



STATE OF WASHINGTON DEPARTMENT OF ECOLOGY

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September 24, 2021

Hal Reardon Garnet LLC 980 East 74th Lane Lynden, Washington 98264 (hal.reardon@gmail.com)

Re: No Further Action at the following Site:

- Site Name: Cornwall Building
- Site Address: 1616 Cornwall Avenue, Bellingham, Washington
- Facility/Site No.: 53954864
- VCP Project No.: NW0785
- Cleanup Site ID No.: 1794

Dear Hal Reardon:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your independent cleanup of the **Cornwall Building** facility (Site). This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70A.305 RCW.

Issue Presented and Opinion

Is further remedial action necessary to clean up contamination at the Site?

NO. Ecology has determined that no further remedial action is necessary to clean up contamination at the Site.

This opinion is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, Chapter 70A.305 RCW, and its implementing regulations, Chapter 173-340 WAC (collectively "substantive requirements of MTCA"). The analysis is provided below.

Description of the Site

This opinion applies only to the Site described below. The Site is defined by the nature and extent of contamination associated with the following releases:

- Gasoline-, diesel-, and oil-range petroleum hydrocarbons (TPH-G, TPH-D and TPH-O, respectively), benzene, toluene, ethylbenzene, xylenes (BTEX), carcinogenic polycyclic aromatic hydrocarbons (cPAHs) and chromium into the Soil;
- TPH-G, TPH-D, TPH-O, BEX and arsenic into the Groundwater

Enclosure A includes a detailed description and diagrams of the Site, as currently known to Ecology.

Please note a parcel of real property can be affected by multiple sites. At this time, we have no information that the parcel associated with this Site is affected by other sites.

Basis for the Opinion

This opinion is based on the information contained in the documents listed in **Enclosure B**. A number of these documents are accessible in electronic format from the Site <u>webpage</u>¹. The complete records are stored in the Central Files of the Northwest Regional Office of Ecology (NWRO) for review by appointment only. Visit our <u>Public Records Request page</u>², to submit a public records request or get more information about the process. If you require assistance with this process, you may contact the Public Records Officer at <u>publicrecordsofficer@ecy.wa.gov</u> or (360) 407-6040.

In addition to the documents in **Enclosure B**, Ecology has issued opinion letters regarding this Site dated August 16, 2010, September 19, 2011, July 27, 2012, June 17, 2013, August 25, 2013, July 5, 2016, June 28, 2019, and July 9, 2020.

This opinion is void if any of the information contained in those documents is materially false or misleading.

¹ <u>https://apps.ecology.wa.gov/gsp/Sitepage.aspx?csid=1794</u>

² <u>https://ecology.wa.gov/publicrecords</u>

Analysis of the Cleanup

Ecology has concluded that no further remedial action is necessary to clean up contamination at the Site. That conclusion is based on the following analysis:

1. Characterization of the Site.

Ecology has determined your characterization of the Site is sufficient to establish cleanup standards and select a cleanup action. The Site is described above and in **Enclosure A**.

The Site has been characterized in investigations conducted from 1990 through 2018. Reports of Remedial Investigations (RI) were submitted in 2012 and 2018.

2. Establishment of cleanup standards.

a. Cleanup Levels

Ecology has determined the cleanup levels and points of compliance you established for the Site **meet** the substantive requirements of MTCA.

Soil

The Site does not meet the MTCA definition of an industrial property; therefore soil cleanup levels suitable for unrestricted land uses are appropriate.

The Site does not qualify for an exclusion from conducting a Terrestrial Ecological Evaluation (TEE). A simplified TEE conducted for the Site concluded that land use on the Site and surrounding area make substantial wildlife exposure unlikely. Cleanup levels protective of terrestrial ecological receptors are therefore not necessary at this Site.

MTCA Method A cleanup levels were proposed for soil at the Site. Method B soil cleanup levels protective of groundwater were also proposed at the Site, based on the results of empirical demonstrations (per WAC 173-340-747(3)(f)). Ecology concurs for the soil to groundwater exposure pathway.

Groundwater

Groundwater has been impacted by the contaminant sources on the Site. Cleanup levels were set for groundwater based on its highest beneficial use as a potential drinking water

source. The MTCA Method A cleanup levels were proposed for groundwater at this Site. Ecology concurs for this exposure pathway.

Air

Air cleanup levels would normally need to be established for petroleum hydrocarbons and related volatile compounds, especially benzene, given the potential for vapor intrusion. Contaminant sources in soil have been removed to the maximum extent possible. Long-term and quarterly groundwater monitoring on the Site has empirical evidence that no contaminants are migrating in groundwater beneath the Property buildings or elsewhere on the Site. Soil vapor samples collected adjacent to the former 10,000-gallon heating oil underground storage tank in 2012 did not contain detectable concentrations of diesel range organics. Ecology therefore does not consider it necessary to establish air cleanup levels for this Site.

b. Points of Compliance

Soil

The point of compliance for soil is throughout the Site. This point of compliance is protective of both direct contact and leaching to groundwater.

Groundwater

The point of compliance for groundwater is throughout the Site from the uppermost level of the unsaturated zone extending vertically to the lowest most depth which could potentially be affected by the Site.

3. Selection of cleanup action.

Ecology has determined the cleanup action you selected for the Site **meets** the substantive requirements of MTCA.

Cleanup actions selected for the Site included drum and UST removal and petroleumcontaminated soil excavation and disposal.

4. Cleanup.

Ecology has determined the cleanup you performed **meets** the cleanup standards established for the Site.

Potential contamination sources at the Property consisted of leaks and spills associated with the following six areas on the Site:

- One 10,000-gallon heating oil UST that reportedly stored Bunker C heating oil from 1948 to 1978; abandoned in place in 1992; removed in 2015 (*Area A*)
- One 500-gallon waste oil UST (*Area B*)
- One 1,500-gallon leaded gasoline UST (*Area C*)
- One 750-gallon diesel UST (*Area D*)
- Former repair shop hydraulic lifts and floor drain (*Area E*)
- A former drum storage area (*Area F*)

Area A - 10,000-gallon heating oil UST

This UST was located immediately adjacent to and south of the Sears building, and reportedly stored Bunker C heating oil from 1948 to 1978. The UST was abandoned in place in 1992 by filling with concrete.

In 2015, the UST was removed from the Site. Approximately 270 cubic yards of petroleum-contaminated soil were removed from the excavation. A total of 16 sidewall and two bottom soil confirmation samples were collected and analyzed for TPH-D and BTEX. Selected soil samples were analyzed for TPH-G, volatile organic compounds, polycyclic aromatic hydrocarbons and metals (MTCA 5 metals and mercury). Analytical results from the soil confirmation samples indicated that soil remained in place on the Site containing TPH-D, TPH-O, and heavy organic compounds associated with Bunker C oil (naphthalene, 1-methylnaphthalene, 2-methylnaphthalene and benzo(a)pyrene), at concentrations exceeding their respective MTCA Method A or Method B cleanup levels.

Prior to excavation backfilling, approximately 495 pounds of oxygen-release compound (ORC) pellets were applied to the bottom of the excavation and mixed into the soil in an effort to enhance the bioremediation of residual petroleum hydrocarbons in the soil and groundwater.

In 2017, monitoring wells MW-13, MW-14 and MW-15 were installed upgradient and crossgradient of the former UST. Two soil samples were selected (at 5 and 12 feet bgs) from each boring for analysis of chemicals of concern. All concentrations were below applicable cleanup levels, indicating that the ORC was effective in treating the residual petroleum contamination.

Because the contamination was at the water table, the potential source was in contact with groundwater. Downgradient monitoring wells MW-8, MW-9, MW-10 and MW-11 were installed in 2011 and 2012 and sampled from installation through 2018, including four quarterly rounds in 2017. The estimated travel time for contamination related to the UST to reach the downgradient wells via advection is 3 to 8 years (Whatcom Environmental Services, 2021). Since the UST was abandoned in place in 1992, any releases would have been prior to that so there would have been adequate time for dissolved diesel concentrations to have reached the downgradient monitoring wells. Ecology considers this an empirical demonstration that soil in Area A is protective of groundwater on the Site.

No floating product has been observed in Area A since 2014. Three remediation wells north of the former tank were checked in 2021 and no product was observed.

In 2012, two soil gas probes (SG-1 and SG-2) installed near the UST and sampled for diesel organic compounds using EPA Method TO-17, had no detections. One of the probes was installed to the northeast of the former UST, directly over the area where contaminated soil exceeding Method A was left in place after the UST removal.

Area B - 500-gallon waste oil UST

No Method A exceedances were detected in soil or groundwater collected in Area B, with the exception of a 2008 groundwater sample from monitoring well MW-4 which contained dissolved arsenic at a concentration of 11 μ g/L in 2008. This exceedance of the Method A cleanup level (5 μ g/L) was in a sample that had a turbidity of 70 nephelometric turbidity units (NTUs).

The well was sampled again in January and June 2019, at which time dissolved arsenic was 12 μ g/L in both rounds with elevated turbidities (7.21 to 9.25 NTUs). Sampling of MW-4 in 2021 yielded a dissolved arsenic concentration of 1.8 μ g/L (below Method A) with a turbidity of 0.69 NTUs. Ecology concludes that the arsenic exceedances in MW-4 are most likely due to increased turbidity in the groundwater samples.

Area C - 1,500-gallon leaded gasoline UST

The UST which reportedly contained leaded gasoline was removed between 1986 and 1988. Soil samples indicated contamination may have been left in place at that time. Soil (B-6) and groundwater (MW-5) samples collected from one location in Area C, and analyzed for TPH, BTEX and lead, contained only TPH-G at concentrations below Method A. MW-5 was sampled again in 2014 with similar results. Quarterly monitoring of MW-5 in 2017 for TPH-G, TPH-D, TPH-O and BTEX resulted in non-detectable levels.

Area D - 750-gallon diesel UST

This UST may have stored diesel fuel for the warehouse boiler. It was removed in 1992. Soil samples collected during the excavation work (analyzed for TPH-G and TPH-D) showed diesel contamination extending over a fairly small area, to a depth of about 11 feet (lateral dimensions are unknown, but 450 to 500 cubic yards of contaminated soil were reportedly excavated and disposed of off-Site). Groundwater samples from monitoring well MW-6 (installed in 2008 in the Area D UST excavation) showed no detectable TPH-D, TPH-O, BTEX or lead. The depth to water in MW-6 has ranged from 9.5 to 11.5 feet bgs. No contaminants were detected in MW-6 in four consecutive quarterly sampling rounds during 2017. Ecology considers this an empirical demonstration that soil in Area D is protective of groundwater on the Site.

Area E - Former repair shop hydraulic lifts and floor drain

Area E was associated with the former Sears Automotive Center area which was remodeled in the 1990s and is now used for commercial office space (the Annex). Several hydraulic lifts were operated inside a portion of the building at Area E.

The only soil exceedance in Area E was in a 2013 sample collected at 12 feet bgs in GP-5 where 2,400 mg/kg of TPH-O was detected. Groundwater from two temporary wells in Area E contained TPH-D up to 800 μ g/L and TPH-O up to 1,400 μ g/L. TPH-D was detected in MW-3 downgradient of Area E in 2011 and 2012 at concentrations up to 74 μ g/L, with no detections since then.

Because the soil sample in GP-5 at 12 feet bgs was at or below the water table (water levels in MW-4, which is most representative, range from approximately 11 to 13 feet bgs), the potential source is in contact with groundwater. Data from MW-3 and MW-14

described below provide an empirical demonstration that soil in Area E is protective of groundwater.

Monitoring well MW-14 (installed in 2017) is also downgradient of Area E. Groundwater samples collected quarterly from MW-14 in 2017 contained TPH-D at concentrations up to 222 μ g/L, which is below the Method A cleanup level.

Area F - Former drum storage area

Area F formerly stored 55-gallon drums that reportedly contained an "oil-like substance" and were observed during a 1990 Site reconnaissance. Soil samples from beneath the drums were analyzed for TPH, BTEX, VOCs, metals and PCBs and showed no exceedances. Based on the results of the soil sampling, groundwater in Area F was considered unlikely to have been impacted by the stored drums and was not investigated.

Model Remedy

The Site cleanup meets the requirement for Groundwater Model Remedy 5, in accordance with <u>Model Remedies for Sites with Petroleum Impacts to Groundwater</u> <u>Ecology Publication No. 1-09-057, Revised December 2017</u>³. Therefore, a Feasibility Study and Disproportionate Cost Analysis are not required to document the remedy selection. The requirements of Groundwater Model Remedy 5 are:

- Petroleum hydrocarbons consisting of gasoline, middle distillates/oils, or heavy fuels/oils and their constituents are the only contaminants present in soil and groundwater.
- Emergency or interim actions are not required due to the lower risk nature of the Site.
- The Site meets the criteria for a simplified Terrestrial Ecological Evaluation (TEE).
- The primary remedy consists of source removal, including free product and contaminated soil, to the greatest extent practicable.
- The Site has not caused impacts above the practical quantitation limit (PQL) to any water supply well used for drinking water purposes.

³ <u>https://apps.ecology.wa.gov/publications/SummaryPages/1609057.html</u>

- Soil meets the 1,500 mg/kg Method B TPH cleanup level throughout the Site.
- Groundwater meets Method A cleanup levels throughout the Site.
- A conditional point of compliance for groundwater is not applied at the Site.
- An empirical demonstration has been applied at the Site.
- Institutional controls are not required on any of the Properties that comprise the Site.

Decommissioning of Resource Protection Wells

When resource protection wells associated with the Site are no longer to be used for their intended purposes, these wells must be decommissioned in accordance with WAC 173-160-460 (http://apps.leg.wa.gov/wac/default.aspx?cite=173-160-460). Per WAC 173-160-410 (http://apps.leg.wa.gov/wac/default.aspx?cite=173-160-410), resource protection wells include monitoring wells, observation wells, piezometers, spill response wells, remediation wells, environmental investigation wells, vapor extraction wells, ground source heat pump boring, grounding wells, and instrumentation wells.

Listing of the Site

Based on this opinion, Ecology will remove the Site from our Confirmed and Suspected Contaminated Sites List and Leaking Underground Storage Tank List.

Limitations of the Opinion

1. Opinion does not settle liability with the state.

Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion **does not**:

- Resolve or alter a person's liability to the state.
- Protect liable persons from contribution claims by third parties.

To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70A.305.040(4).

2. Opinion does not constitute a determination of substantial equivalence.

To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you performed is substantially equivalent. Courts make that determination. See RCW 70A.305.080 and WAC 173-340-545.

3. State is immune from liability.

The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion. See RCW 70A.305.170(6).

Termination of Agreement

Thank you for cleaning up the Site under the Voluntary Cleanup Program (VCP). This opinion terminates the VCP Agreement governing this project (#NW0785).

For more information about the VCP and the cleanup process, please visit our <u>VCP webpage</u>⁴. If you have any questions about this opinion or the termination of the Agreement, please contact me at 206-594-0121 or <u>michael.warfel@ecy.wa.gov</u>.

Sincerely,

Michael R. Warfel

Michael R. Warfel, VCP Site Manager NWRO Toxics Cleanup Program

Enclosures (2): A – Site Description and Diagrams B – Basis for the Opinion: List of Documents

 cc: Harold Cashman, Whatcom Environmental, Inc. (<u>hjcashman@whatcom-es.com</u>) Tra Thai, VCP Financial Manager, Ecology (<u>tra.thai@ecy.wa.gov</u>)
Sonia Fernandez, VCP Coordinator, Ecology (<u>sonia.fernandez@ecy.wa.gov</u>)

⁴ <u>http://www.ecy.wa.gov/vcp</u>

Enclosure A

Site Description and Diagrams

Site Description

This section provides Ecology's understanding and interpretation of Site conditions, and is the basis for the opinions expressed in the body of the letter.

<u>Site</u>: The Site comprises total petroleum hydrocarbons in the gasoline- (TPH-G), diesel-(TPH-D) and oil (TPH-O) ranges, benzene, toluene, ethylbenzene, xylenes (BTEX), carcinogenic polycyclic aromatic hydrocarbons (cPAHs), and chromium released to soil at 1616 Cornwall Avenue in Bellingham, Washington (Property) (Figure 1). The Site is also defined as TPH-G, TPH-D, TPH-O, BEX and arsenic releases to groundwater. The releases are mostly associated with four former underground storage tanks (USTs), a former drum storage area and six hydraulic lifts in the former Sears automotive center. The Property and the Site are shown on the attached Site Diagrams.

<u>Area and Property Description</u>: The Property is in downtown Bellingham, corresponds to Whatcom County tax parcel number 380330317254 and is 2.33 acres in size. The Property contains two adjoined commercial buildings totaling 67,760 square feet in size that were constructed in 1949. The surrounding area is completely developed with retail and commercial businesses, except for Bellingham High School which is located about 800 feet to the north. The Property is bounded by York Street to the south, Cornwall Avenue and Archer Halliday PS accounting firm to the west, Whatcom Creek and Central Avenue to the north, and a former BNSF railroad right-of-way, a construction supply business and Whatcom Creek to the east.

<u>**Property History and Current Use:</u>** The Property was originally developed with a single-family residence prior to 1904. The Bellingham and British Columbia Railroad ran through the southeast corner of the Property. The railroad line was also constructed before 1904, as was a wood-burning power generation plant located across the railroad tracks to the east. Whatcom Creek meandered through the Property during that time period.</u>

A commercial building housing a Sears Roebuck Company (Sears) department store/auto service with a detached warehouse was constructed on the Property in 1949. At or before that time, Whatcom Creek was straightened and relocated to its present location and the former channel was filled. Sears remained in operation on the Property until 1988, when the store was moved to the Bellis Fair Mall. The former detached Sears warehouse building, located in the northeast part of the Property, was removed in 1992 (Figure 2). The remaining building was remodeled in 1995 and re-named the Trillium Building.

The Trillium Building is currently used by various commercial tenants including Unity Care NW, Wells Fargo Home Mortgage, Boys and Girls Clubs of Whatcom County, Northwest Vision Development Center, Bellingham Athletic Club, WWU Small Business Development Center and Minuteman Press. The latter three businesses are housed in the Annex, which is located in the former Sears auto service area of the building (Figure 2).

<u>Sources of Contamination</u>: Potential contamination sources at the Property consisted of leaks and spills associated with six areas on the Site (Figure 2):

- One 10,000-gallon heating oil UST (*Area A*) (Figures 2 and 3)
- One 500-gallon waste oil UST (*Area B*) (Figures 2 and 4)
- One 1,500-gallon leaded gasoline UST (*Area C*) (Figure 2)
- One 750-gallon diesel UST (*Area D*) (Figure 2)
- Former repair shop hydraulic lifts and floor drain (Area E) (Figures 2 and 3)
- A former drum storage area (Area F) (Figure 2)

Physiographic Setting: Western Whatcom County and the Bellingham area are part of the Fraser-Whatcom Lowlands, broadly characterized as a north-south trending structural and topographic depression bounded to the west by the complex tectonics of the San Juan and Canadian Gulf and Vancouver Islands, and to the east by the Cascade uplift. The Fraser-Whatcom Lowlands typically feature extensive sequences of consolidated and unconsolidated sediments, dominated near the surface by recent glacial deposition.

The Site lies within a topographic embayment that is bounded by low-elevation uplands to the north, east and south and by Bellingham Bay to the west. The Site and surrounding area lie on a relatively flat bench-like feature that adjoins Bellingham Bay, although the land surface at the Property slopes northeast towards Whatcom Creek. The bench elevation is about 60 feet above mean sea level. Whatcom Creek lies in an incised steepsided channel about 20 feet below the top of the bench.

<u>Surface/Storm Water System</u>: Whatcom Creek borders the northern edge of the Property, and flows west for about 2,000 feet, where it enters Bellingham Bay. Whatcom Creek was re-routed in the Site vicinity in approximately the 1940s to accommodate development of the Property; the rerouting of the creek is suspected of affecting groundwater flow patterns on the Site.

Storm water runoff in the area is largely captured in City of Bellingham storm drains located in the eastern part of the Property, which discharge to Whatcom Creek.

Ecological Setting: There is little terrestrial or aquatic habitat in the area. The area is heavily developed with most surfaces paved or covered by buildings, except for a low

quality vegetation strip bordering Whatcom Creek.

Geology: Near-surface geologic conditions in the area are dominated by fill materials placed during downtown development, overlying native soils deposited during the last glacial advance and retreat. At the Property, up to 2 feet of gravelly fill is present in localized areas adjacent to the Sears building, overlying native Everson glacio-marine drift deposits. These drift deposits consist of fine-grained materials (fine sand, clay and organic silt) which extend to about 13 to 16 feet bgs. The fine-grained layer is underlain by the Deming sand, a loose fine- to medium-grained sand that was deposited on floodplains and beaches when relative sea level dropped during glaciation (Figure 5). At the Site, the Deming sand extends to a depth of at least approximately 24 feet below the ground surface (bgs), the maximum depth explored on the Site.

<u>Groundwater</u>: The uppermost groundwater at the Property occurs within the Deming sand under unconfined to slightly confined conditions due to the overlying fine-grained layer. Site monitoring wells are screened in the Deming sand; water levels range from approximately 11 to 17 feet bgs. Groundwater flow directions at the Property are northeastward and northwestward towards an area of Whatcom Creek just north of the former auto service area building (Figures 6 and 7). The localized flow pattern is likely related to the former relocation of the creek channel in approximately the 1940s to accommodate the original development of the Property.

This observed flow pattern departs from the expected pattern based on topography and direction of flow in the creek (flow would be to the west, sub-parallel to creek flow), and suggests that groundwater is not in consistent hydraulic continuity with the creek, a portion of the creek north of the Site is a losing stream, a preferential discharge point exists, variations in streambed conductivity occur due to the creek channel relocation, or a combination of all of these factors

A total of 15 monitoring wells have been installed at the Site. Monitoring wells MW-1 through MW-6 were installed in 2008; MW-7 through MW-10 were installed in 2011; MW-11 and MW-12 were installed in 2012. In 2017, monitoring wells MW-13, MW-14 and MW-15 were installed. All of the monitoring wells are screened from approximately 10 to 20 feet bgs, straddling the water levels in the Deming sand.

<u>Water Supply</u>: Potable water is provided to the Site area by the City of Bellingham which sources water from Lake Whatcom, with a backup supply from the Middle Fork of the Nooksack River. One water supply well is shown in the area on Ecology's well log database, on the Property directly across Cornwall Street to the west. The well is cased to

a depth of 128 feet with open hole to 135 feet, indicating a bedrock aquifer. When the well was installed in 1977, the static water level was 38 feet bgs, suggesting that the aquifer is confined.

Release and Extent of Soil and Groundwater Contamination:

In 1990, a Phase I Environmental Site Assessment identified seven potential areas of concern at the Site. Six of these areas are listed above in the section 'Sources of Contamination'.

A 2008 subsurface investigation included seven soil borings (B-1 through B-7) advanced to depths of 16.5 to 21.5 feet bgs. Monitoring wells MW-1 through MW-6 were installed in soil borings B-2 through B-7 and screened from approximately 10 to 20 feet bgs.

Six potential contaminant sources are present at the Property in separate areas which are described below and shown on **Figure 2** in the attached Site Diagrams.

Area A: 10,000-Gallon Heating Oil UST

This UST was located in fill materials immediately adjacent to and south of the Sears building, and reportedly stored Bunker C heating oil from 1948 to 1978. The UST was abandoned in place in 1992 by filling with concrete. Prior to filling, 3 to 4 inches of residual Bunker C oil in the tank was mixed with sawdust and removed for disposal. The tank was inspected for evidence of leakage; no lack of structural integrity was discovered.

Soil samples collected from soil borings B-2 and B-3 drilled near the UST in 2008 contained TPH-D up to 19,000 mg/kg and TPH-O up to 4,400 mg/kg. The TPH detections were first noted at depths of 15 to 16.5 feet in sand, approximately at the water table. Black oil product was also detected at 15 to 16.5 feet bgs in both of the borings in this area. These observations suggested that the silty clay layer was breached and product had migrated downward into the underlying Deming sand. One soil sample from B-3 analyzed for PAHs contained 411 milligrams per kilogram (mg/kg) of naphthalene and 0.85 mg/kg of benzo(a)pyrene (both exceeding respective Method A cleanup levels).

Groundwater samples obtained from monitoring wells in this area in 2008 showed TPH-D detections up to 2,000 μ g/L, as well as detections of benzene, ethylbenzene and xylenes. These values likely represent worst-case conditions because the wells (MW-1 and MW-2) were both screened across a zone containing free product. Subsequent monitoring in 2011 also showed free product in both MW-1 and MW-2. According to the laboratory, the product had an analytical signature most similar to biologically degraded Bunker C, diesel fuel #6 or similar heavy fuel oil. Monitoring well MW-12 just north of the UST also contained free product.

In 2011, eight soil samples collected in three borings (GP-1, GP-2 and MW-7) in this area showed no petroleum hydrocarbon contamination.

In 2012, two soil gas probes (SG-1 and SG-2) were installed near the UST and sampled. The samples were analyzed for diesel range organics using EPA Method TO-17, with no detections (**Figure 8**).

In 2012, monitoring wells MW-1 and MW-2 were not sampled due to the presence of free product. In 2014, monitoring well MW-12 also contained free product.

Contaminant movement in groundwater from this area was assumed to be to the north towards Whatcom Creek approximately 150 feet to the north. Sampling of monitoring well MW-11 in 2012 and 2014 with analysis for petroleum hydrocarbons and BTEX indicated that Site contamination from Area A does not migrate that far in groundwater or discharge into the creek.

In 2015, the UST was removed from the Site. Approximately 270 cubic yards of petroleum-contaminated soil were removed from the excavation. A total of 16 sidewall and two bottom soil confirmation samples were collected and analyzed for TPH-D and BTEX. Selected soil samples were analyzed for TPH-G, volatile organic compounds, polycyclic aromatic hydrocarbons and metals (MTCA 5 metals and mercury). Analytical results from the soil confirmation samples indicated that soil remained in place on the Site containing TPH-D and TPH-O, naphthalene, 1-methylnaphthalene, 2-methylnaphthalene and benzo(a)pyrene at concentrations exceeding their respective MTCA Method A or Method B cleanup levels.

In the northeast corner of the excavation a sidewall sample (E-SW) with 10,000 mg/kg of TPH-D and 3,200 mg/kg of TPH-O was collected from a single layer at 13 feet bgs (samples collected at 8 and 15 feet bgs contained non-detectable levels of TPH-D and TPH-O). Because the depth to water in the closest well (RW-3) is 13 feet bgs, this contamination was most likely a smear zone associated with former floating product. Prior to excavation backfilling, approximately 495 pounds of oxygen-release compound (ORC) pellets were applied to the bottom of the excavation and mixed into the soil in an effort to enhance the bioremediation of residual petroleum hydrocarbons in the soil and groundwater.

Chromium was also detected in all of the soil confirmation samples at concentrations

exceeding the Method A cleanup level for hexavalent chromium (19 mg/kg). No speciation of chromium was conducted however there are no suspected sources of hexavalent chromium on the Site.

Removal of the UST required that monitoring wells MW-1, MW-2 and MW-12, which had all previously contained measureable brown bunker C oil free product, be decommissioned in November 2014 prior to the 2015 UST removal.

In 2017, monitoring wells MW-13, MW-14 and MW-15 were installed upgradient and crossgradient of the former UST. Two soil samples were selected (at 5 and 12 feet bgs) from each boring for analysis of TPH-G, TPH-D, TPH-O, BTEX and RCRA metals. All concentrations were below Method A cleanup levels, indicating that the ORC was effective in treating the residual petroleum contamination.

Chromium at 95.2 mg/kg was detected at 12 feet bgs in MW-15. Although this concentration exceeded the Method A cleanup level for hexavalent chromium of 19 mg/kg, Ecology considers it unlikely that a source of hexavalent chromium is present on the Site, based on the detailed historical documentation of Site activities. In the July 15, 2020 VCP opinion letter, Ecology no longer recommended speciation of chromium due to the absence of a hexavalent chromium source on the Site.

After the UST removal, three 4-inch diameter remediation wells (RW-1 through RW-3) were installed along the north side of the UST excavation, screened from 5 to 15 feet bgs. Two 20-foot sections of 4-inch diameter slotted pipe were installed horizontally (oriented east-west) in the central portion of the excavation at 9.5 to 10 feet bgs. The horizontal pipes were fitted with vertical risers that extended to the ground surface. The remediation wells and horizontal remediation slotted pipes were installed to potentially deliver treatment chemicals to potentially address residual petroleum hydrocarbons in soil and groundwater after the excavated area was backfilled. This remediation system has not been operated to date, due to the positive results from the ORC treatment.

Downgradient monitoring wells MW-8, MW-9, MW-10 and MW-11 (installed in 2011 and 2012) were sampled from installation through 2018, including four quarterly rounds in 2017. The travel time for contamination related to the UST to reach the downgradient wells via advection was estimated at 3 to 8 years (Whatcom Environmental Services, 2021). Since the UST was abandoned in place in 1992, any releases would have occurred prior to that time, so there would have been adequate time for dissolved diesel concentrations to have reached the downgradient monitoring wells. Ecology considers this travel-time evaluation as an empirical demonstration that soil in Area A is protective

of groundwater on the Site.

<u> Area B - Former Waste Oil Tank</u>

This 500-gallon UST was originally located west of the building prior to expansion of the Sears automobile repair shop. In 1965, when an addition to the building occurred, the waste oil UST was relocated outside and south of the former Sears automobile repair shop. The waste oil UST was removed in 1992 with no visual signs of contamination in the sidewalls of the tank excavation. Two soil samples, obtained at the time of the UST removal and analyzed via Method 418.1, showed low levels of TPH contamination (160 and 164 mg/kg). There were reportedly no visual signs of contamination in the sidewalls of the tank excavation. These data suggested that limited soil contamination related to the UST was present.

In 2008, two soil samples collected from soil boring B-5 drilled directly in the former waste oil tank excavation area. The soil samples were analyzed for TPH, priority pollutant metals, polychlorinated biphenyls (PCBs) and volatile organic compounds (VOCs) with only metals detected at concentrations below Method A cleanup levels.

Soil boring B-5 was completed as monitoring well MW-4 and sampled in 2008 for TPH, BTEX, PCBs, VOCs and priority pollutant metals. The sample showed no detectable TPH-G, TPH-D, TPH-O, BTEX, PCBs, VOCs or lead, indicating groundwater most likely had not been impacted. The groundwater sample contained dissolved arsenic at a concentration of 11 μ g/L, which exceeded the Method A cleanup level (5 μ g/L); the turbidity of the sample was 70 nephelometric turbidity units (NTUs).

Ecology's opinion letter dated June 28, 2018 requested that MW-4 be sampled and analyzed for both total and dissolved arsenic. The well was sampled in January and June, 2019. In January 2019, arsenic was detected at concentrations of 19 μ g/L (total) and 12 μ g/L (dissolved), both above the Method A cleanup level. In July 2018, arsenic was detected at concentrations of 12 μ g/L (total) and 12 μ g/L (dissolved), both exceeding the Method A cleanup level. Sampling of MW-4 in 2021 yielded a dissolved arsenic concentration of 1.8 μ g/L (below Method A) with a turbidity of 0.69 NTUs.

Area C – Former 1,500-Gallon Leaded Gasoline UST

This UST reportedly contained leaded gasoline, was about 1,500 gallons capacity, and was removed sometime between 1986 and 1988. An understanding of the extent of contamination was developed mostly during soil excavation work that occurred in 1992. A fairly large number of soil samples obtained during this work, and analyzed for TPH-G and TPH-D, showed gasoline and diesel contamination extending over an area 20 to 30

feet long by 15 to 20 feet wide, and extending in depth to or near the water table. Soil with concentrations above MTCA Method A levels was left in place at the base of the excavation, indicating that some contamination may still remain in a several-foot-thick layer near the water table.

Soil boring B-6 was advanced in Area C in 2008. Three soil samples analyzed for TPH, BTEX and lead contained only TPH-G at low concentrations (4 to 5 mg/kg) below the Method A cleanup level. Soil boring B-6 was completed as monitoring well MW-5.

A groundwater sample collected from MW-5 showed TPH-G at a concentration of 97 μ g/L, below the 1,000 μ g/L Method A cleanup level with no detectable TPH-D, TPH-O, BTEX or lead. MW-5 was sampled again in 2014 with similar results. Quarterly

monitoring of MW-5 in 2017 for TPH-G, TPH-D, TPH-O and BTEX indicated non-detectable levels.

Soil samples collected from borings drilled for monitoring wells MW-4, MW-5, MW-6 and MW-7 (all potentially downgradient of Area C) were also analyzed for lead which was detected at concentrations up to 23 mg/kg, below Method A (250 mg/kg).

The available soil and groundwater data indicates that the contamination originally present in this area has likely declined to concentrations below cleanup levels.

Area D: Former 750-Gallon Diesel UST

This 750-gallon tank may have stored diesel fuel for the warehouse boiler, and was situated outside the northern warehouse wall. It was removed in 1992 when a soil sample collected beneath the tank contained TPH-D at a concentration of 2,500 mg/kg. The area was over excavated; 450 to 500 cubic yards of contaminated soil were reportedly excavated and disposed of off-Site. Soil samples collected during the excavation work analyzed for TPH-G and TPH-D, showed diesel contamination extending over a fairly small area to a depth of about 11 feet.

In 1992, a groundwater sample reportedly collected from a monitoring well (possibly downgradient of the tank excavation) showed no detectable diesel (detection limit 100 μ g/L). Groundwater samples from monitoring well MW-6 (installed in 2008 in the UST excavation) from which showed no detectable TPH-D, TPH-O, BTEX or lead. These data indicate groundwater is most likely not contaminated in this area at concentrations above MTCA cleanup levels. Monitoring well MW-6 was not sampled again until 2017 when quarterly sampling was initiated. No contaminants have been detected in MW-6 in

the four consecutive quarters collected during 2017.

Area E: Former Hydraulic Lifts and Floor Drain

Area E was associated with the former Automotive Center area of the existing structure. Area E was reportedly remodeled in the early 1990s and is currently used as commercial office space.

Several hydraulic lifts were operated inside a portion of the building at Area E. It is unknown if the hydraulic lifts and associated hydraulic oil tanks were removed from the Site prior to the building remodel. A 1948 building plan shows one hydraulic lift in the southeast corner of the Automotive Center, which was the original building. The plan shows a single-post lift that likely included subsurface features. A proposed building addition to the Automotive Center shown in a 1965 building plan identified five new lifts.

Four of the five lifts were shown as portable auto lifts and were operated using an aboveground hydraulic cylinder that supplied fluid via a ½-inch supply line in the concrete slab. The fifth hydraulic lift was shown as a four-post, full hydraulic auto lift, in the southwest corner of the Automotive Center building. Insufficient details were included in the drawing to verify the presence or absence of subsurface features associated with the lifts.

Groundwater in Area E was previously investigated in 2008 when three monitoring wells in this area (MW-3, MW-4 and MW-5) were sampled and analyzed for TPH-G, TPH-D, TPH-O, BTEX and lead. Only MW-3 is downgradient of Area E. Only the sample from MW-5 contained TPH-G at a concentration of 970 μ g/L which exceeded the Method A cleanup level (800 μ g/L). Based on groundwater elevation contour maps generated for the Site, MW-5 is most likely upgradient of Area E. In March 2012, MW-3 was again sampled and contained TPH-D at 61 μ g/L; a sample collected in September 2012 contained non-detectable levels of TPH-D.

In December 2013 and January 2014, four geoprobe soil borings (GP-5 through GP-8) were advanced in the area formerly containing hydraulic lifts. Soil borings GP-5 and GP-6 were advanced adjacent to the circa 1948 single-post hydraulic lift. Soil borings GP-7 and GP-8 were advanced adjacent to the circa 1965 four-post hydraulic auto lift. The soil samples were analyzed for TPH-D and TPH-O. In addition, the sample collected at 14 feet bgs in GP-5 was also analyzed for cPAHs.

Two soil samples were collected from each soil boring. A shallow (7 to 8 feet bgs) soil sample was collected in each boring and a deeper (12 to 14 feet bgs) sample was also

collected in each boring, either at or just above the water table at the capillary fringe zone. Based on field screening results, a third sample was collected from GP-5 from the bottom of the boring at 14 feet bgs.

Soil samples from GP-5 contained TPH-O at concentrations ranging from 150 to 1,600 mg/kg, which are below the MTCA Method A cleanup level of 2,000 mg/kg. In GP-5, the sample at 12 feet contained TPH-O at 2,400 mg/kg, which exceeded the Method A cleanup level.

The soil sample from GP-5 analyzed for cPAHs contained benzo[a]anthracene at 0.037 mg/kg and chrysene at 0.029 mg/kg. The sum of these detections, when corrected using toxic equivalency factors, did not exceed the Method A cleanup level for cPAHs (0.1 mg/kg).

In the 1965 four-post hydraulic auto lift area, only boring GP-7 contained TPH-D at 46 mg/kg and TPH-O at 220 mg/kg at 14 feet bgs. Neither of these detections exceeded the respective Method A cleanup levels.

Three temporary monitoring wells were installed in borings GP-5, GP-6 and GP-8. The temporary well installed in boring GP-5 yielded insufficient water; samples were only collected from borings GP-6 and GP-8. The groundwater samples contained TPH-D plus TPH-O at concentrations exceeding MTCA Method A cleanup level of 500 μ g/L. GP-6 contained TPH-D at 420 μ g/L and TPH-O at 730 μ g/L. GP-8 contained TPH-D at 800 μ g/L and TPH-O at 1,400 μ g/L.

Groundwater samples collected from 2008 to 2014, from upgradient and crossgradient monitoring wells MW-3 through MW-5, have contained TPH-G (MW-5) and TPH-D (MW-3) at concentrations below Method A cleanup levels. In 2008, arsenic was detected in MW-4 at a concentration of 11 μ g/L, which exceeded the Method A cleanup level of 5 μ g/L; the sample had a turbidity of 70 NTUs. Samples collected from MW-4 in 2019 also contained dissolved arsenic at concentrations 12 μ g/L (above Method A) and turbidities up to 9.25 NTUs. Sampling of MW-4 in 2021 yielded a dissolved arsenic concentration of 1.8 μ g/L (below Method A) with a turbidity of 0.69 NTUs.

Monitoring well MW-14 installed in early 2017 is downgradient of Area E. Groundwater samples collected quarterly from MW-14 have contained TPH-D at concentrations up to 222 μ g/L, which are below the Method A cleanup level.

Area F: Former Drum Storage Area

Area F is where 55-gallon drums reportedly containing an "oil-like substance" were observed during a 1990 Site reconnaissance. In June 2008, six hand-augured discrete soil samples (F1 through F6) were collected from the 1- to 2-foot depth interval, under the presumption that leaks from the drums, if present, would be detectable in near-surface soils. The soil samples were analyzed for TPH-G, TPH-D, TPH-O and BTEX. In addition, soil samples F-1, F-2 and F-6 were analyzed for volatile organic compounds, metals, and PCBs. Metals were detected at low concentrations, as were low concentrations of TPH-G and TPH-O. None of the contaminants detected exceeded the applicable Method A cleanup levels. The drums were removed at an unknown time. Groundwater in Area F has not been investigated but is considered unlikely to have been impacted based on the results of the soil sampling.

Quarterly Groundwater Monitoring:

Quarterly monitoring of groundwater was initiated in March 2017, using monitoring wells MW-3, MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, MW-10, MW-13, MW-14 and MW-15 (**Figure 9**). Monitoring wells MW-1, MW-2 and MW-12 had been decommissioned in 2014 prior to the UST removal. Neither MW-7 nor MW-10 were sampled during both events due to insufficient water volumes. The location of MW-11 was not discoverable at the time so it was not included in the subsequent quarterly monitoring. The groundwater samples were analyzed for TPH-G, TPH-D, TPH-O, and BTEX. As of the fourth quarter sampling round in December 2017, most of the wells contained non-detectable levels and there were no exceedances of Method A cleanup levels. Monitoring wells MW-14 and MW-15 both contained TPH-D at concentrations up to 222 µg/L below Method A.

In July 2016, an emergency storm water line repair had been conducted (Bellingham Public Works permit #STM2016-0099) on the north side of the Property, near monitoring well MW-11. At project completion, monitoring well MW-11 was accidentally covered by a thin veneer of landscaping bark. As a result, the well was not locatable and thus not included in the 2017 quarterly groundwater monitoring event.

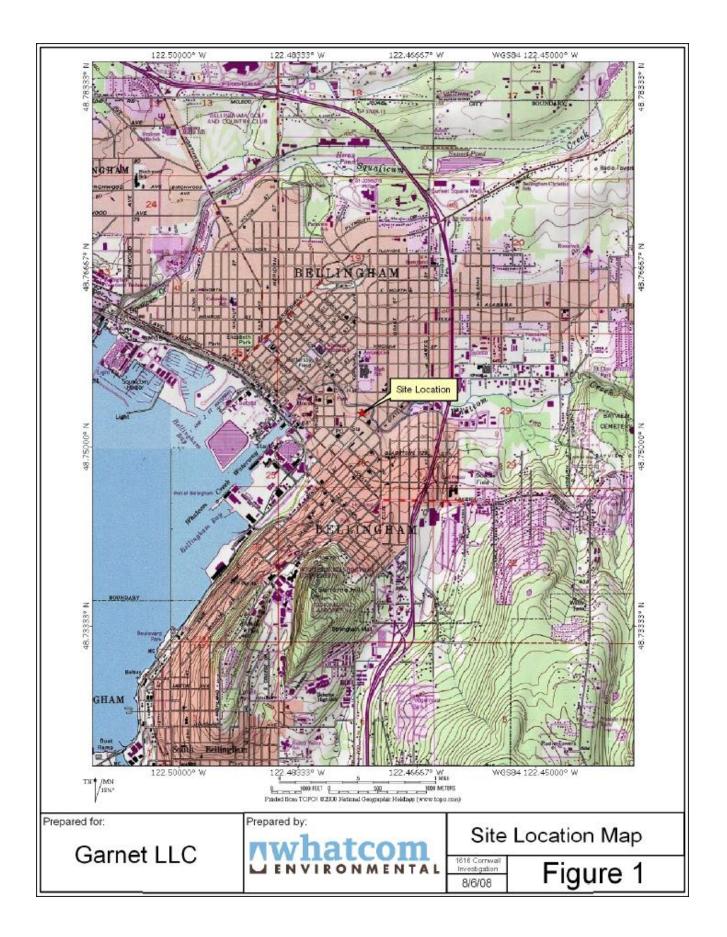
Monitoring well MW-11 well was relocated in May 2018 using a metal detector.

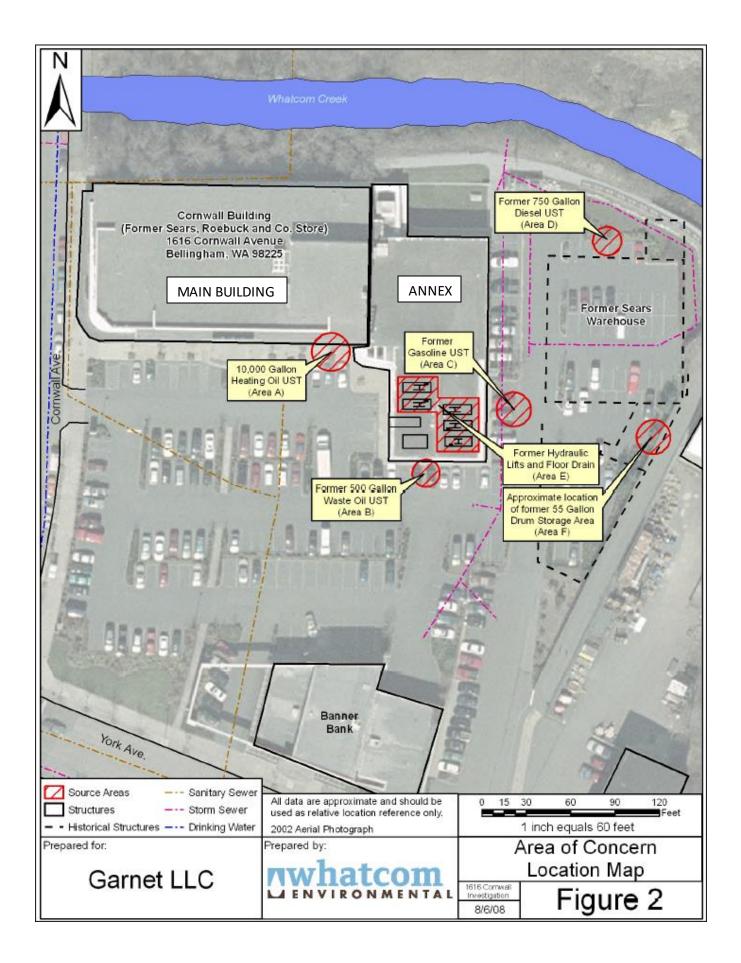
Monitoring well MW-11 was sampled in January and July 2019, in response to Ecology's request in an opinion letter dated June 28, 2018 which requested two rounds after the well was relocated. The samples collected in both rounds were analyzed for TPH-D, TPH-O, volatile organic compounds, semi-volatile organic compounds and metals. In January 2019, only arsenic was detected at concentrations of $3.9 \mu g/L$ (total) and $3.9 \mu g/L$

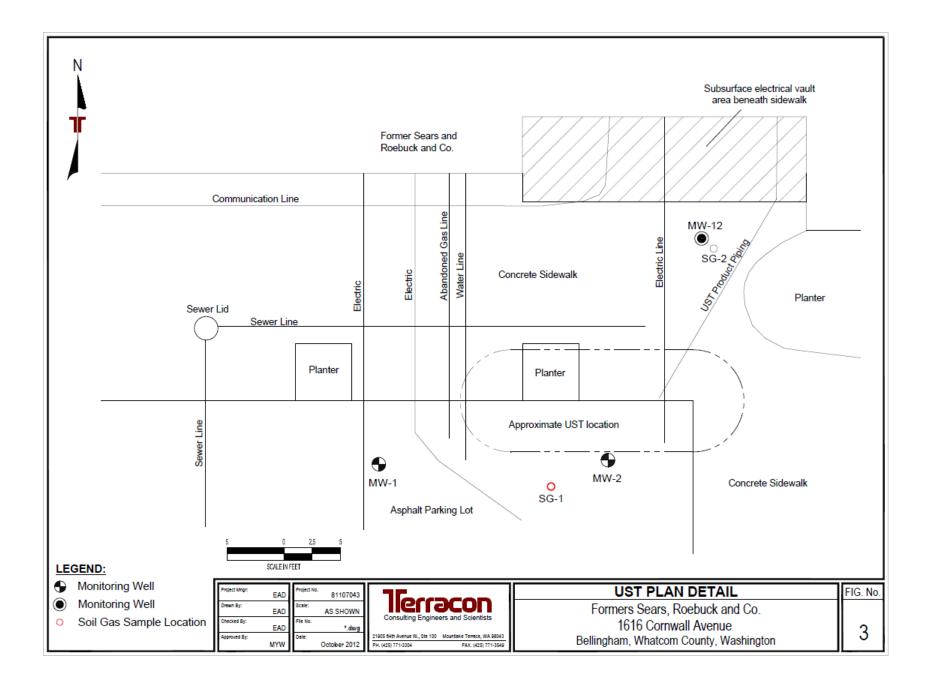
(dissolved), both below the Method A cleanup level. The turbidity was 3.26 NTUs.

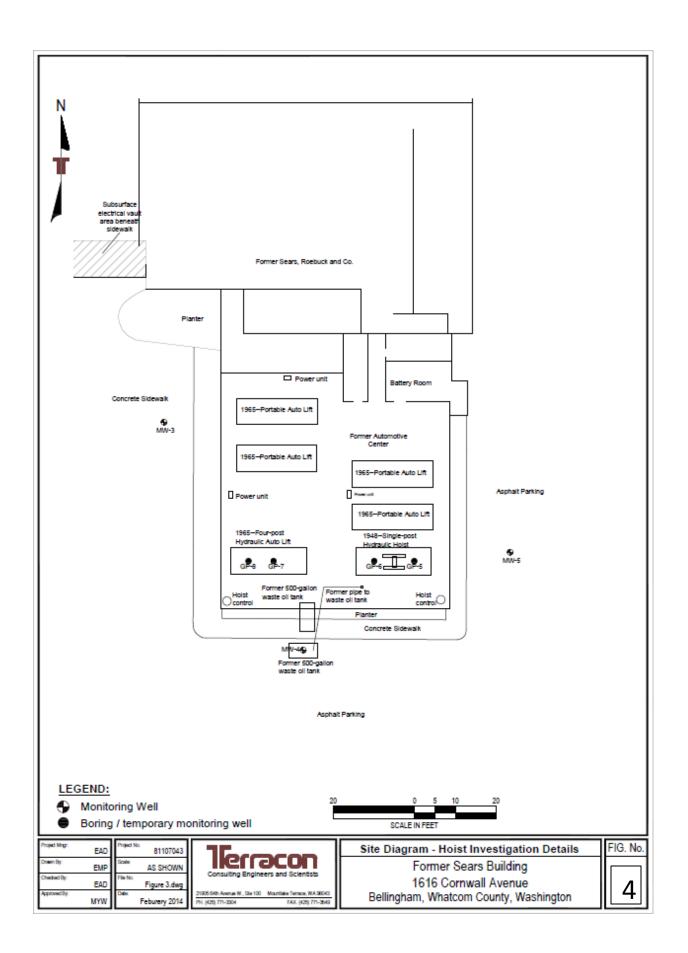
In July 2019, only arsenic was detected at concentrations of 7.5 μ g/L (total) and 7.1 μ g/L (dissolved), both exceeding the Method A cleanup level, with a turbidity of 8.72 NTUs. MW-11 was sampled again in January 2021 when dissolved arsenic was present at 1.2 μ g/L and the turbidity was 3.4 NTUs. Similar results were obtained in monitoring well MW-4 as described above. Based on the data, Ecology concludes that increased dissolved arsenic exceedances in monitoring wells MW-4, MW-8 and MW-11 is attributable to elevated turbidity in the samples.

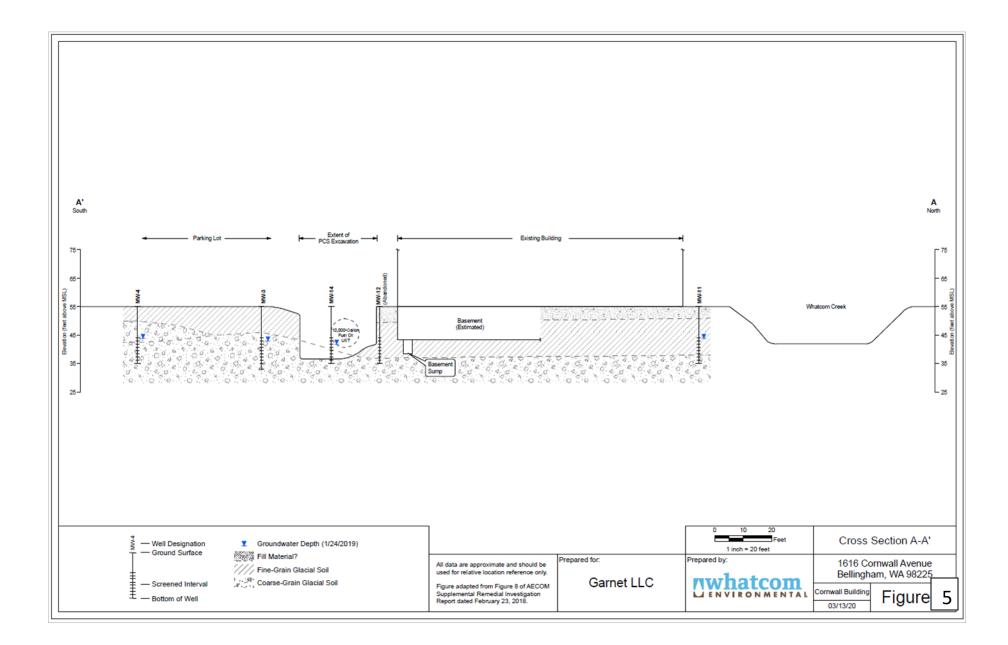
Site Diagrams

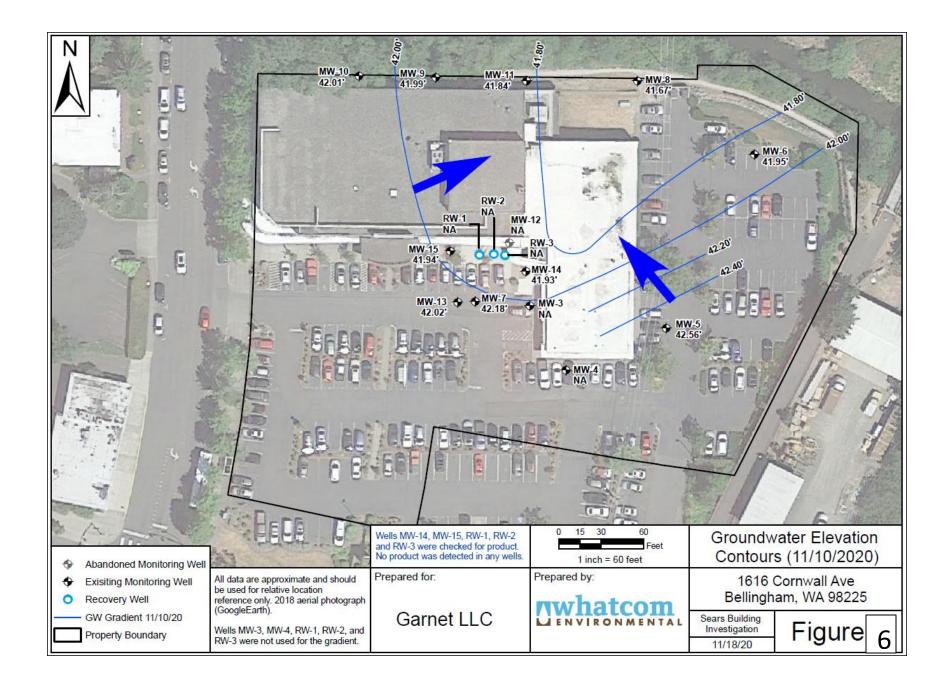


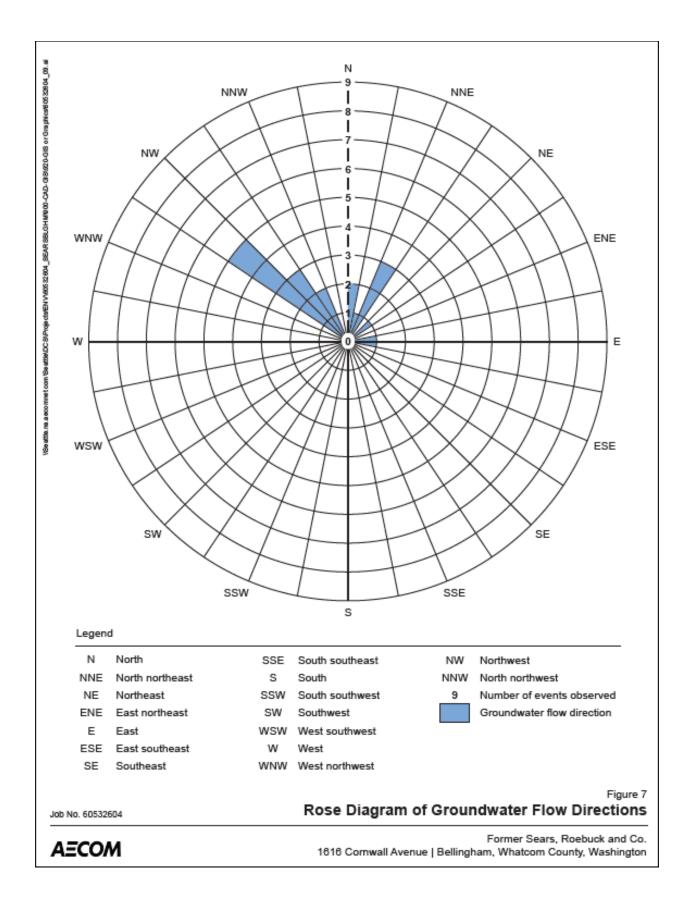


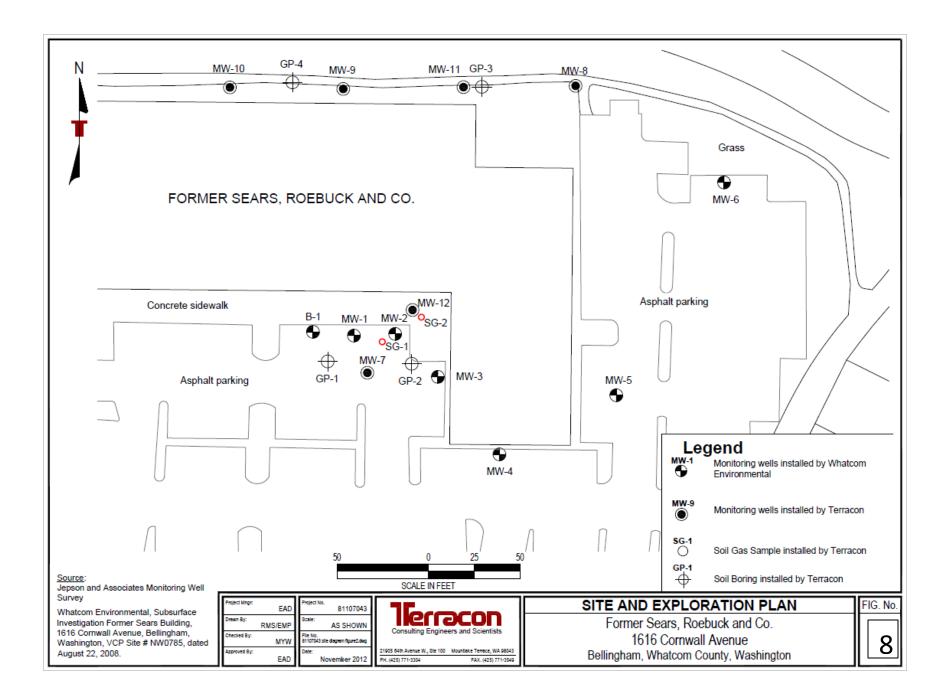


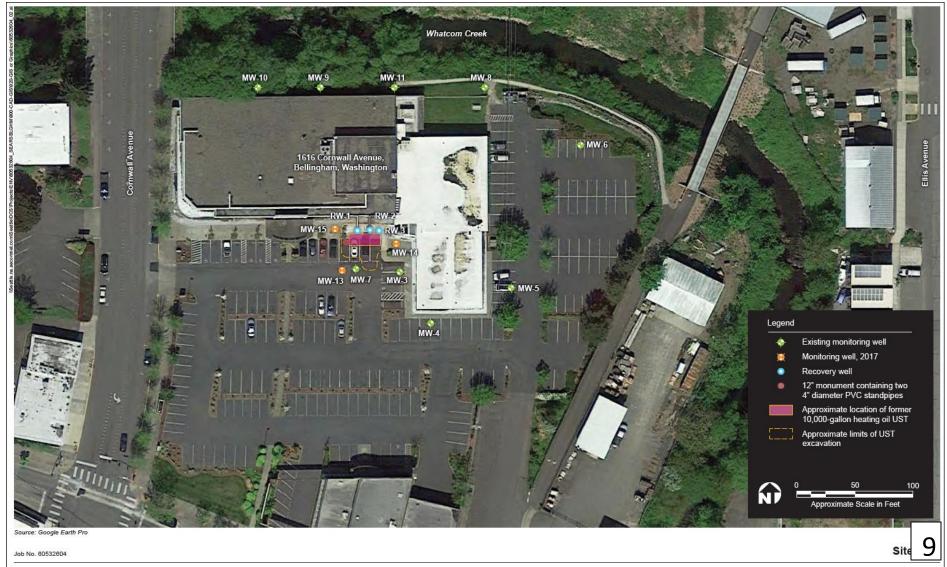












AECOM

Former Sears, Roebuck and Co. 1616 Cornwall Avenue | Bellingham, Whatcom County, Washington

Enclosure B

Basis for the Opinion: List of Documents

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- 1. Whatcom Environmental Services, 2021. Cornwall Building, 1616 Cornwall Avenue, Bellingham, WA Travel Time Estimate. July 26.
- 2. Whatcom Environmental Services, 2021. Arsenic Groundwater Data Submittal 1616 Cornwall Avenue, Bellingham, WA. January 27.
- 3. Whatcom Environmental Services, 2020. *Response to Ecology Opinion Letter dated June* 28, 2018 for 1616 Cornwall Avenue, Bellingham, WA. April 23.
- 4. AECOM, 2018. Report Supplemental Remedial Investigation, Former Sears Auto Center #2199, 1616 Cornwall Avenue, Bellingham, Washington. February 23.
- 5. AECOM, 2017. Third Quarter Groundwater Monitoring Report 2017, Former Sears Auto Center #2199, (Cornwall Building), 1616 Cornwall Avenue, Bellingham, Washington. October 9.
- 6. AECOM, 2017. Second Quarter Groundwater Monitoring Report 2017, Former Sears Auto Center #2199, (Cornwall Building), 1616 Cornwall Avenue, Bellingham, Washington. June 23.
- 7. AECOM, 2017. Limited Phase II Investigation and First Quarter Groundwater Monitoring Report, Former Sears Auto Center #2199, 1616 Cornwall Avenue, Bellingham, Washington. May 1.
- 8. Terracon Consultants, Inc., 2016. Revised Work Plan for Monitoring Well Installations and Quarterly Sampling, Former Sears Automotive Center #2199, 1616 Cornwall Avenue, Bellingham, Whatcom County, Washington. November 1.
- 9. Terracon Consultants, Inc., 2015. *Heating Oil UST Removal and Remedial Excavation Report, Former Sears Automotive Center #2199, 1616 Cornwall Avenue, Bellingham, Whatcom County, Washington.* May 21.
- 10. Terracon Consultants, Inc., 2014. Limited Site Investigation, Cornwall Building, 1616 Cornwall Avenue, Bellingham, Whatcom County, Washington, VCP #NW0785. May 15.
- 11. Terracon Consultants, Inc., 2014. Revised Hoist Investigation Detail Work Plan, Former Sears Automotive Center, 1616 Cornwall Avenue, Bellingham, Washington. January 29.

- 12. Terracon Consultants, Inc., 2013. Remedial Investigation Work Plan, Former Sears Automotive Center, 1616 Cornwall Avenue, Bellingham, Whatcom County, Washington, VCP #NW0785. May 29.
- Terracon Consultants, Inc., 2013. Remedial Action Work Plan, Former Sears Building, 1616 Cornwall Avenue, Bellingham, Whatcom County, Washington, VCP #NW0785. April 22.
- Terracon Consultants, Inc., 2012. Remedial Investigation Data Summary, Former Sears Building, 1616 Cornwall Avenue, Bellingham, Whatcom County, Washington. December 3.
- 15. Terracon Consultants, Inc., 2012. Supplemental Remedial Investigation Work Plan, Former Sears Building, 1616 Cornwall Avenue, Bellingham, Whatcom County, Washington, VCP #NW0785. April 16.
- 16. Terracon Consultants, Inc., 2012. Remedial Investigation Work Plan, Former Sears Building, 1616 Cornwall Avenue, Bellingham, Whatcom County, Washington. January 26.
- 17. Terracon Consultants, Inc., 2011. Limited Site Investigation, Former Sears Building, 1616 Cornwall Avenue, Bellingham, Whatcom County, Washington, VCP #NW0785. June 20.
- 18. Terracon Consultants, Inc., 2011. Site Characterization Work Plan, Former Sears Building, 1616 Cornwall Avenue, Bellingham, Whatcom County, Washington, VCP #NW0785. June 20.
- 19. Whatcom Environmental Services, Inc., 2008. Subsurface Investigation, Former Sears Building, 1616 Cornwall Avenue, Bellingham, Whatcom County, Washington. August 22.
- Whatcom Environmental Services, Inc., 2007. Voluntary Investigation and Cleanup of the Cornwall Building Property, 1616 Cornwall Avenue, Bellingham, Washington (VCP No. NW0785). February 8.
- 21. Welch Enterprises, Inc., 1993. Old Sears Building Underground Storage Tank Project, 1618 Cornwall Avenue, Bellingham, WA. March 8.
- 22. Kleinfelder, Inc., 1990. Environmental Site Assessment, Sears Property at 1618 Cornwall Street and 112 Ohio Street Property, Bellingham, Washington. April 27.