Site Cleanup Action Report

Site No. 2840
12807 Des Moines Memorial Drive South
Burien, Washington

Prepared for

State of Washington Department of Ecology
Toxics Cleanup Program, NWRO
3190 160th Avenue, SE
Bellevue, WA

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Prepared by

ES ENGINEERING SERVICES
1 Park Plaza, Suite 1000, Irvine, CA 92614 | t 714.919.6500 | f 949.988.3514

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1.0 Introduction

1.1 General Site Information

Site Name:	Site No. 2840
Site Address:	12807 Des Moines Memorial Drive South, Burien, Washington
Responsible Party:	Eagle Canyon Capital, LLC 3130 Crow Canyon Place, Suite 240 San Ramon, CA 94583
Responsible Party Contact:	Mr. Hamed Adib
Project Consultant:	ES Engineering Services, LLC 1 Park Plaza, Suite 1000 Irvine, CA 92614 714-919-6500
ES Engineering Contact:	Ms. Laura Skow
Current Owner/Operator:	GTY-PACIFIC LEASING, LLC

On behalf of Eagle Canyon Capital, LLC (Eagle), ES Engineering Services, LLC (ES) is pleased to provide this *Site Cleanup Action Report* for Site No. 2840 (Site) located at 12807 Des Moines Memorial Drive South in Burien, Washington (**Figure 1**). This report summarizes all remedial actions performed at the site to date. In particular, this report provides details on the additional site assessment activities that were performed on the Site in August, 2017.

As established in Washington Administrative Code (WAC) 173-340-200, the "Site" is defined by the full lateral and vertical extent of contamination resulting from the operation of a retail fuel station on the Property. Based on the information gathered to date, petroleum-impacted soil was detected in soil samples collected from the vicinity of the dispenser islands, the former underground storage tanks (USTs) and fuel dispensing system, a former heating oil UST and a former waste oil UST. Recent soil sampling (2017) indicates that the Site, as defined by petroleum-impacted soil, is limited to the area around Borings B-11 and B-14. Petroleum-impacted groundwater has not been encountered beneath the Property.

The Site is also associated with the following identification numbers:

UST ID - 4050
Leaking UST ID - 809
Cleanup Site ID – 9267
Cleanup Unit ID - 8959
Facility/Site ID – 45191292

1.2 Site History

Based on historical documents and aerial photographs, the earliest known use of the Site appears to be a residence. An aerial photograph taken in 1936 appears to show a single-family dwelling, a yard and possibly a garage (**Appendix A**). The next available aerial photograph reviewed was taken in 1954 and indicates that the Property had been redeveloped since the previous aerial photograph and appears to show what resembles an automotive service station (**Appendix B**). Limited information could be found on the original service station, constructed sometime between 1936 and 1954. The 1954 aerial photograph appears to show a small fuel dispenser canopy attached to the northeast side of the building (**Appendix B**). The earliest records available from Ecology are UST Site/Tank Data Summary records that indicate the original USTs were installed in 1964 (**Appendix C**).

According to the Washington State Department of Ecology's (Ecology) tank inventory database, five USTs were installed at the Property in 1964. This record, however, is likely inaccurate because the 1954 aerial photographs appears to show an automotive service and gas station, indicating that USTs were probably installed prior to 1954. A previously completed report on the Site indicated that a Hudson Service Station operated at the Property which included at least one service bay. The UST record though included one 300-gallon used oil UST, one 550-gallon heating oil UST, two 8,000-gallons USTs each containing unleaded gasoline and one 10,000-gallon UST containing leaded gasoline (**Appendix C**). According to the Ecology database, all five USTs were reportedly in use until 1996 when they were reported as decommissioned. However, based on previous reporting it was discovered that the three original gasoline USTs were removed in December 1990 and the heating oil and waste oil USTs were removed In January 1991. Also in 1991, three new 10,000-gallon USTs, each containing unleaded gasoline, were installed at the Property. The Ecology database is supportive of this. These three USTs are currently in use. The five previous USTs have all been removed from the Property. Details regarding the decommissioned USTs can be found in Section 2.1 of this report.

The records reviewed for this report did not indicate any additional USTs or petroleum storage tanks, or that other chemical storage has ever taken place on the Site. The Ecology Cleanup Site Details database was reviewed and the record indicates that a potential leak from the UST system was identified in 1990 and was reported to Ecology (**Appendix D**). The volume of the leak was not determined. Please see Section 2.1.1 below for additional details regarding the discovery of the leak.

A review of the Phase I Environmental Site Assessment (ESA), completed in 2014, revealed two leaking underground storage tank (LUST) sites within ¼ mile of the Site; Gold Co. located at 12459 Des Moines Way S. (0.184 miles toward the north-northeast) and Gerald Richards located at 12666 Des Moines Way (0.231 miles toward the north-northeast).

Given their distances from the Site and their indicated lower elevation relative to the Site, it is highly unlikely that any contamination from these LUST sites has migrated onto the subject Property.

1.3 Site Use

The Site is currently configured for and used as a retail gasoline station and appears to have been in its current configuration since approximately 1966. The current Site configuration is shown on **Figure 2**.

1.4 Future Property Uses

There are no known plans for future re-development of the Property.

1.5 Surrounding Areas

The surrounding area appears to have been steadily developed over the years of record and is zoned by the City of Burien as "Residential Multi-Family" (City of Burien, Title 19 of the Municipal Code). Properties immediately adjacent to the Site include a city park to the east, a commercial property to the south and west and a fire station and single-family residences to the north across S. 128th Street.

Alternate names associated with the Property include: Convenience Retailers 2840, Food Mart 2840, Jackpot Station 284, Time Oil 01-284, Time Oil Jackpot Food Mart Des Moines and Hudson Service Station.

1.6 Utilities and Water Supply

Overhead power and subsurface water, communications and sewer/stormwater utilities are located on the Property.

Stormwater drain lines run north/south along the west side of the station building and roughly east/west along the south side of the building (**Figure 2**). Stormwater catch basins are located adjacent to Boring B-11 and approximately adjacent to Boring B-14. Roof drains from the building are tied into these subsurface stormwater drains.

Power to the Property is supplied from the north through an overhead line that connects directly to the building. Subsurface electrical lines connect signage, a light pole, the fuel distribution system and a water/air dispenser to the building.

Municipal water is supplied to the Property through a subsurface water service main from the north. A larger water main likely exists in S. 128th Street. Water service is supplied by King County Water District 20 (**Appendix E**).

The Site is located within the Valley View Sewer District (**Appendix E**). The location of the sanitary sewer (SS) service line to the building is currently not known. Based on work conducted at similar properties in the vicinity of the subject Site, the SS line is likely located on the north side of the station building and connects to a larger SS main located in S. 128th Street.

2.0 Field Investigations

This section summarizes environmental work performed to date at the Site. This includes previous environmental investigations, site characterization and summary results.

2.1 Previous Environmental Investigations

Based on available documentation, it appears that three individual site assessments have been conducted at the Site to date. The following sections summarize the findings of each individual site assessment. The specific historical reports reviewed include:

- Underground Storage Tank Removal Letter to Ecology – Jackpot Food Mart, 12807 Des Moines Way, Seattle, Washington (Property No. 01-284) – Time Oil Company, dated May 20, 1990;
- Report of Geoenvironmental Services Subsurface Soil Explorations and Remediation – Jackpot Food Mark Property No. 01-284, Seattle, Washington – GeoEngineers Inc., dated April 28, 1993;
- Remedial Investigation Report – Time Oil Facility No. 01-284, 22807 Des Moines Way South, Seattle, Washington – Alisto Engineering Group, dated November 1997;
- Phase I Environmental Assessment – Convenience Retails, LLC Station No. 2702840, Site No: 2702840, 12807 Des Moines Memorial Drive, Seattle, King County, WA 98168 – Property Solutions, Inc., dated September 23, 2014;

The results of the most recent site assessment activities, conducted in August 2017, are presented in Section 2.2 of this Site Cleanup Action Report. Although several previous reports list the Site address as within the City of Seattle limits, the Site currently is within limits for the City of Burien.

2.1.1 1990 & 1991 Initial Discovery and Tank Pull

Details of the original discovery were made available in a report from Time Oil Company to Ecology. The three original gasoline USTs were removed from the Site. “On December 12, 1990, three gasoline tanks, two with volumes of 8,000 gallons and one with a volume of 10,000 gallons, were removed from the above referenced site as part of a facility upgrade. Although some areas of corrosion were present on the tank walls, it did not appear that any of them had leaked.

The tanks and lines were last precision tested on November 27, 1990 and proved tight." (Time Oil Company, 1991). Most of the excavated soil from the fuel UST removal were returned to the excavation along with an approximately 100-foot length of perforated piping, to be used for future remediation efforts. Approximately 5-tons of impacted soil was removed from the Property and disposed of. The following month (January 1991) one 300-gallon waste oil UST and one 550-gallon heating oil UST were also removed from the Property. During both tank removals, soil samples were collected from within the excavation and were analyzed for a variety of constituents.

The soil samples collected from the fuel UST excavation were analyzed for total petroleum hydrocarbons (TPH) by EPA Method 8015 and benzene, toluene, ethylbenzene and xylenes (BTEX collectively) by EPA Method 8020. Soil samples collected from the heating and waste oil excavation were analyzed to TPH by EPA Method 418.1, polychlorinated biphenyls (PCBs), toxicity characteristic leaching procedure (TCLP) metals (currently RCRA-8 Metals) and volatile organic compounds (VOCs) by EPA Method 8240.

Available analytical results from the initial 1991 sampling are presented in **Table 1**. A historic Site plan showing the approximate locations of the initial 1991 soil samples is included as **Appendix F**. TPH was detected at a concentration as high as 4,700 mg/kg in a sample collected from the heating and waste soil excavation (Sample No. 10). Benzene concentrations ranged from non-detect (<0.01 mg/kg) to 0.91 mg/kg. Concentrations of PCBs ranged from non-detect (<1 mg/kg) to 1 mg/kg.

2.1.2 1993 Subsurface Soil Explorations and Remediation

In late 1992 to mid-1993, site assessment activities were conducted at the Site by Geoengineers Inc. The scope of work was varied but included the excavation of previously placed backfill for the heating/waste oil USTs, the installation of an oil/water collection sump located in the heating/waste oil UST excavation and the installation of nine soil borings to further assess offsite migration of contamination and to assess the current soil conditions around the former fuel UST excavation. A limited soil vapor extraction test was also conducted utilizing perforated pipe that was installed within the fuel UST excavation during the initial UST removal activities in December 1990.

Fourteen (14) soil samples were collected from the heating and waste oil UST excavation, which was re-opened to assess petroleum impacts to soil. The sample locations and select analytical results are shown on **Figure 3** and **Figure 4**. The samples were analyzed for Washington total petroleum hydrocarbons in the gasoline (WTPH-Gx) and diesel/oil (WTPH-Dx/Ox) ranges.

Concentrations of WTPH-Gx ranged from non-detect to 2,700 mg/kg in sample HW-12, collected from the south wall of the excavation at a depth of 16 feet below ground surface (bgs). Concentrations of WTPH-Dx ranged from non-detect (<27 mg/kg) to 1,200 in sample HW-4 collected from the east wall of the excavation at a depth of 10 feet bgs. Concentrations of WTPH-Ox ranged from non-detect (<110 mg/kg) to 6,600 mg/kg in sample HW 4 collected at a depth of 10 feet bgs. Three of the soil samples were also analyzed for BTEX. Soil sample HW-12 contained the highest concentrations of BTEX compounds; benzene (0.64 mg/kg), toluene (0.076 mg/kg) and total xylenes (3.1 mg/kg). All historic soil sample analytical results are contained in **Table 1**.

Soil samples were also collected during the installation of nine (9) soil borings; boring B-3 was located in the former waste/heating oil UST excavation, borings B-2 and B-7 were located in the former fuel UST excavation. The remaining borings were located to assess additional onsite and offsite locations.

The soil samples were analyzed for WTPH-Gx, WTPH-Dx/Ox, BTEX and total lead. Sample B-1-12, collected from boring B-1 located at the south end of the station building at a depth of 31.0 feet bgs, contained the highest concentrations of contaminants; WTPH-Gx (13,000 mg/kg), WTPH-Dx/Ox (1,100 mg/kg & 720 mg/kg), ethylbenzene (3.5 mg/kg), toluene (2.1 mg/kg) and total xylenes (30 mg/kg).

Two of the nine borings (B-1 and B-7) were completed as 2-inch diameter vapor extraction Wells VP-1 and VP-7, to be used in future remediation efforts at the Site. Groundwater was not encountered during field activities.

Select analytical results and boring locations from 1993 are shown on **Figure 3** and **Figure 4**.

2.1.3 1997 Remedial Investigation Report

In February 1997, additional site and remedial investigation activities were performed by Alisto Engineering Group. Two additional vapor extraction Wells, VP-101 and VP-102, were installed at the Site to depths of 56 feet bgs and 36 feet bgs, respectively. One additional soil boring (B-10) was also installed. Both vapor extraction wells were 4-inch diameter wells. The oil-water collection sump was also abandoned at that time.

Soil samples were collected and analyzed during the installation of Wells VP-101 and VP-102 and Boring B-10. It should be noted that the analytical report lists results for samples designated as B-11 and does not list results for samples designated as B-10. The existence of a Boring B-11 is not clear at this point and it does not appear on site plans or figures reviewed as part of the current site assessment. It is likely that soil samples collected from Boring B-10 were mistakenly listed on the 1997 chain-of-custody as “B-11” (**Appendix G**).

All soil samples were analyzed by Washington Method Total Petroleum Hydrocarbon (WTPH)-Hydrocarbon Identification (HCID). Method WTPH-HCID is a petroleum screening method that yields results with higher reporting limits than other, more specific analytical methods such as Washington Total Petroleum Hydrocarbons as gasoline (WTPH-Gx). WTPH-HCID is typically used as a qualitative analytical method to check for the general presence of petroleum hydrocarbons. Petroleum constituents were not detected in any of the soil samples analyzed with the exception of sample VP-101-10, which was then further analyzed for gasoline by Method WTPH-Gx, BTEX by Method 8020 and lead by Method 6010. Gasoline was detected at 20 mg/kg and lead was detected at 1.8 mg/kg which were both below their respective CULs.

Analytical results for soil samples collected in 1997 are included in **Table 1**. The locations of wells installed in 1997 are included on **Figure 2**, **Figure 3** and **Figure 4**.

Vapor extraction testing was conducted in March, 1997. Vapor extracting testing was performed utilizing Wells VP-1, VP-7, VP-101 and VP-102 and vapor was extracted at various rates and vacuum pressures and from various well configurations.

Vapor samples were collected during pilot testing and were analyzed for total non-methane organic compounds referenced to gasoline (TNMOC), benzene, toluene, ethylbenzene and total xylenes.

TNMOC was detected in samples collected from Wells VP-1, VP-7 and VP-101 at concentrations of 2,773 parts per million volume (ppmv) in VP-1, 180 ppmv in VP-7 and 610 ppmv in VP-101. Benzene was detected in the vapor samples collected from VP-1 (0.070 ppmv) and VP-7 (0.054 ppmv). Toluene, ethylbenzene and total xylenes were detected at various concentrations from the other samples collected.

Again, groundwater was not encountered during field activities.

2.1.4 2014 Phase I Environmental Site Assessment

In 2014, a phase I environmental site assessment (ESA) was conducted at the Site by Property Solutions, Inc. The assessment identified the historic LUST case with Ecology and summarized previous work conducted at the Property.

2.2 2017 Additional Site Assessment

On August 7, 2017, field activities consisted of drilling and sampling soil borings B-11 and B-14. On August 8, 2017, field activities consisted of drilling and sampling soil borings B-12, B-13 and B-15. Groundwater was not encountered during drilling. Before commencing field activities, a daily “tailgate” site health and safety meeting was held with ES personnel and subcontracted employees.

Site personnel were requested to read and acknowledge understanding of the health and safety plan (HASP) prior to initiating work. Signed HASP and daily tailgate forms are contained within **Appendix H**.

The locations of the borings were chosen based on the results of previously completed work. Boring B-11 served to confirm current soil conditions near the southeast corner of the former heating/waste oil UST excavation. The 1993 report indicated that contamination may have continued to the south and east of the excavation at that time. Boring B-12 served to confirm current soil condition in the vicinity of historic soil samples HW-3 and HW-4, which were collected in 1992 from the base and east wall of the heating/waste oil UST excavation.

Boring B-13 served to confirm that impacts previously identified in Boring/Well B-7/VP-7 have been remediated and/or degraded over time.

Boring B-14 served to confirm current soil conditions in the vicinity of Boring/Well B-1/VP-1 and Boring B-15 served to confirm current soil conditions in the vicinity of the former oil/water collection sump. A limited amount of subsurface water was encountered in soil boring B-15 and appeared to be confined within backfill that had been previously placed during the installation of the soil/water sump, adjacent to the former waste and heating oil USTs. All soil borings and remediation well locations are shown on **Figure 2**.

2.2.1 Pre-marking, License Agreement, Permitting and Notifications

Before initiating field activities, the proposed boring locations were pre-marked in white spray paint. A *Notice of Intent to Construct* was submitted to Ecology by the drilling contractor to install the remediation wells. The State of Washington's mandatory underground utility locating system, One-Call, was notified 72 hours before initiating field activities and requested to mark and delineate underground utilities servicing the Site (One-Call Ticket No. 17292949; **Appendix H**). Applied Professional Services, Inc. was also contracted to attempt to locate subsurface utilities including product piping and vent lines in the vicinity of the proposed boring locations.

An attempt was made to obtain a signed license agreement with the owner of the adjacent property, located to the west and south of the Site, to facilitate access to install additional soil borings. At the time of the beginning drilling activities, ES had still not received the signed license agreement and therefore was not able to access the adjacent property during drilling.

Several days before the beginning of scheduled drilling activities, ES performed a site visit to locate previously placed survey monuments, delineating the property boundaries of the Site. Survey monuments were located at the northwest and southwest corners of the Site and thus, the western property boundary was located to ensure that all proposed drilling locations were contained within the Site.

2.2.2 Drilling and Soil Sampling

Cascade Drilling LP (Driller's License No. 3131) was retained to provide drilling and well installation services on August 7 and 8, 2017. The soil borings were advanced using a truck mounted, CME-75 hollow stem auger (HSA) drill rig. The wells were installed using 8-inch diameter HSAs.

Samples were collected using 18-inch long, 3-inch outside diameter split spoon (Dames & Moore) samplers driven with a down-hole, 140 pound hammer.

Soil was logged in accordance with the Unified Soil Classification System (USCS) by a licensed Professional Geologist. Field screening for volatile organic hydrocarbons (VOCs) was performed by placing a disaggregated portion of each soil sample in a sealed container and monitoring the head-space for volatility using a photoionization detector (PID).

Soil descriptions, field PID readings and other pertinent geological data were recorded on boring logs included as **Appendix I**.

Soil samples selected for laboratory analysis were collected in accordance with EPA Method 5035 using laboratory-preserved 40-milliliter glass vials. Each sample was comprised of three 5-gram soil aliquots. Each aliquot was inserted into a separate vial. Additionally, one 4-ounce glass jar was filled with soil and included with each set of vials. The vials and jars were immediately capped, labeled and stored on ice in a cooler. All samples were delivered to an analytical laboratory under chain-of-custody procedures. Additional details regarding soil ES's soil sampling and general field protocols are presented as **Appendix I**.

Down-hole drilling and sampling equipment was cleaned using either a non-phosphate, laboratory-grade detergent and triple-rinse or high-pressure, high temperature water. Tools and augers were allowed to dry prior to use. Decontamination water was contained onsite in Department of Transportation (DOT) approved 55-gallon drums.

The following section summarizes the field observations and the subsurface soils encountered during drilling:

- Soil borings B-12 and B-15 were drilled to a total depth of 35.0 feet bgs. Boring B-11 was drilled to 40.0 feet bgs, Boring B-13 was drilled to 50.0 feet bgs and Boring B-14 was drilled to 55.0 feet bgs.
- Soil encountered during drilling consisted of silty-sand and well to poorly graded sand with varying amounts and sizes of gravels.

- Hydrocarbon odors were noted in soil samples collected from borings B-11 and B-14. Field PID readings ranged from non-detect (0 ppm) to 1,225 ppm. The highest PID reading was measured in soil sample B-14-30, collected from boring B-14 at 30 feet bgs.
- Groundwater was not encountered during the drilling activities.

Table 2, **Table 3** and **Table 4** present a summary of the results for soil samples analyzed during this assessment and previous site assessments. Additional lithologic details are presented on boring logs included in **Appendix I**. ES's general field practices and procedures are included as **Appendix J**.

2.2.3 Boring Backfill

All soil borings were backfilled with 3/8 inch, hydrated sodium bentonite chips upon reaching their total depths. It should be noted that during the drilling of Boring B-14, after reaching the total bored depth (55.0 feet bgs), the hole was left in an open condition for approximately 40 hours to screen for groundwater prior to being backfilled and abandoned. Several minutes before beginning backfilling the boring, a water level meter was lowered to the bottom of the borehole to check for standing water; no water was detected in the boring.

2.2.4 2017 Soil Analytical Results

The analytical results have been evaluated considering Ecology's *MTCA Chapter 70.105D RCW and Cleanup Regulation Chapter 173-340 WAC* (Publication No. 94-06, revised November 2007). The soil analytical results from this assessment are summarized in **Table 2, Table 3** and **Table 4** and are compared to the respective MTCA Method A CULs for Unrestricted Land Use (Table 740-1). Laboratory analytical results in exceedance of MTCA Method A CULs are presented with bold type.

A total of twenty-two soil samples were submitted to ESN Northwest, a state-certified environmental laboratory for chemical analysis. Soil samples were analyzed for select constituents of concern (COCs) which included TPH-Gx by Method NWTPH-Gx, TPH-Dx and TPH-Ox by Method NWTPH-Dx/Ox Extended, VOCs by EPA Method 8260, semi-volatile organic compounds (SVOCs) by EPA Method 8270, polychlorinated biphenyls (PCBs) by EPA Method 8082A and total metals (RCRA 8 metals) by Method 6020.

TPH-Dx was detected at concentrations of 380 mg/kg in sample B-11-10 and 1,200 mg/kg in sample B-14-30. The concentrations of TPH-Dx in both samples were below the MTCA Method A CUL of 2,000 mg/kg.

TPH-Ox was detected in soil sample B-11-10 at a concentration of 1,800 mg/kg, which is below the MTCA Method A CUL of 2,000 mg/kg. TPH-Ox was not detected at or above the laboratory method RL in any of the other samples analyzed for TPH-Ox.

TPH-Gx was not detected in any of the soil samples analyzed for TPH-Gx at or above the RL of 10 mg/kg.

Benzene was not detected at or above the RL in any of the soil samples submitted for analysis.

Toluene was not detected at or above the RL in any of the soil samples submitted for analysis.

Ethylbenzene was not detected at or above the RL in any of the soil samples submitted for analysis.

Total xylenes were not detected at or above the RLs in any of the soil samples submitted for analysis.

PCBs were not detected at or above the RLs in any of the soil samples submitted for analysis.

Total chromium was detected in soil samples B-12-15 and B-15-20 at concentrations of 29 mg/kg and 23 mg/kg, respectively. The samples were additionally analyzed for hexavalent chromium (Cr^{6+}) by EPA Method 7196A/3060A. Hexavalent chromium was not detected at or above RLs in those two samples.

Cadmium was detected at a concentration of 1.9 mg/kg in soil sample B-15-20, which is below the CUL of 2.0 mg/kg.

No other COCs were detected at or above RLs in any of the soil samples submitted for analysis as part of this site assessment.

Copies of the laboratory analytical reports are included as **Appendix K**.

2.2.5 Waste Management

Soil cuttings and decontamination fluid generated during drilling and well installation activities were placed into 55-gallon, DOT-approved drums, sealed and properly labeled. Arrangements have been made to remove and transport the drums to a licensed waste disposal facility. Copies of the non-hazardous waste manifests are included as **Appendix L**.

2.3 Site Characterization

The most recent site characterization activities were completed in August, 2017. The assessment involved the advancement of five soil borings (B-11 through B-15). Soil samples were collected during drilling and analyzed for the petroleum constituents as well as other automotive service biproducts outlined below.

Petroleum constituents were chosen as the primary COCs because of the known history of the Site and the fact that the Site is listed as a LUST site with Ecology and petroleum constituents are known to exist in the subsurface. Automotive service biproducts were chosen as secondary COCs also based on the history of the Site and the historical presence of a waste oil UST on the Site.

Groundwater was not encountered during drilling activities during any of the site assessments conducted to date, therefore, groundwater samples have not been collected from beneath the Site.

Subsurface water was encountered during the 1992 removal of the waste and heating oil USTs and approximately 3,700 gallons were removed during the excavation.

The 1993 report states "*A thin layer of perched ground water was encountered in the excavation at a depth of approximately 9 feet below grade. Water exhibiting a heavy, colorful sheen was observed seeping from the east wall of the excavation, adjacent to the Food Mart building at a depth of 9 feet below ground surface*" (Geoengineers, 1993). The report also states, "*It appears that the source of the perched water was surface water that percolated into the heating and waste oil tank excavation, which was not paved following the January 2991 tank removal activities*" (Genengineers, 1993).

An oil/water collection sump was installed in late 1992 and served to capture the perched water observed during the excavation. "*The sump was checked on January 12, 1993 for the presence of water and/or free (floating) product using an interface probe. Free product was not detected, but about 4 feet of water was present in the sump*" (Geoengineers, 1993). It does not appear that water samples were collected or analyzed for petroleum constituents. Although the sump was subsequently abandoned in 1997 by filling it with crushed rock and concrete (Alisto, 1997), it appears that a very small amount of water in the sump was intercepted in 2017 with the drilling of Boring B-15, based on the wet condition of the soil and soil sampler when removed from the borehole. Pea gravel was also encountered but standing water was not encountered in the boring.

No sheen or hydrocarbon odors were noted in the soil encountered in Boring B-15 and PID headspace readings were non-detect.

Numerous well logs for wells completed in the area of the Site were reviewed on Ecology's Washington Well Log Viewer. Two wells, listed as owned by the Seattle Water Department, located approximately 1/8 mile southeast of the Site indicate depths to static water of 78.7 feet and 80.9 feet, respectively. Additional details regarding well logs reviewed for this report are found in Section 4.7.1 of this report. It is unlikely that groundwater has been impacted by the limited release associated with the Site, given the maximum depth of contamination detected in soil and the overall regional depth to groundwater. It should be noted that during the drilling of Boring B-14, after reaching the total depth of 55.0 feet bgs, the borehole was left in an open condition for approximately 40 hours, prior to being backfilled and abandoned.

Several minutes before backfilling the boring, a water level meter was lowered to the bottom of the borehole to check for standing water; no water was detected in boring B-14.

After backfilling Boring B-14, the nearby vapor well VP-1 was opened and checked water. Standing water was encountered at a depth of 54.85 feet below top of well casing (btoc) and the total depth of the well was measured to be 55.01 feet btoc. The 0.16 feet of standing water at the bottom of well VP-1 is likely a small amount of condensation that had accumulated in the well casing over the years. The well seal and well monument were noted to be in good overall condition.

The Property is an active retail fueling station located on the southwest corner of the intersection of Des Moines Memorial Drive South and S. 136th Street, Burien, King County, WA. The land to the east of the Property, across Des Moines Memorial Drive South, is located within the City of Seatac, Washington.

The Property is improved with a convenience store building, pump island canopy covering two product dispensers and three USTs (underground storage tanks).

The Property is branded as a 76 Station and is currently owned by GTY-PACIFIC LEASING, LLC; however, Eagle Canyon Capital, LLC is the responsible party for Site cleanup activities.

2.4 Sampling/Analytical Results

Petroleum related COCs have been identified in soil during all three site assessments during which soil was sampled. All available historic analytical results are included in **Table 1** and analytical results from this assessment are summarized in **Table 2, Table 3** and **Table 4.**

Sample results from the most recent assessment (2017) indicate that residual concentrations of petroleum hydrocarbons remain at the Site at concentrations below MTCA Method A CULs. TPH-Gx was not detected in any of the soil samples analyzed. TPH-Dx and TPH-Ox were detected in sample B-11-10 at concentrations of 380 mg/kg and 1,800 mg/kg, respectively, and TPH-Dx was detected in sample B-14-30 at a concentration of 1,200 mg/kg. The laboratory analytical report indicates that the TPH-Dx detection in sample B-14-30 appeared to be Stoddard type solvent. This was also noted in the 1993 site assessment report. The report reads "*Gasoline-range hydrocarbons detected in soil samples from B-1 and B-7 appear to be either degraded gasoline or a Stoddard-type solvent. The hydrocarbons appear to occur in a unit of dense, fine to medium sand at depths between 26 feet and 46 feet below ground surface*" (Geoengineers, 1993). The current findings are consistent with this interpretation of the laboratory data.

In general, the concentrations of COCs detected during the 2017 site assessment in Boring B-14 are less than the concentrations detected in Boring B-1 in 1993. The concentration of TPH-Dx detected in 2017 is slightly higher (1,200 mg/kg versus 1,100 mg/kg) but TPH-Gx and TPH-Ox were non-detect in 2017 versus present in 1993. It is difficult to say whether concentrations have decreased since 1997, as only one soil sample (VP-101-10) was analyzed for TPH-Gx and no

samples from 1997 were analyzed for TPH-Dx or TPH-Ox. All samples were, however, analyzed using the WTPH-HCID Method, and all results were non-detect.

Boring B-11 was advanced near historical samples HW-12 and HW-14, which contained COCs exceeding CULs in 1992. As shown in the tables, soil samples collected from B-11 were non-detect for TPH-Gx and VOCs indicating concentrations in the area of HW-12 and HW-14 have been remediated or have degraded over the past 24 years. The TPH-Dx concentration in the area has diminished somewhat and the TPH-Ox concentration is comparable to that detected in 1992; however, results from B-11 confirm residual concentrations are localized to approximately 10 feet bgs.

Soil vapor extraction appears to have been effective at removing petroleum hydrocarbons from the subsurface, based on the results of pilot testing conducted in 1992 and 1997 and based on current soil concentrations versus historical concentrations.

COCs remain at the Site, particularly in the vicinity of Well VP-1 (B-1) and Boring B-14 and to a lesser extent in the vicinity of the 2017 Boring B-11. All concentrations of COCs detected during the 2017 assessment are below current CULs.

All soil samples were analyzed by a state certified environmental laboratory and all samples were collected and transported under standard chain-of-custody procedures. There are no indicators that the laboratory data are not of high quality. The analytical laboratory report including chains-of-custody from the 2017 assessment is included as **Appendix K**.

To date, sub slab soil vapor samples have not been collected. Since the Site is developed as a retail gas station and is surrounded by a developed urban environment, samples of surface water were not collected or analyzed. Rain water that falls on the Site is directed towards established storm water catch basins and drains. Natural flowing streams or rivers do not exist within the immediate vicinity of the Site.

3.0 Natural Conditions

3.1 Topography

The Property is located approximately 380 feet above mean sea level (amsl). The Site topography is relatively flat with a slight slope toward the south-southeast toward Des Moines Memorial Drive. The local topography also exhibits a slight slope generally toward the south (**Figure 1**).

3.2 Geology/Hydrology

The City of Burien lies within the Puget Lowland, a basin distinguished by its elongated structure located between the Cascade Range and Olympic Mountains.

The near surface geology of the Puget Lowland, which is a subprovince of the Salish Lowland, primarily consists of Pleistocene aged glacial deposits. The youngest of the glacial deposits are primarily derived from the Vashon drift, a glacial drift sequence emerging from the north. The Vashon drift is regionally associated with three episodes of Late Pleistocene ice growth (stades), comprising the Fraser Glaciation. However, the central portion of the Puget Lowland is specifically only represented by the deposits of the Vashon stade, dated approximately 14,550 and 13,600 years ^{14}C yr. B.P. (Haugerud, Ralph A, and Kathy Goetz Troost, 2008).

The Vashon drift has been divided into an upper part (Esperance Sand Member) and a lower part (Lawton Clay Member) consisting of "massive and plane-bedded sand, overlain by cross-bedded sand, locally with foreset bedding, silt and gravel and coarsening upwards; commonly overlain till" as well as "lacustrine silt and clay, commonly with varve-like layering, little or no organic debris" (Haugerud, Ralph A, and Kathy Goetz Troost, 2008), respectively.

As depicted in the 2002 "Geologic Map of Washington – Northwest Quadrant", the Site is located within the "Qgt" map unit identified as the Quaternary aged glacial till deposits (Dragovitch et. al., 2012). Glacial till is a general term referring to a very unsorted, heterogeneous mixture of clay, silt, sand, gravel and boulders that is of glacial origin. Till in the Puget Lowland is consistently very hard and presents notoriously difficult drilling conditions. Silt and sand lenses are common in till deposits.

The surface geology of the area generally consists of weathered glacial till from the surface down to approximately 30-50 feet bgs, or advance outwash. The glacial till is typically underlain by advance outwash consisting of fine to medium sand with gravel; the gravel content generally decreases with depth. Sediments encountered during the most recent site assessment (August 2017) are more consistent with glacial advance outwash rather than glacial till. Silty-sand and well and poorly graded sands with gravels were encountered. Based on relatively smooth advancement of the hollow-stem auger drill, the material was likely advance or retreat outwash.

The Puget Lowland groundwater system is primarily recharged by infiltrating precipitation and percolation through the sandy till and outwash. Groundwater flow is predominantly influenced by topography within the Puget Lowland, moving laterally from topographically high areas towards the major stream valleys and small streams that drain the higher plains and plateaus of glacial drift. The deeper and more confined aquifers are not as topographically influenced.

4.0 Conceptual Site Model

This section presents a conceptual understanding of the Site and identifies suspected or potential sources of petroleum contamination, types and concentrations of petroleum contamination, potentially contaminated media and actual and potential exposure pathways and receptors.

4.1 Site Definition

Based on the findings of previous investigations and the August 2017 site assessment, the Site is defined by the full vertical and lateral extent of soil contamination. Since groundwater was not encountered during any site assessment completed to date, impacts to groundwater have not been confirmed. Recent soil analytical data indicate that soil contamination is present in the area south of the former heating/waste oil UST (Boring B-11) and the area at the southwest corner of the station building (Boring B-1/VP-1 and Boring B-14, **Figure 2** and **Figure 4**). Soil analytical data is also presented in geologic cross-section form as **Figure 6** and **Figure 7**.

4.2 Confirmed and Suspected Source Areas

Results of previous site investigations suggest that petroleum impacts to soil are the result of a release from the USTs associated with the automotive service and retail fuel operations located on the Property. Historical aerial photographs indicate that the Property was developed with structures indicative of a single-family home(s) by 1936 and re-developed into an automotive service and retail gas station by 1954. Property records from the King County Assessor's Office indicate that the current building located on the Property was constructed in 1966 (**Appendix M**). Historic aerial photographs support this timeline. It is known that automotive repair services were performed at the Site historically and it is surmised that an automotive service bay existed either in the southern or northern portion of the 1954 station building. The northern location seems more probable based on the location of the former waste and heating oil USTs. The former waste and heating oil USTs, along with the former fuel USTs, as well as former service bay appear to have been the source of contamination found at the Site. Since the Property was redeveloped and the former waste and heating oil and fuel USTs have been removed, the source of contamination is considered to have been eliminated.

4.3 Media of Concern

Based on current analytical data, soil is the affected medium at the Property. Due to the low concentrations of TPH-Dx and TPH-Ox in the soil and the depth of impacts, it is unlikely that soil vapor poses an unacceptable vapor intrusion risk. Soil vapor intrusion is discussed further in section 4.7.5 of this report. Groundwater has not yet been encountered on the Site and petroleum impacts to groundwater have not yet been confirmed or excluded.

4.4 Distribution of Contaminants in Soil

Soil analytical data from the three investigations completed to date indicate that soil impacts are limited to low concentrations of TPH-Gx, TPH-Dx , TPH-Ox and other constituents, occurring from 10 feet bgs to as deep as 46 feet bgs. The extent of soil impacts have been defined to the extent practical. Remedial excavation and SVE have removed a significant amount of contamination and recent site assessment results show concentrations of COCs detected are below current MTCA Method A cleanup levels (CULs) for unrestricted land use (**Table 2**). Analytical results from the 2017 assessment are also depicted on **Figure 4.**

A site plan showing well locations and cross-section profiles is presented as **Figure 5** and cross-section showing historical and current soil analytical results are presented in **Figure 6** and **Figure 7**.

4.5 Distribution of Contaminants in Groundwater

Groundwater has not been encountered yet on the Site and petroleum impacts to groundwater have not yet been confirmed or excluded. Current soil concentrations are below MTCA Method A CULs and are protective of groundwater. Therefore, additional site assessment does not appear to be warranted.

4.6 Contaminant Fate and Transport

The following sections include a discussion of the transport mechanisms and environmental fate of petroleum hydrocarbons in the subsurface.

4.6.1 Transport Mechanisms – Petroleum Hydrocarbons in the Subsurface

The environmental transport mechanisms of petroleum hydrocarbons are related to the separate phases in the subsurface. The four phases of petroleum contamination in the subsurface are vapor (in soil gas), residual contamination (adsorbed contamination on soil particles), aqueous phase (contaminants dissolved in groundwater), and light non-aqueous phase liquids (LNAPL). Each phase is in equilibrium in the subsurface with the other phases and the relative ratio of total subsurface contamination by petroleum hydrocarbons between the four phases is controlled by dissolution, volatilization and sorption.

Petroleum hydrocarbons, if observed in groundwater beneath the Site can be transported from source areas and distributed throughout the Site primarily by dispersive transport mechanisms within the saturated zone. As with other chemicals, petroleum hydrocarbons tend to spread out as groundwater flows away from the source area. The extent of the hydrocarbon plume depends on the volume of the release, soil density, particle size and seepage velocity.

Volatilization of the contaminant plume can result in mass removal of hydrocarbons by releasing vapor into the vadose zone, where soil hydrocarbon vapor can be biodegraded to an extent not possible in LNAPL or dissolved phases, depending on environmental conditions. Sorption of contaminants onto soil particles or interstitial soil spaces can immobilize contaminants. Contaminants sorbed onto soil particles are not free to transport via aqueous transport or non-aqueous phase liquid advection. Residual contamination, although not necessarily broken down quickly over time, is generally immobile.

4.6.2 Environmental Fate in the Subsurface

The most significant fate process for petroleum hydrocarbons is biodegradation (i.e., natural attenuation). Biological degradation of contaminants in LNAPL, dissolved, residual and vapor phases is possible under a variety of environmental conditions, although it occurs predominately in the aqueous, residual and vapor phases.

Degradation products of gasoline constituents are generally less toxic than their parent species. Petroleum hydrocarbons that are the most mobile (having the least viscosity and the most solubility in water) are also the most easily biodegraded (e.g., aromatics). Because gasoline constituents contain thousands of carbon compounds, there is a vast array of biochemical transformations that occur in situ in the soil and groundwater media.

For example, hydroxylation can alter hydrocarbon compounds to ketone or alcohol products that are less toxic or more biologically available; aromatic reduction can convert aromatic groups to naphthenes; ring cleavage can destroy aromatic functional group species; and reduction can alter olefin functionality. The alteration and destruction of gasoline constituents occurs both by microbial enzyme catalytic reactions on the contaminant substrate or by direct digestion of contaminants as an electron donor or acceptor. Any number of reactions can occur within the subsurface by microorganisms that change the chemical distribution and concentrations of the contaminants.

The time frames over which these reactions occur vary depending on any number of limiting factors, primarily the availability of oxygen. For example, BTEX constituents are rapidly degraded under aerobic conditions but tend to persist for several years and/or decades under the anoxic conditions typical of most subsurface environments.

4.7 Preliminary Exposure Assessment

The following is a discussion of the potential migration pathways identified for the Site and potential targets for COCs observed on the Property.

4.7.1 Soil-to-Groundwater and Soil-to-Drinking Water Pathways

Groundwater has not been encountered during any site assessment completed to date. Petroleum impacts to groundwater have not been confirmed or excluded.

Based on information from Ecology's State Well Log website (reviewed September 11, 2017), the nearest water wells (Well IDs: 286637 & 286638, installed in 1985 and 1987, respectively) are located approximately 740 feet southeast of the Property. A review of the well logs revealed that Well 286637 is a 20-inch diameter water well used for unknown purposes and Well 286638 is an 8-inch diameter water well also used for unknown purposes. Both wells are owned by the Seattle Water Department and it is unclear if the wells are currently in use. Based on the distance between these wells and the subject Property (approximately 800 feet), the depth to static water reported in these wells (approximately 80 feet bgs) and the maximum depth of historically detected contamination (46.0 feet bgs), it is highly unlikely that these wells will be impacted with COCs migrating from the subject Property. Lastly, confirmation sampling results show that concentrations have either been remediated and/or have degraded. Current results for soil collected from 55.0 feet bgs are non-detect for COCs. Reviewed well logs are included as **Appendix N**.

The Site is located within the King County Water District #20 (**Appendix E**). The Property is serviced with water from the north side of the station building. The exact location of the water main is not known but is likely located in S. 128th Street, based on previous work completed at similar properties located in the vicinity of the Site. Given the overall age of the infrastructure in the area and the location of impacted soil (down gradient of the water service connection), it is unlikely that any petroleum contamination has infiltrated the water main and no evidence reviewed as part of this report supports that notion.

4.7.2 Soil-to-Surface Water Pathway

The soil-to-surface water pathway is incomplete considering the nearest surface water bodies (Tub Lake, located in Sunset Park) are approximately ¾ mile from the Site. All stormwater falling on the Site is directed to established catch basins and drains and the Site is nearly 100 percent paved with concrete or asphalt. It is highly unlikely that any surface water will come into contact with impacted soil or that any impacted soil will leave the Site and impact surface waters.

4.7.3 Groundwater-to-Drinking Water Pathway and Groundwater-to-Surface Water Pathway

Groundwater has not been encountered during any site assessment completed to date. Petroleum impacts to groundwater have not been confirmed or excluded. As noted in Section 2.3 of this report, just prior to backfilling and abandoning Boring B-14, a water level meter was lowered into the open hole, which had been allowed to stay open for approximately 40 hours; no water was detected in the bottom of the boring.

4.7.4 Direct-Contact Pathway – Soil and Groundwater

Direct contact with soil exhibiting concentrations of petroleum hydrocarbons in excess of the CULs is limited to human receptors via direct exposure, i.e. dermal absorption or ingestion of excavated soil or groundwater.

The standard point of compliance for soil contamination beneath the Site is 15 feet bgs, which represents a reasonable estimate of the depth that could be accessed during normal site redevelopment activities (WAC 173-340-740[6][d]).

The soil beneath the Site contains residual COCs at very low concentrations (well below CULs) as shallow as 10 feet bgs (**Table 2, Figure 6** and **Figure 7**) in Boring SB-11, located on the west side of the station building.

The extent of hydrocarbon contamination has been defined by perimeter Borings B-2, B-4, B-5, B-6 and B-9 in prior assessments to the east, south and southwest and perimeter excavation samples to the north and west.

It is possible that direct exposure could occur on the west and south sides of the Site at a depth shallower than 15 feet bgs and therefore, the direct-contact pathway for soil is considered complete. However, residual concentrations are below CULs and considered protective of human health.

Since groundwater has not been encountered during any site assessment activities completed to date, the direct-exposure to groundwater is considered extremely low but not incomplete at this time.

4.7.5 Vapor Pathway

The soil beneath the Site contains detectable concentrations of COCs at concentrations below CULs. During the most recent assessment at the Site (August, 2017) the soil sample collected from 10 feet bgs from Boring B-11 contained TPH-Dx and TPH-Ox at concentrations of 380 mg/kg and 1,800 mg/kg, respectively. The soil sample collected from 30 feet bgs from Boring B-14 contained TPH-Dx at a concentration of 1,200 mg/kg.

In assessing the potential for vapor intrusion (VI) at the Site, the Ecology Implementation Memorandum No. 14 (Updated Process for Initially Assessing the Potential for Petroleum Vapor Intrusion) and applicable Washington Administrative Codes were reviewed. Based on the most recent soil analytical data, only soil is currently impacted with petroleum hydrocarbons (below CULs). Additionally, multiple samples were analyzed for full-scan VOCs and none were detected (**Table 2** and **Appendix K**).

According to the WAC for MTCA Method A soil cleanup levels for unrestricted land use, "The soil to vapor pathway shall be evaluated for volatile organic compounds whenever the following conditions exist: (II) For diesel range organics, whenever the total petroleum hydrocarbon (TPH) concentration is greater than 10,000 mg/kg;" (WAC Title 173, Chapter 340, Section 740, Subsection 3(C)). Based on the concentration of TPH-Dx + TPH-Ox in soil sample B-11-10 (2,180 mg/kg), the soil vapor pathway for VOCs does not need to be evaluated.

The vapor pathway is considered incomplete at this time and additional VI assessment for VOCs is not warranted. As the Site is currently an active retail gas station, exposure to harmful vapors is much more likely to occur during normal operations than by exposure to contaminated soil.

5.0 Proposed Cleanup Standards

5.1 General

The MTCA Method A CULs for unrestricted land use will be used to evaluate compliance for all media throughout the Site. The individual CULs for soil are listed in **Table 2**. The point of compliance for soil will be all soil contained within the Site.

The point of compliance for soil vapor will be all soil contained within the Site that meets or exceeded a concentration of 10,000 mg/kg for TPH-Dx (WAC Title 173, Chapter 340, Section 740, Subsection 3(C)).

5.2 Terrestrial Ecological Evaluation

A Terrestrial Ecological Evaluation (TEE) is required by WAC 173-340-7940 at locations where a release of a hazardous substance to soil has occurred. The regulation requires that one of the following actions be taken:

- Documenting a TEE exclusion using the criteria presented in WAC 173-340-7491;
- Conducting a simplified TEE in accordance with WAC 173-340-7492; or,
- Conducting a Site-specific TEE in accordance with WAS 173-340-7493.

An evaluation to perform a TEE was conducted and it was determined that the Site qualifies for a simplified evaluation for the following reasons;

- Area of contamination at the Site is not more than 350 square feet.

The Site is essentially a 0.30-acre lot that is nearly completely covered by concrete, asphalt and/or other impermeable surfaces. The Site is located approximately 160 feet west of the North Seatac Softball Fields, located within the city of Seatac, Washington. This park appears to be a rectangle of grass with paved walking trails, parking lots, softball fields and associated infrastructure.

The Site is surrounding by developed commercial and residential zones and the nearest designated critical area within the city of Burien is located approximately 1.8 miles to the west and is listed as a landslide zone. The nearest designated critical area listed in the city of Seatac is Tub Lake, located approximately 0.75 miles to the south of the Site. Given the distance from the Site to the nearest critical area, it is highly unlikely that any critical area will be impacted from contaminated soil from the Site.

The risk for contaminated soil exposure to people, animals or plants is considered extremely low and a simplified TEE was performed. During the simplified evaluation, it was determined that additional evaluation was not warranted. The completed TEE Form is included as **Appendix O**.

6.0 Summary, Conclusions and Recommendations

6.1 Summary and Conclusions

Four environmental assessments have been performed on the Property to date, three of which have included the laboratory analysis of soil samples and two of which included the laboratory analysis of soil vapor samples.

A total of 15 soil borings have been advanced at the Site, four of which were completed as soil vapor extraction wells. Remedial excavation and soil vapor extraction was performed at the Site and was effective at removing petroleum hydrocarbons from the subsurface. Groundwater has not been encountered during any of the assessment activities completed to date; the maximum explored depth is 55.0 feet bgs.

Based on review of available information for nearby wells, static groundwater is expected occur at depths of approximately 80 feet bgs. It is considered highly unlikely that groundwater has been impacted in the past given the maximum depth of contamination identified to date (46 feet bgs). COCs were not detected in soil samples collected below this depth.

Results of the most recent assessment activities (August 2017) indicate that isolated, residual soil impacts remain in the vicinity of Borings B-11 and B-14. Concentrations of TPH-Dx and TPH-Ox were detected in soil samples collected as shallow as 10 feet bgs, however, concentrations are currently below their respective CULs. TPH-Gx and VOCs were not detected in any of the soil samples analyzed in 2017. COCs previously detected in soil samples collected from the former heating/waste oil excavation and prior borings appear to have been remediated and/or have degraded over time, and are expected to continue to naturally degrade. There is no indication that COCs present at the Site now are mobile or will become mobile due to the presence of groundwater.

An initial VI assessment was performed at it was determined that additional VI assessment is not warranted due to the low concentrations of TPH-Dx and TPH-Ox that still exist in soil.

The groundwater to surface and drinking water, groundwater to groundwater, soil to groundwater, soil to surface sediment and soil to drinking water pathways are considered incomplete at this time.

6.2 Recommendations

Along with this Site Cleanup Action Report (SCAR), ES is submitting an application to enter Ecology's Voluntary Clean Program (VCP). Additionally, ES formally requests Ecology's review and opinion on this report and the completed Site cleanup activities.

ES believes that the results of this most recent site assessment have shown that COCs are not present at the Site at concentrations exceeding MTCA Method A CULs. Additionally, groundwater has not been encountered at the Site and it is unlikely that groundwater has been impacted by contaminants found at the Site, given the nature depth at which groundwater is likely to be encountered.

The nature and extent of hydrocarbon impacts beneath the Site appears to be adequately defined and additional assessment and remediation does not appear warranted. Based on the findings and the current and future intended land use for the Property as a commercial gas station, residual fuel concentrations in soil are not considered to pose a significant risk to human health or the environment. Consequently, ES requests that regulatory site closure with a no further action determination be granted for the site.

This SCAR summarized all previous work completed at the Site to date and represents the most complete presentation of current site conditions. This SCAR is considered the last report to be completed for the Site.

7.0 Closure

ES is pleased to be of service to Eagle Canyon Capital, LLC. If there are questions regarding this report, please contact the undersigned at (714) 919-6500.

Respectfully submitted,
ES ENGINEERING SERVICES, LLC

Nicholas Olivier, LG
Project Geologist

State of Washington 3121 Licensed Geologist
NICHOLAS J. OLIVIER

Laura Skow, LG
Project Manager

State of Washington 2882 Licensed Geologist
LAURA B. SKOW

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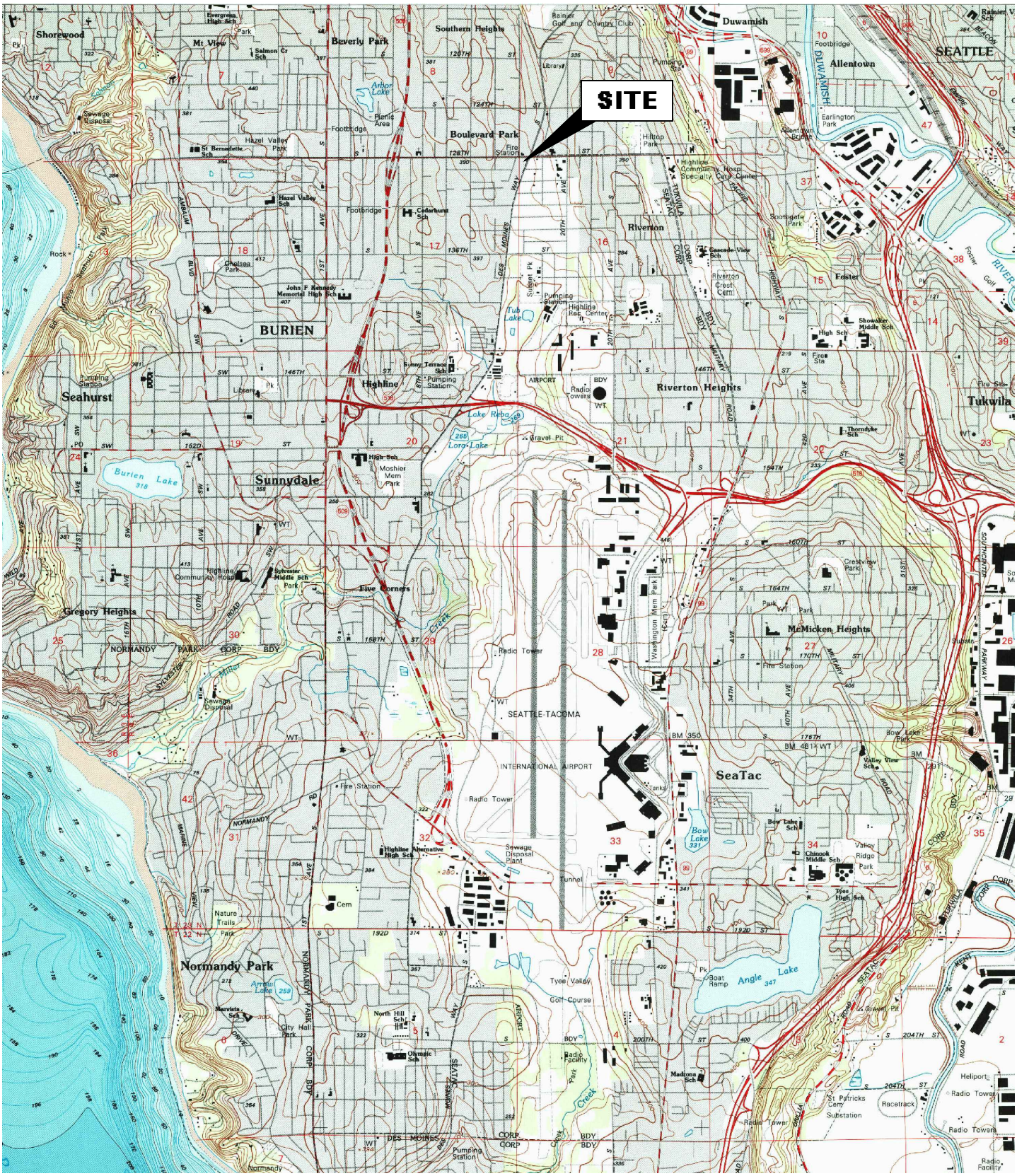
FIGURES



Map Information:
Topo Map Viewer
Des Moines (WA)
47°29'18"N 122°18'41"W

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1 Park Plaza, Suite 1000, Irvine, CA 92614 | t 714.919.6500 | f 949.988.3514

N

0 2000

APPROX. SCALE: 1" = 2000'

FIGURE 1

SITE LOCATION MAP

Site #2840
12807 Des Moines Memorial Drive
Seattle, Washington

DATE DRAWN
08/23/2017

PROJECT NO.
625

FILE NO.
625F1-SLM

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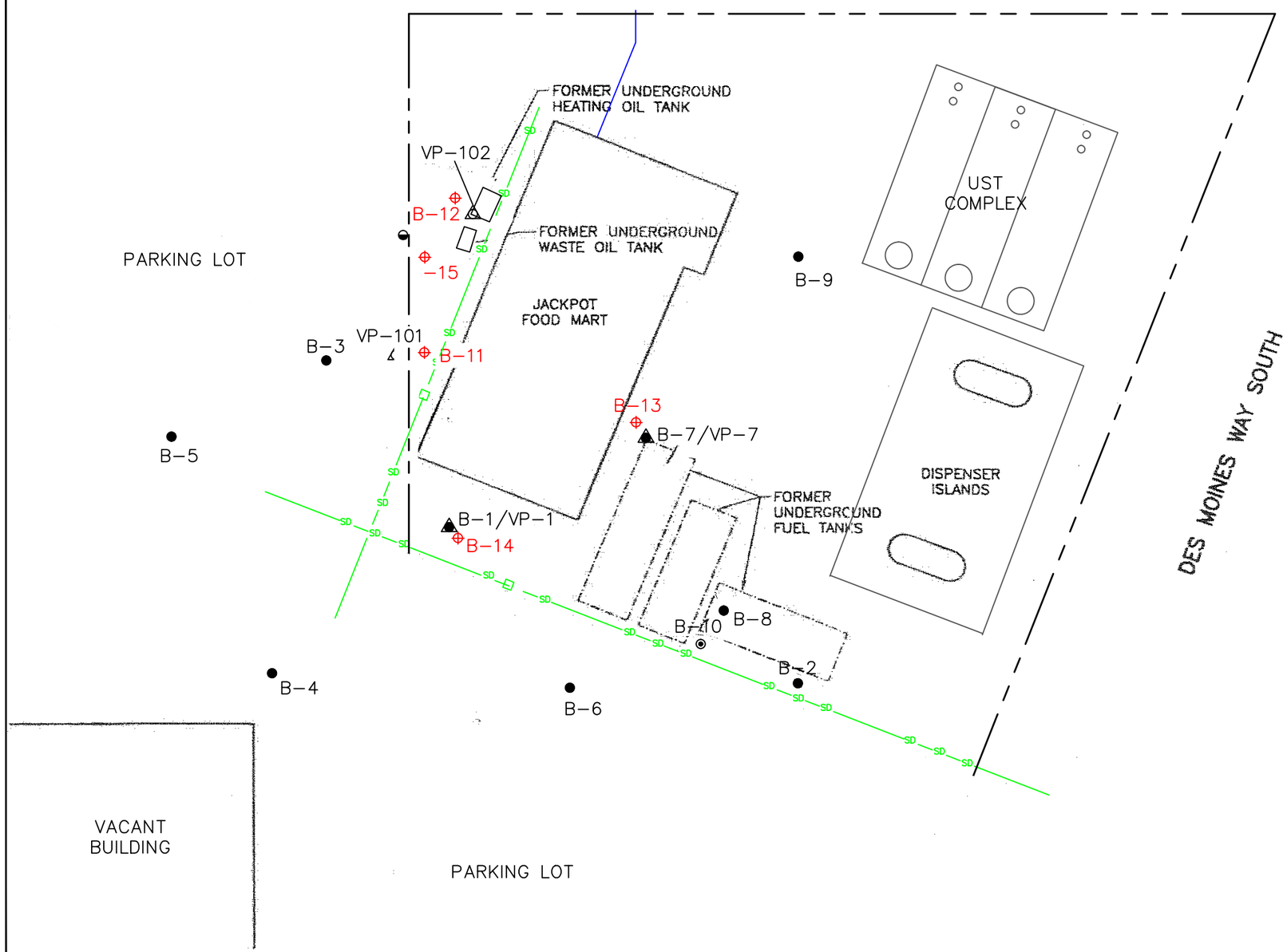
SOUTH 128TH STREET



LEGEND

- PREVIOUSLY INSTALLED VAPOR POINT
- PREVIOUSLY DRILLED SOIL BORING
- VAPOR POINT
- SOIL BORING
- FORMER OIL/WATER COLLECTION SUMP
- BORING LOCATION (ES, 2017)
- UST UNDERGROUND STORAGE TANK
- APPROXIMATE PROPERTY BOUNDARY
- SD – SD – SD – STORM DRAINS
- WATER MAIN

N

20 0 20

APPROXIMATE SCALE: 1" = 20'

SOURCE: GeoEngineers, Inc. 1993

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FIGURE 2

SITE PLAN SHOWING BORING/WELL LOCATIONS

Site #2840
12807 Des Moines Memorial Drive
Burien, Washington

DATE DRAWN 09/21/2017

PROJECT NO. 625

FILE NO. 625F2-SPS

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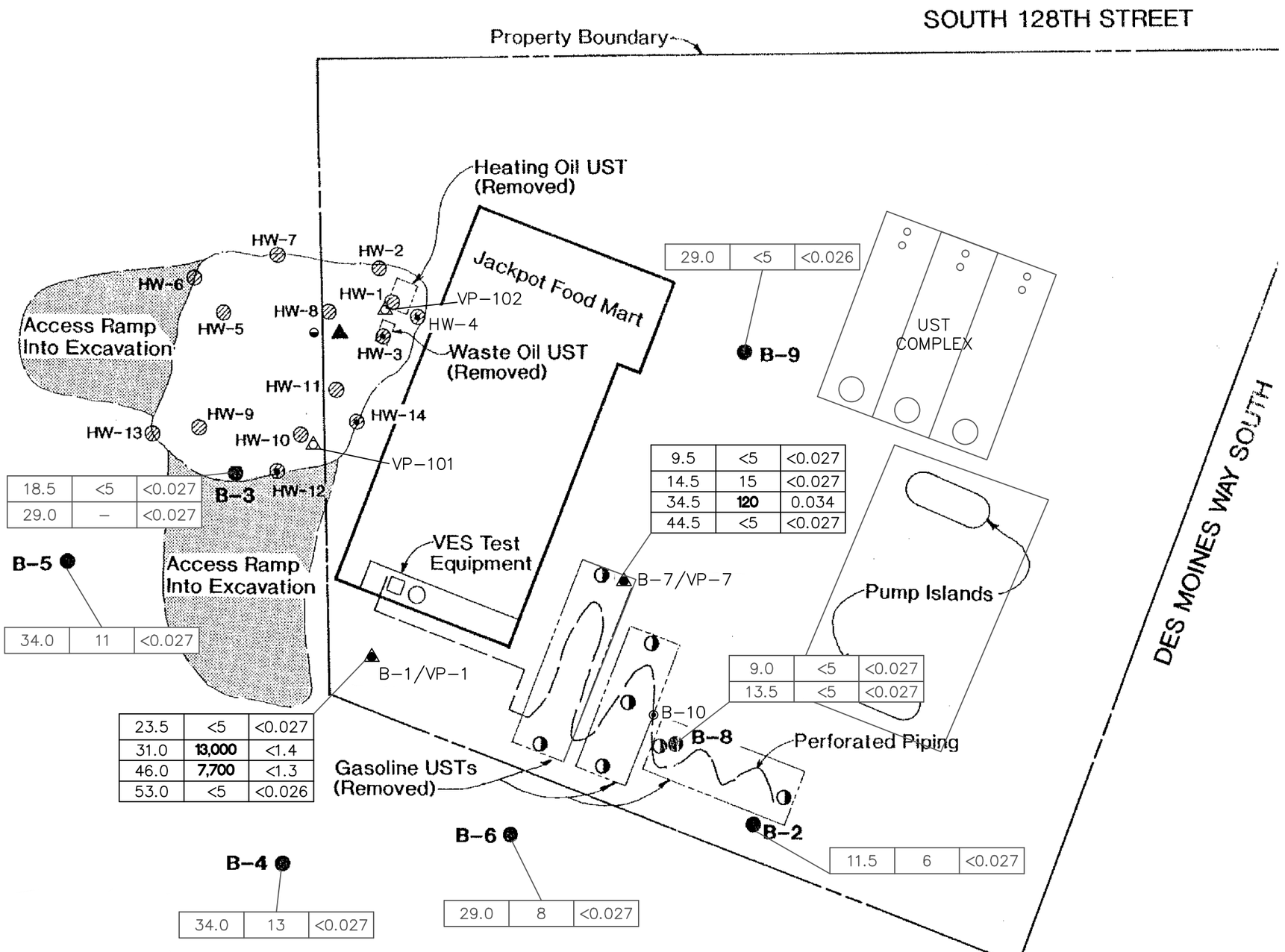

LEGEND

- PREVIOUSLY INSTALLED VAPOR POINT
- PREVIOUSLY DRILLED SOIL BORING
- VAPOR POINT
- SOIL BORING
- FORMER OIL/WATER COLLECTION SUMP
- UST UNDERGROUND STORAGE TANK
- APPROXIMATE PROPERTY BOUNDARY
- SOIL SAMPLE OBTAINED BY GEOENGINEERS, DECEMBER 1992, WITH CONCENTRATIONS OF PETROLEUM HYDROCARBONS LESS THAN MTCA METHOD A CLEANUP LEVEL
- SOIL SAMPLE OBTAINED BY GEOENGINEERS, DECEMBER 1992, WITH CONCENTRATIONS OF PETROLEUM HYDROCARBONS GREATER THAN MTCA METHOD A CLEANUP LEVEL
- SOIL SAMPLE OBTAINED BY TIME OIL CO. (DECEMBER 1990)

DEPTH (FT)	WTPH–G CONC. (mg/kg)	BENZENE CONC. (mg/kg)
9.5	<5	<0.027
14.5	15	<0.027
34.5	**120**	0.034
44.5	<5	<0.027

CONC. CONCENTRATION
WTPH–G WASHINGTON TOTAL PETROLEUM HYDROCARBONS QUANTIFIED AS GASOLINE
BOLD EXCEEDANCE THE MTCA METHOD A CLEANUP LEVELS
FT FEET
mg/kg MILLIGRAMS PER KILOGRAM
< NOT DETECTED AT LISTED REPORTING LIMIT
– NOT SAMPLED

N

20 0 20

APPROXIMATE SCALE: 1" = 20'
SOURCE: GeoEngineers, Inc. 1993

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FIGURE 3
SITE PLAN SHOWING EXCAVATION LIMITS AND HISTORIC SOIL ANALYTICAL RESULTS
Site #2840
12807 Des Moines Memorial Drive
Burien, Washington

DATE DRAWN 09/21/2017
PROJECT NO. 625
FILE NO. 625F3–SPS

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SOUTH 128TH STREET

DEPTH	TPH–Dx	TPH–Ox
7.5	<50	<100
10.0	<50	<100
15.0	<50	<100
25.0	<50	<100
35.0	<50	<100

DEPTH	WTPH–G	WTPH–D	WTPH–O
14	68	**280**	**2,400**

DEPTH	TPH–Dx	TPH–Ox
10.0	<50	<100
20.0	<50	<100
35.0	<50	<100

FORMER UNDERGROUND HEATING OIL TANK

DEPTH	WTPH–G	WTPH–D	WTPH–O
10	–	**1,200**	**6,600**

VP–102
B–12
HW–4
FORMER UNDERGROUND WASTE OIL TANK
HW–3
B–15

UST COMPLEX

PARKING LOT

DEPTH	WTPH–G	WTPH–D	WTPH–O
10	**1,300**	**470**	**1,400**

HW–14
JACKPOT FOOD MART

B–9

DEPTH	TPH–Gx	BENZENE
15.0	<10	<0.02
35.0	<10	<0.02
40.0	<10	<0.02
50.0	<10	<0.02

B–3
VP–101
B–11
HW–12

DEPTH	WTPH–G	WTPH–D	WTPH–O
16	**2,700**	**410**	**640**

B–5

B–13
B–7/VP–7

DISPENSER ISLANDS

DES MOINES WAY SOUTH

FORMER UNDERGROUND FUEL TANKS

DEPTH	WTPH–G	BENZENE
23.5	<5	<0.027
31.0	**13,000**	<1.4
46.0	**7,700**	<1.3
53.0	<5	<0.026

B–1/VP–1
B–14

B–10
B–8
B–2

DEPTH	WTPH–G	BENZENE
9.5	<5	<0.027
14.5	15	<0.027
34.5	**120**	0.034
44.5	<5	<0.027

B–4
B–6

DEPTH	TPH–Gx	TPH–Dx	TPH–Ox
20.0	<10	<50	<100
25.0	<10	<50	<100
30.0	<10	1,200	<100
35.0	<10	–	–
55.0	<10	<50	<100

PARKING LOT

DEPTH	TPH–Gx	TPH–Dx	TPH–Ox
10.0	<10	380	1,800
15.0	<10	<50	<100
30.0	<10	<50	<100

VACANT BUILDING

LEGEND

- PREVIOUSLY INSTALLED VAPOR POINT
- PREVIOUSLY DRILLED SOIL BORING
- VAPOR POINT
- SOIL BORING
- FORMER OIL/WATER COLLECTION SUMP
- BORING LOCATION (ES, 2017)
- UST UNDERGROUND STORAGE TANK
- SOIL SAMPLE OBTAINED BY GEOENGINEERS, DECEMBER 1992, WITH CONCENTRATIONS OF PETROLEUM HYDROCARBONS GREATER THAN MTCA METHOD A CLEANUP LEVEL
- APPROXIMATE PROPERTY BOUNDARY

TPH TOTAL PETROLEUM HYDROCARBONS QUANTIFIED AS GASOLINE (Gx), DIESEL (Dx), AND OIL (Ox)

WTPH WASHINGTON TOTAL PETROLEUM HYDROCARBONS QUANTIFIED AS GASOLINE (G), DIESEL (D), AND OIL (O)

ALL SOIL DEPTHS IN FEET

ALL SOIL CONCENTRATIONS IN mg/kg

mg/kg MILLIGRAMS PER KILOGRAM

< NOT DETECTED AT LISTED REPORTING LIMIT

– NOT SAMPLED

BOLD EXCEEDANCE THE MTCA METHOD A CLEANUP LEVELS

GRAY HISTORIC SOIL ANALYTICAL RESULTS

N

20 0 20

APPROXIMATE SCALE: 1" = 20'

SOURCE: GeoEngineers, Inc. 1993

ES ENGINEERING SERVICES
1 Park Plaza, Suite 1000, Irvine, CA 92614 | t 714.919.6500 | f 949.988.3514

FIGURE 4

CURRENT AND SELECT HISTORIC SOIL ANALYTICAL RESULTS MAP

Site #2840
12807 Des Moines Memorial Drive
Burien, Washington

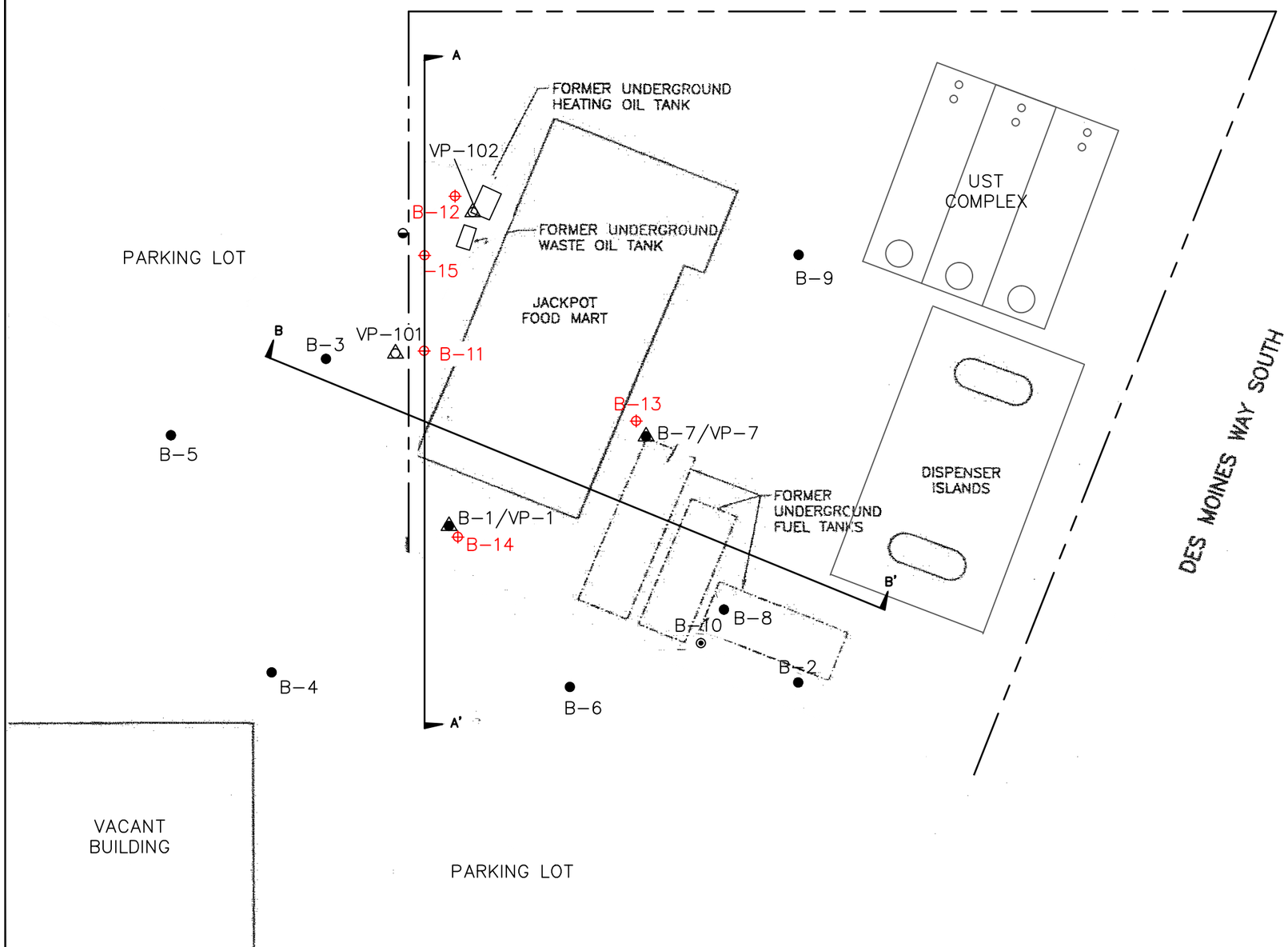
DATE DRAWN 09/15/2017

PROJECT NO. 625

FILE NO. 625F4–SAR

W:\03_Site Assessment & Remediation\Eagle Canyon (PC&F)\01–2840 – Des Moines Memorial Drive, Seattle, WA\Reports\2017 Additional Site Assesment\Figures\625.dwg

SOUTH 128TH STREET



LEGEND

- PREVIOUSLY INSTALLED VAPOR POINT
- PREVIOUSLY DRILLED SOIL BORING
- VAPOR POINT
- SOIL BORING
- FORMER OIL/WATER COLLECTION SUMP
- BORING LOCATION (ES, 2017)
- UST UNDERGROUND STORAGE TANK
- APPROXIMATE PROPERTY BOUNDARY
- CROSS SECTION TRACE

N

20 0 20

APPROXIMATE SCALE: 1" = 20'

SOURCE: GeoEngineers, Inc. 1993

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FIGURE 5

SITE PLAN SHOWING CROSS SECTION TRACES

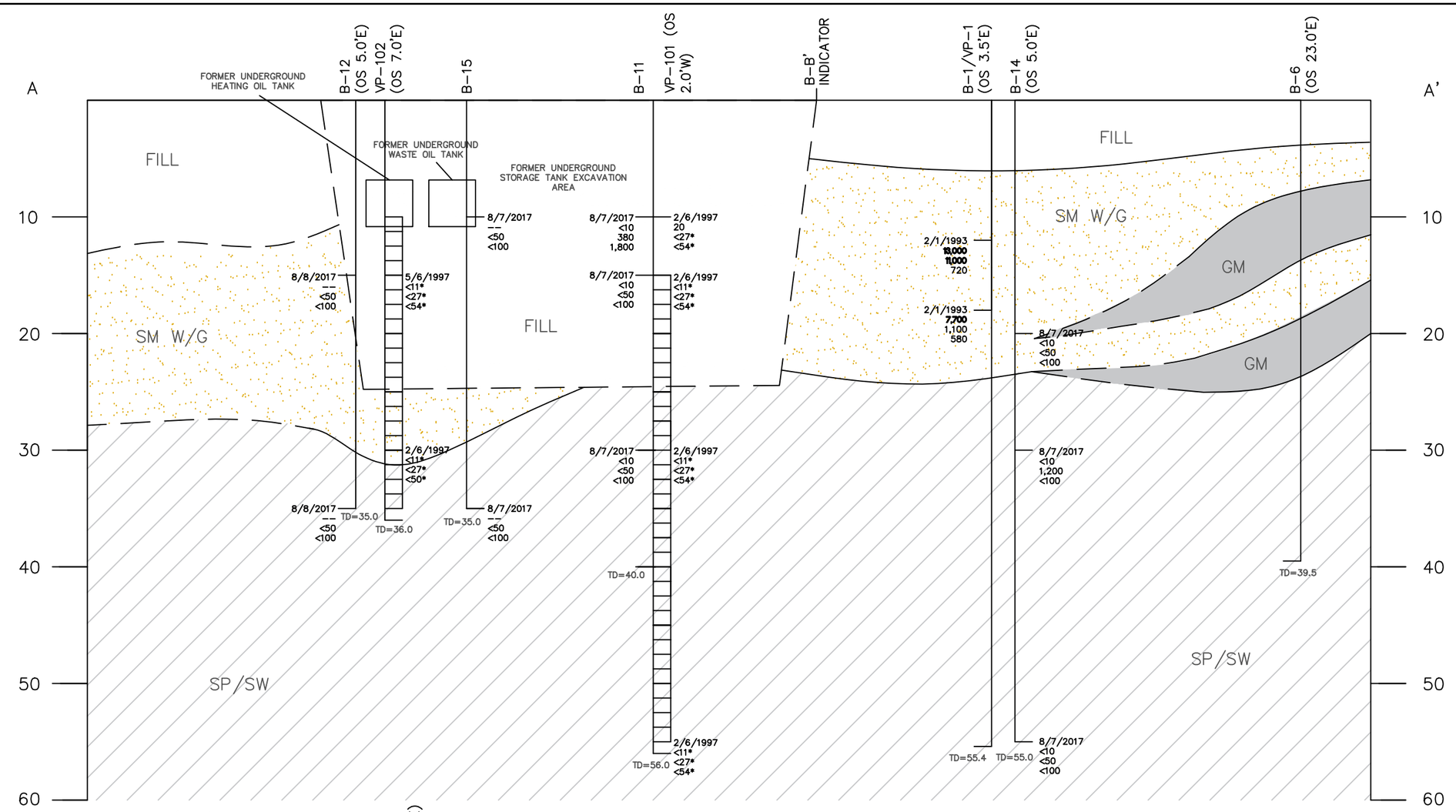
Site #2840
12807 Des Moines Memorial Drive
Burien, Washington

DATE DRAWN 09/21/2017

PROJECT NO. 625

FILE NO. 625F5-SPX

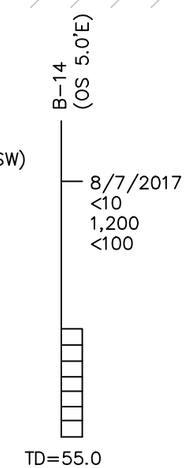
W:\03_Site Assessment & Remediation\Eagle Canyon (PC&F)\01-2840 - Des Moines Memorial Drive, Seattle, WA\Reports\2017 Cleanup Action Report\Figures\625.dwg



SOURCE: GeoEngineers, Inc. 1993

LEGEND

- PREVIOUSLY PLACED FILL (FILL)
- SILTY SAND WITH GRAVEL (SM W/G)
- SILTY GRAVEL (GM)
- POORLY GRADED SAND/WELL GRADED SAND (SP/SW)
- <10 — NOT DETECTED AT OR ABOVE THE LISTED LABORATORY REPORTING LIMIT
- -- — NOT ANALYZED
- * — SAMPLE ANALYZED USING HCID METHOD
- HCID — HYDROCARBON IDENTIFICATION
- OS — OFFSET DISTANCE FROM TRACE LINE
- GEOLOGIC CONTACT
- INFERRED GEOLOGIC CONTACT
- **BOLD** — INDICATES CONCENTRATIONS THAT EXCEED THE MTCA METHOD A CLEANUP LEVELS



WELL/BORING DESIGNATION (OFFSET DISTANCE TO TRACE LINE)

SAMPLE DATE
TPH-Gx
TPH-Dx
TPH-Ox — TOTAL PETROLEUM HYDROCARBONS QUANTIFIED AS GASOLINE (Gx), DIESEL (Dx), AND OIL (Ox)
ALL CONCENTRATIONS IN MILLIGRAMS PER KILOGRAM (mg/kg)

WELL SCREEN INTERVAL

TOTAL DEPTH OF BORING IN FEET

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FIGURE 6

GEOLOGIC CROSS SECTION A TO A'

Site #2840
12807 Des Moines Memorial Drive
Burien, Washington

DATE DRAWN 10/3/2017

PROJECT NO. 625

FILE NO. 625F6-AA

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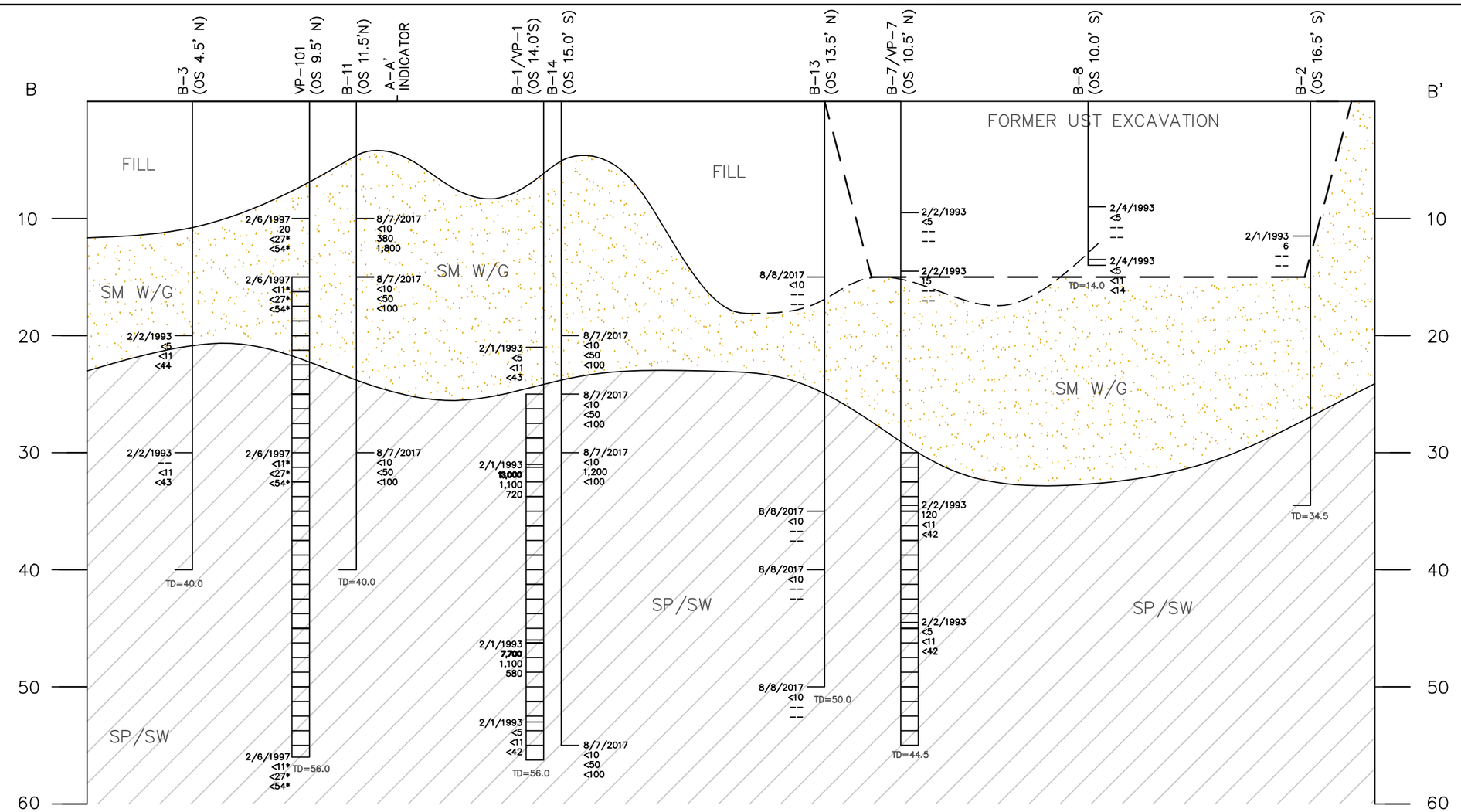

LEGEND

▭	PREVIOUSLY PLACED FILL (FILL)
▭	SILTY SAND WITH GRAVEL (SM W/G)
▭	POORLY GRADED SAND/WELL GRADED SAND (SP/SW)
<10	NOT DETECTED AT OR ABOVE THE LISTED LABORATORY REPORTING LIMIT
--	NOT ANALYZED
*	SAMPLE ANALYZED USING HCID METHOD
HCID	HYDROCARBON IDENTIFICATION
———	GEOLOGIC CONTACT
- - - - -	INFERRED GEOLOGIC CONTACT
BOLD	INDICATES CONCENTRATIONS THAT EXCEED THE MTCA METHOD A CLEANUP LEVELS

B-14 (OS 15.0' S) — WELL/BORING DESIGNATION (OFFSET DISTANCE TO TRACE LINE)

8/7/2017 — SAMPLE DATE
<10 — TPH-Gx
1,200 — TPH-Dx
<100 — TPH-Ox
TOTAL PETROLEUM HYDROCARBONS QUANTIFIED AS GASOLINE (Gx), DIESEL (Dx), AND OIL (Ox)
ALL CONCENTRATIONS IN MILLIGRAMS PER KILOGRAM (mg/kg)

WELL SCREEN INTERVAL

TD=55.0 — TOTAL DEPTH OF BORING IN FEET

HORIZONTAL AND VERTICAL SCALE: 1" = 10'

SOURCE: GeoEngineers, Inc. 1993

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FIGURE 7

GEOLOGIC CROSS SECTION B TO B'

Site #2840
12807 Des Moines Memorial Drive
Burien, Washington

DATE DRAWN 10/3/2017

PROJECT NO. 625

FILE NO. 625F7-BB

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TABLES

TABLE 1
Summary of Historical Soil Analytical Results
Site No. 2840
Burien, Washington
Page 1 of 3

Boring / Well ID	Sample ID	Date Sampled	Depth (ft bgs)	PID Readings (ppmv)	TPH (mg/kg)	Methylene Chloride (mg/kg)	PCBs (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	Total Pb (mg/kg)
					--	--	--	--				--
1990/1991 Excavation Soil Analytical Data (Time Oil)												
--	1	Dec-90	12	--	6	--	--	0.91	2.0	0.13	2.38	--
--	2	Dec-90	12	--	ND	--	--	ND	1	2	3	--
--	3	Dec-90	13	--	8	--	--	0.13	0.26	0.034	3.1	--
--	4	Dec-90	13	--	ND	--	--	ND	0.001	0.012	0.012	--
--	5	Dec-90	15	--	ND	--	--	ND	ND	ND	ND	--
--	6	Dec-90	10	--	ND	--	--	0.001	ND	ND	ND	--
--	7	Dec-90	18	--	ND	--	--	ND	ND	ND	ND	--
--	8	Jan-91	7	--	**4,000**	0.16	ND	--	0.004	0.005	0.054	--
--	9	Jan-91	10	--	**590**	0.02	ND	--	ND	ND	ND	--
--	10	Jan-91	10	--	**4,700**	0.01	1	--	0.098	0.17	1.4	--
--	11	Jan-91	11	--	**1,300**	0.01	ND	--	ND	0.028	0.420	--
--	12	Jan-91	12	--	**900**	0.01	ND	--	0.008	0.036	0.410	--

Boring / Well ID	Sample ID	Date Sampled	Depth (ft bgs)	PID Readings (ppmv)	TPH-Dx (mg/kg)	TPH-Ox (mg/kg)	TPH-Gx (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	Total Pb (mg/kg)
					WTPH-D[Ext]		WTPH-G	Method 8020				Method 6010
1992 Excavation Soil Analytical Data (Geoengineers)												
--	HW-1	12/08/92	12	<100	<28	150	--	--	--	--	--	--
--	HW-2	12/08/92	10	<100	<28	<110	--	--	--	--	--	--
--	HW-3	12/08/92	14	<100	**280**	**2,400**	68	<0.029	<0.029	0.11	1.6	--
--	HW-4	12/08/92	10	--	**1,200**	**6,600**	--	--	--	--	--	--
--	HW-5	12/14/92	16	--	<27	<110	--	--	--	--	--	--
--	HW-6	12/14/92	14	--	<27	<110	--	--	--	--	--	--
--	HW-7	12/16/92	14	<100	<27	<110	--	--	--	--	--	--
--	HW-8	12/17/92	19	<100	<27	<110	--	--	--	--	--	--
--	HW-9	12/17/92	23	<100	<27	<110	--	--	--	--	--	--
--	HW-10	12/18/92	28	<100	<50**	<100**	<20**	--	--	--	--	--
--	HW-11	12/18/92	16	<100	<28	<110	<6	--	--	--	--	--
--	HW-12	12/18/92	16	800	**410**	**640**	**2,700**	<0.027	0.076	0.64	3.1	--
--	HW-13	12/18/92	25	110	34	<110	32	--	--	--	--	--
--	HW-14	12/29/92	10	320	**470**	**1,400**	**1,300**	<0.027	<0.027	0.18	1.3	--

TABLE 1
Summary of Historical Soil Analytical Results
Site No. 2840
Burien, Washington

Boring / Well ID	Sample ID	Date Sampled	Depth (ft bgs)	PID Readings (ppmv)	TPH-Dx (mg/kg)	TPH-Ox (mg/kg)	TPH-Gx (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	Total Pb (mg/kg)
					WTPH-D[Ext]		WTPH-G	Method 8020				Method 6010
1993 Drilling Soil Analytical Data (Alisto)												
B-1	B-1-7	02/01/93	23.5	<100	<11	<43	<5	<0.027	<0.027	<0.027	<0.027	--
B-1	B-1-12	02/01/93	31	500	**1,100**	**720**	**13,000**	<1.4	2.1	3.5	30	--
B-1	B-1-18	02/01/93	46	900	**1,100**	**580**	**7,700**	<1.3	<1.3	1.5	23	--
B-1	B-1-21	02/01/93	53	<100	<11	<42	<5	<0.026	<0.026	<0.026	<0.026	--
B-2	B-2-3	02/01/93	11.5	<100	--	--	6	<0.027	0.072	<0.027	0.076	--
B-3	B-3-3	02/02/93	18.5	<100	<11	<44	<5	<0.027	0.052	<0.027	0.033	--
B-3	B-3-5	02/02/93	29	<100	<11	<43	<5	<0.027	0.037	<0.027	0.033	--
B-4	B-4-7	02/02/93	34	<100	<11	<43	13	<0.027	<0.027	<0.027	<0.027	--
B-5	B-5-7	02/02/93	34	<100	<11	<43	11	<0.027	<0.027	<0.027	<0.027	--
B-6	B-6-6	02/02/93	29	<100	<11	<43	8	<0.027	<0.027	<0.027	<0.027	--
B-7	B-7-2	02/03/93	9.5	<100	--	--	<5	<0.027	<0.027	<0.027	<0.027	2.0
B-7	B-7-3	02/03/93	14.5	<100	--	--	15	<0.027	0.032	<0.027	0.039	--
B-7	B-7-7	02/03/93	34.5	1000	<11	<42	120	0.034	1.1	0.69	5.1	--
B-7	B-7-9	02/03/93	44.5	<100	<11	<42	<5	<0.026	<0.026	<0.026	<0.026	--
B-8	B-8-2	02/04/93	9	<100	--	--	<5	<0.027	<0.027	<0.027	<0.027	14
B-8	B-8-4	02/04/93	13.5	<100	<11	<44	<5	<0.027	<0.027	<0.027	<0.027	3.5
B-9	B-9-6	02/04/93	29	<100	<11	<42	<5	<0.026	<0.026	<0.026	<0.026	

TABLE 1
Summary of Historical Soil Analytical Results
Site No. 2840
Burien, Washington
Page 3 of 3

Boring / Well ID	Sample ID	Date Sampled	Depth (ft bgs)	PID Readings (ppmv)	TPH-Dx (mg/kg)	TPH-Ox (mg/kg)	TPH-Gx (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	Total Pb (mg/kg)
					WTPH-D[Ext]		WTPH-G	Method 8020				Method 6010
1997 Drilling Soil Analytical Data[2]												
VP-101	VP-101-10	02/06/97	10	--	<27	<54	20	<0.027	<0.027	<0.027	<0.027	1.8
VP-101	VP-101-15	02/06/97	15	--	<27	<54	<11	--	--	--	--	--
VP-101	VP-101-30	02/06/97	30	--	<27	<55	<11	--	--	--	--	--
VP-101	VP-101-55	02/06/97	55	--	<26	<52	<10	--	--	--	--	--
VP-102	VP-102-10	02/06/97	10	--	<26	<53	<11	--	--	--	--	--
VP-102	VP-102-15	02/06/97	15	--	<27	<54	<11	--	--	--	--	--
VP-102	VP-102-20	02/06/97	20	--	<28	<56	<11	--	--	--	--	--
VP-102	VP-102-30	02/06/97	30	--	<26	<53	<11	--	--	--	--	--
B-10*	B-10-20	02/06/97	20	--	<27	<54	<11	--	--	--	--	--
B-10*	B-10-30	02/06/97	30	--	<28	<57	<11	--	--	--	--	--
B-10*	B-10-40	02/06/97	40	--	<27	<54	<11	--	--	--	--	--
B-10*	B-10-55	02/06/97	55	--	<26	<53	<11	--	--	--	--	--
MTCA Method A Cleanup Levels[1]					2,000	2,000	100/30[3]	0.03	7	6	9	250

Notes:

BOLD = Results in BOLD indicate detections that exceed MTCA Method A Cleanup Levels for soil based on 1993 levels

***** = Analytical results erroneously reported as B-11 in analytical report

****** = Sample analyzed for hydrocarbon identification by Ecology Method WTPH-HCID

(1) '= Current MTCA Method A Table 740-1 for unrestricted land use WAC 173-340-900 Tables, based on 1993 levels

(2) = All soil samples from 1997 assessment were analyzed by Washington Method Hydrocarbon Identification as a screening method for the presence of petroleum hydrocarbons

(3) = 100 mg/kg when benzene is absent and 30 mg/kg when benzene is present

< = not detected at or above stated reporting limit (RL)

-- = sample not analyzed for this constituent

Ext = extended

ft bgs = feet below ground surface

mg/kg = milligrams per kilogram

MTCA = Model Toxics Control Act

ND = Not detected, reporting limit unknown

Pb = lead

PID = photoionization detector

ppmv = parts per million by volume

RCRA = Resource Conservation and Reclamation Act

SB = soil boring

SVOCs = semi-volatile organic compounds

TPH-Dx = total diesel-range petroleum hydrocarbons

TPH-Gx = total gasoline-range petroleum hydrocarbons

TPH-Ox = total oil-range petroleum hydrocarbons

VOCs = volatile organic compounds

WTPH-Dx = Washington Total Petroleum Hydrocarbons as diesel

WTPH-Gx = Washington Total Petroleum Hydrocarbons as gasoline

WTPH-Ox = Washington Total Petroleum Hydrocarbons as oil

TABLE 2
Summary of Current Soil Analytical Results
Site No. 2840
Burien, Washington
Page 1 of 2

Boring / Well ID	Sample ID	Date Sampled	Depth (ft bgs)	PID Readings (ppmv)	TPH-Dx (mg/kg)	TPH-Ox (mg/kg)	TPH-Gx (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	EDB (mg/kg)	EDC (mg/kg)	Naph[2] (mg/kg)	Total Pb (mg/kg)
					NWTPH-Dx Ext		NWTPH-Gx	Method 8021B/Method 8260B[1]							Method 6020A
B-11	B-11-5	08/07/17	5	0.0	--	--	--	--	--	--	--	--	--	--	--
	B-11-10	08/07/17	10	700	380	1,800	<10	<0.02	<0.05	<0.05	<0.15	<0.05	<0.05	<0.05	--
	B-11-15	08/07/17	15	56.2	<50	<100	<10	--	--	--	--	--	--	--	--
	B-11-20	08/07/17	20	0.0	--	--	--	--	--	--	--	--	--	--	--
	B-11-25	08/07/17	25	0.0	--	--	--	--	--	--	--	--	--	--	--
	B-11-30	08/07/17	30	0.0	<50	<100	<10	--	--	--	--	--	--	--	<5.0
	B-11-35	08/07/17	35	0.0	--	--	--	--	--	--	--	--	--	--	--
	B-11-40	08/07/17	40	0.0	--	--	--	--	--	--	--	--	--	--	--
B-12	B-12-5	08/08/17	5	0.1	--	--	--	--	--	--	--	--	--	--	--
	B-12-7.5	08/08/17	7.5	0.0	<50	<100	--	--	--	--	--	--	--	--	--
	B-12-10	08/08/17	10	0.6	<50	<100	--	--	--	--	--	--	--	--	--
	B-12-15	08/08/17	15	0.1	<50	<100	--	--	--	--	--	--	--	<1.0*	<5.0[t]
	B-12-20	08/08/17	20	0.1	--	--	--	--	--	--	--	--	--	--	--
	B-12-25	08/08/17	25	0.0	<50	<100	--	--	--	--	--	--	--	--	--
	B-12-30	08/08/17	30	0.0	--	--	--	--	--	--	--	--	--	--	--
	B-12-35	08/08/17	35	0.0	<50	<100	--	--	--	--	--	--	--	--	--
B-13	B-13-5	08/08/17	5	0.0	--	--	--	--	--	--	--	--	--	--	--
	B-13-10	08/08/17	10	0.0	--	--	--	--	--	--	--	--	--	--	--
	B-13-15	08/08/17	15	0.0	--	--	<10	<0.02	<0.05	<0.05	<0.15	<0.05	<0.05	<0.05	--
	B-13-20	08/08/17	20	0.0	--	--	--	--	--	--	--	--	--	--	--
	B-13-25	08/08/17	25	0.6			--	--	--	--	--	--	--	--	--
	B-13-30	08/08/17	30	0.0	--	--	--	--	--	--	--	--	--	--	--
	B-13-35	08/08/17	35	0.0	--	--	<10	<0.02	<0.05	<0.05	<0.15	<0.05	<0.05	<0.05	<5.0
	B-13-40	08/08/17	40	0.0	--	--	<10	<0.02	<0.05	<0.05	<0.15	--	--	--	--
	B-13-45	08/08/17	45	0.0	--	--	--	--	--	--	--	--	--	--	--
	B-13-50	08/08/17	50	0.0	--	--	<10	<0.02	<0.05	<0.05	<0.15	--	--	--	<5.0
B-14	B-14-5	08/07/17	5	0.0	--	--	--	--	--	--	--	--	--	--	--
	B-14-10	08/07/17	10	0.0	--	--	--	--	--	--	--	--	--	--	--
	B-14-15	08/07/17	15	0.0	--	--	--	--	--	--	--	--	--	--	--
	B-14-20	08/07/17	20	0.0	<50	<100	<10	<0.02	<0.05	<0.05	<0.15	<0.05	<0.05	<0.05	--
	B-14-25	42954	25	70.1	<50	<100	<10	<0.02	<0.05	<0.05	<0.15	--	--	--	--

TABLE 2
Summary of Current Soil Analytical Results
Site No. 2840
Burien, Washington
Page 2 of 2

Boring / Well ID	Sample ID	Date Sampled	Depth (ft bgs)	PID Readings (ppmv)	TPH-Dx (mg/kg)	TPH-Ox (mg/kg)	TPH-Gx (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	EDB (mg/kg)	EDC (mg/kg)	Naph[2] (mg/kg)	Total Pb (mg/kg)
					NWTPH-Dx Ext		NWTPH-Gx	Method 8021B/Method 8260B[1]							Method 6020A
B-14 Con't	B-14-30	08/07/17	30	1,225	1,200**	<100	<10	<0.02	<0.05	<0.05	<0.15	<0.05	<0.05	<0.05	--
	B-14-35	08/07/17	35	262	--	--	<10	<0.02	<0.05	<0.05	<0.15	<0.05	<0.05	<0.05	<5.0
	B-14-40	08/07/17	40	27.0	--	--	--	--	--	--	--	--	--	--	--
	B-14-45	08/07/17	45	126	--	--	--	--	--	--	--	--	--	--	--
	B-14-50	08/07/17	50	24.9	--	--	--	--	--	--	--	--	--	--	--
	B-14-55	08/07/17	55	7.5	<50	<100	<10	<0.02	<0.05	<0.05	<0.15	--	--	--	<5.0
B-15	B-15-5	08/07/17	5	0.0	--	--	--	--	--	--	--	--	--	--	--
	B-15-10	08/07/17	10	0.0	<50	<100	--	--	--	--	--	--	--	--	--
	B-15-15	08/07/17	15	0.0	--	--	--	--	--	--	--	--	--	--	--
	B-15-20	08/07/17	20	0.0	<50	<100	--	--	--	--	--	--	--	<1.0*	<5.0ł
	B-15-25	08/07/17	25	--	--	--	--	--	--	--	--	--	--	--	--
	B-15-30	08/07/17	30	0.0	--	--	--	--	--	--	--	--	--	--	--
	B-15-35	08/07/17	35	0.0	<50	<100	--	--	--	--	--	--	--	--	--
MTCA Method A Cleanup Levels[3]					2,000	2,000	100/30[4]	0.03	7	6	9	0.005	ne	5	250

Notes:

BOLD = Results in BOLD indicate detections that exceed MTCA Method A Cleanup Levels for soil
[1] = select samples analyzed for full scan VOCs (Method 8260B)
See lab report for complete list of analytes (Appendix L)
[2] = select soil samples were also analyzed for naphthalene by EPA Method 8270 (RL = 1.0 mg/kg) and those results are reported in Table 2
[3] = MTCA Method A Table 740-1 for unrestricted land use, WAC 173-340-900 Tables
[4] = 100 mg/kg when benzene is absent and 30 mg/kg when benzene is present
ł = sample analyzed for total metals (RCRA 8) by Method 6020
˜ = sample analyzed for SVOCs by Method 8270
˜˜ = analyte appears to be mineral spirits/Stoddard solvent
< = not detected at or above stated reporting limit (RL)
-- = sample not analyzed for this constituent
EDB = 1,2 dibromoethane
Ext = extended
ft bgs = feet below ground surface
J = estimated value between laboratory method detection limit and reporting limit
mg/kg = milligrams per kilogram
MTCA = Model Toxics Control Act
Naph = naphthalene
ne = not established
Pb = lead
PID = photoionization detector
ppmv = parts per million by volume
RCRA = Resource Conservation and Reclamation Act
SB = soil boring
SVOCs = semi-volatile organic compounds
TPH-Dx = total diesel-range petroleum hydrocarbons
TPH-Gx = total gasoline-range petroleum hydrocarbons
TPH-Ox = total oil-range petroleum hydrocarbons
VOCs = volatile organic compounds

TABLE 3
Summary of Soil Analytical Results - Additonal VOCs/SVOCs
Site No. 2840
Burien, Washington

Boring / Well ID	Sample ID	Date Sampled	Depth (ft bgs)	BMM (mg/kg)	CHLM (mg/kg)	HX-1,3-BD (mg/kg)	IPB (mg/kg)	IPT (mg/kg)	n-PPB (mg/kg)	1,2,4-TMB (mg/kg)	1,3,5-TMB (mg/kg)	Naph[(1)] (mg/kg)
				Method 8260B/8270								
B-11	B-11-10	08/07/17	10	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
B-12	B-12-15*	08/08/17	15	--	--	--	--	--	--	--	--	<1.0[(1)]
B-13	B-13-15	08/08/17	15	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	B-13-35	08/08/17	35	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
B-14	B-14-20	08/07/17	20	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	B-14-30	08/07/17	30	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	B-14-35*	08/07/17	35	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05/<1.0[(1)]
B-15	B-15-20*	08/07/17	20	--	--	--	--	--	--	--	--	<1.0[(1)]
MTCA Method A Cleanup Levels				ne	ne	ne	ne	ne	ne	ne	ne	5

Notes:

For the complete list of VOCs, see laboratory analytical report (Appendix H)

[(1)] = naphthalene analyzed for by EPA Method 8270

< = not detected at or above stated reporting limit (RL)

-- = sample not analyzed for this constituent

* = samples analyzed for semi-volative organic compounds by EPA Method 8270

BMM = bromomethane

CHLM = chloromethane

HX-1,3-BD = Hexachloro-1,3-butadiene

ft bgs = feet below ground surface

IPB = isopropylbenzene

IPT = isopropyltoluene

mg/kg = milligrams per kilogram

Naph = naphthalene

ne = cleanup level not established

n-PPB = n-propylbenzene

1,2,4-TMB = 1,2,4-trimethylbenzene

1,3,5-TMB = 1,3,5-trimethylbenzene

TABLE 4
Summary of Soil Analytical Results - Additional Metals
Site No. 2840
Burien, Washington

Boring / Well ID	Sample ID	Date Sampled	Depth (ft bgs)	Lead (mg/kg)	Cadmium (mg/kg)	Total Chromium (mg/kg)	Hexavalent Chromium (mg/kg)*	Arsenic (mg/kg)	Silver (mg/kg)	Barium (mg/kg)	Selenium (mg/kg)	Mercury (mg/kg)
				Method 6020								
B-12	B-12-15	08/08/17	15	<5.0	<1.0	23	<0.5	<5.0	<20	<50	<20	<0.5
B-15	B-15-20	08/07/17	20	<5.0	1.9	29	<0.5	<5.0	<20	<50	<20	<0.5
MTCA Method A Cleanup Levels				250	2	ne	19	20	ne	ne	ne	2

Notes:

Total metals analyzed by EPA Method 6020 Series
* = Hexavalent chromium analyzed by EPA Method 7196A/Modified EPA 3060A
< = not detected at or above stated method detection limit (MDL)
-- = sample not analyzed for this constituent
mg/kg = milligrams per kilogram
ne = cleanup level not established

TABLE 5
Boring/Well Construction Details
Site No. 2840
Seattle, Washington
1 of 1

Boring/Well ID	Consultant	Date Installed	Total Boring Depth (feet)	Total Well Depth (feet)	Well Type - Casing Diameter (inches)	Screen Interval (feet)	Slot Size (inches)	Sealing/Backfill Material	Casing Elevation (feet amsl)
B-1/VP-1	Geo	Feb-93	56.5	55.4	2.0	25-55	0.020	bentonite	ns
B-2	Geo	Feb-93	34.5	--	--	--	--	--	--
B-3	Geo	Feb-93	39.5	--	--	--	--	--	--
B-4	Geo	Feb-93	34.5	--	--	--	--	--	--
B-5	Geo	Feb-93	34.5	--	--	--	--	--	--
B-6	Geo	Feb-93	39.5	--	--	--	--	--	--
B-7/VP-7	Geo	Feb-93	55.0	54.0	2.0	30-54	0.020	bentonite	ns
B-8	Geo	Feb-93	14.0	--	--	--	--	--	--
B-9	Geo	Feb-93	39.0	--	--	--	--	--	--
B-10	Alisto	Feb-97	56.0	--	--	--	--	--	--
VP-101	Alisto	Feb-97	56.0	55.0	4.0	15-55	0.020	bentonite	ns
VP-102	Alisto	Feb-97	36.0	30.0	2.0	5-30	0.020	bentonite	ns
B-11	ES	Aug-17	40.0	--	--	--	--	--	--
B-12	ES	Aug-17	35.0	--	--	--	--	--	--
B-13	ES	Aug-17	50.0	--	--	--	--	--	--
B-14	ES	Aug-17	55.0	--	--	--	--	--	--
B-15	ES	Aug-17	35.0	--	--	--	--	--	--

Notes:

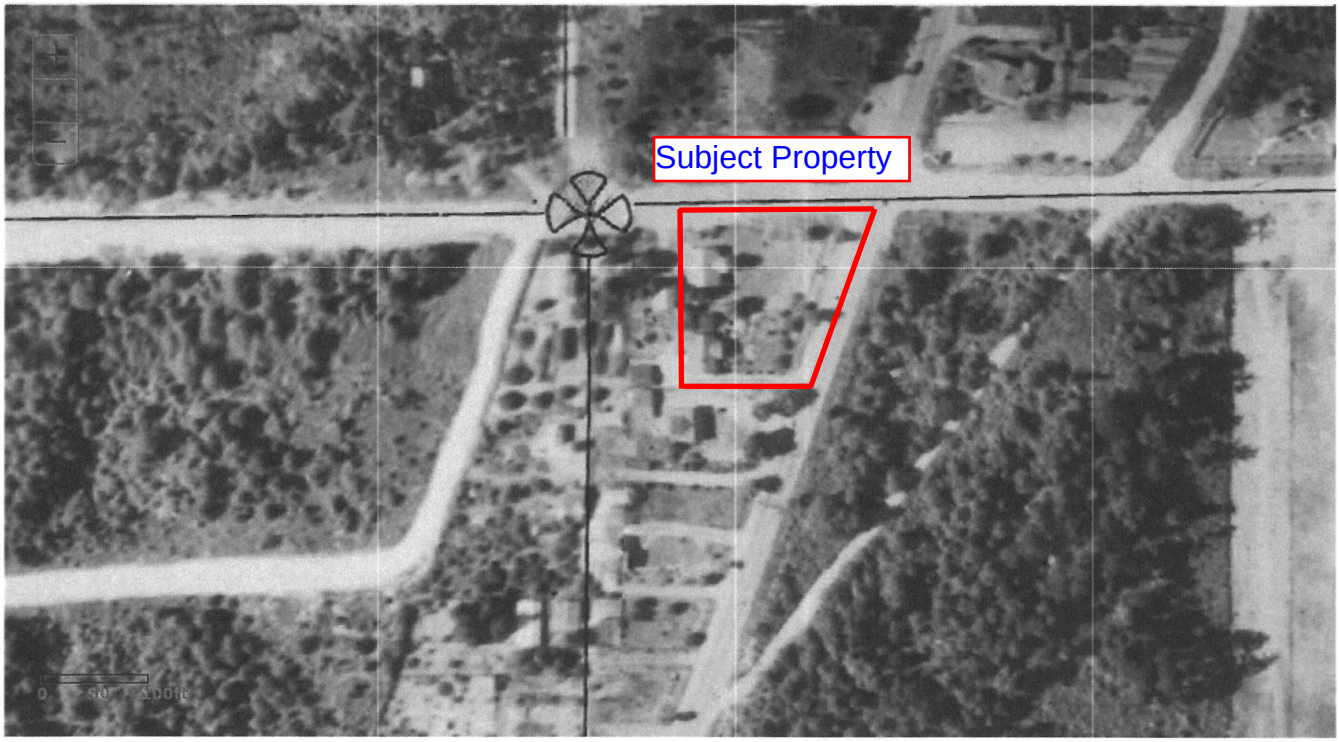
-- = not applicable
Alisto = Alisto Engineering Group
amsl = above mean sea level
ES = ES Engineering Services, LLC
Geo = Geoengineers Inc.
MW = monitoring well
ns = not surveyed

APPENDIX A

AERIAL PHOTOGRAPH, 1936

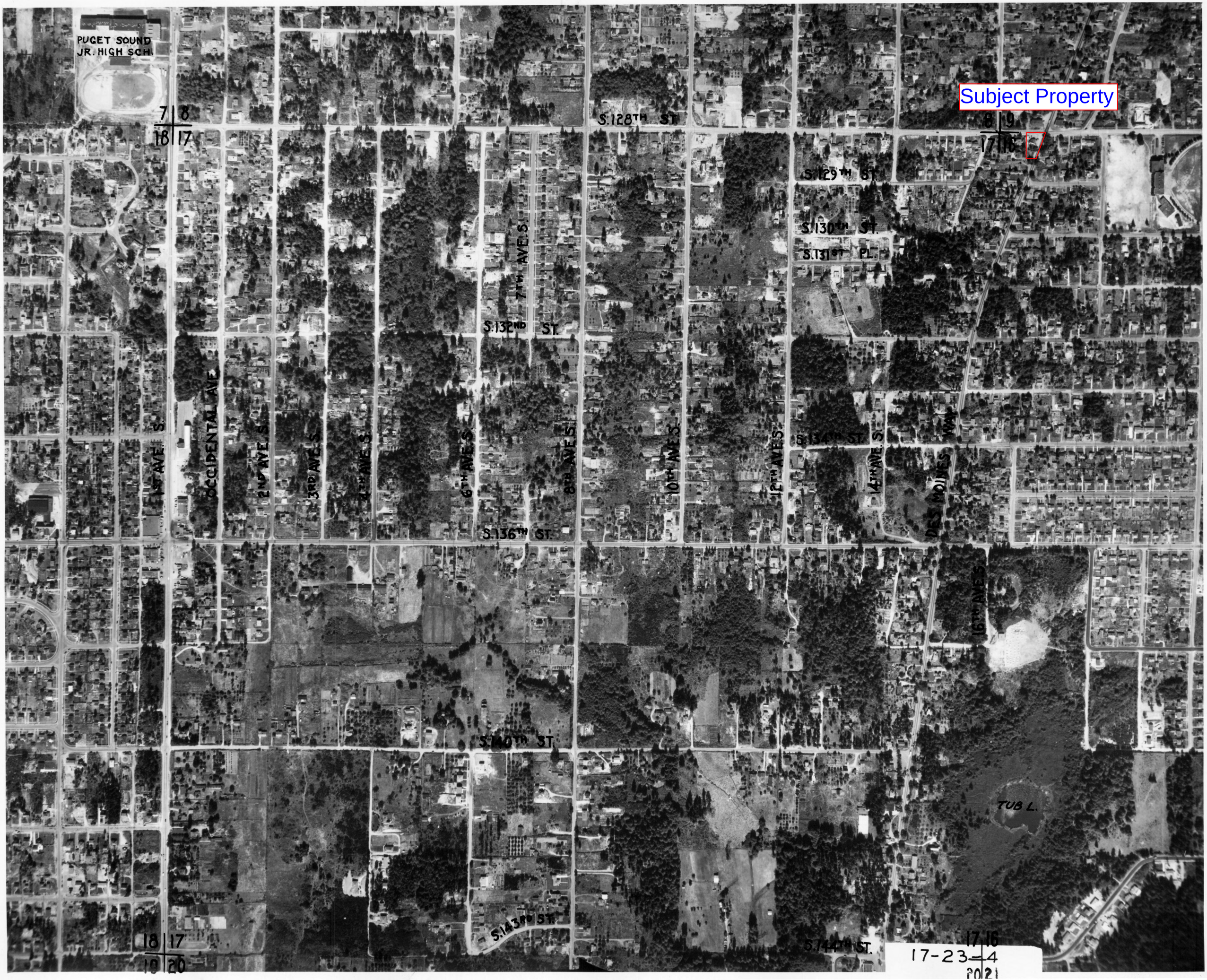
ArcGIS ▾ King County Aerial 1936

Details | Basemap | Share Print | M



APPENDIX B

AERIAL PHOTOGRAPHS, 1954


Subject Property
PUGET SOUND JR. HIGH SCH.
7 8
18 17
S.128TH ST
8 9
17 16
S.129TH ST
S.130TH ST.
S.131ST PL.
S.132ND ST.
7TH AVE S.
1ST AVE S.
OCCIDENTAL AVE
2ND AVE S.
3RD AVE S.
4TH AVE S.
6TH AVE S.
8TH AVE S.
10TH AVE S.
12TH AVE S.
14TH AVE S.
S.134TH ST.
S.136TH ST.
16TH AVE S.
S.140TH ST.
TUB L.
S.143RD ST.
S.144TH ST.
18 17
19 20
17 16
17-23-4
2021


8
9
17
16
Subject Property

APPENDIX C

DEPARTMENT OF ECOLOGY UST DATABASE SUMMARY

UST Site / Tank Data Summary

Facility Name: FOODMART #2840 Tag(s): A0044

SITE INFORMATION

FOODMART #2840
12807 DES MOINES MEMORIAL
BURIEN, WA 98168

RESP UNIT: NORTHWEST
COUNTY: KING
LAT: 47.4884444444444
LONG: -122.312083333333

USTID: 4050
FSID: 45191292

TANK INFORMATION

TANK NAME: 425

STATUS: Operational	**STATUS DT:** 08/06/1996	**PERMANENTLY CLOSED DT:**
INSTALL DT: 01/04/1991	**UPGRADE DT:** 11/20/1990	**PERMIT EXPIRATION DT:** 04/30/2018

TANK		PIPING	
MATERIAL:	Steel Clad with Corrosion Resistant Composite	**MATERIAL:**	Fiberglass
CONSTRUCTION:	Double Wall Tank	**CONSTRUCTION:**	Single Wall Pipe
CORROSION PROT:	Corrosion Resistant	**CORROSION PROT:**	Corrosion Resistant
MANIFOLDED TANK:		**SFC* at TANK:**	Sump
RELEASE DETECT:	Interstitial Monitoring	**SFC* at DISP/PUMP:**	Sump
TIGHTNESS TEST:		**1ST REL DETECT:**	Safe Suction (No Leak Detection)
SPILL PREVENTION:	Spill Bucket/Spill Box	**2ND REL DETECT:**	
OVERFILL PREVENT:	Automatic Shutoff (fill pipe)	**PUMPING SYSTEM:**	Safe Suction
ACTUAL CAPACITY:	10000		
CAPACITY RANGE:	10,000 to 19,999 Gallons		

** SFC = Steel Flex Connector*

COMPARTMENT #	SUBSTANCE STORED	SUBSTANCE USED	CAPACITY
1	B Unleaded Gasoline	A Motor Fuel for Vehicles	10000

TANK NAME: 429

STATUS: Operational	**STATUS DT:** 08/06/1996	**PERMANENTLY CLOSED DT:**
INSTALL DT: 01/04/1991	**UPGRADE DT:** 11/20/1990	**PERMIT EXPIRATION DT:** 04/30/2018

TANK		PIPING	
MATERIAL:	Steel Clad with Corrosion Resistant Composite	**MATERIAL:**	Fiberglass
CONSTRUCTION:	Double Wall Tank	**CONSTRUCTION:**	Single Wall Pipe
CORROSION PROT:	Corrosion Resistant	**CORROSION PROT:**	Corrosion Resistant
MANIFOLDED TANK:		**SFC* at TANK:**	Sump
RELEASE DETECT:	Interstitial Monitoring	**SFC* at DISP/PUMP:**	Sump
TIGHTNESS TEST:		**1ST REL DETECT:**	Safe Suction (No Leak Detection)
SPILL PREVENTION:	Spill Bucket/Spill Box	**2ND REL DETECT:**	
OVERFILL PREVENT:	Automatic Shutoff (fill pipe)	**PUMPING SYSTEM:**	Safe Suction
ACTUAL CAPACITY:	10000		
CAPACITY RANGE:	10,000 to 19,999 Gallons		

** SFC = Steel Flex Connector*

COMPARTMENT #	SUBSTANCE STORED	SUBSTANCE USED	CAPACITY
1	B Unleaded Gasoline	A Motor Fuel for Vehicles	10000

TANK NAME: 430

STATUS: Operational	**STATUS DT:** 08/06/1996	**PERMANENTLY CLOSED DT:**
INSTALL DT: 01/04/1991	**UPGRADE DT:** 11/20/1990	**PERMIT EXPIRATION DT:** 04/30/2018

TANK		PIPING	
MATERIAL:	Steel Clad with Corrosion Resistant Composite	**MATERIAL:**	Fiberglass
CONSTRUCTION:	Double Wall Tank	**CONSTRUCTION:**	Single Wall Pipe
CORROSION PROT:	Corrosion Resistant	**CORROSION PROT:**	Corrosion Resistant
MANIFOLDED TANK:		**SFC* at TANK:**	Sump

RELEASE DETECT:	Interstitial Monitoring	**SFC* at DISP/PUMP:**	Sump
TIGHTNESS TEST:		**1ST REL DETECT:**	Safe Suction (No Leak Detection)
SPILL PREVENTION:	Spill Bucket/Spill Box	**2ND REL DETECT:**	
OVERFILL PREVENT:	Automatic Shutoff (fill pipe)	**PUMPING SYSTEM:**	Safe Suction
ACTUAL CAPACITY:	10000		
CAPACITY RANGE:	5,000 to 9,999 Gallons		

** SFC = Steel Flex Connector*

COMPARTMENT #	SUBSTANCE STORED	SUBSTANCE USED	CAPACITY
1	B Unleaded Gasoline	A Motor Fuel for Vehicles	10000

TANK NAME: 1

STATUS:	Removed	**STATUS DT:**	08/06/1996	**PERMANENTLY CLOSED DT:**	
INSTALL DT:	12/31/1964	**UPGRADE DT:**		**PERMIT EXPIRATION DT:**	

TANK		PIPING	
MATERIAL:		**MATERIAL:**	
CONSTRUCTION:		**CONSTRUCTION:**	
CORROSION PROT:		**CORROSION PROT:**	
MANIFOLDED TANK:		**SFC* at TANK:**	
RELEASE DETECT:		**SFC* at DISP/PUMP:**	
TIGHTNESS TEST:		**1ST REL DETECT:**	
SPILL PREVENTION:		**2ND REL DETECT:**	
OVERFILL PREVENT:		**PUMPING SYSTEM:**	
ACTUAL CAPACITY:	550		
CAPACITY RANGE:	111 TO 1,100 Gallons		

** SFC = Steel Flex Connector*

COMPARTMENT #	SUBSTANCE STORED	SUBSTANCE USED	CAPACITY
1	H Heating Fuel	B Space or Process Heating	550

TANK NAME: 2

STATUS:	Removed	**STATUS DT:**	08/06/1996	**PERMANENTLY CLOSED DT:**	
INSTALL DT:	12/31/1964	**UPGRADE DT:**		**PERMIT EXPIRATION DT:**	

TANK		PIPING	
MATERIAL:		**MATERIAL:**	
CONSTRUCTION:		**CONSTRUCTION:**	
CORROSION PROT:		**CORROSION PROT:**	
MANIFOLDED TANK:		**SFC* at TANK:**	
RELEASE DETECT:		**SFC* at DISP/PUMP:**	
TIGHTNESS TEST:		**1ST REL DETECT:**	
SPILL PREVENTION:		**2ND REL DETECT:**	
OVERFILL PREVENT:		**PUMPING SYSTEM:**	
ACTUAL CAPACITY:	300		
CAPACITY RANGE:	111 TO 1,100 Gallons		

** SFC = Steel Flex Connector*

COMPARTMENT #	SUBSTANCE STORED	SUBSTANCE USED	CAPACITY
1	G Used Oil/Waste Oil	E Recycled (Used Oil)	300

TANK NAME: 261

STATUS:	Removed	**STATUS DT:**	08/06/1996	**PERMANENTLY CLOSED DT:**	
INSTALL DT:	12/31/1964	**UPGRADE DT:**		**PERMIT EXPIRATION DT:**	

TANK		PIPING	
MATERIAL:	Steel	**MATERIAL:**	Steel

CONSTRUCTION:	Single Wall Tank	**CONSTRUCTION:**	
CORROSION PROT:		**CORROSION PROT:**	
MANIFOLDED TANK:		**SFC* at TANK:**	
RELEASE DETECT:		**SFC* at DISP/PUMP:**	
TIGHTNESS TEST:		**1ST REL DETECT:**	
SPILL PREVENTION:		**2ND REL DETECT:**	
OVERFILL PREVENT:		**PUMPING SYSTEM:**	
ACTUAL CAPACITY:	8000		
CAPACITY RANGE:			

** SFC = Steel Flex Connector*

COMPARTMENT #	SUBSTANCE STORED	SUBSTANCE USED	CAPACITY
1	B Unleaded Gasoline	A Motor Fuel for Vehicles	8000

TANK NAME: 364

STATUS:	Removed	**STATUS DT:**	08/06/1996	**PERMANENTLY CLOSED DT:**	
INSTALL DT:	12/31/1964	**UPGRADE DT:**		**PERMIT EXPIRATION DT:**	

TANK		PIPING	
MATERIAL:	Steel	**MATERIAL:**	Steel
CONSTRUCTION:	Single Wall Tank	**CONSTRUCTION:**	
CORROSION PROT:		**CORROSION PROT:**	
MANIFOLDED TANK:		**SFC* at TANK:**	
RELEASE DETECT:		**SFC* at DISP/PUMP:**	
TIGHTNESS TEST:		**1ST REL DETECT:**	
SPILL PREVENTION:		**2ND REL DETECT:**	
OVERFILL PREVENT:		**PUMPING SYSTEM:**	
ACTUAL CAPACITY:	8000		
CAPACITY RANGE:			

** SFC = Steel Flex Connector*

COMPARTMENT #	SUBSTANCE STORED	SUBSTANCE USED	CAPACITY
1	B Unleaded Gasoline	A Motor Fuel for Vehicles	8000

TANK NAME: 428

STATUS:	Removed	**STATUS DT:**	08/06/1996	**PERMANENTLY CLOSED DT:**	
INSTALL DT:	12/31/1964	**UPGRADE DT:**		**PERMIT EXPIRATION DT:**	

TANK		PIPING	
MATERIAL:		**MATERIAL:**	
CONSTRUCTION:		**CONSTRUCTION:**	
CORROSION PROT:		**CORROSION PROT:**	
MANIFOLDED TANK:		**SFC* at TANK:**	
RELEASE DETECT:		**SFC* at DISP/PUMP:**	
TIGHTNESS TEST:		**1ST REL DETECT:**	
SPILL PREVENTION:		**2ND REL DETECT:**	
OVERFILL PREVENT:		**PUMPING SYSTEM:**	
ACTUAL CAPACITY:	10000		
CAPACITY RANGE:			

** SFC = Steel Flex Connector*

COMPARTMENT #	SUBSTANCE STORED	SUBSTANCE USED	CAPACITY
1	A Leaded Gasoline	A Motor Fuel for Vehicles	10000

UST_SiteTankDataSmry2014

APPENDIX D

DEPARTMENT OF ECOLOGY SITE CLEANUP DETAILS

KING COUNTY

SITE ID:	**TIME OIL 01-284**		Cleanup Site ID: 9267	FS ID: 45191292
	Alternate Name(s):	CONVENIENCE RETAILERS 2840, FOODMART 2840, JACKPOT STATION 284, TIME OIL01-284, TIME OIL CO JACKPOT FOOD MART DES MOINES		

LOCATION:		WRIA: 9	Lat/Long:	47.488	-122.312	View Vicinity Map
Address:	12807 DES MOINES MEMORIAL DR S		Township	Range	Section	Legislative District: 33
	SEATTLE 98168		23N	4E	16	Congressional District: 7

STATUS:	**Cleanup Started**	Rank:	View Site Web Page	View Site Documents
	Responsible Unit: Northwest	Site Manager: Musa, Donna	Statute: MTCA	
	Is Brownfield?	Has Environmental Covenant?	Is PSI Site?	
	NFA Received?	NFA Date:	NFA Reason:	

ASSOCIATED CLEANUP UNIT(s)

cuID	Cleanup Unit Name	Unit Type	Process Type	Unit Status	Size (Acres)	ERTS ID
8959	TIME OIL 01-284	Upland	Independent Action	Cleanup Started		

SITE ACTIVITIES:

Applies to:	Related ID (Unit-LUST-VCP)	Activity Display Name	Status	Start Date	End Date	Legal Mechanism	Performed By	Project Manager
CleanupSite		Early Notice Letter(s)			9/19/2002			Wells, Desiree
LUST	809	LUST - Notification		12/21/1990	12/21/1990			
LUST	809	LUST - Report Received		10/25/1993	10/27/1993			
LUST	809	LUST - Report Received		4/28/1993	10/27/1993			
LUST	809	LUST - Report Received		5/20/1991	5/24/1991			
LUST	809	LUST - Report Received		11/12/1997	12/5/1997			
LUST	809	LUST - Report Received		11/21/2002	11/22/2002			
LUST	809	LUST - Report Received		12/4/1997	12/5/1997			

AFFECTED MEDIA & CONTAMINANTS:

Media:

Contaminant:	Ground Water	Surface Water	Soil	Sediment	Air	Bedrock
Benzene			C			
Non-Halogenated Solvents			C			

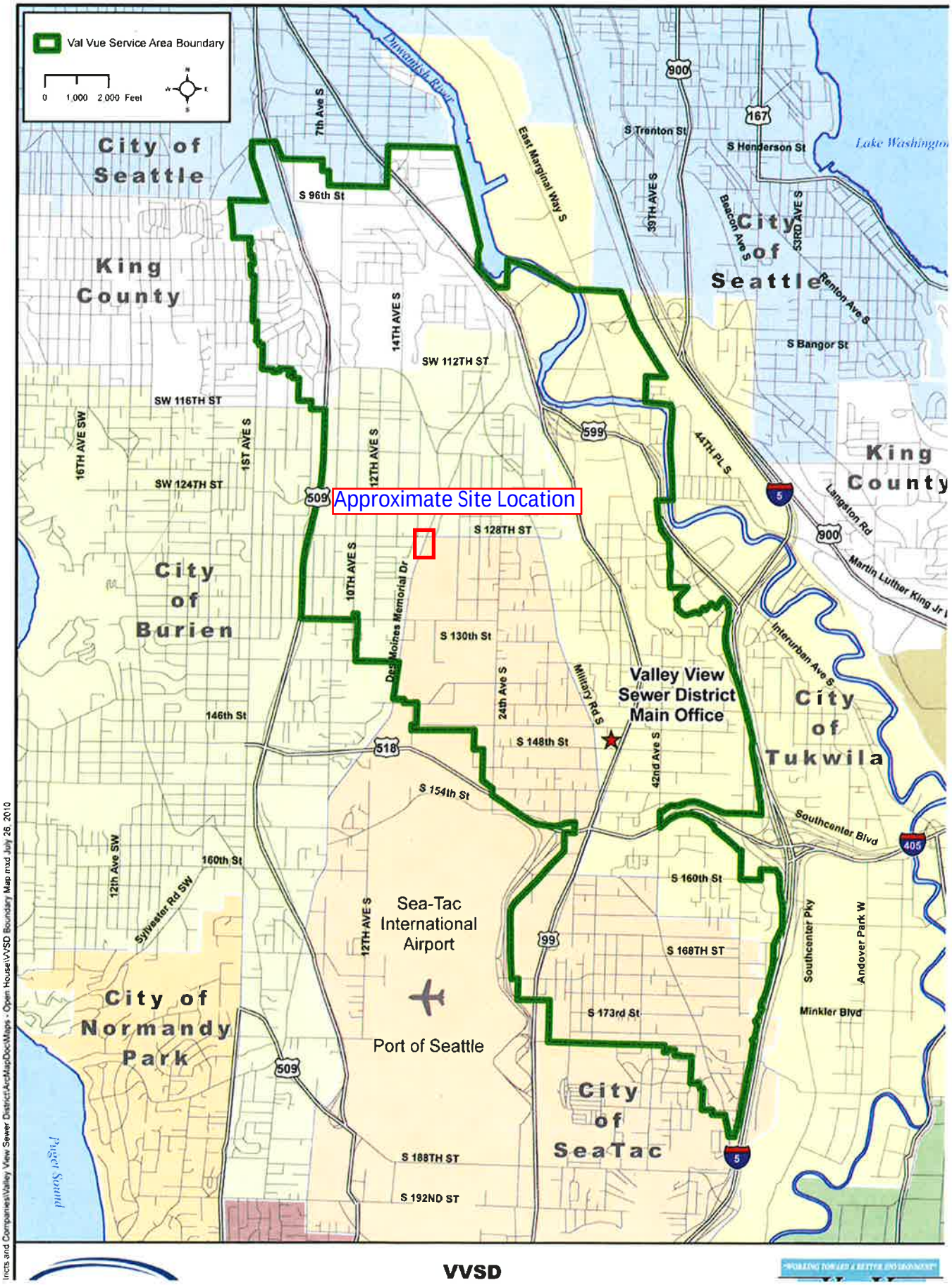
Key:
B - Below Cleanup Level
C - Confirmed Above Cleanup Level
S - Suspected
R - Remediated
RA - Remediated-Above
RB - Remediated-Below

Petroleum-Diesel			C			
Petroleum-Gasoline			C			
Petroleum-Other			C			

CleanupSiteDetails2014

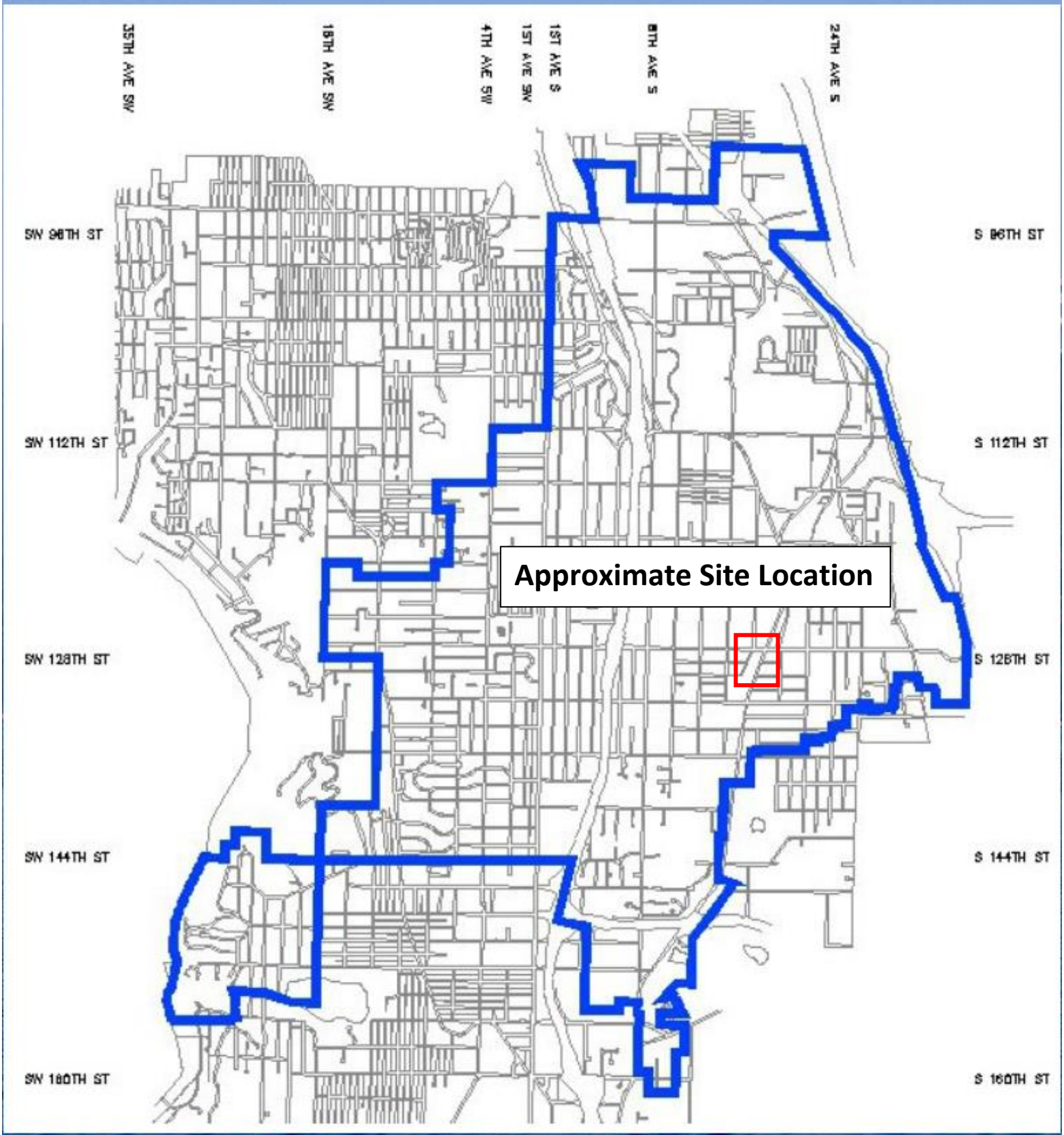
APPENDIX E

LOCAL UTILITY DISTRICT MAPS (WATER & SEWER)



VVSD

http://www.valleyviewsewer.org/wp-content/uploads/2014/08/VVMap.jpg 9/15/2017



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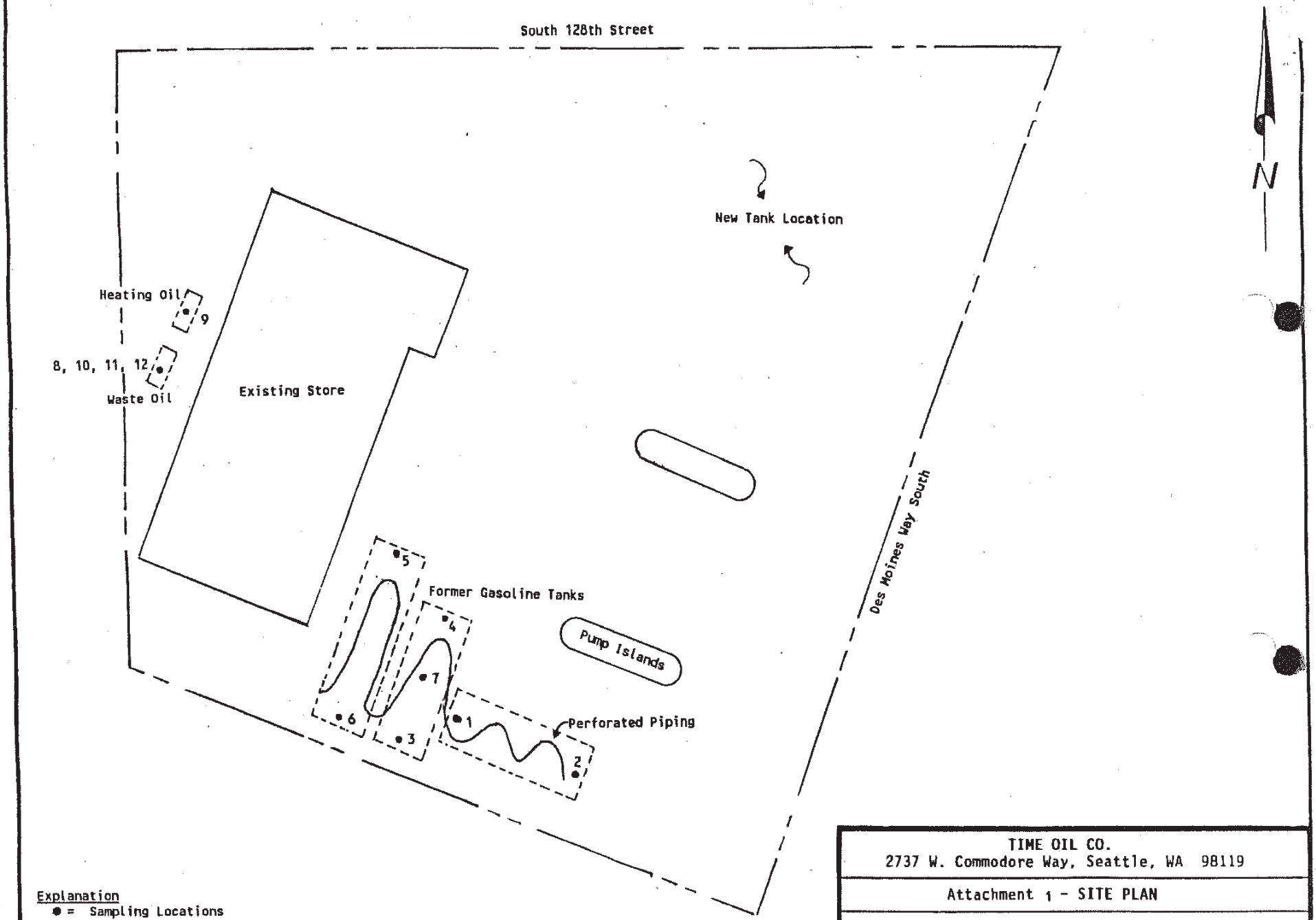
APPENDIX F

1990 INITIAL LEAK DETECTION SOIL SAMPLE LOCATIONS (TIME OIL)



TIME OIL CO.
2737 W. Commodore Way, Seattle, WA 98119

Attachment 1 - SITE PLAN

Jackpot Food Mart
Property No. 01-284
12807 Des Moines Way, Seattle WA

4/91

Attachment 2
ANALYTICAL RESULTS (ppm)

Gasoline Tanks:

Sample No.	Depth (ft.)	TPH	Benzene	Toluene	Ethylbenzene	Xylenes
1	12	6	0.91	2.0	0.13	2.38
2	12	ND	ND	1	2	3
3	13	8	0.13	0.26	0.034	3.1
4	13	ND	ND	0.001	0.012	0.012
5	15	ND	ND	ND	ND	ND
6	10	ND	0.001	ND	ND	ND
7	18	ND	ND	ND	ND	ND

Oil Tanks:

Sample No.	Depth (ft.)	TPH	TCLP Lead	Methylene Chloride	PCBs	Toluene	Ethyl benzene	Xylenes
8	7	4000	17	0.16	ND	0.004	0.005	0.054
9-HOT	10	590	0.12	0.02	ND	ND	ND	ND
10	10	4700	2	0.01	1	0.098	0.17	1.4
11	11	1300	0.05	0.01	ND	ND	0.028	0.420
12	12	900	0.04	0.01	ND	0.008	0.036	0.410

Soil Stockpile:

Sample No.	TCLP Lead
W01	4.5

aed\may91\1284.20d

APPENDIX G

CHAIN(S)-OF-CUSTORY, ALISTO 1997

* WA METHODS *

1112-262

AEN AMERICAN ENVIRONMENTAL NETWORK

PORTLAND DIVISION, 17400 SW UPPER BOONES FERRY RD., SUITE 260, PORTLAND, OR 97224
(503) 624-5449 PHONE (503) 639-6889 FAX

CHAIN OF CUSTODY RECORD 9700517

COMPANY Alisto
ADDRESS 9160 SW [illegible] RD # 700, PTLD 97223
PHONE 620-8420 FAX 620-1923
PROJECT NAME/LOCATION Time Oil - [illegible] WA
PROJECT NUMBER 20083
PROJECT MANAGER Blu Drury

SAMPLED BY TANYA R. TREAT (PRINT NAME) [signature] SIGNATURE

(PRINT NAME) SIGNATURE

ANALYSES: WTPH-HCID; WTPH-G&BTEX; TPB (?)

TURNAROUND TIME ____ DAY (S)

DATE	TIME	SAMPLE ID/DESCRIPTION		GRAB	COMP	# OF CONTAINERS	MATRIX	PRESERVED Y/N	WTPH-HCID	WTPH-G&BTEX	TPB	COMMENTS
2/6/97	842	VP-3-10	VP-101-10			1	S	N	X	X	X	
	846	VP-3-15	VP-101-15			1						
	920	VP-3-30	VP-101-30			1						
	950	VP-3-55	VP-101-55			1						
	1145	VP-4-10	VP-102-10			1						
	1150	VP-4-15	VP-102-15			1						
	1155	VP-4-20	VP-102-20			1						
	1204	VP-4-30	VP-102-30			1						
	1400	B-11-20				1						
	1500	B-11-30				1						
	1515	B-11-40				1						
↓	1525	B-11-50				1	↓	↓	X			

RESULTS TO:

INVOICE TO:

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	DATE/TIME	RECEIVED BY:
[signature]	2/8/97 1200	[signature]	[signature]	2/11/97 1800	Cindy Day
RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	DATE/TIME	RECEIVED FOR LABORATORY BY: Cindy Day

METHOD OF SHIPMENT

REMARKS: * Contact JMD/Alisto for fullgroups *

* WA METHODS *

AEN AMERICAN ENVIRONMENTAL NETWORK

PORTLAND DIVISION, 17400 SW UPPER BOONES FERRY RD , SUITE 260, PORTLAND, OR 97224
(503) 624-5449 PHONE (503) 639-6889 FAX

CHAIN OF CUSTODY RECORD 9700517

COMPANY Alisto
ADDRESS 9160 SW Hazelfern RD #700, PTLD 97224
PHONE 620-8420 FAX 620-1923
PROJECT NAME/LOCATION Time Oil - Des Moines Way
PROJECT NUMBER 20083
PROJECT MANAGER Blu Dray

SAMPLED BY
TANYA P. TREAT (PRINT NAME) [signature] SIGNATURE
PRINT NAME) SIGNATURE

ANALYSES

TURNAROUND TIME ____ DAY (S)

DATE	TIME	SAMPLE ID/DESCRIPTION	GRAB	COMP	# OF CONTAINERS	MATRIX	PRESERVED Y/N	NWTPH-HCID	NWTPH-Gas/BTEX	T-Pb								COMMENTS
2/6/97	842	VP-3-10			1	S	N	X	X	X								
↓	846	VP-3-15			1	↓	↓	↓										
	920	VP-3-30			1													
	953	VP-3-55			1													
	1145	VP-4-10			1													
	1150	VP-4-15			1													
	1155	VP-4-20			1													
	1204	VP-4-30			1													
	1402	B-11-20			1													
	1500	B-11-30			1													
	1513	B-11-40			1													
↓	1525	B-11-55			1	↓	↓	X										

RESULTS TO:

INVOICE TO:

RELINQUISHED BY	DATE/TIME	RECEIVED BY	RELINQUISHED BY:	DATE/TIME	RECEIVED BY:
[signature]	2/8/97 1200	[signature]	[signature]	2/12/97 18:00	Cindy Day
RELINQUISHED BY	DATE/TIME	RECEIVED BY	RELINQUISHED BY:	DATE/TIME	RECEIVED FOR LABORATORY BY: Cindy Day

METHOD OF SHIPMENT

REMARKS: * Contact JMD/Alisto for followups *

APPENDIX H

HASP AND DAILY TAILGATE FORMS AND ONE CALL TICKET, 2017

14.0 ACKNOWLEDGMENT AND UNDERSTANDING OF PLAN

This health & safety plan was prepared by the undersigned, having successfully completed OS standard 29 CFR 1910.120 40-hour hazardous materials health & safety training.

Site Health & Safety Officer: _____
Nicholas J. Olivier

Project Manager: _____
Laura B. Skow

Program Manager: _____
Dane Nygaard

I UNDERSTAND AND AGREE TO THE ABOVE PLAN

	Name & Company	Date
Contractors:	Travis Weisenbeck	8-7-17
	Nick Staats	8-7-17
	Wesley Kennedy	8-8-17
	Kody Brooks	8/8/17
	James Goble	8/8/17
Geologist/Field Technicians:		
Other:		

SITE SAFETY BRIEFING FORM

Site: 2840

Date: 8/7/2017 Time: 8:00

Project No: 123245

Task: Soil Borings / well install Health/Safety Officer: Nick Olivier

Person Providing Briefing: Nick Olivier

Topics:

- ☒ Site HASP
- ☒ Chemical Hazards
- ☒ Equipment Hazards
- ☒ Electrical Hazards
- ☒ Heat Stress
- ☒ Personal Decontamination
- ☒ Personal Hygiene
- ☒ Employee Rights/Responsibilities
- ☒ Hazard Evaluations
- ☒ Emergency Response Procedures

Persons in Attendance:
(Name/Organization)

[signature] Cascade
[signature] Cascade
Wesley Kennedy Cascade
Kdcey Brooks CDLP
James Coble

Persons in Attendance:
(Name/Organization)

Travis Weisenbeck
Nick Staats
[signature]
[signature]
[signature]

Notes/Comments:

• Project Kick off - discussed heat stress & traffic hazards -
• Reviewed HASP and emergency procedures • stop work authority -
• Reviewed scope of work and order of drilling -

environmental services

SITE SAFETY BRIEFING FORM

Site: 2840

Date: 8/8/2017 Time: ~~8/8/17~~ NOE 7:30

Project No: 123245

Task: soil borings / well installation Health/Safety Officer: Nick Olivier

Person Providing Briefing: Nick Olivier

Topics:

- [x] Site HASP
- [x] Chemical Hazards
- [x] Equipment Hazards
- [ ] Electrical Hazards
- [x] Heat Stress
- [x] Personal Decontamination
- [x] Personal Hygiene
- [x] Employee Rights/Responsibilities
- [x] Hazard Evaluations
- [x] Emergency Response Procedures

Persons in Attendance: (Name/Organization)	Persons in Attendance: (Name/Organization)
James Cable	
Kody Brooks	
Wesley Kennedy	

Notes/Comments:

- Discussed possible chemical exposure hazards for the site.
- Discussed site access control and traffic hazards.

environmental services

SITE SAFETY BRIEFING FORM

Site: 2840

Date: 8/9/2017 Time: 8:00

Project No: 123245

Task: Site clean up, hole abandonment Health/Safety Officer: Nick Olivier

Person Providing Briefing: Nick Olivier

Topics:

- ☐ Site HASP
- ☒ Chemical Hazards
- ☒ Equipment Hazards
- ☐ Electrical Hazards
- ☒ Heat Stress
- ☒ Personal Decontamination
- ☒ Personal Hygiene
- ☐ Employee Rights/Responsibilities
- ☒ Hazard Evaluations
- ☐ Emergency Response Procedures

Persons in Attendance: (Name/Organization)

James Goble

Wesley Kennedy

Kody Brooks

Persons in Attendance: (Name/Organization)

Notes/Comments:

- Final work day. Discussed specific hazards of site cleanup activities.
- Particular attention to pinches and cuts to hands, proper glove usage.

environmental services

Laura Skow

From: wa@occinc.com
Sent: Monday, July 31, 2017 1:49 PM
To: Laura Skow
Subject: Ticket: 17292949

WASHINGTON UTILITY NOTIFICATION CENTER

DO NOT REPLY TO THIS EMAIL

Washington Ticket#:	17292949	**2 FULL BUSINESS DAYS**			
Transmit Date:	7/31/17	**Time:**	1:49 PM		
Original Call Date:	7/31/17	**Time:**	1:10 PM	**Type:**	WEB
Work to Begin Date:	8/07/17	**Time:**	7:00 AM		

Caller Information

Company:	ES ENGINEERING SERVICES, LLC	**Type:**	NON-MEMBER
Contact Name:	LAURA SKOW	**Phone:**	(714) 919-6500
Alt. Contact:	NICK OLIVIER	**Phone:**	(253) 508-1085
Best Time:		**Fax:**	(949) 988-3514
Address:	1 PARK PLAZA, SUITE 000; IRVINE, CA 92614		
Caller Email:	LSKOW@ES-ONLINE.COM		

Dig Site Information

Type of Work:	INSTALL SOIL BORINGS
Work Being Done For:	ENVIRONMENTAL SITE ASSESSMENT

Dig Site Location

County:	KING	**State:**	WA
Place:	SEATTLE		
Address / Street:	12807 DES MOINES MEMORIAL DRIVE S		
Nearest Intersection:	S. 128TH STREET		

Location of Work:

5 SOIL BORING LOCATED ONSITE AT GAS STATION PROPERTY. LOCATIONS: 1 IN FRONT (EAST) OF CONVENIENCE STORE BUILDING, 1 SOUTH OF CONVENIENCE STORE, AND 3 WEST OF CONVENIENCE STORE AND ARE MARKED IN WHITE PAINT.

Remarks:

AREA WILL BE MARKED IN WHITE

Caller Twp:	23N	**Rng:**	4E	**Sect-Qtr:**	16-NW		
Map Twp:	23N	**Rng:**	4E	**Sect-Qtr:**	17-NE,16-NW,9-SW,8-SE		
Caller Lat:	47.488	**Lon:**	-122.312	**Zone:**		**Caller Nad:**	83

Excavation Coordinates for # Polygons: 1

Poly 1: NW Lat:	47.4887392	**Lon:**	-122.3128122	**SE Lat:**	47.4877425	**Lon:**	-122.3113429

Members Notified

District	Company	Marking Concerns	Customer Service	Repair
KCDPW02	KING COUNTY ROADS	(206)477-2535	(206)296-8153	(206)296-8153
KCW2001	KING COUNTY WATER DIST #20	(206)243-3990	(206)243-3990	(206)243-3990
POSTIA01	PORT OF SEATTLE	(206)708-5089	(206)787-5670	(206)787-7771

PUGG03	PUGET SOUND ENERGY GAS	(888)728-9343	(888)225-5773	(888)225-5773
QLNWA16	CTLQL-CENTURYLINK	(800)778-9140	(800)283-4237	(800)573-1311
SEACL01	SEATTLE CITY LIGHT	(206)684-4239	(206)684-4239	(206)684-3000
SEATAC01	CITY OF SEATAC	(206)973-4770	(206)973-4770	(206)973-4771
VALVUE01	VAL VUE SEWER DISTRICT	(206)242-3236	(206)242-3236	(206)242-3236

Excavator Responsibilities

* Please click on the following link to verify and confirm that the area covered represents the correct and complete work site area.
  Link To Map for C_EMAIL

* If the area covered is incomplete or inaccurate, it is your responsibility to notify the center immediately to update and correct the locate. Failure to do so could result in a delay or an incomplete utility locate.

* Any other utilities or notification centers not listed, you will need to contact separately.

APPENDIX I

COMPLETE BORINGS LOGS, 2017 (ES)

SOIL BORING LOG **Boring/Well Number: B-11** **Sheet 1 of 3**

Client/Site	Eagle Canyon Capital, LLC - Site No. 2840	Date:	8/7/2017	
Address:	12807 Des Moines Memorial Drive	Driller:	Cascade Drilling, LP	Rig type: CME 55
	Burien, Washington	Drilling Foreman:	James Gobel	
Project No.:	123245	Method:	Hollow Stem Auger	Hole diameter: 8"
Logged By:	N. Olivier			

Well Pack:	pellets:	n/a	Well Construction:	Casing: n/a	Screen: n/a
	sand (#10/20):	n/a		Casing diameter: n/a	Screen slot: n/a
	chips:	2-40 ft bgs	Depth to GW:	not encountered	
	concrete:	0-2 ft bgs	Total Depth of Boring:	40 ft bgs	

Sample Type	Sample No.	Blow Count	Analytical Sample Time	Analytical Sample Recovery	Well Construction	Depth Scale (ft)	Litho Column	Descriptions of Materials and Conditions	PID (PPM)
								8" asphalt surface	
hand auger	B-11-2.5	n/a		n/a		1 2 3 4	FILL	8"-4.5' - Medium brown, moist, moderately loose previously placed fill	0.0
SS	B-11-5	14 15 15				5 6 7 8 9	SM w/gravel	Medium brown, moist, medium dense silty sand with gravel. 55% sand, 30% silt, 10% gravel. No HCLO, no staining.	0.0
SS	B-11-10	27 50 for 6"	13:00			10 11 12 13 14	SM w/gravel	Medium grey, moist, very dense silty sand with gravel. 50% sand, 30% silt, 20% gravel (possibly previously placed rill. Moderate HCLO, no staining.	700
SS	B-11-15	50 for 6"	13:30			15	SM w/gravel	Same as above, moderate HCLO, no staining.	56.2

Concrete

Bentonite Chips

10/20 Sand

Water Table

n/a = Not applicable

NR = No recovery

SS = 3" diameter split spoon sampler

HCLO = hydrocarbon-like odor

Comments:
Boring backfilled with hydrated,3/8 inch sodium bentonite chips. Concrete seal at surface.
Groundwater not encountered during drilling.

SOIL BORING LOG **Boring/Well Number: B-11** **Sheet 2 of 3**

Client/Site	Eagle Canyon Capital, LLC - Site No. 2840	Date:	8/7/2017		
Address:	12807 Des Moines Memorial Drive	Driller:	Cascade Drilling, LP	Rig type: CME 55	
	Burien, Washington	Drilling Foreman:	James Gobel		
Project No.:	123245	Method:	Hollow Stem Auger	Hole diameter: 8"	
Logged By:	N. Olivier				

Well Pack:	pellets: n/a	Well Construction:	Casing: n/a	Screen: n/a	
	sand (#10/20): n/a		Casing diameter: n/a	Screen slot: n/a	
	chips: 2-40 ft bgs	Depth to GW:	not encountered		
	concrete: 0-2 ft bgs	Total Depth of Boring:	40 ft bgs		

Sample Type	Sample No.	Blow Count	Analytical Sample Time	Analytical Sample Recovery	Well Construction	Depth Scale (ft)	Litho Column	Descriptions of Materials and Conditions	PID (PPM)
SS	B-11-20	50 for 6"				16 17 18 19 20 21 22 23	SM w/gravel	Medium grey, moist, very dense silty sand with gravel. 50% sand, 20% silt, 20% gravel. No HCLO, no staining.	0.0
SS	B-11-25	21 25 25				24 25 26 27 28 29	SW	Medium grey, moist, medium dense well graded sand. 95% sand, 0% silt, 5% gravel. No HCLO, no staining.	0.0
SS	B-11-30	27 25	13:40			30 31	SW	Same as above. No HCLO, no staining.	0.0

Concrete

Bentonite Chips

10/20 Sand

Water Table

n/a = Not applicable

NR = No recovery

SS = 3" diameter split spoon sampler

Comments:
Boring backfilled with hydrated,3/8 inch sodium bentonite chips. Concrete seal at surface.
Groundwater not encountered during drilling.

SOIL BORING LOG **Boring/Well Number: B-11** **Sheet 3 of 3**

Client/Site	Eagle Canyon Capital, LLC - Site No. 2840	Date:	8/7/2017	
Address:	12807 Des Moines Memorial Drive	Driller:	Cascade Drilling, LP	Rig type: CME 55
	Burien, Washington	Drilling Foreman:	James Gobel	
Project No.:	123245	Method:	Hollow Stem Auger	Hole diameter: 8"
Logged By:	N. Olivier			

Well Pack:	pellets: n/a	Well Construction:	Casing: n/a	Screen: n/a
	sand (#10/20): n/a		Casing diameter: n/a	Screen slot: n/a
	chips: 2-40 ft bgs	Depth to GW:	not encountered	
	concrete: 0-2 ft bgs	Total Depth of Boring:	40 ft bgs	

Sample Type	Sample No.	Blow Count	Analytical Sample Time	Analytical Sample Recovery	Well Construction	Depth Scale (ft)	Litho Column	Descriptions of Materials and Conditions	PID (PPM)
SS	B-11-30	29				32			
						33			
						34			
SS	B-11-35	23 31 30				35 36	SW	Medium grey, moist, medium dense well graded sand. 95% sand, 0% silt, 5% gravel. No HCLO, no staining	0.0
						37			
						38			
						39			
SS	B-11-40	25 23 27				40 41	SW	Same as above. No HCLO, no staining. No evidense of hydrocarbon impacts.	0.0
						42			
						43			
						44			
						45			
						46			

Concrete

Bentonite Chips

10/20 Sand

n/a = Not applicable

NR = No recovery

SS = 3" diameter split spoon sampler

Water Table

Comments:
Boring backfilled with hydrated,3/8 inch sodium bentonite chips. Concrete seal at surface.
Groundwater not encountered during drilling.

SOIL BORING LOG **Boring/Well Number: B-12** **Sheet 1 of 3**

Client/Site	Eagle Canyon Capital, LLC - Site No. 2840	Date:	8/8/2017	
Address:	12807 Des Moines Memorial Drive	Driller:	Cascade Drilling, LP	Rig type: CME 55
	Burien, Washington	Drilling Foreman:	James Gobel	
Project No.:	123245	Method:	Hollow Stem Auger	Hole diameter: 8"
Logged By:	N. Olivier			

Well Pack:	pellets: n/a	Well Construction:	Casing: n/a	Screen: n/a
	sand (#10/20): n/a		Casing diameter: n/a	Screen slot: n/a
	chips: 2-35 ft bgs	Depth to GW:	not encountered	
	concrete: 0-2 ft bgs	Total Depth of Boring:	35 ft bgs	

Sample Type	Sample No.	Blow Count	Analytical Sample Time	Analytical Sample Recovery	Well Construction	Depth Scale (ft)	Litho Column	Descriptions of Materials and Conditions	PID (PPM)
								8" asphalt surface	
hand auger	B-12-2.5	n/a		n/a		1 2 3 4	FILL	8"-4.5' - Medium brown, moist, moderately loose previously placed fill. Asphalt and concrete debris. No hydrocarbon odor, no staining.	0.0
SS	B-12-5	12 11 13				5 6 7	FILL	Same as above. No hydrocarbon odor, no staining.	0.1
SS	B-12-7.5	7 9 9	8:40			8 9			0.0
SS	B-12-10	10 10 15	8:50			10 11 12 13 14	SM with gravel	Medium brown, moist, medium dense silty sand with gravel. 60% sand, 25% silt, 15% gravel. No HCLO, no staining.	0.6
SS	B-12-15	15	9:10			15	SM with gravel	Same as above, 45% sand, 30% silt, 25% gravel. No HCLO, no staining.	0.1

Concrete

Bentonite Chips

10/20 Sand

Water Table

n/a = Not applicable

NR = No recovery

SS = 3" diameter split spoon sampler

HCLO = hydrocarbon-like odor

Comments:
Boring backfilled with hydrated,3/8 inch sodium bentonite chips. Concrete seal at surface.
Groundwater not encountered during drilling.

SOIL BORING LOG **Boring/Well Number: B-12** **Sheet 2 of 3**

Client/Site	Eagle Canyon Capital, LLC - Site No. 2840	Date:	8/8/2017		
Address:	12807 Des Moines Memorial Drive	Driller:	Cascade Drilling, LP	Rig type: CME 55	
	Burien, Washington	Drilling Foreman:	James Gobel		
Project No.:	123245	Method:	Hollow Stem Auger	Hole diameter: 8"	
Logged By:	N. Olivier				

Well Pack:	pellets: n/a	Well Construction:	Casing: n/a	Screen: n/a	
	sand (#10/20): n/a		Casing diameter: n/a	Screen slot: n/a	
	chips: 2-35 ft bgs	Depth to GW:	not encountered		
	concrete: 0-2 ft bgs	Total Depth of Boring:	35 ft bgs		

Sample Type	Sample No.	Blow Count	Analytical Sample Time	Analytical Sample Recovery	Well Construction	Depth Scale (ft)	Litho Column	Descriptions of Materials and Conditions	PID (PPM)
		28 33				16 17		increasing rig chatter	
SS	B-12-20	50 for 6"				18 19 20 21 22 23	SM with gravel	Medium brown, moist, very dense silty sand with gravel. 30% sand, 35% silt, 35% gravel. No HCLO, no staining.	0.0
SS	B-12-25	23 27 30	8:55			24 25 26 27 28 29	SW	Medium brown, moist, medium dense well graded sand. 90% sand, 10% silt 0% gravel. No HCLO, no staining.	0.0
SS	B-12-30	15 18				30 31	SW	Same as above. 95% sand, 5% silt, 0% gravel. No HCLO, no staining.	0.0

Concrete

Bentonite Chips

10/20 Sand

Water Table

n/a = Not applicable

NR = No recovery

SS = 3" diameter split spoon sampler

Comments:
Boring backfilled with hydrated,3/8 inch sodium bentonite chips. Concrete seal at surface.
Groundwater not encountered during drilling.

SOIL BORING LOG **Boring/Well Number: B-12** **Sheet 3 of 3**

Client/Site	Eagle Canyon Capital, LLC - Site No. 2840	Date:	8/8/2017		
Address:	12807 Des Moines Memorial Drive	Driller:	Cascade Drilling, LP	Rig type: CME 55	
	Burien, Washington	Drilling Foreman:	James Gobel		
Project No.:	123245	Method:	Hollow Stem Auger	Hole diameter: 8"	
Logged By:	N. Olivier				

Well Pack:	pellets: n/a	Well Construction:	Casing: n/a	Screen: n/a	
	sand (#10/20): n/a		Casing diameter: n/a	Screen slot: n/a	
	chips: 2-35 ft bgs	Depth to GW:	not encountered		
	concrete: 0-2 ft bgs	Total Depth of Boring:	35 ft bgs		

Sample Type	Sample No.	Blow Count	Analytical Sample Time	Analytical Sample Recovery	Well Construction	Depth Scale (ft)	Litho Column	Descriptions of Materials and Conditions	PID (PPM)
		21				32			
						33			
						34			
SS	B-12-35	15 18 18	9:00			35 36	SW	Medium brown, moist, medium dense well graded sand. 95% sand, 5% silt, 0% gravel. No HCLO, no staining.	0.0
						37			
						38			
						39			
						40			
						41			
						42			
						43			
						44			
						45			
						46			

Concrete

Bentonite Chips

10/20 Sand

n/a = Not applicable

NR = No recovery

SS = 3" diameter split spoon sampler

Water Table

Comments:
Boring backfilled with hydrated,3/8 inch sodium bentonite chips. Concrete seal at surface.
Groundwater not encountered during drilling.

SOIL BORING LOG **Boring/Well Number: B-13** **Sheet 1 of 4**

Client/Site	Eagle Canyon Capital, LLC - Site No. 2840	Date:	8/8/2017	
Address:	12807 Des Moines Memorial Drive	Driller:	Cascade Drilling, LP	Rig type: CME 55
	Burien, Washington	Drilling Foreman:	James Gobel	
Project No.:	123245	Method:	Hollow Stem Auger	Hole diameter: 8"
Logged By:	N. Olivier			

Well Pack:	pellets:	n/a	Well Construction:	Casing: n/a	Screen: n/a
	sand (#10/20):	n/a		Casing diameter: n/a	Screen slot: n/a
	chips:	2-50 ft bgs	Depth to GW:	not encountered	
	concrete:	0-2 ft bgs	Total Depth of Boring:	50 ft bgs	

Sample Type	Sample No.	Blow Count	Analytical Sample Time	Analytical Sample Recovery	Well Construction	Depth Scale (ft)	Litho Column	Descriptions of Materials and Conditions	PID (PPM)
								6" asphalt surface	
hand auger	B-13-2.5	n/a		n/a		1 2 3 4	FILL	6"-7.0' - Medium brown, moist, moderately loose previously placed fill. Asphalt and concrete debris. No hydrocarbon odor, no staining.	0.0
SS	B-13-5	12 5 5				5 6 7 8 9	FILL	Same as above. No hydrocarbon odor, no staining.	0.0
SS	B-13-10	4 5 6				10 11 12 13 14	FILL	Same as above, few brick fragments. No HCLO, no staining.	0.0
SS	B-13-15	29	11:00			15	FILL	Same as above, few brick fragments. No HCLO, no staining.	0.0

Concrete

Bentonite Chips

10/20 Sand

Water Table

n/a = Not applicable

NR = No recovery

SS = 3" diameter split spoon sampler

HCLO = hydrocarbon-like odor

Comments:
Boring backfilled with hydrated,3/8 inch sodium bentonite chips. Concrete seal at surface.
Groundwater not encountered during drilling.

SOIL BORING LOG **Boring/Well Number: B-13** **Sheet 2 of 4**

Client/Site	Eagle Canyon Capital, LLC - Site No. 2840	Date:	8/8/2017		
Address:	12807 Des Moines Memorial Drive	Driller:	Cascade Drilling, LP	Rig type: CME 55	
	Burien, Washington	Drilling Foreman:	James Gobel		
Project No.:	123245	Method:	Hollow Stem Auger	Hole diameter: 8"	
Logged By:	N. Olivier				

Well Pack:	pellets: n/a	Well Construction:	Casing: n/a	Screen: n/a	
	sand (#10/20): n/a		Casing diameter: n/a	Screen slot: n/a	
	chips: 2-50 ft bgs	Depth to GW:	not encountered		
	concrete: 0-2 ft bgs	Total Depth of Boring:	50 ft bgs		

Sample Type	Sample No.	Blow Count	Analytical Sample Time	Analytical Sample Recovery	Well Construction	Depth Scale (ft)	Litho Column	Descriptions of Materials and Conditions	PID (PPM)
						16			
						17			
						18			
						19			
SS	B-13-20	36 36 50 for 6"				20	SM with gravel	Medium brown, moist, very dense silty sand with gravel. 60% sand, 10% silt, 30% gravel. No HCLO, no staining.	0.0
						21			
						22			
						23			
						24			
SS	B-13-25	41 50 for 6"				25	SW	Same as above. No HCLO, no staining.	0.6
						26			
						27			
						28			
						29			
SS	B-13-30	25 30	11:10			30	SW	Same as above, medium dense, 100% sand. No HCLO, no staining.	0.0
						31			

Concrete

Bentonite Chips

10/20 Sand

Water Table

n/a = Not applicable

NR = No recovery

SS = 3" diameter split spoon sampler

Comments:
Boring backfilled with hydrated,3/8 inch sodium bentonite chips. Concrete seal at surface.
Groundwater not encountered during drilling.

SOIL BORING LOG **Boring/Well Number: B-13** **Sheet 3 of 4**

Client/Site	Eagle Canyon Capital, LLC - Site No. 2840	Date:	8/7/2017		
Address:	12807 Des Moines Memorial Drive	Driller:	Cascade Drilling, LP	Rig type: CME 55	
	Burien, Washington	Drilling Foreman:	James Gobel		
Project No.:	123245	Method:	Hollow Stem Auger	Hole diameter: 8"	
Logged By:	N. Olivier				

Well Pack:	pellets: n/a	Well Construction:	Casing: n/a	Screen: n/a	
	sand (#10/20): n/a		Casing diameter: n/a	Screen slot: n/a	
	chips: 2-50 ft bgs	Depth to GW:	not encountered		
	concrete: 0-2 ft bgs	Total Depth of Boring:	50 ft bgs		

Sample Type	Sample No.	Blow Count	Analytical Sample Time	Analytical Sample Recovery	Well Construction	Depth Scale (ft)	Litho Column	Descriptions of Materials and Conditions	PID (PPM)
		32				32			
						33			
						34			
SS	B-13-35	21 22 32	11:10			35 36	SW	Medium brown, moist, medium dense well graded sand. 95% sand, 0% silt, 5% gravel. No HCLO, no staining.	0.0
						37			
						38			
						39			
SS	B-13-40	15 19 21	11:20			40 41	SW	Medium brown, moist, medium dense well graded sand with trace gravel. 95% sand, 0% silt, 5% gravel. No HCLO, no staining.	0.0
						42			
						43			
						44			
SS	B-13-45	19 21 20				45 46	SW	Same as above, coarsening sand. No HCLO, no staining.	0.0

Concrete

Bentonite Chips

10/20 Sand

Water Table

n/a = Not applicable

NR = No recovery

SS = 3" diameter split spoon sampler

Comments:
Boring backfilled with hydrated,3/8 inch sodium bentonite chips. Concrete seal at surface.
Groundwater not encountered during drilling.

SOIL BORING LOG **Boring/Well Number: B-13** **Sheet 4 of 4**

Client/Site	Eagle Canyon Capital, LLC - Site No. 2840	Date:	8/7/2017		
Address:	12807 Des Moines Memorial Drive	Driller:	Cascade Drilling, LP	Rig type: CME 55	
	Burien, Washington	Drilling Foreman:	James Gobel		
Project No.:	123245	Method:	Hollow Stem Auger	Hole diameter: 8"	
Logged By:	N. Olivier				

Well Pack:	pellets:	n/a	Well Construction:	Casing: n/a	Screen: n/a
	sand (#10/20):	n/a		Casing diameter: n/a	Screen slot: n/a
	chips:	2-50 ft bgs	Depth to GW:	not encountered	
	concrete:	0-2 ft bgs	Total Depth of Boring:	50 ft bgs	

Sample Type	Sample No.	Blow Count	Analytical Sample Time	Analytical Sample Recovery	Well Construction	Depth Scale (ft)	Litho Column	Descriptions of Materials and Conditions	PID (PPM)
SS	B-13-50	not recorded	11:30		Bentonite Chips	47 48 49 50 51 52 53 54 55 56 57 58 59 60 61	SW	Medium brown, moist, medium dense well graded sand. 95% sand, 5% silt, 0% gravel. No HCLO, no staining.	0.0

Concrete

Bentonite Chips

10/20 Sand

n/a = Not applicable

NR = No recovery

SS = 3" diameter split spoon sampler

Water Table

Comments:
Boring backfilled with hydrated,3/8 inch sodium bentonite chips. Concrete seal at surface.
Groundwater not encountered during drilling.

SOIL BORING LOG **Boring/Well Number: B-14** **Sheet 1 of 4**

Client/Site	Eagle Canyon Capital, LLC - Site No. 2840	Date:	8/7/2017	
Address:	12807 Des Moines Memorial Drive	Driller:	Cascade Drilling, LP	Rig type: CME 55
	Burien, Washington	Drilling Foreman:	James Gobel	
Project No.:	123245	Method:	Hollow Stem Auger	Hole diameter: 8"
Logged By:	N. Olivier			

Well Pack:	pellets: n/a	Well Construction:	Casing: n/a	Screen: n/a
	sand (#10/20): n/a		Casing diameter: n/a	Screen slot: n/a
	chips: 2-55 ft bgs	Depth to GW:	not encountered	
	concrete: 0-2 ft bgs	Total Depth of Boring:	55 ft bgs	

Sample Type	Sample No.	Blow Count	Analytical Sample Time	Analytical Sample Recovery	Well Construction	Depth Scale (ft)	Litho Column	Descriptions of Materials and Conditions	PID (PPM)
								8" asphalt surface	
hand auger	B-14-2.5	n/a		n/a		1 2 3 4	FILL	Medium brown, moist, modium loose previously placed fill. No HCLO, no staining.	0.0
SS	B-14-5	19 21 50				5 6 7 8 9	SM w/ gravel	Dark grey, moist, very dense, silty sand with gravel. 65% sand, 25% silt, 10% gravel. No HCLO, no staining.	0.0
SS	B-14-10	22 29 34				10 11 12 13 14	SM w/ gravel	Same as above, medium dense. No HCLO, no staining.	0.0
SS	B-14-15	41				15	SM w/ gravel	Same as above, very dense. No HCLO, no staining.	0.0

Concrete

Bentonite Chips

10/20 Sand

Water Table

n/a = Not applicable

NR = No recovery

SS = 3" diameter split spoon sampler

HCLO = hydrocarbon-like odor

Comments:
Boring backfilled with hydrated,3/8 inch sodium bentonite chips. Concrete seal at surface.
Groundwater not encountered during drilling.

SOIL BORING LOG **Boring/Well Number: B-14** **Sheet 2 of 4**

Client/Site	Eagle Canyon Capital, LLC - Site No. 2840	Date:	8/8/2017		
Address:	12807 Des Moines Memorial Drive	Driller:	Cascade Drilling, LP	Rig type: CME 55	
	Burien, Washington	Drilling Foreman:	James Gobel		
Project No.:	123245	Method:	Hollow Stem Auger	Hole diameter: 8"	
Logged By:	N. Olivier				

Well Pack:	pellets: n/a	Well Construction:	Casing: n/a	Screen: n/a	
	sand (#10/20): n/a		Casing diameter: n/a	Screen slot: n/a	
	chips: 2-55 ft bgs	Depth to GW:	not encountered		
	concrete: 0-2 ft bgs	Total Depth of Boring:	55 ft bgs		

Sample Type	Sample No.	Blow Count	Analytical Sample Time	Analytical Sample Recovery	Well Construction	Depth Scale (ft)	Litho Column	Descriptions of Materials and Conditions	PID (PPM)
SS	B-14-20	33 50 for 6'	11:40			16 17 18 19 20 21 22 23	SM w/ gravel	Medium grey, moist, very dense, silty sand with gravel. 80% sand, 5% silt, 15% gravel. No HCLO, no staining.	0.0
SS	B-14-25	23 24 27	11:00			24 25 26 27 28 29	SW	Medium grey, moist, medium dense, well graded sand. >95% sand, trace silt, 0% gravel. No HCLO, no staining.	70.1
SS	B-14-30	22 29	11:10			30 31	SW	Same as above. Very strong solvent odor, no HCLO, no staining.	1,225

Concrete

Bentonite Chips

10/20 Sand

Water Table

n/a = Not applicable

NR = No recovery

SS = 3" diameter split spoon sampler

Comments:
Boring backfilled with hydrated,3/8 inch sodium bentonite chips. Concrete seal at surface.
Groundwater not encountered during drilling.

SOIL BORING LOG **Boring/Well Number: B-14** **Sheet 3 of 4**

Client/Site	Eagle Canyon Capital, LLC - Site No. 2840	Date:	8/7/2017		
Address:	12807 Des Moines Memorial Drive	Driller:	Cascade Drilling, LP	Rig type: CME 55	
	Burien, Washington	Drilling Foreman:	James Gobel		
Project No.:	123245	Method:	Hollow Stem Auger	Hole diameter: 8"	
Logged By:	N. Olivier				

Well Pack:	pellets: n/a	Well Construction:	Casing: n/a	Screen: n/a	
	sand (#10/20): n/a		Casing diameter: n/a	Screen slot: n/a	
	chips: 2-55 ft bgs	Depth to GW:	not encountered		
	concrete: 0-2 ft bgs	Total Depth of Boring:	55 ft bgs		

Sample Type	Sample No.	Blow Count	Analytical Sample Time	Analytical Sample Recovery	Well Construction	Depth Scale (ft)	Litho Column	Descriptions of Materials and Conditions	PID (PPM)
		30				32			
						33			
						34			
SS	B-14-35	21 25 25	11:00			35 36	SW	Same as above. Very strong solvent odor, no HCLO, no staining.	262
						37			
						38			
						39			
SS	B-14-40	23 27 31				40 41	SW	Same as above. Strong musty/mildew/solvent odor. No HCLO, no staining.	27.0
						42			
						43			
						44			
SS	B-14-45	26 26 32				45 46	SW w/ gravel	Same as above, slight coarsening of sand. 90% sand, 10% gravel. Strong solvent odor, no HCLO, no staining.	126

Concrete

Bentonite Chips

10/20 Sand

Water Table

n/a = Not applicable

NR = No recovery

SS = 3" diameter split spoon sampler

Comments:
Boring backfilled with hydrated,3/8 inch sodium bentonite chips. Concrete seal at surface.
Groundwater not encountered during drilling.

SOIL BORING LOG **Boring/Well Number: B-14** **Sheet 4 of 4**

Client/Site	Eagle Canyon Capital, LLC - Site No. 2840	Date:	8/7/2017	
Address:	12807 Des Moines Memorial Drive	Driller:	Cascade Drilling, LP	Rig type: CME 55
	Burien, Washington	Drilling Foreman:	James Gobel	
Project No.:	123245	Method:	Hollow Stem Auger	Hole diameter: 8"
Logged By:	N. Olivier			

Well Pack:	pellets: n/a	Well Construction:	Casing: n/a	Screen: n/a
	sand (#10/20): n/a		Casing diameter: n/a	Screen slot: n/a
	chips: 2-55 ft bgs	Depth to GW:	not encountered	
	concrete: 0-2 ft bgs	Total Depth of Boring:	55 ft bgs	

Sample Type	Sample No.	Blow Count	Analytical Sample Time	Analytical Sample Recovery	Well Construction	Depth Scale (ft)	Litho Column	Descriptions of Materials and Conditions	PID (PPM)
SS	B-14-50	19 23 29				47 48 49 50 51 52 53 54	SW w/gravel	Same as above. Moderate solvent odor, no HCLO, no staining.	24.9
SS	B-14-55	43 50 for 6"	11:30			55 56 57 58 59 60 61	SW w/gravel	Same as above. Very slight odors, no staining.	7.5

Concrete

Bentonite Chips

10/20 Sand

n/a = Not applicable

NR = No recovery

SS = 3" diameter split spoon sampler

Water Table

Comments:
Boring backfilled with hydrated,3/8 inch sodium bentonite chips. Concrete seal at surface.
Groundwater not encountered during drilling.

SOIL BORING LOG **Boring/Well Number: B-15** **Sheet 1 of 3**

Client/Site	Eagle Canyon Capital, LLC - Site No. 2840	Date:	8/7/2017	
Address:	12807 Des Moines Memorial Drive	Driller:	Cascade Drilling, LP	Rig type: CME 55
	Burien, Washington	Drilling Foreman:	James Gobel	
Project No.:	123245	Method:	Hollow Stem Auger	Hole diameter: 8"
Logged By:	N. Olivier			

Well Pack:	pellets:	n/a	Well Construction:	Casing: n/a	Screen: n/a
	sand (#10/20):	n/a		Casing diameter: n/a	Screen slot: n/a
	chips:	2-35 ft bgs	Depth to GW:	not encountered	
	concrete:	0-2 ft bgs	Total Depth of Boring:	35 ft bgs	

Sample Type	Sample No.	Blow Count	Analytical Sample Time	Analytical Sample Recovery	Well Construction	Depth Scale (ft)	Litho Column	Descriptions of Materials and Conditions	PID (PPM)
						1		6" asphalt surface	
hand auger						2			
						3	FILL	Medium brown, moist, silty sand with gravel, previously placed fill.	0.0
						4			
SS	B-15-5	50 for 6"		NR		5			
						6			
						7			
						8			
						9			
						10			0.0
SS	B-15-10	6 7 7	14:30			11		Medium grey, wet, loose pea gravel (old sump material). Limited sample recovery.	
						12			
						13			
						14			
						15			
SS	B-15-15	14					SM w/gravel	Medium grey, moist, very dense silty sand with gravel (possible old fill).	0.0

Concrete

Bentonite Chips

10/20 Sand

Water Table

n/a = Not applicable

NR = No recovery

SS = 3" diameter split spoon sampler

HCLO = hydrocarbon-like odor

Comments:
Boring backfilled with hydrated,3/8 inch sodium bentonite chips. Concrete seal at surface.
Groundwater not encountered during drilling.

SOIL BORING LOG **Boring/Well Number: B-15** **Sheet 2 of 3**

Client/Site	Eagle Canyon Capital, LLC - Site No. 2840	Date:	8/7/2017		
Address:	12807 Des Moines Memorial Drive	Driller:	Cascade Drilling, LP	Rig type: CME 55	
	Burien, Washington	Drilling Foreman:	James Gobel		
Project No.:	123245	Method:	Hollow Stem Auger	Hole diameter: 8"	
Logged By:	N. Olivier				

Well Pack:	pellets: n/a	Well Construction:	Casing: n/a	Screen: n/a	
	sand (#10/20): n/a		Casing diameter: n/a	Screen slot: n/a	
	chips: 2-35 ft bgs	Depth to GW:	not encountered		
	concrete: 0-2 ft bgs	Total Depth of Boring:	35 ft bgs		

Sample Type	Sample No.	Blow Count	Analytical Sample Time	Analytical Sample Recovery	Well Construction	Depth Scale (ft)	Litho Column	Descriptions of Materials and Conditions	PID (PPM)
		21 30				16 17 18 19			
SS	B-15-20	21 23 30	14:45			20 21 22 23 24	SM w/gravel	Medium grey, moist, very dense, silty sand with gravel. 45% sand, 30% silt, 25% gravel. No HCLO, no staining.	0.0
SS	B-15-25	30 50 for 6"		NR		25 26 27 28 29		No sample recovery.	
SS	B-15-30	46 50 for 6"				30 31		Medium grey, moist, very dense, well graded sand. 80% sand, 10% silt, 10% gravel. Wet (water from above). No HCLO, no staining.	

Concrete

Bentonite Chips

10/20 Sand

Water Table

n/a = Not applicable

NR = No recovery

SS = 3" diameter split spoon sampler

Comments:
Boring backfilled with hydrated,3/8 inch sodium bentonite chips. Concrete seal at surface.
Groundwater not encountered during drilling.

SOIL BORING LOG **Boring/Well Number: B-15** **Sheet 3 of 3**

Client/Site	Eagle Canyon Capital, LLC - Site No. 2840	Date:	8/7/2017		
Address:	12807 Des Moines Memorial Drive	Driller:	Cascade Drilling, LP	Rig type: CME 55	
	Burien, Washington	Drilling Foreman:	James Gobel		
Project No.:	123245	Method:	Hollow Stem Auger	Hole diameter: 8"	
Logged By:	N. Olivier				

Well Pack:	pellets: n/a	Well Construction:	Casing: n/a	Screen: n/a	
	sand (#10/20): n/a		Casing diameter: n/a	Screen slot: n/a	
	chips: 2-35 ft bgs	Depth to GW:	not encountered		
	concrete: 0-2 ft bgs	Total Depth of Boring:	35 ft bgs		

Sample Type	Sample No.	Blow Count	Analytical Sample Time	Analytical Sample Recovery	Well Construction	Depth Scale (ft)	Litho Column	Descriptions of Materials and Conditions	PID (PPM)
SS	B-15-35	41 50 for 6"	15:00			32 33 34 35 36 37 38 39 40 41 42 43 44 45 46	SW	Medium grey, moist, medium dense, well graded sand. 95% sand, 5% silt, 0% gravel. No HCLO, no staining.	0.0

Concrete

Bentonite Chips

10/20 Sand

n/a = Not applicable

NR = No recovery

SS = 3" diameter split spoon sampler

Water Table

Comments:
Boring backfilled with hydrated,3/8 inch sodium bentonite chips. Concrete seal at surface.
Groundwater not encountered during drilling.

APPENDIX J

GENERAL FIELD PRACTICES AND PROCEDURES

GENERAL FIELD PROCEDURES

General procedures used by ES Engineering Services, LLC (ES) in site assessments for drilling exploratory borings and collecting samples are described herein. The general procedures may be modified as appropriate based on site conditions. A Professional state-registered geologist supervises the following procedures.

PRE-FIELD WORK ACTIVITIES

Health and Safety Plan

Field work performed by ES at the site is conducted according to guidelines established in a Site Health and Safety Plan (HASP). The HASP is a document that describes the hazards that may be encountered in the field and specifies protective equipment, work procedures, and emergency information. A copy of the HASP is at the site and available for reference by appropriate parties during field work.

Locating Underground Utilities

Before commencement of subsurface work, the location of the excavation, boring, etc., is marked with white spray paint as required by law. An underground locating service such as One-Call is contacted 72-hours before initiating field work. The locating company contacts the owners of the various utilities in the vicinity of the site to mark the locations of their underground utilities. Invasive work is preceded by hand augering to a minimum depth of five feet below surface grade to avoid contacting potential underground utilities or structures.

FIELD METHODS AND PROCEDURES

Exploratory Soil Borings

Soil borings will be drilled using a truck-mounted, hollow stem auger (HSA) drill rig or using hydraulically actuated “direct-push” and percussion equipment, e.g. Geoprobe®. If HSA drilling techniques are utilized, soil samples for logging will be obtained from auger-return materials and by advancing a modified split-spoon sampler equipped with stainless steel liners or equivalent into undisturbed soil beyond the tip of the auger. Similarly, if direct-push technology (DPT) is used, soil samples will be retrieved from the borings using a 3-foot-long, 2-inch diameter continuous-core split-barrel sampler lined with six stainless steel/brass sleeves or a 4-foot-long acetate liner. Soils will be logged by a geologist according to the Unified Soil Classification System using standard geological techniques. Drill cuttings will be screened using a portable photoionization detector (PID) or a flame ionization detector (FID). Exploratory soil borings not used for monitoring well installation will be backfilled to the surface with bentonite-cement slurry and/or hydrated bentonite chips and capped at the surface to match surrounding conditions.

Soil Sample Collection

Auger Sampling: During drilling, soil samples will be collected in clean steel/brass, two by six inch tubes. The tubes will be set in an 18-inch-long split-barrel sampler. The sampler will be conveyed to the bottom of the borehole attached to a wire-line hammer device on the drill rig. When possible, the split-barrel sampler will be driven its entire length, either hydraulically or by repeatedly pounding a 140-pound hammer using a 30-inch drop. The number of drops (blows) used to drive the sampler will be recorded on the boring log. The sampler will be extracted from the borehole, and the tubes containing the soil samples will be removed. Upon removal, the ends of the lowermost tube will be sealed with Teflon sheets and plastic caps. Soil samples for chemical analysis will be labeled, placed on ice, and delivered to a state-certified analytical laboratory, along with the appropriate chain-of-custody documentation.

Geoprobe Sampling: The push-probe system is driven by a hydraulic hammer or vibrator. Each boring will be sampled at a minimum of 5-foot intervals. Shorter sampling intervals or continuous core sampling techniques may be employed to provide subsurface definition. As the core barrel is advanced, soil is driven into an inner 1¾-inch diameter core barrel, which is either lined with steel/brass or acetate sleeves. After being driven 5 feet, the rods are removed from the borehole. Upon removal, the ends of the lowermost sleeve will be sealed with Teflon sheets and plastic caps. Soil samples for chemical analysis will be labeled, placed on ice, and delivered to a state-certified analytical laboratory, along with the appropriate chain-of-custody documentation.

Soil Classification

As the samples are obtained in the field, they will be classified by the field geologist in accordance with the Unified Soil Classification System. Representative portions of the samples will be retained for further examination and for verification of the field classification. Logs of the borings indicating the depth and identification of the various strata and pertinent information regarding the method of maintaining and advancing the borehole will be prepared. Specifically, for each sampling interval, field estimates of soil type, density/consistency, plasticity, grading, moisture, color, and any other pertinent information will be recorded on the boring log.

Soil Sample Screening and Sampling

Soil samples selected for chemical analysis will be determined from a headspace analysis using a PID or an FID. The soil will be placed in a Ziploc® bag or equivalent, sealed, and allowed to reach ambient temperature, at which time the PID probe will be inserted into the Ziploc bag. The total volatile hydrocarbons present are detected in parts per million (ppm). The PID will be calibrated daily to an isobutylene standard. Additionally, a water trap will be fixed to the end of the PID sampling wand to minimize potential interference from entrained soil moisture.

Generally two soil samples from each soil boring will be submitted for chemical analysis unless otherwise specified in the scope of work (See applicable workplan or the client's specified scope of work). Soil samples selected for analysis typically represent the boring bottom sample or the sample just above the first-occurrence of groundwater and sample that exhibits the highest PID reading.

Important: Environmental Protection Agency 5035 sampling methodology will be followed for the collection of samples involving the analysis of volatile organic compounds.

HydroPunch® Sampling

A grab groundwater sample is collected using a Hydropunch® sampling device or equivalent. The hydropunch can be used with either a HSA drill or DPT rig. The hydropunch consists of a stainless steel probe, which is advanced in to the water-yielding zone then withdrawn to expose an internal screen. Once the probe is opened, groundwater enters while soil particles larger than silt are prevented from entering by a screen. A decontaminated stainless steel bailer or equivalent is inserted down the center of the well screen to obtain a "grab-type" groundwater sample for analysis. The samples are carefully transferred from the bailer to zero headspace, 40 milliliter glass vials fitted with Teflon-lined caps. The groundwater sample is labeled, placed on ice (i.e. chilled at approximately 4 degrees Celsius), and delivered to a state-certified analytical laboratory, along with the appropriate chain-of-custody documentation. The boring is backfilled with a cement/bentonite slurry and capped at the surface to match surface conditions.

Chain-of-Custody Protocol

Chain-of-Custody protocol is followed for all soil and groundwater samples selected for laboratory analysis. The Chain-of-Custody form(s) accompanies the samples to the laboratory and provides a continuous record of possession at all times.

Decontamination

Drill cuttings generated during the drilling procedure will be contained in labeled and marked, DOT-approved 55-gallon drums and placed in a secured onsite location. Drilling equipment is decontaminated by steam cleaning before being brought onsite. The augers are also steam cleaned before proceeding with each new boring/well. Before use, the sampler and sampling sleeves are brushed-scrubbed in a Liqui-nox and potable water solution and rinsed twice in clean potable water. Sampling equipment and sleeves are also decontaminated before each sample is collected to avoid cross-contamination between borings.

Waste Management

Soil cuttings, decontamination and/or development water will be contained in DOT-approved, 55-gallon drums. Each drum will be appropriately labeled, marked and temporarily stored in a

secured onsite location pending waste characterization. Upon receipt of analytical results, contained waste will be transported offsite to an appropriate disposal/recycling facility.

Exceptions

Additional tasks or non-standard practices/procedures, if any, that may be requested or required for a particular site will be documented in the field notes on the following pages.

APPENDIX K

CURRENT LABORATORY SOIL ANALYTICAL REPORTS

ESN NORTHWEST
Environmental
Services Network

August 22, 2017

Laura Skow
ES Engineering
1036 West Taft Avenue
Orange, CA 92865

Dear Mr. Skow:

Please find enclosed the analytical data report for the Site #2840 Project in Burien, Washington. Soil samples were analyzed for Diesel and Oil by NWTPH-Dx/Dx Extended, Gasoline by NWTPH-Gx, VOC's by Method 8260, SVOC's by Method 8270, PCB's by Method 8082, and RCRA 8 Metals by Method 6020 on August 7 – 15, 2017.

The results of the analyses are summarized in the attached tables. All soil values are reported on a dry weight basis. Applicable detection limits and QA/QC data are included. An invoice for this analytical work is also enclosed.

ESN Northwest appreciates the opportunity to have provided analytical services to ES Engineering for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Michael A Korosec

Michael A. Korosec
President

1210 Eastside Street SE, Suite 200 ■ Olympia, Washington 98501 ■ 360.459.4670 ■ FAX 360.459.3432
Web Site: *www.esnnw.com* E-Mail: *info@esnnw.com*

ESN NORTHWEST CHEMISTRY LABORATORY

ES Engineering Services
PROJECT SITE NO 2840
PROJECT #123245
Burien, Washington

ESN Northwest
1210 Eastside Street SE Suite 200
Olympia, WA 98501
(360) 459-4670 (360) 459-3432 Fax
lab@esnnw.com

Analysis of Diesel Range Organics & Lube Oil Range Organics in Soil by Method NWTPH-Dx Extended

Sample Number	Date Prepared	Date Analyzed	Surrogate Recovery (%)	Diesel Range Organics (mg/kg)	Lube Oil Range Organics (mg/kg)
Method Blank	8/7/2017	8/7/2017	108	nd	nd
LCS	8/7/2017	8/7/2017	99	112%	---
B-14-20	8/7/2017	8/7/2017	113	nd	nd
B-14-55	8/7/2017	8/7/2017	122	nd	nd
B-11-10	8/7/2017	8/7/2017	98	**380**	**1800**
B-11-15	8/7/2017	8/7/2017	122	nd	nd
B-11-30	8/7/2017	8/7/2017	116	nd	nd
B-11-30 Duplicate	8/7/2017	8/7/2017	105	nd	nd
Reporting Limits				50	100

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 50% TO 150%

ESN NORTHWEST CHEMISTRY LABORATORY

ES Engineering Services
PROJECT SITE NO 2840
PROJECT #123245
Burien, Washington

ESN Northwest
1210 Eastside Street SE Suite 200
Olympia, WA 98501
(360) 459-4670 (360) 459-3432 Fax
lab@esnnw.com

Analysis of Diesel Range Organics & Lube Oil Range Organics in Soil by Method NWTPH-Dx Extended

Sample Number	Date Prepared	Date Analyzed	Surrogate Recovery (%)	Diesel Range Organics (mg/kg)	Lube Oil Range Organics (mg/kg)
Method Blank	8/7/2017	8/7/2017	108	nd	nd
LCS	8/7/2017	8/7/2017	99	112%	---
B-14-25	8/7/2017	8/7/2017	98	nd	nd
B-14-30	8/7/2017	8/7/2017	104	**1200****	nd
Reporting Limits				50	100

** -Contamination appears to Mineral Spirits/Stoddard solvent
"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 50% TO 150%

ESN NORTHWEST CHEMISTRY LABORATORY

ES Engineering Services
PROJECT SITE NO 2840
PROJECT #123245
Burien, Washington

ESN Northwest
1210 Eastside Street SE Suite 200
Olympia, WA 98501
(360) 459-4670 (360) 459-3432 Fax
lab@esnnw.com

Analysis of Gasoline Range Organics & BTEX in Soil by Method NWTPH-Gx/8260

Sample Number	Date Prepared	Date Analyzed	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Gasoline Range Organics (mg/kg)	Surrogate Recovery (%)
Method Blank	8/10/2017	8/10/2017	nd	nd	nd	nd	nd	108
LCS	8/10/2017	8/10/2017	99%	96%	94%	108%	87%	112
LCSD	8/10/2017	8/10/2017	98%	94%	91%	101%	---	121
B-14-55	8/7/2017	8/10/2017	nd	nd	nd	nd	nd	113
Reporting Limits			0.02	0.05	0.05	0.15	10	

"---" Indicates not tested for component.
"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Bromoflurorbenzene) & LCS : 65% TO 135%

ESN NORTHWEST CHEMISTRY LABORATORY

ES Engineering Services
PROJECT SITE NO 2840
PROJECT #123245
Burien, Washington

ESN Northwest
1210 Eastside Street SE Suite 200
Olympia, WA 98501
(360) 459-4670 (360) 459-3432 Fax
lab@esnnw.com

Analysis of Gasoline Range Organics & BTEX in Soil by Method NWTPH-Gx/8260

Sample Number	Date Prepared	Date Analyzed	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Gasoline Range Organics (mg/kg)	Surrogate Recovery (%)
Method Blank	8/7/2017	8/7/2017	nd	nd	nd	nd	nd	115
LCS	8/7/2017	8/7/2017	124%	114%	113%	108%	87%	122
LCSD	8/7/2017	8/7/2017	120%	110%	108%	103%	--	111
B-14-25	8/7/2017	8/7/2017	nd	nd	nd	nd	nd	97
Reporting Limits			0.02	0.05	0.05	0.15	10	

"---" Indicates not tested for component.
"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Bromoflurorbenzene) & LCS : 65% TO 135%

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ES Engineering Services
PROJECT SITE NO 2840
PROJECT #123245
Burien, Washington

ESN Northwest
1210 Eastside Street SE Suite 200
Olympia, WA 98501
(360) 459-4670 (360) 459-3432 Fax
lab@esnnw.com

Analysis of Gasoline Range Organics in Soil
by Method NWTPH-Gx

Sample Number	Date Prepared	Date Analyzed	Surrogate Recovery (%)	Gasoline Range Organics (mg/kg)
Method Blank	8/10/2017	8/10/2017	108	nd
LCS	8/10/2017	8/10/2017	112	87%
B-14-20	8/7/2017	8/10/2017	110	nd
B-11-10	8/7/2017	8/10/2017	103	nd
B-11-15	8/7/2017	8/10/2017	104	nd
B-11-30	8/7/2017	8/10/2017	119	nd
Reporting Limits				10

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 50% TO 150%

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ES Engineering Services
PROJECT SITE NO 2840
PROJECT #123245
Burien, Washington

ESN Northwest
1210 Eastside Street SE Suite 200
Olympia, WA 98501
(360) 459-4670 (360) 459-3432 Fax
lab@esnnw.com

Analysis of Gasoline Range Organics in Soil
by Method NWTPH-Gx

Sample Number	Date Prepared	Date Analyzed	Surrogate Recovery (%)	Gasoline Range Organics (mg/kg)
Method Blank	8/7/2017	8/7/2017	112	nd
LCS	8/7/2017	8/7/2017	123	87%
B-14-30	8/7/2017	8/7/2017	103	nd
Reporting Limits				10

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 50% TO 150%

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PROJECT SITE NO 2840
PROJECT #123245
Burien, Washington

ESN Northwest
1210 Eastside Street SE Suite 200
Olympia, WA 98501
(360) 459-4670 (360) 459-3432 Fax
lab@esnnw.com

Analysis of Volatile Organic Compounds in Soil by Method 8260C/5035

	RL	MB	LCS	LCSD	B-14-20	B-11-10
Date extracted		08/10/17	08/10/17	08/10/17	08/07/17	08/07/17
Date analyzed	(mg/Kg)	08/10/17	08/10/17	08/10/17	08/10/17	08/10/17
% Moisture					9%	9%
Dichlorodifluoromethane	0.05	nd			nd	nd
Chloromethane	0.05	nd			nd	nd
Vinyl chloride	0.02	nd	123%	120%	nd	nd
Bromomethane	0.05	nd			nd	nd
Chloroethane	0.05	nd			nd	nd
Trichlorofluoromethane	0.05	nd			nd	nd
Acetone	0.25	nd			nd	nd
Hexane	0.05	nd			nd	nd
1,1-Dichloroethene	0.05	nd	133%	130%	nd	nd
Methylene chloride	0.05	nd			nd	nd
Methyl-t-butyl ether (MTBE)	0.05	nd			nd	nd
trans-1,2-Dichloroethene	0.05	nd			nd	nd
1,1-Dichloroethane	0.05	nd			nd	nd
2-Butanone (MEK)	0.25	nd			nd	nd
cis-1,2-Dichloroethene	0.05	nd			nd	nd
2,2-Dichloropropane	0.05	nd			nd	nd
Chloroform	0.05	nd	131%	128%	nd	nd
Bromochloromethane	0.05	nd			nd	nd
1,1,1-Trichloroethane	0.05	nd			nd	nd
1,2-Dichloroethane (EDC)	0.05	nd			nd	nd
1,1-Dichloropropene	0.05	nd			nd	nd
Carbon tetrachloride	0.05	nd			nd	nd
Benzene	0.02	nd	114%	109%	nd	nd
Trichloroethene (TCE)	0.02	nd	113%	108%	nd	nd
1,2-Dichloropropane	0.05	nd	120%	108%	nd	nd
Dibromomethane	0.05	nd			nd	nd
Bromodichloromethane	0.05	nd			nd	nd
4-Methyl-2-pentanone (MIBK)	0.25	nd			nd	nd
cis-1,3-Dichloropropene	0.05	nd			nd	nd
Toluene	0.05	nd	111%	104%	nd	nd
trans-1,3-Dichloropropene	0.05	nd			nd	nd
1,1,2-Trichloroethane	0.05	nd			nd	nd
2-Hexanone	0.25	nd			nd	nd
1,3-Dichloropropane	0.05	nd			nd	nd
Dibromochloromethane	0.05	nd			nd	nd
Tetrachloroethene (PCE)	0.02	nd	108%	100%	nd	nd
1,2-Dibromoethane (EDB)	0.05	nd			nd	nd
Chlorobenzene	0.05	nd	109%	101%	nd	nd
1,1,1,2-Tetrachloroethane	0.05	nd			nd	nd
Ethylbenzene	0.05	nd			nd	nd
Xylenes	0.15	nd	108%	102%	nd	nd
Styrene	0.05	nd	106%	97%	nd	nd
Bromoform	0.05	nd			nd	nd
1,1,2,2-Tetrachloroethane	0.05	nd			nd	nd
Isopropylbenzene	0.05	nd			nd	nd
1,2,3-Trichloropropane	0.05	nd			nd	nd
Bromobenzene	0.05	nd			nd	nd

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ES Engineering Services
PROJECT SITE NO 2840
PROJECT #123245
Burien, Washington

ESN Northwest
1210 Eastside Street SE Suite 200
Olympia, WA 98501
(360) 459-4670 (360) 459-3432 Fax
lab@esnnw.com

Analysis of Volatile Organic Compounds in Soil by Method 8260C/5035

	RL	MB	LCS	LCSD	B-14-20	B-11-10
Date extracted		08/10/17	08/10/17	08/10/17	08/07/17	08/07/17
Date analyzed	(mg/Kg)	08/10/17	08/10/17	08/10/17	08/10/17	08/10/17
% Moisture					9%	9%
n-Propylbenzene	0.05	nd			nd	nd
2-Chlorotoluene	0.05	nd			nd	nd
4-Chlorotoluene	0.05	nd			nd	nd
1,3,5-Trimethylbenzene	0.05	nd			nd	nd
tert-Butylbenzene	0.05	nd			nd	nd
1,2,4-Trimethylbenzene	0.05	nd			nd	nd
sec-Butylbenzene	0.05	nd			nd	nd
1,3-Dichlorobenzene	0.05	nd			nd	nd
1,4-Dichlorobenzene	0.05	nd			nd	nd
Isopropyltoluene	0.05	nd			nd	nd
1,2-Dichlorobenzene	0.05	nd			nd	nd
n-Butylbenzene	0.05	nd			nd	nd
1,2-Dibromo-3-Chloropropane	0.05	nd			nd	nd
1,2,4-Trichlorobenzene	0.05	nd			nd	nd
Naphthalene	0.05	nd			nd	nd
Hexachloro-1,3-butadiene	0.05	nd			nd	nd
1,2,3-Trichlorobenzene	0.05	nd			nd	nd
Surrogate recoveries						
Dibromofluoromethane		107%	126%	112%	109%	96%
Toluene-d8		104%	100%	101%	97%	96%
4-Bromofluorobenzene		115%	122%	108%	114%	107%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%

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PROJECT #123245
Burien, Washington

ESN Northwest
1210 Eastside Street SE Suite 200
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(360) 459-4670 (360) 459-3432 Fax
lab@esnnw.com

Analysis of Volatile Organic Compounds in Soil by Method 8260C/5035

	RL	MB	LCS	LCSD	B-14-30
Date extracted		08/07/17	08/07/17	08/07/17	08/07/17
Date analyzed	(mg/Kg)	08/07/17	08/07/17	08/07/17	08/07/17
% Moisture					11%
Dichlorodifluoromethane	0.05	nd			nd
Chloromethane	0.05	nd			nd
Vinyl chloride	0.02	nd	123%	109%	nd
Bromomethane	0.05	nd			nd
Chloroethane	0.05	nd			nd
Trichlorofluoromethane	0.05	nd			nd
Acetone	0.25	nd			nd
Hexane	0.05	nd			nd
1,1-Dichloroethene	0.05	nd	116%	106%	nd
Methylene chloride	0.05	nd			nd
Methyl-t-butyl ether (MTBE)	0.05	nd			nd
trans-1,2-Dichloroethene	0.05	nd			nd
1,1-Dichloroethane	0.05	nd			nd
2-Butanone (MEK)	0.25	nd			nd
cis-1,2-Dichloroethene	0.05	nd			nd
2,2-Dichloropropane	0.05	nd			nd
Chloroform	0.05	nd	131%	122%	nd
Bromochloromethane	0.05	nd			nd
1,1,1-Trichloroethane	0.05	nd			nd
1,2-Dichloroethane (EDC)	0.05	nd			nd
1,1-Dichloropropene	0.05	nd			nd
Carbon tetrachloride	0.05	nd			nd
Benzene	0.02	nd	124%	116%	nd
Trichloroethene (TCE)	0.02	nd	115%	103%	nd
1,2-Dichloropropane	0.05	nd	120%	111%	nd
Dibromomethane	0.05	nd			nd
Bromodichloromethane	0.05	nd			nd
4-Methyl-2-pentanone (MIBK)	0.25	nd			nd
cis-1,3-Dichloropropene	0.05	nd			nd
Toluene	0.05	nd	114%	109%	nd
trans-1,3-Dichloropropene	0.05	nd			nd
1,1,2-Trichloroethane	0.05	nd			nd
2-Hexanone	0.25	nd			nd
1,3-Dichloropropane	0.05	nd			nd
Dibromochloromethane	0.05	nd			nd
Tetrachloroethene (PCE)	0.02	nd	120%	108%	nd
1,2-Dibromoethane (EDB)	0.05	nd			nd
Chlorobenzene	0.05	nd	116%	106%	nd
1,1,1,2-Tetrachloroethane	0.05	nd			nd
Ethylbenzene	0.05	nd	113%	102%	nd
Xylenes	0.15	nd	108%	100%	nd
Styrene	0.05	nd			nd
Bromoform	0.05	nd			nd
1,1,2,2-Tetrachloroethane	0.05	nd			nd
Isopropylbenzene	0.05	nd			nd
1,2,3-Trichloropropane	0.05	nd			nd
Bromobenzene	0.05	nd			nd

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Burien, Washington

ESN Northwest
1210 Eastside Street SE Suite 200
Olympia, WA 98501
(360) 459-4670 (360) 459-3432 Fax
lab@esnnw.com

Analysis of Volatile Organic Compounds in Soil by Method 8260C/5035

	RL	MB	LCS	LCSD	B-14-30
Date extracted		08/07/17	08/07/17	08/07/17	08/07/17
Date analyzed	(mg/Kg)	08/07/17	08/07/17	08/07/17	08/07/17
% Moisture					11%
n-Propylbenzene	0.05	nd			nd
2-Chlorotoluene	0.05	nd			nd
4-Chlorotoluene	0.05	nd			nd
1,3,5-Trimethylbenzene	0.05	nd			nd
tert-Butylbenzene	0.05	nd			nd
1,2,4-Trimethylbenzene	0.05	nd			nd
sec-Butylbenzene	0.05	nd			nd
1,3-Dichlorobenzene	0.05	nd			nd
1,4-Dichlorobenzene	0.05	nd			nd
Isopropyltoluene	0.05	nd			nd
1,2-Dichlorobenzene	0.05	nd			nd
n-Butylbenzene	0.05	nd			nd
1,2-Dibromo-3-Chloropropane	0.05	nd			nd
1,2,4-Trichlorobenzene	0.05	nd			nd
Naphthalene	0.05	nd			nd
Hexachloro-1,3-butadiene	0.05	nd			nd
1,2,3-Trichlorobenzene	0.05	nd			nd
Surrogate recoveries					
Dibromofluoromethane		107%	126%	109%	82%
Toluene-d8		104%	100%	106%	103%
4-Bromofluorobenzene		115%	122%	113%	102%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%

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ES Engineering Services
PROJECT SITE NO 2840
PROJECT #123245
Burien, Washington

ESN Northwest
1210 Eastside Street SE Suite 200
Olympia, WA 98501
(360) 459-4670 (360) 459-3432 Fax
lab@esnnw.com

Analysis of Total Lead in Soil by Method 6020A/3050B

Sample Number	Date Prepared	Date Analyzed	Lead (Pb) (mg/kg)
Method Blank	8/11/2017	8/14/2017	nd
B-14-55	8/11/2017	8/14/2017	nd
B-11-30	8/11/2017	8/14/2017	nd
B-11-30 Duplicate	8/11/2017	8/14/2017	nd
Reporting Limit			5.0

"nd" Indicates not detected at listed detection limits.

QA/QC Data - Analysis of Total Metals in Soil by Method 6020A/3050B

Sample Number: B-11-30

	Matrix Spike			Matrix Spike Duplicate			RPD
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	(%)
Lead (Pb)	86.6	85.0	98.2	83.0	80.7	97.2	0.95

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 75%-125%

	Laboratory Control Sample		
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)
Lead (Pb)	200	194	97.0

ACCEPTABLE RECOVERY LIMITS FOR LABORATORY CONTROL SAMPLES: 80%-120%
ACCEPTABLE RPD IS 20%

S1708071.1

ESN Environmental Services Network
NORTHWEST, INC.

CHAIN-OF-CUSTODY RECORD

CLIENT: ES Engineering Services
ADDRESS: 4156 B. Pl NW Ste. 106 Auburn WA 98001
PHONE: 253-656-4856 FAX:
CLIENT PROJECT #: 123245 PROJECT MANAGER: Laura Skow

DATE: 8/7/2017 PAGE 1 OF 1
PROJECT NAME: Site No. 2840
LOCATION: 12807 Des Moines Memorial Dr. Burien
COLLECTOR: Nick Olivier DATE OF COLLECTION: 8/7/17

Sample Number	Depth	Time	Sample Type	Container Type	TPH - HCID	TPH - Diesel & Oil	TPH - Gasoline	BTEX	VOC 8260CL	VOC 8260	SemiVol 8270	PAH's 8270	PCB's 8082	Cl Pesticides 8081	RCRA 8 Metals	MTCA 5 Metals	Pb Total	Asbestos - PLM	GRO Suite	DRO Suite	WO Suite	NOTES	Total Number of Containers	Laboratory Note Number
1. B-14-25	25.0	11:00	SOIL JAR	GRAB	X	X	X															24 HR TAT	3	
2. B-14-30	30.0	11:10	↓	SOIL	X	X			X													↓	3	
3.																								
4.																								
5. B-14-20	20.0	11:40	SOIL	JAR/	X	X			X													5 DAY TAT	3	
6. B-14-55	30.0	11:30		VOA	X	X	X									X						↓	3	
7.																								
8. B-11-10	10	13:00	SOIL	JAR/	X	X			X													5 DAY TAT	3	
9. B-11-15	15	13:30	↓	VOA	X	X																↓	3	
10. B-11-30	30	13:40	↓	↓	X	X										X						↓	3	
11.																								
12.																								
13.																								
14.																								
15.																								
16.																								
17.																								
18.																								

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME
	8/7/17	14:00	8-7-17 1408
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	10
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

Turn Around Time: 24 HR 48 HR (5 DAY)

1210 Eastside Street SE, Suite 200
Olympia, Washington 98501
Phone: 360-459-4670
Fax: 360-459-3432
Website: www.esnnw.com
E-Mail: info@esnnw.com

Aug 07 2017 15:46 HP LASERJET FAX 4259579904 P.1

ESN NORTHWEST CHEMISTRY LABORATORY

ES Engineering Services
PROJECT SITE NO 2840
PROJECT #123245
Burien, Washington

ESN Northwest
1210 Eastside Street SE Suite 200
Olympia, WA 98501
(360) 459-4670 (360) 459-3432 Fax
lab@esnnw.com

Analysis of Diesel Range Organics & Lube Oil Range Organics in Soil by Method NWTPH-Dx Extended

Sample Number	Date Prepared	Date Analyzed	Surrogate Recovery (%)	Diesel Range Organics (mg/kg)	Lube Oil Range Organics (mg/kg)
Method Blank	8/9/2017	8/9/2017	120	nd	nd
LCS	8/9/2017	8/9/2017	80	114%	---
B-14-35	8/9/2017	8/9/2017	102	nd	nd
B-14-45	8/9/2017	8/9/2017	111	nd	nd
Reporting Limits				50	100

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 50% TO 150%

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ES Engineering Services
PROJECT SITE NO 2840
PROJECT #123245
Burien, Washington

ESN Northwest
1210 Eastside Street SE Suite 200
Olympia, WA 98501
(360) 459-4670 (360) 459-3432 Fax
lab@esnnw.com

Analysis of Gasoline Range Organics & BTEX in Soil by Method NWTPH-Gx/8260

Sample Number	Date Prepared	Date Analyzed	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Gasoline Range Organics (mg/kg)	Surrogate Recovery (%)
Method Blank	8/10/2017	8/10/2017	nd	nd	nd	nd	nd	118
LCS	8/10/2017	8/10/2017	91%	99%	88%	81%	88%	124
LCSD	8/10/2017	8/10/2017	96%	93%	82%	77%	---	116
B-14-45	8/7/2017	8/10/2017	nd	nd	nd	nd	nd	114
Reporting Limits			0.02	0.05	0.05	0.15	10	

"---" Indicates not tested for component.
"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Bromoflurorbenzene) & LCS : 65% TO 135%

ESN NORTHWEST CHEMISTRY LABORATORY

ES Engineering Services
SITE NO 2840 PROJECT
Client Project #123245
Burien, Washington

ESN Northwest
1210 Eastside Street SE Suite 200
Olympia, WA 98501
(360) 459-4670 (360) 459-3432 Fax
lab@esnnw.com

Analysis of Semivolatile Organic Compounds in Soil by Method 8270

Analytical Results

		MTH BLK	LCS	B-14-35	MS	MSD	RPD
Date extracted	Reporting	08/09/17	08/09/17	08/09/17	08/09/17	08/09/17	08/09/17
Date analyzed	Limits	08/09/17	08/09/17	08/09/17	08/09/17	08/09/17	08/09/17
Moisture, %	(mg/kg)			6%			
Pyridine	1.0	nd		nd			
Aniline	1.0	nd		nd			
Phenol	1.0	nd	125%	nd			
2-Chlorophenol	1.0	nd		nd			
Bis (2-chloroethyl) ether	1.0	nd		nd			
1,3-Dichlorobenzene	1.0	nd		nd			
1,4-Dichlorobenzene	1.0	nd	110%	nd	108%	120%	11%
1,2-Dichlorobenzene	1.0	nd		nd			
Benzyl alcohol	1.0	nd		nd			
Hexacholorethane	1.0	nd		nd			
N-Nitroso-di-n-propylamine	1.0	nd	161%	nd	138%	132%	4%
3,4-Methylphenol (m,p-cresol)	1.0	nd		nd			
2-Methylphenol (o-cresol)	1.0	nd		nd			
Bis (2-chloroisopropyl) ether	5.0	nd		nd			
Nitrobenzene	1.0	nd		nd			
Isophorone	1.0	nd		nd			
2-Nitrophenol	5.0	nd	93%	nd			
2,4-Dimethylphenol	1.0	nd		nd			
Bis (2-chloroethoxy) methane	1.0	nd		nd			
2,4-Dichlorophenol	5.0	nd		nd			
1,2,4-Trichlorobenzene	1.0	nd	107%	nd	111%	127%	13%
Naphthalene	1.0	nd		nd			
4-Chloroaniline	5.0	nd		nd			
Hexachlorobutadiene	1.0	nd	16%	nd			
4-Chloro-3-methylphenol	5.0	nd	133%	nd			
2-Methylnapthalene	1.0	nd		nd			
1-Methylnapthalene	1.0	nd		nd			
Hexachlorocyclopentadiene	1.0	nd		nd			
2,4,6-Trichlorophenol	5.0	nd	94%	nd			
2,4,5-Trichlorophenol	5.0	nd		nd			
2-Chloronaphthalene	1.0	nd		nd			
2-Nitroaniline	5.0	nd		nd			
1,4-Dinitrobenzene	5.0	nd		nd			
Acenaphthylene	0.1	nd		nd			
1,3-Dinotrobenzene	5.0	nd		nd			
Dimethylphthalate	1.0	nd		nd			
2,6-Dinitrotoluene	1.0	nd		nd			
1,2-Dinitrobenzene	1.0	nd		nd			
Acenaphthene	0.1	nd	128%	nd	125%	160%	25%
2,4-Dinitrophenol	5.0	nd		nd			
2,4-Dinitrotoluene	1.0	nd	130%	nd			
4-Nitrophenol	5.0	nd	124%	nd			
Dibenzofuran	1.0	nd		nd			
2,3,4,6-Tetrachlorophenol	1.0	nd		nd			
2,3,5,6-Tetrachlorophenol	1.0	nd		nd			
Fluorene	0.1	nd		nd			

ESN NORTHWEST CHEMISTRY LABORATORY

ES Engineering Services
SITE NO 2840 PROJECT
Client Project #123245
Burien, Washington

ESN Northwest
1210 Eastside Street SE Suite 200
Olympia, WA 98501
(360) 459-4670 (360) 459-3432 Fax
lab@esnnw.com

Analysis of Semivolatile Organic Compounds in Soil by Method 8270

Analytical Results

		MTH BLK	LCS	B-14-35	MS	MSD	RPD
Date extracted	Reporting	08/09/17	08/09/17	08/09/17	08/09/17	08/09/17	08/09/17
Date analyzed	Limits	08/09/17	08/09/17	08/09/17	08/09/17	08/09/17	08/09/17
Moisture, %	(mg/kg)			6%			
4-Chlorophenylphenylether	1.0	nd		nd			
Diethylphthalate	1.0	nd		nd			
4-Nitroaniline	5.0	nd		nd			
4,6-Dinitro-2-methylphenol	5.0	nd		nd			
N-nitrosodiphenylamine	1.0	nd		nd			
Azobenzene	1.0	nd		nd			
4-Bromophenylphenylether	1.0	nd		nd			
Hexachlorobenzene	1.0	nd		nd			
Pentachlorophenol	5.0	nd	77%	nd			
Phenanthrene	0.1	nd		nd			
Anthracene	0.1	nd		nd			
Carbazole	1.0	nd		nd			
Di-n-butylphthalate	1.0	nd		nd			
Fluoranthene	0.1	nd		nd			
Pyrene	0.1	nd	107%	nd	148%	160%	8%
Butylbenzylphthalate	1.0	nd		nd			
Bis(2-ethylhexyl) adipate	1.0	nd		nd			
Benzo(a)anthracene	0.1	nd		nd			
Chrysene	0.1	nd		nd			
Bis (2-ethylhexyl) phthalate	1.0	nd		nd			
Di-n-octyl phthalate	1.0	nd		nd			
Benzo(b)fluoranthene	0.1	nd		nd			
Benzo(k)fluoranthene	0.1	nd		nd			
Benzo(a)pyrene	0.1	nd	101%	nd			
Dibenzo(a,h)anthracene	0.1	nd		nd			
Benzo(ghi)perylene	0.1	nd		nd			
Indeno(1,2,3-cd)pyrene	0.1	nd		nd			

Surrogate recoveries					
2-Fluorophenol	110%	125%	95%	110%	110%
Phenol-d6	126%	138%	108%	123%	117%
Nitrobenzene-d5	138%	134%	103%	146%	143%
2-Fluorobiphenyl	99%	98%	80%	108%	106%
2,4,6-Tribromophenol	67%	99%	66%	61%	66%
4-Terphenyl-d14	96%	93%	82%	109%	114%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits

Acceptable Recovery limits:

2-Flurophenol: 10-135 %
Phenol - d5: 10-135 %
2,4,6- tribromophenol: 29-159%
Nitrobenzene - d5: 20-120 %
2-Flurobiphenyl: 50-150%
p-Terphenyl-d14: 50-150%
Acceptable RPD limit: 35%

ESN NORTHWEST, INC. | Environmental Services Network

PO # 1010305

CHAIN-OF-CUSTODY RECORD

CLIENT: ES Engineering Services
ADDRESS: 4150 B Pl. NW Ste. 106, Auburn WA 98001
PHONE: 253-656-4856 FAX:
CLIENT PROJECT #: 123245 PROJECT MANAGER: Laura Skow

DATE: 8/9/17 PAGE 1 OF 1
PROJECT NAME: Site No. 2840
LOCATION: 12807 Des Moines Memorial Dr. Burien
COLLECTOR: Nick Olivier DATE OF COLLECTION: 8/7/17

Sample Number	Depth	Time	Sample Type	Container Type	TPH - HCID	TPH - Diesel & Oil	TPH - Gasoline	BTEX	VOC 8260CL	VOC 8260	SemiVol 8270	PAH's 8270	PCB's 8082	CL Pesticides 8081	RCRA 8 Metals	MTCA 5 Metals	Pb (total)	Asbestos - PLM	GRO Suite	DRO Suite	WO Suite	NOTES	Total Number of Containers	Laboratory Note Number
1. B-14-35	35		SOIL	JAR	X					X						X							1	
2.																								
3. B-14-45	45		SOIL	JAR/VOA	X	X	X																3	
4.																								
5.																								
6.																								
7.																								
8.																								
9.																								
10.																								
11.																								
12.																								
13.																								
14.																								
15.																								
16.																								
17.																								
18.																								

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME
	8/9/17 11:30		8/9/17 1130
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

Turn Around Time: 24 HR 48 HR (5 DAY)

1210 Eastside Street SE, Suite 200
Olympia, Washington 98501
Phone: 360-459-4670
Fax: 360-459-3432
Website: www.esnnw.com
E-Mail: info@esnnw.com

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PROJECT SITE NO 2840
PROJECT #123245
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Olympia, WA 98501
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Analysis of Diesel Range Organics & Lube Oil Range Organics in Soil by Method NWTPH-Dx Extended

Sample Number	Date Prepared	Date Analyzed	Surrogate Recovery (%)	Diesel Range Organics (mg/kg)	Lube Oil Range Organics (mg/kg)
Method Blank	8/9/2017	8/9/2017	120	nd	nd
LCS	8/9/2017	8/9/2017	80	114%	---
B-15-10	8/9/2017	8/9/2017	136	nd	nd
B-15-20	8/9/2017	8/9/2017	155	nd	nd
B-15-35	8/9/2017	8/9/2017	133	nd	nd
B-12-7.5	8/9/2017	8/9/2017	132	nd	nd
B-12-10	8/9/2017	8/9/2017	141	nd	nd
B-12-15	8/9/2017	8/9/2017	149	nd	nd
B-12-15 Duplicate	8/9/2017	8/9/2017	137	nd	nd
B-12-25	8/9/2017	8/9/2017	144	nd	nd
B-12-35	8/9/2017	8/9/2017	129	nd	nd
Reporting Limits				50	100

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 50% TO 150%

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ESN Northwest
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Analysis of Gasoline Range Organics & BTEX in Soil by Method NWTPH-Gx/8260

Sample Number	Date Prepared	Date Analyzed	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Gasoline Range Organics (mg/kg)	Surrogate Recovery (%)
Method Blank	8/8/2017	8/8/2017	nd	nd	nd	nd	nd	118
LCS	8/8/2017	8/8/2017	84%	71%	69%	66%	72%	125
LCSD	8/8/2017	8/8/2017	88%	74%	72%	70%	---	122
B-13-40	8/8/2017	8/8/2017	nd	nd	nd	nd	nd	112
B-13-50	8/8/2017	8/8/2017	nd	nd	nd	nd	nd	110
Reporting Limits			0.02	0.05	0.05	0.15	10	

"---" Indicates not tested for component.
"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Bromoflurorbenzene) & LCS : 65% TO 135%

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Burien, Washington

ESN Northwest
1210 Eastside Street SE Suite 200
Olympia, WA 98501
(360) 459-4670 (360) 459-3432 Fax
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Analysis of Gasoline Range Organics in Soil
by Method NWTPH-Gx

Sample Number	Date Prepared	Date Analyzed	Surrogate Recovery (%)	Gasoline Range Organics (mg/kg)
Method Blank	8/8/2017	8/8/2017	114	nd
LCS	8/8/2017	8/8/2017	107	72%
B-14-35	8/7/2017	8/8/2017	106	nd
B-13-15	8/8/2017	8/8/2017	113	nd
B-13-35	8/8/2017	8/8/2017	116	nd
Reporting Limits				10

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 50% TO 150%

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PROJECT #123245
Burien, Washington

ESN Northwest
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(360) 459-4670 (360) 459-3432 Fax
lab@esnnw.com

Analysis of Volatile Organic Compounds in Soil by Method 8260C/5035

	RL	MB	LCS	LCSD	B-14-35	B-13-15	B-13-35
Date extracted		08/08/17	08/08/17	08/08/17	08/07/17	08/08/17	08/08/17
Date analyzed	(mg/Kg)	08/08/17	08/08/17	08/08/17	08/08/17	08/08/17	08/08/17
% Moisture					11%	15%	18%
Dichlorodifluoromethane	0.05	nd			nd	nd	nd
Chloromethane	0.05	nd			nd	nd	nd
Vinyl chloride	0.02	nd	90%	110%	nd	nd	nd
Bromomethane	0.05	nd			nd	nd	nd
Chloroethane	0.05	nd			nd	nd	nd
Trichlorofluoromethane	0.05	nd			nd	nd	nd
Acetone	0.25	nd			nd	nd	nd
Hexane	0.05	nd			nd	nd	nd
1,1-Dichloroethene	0.05	nd	96%	98%	nd	nd	nd
Methylene chloride	0.05	nd			nd	nd	nd
Methyl-t-butyl ether (MTBE)	0.05	nd			nd	nd	nd
trans-1,2-Dichloroethene	0.05	nd			nd	nd	nd
1,1-Dichloroethane	0.05	nd			nd	nd	nd
2-Butanone (MEK)	0.25	nd			nd	nd	nd
cis-1,2-Dichloroethene	0.05	nd			nd	nd	nd
2,2-Dichloropropane	0.05	nd			nd	nd	nd
Chloroform	0.05	nd	97%	98%	nd	nd	nd
Bromochloromethane	0.05	nd			nd	nd	nd
1,1,1-Trichloroethane	0.05	nd			nd	nd	nd
1,2-Dichloroethane (EDC)	0.05	nd			nd	nd	nd
1,1-Dichloropropene	0.05	nd			nd	nd	nd
Carbon tetrachloride	0.05	nd			nd	nd	nd
Benzene	0.02	nd	92%	93%	nd	nd	nd
Trichloroethene (TCE)	0.02	nd	93%	89%	nd	nd	nd
1,2-Dichloropropane	0.05	nd	115%	111%	nd	nd	nd
Dibromomethane	0.05	nd			nd	nd	nd
Bromodichloromethane	0.05	nd			nd	nd	nd
4-Methyl-2-pentanone (MIBK)	0.25	nd			nd	nd	nd
cis-1,3-Dichloropropene	0.05	nd			nd	nd	nd
Toluene	0.05	nd	69%	71%	nd	nd	nd
trans-1,3-Dichloropropene	0.05	nd			nd	nd	nd
1,1,2-Trichloroethane	0.05	nd			nd	nd	nd
2-Hexanone	0.25	nd			nd	nd	nd
1,3-Dichloropropane	0.05	nd			nd	nd	nd
Dibromochloromethane	0.05	nd			nd	nd	nd
Tetrachloroethene (PCE)	0.02	nd	72%	76%	nd	nd	nd
1,2-Dibromoethane (EDB)	0.05	nd			nd	nd	nd
Chlorobenzene	0.05	nd	70%	76%	nd	nd	nd
1,1,1,2-Tetrachloroethane	0.05	nd			nd	nd	nd
Ethylbenzene	0.05	nd	65%	69%	nd	nd	nd
Xylenes	0.15	nd	74%	80%	nd	nd	nd
Styrene	0.05	nd			nd	nd	nd
Bromoform	0.05	nd			nd	nd	nd
1,1,2,2-Tetrachloroethane	0.05	nd			nd	nd	nd
Isopropylbenzene	0.05	nd			nd	nd	nd
1,2,3-Trichloropropane	0.05	nd			nd	nd	nd
Bromobenzene	0.05	nd			nd	nd	nd

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PROJECT #123245
Burien, Washington

ESN Northwest
1210 Eastside Street SE Suite 200
Olympia, WA 98501
(360) 459-4670 (360) 459-3432 Fax
lab@esnnw.com

Analysis of Volatile Organic Compounds in Soil by Method 8260C/5035

	RL	MB	LCS	LCSD	B-14-35	B-13-15	B-13-35
Date extracted		08/08/17	08/08/17	08/08/17	08/07/17	08/08/17	08/08/17
Date analyzed	(mg/Kg)	08/08/17	08/08/17	08/08/17	08/08/17	08/08/17	08/08/17
% Moisture					11%	15%	18%
n-Propylbenzene	0.05	nd			nd	nd	nd
2-Chlorotoluene	0.05	nd			nd	nd	nd
4-Chlorotoluene	0.05	nd			nd	nd	nd
1,3,5-Trimethylbenzene	0.05	nd			nd	nd	nd
tert-Butylbenzene	0.05	nd			nd	nd	nd
1,2,4-Trimethylbenzene	0.05	nd			nd	nd	nd
sec-Butylbenzene	0.05	nd			nd	nd	nd
1,3-Dichlorobenzene	0.05	nd			nd	nd	nd
1,4-Dichlorobenzene	0.05	nd			nd	nd	nd
Isopropyltoluene	0.05	nd			nd	nd	nd
1,2-Dichlorobenzene	0.05	nd			nd	nd	nd
n-Butylbenzene	0.05	nd			nd	nd	nd
1,2-Dibromo-3-Chloropropane	0.05	nd			nd	nd	nd
1,2,4-Trichlorobenzene	0.05	nd			nd	nd	nd
Naphthalene	0.05	nd			nd	nd	nd
Hexachloro-1,3-butadiene	0.05	nd			nd	nd	nd
1,2,3-Trichlorobenzene	0.05	nd			nd	nd	nd
Surrogate recoveries							
Dibromofluoromethane		116%	119%	121%	90%	101%	89%
Toluene-d8		97%	94%	93%	96%	95%	93%
4-Bromofluorobenzene		118%	115%	125%	109%	116%	120%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%

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Olympia, WA 98501
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Analysis of Semivolatile Organic Compounds in Soil by Method 8270

Analytical Results

		MTH BLK	LCS	B-15-20	B-12-15	MS	MSD	RPD
Date extracted	Reporting	08/09/17	08/09/17	08/09/17	08/09/17	08/09/17	08/09/17	08/09/17
Date analyzed	Limits	08/09/17	08/09/17	08/09/17	08/09/17	08/09/17	08/09/17	08/09/17
Moisture, %	(mg/kg)			8%	10%			
Pyridine	1.0	nd		nd	nd			
Aniline	1.0	nd		nd	nd			
Phenol	1.0	nd	125%	nd	nd			
2-Chlorophenol	1.0	nd		nd	nd			
Bis (2-chloroethyl) ether	1.0	nd		nd	nd			
1,3-Dichlorobenzene	1.0	nd		nd	nd			
1,4-Dichlorobenzene	1.0	nd	110%	nd	nd	108%	120%	11%
1,2-Dichlorobenzene	1.0	nd		nd	nd			
Benzyl alcohol	1.0	nd		nd	nd			
Hexacholorethane	1.0	nd		nd	nd			
N-Nitroso-di-n-propylamine	1.0	nd	161%	nd	nd	138%	132%	4%
3,4-Methylphenol (m,p-cresol)	1.0	nd		nd	nd			
2-Methylphenol (o-cresol)	1.0	nd		nd	nd			
Bis (2-chloroisopropyl) ether	5.0	nd		nd	nd			
Nitrobenzene	1.0	nd		nd	nd			
Isophorone	1.0	nd		nd	nd			
2-Nitrophenol	5.0	nd	93%	nd	nd			
2,4-Dimethylphenol	1.0	nd		nd	nd			
Bis (2-chloroethoxy) methane	1.0	nd		nd	nd			
2,4-Dichlorophenol	5.0	nd		nd	nd			
1,2,4-Trichlorobenzene	1.0	nd	107%	nd	nd	111%	127%	13%
Naphthalene	1.0	nd		nd	nd			
4-Chloroaniline	5.0	nd		nd	nd			
Hexachlorobutadiene	1.0	nd	116%	nd	nd			
4-Chloro-3-methylphenol	5.0	nd	133%	nd	nd			
2-Methylnapthalene	1.0	nd		nd	nd			
1-Methylnapthalene	1.0	nd		nd	nd			
Hexachlorocyclopentadiene	1.0	nd		nd	nd			
2,4,6-Trichlorophenol	5.0	nd	94%	nd	nd			
2,4,5-Trichlorophenol	5.0	nd		nd	nd			
2-Chloronaphthalene	1.0	nd		nd	nd			
2-Nitroaniline	5.0	nd		nd	nd			
1,4-Dinitrobenzene	5.0	nd		nd	nd			
Acenaphthylene	0.1	nd		nd	nd			
1,3-Dinotrobenzene	5.0	nd		nd	nd			
Dimethylphthalate	1.0	nd		nd	nd			
2,6-Dinitrotoluene	1.0	nd		nd	nd			
1,2-Dinitrobenzene	1.0	nd		nd	nd			
Acenaphthene	0.1	nd	128%	nd	nd	125%	160%	25%
2,4-Dinitrophenol	5.0	nd		nd	nd			
2,4-Dinitrotoluene	1.0	nd	130%	nd	nd			
4-Nitrophenol	5.0	nd	124%	nd	nd			
Dibenzofuran	1.0	nd		nd	nd			
2,3,4,6-Tetrachlorophenol	1.0	nd		nd	nd			
2,3,5,6-Tetrachlorophenol	1.0	nd		nd	nd			
Fluorene	0.1	nd		nd	nd			

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Analysis of Semivolatile Organic Compounds in Soil by Method 8270

Analytical Results

		MTH BLK	LCS	B-15-20	B-12-15	MS	MSD	RPD
Date extracted	Reporting	08/09/17	08/09/17	08/09/17	08/09/17	08/09/17	08/09/17	08/09/17
Date analyzed	Limits	08/09/17	08/09/17	08/09/17	08/09/17	08/09/17	08/09/17	08/09/17
Moisture, %	(mg/kg)			8%	10%			
4-Chlorophenylphenylether	1.0	nd		nd	nd			
Diethylphthalate	1.0	nd		nd	nd			
4-Nitroaniline	5.0	nd		nd	nd			
4,6-Dinitro-2-methylphenol	5.0	nd		nd	nd			
N-nitrosodiphenylamine	1.0	nd		nd	nd			
Azobenzene	1.0	nd		nd	nd			
4-Bromophenylphenylether	1.0	nd		nd	nd			
Hexachlorobenzene	1.0	nd		nd	nd			
Pentachlorophenol	5.0	nd	77%	nd	nd			
Phenanthrene	0.1	nd		nd	nd			
Anthracene	0.1	nd		nd	nd			
Carbazole	1.0	nd		nd	nd			
Di-n-butylphthalate	1.0	nd		nd	nd			
Fluoranthene	0.1	nd		nd	nd			
Pyrene	0.1	nd	107%	nd	nd	148%	160%	8%
Butylbenzylphthalate	1.0	nd		nd	nd			
Bis(2-ethylhexyl) adipate	1.0	nd		nd	nd			
Benzo(a)anthracene	0.1	nd		nd	nd			
Chrysene	0.1	nd		nd	nd			
Bis (2-ethylhexyl) phthalate	1.0	nd		nd	nd			
Di-n-octyl phthalate	1.0	nd		nd	nd			
Benzo(b)fluoranthene	0.1	nd		nd	nd			
Benzo(k)fluoranthene	0.1	nd		nd	nd			
Benzo(a)pyrene	0.1	nd	101%	nd	nd			
Dibenzo(a,h)anthracene	0.1	nd		nd	nd			
Benzo(ghi)perylene	0.1	nd		nd	nd			
Indeno(1,2,3-cd)pyrene	0.1	nd		nd	nd			
Surrogate recoveries								
2-Fluorophenol		110%	125%	115%	107%	110%	110%	
Phenol-d6		126%	138%	110%	121%	123%	117%	
Nitrobenzene-d5		138%	134%	119%	145%	146%	143%	
2-Fluorobiphenyl		99%	98%	108%	108%	108%	106%	
2,4,6-Tribromophenol		67%	99%	79%	72%	61%	66%	
4-Terphenyl-d14		96%	93%	125%	120%	109%	114%	

Data Qualifiers and Analytical Comments
nd - not detected at listed reporting limits
Acceptable Recovery limits:
2-Flurophenol: 10-135 %
Phenol - d5: 10-135 %
2,4,6- tribromophenol: 29-159%
Nitrobenzene - d5: 20-120 %
2-Flurobiphenyl: 50-150%
p-Terphenyl-d14: 50-150%
Acceptable RPD limit: 35%

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ESN Northwest
1210 Eastside Street SE Suite 200
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(360) 459-4670 (360) 459-3432 Fax
lab@esnnw.com

Total Metals in Soil by EPA-6020 Series

Sample Number	Date Analyzed	Lead (Pb) (mg/kg)	Cadmium (Cd) (mg/kg)	Chromium (Cr) (mg/kg)	Arsenic (As) (mg/kg)	Silver (Ag) (mg/kg)	Barium (Ba) (mg/kg)	Selenium (Se) (mg/kg)	Mercury (Hg) (mg/kg)
Method Blank	8/15/2017	nd	nd	nd	nd	nd	nd	nd	nd
B-15-20	8/15/2017	nd	**1.9**	**29**	nd	nd	nd	nd	nd
B-12-15	8/15/2017	nd	nd	**23**	nd	nd	nd	nd	nd
Reporting Limits		5.0	1.0	5.0	5.0	20	50	20	0.5

"nd" Indicates not detected at listed detection limits.

QA/QC Data - Total Metals EPA-6020

Sample Number: QC Batch	Matrix Spike			Matrix Spike Duplicate			RPD
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	(%)
Lead	86.6	79.4	91.7	83.0	79.3	95.5	4.1
Cadmium	86.6	78.7	90.9	83.0	79.4	95.7	5.1
Chromium	86.6	96.5	111	83.0	92.4	111	0.1
Arsenic	86.6	84.7	97.8	83.0	84.0	101	3.4
Silver	86.6	53.2	61.4M	83.0	53.6	64.6M	5.0
Barium	86.6	83.4	96.3	83.0	83.0	100	3.8
Selenium	86.6	79.6	91.9	83.0	79.0	95.2	3.5
Mercury	8.66	8.06	93.1	8.30	8.15	98.2	5.4

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 75%-125%
ACCEPTABLE RPD IS 20%
M - Matrix Spike recovery failed due to matrix interference.

	Laboratory Control Sample		
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)
Lead	100	109	109
Cadmium	100	116	116
Chromium	100	106	106
Arsenic	100	112	112
Silver	100	82.2	82.2
Barium	100	108	108
Selenium	100	115	115
Mercury	10.0	11.0	110

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 80%-120%

ESN NORTHWEST CHEMISTRY LABORATORY

ES Engineering Services
PROJECT SITE NO 2840
PROJECT #123245
Burien, Washington

ESN Northwest
1210 Eastside Street SE Suite 200
Olympia, WA 98501
(360) 459-4670 (360) 459-3432 Fax
lab@esnnw.com

Analysis of Total Lead in Soil by Method 6020A/3050B

Sample Number	Date Prepared	Date Analyzed	Lead (Pb) (mg/kg)
Method Blank	8/11/2017	8/14/2017	nd
B-13-50	8/11/2017	8/14/2017	nd
B-13-35	8/11/2017	8/14/2017	nd
B-14-35	8/11/2017	8/14/2017	nd
B-14-35 Duplicate	8/11/2017	8/14/2017	nd
Reporting Limit			5.0

"nd" Indicates not detected at listed detection limits.

QA/QC Data - Analysis of Total Metals in Soil by Method 6020A/3050B

Sample Number: QC Batch	Matrix Spike			Matrix Spike Duplicate			RPD
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	(%)
Lead (Pb)	86.6	85.0	98.2	83.0	80.7	97.2	0.95

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 75%-125%

	Laboratory Control Sample		
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)
Lead (Pb)	200	194	97.0

ACCEPTABLE RECOVERY LIMITS FOR LABORATORY CONTROL SAMPLES: 80%-120%
ACCEPTABLE RPD IS 20%

ACCU LABORATORY

12524 130th Lane NE
Kirkland WA 98034

Tel: (425) 214-5858
(425) 214-5868
Email: lisa@accu-lab.com
Website: www.accu-lab.com

Analytical Report

Client	**ESN NW, Inc**	**Acculab WO#**	**17-AL0815-3**
	1210 Eastside Street SE, Suite #200		
	Olympia, WA 98501	Date Sampled	8/7/2017
Project Manager	Steve Loague	Date Received	8/15/2017
Project Name	**Site No. 2840**	Date Reported	8/17/2017
Project#			

Polychlorinated Biphenyls in Soil by EPA 8082A/3550C

Accu Lab Analytical Batch# AL081517-2

Client sample ID					**B15-20**	**B12-15**	**MS B12-15**	**MSD B12-15**	**RPD B12-15**
Lab ID	**MRL**	**Unit**	**MTH BLK**	**LCS**	17-AL0815-3-1	17-AL0815-3-2	17-AL0815-3-2	17-AL0815-3-2	17-AL0815-3-2
Matrix			Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date Extracted			8/15/2017	8/15/2017	8/15/2017	8/15/2017	8/15/2017	8/15/2017	8/15/2017
Date Analyzed			8/15/2017	8/15/2017	8/15/2017	8/15/2017	8/15/2017	8/15/2017	8/15/2017
Moisture (%)					16%	20%	20%	20%	20%
A1016	0.1	mg/Kg	nd		nd	nd			
A1221	0.1	mg/Kg	nd		nd	nd			
A1232	0.1	mg/Kg	nd		nd	nd			
A1242	0.1	mg/Kg	nd		nd	nd			
A1248	0.1	mg/Kg	nd		nd	nd			
A1254	0.1	mg/Kg	nd		nd	nd			
A1260	0.1	mg/Kg	nd	88%	nd	nd	101%	78%	26%
A1262	0.1	mg/Kg	nd		nd	nd			
Surrogate Recoveries									
Decachlorobiphenyl			112%	117%	107%	107%	114%	100%	
Tetrachloro-m-xylene			77%	88%	96%	95%	83%	71%	

Acceptable Recovery Limits:

Surrogates 70-130%

LCS/ MS/MSD 65-135%

Acceptable RPD limit: 30%

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ACCU LABORATORY

12524 130th Lane NE
Kirkland WA 98034

Tel: (425) 214-5858
(425) 214-5868
Email: lisa@accu-lab.com
Website: www.accu-lab.com

Analytical Report

Client	**ESN NW, Inc**	**Acculab WO#**	**17-AL0815-3**
	1210 Eastside Street SE, Suite #200		
	Olympia, WA 98501	Date Sampled	8/7/2017
Project Manager	Steve League	Date Received	8/15/2017
Project Name	**Site No. 2840**	Date Reported	8/17/2017
Project#			

Data Qualifiers and Comments:

Results reported on dry-weight basis for soil samples.

MRL- Method Reporting Limit
nd- Indicates the analyte is not detected at the listing reporting limit.
C- Coelution with other compounds.
M- % Recovery of surrogate, MS/MSD is out of the acceptable limit due to matrix effect.
B- Indicates the analyte is detected in the method blank associated with the sample.
J- The analyte is detected at below the reporting limit.
E- The result reported exceeds the calibration range, and is an estimate.
D- Sample required dilution due to matrix. Method Reporting Limits were elevated due to dilutions.
H- Sample was received or analyzed past holding time
Q- Sample was received with head space, improper preserved or above recommended temperature.

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ESN NORTHWEST, INC. | Environmental Services Network

CHAIN-OF-CUSTODY RECORD

CLIENT: ES Engineering Services LLC
ADDRESS: 4150 B Pl. NW Ste. 106 Auburn WA 98001
PHONE: 253-656-4856 FAX:
CLIENT PROJECT #: 123245 PROJECT MANAGER: Laura Skow

DATE: 8/8/2017 PAGE 1 OF 1
PROJECT NAME: Site No. 2840
LOCATION: 12807 Des Moines Memorial Dr. Burien WA
COLLECTOR: Nick Olivier DATE OF COLLECTION: 8/7-8/17

Sample Number	Depth	Time	Sample Type	Container Type	TPH - HCID	TPH - Diesel & Oil	TPH - Gasoline	BTEX	VOC 8260CL	VOC 8260	SemiVol 8270	PAH's 8270	PCB's 8082	CL Pesticides 8081	RCRA 8 Metals	MTCA 5 Metals	Pb Total	Asbestos - PLM	GRO Suite	DRO Suite	WO Suite	Naphs 8270	NOTES	Total Number of Containers	Laboratory Note Number
1. B-14-35	35	11:15	SOIL	VOA		X			α					X									24 hour TAT	2	
2. B-13-15	15	11:00	↓			α	α		X															3	
3. B-13-35	35	11:10				α	α		X															3	
4.																									
5. B-13-40	40	11:20	SOIL	AMW		α	α																Standard TAT	3	
6. B-13-50	50	11:30				α	α									X									
7. B-13-35	35	11:10														α									
8. B-15-10	10	14:30			α																		(8/7/17)		
9. B-15-20	20	14:45			α					X	X			X									(8/7/17)		
10. B-15-35	35	15:00			α																		(8/7/17)		
11. B-12-7.5	7.5	8:40			α																				
12. B-12-10	10	8:50			α																NO X				
13. B-12-15	15	9:10			α					X	X			α											
14. B-12-25	25	8:55			α																				
15. B-12-35	35	9:00	↓	↓	α																			3	
16.																									
17.																									
18.																									

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME
	8/8/17 13:30		8-8-17 1330
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

Turn Around Time: 24 HR 48 HR 5 DAY

1210 Eastside Street SE, Suite 200
Olympia, Washington 98501
Phone: 360-459-4670
Fax: 360-459-3432
Website: www.esnnw.com
E-Mail: info@esnnw.com

Aug 08 2017 12:43 HP LASERJET FAX 4259579904 p.1

APPENDIX L

NON-HAZARDOUS WASTE MANIFESTS

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

170428762 3

NON-HAZARDOUS WASTE MANIFEST	1. Generator's US EPA ID No. NONEREQUIRED	Manifest Document No. 287623	2. Page 1 of 1/2

GENERATOR

3. Generator's Name and Mailing Address
Eagle Canyon Capital, LLC
3130 Crow Canyon Place. Suite 240
San Ramon CA 94583

Site Address :
12807 Des Moines Memorial Drive
Burien,WA 98168

4. Generator's Phone ( )

5. Transporter 1 Company Name: Clean Harbors Environmental Services, Inc.
6. US EPA ID Number: MAD039322250
A. State Transporter's ID
B. Transporter 1 Phone (781) 792-5000

7. Transporter 2 Company Name: TSMT
8. US EPA ID Number: MUDC95C38 296
C. State Transporter's ID
D. Transporter 2 Phone

9. Designated Facility Name and Site Address
Clean Harbors Grassy Mountain LLC
3 Miles East 7 Miles North of Knolls
Knolls, UT 84083
10. US EPA ID Number: UTD991301748
E. State Facility's ID
F. Facility's Phone (435) 884-8900

11. WASTE DESCRIPTION	Containers No.	Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NOT REGULATED BY DOT. (SOIL)	016	DM	12,800	P
b. NOT REGULATED BY DOT. (WATER)	001	DM	400	P
c.				
d.				

G. Additional Descriptions for Materials Listed Above
11a.CH1498386 15X55 1X85
11b.CH1498390 1X55

H. Handling Codes for Wastes Listed Above
H132
H132

15. Special Handling Instructions and Additional Information
EMERGENCY PHONE #: (800) 483-3718
GENERATOR: Eagle Canyon Capital, LLC

NON-HAZARDOUS WASTE

16. **GENERATOR'S CERTIFICATION:** I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name: Nick Olivier
Signature:
Date: Month 8 Day 24 Year 17

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Lou Adams II
Signature:
Date: Month 8 Day 25 Year 17

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name: RAY FRANKLIN
Signature:
Date: Month 8 Day 28 Year 17

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.
Printed/Typed Name: Tina Romillala
Signature: 20170125 45
Date: Month 9 Day 8 Year 17

PRINTED ON RECYCLED PAPER USING SOYBEAN INK
PRINTED WITH SOY INK

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)	21. Generator ID Number	22. Page	23. Manifest Tracking Number
	NONEREQUIRED	2	NONHAZ287623

24. Generator's Name: EAGLE CANYON CAPITAL — SAME

25. Transporter 3 Company Name: Clean Harbors Environmental Services Inc. — U.S. EPA ID Number: MAD039322250

26. Transporter _____ Company Name — U.S. EPA ID Number:

27a. HM	27b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers No.	28. Containers Type	29. Total Quantity	30. Unit Wt./Vol.	31. Waste Codes
	TPO					

32. Special Handling Instructions and Additional Information

GENERATOR

TRANSPORTER

33. Transporter 3 Acknowledgment of Receipt of Materials

Printed/Typed Name: Lynnsey Skinner — Signature: Lynnsey Skinner — Month: 8 Day: 30 Year: 17

34. Transporter _____ Acknowledgment of Receipt of Materials

Printed/Typed Name — Signature — Month — Day — Year

DESIGNATED FACILITY

35. Discrepancy

36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

EPA Form 8700-22A (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

APPENDIX M

KING COUNTY ASSESSOR'S PROPERTY REPORT

Department of Assessments

500 Fourth Avenue, Suite ADM-AS-0708, Seattle, WA 98104

Office Hours: Mon - Fri 8:30 a.m. to 4:30 p.m.

TEL: 206-296-7300
FAX: 206-296-5107
TTY: 206-296-7888

Send us mail

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PARCEL

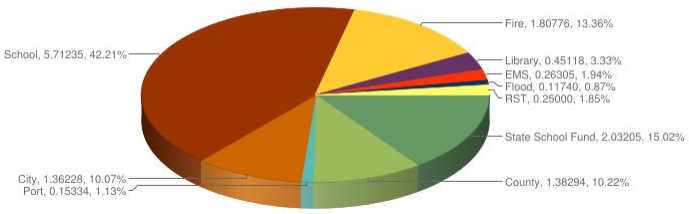
Parcel Number	162304-9066
Name	GTY-PACIFIC LEASING LLC
Site Address	12807 DES MOINES MEMORIAL DR S 98168
Legal	POR OF NW 1/4 LY S OF S 128TH ST & NWLY OF DES MOINES WAY S & ELY & NELY OF LN RNG S 00-00-23 W 89.98 FT FR PT ON S MGN OF SD S 128TH ST 135.17 FT E OF NXN WITH SELY MGN OF 15TH AVE S BOTH AS NOW LOCATED TH S 70-25-34 E 100.55 FT TO NWLY MGN OF SD DES MOINES WAY S

BUILDING 1

Year Built	1966
Building Net Square Footage	1512
Construction Class	MASONRY
Building Quality	AVERAGE
Lot Size	13066
Present Use	Conv Store with Gas
Views	No
Waterfront	

TOTAL LEVY RATE DISTRIBUTION

Tax Year: 2017 **Levy Code:** 0933 **Total Levy Rate:** $13.53235 **Total Senior Rate:** $7.42615



48.97% Voter Approved

Click here to see levy distribution comparison by year.

TAX ROLL HISTORY

Valued Year	Tax Year	Appraised Land Value ($)	Appraised Imps Value ($)	Appraised Total ($)	Taxable Land Value ($)	Taxable Imps Value ($)	Taxable Total ($)
2016	2017	169,800	225,900	395,700	169,800	225,900	395,700
2015	2016	169,800	231,600	401,400	169,800	231,600	401,400
2014	2015	169,800	242,000	411,800	169,800	242,000	411,800
2013	2014	169,800	250,300	420,100	169,800	250,300	420,100
2012	2013	169,800	257,600	427,400	169,800	257,600	427,400
2011	2012	169,800	264,600	434,400	169,800	264,600	434,400
2010	2011	195,900	190,700	386,600	195,900	190,700	386,600
2009	2010	195,900	198,200	394,100	195,900	198,200	394,100
2008	2009	195,900	211,000	406,900	195,900	211,000	406,900
2007	2008	195,800	187,100	382,900	195,800	187,100	382,900
2006	2007	195,900	184,500	380,400	195,900	184,500	380,400
2005	2006	130,600	185,800	316,400	130,600	185,800	316,400
2004	2005	130,600	184,600	315,200	130,600	184,600	315,200
2003	2004	130,600	186,400	317,000	130,600	186,400	317,000
2002	2003	130,600	186,500	317,100	130,600	186,500	317,100
2001	2002	130,600	165,400	296,000	130,600	165,400	296,000

Reference Links:

- King County Taxing Districts Codes and Levies (.PDF)
- King County Tax Links
- Property Tax Advisor
- Washington State Department of Revenue (External link)
- Washington State Board of Tax Appeals (External link)
- Board of Appeals/Equalization
- Districts Report
- iMap
- Recorder's Office

Scanned images of surveys and other map documents

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2000	2001	104,500	165,600	270,100	104,500	165,600	270,100
1999	2000	104,500	116,200	220,700	104,500	116,200	220,700
1998	1999	104,500	77,000	181,500	104,500	77,000	181,500
1997	1998	0	0	0	104,500	77,000	181,500
1996	1997	0	0	0	65,300	116,200	181,500
1994	1995	0	0	0	65,300	116,200	181,500
1992	1993	0	0	0	65,300	111,000	176,300
1990	1991	0	0	0	45,700	98,100	143,800
1988	1989	0	0	0	54,000	89,800	143,800
1986	1987	0	0	0	48,600	65,500	114,100
1984	1985	0	0	0	48,600	65,500	114,100
1982	1983	0	0	0	48,600	65,400	114,000

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Updated: March 17, 2016

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APPENDIX N

DEPARTMENT OF ECOLOGY WELL LOGS

The Department of Ecology does NOT Warrant the Data and/or the Information on this Well Report.

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

23/04-16 D
Application No.

Permit No.

(1) OWNER: Name Seattle Water Department Address Exchange Building, 2nd & Marion, Seattle 98104

(2) LOCATION OF WELL: County King NE¼NE¼ NW¼ NW¼ Sec. 16 T. 24 N R 4E W.M.
Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☒
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) TW-2I
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☒ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 20 inches.
Drilled 297 ft. Depth of completed well 297 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 20 " Diam. from 0 ft. to 297 ft.
Threaded ☐ " Diam. from ft. to ft.
Welded ☐ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☒
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☒ No ☐
Manufacturer's Name Johnson
Type Stainless steel Model No Watermark
Diam. Slot size Varying from 216 ft. to 295 ft.
Diam. Slot size 080 & 015 from ft. to ft.

Gravel packed: Yes ☐ No ☒ Size of gravel:
Gravel placed from ft. to ft.

Surface seal: Yes ☒ No ☐ To what depth? 18 ft.
Material used in seal cement grout
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name —
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level 358 ft.
Static level 78.7 ft. below top of well Date 7-18-84
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☐ If yes, by whom?
Yield: 2190 gal./min. with 80 ft. drawdown after 96.0 hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test July 22-27, 1985
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 ☐

(10) WELL LOG:
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
See log of aw-2I for geology of upper portion of hole		
Brown, sandy, cobbly, GRAVEL		204
Brown, layered, fine sandy SILT & very hard laminated SILT	204	209
Brown, sandy, GRAVEL	209	271
Gray, sandy GRAVEL	271	295
Greenish-gray, sandy, gravelly SILT	295	297
Geology by RC Prior Hart Crowser & Assoc. Inc		

Work started June 14, 1985 Completed June 27, 1985

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 Hokkaido Drilling & Developing Corp.
(Person, firm, or corporation) (Type or print)
Address 10416-244th St. E. P.O. Box 100 Graham, Wn 98338
[Signed] (Well Driller)
License No. 1146 Date 5-11, 19 87

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

23/04-16 D

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy -- Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Application No.

Permit No.

(1) OWNER: Name Seattle Water Dept. Address Exchange Building, 2nd & Marion, 98104

(2) LOCATION OF WELL: County King NE¼NE¼ — NW¼ NE¼ Sec. 16 T. 24N R. 4E W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☒ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) OW-2I

New well ☒ Method: Dug ☐ Bored ☐ Deepened ☐ Cable ☒ Driven ☐ Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 8 inches. Drilled 300.5 ft. Depth of completed well 300 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 8" Diam. from 0 ft. to 300 ft.
Threaded ☐ " Diam. from ft. to ft.
Welded ☒ " Diam. from ft. to ft.

Perforations: Yes ☒ No ☐
Type of perforator used Mills Knife
SIZE of perforations 2 in. by ½ in.
4 perfs/ft perforations from 180 ft. to 290 ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☒ No ☐ PVC screen left inside steel casing, steel left in place
Manufacturer's Name Hydrophylics
Type PVC Sch. 40 Model No. 290
Diam. 2" Slot size 20 from 160 ft. to 290 ft.
Diam Slot size from ft. to ft.

Gravel packed: Yes ☒ No ☐ Size of gravel: Pea
Gravel placed from 00 ft. to 300 ft.

Surface seal: Yes ☒ No ☐ To what depth? 18' ft.
Material used in seal Cement grout
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name —
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level 360 ft.
Static level 80.9 ft. below top of well Date 7-10-85
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☒ No ☐ If yes, by whom? Hokkaido
Yield: 300 gal./min. with 2.9 ft. drawdown after 2 hrs.
" 500 " 6.0 " 6 "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
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 ☐

(10) WELL LOG:

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
Brown to grayish-brown, silty gravelly, SAND (TILL)	0	17
Brown fine to medium SAND occ. gravelly & silty zones	17	61
Blue-gray SILT & clayey SILT	61	128
Brown, silty to sli silty, f-m SAND w/ some gravelly zones	128	169
Brown, sandy GRAVEL w/ cobbles	169	299
Greenish-gray, sandy, clayey SILT w/ boulders (3)	299	300.5
Geology by EC Prior Hoff Crouser Inc		

Work started March 25, 1985 Completed April 4, 1985

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 Hokkaido Drilling & Developing Corp.
(Person, firm, or corporation) (Type or print)

Address 10416-244th St. E. P.O. Box 100 Graham, Wn 98338

[Signed] (Well Driller)

License No. 1146 Date 5-11, 19 87

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

RECEIVED
FEB 06 1989
DEPARTMENT OF ECOLOGY
NORTHWEST REGION

Well Report Change Form

IMPORTANT: GET AS MUCH INFORMATION AS POSSIBLE. THIS FORM WILL BE USED TO FIND THE WELL REPORT. ALL REQUIRED FIELDS MUST BE FILLED IN. USE INK PEN ONLY WHEN FILLING OUT THIS FORM.

(REQUIRED) This Well Report has been changed on (Date) _____/_____/_____

(Required) Person Requesting Change _____

(Required) Contact Phone No (_____) _____

(REQUIRED) ☐ Not in NITS ☐ NITS Log ID# _____

Regional Office: ☐ CRO ☐ ERO ☐ NWRO ☐ SWRO

Well Type: ☐ Water Well ☐ Resource Protection Well

Notice of Intent # _____ Unique Ecy Well ID Tag No: _____

(Required) Original Owner Name: _____

Well Street Address: _____

City: _____ County: _____ Zip Code: _____

Geographic Location:

(Required) _____ 1/4 of the _____ 1/4 Section _____ Township _____ Range _____ EWM or WWM *(circle one)*

(Optional) Lat Degrees _____ Lat Time _____

Long Degrees _____ Long Time _____ Horizontal collection method code _____

Tax Parcel No (include all zeros and dashes): _____

Type of Work: ☐ New Well ☐ Reconditioned ☐ Deepened

Well Report Recvd Date: ____/____/____ Well Completed Date: ____/____/____

Well Diameter (in): _____ Well Depth (ft): _____ Other: _____

Driller License No: _____ Trainee License No: _____

Other (Specify): _____

(Required) Reason for Change _____

(Required) Tracker Signature: _____

Data Entry Error - Image removed not changed.

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

APPENDIX O

COMPLETED TERRESTRIAL ECOLOGICAL EVALUATION

Voluntary Cleanup Program

Washington State Department of Ecology
Toxics Cleanup Program

TERRESTRIAL ECOLOGICAL EVALUATION FORM

Under the Model Toxics Control Act (MTCA), a terrestrial ecological evaluation is necessary if hazardous substances are released into the soils at a Site. In the event of such a release, you must take one of the following three actions as part of your investigation and cleanup of the Site:

1. Document an exclusion from further evaluation using the criteria in WAC 173-340-7491.
2. Conduct a simplified evaluation as set forth in WAC 173-340-7492.
3. Conduct a site-specific evaluation as set forth in WAC 173-340-7493.

When requesting a written opinion under the Voluntary Cleanup Program (VCP), you must complete this form and submit it to the Department of Ecology (Ecology). The form documents the type and results of your evaluation. You still need to submit your evaluation as part of your cleanup plan or report.

If you have questions about how to conduct a terrestrial ecological evaluation, please contact the Ecology site manager assigned to your Site. For additional guidance, please refer to www.ecy.wa.gov/programs/tcp/policies/terrestrial/TEEHome.htm.

Step 1: IDENTIFY HAZARDOUS WASTE SITE	
Please identify below the hazardous waste site for which you are documenting an evaluation.	
Facility/Site Name: Convenience Retails 2840/Jackpot Station 284/Time Oil 01-284	
Facility/Site Address: 12807 Des Moines Memorial Drive, Burien, Washington	
Facility/Site No: 45191292	VCP Project No.: n/a

Step 2: IDENTIFY EVALUATOR			
Please identify below the person who conducted the evaluation and their contact information.			
Name: Nicholas J. Olivier		Title: Project Geologist	
Organization: ES Engineering Services, LLC			
Mailing address: 4150 B Pl. NW, Suite 106			
City: Auburn		State: WA	Zip code: 98001
Phone: 253-656-4856	Fax:	E-mail: nolivier@es-online.com	

Step 3: DOCUMENT EVALUATION TYPE AND RESULTS

A. Exclusion from further evaluation.

1. Does the Site qualify for an exclusion from further evaluation?

☐ Yes *If you answered **"YES,"** then answer **Question 2**.*

■ No or Unknown *If you answered **"NO" or "UKNOWN,"** then skip to **Step 3B** of this form.*

2. What is the basis for the exclusion? *Check all that apply. Then skip to **Step 4** of this form.*

Point of Compliance: WAC 173-340-7491(1)(a)

☐ All soil contamination is, or will be,* at least 15 feet below the surface. ***NOTE: NO SOIL CONTAMINATION HAS BEEN DETECTED***

☐ All soil contamination is, or will be,* at least 6 feet below the surface (or alternative depth if approved by Ecology), and institutional controls are used to manage remaining contamination.

Barriers to Exposure: WAC 173-340-7491(1)(b)

☐ All contaminated soil, is or will be,* covered by physical barriers (such as buildings or paved roads) that prevent exposure to plants and wildlife, and institutional controls are used to manage remaining contamination.

Undeveloped Land: WAC 173-340-7491(1)(c)

☐ There is less than 0.25 acres of contiguous[#] undeveloped[±] land on or within 500 feet of any area of the Site and any of the following chemicals is present: chlorinated dioxins or furans, PCB mixtures, DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosulfan, endrin, heptachlor, heptachlor epoxide, benzene hexachloride, toxaphene, hexachlorobenzene, pentachlorophenol, or pentachlorobenzene.

☐ For sites not containing any of the chemicals mentioned above, there is less than 1.5 acres of contiguous[#] undeveloped[±] land on or within 500 feet of any area of the Site.

Background Concentrations: WAC 173-340-7491(1)(d)

☐ Concentrations of hazardous substances in soil do not exceed natural background levels as described in WAC 173-340-200 and 173-340-709.

* An exclusion based on future land use must have a completion date for future development that is acceptable to Ecology.

[±] "Undeveloped land" is land that is not covered by building, roads, paved areas, or other barriers that would prevent wildlife from feeding on plants, earthworms, insects, or other food in or on the soil.

[#] "Contiguous" undeveloped land is an area of undeveloped land that is not divided into smaller areas of highways, extensive paving, or similar structures that are likely to reduce the potential use of the overall area

B. Simplified evaluation.

1. Does the Site qualify for a simplified evaluation?

■ Yes *If you answered **"YES,"** then answer **Question 2** below.*

☐ No or Unknown *If you answered **"NO"** or **"UNKNOWN,"** then skip to **Step 3C** of this form.*

2. Did you conduct a simplified evaluation?

■ Yes *If you answered **"YES,"** then answer **Question 3** below.*

☐ No *If you answered **"NO,"** then skip to **Step 3C** of this form.*

3. Was further evaluation necessary?

☐ Yes *If you answered **"YES,"** then answer **Question 4** below.*

■ No *If you answered **"NO,"** then answer **Question 5** below.*

4. If further evaluation was necessary, what did you do?

☐ Used the concentrations listed in Table 749-2 as cleanup levels. *If so, then skip to **Step 4** of this form.*

☐ Conducted a site-specific evaluation. *If so, then skip to **Step 3C** of this form.*

5. If no further evaluation was necessary, what was the reason? *Check all that apply. Then skip to **Step 4** of this form.*

Exposure Analysis: WAC 173-340-7492(2)(a)

■ Area of soil contamination at the Site is not more than 350 square feet.

☐ Current or planned land use makes wildlife exposure unlikely. Used Table 749-1.

Pathway Analysis: WAC 173-340-7492(2)(b)

☐ No potential exposure pathways from soil contamination to ecological receptors.

Contaminant Analysis: WAC 173-340-7492(2)(c)

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 15 feet at concentrations that exceed the values listed in Table 749-2.

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 6 feet (or alternative depth if approved by Ecology) at concentrations that exceed the values listed in Table 749-2, and institutional controls are used to manage remaining contamination.

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 15 feet at concentrations likely to be toxic or have the potential to bioaccumulate as determined using Ecology-approved bioassays.

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 6 feet (or alternative depth if approved by Ecology) at concentrations likely to be toxic or have the potential to bioaccumulate as determined using Ecology-approved bioassays, and institutional controls are used to manage remaining contamination.

C. Site-specific evaluation. A site-specific evaluation process consists of two parts: (1) formulating the problem, and (2) selecting the methods for addressing the identified problem. Both steps require consultation with and approval by Ecology. *See* WAC 173-340-7493(1)(c).

1. Was there a problem? *See* WAC 173-340-7493(2).

☐ Yes *If you answered **"YES,"** then answer **Question 2** below.*

☐ No *If you answered **"NO,"** then identify the reason here and then skip to **Question 5** below:*

- ☐ No issues were identified during the problem formulation step.
- ☐ While issues were identified, those issues were addressed by the cleanup actions for protecting human health.

2. What did you do to resolve the problem? *See* WAC 173-340-7493(3).

☐ Used the concentrations listed in Table 749-3 as cleanup levels. *If so, then skip to **Question 5** below.*

☐ Used one or more of the methods listed in WAC 173-340-7493(3) to evaluate and address the identified problem. *If so, then answer **Questions 3 and 4** below.*

3. If you conducted further site-specific evaluations, what methods did you use?
Check all that apply. See WAC 173-340-7493(3).

- ☐ Literature surveys.
- ☐ Soil bioassays.
- ☐ Wildlife exposure model.
- ☐ Biomarkers.
- ☐ Site-specific field studies.
- ☐ Weight of evidence.
- ☐ Other methods approved by Ecology. If so, please specify:

4. What was the result of those evaluations?

- ☐ Confirmed there was no problem.
- ☐ Confirmed there was a problem and established site-specific cleanup levels.

5. Have you already obtained Ecology's approval of both your problem formulation and problem resolution steps?

☐ Yes If so, please identify the Ecology staff who approved those steps:

☐ No

Step 4: SUBMITTAL

Please mail your completed form to the Ecology site manager assigned to your Site. If a site manager has not yet been assigned, please mail your completed form to the Ecology regional office for the County in which your Site is located.

Northwest Region: Attn: Sara Nied 3190 160th Ave. SE Bellevue, WA 98008-5452	**Central Region:** Attn: Mark Dunbar 15 W. Yakima Ave., Suite 200 Yakima, WA 98902
Southwest Region: Attn: Scott Rose P.O. Box 47775 Olympia, WA 98504-7775	**Eastern Region:** Attn: Patti Carter N. 4601 Monroe Spokane WA 99205-1295

If you need this publication in an alternate format, please call the Toxics Cleanup Program at 360-407-7170. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.