

December 18, 2023

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

Attention: James Orr

Subject: Strategy Recommendation
Gerber Legendary Blades
14200 SW 72nd Avenue
Portland, Oregon
DEQ ECSI ID 118
GEI Project File No. 25941-001-04

1.0 INTRODUCTION

On behalf of the owner of the above-referenced property, Asgard, L.L.C. (Asgard), this letter report presents the most current chemical analytical data available for the industrial property located at 14200 SW 72nd Avenue in Tigard, Oregon (herein referred to as ‘the ‘Gerber Legendary Blades [GLB] Site’), Oregon Department of Environmental Quality (DEQ) Environmental Cleanup Site Information (ECSI) Site ID 118. The data presented in this letter report is intended to inform the DEQ Voluntary Cleanup Program (VCP) team of general site conditions relating to soil, soil vapor, and groundwater contamination present beneath the GLB Site from on-site and off-site sources. In addition, this letter report includes potential site characterization data gaps and seeks to work proactively with DEQ to develop a remedial action designed to facilitate an expedited no further action (NFA) determination.

Ever since Asgard became aware in February 2022 of potential environmental contamination under the building from sampling conducted by a potential buyer, Asgard has invested significant funds to ensure the health and safety of its tenants and the protection of the environment. Specifically, Asgard engaged GeoEngineers to conduct multiple rounds of sampling of sub-slab vapor and indoor/outdoor air and the preparation of a Contaminated Media Management Plan (CMMP). Until DEQ updated its soil vapor intrusion (VI) risk-based concentrations (RBCs) effective June 2023 (“updated 2023 VI RBCs”), no active remedy was warranted or recommended at the GLB Site. Nevertheless, Asgard continued to monitor soil vapor and indoor air on a regular basis. As a result of the timing of the regulatory update and site investigations, the previous and updated 2023 VI RBCs are discussed throughout this document. All soil vapor and indoor air data for the Site is compared to the updated 2023 RBCs in the attached data summary tables.



Asgard has requested that Williams Controls participate in the investigation and remediation of its trespasser plume that originates from the Williams Control Facility (ECSI Site No. 4081) located north of the GLB Site. To date, Williams Controls has refused to engage with Asgard and based on a review of DEQ's files, Williams Controls is also not working with DEQ to ensure Williams Controls' contamination is addressed. Now that the VI soil vapor RBCs are significantly more stringent, Asgard seeks to address the source of elevated concentrations of halogenated volatile organic compounds (HVOCs) beneath its manufacturing building that are due to GLB's past operations and obtain a NFA determination from DEQ as quickly as possible.

Given the presence of a trespasser plume from an offsite source, Asgard is willing to support the preparation of an Easement and Equitable Servitude (EES) agreement to limit residential use/activities on the GLB Site, require notice to DEQ regarding changed land use conditions, and prohibit the installation of any groundwater supply wells (currently there are none). The EES document would define the restrictions on land and groundwater agreed to by DEQ and Asgard, and would be filed with the GLB Site property deed. Future risks to occupational and construction/excavation workers have already been considered and will be managed through an existing CMMP for the subject property. A copy of the 2023 CMMP is provided in Attachment A and when approved by DEQ would be a component of the EES.

2.0 BACKGROUND

2.1. Site Location

The GLB Site is a five-acre parcel comprised of Washington County tax lot 2S112AA00300 located to the east of SW 72nd Avenue, north of SW Bonita Road and west of Interstate 5 in the northeast ¼ of Section 12, Township 2 South, Range 1 West of the Willamette Meridian (USGS 2020) (Figure 1, Vicinity Map).

2.2. Site Description

The GLB Site is developed with a 77,862-square-foot building containing an office, manufacturing and warehouse spaces that are used by Fiskars Brands, Inc. (Fiskars) dba Gerber Legendary Blades, Inc. (GLB) to produce knives and other hand-held tools. The original building footprint was constructed in 1965 for industrial manufacturing use by GLB. In 1976, GLB expanded the building to the west and south, which added approximately 13,000 square feet of warehouse space. GLB was acquired by Fiskars in 1987. Historically, a vapor degreaser and plating area was present in the western portion of the GLB Site building.

2.3. Neighboring Properties

The GLB Site is in an industrial zoned area. Surrounding properties include property owned by Williams Controls, Inc. (Williams Controls – DEQ ECSI ID 4081) directly adjacent to the north (herein referred to as WC Site); Interstate 5 to the east; multi-tenant commercial building and Ball Creek, a perennial tributary to Fanno Creek, to the south; and a multi-tenant light industrial building to the west. The WC Site facility, located upgradient of the GLB Site, is used to manufacture electronic, hydraulic, and pneumatic controls for commercial vehicles.

3.0 ENVIRONMENTAL SETTING

3.1. Land Use

Currently the GLB Site is zoned as a heavy industrial (IH) with the City of Tigard and is utilized for the manufacturing of knives and hand-held tooling. According to the City of Tigard (Chapter 18.530.020 – List of Zoning Districts), the I-H zoning designation provides appropriate locations for industrial service, manufacturing and production, research and development, warehousing and freight movement, railroad yards, waste-related and wholesale sales activities. Properties surrounding the GLB Site west of Interstate 5 are either zoned as I-H, light industrial (I-L), or Industrial Park. Based on the City of Lake Oswego Zoning Map, the properties located across Interstate 5 to the east of the GLB Site are zoned as Mixed Commercial (MC). Reasonably likely future land use at the GLB Site and vicinity is consistent with current use for commercial and industrial purposes.

3.2. Groundwater Use

According to the City of Tigard's maps tool, the GLB Site is provided with water from municipal supply primarily sourced from the Clackamas River. Based on a review of well logs filed with the Oregon Water Resources Department (OWRD), two groundwater supply wells may be located within a ¼ mile radius of the GLB Site. The following wells were mapped as being within a quarter/quarter section or a physical address that is located within the ¼-mile radius of the subject property.

- Well Log CLAC 03011 is listed as an industrial supply well and was reportedly installed in a quarter/quarter section that is within a ¼-mile radius of the GLB Site in 1965. The well was drilled to a depth of 75 feet below ground surface (bgs), screened from 45 to 55 feet, with an approximate yield of 16 gallons per minute (gpm).
- Well Log WASH 011643 is listed as a domestic supply well and was reportedly installed at Fought & Company Inc. in 1961. An address was not provided in the well log but Fought & Company is currently located at 14255 SW 72nd Avenue, approximately 975-feet to the west of the GLB Site. The well was drilled to a depth of 345 feet with an approximate yield of 25 gpm. Two abandonment logs (WASH 4406 and 4407) which appear to be located at the same property, are not likely associated with WASH 011643 as the abandonment depths do not match the completed well depth.

The approximate location of these wells, based on the information provided in the OWRD well logs, are shown in Figure 1. A copy of their OWRD-registered well logs are provided in Attachment B.

3.3. Surface Water

Ball Creek, located on the eastern and southern GLB Site boundary, is a perennial tributary to Fanno Creek. Ball Creek flows from east to west towards Fanno Creek. Ball Creek was rerouted from its previous location, which ran through the location of the south offsite property (aka, a Grainger building), to its current location. Groundwater monitoring well MW-18 is located approximately within the historical natural path of the creek. Stormwater runoff from the GLB Site building and asphalt-paved parking areas is directed to catch basins that discharge to the current location of Ball Creek along a portion of the GLB Site's southern property boundary.



4.0 PREVIOUS INVESTIGATIONS AND OTHER SITE ACTIVITIES

A summary of previous environmental investigations and related site activities at the upgradient WC Site and GLB Site are presented below.

4.1. WC Site

4.1.1 ECSI ID 4081 – File Review

DEQ provided GeoEngineers with project correspondence and environmental reports related to hazardous substance releases at the neighboring WC Site manufacturing facility between 2004 and 2009. The WC Site facility located at 14100 Southwest 72nd Avenue in Tigard, Oregon, DEQ ECSI ID 4081, has been the subject of numerous investigations since 1991. The WC Site is owned by Curtiss-Wright Corporation, a public company with multi-national factories and operations supplying the aerospace industry, industrial operations, and the military.

The following is a summary of the pertinent findings relative to current conditions at the GLB Site:

- HVOCs, also known as chlorinated solvents, have been detected at high concentrations in soil and shallow groundwater (contaminant plume) beneath the WC Site, as well as the GLB Site, resulting primarily from historical use of a vapor degreaser inside the southern portion of the WC Site building and former solvent storage area located on unpaved ground outside the southwest corner of the building (hatched area shown on Figure 2).
- Previous investigations of the WC Site plume have included the installation of groundwater monitoring wells on the GLB Site.
- The confirmed release of chlorinated solvents from the northern adjacent WC Site has impacted soil, soil vapor, and shallow groundwater beneath the GLB Site's west parking lot and western portion of the GLB Site building. Detected concentrations of select HVOCs, including tetrachloroethene (PCE) and trichloroethene (TCE), and their degradation byproducts cis-1,2-dichloroethene (cis-1,2-DCE), trans-1,2-dichloroethene (trans-1,2-DCE) and vinyl chloride (VC) exceed DEQ RBCs in shallow groundwater beneath the GLB Site. The WC Site groundwater plume extends south of the GLB site as shown on Figure 2.
- In its June 2008 Remedial Investigation and Feasibility Study (RI/FS), Williams Controls recommended a cleanup alternative consisting of electrical resistance heating of soil and groundwater in HVOC source areas and the installation of a vapor extraction system beneath the WC Site building. Regarding offsite contamination beneath the GLB Site, the recommended remedial action consisted of monitored natural attenuation (MNA) and the implementation of a CMMP.
- In a September 2008 letter, DEQ concurred with the proposed treatment of source areas, but disagreed with the use of MNA beneath the GLB Site without further characterization of the WC Site offsite contaminant plume. In 2008, DEQ allowed Williams Controls to discontinue its environmental investigations due to Williams Controls' claimed financial difficulties.

According to the latest DEQ public records request submitted by GeoEngineers for the WC Site on July 20, 2023, Williams Controls has conducted no additional environmental investigations or cleanup work in response to DEQ's directive to further characterize the WC Site contaminant plume at the Gerber property; except for one groundwater sampling event discussed below.



4.1.2 Ramboll US Consulting, Inc. - Groundwater Sampling Report - October 2022

In August 2022, Ramboll US Consulting, Inc (Ramboll) conducted a groundwater sampling event on behalf of Williams Controls. Ramboll redeveloped sixteen groundwater monitoring wells (eleven of which are located on or adjacent to the GLB Site, as shown on Figure 2) prior to conducting the August 2022 groundwater sampling event. Ramboll's 2022 groundwater sampling results are summarized in Table 1. GeoEngineers' review of Ramboll's groundwater sampling report concludes the following relative to groundwater quality beneath the GLB Site:

- Detected concentrations of TCE and/or VC in shallow groundwater exceed the excavation worker risk-based concentration (RBC)_{we} in GLB Site monitoring wells MW-11 and MW-13.
- At the time of this investigation, detected concentrations of HVOCs in the GLB Site monitoring wells were less than DEQ's volatilization to indoor air RBC_{wi} screening values, except for VC in MW-11, which is located to the west of the GLB Site western loading docks. Following the 2023 updates to the VI RBCs, concentrations of TCE in MW-10, cis-1,2 DCE in MW-11, cis-1,2 DCE and VC in MW-11, and cis-1,2 DCE in MW-17 exceed respective occupational volatilization to indoor air chronic exposure RBCs.
- GeoEngineers reviewed historical WC Site groundwater sampling data from November 2004 through August 2022 which indicates that the natural attenuation/biodegradation of PCE and TCE in shallow groundwater beneath the WC Site source area and GLB Site is slowing/stalling at the DCE and VC reductive dechlorination stage.

4.2. GBL Site

4.2.1 Hahn and Associates, Inc. (HAI) – Phase I Environmental Site Assessment (ESA) – March 12, 2021

Working on behalf of a potential buyer of the GLB Site, HAI reported the following recognized environmental conditions for the GLB Site:

- Chlorinated solvents released at the WC Site have migrated south onto the GLB Site.
- Historical manufacturing operations at the GLB Site utilized chlorinated solvents in a vapor degreaser and chromic acid (hexavalent chrome [chromium VI]) in a plating process. Chlorinated solvents may have entered a floor drain¹ located in the southwest corner of the original building footprint (Figure 2), which was believed to have formerly discharged to Ball Creek, located south adjacent to the GLB Site building.
- In 1986, a documented release of chromic acid vapor occurred in the GLB Site's west parking lot.

4.2.2 Wood Environmental & Infrastructure Solutions, Inc (Wood) – Phase II ESA – August 24, 2021

Working on behalf of Asgard, Wood completed a limited investigation of soil, groundwater, sub-slab soil vapor, and indoor air at the GLB Site and concluded the following:

¹ As detailed in Section 4.2.2 below, this feature was initially identified as a sump. A subsequent investigation performed by GeoEngineers determined that this feature was a floor drain connected to underground piping that was broken a short distance away to the southwest.



- Shallow soil samples analyzed for chromium VI were detected at concentrations less than applicable DEQ RBCs. The focused chromium VI investigation (four hand augured borings) had been conducted to address a May 1986 incident (ECSI ID 118) in which chromium VI and rainwater were expelled from a blower above the chromic acid tanks and then released into the outdoor air of the west parking lot. Wood concluded that hexavalent chromium does not appear to have impacted shallow soil and subsequently groundwater.
- Elevated concentrations of PCE were detected in soil vapor beneath the western portion of the GLB Site's building, with the highest concentrations present near a former floor drain, ranging from 4,500 – 720,000 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). At the time of this investigation, DEQ's RBC for soil VI into occupational buildings was 47,000 $\mu\text{g}/\text{m}^3$ and only one of eight samples (SS-4) exceeded the RBC. Sub-slab soil vapor sampling locations and historic concentrations are presented in Table 2 and Figure 3.
- Groundwater samples analyzed from four onsite groundwater monitoring wells indicated that chlorinated solvents HVOCs were either not detected or detected at concentrations less than applicable DEQ RBCs in place at the time of this investigation; except for VC in groundwater at MW-11 that exceeded the DEQ RBC_{wi} for volatilization to indoor air.
- Detected concentrations of HVOCs in indoor air were less than applicable DEQ RBC_{air} screening values and Occupational Safety and Health Administration (OSHA) permissible exposure limits. Indoor air sampling locations and historic concentrations are presented in Table 3 and Figure 4.

Based on these data, Wood concluded that historical releases to the floor drain (initially identified as a sump) are a potential contributing HVOC source for the elevated HVOCs found in soil vapor beneath the GLB Site.

4.2.3 Partner Engineering and Science, Inc. (Partner) – Phase I ESA Report – December 13, 2021

Working on behalf of another potential buyer, Partner identified the detections of chlorinated solvents beneath the western portion of the GLB Site as a REC requiring additional characterization.

4.2.4 Partner – Phase II Subsurface Investigation Report – February 14, 2022

Partner investigated subsurface soil, groundwater, and indoor air at the GLB Site between January 29 and 31, 2022. Three direct-push borings were completed outside the southwestern portion of the building (B1 through B3) and three borings completed inside the building around the former floor drain and elevated PCE soil gas measurements (B4 through B6) detected by Wood. Partner's 2022 soil boring locations are presented in Figure 5 and a summary of select HVOC laboratory results are presented in Table 4. Partner's environmental assessment concluded the following:

- Sampling of native soil at depths of 6 and 10 feet from boring B6, inside the building and north of the former floor drain encountered the highest concentrations of PCE (2.53 to 7.31 milligrams per kilogram [mg/kg]), which did not exceed the Construction and Excavation Worker RBCs. PCE was also detected at borings B-3 through B-5 at levels less than the Construction and Excavation Worker RBCs. Other HVOCs including TCE, cis-1,2-DCE, and trans-1,2-dichloroethene (trans-1,2-DCE) were either not detected or detected at concentrations less than Construction and Excavation Worker RBCs in B6 and the remaining soil borings.

- HVOCs in “grab” samples of shallow groundwater from borings B1, B2, B3, B5, and B6 were detected at concentrations less than the then-applicable DEQ RBCs.
- Indoor air sampling confirmed that HVOCs including PCE, TCE, and VC were less than applicable occupational DEQ RBCs and OSHA permissible exposure limits. Partner concluded that the migration of HVOCs in soil vapor below the concrete floor into the ambient air of the building does not appear to be occurring at concentrations indicative of risk to workers.
- Partner did not collect soil vapor samples.
- Partner’s Conclusion: The historical “floor drain” may be an additional source area that is contributing to a commingled plume comprised of the HVOC-impacted groundwater that is migrating onto the GLB Site from the north adjacent William Controls property and localized impacts from the GLB Site “floor drain.”

4.2.5 GeoEngineers, Former Floor Drain Cleanout, Sub-Slab Soil Vapor and Indoor Air Sampling Report – May 10, 2022

Following review of the previous environmental reports, GeoEngineers recommended: (1) first opening, cleaning, and inspecting a covered inactive drain (aka former floor drain); and (2) collecting of five additional sub-slab soil vapor samples and two indoor air samples in the vicinity of the former floor drain and historical vapor degreaser area. GeoEngineers’ work and resulting sampling results (presented in Tables 2 and 3, and Figures 3 and 4) concluded the following:

- In April 2022, GeoEngineers investigated the floor drain, previously identified sump, and found a 3-foot-deep interior catch basin beneath a metal plate immediately adjacent to sub-slab sample SS-4 (Wood’s highest PCE vapor detection) and boring B6 (Partner’s highest PCE soil and groundwater detection). Piping associated with this interior catch basin did not extend to the north to the former plating and degreasing area as previously suspected, but instead extended approximately 10 feet to the south/southwest before terminating. This investigation determined that the catch basin was not a self-contained sump, but instead a floor drain that was likely severed during expansion of the building in 1976.
- On April 19, 2022, following the floor drain cleanout, the detected HVOC concentrations from all five sub-slab soil vapor samples were less than DEQ’s then-applicable occupational VI RBC_{sv} screening values. Specifically, PCE was detected immediately adjacent to the former floor drain (29,900 µg/m³) below the then-applicable soil vapor RBC_{sv} (47,000 µg/m³) but above the updated 2023 occupational inhalation RBC_{sv} (1,600 µg/m³). TCE was detected above laboratory reporting limits in three of five soil vapor samples at concentrations below the then-applicable soil vapor RBC; however, TCE concentrations in two samples (GEI-SS-02 and SS-4) exceed the updated 2023 RBC_{sv}. Chloroform concentrations in one of five soil vapor samples (SS-4) also exceed the 2023 chronic occupation RBC_{sv}. Chloroform is a trihalomethane found in chlorinated municipal water supplies and is not considered a chemical of potential concern at the GLB Site.
- PCE was detected in both indoor air samples (GEI-IA-01 and GEI-IA-02) at concentrations (8.42 and 6.44 µg/m³, respectively), well below the 2023 DEQ occupational inhalation RBC_{air} (47 µg/m³) and OSHA permissible exposure limits.



4.2.6 GeoEngineers, Sub-Slab Soil Vapor and Indoor Air Sampling Report – November and December – January 18, 2023

4.2.6.1 SOIL VAPOR - NOVEMBER 2022 EVENT

To determine whether groundwater levels affect sub-slab soil vapor concentrations, five sub-slab soil vapor samples were submitted for analysis on November 11, 2022: three samples surrounding the former floor drain installed by GeoEngineers in April 2022 (GEI-SS-01 through GEI-SS-03) and two samples installed by Wood in March 2021, one adjacent to the former floor drain (SS-4) and one to the south of the former plating and degreasing area (SS-3). The sub-slab soil vapor chemical analytical results are summarized below (Table 2 and Figure 3).

- PCE was detected at concentrations at or exceeding the then-applicable DEQ occupational VI RBC_{sv} of 47,000 µg/m³ in two of five soil vapor samples, GEI-SS-01 (47,000 µg/m³) and SS-4 (644,000 µg/m³), collected near the former floor drain. The remaining samples (GEI-SS-02, GEI-SS-03 and SS-3) contained PCE at concentrations greater than the laboratory reporting limit but less than the then-applicable DEQ RBC_{sv}. Soil vapor samples GEI-SS-02 and SS-3 (22,300 and 32,700 µg/m³, respectively) were later found to exceed the updated 2023 RBC_{sv} of 1,600 µg/m³.
- Chloroform, TCE, 1,1-DCE, cis-1,2-DCE, or trans 1,2-DCE were either not detected or detected at concentrations less than the then-applicable DEQ RBC_{sv} screening values in place at the time of this investigation. Chloroform concentrations in one of five soil vapor samples (SS-4) exceed the updated 2023 chronic occupation RBC_{sv}.
- Low levels of helium gas, used to assess potential short-circuiting between sub-slab vapor and indoor air along the vapor sampling pins, was detected in all samples except for sample GEI-SS-02. Concentrations ranged from 0.175 to 0.398 percent, which indicates that the surface seal surrounding the existing vapor sampling pins is effective. Specifically, detected concentrations of helium gas below 5 percent are considered acceptable (DEQ 2010).
- VC was not detected in the sub-slab soil vapor samples.

4.2.6.2 SOIL VAPOR - DECEMBER 2022 EVENT

- In December 2022, PCE was only detected at a concentration greater than the former DEQ occupational VI RBC_{sv} of 47,000 µg/m³ in sample SS-4 (674,000 µg/m³) located adjacent to the former floor drain. Soil vapor samples GEI-SS-01, GEI-SS-02 and SS-3 (9,440, 16,200 and 22,900 µg/m³, respectively) were later found to exceed the updated 2023 chronic RBC_{sv} of 1,600 µg/m³.
- Chloroform, TCE, 1,1-DCE, cis-1,2-DCE, or trans 1,2-DCE were either not detected or detected at concentrations less than the DEQ RBC_{sv} screening values in place at the time of this investigation. Chloroform concentrations in one of five soil vapor samples (SS-4) exceed the updated 2023 chronic occupation RBC_{sv}.
- VC was not detected in the sub-slab soil vapor samples.

4.2.6.3 AIR MONITORING - NOVEMBER 2022 EVENT

On November 11, 2023, GeoEngineers collected two indoor air samples: one in the location of the former floor drain (GEI-IA-01) and one to the south of the former plating and degreaser area (GEI-IA-02). The location for both samples were chosen due to their proximity to sub-slab soil vapor samples with historically high PCE concentrations (Table 3 and Figure 4).



- PCE was detected in sample GEI-IA-02, at a concentration of 132 $\mu\text{g}/\text{m}^3$, which is greater than the DEQ occupational inhalation RBC of 47 $\mu\text{g}/\text{m}^3$. PCE was detected in sample GEI-IA-01 at a concentration (45.8 $\mu\text{g}/\text{m}^3$) less than the DEQ RBC. However, the current OSHA 8-hour Time Weighted Average (TWA) for PCE is 685,000 $\mu\text{g}/\text{m}^3$ (OSHA 2023). Based on previous sampling data, the PCE concentration at GEI-IA-02 was considered anomalous and potentially the result of operations at the GLB Site. As discussed below, the sampling location was resampled during non-business hours and the PCE concentration was found to be below the occupational inhalation RBC.
- Chloroform, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, TCE, and VC were not detected at concentrations greater than the laboratory reported detection limit (RDL).

4.2.6.4 AIR MONITORING - DECEMBER 2022 EVENT

To evaluate indoor air conditions during non-business hours (Saturday from 07:00 to 16:00), a follow-up event was conducted on December 2, 2022, to minimize any potential influences attributed to the facility manufacturing processes (e.g., use of degreasers) and/or its personnel (dry cleaned clothing).

Five indoor air samples were submitted for analysis: one in the location of the former floor drain (GEI-IA-01) and one to the south of the former plating and degreaser area (GEI-IA-02), one near the center of the manufacturing area (GEI-IA-03), one in the southeastern offices (GEI-IA-04) and one in the cafeteria (GEI-IA-05), as displayed in Table 3 and Figure 4.

- PCE was not detected in any of the December 2022 indoor air samples at concentrations above DEQ's occupational inhalation RBC_{air} screening value of 47 $\mu\text{g}/\text{m}^3$.
- TCE was detected in samples GEI-IA-03 and GEI-IA-05 at concentrations (7.66 and 4.84 $\mu\text{g}/\text{m}^3$, respectively) greater than the DEQ's occupational inhalation RBC_{air} (3 $\mu\text{g}/\text{m}^3$). These indoor air TCE detections were obtained from the central and northeastern margins of the building, which are over 100 to 200 feet away from known areas of the localized subsurface contamination.
- Chloroform, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, and VC were not detected at concentrations greater than the laboratory RDL.
- Outdoor Air Sample (GEI-OA-01): Chloroform, 1,1-DCE, cis-1,2-DCE, trans-1,2-DCE, TCE, PCE and VC were not detected at concentrations greater than the laboratory RDL.

4.2.7 GeoEngineers, Former Floor Drain Backfill – February/March 2023

In February 2023, GeoEngineers backfilled the former floor drain with concrete to isolate any potential contaminated material in the drain. GeoEngineers poured concrete into the former floor drain approximately 8-inches below the floor surface. After several weeks to allow for the concrete to cure, GeoEngineers returned with finishing concrete in March 2023 to fill the remaining volume of the former floor drain.

4.2.8 GeoEngineers, Contaminated Media Management Plan – March 20, 2023

GeoEngineers prepared a CMMP for the GLB Site. The CMMP provides guidance to the property owner, tenants and excavation contractors working at or near a property with known contamination. The CMMP identifies soil and groundwater contamination beneath the western parking lot and the western portion of the GLB Site building. The CMMP provides guidance for worker training and certifications, identification, characterization, handling and disposal of contaminated soil and groundwater that may be encountered



during earthwork related construction activities at the GLB Site. A copy of the CMMP is provided in Attachment A to this letter report.

5.0 NATURE AND EXTENT OF CONTAMINATION

5.1. Soil

During Partner's 2022 Phase II ESA, PCE was detected in soil samples obtained from depths of 6 and 10 feet bgs in borings B4, B5 and B6 completed inside the GLB building at concentrations ranging between 0.412 and 7.31 mg/kg. The highest concentration of PCE was detected at a depth of 6 feet from boring B6, immediately north of the former floor drain. PCE concentrations were well below applicable DEQ RBCs for soil. Other HVOCs including TCE, cis-1,2-DCE, trans-1,2-DCE and VC were either not detected or detected well below applicable DEQ soil RBCs. HVOCs concentrations in borings located outside the building (B1, B2 and B3) were either not detected above laboratory reporting detection limits or detected well below applicable RBCs (Table 4).

The limited extent of elevated PCE concentrations found near the sump suggests that the area of impacted soil associated with potential historical releases from the former floor drain is relatively small. The inferred extent of HVOC-impacted soil around the former floor drain is illustrated in Figure 5.

5.2. Groundwater

Groundwater sampling conducted in 2021 and 2022 confirmed that one or more HVOCs exceed either drinking water, vapor intrusion to indoor air, and/or groundwater in excavation RBCs beneath the western half of the GLB Site, as shown on Figure 2. Based on GeoEngineers review of soil and groundwater data presented in the WC Site RI/FS, the majority of HVOCs in groundwater beneath the GLB Site appear to originate from the WC Site source areas located immediately north and upgradient of the GLB Site. The data clearly show that releases of chlorinated solvents, including PCE and TCE, from the former vapor degreaser vault area at the WC Site have migrated in a south/southeast direction beneath the western portion of the GLB Site (parking lot and building). This trespassing contaminant plume is impacting shallow groundwater and soil vapor beneath a large portion of the GLB Site. Environmental investigations conducted by Williams Controls in the early 2000s indicated that PCE and TCE concentrations downgradient from the WC Site source areas had been declining, accompanied by a corresponding increase in degradation byproducts (e.g., cis-1,2-DCE, trans-1,2-DCE, and VC). From 2004 through 2006, the concentrations of TCE were approximately three times the concentration of cis-1,2-DCE at the source area (MW-13), whereas the cis-1,2-DCE concentration was approximately 10 times greater than the TCE concentration in downgradient areas (i.e., MW-8, located approximately 300 feet from the source). The results of groundwater quality monitoring conducted in 2021 and 2022 show further declines of PCE and TCE in shallow groundwater across the GLB Site, while levels of cis-1,2-DCE and VC either remained constant or increased.

The August 2022 groundwater sampling of the WC Site's monitoring well network (Ramboll 2022) was conducted prior to the publishing of DEQ's *Chronic and Acute Vapor Intrusion RBCs* (DEQ, 2023), which significantly reduced the VI screening levels for Groundwater Volatilization to Indoor Air (RBC_{wi}). As a result, groundwater from wells MW-2, MW-8, MW-10 through MW-13 and MW-17 contain one or more HVOCs at concentrations greater than corresponding commercial RBC_{wi} screening values (acute and/or chronic). Groundwater monitoring wells MW-10 and MW-11 are located to the west of the GLB Site building and were



generally considered to be the most representative of groundwater conditions beneath the building. The groundwater gradient is generally to the south; therefore, HVOCs in MW-10 and MW-11 are likely from the upgradient WC Site source areas.

In January 2022, grab groundwater samples were collected at the GLB Site from soil borings B5 and B6 located within the southwest corner of the building near the former floor drain. The detected concentrations of PCE and TCE in the shallow groundwater sample obtained from boring B6 near the former floor drain was higher than current and historical levels observed in monitoring wells MW-10 (located upgradient) and MW-11 (located cross-gradient) indicating that the former floor drain is likely a secondary source of HVOCs beneath the building at the GLB Site .

5.3. Soil Vapor

As mentioned above, prior to the June 2023 release of the latest VI RBCs that are based on U.S. Environmental Protection Agency VI screening level calculations, detected concentrations of HVOCs in sub-slab soil vapor samples were below the occupational RBC_{sv} screening values, except for PCE adjacent to the former floor drain. As shown in Figure 3, detected concentrations of PCE and TCE in the majority of 2021 and 2022 sub-slab soil vapor samples collected beneath the western half of the GLB Site building have been greater than the updated 2023 occupational soil vapor into building screening levels (acute and/or chronic). The source of HVOCs in soil vapor beneath much of the GLB Site building appears to be attributed to the WC Site groundwater plume because of the south/southeasterly groundwater gradient, lower soil vapor concentrations in the northern portion of the building, and lack of an identified on-site source for the HVOCs detected at soil vapor sampling locations SS-1, SS-2, SS-6, SS-7, and SS-8. However, the recent sub-slab soil, groundwater, and soil vapor data also indicates that a localized secondary source of HVOCs (mainly PCE) likely exists in the vicinity of the former floor drain.

5.4. Air

The most recent indoor/outdoor air monitoring event (December 2022) indicated that PCE concentrations were less than DEQ's Acute/Chronic Commercial RBCs. However, TCE was detected at concentrations greater than the Chronic Commercial RBC in sample GEI-IA-05, located in the cafeteria and greater than the Acute Commercial RBC in sample GEI-IA-03, located centrally inside the manufacturing building. The source of TCE at these indoor air sample locations is unknown. Detected indoor air concentrations of TCE were well below the current OSHA 8-hour Time Weighted Average (TWA) of 537,000 µg/m³ (OSHA 2023).

6.0 CONCEPTUAL SITE MODEL

6.1. Exposure Pathway Evaluation

The potential exposure pathways for soil, groundwater and indoor/outdoor air are illustrated in Figure 6. Potentially complete exposure pathways include:

- Inhalation/ingestion and dermal contact with HVOC-impacted soil and shallow groundwater by construction and excavation workers; and
- Indirect VI of HVOCs into the GLB Site building.

For the reasons described in the Risk Evaluation below, the following exposure pathways are considered to be incomplete:

- Dermal contact with HVOC-impacted soil and shallow groundwater by residential and occupational receptors;
- Inhalation of unacceptable levels of HVOCs in outdoor air; and
- Adverse effects to ecological receptors.

6.2. Risk Evaluation

6.2.1. Human Health Risk

Potential receptors are people that may be exposed to HVOCs under the current and reasonably likely future land-use scenarios. Land-use considerations are key for determining the categories of people likely to be exposed to site contaminants. As described previously, current and likely future land use zoning at the GLB Site is I-H, which allows for industrial service, manufacturing and production, research and development, warehousing and freight movement, railroad yards, waste-related and wholesale sales activities; therefore, residential receptors are not included. The following current and future potential receptors were identified for the risk-based screening:

- Adults in an occupational scenario
- Adults in a construction scenario
- Adults in an excavation worker scenario

As part of the RI for the WC Site, three deeper groundwater monitoring wells (MW-14D, located to the southwest of the GLB Site building, MW-15D, located to the west of the WC Site building, and MW-16D, located between the WC Site and GBL Site buildings) were installed to assess the potential for vertical migration of contaminants. The deeper wells were installed in perimeter areas (one upgradient and two downgradient on the GLB Site [MW-14D and MW-16D]) because of concerns that well installations in areas of high HVOC concentrations would potentially create conduits for contamination to migrate vertically into deeper water-bearing soil units. To date the results of groundwater quality monitoring show no evidence of appreciable HVOC migration to deeper water-bearing units. Given the absence of any water supply wells on or adjacent to the GLB Site (Figure 1), current exposure to HVOCs in shallow groundwater through direct contact (ingestion or inhalation) with irrigation, industrial, or domestic uses of groundwater is not occurring.

6.2.2. Ecological Risk

A formal ecological risk assessment was not performed for this GLB Site. However, HVOC-impacted groundwater emanating from the WC Site facility, and to a lesser extent, the GLB Site building, potentially discharges into Ball Creek located downgradient of both sites. As shown on Table 1, HVOC concentrations present in the shallow groundwater is well below ecological screening levels for surface water. Moreover, as shown on Table 4, detected concentrations of PCE in soil above ecological screening levels are limited to below the building or its surrounding pavement (6 to 10 feet bgs).

7.0 POTENTIAL DATA GAPS

7.1. Soil

Three soil borings were advanced within the western portion of the GLB Site building during the Partner's Phase II ESA (Partner 2022). HVOCs including PCE, TCE, cis-1,2-DCE, and trans-1,2-DCE were detected in

soil between 6 and 10 feet bgs near the former floor drain. While the full extent of HVOCs in soil beneath the GLB Site building has not been defined, soil is generally an unreliable indicator of VI risk. A total of eleven sub-slab soil vapor monitoring pins have been installed beneath the western half of the GLB Site building. Further characterization of soil beneath the GLB Site building does not appear to be warranted for purposes of locating additional soil vapor sampling points. Furthermore, potential interim actions to address indoor air risk would likely not include soil removal beneath the building.

7.2. Soil Vapor

Prior to the adoption of the new acute/chronic commercial RBC_{sv} screening values, GeoEngineers had been sampling sub-slab soil vapor from select pre-existing and newly installed vapor pins set in the concrete floor of the GLB Site building. The new chronic HVOC RBC_{sv} screening values are lower than the old RBC_{sv} values by a factor of six. As a result, detected concentrations of PCE and TCE now exceed their corresponding RBC_{sv} values in all sub-slab soil vapor sampling locations with the exception for GEI-SS-03, which has been detected at concentrations less than the 2023 RBCs since the installation in April 2022 (Figure 3). Future sub-slab soil vapor monitoring is recommended and should be extended to include locations SS-1, SS-2, SS-5 through SS-8, which have not been sampled since 2021 to characterize sub-slab soil vapor under current screening levels. If sub-slab soil vapor concentrations are still at concentrations greater than acute and/or chronic commercial RBC_{sv} screening values, additional sub-slab soil vapor sampling locations may need to be installed to the east and southeast of the existing vapor pin locations.

7.3. Groundwater

The main source of groundwater HVOC contamination appears to emanate from the WC Site source areas, immediately upgradient of GLB Site's western margins. This HVOC plume extends to the south and southeast beneath the western parking lot and GLB Site building before terminating south of the GLB Site in the original Ball Creek alignment (ENVIRON, 2008). The extent of the WC Site HVOC plume appears to be defined and its primary contaminants (PCE and TCE) have been largely degraded into cis-1,2-DCE and VC. However, subsequent biological anaerobic reduction of cis-1,2-DCE and VC in shallow groundwater appears to be limited by either the absence of appropriate microorganisms and/or insufficient supply of electron acceptor/donor substrate needed by the microbial population responsible for complete dehalogenation. The results of the 2022 shallow grab groundwater samples collected inside the GLB Site building indicate that a secondary source of HVOCs exists beneath the former floor drain. However, this secondary source area appears to be limited in magnitude and extent, and the installation of additional groundwater monitoring wells inside the GLB Site building is not necessary to inform the selection of additional soil vapor sampling points. In our opinion, the existing monitoring well network is sufficient for evaluating HVOC plume extent and stability. While ongoing monitoring of the biological anaerobic reduction of cis-1,2-DCE and VC in the existing WC Site monitoring wells is recommended, it is not necessary for evaluating and addressing current and future risks posed by residual contamination (e.g., potential direct contact by earth workers and soil vapor migration into the GLB Site's manufacturing building).

7.4. Air

In general, detected concentrations of HVOCs in indoor air samples collected over 6 to 8 hours intervals have been below occupational RBCs. Nonetheless, concurrent indoor air and sub-slab soil vapor monitoring is recommended, particularly in the vicinity of the building's former floor drain.

8.0 EXPEDIATED NFA STRATEGY

8.1. Additional VI Assessment

As mentioned above, GeoEngineers recommends one additional round of HVOC sampling in all sub-slab monitoring points (i.e., installed vapor pins GEI-SS-01 through GEI-SS-03 and SS-1 through SS-8). Specifically, GeoEngineers recommends that concurrent sampling of sub-slab soil vapor and indoor air be conducted in the fall/early winter when groundwater levels are low and ambient temperature and pressure gradients between outdoor and indoor air are expected to be significant. In addition to HVOCs, we recommend measuring ambient pressures above and below the building's concrete floor at the time of sample collection. As mentioned above, additional sub-slab soil vapor monitoring pins may need to be installed east and southeast of the former floor drain and sample location GEI-SS-01. Further characterization of this secondary source of HVOCs around the former floor drain will assist in the evaluation and development of VI mitigation options (e.g., a sub-slab depressurization system, as described below).

Additional soil and groundwater characterization does not appear to be warranted at this time, as no construction or excavation work is planned for the GLB Site and Fiskars employees do not interact with subsurface soil or groundwater as part of their daily operations. If construction or excavation work is anticipated in the future, the CMMP (GeoEngineers, 2023) will be provided to contractors prior to the start of work.

8.2. Potential VI Mitigation Options

Following updates to the RBC_{sv} screening values, potential risks associated with the VI exposure pathway have been magnified and may need to be addressed in order to facilitate an expedited NFA determination. VI mitigation options include breaking or interrupting this exposure pathway at the building interface with the subsurface (e.g., sealing the floor, depressurizing the granular soil immediately below the concrete floor slab), and/or increasing ventilation inside the building. GeoEngineers intend to coordinate with DEQ to select the most feasible VI mitigation option that is expected to achieve one or more of the following primary and secondary remedial action objectives (RAOs):

- Indoor Air (Primary) – indoor concentrations of HVOCs below RBC_{air} screening values;
- Differential Pressure (Secondary) – creation of negative pressure below the building's floor slab (e.g., less than indoor air) ; and/or
- Sub-Slab (Secondary) – reduction of sub-slab soil vapor levels below the RBC_{sv} screening values.

9.0 CLOSING

Following DEQ's review of this letter report and its referenced materials, representatives of Asgard and GeoEngineers wish to meet and discuss next steps. We understand that DEQ is still working on an updated VI guidance document. Therefore, it is expected that an additional VI assessment scope will be prepared and presented to the DEQ VCP project team in the form of a work plan before proceeding with any agreed-to investigation work. The results of additional VI assessment will then be used to inform detailed discussions of mitigation options to the extent necessary and feasible. Asgard seeks to expedite the closure process under the VCP to the extent feasible without compromising compliance with the new VI guidance.



Once the VI mitigation performance monitoring meets the primary and secondary RAOs, Asgard will seek an NFA conditional on the land and water use restrictions mentioned above.

10.0 REFERENCES

- ENVIRON International Corporation, 2008. Remedial Investigation and Feasibility Study Report, Williams Controls Industries, Inc., 14100 SW 72nd Avenue, Portland, Oregon. Dated June 24, 2008.
- Hahn and Associates, Inc., 2021. Phase I Environmental Site Assessment, Gerber Blades Property, 14200 SW 72nd Avenue, Tigard, Washington County, Oregon. Dated March 12, 2021.
- Partner Engineering and Science, Inc., 2021. Phase I Environmental Site Assessment, Tigard Industrial, 14200 SW 72nd Avenue, Tigard, Oregon 97224. Dated December 13, 2021.
- Partner Engineering and Science, Inc., 2022. Phase II Subsurface Investigation Report, Gerber Tigard, 14200 SW 72nd Avenue, Tigard, Oregon 97224. Dated February 14, 2022.
- Oregon Department of Environmental Quality. 2010. Environmental Cleanup Program, Guidance for Assessing and Remediating Vapor Intrusion in Buildings. Dated May 29, 2020.
- Oregon Department of Environmental Quality. 2023. Risk Based Decision Making for the Remediation of Petroleum-Contaminated Sites. Dated November 2023.
- Wood Environmental & Infrastructure solutions, Inc. 2021. Phase II Environmental Site Assessment, Fiskars Facility, 14200 SW 72nd Avenue, Tigard, Oregon, dated August 24, 2021.
- GeoEngineers, Inc. 2022. Letter Report, Former Sump Cleanout, Sub-Slab Soil Vapor and Indoor Air Sampling, Fiskars Manufacturing Facility, 14200 SW 72nd Avenue, Tigard, Oregon, dated May 10, 2022.
- GeoEngineers, Inc. 2022. Letter Report, Sub-Slab Vapor and Indoor/Outdoor Air Sampling – November and December 2022, Fiskars Manufacturing Facility, 14200 SW 72nd Avenue, Tigard, Oregon. Dated December 28, 2022.
- GeoEngineers, Inc. 2023. Contaminated Media Management Plan, Fiskars Manufacturing Facility, 14200 SW 72nd Avenue, Portland, Oregon. Dated March 20, 2023.
- OSHA 2023. “Occupational Chemical Database.” Accessed December 8, 2023
.https://www.osha.gov/chemicaldata/



If you have any questions about this Strategy Recommendation, please let us know.

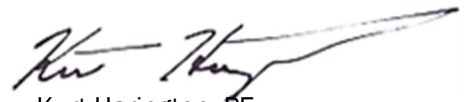
Sincerely,
GeoEngineers, Inc.



Aaron J. Fredericy
Project Manager



Phillip Cordell, RG
Senior Geologist



Kurt Harington, PE
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AJF:PC:KH:kjb

Attachments:

Table 1. Summary of Select Volatile Organic Compounds in Groundwater Monitoring Wells

Table 2. Sub-Slab Soil Vapor and Indoor Air Chemical Analytical Results

Table 3. Indoor/Outdoor Air Chemical Analytical Results

Table 4. Summary of Select Volatile Organic Compounds in Soil

Figure 1. Vicinity Map

Figure 2. Inferred Extent of HVOCs in Shallow Groundwater

Figure 3. Sub-Slab Soil Vapor Sample Locations and Inferred Extent of HVOCs Beneath Site Building

Figure 4. Indoor/Outdoor Air Sample Locations

Figure 5. Area of Possible Soil Contamination

Figure 6. Conceptual Site Model

Attachment A. Contaminated Media Management Plan

Attachment B. Select Oregon Water Resources Department Well Logs



TABLES



Table 1
Summary of Select Volatile Organic Compounds in Groundwater
Fiskars Manufacturing Facility
Portland, Oregon

Sample Location	Sample Date	Halogenated volatile organic compounds (HVOCs) (µg/L)					
		PCE	TCE	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride
Groundwater Monitoring Well Samples							
MW-1	11/10/1997	ND	ND	ND	ND	ND	ND
	3/5/1998	ND	ND	ND	ND	ND	ND
	11/24/2004	ND	ND	ND	ND	ND	ND
	2/25/2005	ND	ND	ND	ND	ND	ND
	6/1/2005	ND	1.38	ND	ND	ND	ND
	8/26/2005	ND	0.67	ND	ND	ND	ND
	11/30/2005	ND	ND	ND	ND	ND	ND
MW-2	8/19/2022	ND	ND	ND	ND	ND	ND
	11/6/1997	28.6	667	ND	72.6	ND	ND
	3/5/1998	2.9	7.77	ND	10.6	ND	ND
	11/5/2004	2.55	12.1	ND	6.77	ND	ND
	2/24/2005	6.52	41.5	ND	47.3	0.75	2.62
	5/31/2005	4.82	12.4	ND	10.1	ND	1.69
	8/29/2005	12.7	124	0.59	132	1.79	14.5
MW-3	11/29/2005	2.53	4.95	ND	1.34	ND	ND
	8/22/2022	12.7	93.9	0.509	266	2.54	3.99
	11/6/1997	ND	6.24	ND	1.71	ND	ND
MW-4	3/5/1998	3.01	7.44	ND	2.05	ND	ND
	11/5/2004	1.55	5.55	ND	2.83	ND	ND
	11/6/1997	ND	1.96	ND	ND	ND	ND
	3/5/1998	0.795	16.2	ND	ND	ND	ND
	11/5/2004	16.9	5.45	ND	2.54	ND	ND
	2/24/2005	0.59	6.72	ND	ND	ND	ND
	5/31/2005	0.79	3.85	ND	ND	ND	ND
MW-6	8/30/2005	1.03	10.6	ND	ND	ND	ND
	11/30/2005	0.89	8.03	ND	ND	ND	ND
	8/19/2022	0.307	ND	ND	ND	ND	ND
	11/6/1997	ND	ND	ND	ND	ND	ND
	3/5/1998	ND	ND	ND	ND	ND	ND
	11/8/2004	ND	1.01	ND	ND	ND	ND
	2/24/2005	ND	ND	ND	ND	ND	ND
MW-7	5/31/2005	ND	ND	ND	ND	ND	ND
	8/30/2005	ND	ND	ND	ND	ND	ND
	12/1/2005	ND	ND	ND	ND	ND	ND
	11/3/2004	ND	17.7	ND	12.5	ND	ND
	2/24/2005	ND	29.9	ND	16.8	1.43	ND
	5/31/2005	ND	19.7	ND	10.2	0.93	ND
	8/30/2005	ND	30.3	ND	16.6	1.59	ND
MW-8	12/1/2005	ND	14.5	ND	7.61	0.58	ND
	6/7/2006	ND	23.1	ND	12.3	1.2	ND
	8/19/2022	ND	5.14	ND	6.15	0.651	ND
	8/19/2022*	ND	6.06	ND	7.32	0.64	ND
	11/3/2004	206	706	ND	12,300	233	ND
	2/25/2005	ND	565	ND	11,300	221	ND
	6/1/2005	ND	516	ND	8,930	200	ND
MW-8	8/30/2005	ND	256	ND	8,800	208	ND
	12/1/2005	ND	242	ND	8,980	189	ND
	6/6/2006	ND	108	ND	7,260	172	ND
	5/15/2021	ND	ND	0.516	285	15.7	29.2
	8/19/2022	0.313	0.254	0.342	215	10.5	34.8

Sample Location	Sample Date	Halogenated volatile organic compounds (HVOCs) (µg/L)					
		PCE	TCE	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride
MW-9	11/3/2004	ND	ND	ND	ND	ND	ND
	2/25/2005	ND	ND	ND	ND	ND	ND
	5/31/2005	ND	ND	ND	ND	ND	ND
	8/30/2005	ND	ND	ND	0.54	ND	ND
	12/1/2005	ND	ND	ND	ND	ND	ND
	6/7/2006	ND	ND	ND	ND	ND	ND
	5/15/2021	ND	ND	ND	ND	ND	ND
	8/22/2022	ND	ND	ND	ND	ND	ND
MW-10	11/3/2004	4.92	214	ND	161	18.1	ND
	2/25/2005	10	325	ND	70.7	4.9	ND
	6/1/2005	6.68	232	ND	76.9	6.48	ND
	8/30/2005	5.72	219	ND	80.9	7.48	ND
	11/29/2005	8.9	269	ND	41.8	1.74	ND
	8/22/2022	1.33	54.5	ND	37.9	6.55	ND
MW-11	11/5/2004	220	2,140	ND	11,300	135	ND
	2/24/2005	107	1,040	ND	10,600	54	ND
	5/31/2005	ND	544	ND	10,900	74	ND
	8/29/2005	ND	1,100	ND	13,400	116	ND
	11/30/2005	ND	904	ND	12,900	125	ND
	6/6/2006	ND	862	ND	12,300	ND	ND
	5/15/2021	25.6	ND	ND	8,350	89.3	885
	8/17/2022	7.25	1.09	10.2	7,550	6.6	1,040
MW-12	11/3/2004	ND	2,170	ND	690	165	ND
	2/25/2005	ND	512	ND	3,280	253	ND
	6/1/2005	ND	156	ND	3,140	206	ND
	8/29/2005	ND	132	ND	5,160	336	ND
	11/29/2005	ND	18	ND	3,880	258	ND
	6/6/2006	ND	ND	ND	4,610	273	ND
	5/15/2021	ND	ND	2.78	4,030	89.3	179
MW-13	8/19/2022	ND	ND	1.76	2,030	40.8	77
	11/3/2004	630	32,700	ND	12,800	ND	ND
	2/24/2005	1,540	102,000	ND	26,100	ND	ND
	6/1/2005	1,300	62,200	ND	13,700	ND	ND
	8/29/2005	685	38,800	ND	18,100	ND	ND
	11/30/2005	590	33,500	ND	11,600	ND	ND
	6/6/2006	1,280	66,700	ND	21,000	ND	ND
	8/18/2022	ND	584	39.4	14,900	54.1	602
MW-14D	8/18/2022*	ND	733	45.5	13,200	58.4	578
	11/8/2004	ND	ND	ND	1.86	ND	ND
	2/25/2005	ND	ND	ND	1.69	ND	ND
	6/2/2005	ND	ND	ND	ND	ND	ND
	8/30/2005	ND	ND	ND	ND	ND	ND
	11/28/2005	ND	ND	ND	1.65	ND	ND
MW-15D	8/18/2022	ND	ND	ND	0.173	ND	ND
	11/5/2004	ND	ND	ND	ND	ND	ND
	2/24/2005	ND	ND	ND	ND	ND	ND
	6/2/2005	ND	ND	ND	ND	ND	ND
	8/30/2005	ND	ND	ND	0.52	ND	ND
	11/28/2005	ND	ND	ND	ND	ND	ND

Sample Location	Sample Date	Halogenated volatile organic compounds (HVOCs) (µg/L)					
		PCE	TCE	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride
MW-16D	11/8/2004	ND	ND	ND	ND	ND	ND
	2/25/2005	10.6	2.2	ND	1.45	ND	ND
	6/2/2005	20.5	2.19	ND	3.38	ND	ND
	8/26/2005	3.38	0.52	ND	1.14	ND	ND
	11/28/2005	2.09	ND	ND	0.82	ND	ND
	8/18/2022	ND	ND	ND	0.637	ND	ND
	8/19/2022	ND	0.190	ND	0.607	ND	ND
MW-17	6/8/2006	ND	ND	ND	4,940	38.5	ND
	8/20/2022	ND	0.505	11.0	6,820	78.5	83.2
MW-18	6/8/2006	ND	ND	ND	ND	ND	ND
	8/21/2022	ND	ND	ND	0.424	ND	ND
MW-19	6/8/2006	ND	ND	ND	ND	ND	ND
	8/22/2022	ND	ND	ND	ND	ND	ND
Grab Groundwater Samples¹							
B1-GW	1/29/2022	283	19.4	0.425	37	0.223 J	ND
B2-GW	1/29/2022	208	27.9	ND	45.2	0.364 J	0.383 J
B3-GW	1/29/2022	746	87.1	ND	81.6	0.35 J	0.293 J
B5-GW	1/30/2022	324	4.43	ND	39.8	0.191 J	ND
B6-GW	1/30/2022	2,930	71.5	2.07	864	3.09 J	ND
Potentially Applicable DEQ Risk-Based Concentrations²							
Ingestion & Inhalation of Tap Water - Occupational Receptor Scenario (RBC _{tw})	48	3.3	1,400	260	2,600	0.49	
Groundwater In Excavation (RBC _{we})	5,600	430	10,000	18,000	180,000	960	
Volatilization to Outdoor Air - Occupational Receptor Scenario (RBC _{wo})	>S	20,000	68,000	>S	>S	5,900	
Volatilization to Indoor Air - Occupational Scenario - Chronic (RBC _{wi})	130	13	1,300	1,800	750	3.3	
Volatilization to Indoor Air - Occupational - Acute (RBC _{ai})	330	27	NE	NE	10,000	4,600	
Ecological Screening Level - Surface Water							
Birds - Threatened and Endangered	NE	NE	NE	NE	NE	NE	
Birds	NE	NE	NE	NE	NE	NE	
Mammals - Threatened and Endangered	8,900	440,000	130,000	200,000	200,000	NE	
Mammals	44,000	4,400,000	1,300,000	2,000,000	2,000,000	NE	

Notes:

¹ Grab groundwater samples collected by Partner Engineering and Science, Inc.

² Oregon Department of Environmental Quality (DEQ) Risk Based Decision Making for the Remediation of Contaminated Sites, revised August 2023.

* Duplicate sample collected. However, the Ramboll report did not identify primary/duplicate samples.

<S = Greater than solubility limit in water; µg/L = micrograms per liter; ND = compound not detected at a concentration greater than the laboratory detection limit.

Bold indicates the analyte was detected above the laboratory Reported Detection Limit (RDL).

Gray Shading	Indicates that the detected analyte concentration was greater than the Groundwater in Excavation RBC _{we}
Blue Shading	Indicates that the detected analyte concentration is greater than the commercial RBC _{wi} for volatilization to indoor air (either chronic or acute effects).
Orange Shading	Indicates that the analyte was not detected at concentrations greater than the laboratory RDL, but the RDL was greater than the chronic groundwater volatilization to indoor air RBC.

Table 2
Sub-slab Soil Vapor and Indoor Air Chemical Analytical Results¹
Volatile Organic Compounds
Fiskars Manufacturing Facility
Tigard, Oregon

Sample Identification	Collected By	Collection Date	PID Screening Result (ppm)	Start Time	Initial Vacuum (Inches of Mercury)	End Time	Final Vacuum (Inches of Mercury)	ASTM 1946 (%)	Halogenated volatile organic compounds (HVOCs) ² (µg/m ³)						
								Helium	Chloroform	1,1-Dichloroethene	cis 1,2 Dichloroethene	trans 1,2 Dichloroethene	Tetrachloroethene (PCE)	Trichloroethene (TCE)	Vinyl Chloride
SS1-20210515	Wood Environment & Infrastructure Solutions, Inc.	5/15/2021	NR	NR	NR	NR	NR	ND	—	—	< 120	< 120	18,000	150	< 110
SS2-20210515			NR	NR	NR	NR	NR	ND	—	—	< 130	< 130	18,000	< 120	< 130
SS3-20210515			NR	NR	NR	NR	NR	ND	—	—	< 110	< 110	42,000	< 100	< 110
SS4-20210515			NR	NR	NR	NR	NR	ND	—	—	< 3,800	< 3,900	720,000	< 3,700	< 3,900
SS5-20210515			NR	NR	NR	NR	NR	ND	—	—	< 26	< 27	4,500	< 26	< 27
SS6-20210515			NR	NR	NR	NR	NR	ND	—	—	< 96	< 97	14,000	< 94	< 97
SS7-20210515			NR	NR	NR	NR	NR	ND	—	—	< 150	< 160	27,000	< 150	< 160
SS8-20210515			NR	NR	NR	NR	NR	NR	ND	—	—	< 25	< 26	5,000	< 25
GEI-SS-01	GeoEngineers, Inc.	4/19/2022	50.0	9:35	30	9:40	4.0	< 0.100	< 0.973	< 0.793	< 0.793	< 0.793	23.2	< 1.07	< 0.511
GEI-SS-02			3.4	10:19	29	10:24	2.0	< 0.100	1.50	< 0.793	2.52	4.20	6,320	201	< 0.511
GEI-SS-03			2.5	11:00	28	11:05	2.0	< 0.100	< 0.973	< 0.793	< 0.793	< 0.793	9.98	< 1.07	< 0.511
SS-3			29.2	11:55	28	12:00	2.0	< 0.100	< 0.973	< 0.793	3.35	< 0.793	7,540	27.5	< 0.511
SS-4			429.4	11:32	30	11:37	2.0	< 0.100	84.2	4.32	20.0	13.9	29,900	274	< 0.511
GEI-SS-01	GeoEngineers, Inc.	11/11/2022	115.4	9:02	30	9:08	2.5	0.175	< 0.973	< 0.793	< 0.793	< 0.793	47,000	19.3	< 0.511
GEI-SS-02			28.1	9:42	29	9:47	2.0	< 0.100	< 0.973	< 0.793	2.08	5.71	22,300	362	< 0.511
GEI-SS-03			1.4	10:11	27	10:15	2.0	0.398	< 0.973	< 0.793	< 0.793	< 0.793	1,120	1.53	< 0.511
SS-3			50.2	10:39	30	10:44	2.0	0.384	1.34	< 0.793	23.1	0.824	32,700	151	< 0.511
SS-4			772.9	11:08	29	11:14	2.0	0.261	303	11.3	25.5	41.6	644,000	404	< 0.511
GEI-SS-01	GeoEngineers, Inc.	12/2/2022	14.5	10:46	29	10:51	3.0	0.197	< 0.973	< 0.793	< 0.793	< 0.793	9,440	21.8	< 0.511
GEI-SS-02			4.8	10:06	30	10:13	3.0	0.198	< 0.973	< 0.793	2.50	6.34	16,200	385	< 0.511
GEI-SS-03			0.7	9:30	27	9:35	2.0	0.198	< 0.973	< 0.793	< 0.793	< 0.793	71.7	< 1.07	< 0.511
SS-3			10.9	11:24	28	11:29	2.5	0.268	< 0.973	< 0.793	4.36	< 0.793	22,900	65.4	< 0.511
SS-4			47.6	11:43	28	11:55	2.0	0.312	< 0.973	< 0.793	< 0.793	< 0.793	674,000	638	< 0.511
Potentially Applicable DEQ Risk-Based Concentrations ³															
Vapor Intrusion into Buildings (RBC _{sv})															
Chronic Screening Value (Occupational)								NE	18	29,000	5,800	5,800	1,600	100	93
Acute Screening Value (Occupational)								NE	50,000	20,000	NE	80,000	4,000	210	130,000

Notes:

¹ Chemical analyses for GeoEngineers' samples were performed by Pace Analytical National, Mt. Juliet, Tennessee.

² Select Volatile Organic Compounds analyzed by U.S. Environmental Protection Agency (EPA) Method TO-15

³ Oregon Department of Environmental Quality (DEQ) Risk Based Decision Making for the Remediation of Contaminated Sites, revised August 2023 and Chronic and Acute Vapor Intrusion, published in May 2023.

VOCs = volatile organic compounds; NE = Not Established; ppm = parts per million; % = percent

RBCsv = risk-based concentration for soil vapor volatilization to indoor air

NR = Not Reported; ND = Not Detected

'<' indicates analyte not detected above the laboratory Reported Detection Limit (RDL)

Bold indicates the analyte was detected above the laboratory Reporting Detection Limit (RDL).

Blue Shading Indicates that the detected analyte concentration is greater than the new commercial RBCs (either chronic or acute).

Table 3
Indoor/Outdoor Air Chemical Analytical Results¹
Volatile Organic Compounds
Fiskars Manufacturing Facility
Tigard, Oregon

Sample Identification	Collected By	Collection Date	PID Screening Result (ppm)	Start Time	Initial Vacuum (Inches of Mercury)	End Time	Final Vacuum (Inches of Mercury)	Halogenated volatile organic compounds (HVOCs) ² (µg/m ³)						
								Chloroform	1,1-Dichloroethene	cis 1,2 Dichloroethene	trans 1,2 Dichloroethene	Tetrachloroethene (PCE)	Trichloroethene (TCE)	Vinyl Chloride
IA-20210717	Wood Environment & Infrastructure Solutions, Inc.	7/17/2021	NR	NR	NR	NR	NR	–	–	< 0.16	–	18	0.31	< 0.16
IAQ-1	Partner Engineering and Science, Inc.	1/31/2022	NR	NR	NR	NR	NR	< 0.973	< 0.793	< 0.793	< 0.793	8.28	< 1.07	< 0.511
IAQ-2			NR	NR	NR	NR	NR	< 0.973	< 0.793	< 0.793	< 0.793	6.93	< 1.07	< 0.511
IAQ-3			NR	NR	NR	NR	NR	< 0.973	< 0.793	< 0.793	< 0.793	6.65	< 1.07	< 0.511
IAQ-4			NR	NR	NR	NR	NR	< 0.973	< 0.793	< 0.793	< 0.793	< 1.36	< 1.07	< 0.511
IAQ-5			NR	NR	NR	NR	NR	< 0.973	< 0.793	< 0.793	< 0.793	10.3	< 1.07	< 0.511
GEI-IA-01	GeoEngineers, Inc.	4/19/2022	–	6:11	30	14:11	2.0	< 0.973	< 0.793	< 0.793	< 0.793	8.42	< 1.07	< 0.511
GEI-IA-02			–	6:19	27	12:36	1.0	< 0.973	< 0.793	< 0.793	< 0.793	6.44	< 1.07	< 0.511
GEI-IA-01	GeoEngineers, Inc.	11/11/2022	3.5	8:00	29	15:50	2.0	< 0.973	< 0.793	< 0.793	< 0.793	45.8	< 1.07	< 0.511
GEI-IA-02			3.5	8:03	28	15:45	2.0	< 0.973	< 0.793	< 0.793	< 0.793	132	< 1.07	< 0.511
GEI-IA-01	GeoEngineers, Inc.	12/2/2022	1.0	7:20	28.0	15:12	2.0	< 0.973	< 0.793	< 0.793	< 0.793	32.2	< 1.07	< 0.511
GEI-IA-02			1.1	7:30	30.0	15:40	2.0	< 0.973	< 0.793	< 0.793	< 0.793	27.6	< 1.07	< 0.511
GEI-IA-03			1.7	7:40	28.5	15:24	2.0	< 0.973	< 0.793	< 0.793	< 0.793	17.4	7.66	< 0.511
GEI-IA-04			0.1	8:00	30.0	15:50	3.0	< 0.973	< 0.793	< 0.793	< 0.793	1.36	< 1.07	< 0.511
GEI-IA-05			0.4	7:50	28.5	15:27	2.5	< 0.973	< 0.793	< 0.793	< 0.793	3.28	4.84	< 0.511
GEI-OA-01			0.0	8:10	30.0	16:20	3.0	< 0.973	< 0.793	< 0.793	< 0.793	< 1.36	< 1.07	< 0.511
Potentially Applicable DEQ Risk-Based Concentrations ³														
Inhalation (RBC _{air})														
Chronic Screening Value (Occupational)								0.53	880	180	180	47	3	2.8
Occupational Acute Screening Value (Occupational)								1,500	600	NE	2,400	120	6.3	3,900

Notes:

¹ Chemical analyses for GeoEngineers' samples were performed by Pace Analytical National, Mt. Juliet, Tennessee.

² Select Volatile Organic Compounds analyzed by U.S. Environmental Protection Agency (EPA) Method TO-15

³ Oregon Department of Environmental Quality (DEQ) Risk Based Decision Making for the Remediation of Contaminated Sites, revised August 2023 and Chronic and Acute Vapor Intrusion, published in May 2023.

ASTM = ASTM International Standard Practices; µg/m³ = micrograms per cubic meter; – = Not Analyzed

VOCs = volatile organic compounds; NR = Not Reported; NE = Not Established; ppm = parts per million;

'<' = indicates analyte not detected above the laboratory Reported Detection Limit (RDL)

Bold indicates the analyte was detected above the laboratory RDL.

Gray Shading indicates that the detected analyte concentration was greater than the corresponding occupational RBC.

Table 4
Summary of Select Volatile Organic Compounds in Soil¹
Fiskars Manufacturing Building
Portland, Oregon

Sample ID	Sample Depth (feet bgs)	Sample Date	Halogenated volatile organic compounds (HVOCs) ² (mg/kg)					
			1,1-Dichloroethene	cis 1,2-Dichloroethene	trans 1,2-Dichloroethene	Tetrachloroethene (PCE)	Trichloroethene (TCE)	Vinyl Chloride
B1-10	10	1/29/2022	< 0.00428	< 0.00428	< 0.00857	< 0.00428	< 0.00171	< 0.00428
B2-10	10	1/29/2022	< 0.00425	0.00477	< 0.00849	< 0.00425	< 0.00170	< 0.00425
B3-10	10	1/29/2022	< 0.00421	< 0.00421	< 0.00841	0.0187	< 0.00168	< 0.00421
B4-6	6	1/30/2022	< 0.00433	< 0.00433	< 0.00866	0.412	0.00438	< 0.00433
B5-10	10	1/30/2022	< 0.00476	0.00202 J	< 0.00951	0.476	0.00268	< 0.00476
B6-6	6	1/30/2022	< 0.00387	0.404	0.00203 J	7.31	0.0634	< 0.00387
B6-10	10	1/30/2022	< 0.00408	0.390	< 0.00815	2.53	0.0297	< 0.00408
Potentially Applicable DEQ Risk-Based Concentrations³								
Soil Ingestion, Dermal Contact and Inhalation (RBC_{ss})								
Construction Worker			13,000	710	7,100	1,800	130	34
Excavation Worker			370,000	20,000	200,000	50,000	3,700	950
Ecological Screening Level - Soils - Ground Feeding								
Birds - Threatened and Endangered			NE	NE	NE	NE	NE	NE
Birds			NE	NE	NE	NE	NE	NE
Mammals - Threatened and Endangered			11	24	24	0.18	42	0.12
Mammals			60	240	240	0.94	420	1.2

Notes:

¹ Chemical analyses for Partners' samples were performed by Pace Analytical National, Mt. Juliet, Tennessee.

² Volatile Organic Compounds analyzed by U.S. Environmental Protection Agency (EPA) Method 8260D

³ Oregon Department of Environmental Quality (DEQ) Risk Based Decision Making for the Remediation of Contaminated Sites, revised August 2023. DEQ eliminated soil vapor intrusion RBCs in May 2023.

VOCs = volatile organic compounds; mg/kg = milligrams per kilogram; NE = Not Established

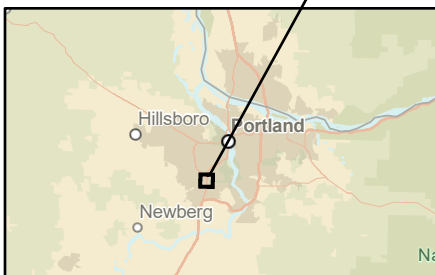
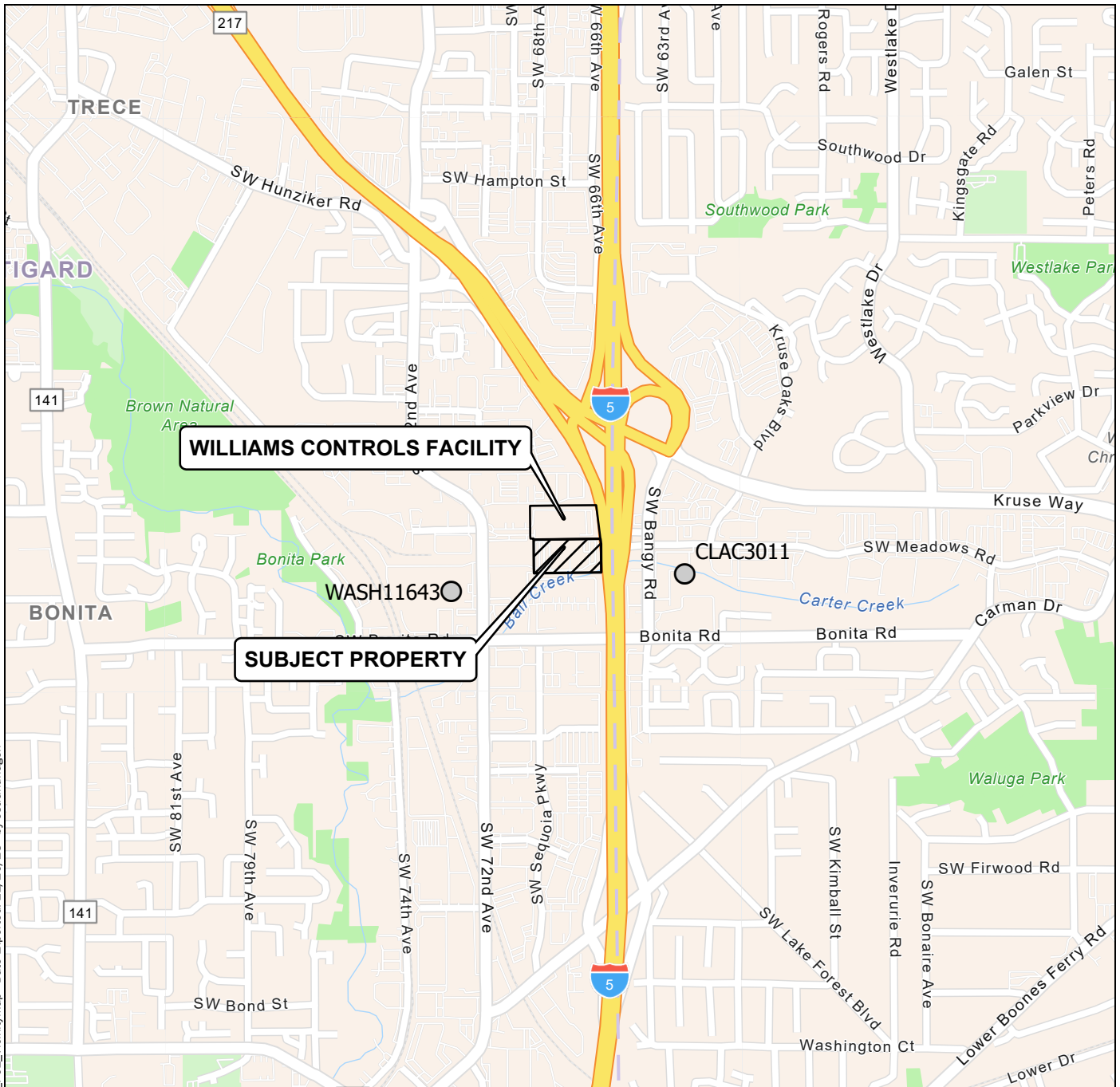
J = The identification of the analyte is acceptable; the reported value is an estimate.

'<' indicates analyte not detected above the laboratory Reported Detection Limit (RDL)

Bold indicates the analyte was detected above the laboratory RDL.

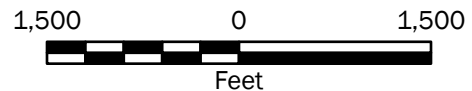
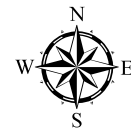
FIGURES





Legend

- Water Supply Wells



Vicinity Map

Fiskars Manufacturing Facility
14200 SW 72nd Avenue, Portland, Oregon



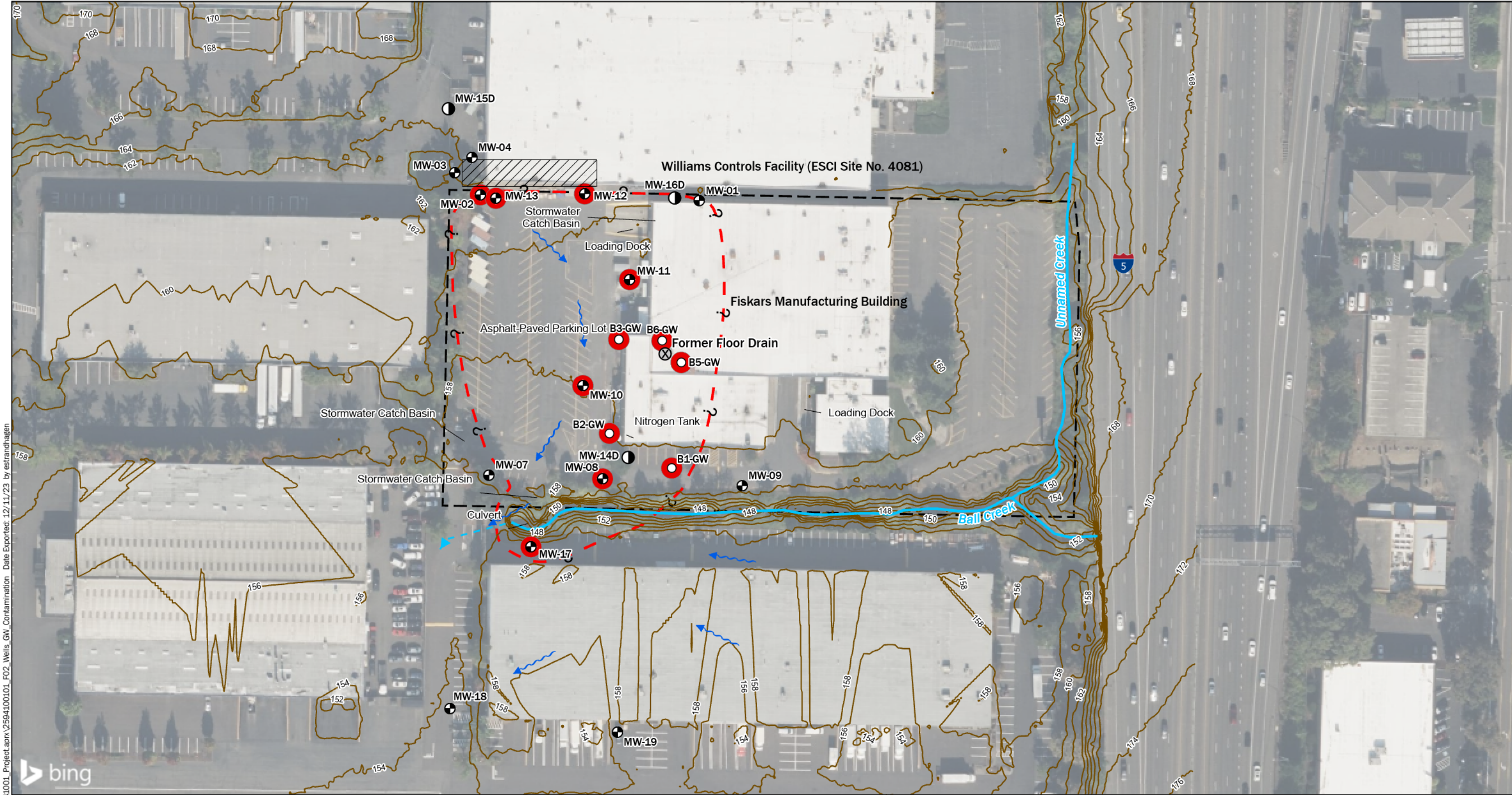
Figure 1

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.

Data Source: ESRI

Projection: NAD 1983 UTM Zone 10N



Notes:

- Grab groundwater samples collected in January 2022 by Partner Engineering and Science, Inc. Groundwater samples collected in August 2022 by Ramboll US Consulting, Inc.
- Groundwater flow direction based on Groundwater Sampling Report by Ramboll US Consulting, Inc.
- 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. HVOC= Halogenated volatile organic compounds

Data Source: Bing Imagery
Projection: NAD 1983 HARN StatePlane Oregon North FIPS 3601 Feet Intl

Legend

○ Grab Groundwater Sample	● Groundwater Analysis Indicated that One or More HVOCs Were Detected at Concentrations Greater than or Equal to Applicable DEQ RBCs	— Topographic Elevation Contours (2014 LIDAR)
⊕ Shallow Groundwater Monitoring Well	⊗ Former Floor Drain	→ Groundwater Flow Lines
⊖ Deep Groundwater Monitoring Well	⬮ Area of Possible Shallow Groundwater Contamination	⬮ Subject Property Boundary
		⬮ Approximate Location of Source Area for the Williams Control Industries, Inc. Facility

0 50 100 Feet

North Arrow

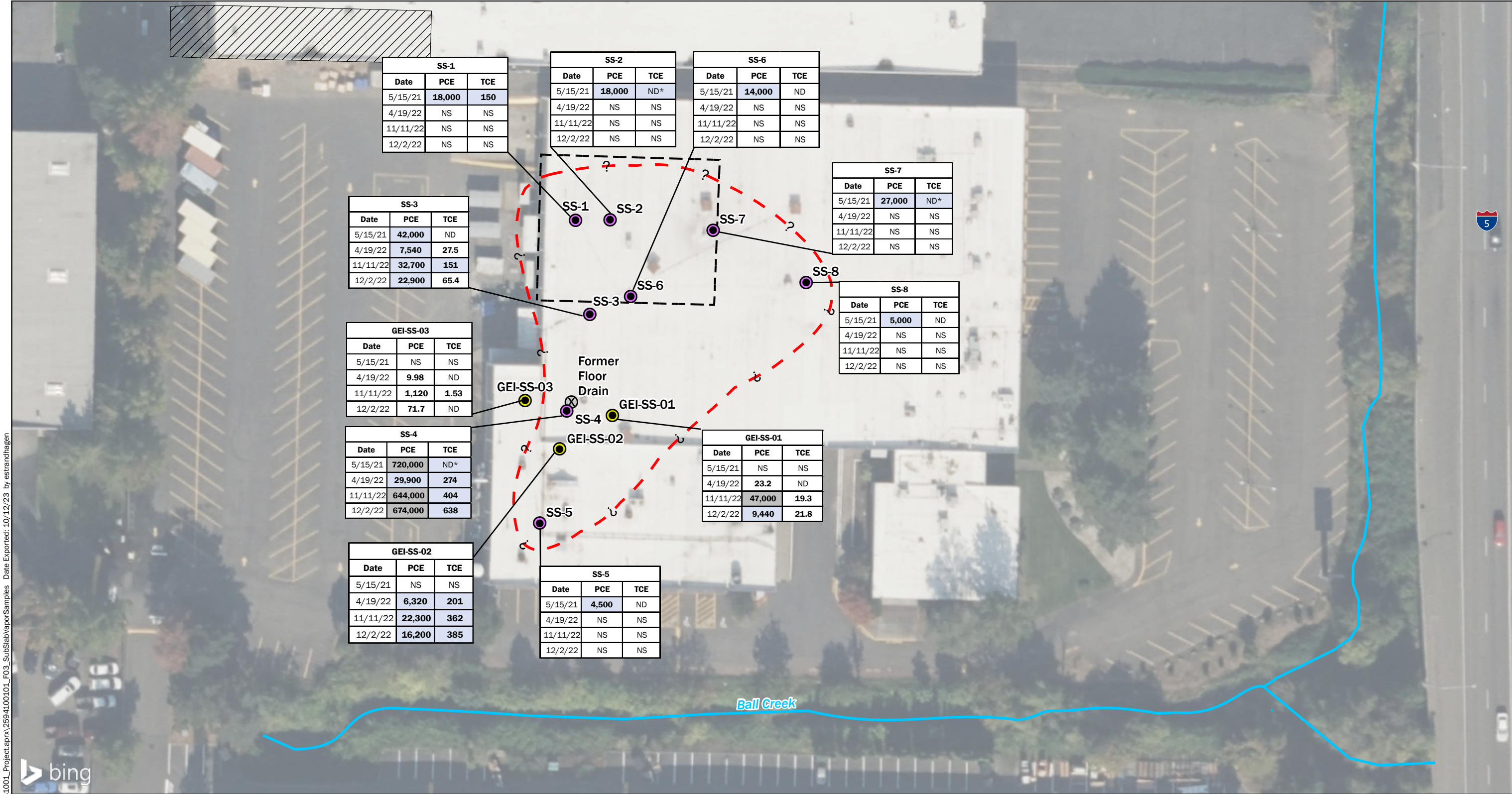
Inferred Extent of HVOCs in Shallow Groundwater

Fiskars Manufacturing Facility
14200 SW 72nd Avenue, Portland, Oregon

GEOENGINEERS

Figure 2

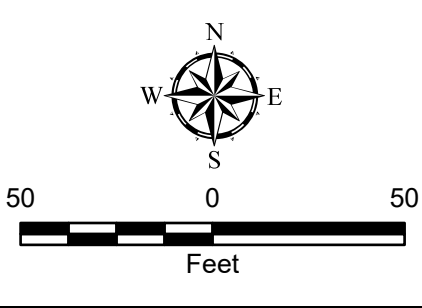
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P:\25\25941001\GIS\25941001_Project.aprx\25941001_F03_SubslabVaporSamples Date Exported: 10/12/23 by estrandhagen

Notes:
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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. PCE = Tetrachloroethene
4. TCE = Trichloroethene
5. ND = Not Detected
6. NS = Sample not collected
7. HVOC= Halogenated volatile organic compounds
8. * = Compound not detected above laboratory reporting limit but laboratory reporting limit is greater than DEQ Commercial RBC
9. Gray Shading = Indicates that the detected analyte concentration was greater than the former corresponding occupational RBC.
10. Blue Shading = Indicates that the detected analyte concentration is greater than the new commercial RBCs (either chronic or acute).
Data Source: Bing Imagery
Projection: NAD 1983 StatePlane Oregon North FIPS 3601 Feet

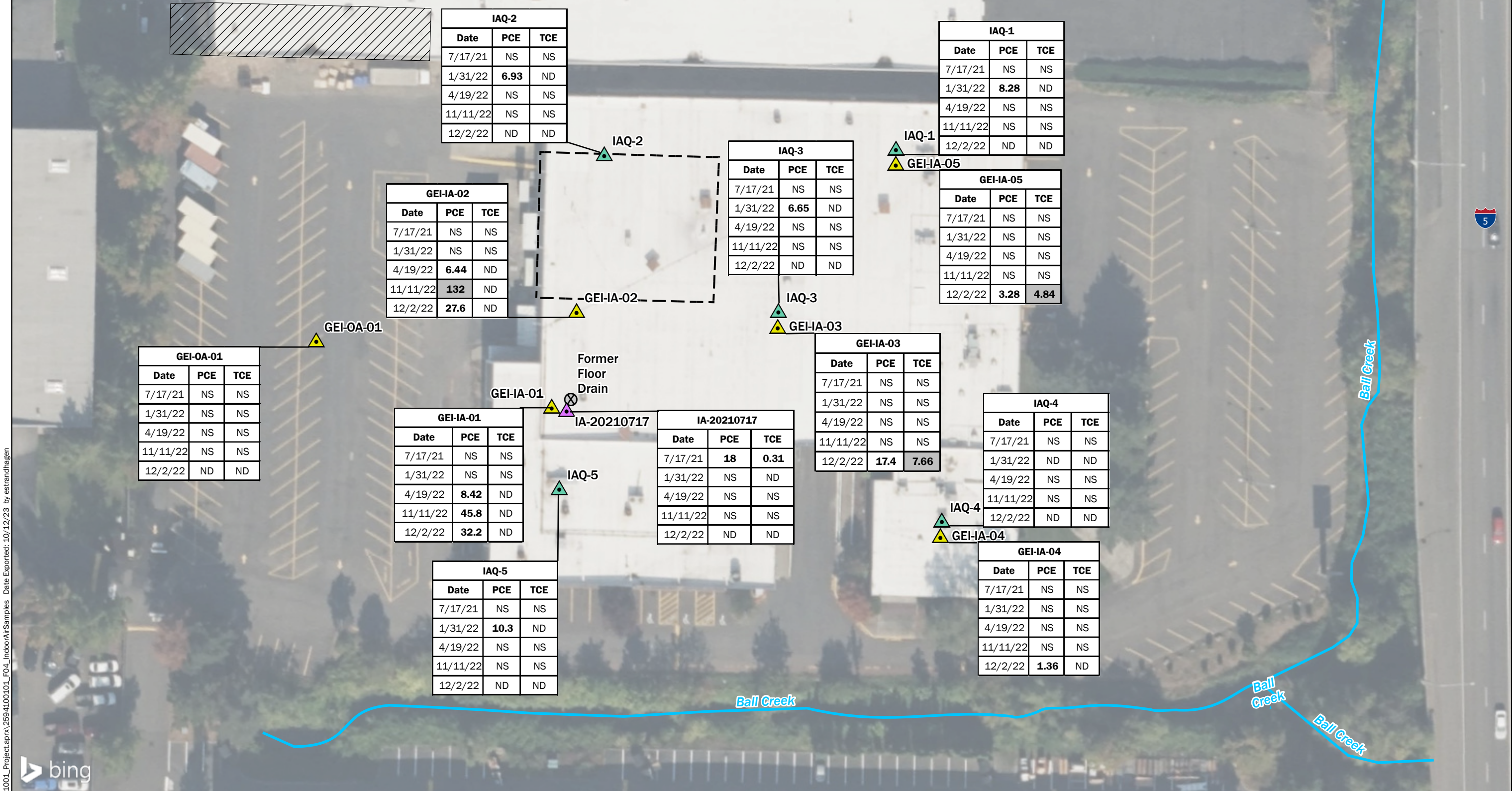
Legend
⊗ Former Floor Drain
● Approximate Location of GeoEngineers Sub-Slab Soil Vapor Sample
● Approximate Location of Wood Environment and Infrastructure Solutions, Inc. Sub-Slab Soil Vapor Sample
--- Approximate Former Plating and Degreaser Area
▨ Approximate Location of Source Area for the Williams Control Industries, Inc. Facility
? HVOC Concentration Greater than Commercial DEQ RBCs



Sub-Slab Soil Vapor Sample Locations

Fiskars Manufacturing Facility
14200 SW 72nd Ave., Tigard, Oregon

**Figure 3**



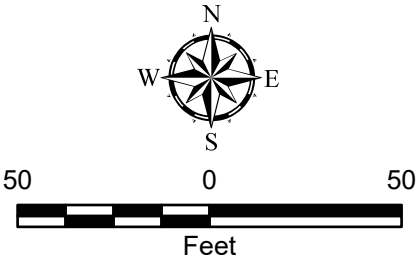
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Notes:

- 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. PCE = Tetrachloroethene
 - 4. TCE = Trichloroethene
 - 5. ND = Not Detected
 - 6. Gray Shading = Indicates that the detected analyte concentration was greater than the corresponding Oregon Department of Environmental Quality, Risk Based Concentration for the Occupational Receptor Scenario.
- Data Source: Bing Imagery
Projection: NAD 1983 StatePlane Oregon North FIPS 3601 Feet

Legend

- Former Floor Drain
- Approximate Location of GeoEngineers Indoor Air Sample (2022)
- Approximate Location of Partner Engineering and Science, Inc. Indoor Air Sample (2021)
- Approximate Location of Wood Environment and Infrastructure Solutions, Inc. Indoor Air Sample (2021)
- Approximate Former Plating and Degreaser Area
- Approximate Location of Source Area for the Williams Control Industries, Inc. Facility



Indoor/Outdoor Air Sample Locations

Fiskars Manufacturing Facility
14200 SW 72nd Ave., Tigard, Oregon



Figure 4



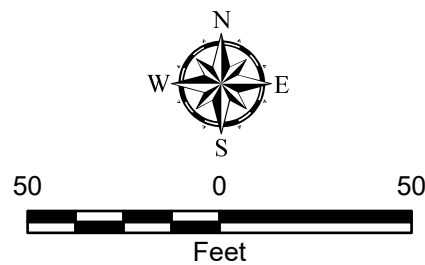
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Notes:

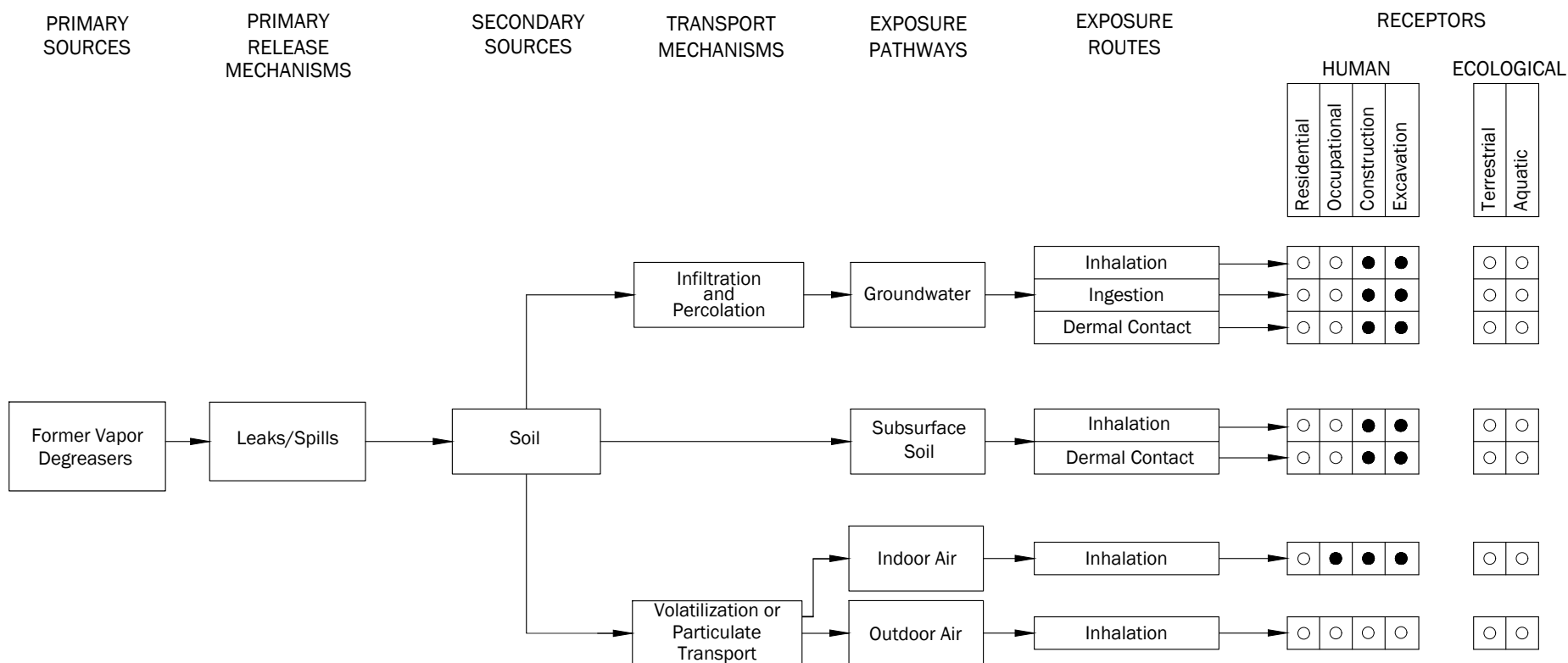
1. The locations of all features shown are approximate.
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 3. HVOC= Halogenated volatile organic compounds
- Data Source: Bing Imagery
Projection: NAD 1983 HARN StatePlane Oregon North FIPS 3601 Feet Intl

Legend

- | | |
|---|--|
|  Partner Soil Boring Location (2022) |  Subject Property Boundary |
|  Former Floor Drain |  Approximate Location of Source Area for the Williams Control Industries, Inc. Facility |
|  Area of Possible Soil Contamination | |



Area of Possible Soil Contamination	
Fiskars Manufacturing Facility 14200 SW 72nd Avenue, Portland, Oregon	
	Figure 5



EXPLANATION:

- COMPLETE PATHWAY
- INCOMPLETE PATHWAY
- * RECEPTORS INCLUDE BOTH CURRENT AND FUTURE EXPOSURE SCENARIOS

Notes:

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Conceptual Site Model	
Fiskars Manufacturing Facility Tigard, Oregon	
	Figure 6

ATTACHMENT A
Contaminated Media Management Plan



Contaminated Media Management Plan

Fiskars Manufacturing Facility
14200 SW 72nd Avenue
Portland, Oregon

for
Tonkon Torp LLP c/o Asgard, LLC

March 20, 2023



GEOENGINEERS 
Earth Science + Technology

Contaminated Media Management Plan

Fiskars Manufacturing Facility
14200 SW 72nd Avenue
Portland, Oregon

for

Tonkon Torp LLP c/o Asgard, LLC

March 20, 2023



5820 South Kelly Avenue, Suite B
Portland, Oregon 97239
503.906.6577

Contaminated Media Management Plan

Fiskars Manufacturing Facility

14200 SW 72nd Avenue

Portland, Oregon

File No. 25941-001-03

March 20, 2023

Prepared for:

Tonkon Torp LLP, c/o Asgard, LLC

888 SW 5th Avenue, Suite 1600

Portland, Oregon 97204

Attention: Jeanette Schuster

Prepared by:

GeoEngineers, Inc.

5820 South Kelly Avenue, Suite B

Portland, Oregon 97239

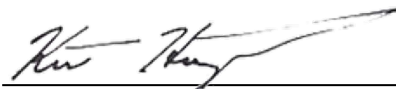
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Principal

SJR:AJF:JKH:mce

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Figure 2. Area of Possible Soil and Groundwater Contamination

ACRONYMS AND ABBREVIATIONS

bgs – below ground surface
BMP – Best Management Practices
CFR – Code of Federal Regulations
cis-1,2-DCE – cis-1,2-dichloroethene
CMMP – Contaminated Media Management Plan
DEQ – Oregon Department of Environmental Quality
ECSI - Environmental Cleanup Site Information
EPA – U.S. Environmental Protection Agency
FEMA – Federal Emergency Management Agency
HASP – Health and Safety Plan
HVOC – halogenated volatile organic compound
HAZWOPER – Hazardous Operations and Emergency Response
NAPL – nonaqueous phase liquid
NAVD 88 – North American Vertical Datum of 1988
NIOSH – National Institute for Occupational Safety and Health
OAR – Oregon Administrative Rule
OSHA – Occupational Safety and Health Administration
PEL – permissible exposure limit
PID – photoionization detector
PCE – Tetrachloroethene
PPE – personal protection equipment
RBCs - risk-based concentrations
RCRA – Resource Conservation and Recovery Act
STEL – short term exposure limit
TCE – Trichloroethene
trans-1,2-DCE – trans-1,2-dichloroethene
TSDF – Treatment, Storage and Disposal Facility
TWA – time weighted average
VC – vinyl chloride

1.0 INTRODUCTION

This Contaminated Media Management Plan (CMMP) has been prepared for the industrial zoned property located at 14200 SW 72nd Ave in Portland, Oregon (herein referred to as 'Subject Property'), which is currently owned by Asgard, LLC ('Asgard'). Fiskars Brands, Inc. ('Fiskars'), operates a knife-manufacturing facility within the Subject Property building. The location of the Subject Property relative to surrounding physical features is shown in the Vicinity Map, Figure 1. The general layout of the Subject Property is presented in Area of Possible Soil and Groundwater Contamination, Figure 2.

The purpose of a CMMP is to provide guidance to the property owner, tenants and excavation contractors working at or near a property with known contamination. In accordance with guidance prepared by the Oregon Department of Environmental Quality (DEQ), these plans are designed to identify environmental contaminants that could be encountered, delineate the spatial extents of the possible contamination, and develop procedures for reducing potential risk to human health and the environment should excavation occur within known or suspected areas of contamination. Subsequently, the objectives of this site-specific CMMP are: (1) to describe the presence of halogenated volatile organic compound (HVOC) contamination at the Subject Property; (2) to minimize risks to excavation/construction worker health/safety and the environment; and (3) outline general procedures for handling and disposing HVOC-contaminated soil and groundwater if encountered during excavation or construction activities.

GeoEngineers, Inc. (GeoEngineers) prepared this CMMP in accordance with generally accepted professional practices related to the nature and extent of contamination at the time of the preparation of this CMMP. This CMMP should be modified only if changed conditions are encountered. In addition, earthwork contractors working at the Subject Property must prepare and be responsible for implementation of their own site-specific Health and Safety Plan (HASP) for Subject Property workers prior to the start of earthwork-related activities.

2.0 BACKGROUND

2.1. Setting

The Subject Property is located to the east of SW 72nd Avenue, north of SW Bonita Road and west of Interstate 5 in Portland, Oregon in the northeast ¼ of Section 12, Township 2 South, Range 1 West of the Willamette Meridian. Ground elevation at Subject Property ranges from approximately 150 to 160 feet (North American Vertical Datum of 1988 [NAVD88]). Based on Federal Emergency Management Agency (FEMA) mapping, the Subject Property is not located within a 100-year or 500-year flood zone.

The Subject Property is located within Washington County tax lot 2S112AA00300. Currently, the Subject Property is developed with a 77,862-square-foot building containing office, manufacturing and warehouse spaces which are used to produce knives and hand-held tooling. The original building footprint was constructed in 1965 for industrial manufacturing use by Gerber Legendary Blades ('Gerber'). In 1976, Gerber expanded the building to the west and south, which added approximately 13,000 square feet of warehouse space. Gerber was acquired by Fiskars in 1987.

The Subject Property is in an industrial zoned area. Surrounding properties include property owned by Williams Controls, Inc. (Williams Controls) to the north; Interstate 5 to the east; Ball Creek, a perennial tributary to Fanno Creek, to the south; and a multi-tenant light industrial building to the west. The Williams

Controls facility, located hydrogeologically upgradient of the Subject Property, is used to manufacture electronic, hydraulic and pneumatic controls for commercial vehicles.

Since 1991, the Williams Controls facility has been the subject of numerous environmental investigations in relation to HVOC releases (DEQ Environmental Cleanup Site Information [ECSI] ID 4081). HVOCs, also known as chlorinated solvents, have been detected at elevated concentrations in soil and shallow groundwater beneath the Williams Controls property and Subject Property. The source of contamination is a historical vapor degreaser formerly located above a subgrade vault inside the southern portion of the Williams Controls building and a former solvent storage area located on unpaved ground outside the southwest corner of the Williams Controls building located immediately north of the Subject Property. Previous investigations of the Williams Controls plume included the installation of groundwater monitoring wells on the Subject Property. As shown on Figure 2, 11 monitoring wells have been installed on the Subject Property.

The confirmed release of HVOCs from the Williams Controls facility has impacted soil, soil vapor and shallow groundwater beneath the Subject Property's west parking lot and western portion of the Subject Property's building. While the Williams Controls contaminant plume appears to be relatively stable and its chemical concentrations slowly decreasing, detected concentrations of select HVOCs, including trichloroethene (TCE) and vinyl chloride (VC), remain above DEQ risk-based concentrations (RBCs) for direct contact/exposure by excavation workers and construction workers. To date, no environmental cleanup work has been performed on the Subject Property by Williams Controls, only environmental investigations. As such, the plume of HVOCs which has contaminated groundwater and soil beneath the western portion of the Subject Property remains in place.

2.2. Soil and Groundwater Conditions

Several subsurface investigations have been conducted at the Subject Property and surrounding area as part of the environmental investigations described below in the next section. Soil borings advanced at the Subject Property by various environmental consultants working on behalf of either Williams Controls or Asgard describe the subsurface as fine-grained soil consisting of clay and silt with varying amounts of fine sand to approximately 11 to 15 feet below ground surface (bgs), underlain by silty fine sand to approximately 26 to 27 feet bgs, and underlain by silt with varying amounts of clay and fine sand to approximately 60 feet bgs.

Depth to groundwater below the Subject Property ranges between approximately 7 to 10 feet bgs depending on location and season. Groundwater flow beneath the Subject Property generally follows topography towards Ball Creek (south), located along the Subject Property's southern boundary.

3.0 NATURE AND EXTENT OF RESIDUAL CONTAMINATION

Based on review of DEQ's ECSI (ID 4081) file, excavation efforts at the Subject Property may encounter soil and groundwater contamination. The area where contamination is expected is outlined in Figure 2. Known contaminants at the Subject Property include HVOCs. HVOC contamination originally occurred at two separate locations on the southwest portion of the Williams Controls facility. From the original sources of contamination, HVOCs entered soil and then leached to groundwater. Groundwater flows south-southeast from Williams Controls past the Subject Property, resulting in an HVOC groundwater plume that travelled southward from Williams Controls and onto the Subject Property. The plume is known to affect shallow

groundwater and soil beneath the west parking area and extends beneath the western portion of the Subject Property building.

Human health-based RBCs have been developed by DEQ for HVOCs in soil and groundwater. For purposes of the CMMP, applicable RBCs include those developed for construction/excavation worker exposure scenarios where an adult worker may come in direct contact with contaminated soil and/or groundwater in a semi-enclosed space such as an excavation. Separate RBCs have been developed for Construction Workers in direct contact with contaminated soil versus Excavation Workers. The primary difference between RBCs developed for the Construction Worker versus Excavation Worker exposure scenario with contaminated soil is the duration of exposure (21 days versus 6 days, respectively). Regarding direct contact with contaminated groundwater, DEQ developed only a single Construction and Excavation Worker RBC.

Previous environmental investigations conducted in the late 1990s at the Subject Property indicated that high concentrations of TCE emanated from the two Williams Controls facility source areas and extended along the axis of the groundwater plume across much of the Subject Property's west parking area. Environmental investigations conducted in the early 2000s indicated that TCE concentrations downgradient from the source areas had been declining, accompanied by a corresponding increase in degradation byproducts (e.g., cis-1,2-dichloroethene [cis-1,2-DCE], trans 1,2 dichloroethene [trans-1,2-DCE], and VC). From 2004 through 2006, the concentrations of TCE were approximately 3 times the concentration of cis-1,2-DCE at the source area (MW-13), whereas the cis-1,2-DCE concentration was approximately 10 times greater than the TCE concentration in downgradient areas (i.e., MW-8, located approximately 300 feet from the source). These results indicate that TCE has been substantially converted to cis-1,2-DCE and trans-1,2-DCE in areas downgradient from the source area.

In summary, the groundwater contamination near the southwest corner of the Williams Control facility is characterized by an apparent continuing source of TCE and possibly tetrachloroethene (PCE), in soil at its historical source areas, and by rapidly diminishing concentrations of TCE and corresponding increases in degradation products in areas downgradient from these source areas.

While the groundwater plume extends to the southern portion of the Subject Property's west parking area, groundwater concentrations of HVOCs in this area have historically not exceeded the Construction and Excavation RBC. As noted above, higher concentrations of HVOCs are expected in the more northern portions of the western parking area and to the west of the Subject Property building.

As recently as August 2022, TCE has been detected at concentrations above the RBC for groundwater in excavation at monitoring well MW-13, which is approximately 10 feet south of the southwest corner of the Williams Controls facility. Because groundwater flows south at the Subject Property, it is likely that groundwater in the area to the immediate south of MW-13 exceeds RBCs for groundwater in excavation for TCE. While PCE, cis-1,2-DCE, trans-1,2-DCE and VC were also detected at MW-13, they were not detected at concentrations greater the Construction and Excavation Worker RBC. The other area where Construction and Excavation Worker RBC was shown to be exceeded is at MW-11, approximately 20 feet west of the northern portion of the Subject Property building. No HVOCs were found to exceed the Construction and Excavation Worker RBC in the remaining Subject Property monitoring wells during the 2022 groundwater monitoring event.

3.1. Extent of Contamination – Soil

Subsurface soil beneath the Subject Property is potentially contaminated between depths of 7 and 10 feet bgs (i.e., seasonal water table fluctuation), where groundwater has carried HVOC contamination through the soil. The assumed extent of potential HVOC-impacted soil is illustrated in Figure 2. While it is unlikely that all soil near the water table in the area identified on Figure 2 is contaminated, for worker safety and proper handling of materials, it should be assumed that contamination may be present at any location within that area.

3.2. Extent of Contamination – Groundwater

Groundwater depth in monitoring wells at the Subject Property has been measured as shallow as 7 feet bgs. Contamination should be expected in any groundwater encountered beneath the subject property within the area delineated in Figure 2, which includes the entirety of the west parking lot and the western portion of the Subject Property building.

4.0 WORKER SAFETY

All parties that enter the site are responsible for the safety of their respective workers. This includes implementation of any training requirements, safety plans, monitoring, certifications and any other action or requirement that may be required or prudent prior to beginning site activities. This CMMP must be provided to employees who will be working on the Subject Property.

Prior to any ground disturbing activities, a utility locate should be performed to identify potential utilities in proposed work areas.

Each involved party shall make preliminary assessments of potentially contaminated media as it relates to worker safety in accordance with federally/state recognized guidelines. Occupational health guidelines for chemical hazards (i.e., OSHA and National Institute for Occupational Safety and Health [NIOSH]) can be used to evaluate site conditions. The evaluation should consider exposure limits (i.e., time weighted average [TWA], short term exposure limit [STEL], permissible exposure limit [PEL]), exposure symptoms and personal protection equipment (PPE). Specific recommendations should be provided to protect worker safety.

All parties are responsible for notifying and updating their employees of potential site hazards that may be encountered during the project. A HASP will be required to perform excavation within contaminated areas of the Subject Property. Each involved party will prepare and be solely responsible for implementation of a site-specific HASP in accordance with requirements of the Oregon OSHA.

5.0 PROCEDURES FOR WORKING IN POTENTIALLY CONTAMINATED AREAS

This section provides guidance for the following: (1) worker training and certifications; (2) identification; (3) characterization; (4) handling; and (5) disposal of contaminated soil and groundwater that may be encountered during earthwork-related construction activities at the Subject Property.

Earthwork contractors should provide a contaminant awareness training program for their on-site workers. As part of the contractor's contaminant awareness training program, workers should be advised on basic

methods and techniques in detecting hazardous soil and/or groundwater during earthwork construction activities. Contaminant awareness training should include discussion of the nature and extent of contamination, the hazards posed by contamination and risk mitigation measures.

The contractor should monitor the encounter with, and the disturbance or removal of soil, groundwater and waste materials by instructing workers in observing and reporting questionable materials, oily or chemical odors, and oily sheen or color on soil and water. If unexpected hazardous or contaminated materials are encountered, the contractor should:

- Stop all work in that area.
- Remove the work force from the immediate area of the contaminated area.
- Notify the property owner immediately.
- Ensure no contaminated material is removed from the Subject Property or in the event that it must be removed from the work area, proper decontamination procedures are put in place.
- Secure the area from access by the public until such time as all parties involved have verified that Subject Property work can be completed in accordance with the site-specific HASP and this CMMP.

5.1. Certifications and Training

No specific DEQ certifications are required for contractors handling HVOC-impacted soil and/or groundwater. While DEQ does not require specific certifications for contractors handling HVOC-impacted soil and/or groundwater, the contractor and its employees must possess these certifications and training requirements for site access:

1. At least 2 years' experience cleaning up and managing HVOC-contaminated soil and groundwater in Oregon under DEQ rules.
2. Hazardous Waste Operations and Emergency Response (HAZWOPER) trained workers (29 Code of Federal Regulations [CFR] 1910.120) with the following certifications:
 - a. 40-hour HAZWOPER training course.
 - b. 8-hour HAZWOPER refresher training course within the last 12 months.
 - c. HAZWOPER Medical Surveillance Program participation.
3. A Supervisor with the following certifications:
 - a. At least 2 years' experience cleaning up and managing HVOC-contaminated soil and groundwater in Oregon.
 - b. HAZWOPER training requirements plus completed an 8-hour HAZWOPER supervisor training course.

5.2. Identification of Potentially Contaminated Soil

1. Contractor personnel should review this plan to familiarize themselves with the locations of potentially contaminated soil and groundwater prior to beginning excavation activities. Supervising personnel must maintain a log of on-site employees that have been provided and reviewed this CMMP.
2. Contractor personnel, with a clear understanding of how to identify potential HVOC-contaminated media, must provide direct oversight when the earthworks contractor is excavating in identified areas of contamination to assist in the identification of potentially contaminated soil.
3. If the contractor observes soil that exhibits one or more of the following field screening characteristics, the soil should be identified as potentially contaminated and handled and characterized as described below. (Note that the absence of these physical characteristics does not necessarily imply that soil is not contaminated).
 - a. Staining, discoloration or sheens on the soil;
 - b. Chemical odors;
 - c. Field screening with a photoionization detector (PID) or similar field screening instrument indicates HVOCs are present;
 - d. A nonaqueous phase liquid (NAPL) or sheen when placed in contact with water; and/or
 - e. A NAPL or sheen on top of groundwater, or any chemical odor emitting from groundwater.
4. The contractor should make every attempt to segregate potentially contaminated soil (and wastewater generated during soil characterization) for testing prior to re-use or disposal. Temporary staging and or stockpiling of soil by the contractor is permitted in designated areas.
5. Potentially contaminated soil must be placed atop plastic sheeting (6-mil thickness minimum) and surrounded by a berm. Although dependent on stockpile material and composition, stockpiles should generally be less than 10 feet in height with side slopes no steeper than 3 (horizontal) to 1 (vertical). Stockpiled soil must be covered with tarps during periods of rain, wind or inactivity to prevent dispersal of soil. The edges of the tarps must be weighed down. Stockpiles must be kept neat at all times.
6. Sampling will likely be required for waste profiling. In general, discrete grab samples should be collected using hand tools from 6 to 12 inches beneath the surface of the soil stockpile. The stockpile should be divided into approximately equal sections and sampled. The following table, adapted from the Washington State Department of Ecology Guidance for Remediation of Petroleum Contaminated Sites (Ecology, 2016), specifies the typical minimum number of samples that should be collected for each stockpile.

TABLE 1. MINIMUM NUMBER OF SOIL SAMPLES FOR ADEQUATE CHARACTERIZATION OF SOIL STOCKPILE

Cubic Yards of Soil	Number of Soil Samples
0 to 100	3
101 to 500	5
500 to 1,000	7
1,001 to 2,000	10
Greater than 2,000	10 + 1 for each additional 500 cubic yards

7. The collection of soil samples for HVOCs chemical analysis must be collected and preserved in the field according to U.S. Environmental Protection Agency (EPA) Methods 5035 or 5035A. Soil samples should be analyzed for HVOCs (PCE, TCE, cis-1,2-DCE, trans-1,2-DCE and VC) by an Oregon accredited laboratory using EPA Method 8260.

5.3. Handling of Contaminated Soil

1. Soil and groundwater with detectable concentrations of HVOCs requires special handling. Workers are required to be provided with contaminant awareness training (i.e., HAZWOPER). The contractor should be responsible for identifying potentially contaminated soil and groundwater as they are encountered during work at the Subject Property and should be responsible for appropriately handling contaminated material pursuant to the methods and procedures outlined in this document and their own HASP.
2. Any soil that is contaminated at any detectable HVOC concentration should require special handling and disposal. Trained and certified personnel should be used for excavation activities in contaminated areas in accordance with OSHA (Standard 1926.651) and Title 29 of CFR, Parts 1910 and 1926, and Oregon Administrative Rules (OAR 340-122) and Oregon OSHA requirements. The contractor should be responsible for monitoring the health and safety of their own employees.
3. A HASP will be required to perform excavation within contaminated areas. The HASP should be prepared by the contractor in accordance with the requirements identified above. OSHA regulation 29 CFR Part 1910.120 includes the provision for HAZWOPER training, including a health and safety program, for employees working in hazardous waste cleanup areas. The contractor should develop and be responsible for implementation for their own site-specific HASP for site workers in accordance with these and any other applicable requirements.
4. HVOC-contaminated media are considered an F-listed waste according to the EPA's Resource Conservation and Recovery Act (RCRA) program. Specifically, if the HVOC levels exceed EPA reporting limits, the wastes generated at the Subject Property would be classified as F001 listed hazardous waste, requiring special disposal at a permitted Subtitle C landfill, unless DEQ determines that the media no longer contains listed hazardous waste (see "Contained-In" Policy in the Federal Register, Volume 63, No. 229, 1998). Excavated soils to be transported to the landfill should be stored in a lined container to prevent releases of HVOC contamination. Alternatively, soil can be stockpiled on Subject Property in accordance RCRA regulations. The contractor is responsible for obtaining appropriate permits and manifests for proper disposal of contaminated soil.
5. Contaminated soil should be segregated and can be secured on the Subject Property by placing it either in: (1) a designated stockpile area that is lined and covered by durable plastic sheeting and bermed to control runoff; or (2) in labeled roll-off containers or other covered containers. Access to the secured soil should be restricted by fencing or other physical barriers to prevent unauthorized personnel from contacting the soil. On-site storage of soils should be managed in accordance with the contractor prepared Construction Stormwater Pollution Prevention Plan. The contractor should comply with Best Management Practices (BMP) for erosion and sediment control.
6. The location of the contaminated soil stockpile may be determined based on the volume of material generated, security considerations and accessibility for disposal. The paved areas on the northwestern portion of the Subject Property, would provide a suitable location for HVOC-contaminated soil stockpiling prior to off-site transport and disposal. Care should be taken to keep contaminated runoff from entering the Subject Property's storm system (i.e., catch basins and manholes) and Ball Creek.

7. The extent of contaminated soil excavated should be determined based on field screening, analytical testing, and project requirements. Confirmation soil sampling should be conducted following excavation activities and samples should be collected and preserved in accordance with EPA Method 5035/5035A and analyzed for HVOCs by EPA Method 8260.

5.4. Handling of Potentially Clean Overburden Soil

1. Potentially clean overburden (e.g., less than 6 feet bgs) should be segregated from contaminated soil (e.g., 7 to 10 feet bgs). Care should be taken to avoid sending non-contaminated soil to the permitted hazardous waste landfill for disposal.
2. Potentially clean overburden soil should be sampled by the contractor(s). Soil samples must be submitted for chemical analyses to identify reuse or disposal options. The frequency of sampling and selected chemical analyses will be in accordance with the guidance provided in Section 5.2. Soil sampling of clean overburden should be conducted in accordance with EPA Method 5035/5035A and analyzed for HVOCs by EPA Method 8260.

5.5. Disposal Options for Soil

1. Following confirmation sampling, clean overburden soil can be reused on the Subject Property if suitable for foundation, utility, or pavement support.
2. Soil with detected HVOC concentrations must be transported off-site within 90 days for permitted disposal at a RCRA Subtitle C hazardous waste landfill facility.
3. Clean soil that cannot be reused on site, must be transported off-site for permitted disposal at a solid waste landfill or RCRA Subtitle D non-hazardous waste landfill facility.
4. The transport and disposal of soil must be performed in accordance with local, state and federal regulations.
 - a. HVOC-contaminated media must be loaded into transport vehicles in a manner that prevents the spilling or tracking of contaminated soil onto on-site and off-site, uncontaminated areas. Contaminated media that spills or falls onto the ground should be immediately placed back into the truck or in its original container/stockpile, and the affected area should be immediately cleaned up.
 - b. Locate loading areas for contaminated soil on pavement.
 - c. Wet soil with free liquids should not be loaded into trucks.
 - d. Any loose media should be cleaned from the pavement at the conclusion of the loading activities.
 - e. All loaded truck weights will be within acceptable limits. All trucks should be covered before they leave the loading area. Additional transport recommendations may be recommended or required.
 - f. A manifest or bill of lading must be prepared for each load of contaminated media transported off-site for disposal or treatment.
5. The contractor should provide the property owner with copies of all approved disposal/acceptance permits or manifests.

5.6. Handling, Characterization and Disposal of Contaminated Groundwater

Excavations deeper than 7 feet bgs could intersect the water table. Potentially contaminated groundwater or accumulated precipitation removed from the excavation during construction should be pumped through contractor-supplied hose/piping to an aboveground holding tank pending chemical analysis. Sampling of excavation water should be performed to determine whether HVOCs are present using EPA Method 8260. The contractor should determine the regulatory waste status and disposal method/location of the water based on the analytical test results. Any discharge of potentially contaminated groundwater should follow the City of Portland (City) and DEQ regulations. If discharge to the sanitary sewer system is permissible, the contractor will provide equipment to discharge from container(s) to sewer access under city permit.

The contractor should provide equipment to clean the container(s) in accordance with the manufacturer's and/or rental company's recommendation. The contractor should collect rinsate and dispose of in the same manner as the excavation water. If significant sediment has accumulated, the sediment should be managed, transported, and disposed of as directed by chemical analytical testing and in accordance with DEQ regulations. The contractor should provide the property owner with all copies of approved disposal/discharge/acceptance permits or manifests.

5.7. Documentation

Information regarding the location and characteristics of any HVOC-contaminated soil or groundwater must be documented so further investigation can be completed, and the proper reports can be filed with the appropriate local and state agencies. The contractor should provide daily field reports with photologs documenting contaminated soil and groundwater management. A hazardous waste manifest must be completed for each shipment of material to a permitted treatment, storage and disposal facility (TSDF). The contractor is responsible for properly preparing bills of lading or other related documents required by the TSDF.

Following completion of contaminated media removal and disposal, the contractor shall provide a summary report outlining the management of excavated soil and extracted groundwater. The report must include, at a minimum, the following:

- A summary description of management of contaminated soil and groundwater.
- Analytical results of soil and groundwater sampling.
- A figure showing the estimated extent of soil excavated and stockpiled at the Subject Property.
- Volumes of soil and groundwater disposed of off-site, and corresponding bills of lading and/or waste manifests. These will, at a minimum, include:
 - Date and time of shipment.
 - Name of the transportation company.
 - Name of the truck driver.
 - Location of disposal.
 - Brief description of the contaminated material (e.g., soil).
- Photographic documentation of the locations and final disposition of the disturbed areas.

6.0 LIMITATIONS

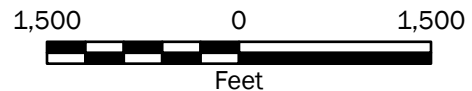
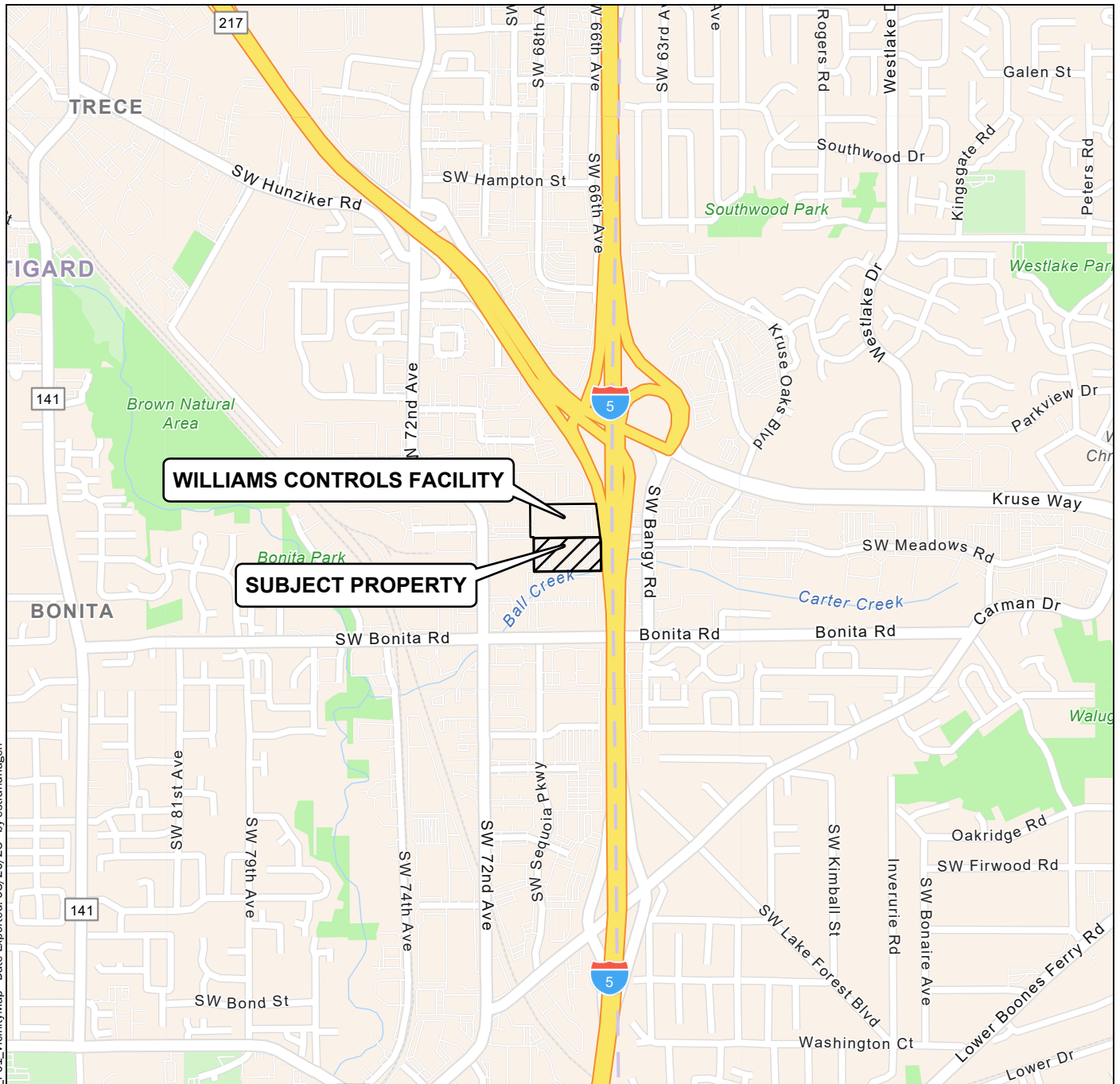
This CMMP has been prepared for use by Asgard, LLC and their authorized agents. The professional services used to prepare this CMMP have been rendered using the degree of care and skill ordinarily exercised under similar circumstances by reputable environmental consulting firms practicing in this or similar locations. No other warranty expressed or implied is made.

This CMMP relies upon information provided by third parties. GeoEngineers has undertaken reasonably prudent steps to confirm the reliability of the information provided by third parties and do not accept any liability for the accuracy of the information provided by these parties. It is not possible in a CMMP to present all data, which could be of interest to all readers of this report. Readers are referred to any referenced investigation reports for further data. Users of this document should satisfy themselves concerning its application to, and where necessary seek expert advice in respect to, their situation.

The material in this CMMP reflects GeoEngineers' best judgment considering the information available at the time of preparation. Opinions and recommendations contained in this CMMP apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames and project parameters indicated. GeoEngineers is not responsible for the impacts of any changes in environmental standards, practices or regulations subsequent to the issuance of this CMMP.

7.0 REFERENCES

- Environmental Cleanup Site Information Files. Oregon Department of Environmental Quality
Correspondence with Williams Controls Industries, Inc., 14100 SW 72nd Avenue, Portland,
Oregon, dated 2003 through 2009.
- Oregon Department of Environmental Quality. 2018. *Risk Based Decision Making for the Remediation of Petroleum-Contaminated Sites*, revised May 2018.
- Ramboll US Consulting, Inc. 2022. Groundwater Sampling Report. Williams Control Industries, Inc.,
Portland, Oregon, dated October 2022.
- Washington Department of Ecology (Ecology), 2016. *Guidance for Remediation of Petroleum Contaminated Sites*. State of Washington Department of Ecology Toxics Cleanup Program.
Updated June 2016.



Vicinity Map

Fiskars Manufacturing Facility
14200 SW 72nd Avenue, Portland, Oregon



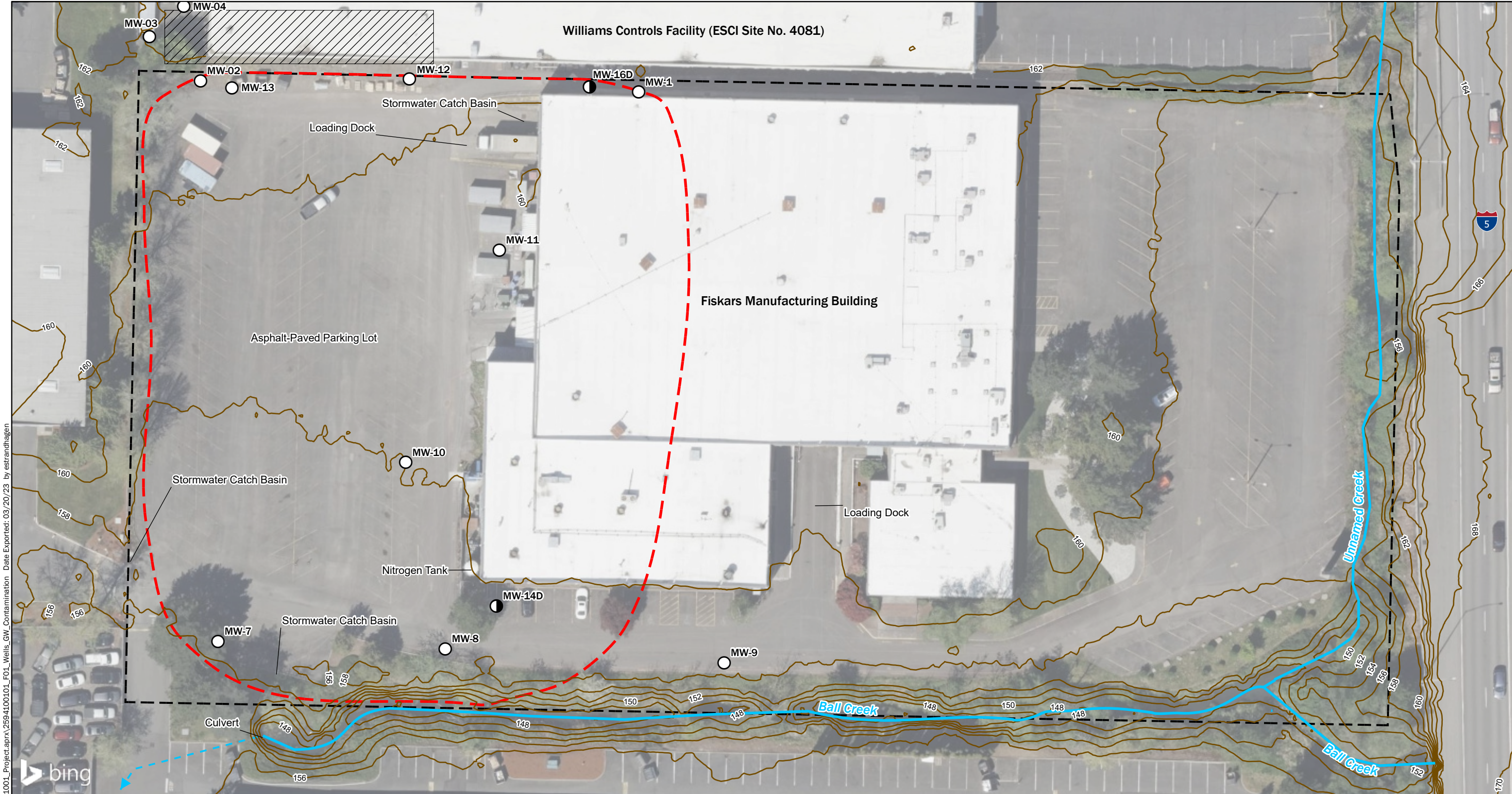
Figure 1

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.

Data Source: ESRI

Projection: NAD 1983 UTM Zone 10N



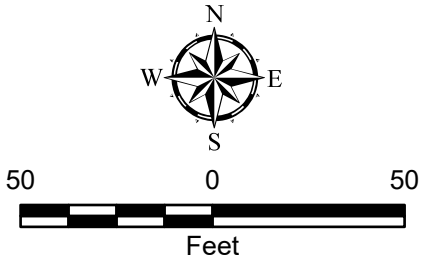
P:\25\25941001\GIS\25941001_Project\25941001_Project.aprx 25941001_F01_Wells_GW_Contamination Date Exported: 03/20/23 by estrandhagen

Legend

- Shallow Groundwater Monitoring Well
- Deep Groundwater Monitoring Well

- Area of Possible Soil and Groundwater Contamination
- Approximate Location of the HVOC Source Areas on the Williams Controls Facility

- Subject Property Boundary
- Topographic Elevation Contours (2014 LiDAR)



Area of Possible Soil and Groundwater Contamination	
Fiskars Manufacturing Facility 14200 SW 72nd Avenue, Portland, Oregon	
	Figure 2

Data Source: City of Portland 2022

ATTACHMENT B
Select Oregon Water Resources Department Well Logs



RECEIVED
JUN 2 1961
STATE ENGINEER
SALEM, OREGON

WASH

011643

File Original and
First Copy with the
STATE ENGINEER,
SALEM, OREGON

WATER WELL REPORT
STATE OF OREGON

State Well No. 2/11-12

State Permit No. _____

(1) OWNER:

Name Fought & Co Inc.
Address Swan Island Portland Ore.

(2) LOCATION OF WELL:

County Washington Owner's number, if any—
1/4 NE 1/4 Section 12 T. 2 S R. 1 W W.M.
Bearing and distance from section or subdivision corner

(3) TYPE OF WORK (check):

New Well ☒ Deepening ☒ Reconditioning ☐ Abandon ☐
If abandonment, describe material and procedure in Item 11.

PROPOSED USE (check):

Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(5) TYPE OF WELL:

Rotary ☐ Driven ☐
Cable ☒ Jetted ☐
Dug ☐ Bored ☐

(6) CASING INSTALLED:

Threaded ☐ Welded ☐

6 " Diam. from 0 ft. to 343.2 ft. Gage std
" Diam. from _____ ft. to _____ ft. Gage _____
" Diam. from _____ ft. to _____ ft. Gage _____

(7) PERFORATIONS:

Perforated? ☒ Yes ☐ No

Type of perforator used Drive down
SIZE of perforations 2 in. by 2 in.
2 rows perforations from 160 ft. to 172 ft.
2 rows perforations from 175 ft. to 182 ft.
2 rows perforations from 155 ft. to 162 ft.
1 row perforations from 145 ft. to 152 ft.
1 row perforations from 120 ft. to 127 ft.

(8) SCREENS:

Well screen installed ☐ Yes ☐ No

Manufacturer's Name _____
Type _____ Model No. _____
Diam. _____ Slot size _____ Set from _____ ft. to _____ ft.
Diam. _____ Slot size _____ Set from _____ ft. to _____ ft.

(9) CONSTRUCTION:

Was well gravel packed? ☐ Yes ☒ No Size of gravel: _____
Gravel placed from _____ ft. to _____ ft.
Was a surface seal provided? ☐ Yes ☐ No To what depth? _____ ft.
Material used in seal—
Did any strata contain unusable water? ☐ Yes ☐ No
Type of water? _____ Depth of strata _____
Method of sealing strata off _____

(10) WATER LEVELS:

Static level 2 ft. below land surface Date 5-16-61
Artesian pressure _____ lbs. per square inch Date _____

Log Accepted by:

[Signed] _____ Date _____, 19____
(Owner)

(11) WELL TESTS:

Drawdown is amount water level is lowered below static level

Was a pump test made? ☒ Yes ☐ No If yes, by whom? P P Power
Yield: 25 gal./min. with bot ft. drawdown after 8 hrs.
" " " "
" " " "

Bailer test gal./min. with _____ ft. drawdown after _____ hrs.
Artesian flow g.p.m. Date _____
Temperature of water _____ Was a chemical analysis made? ☐ Yes ☐ No

(12) WELL LOG:

Diameter of well 6 inches.

Depth drilled 345 ft. Depth of completed well 345 ft.

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
soil	0	6
clay	0	30
some water sandy clay	30	60
sand and water would not clear	60	70
black fine sand floating		
blue clay	70	100
Blue shale hard drilling	100	150
changing to coarse black gravel	150	160
coarse to medium gravels	160m	170
making 30 gals per min on bailer test		
Blue shale	170	200
hard going Blue shale		
10 to 15 ft a shift	200	300
same showing advised owner to abandon drilling		
and perforate at 160	300	345

Work started 4-10 1961 Completed 5-16-61 19

(13) PUMP:

Manufacturer's Name _____
Type: _____ H.P. _____

Well Driller's Statement:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Barron & Strayer
(Person, firm, or corporation) (Type or print)

Address Rt 1 Box 254 Beaverton Ore

Driller's well number _____

[Signed] Lance Strayer
(Well Driller)

License No. 36 Date 5-25-61, 19