- Ethylbenzene
- Xylenes
- Naphthalene
- Methyl tert-butyl ether (MTBE)
- 1,2-Dibromoethane (EDB)
- 1,2-Dichloroethane (EDC)
- 1,2,4-Trimethylbenzene (124-TMB)
- 1,3,5-Trimethylbenzene (135-TMB)
- Isopropylbenzene (IPB)
- Lead

If at any time, the COCs listed above, or any other unidentified materials or substances, are encountered during Subsurface Work at the site, the assistance of an environmental professional and/or DEQ should be sought immediately. Any Subsurface Work must be performed in accordance with all federal, state, and local regulations, permits, and requirements. Any Responsible Entity performing Subsurface Work at the site must have all required federal, state, and local licenses, training, and qualifications. All environmental work at this site must be performed in general accordance with any/all applicable regulations and associated guidance documents including but not limited to Oregon Administrative Rules (OAR) 340-122-0205 through 340-122-0360 as presented in the current DEQ *UST Cleanup Manual* (USTCM), and *Risk-Based Decision Making for Remediation of Contaminated Sites* (RBDM).

A detailed summary of the site history, investigations and assessment activities, corrective actions, conceptual site model, and the results of a risk-based evaluation as needed to satisfy DEQ requirements for regulatory site closure are presented in the *Site Investigation and Risk-Based Closure Report* (MSBA, February 8, 2024) and the *2024 Groundwater and Subslab Vapor Sampling - Recommendation for Closure* (MSBA, June 20, 2024). To obtain copies of these reports, contact MSBA (541.387.4422) or file a public records request with Oregon Department of Environmental Quality (https://www.oregon.gov/deq/about-us/pages/request-public-record.aspx).

2.0 SOIL AND GROUNDWATER MANAGEMENT PLAN

This Management Plan is intended to provide general guidance for possible future Subsurface Work at the site that may encounter soil and/or groundwater containing PHCs. The Inferred Regulatory Extent of PHCs in Soil and Groundwater and the Inferred Extent of PHCs Exceeding Groundwater in Excavation RBCs are illustrated on Figure 2 included in Appendix A of this document. This Management Plan includes checklists that address general procedures and options for the handling, management, and disposal of soil and groundwater containing PHCs that may be encountered. The Management Plan also includes a document titled *Example Site Health and Safety Information* (ESHSI) (Appendix B). The ESHSI does not represent a site specific Health and Safety Plan (HASP) and may not be used as such. Responsible entities must prepare site/project specific HASPs as warranted or required.

2.1 Pre-Work Checklist

Prior to beginning Subsurface Work at the site, the Responsible Entity is advised to review/complete the following steps, as warranted.

☐ Review this document (*Soil and Groundwater Management Plan and Example Health and Safety Information*) in its entirety.

☐ Review the *Site Investigation and Risk-Based Closure Report* (MSBA, February 8, 2024) and the *2024 Groundwater and Subslab Vapor Sampling - Recommendation for Closure* (MSBA, June 20, 2024).

☐ Review the *Underground Storage Tank Cleanup Manual* (DEQ, current version).

☐ Review the *Risk-Based Decision Making for Remediation of Contaminated Sites* (DEQ, current version).

☐ Contact DEQ to determine if the regulatory information included in this document (*Soil and Groundwater Management Plan and Example Health and Safety Information*) is still current and applicable.

☐ Consult with a qualified environmental professional familiar with the criteria and requirements of the applicable DEQ regulations and site specific documents listed above.

☐ Obtain any/all federal, state, and/or local permits.

☐ Prepare a work plan and site-specific HASP consistent with the site conditions and the work to be performed. The attached ESHSI does not represent a site specific HASP and cannot be used for that purpose.

☐ Independently confirm the location of all utilities within the work area and adhere to required utility notification protocols. Any/all Subsurface Work requires proper notification to the Utility Notification Center (UNC). The UNC is open 24 hours a day and can be reached online at www.callbeforeyoudig.org or by calling 811.

☐ Confirm that all field personnel have completed an Occupational Safety and Health Administration (OSHA) 40-hour or 24-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training course, as appropriate. The 40-hour HAZWOPER certification is required for all personnel who may come into contact with contaminated media. The 24-hour HAZWOPER is required for supervisors and other personnel who will not handle the contaminated media. An 8-hour HAZWOPER refresher course must be completed annually to maintain the certification. The annual 8-hour HAZWOPER refresher course must be completed within 12 months of the initial HAZWOPER certification.

2.2 Soil Management Protocol

The following suggested tasks should be completed in accordance with DEQ regulations and guidance to properly manage soil containing PHCs that may be encountered at the site (see Inferred Regulatory Extent of PHCs on Figure 2; Appendix A). The following presents three general management/ disposal/treatment remedies for soil containing PHCs including: 1) Direct Off-site Disposal, 2) Stockpiling and Off-site Disposal, and 3) Stockpiling and Treatment/Disposal. There are potential additional options. The selected option(s) should be based on site specific conditions and circumstances. Note that soil cannot be stockpiled onsite more than 30 days without DEQ authorization or a Solid Waste Letter of Authorization (SWLA).

☐ Prepare and rely on a site-specific HASP (not attached ESHSI).

☐ Field screen excavated soil for possible PHCs. Soil containing PHCs based on field screening should be handled, segregated, and managed in accordance with applicable DEQ regulations and guidance. Field screening methods consist of visual observations, water sheen testing, and headspace vapor monitoring. The field screening results should be recorded for future reference. Visual screening methods include observations of staining, discoloration, and other indicators of contamination. Petroleum staining is typically greyish/greenish in color and may have an oily or iridescent appearance. Headspace vapor monitoring is performed by placing a representative soil sample in a container with trapped air, allowing the sample to sit for approximately 1 minute, and testing the air inside the container for total volatile organic compounds (TVOCs) using a hand-held, photoionization detector that has been calibrated to the manufacturer's specifications. Water sheen testing involves placing a small amount of soil into a jar with water, vigorously shaking the mixture, allowing the mixture to rest, and inspecting the surface of the water for a sheen or petroleum product. Water sheen classifications are made as follows:

No Sheen:	No visible sheen on the water surface.
Slight Sheen:	Faint and dull sheen with no color; dissipates quickly. Naturally occurring organic matter may produce a slight sheen.
Moderate Sheen:	May have some color or iridescence; spread of sheen is irregular to flowing; most of water surface covered with sheen. A moderate sheen is typically associated with petroleum contamination.
Heavy Sheen:	Obvious color and iridescence; spread is rapid; entire water surface may be covered with sheen. A heavy sheen is typically associated with petroleum contamination.
Free Product:	A distinct layer of petroleum product is observed floating on the water. Surface. The color of the product will vary depending on type, age, etc.

☐ Soil Stockpiling: Stockpiles of soil containing PHCs must adhere to specific DEQ criteria and protocols. In general, soil should be stockpiled on plastic sheeting, bermed, and covered with plastic that is secured using sandbags or equivalent, as warranted, to prevent contact with precipitation and/or surface water (USTCM). The stockpiles should ideally be located in a relatively secure area, preferably fenced and inaccessible to the general public. An on-site stockpile is generally limited to a maximum period of 30 days unless DEQ approval is obtained. On-site stockpiles left for more than 30 days require DEQ approval and possible compliance with an approved SWLA. Small volumes of soil containing PHCs may be more cost effectively managed within containers such as 5 gal buckets, 55 gal drums, or roll-off bins, etc.

☐ Collect samples for laboratory analysis as required by DEQ and the selected remedy. Different landfills may have different analytical requirements that should be verified in advance.

☐ Appropriate laboratory analyses for PHCs include the following analytical methods:

Gasoline, Diesel, and Oil Identification using Northwest Total Petroleum Hydrocarbon Idenfication method (NWTPH-HCID). This laboratory test is required to identify the type(s) of petroleum hydrocarbon present in a sample unless independently verifiable evidence is available. This test is generally required at each discrete release location. Once the type of PHC is identified, the following analyses may be required as warranted by DEQ regulation/guidance and the selected remedy. **DEQ analytical requirements are subject to periodic change and should be verified at the time Subsurface Work is performed.**

Gasoline:
- Gasoline range hydrocarbons using Northwest Total Petroleum Hydrocarbon (NWTPH) method NWTPH-Gx
- RBDM Volatile organic compounds (VOCs) using EPA method 8260D
- Total and/or leachable lead using EPA method 6020

Diesel:
- Diesel range hydrocarbons using method NWTPH-Dx
- Benzene, toluene, ethylbenzene, and xylenes (BTEX) using EPA method 8260D
- Polycyclic aromatic hydrocarbons (PAHs) using EPA method 8270D SIM

Oil:
- Full list VOCs using EPA method 8260D
- PAHs using EPA method 8270D SIM
- Total and/or leachable lead, cadmium, and chromium using EPA method 6020
- Polychlorinated biphenyls (PCBs) using EPA method 8082A (as warranted)

☐ Select one of the following three primary remedies or an additional DEQ approved alternative.

Direct Off-site Disposal: This option consists of excavating and loading soil containing PHCs directly into a truck or container for immediate transport and disposal at a landfill (see list of potential landfills below). This option requires advance landfill disposal authorization. During the process, contractors shall exercise care to minimize spillage onto the ground surface while loading and/or track off, leakage, or blowout of the impacted media during transport. Best management practices include the following:

- Plastic sheeting should be placed on the ground surface between the excavator and dump truck to minimize spillage during loading;

- The dump truck should be lined with plastic sheeting if/when excessive moisture and/or liquids are present in the soil. Any liquids observed in the excavator bucket should be drained back into the excavation to the extent practicable prior to loading, or properly contained by other methods. Contained liquids must be properly disposed in accordance with local, state, and federal rules and regulations;

- A self-contained tire wash station may be used to clean the wheels, tires, and undercarriage of the transport vehicles, if needed, to minimize track-off of dirt and debris. Liquids generated at the wash station must be properly contained and disposed in accordance with local, state, and federal rules and regulations; and

- Coarse rock/gravel aprons may be used at the points of egress/ingress to provide a stable transition from the site to the roadways and minimize track-off dirt and debris.

Stockpiling and Off-site Disposal: This option consists of excavating and stockpiling soil containing PHCs pending implementation of the selected remedy. Soil stockpiles must adhere to specific DEQ protocols (see Soil Stockpiling below). This option also requires advance landfill disposal authorization. When the logistical criteria are favorable, the soil would be loaded into a truck or container for transport and disposal at a landfill (see list of potential landfills below). During the process, contractors shall exercise care to minimize spillage onto the ground surface while loading and/or track off, leakage, or blowout during transport. Any spillage should be recovered and managed. Best management practices include the following:

- Plastic sheeting should be placed on the ground surface between the excavator and dump truck to minimize spillage during loading;

- The dump truck should be lined with plastic sheeting if/when excessive moisture and/or liquids are present in the soil. Any liquids observed in the excavator bucket should be drained back into the excavation to the extent practicable prior to loading, or properly contained by other methods. Contained liquids must be properly disposed in accordance with local, state, and federal rules and regulations;

- A self-contained tire wash station may be used to clean the wheels, tires, and undercarriage of the transport vehicles, if needed, to minimize track-off of dirt and debris. Liquids generated at the wash station must be properly contained and disposed in accordance with local, state, and federal rules and regulations; and

- Coarse rock/gravel aprons may be used at the points of egress/ingress to provide a stable transition from the site to the roadways and minimize track-off dirt and debris.

Stockpiling and Off-site Disposal: This option consists of excavating and stockpiling soil containing PHCs pending implementation of the selected remedy. Soil stockpiles must adhere to specific DEQ protocols (see Soil Stockpiling below). This option also requires advance DEQ approval of an SWLA. When the logistical criteria are favorable, the soil stockpile would be managed, treated, and disposed in accordance with the approved SWLA

☐ Potential Landfills:
1 - Hillsboro Landfill, Hillsboro, OR (800-963-4776)
2 - Wasco County Landfill, The Dalles, OR (360-566-6920)
3 - Riverbend Landfill, McMinnville, OR (800-685-8001)
4 - Other approved landfill or disposal option

2.3 Groundwater Management Protocol

The following suggested tasks should be completed in accordance with DEQ regulations and guidance to properly manage groundwater containing PHCs that may be encountered at the site (see Inferred Regulatory Extent of PHCs on Figure 2; Appendix A). The following presents three general management/ disposal/treatment remedies for groundwater containing PHCs including: 1) On-site 55 Gallon Drum Storage and Disposal, 2) Vacuum Truck Dewatering and Off-site Disposal, and 3) On-site Bulk Storage, Treatment, and Disposal. There are potential additional options. The selected option(s) should be based on site specific conditions and circumstances. Temporarily stored water containers should be placed where potential damage from vehicles is minimized to the extent possible.

☐ Prepare and rely on a site-specific HASP (not attached ESHSI).

☐ Collect samples for laboratory analysis as required by DEQ and the selected remedy. Different disposal facilities may have different analytical requirements that should be verified in advance.

☐ Appropriate laboratory analyses for PHCs include the following analytical methods:

Gasoline, Diesel, and Oil Identification using Northwest Total Petroleum Hydrocarbon Idenfication method (NWTPH-HCID). This laboratory test is required to identify the type(s) of petroleum hydrocarbon present in a sample unless independently verifiable evidence is available. This test is generally required at each discrete release location. Once the type of PHC is identified, the following analyses may be required as warranted by DEQ regulation/guidance and the selected remedy. **DEQ analytical requirements are subject to periodic change and should be verified at the time Subsurface Work is performed.**

Gasoline:
- Gasoline range hydrocarbons using method NWTPH-Gx
- RBDM VOCs using EPA method 8260D
- Total and/or leachable lead using EPA method 6020

Diesel:
- Diesel range hydrocarbons using method NWTPH-Dx
- BTEX using EPA method 8260D
- PAHs using EPA method 8270D SIM

Oil:

- Full list VOCs using EPA method 8260D
- PAHs using EPA method 8270D SIM
- Total and/or leachable lead, cadmium, and chromium using EPA method 6020
- Polychlorinated biphenyls (PCBs) using EPA method 8082A (as warranted)

☐ Select one of the following three primary remedies or an additional DEQ approved alternative.

On-site 55 Gallon Drum Storage and Disposal: This option consists of storing small volumes of water containing PHCs on-site in 55-gallon DOT approved drums pending authorization and disposal (see below).

Vacuum Truck Dewatering and Off-site Disposal: This option is generally best suited for relatively small to medium volumes of water and limited frequency or one-time removals. Contact a qualified vacuum truck company to arrange for removal and disposal.

On-site Bulk Storage, Treatment, and Disposal: When repeated de-watering and/or large volumes are generated, on-site storage, treatment, and disposal might be more cost effective. The water containing PHCs is generally stored on-site in tanks designed for this purpose which are available for rent or purchase. Take all necessary precautions to prevent rain or surface water from entering the excavation if dewatering and treatment will be required. Once contained on-site, one of the following treatment/disposal options should be considered:

- On-site treatment and batch disposal under an approved National Pollutant Discharge Elimination System (NPDES) permit is generally most cost-effective for large volumes of water. Effective water treatment options for dissolved PHCs include aeration and/or filtration with activated carbon. To determine eligibility and apply for an NPDES permit, contact the Oregon Department of Environmental Quality Water Quality Permitting Program at 503-229-5257.

- One time vacuum or tanker truck removal and disposal at an authorized facility.

3.0 EXAMPLE SITE HEALTH AND SAFETY INFORMATION AND DISCLAIMER

An ESHSI document (Appendix B) was developed by MSBA in anticipation of possible Subsurface Work that may encounter PHCs in soil and/or groundwater at the site. The enclosed ESHSI **cannot be relied on or used by any Responsible Entity in place of a current site-specific and project-specific Health and Safety Plan or HASP.** Additionally, MSBA does not authorize the use of this ESHSI in its current form. The ESHSI was prepared and is presented as a general template for a HASP at a site with PHCs. A current site-specific and job-specific HASP must be prepared for any

Subsurface Work at the site. Due to possible regulatory changes, all health and safety related data and information in the ESHSI may not be current or valid and cannot under any circumstance be relied on. All relevant health and safety information must be independently confirmed and verified immediately prior to performing Subsurface Work.

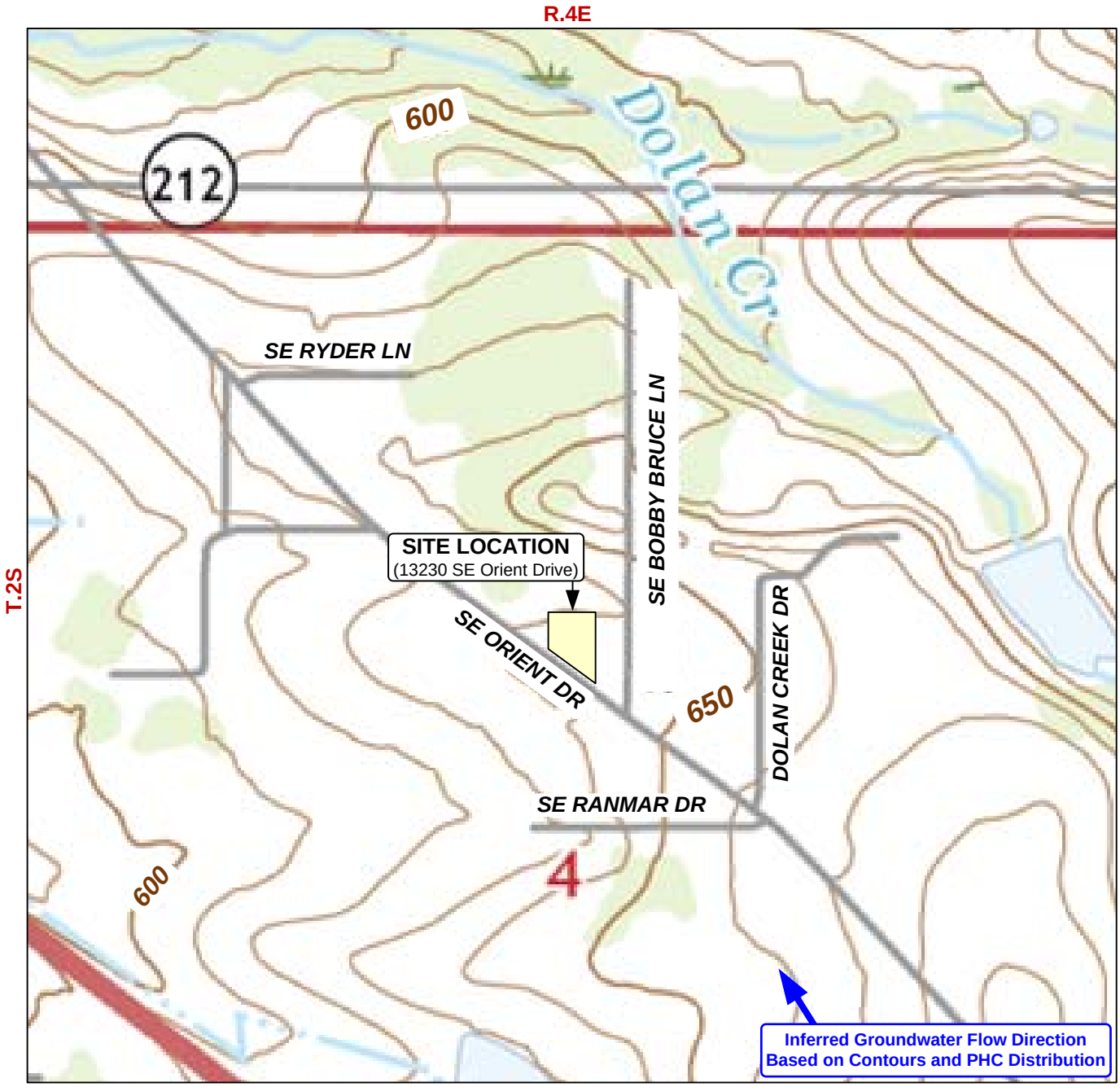
4.0 REMARKS

The information/conclusions/recommendations contained in this document were arrived at in accordance with currently accepted professional geologic and environmental practices at this time and location. No warranties are intended or implied. Martin S. Burck Associates, Inc. is not responsible for the independent interpretations, conclusions, or actions of others derived from or based on the information presented herein.

Information and opinions presented in this document are based on the collection and review of data from limited portions of the site, subsurface, and surroundings. Martin S. Burck Associates, Inc. is not responsible for conditions at specific portions of the Site that were not investigated; for conditions that are not reported or properly presented; or for future activities or investigations that may alter the current condition or understanding of the Site.

Appendix A

Figure 1 Site Location Map
Figure 2 Inferred Regulatory Extent of PHCs



Adapted from: Sandy Quadrangle, Oregon
USGS Topographic Map, 2020
7.5 Minute Series, Contour Interval 10 feet
North American Vertical Datum of 1988

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NORTH

0 1/8 1/4
Approximate Scale (mile)

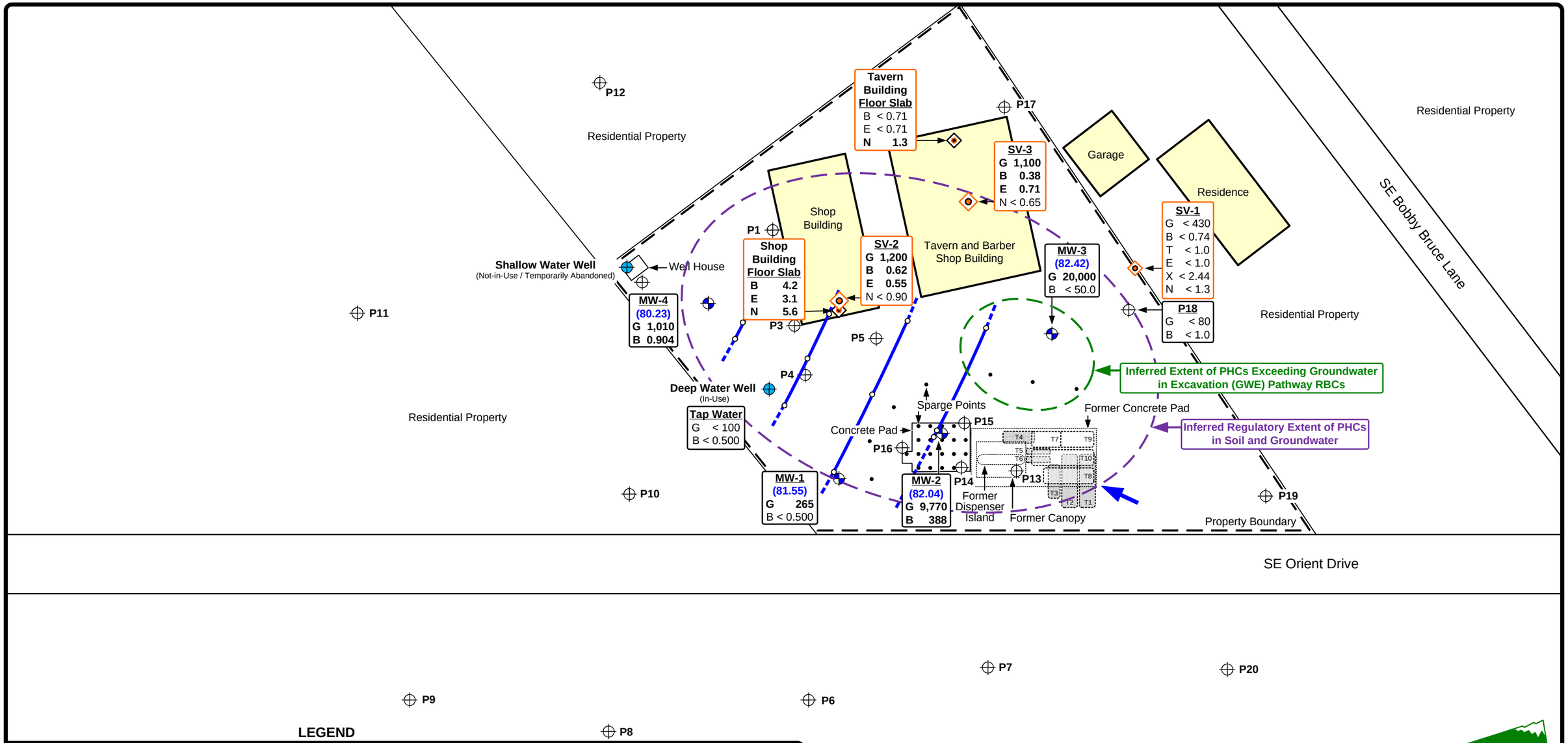
Revised: 1/3/2024 8:11 AM

FIGURE 1

SITE LOCATION MAP

Astro #503
Former Holts Shopping Center
13230 SE Orient Drive, Boring, OR
DEQ File No. 03-93-0024

S:\Project Files\WSCO - Astro 503 - Boring OR\Figures & Aerial Photos\Closure Report\F 1 Site Location Map.vsd



LEGEND

SV-1 (G < 430, B < 0.74, T < 1.0, E < 1.0, X < 2.44, N < 1.3)	Soil Vapor Sample Location and ID; Gasoline, Benzene, Toluene, Ethylbenzene, Xylenes, Naphthalene (TO-15) (µg/m³)
MW-1 (81.55) G 265 B 0.377	Monitoring Well Location and ID; Groundwater Elevation (feet); Gasoline (NWTPH-Dx) (ppm); Benzene (8260D) (ppm)
	Inferred Groundwater Flow Direction Based on Contours and PHC Distribution
Bold Value	Indicates Analyte was Detected Above the Laboratory Reporting Limit
<	Not Detected Above the Laboratory Reporting Limit, as Listed
81.50	Groundwater Elevation Contour (Feet); Dashed Where Inferred
	Calculated Gradient Control Point
P4	Push Probe Groundwater Sample Location and ID (RDM – 2007 & 2011)
Shallow Water Well	Water Well Location and ID
Shop Building Floor Slab	Subslab Vapor Sample Location and ID (RDM - 2021)
T1	Former UST Location and ID (Decommissioned in 1993)
T8	Former UST Location and ID (Decommissioned in 2007)

Revised: 12/10/2024 4:02 PM

0 25 50
Approximate Scale (feet)

NORTH

MSBA
Martin S. Burck Associates, Inc.
Geologic and Environmental Consulting Services

FIGURE 2

INFERRED REGULATORY EXTENT OF PHCs

Astro #503
Former Holts Shopping Center
13230 SE Orient Drive, Boring, OR
DEQ File No. 03-93-0024

S:\Project Files\WSCO - Astro 503 - Boring OR\MSBA Docs\CMMP\Att A\F 2 Inferred Regulatory Extent of PHCs.vsd

Appendix B

Example Site Health and Safety Information

MARTIN S. BURCK ASSOCIATES, INC.
200 North Wasco Court, Hood River, OR 97031
Phone 541.387.4422 855.387.4422 Fax 541.387.4813
MSBA@MSBAenvironmental.com

Geologic and Environmental Consulting Services

EXAMPLE SITE HEALTH AND SAFETY INFORMATION

A. GENERAL INFORMATION

Project Name:	Astro 503 - Boring	Project Number:	
Location:	13230 SE Orient Drive, Boring, OR		
Client	WSCO		
Plan Prepared By:	Jane Doe	Date:	
Plan Approved By:	John Doe	Date:	
Project Start Date:	TBD		

B. SITE DESCRIPTION

Facility History: Soil and groundwater containing petroleum hydrocarbons (PHCs) from underground storage tanks (USTs) have been documented at the Site.

General Site Description:

The site is located on the north side of SE Orient Drive. The site elevation is approximately 645 feet and the surface topography is relatively flat. flat. The site is mostly covered with concrete and asphalt and includes two buildings: a shop building to the northwest and a commercial use building to the northeast.

C. PROJECT OBJECTIVE (S)

Conduct soil and groundwater investigation to define the lateral extent of PHCs.

Work Activities Planned: Advance soil borings and collect samples for analysis.

D. PROJECT ORGANIZATION

Team Member	Responsibility	Training
Jane Doe	Supervisor	Registered/Licensed Geologist:, OR, WA, CA, OSHA 40-Hour HAZWOPER and 8-hour Refresher, First Aid and CPR, DEQ UST and HOT
John Doe	Project Manager	OSHA 40-Hour HAZWOPER and 8-hour Refresher, First Aid and CPR, DEQ UST and HOT Decommissioning Supervisor

E. CHEMICAL HAZARD ANALYSIS

Contaminant	PEL	IDLH	LEL/UEL	Flash Point	Routes of Exposure
Gasoline	Not applicable	Not applicable	1.4 / 7.6%	- 45 F	Inhalation, Absorption, Ingestion, Direct Contact (dermal)
Benzene	1 ppm	500 ppm	1.2 / 7.8%	12 F	Inhalation, Absorption, Ingestion, Direct Contact (dermal)
Toluene	200 ppm	500 ppm	1.1 / 7.1%	40 F	Inhalation, Absorption, Ingestion, Direct Contact (dermal)
Ethylbenzene	100 ppm	800 ppm	1.2 / 6.8%	59 F	Inhalation, Absorption, Ingestion, Direct Contact (dermal)
Xylenes	100 ppm	900 ppm	0.9 / 7.0%	81 F	Inhalation, Absorption, Ingestion, Direct Contact (dermal)
Naphthalene	10 ppm	250 ppm	0.9 / 5.9%	174 F	Inhalation, Absorption, Ingestion, Direct Contact (dermal)

F. OTHER HAZARDS

Heat Stress: Yes **No**

Cold Stress: **Yes** No

Dress warmly, bring waterproof clothing and gloves/hat

Excessive Noise: **Yes** No

Wear ear plugs if necessary

Confined Space of Entry: Yes **No**

Open Excavation: Yes **No**

Welding/Cutting: Yes **No**

Heavy Equipment Operation: **Yes** No

Stay alert. Always wear safety vest/hard hat and make eye contact with driller when entering work area

Slip, Trip, Fall Hazards: **Yes** No

Stay alert. Keep a clean work area and keep unused tools properly stored

Overhead Utilities: **Yes** No

Inspect work area for presence of overhead utilities prior to using heavy equipment.

Underground Utilities: Natural gas, storm sewer, electric, fiber optic and water lines

Utility Location Service: Utility Notification Center

Name of Contact: Operator

Phone Number: 1.800.332.2344

Precautions to be taken:

G. PERSONAL PROTECTIVE EQUIPMENT

The following PPE will be utilized or available for use:

X	Safety Glasses
X	Hard Hat
X	Steel-Toed Boots
X	Ear Plugs
X	Gloves
X	Respirator
	Other

H. DECONTAMINATION

The decontamination procedures for personnel will include washing with soap and water.

The decontamination procedure for sampling equipment will include washing with Liquinox detergent followed by two rinses with tap water and a final rinse with deionized water.

I. AMBIENT AIR MONITORING

Activity	Instruments Action Level	Frequency
Not Applicable		

J. PERSONNEL AIR MONITORING (1910.120(h))

Activity/Location	Contaminants	NIOSH/OSHA PROTOCOL
Not Applicable		

K. CONTINGENCY PLAN

Emergency Equipment on Site: (Location)

First Aid Kit:	Vehicle
Fire Extinguishers:	Vehicle
Telephone:	Vehicle (cell)
Eye Wash/Safety Shower	Site Bathroom
Other:	

L. SIGN-OFF

All personnel have read the above plan and are familiar with its provisions. All personnel have received appropriate (OSHA) hazardous materials training to provide adequate safety to each individual commensurate with the work to be performed.

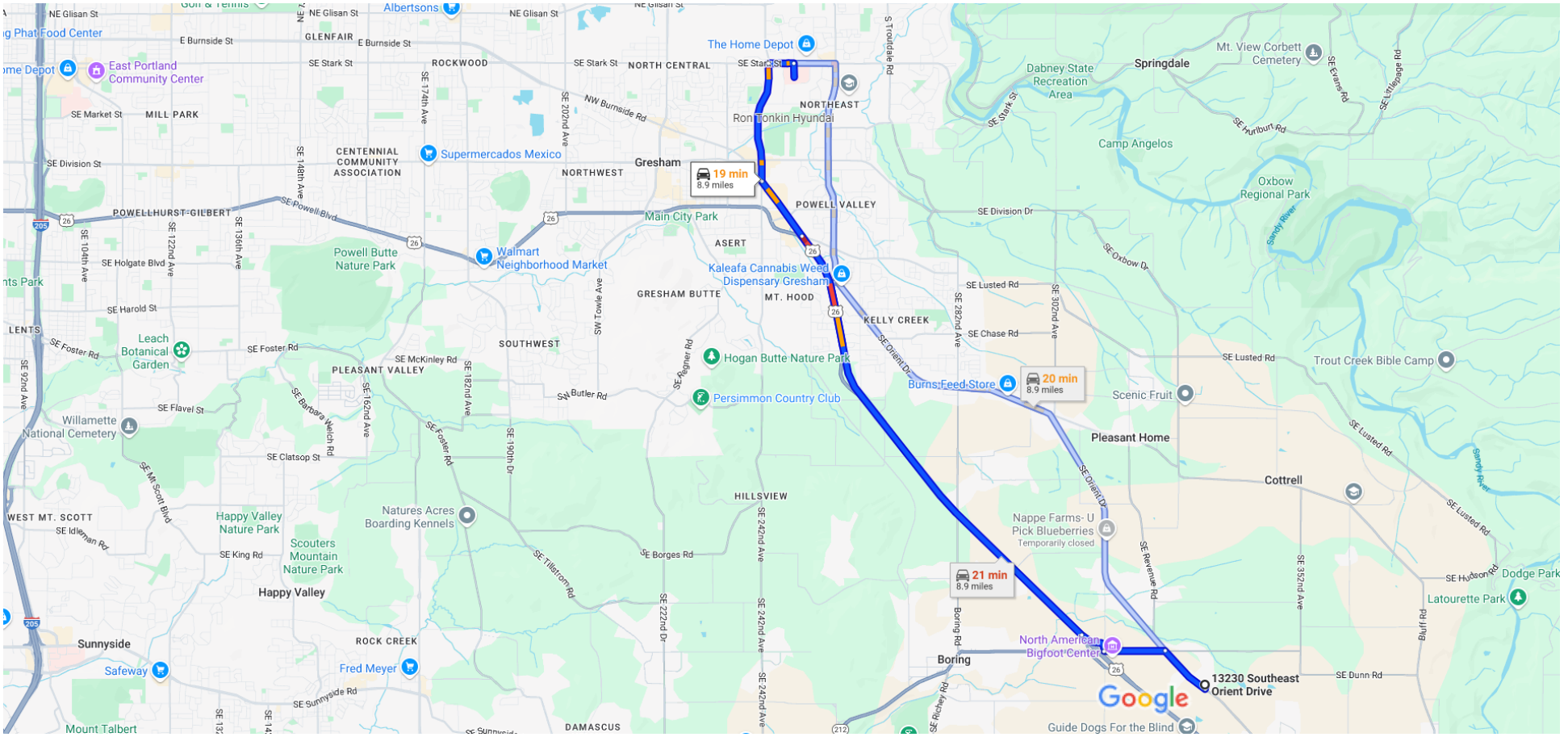
Name (Please Print)	**Signature**

M. LOCAL EMERGENCY NUMBERS (To be determined at site) :

HOSPITAL	Name:	Legacy Mount Hood Medical Center
	Address:	24800 SE Stark Street
		Gresham, OR 97030
	Phone:	(503) 674-1122
	Travel Time:	16 minutes
	Directions:	See attached
	Map Attached:	Yes
PARAMEDICS	Name:	EMS
	Phone:	Call 911 (emergency)
FIRE DEPT	Name:	Clackamas Fire Station
	Phone:	911 (emergency)
LOCAL POLICE	Name:	Clackamas County Sherriff's Office
	Phone:	911 (emergency) or (503) 785-5000
UTILITIES	Electric:	PGE - (503) 255-4634
	Natural Gas:	NW Natural - (971) 277-4474
	Sewer:	Clackamas County DOT - (503) 722-6301
	Water:	Cascade Water Works - (503) 663-2701
	Communications:	Ziply Fiber - (800) 778-9140
		Wave Broadband - (800) 762-0592

Google Maps

13230 SE Orient Dr, Boring, OR 97009 to Legacy Mount Hood Medical Ctr, 24800 SE Stark St, Gresham, OR 97030 Drive 8.9 miles, 19 min



13230 SE Orient Dr
Boring, OR 97009

Get on US-26 W from Old Loop Rd/SE Orient Dr and SE Compton Rd

3 min (1.5 mi)

1. Head south toward Old Loop Rd/SE Orient Dr

171 ft

2. Turn right onto Old Loop Rd/SE Orient Dr

0.6 mi

3. Turn left onto SE Compton Rd

0.6 mi

4. Turn right to merge onto US-26 W toward Gresham/Portland

0.3 mi

5. Merge onto US-26 W

6 min (5.1 mi)

Continue on SE Burnside Rd. Take NE Hogan Dr to Mt Hood Medical Center Tc

7 min (2.3 mi)

6. Continue straight onto SE Burnside Rd

Pass by Jack in the Box (on the left in 0.4 mi)

0.7 mi

7. Slight right onto NE Hogan Dr

Pass by Subway (on the left)

1.2 mi

8. Turn right after Bank of America (Lobby Service Only) (on the left)

0.3 mi

9. Turn right onto Mt Hood Medical Center Tc

Destination will be on the left

0.1 mi

Legacy Mount Hood Medical Ctr
24800 SE Stark St, Gresham, OR 97030