

## Interim Action Work Plan

Stillwater Holdings Chevron Site—Interim Action  
7 East Rose Street  
Walla Walla, Washington

*for*  
**Washington State Department of Ecology**

September 3, 2025

Revised October 23, 2025

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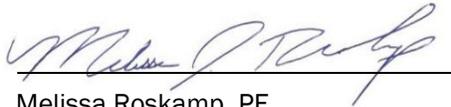
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## 1.0 Introduction

This Interim Action Work Plan (IAWP) presents the scope of work and approach to conduct site assessment and remediation activities for the Stillwater Holdings Chevron cleanup site (herein referred to as “Site”), as shown in the Vicinity Map, Figure 1. The Washington State Department of Ecology (Ecology) reference numbers for this Site include Facility Site ID (FSID) No. 70525886 and Stillwater Holdings Chevron Cleanup Site ID (CSID) No. 16913. The Site includes the Chevron gas station and Wine Country Convenience Store located at 7 East Rose Street, the Marcus Whitman Hotel located at 6 West Rose Street and the 106 Building located at 106 North 2<sup>nd</sup> Avenue in Walla Walla, Washington, as shown in the Site Plan, Figure 2.

In September 2023, a gasoline release was identified as originating from an underground storage tank (UST) at the Chevron gas station. Gasoline contaminated groundwater and/or free product were found in sumps beneath the Marcus Whitman Hotel and Conference Center and the 106 Building, in monitoring wells surrounding both properties, as well as in soil and groundwater on the Chevron gas station property (Aspect, 2023a).

This IAWP has been prepared by GeoEngineers, Inc. (GeoEngineers) for Ecology under Master Contract No. C2500073. The purpose of this assessment is to act in compliance with Washington Administrative Code (WAC) 173-340-430 (Interim Actions) to reduce a threat to human health or the environment by eliminating or substantially reducing one or more pathways for exposure to a contaminated groundwater or soil vapor. GeoEngineers has previously prepared and implemented a Vapor Sampling Work Plan (GeoEngineers 2025a) which has provided data summarized in this document and utilized in the implementation of this Remedial Action. This IAWP will present the basis of design and approach to the Interim Action.

A sampling plan with a description of field assessment procedures is provided in Appendix A; the Quality Assurance Project Plan (QAPP) is presented in Appendix B. An Inadvertent Discovery Plan for the possible discovery of cultural resources or human skeletal remains is presented in Appendix C. The project Health and Safety Plan (HASP) was previously submitted as Attachment C of the Vapor Intrusion Work Plan (GeoEngineers 2025a). The IAWP is organized as follows:

- Site Description and Background – Section 2.0
- Interim Action – Section 3.0
- Groundwater Interception and Sump Treatment – Section 4.0
- Vapor Mitigation – Section 5.0
- Field Assessment Activities – Section 6.0
- Schedule – Section 7.0
- References – Section 8.0

## 2.0 Site Description and Background

In September 2023, Ecology was notified of gasoline odor complaints at the Marcus Whitman Hotel. It was determined that gasoline vapors were entering the hotel building via the basement and gasoline was present in groundwater (Ecology 2023). A basement underlies the original portion of the historic Marcus Whitman building and includes hotel operations and utility rooms (electrical, boiler, air handler, etc.). In the east corner of the basement, a lower-level basement (referred to as the sub-basement) contains a partial dirt floor and contains a vault and groundwater sump, which were identified as likely preferential pathways for vapor to enter the basement. Further investigation identified gasoline vapors and gasoline contaminated water in one of two sumps and vault in the adjacent 106 Building. Emergency actions were taken to vent potentially explosive levels of volatile organic compounds (VOCs) and recover product from the sumps.

The Chevron gas station, located northeast of the Marcus Whitman and adjacent to the 106 Building, was identified as the source of the gasoline release. Thirteen monitoring wells were installed on the Chevron gas station property or the City of Walla Walla right-of-way to delineate and monitor the release, as shown in Figure 2. Emergency groundwater and vapor mitigation actions have continued at the Site since the identification of the release, including interception of contaminated groundwater in the sumps and treatment through granular activated carbon (GAC) and discharge to municipal sewer. In May 2024, Stillwater Holdings, who owns the Chevron gas station, petitioned Ecology to take over the continued remediation of the Site due to lack of funds.

Emergency interim action remains necessary at the site as unmitigated response to groundwater contamination or exposure to soil vapors would create a potential risk to public safety and could present a threat to the environment. A permanent treatment system for the interception of contaminated groundwater in the sumps and treatment through GAC, as well as the mitigation of exposure to VOCs in indoor air, are required. This IAWP provides the basis of design for that treatment system and mitigation effort.

### 2.1 PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS

Assessment and remediation actions have been conducted at the Site since identification of the release in September 2023. Ecology and consultants hired by Stillwater Holdings Chevron have installed groundwater wells, implemented interim remediation measures and monitored Site air and groundwater concentrations. Assessment and remediation actions have included:

- Venting fans and isolation of rooms (sealed plastic sheets) have been used to reduce VOC levels to less than the lower explosive limit (LEL) and mitigate risks to human health in the Marcus Whitman and the 106 Building. The sub-basement in the Marcus Whitman remains an exclusion zone where hotel staff are restricted from entering regularly;
- Groundwater is being intercepted in existing sumps within the Marcus Whitman and the 106 Building, where it is then removed and treated for VOCs prior to discharge to the Walla Walla publicly owned treatment works (POTW);
- Indoor air sampling for VOCs has been conducted in the Chevron Wine Country Convenience Store, 106 Building and the Marcus Whitman to evaluate the efficacy of the vapor ventilation systems in use at the properties;

- Intercepted groundwater is being routinely sampled for VOCs and other constituents, following treatment by GAC, as required by the Industrial Pretreatment Program with the City of Walla Walla;
- Thirteen groundwater monitoring wells have been installed to delineate and monitor the impacts of the September 2023 release. Four wells (AMW-01 through AMW-04) are located on the Chevron property. Nine wells (MW-1 through MW-9) are located in City of Walla Walla (City) right-of-way. The groundwater monitoring well network has been sampled by Ecology or Aspect Consulting (Aspect) for VOCs, lead, naphthalene and product thickness in wells; and
- A preferential pathway investigation was conducted to determine pathways of soil vapor entering the 106 Building. Only the stormwater sump was identified as a soil vapor pathway to this building (Aspect 2023b).

## 2.2 GEOLOGIC AND SOIL CONDITIONS

Soil boring logs from the installation of monitoring wells MW-1 through MW-6 indicate that gravel with sand and silt are present between the surface and approximately 15 feet below ground surface (bgs). Some cobbles were also observed in the borings.

Geologic maps indicate the Site is underlain by Holocene alluvium (Qa). This geologic unit consists of discontinuous, unconsolidated deposits of clay, silt, fine sand, and gravel found in and adjacent to stream channels and the flood plain on the Mill Creek valley floor. This description is consistent with conditions observed in the borings.

## 2.3 GROUNDWATER CONDITIONS

Based on review of available water well reports, a shallow, unconfined aquifer is present below the Site. Groundwater was observed in MW-1 through MW-9, between 10 and 14 feet bgs. Information regarding hydraulic conductivity for the aquifer is not available. Groundwater levels at the Site fluctuate seasonally with changes in precipitation, but the observed groundwater gradient has generally been to the southwest. Sumps are required to prevent localized flooding of buildings, including the sub-basement of the Marcus Whitman and the 106 Building.

## 2.4 SITE USE HISTORY AND EXISTING DATA

Available records indicate that the property at 7 East Rose Street has operated as a service station since at least 1981, when three 10,000-gallon fiberglass USTs were installed (Allwest, 2022). Two of the USTs were used to store gasoline and one to store diesel. Historical records available from Ecology document a previous soil and groundwater cleanup at the property, identified at the time as Bill Singers Chevron or Singer's Chevron, conducted between 2010 and 2013. In May 2013, Ecology issued a No Further Action determination for gasoline-range petroleum hydrocarbons (GRPH) in soil and groundwater with an Environmental Covenant that required maintenance of a surface cap over contaminated soil (Ecology, 2013)

After the September 2023 release, chemical analytical results from groundwater sampling between November 2023 and May 2024 indicate that GRPH and various non-halogenated VOCs are present in groundwater in nine monitoring wells (AMW-01 through AMW-04, MW-2, MW-3, MW-5, MW-6 and MW-9) at concentrations greater than the Washington State Model Toxics Control Act (MTCA) Method A groundwater cleanup levels. Tetrachloroethylene (PCE) and/or trichloroethylene (TCE) were also detected in MW-7, MW-8 and MW-9 at concentrations greater than the MTCA Method A groundwater cleanup level. There is no known use of chlorinated solvents at the Site. Lead has not been detected in the groundwater samples.

## 2.5 GEOENGINEERS 2025 INVESTIGATIONS

GeoEngineers conducted quarterly groundwater monitoring as well as vapor intrusion (VI) assessment activities in 2025 to evaluate current Site conditions, in accordance with the Vapor Intrusion Work Plan.

### 2.5.1 *March 2025 Groundwater Monitoring*

GeoEngineers conducted the First Quarter 2025 groundwater monitoring event in March 2025 to evaluate current groundwater conditions at the Site. Samples were collected from monitoring wells AMW-01 through AMW-04 and MW-2 through MW-9 and sumps in the Marcus Whitman Hotel sub-basement and 106 Building basement using low-flow techniques. Groundwater monitoring data collected by Aspect, Ecology, and GeoEngineers is included in Table 1. Groundwater interception sump data is included in Table 2. The results of the March 2025 groundwater monitoring are described in GeoEngineers' Groundwater Assessment (GeoEngineers 2025b) and are summarized below:

- Groundwater elevations indicated that the groundwater gradient was to the southeast during the March 2025 event.
- GRPH and/or benzene, toluene, ethylbenzene, xylenes and/or naphthalene (BTEXN) were detected at concentrations greater than their respective MTCA Method A cleanup levels (CULs) in monitoring wells AMW-01 through AMW-04, MW-2, MW-3, MW-5 and MW-6.
- GRPH was detected at a concentration greater than the Walla Walla POTW Discharge Limit of 1,000 micrograms per liter ( $\mu\text{g}/\text{L}$ ) in the sump water sample from the Marcus Whitman Hotel. Benzene was detected at concentrations greater than the Walla Walla POTW Discharge Limit of 10  $\mu\text{g}/\text{L}$  in the sump water samples from the Marcus Whitman Hotel and 106 Building.

### 2.5.2 *April 2025 Vapor Intrusion Assessment*

GeoEngineers conducted a VI assessment in April 2025 to evaluate sub-slab soil vapor (SSV) and indoor air (IA) concentrations inside the Marcus Whitman Hotel, the 106 Building and the Stillwater Holdings Chevron building, as well as the outdoor (ambient) air (OA) conditions at the Site. VI assessment activities were conducted following the procedures described in GeoEngineers' Vapor Intrusion Work Plan (GeoEngineers 2025a). The results of the VI assessment have been described in a technical memorandum that will be submitted under separate cover, and are summarized below:

- IA samples were collected from the Marcus Whitman Hotel basement (IA-01 through IA-06), the Marcus Whitman Hotel ground floor (IA-07 through IA-09), the 106 Building basement (IA-10 and IA-11), the Stillwater Holdings Chevron building (IA-12) and the 106 Building ground floor (IA-13). OA samples were collected from the Marcus Whitman Hotel roof near the HVAC system intake (OA-01) and outside the Stillwater Holdings Chevron building (OA-02 and OA-03). OA results are included in Table 3 and IA results are included in Tables 4 and 5. IA and OA sample locations are shown in Vapor Intrusion Sample Locations, Figure 4. Chemical analytical results for the OA samples were used to adjust the IA sample results consistent with Ecology's VI guidance (Ecology 2022). The IA chemical analytical results, adjusted for ambient air contributions, indicated the following:

- TPH concentrations (derived from the sum of APH and BTEXN concentrations) in the IA samples from the 106 Building were greater than the MTCA Method B Commercial CUL of 390 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) after adjusting for ambient air concentrations. Additionally, individual concentrations of EC5-8 aliphatics, benzene and naphthalene were greater than the MTCA Method B Commercial CULs of  $390 \mu\text{g}/\text{m}^3$ ,  $1.5 \mu\text{g}/\text{m}^3$  and  $0.34 \mu\text{g}/\text{m}^3$ , respectively, after adjusting for ambient air concentrations.
- APH and VOCs, including BTEXN and chlorinated VOCs (CVOCs), including PCE, TCE, cis-1,2-dichloroethylene (cDCE), trans-1,2-dichloroethylene (tDCE) and vinyl chloride (VC) were either not detected or were detected at concentrations less than their respective MTCA Method B Commercial<sup>1</sup> CULs in IA samples from the Marcus Whitman Hotel and Stillwater Holdings Chevron building after adjusting for ambient air concentrations.
- TPH in a single ground floor Marcus Whitman sample was detected at concentrations greater than the MTCA Method B Residential<sup>2</sup> CUL after adjusting for ambient air concentrations.
- Planned permanent SSV sample points were not able to be installed in the 106 Building basement due to the thickness of the slab (greater than 16 inches).
- Permanent SSV sample points were installed in the Marcus Whitman Hotel basement (SSV-01 through SSV-09) as shown in Marcus Whitman Hotel Basement Sample Locations, Figure 5, and the Stillwater Holdings Chevron building (SSV-12) as shown in Figure 4 on April 22, 2025<sup>3</sup>. SSV sampling results are included in Table 6. Chemical analytical results from the SSV samples indicated the following:
  - Air-phase petroleum hydrocarbons (APH) were greater than the MTCA Commercial Worker Soil Gas Screening Level (SGSL) of  $390 \mu\text{g}/\text{m}^3$  in SSV points in the Marcus Whitman Hotel basement and the Stillwater Holdings Chevron building.
  - VOCs including BTEXN, PCE, TCE, cDCE, tDCE and VC were either not detected or detected at concentrations less than their respective MTCA Commercial Worker SGSLs in the SSV samples.
- An assessment of current HVAC conditions and building venting conditions was performed prior to sampling. Locations of air intakes and returns were confirmed prior to the placement of samples.
  - The Marcus Whitman HVAC was operating in cooling mode and all air intake was being drawn from the building roof. Sample OA-1 was placed on the roof to collect a representative ambient air sample and located away from the ventilation being drawn from the Marcus Whitman basement.
  - The 106 Building is not fully occupied and the HVAC system is not currently operating continuously. At the time of sampling the system was set to cooling mode. Rooftop HVAC intakes were inaccessible, so samples OA-2 and OA-3 were placed at street level and located away from the ventilation being drawn from the 106 Building basement.

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<sup>1</sup> IA-01 through IA-06 were compared to the MTCA Method B Commercial CULs because the basement of the Marcus Whitman Hotel is typically occupied by hotel staff during standard (8-hour) work shifts. IA-10 through IA-13 were compared to the MTCA Method B Commercial CULs because they were collected from commercial spaces typically occupied by workers for 8-hour shifts.

<sup>2</sup> IA-07 through IA-09 were compared to the MTCA Method B Residential CULs because they were collected in areas that could potentially be occupied by hotel guests for a 24-hour period.

<sup>3</sup> Two additional SSV samples, SSV-10 and SSV-11, were planned for the 106 Building basement; however, due to the thickness of the concrete slab under the 106 Building (greater than 16 inches), the Vapor Pins at SSV-10 and SSV-11 were not installed.

## 2.6 SITE CONTAMINANTS OF POTENTIAL CONCERN

Contaminants of Potential Concern (COPCs) for soil, groundwater, and soil vapor at the site include contaminants previously detected at levels exceeding MTCA Methods A or B cleanup levels and contaminants associated with historic storage and distribution of petroleum products. COPCs for the site include the following:

- GRPH;
- VOCs, including BTEXN ; and
- Previously detected CVOCs, including PCE, TCE, cDCE, 1,2,4- Trimethylbenzene (1,2,4-TMB), 1,3,5-Trimethylbenzene (1,3,5-TMB), tDCE and VC.

## 3.0 Interim Action

The purpose of the interim action is to reduce the threat to human health and the environment by eliminating or substantially reducing one or more pathways for exposure to contaminated groundwater or soil vapor. The interim action will consist of the following assessment and remediation actions:

1. Quarterly groundwater sampling to monitor the threat to human health and the environment, pathways of exposure, and obtain sufficient data to design and install a groundwater interception and treatment system (Section 2.5.1 and Section 4.0);
2. VI sampling to obtain sufficient data to design and install a vapor remediation system (VI assessment activities were completed in April 2025, see Section 2.5.2);
3. Design and installation of treatment system for the interception of contaminated groundwater in the sumps and vapor remediation systems in the Marcus Whitman Hotel and Building 106 (Section 3.1).
4. Decommissioning of the USTs at the Chevron gas station. The USTs will be removed and decommissioned following Ecology WAC 173-360A-0810 (Section 3.2). During UST removal, contaminated soil encountered will be removed to the extent possible without undermining buildings or infrastructure.

The purpose of the Interim Action is not to achieve sitewide MTCA cleanup levels. The implementation of the Interim Action shall not foreclose reasonable alternatives to the cleanup action, including in-situ groundwater remediation, pump and treat, soil removal or air sparging of the groundwater plume.

### 3.1 DESIGN AND INSTALLATION OF INTERIM REMEDIATION SYSTEMS

The plan for this Interim Action is to install an active treatment system that will intercept and treat groundwater, as needed, without the continued need for manual removal. Additionally, the temporary plastic sheets and venting fans will be replaced with a permanent vapor barrier, and if necessary, continued vapor removal. Other consultants acting on behalf of Stillwater Holdings have prepared a preliminary design for these treatment systems (Aspect, 2024b and 2024c).

This will be done via the design and installation of both a groundwater and vapor phase treatment system. Groundwater is currently being removed via interceptor sump pumps or vector truck and combined into a stock tank, where it is eventually treated and discharged in batches. Volatile organics are being vented using fans and rooms are sealed using temporary plastic dividers.

The active treatment will continue to intercept water at the sumps in the 106 Building and the Marcus Whitman, where the intercepted groundwater will be treated using GAC. Two treatment trains will be installed, one in the Marcus Whitman basement, and the other on the Chevron gas station property. Treated groundwater will be directly discharged to sanitary sewer via existing plumbing at each respective property.

Vapor mitigation strategies will vary based on soil vapor and ambient air concentrations but will focus on eliminating preferential pathways through the installation of a low permeability vapor barrier. This vapor barrier will include the installation of a concrete slab where bare earth is present in the Marcus Whitman, as well as enclosing the sump structures and sealing any open concrete joints. A sub-slab depressurization system or roll on chemical resistant slab sealing vapor barrier will also be considered.

A 90 percent and 100 percent design package will be submitted for Ecology review. The design will incorporate public comment received during the public review period, as required by with WAC 173-340-600(18). The design package and construction requirements will adhere to the requirements of WAC 173-340-400. GeoEngineers will prepare draft and Final As-Built Reports in accordance with WAC 173-340-400(6)(b)(ii). GeoEngineers will administer construction supervision of the Ecology selected construction contractor.

### 3.1.1 *Alternative Remediation Actions*

Alternative interim actions were explored, such as chemical oxidation or air sparge and vapor recovery, but they were not deemed appropriate because they could not be immediately implemented and effectively reduce one or more pathways for exposure to contaminated groundwater or soil vapor. Because partial designs for the vapor intrusion mitigation and active treatment of groundwater via the interceptor sumps have already been completed, this interim action can be completed more quickly and at a lower cost than other alternatives.

## 3.2 UST DECOMMISSIONING

As part of the Interim Action, the three 10,000-gallon USTs located at the Chevron gas station will be removed from the Site, along with localized contaminated soils. This source removal action is intended to remove the source of gasoline contamination at the Site.

The USTs are located northeast of the service station canopy beneath the asphalt paved parking lot (Groundwater Assessment – March 2025, Figure 3). A single excavation, likely extending to the groundwater table, will be used to decommission and remove the USTs. UST removal will include temporary shoring and stabilization of the buildings on the Stillwater Holdings Chevron gas station property (Aspect 2024b), as needed. UST removal plans will be included in a UST Decommissioning engineering package, submitted to Ecology as 90 percent and 100 percent

GeoEngineers will administer UST Site Assessment services and construction supervision of the Ecology selected construction contractor. UST Site Assessor activities will include the following:

- Submit a notice of intent (NOI) for permanent UST system closure to Ecology at least 30 days before UST decommissioning activities commence.
- Observe and document UST system decommissioning and collect confirmation samples. GeoEngineers' representative will be a certified Washington State Site Assessor as described in Washington Administrative Code (WAC) 173-360A-0930(3). GeoEngineers' representative will field screen soil from beneath the UST system components for evidence of release.

- Consistent with the Guidance for Remediation of Petroleum Sites (Ecology, 2016) efforts will be made to remove contaminated soil for off-site treatment or disposal. Soil exhibiting field screening evidence of contamination localized to the UST will be removed during the decommissioning. Due to physical limitations related to the building location, shoring requirements and the shallow groundwater table, complete removal of contaminated soil might not be possible.
- Collect confirmation samples from beneath the fuel system components according to Ecology's *Site Assessment Guidance for Underground Storage Tank Systems* (Ecology 2021) and following the procedures described in Appendix A. For planning purposes we have assumed that at least nine samples will be collected (the minimum number of samples required for a single excavation containing three USTs greater than 9,000 gallons). The actual number of samples will depend on the size of the excavation and length of product piping.
- Submit soil samples to a state-accredited laboratory for the analyses specified in the Ecology guidance on a 48-hour turnaround time (TAT), including the following:
  - GRPH using Northwest Method NWTPH-Gx;
  - Diesel- and oil-range petroleum hydrocarbons (DRPH and ORPH, respectively) using Northwest Method NWTPH-Dx;
  - BTEXN, 1,2,4-TMB and 1,3,5-TMB using U.S. Environmental Protection Agency (EPA) Method 8260D; Carcinogenic polycyclic aromatic hydrocarbons (cPAHs) using EPA Method 8270E SIM; and
  - Lead using EPA Method 6010D.
- Collect waste characterization samples of stockpiled soil to determine the suitability for re-use or off-site disposal. Waste characterization samples will be analyzed for GRPH, DRPH, ORPH and BTEXN using the methods described above for waste characterization purposes. The waste characterization samples will additionally be analyzed for Resource Conservation and Recovery Act (RCRA) metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver) and Washington State Dangerous Waste Metals (copper, nickel and zinc) using EPA 6000/7000-series methods, which is required by most disposal facilities. For planning purposes, we have assumed that the waste characterization samples will be analyzed on a 48-hour TAT. The number of waste characterization samples will be determined by the volume of soil removed as described in Ecology's *Site Assessment Guidance for Underground Storage Tank Systems* (Ecology 2021).

## 4.0 Groundwater Interception and Sump Treatment

The City of Walla Walla Industrial Pretreatment Program has approved discharge of intercepted groundwater from building sumps to the sanitary sewer and POTW. In the past 12 months, petroleum contamination has been present in the sumps in both the Marcus Whitman and the 106 Building at concentrations greater than the Walla Walla POTW Local Limits, necessitating the continued need for pretreatment of intercepted sump water prior to discharge (Table 2). The local limits allowed by the POTW Industrial Pretreatment Program were provided to Stillwater Holdings via email on December 5, 2023 (City of Walla Walla, 2023). Provided discharge criteria are listed in Table I and are consistent with those listed in the Ecology Water Quality Program Permit Writer's Manual as criteria applicable to independent leaking underground storage tank (LUST) cleanup sites (Ecology, 2018). The current maximum allowable discharge rate is 25 gallons per minute (gpm).

GAC treatment is currently in use as part of the temporary treatment systems and is proven regulatory-approved technology for meeting discharge standards. Due to the fluctuating and declining petroleum concentrations at the Site, it has the advantage of being highly effective even at low concentrations in groundwater. Published removal rates vary, but removal rates of >90 percent are achievable for many VOCs (EPA 2025). For these reasons, GAC has been selected as the treatment method for the permanent groundwater interception sump systems.

**TABLE I. CITY OF WALLA WALLA POTW LOCAL LIMITS**

POLLUTANT	MAXIMUM DISCHARGE LEVEL
GRPH	1 mg/L
DRPH	5 mg/L
BTEX	200 µg/L
Benzene	10 µg/L

Notes:

DRPH = diesel-range petroleum hydrocarbons, mg/L- milligrams/liter

Two treatment trains will be constructed, one in the Marcus Whitman Basement, and one in the Chevron parking lot. Due to variations in the quantity of groundwater intercepted, both systems will include a primary and secondary (backup) sump pump, a bag filter (pre filter) and GAC vessels operated in a lead/lag configuration. GAC vessels will be connected by flexible hosing and camlock fittings, and a spare GAC vessel will remain onsite to allow for prompt changeout without moving the vessels. Figure 6 shows a proposed treatment train for either system. Based on the maximum benzene concentration in the previous four quarters of monitoring (290 µg/L on March 27, 2025) a removal rate of approximately 96 percent will be required to achieve the maximum discharge levels established by the POTW. Carbon type and vessel sizing will be specified in the design package, based on carbon adsorption isotherms and recommendations by the GAC vendor.

Sump pumps will be operated on float switches, configured with high, on and off. In the event of a “high” switch, the secondary pump would be triggered. Pre-filters will be high flow, sock style bag filters, which will be utilized to remove contaminants and suspended solids which may contribute to GAC fouling. To minimize noise and disruption to building occupants, installation will consider measures such as a sound dampening enclosure, soft start pumps and/or pumps with lower decibel ratings.

## 5.0 Vapor Mitigation

The current, temporary vapor control measures have reportedly been successful at mitigating VOCs in indoor air in the Site buildings below the 5 parts per million (ppm) action level required by the Walla Walla City Fire Department. The April 2025 Vapor Intrusion Assessment determined that there are still exceedances of indoor air CULs, as well as SGSLs. Due to variations in building construction, mitigation approaches will vary between the Marcus Whitman, Stillwater Holdings Chevron and the 106 Building.

## 5.1 MARCUS WHITMAN HOTEL

Soil vapor sampling in the basement of the Marcus Whitman identified exceedances of SGSLs in both the sub-basement and basement areas. Despite these exceedances, indoor air sampling demonstrates that there is currently no unacceptable risk to hotel guests or staff.

Sampling performed at the Marcus Whitman was conducted while the current HVAC and venting system was operating. In this current configuration, there were no exceedances of the appropriate indoor air CULs. There are several locations where known historical features within the basement or sub-basement provide significant preferential pathways for contaminants in soil vapor to enter the hotel. Mitigation measures, such as vapor suppression spray applied to the dirt floor of the sub-basement, have been implemented, but the current HVAC configuration and ventilation system likely have an unquantified impact on indoor air VOC concentrations.

It is our recommendation that preferential pathways are closed using a combination of chemically resistant vapor barriers and surface seals, as well as ongoing venting of accumulated vapors in the sump. Below is a summary of the features that might create preferential pathways and the methods utilized for sealing or terminating the vapor pathway.

- Sump—The previously open sump within the sub-basement has been sealed as part of the emergency response activities, and a ventilation system installed which directs collected vapors outdoors. Implementation of the groundwater interception and sump treatment will involve disturbing this seal. This seal shall be evaluated during construction and retrofitted, as necessary. An appropriate seal will be required to prevent volatilization of vapors from intercepted groundwater from entering the building. Vapor concentrations in the ventilation effluent shall be monitored quarterly using a photoionization detector (PID), and semiannually for VOCs, including BTEXN and previously detected CVOCs, including TCE. Vapor concentrations and effluent rates shall be evaluated as an exempt source under WAC 173-400-110. If the source is not exempt, or if vapor phase treatment of the effluent is required, it is assumed the procedural requirements pertaining to a notice of construction application do not apply per WAC 173-400-110(1)(D)(e).
- Vault—A subsurface concrete vault in the sub-basement reportedly used as part of a historic hotel cooling system has no known current use. This structure has been sealed as part of the emergency response activities but remains a potential path to groundwater and a potential vapor preferential pathway. With permission from the Marcus Whitman this feature will be sealed.
- Vertical sump structure—a vertical HDPE structure, believed to be a sump or drywell, has been backfilled with aggregate. Because this feature remains a conduit for vapors, and possibly a path to groundwater, the structure must be sealed. The Marcus Whitman desires to retain future access to this feature, so the structure will not be decommissioned. After trimming the HDPE pipe to ground level, a cover will be installed. If the cover is placed beneath the concrete pad, a utility marker will be placed for ease of locating the structure at a future date.
- Penetrations and joints—As part of the emergency response, sealing was performed on various penetrations through the concrete slab or on exposed joints, but during the construction activities these will be revisited and resealed as needed.

- Exposed soil—Portions of the sub-basement are exposed dirt and not finished with a concrete floor. This dirt sub-basement area will be covered in a vapor barrier beneath a concrete pad that will be installed to match the existing floor grade. Preparation for the concrete pad will include the application of coarse aggregate and lateral runs of perforated pipes, as shown in Figure 7. These perforated pipes can be blinded and capped at the surface but will allow for future operation of a subslab depressurization system (SSDS), if needed.

Following appropriate lock out by a licensed elevator servicer, the elevator shaft can be accessed and a chemically resistant spray on barrier, such as Liquid Boot®, can be applied to any exposed area beneath the hydraulics. Locations where vapor barriers will be installed are shown in Figure 5.

Following the completion of the sealing of preferential pathways, we recommend the temporary cessation of the active vapor mitigation, except any sump ventilation. With the HVAC system continuing to operate in a 'normal' configuration, indoor air sampling can be repeated to determine if any exceedances of indoor air CULs have arisen. If no exceedances occur, indoor air sampling should be repeated 6 months later. If exceedances of the CULs do exist, then they could be actively mitigated based on the location and severity of the exceedance.

Groundwater is the only known subsurface VOC source beneath the Marcus Whitman; therefore, subslab soil vapor concentrations are anticipated to decrease as the groundwater plume attenuates. Three of the past four quarters, VOC concentrations in the intercepted groundwater from the Marcus Whitman sump have been less than the MTCA Method B Commercial groundwater screening level (Table 2).

If vapor concentrations do exceed the applicable screening levels after sealing preferential pathways, then the following additional mitigation measures might be implemented to reduce VOC concentrations:

- Subslab depressurization—Exceedances in or adjacent to the sub-basement area could be addressed through implementing subslab depressurization using the perforated piped installed under the newly installed sub-basement floor. Subslab depressurization can be active (using a blower or fan to apply the vacuum) or passive (subslab venting). Passive sub-slab systems show a performance range that varies from 30–90 percent efficient (EPA 1993).

Implementation of an active SSDS would involve a blower step test, wherein increasing vacuums are applied to the subsurface and the pressure response is measured at the selected locations, typically permanent Vapor Pins installed at varying distances from the extraction piping. A negative pressure gradient of 4 to 10 pascals (0.016-0.40 inches of water column) is the average range of soil and building depressurization from an active SSDS (EPA 2008). Once a target blower pressure has been identified, a blower or fan can be selected to optimize pressure requirements and blower operation parameters. SSDS effluent would be combined with sump ventilation piping, and the combined emissions evaluated in accordance with WAC 173-400-110 to determine if emissions pre-treatment is required. Soil vapor results and simple air dispersion modeling (SCREEN3) would be used to verify appropriate effluent stack height.

- Modification of HVAC—Low level CUL exceedances, or exceedances outside of the sub-basement may be addressed through modifying the building air exchange rate and/or creating a positive pressure between the building and subslab.

## 5.2 106 BUILDING

Subslab soil vapor sampling in the basement of the 106 Building was not able to be completed; planned SSV points could not be installed due to slab thickness. A scan using ground penetrating radar performed by a licensed utility locator verified that the basement slab thickness was greater than 16 inches (the limit of their instrument when scanning concrete). Indoor sampling measured TPH concentrations, benzene and EC5-8 aliphatics greater than the MTCA Commercial CULs in indoor air. There was no significant variation in results from the basement or ground floor sampling locations (Table 4).

Sampling performed at the 106 Building was conducted while the current venting system was off. Additionally, the building had recently (approximately 1 week prior to indoor air sampling) experienced a flood wherein VOC contaminated groundwater overflowed the interception sump and flooded the basement. The 106 Building is not fully occupied, and the HVAC system is not currently operating continuously.

It is our opinion that the thickness of the basement slab would prohibit diffusion across the slab. The thickness of the slab exceeds the maximum values allowed in common vapor attenuation factor models, such as Johnson and Ettinger. Vapor intrusion across an intact slab greater than 16 inches is presumed to be de minimis, and any vapor intrusion effects are through preferential pathways, such as the unsealed sump or utility penetrations.

It is our recommendation that preferential pathways are closed using surface seals, such as a chemically resistant crack sealer.

- Sump—The previously open sump within the basement has been temporarily sealed as part of the emergency response activities, and a temporary ventilation system installed which directs collected vapors outdoors. Temporary tarps and sheeting comprise a significant portion of the current vapor mitigation strategy. Following the implementation of the new groundwater interception and sump treatment, the sump can be fully sealed. An appropriate seal will be required to control volatilization of vapors from intercepted groundwater from entering the building.

A ventilation system will be installed which directs collected vapors from the sump outdoors. Vapor concentrations in the ventilation effluent shall be monitored quarterly using a PID, and semiannually for VOCs, including BTEX and previously detected CVOCs, including TCE. Vapor concentrations and effluent rates shall be evaluated as an exempt source under WAC 173-400-110. If the source is not exempt, or if vapor phase treatment of the effluent is required, it is assumed the procedural requirements pertaining to a notice of construction application do not apply per WAC 173-400-110(1)(D)(e).

Following the completion of the sealing of preferential pathways, and with the HVAC system operating in a 'normal' configuration, we recommend indoor air sampling be repeated to determine if any exceedances of indoor air CULs still exist. If no exceedances occur, indoor air sampling should be repeated 6 months later. Exceedances of CULs may necessitate changing operational parameters of the HVAC system (positive pressure operation) or subslab depressurization. The excess slab thickness is anticipated to prohibit installing perforated pipe runs in a slab; therefore, depressurization would need to be explored via collection sumps.

### 5.3 STILLWATER CHEVRON

Soil vapor sampling at the Wine Country Convenience Store, located at the Stillwater Chevron gas station property, identified that there are exceedances of the SGSL for EC5-8 aliphatics. Despite this exceedance, indoor air sampling demonstrates that there is currently no unacceptable risk to staff of the Wine Country Convenience Store. Sampling was performed under normal building conditions, with no operating ventilation system beyond the standard building HVAC. Additional vapor mitigation measures are not planned for the Wine Country Convenience store at the Stillwater Chevron gas station. Indoor air sampling should be repeated 6 months after the initial sample to confirm that there is no unacceptable risk present.

## 6.0 Field Assessment Activities

GeoEngineers will collect additional groundwater data required to finalize these preliminary designs. Site investigation activities are described below. Field procedures and compliance monitoring will be performed according to the requirements of WAC 173-340-410. Field Assessment Procedures are included in Appendix A and the project Quality Assurance Plan is included as Appendix B. Work will be performed in accordance with the health and safety plan requirements of WAC 173-340-810. The Site-specific health and safety plan is included in GeoEngineers' Vapor Intrusion Work Plan (GeoEngineers 2025a). An Inadvertent Discovery Plan is included as Appendix C.

### 6.1 GROUNDWATER MONITORING

The existing Site monitoring well network will be used to assess the current groundwater conditions and monitor following the removal of the USTs on the Chevron gas station property. Three additional quarterly monitoring events are planned during the Interim Action performance period. Second quarter groundwater monitoring was completed in June, and the Third and Fourth Quarter monitoring events are planned for August and December 2025, respectively.

Quarterly groundwater monitoring activities will include:

- Obtaining well headspace readings using a PID and depths to groundwater measurements in monitoring wells AMW-01 through AMW-04 and MW-2 through MW-9 using an electronic interface probe to determine groundwater flow direction(s). Well headspace readings and depths to groundwater will be obtained following the procedures described in Appendix A. Traffic control will be required for wells MW-2 through MW-6 located within the City of Walla Walla right-of-way.
- Sample monitoring wells AMW-01 through AMW-04 and MW-2 through MW-9 using low-flow techniques. We assume 12 groundwater samples will be submitted for analysis on a standard turnaround time. Additionally, one duplicate sample will be collected and submitted for quality assurance purposes. The monitoring wells will be sampled following procedures described in Appendix A.
- Groundwater samples from the monitoring wells will be analyzed for the following COPCs:
  - GRPH using Northwest Method NWTPH-Gx; and
  - BTEXN, 1,2,4-TMB and 1,3,5-TMB using EPA Method 8260D.

- The investigation-derived waste (IDW) generated during the groundwater sampling events, including purge and decontamination water, will be treated through the existing groundwater interception system and discharged to the City of Walla Walla municipal sewer system.

## 6.2 GROUNDWATER TREATMENT SYSTEM MONITORING

Grab samples will be collected from the groundwater treatment system to assess the effectiveness of the treatment system and demonstrate compliance with Industrial Pretreatment Program with the City of Walla Walla. Samples will be collected following the procedures described in Appendix A and samples analyzed for the constituents in Table I. Whenever a series of samples are being collected, the sample presumed to be cleanest will always be collected first to reduce the risk of cross-contamination. The system monitoring will be conducted at least quarterly (to coincide with groundwater sampling events), or at the frequency required by the City of Walla Walla POTW.

## 6.3 VAPOR MONITORING—VENTILATION EFFLUENT OR SSDS

Grab samples will be collected from the sump ventilation effluent to assess the VOC concentrations and mass removal rates to demonstrate compliance with the VOC and air toxic limits established in WAC 173-400-110 and WAC 173-460-150. Samples will be collected following the procedures described in Appendix A. System monitoring will be conducted at least semiannually (to coincide with groundwater sampling events), or if field screening measurements (PID readings) indicate a change in concentration.

## 7.0 Schedule

The fieldwork will be conducted following the schedule described in the table below. We expect to receive analytical data within 2 weeks after submitting samples to the laboratory; our reports will be completed within 6 weeks following the receipt of the final laboratory analytical reports.

### PROJECT SCHEDULE

ACTIVITY	TIME FRAME
1 <sup>st</sup> Quarter Groundwater Sampling Event	March 2025 (completed)
Vapor Intrusion Assessment	April 2025 (completed)
2 <sup>nd</sup> Quarter Groundwater Sampling Event	June 2025 (completed)
3 <sup>rd</sup> Quarter Groundwater Sampling Event	September 2025
Deliver 100 percent Design Plans, Specifications, and Cost Estimate to Ecology	September 2025
Deliver UST Decommissioning Plans and Specifications to Ecology	October 2025
System Construction Supervision and Testing	November 2025
UST Removal Supervision and Soil Sampling	December 2025
4 <sup>th</sup> Quarter Groundwater Sampling Event	December 2025
Dispose IDW	January 2026
Deliver As Built/Interim Action Report to Ecology	May 2026

## 8.0 References

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## Tables

**Table 1**  
**Summary of Groundwater Field Parameters**  
 Stillwater Holdings Chevron Site  
 Walla Walla, Washington

Monitoring Well Location	Sample Date	Headspace Vapor Measurement (ppm)	Depth to Water (feet btoc)	Groundwater Elevation (feet)	Field Measured Groundwater Quality Parameters						
					pH (pH units)	Specific Conductivity (µS/cm)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Temperature (degrees C)	
Chevron Property wells	AMW-01				7.14	474.36	-182.1	0.6	14.6	13.58	
		11/09/2023			6.91	1234.2	-135.8	0.21	25.4	16.97	
		05/01/2024			6.65	864	-78.7	0.4	--	20.22	
		8/21/2024			6.72	1226	-117.3	0.14	--	18.21	
		11/13/2024	639.7	11.1	940.88	6.62	1290	-136.9	-0.09	9.4	17.4
	AMW-02					7.26	616.82	145.8	0.4	6.69	16.37
		11/09/2023				6.92	827.25	-111.4	0.17	5.74	16.46
		05/01/2024				6.80	820	-73.2	1.7	--	18.64
		8/21/2024				6.69	1347	-123.1	0.24	--	13.23
		11/14/2024	17.6	11.71	941.57	6.71	1012	-118.8	0.14	2.95	16.9
	AMW-03					7.17	470.38	-112	0.38	5.01	14.96
		11/09/2023				6.82	538.87	36.8	0.3	9.95	14.93
		05/01/2024				6.11	597	-22.6	24.8 %	--	18.20
		8/21/2024				6.72	754	-25.6	0.42	--	16.38
		11/13/2024	<1	13.60	938.83	6.70	693	30.6	1.45	3.62	17.5
	AMW-04					7.01	408.91	-173	0.31	1.79	16.45
		11/09/2023				7.03	607.78	-131.5	0.27	4.14	15.79
		05/01/2024				6.88	594	-103.0	2.6	--	18.24
		8/21/2024				7.10	557	-90.9	0.47	--	18.46
		11/14/2024	<1	10.61	943.31	6.51	548	19.1	0.01	4.85	16.1
City-Right-Of-Way Wells	MW-2				7.1	555.85	-94.4	0.38	2.96	12.72	
		11/29/2023			6.87	554.36	-77.3	0.39	24.2	15.93	
		04/30/2024			6.76	479	-44.6	1.9	--	17.67	
		8/20/2024			6.78	640	-75.0	0.19	--	15.37	
		11/13/2024	<1	12.89	938.05	6.66	648	-74.8	0.10	5.58	16.9
	MW-3					7.19	617.85	50	0.37	7.88	12.63
		11/29/2023				6.95	675.49	-1.8	0.73	10.7	15.91
		04/30/2024				6.77	452	8.9	1.9	--	17.84
		8/20/2024				7.07	440	-48.7	1.01	--	16.52
		11/13/2024	98.1	9.56	941.26	6.84	975	131.6	-0.02	1.88	12.0
	MW-4					6.59	365	203.1	1.54	1.27	13.65
		11/29/2023				6.69	451.82	180.4	1.79	3.09	15.28
		04/30/2024				6.70	443	100.4	6.9	--	18.99
		8/20/2024				6.77	390	59.2	0.84	--	15.20
		11/13/2024	<1	11.71	938.63	6.66	410	158.9	1.74	27.69	16.1
	MW-5					6.6	887.38	-41.6	0.4	4.32	14.29
		11/29/2023				7.11	718.49	-158.6	0.46	4.93	16.39
		05/01/2024				6.97	551	-97.8	1.06	--	18.62
		11/13/2024	397.0	10.92	940.93	6.86	792	-131.2	-0.05	3.47	15.6
	MW-6					6.76	418.53	-34.8	0.21	4.51	15.28
		05/01/2024				6.45	927	-84.6	1.47	--	19.04
		11/14/2024	1,672.0	8.42	943.98	6.51	454	61	0.29	42.84	14.8
	MW-7					6.82	214.66	141.9	3.88	3.31	13.9
		11/10/2023				6.87	270.66	76.4	5.51	2.36	12.26
		04/30/2024				6.82	237	162.5	2.47	--	17.40
		8/20/2024				6.87	294	175.3	3.33	--	15.50
		11/13/2024	-	13.61	937.02	6.29	295	118.2	6.52	1.42	12.6
	MW-8					6.7	254.55	127	1.22	1.09	15.32
		11/10/2023				6.54	244.1	176	2.56	1.26	15.45
		05/01/2024				6.72	270	178.9	1.73	--	17.14
		8/20/2024				6.70	332	172.8	1.87	--	15.92
		11/13/2024	7.5	12.33	940.91	6.56	325	125.6	2.32	2.42	16.2
	MW-9					6.61	411.35	84	0.62	2	16.04
		11/10/2023				6.7	461.28	198.5	5.09	8.52	13.8
		05/01/2024				6.60	453	172.9	3.4	--	17.21
		08/20/2024				6.70	415	137.7	1.47	--	16.10
11/13/2024		3.9	10.5	942.07	6.68	454	114.6	6.05	1.31	14.6	
3/26/2025											

**Notes:**

*Italics* notes Ecology and Aspect data as reported to GeoEngineers on April 15, 2025  
 Data collected by GeoEngineers during the March 2025 groundwater assesemnt are dated 03/25/25 - 03/26/25.  
 ppm = parts per million  
 Btoc = Below top of casing  
 µS/cm = microSiemens per centimeter  
 mV = millivolts  
 mg/L = milligrams per liter  
 NTU = Nephelometric Turbidity Units  
 deg C = degrees Celsius

**Table 2**  
**Chemical Analytical Results - Sump Water**  
 Stillwater Holdings Chevron Site  
 Walla Walla, Washington

Sample location				Building 106						Marcus Whitman Hotel					
Sample Date				11/8/2024	3/28/2024	8/16/2024	11/14/2024	3/27/2025	6/26/2025	11/8/2023	3/28/2024	8/16/2024	11/14/2024	3/27/2025	6/26/2025
Sample Identification				106HS-110823	106 Sump	106Sump	106Sump	BLG 106 Sump	BLG 106 Sump	MWH Sump-110823	MWH Sump	MWH Sump	MWH Sump	Marcus Whitman Sump	Marcus Whitman Sump
Analyte	Unit	Walla Walla POTW Discharge Limits	MTCA Method A Cleanup Level for Groundwater <sup>4</sup>												
<b>Petroleum Hydrocarbons<sup>1</sup></b>															
GRPH	µg/L	1000	800	<b>6,900</b>	<b>9,900</b>	<b>2,000</b>	<b>2,700</b>	<b>750</b>	< 65 U <sup>5</sup>	<b>54,000</b>	<b>17,000</b>	< 54 U	< 54 U	<b>3,600</b>	<b>1,000</b>
<b>Volatile Organic Compounds (VOCs)<sup>2</sup></b>															
Benzene	µg/L	10	5	<b>420</b>	<b>270</b>	<b>71</b>	<b>67</b>	<b>36</b>	< 0.40 U	<b>1,700</b>	<b>640</b>	<b>0.18 J</b>	< 0.093 U	<b>290</b>	<b>5.1</b>
Toluene	µg/L	NE	1000	<b>980</b>	<b>1,400</b>	<b>240</b>	<b>310</b>	<b>110</b>	< 1.0 U	<b>4,300</b>	<b>1,900</b>	<b>0.64 J</b>	< 0.45 U	<b>66</b>	<b>1.1</b>
Ethylbenzene	µg/L	NE	700	<b>46</b>	<b>160</b>	<b>45</b>	<b>49</b>	<b>15</b>	< 1.0 U	<b>110</b>	<b>28</b>	< 0.2 U	< 0.2 U	<b>15</b>	<b>0.49 J</b>
Xylenes (Total)	µg/L	NE	1000	<b>780</b>	<b>1,320</b>	<b>420</b>	<b>490</b>	<b>160</b>	< 3.0 U	<b>6,900</b>	<b>2,540</b>	<b>1.07 J</b>	< 0.44 U	<b>860</b>	<b>20</b>
<b>BTEX Total<sup>3</sup></b>	µg/L	200	NE	<b>2,226</b>	<b>3,150</b>	<b>776</b>	<b>916</b>	<b>321</b>	< 5.4 U	<b>13,010</b>	<b>5,108</b>	<b>1.89</b>	< 1.813 U	<b>1,231</b>	<b>26.69 J</b>

**Notes:**

Samples collected by GeoEngineers during the June 2025 groundwater assessment and analyzed by Eurofins Environment Testing Northwest located in Spokane Valley, Washington are dated 06/24/25 - 06/25/25. Sample Locations are shown on Figure 2.

Results reported in micrograms per liter unless otherwise stated.

<sup>1</sup>Gasoline-range petroleum hydrocarbons (GRPH) analyzed using Northwest Method NWTPH-Gx.

<sup>2</sup>Volatile organic compounds analyzed using United States Environmental Protection Agency (EPA) Method 8260D.

<sup>3</sup>BTEX = Benzene, Toluene, Ethylbenzene and Xylenes (total).

<sup>4</sup>Model Toxics Control Act (MTCA) Method A/B Cleanup Levels (CUL) for Groundwater

<sup>5</sup>Analyte was not deemed above the reported sample quantitation limit due to blank contamination.

J = Analyte was detected at a concentration between the laboratory method detection limit (MDL) and reporting limit (RL) and the concentration is an estimated value OR the number is an estimated value.

NE = Not established

U - Analyte not detected at or above Reporting Limit (RL) shown

µg/L - micrograms per liter

Results in **bold** indicate TPH or VOCs were detected.

Results in **bold** and highlighted gray are detected above the MTCA Method A cleanup level.

*Italics* notes Ecology and Aspect data as reported to GeoEngineers on April 15, 2025

**Table 3**  
**Chemical Analytical Results - Outdoor Air<sup>1</sup>**  
 Stillwater Holdings Chevron Site  
 Walla Walla, Washington

Location	Sample Date	Units	Air-Phase Hydrocarbons <sup>2</sup>			Volatile Organic Compounds <sup>3</sup>										
			APH EC5-8 Aliphatics	APH EC9-12 Aliphatics	APH EC9-10 Aromatics	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	Naphthalene	PCE	TCE	cDCE	tDCE	VC
<b>Marcus Whitman Hotel Outdoor Air</b>																
OA-01	4/22/2025	µg/m <sup>3</sup>	<b>53 J</b>	<b>29</b>	<4.4 J	<b>0.38</b>	<1.7	<b>0.27</b>	<b>0.96</b>	<b>0.39</b>	<b>0.058 J</b>	<6.8	<0.11	<0.4	<0.4	<0.13
<b>106 Building/Stillwater Holdings Chevron Outdoor Air</b>																
OA-02	4/22/2025	µg/m <sup>3</sup>	<b>68 J</b>	<15 J	<4.4 J	<b>0.46</b>	<1.7	<b>0.15 J</b>	<b>0.52</b>	<b>0.20</b>	<0.052 J	<6.8	<0.11	<0.4	<0.4	<0.13
OA-03	4/22/2025	µg/m <sup>3</sup>	<b>66 J</b>	<15 J	<4.4 J	<b>1.2</b>	<b>2.4</b>	<b>0.27</b>	<b>1.1</b>	<b>0.41</b>	<0.052 J	<6.8	<0.11	<0.4	<0.4	<0.13

**Notes:**

<sup>1</sup> Samples analyzed by Friedman & Bruya, Inc. located in Seattle, Washington.

<sup>2</sup> Air-phase hydrocarbons (APH) analyzed using Environmental Protection Agency (EPA) Method MA-APH.

<sup>3</sup> Volatile organic compounds (VOCs) including benzene, toluene, ethylbenzene, xylenes and naphthalene (BTEXN) and tetrachloroethylene (PCE), trichloroethylene (TCE), cis-1,2-dichloroethylene (cDCE), trans-1,2-dichloroethylene (tDCE) and vinyl chloride (VC) analyzed using EPA Method TO-15.

J = The analyte concentration is reported between the method detection limit (MDL) and the lowest calibration point. The value reported is an estimate.

µg/m<sup>3</sup> = micrograms per cubic meter. '<' = less than the laboratory RL (PCE, TCE, cDCE, tDCE, VC), MDL (BTEXN) or equipment calibration limits (APH).

**Bold** = Analyte was detected.

**Table 4**  
**Chemical Analytical Results - Adjusted Commercial Indoor Air<sup>1</sup>**  
 Stillwater Holdings Chevron Site  
 Walla Walla, Washington

Location	Sample Date	Units	Air-Phase Hydrocarbons <sup>2</sup>			Volatile Organic Compounds <sup>3</sup>										Total Petroleum Hydrocarbons <sup>4</sup>	
			APH EC5-8 Aliphatics	APH EC9-12 Aliphatics	APH EC9-10 Aromatics	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	Naphthalene	PCE	TCE	cDCE	tDCE	VC	Adjusted TPH Sum
<b>Marcus Whitman Hotel Basement<sup>5</sup></b>																	
IA-01	4/22/2025	µg/m <sup>3</sup>	<b>57 J</b>	<21 <sup>7</sup>	<b>6.1 J<sup>7</sup></b>	<b>0.60</b>	<b>5.70</b>	<b>0.51</b>	<b>1.54</b>	<b>0.54</b>	<b>0.13</b>	<6.8	<b>0.12</b>	<0.4	<0.4	<0.13	<b>93.1</b>
IA-02	4/22/2025	µg/m <sup>3</sup>	<b>34 J</b>	<28 <sup>7</sup>	<4.4 J	<b>0.50</b>	<b>4.90</b>	<b>0.35</b>	<b>1.24</b>	<b>0.41</b>	<b>0.07</b>	<6.8	<b>0.26</b>	<0.4	<0.4	<0.13	<b>71.7 J</b>
IA-03	4/22/2025	µg/m <sup>3</sup>	<b>12 J</b>	<15 <sup>7</sup>	<4.4 J	<b>0.15</b>	<b>2.30</b>	<b>0.04</b>	<b>0.14</b>	<b>0.01</b>	<b>0.01 J</b>	<6.8	<0.11	<0.4	<0.4	<0.13	<b>31.9 J</b>
IA-04	4/22/2025	µg/m <sup>3</sup>	<b>10 J</b>	<b>30</b>	<4.4 J	<b>0.15</b>	<b>2.60</b>	<b>0.09</b>	<b>0.34</b>	<b>0.13</b>	<b>0.10</b>	<6.8	<0.11	<0.4	<0.4	<0.13	<b>45.6 J</b>
IA-05	4/22/2025	µg/m <sup>3</sup>	<b>21 J</b>	<b>2</b>	<4.4 J	<b>0.18</b>	<b>2.50</b>	<b>0.02</b>	<0.96 <sup>7</sup>	<0.36 <sup>7</sup>	<b>0.15</b>	<6.8	<0.11	<0.4	<0.4	<0.13	<b>29.4 J</b>
IA-06	4/22/2025	µg/m <sup>3</sup>	<b>13 J</b>	<25 <sup>7</sup>	<4.4 J	<b>0.27</b>	<b>3.50</b>	<b>0.11</b>	<b>0.34</b>	<b>0.10</b>	<b>0.031 J</b>	<6.8	<b>0.16</b>	<0.4	<0.4	<0.13	<b>44.6 J</b>
<b>106 Building Basement<sup>6</sup></b>																	
IA-10	4/22/2025	µg/m <sup>3</sup>	<b>554</b>	<b>31</b>	<b>5.8 J</b>	<b>3.54</b>	<b>6.80</b>	<b>0.32</b>	<b>1.6</b>	<b>0.67</b>	<b>0.36</b>	<6.8	<0.11	<0.4	<0.4	<0.13	<b>604.1 J</b>
IA-11	4/22/2025	µg/m <sup>3</sup>	<b>694</b>	<b>27</b>	<b>29</b>	<b>8.64</b>	<b>13</b>	<b>4.33</b>	<b>13.5</b>	<b>9.4</b>	<b>0.45</b>	<6.8	<0.11	<0.4	<0.4	<0.13	<b>799.3</b>
<b>Stillwater Holdings Chevron Ground Floor<sup>6</sup></b>																	
IA-12	4/22/2025	µg/m <sup>3</sup>	<b>144</b>	<15 J	<4.4 J	<b>0.51</b>	<b>2.3</b>	<0.2 J <sup>7</sup>	<b>0.2</b>	<b>0.08</b>	<0.052 J	<6.8	<0.11	<0.4	<0.4	<0.13	<b>157 J</b>
<b>106 Building Ground Floor<sup>6</sup></b>																	
IA-13	4/22/2025	µg/m <sup>3</sup>	<b>454</b>	<b>20 J</b>	<b>6 J</b>	<b>3.44</b>	<b>6.0</b>	<b>0.51 J</b>	<b>1.98</b>	<b>0.80</b>	<b>0.72</b>	<6.8	<0.11	NR	<0.4	<0.13	<b>493.5 J</b>
<b>MTCA Method B Commercial CUL<sup>8</sup></b>				<b>390</b>		<b>1.5</b>	<b>19,470</b>	<b>3,893</b>	<b>389</b>	<b>0.34</b>	<b>44.9</b>	<b>2.85</b>	<b>156</b>	<b>156</b>	<b>1.33</b>	<b>390</b>	

**Notes:**

- <sup>1</sup> Samples analyzed by Friedman & Bruya, Inc. located in Seattle, Washington. Adjusted concentrations derived by subtracting the outdoor air (OA) concentrations from the indoor air (IA) concentrations. Unadjusted IA concentrations are included in Appendix A.
  - <sup>2</sup> Air-phase hydrocarbons (APH) analyzed using Environmental Protection Agency (EPA) Method MA-APH.
  - <sup>3</sup> Volatile organic compounds (VOCs) including benzene, toluene, ethylbenzene, xylenes and naphthalene (BTEXN) and tetrachloroethylene (PCE), trichloroethylene (TCE), cis-1,2-dichloroethylene (cDCE), trans-1,2-dichloroethylene (tDCE) and vinyl chloride (VC) analyzed using EPA Method TO-15.
  - <sup>4</sup> Total petroleum hydrocarbons (TPH) derived from the sum of APH and BTEXN concentrations. Non-detect (ND) results were assumed to be half the method detection limit (MDL) for BTEXN or half the equipment background value for APH for the purposes of determining TPH.
  - <sup>5</sup> Detected concentrations in OA-01 (Table 3) were used to adjust IA-01 through IA-06.
  - <sup>6</sup> Detected concentrations in OA-02 or OA-03 (Table 3), whichever were lower, were used to adjust IA-10 through IA-13.
  - <sup>7</sup> The IA concentrations were less than the OA concentrations; therefore after adjustment the IA concentrations were less than 0. Adjusted IA results less than 0 are assumed to be less than the unadjusted IA concentration. The unadjusted IA concentration was used to calculate TPH.
  - <sup>8</sup> MTCA Method B Commercial CUL.
- J = The analyte concentration is reported between the MDL and the lowest calibration point. The value reported is an estimate.  
 µg/m<sup>3</sup> = micrograms per cubic meter. '<' = less than the laboratory RL (PCE, TCE, cDCE, tDCE, VC), MDL (BTEXN) or equipment background (APH).  
**Bold** = Analyte was detected.  
 NR=Value not reported by laboratory.  
  **Bold** with gray shading indicates analyte was detected at concentration greater than the MTCA Method B Commercial CUL.

**Table 5**  
**Chemical Analytical Results - Adjusted Residential Indoor Air<sup>1</sup>**  
 Stillwater Holdings Chevron Site  
 Walla Walla, Washington

Location	Sample Date	Units	Air-Phase Hydrocarbons <sup>2</sup>			Volatile Organic Compounds <sup>3</sup>										Total Petroleum Hydrocarbons <sup>4</sup>	
			APH EC5-8 Aliphatics	APH EC9-12 Aliphatics	APH EC9-10 Aromatics	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	Naphthalene	PCE	TCE	cDCE	tDCE	VC	Adjusted TPH Sum
<b>Marcus Whitman Hotel Ground Floor<sup>5</sup></b>																	
<b>IA-07</b>	4/22/2025	µg/m <sup>3</sup>	<b>20 J</b>	<28 <sup>6</sup>	<4.4 J	<b>0.29 J</b>	<b>2.8</b>	<b>0.20</b>	<b>0.74</b>	<b>0.29</b>	<0.058 <sup>6</sup>	<6.8	<0.11	<0.4	<0.4	<0.13	<b>54.6</b>
<b>IA-08</b>	4/22/2025	µg/m <sup>3</sup>	<b>5 J</b>	<15 J	<4.4 J	<0.35 <sup>6</sup>	<1.7	<0.18 J <sup>6</sup>	<0.56 <sup>6</sup>	<0.22 <sup>6</sup>	<0.052 J	<6.8	<0.11	<0.4	<0.4	<0.13	<b>16.9 J</b>
<b>IA-09</b>	4/22/2025	µg/m <sup>3</sup>	<b>6 J</b>	<15 J	<4.4 J	<0.38 <sup>6</sup>	<1.7	<0.14 J <sup>6</sup>	<0.52 <sup>6</sup>	<0.19 <sup>6</sup>	<b>0.005 J</b>	<6.8	<0.11	<0.4	<0.4	<0.13	<b>17.8 J</b>
<b>MTCA Method B Residential CUL<sup>7</sup></b>			<b>2,700</b>	<b>46</b>	<b>180</b>	<b>0.32</b>	<b>2,286</b>	<b>457</b>	<b>46</b>	<b>0.074</b>	<b>9.62</b>	<b>0.334</b>	<b>18.3</b>	<b>18.3</b>	<b>0.284</b>	<b>46</b>	

**Notes:**

<sup>1</sup> Samples analyzed by Friedman & Bruya, Inc. located in Seattle, Washington. Adjusted concentrations derived by subtracting the outdoor air (OA) concentration from the indoor air (IA) concentrations. Unadjusted IA concentrations are included in Appendix A.

<sup>2</sup> Air-phase hydrocarbons (APH) analyzed using Environmental Protection Agency (EPA) Method MA-APH.

<sup>3</sup> Volatile organic compounds (VOCs) including benzene, toluene, ethylbenzene, xylenes and naphthalene (BTEXN) and tetrachloroethylene (PCE), trichloroethylene (TCE), cis-1,2-dichloroethylene (cDCE), trans-1,2-dichloroethylene (tDCE) and vinyl chloride (VC) analyzed using EPA Method TO-15.

<sup>4</sup> Total petroleum hydrocarbons (TPH) derived from the sum of APH and BTEXN concentrations. Non-detect (ND) results were assumed to be half the method detection limit (MDL) for BTEXN or half the equipment background value for APH for the purposes of determining TPH.

<sup>5</sup> Detected concentrations in OA-01 (Table 3) were used to adjust IA-07 through IA-09.

<sup>6</sup> The IA concentrations were less than the OA concentrations; therefore after adjustment the IA concentrations were less than 0. Adjusted IA results less than 0 are assumed to be less than the unadjusted IA concentration. The unadjusted IA concentration was used to calculate TPH.

<sup>7</sup> MTCA Method B Residential CUL.

J = The analyte concentration is reported between the MDL and the lowest calibration point. The value reported is an estimate.

µg/m<sup>3</sup> = micrograms per cubic meter. '<' = less than the laboratory RL (PCE, TCE, cDCE, tDCE, VC), MDL (BTEXN) or equipment background (APH).

**Bold** = Analyte was detected.

**Bold** with gray shading indicates analyte was detected at concentration greater than the MTCA Method B Commercial IA CUL.

**Table 6**  
**Chemical Analytical Results - Sub-Slab Soil Vapor<sup>1</sup>**  
 Stillwater Holdings Chevron Site  
 Walla Walla, Washington

Location	Sample Date	Units	Air-Phase Hydrocarbons <sup>2</sup>			Volatile Organic Compounds <sup>3</sup>										Total Petroleum Hydrocarbons <sup>4</sup>	
			APH EC5-8 Aliphatics	APH EC9-12 Aliphatics	APH EC9-10 Aromatics	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	Naphthalene	PCE	TCE	cDCE	tDCE	VC	TPH Sum
<b>Marcus Whitman Hotel Basement</b>																	
<b>SSV-01</b>	4/22/2025	µg/m <sup>3</sup>	<b>260 J</b>	<b>250</b>	<22 J	<b>0.29 J</b>	<8.5	<b>0.44 J</b>	<b>1.9</b>	<b>0.87</b>	<0.27 J	<b>170</b>	<b>36</b>	<b>19</b>	<2	<0.65	<b>529</b>
<b>SSV-02</b>	4/22/2025	µg/m <sup>3</sup>	<260 J	<b>310</b>	<22 J	<b>0.051 J</b>	<8.5	<b>1.7</b>	<b>12</b>	<b>7.8</b>	<0.27 J	<b>130</b>	<b>17</b>	<2	<2	<0.65	<b>473</b>
<b>SSV-03</b>	4/22/2025	µg/m <sup>3</sup>	<b>290 J</b>	<b>300</b>	<22 J	<b>0.18 J</b>	<8.3	<b>0.7 J</b>	<b>2.8</b>	<b>1.3</b>	<0.26 J	<34	<b>7.0</b>	<2	<2	<0.64	<b>610</b>
<b>SSV-04</b>	4/22/2025	µg/m <sup>3</sup>	<b>400</b>	<b>600</b>	<22 J	<b>0.24 J</b>	<8.5	<b>1.6</b>	<b>6.6</b>	<b>3.1</b>	<0.27 J	<35	<0.55	<2	<2	<0.65	<b>1,027</b>
<b>SSV-05</b>	4/22/2025	µg/m <sup>3</sup>	<b>280 J</b>	<b>390</b>	<22 J	<b>0.22 J</b>	<8.3	<b>1.3</b>	<b>5.6</b>	<b>2.6</b>	<0.26 J	<34	<0.54	<2	<2	<0.64	<b>695</b>
<b>SSV-06</b>	4/22/2025	µg/m <sup>3</sup>	<b>280 J</b>	<b>460</b>	<24 J	<b>0.77</b>	<9.1	<b>1.5</b>	<b>6.4</b>	<b>2.7</b>	<b>0.43 J</b>	<37	<0.59	<2.2	<2.2	<0.7	<b>768</b>
<b>SSV-07</b>	4/22/2025	µg/m <sup>3</sup>	<b>260 J</b>	<b>550</b>	<22 J	<b>1.9</b>	<8.5	<b>1.5</b>	<b>7.3</b>	<b>4.4</b>	<0.27 J	<b>63</b>	<b>3.3</b>	<2	<2	<0.65	<b>840</b>
<b>SSV-08</b>	4/22/2025	µg/m <sup>3</sup>	<b>260 J</b>	<b>390</b>	<23 J	<b>1.5 J</b>	<8.6	<b>1.5</b>	<b>6.0</b>	<b>2.8</b>	<0.27 J	<b>330</b>	<b>18</b>	<b>3.3</b>	<2.1	<0.66	<b>678</b>
<b>SSV-09</b>	4/22/2025	µg/m <sup>3</sup>	<250 J	<b>260</b>	<22 J	<b>0.44</b>	<8.1	<b>1.1</b>	<b>4.6</b>	<b>2.1</b>	<0.25 J	<33	<0.53	<1.9	<1.9	<0.63	<b>408</b>
<b>Stillwater Holdings Chevron Ground Floor</b>																	
<b>SSV-12</b>	4/22/2025	µg/m <sup>3</sup>	<b>480</b>	<b>170</b>	<22 J	<b>0.61</b>	<8.5	<b>0.49 J</b>	<1.5	<b>0.46</b>	<0.27 J	<35	<0.55	<2	<2	<0.65	<b>668</b>
<b>MTCA Commercial Worker SGSL<sup>5</sup></b>			<b>390</b>			<b>50</b>	<b>650,000</b>	<b>130,000</b>	<b>13,000</b>	<b>11</b>		<b>1,500</b>	<b>95</b>	<b>5,200</b>	<b>5,200</b>	<b>44</b>	<b>1,500</b>

**Notes:**

<sup>1</sup> Samples analyzed by Friedman & Bruya, Inc. located in Seattle, Washington.

<sup>2</sup> Air-phase hydrocarbons (APH) analyzed using Environmental Protection Agency (EPA) Method MA-APH.

<sup>3</sup> Volatile organic compounds (VOCs), including benzene, toluene, ethylbenzene, xylenes and naphthalene (BTEXN) and tetrachloroethylene (PCE), trichloroethylene (TCE), cis-1,2-dichloroethylene (cDCE), trans-1,2-dichloroethylene (tDCE) and vinyl chloride (VC) analyzed using EPA Method TO-15.

<sup>4</sup> Total petroleum hydrocarbons (TPH) derived from the sum of APH and BTEXN concentrations. Non-detect (ND) results were assumed to be half the reporting limit (RL) for the purposes of determining TPH.

<sup>5</sup> Washington State Model Toxics Control Act (MTCA) Commercial Worker Soil Gas Screening Level (SGSL).

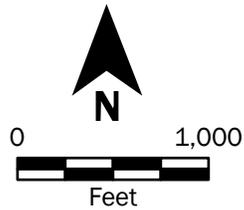
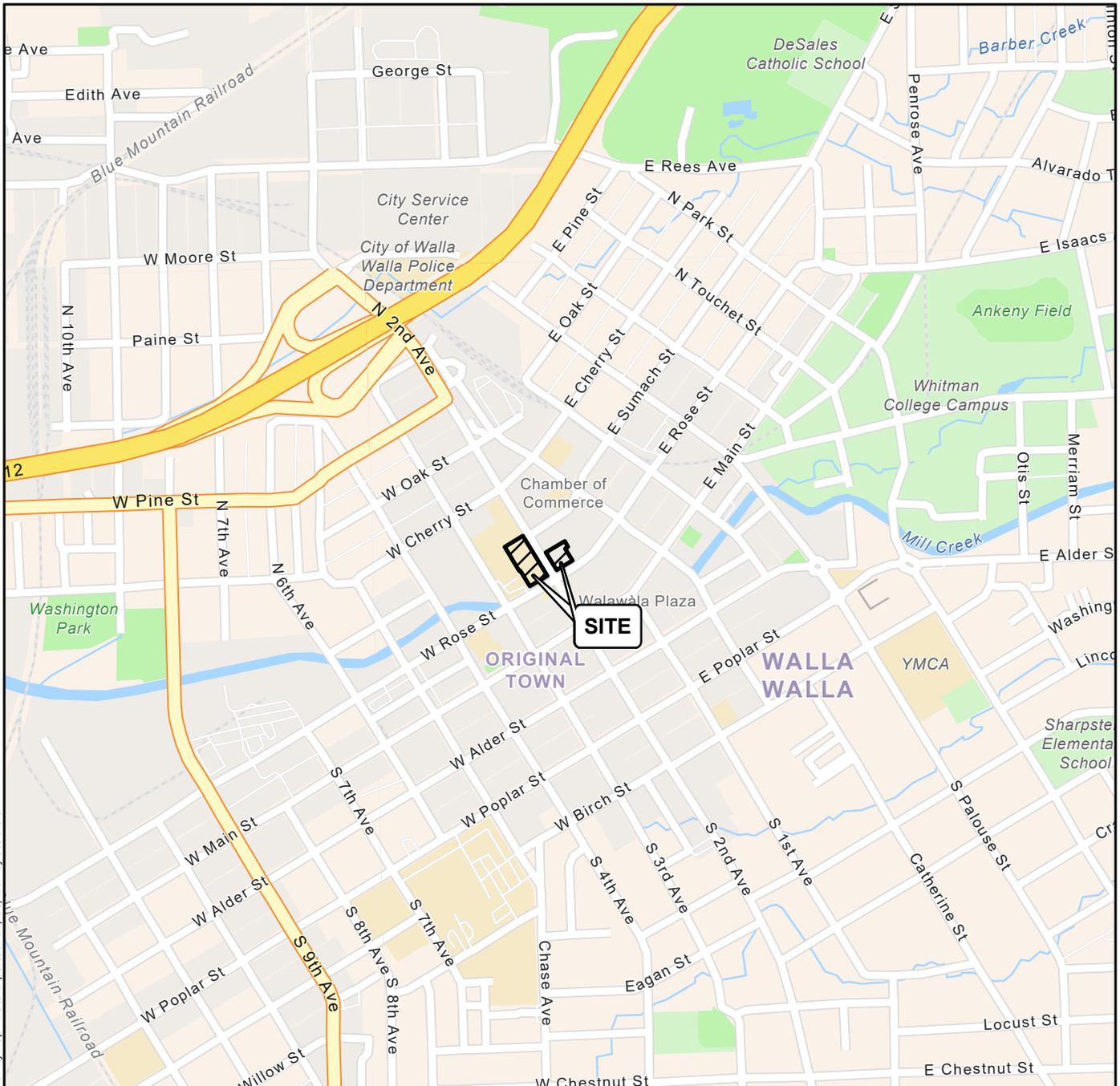
µg/m<sup>3</sup> = micrograms per cubic meter. '<' = less than the laboratory RL.

NE = Not established

**Bold** = Analyte was detected.

**Bold** with gray shading indicates analyte was detected at concentration greater than the MTCA Method B Commercial Worker SGSL.

## Figures



Vicinity Map

Stillwater Holdings Chevron  
Walla Walla, Washington



Figure 1

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Source(s):  
• ESRI

Coordinate System: NAD 1983 StatePlane Washington South FIPS 4602 Feet

**Disclaimer:** This figure was created for a specific purpose and project. Any use of this figure for any other project or purpose shall be at the user's sole risk and without liability to GeoEngineers. The locations of features shown may be approximate. GeoEngineers makes no warranty or representation as to the accuracy, completeness, or suitability of the figure, or data contained therein. The file containing this figure is a copy of a master document, the original of which is retained by GeoEngineers and is the official document of record.



**Notes:**  
 1. Basement samples in Marcus Whitman Hotel not shown on this figure.  
 2. Groundwater elevation data from Aspect Consulting Stillwater Holdings Chevron Groundwater Data Table - June 12 2024

Source(s):  
 • Walla Walla GIS  
 Coordinate System: NAD 1983 StatePlane Washington South FIPS 4602 Feet

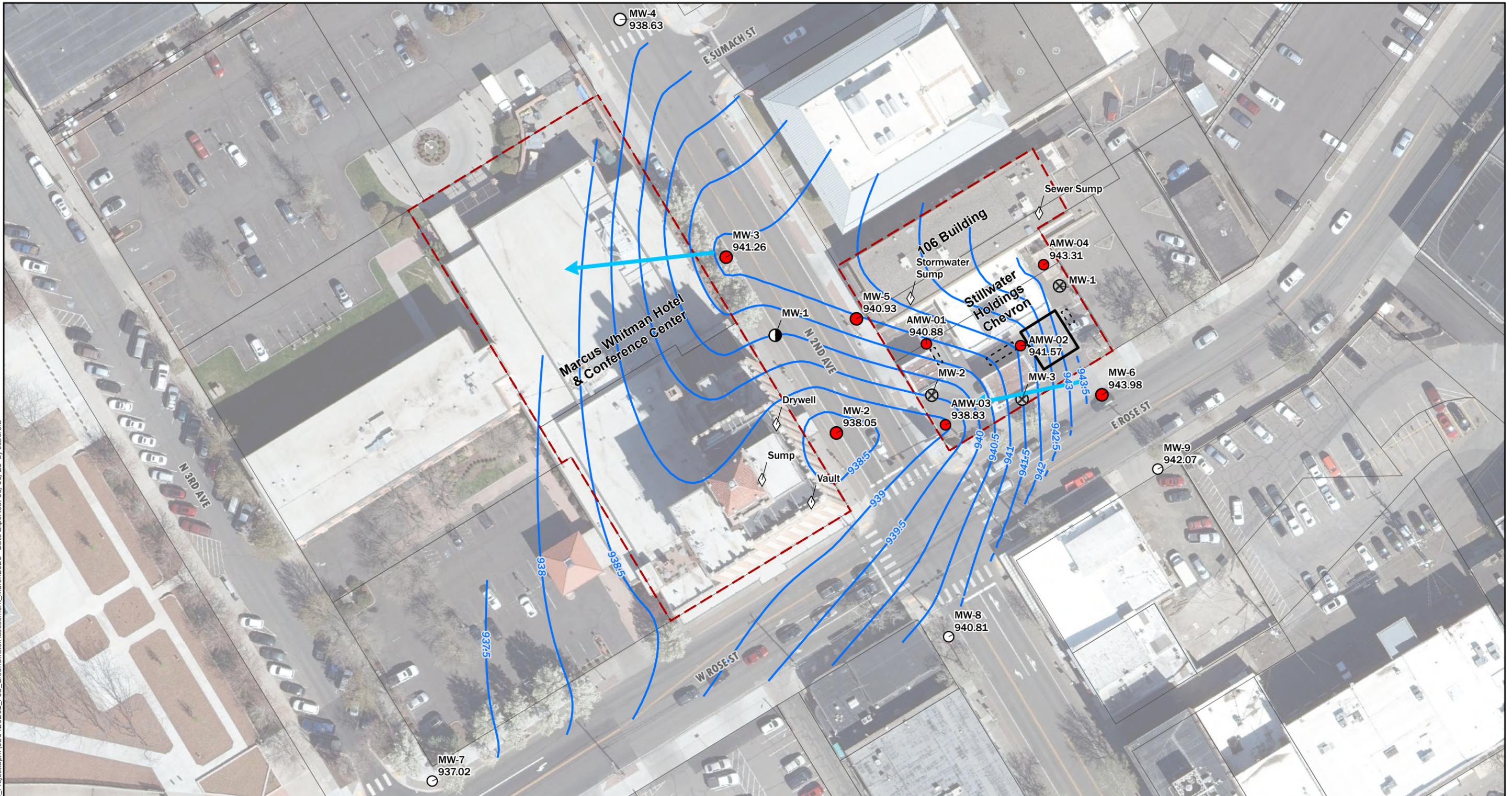
**Disclaimer:** This figure was created for a specific purpose and project. Any use of this figure for any other project or purpose shall be at the user's sole risk and without liability to GeoEngineers. The locations of features shown may be approximate. GeoEngineers makes no warranty or representation as to the accuracy, completeness, or suitability of the figure, or data contained therein. The file containing this figure is a copy of a master document, the original of which is retained by GeoEngineers and is the official document of record.

○ Monitoring Well and Groundwater Elevation (feet)	Road_Centerlines	GRPH, Benzene, Toluene, Ethylbenzene, and/or Xylenes (Total) Detected at concentrations Greater than their respective MTCA Method A Cleanup Levels During the March 2025 Groundwater Monitoring Event
⊗ Decommissioned Monitoring Well	Existing UST and Limits of Excavation	
◇ Sump	Decommissioned UST	
● Monitoring Well Not Sampleable	Site Buildings	
	Walla Walla Tax Parcel	

<b>Site Plan</b>	
Stillwater Holdings Chevron Walla Walla, Washington	
	<b>Figure 2</b>

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P:\0504202\GIS\050420201\_F03\_GroundwaterAssessment\_March2025 Date Exported: 06/06/25 by ccabrera



**Notes:**

1. Basement samples in Marcus Whitman Hotel not shown on this figure.
2. Groundwater elevation data from Aspect Consulting Stillwater Holdings Chevron Groundwater Data Table - June 12 2024

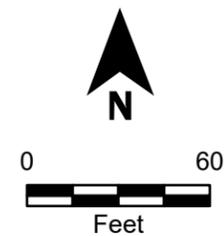
**Source(s):**

- Walla Walla GIS

Coordinate System: NAD 1983 StatePlane Washington South FIPS 4602 Feet

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- Monitoring Well and Groundwater Elevation (feet)
- Decommissioned Monitoring Well
- Sump
- Monitoring Well Not Sampleable
- Existing UST and Limits of Excavation
- Decommissioned UST
- GRPH, Benzene, Toluene, Ethylbenzene, and/or Xylenes (Total) Detected at concentrations Greater than their respective MTCA Method A Cleanup Levels
- Interpolated Groundwater Contour
- Site Buildings
- Groundwater Flow Direction
- Walla Walla Tax Parcel

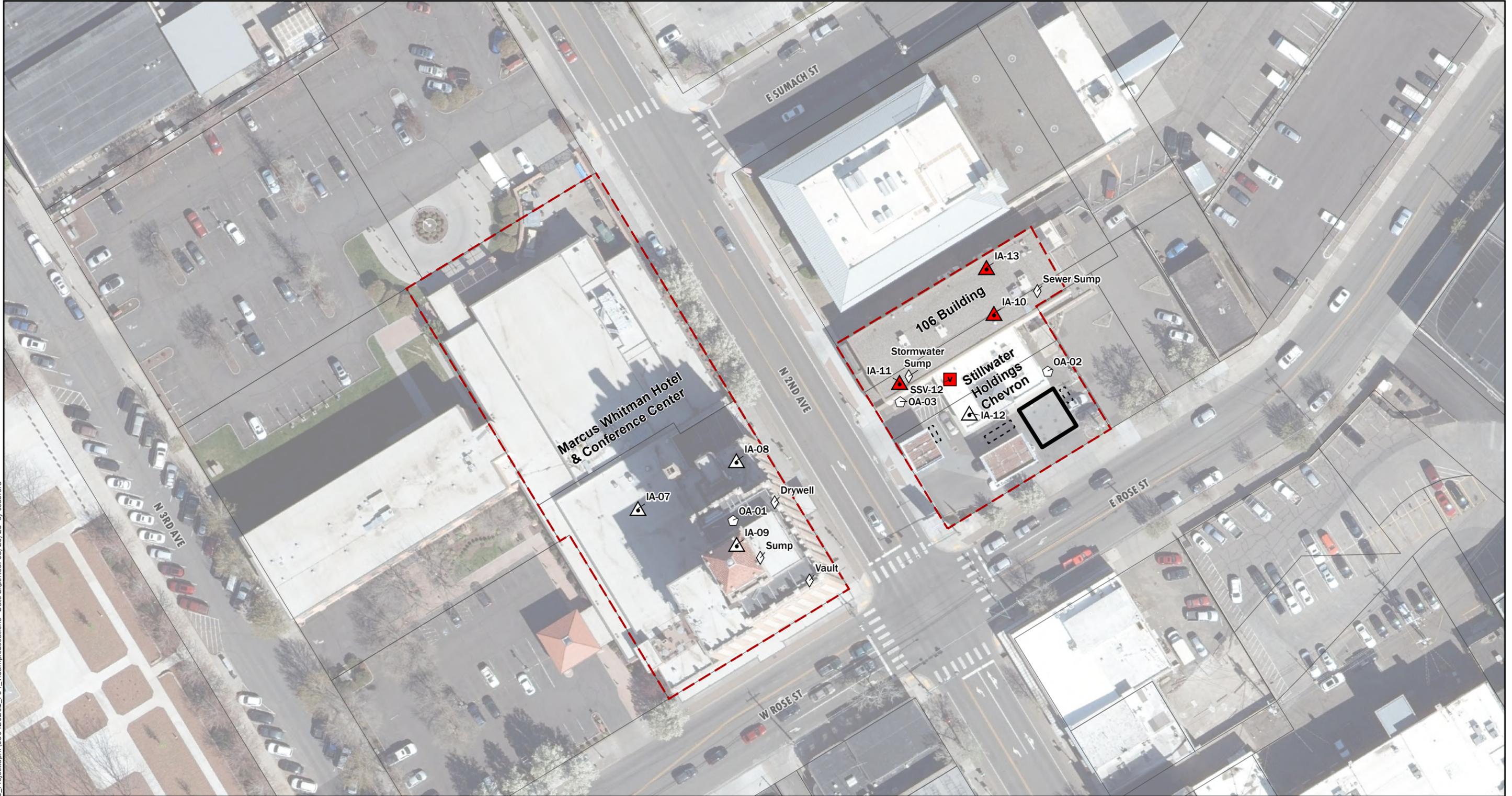


**Groundwater Assessment - March 2025**

Stillwater Holdings Chevron  
Walla Walla, Washington



**Figure 3**



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**Notes:**

1. Basement samples in Marcus Whitman Hotel not shown on this figure.

**Source(s):**

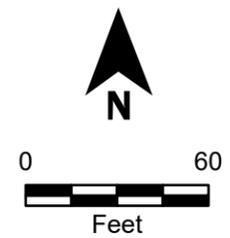
• Walla Walla GIS

Coordinate System: NAD 1983 StatePlane Washington South FIPS 4602 Feet

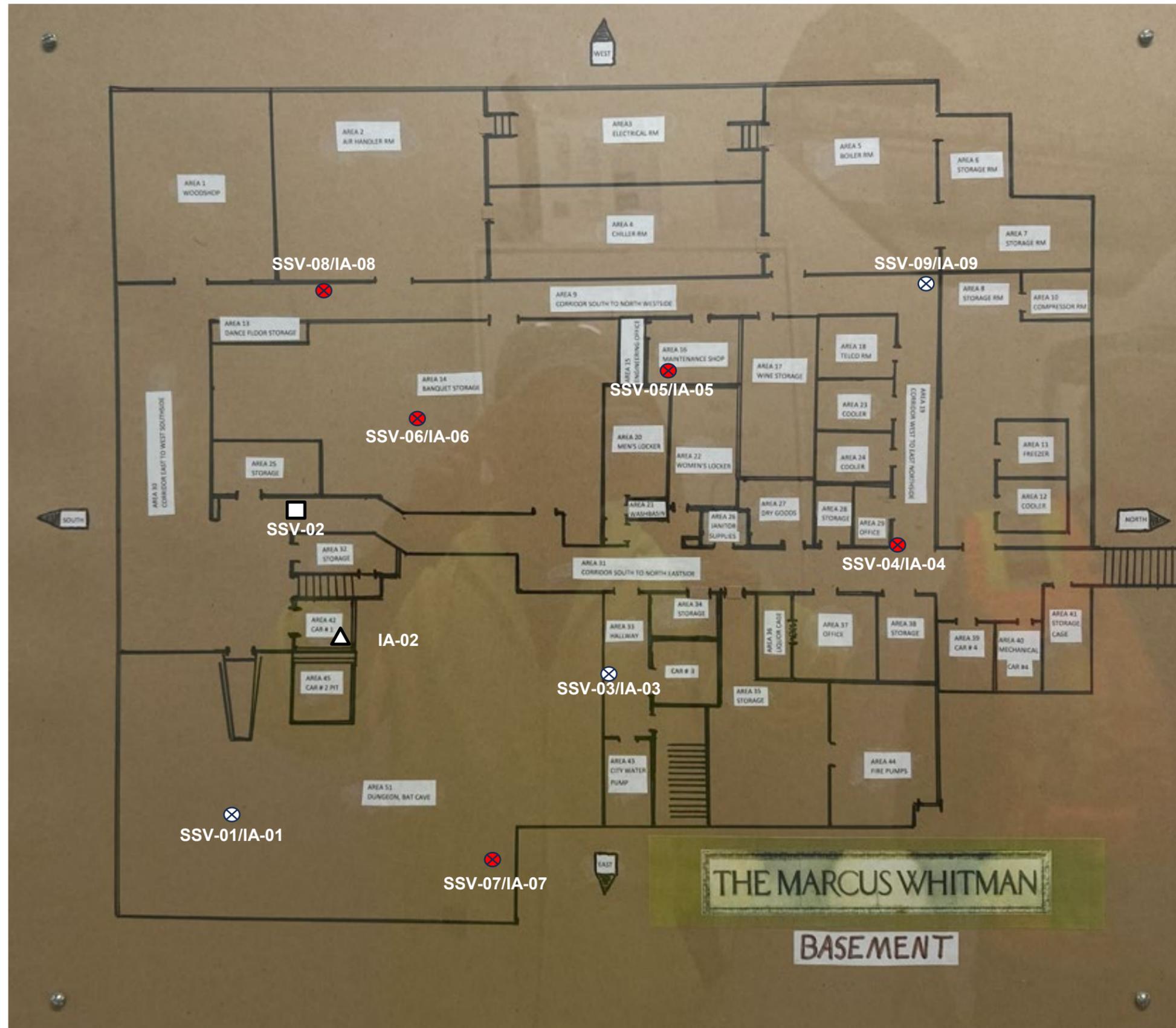
**Disclaimer:** This figure was created for a specific purpose and project. Any use of this figure for any other project or purpose shall be at the user's sole risk and without liability to GeoEngineers. The locations of features shown may be approximate. GeoEngineers makes no warranty or representation as to the accuracy, completeness, or suitability of the figure, or data contained therein. The file containing this figure is a copy of a master document, the original of which is retained by GeoEngineers and is the official document of record.

- ◇ Sump
- ◻ Outdoor Air Sampling Location
- ◻ Subslab Soil Vapor Location
- ▲ Indoor Air Sample Location
- ◻ Existing UST and Limits of Excavation
- ◻ Decommissioned UST
- ◻ Site Buildings
- ◻ Walla Walla Tax Parcel

- ◻ APH Greater than MTCA Method B Commercial Soil Gas Screening Levels
- ◻ APH, Benzene and/or Naphthalene Greater than MTCA Method B Commercial Cleanup Levels



<b>Vapor Intrusion Sample Locations</b>	
Stillwater Holdings Chevron Walla Walla, Washington	
	<b>Figure 4</b>



**Legend:**

- ⊗ - Co-located sub-slab soil vapor and indoor air sample location
- - Sub-slab vapor sample location
- △ - Indoor air sample location
- ⊗ (with red X) - APH Concentrations greater than the MTCA Method B SGSL
- (with blue border) - Locations of planned vapor barrier



Not to Scale

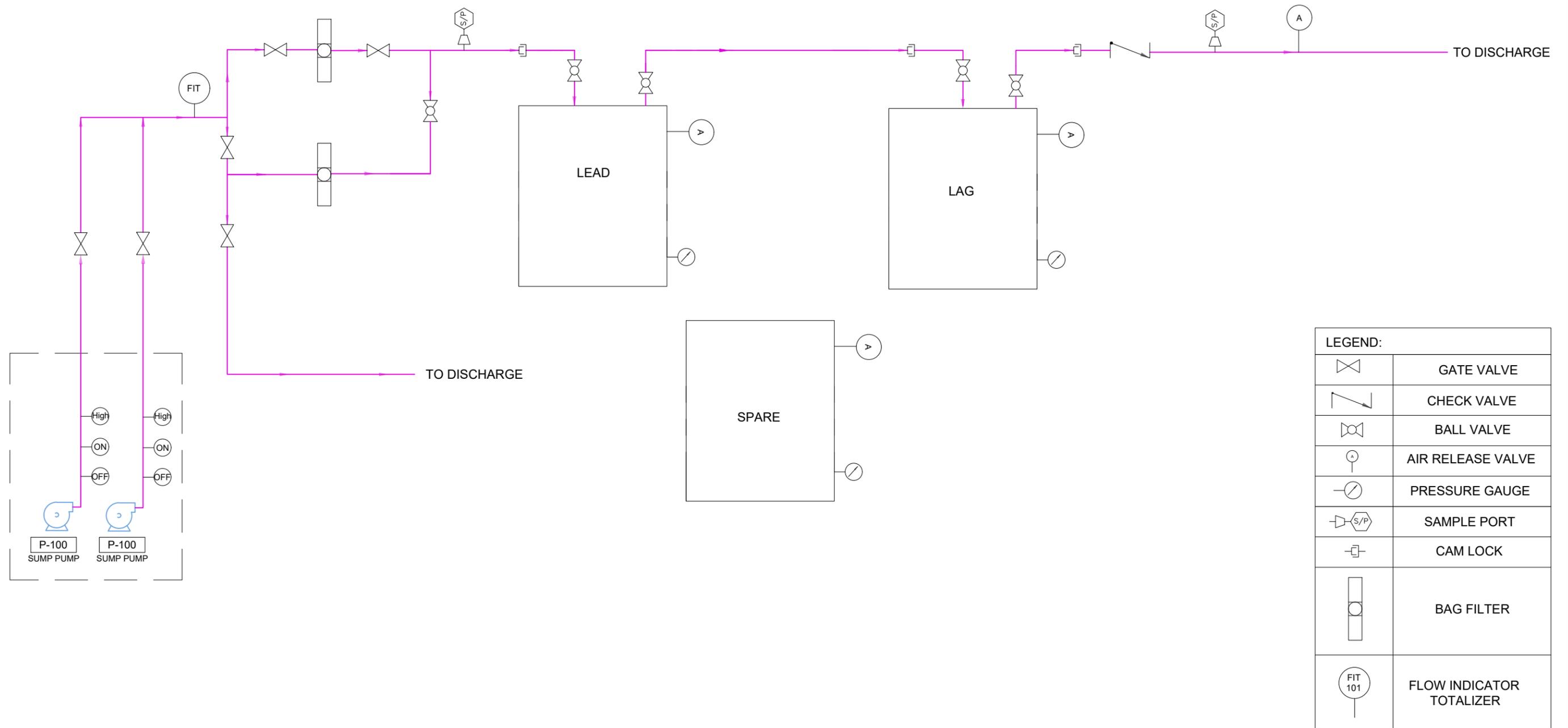
<b>Marcus Whitman Hotel Basement Sample Locations</b>	
Stillwater Holdings Chevron Walla Walla, Washington	
	<b>Figure 5</b>

**Notes:**

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. APH = Air-phase petroleum hydrocarbons
4. MTCA = Washington State Model Toxics Control Act
5. SGSL = Soil gas screening level

Data Source: Marcus Whitman Hotel Basement Map

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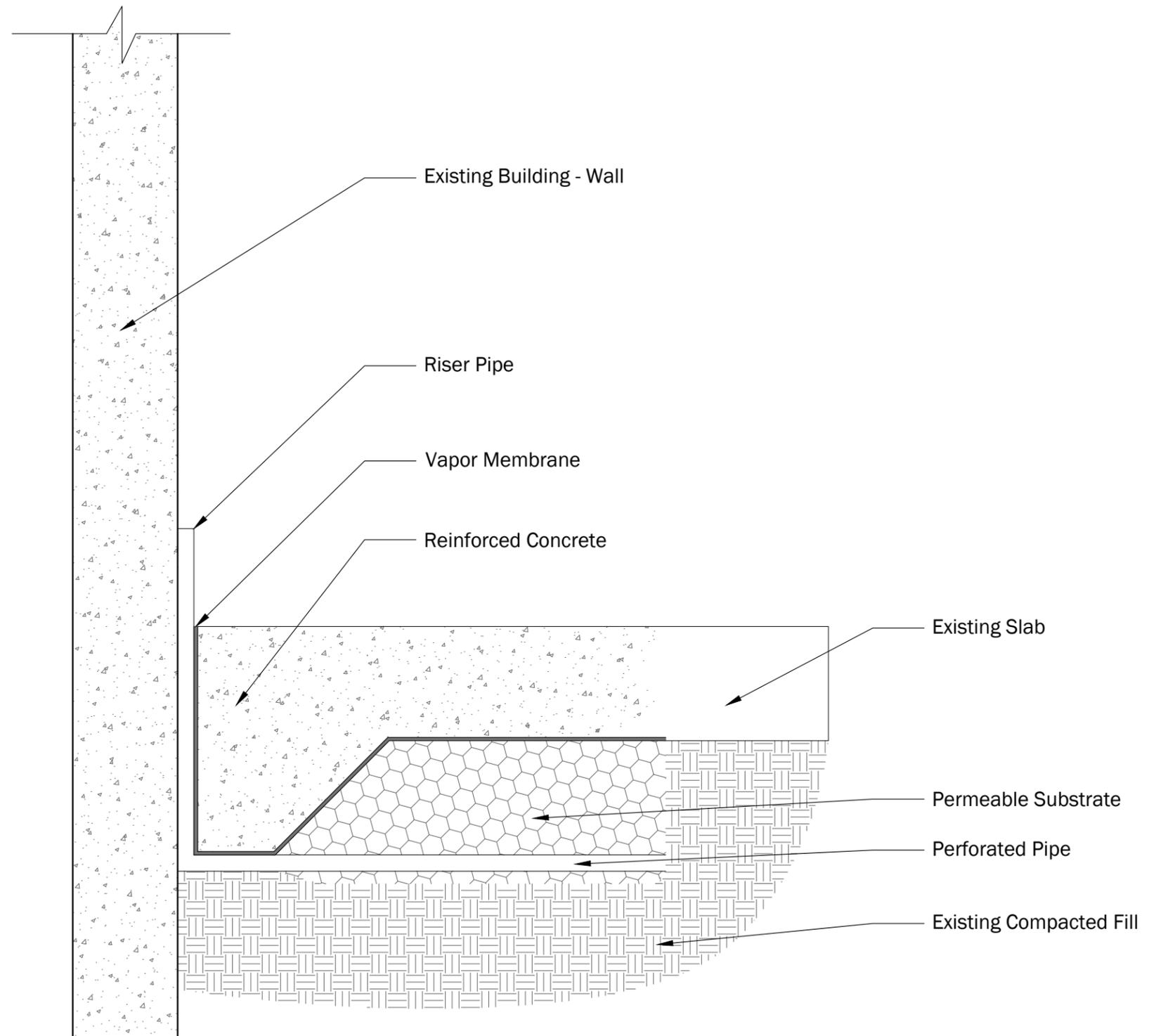
LEGEND:	
	GATE VALVE
	CHECK VALVE
	BALL VALVE
	AIR RELEASE VALVE
	PRESSURE GAUGE
	SAMPLE PORT
	CAM LOCK
	BAG FILTER
	FLOW INDICATOR TOTALIZER

<b>Proposed Treatment Schematic Intercepted Sump Groundwater</b>	
Stillwater Holdings Chevron Walla Walla, Washington	
	Figure 6

**Disclaimer:** This figure was created for a specific purpose and project. Any use of this figure for any other project or purpose shall be at the user's sole risk and without liability to GeoEngineers. The locations of features shown may be approximate. GeoEngineers makes no warranty or representation as to the accuracy, completeness, or suitability of the figure, or data contained therein. The file containing this figure is a copy of a master document, the original of which is retained by GeoEngineers and is the official document of record.

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<b>Proposed Treatment Schematic Marcus Whitman Vapor</b>	
Stillwater Holdings Chevron Walla Walla, Washington	
<b>GEOENGINEERS</b> 	<b>Figure 7</b>

## Appendices

**Appendix A**  
**Field Assessment Procedures**

## Appendix A Field Assessment Procedures

### 1.0 Standard Procedures

This section contains standard procedures for field data collection that are anticipated during the Site assessment at the Stillwater Holdings Chevron Site located at 7 East Rose Street in Walla Walla, Washington, including the following:

- Monitoring well sampling;
- Soil Sampling during underground storage tank (UST) decommissioning;
- Decontamination procedures;
- Handling of investigation-derived waste (IDW);
- Sample location control;
- Sample handling and custody requirements;
- Field measurement and observation documentation; and
- Sample identification.

### 2.0 Monitoring Well Sampling

Groundwater samples will be collected from monitoring wells MW-1 through MW-9 and AMW-01 through AMW-04 and analyzed as described below. Depth to groundwater relative to the top of the polyvinyl chloride (PVC) well casing will be measured to the nearest 0.01 foot using an electronic interface probe and recorded in the field notes. Ecology has previously provided the survey data for the top of casing elevations.

Following depth to groundwater measurement, a groundwater sample will be collected from the monitoring wells consistent with the U.S. Environmental Protection Agency's (EPA's) low-flow groundwater sampling procedure, as described in EPA (2017) and Puls and Barcelona (1996). Dedicated tubing and a peristaltic pump will be used for groundwater purging and sampling. During purging activities, water quality parameters, including pH, temperature, conductivity, dissolved oxygen (DO), oxidation reduction potential (ORP) and turbidity, will be measured using a multi-parameter meter equipped with a flow-through cell. Depth to water will also be measured and recorded when groundwater quality parameters are recorded. Each monitoring well will be purged until parameters stabilize, or a maximum of 30 minutes, whichever occurs first, before collecting the sample. Stability is defined as the following:

- pH: +/- 0.1 pH units
- Conductivity: +/- 3 percent milliSiemens per centimeter (mS/cm)
- ORP: +/- 10 millivolts (mV)
- Turbidity: less than 10 nephelometric turbidity units (NTUs) or +/- 10 percent NTUs when turbidity is greater than 10 NTUs
- DO: +/- 0.3 milligrams per Liter (mg/L)
- Temperature: +/- 3 percent degrees Celsius

Samples will not be collected from the monitoring well if they have measurable free product. Field water quality measurements and depth-to-water measurements will be recorded on a well purging-field water quality measurement form. Groundwater samples will be transferred in the field to laboratory-prepared sample containers and kept cool during transport to the testing laboratory. Chain-of-custody procedures will be observed from the time of sample collection to delivery to the testing laboratory consistent with the QAPP.

### 3.0 Soil Sampling during UST Decommissioning

Soil samples will be collected from the sidewalls and bottom of the UST excavation, beneath decommissioned piping or dispensers, as well as the stockpile of excavated soils. Sampling personnel will not enter an excavation or trench. Equipment such as an excavator bucket scoop, shovel, or hand auger will be used to collect the soil sample from the desired location. Sampling equipment will be decontaminated between each sampling attempt. Samples will be collected from the bucket scoop using either a decontaminated soil knife or new, clean nitrile gloves.

At least nine soil samples will be collected from the excavation in accordance with the minimum number of soil sample guidance (UST Table 0730-01). Additional samples will be collected based on the volume of contaminated soils believed to be present and if any piping or dispensers are also decommissioned. At least one sample from the soil stockpile will be collected for profiling and disposal.

Soil samples will be field-screened and classified and in the field in general accordance with ASTM International (ASTM) D-2488, the Standard Practice for Classification of Soils, Visual-Manual Procedure. Samples will be collected and placed in laboratory-supplied containers. Sample containers will be labeled and placed into an ice chest containing ice. Chain-of-custody procedures will be observed during transport of the soil samples.

#### 3.1 FIELD-SCREENING METHODS

A GeoEngineers field engineer or geologist will perform field-screening tests on selected soil samples and during the excavation. Field-screening results will be used to aid in the selection of soil samples for chemical analysis. Screening methods will include (1) visual examination, (2) water sheen testing, and (3) headspace vapor screening using a photoionization detector (PID).

Visual screening consists of inspecting the soil for discoloration indicative of the presence of petroleum material in the sample.

Water sheen screening involves placing soil in water and observing the water surface for signs of sheen. Sheen classifications are:

No Sheen (NS)	No visible sheen on the water surface;
Slight Sheen (SS)	Light, colorless, dull sheen; spread is irregular, not rapid; sheen dissipates rapidly. Natural organic matter in the soil might produce a slight sheen;
Moderate Sheen (MS)	Light to heavy sheen; might have some color/iridescence; spread is irregular to flowing, may be rapid; few remaining areas of no sheen on water surface; and
Heavy Sheen (HS)	Heavy sheen with color/iridescence; spread is rapid; entire water surface might be covered with sheen.

Headspace vapor screening involves placing a soil sample in a plastic bag. Air is captured in the sealed bag, and the bag is shaken to expose the soil to the air trapped in the bag. The probe of a PID is inserted into the bag, and the PID measures VOC vapor concentrations in ppm. The PID is calibrated using isobutylene. The PID is designed to quantify VOC vapor concentrations between 1 and 2,000 ppm with an accuracy of 10 percent of the reading, and between 2,000 and 10,000 ppm with an accuracy of 20 percent of the reading.

## 4.0 Sump Water Treatment System Sampling

Grab samples will be collected from sample points installed at the inlet and outlet of the groundwater treatment system. Prior to sample collection, the sample points will be purged for approximately one minute. Purge water will be collected in a clean, 5-gallon bucket and water quality parameters including pH, temperature, conductivity, DO, ORP and turbidity, will be measured using a multi-parameter meter by placing the multi-parameter meter into the purge bucket. After purging the sample point and collecting a water quality reading, samples will be collected by filling laboratory-prepared sample containers directly from the sample points. Following sample collection, the purge water will be placed back in the treatment system for treatment and discharge to the municipal sewer system.

Water sample locations and analyses will be specified in the design package. Water quality measurements will be recorded in the field notebook. Groundwater samples will be kept cool during transport to the testing laboratory. Chain-of-custody procedures will be observed from the time of sample collection to delivery to the testing laboratory consistent with the QAPP.

## 5.0 Decontamination Procedures

The objective of the decontamination procedures described herein is to minimize the potential for cross-contamination between sample locations. A designated decontamination area will be established for decontamination of drilling equipment and reusable sampling equipment. Excavation equipment will be cleaned by water jetting using high-pressure/low-volume cleaning equipment.

Sampling and field-screening equipment will be decontaminated in accordance with the following procedures before each sampling attempt or measurement.

1. Brush equipment with a nylon brush to remove large particulate matter.
2. Wash with non-phosphate detergent solution (Liquinox® or Alconox® and potable tap water).
3. Rinse with distilled water.

## 6.0 Handling of IDW

IDW from the groundwater monitoring events, which consists mainly of decontamination and purge water, can be managed through the on-site treatment system and discharged to the City sewer system.

Disposable items, such as sample tubing, disposable bailers, bailer line, gloves and protective overalls, paper towels, etc., will be placed in plastic bags after use and deposited in trash receptacles for disposal.

## 7.0 Sample Location Control

Horizontal sample control of soil samples collected during the UST decommissioning will be maintained throughout the project. Horizontal control of soil samples will be established using measuring tapes or a hand-held global positioning system (GPS) meter accurate to approximately 15 lateral feet. Soil sample locations also will be established by measuring their distance relative to permanent Site features.

## 8.0 Sample Handling and Custody Requirements

Samples will be handled in accordance with the QAPP (Appendix B). A complete discussion of the sample identification and custody procedures is provided in the QAPP.

## 9.0 Field Measurements and Observations Documentation

Field measurements and observations will be recorded in a project field notebook. Daily field logs will be dated, and pages will be consecutively numbered. Entries will be recorded directly and legibly in the daily field log and signed and dated by the person conducting the work. If changes are made, the changes will not obscure the previous entry, and the changes will be signed and dated. At a minimum, the following data will be recorded in the project field notebook and/or field logs:

- Purpose and location of investigation;
- Location of activity;
- Site plan or sampling area sketch showing sample locations and distances to fixed reference points;
- Date and time of sampling;
- Type of sample (matrix);
- Designation as a discrete or composite sample;
- Sample identification number (should match with what is on jar and Chain-of-custody);
- Sample preservation (if any);
- Sampling equipment used;
- Field measurements and observations (e.g., odor, color, staining, sheens, etc.);
- Field conditions that are pertinent to the integrity of the samples (e.g., weather conditions, performance of the sampling equipment, sample depth control, sample disturbance, etc.);
- Relevant comments regarding field activities; and
- Shipping arrangements (including overnight air bill number, if applicable) and receiving laboratory.

Information will be recorded in the project field notebook with enough detail so that field activities can be reconstructed without reliance on personnel memory. In addition to the sampling information, the following specific information also will be recorded in the field log for each day of sampling:

- Team members and their responsibilities;
- Time of arrival/entry on site and time of Site departure;
- Other personnel present at the Site;
- Summary of pertinent meetings or discussions with regulatory agency or contractor personnel;
- Deviations from sampling plans, Site safety plans and QAPP procedures;
- Changes in personnel and responsibilities with reasons for the changes;
- Levels of safety protection;
- Weather conditions; and
- Calibration readings for any equipment used and equipment model and serial number.

## 10.0 Sample Identification

Sample identification is important to provide concise data management and to quickly determine sample location and date when comparing multiple samples.

Monitoring well samples for the Site will adhere to the following general format:

### **Monitoring Well ID-Date**

For example, a monitoring well sample collected from monitoring well MW-1 on June 24, 2025, will be labeled as MW-1-062425.

Soil samples will have the following general format:

### **Location ID (Depth)**

For example, a soil sample collected from the north sidewall of the UST excavation at a depth of 6 to 7 feet will be labelled as EX-N (6 – 7).

## 11.0 References

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GeoEngineers, Inc. 2025a. "Work Plan, Stillwater Holdings Chevron Site – Vapor Sampling Plan, 7 East Rose Street, Walla Walla, Washington." File No. 0504-202-01. April 7, 2025.

Puls, R. W. and M.J. Barcelona. 1996. "Low-flow (Minimal Drawdown) Ground-water Sampling Procedures." EPA Ground Water Issue. April. p.1-9.

U.S. Environmental Protection Agency (EPA). 2017. Region 1, "Low Stress (Low-Flow) Purging and Sampling Procedure for the Collection of Ground Water Samples from Monitoring Wells." EPA SOP No. GW4, Revision No. 4., September 19, 2017.

U.S. Environmental Protection Agency (EPA). 2002. Method 5035A (SW-846). Closed-System Purge-and-Trap and Extraction for Volatile Organics in Soil and Waste Samples. Draft Revision 1. Washington, D.C. July 2002.

**Appendix B**  
**Quality Assurance Project Plan**

## Appendix B

# Quality Assurance Project Plan

This Quality Assurance Project Plan (QAPP) was developed to guide laboratory analyses for soil and groundwater samples collected as part of the assessment conducted for the Washington State Department of Ecology (Ecology) under contract C2500073. The QAPP presents the objectives, procedures, organization, functional activities and specific Quality Assurance (QA) and Quality Control (QC) activities designed to achieve data quality goals established for the projects. This QAPP is based on Ecology guidelines (Ecology 2016) and the U.S. Environmental Protection Agency (EPA) Requirements for Quality Assurance Project Plans (EPA 2001) and related guidelines (EPA 2002).

Throughout the projects, environmental measurements will be conducted to produce data that are scientifically valid, of known and acceptable quality and meet established objectives. QA/QC procedures will be implemented so that precision, accuracy, representativeness, completeness and comparability (PARCC) of data generated meet the specified data quality objectives to the extent possible.

## 1.0 Project Organization and Responsibility

Descriptions of the responsibilities, lines of authority and communication for the key positions to QA/QC are provided below. This organization facilitates the efficient production of project work, allows for an independent quality review and permits resolution of QA issues before submittal.

### 1.1 PROJECT LEADERSHIP AND MANAGEMENT

The Project Manager's (PM) duties consist of providing concise technical work statements for project tasks, selecting project team members, determining subcontractor participation, establishing budgets and schedules, adhering to budgets and schedules, providing technical oversight, and providing overall production and review of project deliverables. Melissa Roskamp, Professional Engineer (PE), is the PM for activities at the Site. The Principal-in-Charge, Scott Lathen, PE, is responsible to Ecology for fulfilling contractual and administrative control of the project.

### 1.2 FIELD COORDINATOR

The Field Coordinator is responsible for the daily management of activities in the field. Specific responsibilities include the following:

- Provides technical direction to the field staff;
- Develops schedules and allocates resources for field tasks;
- Coordinates data collection activities to be consistent with information requirements;
- Supervises the compilation of field data and laboratory analytical results;
- Assures that data are correctly and completely reported;
- Implements and oversees field sampling in accordance with project plans;
- Supervises field personnel;

- Coordinates work with on-site subcontractors;
- Schedules sample shipment, if necessary, with the analytical laboratory;
- Monitors that appropriate sampling, testing and measurement procedures are followed;
- Coordinates the transfer of field data, sample tracking forms, and logbooks to the PM for data reduction and validation; and
- Participates in QA corrective actions, as required.

The Field Coordinator for each work assignment will be drawn from our pool of experienced staff since fieldwork may be conducted concurrently at multiple sites. Staff that will serve as Field Coordinator could include Melissa Roskamp, Justin Orr or Matthew Kaufman.

### 1.3 QA LEADER

The GeoEngineers' QA Leader is under the direction of Melissa Roskamp and Scott Lathen, who are responsible for the project's overall QA. The QA Leader is responsible for coordinating QA/QC activities as they relate to the acquisition of field data. Denell Warren is the QA Leader. The QA Leader has the following responsibilities:

- Serves as the official contact for laboratory data QA concerns;
- Responds to laboratory data, QA needs, resolves issues and answers requests for guidance and assistance;
- Reviews the implementation of the QAPP and the adequacy of the data generated from a quality perspective;
- Maintains the authority to implement corrective actions, as necessary;
- Reviews and approves the laboratory QA Plan;
- Evaluates the laboratory's final QA report for any condition that adversely impacts data generation;
- Ensures that appropriate sampling, testing and analysis procedures are followed and that correct QC checks are implemented; and
- Monitors subcontractor compliance with data quality requirements.

### 1.4 LABORATORY MANAGEMENT

The Ecology-accredited subcontracted laboratory (Eurofins Environment Testing Northwest [Eurofins] of Spokane Valley, Washington) conducting sample analyses for this project is required to obtain approval from the QA Leader before the initiation of sample analysis to assure that the laboratory QA plan complies with the project QA objectives. The Laboratory QA Coordinators (Ranee Arrington) administer the Laboratory QA Plans and are responsible for QC. Specific responsibilities of this position include:

- Ensures implementation of the QA Plan;
- Serves as the laboratory point of contact;
- Activates corrective action for out-of-control events;

- Issues the final laboratory QA/QC report;
- Administers QA sample analysis;
- Complies with the specifications established in the project plans as related to laboratory services; and
- Participates in QA audits and compliance inspections.

## 2.0 Data Quality Objectives

The QA objective for technical data is to collect environmental monitoring data of known, acceptable and documentable quality. The QA objectives established for the project are:

- Implement the procedures outlined herein for field sampling, sample custody, equipment operation and calibration, laboratory analysis, and data reporting that will facilitate consistency and thoroughness of data generated; and
- Achieve the acceptable level of confidence and quality required so that data generated are scientifically valid and of known and documented quality. This will be performed by establishing criteria for PARCC, and by testing data against these criteria.

The sampling design, field procedures, laboratory procedures and QC procedures are set up to provide high-quality data for use in this project. Specific data quality factors that may affect data usability include quantitative factors (precision, bias, accuracy, completeness and reporting limits) and qualitative factors (representativeness and comparability). The measurement quality objectives (MQO) associated with these data quality factors are summarized in Tables B-1 (soil) and B-2 (groundwater) and are discussed below.

### 2.1 ANALYTES AND MATRICES OF CONCERN

Samples of soil will be collected from the UST excavation and stockpiled soil. Groundwater samples will be collected from 13 monitoring wells installed at the Site. Tables B-3 (soil) and B-4 (groundwater) summarize the analyses to be performed at the Site. Vapor Samples were sampled in accordance with the Vapor Sampling Work Plan (GeoEngineers 2025a).

### 2.2 DETECTION LIMITS

Analytical methods have quantitative limitations at a given statistical level of confidence that are often expressed as the method detection limit (MDL). Individual instruments often can detect but not accurately quantify compounds at concentrations lower than the MDL, referred to as the instrument detection limit (IDL). Although results reported near the MDL or IDL provide insight to site conditions, QA dictates that analytical methods achieve a consistently reliable level of detection known as the practical quantitation limit (PQL). The contract laboratory will provide numerical results for all analytes and report them as detected above the PQL or undetected at the PQL.

Achieving a stated detection limit for a given analyte is helpful in providing statistically useful data. Intended data uses, such as comparison to numerical criteria or risk assessments, typically dictate specific project target reporting limits (TRLs) necessary to fulfill stated objectives. The PQLs for contaminants of potential concern (COPCs) at the Site are presented in Tables B-1 and B-2 for soil and groundwater, respectively. These reporting limits were obtained from Eurofins, the Ecology-accredited labs that will be analyzing the samples. Other criteria include State of Washington (Washington Administrative Code [WAC] 173-201) water quality criteria and federal ambient water quality criteria (AWQC). The analytical methods and

processes selected will provide PQLs less than the TRLs under ideal conditions. However, the reporting limits in Tables B-1 and B-2 are considered targets because analytical procedures may require sample dilutions or other practices to accurately quantify a particular analyte at concentrations above the range of the instrument. The effect is that other analytes could be reported as undetected but at a value much higher than a specified TRL. Data users must be aware that high non-detect values, although correctly reported, can bias statistical summaries and careful interpretation is required to correctly characterize site conditions.

## 2.3 PRECISION

Precision is the measure of mutual agreement among replicate or duplicate measurements of an analyte from the same sample and applies to field duplicate or split samples, replicate analyses and duplicate spiked environmental samples (matrix spike duplicates). The closer the measured values are to each other, the more precise the measurement process. Precision error may affect data usefulness. Good precision is indicative of relative consistency and comparability between different samples. Precision will be expressed as the relative percent difference (RPD) for spike sample comparisons of various matrices and field duplicate comparisons for water samples. This value is calculated by:

$$RPD (\%) = \frac{|D_1 - D_2|}{(D_1 + D_2)/2} \times 100,$$

Where

- D<sub>1</sub> = Concentration of analyte in sample.  
 D<sub>2</sub> = Concentration of analyte in duplicate sample.

The calculation applies to split samples, replicate analyses, duplicate spiked environmental samples (matrix spike duplicates) and laboratory control duplicates. The RPD will be calculated for samples and compared to the applicable criteria. Precision can also be expressed as the percent difference (%D) between replicate analyses. Persons performing the evaluation must review one or more pertinent documents (EPA 2017a,b) that address criteria exceedances and courses of action. Relative percent difference goals for this effort are no greater than 40 percent in soil and 30 percent in groundwater, unless the duplicate sample values are within 5 times the reporting limit. In this case, the absolute difference is used instead of the RPD. The absolute difference control limit is equal to two times the lowest reporting limit of the two samples for soil and the lowest reporting limit of the two samples for groundwater.

## 2.4 ACCURACY

Accuracy is a measure of bias in the analytic process. The closer the measurement value is to the true value, the greater the accuracy. This measure is defined as the difference between the reported value versus the actual value and is often measured with the addition of a known compound to a sample. The amount of known compound reported in the sample, or percent recovery, assists in determining the performance of the analytical system in correctly quantifying the compounds of interest. Since most environmental data collected represent one point spatially and temporally rather than an average of values, accuracy plays a greater role than precision in assessing the results. In general, if the percent recovery is low, non-detect results may indicate that compounds of interest are not present when in fact, these compounds are present. Detected compounds may be biased low or reported at a value less than actual environmental conditions. The reverse is true when recoveries are high. Non-detect values are considered accurate while detected results may be higher than the true value.

Accuracy will be expressed as the percent recovery of a surrogate compound (also known as “system monitoring compound”), a matrix spike (MS) result, or from a standard reference material where:

$$\text{Recovery (\%)} = \frac{\text{Sample Result}}{\text{Spike Amount}} \times 100$$

Persons performing the evaluation must review one or more pertinent documents (EPA 2017a,b) that address criteria exceedances and courses of action. Accuracy criteria for surrogate spikes, MS and laboratory control spikes (LCS) are found in Tables B-1 and B-2 of this QAPP.

## 2.5 REPRESENTATIVENESS, COMPLETENESS AND COMPARABILITY

Representativeness expresses the degree to which data accurately and precisely represent the actual Site conditions. The determination of the representativeness of the data will be performed by completing the following:

- Comparing actual sampling procedures to those delineated within the Work Plan and this QAPP;
- Comparing analytical results of field duplicates to determine the variations in the analytical results; and
- Invalidating non-representative data or identifying data to be classified as questionable or qualitative. Only representative data will be used in subsequent data reduction, validation and reporting activities.

Completeness establishes whether a sufficient amount of valid measurements were obtained to meet project objectives. The number of samples and results expected establishes the comparative basis for completeness. Completeness goals are 90 percent useable data for samples/analyses planned. If the completeness goal is not achieved, an evaluation will be made to determine if the data are adequate to meet study objectives.

Comparability expresses the confidence with which one set of data can be compared to another. Although numeric goals do not exist for comparability, a statement on comparability will be prepared to determine overall usefulness of data sets, following the determination of both precision and accuracy.

## 2.6 HOLDING TIMES

Holding times are defined as the time between sample collection and extraction, sample collection and analysis, or sample extraction and analysis. Some analytical methods specify a holding time for analysis only. For many methods, holding times may be extended by sample preservation techniques in the field. If a sample exceeds a holding time, then the results may be biased low. For example, if the extraction holding time for volatile analysis of a water sample is exceeded, then the possibility exists that some of the organic constituents have volatilized from the sample or degraded. Results for that analysis will be qualified as estimated to indicate that the reported results may be lower than actual site conditions. Holding times are presented in Tables B-3 and B-4.

## 2.7 BLANKS

According to the *National Functional Guidelines for Organic Data Review* (EPA 2017b), “The purpose of laboratory (or field) blank analysis is to determine the existence and magnitude of contamination resulting from laboratory (or field) activities. The criteria for evaluation of blanks apply to any blank associated with the samples (e.g., method blanks, instrument blanks, trip blanks and equipment blanks).” Trip blanks are placed with samples during shipment; method blanks are created during sample preparation and follow samples throughout the analysis process.

Analytical results for blanks will be interpreted in general accordance with *National Functional Guidelines for Organic Data Review* and professional judgment.

## 3.0 Sample Collection, Handling and Custody

Sampling procedures are provided in this section and Appendix A of this Work Plan.

### 3.1 SAMPLING EQUIPMENT DECONTAMINATION

Sampling equipment decontamination procedures are described in Appendix A of the Work Plan.

### 3.2 SAMPLE CONTAINERS AND LABELING

The Field Coordinator will establish field protocol to manage field sample collection, handling and documentation. Soil and groundwater samples obtained during this study will be placed in appropriate laboratory-prepared containers. Sample containers and preservatives are listed in Tables B-3 and B-4.

Sample containers will be labeled with the following information at the time of collection:

- Project name and number;
- Sample name; and
- Date and time of collection.

The sample collection activities will be noted in the field logbooks. The Field Coordinator will monitor consistency between the Work Plan, sample containers/labels, field logbooks and the Chain-of-custody (COC).

### 3.3 SAMPLE STORAGE

Soil and groundwater samples will be placed in a cooler with “blue ice” or double-bagged “wet ice” immediately after they are collected. The objective of the cold storage will be to attain a sample temperature of 4 degrees Celsius (within plus/minus 2 degrees Celsius). Holding times will be observed during sample storage. Holding times for the project analyses are summarized in Tables B-3 and B-4.

### 3.4 SAMPLE SHIPMENT

The samples will be transported and delivered to the analytical laboratory in coolers (groundwater) or laboratory-supplied shipping container (soil vapor, typically a cardboard box). Field personnel will transport and hand-deliver samples that are being submitted to a local laboratory for analysis. Samples that are being submitted from a remote location for analysis will be transported by a commercial express mailing service on an overnight basis or returning field personnel. The Field Coordinator will monitor that the shipping container (cooler or box) has been properly secured using clear packing tape and custody seals.

Measures will be implemented to minimize the potential for sample breakage, which includes packaging materials and placing sample bottles in the cooler in a manner intended to minimize damage. Sample bottles will be wrapped with bubble wrap or other protective material before being placed in coolers. Trip blanks will be included in coolers with groundwater samples.

### 3.5 CHAIN-OF-CUSTODY RECORDS

Field personnel are responsible for the security of samples from the time the samples are taken until the samples have been received by the shipper or laboratory. A Chain-of-custody (COC) form will be completed at the end of each field day for samples being shipped to the laboratory. Information to be included on the COC form includes:

- Project name and number;
- Sample identification number;
- Date and time of sampling;
- Sample matrix (water, soil, or vapor) and number of containers from each sampling point, including preservatives used;
- Analyses to be performed;
- Names of sampling personnel and transfer of custody acknowledgment spaces; and
- Shipping information including shipping container number.

The original COC record will be signed by a member of the field team and bear a unique tracking number. Field personnel shall retain carbon copies and place the original and remaining copies in a sealed plastic bag, placed within the cooler or taped to the inside lid of the cooler or box before sealing the container for shipment. This record will accompany the samples during transit by carrier to the laboratory.

### 3.6 LABORATORY CUSTODY PROCEDURES

The laboratory will follow their standard operating procedures (SOPs) to document sample handling from time of receipt (sample log-in) to reporting. Documentation will include at a minimum, the analyst's name or initial, time and date.

## 4.0 Calibration Procedures

### 4.1 FIELD INSTRUMENTATION

Equipment and instrumentation calibration facilitate accurate and reliable field measurements. Field and laboratory equipment used on the project will be calibrated and adjusted in general accordance with the manufacturer's recommendations. Methods and intervals of calibration and maintenance will be based on the type of equipment, stability characteristics, required accuracy, intended use and environmental conditions. The basic calibration frequencies are described below.

The PID used for vapor measurements will be calibrated daily, if required (based on the model used), for Site safety monitoring purposes in general accordance with the manufacturer's specifications. If daily calibration is not required for a specific PID model, calibration of the PID will be checked to make sure it is up to date. The calibration results will be recorded in the field logbook.

### 4.2 LABORATORY INSTRUMENTATION

For analytical chemistry, calibration procedures will be performed in general accordance with the methods cited and laboratory SOPs. Calibration documentation will be retained at the laboratory and readily available for a period of 6 months.

## 5.0 Data Reporting and Laboratory Deliverables

Laboratories will report data in formatted hardcopy and digital form. Analytical laboratory measurements will be recorded in standard formats that display, at a minimum, the field sample identification, the laboratory identification, reporting units, qualifiers, analytical method, analyte tested, analytical result, extraction and analysis dates, and detection limit (PQL only). Each sample delivery group will be accompanied by sample receipt forms and a case narrative identifying data quality issues. Laboratory electronic data deliverable (EDD) formats will be established by GeoEngineers, Inc., with the contract laboratory. Final results will be sent to the PM.

## 6.0 Internal QC

Table B-5 summarizes the types and frequency of QC samples to be collected during the Site characterization, including both field QC and laboratory QC samples.

### 6.1 FIELD QC

Field QC samples serve as a control and check mechanism to monitor the consistency of sampling methods and the influence of off-site factors on environmental samples. Off-site factors include airborne volatile organic compounds (VOCs) and potable water used in drilling activities.

### 6.1.1 Field Duplicates

In addition to replicate analyses performed in the laboratory, field duplicates also serve as measures for precision. Under ideal field conditions, field duplicates (referred to as splits), are created when a volume of the sample matrix is thoroughly mixed, placed in separate containers and identified as different samples. Analysis of duplicates test both the precision and consistency of laboratory analytical procedures and methods, and the consistency of the sampling techniques used by field personnel.

One field duplicate will be collected during each groundwater sampling event. The duplicate sample will be analyzed for the COPCs specified for the given monitoring well. A field duplicate will not be collected for the soil samples.

### 6.1.2 Trip Blanks

Trip blanks will accompany soil and groundwater sample containers submitted for VOC analyses during shipment and sampling periods. Trip blanks will be analyzed on a one per cooler basis.

## 6.2 LABORATORY QC

Laboratory QC procedures will be evaluated through a formal data validation process. The analytical laboratory will follow standard method procedures that include specified QC monitoring requirements. These requirements will vary by method but generally include:

- Method blanks;
- Internal standards;
- Calibrations;
- MS/matrix spike duplicates (MSD);
- LCS/laboratory control spike duplicates (LCSD);
- Laboratory replicates or duplicates; and
- Surrogate spikes.

### 6.2.1 Laboratory Blanks

Laboratory procedures employ the use of several types of blanks but the most commonly used blank for QA/QC assessments are method blanks. Method blanks are laboratory QC samples that consist of either a soil-like material having undergone a contaminant destruction process or high-performance liquid-chromatography (HPLC) water. Method blanks are extracted and analyzed with each batch of environmental samples undergoing analysis. Method blanks are particularly useful during volatiles analysis since VOCs can be transported in the laboratory through the vapor phase. If a substance is found in the method blank, then one (or more) of the following occurred:

- Measurement apparatus or containers were not properly cleaned and contained contaminants;
- Reagents used in the process were contaminated with a substance(s) of interest;
- Contaminated analytical equipment was not properly cleaned; and/or
- Volatile substances in the air with high solubility or affinities toward the sample matrix contaminated the samples during preparation or analysis.

It is difficult to determine which of the above scenarios took place if blank contamination occurs. However, it is assumed that the conditions that affected the blanks also likely affected the project samples. Given method blank results, validation rules assist in determining which substances in samples are considered “real,” and which ones are attributable to the analytical process. Furthermore, the guidelines state, “...there may be instances where little or no contamination was present in the associated blank, but qualification of the sample is deemed necessary. Contamination introduced through dilution water is one example.”

### 6.2.2 Calibrations

Several types of calibrations are used, depending on the method, to determine whether the methodology is ‘in control’ by verifying the linearity of the calibration curve and to assure that the sample results reflect accurate and precise measurements. The main calibrations used are initial calibrations, daily calibrations and continuing calibration verification.

### 6.2.3 MS/MSD

MS/MSD samples are used to assess influences or interferences caused by the physical or chemical properties of the sample itself. For example, extreme pH affects the results of semi-volatile organic compounds (SVOCs). Or the presence of a compound may interfere with accurate quantitation of another analyte. MS/MSD data is reviewed in combination with other QC monitoring data to determine matrix effects. In some cases, matrix effects cannot be determined due to dilution and/or high levels of related substances in the sample. A MS is evaluated by spiking a known amount of one or more of the target analytes ideally at a concentration of 5 to 10 times higher than the sample result. A percent recovery is calculated by subtracting the sample result from the spike result, dividing by the spiked amount and multiplying by 100.

The samples for the MS and MSD analyses should be collected from a boring or sampling location that is believed to exhibit low-level contamination. A sample from an area of low-level contamination is needed because the objective of MS/MSD analyses is to determine the presence of matrix interferences, which can best be achieved with low levels of contaminants. Additional sample volume will be collected for these analyses. This MS/MSD sample will be a composite to achieve a level of representativeness and reproducibility in the data.

### 6.2.4 LCS/LCSD

Also known as blanks spikes, LCSs are similar to MSs in that a known amount of one or more of the target analytes are spiked into a prepared media and a percent recovery of the spiked substances are calculated. The primary difference between a MS and LCS is that the LCS media is considered “clean” or contaminant free. For example, HPLC water is typically used for LCS water analyses. The purpose of an LCS is to help assess the overall accuracy and precision of the analytical process including sample preparation, instrument performance and analyst performance. LCS data must be reviewed in context with other controls to determine if out-of-control events occur.

### 6.2.5 Laboratory Replicates/Duplicates

Laboratories often utilize MS/MSDs, LCS/LCSDs and/or replicates to assess precision. Replicates are a second analysis of a field-collected environmental sample. Replicates can be split at varying stages of the sample preparation and analysis process, but most commonly occur as a second analysis on the extracted media.

### 6.2.6 *Surrogate Spikes*

The purposes of using a surrogate are to verify the accuracy of the instrument being used and extraction procedures. Surrogates are substances similar to, but not one of, the target analytes. A known concentration of surrogate is added to the sample and passed through the instrument, noting the surrogate recovery. Each surrogate used has an acceptable range of percent recovery. If a surrogate recovery is low, sample results may be biased low and depending on the recovery value, a possibility of false negatives may exist. Conversely, when recoveries are above the specified range of acceptance a possibility of false positives exist, although non-detected results are considered accurate.

## 7.0 Data Reduction and Assessment Procedures

### 7.1 DATA REDUCTION

Data reduction involves the conversion or transcription of field and analytical data to a useable format. The laboratory personnel will reduce the analytical data for review by the QA Leader and PM.

### 7.2 FIELD MEASUREMENT EVALUATION

Field data will be reviewed at the end of each day by following the QC checks outlined below and procedures in the Work Plan. Field data documentation will be checked against the applicable criteria as follows:

- Sample collection information;
- Field instrumentation and calibration;
- Sample collection protocol;
- Sample containers, preservation, and volume;
- Field QC samples collected at the frequency specified;
- Sample documentation and COC protocols; and
- Sample shipment.

Cooler receipt forms and sample condition forms provided by the laboratory will be reviewed for out-of-control incidents. The final report will contain what effects, if any, an incident has on data quality. Sample collection information will be reviewed for correctness before inclusion in a final report.

### 7.3 FIELD QC EVALUATION

A field QC evaluation will be conducted by reviewing field logbooks and daily reports, discussing field activities with staff and reviewing field QC samples (trip blanks and field duplicates). Trip blanks will be evaluated using the same criteria as method blanks.

### 7.4 LABORATORY DATA QC EVALUATION

The laboratory data assessment will consist of a formal review of the following QC parameters:

- Holding times;
- Method blanks;
- MS/MSD;
- LCS/LCSD;
- Surrogate spikes; and
- Replicates.

In addition to these QC mechanisms, other documentation such as cooler receipt forms and case narratives will be reviewed to fully evaluate laboratory QA/QC.

## 8.0 References

U.S. Environmental Protection Agency). 2001. EPA Requirements for Quality Assurance Project Plans. EPA QA/R-5. EPA/240/B-01/003. Office of Environmental Information, Washington, D.C. March 2001.

U.S. Environmental Protection Agency). 2002. Guidance for Quality Assurance Project Plans. EPA QA/G-5. EPA/240/R-02/009. Office of Environmental Information, Washington, D.C. December 2002.

U.S. Environmental Protection Agency. 2017a. National Functional Guidelines for Inorganic Superfund Methods Data Review. 540-R-2017-001. Office of Superfund Remediation and Technology Innovation. Washington, D.C. January 2017.

U.S. Environmental Protection Agency. 2017b. National Functional Guidelines for Organic Superfund Methods Data Review. Office of Superfund Remediation and Technology Innovation. Washington, D.C. 540-R-2017-002. January 2017.

Washington State Department of Ecology. 2016. Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies. Publication No. 04-03-030. July 2004 (revised December 2016).

**Table B-1**  
**Soil Measurement Quality Objective and Target Reporting Limits**  
 Stillwater Holdings Chevron Site  
 Walla Walla, Washington

Analyte	Method	MDL (mg/kg)	PQL (mg/kg)	LCS/LCSD			MS/MSD			MTCA Method A Cleanup Level (mg/kg)
				Lower	Upper	RPD	Lower	Upper	RPD	
<b>VOCs</b>										
Benzene	EPA 8260D	0.01	0.02	80	128	17	80	128	17	0.03
1,2,4-Trimethylbenzene	EPA 8260D	0.0234	0.100	78	128	19	78	128	19	NE
1,2-Dibromomethane (EDB)	EPA 8011	0.00002	0.00008	60	140	20	60	140	20	0.005
1,2-Dichloroethane (EDC)	EPA 8260D	0.0218	0.1	77	126	18	77	126	18	NE
1,3,5-Trimethylbenzene	EPA 8260D	0.0320	0.100	76	130	18	76	130	18	NE
Ethylbenzene	EPA 8260D	0.0162	0.1	80	127	19	80	127	19	6
m, p-Xylene	EPA 8260D	0.0287	0.4	80	131	19	80	131	19	NE
Methyl tert-butyl ether (MTBE)	EPA 8260D	0.03	0.05	69	132	32	69	132	32	0.01
Naphthalene	EPA 8260D	0.028	0.01	57	131	34	57	131	34	0.24
o-Xylene	EPA 8260D	0.023	0.2	78	128	19	78	128	19	NE
Toluene	EPA 8260D	0.0451	0.1	79	130	21	79	130	21	7
Xylenes (Total)	EPA 8260D	Derived as sum of m, o and p isomers								9
<b>cPAHs</b>										
Benzo[a]pyrene	EPA 8270E SIM	0.00423	0.01	60	126	20	60	126	20	0.1
Benzo[a]anthracene	EPA 8270E SIM	0.00213	0.01	61	131	16	31	131	16	NE
Benzo[b]fluoranthene	EPA 8270E SIM	0.00351	0.01	61	127	16	61	127	16	NE
Benzo[k]fluoranthene	EPA 8270E SIM	0.0025	0.01	55	127	16	55	127	16	NE
Chrysene	EPA 8270E SIM	0.00152	0.01	57	127	15	57	127	15	NE
Dibenz[a,h]anthracene	EPA 8270E SIM	0.00284	0.01	60	121	31	60	121	31	NE
Indeno[1,2,3-cd]pyrene	EPA 8270E SIM	0.00297	0.01	51	128	31	54	128	31	NE
cPAH TEQ <sup>1</sup>	Calculated based on concentrations of cPAHs									0.1
<b>Metals</b>										
Lead	EPA 6010D	1.47	3	80	120	20	75	125	20	250
<b>TPH</b>										
Gasoline-Range Petroleum Hydrocarbons	NWTPH-Gx	1.8	5	74	124	20	50	133	20	100/30 <sup>2</sup>
Diesel-Range Petroleum Hydrocarbons	NWTPH-Dx	4.19	10	50	150	25	70.1	139	25	2,000
Oil-Range Petroleum Hydrocarbons	NWTPH-Dx	5	25	50	150	25	50	150	25	

**Notes:**

<sup>1</sup>TEQ = Total toxic equivalent (TEQ) concentration calculated per WAC 173-340-708 and *Guidance on Remediation of Petroleum Contaminated Sites*; ND results will be treated as 0.5PQL

<sup>2</sup>MTCA Method A cleanup level for gasoline-range petroleum hydrocarbons (GRPH) is 100 mg/kg if benzene is not detected and the total concentrations of ethylbenzene, toluene and xylenes are less than 1 percent of the gasoline mixture; otherwise, the cleanup level is 30 mg/kg.

Practical quantitation limits (PQLs) based on information provided by Eurofins Environment Testing Northwest.

EPA = Environmental Protection Agency; MTCA = Model Toxics Control Act; VOCs = volatile organic compounds; cPAH = carcinogenic polycyclic aromatic hydrocarbons; TPH = total petroleum hydrocarbons;

MDL = method detection limit; LCS = laboratory control spike; LCSD = laboratory control spike duplicate; MS = matrix spike; MSD = matrix spike duplicate; RPD = relative percent difference

mg/kg = milligrams per kilogram; NE = Not established;

**Table B-2**  
**Groundwater Measurement Quality Objective and Target Reporting Limits**

Stillwater Holdings Chevron Site  
 Walla Walla, Washington

Analyte	Method	MDL (µg/L)	PQL (µg/L)	LCS/LCSD			MS/MSD			DUP	MTCA Method A/B Cleanup Level (µg/L)
				Lower	Upper	RPD	Lower	Upper	RPD	RPD	
<b>VOCs</b>											
Benzene	EPA 8260D	0.093	0.4	80	120	15	80	120	15	30	5
1,2,4-Trimethylbenzene	EPA 8260D	0.306	1.00	78	131	16	78	131	16	30	80
1,3,5-Trimethylbenzene	EPA 8260D	0.316	1.00	76	129	17	76	129	17	30	80
cis-1,2-Dichloroethene	EPA 8260D	0.227	1.00	80	122	17	80	122	17	30	16
Ethylbenzene	EPA 8260D	0.198	1	80	122	35	80	122	35	30	700
Ethylene Dibromide (EDB)	EPA 8011	0.0025	0.01	60	140	35	60	140	35	30	0.01
Ethylene dichloride (EDC)	EPA 8260D	0.31	1	80	120	14	80	120	14	30	5
m,p-Xylene	EPA 8260D	0.28	2	80	125	35	80	125	35	30	1,600
Methyl tert-butyl ether (MTBE)	EPA 8260D	0.16	1	68	134	18	68	134	18	30	20
Naphthalene	EPA 8260D	0.632	2	61	140	25	61	140	25	30	160
o-Xylene	EPA 8260D	0.162	1	80	130	35	80	130	35	30	1,600
Tetrachloroethene (PCE)	EPA 8260D	0.217	1.00	80	139	20	80	139	20	30	5
Toluene	EPA 8260D	0.312	1	80	129	35	80	129	35	30	1,000
trans-1,2-Dichloroethene	EPA 8260D	0.201	1.00	73	137	18	73	137	18	30	160
Trichloroethene (TCE)	EPA 8260D	0.199	1.00	80	123	14	80	123	14	30	5
Vinyl chloride	EPA 8260D	0.130	0.40	50	150	26	50	150	26	30	0.2
Xylenes (Total)	Derived as sum of m, o and p isomers										1,000
<b>Metals</b>											
Lead	EPA 6010D	5.1	60	80	120	20	75	125	20	30	15
<b>TPH</b>											
GRPH	NWTPH-Gx	51.4	150	80	120	20	56	126	20	30	1,000/800 <sup>2</sup>

**Notes:**

<sup>2</sup>MTCA Method A cleanup level for gasoline-range petroleum hydrocarbons (GRPH) is 1,000 µg/L if benzene is not detected and the total concentrations of ethylbenzene, toluene and xylenes are less than 1 percent of the gasoline mixture; otherwise the cleanup level is 800 µg/L.

MTCA Method B cleanup limit used when there is no established MTCA Method A cleanup limit

Practical quantitation limits (PQLs) based on information provided by Eurofins Environment Testing.

VOCs = volatile organic compounds;

MDL = method detection limit; LCS = laboratory control spike; LCSD = laboratory control spike duplicate; MS = matrix spike; MSD = matrix spike duplicate; RPD = relative percent difference

EPA = Environmental Protection Agency; MTCA = Model Toxics Control Act.

µg/L = micrograms per liter; NE = Not established; DUP = duplicate

**Table B-3**  
**Soil Test Methods, Sample Containers, Preservation and Holding Time<sup>1</sup>**  
**Stillwater Holdings Chevron Site**  
**Walla Walla, Washington**

Analysis	Matrix	Method	Minimum Sample Size	Sample Containers	Sample Preservation	Holding Times
VOCs	Soil	EPA 8260D	30 g	2 pre-weighed 40 mL VOA vials preserved with MeOH; 4 oz jar (for dry-weight correction)	MeOH; <Cool 6 °C	14 days from collection to analysis
Metals	Soil	EPA 6000/7000 Series	10 g	4 oz jar w/Teflon lid	NA	180 days
cPAHs	Soil	EPA 8270E SIM	30g	4 oz jar	<Cool 6 °C	14 days from collection; 40 days from extraction
GRPH	Soil	NWTPH-Gx	30 g	2 pre-weighed 40 mL VOA vials preserved with MeOH; 4 oz jar (for dry-weight correction)	MeOH; Cool <6 °C	14 days from collection to analysis
DRPH and ORPH	Soil	NWTPH-Dx	30 g	4 oz jar	<Cool 6 °C	14 days from collection; 40 days from extraction

**Notes:**

<sup>1</sup>Holding times are based on elapsed time from date of collection.

VOCs = volatile organic compounds; MeOH = Methanol; VOA = volatile organic analysis

g = gram; mL = milliliters; C = Celsius

cPAHs = carcinogenic polycyclic aromatic hydrocarbons;

EPA = Environmental Protection Agency.

GRPH = gasoline-range petroleum hydrocarbons; DRPH = diesel-range petroleum hydrocarbons; ORPH = oil-range petroleum hydrocarbons.

**Table B-4**  
**Groundwater Test Methods, Sample Containers, Preservation and Holding Time<sup>1</sup>**  
 Stillwater Holdings Chevron Site  
 Walla Walla, Washington

Analysis	Matrix	Method	Minimum Sample Size	Sample Containers	Sample Preservation	Holding Times
VOCs	Water	EPA 8260D	40mL	2 - 40mL VOA vials preserved with HCL	HCL; <Cool 6° C	14 days
Metals	Water	EPA 6000/7000 Series	50mL	250mL HDPE	HNO <sub>3</sub>	180 days; 28 days for Mercury
GRPH	Water	NWTPH-Gx	40mL	2 - 40mL VOA vials preserved with HCL	HCL; <Cool 6° C	14 days

**Notes:**

<sup>1</sup>Holding times are based on elapsed time from date of collection.

VOCs = volatile organic compound; VOA = volatile organic analysis; HCL = hydrochloric acid; HDPE = high density polyethylene

g = gram; mL = milliliters; C = Celsius

EPA = Environmental Protection Agency

GRPH = gasoline-range petroleum hydrocarbons.

**Table B-5**  
**Quality Control Samples Type and Frequency**  
**Stillwater Holdings Chevron Site**  
**Walla Walla, Washington**

Parameter	Field QC		Laboratory QC			
	Field Duplicate	Trip Blanks	Method Blanks	LCS	MS / MSD	Lab Duplicates
VOCs	1 per groundwater event	1 per soil event and 1 per water event	1/batch	1/batch	1/batch	1/batch
Metals	1 per groundwater event	None	1/batch	1/batch	1/batch	1/batch
PAHs	none	None	1/batch	1/batch	1/batch	1/batch
GRPH	1 per groundwater event	1 per soil event and 1 per water event	1/batch	1/batch	1/batch	1/batch
DRPH and ORPH	none	None	1/batch	1/batch	1/batch	1/batch

**Notes:**

No more than 20 field samples can be contained in one batch.

QC = quality control

VOCs = volatile organic compounds

GRPH = gasoline-range petroleum hydrocarbons; DRPH = diesel-range petroleum hydrocarbons; ORPH = oil-range petroleum hydrocarbons.

LCS = Laboratory control sample; MS = Matrix spike sample; MSD = Matrix spike duplicate sample

Appendix C  
Inadvertent Discovery Plan



# INADVERTENT DISCOVERY PLAN PLAN AND PROCEDURES FOR THE DISCOVERY OF CULTURAL RESOURCES AND HUMAN SKELETAL REMAINS

To request ADA accommodation, including materials in a format for the visually impaired, call Ecology at 360-407-6000 or visit <https://ecology.wa.gov/accessibility>. People with impaired hearing may call Washington Relay Service at 711. People with a speech disability may call TTY at 877-833-6341.

Site Name(s):

Location:

Project Lead/Organization:

County:

*If this Inadvertent Discovery Plan (IDP) is for multiple (batched) projects, ensure the location information covers all project areas.*

## 1. INTRODUCTION

The IDP outlines procedures to perform in the event of a discovery of archaeological materials or human remains, in accordance with applicable state and federal laws. An IDP is required, as part of Agency Terms and Conditions for all grants and loans, for any project that creates disturbance above or below the ground. An IDP is not a substitute for a formal cultural resource review (Executive 21-02 or Section 106).

Once completed, **the IDP should always be kept at the project site** during all project activities. All staff, contractors, and volunteers should be familiar with its contents and know where to find it.

## 2. CULTURAL RESOURCE DISCOVERIES

A cultural resource discovery could be prehistoric or historic. Examples include (see images for further examples):

- An accumulation of shell, burned rocks, or other food related materials.
- Bones, intact or in small pieces.
- An area of charcoal or very dark stained soil with artifacts.
- Stone tools or waste flakes (for example, an arrowhead or stone chips).
- Modified or stripped trees, often cedar or aspen, or other modified natural features, such as rock drawings.
- Agricultural or logging materials that appear older than 50 years. These could include equipment, fencing, canals, spillways, chutes, derelict sawmills, tools, and many other items.
- Clusters of tin cans or bottles, or other debris that appear older than 50 years.
- Old munitions casings. **Always assume these are live and never touch or move.**
- Buried railroad tracks, decking, foundations, or other industrial materials.
- Remnants of homesteading. These could include bricks, nails, household items, toys, food containers, and other items associated with homes or farming sites.

The above list does not cover every possible cultural resource. When in doubt, assume the material is a cultural resource.

### 3. ON-SITE RESPONSIBILITIES

If any employee, contractor, or subcontractor believes that they have uncovered cultural resources or human remains at any point in the project, take the following steps to **Stop-Protect-Notify**. **If you suspect that the discovery includes human remains, also follow Sections 5 and 6.**

#### **STEP A: Stop Work.**

All work must stop immediately in the vicinity of the discovery.

#### **STEP B: Protect the Discovery.**

Leave the discovery and the surrounding area untouched and create a clear, identifiable, and wide boundary (30 feet or larger) with temporary fencing, flagging, stakes, or other clear markings. Provide protection and ensure integrity of the discovery until cleared by the Department of Archaeological and Historical Preservation (DAHP) or a licensed, professional archaeologist.

Do not permit vehicles, equipment, or unauthorized personnel to traverse the discovery site. Do not allow work to resume within the boundary until the requirements of this IDP are met.

#### **STEP C: Notify Project Archaeologist (if applicable).**

If the project has an archaeologist, notify that person. If there is a monitoring plan in place, the archaeologist will follow the outlined procedure.

#### **STEP D: Notify Project and Washington Department of Ecology (Ecology) contacts.**

##### **Project Lead Contacts**

###### Primary Contact

Name:

Organization:

Phone:

Email:

###### Alternate Contact

Name:

Organization:

Phone:

Email:

##### **Ecology Contacts (completed by Ecology Project Manager)**

###### Ecology Project Manager

Name:

Program:

Phone:

Email:

###### Alternate or Cultural Resource Contact

Name:

Program:

Phone:

Email:

**STEP E: Ecology will notify DAHP.**

Once notified, the Ecology Cultural Resource Contact or the Ecology Project Manager will contact DAHP to report and confirm the discovery. To avoid delay, the Project Lead/Organization will contact DAHP if they are not able to reach Ecology.

DAHP will provide the steps to assist with identification. DAHP, Ecology, and Tribal representatives may coordinate a site visit following any necessary safety protocols. DAHP may also inform the Project Lead/Organization and Ecology of additional steps to further protect the site.

**Do not continue work until DAHP has issued an approval for work to proceed in the area of, or near, the discovery.**

DAHP Contacts:

Name: Rob Whitlam, PhD  
Title: State Archaeologist  
Cell: 360-890-2615  
Email: [Rob.Whitlam@dahp.wa.gov](mailto:Rob.Whitlam@dahp.wa.gov)  
Main Office: 360-586-3065

**Human Remains/Bones:**

Name: Guy Tasa, PhD  
Title: State Anthropologist  
Cell: 360-790-1633 (24/7)  
Email: [Guy.Tasa@dahp.wa.gov](mailto:Guy.Tasa@dahp.wa.gov)

**4. TRIBAL CONTACTS**

In the event cultural resources are discovered, the following tribes will be contacted. See Section 10 for Additional Resources.

Tribe:	Tribe:
Name:	Name:
Title:	Title:
Phone:	Phone:
Email:	Email:
Tribe:	Tribe:
Name:	Name:
Title:	Title:
Phone:	Phone:
Email:	Email:

Please provide contact information for additional tribes within your project area, if needed, in Section 11.

**5. FURTHER CONTACTS (if applicable)**

If the discovery is confirmed by DAHP as a cultural or archaeological resource, or as human remains, and there is a partnering federal or state agency, Ecology or the Project Lead/Organization will ensure the partnering agency is immediately notified.

Federal Agency:

Agency:

Name:

Title:

Phone:

Email:

State Agency:

Agency:

Name:

Title:

Phone:

Email:

## 6. SPECIAL PROCEDURES FOR THE DISCOVERY OF HUMAN SKELETAL MATERIAL

Any human skeletal remains, regardless of antiquity or ethnic origin, will at all times be treated with dignity and respect. Follow the steps under **Stop-Protect-Notify**. For specific instructions on how to handle a human remains discovery, see: [RCW 68.50.645: Skeletal human remains—Duty to notify—Ground disturbing activities—Coroner determination—Definitions.](#)

**Suggestion:** If you are unsure whether the discovery is human bone or not, contact Guy Tasa with DAHP, for identification and next steps. Do not pick up the discovery.

Guy Tasa, PhD State Physical Anthropologist

[Guy.Tasa@dahp.wa.gov](mailto:Guy.Tasa@dahp.wa.gov)

(360) 790-1633 (Cell/Office)

For discoveries that are confirmed or suspected human remains, follow these steps:

1. Notify law enforcement and the Medical Examiner/Coroner using the contacts below. **Do not call 911** unless it is the only number available to you.

Enter contact information below (required):

- Local Medical Examiner or Coroner name and phone:
  
  - Local Law Enforcement main name and phone:
  
  - Local Non-Emergency phone number (911 if without a non-emergency number):
2. The Medical Examiner/Coroner (with assistance of law enforcement personnel) will determine if the remains are human or if the discovery site constitutes a crime scene and will notify DAHP.
  3. **DO NOT speak with the media, allow photography or disturbance of the remains, or release any information about the discovery on social media.**
  4. If the remains are determined to be non-forensic, Cover the remains with a tarp or other materials (not soil or rocks) for temporary protection and to shield them from being photographed by others or disturbed.

Further activities:

- Per [RCW 27.44.055](#), [RCW 68.50](#), and [RCW 68.60](#), DAHP will have jurisdiction over non-forensic human remains. Ecology staff will participate in consultation. Organizations may also participate in consultation.
- Documentation of human skeletal remains and funerary objects will be agreed upon through the consultation process described in [RCW 27.44.055](#), [RCW 68.50](#), and [RCW 68.60](#).
- When consultation and documentation activities are complete, work in the discovery area may resume as described in Section 8.

If the project occurs on federal lands (such as a national forest or park or a military reservation) the provisions of the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) apply and the responsible federal agency will follow its provisions. Note that state highways that cross federal lands are on an easement and are not owned by the state.

If the project occurs on non-federal lands, the Project Lead/Organization will comply with applicable state and federal laws, and the above protocol.

## **7. DOCUMENTATION OF ARCHAEOLOGICAL MATERIALS**

Archaeological resources discovered during construction are protected by state law [RCW 27.53](#) and assumed eligible for inclusion in the National Register of Historic Places under Criterion D until a formal Determination of Eligibility is made.

The Project Lead/Organization must ensure that proper documentation and field assessment are made of all discovered cultural resources in cooperation with all parties: the federal agencies (if any), DAHP, Ecology, affected tribes, and the archaeologist.

The archaeologist will record all prehistoric and historic cultural material discovered during project construction on a standard DAHP archaeological site or isolate inventory form. They will photograph site overviews, features, and artifacts and prepare stratigraphic profiles and soil/sediment descriptions for minimal subsurface exposures. They will document discovery locations on scaled site plans and site location maps.

Cultural features, horizons, and artifacts detected in buried sediments may require the archaeologist to conduct further evaluation using hand-dug test units. They will excavate units in a controlled fashion to expose features, collect samples from undisturbed contexts, or to interpret complex stratigraphy. They may also use a test unit or trench excavation to determine if an intact occupation surface is present. They will only use test units when necessary to gather information on the nature, extent, and integrity of subsurface cultural deposits to evaluate the site's significance. They will conduct excavations using standard archaeological techniques to precisely document the location of cultural deposits, artifacts, and features.

The archaeologist will record spatial information, depth of excavation levels, natural and cultural stratigraphy, presence or absence of cultural material, and depth to sterile soil, regolith, or bedrock for each unit on a standard form. They will complete test excavation unit level forms, which will include plan maps for each excavation level and artifact counts and material types, number, and vertical provenience (depth below

surface and stratum association where applicable) for all recovered artifacts. They will draw a stratigraphic profile for at least one wall of each test excavation unit.

The archaeologist will screen sediments excavated for purposes of cultural resources investigation through 1/8-inch mesh, unless soil conditions warrant 1/4-inch mesh.

The archaeologist will analyze, catalogue, and temporarily curate all prehistoric and historic artifacts collected from the surface and from probes and excavation units. The ultimate disposition of cultural materials will be determined in consultation with the federal agencies (if any), DAHP, Ecology, and the affected tribe(s).

Within 90 days of concluding fieldwork, the archaeologist will provide a technical report describing any and all monitoring and resultant archaeological excavations to the Project Lead/Organization, who will forward the report to Ecology, the federal agencies (if any), DAHP, and the affected tribe(s) for review and comment.

If assessment activities expose human remains (burials, isolated teeth, or bones), the archaeologist and Project Lead/Organization will follow the process described in **Section 6**.

## **8. PROCEEDING WITH WORK**

The Project Lead/Organization shall work with the archaeologist, DAHP, and affected tribe(s) to determine the appropriate discovery boundary and where work can continue.

Work may continue at the discovery location only after the process outlined in this plan is followed and the Project Lead/Organization, DAHP, any affected tribe(s), Ecology, and the federal agencies (if any) determine that compliance with state and federal laws is complete.

## **9. ORGANIZATION RESPONSIBILITY**

The Project Lead/Organization is responsible for ensuring:

- This IDP has complete and accurate information.
- This IDP is immediately available to all field staff at the sites and available by request to any party.
- This IDP is implemented to address any discovery at the site.
- That all field staff, contractors, and volunteers are instructed on how to implement this IDP.

## **10. ADDITIONAL RESOURCES**

### **Informative Video**

Ecology recommends that all project staff, contractors, and volunteers view this informative video explaining the value of IDP protocol and what to do in the event of a discovery. The target audience is anyone working on the project who could unexpectedly find cultural resources or human remains while excavating or digging. The video is also posted on DAHP's inadvertent discovery language website.

[Ecology's IDP Video](https://www.youtube.com/watch?v=ioX-4cXfbDY) (<https://www.youtube.com/watch?v=ioX-4cXfbDY>)

## **Informational Resources**

[DAH P \(https://dahp.wa.gov\)](https://dahp.wa.gov)

[Washington State Archeology \(DAH P 2003\)](https://dahp.wa.gov/sites/default/files/Field%20Guide%20to%20WA%20Arch_0.pdf)

[\(https://dahp.wa.gov/sites/default/files/Field%20Guide%20to%20WA%20Arch\\_0.pdf\)](https://dahp.wa.gov/sites/default/files/Field%20Guide%20to%20WA%20Arch_0.pdf)

[Association of Washington Archaeologists \(https://www.archaeologyinwashington.com\)](https://www.archaeologyinwashington.com)

## **Potentially Interested Tribes**

[Interactive Map of Tribes by Area](https://dahp.wa.gov/archaeology/tribal-consultation-information)

[\(https://dahp.wa.gov/archaeology/tribal-consultation-information\)](https://dahp.wa.gov/archaeology/tribal-consultation-information)

[WSDOT Tribal Contact Website](https://wsdot.wa.gov/tribal/TribalContacts.htm)

[\(https://wsdot.wa.gov/tribal/TribalContacts.htm\)](https://wsdot.wa.gov/tribal/TribalContacts.htm)

## **11. ADDITIONAL INFORMATION**

Please add any additional contact information or other information needed within this IDP.

**Implement the IDP if you see...**

**Chipped stone artifacts.**

Examples are:

- Glass-like material.
- Angular material.
- “Unusual” material or shape for the area.
- Regularity of flaking.
- Variability of size.



*Stone artifacts from Oregon.*



*Stone artifacts from Washington.*



*Biface-knife, scraper, or pre-form found in NE Washington. Thought to be a well knapped object of great antiquity. Courtesy of Methow Salmon Rec. Foundation.*

## Implement the IDP if you see...

### Ground stone artifacts.

Examples are:

- Unusual or unnatural shapes or unusual stone.
- Striations or scratching.
- Etching, perforations, or pecking.
- Regularity in modifications.
- Variability of size, function, or complexity.



Above: Fishing Weight - credit [CRITFC Treaty Fishing Rights website](#).



Artifacts from unknown locations (left and right images).

**Implement the IDP if you see...**

**Bone or shell artifacts, tools, or beads.**

Examples are:

- Smooth or carved materials.
- Unusual shape.
- Pointed as if used as a tool.
- Wedge shaped like a “shoehorn”.
- Variability of size.
- Beads from shell (‘dentalium’) or tusk.



Upper Left: *Bone Awls from Oregon.*

Upper Center: *Bone Wedge from California.*

Upper Right: *Plateau dentalium choker and bracelet, from Nez Perce National Historical Park, 19th century, made using Antalis pretiosa shells Credit: Nez Perce - Nez Perce National Historical Park, NEPE 8762, Public Domain.*

Above: *Tooth Pendants. Right: Bone Pendants. Both from Oregon and Washington.*



## Implement the IDP if you see...

### Culturally modified trees, fiber, or wood artifacts.

Examples are:

- Trees with bark stripped or peeled, carvings, axe cuts, de-limbing, wood removal, and other human modifications.
- Fiber or wood artifacts in a wet environment.
- Variability of size, function, and complexity.



Left and Below: *Culturally modified tree and an old carving on an aspen (Courtesy of DAHP).*

Right, Top to Bottom: *Artifacts from Mud Bay, Olympia: Toy war club, two strand cedar rope, wet basketry.*



## Implement the IDP if you see...

### Strange, different, or interesting looking dirt, rocks, or shells.

Human activities leave traces in the ground that may or may not have artifacts associated with them. Examples are:

- “Unusual” accumulations of rock (especially fire-cracked rock).
- “Unusual” shaped accumulations of rock (such as a shape similar to a fire ring).
- Charcoal or charcoal-stained soils, burnt-looking soils, or soil that has a “layer cake” appearance.
- Accumulations of shell, bones, or artifacts. Shells may be crushed.
- Look for the “unusual” or out of place (for example, rock piles in areas with otherwise few rocks).



*Shell Midden pocket in modern fill discovered in sewer trench.*



*Underground oven. Courtesy of DAHP.*

*Shell midden with fire cracked rock.*



*Hearth excavated near Hamilton, WA.*

**Implement the IDP if you see...**

**Historic period artifacts (historic archaeology considered older than 50 years).**

Examples are:

- Agricultural or logging equipment. May include equipment, fencing, canals, spillways, chutes, derelict sawmills, tools, etc.
- Domestic items including square or wire nails, amethyst colored glass, or painted stoneware.



Left: Top to Bottom: *Willow pattern serving bowl and slip joint pocket knife discovered during Seattle Smith Cove shantytown (45-KI-1200) excavation.*



Right: *Collections of historic artifacts discovered during excavations in eastern Washington cities.*



**Implement the IDP if you see...**

**Historic period artifacts (historic archaeology considered older than 50 years).**

Examples are:

- Railway tokens, coins, and buttons.
- Spectacles, toys, clothing, and personal items.
- Items helping to understand a culture or identity.
- Food containers and dishware.



Main Image: *Dishes, bottles, workboot found at the North Shore Japanese bath house (ofuro) site, Courtesy Bob Muckle, Archaeologist, Capilano University, B.C. This is an example of an above ground resource.*



Right, from Top to Bottom: *Coins, token, spectacles and Montgomery Ward pitchfork toy discovered during Seattle Smith Cove shantytown (45-KI-1200) excavation.*



**Implement the IDP if you see...**

- Old munition casings – if you see ammunition of any type – ***always assume they are live and never touch or move!***
- Tin cans or glass bottles with an older manufacturer's technique – maker's mark, distinct colors such as turquoise, or an older method of opening the container.



Far Left: .303 British cartridge found by a WCC planting crew on Skagit River. Don't ever touch something like this!  
Left: Maker's mark on bottom of old bottle.



Right: Old beer can found in Oregon. ACME was owned by Olympia Brewery. Courtesy of Heather Simmons.



Logo employed by Whithall Tatum & Co. between 1924 to 1938 (Lockhart et al. 2016).



Can opening dates, courtesy of W.M. Schroeder.

Implement the IDP if you see...

You see historic foundations or buried structures.

Examples are:

- Foundations.
- Railroad and trolley tracks.
- Remnants of structures.



Counter Clockwise, Left to Right: *Historic structure 45KI924, in WSDOT right of way for SR99 tunnel. Remnants of Smith Cove shantytown (45-KI-1200) discovered during Ecology CSO excavation, City of Spokane historic trolley tracks uncovered during stormwater project, intact foundation of historic home that survived the Great Ellensburg Fire of July 4, 1889, uncovered beneath parking lot in Ellensburg.*

**Implement the IDP if you see...**

**Potential human remains.**

Examples are:

- Grave headstones that appear to be older than 50 years.
- Bones or bone tools--intact or in small pieces. It can be difficult to differentiate animal from human so they must be identified by an expert.
- These are all examples of animal bones and are not human.

Center: *Bone wedge tool, courtesy of Smith Cove Shantytown excavation (45KI1200).*

*Other images (Top Right, Bottom Left, and Bottom) Center: Courtesy of DAHP.*



Directly Above: This is a real discovery at an Ecology sewer project site.

*What would you do if you found these items at a site? Who would be the first person you would call?*

*Hint: Read the plan!*